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Supporting Data FY 1998/1999 Budget Estimate
Submitted to Congress - February 1997

DESCRIPTIVE SUMMARIES OF THE



**RESEARCH, DEVELOPMENT, TEST AND EVALUATION
Army Appropriation, Budget Activities 4 and 5**

Department of the Army
Office of the Secretary of the Army (Financial Management and Comptroller)

"READINESS THROUGH MODERNIZATION"

VOLUME II

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**DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS
OF THE
RESEARCH, DEVELOPMENT, TEST AND
EVALUATION, ARMY
FY 1998/1999
FEBRUARY 1997**

**VOLUME II
Budget Activities 4 and 5**

**Department of the Army
Office of the Assistant Secretary of the Army (Financial Management and Comptroller)**

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**FY 1998/1999 RDT&E, ARMY
PROGRAM ELEMENT DESCRIPTIVE SUMMARIES**

INTRODUCTION AND EXPLANATION OF CONTENTS

1. General. This section has been prepared for the purpose of providing information concerning the Army Research, Development, Test and Evaluation program. The Descriptive Summaries are comprised of R-2 (Budget Item Justification Sheet) and R-3 (RDT&E Program Element/Project Cost Breakdown) Exhibits which provide narrative information on all RDT&E program elements and projects for the FY 1996, 1997, 1998 and 1999 time period.

2. Relationship of the FY 1998/1999 Budget Submission to the FY 1997 Budget submitted to Congress . This paragraph provides a list of program elements restructured, transitioned, or established to provide specific program identification.

A. Program Element Restructures. Explanations for these changes can be found in the narrative sections of the Program Element R-2/R-3 Exhibits.

OLD <u>PE/PROJECT</u>	<u>NEW PROJECT TITLE</u>	NEW <u>PE/PROJECT</u>
0601102A/S16	Science Base/Combat Casualty Care Research	0601102A/S14
0602618A/H81, 0603004A/43A	Liquid Propellant Technology Program	0602618A/H37
0602624A/H28	Fuze Technology	0602624A/H36
0602712A/H24	Camouflage Technology	0602712A/H35
0602785A/791	Personnel System/Performance Technology	0602785A/790
0602787A/825	Combat Casualty Care Technology	0602787A/874
0603001A/XXA	Force XXI Land Warrior	0603001A/J50
0603003A/D368	Improved Cargo Helicopter	0203744A/D430
0603004A/L95	Landmine Warfare Dev	0603004A/43A
0603007A/793	Training Sys and Education	0603007A/792
0603313A/D380	Guided MLRS	0603778A/D784
0604760A/DC77	Computer Generated Forces	0604760A/DC78
0605601A/DE90, DE91, DE92, DE93,	Army Test Ranges and Facilities	0605601A/DF30

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D618,D632 & D630

A. Program Element Restructures (continued).

OLD <u>PE/PROJECT</u>	<u>NEW PROJECT TITLE</u>	NEW <u>PE/PROJECT</u>
0605601A/D630	Non-Major System Test & Design Evaluation	0605601A/D699
0605641A/D670, D671, D672, D672, D675 & D678	Survivability Evaluation	0605604A/D734
0605706A/D026	Major Systems Test, Design and Evaluation	0605706A/M542
0303142A/D384 & /D386	Automated Communications Manage- ment System	0303142A/D559

B. FY 1998 Developmental Transitions .

<u>FROM PE/PROJECT</u>	<u>PROJECT TITLE</u>	<u>TO PE/PROJECT</u>
0602120A/AH15	Dismounted Soldier Combat Identification (CID)	0604817A/D902
0602303A/214	2.75" Anti-Air Tech Demo	0603313A/549
0603313A/387	Multi-Purpose Individual Munition	0604802A/284

C. Establishment of New FY 1998 Program Elements/Projects. There are no major system new starts. Minor new initiatives for FY 1998, in addition to Congressionally directed initiatives for FY 1997, are shown below with asterisks. The remaining programs listed are outyear initiatives or restructures beyond FY 1998 or were previously funded from other Defense appropriations.

<u>TITLE</u>	<u>PE/PROJECT</u>
Voice Instructional Device*	0602601A/AH39
Plasma Energy Pyrolysis System*	0602720A/A876
Western Environmental Technology Office (WETO) Environmental Support*	0602720A/A877
Neurotoxin Exposure Treatment*	0602787A/A838
Cancer Signal/Cancer Cell Proliferation*	0602787A/A839

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Computer-Assisted Minimally Invasive Surgery* 0602787A/A841
ENT Minimally Invasive Simulation* 0602787A/A842

C. Establishment of New FY 1998 Program Elements/Projects (continued).

<u>TITLE</u>	<u>PE/PROJECT</u>
Health Technology Roadmaps*	0602787A/A843
Hepatitis A Vaccine*	0602787A/A844
Trichloromelamine*	0603002A/D813
Neurofibromatosis*	0603002A/D814
National Medical Testbed*	0603002A/D815
Computer-Based Decision Support Systems*	0603002A/D816
Computer-Aided Diagnostic Research*	0603002A/D817
Advanced Cancer Detection Center*	0603002A/D818
Nautilus/THEL*	0603308A/D989
Battle Integration Center*	0603308A/D997
LCPK for 2.75 Inch Rockets	0603313A/A567
Advanced Light Anti-Armor Weapon System (ALAWS)*	0603607A/D664
Future Combat System	0603645A/DQ19
LTASS	0603774AD598
Future Scout Vehicle - Advanced Development*	0603645A/D018
Suite of Integrated Infrared Countermeasures Op Test*	0604270A/D2VT
Arm Treatment & Transport Vehicle	0604640A/DG28
Future Scout Vehicle - EMD	0604645A/D022
Mounted Warrior*	0604713A/D680
XM982*	0604802A/D695
Army Systems Engineering & Warfighting Technical Spt*	0604805A/D589
Modernization of Utilities*	0605678A/M744
Survivability Evaluation	0605604A/D734
Ground Combat Vehicle HTI*	0203735A/D718
Bradley A3 P3I (BFV A4)	0203735A/D377
Guardrail Common Sensor	0203744A/D028
UH-60 Door Gun*	0203744A/D504
Force XXI Initiatives*	0203758A/D376
Longbow Hellfire PIP	0203802A/D785
Joint Precision Approach Landing System (JPALS)	0305114A/D711

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MLRS Army Technical Architecture*	0603778A/D093
Weapons Systems Modernization Software Maintenance	0708045A/DE26

D. FY 1998 programs for which funding was shown in the FY 1997 President's Budget Submit (February 1996), but which are no longer funded .

<u>PE/PROJECT</u>	<u>TITLE</u>	<u>BRIEF EXPLANATION</u>
0203735A/D2UT	Abrams IOTE	Funds transferred to system line.
0601101A/91E	ILIR-ARI	Program terminated
0601102A/S16	Science Base/Combat Dentistry Research	Program terminated
0602120A/H25	Nuc Effects Surv Tech	Program terminated
0602624A/H23	Non-Lethal Weapons Technology	Program terminated
0602783A/094	Tactical Software Technology	Program terminated
0603627A/E79	Smoke, Obscurant - Advanced Development	Funds transferred to system line
0602787A/825	Combat Maxillofacial Injury	Program terminated
0603001A/594	Metrology & Calibration	Program terminated
0603001A/J28	Test Measurement Technology Development	Program terminated

Descriptive summaries for PE 0603806A - NBC Defense Systems, AD and PE 0604806A - NBC Defense Systems, ED are not provided in this Army submission. Since these programs were transferred to Defense RDT&E in FY 1996, program details are available in the Defense RDT&E submission under PE 0603884BP and PE 0604384BP.

3. Classification. This document contains no classified data. Classified/Special Access Programs which are submitted offline are listed below.

0203735A/DC64	0603003A/DB38/D391	0603710A/DC63
0203806A	0603005A/DC62	0603851A
0203808A	0603009A	0603854A/DC68
0602601A/AC84/DC83	0603013A	0604649A/DG15
0602104A	0603017A	0604328A/DC71
0602122A	0603018A	
0602712A/AC61	0603020A	
0602786A/AC60	0603322A	

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Department of the Army
FY 1998/1999 RDT&E Program

Exhibit R-1

Summary

Date: Feb 1997

	Thousands of Dollars			
	FY 1996	FY 1997	FY 1998	FY 1999
<u>Summary Recap of Budget Activities</u>				
Basic Research	181,722	179,059	198,854	210,349
Applied Research	450,837	551,558	462,935	493,665
Advanced Technology Development	580,033	677,676	418,322	431,696
Demonstration and Validation	454,454	558,250	523,395	445,831
Engineering and Manufacturing Development	1,124,738	1,141,159	1,107,393	1,162,925
RDT&E Management Support	1,234,657	1,072,165	1,136,576	1,108,382
Operational Systems Development	<u>730,971</u>	<u>750,761</u>	<u>663,368</u>	<u>643,876</u>
Total Research Development Test & Eval Army	4,757,412	4,930,628	4,510,843	4,496,724
<u>Summary Recap of FYDP Programs</u>				
Strategic Forces	4,000	26,376	86,193	134,298
General Purpose Forces	560,107	541,129	403,355	354,129
Intelligence and Communications	64,814	72,633	89,316	68,413
Research and Development (FYDP Program 6)	4,094,970	4,242,671	3,874,153	3,874,693
Central Supply and Maintenance	23,699	47,819	44,326	50,086
Administration and Assoc Activities	322	0	0	0
Support of Other Nations	<u>9,500</u>	<u>0</u>	<u>13,500</u>	<u>15,105</u>
Total Research Development Test & Eval Army	4,757,412	4,930,628	4,510,843	4,496,724

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Department of the Army
FY 1998/1999 RDT&E Program

Exhibit R-1

Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line No	Element Number	Item	Act	Thousands of Dollars			
				FY 1996	FY 1997	FY 1998	FY 1999
1	0601101A	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	1	13,657	14,393	15,113	15,828
2	0601102A	DEFENSE RESEARCH SCIENCES	1	121,822	119,739	138,165	141,555
3	0601104A	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	1	46,243	44,927	45,576	52,966
		Basic Research		181,722	179,059	198,854	210,349
4	0602104A	TRACTOR ROSE	2	2,484	3,065	0	0
5	0602105A	MATERIALS TECHNOLOGY	2	9,858	14,530	9,811	10,979
6	0602120A	SENSORS AND ELECTRONIC SURVIVABILITY	2	26,675	19,351	19,294	19,682
7	0602122A	TRACTOR HIP	2	5,603	7,981	7,242	8,170
8	0602211A	AVIATION TECHNOLOGY	2	17,853	21,898	27,282	30,281
9	0602270A	EW TECHNOLOGY	2	14,651	15,510	16,528	18,151
10	0602303A	MISSILE TECHNOLOGY	2	17,535	29,144	22,335	24,002
11	0602308A	MODELING & SIMULATION TECHNOLOGY	2	19,466	20,652	21,059	24,287
12	0602601A	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY	2	35,040	34,312	33,112	33,360
13	0602618A	BALLISTICS TECHNOLOGY	2	34,647	39,913	33,317	37,598
14	0602622A	CHEMICAL, SMOKE AND EQUIP DEFEATING TECHNOLOG	2	1,728	2,259	4,739	6,691
15	0602623A	JOINT SERVICE SMALL ARMS PROGRAM	2	4,857	4,497	4,786	5,204
16	0602324A	WEAPONS AND MUNITIONS TECHNOLOGY	2	24,297	22,246	26,980	30,613
17	0602705A	ELECTRONICS AND ELECTRONIC DEVICES	2	21,134	24,351	20,192	22,374
18	0602709A	NIGHT VISION TECHNOLOGY	2	16,442	16,636	17,304	19,213
19	0602712A	COUNTERMINE SYSTEMS DEVELOPMENT	2	0	7,372	10,598	10,715
20	0602716A	HUMAN FACTORS ENGINEERING TECHNOLOGY	2	15,445	15,968	14,256	15,626
21	0602720A	ENVIRONMENTAL QUALITY TECHNOLOGY	2	25,537	55,178	17,519	13,869
22	0602782A	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOG	2	13,130	14,976	16,838	18,180
23	0602783A	COMPUTER AND SOFTWARE TECHNOLOGY	2	3,843	6,500	679	337
24	0602784A	MILITARY ENGINEERING TECHNOLOGY	2	33,734	38,060	36,422	40,112
25	0602785A	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	2	7,254	9,329	9,014	9,019
26	0602786A	LOGISTICS TECHNOLOGY	2	26,995	21,319	17,689	18,565
27	0602787A	MEDICAL TECHNOLOGY	2	70,575	104,332	74,684	75,307
28	0602789A	ARMY ARTIFICIAL INTELLIGENCE TECHNOLOGY	2	2,054	2,179	1,255	1,330
		Applied Research		450,837	551,558	462,935	493,665
		ix					
29	0603001A	LOGISTICS ADVANCED TECHNOLOGY	3	38,820	22,724	35,469	32,197
30	0603002A	MEDICAL ADVANCED TECHNOLOGY	3	90,591	201,198	10,677	10,959

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Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line No	Element Number	Item	Act	Thousands of Dollars			
				FY 1996	FY 1997	FY 1998	FY 1999
31	0603003A	AVIATION ADVANCED TECHNOLOGY	3	48,320	56,165	31,330	29,921
32	0603004A	WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY	3	29,119	29,122	18,255	29,717
33	0603005A	COMBAT VEHICLE AND AUTOMATIVE ADVANCED TECH	3	26,363	28,811	32,685	59,573
34	0603006A	COMMAND, CONTROL, COMM ADVANCED TECHNOLOGY	3	29,323	29,379	19,688	20,911
35	0603007A	MANPOWER, PERSONNEL AND TRAINING ADV TECH	3	4,576	4,406	3,003	3,006
36	0603009A	TRACTOR HIKE	3	23,016	16,791	14,350	9,574
37	0603013A	TRACTOR DIRT	3	1,713	3,265	3,393	2,448
38	0603017A	TRACTOR RED	3	5,369	8,445	5,572	4,953
39	0603020A	TRACTOR ROSE	3	4,731	4,971	9,204	9,111
40	0603105A	MILITARY HIV RESEARCH	3	2,795	17,544	2,713	3,162
41	0603238A	Global Surveillance/Air Defense/Precision Strike Technology Den	3	37,630	22,009	11,664	4,926
42	0603270A	EW TECHNOLOGY	3	3,818	6,651	8,182	11,754
43	0603313A	MISSILE AND ROCKET ADVANCED TECHNOLOGY	3	109,972	99,819	117,139	89,542
44	0603322A	TRACTOR CAGE	3	8,088	8,651	6,412	5,353
45	0603606A	LANDMINE WARFARE AND BARRIER ADV TECHNOLOGY	3	25,006	27,629	19,332	19,778
46	0603607A	JOINT SERVICE SMALL ARMS PROGRAM	3	4,516	9,049	4,754	5,148
47	0603654A	LINE-OF-SIGHT TECHNOLOGY DEMO	3	13,396	9,791	13,000	20,000
48	0603710A	NIGHT VISION ADVANCED TECHNOLOGY	3	31,142	29,761	19,299	19,250
49	0603734A	MILITARY ENGINEERING ADVANCED TECHNOLOGY	3	14,544	20,213	12,231	17,334
50	0603772A	ADV TACTICAL COMPUTER SCIENCE & SENSOR TECH	3	<u>27,185</u>	<u>21,282</u>	<u>19,970</u>	<u>23,079</u>
		Advanced Technology Development		580,033	677,676	418,322	431,696
51	0603018A	TRACTOR TREAD	4	14,158	2,329	0	0
52	0603308A	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	4	23,443	66,462	24,138	12,637
53	0603619A	LANDMINE WARFARE AND BARRIER - ADV DEV	4	35,768	27,860	18,882	11,214
54	0603627A	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-AD	4	2,623	6,246	0	0
55	0603639A	ARMAMENT ENHANCEMENT INITIATIVE	4	58,227	63,240	40,313	18,982
56	0603640A	ARTILLERY PROPELLANT DEVELOPMENT	4	20,811	8,322	8,521	0
57	0603645A	ARMORED SYSTEMS MODERNIZATION-ADVANCED DEVI	4	181,647	7,803	2,007	2,008
		x					
58	0603649A	ENGINEER MOB EQUIP ADVANCED DEV	4	13,591	0	0	0
59	0603653A	ADVANCED TANK ARMAMENT SYSTEM	4	9,335	11,395	8,982	8,928
60	0603713A	ARMY DATA DISTRIBUTION SYTEM	4	6,360	23,170	21,214	10,049
61	0603745A	TACTICAL ELECTRONIC SUPPORT SYSTEMS - ADV DEV	4	5,630	3,941	0	0

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Department of the Army
FY 1998/1999 RDT&E Program

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Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line No	Element Number	Program Item	Act	Thousands of Dollars			
				FY 1996	FY 1997	FY 1998	FY 1999
62	0603747A	SOLDIER SUPPORT AND SURVIVABILITY	4	6,709	6,541	7,557	7,680
63	0603766A	TAC EXPLOIT OF NAT CAP (TENCAP)-DEM/VAL TIARA	4	26,796	25,354	20,920	23,714
64	0603774A	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	4	3,167	2,769	2,939	2,893
65	0603790A	NATO RESEARCH AND DEVELOPMENT (H)	4	0	9,755	13,168	11,169
66	0603801A	AVIATION - ADV DEV	4	12,893	13,104	7,132	7,450
67	0603802A	WEAPONS AND MUNITIONS - ADV DEV	4	949	0	0	0
68	0603804A	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	4	5,587	7,433	6,783	6,833
69	0603805A	CBT SERVICE SUPPORT CONTROL SYS EVAL & ANALYS	4	13,228	12,689	7,673	7,783
70	0603807A	MEDICAL SYSTEMS - ADV DEV	4	9,878	9,996	6,765	8,700
71	0603851A	TRACTOR CAGE (Dem/Val)	4	3,234	3,001	1,948	1,627
72	0603854A	ARTILLERY SYSTEMS DEMONSTRATION/VALIDATION	4	0	238,590	324,380	294,495
73	0603856A	SCAMP BLOCK II (SPACE)	4	0	8,250	73	9,669
74	0603889A	COUNTERDRUG R&D PROJECTS	4	<u>420</u>	<u>0</u>	<u>0</u>	<u>0</u>
		Demonstration and Validation		454,454	558,250	523,395	445,831
75	0604201A	AIRCRAFT AVIONICS	5	20,073	14,694	21,669	12,729
76	0604220A	ARMED, DEPLOYABLE OH-58D	5	688	1,130	0	0
77	0604223A	COMANCHE	5	284,131	331,424	282,009	371,927
78	0604270A	EW DEVELOPMENT	5	62,250	73,886	66,212	51,490
79	0604321A	ALL SOURCE ANALYSIS SYSTEM	5	49,912	39,308	24,045	26,228
80	0604325A	FOLLOW-ON TO TOW	5	944	5,479	13,949	50,884
81	0604328A	TRACTOR CAGE	5	0	1,524	11	303
82	0604604A	MEDIUM TACTICAL VEHICLES	5	2,923	5,874	3,729	0
83	0604609A	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ED	5	1,915	0	0	703
84	0604611A	JAVELIN (AWWS-M)	5	2,249	6,014	8,018	5,277
85	0604619A	LANDMINE WARFARE	5	29,453	26,288	19,800	23,075
86	0604622A	FAMILY OF HEAVY TACTICAL VEHICLES	5	2,605	1,958	0	0
		xi					
87	0604633A	AIR TRAFFIC CONTROL	5	5,073	7,377	1,705	1,729
88	0604640A	ADVANCED COMMAND AND CONTROL VEHICLE	5	17,306	7,734	8,867	0
89	0604641A	TACTICAL UNMANNED GROUND VEHICLE	5	0	2,823	2,687	2,663
90	0604642A	LIGHT TACTICLE WHEELED VEHICLE	5	3,970	2,937	9,909	39,919
91	0604645A	ARMORED SYSTEMS MODERNIZATION (ASM)-ENG DEV	5	32,425	6,585	0	0
92	0604649A	ENGINEER MOBILITY EQUIPMENT DEVELOPMENT	5	19,114	46,705	56,196	63,069

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FY 1998/1999 RDT&E Program

Exhibit R-1

Appropriation: 2040 A Reserach Development Test & Eval Army

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Line No	Element Number	Program Item	Act	Thousands of Dollars			
				FY 1996	FY 1997	FY 1998	FY 1999
93	0604710A	NIGHT VISION SYSTEMS - ENG DEV	5	37,658	34,870	33,456	21,255
94	0604713A	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	5	16,049	76,428	55,964	43,539
95	0604715A	NON-SYSTEM TRAINING DEVICES - ENG DEV	5	50,140	48,788	76,749	73,048
96	0604716A	TERRAIN INFORMATION - ENG DEV	5	8,509	7,144	2,942	2,686
97	0604726A	INTEGRATED METEOROLOGICAL SUPPORT SYSTEM	5	0	0	1,946	1,931
98	0604739A	JTT/CIBS-M (TIARA)	5	0	4,765	4,499	4,447
99	0604740A	TACTICAL SURVEILLANCE SYSTEM - ENG DEV	5	2,954	0	0	0
100	0604741A	AIR DEFENSE C2I - ENG DEV	5	21,810	20,031	18,350	6,698
101	0604746A	AUTOMATIC TEST EQUIPMENT DEVELOPMENT	5	10,648	9,575	2,582	2,533
102	0604760A	DISTRIBUTIVE INTERACTIVE SIMULATIONS ENG DEV	5	0	15,631	20,895	9,242
103	0604766A	TAC EXPLOIT NAT CAP (TENCAP)-EMD (TIARA)	5	23,266	15,235	19,113	19,531
104	0604768A	BRILLIANT ANTI-ARMOR SUBMUNITION(BAT)	5	190,472	161,816	202,302	129,466
105	0604770A	JOINT SURVEILLANCE/TARGET ATTACK RADAR SYSTEM	5	15,302	9,624	6,940	5,670
106	0604778A	POSITIONING SYS DEVEL (SPACE)	5	436	428	419	409
107	0604780A	COMBINED ARMS TACTICAL TRAINER (CATT)	5	56,282	26,110	2,823	2,866
108	0604801A	AVIATION - ENG DEV	5	4,885	5,403	5,109	6,067
109	0604802A	WEAPONS AND MUNITIONS - ENG DEV	5	14,845	23,661	3,577	24,865
110	0604804A	LOGISTICS & ENGINEER EQUIPMENT - ENG DEV	5	19,132	19,903	28,039	26,932
111	0604805A	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - EI	5	16,740	9,556	11,052	16,395
112	0604807A	MEDICAL MATERIEL/MED BIO DEFENSE EQUIPMENT ED	5	4,644	4,693	4,483	5,408
113	0604808A	LANDMINE WARFARE/BARRIER - ENG DEV	5	6,802	7,556	22,605	44,133
114	0604814A	SENSE AND DESTROY ARMOR - ENG DEV	5	15,764	9,934	22,372	20,813
115	0604816A	LONGBOW	5	21,969	10,644	0	0
116	0604817A	COMBAT IDENTIFICATION	5	23,669	16,411	19,784	13,379
117	0604818A	ARMY TACTICAL COMM & CONT HARDWARE & SOFTWARE	5	27,231	15,780	20,022	18,697
118	0604820A	RADAR DEVELOPMENT	5	500	0	0	0
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119	0604823A	FIREFINDER	5	0	2,496	2,564	12,022
120	0604854A	ARTILLERY SYSTEMS - ENGINEERING DEVELOPMENT	5	<u>0</u>	<u>2,937</u>	<u>0</u>	<u>897</u>
Engineering and Manufacturing Development				1,124,738	1,141,159	1,107,393	1,162,925
121	0604256A	THREAT SIMULATOR DEVELOPMENT	6	13,705	11,383	14,004	11,877
122	0604258A	TARGET SYSTEMS DEVELOPMENT	6	13,557	9,916	11,688	13,063
123	0604759A	MAJOR TEST & EVALUATION INVESTMENT	6	62,154	40,833	40,449	33,407

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Department of the Army
FY 1998/1999 RDT&E Program

Exhibit R-1

Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Line	Element	Program	Item	Act	Thousands of Dollars			
					FY 1996	FY 1997	FY 1998	FY 1999
No	Number							
124	0605103A		RAND ARROYO CENTER	6	17,895	21,108	17,576	18,040
125	0605301A		ARMY KWAJALEIN ATOLL	6	140,930	143,789	138,769	142,125
126	0605502A		SMALL BUS INV RSCH/SMALL BUS TECH PILOT PROG	6	85,919	0	0	0
127	0605601A		ARMY TEST RANGES AND FACILITIES	6	142,694	130,222	122,117	128,919
128	0605602A		ARMY TECHNOLOGY & SUSTAINING INSTRUMENTATION	6	25,422	21,944	33,184	32,976
129	0605604A		SURVIVABILITY/LETHALITY ANALYSIS	6	32,250	30,675	32,330	30,678
130	0605605A		DOD HIGH ENERGY LASER SYS TEST FAC (HELSTF)	6	33,231	29,974	14,952	14,976
131	0605606A		AIRCRAFT CERTIFICATION	6	2,821	2,840	2,919	2,924
132	0605702A		METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	6	6,458	6,348	6,434	6,658
133	0605706A		MATERIEL SYSTEMS ANALYSIS	6	17,241	14,126	29,707	28,675
134	0605709A		EXPLOITATION OF FOREIGN ITEMS	6	8,413	7,193	7,762	4,349
135	0605712A		SUPPORT OF OPERATIONAL TESTING	6	41,078	49,614	81,672	68,949
136	0605801A		PROGRAMWIDE ACTIVITIES	6	64,859	59,708	86,208	85,604
137	0605802A		INTERNATIONAL COOPERATIVE RESEARCH AND DEV	6	1,555	1,534	1,581	1,581
138	0605803A		TECHNICAL INFORMATION ACTIVITIES	6	13,549	16,552	15,451	15,872
139	0605805A		MUNITIONS STANDARDZION EFFECTIVENESS & SAFETY	6	16,692	3,211	6,317	5,895
140	0605853A		ENVIRONMENTAL CONSERVATION	6	2,493	1,723	1,778	2,977
141	0605854A		POLLUTION PREVENTION	6	11,004	13,602	5,353	4,681
142	0605856A		ENVIRONMENTAL COMPLIANCE-RDT&E	6	65,985	54,251	51,378	47,604
143	0605876A		MINOR CONSTUCTION (RPM) - RDTE	6	6,035	4,229	4,393	4,537
144	0605878A		MAINTENANCE AND REPAIR (RPM) - RDTE	6	86,907	68,580	85,119	74,681
145	0605879A		REAL PROPERTY SERVICES (RPS)	6	0	90,457	88,945	88,936
146	0605896A		BASE OPERATIONS-RDT&E	6	306,481	219,946	231,653	233,633
					xiii			
147	0605898A		MANAGEMENT HEADQUARTERS (RSCH & DEVELOPMEN'	6	15,007	18,407	4,837	4,765
148	0909999A		CLOSED ACCOUNT ADJUSTMENT	6	322	0	0	0
			RDT&E Management Support		1,234,657	1,072,165	1,136,576	1,108,382
149	0603778A		MLRS PRODUCT IMPROVEMENT PROGRAM	7	68,851	62,804	26,678	21,845
150	0102419A		AEROSTAT JOINT PROGRAM	7	4,000	26,376	86,193	134,298
151	0203726A		ADV FIELD ARTILLERY TACTICAL DATA SYSTEM	7	36,973	38,512	39,039	34,939
152	0203735A		COMBAT VEHICLE IMPROVEMENT PROGRAMS	7	206,625	206,816	136,520	69,443
153	0203740A		MANEUVER CONTROL SYSTEM	7	48,302	27,888	25,641	23,932
154	0203744A		AIRCRAFT MODIFICATIONS/PRODUCT IMPROV PROGRAM	7	4,288	22,386	2,609	28,791

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Department of the Army
FY 1998/1999 RDT&E Program

Exhibit R-1

Appropriation: 2040 A Reserach Development Test & Eval Army

Date: Feb 1997

Program		Thousands of Dollars					
Line	Element		Act	FY 1996	FY 1997	FY 1998	FY 1999
No	Number	Item					
155	0203752A	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGR	7	3,703	3,834	2,940	2,933
156	0203758A	DIGITIZATION	7	110,583	137,078	156,960	149,015
157	0203801A	MISSILE/AIR DEFENSE PRODUCT IMPRV PROGRAM	7	59,199	64,557	17,412	11,431
158	0203802A	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS	7	64,920	9,874	1,255	17,011
159	0203806A	TRACTOR RUT	7	3,346	3,112	2,111	0
160	0203808A	TRACTOR CARD	7	9,521	6,766	6,690	6,693
161	0208010A	JOINT TACTICAL COMMUNICATIONS PROG (TRI-TAC)	7	12,647	18,229	8,983	9,941
162	0208053A	JOINT TACTICAL GRD STATION (TIARA)	7	0	2,077	3,195	0
163	0301359A	SPECIAL ARMY PROGRAM	7	8,538	10,185	5,547	4,551
164	0303140A	COMMUNICATIONS SECURITY (COMSEC) EQUIPMENT	7	3,455	3,161	9,647	3,826
165	0303142A	SATCOM GROUND ENVIRO (SPACE)	7	52,821	39,421	57,827	44,288
166	0303150A	ARMY GLOBAL C2 SYS	7	0	19,389	15,045	14,793
167	0305114A	TRAFFIC CNTL/APPROACH/LANDING SYS (JPALS)	7	0	0	750	0
168	0305128A	SECURITY AND INTELLIGENCE ACTIVITIES	7	0	477	500	955
169	0708045A	End Item Industrial Preparedness Activities	7	23,699	47,819	44,326	50,086
170	1001018A	NATO JSTARS - TIARA	7	<u>9,500</u>	<u>0</u>	<u>13,500</u>	<u>15,105</u>
		Operational Systems Development		730,971	750,761	663,368	643,876
Total		Research Development Test & Eval Army		4,757,412	4,930,628	4,510,843	4,496,724

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**ARMY
FY97 COLUMN OF FY98/99 PRES BUD**

The spreadsheet below reflects the FY97 column of the FY98/99 President's Budget by project. It is provided as clarification to the attached descriptive summaries. In the Project Change Summary (paragraph B of Exhibit R-2), we have reflected the FY97 Appropriated Value as the amount Congress appropriated less undistributed reductions in Sections 8136, 8138, and 8037 (column G of spreadsheet). This methodology is consistent with past practices and is consistent throughout this submission. However, we just recently realized that we should have shown the amount appropriated prior to any reductions (column A), and the total of those reductions (column F) as Adjustments to Appropriated Value. Unfortunately, time did not allow us to change over 400 descriptive summaries before the deadline for this submission. We intend to use this methodology for all future submissions.									
			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
1	61101	91A	9893	-198	-9			-207	9686
1	61101	91C	3910	-78	-4			-82	3828
1	61101	91D	768	-15	-1			-16	752
1	61101	91E	130	-3	0			-3	127
			14701	-294	-14	0	0	-308	14393
1	61102	305	1156	-23	-1			-24	1132
1	61102	31B	2281	-46	-2			-48	2233
1	61102	52C	2243	-45	-2			-47	2196
1	61102	53A	3605	-72	-3			-75	3530
1	61102	74A	2303	-46	-2			-48	2255
1	61102	74F	2462	-49	-2			-51	2411
1	61102	F20	2333	-47	-2			-49	2284
1	61102	F22	447	-9	0			-9	438
1	61102	H42	1775	-35	-2			-37	1738
1	61102	H43	5584	-112	-6			-118	5466
1	61102	H44	3354	-67	-3			-70	3284
1	61102	H45	1848	-37	-2			-39	1809
1	61102	H47	2811	-56	-4			-60	2751
1	61102	H48	6872	-137	-6			-143	6729
1	61102	H52	849	-17	-1			-18	831
1	61102	H57	47844	-957	-45	-22	-8	-1032	46812
1	61102	H66	1314	-26	-1			-27	1287
1	61102	H67	4901	-98	-5			-103	4798

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
1	61102	H68	350	-7	0			-7	343
1	61102	S04	598	-12	-1			-13	585
1	61102	S13	8430	-169	-8			-177	8253
1	61102	S14	3830	-77	-4			-81	3749
1	61102	S15	5661	-113	-5			-118	5543
1	61102	S16	468	-9	0			-9	459
1	61102	S17	800	-16	-1			-17	783
1	61102	T22	1767	-35	-2			-37	1730
1	61102	T23	1532	-31	-1			-32	1500
1	61102	T24	1128	-23	-1			-24	1104
1	61102	T25	3136	-63	-3			-66	3070
1	61102	S18	650	-13	-1			-14	636
			122332	-2447	-116	-22	-8	-2593	119739
1	61104	H50	6853	-137	-6			-143	6710
1	61104	H53	690	-14	-1			-15	675
1	61104	H54	7252	-145	-7			-152	7100
1	61104	H56	4469	-89	-4			-93	4376
1	61104	H59	5797	-116	-5			-121	5676
1	61104	H62	10043	-201	-9			-210	9833
1	61104	H64	2899	-58	-3			-61	2838
1	61104	H65	2899	-58	-3			-61	2838
1	61104	H73	4986	-100	-5			-105	4881
			45888	-918	-43	0	0	-961	44927
	TOTAL BA 1		182921	-3659	-173	-22	-8	-3862	179059
2	62104	B79	3131	-63	-3			-66	3065
			3131	-63	-3	0	0	-66	3065
2	62105	H84	14841	-297	-14			-311	14530
			14841	-297	-14	0	0	-311	14530

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
2	62120	140	2651	-53	-2			-55	2596
2	62120	H15	3686	-74	-3		-5	-82	3604
2	62120	H16	13455	-269	-13	-22		-304	13151
2	62120	H25	0	0	0			0	0
			19792	-396	-18	-22	-5	-441	19351
2	62122	622	8152	-163	-8			-171	7981
			8152	-163	-8	0	0	-171	7981
2	62211	47A	19640	-393	-18		-16	-427	19213
2	62211	47B	2743	-55	-3			-58	2685
			22383	-448	-21	0	-16	-485	21898
2	62270	442	8783	-176	-8			-184	8599
2	62270	906	7062	-141	-7	-3		-151	6911
			15845	-317	-15	-3	0	-335	15510
2	62303	214	25795	-516	-24		-27	-567	25228
2	62303	205	4000	-80	-4			-84	3916
			29795	-596	-28	0	-27	-651	29144
2	62308	C90	9516	-190	-9	-19		-218	9298
2	62308	C99	11618	-232	-11	-21		-264	11354
			21134	-422	-20	-40	0	-482	20652
2	62601	C05	5982	-120	-6		-2	-128	5854
2	62601	H39	2100	-42	-2			-44	2056
2	62601	H77	10544	-211	-10		-5	-226	10318
2	62601	H82	3090	-62	-3			-65	3025
2	62601	H91	13384	-268	-13	-5	-39	-325	13059
			35100	-703	-34	-5	-46	-788	34312
2	62618	H75	8007	-160	-8			-168	7839

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
2	62618	H37	7500	-150	-7			-157	7343
2	62618	H80	20762	-415	-19			-434	20328
2	62618	H81	4497	-90	-4			-94	4403
			40766	-815	-38	0	0	-853	39913
2	62622	552	2343	-47	-2	-34	-1	-84	2259
			2343	-47	-2	-34	-1	-84	2259
2	62623	H21	4593	-92	-4			-96	4497
			4593	-92	-4	0	0	-96	4497
2	62624	H18	9484	-190	-9	-9	-3	-211	9273
2	62624	H19	5039	-101	-5			-106	4933
2	62624	H28	8214	-164	-8		-2	-174	8040
			22737	-455	-22	-9	-5	-491	22246
2	62705	H11	6073	-121	-6			-127	5946
2	62705	H94	18799	-376	-18			-394	18405
			24872	-497	-24	0	0	-521	24351
2	62709	H95	16994	-340	-16	-2		-358	16636
			16994	-340	-16	-2	0	-358	16636
2	62712	C61	1359	-27	-1			-28	1331
2	62712	H24	6170	-123	-6			-129	6041
			7529	-150	-7	0	0	-157	7372
2	62716	H70	14072	-281	-13	-13		-307	13765
2	62716	H34	2250	-45	-2			-47	2203
			16322	-326	-15	-13	0	-354	15968
2	62720	048	6072	-121	-6			-127	5945

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
2	62720	876	7500	-150	-7			-157	7343
2	62720	877	5000	-100	-5			-105	4895
2	62720	822	2000	-40	-2			-42	1958
2	62720	823	5400	-108	-5			-113	5287
2	62720	826	4000	-80	-4			-84	3916
2	62720	829	13170	-263	-12			-275	12895
2	62720	835	3169	-63	-3			-66	3103
2	62720	896	7412	-148	-7			-155	7257
2	62720	F25	2634	-53	-2			-55	2579
			56357	-1126	-53	0	0	-1179	55178
2	62782	779	7265	-145	-7			-152	7113
2	62782	H92	8042	-161	-8	-10		-179	7863
			15307	-306	-15	-10	0	-331	14976
2	62783	094	4321	-86	-4			-90	4231
2	62783	Y10	2317	-46	-2			-48	2269
			6638	-132	-6	0	0	-138	6500
2	62784	855	8556	-171	-8			-179	8377
2	62784	H71	6691	-134	-6			-140	6551
2	62784	T40	11403	-228	-11	-24		-263	11140
2	62784	T41	4285	-86	-4			-90	4195
2	62784	T42	5541	-111	-5			-116	5425
2	62784	T45	2422	-48	-2			-50	2372
			38898	-778	-36	-24	0	-838	38060
2	62785	790	3107	-62	-3			-65	3042
2	62785	791	6421	-128	-6			-134	6287
			9528	-190	-9	0	0	-199	9329
2	62786	283	1665	-33	-2			-35	1630

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FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
<u>BA</u>	<u>PE</u>	<u>Proj</u>	<u>Value</u>	<u>Sec 8136</u>	<u>Sec 8138</u>	<u>FFRDC</u>	<u>Services</u>	<u>Value</u>	<u>on RDDS</u>
2	62786	C60	3277	-66	-3			-69	3208
2	62786	J10	3000	-60	-3			-63	2937
2	62786	H98	9464	-189	-9	-13	-8	-219	9245
2	62786	H99	4402	-88	-4	-8	-3	-103	4299
			21808	-436	-21	-21	-11	-489	21319
2	62787	825	514	-10	0			-10	504
2	62787	870	29843	-597	-28			-1044	28799
2	62787	873	2931	-59	-3			-62	2869
2	62787	874	11415	-228	-11			-239	11176
2	62787	878	7294	-146	-7			-153	7141
2	62787	879	8693	-174	-8			-182	8511
2	62787	839	2300	-46	-2			-48	2252
2	62787	842	1000	-20	-1			-21	979
2	62787	844	20000	-400	-19	TRANSFERRED TO DEFENSE HEALTH PROGRAM			
2	62787	843	3500	-70	-3			-73	3427
2	62787	841	2500	-50	-2			-52	2448
2	62787	838	25000	-500	-23			-523	24477
2	62787	863	2000	-40	-2			-42	1958
2	62787	845	10000	-200	-9			-209	9791
			126990	-2540	-118	0	0	-2658	104332
2	62789	880	2226	-45	-2			-47	2179
			2226	-45	-2	0	0	-47	2179
	TOTAL BA 2		584081	-11680	-549	-183	-111	-12523	551558
3	63001	242	1249	-25	-1			-26	1223
3	63001	543	3097	-62	-3			-65	3032
3	63001	594	445	-9	0			-9	436
3	63001	C07	1891	-38	-2			-40	1851
3	63001	J28	251	-5	0			-5	246

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FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
3	63001	J50	16277	-326	-15			-341	15936
			23210	-465	-21	0	0	-486	22724
3	63002	806	100000	-2000	-94			-2094	97906
3	63002	810	9228	-185	-9			-194	9034
3	63002	804	45000	-900	-42			-942	44058
3	63002	819	2400	-48	-2			-50	2350
3	63002	893	12000	-240	-11			-251	11749
3	63002	813	500	-10	0			-10	490
3	63002	818	3500	-70	-3			-73	3427
3	63002	817	3000	-60	-3			-63	2937
3	63002	816	6000	-120	-6			-126	5874
3	63002	815	6000	-120	-6			-126	5874
3	63002	887	7500	-150	-7			-157	7343
3	63002	814	8000	-160	-8			-168	7832
3	63002	840	2373	-47	-2			-49	2324
			205501	-4110	-193	0	0	-4303	201198
3	63003	313	3527	-71	-3			-74	3453
3	63003	391	5040	-101	-5			-106	4934
3	63003	436	24647	-493	-23		-109	-625	24022
3	63003	447	7780	-156	-7			-163	7617
3	63003	A38	15000	-300	-14			-314	14686
3	63003	B38	1000	-20	-1			-21	979
3	63003	B97	484	-10	0			-10	474
			57478	-1151	-53	0	-109	-1313	56165
3	63004	232	5772	-115	-5			-120	5652
3	63004	43A	21809	-436	-20			-456	21353
3	63004	L95	2178	-44	-2	-15		-61	2117
			29759	-595	-27	-15	0	-637	29122

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FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
<u>BA</u>	<u>PE</u>	<u>Proj</u>	<u>Value</u>	<u>Sec 8136</u>	<u>Sec 8138</u>	<u>FFRDC</u>	<u>Services</u>	<u>Value</u>	<u>on RDDS</u>
3	63005	221	4758	-95	-4			-99	4659
3	63005	440	13507	-270	-13		-123	-406	13101
3	63005	441	4203	-84	-4			-88	4115
3	63005	497	1818	-36	-2			-38	1780
3	63005	502	2000	-40	-2			-42	1958
3	63005	C62	3266	-65	-3			-68	3198
			29552	-590	-28	0	-123	-741	28811
3	63006	247	7427	-149	-7			-156	7271
3	63006	257	11981	-240	-11	-110		-361	11620
3	63006	592	3712	-74	-3			-77	3635
3	63006	596	5000	-100	-5			-105	4895
3	63006	597	2000	-40	-2			-42	1958
			30120	-603	-28	-110	0	-741	29379
3	63007	792	1418	-28	-1			-29	1389
3	63007	793	3082	-62	-3			-65	3017
			4500	-90	-4	0	0	-94	4406
3	63009	B18	17176	-344	-16	-25		-385	16791
			17176	-344	-16	-25	0	-385	16791
3	63013	C25	3335	-67	-3			-70	3265
			3335	-67	-3	0	0	-70	3265
3	63017	B69	8625	-172	-8			-180	8445
			8625	-172	-8	0	0	-180	8445
3	63020	B77	5078	-102	-5			-107	4971
			5078	-102	-5	0	0	-107	4971
3	63105	H29	17919	-358	-17			-375	17544

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
			17919	-358	-17	0	0	-375	17544
3	63238	177	14446	-289	-14	-22	-124	-449	13997
3	63238	546	8212	-164	-8		-28	-200	8012
			22658	-453	-22	-22	-152	-649	22009
3	63270	K15	2913	-58	-3			-61	2852
3	63270	K16	3881	-78	-4			-82	3799
			6794	-136	-7	0	0	-143	6651
3	63313	206	1	0	0			0	1
3	63313	703	9000	-180	-8			-188	8812
3	63313	263	9745	-195	-9			-204	9541
3	63313	380	13515	-270	-13			-283	13232
3	63313	387	639	-13	-1			-14	625
3	63313	486	7849	-157	-7	-29		-193	7656
3	63313	493	24245	-485	-23			-508	23737
3	63313	496	37042	-741	-35	-18	-34	-828	36214
3	63313	550	1	0	0			0	1
			102037	-2041	-96	-47	-34	-2218	99819
3	63322	B92	8851	-177	-8		-15	-200	8651
			8851	-177	-8	0	-15	-200	8651
3	63606	608	23296	-466	-22	-67	-7	-562	22734
3	63606	624	5000	-100	-5			-105	4895
			28296	-566	-27	-67	-7	-667	27629
3	63607	627	8243	-165	-8			-173	8070
3	63607	664	1000	-20	-1			-21	979
			9243	-185	-9	0	0	-194	9049

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
3	63654	460	10000	-200	-9			-209	9791
			10000	-200	-9	0	0	-209	9791
3	63710	C63	2224	-44	-2			-46	2178
3	63710	K70	11425	-228	-11			-239	11186
3	63710	K86	5566	-111	-5			-116	5450
3	63710	K87	11182	-224	-11			-235	10947
			30397	-607	-29	0	0	-636	29761
3	63734	T08	1456	-29	-1			-30	1426
3	63734	T10	9585	-192	-9			-201	9384
3	63734	T12	9623	-192	-9	-19		-220	9403
			20664	-413	-19	-19	0	-451	20213
3	63772	101	13988	-280	-13	-265		-558	13430
3	63772	243	975	-19	-1			-20	955
3	63772	281	7136	-143	-7	-51	-38	-239	6897
			22099	-442	-21	-316	-38	-817	21282
	TOTAL BA 3		693292	-13867	-650	-621	-478	-15616	677676
4	63018	B89	2409	-48	-2	-30		-80	2329
			2409	-48	-2	-30	0	-80	2329
4	63308	990	2884	-58	-3			-61	2823
4	63308	989	45000	-900	-42			-942	44058
4	63308	997	20000	-400	-19			-419	19581
			67884	-1358	-64	0	0	-1422	66462
4	63619	606	28464	-569	-27		-8	-604	27860
			28464	-569	-27	0	-8	-604	27860

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
4	63627	E79	6380	-128	-6			-134	6246
			6380	-128	-6	0	0	-134	6246
4	63639	643	46561	-931	-44		-5	-980	45581
4	63639	656	18160	-363	-17	-7		-387	17773
			64721	-1294	-61	-7	-5	-1367	63354
4	63640	B91	8500	-170	-8			-178	8322
			8500	-170	-8	0	0	-178	8322
4	63645	Q19	8000	-160	-8	-29		-197	7803
			8000	-160	-8	-29	0	-197	7803
4	63653	B99	11639	-233	-11			-244	11395
			11639	-233	-11	0	0	-244	11395
4	63713	2QT	3653	-73	-3		-39	-115	3538
4	63713	370	20169	-403	-19		-2	-424	19745
			23822	-476	-22	0	-41	-539	23283
4	63745	535	4025	-80	-4			-84	3941
			4025	-80	-4	0	0	-84	3941
4	63747	610	1946	-39	-2			-41	1905
4	63747	669	3418	-68	-3			-71	3347
4	63747	C09	1316	-26	-1			-27	1289
			6680	-133	-6	0	0	-139	6541
4	63766	907	26060	-521	-24	-17	-144	-706	25354
			26060	-521	-24	-17	-144	-706	25354
4	63774	131	2829	-57	-3			-60	2769

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
			2829	-57	-3	0	0	-60	2769
4	63790	691	9963	-199	-9			-208	9755
			9963	-199	-9	0	0	-208	9755
4	63801	B32	2228	-45	-2			-47	2181
4	63801	B33	2053	-41	-2			-43	2010
4	63801	B45	9104	-182	-9			-191	8913
			13385	-268	-13	0	0	-281	13104
4	63804	266	1444	-29	-1			-30	1414
4	63804	428	3951	-79	-4			-83	3868
4	63804	G10	132	-3	0			-3	129
4	63804	G11	217	-4	0			-4	213
4	63804	G14	88	-2	0			-2	86
4	63804	K39	869	-17	-1			-18	851
4	63804	K41	891	-18	-1			-19	872
			7592	-152	-7	0	0	-159	7433
4	63805	091	11119	-222	-10	-3		-235	10884
4	63805	246	2021	-40	-2	-61		-103	1918
			13140	-262	-12	-64	0	-338	12802
4	63807	808	3835	-77	-4			-81	3754
4	63807	811	2636	-53	-2			-55	2581
4	63807	836	2905	-58	-3			-61	2844
4	63807	837	835	-17	-1			-18	817
			10211	-205	-10	0	0	-215	9996
4	63851	C75	3124	-62	-3	-48	-10	-123	3001
			3124	-62	-3	-48	-10	-123	3001

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
4	63854	505	240916	-4818	-226		-77	-5121	235795
4	63854	C68	2855	-57	-3			-60	2795
			243771	-4875	-229	0	-77	-5181	238590
4	63856	389	8080	-162	-8			-170	7910
			8080	-162	-8	0	0	-170	7910
TOTAL BA 4			570679	-11412	-537	-195	-285	-12429	558250
5	64201	C97	15008	-300	-14			-314	14694
			15008	-300	-14	0	0	-314	14694
5	64220	538	1154	-23	-1			-24	1130
			1154	-23	-1	0	0	-24	1130
5	64223	327	296528	-5930	-278		-130	-6338	290190
5	64223	C72	42116	-842	-40			-882	41234
			338644	-6772	-318	0	-130	-7220	331424
5	64270	665	44579	-892	-42			-934	43645
5	64270	L12	16414	-328	-15	-6		-349	16065
5	64270	L15	3845	-77	-4			-81	3764
5	64270	L16	1288	-26	-1			-27	1261
5	64270	L18	9348	-187	-9		-1	-197	9151
			75474	-1510	-71	-6	-1	-1588	73886
5	64321	2FT	3767	-75	-4		-40	-119	3648
5	64321	B19	36433	-729	-34	-10		-773	35660
			40200	-804	-38	-10	-40	-892	39308
5	64325	E18	5596	-112	-5			-117	5479
			5596	-112	-5	0	0	-117	5479

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
<u>BA</u>	<u>PE</u>	<u>Proj</u>	<u>Value</u>	<u>Sec 8136</u>	<u>Sec 8138</u>	<u>FFRDC</u>	<u>Services</u>	<u>Value</u>	<u>on RDDS</u>
5	64328	C71	1561	-31	-1		-5	-37	1524
			1561	-31	-1	0	-5	-37	1524
5	64604	H07	6000	-120	-6			-126	5874
			6000	-120	-6	0	0	-126	5874
5	64611	499	6143	-123	-6			-129	6014
			6143	-123	-6	0	0	-129	6014
5	64619	088	26909	-538	-25	-41	-17	-621	26288
			26909	-538	-25	-41	-17	-621	26288
5	64622	659	2000	-40	-2			-42	1958
			2000	-40	-2	0	0	-42	1958
5	64633	586	7549	-151	-7		-14	-172	7377
			7549	-151	-7	0	-14	-172	7377
5	64640	G27	7899	-158	-7			-165	7734
			7899	-158	-7	0	0	-165	7734
5	64641	E47	2884	-58	-3			-61	2823
			2884	-58	-3	0	0	-61	2823
5	64642	E40	3000	-60	-3			-63	2937
			3000	-60	-3	0	0	-63	2937
5	64645	175	6726	-135	-6			-141	6585
			6726	-135	-6	0	0	-141	6585
5	64649	G25	34837	-697	-33		-5	-735	34102

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
5	64649	G26	12873	-257	-12		-1	-270	12603
			47710	-954	-45	0	-6	-1005	46705
5	64710	L69	18443	-369	-17	-8	-13	-407	18036
5	64710	L70	9482	-190	-9			-199	9283
5	64710	L74	7712	-154	-7			-161	7551
			35637	-713	-33	-8	-13	-767	34870
5	64713	548	809	-16	-1			-17	792
5	64713	667	48917	-978	-46			-1024	47893
5	64713	668	21598	-432	-20			-452	21146
5	64713	C40	1784	-36	-2			-38	1746
5	64713	L40	4955	-99	-5			-104	4851
			78063	-1561	-74	0	0	-1635	76428
5	64715	241	36752	-735	-35	-31		-801	35951
5	64715	396	2781	-56	-3			-59	2722
5	64715	573	10332	-207	-10			-217	10115
			49865	-998	-48	-31	0	-1077	48788
5	64716	579	7369	-147	-7	-50	-21	-225	7144
			7369	-147	-7	-50	-21	-225	7144
5	64739	702	4867	-97	-5			-102	4765
			4867	-97	-5	0	0	-102	4765
5	64741	126	20516	-410	-19	-9	-47	-485	20031
			20516	-410	-19	-9	-47	-485	20031
5	64746	L59	9793	-196	-9	-10	-3	-218	9575
			9793	-196	-9	-10	-3	-218	9575

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
5	64760	C73	10248	-205	-10			-215	10033
5	64760	C74	2632	-53	-2			-55	2577
5	64760	C77	3086	-62	-3			-65	3021
			15966	-320	-15	0	0	-335	15631
5	64766	909	15758	-315	-15	-136	-57	-523	15235
			15758	-315	-15	-136	-57	-523	15235
5	64768	2NT	5	0	0			0	5
5	64768	641	68622	-1372	-64			-1436	67186
5	64768	687	19221	-384	-18			-402	18819
5	64768	688	77559	-1551	-73		-129	-1753	75806
			165407	-3307	-155	0	-129	-3591	161816
5	64770	202	9857	-197	-9	-12	-15	-233	9624
			9857	-197	-9	-12	-15	-233	9624
5	64778	168	437	-9	0			-9	428
			437	-9	0	0	0	-9	428
5	64780	571	26713	-534	-25	-44		-603	26110
			26713	-534	-25	-44	0	-603	26110
5	64801	C45	5518	-110	-5			-115	5403
			5518	-110	-5	0	0	-115	5403
5	64802	284	14108	-282	-13			-295	13813
5	64802	AS1	1600	-32	-2			-34	1566
5	64802	531	5176	-104	-5			-109	5067
5	64802	712	3284	-66	-3			-69	3215
			24168	-484	-23	0	0	-507	23661

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FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
5	64804	194	2230	-45	-2			-47	2183
5	64804	279	1444	-29	-1			-30	1414
5	64804	429	3261	-65	-3			-68	3193
5	64804	H01	9635	-193	-9			-202	9433
5	64804	H14	88	-2	0			-2	86
5	64804	L39	1677	-34	-2			-36	1641
5	64804	L41	1033	-21	-1			-22	1011
5	64804	L42	962	-19	-1			-20	942
			20330	-408	-19	0	0	-427	19903
5	64805	097	1715	-34	-2	-19		-55	1660
5	64805	098	569	-11	-1	-15		-27	542
5	64805	282	7031	-141	-7			-148	6883
5	64805	485	481	-10	0			-10	471
			9796	-196	-10	-34	0	-240	9556
5	64807	812	193	-4	0			-4	189
5	64807	832	1695	-34	-2			-36	1659
5	64807	834	884	-18	-1			-19	865
5	64807	849	2022	-40	-2			-42	1980
			4794	-96	-5	0	0	-101	4693
5	64808	016	5499	-110	-5			-115	5384
5	64808	415	2232	-45	-2	-5	-8	-60	2172
			7731	-155	-7	-5	-8	-175	7556
5	64814	2ST	309	-6	0		-3	-9	300
5	64814	644	9840	-197	-9			-206	9634
			10149	-203	-9	0	-3	-215	9934
5	64816	C87	5872	-117	-6			-123	5749
5	64816	C31	5000	-100	-5			-105	4895

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FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97	Sec 8037				Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
<u>BA</u>	<u>PE</u>	<u>Proj</u>	<u>Value</u>	<u>Sec 8136</u>	<u>Sec 8138</u>	<u>FFRDC</u>	<u>Services</u>	<u>Value</u>	<u>on RDDS</u>
			10872	-217	-11	0	0	-228	10644
5	64817	482	13886	-278	-13		-20	-311	13575
5	64817	901	2897	-58	-3			-61	2836
			16783	-336	-16	0	-20	-372	16411
5	64818	323	7784	-156	-7			-163	7621
5	64818	C34	8645	-173	-8	-290	-15	-486	8159
			16429	-329	-15	-290	-15	-649	15780
5	64823	L85	2551	-51	-2		-2	-55	2496
			2551	-51	-2	0	-2	-55	2496
5	64854	509	3000	-60	-3			-63	2937
			3000	-60	-3	0	0	-63	2937
	TOTAL BA 5		1166826	-23338	-1097	-686	-546	-25667	1141159
6	64256	976	11627	-233	-11			-244	11383
			11627	-233	-11	0	0	-244	11383
6	64258	238	6706	-134	-6	-2		-142	6564
6	64258	459	3423	-68	-3			-71	3352
			10129	-202	-9	-2	0	-213	9916
6	64759	983	2423	-48	-2			-50	2373
6	64759	984	32197	-644	-30	-19		-693	31504
6	64759	986	7105	-142	-7			-149	6956
			41725	-834	-39	-19	0	-892	40833
6	65103	732	21763	-435	-20	-200		-655	21108
			21763	-435	-20	-200	0	-655	21108

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ARMY
FY97 COLUMN OF FY98/99 PRES BUD

			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
<u>BA</u>	<u>PE</u>	<u>Proj</u>	<u>Value</u>	<u>Sec 8136</u>	<u>Sec 8138</u>	<u>FFRDC</u>	<u>Services</u>	<u>Value</u>	<u>on RDDS</u>
6	65301	614	146864	-2937	-138			-3075	143789
			146864	-2937	-138	0	0	-3075	143789
6	65502	770		0	0			0	0
6	65502	771		0	0			0	0
6	65502	802		0	0			0	0
6	65502	860		0	0			0	0
6	65502	861		0	0			0	0
6	65502	M40		0	0			0	0
			0	0	0	0	0	0	0
6	65601	618	12826	-257	-12			-269	12557
6	65601	630	4785	-96	-4			-100	4685
6	65601	632	1578	-32	-1			-33	1545
6	65601	E90	17418	-348	-16			-364	17054
6	65601	E91	35172	-703	-33			-736	34436
6	65601	E93	61233	-1225	-58	-5		-1288	59945
			133012	-2661	-124	-5	0	-2790	130222
6	65602	628	22413	-448	-21			-469	21944
			22413	-448	-21	0	0	-469	21944
6	65604	670	4879	-98	-5			-103	4776
6	65604	671	5818	-116	-5	-10		-131	5687
6	65604	672	3739	-75	-4			-79	3660
6	65604	675	5027	-101	-5			-106	4921
6	65604	677	5337	-107	-5			-112	5225
6	65604	678	5729	-115	-5			-120	5609
6	65604	679	814	-16	-1			-17	797
			31343	-628	-30	-10	0	-668	30675

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								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
6	65605	E97	30667	-613	-29	-51		-693	29974
			30667	-613	-29	-51	0	-693	29974
6	65606	092	2905	-58	-3		-4	-65	2840
			2905	-58	-3	0	-4	-65	2840
6	65702	128	6484	-130	-6			-136	6348
			6484	-130	-6	0	0	-136	6348
6	65706	026	4258	-85	-4			-89	4169
6	65706	541	10170	-203	-10			-213	9957
			14428	-288	-14	0	0	-302	14126
6	65709	650	3304	-66	-3			-69	3235
6	65709	C28	4043	-81	-4			-85	3958
			7347	-147	-7	0	0	-154	7193
6	65712	001	21021	-420	-20	-2	-224	-666	20355
6	65712	985	10545	-211	-10			-221	10324
6	65712	987	4396	-88	-4			-92	4304
6	65712	V02	14944	-299	-14			-313	14631
			50906	-1018	-48	-2	-224	-1292	49614
6	65801	M02	7355	-147	-7			-154	7201
6	65801	M15	3780	-76	-4			-80	3700
6	65801	M16	4045	-81	-4			-85	3960
6	65801	M42	5641	-113	-5			-118	5523
6	65801	M43	5002	-100	-5			-105	4897
6	65801	M44	5969	-119	-6			-125	5844
6	65801	M45	5487	-110	-5	-3	-1	-119	5368
6	65801	M46	2260	-45	-2			-47	2213
6	65801	M47	2632	-53	-2			-55	2577

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								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
6	65801	M53	12565	-251	-12	-85	-14	-362	12203
6	65801	M55	3179	-64	-3			-67	3112
6	65801	M58	390	-8	0			-8	382
6	65801	M75	2787	-56	-3			-59	2728
			61092	-1223	-58	-88	-15	-1384	59708
6	65802	798	1566	-31	-1			-32	1534
			1566	-31	-1	0	0	-32	1534
6	65803	720	2626	-53	-2		-9	-64	2562
6	65803	727	2870	-57	-3		-5	-65	2805
6	65803	729	2309	-46	-2			-48	2261
6	65803	730	3448	-69	-3			-72	3376
6	65803	733	2180	-44	-2			-46	2134
6	65803	C16	2798	-56	-3			-59	2739
6	65803	C18	690	-14	-1			-15	675
			16921	-339	-16	0	-14	-369	16552
6	65805	296	682	-14	-1			-15	667
6	65805	857	589	-12	-1			-13	576
6	65805	F21	280	-6	0			-6	274
6	65805	F24	1731	-35	-2			-37	1694
			3282	-67	-4	0	0	-71	3211
6	65853	0CC	1498	-30	-1			-31	1467
6	65853	1CC	115	-2	0			-2	113
6	65853	5CC	146	-3	0			-3	143
			1759	-35	-1	0	0	-36	1723
6	65854	0PP	546	-11	-1			-12	534
6	65854	1PP	143	-3	0			-3	140
6	65854	5PP	1957	-39	-2			-41	1916

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								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
6	65854	7PP	799	-16	-1			-17	782
6	65854	8PP	10449	-209	-10			-219	10230
			13894	-278	-14	0	0	-292	13602
6	65856	0VV	34856	-697	-33			-730	34126
6	65856	1VV	13972	-279	-13			-292	13680
6	65856	4VV	1500	-30	-1			-31	1469
6	65856	5VV	5083	-102	-5			-107	4976
			55411	-1108	-52	0	0	-1160	54251
6	65876	0WW	2766	-55	-3			-58	2708
6	65876	1WW	1062	-21	-1			-22	1040
6	65876	4WW	491	-10	0			-10	481
			4319	-86	-4	0	0	-90	4229
6	65878	0YY	50862	-1017	-48			-1065	49797
6	65878	1YY	15807	-316	-15			-331	15476
6	65878	4YY	3378	-68	-3			-71	3307
			70047	-1401	-66	0	0	-1467	68580
6	65879	0UU	62918	-1258	-59			-1317	61601
6	65879	1UU	24858	-497	-23			-520	24338
6	65879	4UU	4614	-92	-4			-96	4518
			92390	-1847	-86	0	0	-1933	90457
6	65896	0ZZ	148139	-2963	-138			-3101	145038
6	65896	1ZZ	64068	-1281	-60			-1341	62727
6	65896	4ZZ	12442	-249	-12			-261	12181
			224649	-4493	-210	0	0	-4703	219946
6	65898	M65	4801	-96	-5			-101	4700
6	65898	831	14000	-280	-13			-293	13707

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								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
<u>BA</u>	<u>PE</u>	<u>Proj</u>	<u>Value</u>	<u>Sec 8136</u>	<u>Sec 8138</u>	<u>FFRDC</u>	<u>Services</u>	<u>Value</u>	<u>on RDDS</u>
			18801	-376	-18	0	0	-394	18407
TOTAL BA 6			1095744	-21916	-1029	-377	-257	-23579	1072165
7	63778	027	27038	-541	-25		-50	-616	26422
7	63778	050	26324	-526	-25			-551	25773
7	63778	054	10909	-218	-10			-228	10681
			64271	-1285	-60	0	-50	-1395	62876
7	12419	E55	26940	-539	-25			-564	26376
			26940	-539	-25	0	0	-564	26376
7	23726	2ET	4933	-99	-5		-52	-156	4777
7	23726	322	34564	-691	-32	-42	-64	-829	33735
			39497	-790	-37	-42	-116	-985	38512
7	23735	280	3116	-62	-3			-65	3051
7	23735	2TT	2079	-42	-2		-22	-66	2013
7	23735	2UT	1460	-29	-1		-15	-45	1415
7	23735	330	71246	-1425	-67		-5	-1497	69749
7	23735	344	18298	-366	-17			-383	17915
7	23735	371	89635	-1793	-84		-5	-1882	87753
7	23735	718	11900	-238	-11			-249	11651
7	23735	C64	13562	-271	-13		-9	-293	13269
			211296	-4226	-198	0	-56	-4480	206816
7	23740	2HT	3895	-78	-4		-41	-123	3772
7	23740	484	25187	-504	-24	-491	-52	-1071	24116
			29082	-582	-28	-491	-93	-1194	27888
7	23744	430	17914	-358	-17			-375	17539
7	23744	504	250	-5	0			-5	245

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								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
BA	PE	Proj	Value	Sec 8136	Sec 8138	FFRDC	Services	Value	on RDDS
7	23744	179	4700	-94	-4			-98	4602
			22864	-457	-21	0	0	-478	22386
7	23752	106	3947	-79	-4		-30	-113	3834
			3947	-79	-4	0	-30	-113	3834
7	23758	374	90180	-1803	-85	-112	-55	-2055	88125
7	23758	376	50000	-1000	-47			-1047	48953
			140180	-2803	-132	-112	-55	-3102	137078
7	23801	036	47291	-946	-44		-21	-1011	46280
7	23801	303	18668	-373	-18			-391	18277
			65959	-1319	-62	0	-21	-1402	64557
7	23802	2MT	390	-8	0		-4	-12	378
7	23802	304	4469	-89	-4			-93	4376
7	23802	045	3900	-78	-4			-82	3818
7	23802	336	1340	-27	-1		-10	-38	1302
			10099	-202	-9	0	-14	-225	9874
7	23806	C19	3179	-64	-3			-67	3112
			3179	-64	-3	0	0	-67	3112
7	23808	E11	6933	-139	-7		-21	-167	6766
			6933	-139	-7	0	-21	-167	6766
7	28010	107	18693	-374	-18	-55	-17	-464	18229
			18693	-374	-18	-55	-17	-464	18229
7	28053	635	2124	-42	-2		-3	-47	2077
			2124	-42	-2	0	-3	-47	2077

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			A	B	C	D	E	F	G
								(B+C+D+E)	(A-F)
			FY 97				Sec 8037	Tot Adj to	FY 97
			Approp				Consulting	Approp	Column
<u>BA</u>	<u>PE</u>	<u>Proj</u>	<u>Value</u>	<u>Sec 8136</u>	<u>Sec 8138</u>	<u>FFRDC</u>	<u>Services</u>	<u>Value</u>	<u>on RDDS</u>
7	31359	381	9042	-181	-8			-189	8853
7	31359	382	394	-8	0			-8	386
7	31359	H87	1749	-35	-2			-37	1712
			11185	-224	-10	0	0	-234	10951
7	33140	491	2574	-51	-2	-6		-59	2515
7	33140	501	587	-12	-1			-13	574
			3161	-63	-3	-6	0	-72	3089
7	33142	253	17063	-341	-16	-451		-808	16255
7	33142	2PT	142	-3	0		-2	-5	137
7	33142	384	17217	-344	-16	-477	-222	-1059	16158
7	33142	386	1029	-21	-1			-22	1007
7	33142	455	878	-18	-1			-19	859
7	33142	456	4348	-87	-4		-18	-109	4239
			40677	-814	-38	-928	-242	-2022	38655
7	33150	C86	19804	-396	-19			-415	19389
			19804	-396	-19	0	0	-415	19389
7	35128	H12	487	-10	0			-10	477
			487	-10	0	0	0	-10	477
7	78045	E25	48842	-977	-46			-1023	47819
			48842	-977	-46	0	0	-1023	47819
	TOTAL BA 7		769220	-15385	-722	-1634	-718	-18459	750761
			5062763	-101257	-4757	-3718	-2403	-112135	4930628

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<u>BA</u>	<u>PE</u>	<u>Proj</u>	<u>Value</u>	<u>Sec 8136</u>	<u>Sec 8138</u>	<u>FFRDC</u>	<u>Services</u>	<u>Value</u>	<u>on RDDS</u>

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603308A Army Missile Defense Systems Integration						
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	23443	66462	24138	12637	12623	12599	15637	15855	Continuing	Continuing
D989 Nautilus/THEL	0	44058	16457	0	0	0	0	0	0	60515
D990 Theater Missile Defense (TMD) System Integration	23443	2823	2685	2663	2656	2642	2811	2822	Continuing	Continuing
D997 Battle Integration Center	0	19581	4996	9974	9967	9957	12826	13033	Continuing	Continuing

Mission Description and Budget Item Justification: This program element funds systems analysis, studies, and experimentation designed to validate and integrate the pillars of Theater Missile Defense (TMD): active defense, passive defense, attack operations, and battle management/command, control, communications, computers, and intelligence functions. This integration program produces hardware and software solutions, doctrinal and procedural solutions, interfaces, and architectures; these inter-pillar and intra-pillar products, required to accomplish the integrated TMD mission, exceed the scope of other programs. This program element also funds the U.S. Army Space and Strategic Defense Command's Missile Defense Battle Integration Center (MDBIC) which is building a flexible, linked architecture of pre-existing live, virtual and constructive simulations. This distributed interactive simulation (DIS)-based architecture can operate in the regimes of training, exercises and military operations; advanced concepts and requirements; research, development and acquisition by integrating its simulation environment with other simulations and live entities to achieve a low-cost, high fidelity representation of the modern battlefield. In addition, this program element funds the completion of the joint U.S./Israeli Tactical High Energy Laser (THEL) Advanced Concept Technology Demonstration (ACTD). Work in this program element is dedicated to advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of TMD and is appropriately funded in Budget Activity 4.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603308A Army Missile Defense Systems					PROJECT D989	
				Integration						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D989 Nautilus/THEL	0	44058	16457	0	0	0	0	0	0	60515
<p>A. <u>Mission Description and Justification:</u> Project D989-Nautilus/THEL: These funds will complete the Tactical High Energy Laser (THEL) Advanced Concept Technology Demonstration (ACTD). The THEL ACTD is a joint U.S./Israel program to design, fabricate, and test a tactical-sized THEL demonstrator to evaluate the effectiveness of high energy lasers (HELs) to defeat the threat posed by Katyusha and similar short range artillery rockets. The THEL ACTD is an integration effort that supports the active defense pillar of Theater Missile Defense.</p> <p><u>Acquisition Strategy:</u> The THEL ACTD has been assigned an urgent priority by the Secretary of Defense. A sole source letter contract was executed with TRW to deliver the THEL demonstrator by 31 March 1998. The letter contract was definitized about 19 January 1997.</p> <p>FY 1996 Accomplishments: FY 1996 funds for this effort provided in PE 0605605A.</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 37981 THEL ACTD design and fabrication. • 1500 System engineering, analysis and subsystem integration activities. • 2400 Program management. • 1100 Government furnished property. • 1077 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 44058</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 12400 Completion of the THEL demonstrator integration and testing at TRW. • 2000 System engineering, analysis and system integration activities. • 2057 Program management. <p>Total 16457</p> <p>FY 1999 Planned Program: Project not funded in FY 1999</p>										
Project D989			Page 2 of 10 Pages				Exhibit R-2 (PE 0603308A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603308A Army Missile Defense Systems Integration						PROJECT D989	
B. <u>Project Change Summary</u>													
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>					
FY 1997 President's Budget		0		0		0		0					
Appropriated Value				44058									
Adjustments to Appropriated Value													
FY 1998 Pres Bud Request		0		44058		16457		0					
Change Summary Explanation: Funding - FY 1997 (+44058) Congressional increase to support the THEL Demonstrator FY 1998 funding reprogrammed (+16457) to complete the integration and testing of the THEL demonstrator.													
C. <u>Other Program Funding Summary</u>													
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>		
										<u>Compl</u>	<u>Cost</u>		
Nautilus PE 0605605A		4747										7247	
THEL PE 0605605A		4747										4747	
Nautilus - Israel		1700										1700	
THEL - Israel		20000	9500									29500	
D. <u>Schedule Profile</u>													
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4	
Initiate THEL ACTD				X									
Initiate Long Leads & Fabrication					X								
Complete Fabrication/Integration								X					
Complete TRW THEL ACTD Testing								X					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603308A Army Missile Defense Systems Integration					PROJECT D989		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
THEL Demonstrator					40581	14400					
Program Management					2400	2057					
SBIR/STTR					1077						
Total					44058	16457					
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TRW	Letter/Sole Source	4th Qtr 96	89000	89000			37981	12400			50381
various	various	TBD					2600	2000			4600
Support and Management Organizations											
Govt Support and Support Contracts	MIPR CFFF	Various	TBD	TBD			2400	2057			4457
SBIR/STTR							1077				1077
Test and Evaluation Organizations											
Government Furnished Property: Not applicable											
Subtotal Product Development							40581	14400			54981
Subtotal Support and Management							3477	2057			5534
Subtotal Test and Evaluation											
Total Project							44058	16457			60515
Project D989				Page 4 of 10 Pages				Exhibit R-3 (PE 0603308A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603308A Army Missile Defense Systems Integration					PROJECT D990	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D990 Theater Missile Defense (TMD) System Integration	23443	2823	2685	2663	2656	2642	2811	2822	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Project D990-TMD System Integration: Funds initiatives directed by U.S. Army Space and Strategic Defense Command (USASSDC) in its capacity as the U.S. Army advocate, integrator, and focal point for TMD operations. USASSDC is empowered by the Department of the Army to serve as the Department level, operational representative for theater missile defense. This program conducts systems analysis, studies, and experimentation designed to validate and integrate the pillars of TMD: active defense, passive defense, attack operations, and battle management/command, control, communications, computers, and intelligence functions. This integration program produces hardware and software solutions, doctrinal and procedural solutions, interfaces, and architectures; these inter-pillar and intra-pillar products, required to accomplish the integrated TMD mission, exceed the scope of other programs. This program supports the milestone decisions for active defense missile and C4I systems, as well as Aviation and Artillery.</p> <p><u>Acquisition Strategy:</u> Program is continuous. Planned accomplishments will be conducted by various performers.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 3532 Conducted systems analysis, studies, and experimentation designed to validate and integrate the pillars of TMD. • 19911 Missile Defense Battle Integration Center funding; <ul style="list-style-type: none"> Provides upgraded to the Synthetic Theater of War (STOW) combat environment; Completed the development of the Distributed Interactive Simulation (DIS) interface; Provided the STOW environment in all tactical operations centers. <p>Total 23443</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 2754 Conduct testing and exercising prototypical hardware and software related to integrated TMD operations, enhancements to models and simulations, systems analysis and studies regarding TMD issues. • 69 Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 2823</p>										
Project D990			Page 5 of 10 Pages				Exhibit R-2 (PE 0603308A)			

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603308A Army Missile Defense Systems Integration	PROJECT D990																									
<p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 2685 Continue to conduct testing and exercising prototypical hardware and software related to integrated TMD operations, enhancements to models and simulations, systems analysis and studies regarding TMD issues. <p>Total 2685</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 2663 Continue to conduct testing and exercising prototypical hardware and software related to integrated TMD operations, enhancements to models and simulations, systems analysis and studies regarding TMD issues. <p>Total 2663</p> <p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">23329</td> <td style="text-align: center;">2884</td> <td style="text-align: center;">2886</td> <td style="text-align: center;">2877</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">23985</td> <td style="text-align: center;">2823</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-542</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">23443</td> <td style="text-align: center;">2823</td> <td style="text-align: center;">2685</td> <td style="text-align: center;">2663</td> </tr> </tbody> </table> <p>C. <u>Other Program Funding Summary:</u> There are no other related RDTE appropriation efforts.</p> <p>D. <u>Schedule Profile:</u> Due to the continuous nature of these efforts, milestones or events cannot be provided.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	23329	2884	2886	2877	Appropriated Value	23985	2823			Adjustments to Appropriated Value	-542				FY 1998 Pres Bud Request	23443	2823	2685	2663
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	23329	2884	2886	2877																							
Appropriated Value	23985	2823																									
Adjustments to Appropriated Value	-542																										
FY 1998 Pres Bud Request	23443	2823	2685	2663																							
Project D990	Page 6 of 10 Pages	Exhibit R-2 (PE 0603308A)																									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603308A Army Missile Defense Systems Integration				PROJECT D997		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D997 Battle Integration Center	0	19581	4996	9974	9967	9957	12826	13033	Continuing	Continuing

A. Mission Description and Justification: Project D997-Battle Integration Center: The Missile Defense Battle Integration Center (MDBIC) is developing and implementing a synthetic Army battlefield context for integrating missile defense and space assets; supporting requiring activities, materiel developers, and users with distributed, netted computing resources, models, and simulation efforts for warfighter exercise, analytical, and virtual prototyping activities. Provide the warfighter during exercises and deployments with a distributed synthetic battlefield training and planning environment, and with near real-time after action review (AAR) capability. The MDBIC supports the Army and Department of Defense in Cost and Operational Effectiveness Analyses and requirements analyses through the development and operation of an analytical modern battlefield. Enhance materiel development through virtual prototyping and user interface development. The MDBIC's Advanced Concept and Requirements Analysis and Research, Development and Acquisition simulation capabilities support the critical mission areas of Theater Missile Defense, Cruise Missile Defense, National Missile Defense, and Space Operations. The MDBIC's modeling and simulation capabilities interface with other DIS-compatible tools to conduct constructive, virtual and live simulation exercises; model Service and Allies' weapons in realistic scenarios; and develop databases and modeling for weather, tactics, terrain, threat, and advanced weapons integration. These funds will allow further development of the Synthetic Battlefield Environment (SBE) and SBE establishment at exercises, demonstrations, and experiments. In the future, this program will ensure that deploying soldiers will be virtually rehearsed against the force we are facing prior to their deployment. In essence, the American soldier will be a "Virtual Combat Veteran" before he is deployed.

Acquisition Strategy: Program is continuous. Planned accomplishments will be conducted by various performers.

FY 1996 Accomplishments: Project not funded in FY 1996

FY 1997 Planned Program:

- 4850 Participate in/support Army and joint exercises and warfighting experiments.
- 6925 Continue the development of the SBE, including required interfaces, to enhance the realism and fidelity of missile defense training, exercises, and testing.
- 2100 Conduct "stand alone" training and further develop AAR capabilities for Force XXI command and control entities and their crews and staffs.
- 2928 Continue research and development of advanced models and simulations to perform missile defense studies and analyses, by incorporating existing testbeds and migration to the DOD's High-Level Architecture (HLA).
- 2300 Provide modeling, simulation, and advanced visualization capabilities for senior decision makers via the Warfighting Analysis and Integration Center
- 478 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603308A Army Missile Defense Systems Integration	PROJECT D997																									
Total 19581 FY 1998 Planned Program: <ul style="list-style-type: none"> • 3996 Provide a high fidelity, interactive, synthetic battlefield environment as a tool for hands-on training, missile defense integration, utilization in exercises, demonstrations, and Force XXI initiatives, evaluation of battlefield operational issues. • 500 Develop virtual prototypes of potential battlefield systems. • 500 Develop long-haul, distributed after action review capabilities. Total 4996 FY 1999 Planned Program: <ul style="list-style-type: none"> • 5974 Update and provide a high fidelity, interactive, synthetic battlefield environment as a tool for hands on training, missile defense integration, utilization in exercises, demonstrations, Force XXI initiatives, and evaluation of battlefield operational issues. • 1000 Continue development of virtual prototypes of potential battlefield systems. • 1000 Implement and utilize long-haul, distributed after action review capabilities. • 500 Continue migration to DOD high level architecture. • 1500 Conduct follow-on missile defense and space operation support studies and analyses. Total 9974 B. Project Change Summary <table style="width: 100%; margin-left: 20px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Appropriated Value</td> <td></td> <td style="text-align: center;">19581</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">0</td> <td style="text-align: center;">19581</td> <td style="text-align: center;">4996</td> <td style="text-align: center;">9974</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding - FY 97 (+19581) Congressional increase to support essential operational and developmental requirements of the MDBIC. FY 98/99 funding adjustments (+4996/+9974) for minimum essential operational and developmental requirements of the MDBIC.</p> <p>C. Other Program Funding Summary: There are no other related RDTE appropriation efforts.</p> <p>D. Schedule Profile: Due to the continuous nature of these efforts, milestones or events cannot be provided.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	0	0	0	0	Appropriated Value		19581			Adjustments to Appropriated Value					FY 1998 Pres Bud Request	0	19581	4996	9974
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	0	0	0	0																							
Appropriated Value		19581																									
Adjustments to Appropriated Value																											
FY 1998 Pres Bud Request	0	19581	4996	9974																							
Project D997	Page 9 of 10 Pages	Exhibit R-2 (PE 0603308A)																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	35768	27860	18882	11214	10609	17564	8600	9800	Continuing	Continuing
D005 Landmine Advanced Development	0	0	3767	4258	4241	0	0	0	0	12266
D606 Countermine/Barrier Advanced Development	35768	27860	15115	6956	6368	17564	8600	9800	Continuing	Continuing
<p><u>Mission Description and Budget Item Justification:</u> This program element provides for advanced development of new mine and countermine systems by prototyping modern munitions technology, advanced development sensors, logic networks, fuzes, power sources, warhead components and modules into complete systems. Development of minefield command and control equipment will provide new capabilities in landmine warfare and will move the future Army toward the intelligent minefield. It also provides for the initiation and/or continuation of advanced development of the Airborne Stand-off Minefield Detection System (ASTAMIDS), the Handheld Stand-off Minefield Detection System (HSTAMIDS), Ground Stand-off Minefield Detection System (GSTAMIDS) and for mine neutralization with the Explosive Stand-off Minefield Breacher (ESMB) , and Anti-personnel Obstacle Breaching System (APOBS). This program element supports Program Definition and Risk Reduction (PDRR) efforts used to demonstrate and validate general military utility and is, therefore, appropriately placed in Budget Activity 4.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development					PROJECT D005	
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D005 Landmine Advanced Development	0	0	3767	4258	4241	0	0	0	0	12266
<p>A. <u>Mission Description and Justification:</u> This project will improve the capability of mines used by the United States Army and will move the future Army toward the intelligent minefield.</p> <p><u>Acquisition Strategy:</u> Intelligent Minefield (IMF) - competitive DEM/VAL contract followed by sole source EMD and initial production.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1100 Conduct interoperability study, trade-off analysis, system integration/analyses, and evaluate methods for Identification, Friend or Foe (IFF). • 1315 Initiate design and development of gateway, advanced acoustic sensor, and control station. • 1000 Initiate software algorithm development. • 352 Test and evaluation. <p>Total 3767</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1299 Continue design and development of gateway, advanced acoustic sensor, and control station. • 963 Continue software algorithm development. • 850 Fabricate components for test and evaluation. • 500 Conduct gateway, sensor and control station test and evaluation. • 646 System integration and analysis. <p>Total 4258</p>										
Project D005			Page 2 of 9 Pages			Exhibit R-2 (PE 0603619A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997													
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development						PROJECT D005													
B. Project Change Summary					<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>													
FY 1997 President's Budget									3765	4259														
Appropriated Value																								
Adjustments to Appropriated Value																								
FY 1998 Pres Bud Request									3767	4258														
C. Other Program Funding Summary					<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To</u>		<u>Total</u>	
RDTE, A Budget Activity 5																			Compl		Cost			
PE 0604808, Project D016, Mine Systems Engineering Development					4968	5384					11255	11960	21786						Cont		Cont			
D. Schedule Profile					<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Complete trade-off studies																								
Complete hardware fabrication and conduct contractor testing																								X

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development					PROJECT D606	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D606 Countermine/Barrier Advanced Development	35768	27860	15115	6956	6368	17564	8600	9800	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> This project provides for advanced development of new countermine systems by prototyping advanced sensors for evaluation of neutralizing, clearing, breaching and detection concepts which will enhance the U.S. capability in countermine warfare. The program includes the Airborne Stand-off Minefield Detection System (ASTAMIDS), the Handheld Stand-off Minefield Detection System (HSTAMIDS), Ground Stand-off Minefield Detection System (GSTAMIDS), Explosive Stand-off Minefield Breacher (ESMB), Anti-personnel Obstacle Breaching System (APOBS) , and Off-Route Smart Mine Clearance (ORSMC) . The program provides for proof-of-principle for these systems.</p> <p><u>Acquisition Strategy:</u> ASTAMIDS and HSTAMIDS - Sole source production contracts to be awarded at the conclusion of EMD to the winner of a competitive PDRR phase. PDRR phase consists of two competing contracts; ESMB - Competitive development contracts followed by award of a sole source production contract.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 12485 Conducted system design and Preliminary Design Reviews for ESMB. • 4479 Initiated Advanced Development design for HSTAMIDS. • 10796 Completed ASTAMIDS development/fabrication of prototype. • 3700 Conducted technical and Early User Tests of ASTAMIDS. • 3644 Initiated effort to field ASTAMIDS prototype for Bosnia • 350 Initiated effort to field HSTAMIDS prototypes for Bosnia • 314 Completed Test and evaluation of APOBS fixes <p>Total 35768</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 5572 Complete technical test and evaluation for ESMB. • 750 Conduct Milestone II Review for ESMB. • 9342 Develop HSTAMIDS prototype • 7500 Complete development design and fabricate prototype/test hardware for ASTAMIDS • 1016 Conduct technical and early user tests for ASTAMIDS • 3000 Evaluate alternative ASTAMIDS technologies as directed by Congress • 680 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. 										
Project D606			Page 5 of 9 Pages				Exhibit R-2 (PE 0603619A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																															
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development	PROJECT D606																																															
Total 27860 FY 1998 Planned Program: <ul style="list-style-type: none"> • 5611 Initiate Advance Development Design and fabricate prototypes for GSTAMIDS • 1521 Conduct developmental and early user tests for GSTAMIDS • 7283 Complete Advanced Development Design for HSTAMIDS • 700 Prepare Milestone II IPR documentation and EMD solicitation package for ASTAMIDS Total 15115 FY 1999 Planned Program: <ul style="list-style-type: none"> • 6503 Continue Advanced Development Design for GSTAMIDS • 453 Design/integration of sensors and platform (GSTAMIDS). Total 6956 B. Project Change Summary <table style="width: 100%; margin-left: 20px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 997</u></th> <th style="text-align: center;"><u>FY 998</u></th> <th style="text-align: center;"><u>FY 999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">32893</td> <td style="text-align: right;">16464</td> <td style="text-align: right;">6183</td> <td style="text-align: right;">4959</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">32839</td> <td style="text-align: right;">27860</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">+2929</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: right;">35768</td> <td style="text-align: right;">27860</td> <td style="text-align: right;">15115</td> <td style="text-align: right;">6956</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 96 was increased (+3999) to fund ASTAMIDS/HSTAMIDS initiative to expedite delivery of prototypes to Bosnia but was offset by (-1070) of undistributed Congressional reductions and rescissions. In FY97 transfer of \$12M by direction of Congress from 0604808 D415 to continue ASTAMIDS DEM/VAL and evaluate alternative technologies. In FY 98 funds were increased (\$8.9M) to accelerate the initiation of GSTAMIDS and complete HSTAMIDS DEM/VAL phase. In FY 99 funds were increased by \$2.0M to accelerate GSTAMIDS. Schedule: GSTAMIDS initiation advanced by six months. ASTAMIDS DEM/VAL phase extended to 4Q97</p> C. Other Program Funding Summary <table style="width: 100%; margin-left: 20px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To Compl</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>RDTE, A Budget Activity 5</td> <td></td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 997</u>	<u>FY 998</u>	<u>FY 999</u>	FY 1997 President's Budget	32893	16464	6183	4959	Appropriated Value	32839	27860			Adjustments to Appropriated Value	+2929				FY 1998 Pres Bud Request	35768	27860	15115	6956		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Compl</u>	<u>Total Cost</u>	RDTE, A Budget Activity 5										
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RDTE, A Budget Activity 5																																																	
Project D606		Page 6 of 9 Pages																																															
		Exhibit R-2 (PE 0603619A)																																															

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development					PROJECT D606		
C. <u>Other Program Funding Summary</u>										To	Total	
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>		
PE 0604808A, Project D415, Mine Neutralization/ Detection	1834	2172	22605	44133	41782	16275	13731	13807	Cont	Cont		
OPA 3, A Appropriation												
E72800, APOBS					5966	6965				12931		
S11500, ASTAMIDS						11144	12003	12009	Cont	Cont		
R68200, HSTAMIDS						5812	6830	7032	Cont	Cont		
M80300, ESMB						3413	7413	7417	Cont	Cont		
D. <u>Schedule Profile</u>												
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
Conduct APOBS Flight Tests		X*										
Conduct System Design and Preliminary Design Reviews for ESMB	X*											
Initiate Adv Dev Design for HSTAMIDS			X*									
Complete ASTAMIDS Development/Fabrication of Prototype					X							
Initiate Development Tests and Early User Tests of ASTAMIDS						X						
Conduct Milestone II for ASTAMIDS							X					
Complete Technical Test and Conduct Milestone II Review for ESMB							X					
Conduct HSTAMIDS Technical Testing						X						
Conduct Milestone I for GSTAMIDS								X				
Complete Technical Test/IOT&E for HSTAMIDS								X				
Conduct Milestone II for HSTAMIDS									X			
*Milestone completed												
Project D606			Page 7 of 9 Pages					Exhibit R-2 (PE 0603619A)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development					PROJECT D606		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Development Primary Hardware				27518	19318	11556	5497				
Test and Evaluation				1906	1350	1749	559				
Government Engineering				5646	5512	1290	600				
Government Program Management				698	1000	520	300				
SBIR/STTR					680						
Total				35768	27860	15115	6956				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Raytheon	CPIF	Nov 93	29204	29204	17461	7943	3900			0	29304
Northrop/Grumman	CPIF	Nov 93	19429	19429	14249	3770	1500			0	19519
Coleman Research	CPIF	May 96	6545	6545	0	1287	3160	2000		0	6447
GDE	CPIF	May 96	11663	11663	0	2042	5338	3883		0	11263
Tracor	CPIF	Dec 95	14503	14503	0	10995	3726			0	14721
TBD	TBD	TBD						5673	5497	Cont	11170
Misc.	Various	Various				2079	1694				3773
SBIR/STTR							680				680
Support and Management Organizations											
NVESD/CECOM						4419	3131	1290	550	Cont	9390
Misc.						1327	3381	520	350	Cont	5578
Test and Evaluation Organizations											
TECOM						1906	1350	1749	559	Cont	5564
Government Furnished Property: None											
Project D606				Page 8 of 9 Pages				Exhibit R-3 (PE 0603619A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 1997	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
4 - Demonstration and Validation		0603619A Landmine Warfare and Barrier - Advanced Development			D606	
	Total Prior to				Budget to	Total
	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>
Subtotal Product Development	31710	28116	19998	11556	5497	96877
Subtotal Support and Management		5746	6512	1810	900	14968
Subtotal Test and Evaluation		1906	1350	1749	559	5564
Total Project	31710	35768	27860	15115	6956	117409

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603627A Smoke, Obscurant and Target Defeating System - Advanced Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	2623	6246	0	0	0	0	0	5155	Continuing	Continuing
DE78 Target Defeating Systems	0	0	0	0	0	0	0	5155	Continuing	Continuing
DE79 Smoke, Obscurant - Advanced Development	2623	6246	0	0	0	0	0	0	0	8869
<p><u>Mission Description and Budget Item Justification:</u> U.S. Forces must be able to effectively neutralize and degrade directed energy weapon systems and threat electro-optical systems/smart weapons that operate in the full range of the electro-magnetic spectrum. These program elements support the demonstration/validation (DEMVAL) of logistically supportable, high performance smoke and obscurant agents, munitions and devices to improve the survivability of the combined arms force and complement combined weapons systems. Improvements are sought across the entire multi-spectral range from visual through infrared (IR) and millimeter wavelengths (MMW) radar for incorporation into self-protection large area and projected smoke systems. The smoke obscurant technologies supported by this program enhance smoke systems as combat multipliers. This program element focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of Smoke, Obscurant & Equip Systems Engineering and is correctly placed in Budget Activity 4.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603627A Smoke, Obscurant and Target Defeating System - Advanced Development					PROJECT DE79	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE79 Smoke, Obscurant - Advanced Development	2623	6246	0	0	0	0	0	0	0	8869
<p>A. <u>Mission Description and Justification:</u> The Light Vehicle Obscuration Smoke System (LVOSS) is a self-defense smoke/obscurant device externally mounted on the vehicle. The LVOSS is expected to counter threat weapon systems operating in the visual and near infrared portions of the electro-magnetic spectrum. The LVOSS consists of the XM7 light weight discharger and installation kits for the infantry HMMWV equipped TOW and Military Police HMMWV variants.</p> <p><u>Acquisition Strategy:</u> Project DE79 Smoke, Obscurant-Advanced Development: The LVOSS is an in-house effort and will be type classified from the demonstration/validation phase. A make or buy study is being conducted/coordinated with IOC during 2QFY97 for production of the LVOSS grenade.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 60 LVOSS-Conducted Milestone I/II In-Process Review. • 740 LVOSS-Completed Prototype Design Package. • 950 LVOSS-Fabricated Pre-Production Test (PPT) Hardware. • 873 LVOSS-Conducted PPT. <p>Total 2623</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1800 LVOSS-Fabricate Production Qualification Test (PQT) Hardware. • 2558 LVOSS-Conduct PPQT and Systems Operational Modeling. • 1767 LVOSS-Systems Engineering, Planning and Documentation. • 121 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 6246</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p>										
Project DE79			<i>Page 2 of 4 Pages</i>				Exhibit R-2 (PE 0603627A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603627A Smoke, Obscurant and Target Defeating System - Advanced Development					PROJECT DE79	
B. Project Change Summary											
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>							
FY 1997 President's Budget	3160	6380	5631	4798							
Appropriated Value	3248	6246									
Adjustments to Appropriated Value	-625										
FY 1998 Pres Bud Request	2623	6246									
Change Summary Explanation:											
Funding: Due to accelerated RDTE, funds moved to procure LVOSS (FY98 -5631/FY99 -4798).											
Funds reprogrammed to higher priority requirements (FY 96 -537).											
C. Other Program Funding Summary											
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total	
									<u>Compl</u>	<u>Cost</u>	
RDTE,A Budget Activity 5 PE 0604609A Project	1915	0	0	703	937	2552	4814	8362	Cont'd	Cont'd	
D200 Smoke/Obscurant											
OPA-3 Appropriation											
G70700 - LVOSS			2164	4752	2317					0	9233
M99104 - M157 Smoke Generator	5052	3472									8524
D. Schedule Profile											
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>							
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	
LVOSS-Conduct Milestone I/II IPR	X*										
LVOSS-Fabricate PPT Hardware		X*									
LVOSS-Conduct PPT			X*								
LVOSS-Fabricate PQT Hardware				X							
LVOSS-Conduct PQT					X						
LVOSS-Systems Engineering Planning and Documentation Complete						X					
LVOSS-IOTE							X				
*Milestone completed											
Project DE79			Page 3 of 4 Pages				Exhibit R-2 (PE 0603627A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603640A Artillery Propellant Development				PROJECT DB91		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DB91 Artillery Propellant Development	20811	8322	8521	0	0	0	0	0	0	116329
<p>A. <u>Mission Description and Budget Item Justification:</u> This program element is a dual-faceted program focused on efforts associated with development of the Modular Artillery Charge System (MACS) and the 155mm Advanced Solid Propellant Armament (ASP-A). The MACS is a solid propellant charge system consisting of two different types of charge increments, designated the XM231 and XM232. Each of these increments contains propellant, center core ignition elements, wear additives, flash and blast reducers and decoppering agent in a combustible case. MACS achieves zoning through the use of multiple increments of XM231 and XM232. MACS continues the older unicharge development which used a single charge increment, the XM230, to achieve zoning. The ASP-A consists of the XM297 Cannon, its Laser Ignition System (LIS), the XM200 Gun Mount and the XM194 Gun Mount. The XM297, LIS and the XM200 are being developed for the Crusader self-propelled howitzer (SPH). The XM194 is being developed to allow "bolt-in/bolt-out" integration of the XM297 into the M109A6 Paladin SPH. Since the ASP-A was selected as the primary armament system for Crusader, beginning in FY97, ASP-A is funded in PE 0603854, Project D505. This program element focuses on the technology demonstration and validation of the MACS and the 155mm ASP-A and is correctly placed in Budget Activity 4.</p> <p><u>Acquisition Strategy:</u> Not applicable</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 18358 MACS: Continued development and supported the XM297 program; ASP-A: Continued development of the XM297 cannon and its laser ignition system; initiated development of the XM200 gun mount. • 600 Provided project management support and management engineering services. • 1853 ASP-A: Continued XM297 Engineering Development Testing (EDT), including completion of EDT phases 7 and 8 and second pre-fatigue test; started the third pre-fatigue test; hydraulic fatigue testing of two each XM297 tubes and breeches. <p>Total 20811</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 6186 Continue development of MACS for 39 and 59 caliber type classification. • 600 Provide project management support and management engineering services. • 1333 Initiate preliminary testing for 39 caliber type classification. • 203 Small Business Innovation Research /Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 8322</p>										
Project DB91			Page 1 of 4 Pages				Exhibit R-2 (PE 0603640A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997									
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603640A Artillery Propellant Development					PROJECT DB91									
FY 1998 Planned Program:																				
<ul style="list-style-type: none"> • 7821 Continue development of MACS for 52 caliber type classification. • 300 Project management support and management engineering services. • 400 Conduct Milestone III testing for type classification of MACS at 39 caliber. 																				
Total 8521																				
FY 1999 Planned Program: Project not funded in FY 99																				
B. Project Change Summary																				
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>													
FY 1997 President's Budget	21347		18450		9188		0													
Appropriated Value	21946		8322																	
Adjustments to Appropriated Value	-1135																			
FY 1998 President's Budget Request	20811		8322		8521		0													
Change Summary Explanation: Funding: FY 97 Congressional decrement of 10128																				
C. Other Program Funding Summary																				
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To Comp</u>		<u>Total Cost</u>	
Procurement, Ammo, Army, ER 8021									28818		40339		64516		67660		Cont		Cont	
D. Schedule Profile																				
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones																				
Milestone II IPR (MACS)				X*																
Milestone III IPR (MACS - XM231)														X						
Engineering Milestones																				
Combustible Case Design Freeze (MACS)				X																
Initiate Production Readiness Review XM231/XM232							X													
Production Readiness Review XM231														X						
XM297 Cannon Milestones - 2nd Pre-Fatigue Test				X*																
* Milestone completed																				
Project DB91													Page 2 of 4 Pages		Exhibit R-2 (PE 0603640A)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603640A Artillery Propellant Development					PROJECT DB91	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Product Development					18358	6186	7821	0			
Support and Management					600	600	300	0			
Test and Evaluation					1853	1333	400	0			
SBIR/STTR						203					
Total					20811	8322	8521				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
ARMTEC Defense Products, Coachella, CA	SS/CPIF	Aug 92	9539	9539	3944	1569	1826	2200		0	9539
Olin Corp, St. Petersburg, FL	FF	Jul 94	640	640	640					0	640
Olin Corp, Marion, IL (Load Assembly & Pk)	FF	Sep 94	4760	4760	1297	287	889	2287		0	4760
DSTI, Greenbelt, MD	FF	May 94	2223	2223	1265	958				0	2223
Hi Shear, Torrence, CA	FF	Mar 95	147	147	147					0	147
Other contracts (\$100K or less)					837	522	420	100		0	1879
ARDEC, Picatinny Arsenal, NJ, Rock Island, IL, Watervliet Arsenal, NY	PO				58152	11594	2311	2684		0	74741
Project DB91					Page 3 of 4 Pages			Exhibit R-3 (PE 0603640A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603640A Artillery Propellant Development					PROJECT DB91	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Radford Army Ammunition Plant, VA, Hercules Inc.	FFP				2474	1573				0	4047
Army Research Laboratory, Adelphi, MD	PO				2704	1331	470	450		0	4955
Wright-Paterson AFB, Dayton, OH	PO				100	51	270			0	421
Various activities (\$100K or less)					616	473		100		0	1189
SBIR/STTR							203				203
Support and Management Organizations											
ARDEC, Picatinny Arsenal, NJ, Various activities	PO				2958	600	600	300		0	4458
Test and Evaluation Organizations											
TECOM, Yuma, AZ	PO				2944	1453	933			0	5330
ARDEC, Picatinny Arsenal, NJ	PO				597	400	400	400		0	1797
Government Furnished Property: None											
Subtotal Product Development					72176	18358	6389	7821			104744
Subtotal Support and Management					2958	600	600	300			4458
Subtotal Test and Evaluation					3541	1853	1333	400			7127
Total Project					78675	20811	8322	8521			116329

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development
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COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	181647	7803	2007	2008	20496	61894	94697	114741	Continuing	Continuing
DB88 Crusader Resupply Vehicle - Advanced Development	45923	0	0	0	0	0	0	0	0	127370
DQ19 Future Combat System	0	7803	0	0	2004	24843	28877	38457	Continuing	Continuing
D018 Future Scout Vehicle (FSV) - Advanced Development	0	0	2007	2008	18492	37051	65820	76284	Continuing	Continuing
D409 Crusader Self-Propelled Howitzer - Advanced Development	135724	0	0	0	0	0	0	0	0	546347

Mission Description and Budget Item Justification: On 15 Nov 94, the Crusader Projects (DB88 and D409) were approved by the Defense Acquisition Board to proceed into the Demonstration and Validation phase. The Crusader system is the Army's next generation self-propelled howitzer and artillery resupply vehicle for Force XXI. This system will provide an overmatching fire power capability that will support the force commander's goal of dominating the maneuver battle and will incorporate advanced technologies to increase accuracy, rate of fire, survivability, mobility and ammunition handling speed, and decreased crew size. When fielded, Crusader will displace the M109A6 Paladin self-propelled Howitzer and M992 Field Artillery Ammunition Supply Vehicle in rapidly deployable and forward deployed forces. Continuation of Crusader Demonstration and Validation is in PE 0603854A, Project D505. These Crusader projects were combined in FY 97 based on the 14 Nov 94 DAB review. Project DQ19 invests in high pay-off advanced technologies applicable to Abrams series tanks. The Army plans to develop and incorporate a series of fire control, survivability and automotive enhancements to the M1A1 and M1A2 fleet. Several candidates' technologies are being currently evaluated for the optimum solution to anticipated threat systems. Project D018 funds the development and demonstration phase of the Future Scout Vehicle (FSV). The FSV will replace the current ground scout systems in the battalion/brigade and division/regiment levels. This project will fund finalization of requirements definition, design definition, sensor maturation, and software integration efforts. All projects in this program element fund the advanced development phase of Army combat systems and are therefore correctly placed in Budget Activity 4.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development				PROJECT DB88																											
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
DB88 Crusader Resupply Vehicle - Advanced Development	45923	0	0	0	0	0	0	0	0	127370																									
<p>A. <u>Mission Description and Justification:</u> The Crusader Resupply Vehicle (RSV) will increase ammunition payload and will provide automated, rapid transfer of ammunition, propellant and fuel to the Crusader self-propelled howitzer (SPH). The RSV will support the decentralized and continuous operations of the SPH, thereby increasing SPH mission effectiveness. Automation and robotics in the RSV will allow crew reduction resulting in life cycle cost benefits over the current system. The RSV will have increased ballistic and non-ballistic survivability features. Mobility improvements will allow the Crusader system to keep up with the maneuver force. Beginning in FY 97 this project merges into a single project along with D409 to form D505 Crusader - AD, PE 0603854A, Artillery Systems Advanced Development.</p> <p><u>Acquisition Strategy:</u> None Applicable</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 36249 Performed Development Phase I/II Contract Efforts; Downselected to Solid Propellant (SP) due to affordability and risk concerns; Conducted System Functional Review (SFR) and commenced preliminary design • 7949 Continued Product Development Team support, management of the propellant technology and other management support • 1725 Continued Management Support <p>Total 45923</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p> <p>B. <u>Project Change Summary</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">59386</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">61054</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-15131</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 President's Budget Request</td> <td style="text-align: center;">45923</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </tbody> </table>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	59386	0	0	0	Appropriated Value	61054				Adjustments to Appropriated Value	-15131				FY 1998 President's Budget Request	45923	0	0	0
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY 1997 President's Budget	59386	0	0	0																															
Appropriated Value	61054																																		
Adjustments to Appropriated Value	-15131																																		
FY 1998 President's Budget Request	45923	0	0	0																															
Project DB88				Page 2 of 16 Pages				Exhibit R-2 (PE 0603645A)																											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997					
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development						PROJECT DB88					
Change Summary Explanation: Funding: The FY 96 reduction is a result of an approved reprogramming (-12668) and undistributed Congressional reductions and rescissions (-2463).																
C. Other Program Funding Summary																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Comp</u>	<u>Total Cost</u>					
RDTE, A Budget Activity 5																
PE 0604854A, Project D503 Crusader - ED						311211	434690	433920	202648	Cont	Cont					
PE 0604854A, Project D2KT Crusader						499	1156	107	109	3485	Cont	Cont				
Operational Test																
RDTE, A Budget Activity 4																
PE 0603854A, Project D505 Crusader - AD			235795	322291	293920	47102				0	921802					
D. Schedule Profile																
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conduct SFR and begin preliminary design			X*													
* Milestone completed																
Project DB88																
Page 3 of 16 Pages																
Exhibit R-2 (PE 0603645A)																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
4 - Demonstration and Validation				0603645A Armored Systems Modernization - Advanced Development						DB88	
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Development Requirements Analysis/Component Maturation				36249							
Phase I & II Contract											
Contractor Engineering Support				1255							
Government Engineering Support				6694							
Program Management Support				1725							
Total				45923							
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or	Contract										
Government	Method/Type	Award or	Performing	Project	Total						
Performing	or Funding	Obligation	Activity	Office	Prior to					Budget to	Total
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>
Product Development Organizations											
United Defense LP	SS/CPIF	Sep 94	TBD	TBD	22698	36249				0	58947
Martin Marietta, Burlington, VT	SS/CPFF	Mar 93	5565	5565	5565					0	5565
ARDEC, Picatinny Arsenal, NJ	PO				1000	1000				0	2000
Support and Management Organizations											
Dept of Energy - Oak Ridge Nat'l Labs, TN	MIPR				17287					0	17287
PM-Crusader, Picatinny Arsenal, NJ					2851	1725				0	4576
ARDEC, Picatinny Arsenal, NJ	PO				17638	3322				0	20960
Other Field Activities	PO				5603	2372				0	7975
Project DB88				Page 4 of 16 Pages				Exhibit R-3 (PE 0603645A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development					PROJECT DB88	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Various other contracts					8805	1255				0	10060
Test and Evaluation Organizations											
TECOM, Yuma Proving Grd, AZ	PO										
Government Furnished Property: None											
Subtotal Product Development					29263	37249					66512
Subtotal Support and Management					52184	8674					60858
Subtotal Test and Evaluation											
Total Project					81447	45923					127370

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development					PROJECT DQ19	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DQ19 Future Combat System	0	7803	0	0	2004	24843	28877	38457	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> The Army plans to maintain the capabilities of the Abrams tank with limited improvements until the 2015 to 2020 timeframe when a replacement to the Abrams will be needed. High payoff improvements will be investigated and produced where funding is available. The replacement to the Abrams, called the Future Combat System (FCS), will incorporate, to the extent possible, leap ahead capabilities in lethality, fire control, mobility, survivability, target acquisition, and sustainability.</p> <p><u>Acquisition Strategy:</u> The Army will maximize investments in the science and technology base for the selection of high payoff improvements to the Abrams tank. General Dynamics Land Systems Division (GDLS) will remain the prime contractor for integration development and production. The acquisition strategy for the FCS has not been formed, but it will maximize competition in development and production. For FCS, emphasis is being placed on the choice of a main armament system, which will be the principal driver of virtually all other aspects of the design.</p> <p>FY 1996 Accomplishments: Program not funded in FY 96</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 3100 Investigate improvements to M1A2 tank lethality (\$1.0M) and FCS concept studies (\$2.1) • 2700 Analyze automotive improvements • 1300 Propose M1A1 Command and Control improvements incorporating digital technology • 512 Provide Government Support • 191 Small Business Innovation Research / Small Business Technology Transfer (SBIR / STTR) Programs <p>Total 7803</p> <p>FY 1998 Planned Program: Program not funded in FY 98</p> <p>FY 1999 Planned Program: Program not funded in FY 99</p>										
Project DQ19			Page 6 of 16 Pages				Exhibit R-2 (PE 0603645A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997							
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development					PROJECT DQ19							
B. <u>Project Change Summary</u>																	
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>									
FY 1997 President's Budget		0		0		0		0									
Appropriated Value				7803													
Adjustments to Appropriated Value																	
FY 1998 President's Budget Request		0		7803		0		0									
Change Summary Explanation: Funding: FY 97 (+7803) Congressional increase.																	
C. <u>Other Program Funding Summary</u>																	
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total						
										<u>Compl</u>	<u>Cost</u>						
Abrams IOTE (D2UT)		0	1415	0	0	0	0	0	0	0	1415						
Abrams Improvement Program (D330)		40691	69749	33287	6421	2982	3973	9923	34805	Con't	Con't						
D. <u>Schedule Profile</u>																	
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Engineering Studies Completed														X			
Critical Design Review-MIA1Digitization									X								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development					PROJECT DQ19		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
M1A2 Tank Lethality & FCS Concept Analyses					3100						
Automotive Analysis					2700						
M1A1 Command and Control Improvements					1300						
Government Support					512						
SBIR/STTR					191						
Total					7803						
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
GDLS		TBD					3900			Con't	3900
Sterling Hgts, MI								3200		Con't	3200
TBD		TBD					191				191
SBIR/STTR								512		Con't	512
PMO / TARDEC	MIPR										
Warren, MI											
Test and Evaluation Organizations											
TBD		TBD								Con't	
Government Furnished Property		Not Applicable									
Subtotal Product Development							7291				7291
Subtotal Support and Management							512				512
Subtotal Test and Evaluation											
Total Project							7803				7803
Project DQ19											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development				PROJECT D018		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D018 Future Scout Vehicle (FSV) - Advanced Development	0	0	2007	2008	18492	37051	65820	76284	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> The Future Scout Vehicle (FSV), also known as the Future Scout and Cavalry System (FSCS), is the Army's next generation ground reconnaissance and intelligence gathering, combat vehicle system. FSV will provide Army reconnaissance elements a platform with significant improvements in vehicle mobility, survivability, lethality, target acquisition and communication capabilities through integration of advanced technologies. Advanced sensors and communication systems, combined with sophisticated vehicle signature management, will significantly enhance the scout's capability to rapidly detect, identify, recognize, and hand-off multiple targets to field commanders under all conditions and in all environments.</p> <p><u>Acquisition Strategy:</u> Current plans call for the competitive selection of a system integrator who will be given responsibility for joint development of an FSV design concept. Extensive modeling and simulation will be utilized to meet and finalize system requirements, verify and validate the requirements, and establish a design definition baseline. The baseline will support follow-on Engineering and Manufacturing Development (EMD). The US Government is also attempting to establish an international cooperative effort with the United Kingdom to share development costs in, at a minimum, the Program Definition and Risk Reduction of a FSV program.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 2007 Initiate Project Management (PM); Integrated Product Team Studies <p>Total 2007</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 2008 Continue Project Management; Integrated Product Team Studies <p>Total 2008</p>										
Project D018			<i>Page 9 of 16 Pages</i>				Exhibit R-2 (PE 0603645A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT			
4 - Demonstration and Validation				0603645A Armored Systems Modernization - Advanced Development					D018			
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
Project Management						2007	2008					
Total						2007	2008					
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program	
Product Development Organizations: None												
Support and Management Organizations												
PM Office and IPT MIPR									2007	2008	Cont	Cont
Test and Evaluation Organizations: None												
Government Furnished Property None												
Subtotal Product Development												
Subtotal Support and Management									2007	2008	Cont	Cont
Subtotal Test and Evaluation											Cont	Cont
Total Project									2007	2008	Cont	Cont
Project D018				Page 11 of 16 Pages				Exhibit R-3 (PE 0603645A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development				PROJECT D409																											
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
D409 Crusader Self-Propelled Howitzer - Advanced Development	135724	0	0	0	0	0	0	0	0	546347																									
<p>A. <u>Mission Description and Justification:</u> The Crusader self-propelled howitzer (SPH) is the Army's next generation 155mm SPH system providing high payoff technology capabilities in support of the maneuver force. This project develops AFAS Advanced Technology Demonstrator (ATD); matures the alternative gun technology; matures packaging and formulation of the advanced propellant; matures the fire control/artillery componentry; and, provides funding for the Development Phases I/II efforts. SPH requirements include leap-ahead capabilities in range, rate-of-fire, sustained fire, time-on-target, accuracy, responsiveness, automated ammunition handling/resupply, reduced crew size and survivability. Beginning in FY 97 this project merges into a single project along with DB88 to form D505 Crusader - AD, PE 0603854A, Artillery Systems Advanced Development.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 126548 Product Development - Continued developmental efforts under the Development Phases I/II contract; Downselected to solid propellant due to affordability and risk concerns; Conducted System Functional Review and commenced preliminary design • 8302 Support and Management - Continued project management efforts, to include scientific and engineering management services • 874 Test and Evaluation - Began contractor Development Test and Evaluation under the Development Phases I/II contract <p>Total 135724</p> <p>FY 1997 Planned Program: Program not funded in FY 97</p> <p>FY 1998 Planned Program: Program not funded in FY 98</p> <p>FY 1999 Planned Program: Program not funded in FY 99</p> <p>B. <u>Project Change Summary</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 1996</u></th> <th style="text-align: right;"><u>FY 1997</u></th> <th style="text-align: right;"><u>FY 1998</u></th> <th style="text-align: right;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">126866</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">130459</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">+5265</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 President's Budget Request</td> <td style="text-align: right;">135724</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> </tr> </tbody> </table>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	126866	0	0	0	Appropriated Value	130459				Adjustments to Appropriated Value	+5265				FY 1998 President's Budget Request	135724	0	0	0
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY 1997 President's Budget	126866	0	0	0																															
Appropriated Value	130459																																		
Adjustments to Appropriated Value	+5265																																		
FY 1998 President's Budget Request	135724	0	0	0																															
Project D409			Page 12 of 16 Pages				Exhibit R-2 (PE 0603645A)																												

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development					PROJECT D409		
C. <u>Other Program Funding Summary</u>										To	Total	
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>		
RDTE, A Budget Activity 5					311211	434690	433920	202648	Cont	Cont		
PE 0604854A, Project D503 Crusader - ED												
RDTE, A Budget Activity 5				499	1156	107	109	3485	Cont	Cont		
PE 0604854A, Project D2KT Crusader												
Operational Test												
RDTE, A Budget Activity 4		235795	322291	293920	47102				0	921802		
PE 0603854A, Project D505 Crusader - AD												
RDTE, A Budget Activity 5	6058	6585							0	36459		
PE 0604645A, Project D175 MOFA												
D. <u>Schedule Profile</u>												
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
Conduct SFR and begin preliminary design			X*									
* Milestone completed												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
4 - Demonstration and Validation				0603645A Armored Systems Modernization - Advanced Development						D409	
A. <u>Project Cost Breakdown</u>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Product Development				126548							
Support and Management				8302							
Test and Evaluation				874							
Total				135724							
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
United Defense, Minneapolis, MN	Comp/CPIF	May 91	76173	76173	76173					0	76173
Martin Marietta, Pittsfield, MA	SS/CPIF/CP FF	Jan 92	TBD	100799	100799					0	100799
United Defense, Minneapolis, MN	SS/CPIF	Sep 94	TBD	TBD	83997	116504				0	200501
ARDEC, Picatinny Arsenal, NJ, Watervliet Arsenal, NY, Rock Island Arsenal, IL	PO				63042	5087				0	68129
ARL, Aberdeen Proving Grd, MD/ Watertown, MA	PO				11799	1294				0	13093
Olin, Charleston, TN	SS/FFP	Sep 93	1988	1988	1988					0	1988
Project D409				Page 14 of 16 Pages				Exhibit R-3 (PE 0603645A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603645A Armored Systems Modernization - Advanced Development					PROJECT D409	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Grumman, Bethpage, NY		Nov 93	4275	4275	4275					0	4275
Martin Marietta, Pittsfield, MA	Comp/CPFF	Jan 93	4204	4204	4204					0	4204
LB&M, Lawton, OK	Comp/CPFF	Feb 93	1806	1806	1806					0	1806
Various OGA's and Contractors					23521	3663				0	27184
Support and Management Organizations											
PM Crusader, Picatinny Arsenal, NJ					9372	2889				0	12261
ARDEC, Picatinny Arsenal, NJ	PO				13172	4909				0	18081
TRW, Redondo Beach, CA					3503					0	3503
Various OGA's and Contractors					1612	504				0	2116
Test and Evaluation Organizations											
TECOM, Yuma Proving Grd, AZ; CSTA, Aberdeen Proving Grd, MD	PO				4885	874				0	5759
Morton Thiokol, Elkton, MD	SS/FPI	May 93	3307	3307	3307					0	3307
Olin, Charleston, TN	SS/FPI	May 93	3168	3168	3168					0	3168
TBD-Ammo Purchase		TBD	TBD	TBD	N/A						
Project D409					Page 15 of 16 Pages				Exhibit R-3 (PE 0603645A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT
4 - Demonstration and Validation	0603645A Armored Systems Modernization - Advanced Development					D409
Government Furnished Property: None						
	Total Prior to					Budget to Total
	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>
Subtotal Product Development	371604	126548				498152
Subtotal Support and Management	27659	8302				35961
Subtotal Test and Evaluation	11360	874				12234
Total Project	410623	135724				546347
Project D409		Page 16 of 16 Pages			Exhibit R-3 (PE 0603645A)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603649A Engineering Modification Equipment - Advanced Development				PROJECT DG24		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DG24 M1 Breacher	13591	0	0	0	0	0	0	0	0	72458
<p>A. <u>Mission Description and Budget Item Justification:</u> The Grizzly (M1 Breacher) will be developed around the M1 Abrams tank chassis and will integrate a versatile/survivable full-width mine clearing blade with reactive depth control, a power driven excavating arm, and a commander's armored control station. The Grizzly will provide the Combat Engineer with significantly improved mission effectiveness and crew/vehicle survivability while clearing minefields and removing complex natural and man-made obstacles at the forward edge of the battlefield. The Grizzly will be capable of moving with, and will be as survivable as, the force it is supporting. This program element/project is correctly placed in Budget Activity 4, focusing on efforts associated with advanced technology development to include demonstration and validation in the areas of mine clearing blade reactive depth control, power bus, vetronics, survivability, and hydraulics.</p> <p><u>Acquisition Strategy:</u> Research and development efforts have leveraged the accomplishments of the Combat Mobility Vehicle Advanced Technology Transition Demonstrator (CMV-ATTD) contract. Design modifications have been written into the Advanced Development contract for the powertrain and other chassis components/systems necessary to insure that the Grizzly will meet the mission profile required by the Operational Requirements Document. Through the production buy the vehicle will be sole sourced to United Defense Limited Partnership (UDLP), Ground Systems Division, York, PA.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1100 Completed Government Development Testing and Conducted Early User Testing • 10118 Refined Design, Validated Logistics Functions, and Applied Engineering Changes • 2073 Provided Government/Contractor Program Management and System Engineering • 300 Completed Dem/Val <p>Total 13591</p> <p>FY 1997 Planned Program: The project transitions to PE 0604649A, DG25, for the Engineering and Manufacturing Development (EMD).</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p>										
Project DG24			Page 1 of 4 Pages				Exhibit R-2 (PE 0603649A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603649A Engineering Modification Equipment - Advanced Development						PROJECT DG24	
B. <u>Project Change Summary</u>					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
FY 1997 President's Budget Request					9839	0	0	0				
Appropriated Value					10115							
Adjustments to Appropriated Value					+3476							
FY 1998 President's Budget Request					13591	0	0	0				
Change Summary Explanation:												
Funding: FY 1996 (+3476) funding increase was required to extend the Demonstration and Validation phase.												
Schedule: Milestone II was accomplished in December 1996 and approval was received to enter the EMD phase.												
Technical: Testing validated system performance allowing the Grizzly program to enter EMD.												
C. <u>Other Program Funding Summary</u>											To	Total
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>		
RDTE, A Budget Activity 5												
PE 0604649A, Project DG25, M1 Breacher Dev												
	6501	34102	43748	51420	58745	39210	19294					253020
PA, WTCV, GZ3200, Breacher MOD												
				10444	10964	83399	86313	125900	Cont'd			Cont'd
PA, WTCV, GEO175, Breacher Spares												
							2334	2666	Cont'd			Cont'd
PA, WTCV, G84000, Breacher Trng Dev												
						397	15726	1527				17650
D. <u>Schedule Profile</u>												
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>				<u>FY 1999</u>
	1	2	3	4	1	2	3	4	1	2	3	4
Conduct Development and Early User Testing												
		X*										
Conduct Milestone II Review												
				X*								
Award EMD Contract												
					X*							
* Milestone Completed												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603649A Engineering Modification Equipment - Advanced Development				PROJECT DG24			
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Development Engineering				6650							
Logistics Support				2050							
System Test & Evaluation				2518							
System Management				2373							
Total				13591							
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
United Defense, York, PA	SS-CPIF	Sep 92 (K Mod)	60554	60554	49948	10606					60554
Other Contracts	Various	Various			645	166					811
Support and Management Organizations											
TACOM Warren, MI					4901	1488					6389
ANAD Anniston, AL					250						250
Other Gov't Agencies					1225	231					1456
Contract Support to Milestone Rev					230						230
Test and Evaluation Organizations											
TECOM APG, MD					856	780					1636
Project DG24				Page 3 of 4 Pages			Exhibit R-3 (PE 0603649A)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603649A Engineering Modification Equipment - Advanced Development					PROJECT DG24	
Government Furnished Property										
Item	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
TACOM										
Warren, MI	Requisitions	Various	Various	159						159
Support and Management Property None										
Test and Evaluation Property										
TACOM	Requisitions	Various	Various	653	320					973
Warren, MI										
Subtotal Product Development				50752	10772					61524
Subtotal Support and Management				6606	1719					8325
Subtotal Test and Evaluation				1509	1100					2609
Total Project				58867	13591					72458

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603653A Advanced Tank Armament System				PROJECT DB99		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DB99 Advanced Tank Armament System	9335	11395	8982	8928	15070	26420	31726	25150		141779
<p>A. <u>Mission Description and Budget Item Justification:</u> Our success in Desert Storm was due in large part to the superiority of our armament systems over those of the Iraqi Army. We were able to see, hit and kill the enemy long before they were even aware of our presence. The goal of the Advanced Tank Armament System (ATAS) program is to maintain our superiority over increasingly more capable future enemy tanks. The ATAS program is one of the principal programs supporting tank lethality improvements. The program is developing and demonstrating a number of key gun and fire control technologies which offer significant payoffs in lethality for the current tank fleet, the next upgrade to the M1A2 Abrams tank, as well as other future weapon system platforms.</p> <p>The ATAS Program has two main phases. Phase I develops and demonstrates, in FY 97, autotarget tracking technology that is applicable to the current M1 Abrams series of tanks. Phase I is a requirements oriented, Combat Developer (User) directed program that increases tank lethality by allowing the tank crew to quickly kill enemy battlefield targets. Phase I technology, when applied to tank training devices, will also reduce tank crew training costs by reducing the amount of training necessary for new Gunners to perform proficiently. Phase II develops and matures a highly lethal tank main gun, the XM291, that can kill advanced enemy tanks at long range. Phase II also develops advanced fire control system components consisting of a Continuous Muzzle Reference System, an Equilibrated Gun Turret Drive System, improved ballistics and target state estimating system. In FY 97, the program will study the inclusion of a compact autoloader for an FY 99 test in the ATAS Phase II, M1A2 test vehicle. Maturation of the XM291 gun (including redesign for low cost M1A2 installation) and the gun stabilization system will continue through FY 98. This includes wear resistant barrel coatings applied to the XM291 gun tubes to reduce gun barrel erosion, and modifications to the XM291 gun and the stabilization system to reduce gun vibration and increase fire-on-the move accuracy. These gun components, and possibly an autoloader, will be tested and integrated into an M1A2 tank for a technology demonstration in FY 99. ATAS technology will be applied to Future Weapon Systems platforms such as the Future Scout and Cavalry Vehicle and Future Combat System in both large and medium caliber to reduce the overall cost of Army weapon systems' development. The XM291 gun, advanced gun stabilization system, and autoloader coupled with the advanced fire control system components allow the tank crew to engage enemy targets at increased ranges, faster and more accurately than currently fielded systems. XM291 gun Engineering Manufacturing Development (EMD) will begin in FY 00 to prepare the cannon for possible integration into the Abrams tank.</p> <p>The ATAS program is conducting prototyping, testing and early operational assessment of critical tank armament systems, subsystems, and components; identifying cost drivers and alternatives using modeling and simulation, and working with the User representative to establish performance objectives and identify cost-schedule-performance trade-offs. ATAS is also demonstrating component performance enhancements for application to future Abrams upgrades, and is appropriately placed in Budget Activity 4.</p>										
Project DB99			Page 1 of 5 Pages			Exhibit R-2 (PE 0603653A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603653A Advanced Tank Armament System	PROJECT DB99
<p>Acquisition Strategy: The technologies in ATAS will be demonstrated then transferred to PM Abrams for further technical development. Technologies in ATAS may flow into the next major upgrade or Engineering Change Proposal (ECP) to the current Abrams tank. Several contractors and government agencies are used to develop or integrate existing technologies.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1600 Gun Technology - continued gun maturation program • 900 Phase I - designed/fabricated/integrated autotarget tracker hardware/software for M1A2 tank • 6835 Phase II - procured objective fire control hardware, began software integration, initiated turret integration study <p>Total 9335</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1600 Gun Technology - continue gun maturation program including redesign of the gun mount for low cost M1A2 installation • 600 Phase I - complete autotarget tracker demonstration • 6967 Phase II - complete fire control component hardware/software integration, continue turret integration study • 2000 Ruggedize the Compact Autoloader design • 228 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 11395</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 300 Phase II - complete fire control component testing • 1930 Phase II - design/apply coatings to XM291 gun tubes • 2662 Phase II - design/ fabricate modified XM291 gun • 1130 Phase II - continue turret integration • 2960 Phase II - design/fabricate stabilization system <p>Total 8982</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1370 Phase II - test coatings • 2120 Phase II - test XM291 gun, stabilization system and autoloader as components • 4838 Phase II - integrate XM291 gun, stabilization system and into M1A2 test tank • 600 Phase II - test complete XM291 gun, stabilization system <p>Total 8928</p>		
B. <u>Project Change Summary</u>	<u>FY 1996</u>	<u>FY 1997</u>
Project DB99	Page 2 of 5 Pages	Exhibit R-2 (PE 0603653A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997										
BUDGET ACTIVITY						PE NUMBER AND TITLE						PROJECT									
4 - Demonstration and Validation						0603653A Advanced Tank Armament System						DB99									
B. Project Change Summary						FY 1996		FY 1997		FY 1998		FY 1999									
FY 1997 President's Budget						9683		9639		9686		9693									
Appropriated Value						9955		11395													
Adjustments to Appropriated Value						-620															
FY 1998 President's Budget Request						9335		11395		8982		8928									
C. Other Program Funding Summary: Not applicable																					
D. Schedule Profile						FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
Complete the improved gun stabilization test (Core Technology)						X*															
Complete hardware/software integration for Autotracker Demo (Phase I)						X*															
Complete Autotracker Demonstration (Phase I)										X											
Procure Objective Hardware						X*															
Initiate Gun Maturation						X*															
Initiate Phase II turret integration only						X*															
Begin integration of Phase II software with hardware						X*															
Complete Phase II fire control hardware/software integration										X											
Award Compact Autoloader Contract										X											
Ruggedize Autoloader Design										X											
Complete Phase II fire control testing														X							
Begin Gun Tube Coating Analysis														X							
Apply Coatings to Gun Tubes														X							
Complete Gun Tube wear testing														X							
Begin XM291 Gun modification										X											
Finish XM291 modification fabrication														X							
Design Stabilization system & autoloader														X							
Test XM291 Gun, stab system														X							
Begin XM291 System/M1A2 integration														X							
Project DB99						Page 3 of 5 Pages						Exhibit R-2 (PE 0603653A)									

DATE
February 1997

BUDGET ACTIVITY
4 - Demonstration and Validation

PE NUMBER AND TITLE
0603653A Advanced Tank Armament System

D. <u>Schedule Profile</u>	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete XM291 System /M1A2 integration														X		
Begin XM291 Gun System testing															X	
Complete XM291 Gun System testing																X
*Milestone Completed																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603653A Advanced Tank Armament System					PROJECT DB99	
A. <u>Project Cost Breakdown</u>											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Primary Hardware Development/Contractor					7135	7981	5490	5739			
Primary Hardware Development/Government					700	2186	2432	1829			
Quality Assurance/ARDEC					300	500	350	350			
Developmental Test & Evaluation					600	100	300	600			
Program Management (PM-TMAS)					600	400	410	410			
SBIR/STTR						228					
Total					9335	11395	8982	8928			
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Texas Instruments	C-CPFF	Sep 90		20575	2733	6935	4181	1900	1939		17688
Benet Laboratories	OGA				1600	800	1886	2432	1829	63166	71713
Hughes Aircraft	SS-CPFF	Jan 93		240	40	100	100				240
GDLS							2000	3590	3800		9390
Western Design							1700				1700
Howden											
ARDEC	OGA				200		300				500
SBIR/STTR							228				228
Support and Management											
PM-TMAS/ARDEC					100	900	900	760	760	9700	13120
Test and Evaluation											
CSTA					100	600	100	300	600	25500	27200
Government Furnished Property: Not Applicable											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation			PE NUMBER AND TITLE 0603653A Advanced Tank Armament System			PROJECT DB99	
	Total Prior to <u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Subtotal Product Development	4773	9335	11395	8982	8928	98366	141779
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project	4773	9335	11395	8982	8928	98366	141779

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603713A Army Data Distribution System						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	6360	23170	21214	10049	5074	3699	3734	3755	0	77168
D370 JTIDS/EPLRS	5699	19632	21214	10049	5074	3699	3734	3755	0	72969
D2QT EPLRS/JTIDS Operational Test	661	3538	0	0	0	0	0	0	0	4199
<p>Mission Description and Budget Item Justification: The Army Data Distribution System (ADDS), which consists of the Enhanced Position Location Reporting System (EPLRS), the Joint Tactical Information Distribution System (JTIDS), and the Near Term Digital Radio (NTDR) provides support to the Army's air defense, fire support, maneuver control, intelligence and combat service support automated system. Project D370 is capable of "digitizing data messages" that must be transmitted on the battlefield. It is capable of providing multi-functions; data communications, unit locations and unit identification. The ADDS network automatically utilizes manpack, surface vehicle and airborne vehicle user units to achieve range extension. It has been designated specifically to meet the data communications requirements of emerging tactical automated data processing and sensor based systems. The ADDS will provide reliable, real-time, secure, jam-resistant data communications and position location capabilities to the soldier and his unit commander. These projects focus on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of Army Data Distribution and are correctly placed in Budget Activity 4.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603713A Army Data Distribution System				PROJECT D370	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D370 JTIDS/EPLRS	5699	19632	21214	10049	5074	3699	3734	3755	0	72969
<p>A. <u>Mission Description and Budget Item Justification</u> : The Near-Term Digital Radio (NTDR) is an Non-Developmental Item (NDI) Research and Development program to procure systems for test and experimentation that will lead to production/fielding for Force Package 1 units. The program's vision is to create the Army Communication data backbone for Platoon to Brigade for Force XXI. It is the one of the seven major elements which will provide a seamless digital communication capability throughout the fighting force for the Digital battlefield of the 21st century. To allow the NTDR to evolve and to make maximum use of technology insertion, it is based on an open architecture which allows programmability and future expansion. The project will provide reliable, real-time, secure, jam-resistant data communications and position location capabilities to the soldier and his unit commander. This project provides data distribution support to the Army's air defense, fire support, maneuver control, intelligence and combat service support automated systems, and is capable of "digitizing data messages" that must be transmitted on the battlefield.</p> <p><u>Acquisition Strategy:</u> The NTDR program is following a Non-Development Item (NDI) approach with an RDTE contract awarded competitively in January 1996. The Near Terminal Digital Radio acquisition strategy is to fabricate NTDR radios for an IOT&E in 2QFY99. In FY 97, the NTDR units will be utilized for testing and experiments both at EPG and in Division XXI which will focus on enhancing the command and control aspects of maneuver warfare. The Multifunctional Information Distribution System (MIDS) program is a Navy managed joint services development program currently viewed as an eventual low cost replacement for parts of the JTIDS family of high speed data terminals. Remaining effort in FY97 for the EPLRS program is for required NCS-E(D) documentation.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 867 JTIDS Software Development Completion • 1792 Net Control Station (Downsize) Software Development Completion • 2337 NTDR Program Hardware and Software development • 703 Program Management/Test Activities <p>Total 5699</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 15108 Continue NTDR Program • 1588 Program Management Activities for NTDR • 476 MIDS Contract Development/Engineering Support • 1392 NTDR Testing • 617 Documentation for EPLRS Net Control Station Downsized (NCS-E(D)) • 451 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) 										
Project D370			Page 2 of 9 Pages				Exhibit R-2 (PE 0603713A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603713A Army Data Distribution System						PROJECT D370	
Total					19632							
FY 1998 Planned Program:												
• 2595 Continue MIDS Development/Engineering Support												
• 2031 Program Management Activities for NTDR												
• 4618 Test Activities (NTDR)												
• 11783 Continue/Complete NTDR Program Hardware/Software Development												
187 Misc. (GFE, Travel)												
Total					21214							
FY 1999 Planned Program:												
• 3862 Continue MIDS Development/Engineering Support												
• 1347 Program Management Activities for NTDR												
• 3027 Test Activities (NTDR)												
• 1621 Continue/Complete NTDR Program Hardware/Software Development												
192 Misc. (GFE, Travel)												
Total					10049							
B. Project Change Summary												
			<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
FY1997 President's Budget			5798		20169		22884		10907			
Appropriated Value			5856		19745							
Adjustments to Appropriated Value			-157									
FY1998 Pres Bud Request			5699		19632		21214		10049			
C. Other Program Funding Summary												
			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total
OPA2, BU1400			44563	67927	57165	55676	42910	40625	39525	50522	Compl	Cost
											Cont	Cont
D. Schedule Profile												
			FY 1996		FY 1997		FY 1998		FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
Class 2M LRIP Award			X*									
Class 2M DT/OT/MS Tests Start			X*									
Class DT/OT/MS Tests Completion					X*							
Class 2M FRP Decision						X						
Project D370						X						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation							PE NUMBER AND TITLE 0603713A Army Data Distribution System							PROJECT D370			
D. Schedule Profile							FY 1996		FY 1997			FY 1998			FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Class 2M FRP Contract Award							X										
Start FY94 EDM Delivery			X*														
Complete FY94 EDM Delivery							X										
Class 2M LRIP Delivery										X							
Class 2M FRP Delivery														X			
Start Fielding EDM Terminals						X											
Complete Fielding EDM Terminals									X								
MIDS Development Test										X							
MIDS OT/Multiservice Test														X			
MIDS Transition Decision																X	
MIDS Contract Award																X	
NTDR Award		X*															
NTDR Option Award											X						
NTDR Operational Assessment											X						
NTDR IOT&E**														X			
Complete NCS-E(D) OT				X*													
*Event has been completed																	
**NTDR IOT&E Proposed from FY00																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997					
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603713A Army Data Distribution System					PROJECT D370					
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>							
Contractor Engineering Support					4323	16201	17078	7010							
Program Management Support					730	1588	2218	1539							
Miscellaneous (NTDR-GFE)					125	0	0	0							
Testing					521	1392	1918	1500							
SBIR/STTR						451									
Total					5699	19632	21214	10049							
B. Budget Acquisition History and Planning Information															
Performing Organizations															
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program				
Product Development Organizations															
SBIR/STTR							451				451				
NTDR System					TBD	TBD			2700	1527	3012	7239			
Integration															
Science Application					MIPR	AUG 96	151	151	0	0	0	151			
International															
Misc.					MIPR	TBD	7492	7492	0	0	476	2595	3862	556	7489
Venntronix Corp, Eatontown, NJ					MIPR	APR 96	420	420	0	420	0	0	0	0	420
Lockheed/Martin					MIPR	MAR 97	2001	2001	0	1380	617	0	0	0	1997
ITT Ft Wayne					C/CPFF/FFP	JAN 96	31438	31438	0	2337	15108	11783	1621	500	31439
TBD					TBD	TBD	9057	9057	0	0	0	0	0	9057	9057
VISICOM					SS/CPFF	JUN 96	35	35	0	35	0	0	0	0	35
Support and Management Organizations															
Misc.					MIPR	DEC 95	125	125	0	125	0	0	0	0	125
Misc.					MIPR	TBD	2128	2128	0	0	0	0	0	2128	2128
Misc.					MIPR	FEB 96	7093	7093	0	730	1588	2218	1539	1009	7084
Project D370															

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603713A Army Data Distribution System					PROJECT D370	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations											
EPG	MIPR		0	0	0	0	0	0	0	0	
EPG	MIPR	MAY 96	4916	4916	0	98	1392	1918	1500	0	4908
EPG	MIPR	FEB 96	423	423	0	423	0	0	0	0	423
Government Furnished Property: N/A											
Subtotal Product Development						4323	16652	17078	7010	13125	58188
Subtotal Support and Management						855	1588	2218	1539	3137	9337
Subtotal Test and Evaluation						521	1392	1918	1500		5331
Total Project						5699	19632	21214	10049	16262	72856

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603713A Army Data Distribution System				PROJECT D2QT																											
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
D2QT EPLRS/JTIDS Operational Test	661	3538	0	0	0	0	0	0	0	4199																									
<p>A. Mission Description and Budget Item Justification: This project finances the direct costs of planning and conducting operational testing and evaluation of the EPLRS/JTIDS by the Operational Test and Evaluation Command (OPTEC). JTIDS is an Acquisition Category (ACAT) I system with an Initial Operational Test and Evaluation (IOT&E) beginning in 1 QTR FY97. Operational Testing is conducted under conditions, as close as possible, to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 497 JTIDS OT Planning • 150 JTIDS OT Evaluation Planning • 14 OT Unit (Test Players) Support <p>Total 661</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 2897 Conduct JTIDS OT • 337 JTIDS OT Evaluation • 217 OT Unit (Test Players) Support • 87 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 3538</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p> <p>B. Project Change Summary</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY1997 President's Budget</td> <td align="right">678</td> <td align="right">3653</td> <td align="right">10</td> <td></td> </tr> <tr> <td>Appropriated Value</td> <td align="right">685</td> <td align="right">3538</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td align="right">-24</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY1998 Pres Bud Request</td> <td align="right">661</td> <td align="right">3538</td> <td align="right">0</td> <td></td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding - FY 98 - Realigned to higher priority programs (-10)</p>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY1997 President's Budget	678	3653	10		Appropriated Value	685	3538			Adjustments to Appropriated Value	-24				FY1998 Pres Bud Request	661	3538	0	
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY1997 President's Budget	678	3653	10																																
Appropriated Value	685	3538																																	
Adjustments to Appropriated Value	-24																																		
FY1998 Pres Bud Request	661	3538	0																																
Project D2QT				Page 7 of 9 Pages			Exhibit R-2 (PE 0603713A)																												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603713A Army Data Distribution System	PROJECT D2QT
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C. Other Program Funding Summary: Not applicable

D. <u>Schedule Profile</u>	FY 1996					FY 1997					FY 1998					FY 1999				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Conduct JTIDS OT				X*	X*															

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603713A Army Data Distribution System					PROJECT D2QT		
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Operational Test and Evaluation					661	3451	0	0				
SBIR/STTR						87						
Total					661	3538	0	0				
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program	
Product Development Organizations : None												
Support and Management Organizations: None												
Test and Evaluation Organizations:												
OPTEC, FT	MIPR	3/31/96	4314	4314	0	661	3451	0	0	0	4112	
BLISS												
SBIR/STTR							87				87	
Government Furnished Property: None												
Subtotal Product Development												
Subtotal Support and Management												
Subtotal Test and Evaluation												
Total Project												
						661	3538				4199	
						661	3538				4199	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603745A Tactical Electronic Support Systems -					PROJECT D535	
				Advanced Development (TIARA)						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D535 Intelligence Fusion Analysis Demonstration	5630	3941	0	0	0	0	0	0	0	20104
<p>A. <u>Mission Description and Budget Item Justification:</u> This Program Element funds application and validation of advanced computer software and hardware technologies to intelligence fusion analysis functions and prototype development, integration and evaluation of improved tactical intelligence fusion capabilities. This project supports the urgent requirement for an automated tactical intelligence processing system through technology insertion into, and development and evaluation of, prototype upgrades to the All Source Analysis System (ASAS), both during development and after fielding and therefore is appropriately placed in Budget Activity 4.</p> <p><u>Acquisition Strategy:</u> This project consists of studies, prototype development and evaluation of the integration of tactical intelligence fusion capabilities into existing systems. The efforts are for joint advanced technology research via contractors, Joint Propulsion Laboratory (JPL), a Federally Funded Research and Development Center (FFRDC), and some funds flowing down to colleges and universities as grants under oversight of JPL.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 3000 Support battlefield visualization technology demonstration. Developed and evaluated Army Warfighter Experiments and the joint precision strike demonstration program of advanced large screen, automated graphical displays which provided enhanced situational awareness for tactical commanders. • 1000 Continued to investigate, develop and apply advanced technologies to intelligence fusion prototypes for expanded capabilities and performance in the areas of dynamic situation development/assessment/prediction, collection management, and advanced analysis and correlation. This included continued streamlined integration of collection management tools for more automated, responsive tactical support; extended CI/HUMINT analysis prototype to include automated analysis tools, incorporating the advanced template correlation techniques used in the situation assessment prototype where appropriate; developed and integrated state-of-the-art video photogrammetry tools in support of battle damage and low intensity situation assessment. • 780 Continued to evaluate, configure and integrate the high-performance, expanded tech base prototype capabilities into operational ASAS prototypes and ASAS Block II development. • 850 Continued to support the development, evaluation and refinement of operational prototypes of functional and performance upgrades/improvements to ASAS and their integration into mainline ASAS development and acquisition per the Joint Prototyping Plan. <p>Total 5630</p>										
Project D535			Page 1 of 4 Pages				Exhibit R-2 (PE 0603745A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997								
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)						PROJECT D535								
FY 1997 Planned Program:																				
<ul style="list-style-type: none"> • 500 Continue to investigate, develop and apply advanced software and hardware processing, storage, display and input/output (I/O) technologies to tech base prototypes of high-performance, expanded intelligence fusion capabilities. • 2495 Continue to evaluate, configure and integrate tech base prototype capabilities into operational ASAS prototypes and ASAS Block II development. • 850 Continue to support the development, evaluation and refinement of ASAS operational prototypes and their integration into mainline ASAS development and acquisition per the Joint Prototyping Plan. • 96 Small Business Innovation Research/Small Business Technical Transfer (SBIR/STTR) 																				
Total 3941																				
FY 1998 Planned Program: Project not funded in FY 98																				
FY 1999 Planned Program: Project not funded in FY 99																				
B. <u>Project Change Summary</u>																				
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>										
FY1997 President's Budget	5776			2025			0			0										
Appropriated Value	5937			3941																
Adjustments to Appropriated Value	-307						0			0										
FY1998 Pres Bud Request	5630			3941			0			0										
Summary Change Explanation: Funding - FY 97 (+1916) funds to evaluate Integrated Battlefield Intelligence Server (IBIS) developed by DARPA for integration into the ASAS program.																				
C. <u>Other Program Funding Summary:</u> None																				
D. <u>Schedule Profile</u>																				
		FY 1996					FY 1997					FY 1998					FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Expanded Tech Base Prototypes																				
- Interface Adv Sit Assmt with ASAS			X*				X													
Block II																				
- Integrate HUMINT Anal Spt into ASAS					X*															
Operational Prototype																				
Project D535														Page 2 of 4 Pages		Exhibit R-2 (PE 0603745A)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997						
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)										PROJECT D535			
D. Schedule Profile						FY 1996		FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
- Integrate Asset Management into ASAS Block II prototypes				X*															
- Incorporate Adv Correlation Techniques into ASAS Oper Prototypes						X													
- Apply Adv Processing Tech into Tech Base Prototypes				X*															
- Integrate Exp Tech Base Capabilities into ASAS Operational Prototypes																			
*Integration Started																			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)			PROJECT D535				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Prototype Development Efforts				5630	3845						
SBIR/STTR					96						
Total				5630	3941						
B. Budget Acquisition History and Planning Information:											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
JPL	PWD				10533	970	3941				15444
EWA	PWD					2940					2940
Misc. Contracts						1624					1624
SBIR/STTR						96					96
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development					10533	5630	3941				20104
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project					10533	5630	3941				20104
Project D535											
Page 4 of 4 Pages											
Exhibit R-3 (PE 0603745A)											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603747A Soldier Support and Survivability						
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	6709	6541	7557	7680	9235	8971	11576	10497	Continuing	Continuing
DC09 Unit/Organizational Equipment	2126	1289	1955	1737	2025	1989	2033	1564	Continuing	Continuing
D610 Food Advanced Development	2050	1905	2263	2569	3097	3342	3744	3761	Continuing	Continuing
D669 Clothing and Equipment	2533	3347	3339	3374	4113	3640	5799	5172	Continuing	Continuing
<p>Mission Description and Budget Item Justification: Provide advanced development for unit/organizational equipment, improved individual clothing and equipment, fabric shelters, food, food and field service equipment which will enhance soldier battlefield effectiveness, survivability, sustainment and quality of life. Program element supports advanced development of a new generation of field service support items and shelters, including collective protection and shelter heaters for unit/organizational use to enhance the quality of life of field soldiers and the ability to project forces to spartan environments. Program element also supports advanced development of individual clothing and equipment items to lighten the soldier's load and incorporate protection against chemical and biological agents, thermal nuclear flash, ballistic threats, visual and electronic detection and environmental hazards. The projects in this Program Element focus on efforts to demonstrate general military utility to include demonstration and validation and are therefore correctly placed in Budget Activity 4.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603747A Soldier Support and Survivability	PROJECT DC09
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC09 Unit/Organizational Equipment	2126	1289	1955	1737	2025	1989	2033	1564	Continuing	Continuing

A. Mission Description and Justification: Develop and field soft shelters, showers, latrines and heaters to improve unit sustainability and combat effectiveness.

Acquisition Strategy: Developments transition to Engineering and Manufacturing Development and Production.

FY 1996 Accomplishments:

- 381 Redesigned Ammunition Solar Covers (ASC) Type I to meet both Type I and Type II requirements to improve reliability and stability of munitions in hot environment, completed Technical Testing / Operational Testing (TT/OT). Prototyped General Purpose Solar Cover (GPSC) and conducted TT/OT on single solution design. Prepared concept designs for user review of General Purpose Solar Cover which provides lightweight, solar protection that is rapidly erectable and easy to use.
- 465 Performed Early User Testing, downselected best candidate, and initiated TT/OT for the Lightweight Maintenance Enclosure (LME) to improve field maintenance capability and equipment readiness.
- 259 Completed design and procured test prototypes for the Ballistic Protective System (BPS) to reduce vulnerability of palletized supplies.
- 142 Redesigned frame system and assessed seaming technologies for the Modular General Purpose Tent System (MGPTS) Preplanned Product Improvement (P3I) to provide dual support options and interchangeable components for increased flexibility.
- 440 Completed TT/OT on the Containerized Self-Service Laundry to increase quality of life in remote field conditions.
- 439 Built prototypes and conducted TT/OT on the Space Heater Arctic (SHA) and Space Heater Small (SHS) to increase safety, reliability, and efficiency of field heaters.

Total 2126

FY 1997 Planned Program:

- 275 Complete development and Type Classify (TC) the Modular ASC and GPSC, prepared LRIP Plan.
- 130 Complete development and Type Classify the LME, prepare LRIP and Production Contracts.
- 340 Complete TT/OT BPS.
- 512 Complete development of the thermoelectric capability for SHS for integration into the Family of Space Heaters for improved heat distribution and increased efficiency. Type Classify SHA and SHS and transition to production. Complete performance specification.
- 32 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program

Total 1289

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603747A Soldier Support and Survivability			PROJECT DC09				
FY 1998 Planned Program:											
•	207	Complete development and TC BPS, complete performance specification and transition to production.									
•	360	Conduct market survey of the Family of Field Latrines (FOFL). Procure prototypes of the Maturing Theater Latrine (MTL) and conduct test and evaluation.									
•	450	Procure modified non-developmental item (NDI) candidate prototypes of the Aviation Maintenance Shelter (AMS) and conduct technical testing.									
•	150	Conduct market survey and procure prototypes of the Initial Deployment Shower (IDS) and Water Heater and conduct concept test and evaluation.									
•	680	Award development contract for prototype air beam technology shelter including a lightweight flooring system.									
•	108	Update market survey of commercial technologies for a Modular Deck System (MDS), prepare program documents, and build prototype.									
Total	1955										
FY 1999 Planned Program:											
•	300	Complete test and evaluation of the FOFL and Type Classify the performance specification.									
•	450	Conduct operational testing of the AMS and Type Classify the performance specification.									
•	300	Procure prototypes and evaluate the IDS.									
•	376	Complete prototype fabrication and conduct test and evaluation of the AMS P3I Shelter.									
•	311	Update MDS prototype, initiate Development Test/Operational Test.									
Total	1737										
B. Project Change Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>						
FY 1997 President's Budget		2180	1316	2797	1869						
Appropriated Value		2241	1289								
Adjustments to Appropriated Value		-115									
FY 1998 BES/ Pres Bud Request		2126	1289	1955	1737						
C. Other Program Funding Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
RDTE, 0604713.DC40, Unit/Organizational Equipment		3003	1746	1795	1811	1841	2026	2064	2072	Compl Cont	Cost Cont

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603747A Soldier Support and Survivability			PROJECT DC09				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware				2126	1257	1955	1737				
SBIR/STTR					32						
Total				2126	1289	1955	1737				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
SSCOM	In-House					1016	732	807	711	Cont	3266
Hunter Mfg	Various	Various				700	350	821	760	Cont	2631
Guild Assoc. Weatherhaven Hansen Weather GTS											
ARO	MIPR					70		30	30	Cont	130
TRADOC VA Med Ctr McClellan AFB Army Nat'l Guard											
Support and Management Organizations											
SSCOM						190	95	97	86	Cont	468
Test and Evaluation Organizations											
TECOM/YPG						150	80	200	150	Cont	580
SBIR/STTR							32				32
Government Furnished Property: None											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603747A Soldier Support and Survivability	PROJECT DC09
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	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development		1786	1082	1658	1501		6027
Subtotal Support and Management		190	95	97	86		468
Subtotal Test and Evaluation		150	112	200	150		612
Total Project		2126	1289	1955	1737		7107

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603747A Soldier Support and Survivability				PROJECT D610		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D610 Food Advanced Development	2050	1905	2263	2569	3097	3342	3744	3761	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Development of Joint Service Food/Food Service Equipment to improve individual combat effectiveness and reduce logistics burden and Operation & Support (O&S) costs of subsistence support for service personnel. Enhance rations by increasing quality, acceptability and variety. Develop multi-fuel, rapidly deployable field food service equipment to support combat, humanitarian missions and operations-other-than-war. Improve equipment to enhance safety in food service, utilize battlefield fuel and decrease fuel and water requirements. Program is reviewed and validated twice annually by the DoD Food and Nutrition Research and Engineering Board as part of the Joint Service Food Program. Conduct advanced development of improved subsistence and subsistence support items to enhance soldier effectiveness and quality of life in all four Services as part of an integrated DoD Food Research, Development, Test, Evaluation and Engineering (RDTE&E) program.</p> <p><u>Acquisition Strategy:</u> Developments transition to Engineering and Manufacturing Development and procurement.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 580 Conducted user evaluation of software developed to automate the Joint Service Recipe System to allow for timely electronic release of updated/new recipes. • 265 Completed technical and user testing of improved Air Force food service refrigeration system to provide highly mobile, efficient and reliable field refrigeration. Transitioned the technology data package (TDP) to procurement. • 608 Developed and conducted user evaluations of high potential individual and group ration components. Transitioned components with high acceptance to fielded rations, improving ration quality and increasing available menus. Identified components and developed medical supplement for the Unitized Group Ration (UGR) to increase logistical efficiency of medical field feeding. • 100 Conducted user testing of new Mobility Enhancing Rations Components (MERC) to increase readiness, ease logistical burden, and improve ration quality. • 60 Conducted market survey and developed packaging system for Ration Snack Pack to increase acceptability of operational rations. • 225 Completed development of Long Range Patrol Rations to minimize weight and volume and transitioned to procurement. Identified and evaluated intrapackage modifiers for new composite packaging for rations that will increase consumption and field troop quality of life. • 212 Evaluated new shelters for Kitchen Company Level Field Feeding-Enhanced. Developed/fabricated prototype components for Mobile Kitchen Trailer-Improvement program to meet future field feeding requirements to improve system performance in all environments. <p>Total 2050</p>										
Project D610			Page 7 of 16 Pages			Exhibit R-2 (PE 0603747A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Demonstration and Validation	0603747A Soldier Support and Survivability	D610
FY 1997 Planned Program:		
•	138 Complete pilot study of electronic recipe distribution and begin transitioning of new/approved recipes to the Services using the automated Joint Service Recipe System.	
•	718 Identify and conduct user testing of improvements for individual and group rations. Transition selected heat and serve ration components and Meals Ready to Eat improvements, increasing menu variety. Conduct user evaluation of Snack Packs and design 12 Meal Cold Weather menus. Draft preparation manual for medical supplement for the UGR.	
•	288 Design four MRE ration alternatives and conduct initial studies to determine the effects of portion size and variety on acceptance/intake.	
•	147 Conduct user evaluations of MERC to provide eat-on-the-move capability. Procure test components for field test.	
•	143 Perform technical feasibility testing (TFT) on NDI waste reduction/handling equipment which will reduce the field back-haul and trash removal requirements and transition optimum system to procurement.	
•	377 Initiate design and fabrication of Marine Corps Rapid Deployment Kitchen (RDK) based on centralized heating technology providing highly mobile, efficient field feeding capability.	
•	47 Evaluate Thermally Efficient Field Serving Equipment to optimize food quality and transition Procurement documentation to Marine Corps for procurement.	
•	47 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program	
Total	1905	
FY 1998 Planned Program:		
•	386 Fabricate Non-electric Field Refrigerator prototype, conduct technical user testing and transition to procurement.	
•	474 Complete fabrication and initiate test and evaluation of the Rapid Deployment Kitchen (RDK).	
•	176 Design and fabricate specific applications for a Catalytic Diesel Vaporizer (CDV) to effectively integrate with commercial off the shelf food service equipment.	
•	164 Conduct demonstration/field test of Horizontal, Form, Fill, Seal (HFFS) food trays as alternatives to metal traycans.	
•	538 Identify and conduct user testing of improvements for individual and group ration systems to improve acceptability and enhance combat effectiveness. Transition selected heat and serve ration components and MRE improvements, increasing menu variety. Transition ration pack to procurement. Conduct user evaluation and transition medical supplement for the UGR to procurement. Update B-ration menu.	
•	275 Field test MERC to quantify warfighter acceptability / mobility enhancement and transition to procurement.	
•	250 Prepare redesigned MRE ration prototypes to minimize weight/cube/cost and conduct initial field test to determine effect on level of acceptance and consumption.	
Total	2263	
Project D610	Page 8 of 16 Pages	Exhibit R-2 (PE 0603747A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997				
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT				
4 - Demonstration and Validation			0603747A Soldier Support and Survivability				D610				
FY 1999 Planned Program:											
•	308	Fabricate prototype Marine Corps Expeditionary Field Feeding Delivery System									
•	280	Complete testing of the Catalytic Diesel Vaporizer and transition to production.									
•	250	Develop new system concepts for the Field Feeding Unit - Expendable.									
•	225	Develop company-sized kitchen and fabricate prototype of the Mounted Kitchen, Company Level Field Feeding.									
•	67	Conduct market survey and evaluate prototypes of the Beverage Cooling Device (BCD) to optimize soldier hydration.									
•	200	Complete storage studies/demonstrations of glass coated polymeric tray with easy open lid to refine concepts, ensure high acceptability and optimize functionality and affordability.									
•	650	Continue to identify and conduct user testing of improvements for individual and group ration systems. Transition selected heat and serve ration components and MRE improvements, increasing menu variety.									
•	339	Conduct field tests in different environments to establish effectiveness of selected performance enhancing ration components (PERCs) and supplements, demonstrate overall producibility and suitability of PERCs-based rations and transition to procurement.									
•	250	Complete ration redesign and conduct follow-up field testing to demonstrate improved acceptance/consumption and reduced logistic burden.									
Total	2569										
B. Project Change Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>						
FY 1997 President's Budget		2103	1946	2429	2774						
Appropriated Value		2162	1905								
Adjustments to Appropriated Value		-112									
FY 1998 Pres Bud Request		2050	1905	2263	2569						
C. Other Program Funding Summary:											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
RDTE, 0604713.D548, Military Subsistence System		802	792	884	1294	1643	1765	1877	1884	Compl Cont	Cost Cont
OPA 3, MA8050, Items Less Than \$2.0M (CSS-EQ)		1467	2024	1334	4131	3431	5389	15507	15280	Cont	Cont
OPA 3, MA5800, Refrigeration Equipment		2481	4297		1986	981	981	995	1992	Cont	Cont
Project D610											
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Exhibit R-2 (PE 0603747A)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603747A Soldier Support and Survivability			PROJECT D610				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				2050	1858	2263	2569				
SBIR/STTR					47						
Total				2050	1905	2263	2569				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
SSCOM	In-House					1424	1145	1326	1538	Cont	5433
GTS	Various	Various				326	380	424	453	Cont	1583
Hunter Mfg											
SSL											
GSA	MIPR										
OGA											
Support and Management Organizations											
SSCOM						100	97	113	128	Cont	438
Test and Evaluation Organizations											
TECOM/OGA						200	236	400	450	Cont	1286
SBIR/STTR							47				47
Government Furnished Property: None											
Subtotal Product Development						1750	1525	1750	1991		7016
Subtotal Support and Management						100	97	113	128		438
Subtotal Test and Evaluation						200	283	400	450		1333
Total Project						2050	1905	2263	2569		8787

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603747A Soldier Support and Survivability				PROJECT D669		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D669 Clothing and Equipment	2533	3347	3339	3374	4113	3640	5799	5172	Continuing	Continuing
<p>A. Mission Description and Justification Use state-of-the-art technology to develop improved clothing and individual equipment items to enhance the effectiveness, lethality, sustainability, survivability and quality of life of the individual soldier.</p> <p>Acquisition Strategy: Developments transition to engineering and manufacturing development (EMD) and then to production.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 100 Conducted market survey, updated requirements document, revised acquisition strategy for Advanced Laser Protective Systems (ALPS) [Formerly (SPECS) Preplanned Product Improvement (P3I)]. • 1304 Evaluated commercial samples and reviewed experimental models for design feasibility of the Modular Load System (MLS) (single point release mechanism) and the Body Armor Set Individual Countermine (BASIC) P3I Boot. • 1129 Completed scoring conference, draft technical and health hazard assessment report, draft TC documents and procurement package for self-contained toxic environment protective outfit (STEPO). <p>Total 2533</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1447 Conduct market investigation, test new materials, develop initial design concepts for Reduced Weight Explosive Ordnance Disposal (EOD) Suit and Arctic Canteen. • 1749 Develop initial design concepts, conduct technical and early user evaluations and downselect designs/materials for test prototypes for ALPS 75 Complete Phase II Development Test/Operational Test (DT/OT), type classify and transition to production STEPO. 76 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 3347</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 950 Conduct early user evaluation, freeze design, fabricate test prototypes, and initiate DT/OT of the Reduced Weight EOD Suit and Arctic Canteen. • 250 Fabricate test prototypes, conduct DT/OT, complete assessment reports, obtain Milestone III approval for the ALPS and transition to production. • 250 Fabricate test prototypes and conduct Phase I of DT/OT for the Advanced Combat Helmet and transition to EMD. • 245 Refine initial design concepts, conduct technical tests and early user evaluations, select materials and designs for the Concealable Body Armor, and transition to EMD. 										
Project D669			Page 12 of 16 Pages				Exhibit R-2 (PE 0603747A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997										
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603747A Soldier Support and Survivability				PROJECT D669									
FY 1998 Planned Program: (continued)																	
•	500	Conduct early user evaluation of materials and designs for an Advanced Combat Uniform and transition to EMD.															
•	1144	Conduct market surveys, test new materials, develop designs, and test in early user evaluations an Advanced Special Purpose Ensemble and gloves for special missions.															
Total	3339																
FY 1999 Planned Program:																	
•	520	Complete DT/OT and assessment reports, obtain Milestone III approval, and transition the Reduced Weight EOD Suit and Arctic Canteen to production.															
•	800	Evaluate materials, develop initial designs, and test Joint Service Modular Eye Protection System (MEPS) in an early user evaluation.															
•	2054	Fabricate test prototypes, conduct Phase I of DT/OT, and transition the Advanced Special Purpose Ensemble and gloves for specialized missions to EMD.															
Total	3374																
B. Project Change Summary																	
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>												
FY 1997 President's Budget		3415	3418	3590	3650												
Appropriated Value		3510	3347														
Adjustments to Appropriated Value		-977															
FY 1998 Pres Bud Request		2533	3347	3339	3374												
Change Summary Explanation: FY 96 (-882) reduction realigned to a higher priority requirement.																	
C. Other Program Funding Summary:																	
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>						
RDTE, 0604713.DL40, Clothing & Equipment		2094	4851	3684	4330	3592	4476	4865	4889	Cont	Cont						
OMA, 114092000, Central Funding & Fielding		40565	87739	42405	54222	79734	82242	84025	85848	Cont	Cont						
D. Schedule Profile																	
		<u>FY 1996</u>			<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete Phase II of DT/OT and Assessment Reports and Type Classify STEPO							X										
Develop design concept for ALPS and ACH											X						
Project D669		Page 13 of 16 Pages						Exhibit R-2 (PE 0603747A)									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997														
BUDGET ACTIVITY 4 - Demonstration and Validation								PE NUMBER AND TITLE 0603747A Soldier Support and Survivability						PROJECT D669													
D. Schedule Profile								FY 1996				FY 1997				FY 1998				FY 1999							
								1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Develop design concepts for SPECS P3I and Advanced Combat Helment (ACH)												X*															
Conduct technical and early user evaluation for SPECS P3I and ACH														X													
Select test prototype designs for SPECS P3I and ACH SPECS P3I test items//DT and OT and reports//Milestone III and transition to procurement															X	X		X	X								
ACH test items//Phase I DT and OT and transition to EMD																		X		X							
Evaluate commercial samples for MLS								X*																			
Review experimental MLS prototypes for feasibility										X*																	
Evaluate commercial designs and use CAD/CAM for BASIC P3I Boot design											X*																
Conduct market survey for Reduced Weight EOD Suit and Arctic Canteen												X*															
Test new materials, develop initial designs for Reduced Weight EOD Suit and Arctic Canteen															X												
Early user evaluation of the Reduced Weight EOD Suit and Arctic Canteen//Test items//DT and OT and reports//Milestone III and transition to procurement																X		X			X		X				
Initial designs of the Concealable Body Armor// Technical tests and early user evaluation//Select materials and transition to EMD																X		X	X								
Early user evaluation of materials and designs for the Advanced Combat Uniform//Analyze and transition to EMD																		X	X								
Market survey of an Advanced Special Purpose Ensemble and special mission gloves//Material tests//Designs and early user evaluation//Test prototypes//Phase I DT and OT and transition to EMD																X	X			X		X		X		X	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603747A Soldier Support and Survivability						PROJECT D669					
D. Schedule Profile						FY 1996		FY 1997		FY 1998		FY 1999					
						1	2	3	4	1	2	3	4	1	2	3	4
Initial materials and designs for the Joint Service Modular Eye Protection System//Early user evaluation															X		X
* Completed Milestone																	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Dem/Val (TIARA)					PROJECT D907	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D907 Tactical Exploitation of National Capabilities - Adv Dev	26796	25354	20920	23714	24751	29020	30920	31095	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> Supports the tactical commander's intelligence requirements for contingency force development and deep battle targeting as stated in Field Manual 100-5. Specific developments are managed within the Army's Tactical Exploitation of National Capabilities (TENCAP) program. The scope of the program is to leverage specific data and capabilities available from existing and emerging national and selected theater capabilities that meet stated Army tactical intelligence information and targeting needs. This project supports the advanced development/enhancement of the Electronic Tactical User Terminal (ETUT), Mobile Integrated Tactical Terminal (MITT), Forward Area Support Terminal (FAST), Tactical Exploitation System (TES), and Advanced Electronic Processing and Dissemination System (AEPDS). The Army's emerging TES will incorporate the standards and protocols dictated by the Common Imagery Ground Surface System (CIGSS) program. TES brings all of the existing and emerging Army TENCAP capabilities [AEPDS, Modernized Imagery Exploitation System (MIES), and Enhanced Tactical Radar Correlator (ETRAC)] into an integrated common baseline; downsized modular and scaleable to meet a wide range of contingency requirements. TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems, including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (DARP) (PE 0305154D). Specific details are provided in the Tactical Intelligence and Related Activities (TIARA) Congressional Justification Book, Volume II, and in the Army TENCAP Master Plan. This Program Element (PE) focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of TENCAP and is correctly placed in Budget Activity 4.</p> <p><u>Acquisition Strategy:</u> The Army Space Program Office (ASPO) strives for an acquisition environment emphasizing stable funding, low density acquisition, minimal use of MILSPECS, and managed competition. By tailoring existing technology, leveraging the best commercial practices, and using commercial and government off the shelf software, ASPO minimizes risk while maximizing efficiency. Strong user involvement, a robust operations and maintenance program and a vigorous technology insertion effort ensure programmatic success. Finally, dedicated cradle to grave Integrated Logistics Support (ILS) for TENCAP systems is accomplished through a coordinated effort by government and contractor personnel and facilities.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 10550 Continued to pursue technology for the refinement of the TENCAP Common Baseline for fully exploiting national capabilities to meet emerging worldwide contingency scenarios such as upgrades to Communication System Processor (CSP) to incorporate Tactical Packet Network (TPN) and Defense Switched Network (DSN) connectivity, the Demand Assigned Multiple Access (DAMA) appliqué to SUCCESS radios and support to the Joint Collection Management Tool (JCMT). • 5596 Initiated design concept and prototype development of Tactical Exploitation Systems (TES) with state-of-the-art hardware and software. 										
Project D907			Page 1 of 5 Pages				Exhibit R-2 (PE 0603766A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Demonstration and Validation	0603766A Tactical Exploitation of National Capabilities (TENCAP) - Dem/Val (TIARA)	D907
FY 1996 Accomplishments: (continued)		
•	2434 Completed advanced development effort to retrofit ETUTs with enhanced MITT hardware and software.	
•	5120 Continued support to TENCAP program management with administrative activities [e.g., FFRDC (Aerospace), ASPO, systems engineering technical support (SETA), and Topographic Engineering Center (TEC)].	
•	3096 Continued support to efforts being developed under PE 0305154D (DARP) Project P531 (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC).	
Total	26796	
FY 1997 Planned Program:		
•	8082 Continue to pursue technology for the refinement of the TENCAP common baseline for fully exploiting national capabilities to meet emerging worldwide contingency scenarios	
•	10027 Initiate advanced development efforts for ground processing technologies for new national sensors capabilities that will be incorporated into TES	
•	5077 Continue support to TENCAP program management with administrative activities (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC).	
•	1579 Continue support to efforts being developed under PE 0305154D (DARP) Project P531 (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC).	
•	589 Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)	
Total	25354	
FY 1998 Planned Program:		
•	5327 Continue to pursue technology for the refinement of the TENCAP common baseline for fully exploiting national capabilities to meet emerging worldwide contingency scenarios. In addition to staying current with national and theater capabilities, will include integration of Defense Switched Network (DSN) and Defense Message System (DMS) into the TENCAP systems.	
•	8775 Continue advanced development of TES Program	
•	4432 Continue support to TENCAP program management with administrative activities (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC).	
•	2386 Continue support to efforts being developed under PE 0305154D (DARP) Project P531 (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC).	
Total	20920	
FY 1999 Planned Program:		
•	5802 Continue to pursue technology for the refinement of the TENCAP common baseline for fully exploiting national capabilities to meet emerging worldwide contingency scenarios. In addition to staying current with National and Theater Capabilities, will include integration of Defense Switched Network (DSN) and Defense Message System (DMS) into the TENCAP systems	
•	9849 Continue advanced development of TES Program.	
•	5258 Continue support to TENCAP program management with administrative activities (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC).	
•	2805 Continue support to efforts being developed under PE 0305154D (DARP) Project P531 (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC).	
Project D907	<i>Page 2 of 5 Pages</i>	Exhibit R-2 (PE 0603766A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997								
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Dem/Val (TIARA)					PROJECT D907								
Total					23714													
B. Project Change Summary					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>										
FY 1997 President's Budget					27460	26060	23200	27094										
Appropriated Value					27738	25354												
Adjustments to Appropriated Value					-942													
FY 1998 BES/Pres Bud Request					26796	25354	20920	23714										
Change Summary Explanation: Funding - FY 98 & FY 99 reductions are for Spares Pricing Adjustment, T&E Streamlining and civilian salary reduction as result of HQDA redesign. (FY 98 -2280/FY 99 -3380).																		
C. Other Program Funding Summary					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Compl</u>	<u>Total Cost</u>				
RDTE, A Budget Activity 5																		
PE 64766.D909 TENCAP					23266	15235	19113	19531	26094	25097	28203	28359	Cont	Cont				
RDTE, D Budget Activity 7																		
PE 0305154D DARP					41526	50287	0	0	0	0	0	0	Cont	Cont				
PE 0305208D DARP										30433	28175	22214	24108	23583	23179			
Other Procurement Army, OPA-2																		
BZ 7315 TENCAP					4473	1756	1679	1728	4598	13703	14779	16822	Cont	Cont				
Procurement, Defense Wide																		
PE 0305154D DARP					80822	89945	0	0	0	0	0	0	Cont	Cont				
PE 0305208D DARP										94070	81600	80576	71867	73926	75239			
D. Schedule Profile					<u>FY 1996</u>					<u>FY 1997</u>					<u>FY 1998</u>			<u>FY 1999</u>
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Initiate Prototype Development for TES																		
Complete Adv Dev of DAMA Appliqué																		
into TENCAP Common Baseline																		
SUCCESS Radios																		
Initiate Integration of DSN/DMS into																		
TENCAP Systems																		
Project D907																		
Page 3 of 5 Pages																		
Exhibit R-2 (PE 0603766A)																		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Dem/Val (TIARA)							PROJECT D907				
D. Schedule Profile						FY 1996		FY 1997			FY 1998			FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Complete Prototype Development TES Forward																	X
Complete Integration of DSN/DMS into TENCAP System																	X
*Denotes completed milestone																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation		PE NUMBER AND TITLE 0603766A Tactical Exploitation of National Capabilities (TENCAP) - Dem/Val (TIARA)		PROJECT D907
A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Common Baseline (*1)	10550	8082	5327	5802
TES	5596	10027	8775	9849
ETUT	2434	0		
ASPO In-House (*2, *3)	2507	2135	1995	1871
FFRDC	219	87	97	106
System Engineering (Contractor) (*2)	4115	3234	3692	5051
System Engineering (Government) (*2)	1375	1200	1034	1035
SBIR/STTR		589		
Total	26796	25354	20920	23714
<p>(*1) TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems [including MIES and ETRAC that are funded under the DARP (PE 0305154D)].</p> <p>(*2) Approximately 40% of program management cost in FY 1996 through FY 1999 support efforts being developed under PE 0305154D.P531.</p> <p>(*3) The ASPO In-House support in this project also supports efforts being developed under PE 0604766A.D909.</p>				
B. <u>Budget Acquisition History and Planning Information:</u> Not Applicable				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development
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COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	3167	2769	2939	2893	3298	4703	6003	6024	Continuing	Continuing
D131 Night Vision Systems Advanced Development	3167	2769	2939	2893	3298	4193	5150	5172	Continuing	Continuing
D598 LTASS*	0	0	0	0	0	510	853	852	Continuing	Continuing

*Erroneously placed in this PE, should be 0604716A. Title of project will change to Hi-Volume Map Production Equipment during the next budget submit.

Mission Description and Budget Item Justification: This program element encompasses the advanced development phase of the Army Acquisition cycle for Night Vision and Electro-Optic (NVEO) devices/systems and prepares them for engineering development. The key objective of this program is to provide NVEO devices/systems for acquisition and engagement of enemy targets at maximum weapon system ranges under degraded battlefield/weather conditions and in countermeasure environments. The efforts are centered around development of countermeasure and electro-optic sensors for the individual soldiers and combat vehicles to meet stated Army deficiencies. The LTASS program provides for market value analysis and development of high volume cartographic reproduction for table of organization and equipment (TOE) field topographic engineer companies. The focus of these efforts is on advanced technology development; therefore, this project is properly placed in Budget Activity 4.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development					PROJECT D131	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D131 Night Vision Systems Advanced Development	3167	2769	2939	2893	3298	4193	5150	5172	Continuing	Continuing
<p>A. <u>Mission Description and Justification</u> This project encompasses the advanced development phase of the Army acquisition cycle for Night Vision and Electro-Optic (NVEO) devices/systems and prepares them for engineering development. The key objective of this program is to provide NVEO devices/systems for acquisition and engagement of enemy targets at maximum weapon system ranges under degraded battlefield/weather conditions and in countermeasure environments. The efforts are centered around development of countermeasure and electro-optic sensors for the individual soldiers and combat vehicles to meet stated Army deficiencies. This project provides the mechanism to transition tech base programs for electro-optical sensors to the engineering manufacturing development (EMD) phase of the acquisition cycle. This project provides the funding necessary to institute advances for product improvement or horizontal technology integration (HTI) to upgrade current capabilities.</p> <p><u>Acquisition Strategy:</u> The Long Range Advanced Scout Surveillance System and the Advanced Second Generation FLIR both utilize development contracts that were competitively awarded using best value source selection procedures.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 550 Continued support for Stingray participation in the Advanced Warfighting Experiments (AWE) at Fort Hood. • 1767 Continued Advanced Second Generation FLIR (SGF) improvements (i.e. Standard Advanced Dewar Assembly) for HTI B kit. • 850 Developed alternative approaches to Long Range Advanced Scout Surveillance System (LRAS3) to support system EMD in FY 97. <p>Total 3167</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 302 Complete support for Stingray participation in exercises and final system disposition. • 900 Commence Advanced Aviation SGF HTI B Kit trade studies. • 1507 Develop Advanced SGF B kit features (e.g., frame integration and laser protection) for M2A3, M1A2 and LRAS3. • 60 Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 2769</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1876 Complete Aviation B kit trade studies. • 429 Demonstrate sight level ground B kit advanced capabilities. • 634 Demonstrate advanced aviation SADA detector capability. 										
Project D131			Page 2 of 5 Pages				Exhibit R-2 (PE 0603774A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997						
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603774A Night Vision Systems - Advanced Development					PROJECT D131						
Total 2939																
FY 1999 Planned Program:																
<ul style="list-style-type: none"> • 1021 Demonstrate sight level ground B kit advanced capabilities into M2A3, M1A2, and LRAS3. • 1632 Develop ATR/ATC capability and interface with Aviation/Ground B kit. • 240 Demonstrate Aviation B Kit Advanced capabilities. 																
Total 2893																
B. Project Change Summary																
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>								
FY 1997 President's Budget		2879		2829		3151		3110								
Appropriated Value		2908		2769												
Adjustments to Appropriated Value		259														
FY 1998 Pres Bud Request		3167		2769		2939		2893								
C. Other Program Funding Summary																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To Compl	Total Cost					
PE 0602709A/Night Vision and Electro-Optical Technology RDTE, A Budget Activity 3		16442	16636	17304	19213	19183	19872	20287	20744	Continue	Continue					
PE 0603710A/Night Vision Advanced Development RDTE, A Budget Activity 4		31142	29761	19299	19250	37651	33487	33135	29516	Continue	Continue					
PE 0604710A/Night Vision Devices Engineering Development RDTE, A Budget Activity 5		37658	34870	33456	21255	21817	18692	27214	17414	Continue	Continue					
D. Schedule Profile																
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Implement system participation in AWEs				X*												
Conclude participation in AWEs						X										
Award Advanced Ground B kit features					X											
Demonstrate Ground B Kit Advance Capabilities (Test)									X							
Project D131		Page 3 of 5 Pages						Exhibit R-2 (PE 0603774A)								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	
BUDGET ACTIVITY			PROJECT	
4 - Demonstration and Validation			February 1997	
PE NUMBER AND TITLE			PROJECT	
0603774A Night Vision Systems - Advanced Development			D131	
A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Primary Hardware Development	2336	1250	432	1433
Contractor Engineering / Trade Studies	0	900	1626	0
Government Engineering Support	225	212	225	225
Travel	45	40	40	40
Miscellaneous	86	29	33	37
Development Test & Evaluation	475	278	583	1158
SBIR/STTR		60		
Total	3167	2769	2939	2893
B. <u>Budget Acquisition History and Planning Information:</u> Not applicable				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603790A NATO Research & Development	PROJECT D691
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D691 NATO Research and Development	0	9755	13168	11169	11260	11846	12032	12246	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program implements the provisions of Title 10 U.S. Code, Section 2350a, Cooperative Research and Development (R&D) Projects: Allied Countries. The objective is to improve, through the application of emerging technologies, the conventional defense capabilities of the United States, the North Atlantic Treaty Organization (NATO), and U.S. major non-NATO allies. This program element only funds the U.S. equitable share of the cooperative R&D project spent in the U.S. Projects are implemented with the allied partners through international agreements which define the scope, cost and work sharing arrangements, management, contracting, security, data protection and third party transfers. By technology sharing the program jointly develops equipment with our allies to improve operational efforts by achieving multi-national force compatibility through the use of similar equipment and improved interfaces. Funds support all the R&D costs including the identification of cooperative opportunities and administration of the program. All funds are used to pay for the U.S. work share in the United States at U.S. Government and U.S. contractor's facilities. This program focuses on international cooperative technology demonstration, validation, and interoperability of the Battlefield Combat Identification System, Force XXI Battle Command Brigade & Below (FBCB2)/Appliqué Systems, Adaptive Digital Beamforming for THAAD radars, helicopter helmet mounted displays, military network switching, PATRIOT Tactical Operations Center, improved combat vehicle propulsion, missile seeker electronic countermeasures, eyesafe laser radar, artillery command and control, standoff chemical detectors, kinetic energy penetrators, signal jamming subsystems, and is therefore correctly placed in Budget Activity 4. The final program will be reported separately as required by 10 USC 2350a(f).

FY 1996 Accomplishments: This effort funded in OSD PE 0603790D Project P790.

FY 1997 Planned Program:

- 2877 **Combat Identification (CI) Interoperability Demonstration (Partners: France, Germany, United Kingdom):** Integrate the Battlefield Combat Identification System (BCIS) on armored vehicles, complete interoperability trials with FR, GE, and UK prototype systems in Munster, GE.
- 2005 **Battlefield Command and Control (C2) Systems Interoperability (Partner: Germany):** Implement, test and evaluate message exchange through the Intelligent Translation Gateway, over the Defense Simulation Internet and the Digital Interface Lab in a simulated Operational Environment.
- 1500 **Adaptive Beamforming Technology (ABFT) for Wide Band Phased Array Radars (Partner: United Kingdom):** Improve detection in severe Electronic CM environments. Extend narrowband ABFT techniques to THAAD radar, develop ABFT architectures and assess design trade-offs.
- 1200 **Covert Night/Day Operations in Rotorcraft (CONDOR) (Partner: United Kingdom):** Improve helicopter helmet mount display and flight controls. Fabricate Advanced Visionics System (AVS) and Advanced Flight Control System (AFCS) prototypes, system integration and flight tests.
- 405 **High Technology Switch (Partner: France):** Develop advanced interoperable Asynchronous Transfer Mode (ATM) switches for ATM communications field tests, military networks and test beds, Digital Interoperability Lab (DIL) and Battlefield Information Transition System (BITS).
- 385 **Extended Air Defense (AD) Command and Control Interoperability (Partner: Germany):** Develop system specification to achieve interoperability between US and GE air defense tactical operations centers. Analyze interoperability elements and prepare pre-design specifications.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		February 1997
4 - Demonstration and Validation	PE NUMBER AND TITLE	PROJECT
	0603790A NATO Research & Development	D691
<p>FY 1997 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 1050 Fighting Vehicle Propulsion Technology Using Ceramic Materials (Partner: Japan): Develop, test and characterize advance materials, including ceramics, high temperature combustion optimization, low heat rejection technology, and advanced friction and wear phenomena that provides a breakthrough in fighting vehicle diesel engine designs. The objective is to double combat propulsion system power density and fuel economy. • 95 Report to Congress: Pursuant to 10 USC 2350a, prepare and provide to USD(A&T) the Army section of the 1997 Report to Congress on the International Cooperative Research and Development Program • 238 SBIR/STTR <p>Total 9755</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 2791 Battlefield Command and Control (C2) Systems Interoperability (Partner: Germany): Continue to test and evaluate message exchange through the Intelligent Translation Gateway, over the Defense Simulation Internet and the Digital Interface Lab in a simulated Operational Environment. • 816 Adaptive Beamforming Technology (ABFT) for Wide Band Phased Array Radars (Partner: United Kingdom): Continue improvement of detection in severe Electronic CM environments. Define ABFT technology insertion program for THAAD Radar objective system, to include beamforming algorithms and required hardware and software modifications. Publish final point design. • 1428 Covert Night/Day Operations in Rotorcraft (CONDOR) (Partner: United Kingdom): Continue to improve helicopter helmet mount display and flight controls. Fabricate Advanced Visionics System (AVS) and Advanced Flight Control System (AFCS) prototypes, system integration and tests. • 565 High Technology Switch (Partner: France): Continue development of advance interoperable Asynchronous Transfer Mode (ATM) switches for ATM communication field tests, military networks and test beds, Digital Interoperability Lab (DIL) and Battlefield Info Transition System (BITS). • 66 Extended Air Defense (AD) Command and Control Interoperability (Partner: Germany): Continue the development of system specification to achieve interoperability between US and GE air defense tactical operations centers. Analyze interoperability elements and prepare final specification. • 2500 Fighting Vehicle Propulsion Technology using Ceramic Materials (Partner: Japan): Continue to develop, test and characterize advance materials including ceramics, high temperature combustion optimization, low heat rejection technology, and advanced friction and wear phenomena. • 1020 Focal Plane Array Countermeasures (FPACM) (Partner: United Kingdom): Characterize and assess advanced focal plane array missile seekers and develop electronic countermeasures (ECM) to defeat them through simulation, modeling and lab testing. • 1020 Cooperative Eyesafe Laser Project (CELRAP) (Partner: Japan): Develop a joint performance specification for a multifunctional eyesafe laser radar for range finding, target profiling, obstacle avoidance, range and terrain mapping. Start brassboard design and subsystem development. • 642 Artillery System Cooperation Activities (ASCA) (Partners: France, Germany, United Kingdom): Develop common interface requirements for Allied Field Artillery Command and Control Systems and conduct a field demonstration for interoperability between AFATDS and Allies' systems. • 510 Laser Standoff Chemical Detector (LSCD) (Partner: France): Develop detection technology for incorporation in a lightweight, vehicle mountable contamination monitoring system that can detect and quantify in a standoff mode all known types of chemical agent contamination. • 510 Advanced Penetrator Development In Tank Munitions (Partner: United Kingdom): Develop an advanced kinetic energy penetrator to defeat upgraded tanks being equipped with Kinetic Energy/Explosively Reactive Armor (KE/ERA). Evaluate technologies and determine design capability. 		
Project D691	Page 2 of 11 Pages	Exhibit R-2 (PE 0603790A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Demonstration and Validation	0603790A NATO Research & Development	D691
<p>FY 1998 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 335 Short Range Surface-to-Air Missile Guidance Technology (ROKSAM) (Partner: South Korea): Develop dual mode lock-on-after-launch guidance concepts, and test the concepts using existing seekers through hardware-in-the-loop simulations. • 305 Low Level Air Picture Interface (LLAPI) (Partners: Canada, Germany, France, Netherlands, United Kingdom): Develop automated interfaces between US and Allied short range air defenses for radar data exchange and demonstrate systems interoperability. • 355 TACJAM-A Electronic Support Subsystem Upgrades (Partner: United Kingdom): Develop and integrate technology enhancements to current jamming subsystems used on vehicles and aircraft that detect modern signal transmissions. • 205 Next- Generation Autonomous Vehicle Navigation Control System (AUTOVAV) (Partner: Germany): Initiate design and development of an advanced autonomous vehicle navigation control system. Complete sub-system tests of obstacle detection, classification, and avoidance technologies. • 100 Report To Congress: Pursuant to 10 USC 2350a, prepare and provide to USD(A&T) the Army section of the 1997 Report to Congress on the International Cooperative Research and Development Program <p>Total 13168</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 2542 Battlefield Command and Control (C2) Systems Interoperability (Partner: Germany): Continue to test and evaluate message exchange through the Intelligent Translation Gateway, over the Defense Simulation Internet and the Digital Interface Lab in a simulated Operational Environment. • 1830 Fighting Vehicle Propulsion Technology using Ceramic Materials (Partner: Japan): Continue to develop, test and characterize advance materials including ceramics, high temperature combustion optimization, low heat rejection technology, and advanced friction and wear phenomena. • 1020 Focal Plane Array Countermeasures (FPACM) (Partner: United Kingdom): Characterize and assess advanced focal plane array missile seekers and develop electronic countermeasures (ECM) to defeat them through simulation, modeling and lab testing. • 1020 Cooperative Eyesafe Laser Project (CELRAP) (Partner: Japan): Continue to develop a joint performance specification for a multifunctional, eyesafe laser radar for range finding, target profiling, obstacle avoidance, range and terrain mapping. Fabricate subsystems and brassboard. • 1015 Next- Generation Autonomous Vehicle Navigation Control System (AUTOVAV) (Partner: Germany): Initiate design and development of an advanced autonomous vehicle navigation control system. Complete sub-system tests of obstacle detection, classification, and avoidance technologies. • 1015 TACJAM-A Electronic Support Subsystem Upgrades (Partner: United Kingdom): Develop and integrate technology enhancements to current jamming subsystems used on vehicles and aircraft that detect modern signal transmissions. • 845 Artillery System Cooperation Activities (ASCA) (Partners: France, Germany, United Kingdom): Develop common interface requirements for Allied Field Artillery Command and Control Systems and conduct a field demonstration for interoperability between AFATDS and Allies' systems. • 510 Laser Stand-off Chemical Detector (LSCD) (Partner: France): Develop technology that will allow U.S. troops to detect, identify, and quantify chemical agents from a distance by employment of the preferred doctrine of contamination avoidance. • 510 Advance Penetrator Development in Tank Munitions (Partner: United Kingdom): Develop an advanced penetrator, and potentially a common cartridge, to defeat modern tanks equipped with Kinetic Energy - Explosively Reactive Armor. 		
Project D691	Page 3 of 11 Pages	Exhibit R-2 (PE 0603790A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603790A NATO Research & Development					PROJECT D691	
<p>FY 1999 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 355 Electronic Warfare Simulation Common Set (Partner: Australia): Develop a common set of characteristics and countermeasures for advanced missile guidance systems. Test results in hybrid software and hardware-in-the-loop simulations to determine survivability of new guidance systems. • 305 Low Level Air Picture Interface (LLAPI) (Partners: Canada, Germany, France, Netherlands, United Kingdom): Continue to develop automated interfaces between U.S. and Allied short range air defenses for radar data exchange and demonstrate systems interoperability. • 102 Short Range Surface-to-Air Missile Guidance Technology (ROKSAM) (Partner: South Korea): Develop dual mode lock-on-after-launch guidance concepts, and test the concepts using existing seekers through hardware-in-the-loop simulations. • 100 Report to Congress: Pursuant to 10 USC 2350a, prepare and provide to USD(A&T) the Army section of the 1997 Report to Congress on the International Cooperative Research and Development Program <p>Total 11169</p>												
B. Project Change Summary												
			<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
FY 1997 President's Budget Request			0		9963		10207		7454			
Appropriated Value					9755							
Adjustments to Appropriated Value												
FY 1998 Pres Bud Request			0		9755		13168		11169			
Change Summary Explanation:												
Funding: FY 1997: project decremented (-208) for undistributed congressional reductions												
FY 1998: DOD program restructured to move ongoing Army cooperative projects from OSD PE to Army PE (+2961).												
FY 1999: DOD program restructured to move ongoing Army cooperative projects from OSD PE to Army PE (+3715).												
C. Other Program Funding Summary												
			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To <u>Compl</u>	Total <u>Cost</u>
RDTE, Defense-wide Appropriation			7700									7700
0603790D NATO Cooperative R&D												
D. Schedule Profile												
			FY 1996		FY 1997		FY 1998		FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
Combat Identification Interoperability												
Complete Fabrication and Integration					X							
Trials and Demonstration Completed						X						
Initial Data Report							X					
Project D691			Page 4 of 11 Pages					Exhibit R-2 (PE 0603790A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997			
BUDGET ACTIVITY							PE NUMBER AND TITLE							PROJECT		
4 - Demonstration and Validation							0603790A NATO Research & Development							D691		
D. Schedule Profile	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Command & Control Interoperability																
Complete Hardware/Software Installation																
Complete Lab Demo/Tests & Simulations																
Complete Field Demonstration																
Adaptive Beam Forming Technology																
Complete Algorithms/Architecture																
Complete Wideband Subarray																
Complete Preliminary Point Design																
Complete US Design Assessments																
Complete UK Design Evaluation																
Complete Final Point Design																
CONDOR																
Complete Integration Tests																
Complete Flight Test & Evaluation																
High Technology Switch																
Complete Simulation and Commo Link																
Complete Test & Evaluation Plan																
Complete Architecture Test & Evaluation																
Extended Air Defense																
Complete Integration Analysis																
Complete Trade-off Analysis																
Fighting Vehicle Propulsion Technology																
Contract Awards																
Preliminary Engine Analysis Complete																
Materials Characterization/Test Complete																
Combustion Test and Analysis Complete																
Focal Plane Array Countermeasures																
Complete Missile Seeker Characterization																
Mathematical Model Development																
Complete Software Simulations																
Develop Advanced CM Model																

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997						
BUDGET ACTIVITY						PE NUMBER AND TITLE										PROJECT			
4 - Demonstration and Validation						0603790A NATO Research & Development										D691			
D. Schedule Profile						FY 1996		FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Cooperative Eyesafe Laser Project																			
Complete Performance Specification						X													
Complete Subsystem Development												X							
Complete Brassboard Integration																	X		
Artillery Systems Cooperation Activity																			
MOU Concluded					X														
Complete Interface Requirements																			
Complete Phase I Technical Test								X											
Complete Phase I Operational Tests												X							
Complete Phase II Tests																	X		
ROKSAM																			
MOU Concluded					X														
Complete Analysis Phase												X							
Complete Design & Fabrication Phase																	X		
Low Level Air Picture Interface																			
Complete MOU Amendment(CA,NL,UK)								X											
Complete Interface Development												X							
Complete Operational Testing																	X		
AUTONAV																			
MOU Project Arrangement Concluded					X														
Complete Prototype Design												X							
Complete Fabrication & Integration																X			
TACJAM-A																			
MOU Concluded				X															
Complete Prototype Hardware Upgrades								X											
Complete Systems Integration & Testing																	X		
Laser Standoff Chemical Detector																			
MOU Project Arrangement Concluded												X							
Complete Analysis of Spectral Properties															X				
Begin Laser Prototype Development																	X		
Advance Penetrator in Tank Munitions																			
MOU Project Arrangement Concluded								X											

Project D691

Page 6 of 11 Pages

Exhibit R-2 (PE 0603790A)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997			
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603790A NATO Research & Development						PROJECT D691				
D. Schedule Profile						FY 1996		FY 1997		FY 1998		FY 1999				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete Penetrator Design Studies										X						
Complete Penetrator Development & Test																X
Electronic Warfare Simulation Com Set																
MOU Project Arrangement Concluded					X											
Complete Phase 1 Tech. Assessment										X						
Complete Digital Simulation Evaluation														X		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE				
BUDGET ACTIVITY						February 1997				
4 - Demonstration and Validation						PROJECT				
PE NUMBER AND TITLE						D691				
0603790A NATO Research & Development										
A. Project Cost Breakdown						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	
Combat Identification Interoperability Demonstration (CIID)							2877		0	
Command and Control Systems Interoperability (C ² SI)							2005	2791	2542	
Adaptive Beam Form Technology (ABFT)							1500	816	0	
Covert Night/Day Operations in Rotorcraft (CONDOR)							1200	1428	0	
High Technology Switch Development (HTSD)							405	565	0	
Extended Air Defense Command & Control Interoperability							385	66	0	
Fighting Vehicle Propulsion Technology (Ceramic Materials)							1050	2500	1830	
Focal Plane Array Countermeasures (FPACM)							0	1020	1020	
Cooperative Eyesafe Laser Project (CELRAP)							0	1020	1020	
Artillery Systems Cooperation Activities (ASCA)							0	642	845	
Short Range Surface to Air Missile Guidance Technology							0	335	102	
Low Level Air Picture Interface (LLAPI)							0	305	305	
TACJAM-A Electronic Support Subsystem Upgrades							0	355	1015	
Autonomous Vehicle Navigation Control System (AUTONAV)							0	205	1015	
Laser Stand-Off Chemical Detector (LSCD)							0	510	510	
Advance Penetrator Development in Tank Munitions							0	510	510	
Electronic Warfare Simulation Common Set							0	0	355	
Report To Congress							95	100	100	
SBIR/STTR							238	0	0	
Total							9755	13168	11169	
B. Budget Acquisition History and Planning Information										
Performing Organizations										
Contractor or	Contract									
Government	Method/Type	Award or	Performing	Project	Total					
Performing	or Funding	Obligation	Activity	Office	Prior to					
Activity	Vehicle	Date	EAC	EAC	FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to
										Complete
										Total
										Program
Product Development Organizations										
Hughes Training	CPIF	Jan 94	1600	1600			1100	568	0	0
Herdon, VA										1668

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
4 - Demonstration and Validation					0603790A NATO Research & Development					D691	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Quantum Research Huntsville, AL	FFP	May 95	350	350		300	50	0	0	350	
CSC Ft Washington, PA	CPFF	Aug 96	4800	4800		2075	3375	0	0	5450	
TRW Redondo Bch, CA	CPAF	Mar 96	1313	1313		1267	0	0	0	1267	
Madentech Shrewsbury, NJ	CPFF	Feb 95	500	500		250	350	0	0	600	
Georgia Tech Atlanta, GA	CPFF	Aug 94	2920	2920		1300	680	384	560	2924	
Dynetics Huntsville, AL	CPFF	Aug 94	150	150		150	0	0	0	150	
Mitre Boston, MA	FFRDC	Mar 96	100	100		100	0	0	0	100	
Wayne State Univ Detroit, MI	CPFF	May 96	500	500		250	350	0	0	600	
Rutgers Univ Brunswick, NJ	CPFF	May 96	300	300		150	150	0	0	300	
SRI Menlo Park , CA	CPFF	Feb 96	450	450		250	200	0	0	450	
TBD	Competitive Best Value	TBD	TBD	TBD		475	4915	7285	Cont	Cont	
Nichols Research Huntsville, AL	CPFF	Dec 96	200	200		0	300	0	0	300	
Nuclear Metals Inc. Concord, MA	CPFF	Dec 98	600	600		0	0	404	300	704	

Project D691

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603790A NATO Research & Development					PROJECT D691	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Aerojet Ordnance Jonesboro, TN	CPFF	Dec 98	600	600			0	0	404	300	704
Olin Ordnance St. Petersburg, FL	CPFF	Dec 98	100	100			0	0	154	50	204
Alliant Minnetonka, MN	CPFF	Dec 98	70	70			0	0	139	35	174
SBIR/STTR							238				238
Support and Management Organizations											
ATCOM Ft Eustis, VA	MIPR						100	100	204	Cont	Cont
CECOM Ft Monmouth, NJ	MIPR						150	250	254	Cont	Cont
TACOM Warren, MI	MIPR						150	250	254	Cont	Cont
ICPA APG, MD	MIPR						200	300	304	Cont	Cont
PM ADCCS Huntsville, AL	MIPR						100	0	0	0	100
PM THAAD Huntsville, AL	MIPR						200	0	0	0	200
LOGSA Huntsville, AL	MIPR						125	25	129	Cont	Cont
MICOM Huntsville, AL	MIPR						0	130	254	Cont	Cont
PM TMAS Dover, NJ	MIPR						0	50	154	Cont	Cont
LOGSA Huntsville, AL	MIPR						25	25	134	Cont	Cont

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603790A NATO Research & Development					PROJECT D691	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations											
AMSAA	MIPR						150	250	204	Cont	Cont
APG, MD											
CECOM	MIPR						150	150	204	Cont	Cont
Ft Monmouth, NJ											
Army Research Lab, APG, MD	MIPR						100	200	304	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development							8305	11438	8770	1245	Cont
Subtotal Support and Management							1050	1130	1687		Cont
Subtotal Test and Evaluation							400	600	712		Cont
Total Project							9755	13168	11169	1245	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603801A Aviation - Advanced Development						
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	12893	13104	7132	7450	5809	5898	9252	9583	Continuing	Continuing
DB32 Advanced Maintenance Concepts and Equipment	2136	2181	2656	2599	3026	3065	3454	3568	Continuing	Continuing
DB33 Cargo Handling and Mission Support Equipment	1356	2010	1931	2391	2783	2833	2997	3198	Continuing	Continuing
DB45 Aircrew Integrated Systems	9401	8913	2545	2460	0	0	2801	2817	Continuing	Continuing
<p>Mission Description and Budget Item Justification: This PE provides advanced development aviation support of tactical programs associated with air mobility, advanced maintenance concepts and equipment, and Aircrew Integrated Systems (ACIS), formerly Aviation Life Support Equipment (ALSE). The projects in this Program Element support research efforts in the advanced development phase of the acquisition strategy and are correctly placed in Budget Activity 4.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603801A Aviation - Advanced Development	PROJECT DB32
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COST (<i>In Thousands</i>)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DB32 Advanced Maintenance Concepts and Equipment	2136	2181	2656	2599	3026	3065	3454	3568	Continuing	Continuing

A. Mission Description and Justification: This project enhances utilization of current and future aircraft by improving the efficiency of maintenance (primarily in the area of diagnostics/prognostics) and servicing operations by validating new maintenance concepts to improve man machine interface, enhancing aircraft maintenance procedures and reducing operating and support costs. Included in the project are Digitized Aviation Logistics (DAL) elements such as: Portable Maintenance Aids (PMA), database management software, on-board diagnostics, digital source collector, health/usage monitoring system, trending analysis, and support infrastructure.

Acquisition Strategy: This project is an aggregate of advanced maintenance concepts-related projects. While the detailed acquisition strategy varies from project to project, the general strategy for each individual project is to complete the development effort through government testing (developmental and operational). Program documentation for milestone decision is prepared, as appropriate, concurrently with the development effort in preparation for program transition to the organization responsible for production and fielding.

FY 1996 Accomplishments:

- 379 Demonstrated high confidence, automatic identification of voids, delaminations, and occlusions in composite structures.
- 97 Initiated follow-on effort to complete operational implementation and address Tri-Service issues for the knowledge-based automated Non-Destructive Inspection/Non-Destructive Test (NDI/NDT) inspection and repair procedures for composite components.
- 806 Completed the pre-production design and the first unit fabrication of the Advanced Boresight Equipment.
- 679 Initiated an effort via an integrated Army product team (IPT) and cooperative agreement with the four major U.S. helicopter manufacturers, to conceptualize and design an optimal infrastructure for a digitally enhanced aviation logistics environment.
- 47 Completed the acquisition and technical planning documentation for development of advanced portable maintenance module.
- 35 Completed joint Navy Helicopter Integrated Diagnostics System testing of seeded faults using vibration diagnostics to confirm a severely degraded high speed shaft condition and a bearing fault in an SH-60 main transmission module.
- 93 Completed a market survey to identify commercial off-the-shelf, environmentally safe, aircraft cleaning and deicing systems for evaluation.
- Total 2136

FY 1997 Planned Program:

- 82 Conduct seeded fault testing for mechanical system diagnostic and prognostic development.
- 1296 Complete an infrastructure definition for on-board diagnostics as part of a digital aviation logistics system. Develop an implementation plan for each aircraft and support system.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997								
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603801A Aviation - Advanced Development	PROJECT DB32								
FY 1997 Planned Program: (continued)										
• 752	Initiate development of portable maintenance aids designed to utilize the original equipment three dimensional design database for diagnostics and repair, to support flexible scheduling of phased maintenance events, and to integrally incorporate the aircrew as part of the diagnostic and troubleshooting procedures.									
• 51	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.									
Total	2181									
FY 1998 Planned Program:										
• 375	Initiate wireless maintenance data network definition.									
• 1870	Establish functional allocation for the critical elements of the digital aviation logistics system. Develop procedures and design the diagnostics evaluation program.									
• 264	Complete PMA field evaluation and develop definition of fully integrated portable electronic aid.									
• 147	Initiate on-condition maintenance credit definition process.									
Total	2656									
FY 1999 Planned Program:										
• 536	Develop virtual prototype of integrated digital maintenance infrastructure and evaluate feasibility of on-line technical expertise pools.									
• 1431	Complete on-board diagnostics definition and demonstrate utility of logistical system interface.									
• 335	Develop wireless maintenance data network equipment and interfaces.									
• 297	Complete life extension procedures for on-condition maintenance.									
Total	2599									
B. <u>Project Change Summary</u>										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>						
FY 1997 President's Budget	2306	2228	2853	2806						
Appropriated Value	2371	2181								
Adjustments to Appropriated Value	-235									
FY 1998 Pres Bud Request	2136	2181	2656	2599						
C. <u>Other Program Funding Summary</u>										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
RDTE,A Budget Activity 2 PE 0602211 Project	15340	19213	24410	27152	27132	28605	29712	30374	<u>Compl</u>	<u>Cost</u>
A47A Aeronautical and Aircraft Weapons Tech*									<u>Cont</u>	<u>Cont</u>
*Represents total funding in this PE, which only partially supports Project DB32.										
Project DB32	Page 3 of 15 Pages				Exhibit R-2 (PE 0603801A)					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603801A Aviation - Advanced Development							PROJECT DB32				
D. Schedule Profile						FY 1996		FY 1997			FY 1998			FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Conduct development and operational test of the UMARK							X*										
Complete the dem/val phase of the ABE program																	X
Complete detailed design of the on-board diagnostics system and define the interface with the automated maintenance and logistics system.									X		X						X
Initiate wireless maintenance data network definition.												X					
Virtual prototype integrated digital maintenance infrastructure.															X		
Complete life extension procedures for on-condition maintenance.																	X
*Denotes completed effort																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997		
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
4 - Demonstration and Validation	0603801A Aviation - Advanced Development			DB32
A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Primary Hardware Development	700	370	420	358
Software Development	213	504	475	525
Systems Engineering	30	425	560	510
Integrated Logistics Support	126		85	110
DT/OT	343		100	115
Program Management	150	167	170	165
Research Personnel	479	549	734	718
Miscellaneous	95	115	112	98
SBIR/STTR		51		
Total:	2136	2181	2656	2599
B. <u>Budget Acquisition History and Planning Information:</u> Not applicable				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603801A Aviation - Advanced Development				PROJECT DB33		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DB33 Cargo Handling and Mission Support Equipment	1356	2010	1931	2391	2783	2833	2997	3198	Continuing	Continuing
<p>A. Mission Description and Justification: This project develops equipment, practices, and procedures for the operational improvement of planning, loading, transport, and off-loading of helicopter cargo in all-weather, around the clock combat scenarios. It also replaces obsolete and insupportable ground support equipment with new and standardized multi-output equipment compatible with all Army aircraft models; develops rapid battle repair procedures and tools to speed the return of aircraft to combat ready status; and develops new equipment for aerial recovery of damaged aircraft.</p> <p>Acquisition Strategy: This program is an aggregate of advanced mission support and cargo handling concepts-related projects. While the acquisition strategy varies from project to project, the general strategy for each individual project is to complete the development effort through government testing (developmental and operational). Program documentation for milestone decision is prepared, as appropriate, concurrently with the development effort in preparation for program transition to the organization responsible for production and fielding. Programs are executed in coordination with the user and the gaining organization.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1356 Completed critical design review of the advanced internal and external cargo handling system. Fabricated the composite floor panels with integral flip-over conveyor rollers, 463L pallet guide rails/restraint system, Night Vision Goggle (NVG) compatible cabin curb lighting, and High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) guide rails. Initiated development and test of winchable cargo hooks. <p>Total 1356</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 595 Complete the demonstration of advanced internal and external cargo handling systems. • 146 Conduct an aircraft cleaning and de-icing system NDI evaluation. • 403 Complete knowledge based NDI/NDT inspection and repair procedures for composite components. • 261 Modify and complete turbine engine diagnostic system for T-700 engine as part of an overall integrated portable engine test set program. • 405 Initiate portable engine test set development for entire aviation fleet that will handle both the aircraft interface as well as the engine itself. • 151 Initiate development of a contact maintenance electrical power generator capable of supporting the complete range of power and frequency requirements necessary to support aircraft maintenance actions. • 49 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 2010</p>										
Project DB33			Page 6 of 15 Pages				Exhibit R-2 (PE 0603801A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																																										
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603801A Aviation - Advanced Development	PROJECT DB33																																																										
<p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 550 Complete portable engine test set development. • 701 Initiate demonstration of a cargo movement system for heavy (95th percentile) load. • 285 Develop environmentally friendly mission support equipment. • 395 Prototype field repair equipment for low observable composite components. <p>Total 1931</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1003 Virtual prototype heavy-lift capability and evaluate alternatives. • 403 Initiate smart coupling for aircraft cargo operations. • 285 Complete low observable (LO) composite repair demonstration. • 700 Initiate cargo and logistics management and delivery system. <p>Total 2391</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">2093</td> <td style="text-align: center;">2053</td> <td style="text-align: center;">2071</td> <td style="text-align: center;">2581</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">2152</td> <td style="text-align: center;">2010</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-796</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">1356</td> <td style="text-align: center;">2010</td> <td style="text-align: center;">1931</td> <td style="text-align: center;">2391</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY96 (-737) reprogrammed to higher priority requirements.</p> <p>C. Other Program Funding Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To</u></th> <th style="text-align: center;"><u>Total</u></th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th style="text-align: center;"><u>Compl</u></th> <th style="text-align: center;"><u>Cost</u></th> </tr> </thead> <tbody> <tr> <td>RDTE,A Budget Activity 2 PE 0602211 Project A47A Aeronautical & Aircraft Weapons Tech.*</td> <td style="text-align: center;">15340</td> <td style="text-align: center;">19213</td> <td style="text-align: center;">24410</td> <td style="text-align: center;">27152</td> <td style="text-align: center;">27132</td> <td style="text-align: center;">28605</td> <td style="text-align: center;">29712</td> <td style="text-align: center;">30374</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> </tbody> </table> <p>* Represents total funding in this PE, which only partially supports Project DB33.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	2093	2053	2071	2581	Appropriated Value	2152	2010			Adjustments to Appropriated Value	-796				FY 1998 Pres Bud Request	1356	2010	1931	2391		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>										<u>Compl</u>	<u>Cost</u>	RDTE,A Budget Activity 2 PE 0602211 Project A47A Aeronautical & Aircraft Weapons Tech.*	15340	19213	24410	27152	27132	28605	29712	30374	Cont	Cont
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																																																								
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Adjustments to Appropriated Value	-796																																																											
FY 1998 Pres Bud Request	1356	2010	1931	2391																																																								
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									<u>Compl</u>	<u>Cost</u>																																																		
RDTE,A Budget Activity 2 PE 0602211 Project A47A Aeronautical & Aircraft Weapons Tech.*	15340	19213	24410	27152	27132	28605	29712	30374	Cont	Cont																																																		
Project DB33	Page 7 of 15 Pages	Exhibit R-2 (PE 0603801A)																																																										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997																
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603801A Aviation - Advanced Development							PROJECT DB33																
D. Schedule Profile													FY 1996		FY 1997				FY 1998				FY 1999						
													1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Complete the demonstration of advanced internal and external cargo handling systems																	X												
Complete aircraft maintenance unit mobility system																										X			
Virtual prototype heavy cargo lift capability																									X				
Complete heavy cargo lift demonstration																										X			
Complete LO composite repair demonstration																													X
Initiate smart coupling for aircraft cargo operations																													X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997		
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
4 - Demonstration and Validation	0603801A Aviation - Advanced Development			DB33
A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Primary Hardware Development	500	770	507	408
Software Development			233	390
Systems Engineering	216	230	320	450
Integrated Logistics Support			75	100
Developmental Test/Operational Test (DT/OT)		300	50	100
Program Management	149	100	160	165
Research Personnel	460	502	534	666
Miscellaneous	31	59	52	112
SBIR/STTR		49		
Total	1356	2010	1931	2391
B. <u>Budget Acquisition History and Planning Information:</u> Not applicable				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603801A Aviation - Advanced Development	PROJECT DB45
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DB45 Aircrew Integrated Systems	9401	8913	2545	2460	0	0	2801	2817	Continuing	Continuing

A. Mission Description and Justification: Project DB45 - Aircrew Integrated Systems (ACIS) - formerly Aviation Life Support Equipment (ALSE) Advanced Development: This project provides advanced development for those systems and items of equipment that are unique and necessary to the sustainment and enhanced survivability of Army aircrews and passengers on the future integrated battlefield and during related training activities. Advanced development programs will focus on the development and evaluation of emerging technologies and the adaptation of commercial and nondevelopmental items (NDI) to military requirements. The Cockpit Air Bag System (CABS) effort has evaluated a variety of supplemental restraint system approaches to improve crew and passenger crash survivability and thereby reduce potential injuries/casualties on UH-60 and SH-60 aircraft; complementing the AH-64 Cockpit Air Bags System Engineering, Manufacturing, and Development (EMD) program, with follow-on adaptation to the OH-58D and CH-47D aircraft. The CABS project transitioned into the EMD life cycle phase during FY 96. The Air Warrior (AW) program will provide the aircrew with a systems approach to chemical and biological (CB) protection, noise protection, microclimatic conditioning, crash and post-crash survivability, concealment and environmental protection, ballistic protection, night vision capability, heads-up displays, nuclear flash protection, directed energy eye protection, and flame/heat protection. The AW design will improve overall aircrew mission performance, aircrew comfort, aircrew and aircrew station interface, safety, and survivability. The Aircrew Integrated Common Helmet (AICH) program, an Air Warrior component, is the major information management, control, and aircraft interface for the aviator. The AICH incorporates Comanche electronics as an Aircraft Retained Unit (ARU) utilizing new flat panel displays on the latest, most advanced Pilot Retained Unit (PRU), the HGU-56/P helmet. Improved Noise Reduction and Speech Intelligibility technology is being developed in concert with the AICH program. None of these efforts duplicate any aircraft program efforts. Both joint and service independent efforts will be pursued under the scope of this project.

Acquisition Strategy: DB45 - Two Air Warrior Program Definition and Risk Reduction (PDRR) development contracts will be awarded in FY 97 to separate competing teams. At Milestone II, there will be a down selection of one team for a combined PDRR and EMD phase.

FY 1996 Accomplishments:

- 800 Continued CABS development contractor component, environmental, and dynamic system tests required prior to Milestone II (Joint Service)
 - 1624 Continued Air Warrior trade studies, prepared developmental contract Request for Proposal (RFP), and integrated AICH effort (Joint Interest)
 - 6427 Continued AICH contractor prototype development for laboratory and Comanche cockpit evaluation of miniature flat panel displays
 - 550 Initiated NBC Advanced Initiatives Advanced Development for aircrew and air vehicle in conjunction with the Air Warrior project
- Total 9401

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997								
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603801A Aviation - Advanced Development	PROJECT DB45								
FY 1997 Planned Program:										
• 8703	Initiate Air Warrior Program Definition and Risk Reduction contractor effort and continue incorporation of AICH, Improved Noise Reduction and Speech Intelligibility technology, and NBC effort									
• 210	Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Programs									
Total	8913									
FY 1998 Planned Program:										
• 2545	Continue Air Warrior Program Definition and Risk Reduction (PDRR), and flight test of AICH miniature flat panel displays									
Total	2545									
FY 1999 Planned Program:										
• 2460	Complete Dem Val									
Total	2460									
B. Project Change Summary										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>						
FY 1997 President's Budget	9636	4104	2733	2654						
Appropriated Value	9907	8913								
Adjustments to Appropriated Value	-506									
FY 1998 Pres Bud Request	9401	8913	2545	2460						
Change Summary Explanation: Funding: The increase in FY97 (+4809) is due to the Congressional Plus-up for the Aircrew Integrated Common Helmet component of the Air Warrior project.										
C. Other Program Funding Summary										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
RDTE, A Budget Activity 5 PE 0604801A Project DC45 (Aircrew Integrated Systems -EMD)	4885	5403	5109	6067	2076	2065	2172	2181	Compl	Cost
Aircraft Procurement, Army (APA) SSN AZ3110 Aircrew Integrated Systems*	7142	13280	12472	10003	8982	8920	23856	36827	Cont	Cont
*Represents the entire APA program for ACIS.										
Project DB45			Page 11 of 15 Pages			Exhibit R-2 (PE 0603801A)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997			
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603801A Aviation - Advanced Development							PROJECT DB45			
D. Schedule Profile																
	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Air Warrior																
Prepared Draft Request for Proposal (RFP) and trade studies received	X*															
Release Draft Request for Proposal (RFP) for industry response		X*														
Program Definition & Risk Reduction (PDRR) phase incorporated			X*													
Finish Statement of Work for competition PDRR RFP released to industry				X*	X*											
Source Selection and award contracts						X										
Post Award Conference							X									
Review Functional Analysis								X								
Review of contractor design									X							
Source Selection of best team's system										X						
Milestone II decision										X						
Preliminary Design Review											X					
Continue Air Warrior combined PDRR and EMD/contractor prototype development												X	X	X	X	X
AICH																
Initiated advanced development /design of AICH optical display prototypes			X*													
Fabrication of AICH prototypes					X											
Lab test AICH optics and displays						X	X									
AICH Airworthiness testing										X						
Perform AICH flight test												X				
Evaluate AICH flight test & enter EMD													X			
NBC																
Initiated NBC Initiatives development for air vehicle and aircrew			X*													

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE					
											February 1997					
BUDGET ACTIVITY						PE NUMBER AND TITLE						PROJECT				
4 - Demonstration and Validation						0603801A Aviation - Advanced Development						DB45				
D. Schedule Profile						FY 1996		FY 1997		FY 1998		FY 1999				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Integrated NBC Advanced Initiatives with Air Warrior PDRR				X*												
Cockpit Air Bags System (CABS)																
UH-60 CABS instrumented flight test	X*															
UH-60 CABS Underwater test		X*														
Transition to EMD phase, UH-60 CABS			X*													
UH-60 CABS EMD contract award				X*												
*Denotes completed effort																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603801A Aviation - Advanced Development					PROJECT DB45	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Development Organizations					7161	7034	1865	1800			
Support and Management Organizations					1725	1169	600	580			
Test and Evaluation Organizations					515	500	80	80			
SBIR/STTR						210					
Total					9401	8913	2545	2460			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
CABS, Simula, Phoenix, AZ	SS-CPFF	May 1994	3183	3183	2629	554	0	0	0	0	3183
Air Warrior AICH, Gentex, Carbondale, PA	SS-CPFF	Jul 1995			3134	6427	5614	100	100	Cont	Cont
Air Warrior, various simulation facilities	C-CPFF	Jun 1995	1208	1208	1123	30	20	5	5	25	1208
Air Warrior, AD unknown	C-CPFF	Mar 1997			0	0	1100	1700	1695	Cont	Cont
Air Warrior, HRED, Aberdeen Proving Grnd, MD	MIPR	Jan 1997	360	360	0	0	300	60	0	0	360
Miscellaneous SBIR/STTR	MIPR		866	866	716	150	0	0	0	0	866
							210				210
Support and Management Organizations											
CAS, Huntsville, AL	C-T&M	Dec 1993			656	330	200	140	130	Cont	Cont
Project DB45					Page 14 of 15 Pages				Exhibit R-3 (PE 0603801A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603801A Aviation - Advanced Development					PROJECT DB45	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Camber, Huntsville, AL	C-T&M	Dec 1993			737	331	200	140	130	Cont	Cont
ATCOM, St. Louis, MO/AMCOM, Huntsville, AL	MIPR				1411	500	499	300	300	Cont	Cont
AFDD, Moffett Field, CA	MIPR	Nov 1993			1588	0	0	5	5	Cont	Cont
USAARL, Ft. Rucker, AL	MIPR	May 1995			780	224	100	5	5	Cont	Cont
AATD, Ft. Eustis, VA	MIPR				640	240	100	5	5	Cont	Cont
Natick R&D Center, Natick, MA	MIPR				445	100	70	5	5	Cont	Cont
Test and Evaluation Organizations											
TECOM/ATTC, Ft. Rucker, AL	MIPR				278	515	500	80	80	Cont	Cont
Government Furnished Property: Not Applicable											
Subtotal Product Development Organizations					13859	8886	8413	2465	2380	Cont	Cont
Subtotal Support and Management Organizations											
Subtotal Test and Evaluation Organizations					278	515	500	80	80		Cont
Total					14137	9401	8913	2545	2460	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603802A Weapons and Munitions - Advanced Development				PROJECT DAS2		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DAS2 Small Arms Improvements	949	0	0	0	1812	2919	1498	1099	0	8277
<p>A. <u>Mission Description and Budget Item Justification:</u> This project aims to achieve improvements in target acquisition, target effect, lethality, training effectiveness, durability, and reliability, availability and maintainability (RAM) for small arms weapons systems. Current small arms systems include a variety of personal defense weapons (.38 cal, .45 cal; 9mm), individual weapons (5.56mm - 7.62mm), and crew served weapons (5.56mm - 40mm). Also included is related equipment such as fire control, training devices, and ammunition. This project will begin development of a small arms fire control system (SAFCS) providing an integrated day/night fire control system with a laser range finder for use on the MK19-3 Grenade Machine Gun. The SAFCS is a continuation of an advanced development effort conducted by the Joint Service Small Arms Program. This project focuses on efforts associated with advanced technology development. It demonstrates general military utility, to include demonstration and validation, of a SAFCS and is correctly placed in budget activity 4.</p> <p>Acquisition Strategy: Not Applicable</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 75 Conducted market survey/Trade-off Determination • 248 Developed system performance specification • 75 Prepared and staff Purchase Description • 75 Prepared procurement package input for test hardware • 350 Awarded contract for test hardware • 126 Conducted test and develop reports <p>Total 949</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p>										
Project DAS2			<i>Page 1 of 3 Pages</i>				Exhibit R-2 (PE 0603802A)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997																
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603802A Weapons and Munitions - Advanced Development						PROJECT DAS2																
B. <u>Project Change Summary</u>																												
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>														
FY 1997 President's Budget																949	0	0	0	0	0	0	0	0	0	0	0	
Appropriated Value																949	0	0	0	0	0	0	0	0	0	0		
Adjustments to Appropriated Value																0	0	0	0	0	0	0	0	0	0	0		
FY 1998 President's Budget Request																949	0	0	0	0	0	0	0	0	0	0		
C. <u>Other Program Funding Summary</u> None																												
D. <u>Schedule Profile</u>																												
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>														
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4												
Conduct market survey /Trade-off Determination																X												
Develop system performance specification																X												
Prepare and staff Purchase Description																X												
Prepare procurement package input for test hardware																	X											
Award Contract for test hardware																				X								
Conduct test and develop reports																					X							
Project DAS2																												
<i>Page 2 of 3 Pages</i>																												
Exhibit R-2 (PE 0603802A)																												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603802A Weapons and Munitions - Advanced Development				PROJECT DAS2			
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Other Government Agency Support				520							
Program Management Support				79							
Contract Support				350							
Total				949							
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
ARDEC	MIPR	Multi	370	370	0	370	0	0	0	5238	5608
Support and Management Organizations											
PM Small Arms	Allot	Multi	79	79	0	79	0	0	0	540	619
TACOM	DC	2Q97	350	350	0	350	0	0	0	0	350
Picatinny Arsenal											
Test and Evaluation Organizations											
TECOM	MIPR	Multi	35	35	0	35	0	0	0	0	35
TEXCOM	MIPR	Multi	40	40	0	40	0	0	0	0	40
ARDEC	MIPR	Multi	75	75	0	75	0	0	0	1550	1625
Government Furnished Property None											
Subtotal Product Development						370				5238	5608
Subtotal Support and Management							429			540	969
Subtotal Test and Evaluation							150			1550	1700
Total Project							949			7328	8277
Project DAS2				Page 3 of 3 Pages				Exhibit R-3 (PE 0603802A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	5587	7433	6783	6833	7731	6535	13693	13317	Continuing	Continuing
DGO1 Combat Engineer Equipment Advanced Development	0	0	0	0	0	0	944	1415	Continuing	Continuing
DG10 Advanced Tactical Power Sources	128	129	135	178	198	216	477	475	Continuing	Continuing
DG11 Advanced Electrical Energy Concepts Advanced Development	216	213	214	1371	1020	743	616	570	Continuing	Continuing
DG14 Logistics Support Equipment Advanced Development	92	86	96	98	105	101	103	100	Continuing	Continuing
DK39 General Support Equipment Advanced Development	707	851	1689	1809	1980	2103	2424	2431	Continuing	Continuing
DK41 Petroleum, Oil and Lubricant (POL) Distribution Equipment Advanced Development	864	872	859	824	899	892	944	946	Continuing	Continuing
D266 Airdrop Equipment Advanced Development	1116	1414	1359	1353	1336	1503	4864	4700	Continuing	Continuing
D428 Rigid Wall Shelter Advanced Development	2464	3868	2431	870	983	977	1970	1977	Continuing	Continuing
D526 Marine Orientation Log Equipment Advanced Development	0	0	0	330	1210	0	1351	703	Continuing	Continuing
<p>Mission Description and Budget Item Justification: This program supports advanced development of new and improved technologies for combat support and combat service support equipment essential to sustaining combat operations. Advancements in airdrop, rigid wall shelters, marine craft, bridging, electric power generators and batteries, potable water, environmental control and petroleum equipment are necessary to improve safety and increase the tactical mobility, operational capability, lethality and survivability on the digital battlefield of the first to fight; and to provide for greater sustainment of all combat forces while reducing the logistics support burden. The projects in this Program Element focus on efforts to demonstrate general military utility, to include demonstration and validation and are therefore correctly placed in Budget Activity 4.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development				PROJECT DG10		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DG10 Advanced Tactical Power Sources	128	129	135	178	198	216	477	475	Continuing	Continuing
<p>A. <u>Mission Description and Justification</u> This program develops advanced tactical power sources to improve soldier mobility, sustainability, and survivability. This is the only project that bridges the gap between science and technology and full scale production of new higher energy density, lower cost, all-weather batteries/energy conversion systems to satisfy the unique tactical and logistical requirements of portable electronic battlefield equipment. This effort also includes state-of-charge measuring and indicating circuitry as well as safety protection circuitry. Superior battery charging and analyzing equipment required to meet unique requirements are also included.</p> <p><u>Acquisition Strategy:</u> Transition to production</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 40 Developed an improved rechargeable battery and charger based on the lithium ion battery chemistry for use in the Single Channel Ground and Airborne Radio System (SINCGARS). • 40 Developed techniques for reducing battery related disposal costs. • 48 Developed a vehicular mounted battery charging station. <p>Total 128</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 20 Conduct field test and evaluation of next generation of primary lithium based batteries. • 64 Begin development of high power battery chemistry with no toxic/hazardous materials. • 45 Develop High Energy/High Power throw away battery for Force XXI Soldier. <p>Total 129</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 108 Develop cost effective, environmentally friendly, ultra thin rechargeable lithium battery for Force XXI Soldier. • 27 Test, evaluate proof of principle for thin cells and prototype batteries. <p>Total 135</p>										
Project DG10			<i>Page 2 of 30 Pages</i>				Exhibit R-2 (PE 0603804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT DG11	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DG11 Advanced Electrical Energy Concepts Advanced Development	216	213	214	1371	1020	743	616	570	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Provides advanced development for electrical energy devices to improve soldier mobility, readiness and survivability. This project supports initiatives which will lead to tactical electric power procurements in diesel powered generators and power units/power plants rated at 3-200 kilowatts (kW) with higher efficiency, lighter weight, easier maintainability and higher reliability.</p> <p><u>Acquisition Strategy:</u> Complete advanced development and transition to engineering development.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 126 Completed evaluation of commercial digital displays, controls and diagnostics in 60kW engine generators. • 90 Initiated evaluation of permanent magnet generators with associated electronics. <p>Total 216</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 209 Evaluate digital display controls and diagnostics over the family of generator sets. • 4 Small Business Innovation Research/Small Business Technology transfer (SBIR/STTR) Program <p>Total 213</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 214 Initiate evaluation of lightweight efficient engine design for 5kW, 10kW, and 15kW generator sets. <p>Total 214</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 706 Complete evaluation of lightweight efficient engine designs for 5kW, 10kW, and 15kW generator sets. • 665 Complete evaluation of permanent magnet generators and associated electronics. <p>Total 1371</p>										
Project DG11			<i>Page 5 of 30 Pages</i>				Exhibit R-2 (PE 0603804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT DG11	
B. Project Change Summary											
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
FY 1997 President's Budget		221		217		215		212			
Appropriated Value		227		213							
Adjustments to Appropriated Value		-11									
FY 1998 Pres Bud Request		216		213		214		1371			
Change Summary Explanation: Funding increase (+1159) in FY 1999 reprogrammed into this project for the evaluation of light weight efficient engine designs for 5kw, 10kw and 15 kw generator sets and completion of the evaluation of permanent magnet generators and associated electronics.											
C. Other Program Funding Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total
										<u>Compl</u>	<u>Cost</u>
RDTE, 0604804A.D194, Engine Driven Generators Engineering Development		1423	2183	7534	9015	8184	5290	1364	1417	Cont	Cont
OPABA3: Generators & Assoc Equip (MA9800)		13482	29980	7706	74952	101113	90717	41000	38368	Cont	Cont
D. Schedule Profile											
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3
Evaluate digital display, controls and diagnostics in 60kW set				X*							
Test commercial state-of-the-art technologies for insertion to FY 99 buy					X						
Initial lightweight engine evaluation						X					
Complete lightweight engine evaluations										X	
Complete permanent magnet generator evaluation											X
* Milestone Complete											
Project DG11		Page 6 of 30 Pages					Exhibit R-2 (PE 0603804A)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT DG11		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Hardware Development				99	90	44	962				
Test and Evaluation				50	73	125	59				
Government Engineering and Support				42	21	25	200				
Government Program Support				25	25	20	100				
SBIR/STTR					4		50				
Total				216	213	214	1371				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or	Contract										
Government	Method/Type	Award or	Performing	Project	Total						
Performing	or Funding	Obligation	Activity	Office	Prior to					Budget to	Total
Activity	Vehicle	Date	EAC	EAC	FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Complete	Program
Product Development Organizations											
	CPFF/TBD	2Q96	200	200		216	209	214	1159	Cont	1798
SBIR/STTR							4				4
Support and Management Organizations: None											
Test and Evaluation Organizations											
CECOM	In-House	Various							212	Cont	212
Government Furnished Property: None											
Subtotal Product Development						216	213	214	1159		1802
Subtotal Support and Management											
Subtotal Test and Evaluation									212		212
Total Project						216	213	214	1371		2014

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development				PROJECT DG14		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DG14 Logistics Support Equipment Advanced Development	92	86	96	98	105	101	103	100	Continuing	Continuing

A. Mission Description and Justification: This program supports advanced development of new and improved technologies for logistics support equipment such as materiel handling equipment (MHE).

Acquisition Strategy: Develop engineering prototype and award competitive contract for production or select non-developmental item (NDI) equipment based on market investigation and requests for proposals (RFPs) from industry.

FY 1996 Accomplishments:

- 38 Initiated contract package for Visibility Improvements for Forklift Carriages (VIC).
- 54 Initiated VIC test.

Total 92

FY 1997 Planned Program:

- 42 Conduct technical testing of VIC prototypes.
- 42 Initiate materiel change management documentation for VIC.
- 2 Small Business Innovation Research/Small Business Technology transfer (SBIR/STTR) Program

Total 86

FY 1998 Planned Program:

- 41 Conduct market survey for Lightweight Container Handlers.
- 55 Complete materiel change management documentation for VIC.

Total 96

FY 1999 Planned Program:

- 98 Initiate preparation of acquisition package for Light Weight Container Handlers.

Total 98

Project DG14 Page 8 of 30 Pages Exhibit R-2 (PE 0603804A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997											
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT DG14											
B. <u>Project Change Summary</u>																					
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>										
FY 1997 President's Budget		95			88			88			87										
Appropriated Value		97			86																
Adjustments to Appropriated Value		-5																			
FY 1998 Pres Bud Request		92			86			96			98										
Change Summary Explanation: Funding increase (+8 in FY 1998 and +11 in FY 1999) reprogrammed into this project for acceleration of the Lightweight Container Handlers effort.																					
C. <u>Other Program Funding Summary</u>																					
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To</u>		<u>Total</u>	
																		<u>Compl</u>		<u>Cost</u>	
RDTE, 0604804.DH14, Logistics Support Equipment		579		88		4829		100		105		102		103		101		Cont		Cont	
OPA 3, M41200, Truck Fork Lift, DE, PT, RT		10587						24396		35774		50181		16863		16894		Cont		Cont	
OPA 3, MA8600, Items Less Than \$2.0M (MHE)		2754		2664		1724		1715		1854		1843		1984		1988		Cont		Cont	
OPA 3, M41800, All Terrain Lifting Articulated System		13640		15941		3554		10498		10505		10510		11903		23851		Cont		Cont	
D. <u>Schedule Profile</u>																					
			<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
Conduct CCR Milestone II			X*																		
Contract for Visibility Improvements for Forklift Carriages (VIC)				X*																	
Complete testing of VIC prototypes							X														
Initiate materiel change management documentation for VIC								X													
Complete materiel change management documentation for VIC									X												
Initiate acquisition package for Light Weight Container Handlers															X						
* Milestones Completed																					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT DG14		
A. <u>Project Cost Breakdown</u>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Hardware Development				54							
Test and Evaluation					44	55	58				
Government Engineering and Support											
Government Program Support				38	40	41	40				
SBIR/STTR					2						
Total				92	86	96	98				
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or	Contract										
Government	Method/Type	Award or	Performing	Project	Total						
Performing	or Funding	Obligation	Activity	Office	Prior to					Budget to	Total
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>
Product Development Organizations											
TACOM	In-House										
Support and Management Organizations											
Contractor - TBD											
Test and Evaluation Organizations											
TARDEC	In-House	Various			913	92	84	96	98	Cont	1283
TECOM					259						259
SBIR/STTR							2				2
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation					1172	92	86	96	98		1544
Total Project					1172	92	86	96	98		1544
Project DG14				Page 10 of 30 Pages				Exhibit R-3 (PE 0603804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT DK39	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DK39 General Support Equipment Advanced Development	707	851	1689	1809	1980	2103	2424	2431	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develop and demonstrate the potential of prototype equipment to satisfy water purification, maintenance and environmental control requirements.</p> <p>Acquisition Strategy: Transition to development of engineering prototypes or select Non-Developmental Item based on market survey and proposals from industry.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 171 Investigated commercial technology applicable to 9K British Thermal Units-Heat (BTUH) Environmental Control Unit (ECU). • 150 Conducted Milestone I/II IPR for the Lightweight Water Purifier (LWP). • 161 Prepared contract package for design/fabrication of prototype LWP. • 225 Completed evaluation of commercially available LWP. <p>Total 707</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 164 Select components and initial ECU system design. • 450 Design and fabricate prototype LWP. • 126 Initiate Pre-Production Qualification Testing (PPQT) and Initial Operational Test and Evaluation (IOTE) of LWP. • 90 Complete market survey of commercial packaged water units and conduct Milestone I/II IPR for PWS. • 21 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 851</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 491 Investigate commercial technology applicable to 9K BTUH ECU and large diesel heaters (250K+ BTUH). • 300 Complete PQT and IOTE of LWP. • 220 Conduct Milestone III IPR and type classify (generic) for the LWP. • 628 Design and build EMD prototype PWS. • 50 Initiate preparation of LWP production contract. 										
Project DK39			Page 11 of 30 Pages				Exhibit R-2 (PE 0603804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997	
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT
4 - Demonstration and Validation	0603804A Logistics and Engineering Equipment - Advanced Development		DK39
D. Schedule Profile	FY 1996	FY 1997	FY 1998
Select components and complete initial ECU system design		X	
Conduct MS I/II LWP IPR	X*		
Prepare contract package for design/fabrication of LWP	X*		
Complete evaluation of commercially available LWP	X*		
Design/fabrication of LWP		X	
Initiate PPQT and IOTE for LWP		X	
Complete market survey and conduct MS I/II IPR for Packaged Water Systems		X	
Investigate 9K ECU and large heater technology			X
Develop 9K ECU prototypes			X
Investigate small diesel heater technology			X
Complete PQT/IOTE for LWP			X
Design and fabricate prototype PWS			X
Initiate preparation of LWP production contract			X
Conduct MS III (Generic) IPR for LWP			X
Conduct PQT/IOTE on PWS prototype			X
Conduct EDT of WIPS prototype			X
Initiate preparation of WIPS program documentation			X
Initiate preparation of PWS program documentation to support MS III IPR			X
* Milestones Complete			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
4 - Demonstration and Validation				0603804A Logistics and Engineering Equipment - Advanced Development					DK39		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Hardware Development				318	440	733	794				
Program Management Support				45	60	60	60				
Test and Evaluation				25	132	380	550				
Government Engineering and Support				213	148	373	255				
Integrated Logistics Support				106	50	143	150				
SBIR/STTR				0	21	0	0				
Total				707	851	1689	1809				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Miscellaneous											
TARDEC/ CECOM	In-House	Various			317	377	181	288	329	Cont	1492
Contractors	CPFF	Mar 97			118		440	650	513	Cont	1721
NFESC	MIPR	Various			400			15	15	Cont	430
ARL	MIPR	Various				15	15	15	30	Cont	75
BRTRC	Task Order	May 96				60		50	50	Cont	160
TECOM	MIPR	Various				25	150	250	400	Cont	825
CECOM	MIPR	Various				30	30	56	247	Cont	363
NSF	MIPR	Various				85					85
ATCOM	MIPR	Various				115	14	50	75	Cont	254
MTMC	MIPR	Dec 96						15			15
CECOM	In-House	Various						170	150	Cont	320
Project DK39				Page 14 of 30 Pages				Exhibit R-3 (PE 0603804A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT DK39	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete Cont	Total Program
CECOM	MIPR	Various						130			130
SBIR/STTR							21				21
Government Furnished Property: None											
					Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation					835	707	851	1689	1809		5891
Total Project					835	707	851	1689	1809		5891

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development				PROJECT DK41		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DK41 Petroleum, Oil and Lubricant (POL) Distribution Equipment Advanced Development	864	872	859	824	899	892	944	946	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develop and demonstrate the potential of prototype equipment to satisfy petroleum distribution requirements.</p> <p><u>Acquisition Strategy:</u> Develop engineering prototypes or select Non-Developmental Item based on market surveys and proposals from industry.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 282 Conducted system analysis of petroleum quality analysis set (PQAS) function and configuration. • 503 Completed system design and initiated fabrication of PQAS technology demonstration model. • 79 Completed performance Technical Data Package (TDP) for Standard Army Refueling System (SARS) and conduct demonstrations. <p>Total 864</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 50 Update PQAS program management documentation for Milestone II IPR. • 62 Prepare solicitation package for PQAS EMD Phase. • 740 Complete fabrication and development testing PQAS technology demonstration model (TDM). • 20 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 872</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 35 Coordinate PQAS program management documentation and conduct Milestone II IPR. • 170 Demonstrate feasibility of portable PQAS modules for use in forward areas. • 95 Prepare Petroleum Quality Surveillance Laboratory (PQSL) program management documentation and conduct Milestone I IPR. • 424 Award contract for ultralight 350 gallons per minute (GPM) pump assembly prototype. • 135 Prepare contract package for PQSL technology demonstration model. <p>Total 859</p>										
Project DK41			Page 16 of 30 Pages				Exhibit R-2 (PE 0603804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT DK41		
FY 1999 Planned Program:												
•	80	Continue development of ultralight 350 GPM pump assembly prototype.										
•	744	Award PQSL contract for design, fabrication, and test.										
Total	824											
B. Project Change Summary												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>							
FY 1997 President's Budget		885	891	912	876							
Appropriated Value		910	872									
Adjustments to Appropriated Value		-46										
FY 1998 Pres Bud Request		864	872	859	824							
C. Other Program Funding Summary												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>	
RDTE, 0604804.DL41, Fuels and Equipment Engineering Development		1135	1011	1071	1081	1057	1052	1306	1314	Cont	Cont	
OPA3, ML5330, Items Less Than \$2 million (POL)		4554	6442	6275	5914	6991	6833	7981	7886	Cont	Cont	
OPA3, M90800, Hoseline Outfit Fuel Handling		0	0	0	814	2672	2672	2091	1745	Cont	Cont	
D. Schedule Profile												
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>	
	1	2	3	4	1	2	3	4	1	2	3	
Conduct system analysis of PQAS		X*										
Complete SARS performance TDP and conduct demonstrations			X*									
Initiate fabrication of PQAS tech demo model				X*								
Prepare solicitation package for PQAS EMD Phase								X				
Complete fabrication and testing of PQAS technology demonstration model								X				
Update PQAS Program Management Documents (PMD) for Milestone II IPR								X				
Project DK41						Page 17 of 30 Pages			Exhibit R-2 (PE 0603804A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT DK41		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Hardware Development				669	667	470	511				
Test and Evaluation				50	50	63	87				
Government Engineering and Support				95	85	276	176				
Government Program Support				50	50	50	50				
SBIR/STTR				0	20	0	0				
Total				864	872	859	824				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations: TARDEC											
Support and Management Organizations: ARL, ATCOM, TACOM											
Test and Evaluation Organizations: TECOM, TEXCOM											
Miscellaneous:											
TARDEC	In-House	Various			546	142	196	273	178	Cont	1335
ETG	CPFF	Sep 95			819	585	511	151		Cont	2066
TECOM	MIPR						120	50			170
TECOM	MIPR										
ARL	MIPR	Feb 96			52	15	15	15	10	Cont	107
ATCOM	MIPR	Mar 96			30	50	10			Cont	90
TACOM	MIPR	Mar 96				72				Cont	72
Contractor	CPFF	Dec 97						370		Cont	426
Contractor	CPFF	Dec 98							580	Cont	580
SBIR/STTR							20				20
Government Furnished Property: None											
Project DK41				Page 19 of 30 Pages				Exhibit R-3 (PE 0603804A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	
BUDGET ACTIVITY						February 1997	
PE NUMBER AND TITLE						PROJECT	
4 - Demonstration and Validation						0603804A Logistics and Engineering Equipment - DK41	
Advanced Development							
	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development							
Subtotal Support and Management							
Subtotal Test and Evaluation	1447	864	872	859	824		4866
Total Project	1447	864	872	859	824		4866

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT D266	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D266 Airdrop Equipment Advanced Development	1116	1414	1359	1353	1336	1503	4864	4700	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Conduct accelerated demonstration and validation of airdrop systems and equipment to provide advanced offset personnel and cargo airdrop capabilities over a range of altitudes with emphasis on improved safety and greater precision, balanced with reduced vulnerability of personnel, aircraft, aircrew and equipment.</p> <p><u>Acquisition Strategy:</u> Single cycle accelerated development with type classification directly upon successful conclusion of Demonstration/Validation development.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1116 Conduct technical testing of the Enhanced Container Delivery System (ECDS). <p>Total 1116</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 680 Initiate EPJD effort; component development, initial developmental testing. • 300 Award contract for the design and trade off analysis of Advance Tactical Parachute System (ATPS) candidates. Number 1 priority of the XVIII ABN Corps. Increases safety and lethality of Force XXI Airborne Forces. • 399 Conduct user testing for ECDS • 35 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 1414</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1359 Monitor contract development efforts and conduct component level test and evaluation of ATPS. <p>Total 1359</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1300 Conduct developmental testing of ATPS; initiate operational testing. • 53 Conduct market survey for 500 feet Low Velocity Aerial Delivery System (LVADS) Heavy <p>Total 1353</p>										
Project D266			Page 21 of 30 Pages				Exhibit R-2 (PE 0603804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997									
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development						PROJECT D266									
B. <u>Project Change Summary</u>																				
			<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>											
FY 1997 President's Budget			1452		1444		1452		1452											
Appropriated Value			1493		1414															
Adjustments to Appropriated Value			-377																	
FY 1998 Pres Bud Request			1116		1414		1359		1353											
Change Summary Explanation: Funding reprogrammed (-336) to a higher priority in FY 1996.																				
C. <u>Other Program Funding Summary</u>																				
			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>										
RDTE, 0604804.D279 Airdrop Equipment Engineering Development											1116	1414	1359	1354	1380	1371	4864	4701	To Compl Cont	Total Cost Cont
OPA 3, R10903, Enhanced Container Delivery System															5270					5270
OPA 3, R10904, Advanced Tactical Parachute System																14924				14924
D. <u>Schedule Profile</u>																				
			FY 1996		FY 1997		FY 1998		FY 1999											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Conclude technical testing of ECDS																				
							X													
Initiate EPJD effort																				
							X													
Award contract for ATPS																				
							X													
Conduct user test for ECDS																				
							X													
Design, fabricate and conduct component testing of ATPS																				
									X											
Conduct developmental testing of ATPS																				
													X							
Begin operational testing of ATPS																				
																	X			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
4 - Demonstration and Validation				0603804A Logistics and Engineering Equipment - Advanced Development					D266		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				574	969	934	930				
Test and Evaluation				467	335	350	356				
Government Support and Management				75	75	75	67				
SBIR/STTR					35						
Total				1116	1414	1359	1353				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
SSCOM	In-House				23711	594	561	285	281	Cont	25432
QMSCH/OGA	MIPR				18	0	408	649	649	Cont	1724
Support and Management Organizations											
SSCOM					643	75	75	75	67	Cont	935
Test and Evaluation Organizations											
TECOM/OGA					1916	322	300	300	300	Cont	3138
SSCOM					120	125	35	50	56	Cont	386
SBIR/STTR							35				35
Government Furnished Property: None											
Subtotal Product Development					23729	594	969	934	930		27156
Subtotal Support and Management					643	75	75	75	67		935
Subtotal Test and Evaluation					2036	447	370	350	356		3559
Total Project					26408	1116	1414	1359	1353		31650
Project D266				Page 23 of 30 Pages				Exhibit R-3 (PE 0603804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT D428	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D428 Rigid Wall Shelter Advanced Development	2464	3868	2431	870	983	977	1970	1977	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develop a family of tactical rigid wall shelters which enhances soldier survivability and sustainability of command, control, communications and intelligence. Shelters provide highly mobile, joint service platforms for the digitization of the battlefield, housing many critical vehicle-mounted battlefield systems, medical critical care in a Chemical/Biological (C/B) environment and high tech maintenance.</p> <p><u>Acquisition Strategy:</u> Developments transition to Engineering and Manufacturing Development and then to production.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 788 Completed development of Cargo Bed Cover (CBC) variants for High Mobility Multi-Purpose Wheeled Vehicle (HMMWV), completed testing of M105 CBC, and redesign 2 1/2 ton truck CBC. • 1676 Completed technical testing of Large Standard Integrated Command Post System (SICPS) Shelter, and began fabrication of Operational Test (OT) shelters. <p>Total 2464</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 856 Complete development of M105 CBC and award design/fabrication contract for fourth CBC variant based user survey. Complete retesting and development of 2 1/2 ton truck CBC. • 1405 Begin effort to apply novel signature management techniques to the HMMWV-mounted SICPS shelter to avoid visual, thermal, radar and IR detection • 1513 Begin effort to develop a survivable SICPS shelter that provides ballistic protection, protection from directed energy and fuel air weapons, and enhanced NBC protection. • 94 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 3868</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1548 Award contract for the design and fabrication of the Survivable SICPS Shelter. • 545 Complete design, fabrication, and testing of the fourth variant CBC. • 338 Award development contract for a Family of Rigid/Soft (R/S) Hybrid Shelter. 										
Project D428			Page 24 of 30 Pages				Exhibit R-2 (PE 0603804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development					PROJECT D428		
Total 2431												
FY 1999 Planned Program:												
• 210 Complete development of the fourth CBC variant.												
• 660 Complete design and conduct fabrication of R/S Hybrid Shelters.												
Total 870												
B. Project Change Summary												
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>					
FY 1997 President's Budget	3482		3951		2594		926					
Appropriation Value	3580		3868									
Adjustments to Appropriated Value	-1116											
FY 1998 Pres Bud Request	2464		3868		2431		870					
Change Summary Explanation: In FY 1996 (-1018) funding was reprogrammed to higher priority requirements.												
C. Other Program Funding Summary												
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>		
RDTE, 0604804.D429, Rigid Wall Shelter Engineering Development	2296	3193	1498	1024	1159	1152	2157	2166	Compl Cont	Cost Cont		
D. Schedule Profile												
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
Complete testing and redesign of M105 Trailer CBC		X*										
Complete development of HMMWV CBC				X*								
Complete technical testing of the Large SICPS Shelter				X*								
Complete development of 2 1/2 ton truck CBC						X						
Begin development of reduced Signature SICPS Shelter				X								
Design and test Survivable Command Post								X				
Project D428												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development			PROJECT D428				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				1806	3166	421	270				
Test and Evaluation				474	305	1000	200				
Program Management Support				184	303	1010	400				
SBIR/STTR					94						
Total				2464	3868	2431	870				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
SSCOM	In-House				14299	125	360	421	270	Cont	15475
Plastics Research Corp.	Various	Various			382	1031	2206			Cont	3619
Brunswick Ft. Belvoir	MIPR				16	650	600			Cont	1266
CASCOM											
Support and Management Organizations											
SSCOM					3605	184	303	1010	400	Cont	5502
Test and Evaluation Organizations											
TECOM	MIPR				7508	474	305	1000	200	Cont	9487
SBIR/STTR							94				94
Government Furnished Property: None											
Subtotal Product Development					14697	1806	3166	421	270		20360
Subtotal Support and Management					3605	184	303	1010	400		5502
Subtotal Test and Evaluation					7508	474	399	1000	200		9581
Total Project					25810	2464	3868	2431	870		35443
Project D428											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																						
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development				PROJECT D526																						
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																				
D526 Marine Orientation Log Equipment Advanced Development	0	0	0	330	1210	0	1351	703	Continuing	Continuing																				
<p>A. <u>Mission Description and Justification:</u> This project provides advanced development of technology necessary to improve marine logistical equipment. The effort for the concept design for the Landing Craft Utility (LCU) 1600 Service Life Extension Program (SLEP) will focus upon providing enhanced capabilities and reduction of Operating and Support (O&S) costs over the next several decades as well as meet Safety of Life at Sea (SOLAS) requirements.</p> <p><u>Acquisition Strategy:</u> RDTE followed by competitive procurement.</p> <p>FY 1996 Planned Program: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 125 Concept design effort to enhance performance of LCU 1600. • 135 Concept design effort to reduce O&S costs of LCU 1600. • 70 Concept design effort to satisfy new SOLAS standards. <p>Total 330</p> <p>B. <u>Project Change Summary</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget Appropriated Value</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">338</td> </tr> <tr> <td>Adjustment to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">330</td> </tr> </tbody> </table> <p>C. <u>Other Program Funding Summary:</u> None</p>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget Appropriated Value	0	0	0	338	Adjustment to Appropriated Value					FY 1998 Pres Bud Request	0	0	0	330
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																										
FY 1997 President's Budget Appropriated Value	0	0	0	338																										
Adjustment to Appropriated Value																														
FY 1998 Pres Bud Request	0	0	0	330																										
Project D526			Page 28 of 30 Pages				Exhibit R-2 (PE 0603804A)																							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603804A Logistics and Engineering Equipment - Advanced Development								PROJECT D526			
D. <u>Schedule Profile</u>						FY 1996		FY 1997				FY 1998			FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Report/Concept Acceptance	X*																
LCU 1600 Contract Award (Task Order)														X			
In-process Review																X	
*Milestone completed																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT			
4 - Demonstration and Validation			0603804A Logistics and Engineering Equipment - Advanced Development					D526			
A. Project Cost Breakdown			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
Contractor Engineering Support						304					
Program Management Support						26					
Total						330					
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Miscellaneous	SS-FP				447				279	Cont	726
Support and Management Organizations											
NSWC	MIPR				318				29	Cont	347
ATCOM	MIPR				69				22	Cont	91
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development					447				279		726
Subtotal Support and Management					387				51		438
Subtotal Test and Evaluation											
Total Project					834				330		1164
Project D526			Page 30 of 30 Pages			Exhibit R-3 (PE 0603804A)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603805A Combat Service Support Control Systems Evaluation and Analysis						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	13228	12689	7673	7783	1860	1863	1877	1885	Continuing	Continuing
D091 Combat Service Support Control System	11764	10771	5914	5997	0	0	0	0	0	136361
D246 Tactical Communications System-Advanced Development	1464	1918	1759	1786	1860	1863	1877	1885	Continuing	Continuing
<p><u>Mission Description and Budget Item Justification:</u> Project D091, The Combat Service Support Control System, is a computer software system designed to assist the Combat Service Support (CSS) Commander and his staff to rapidly collect, store, analyze, and disseminate CSS information to support the functions of command, control and resource management. CSS control centers must provide a rapid decision support capability and supportive information to commanders more quickly than is possible with the present manual systems. This program develops the CSS battlefield functional area (BFA) node of the Army Tactical Command and Control System (ATCCS) which is a component of the Army Battle Command System (ABCS). Project D246, Tactical Communications System - Advanced Development, provides for insertion of proven communications technology from program element 0602782A, Project AH92 exploratory development into advanced development. Examples of these potential programs are the Multiband, Multimode Radio, high power solid state amplifiers and couplers, and packet appliquéés used to increase network efficiency. These efforts provide for the demonstration and validation of advanced technologies and therefore are appropriately funded in Budget Activity 4.</p>										
<i>Page 1 of 9 Pages</i>						Exhibit R-2 (PE 0603805A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603805A Combat Service Support Control					PROJECT D091	
				Systems Evaluation and Analysis						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D091 Combat Service Support Control System	11764	10771	5914	5997	0	0	0	0	0	136361
<p>A. <u>Mission Description and Justification:</u> Project D091, Combat Service Support Control System. The CSSCS is a computer software system designed to assist the CSS Commander and his staff to rapidly collect, store, analyze, and disseminate CSS information to support the functions of command, control and resource management. CSS control centers must provide a rapid decision support capability and supportive information to commanders more quickly than is possible with the present manual systems. This program develops the CSS BFA node of the ATCCS, which is a component of the ABCS.</p> <p><u>Acquisition Strategy:</u> Acquisition strategy is to pursue an evolutionary development process, with program development structured to evolve over five versions. Versions 1 and 2 served as proof of principle, and provided initial division level CSS functional capability on common hardware. Version 3 builds on the capabilities of the previous versions and provides an Initial Operational Capability at Division and Corps level, to include initial horizontal interoperability with ABCS systems. Version 4 will extend CSSCS to EAC, as well as provide added capabilities at Echelons Corps and Below (ECB). Version 5, the objective CSSCS software, will provide remaining ECB functionality, and extend CSSCS capabilities to joint, allied and coalition forces. FY 97 is a transition year, with the Version 3 TRW contract in an extension period through 30 Sep 97. TRW will provide software maintenance and update support to CSSCS through IOTE-II, Task Force XXI and Division XXI preparation activities. Lockheed Martin Corporation (LMC) will provide training support in FY 97, and will transition to Version 4 and Version 5 software development beginning in FY 98.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 5715 Continued Version 3 software development • 1194 Began Version 4 software development • 2000 Continued LRIP activity in accordance with Acquisition Decision Memo at III Corps • 1055 Prepared for and conduct Army Warfighter Experiment (AWE) and Task Force XXI activities. • 800 Prepared and conduct Version 4 Preliminary Design Review (PDR) and Critical Design Review (CDR) • 1000 Prepared for and begin IOTE-II <p>Total 11764</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 5007 Complete Version 3 software development • 537 Continue Version 4 software development • 694 Begin Version 5 development 										
Project D091			Page 2 of 9 Pages				Exhibit R-2 (PE 0603805A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																																										
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603805A Combat Service Support Control Systems Evaluation and Analysis	PROJECT D091																																																										
<ul style="list-style-type: none"> • 1000 Conclude IOTE-II <p>FY 1997 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 1200 Prepare for and conduct Army Warfighter Experiment (AWE), Task Force XXI and Division XX activities • 800 Prepare documentation and conduct ASARC III (Full Scale Production (FSP)) and C3I Committee Review • 533 Begin fielding of Version 3 • 750 Begin Version 4 Limited User Test (LUT) • 250 Small Business Innovation Research/Small Business Technical Transfer (SBIR/STTR) <p>Total 10771</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 2897 Complete Version 4 development • 2367 Continue Version 5 development • 450 Conclude LUT • 200 Begin FOT&E <p>Total 5914</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 5897 Complete Version 5 development • 100 Complete FOT&E <p>Total 5997</p> <p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">12054</td> <td style="text-align: right;">11119</td> <td style="text-align: right;">5937</td> <td style="text-align: right;">5936</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">12176</td> <td style="text-align: right;">10884</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">-412</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: right;">11764</td> <td style="text-align: right;">10771</td> <td style="text-align: right;">5914</td> <td style="text-align: right;">5997</td> </tr> </tbody> </table> <p>C. <u>Other Program Funding Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To Compl</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>Procurement, OPA 2 (W34600)</td> <td style="text-align: right;">4547</td> <td style="text-align: right;">5806</td> <td style="text-align: right;">5759</td> <td style="text-align: right;">5740</td> <td style="text-align: right;">13845</td> <td style="text-align: right;">13749</td> <td style="text-align: right;">14018</td> <td style="text-align: right;">14674</td> <td style="text-align: right;">31200</td> <td style="text-align: right;">115254</td> </tr> <tr> <td>Spares (MA9706/BS9706)</td> <td style="text-align: right;">450</td> <td style="text-align: right;">884</td> <td style="text-align: right;">293</td> <td style="text-align: right;">187</td> <td style="text-align: right;">178</td> <td style="text-align: right;">177</td> <td style="text-align: right;">189</td> <td style="text-align: right;">189</td> <td style="text-align: right;">200</td> <td style="text-align: right;">2747</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	12054	11119	5937	5936	Appropriated Value	12176	10884			Adjustments to Appropriated Value	-412				FY 1998 Pres Bud Request	11764	10771	5914	5997		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Compl</u>	<u>Total Cost</u>	Procurement, OPA 2 (W34600)	4547	5806	5759	5740	13845	13749	14018	14674	31200	115254	Spares (MA9706/BS9706)	450	884	293	187	178	177	189	189	200	2747
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																																																								
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Project D091		Page 3 of 9 Pages	Exhibit R-2 (PE 0603805A)																																																									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997			
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603805A Combat Service Support Control Systems Evaluation and Analysis								PROJECT D091			
D. Schedule Profile																
	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
V4 PDR			X*													
V4 CDR			X*													
V3 IOTE-II					X*											
ASARC III (FSP)						X										
FUE V3							X									
V4 Technical Test							X									
V5 PDR							X									
V5 CDR								X								
V4 LUT								X								
V3 IOC									X							
V5 FOTE									X							
Begin Fielding V4										X						
Begin Fielding V5														X		
*Milestone Complete																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
4 - Demonstration and Validation				0603805A Combat Service Support Control Systems Evaluation and Analysis						D091	
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Software Development				6909	7407	4289	4597				
Program Management Support				2555	2004	1200	1200				
COE/CHS/Common Support				1800	733	200	100				
Operational Test and Evaluation				500	377	225	100				
SBIR/STTR					250						
Total				11764	10771	5914	5997				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government	Contract Method/Type	Award or Obligation	Performing Activity	Project Office	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Performing Activity	or Funding Vehicle	Date	EAC	EAC	FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TRW	C/CPFF	7/87	15731	15731	15731	0	0			0	15731
TRW	C/CPAF	2/91	65354	65354	53432	5715	6107			0	65254
Lockheed Martin	C/CPAF	12/94	TBD	TBD	1500	1194	1105	4289	4597	0	12685
COE/Com Spt	MIPR				3990	1300	445	200	100	0	6035
SBIR/STTR							250				250
Support and Management Organizations											
PM CSSCS					13451	659	495	275	275	0	15155
CECOM	MIPR				910	304	160	70	70	0	1514
SDC-LEE	MIPR				136	265	265	130	130	0	926
SDC-HUACHUCA	MIPR				485	165	100	50	50	0	850
EER/VITRO/	MIPR				2511	1162	1300	675	675	0	6323
FEDSIM											
Test and Evaluation Organizations											
GOVT	MIPR				2289	310	165	150	100	0	3014
EPG/CAC	MIPR				413	170	159	75		0	817
OPTEC					1558	20	20			0	1598
Project D091				Page 5 of 9 Pages				Exhibit R-3 (PE 0603805A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997			
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603805A Combat Service Support Control Systems Evaluation and Analysis				PROJECT D091		
Government Furnished Property										
Item	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
CHS-TRW/LMC	MIPR			3101	500	200			0	3801
Support and Management Property: None										
Test and Evaluation Property										
CHS-III CORPS	MIPR			2408	0	0			0	2408
Subtotal Product Development				77754	8709	8107	4489	4697		103756
Subtotal Support and Management				17493	2555	2320	1200	1200		24768
Subtotal Test and Evaluation				6668	500	344	225	100		7837
Total Project				101915	11764	10771	5914	5997		136361

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603805A Combat Service Support Control Systems Evaluation and Analysis					PROJECT D246	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D246 Tactical Communications System-Advanced Development	1464	1918	1759	1786	1860	1863	1877	1885	Continuing	Continuing

A. Mission Description and Budget Item Justification This project will validate the new Tactical Internet capability required for Force XXI. It provides definition, integration and testing of a mix of mature and prototype products which will be used to develop a Tactical Internet capability. The Tactical Internet will be the primary data communications infrastructure at Corps and below for Force XXI and will revolve around interconnecting a mix of existing (e.g.: SINGARS, SINGARS SIP, EPLRS, MSE TPN, etc.) and emerging communications devices using gateways and routers. Gateways will also provide the link to strategic levels. This capability will result in the tactical equivalent of the information highway and will support key battlefield functional areas to include logistics reporting, telemedicine, etc. The Tactical Internet will use and leverage commercial network standards and products. The "Internet Protocol" (IP) suite will be used to provide seamless communications with the capability to dynamically route data to hosts. It will be designed to facilitate technology insertion. The focus of this project will be to reduce the technical risk by assembling, integrating, and testing the Tactical Internet components prior to TF XXI, Division XXI, and Corps XXI. New services and components will be added and tested as required for each iteration leading up to Force XXI.

Acquisition Strategy: The efforts funded in this project are non-system specific, therefore no acquisition strategy is provided.

FY 1996 Accomplishments:

- 579 Established Tactical Internet Testbed and baseline for the performance of hardware, software and protocols
 - 535 Conducted near term experiments to address the internet architecture for the Task Force (TF) XXI Exercise
 - 250 Provided technical support for the Task Force XXI field testing and training
 - 100 Began incorporation of Digital Battlefield Communications (DBC)/Battlefield Information Transmission System (BITS) near term products into the tactical internet
- Total 1464

FY 1997 Planned Program:

- 431 Provide on-site tactical internet technical support at Ft Hood and Ft Irwin for TF XXI
- 586 Insert new technologies and expand the testbed to address requirements for division size networks
- 250 Develop and provide empirical test data for the Division 98 simulation exercise
- 104 Incorporate latest DBC/BITS Products

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603805A Combat Service Support Control Systems Evaluation and Analysis	PROJECT D246																									
<p>FY 1997 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 500 Research and test on the ground, new and improved video systems. Candidate video systems will be installed on an airborne platform for flight testing with the Near Term Digital Radio prototype and the Surrogate Digital Radio • 47 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 1918</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 300 Resolve technical issues identified during the TF XXI and Division Simulation Exercise • 609 Insert latest technologies and expand the testbed to address requirements for corps size networks • 240 Develop and provide empirical test data for the Corps 99 Simulation Exercise • 110 Incorporate next set DBC/BITS Products • 500 Demonstrate advanced networking capabilities on an airborne platform by incorporating the NTDR production model on an airborne platform <p>Total 1759</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 325 Resolve technical issues identified during the Corps exercise • 811 Optimize technical solutions for Force XXI fieldings • 150 Incorporate final set of DBC/BITS products • 500 Demonstrate a multiband/multimode capability on an airborne platform to show the insertion of the Future Digital Radio <p>Total 1786</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">1501</td> <td style="text-align: center;">2021</td> <td style="text-align: center;">1884</td> <td style="text-align: center;">1922</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">1516</td> <td style="text-align: center;">1918</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-52</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">1464</td> <td style="text-align: center;">1918</td> <td style="text-align: center;">1759</td> <td style="text-align: center;">1786</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	1501	2021	1884	1922	Appropriated Value	1516	1918			Adjustments to Appropriated Value	-52				FY 1998 Pres Bud Request	1464	1918	1759	1786
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	1501	2021	1884	1922																							
Appropriated Value	1516	1918																									
Adjustments to Appropriated Value	-52																										
FY 1998 Pres Bud Request	1464	1918	1759	1786																							
Project D246	Page 8 of 9 Pages	Exhibit R-2 (PE 0603805A)																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
4 - Demonstration and Validation	0603805A Combat Service Support Control Systems Evaluation and Analysis	D246		
A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
CECOM RDEC Internal Technical Support	790	1172	1028	1074
Contractor Technical Support	630	570	595	584
Travel & Misc. (Routers, Cables, Connectors)	44	129	136	128
SBIR/STTR		47		
Total	1464	1918	1759	1786
B. <u>Budget Acquisition History and Planning Information:</u> Not applicable				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development
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COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	9878	9996	6765	8700	9326	9306	10939	10508	Continuing	Continuing
D808 DoD Drug and Vaccine-Advanced Development	3598	3754	2202	3696	3687	3652	4046	4047	Continuing	Continuing
D811 Military HIV Vaccine and Drug-Advanced Development	2532	2581	0	517	782	795	818	786	Continuing	Continuing
D836 Combat Medical Materiel-Advanced Development	2593	2844	3723	3616	3752	3765	3997	3797	Continuing	Continuing
D837 Soldier System Protection-Advanced Development	1155	817	840	871	1105	1094	2078	1878	Continuing	Continuing

Mission Description and Budget Item Justification: This program element (PE) funds the advanced development of medical materiel necessary to field an effective capability for infectious diseases. The PE funds Advanced Development (AD) of systems for medical protection against naturally occurring diseases and Human Immunodeficiency Virus (HIV). This includes development and initial human testing of vaccines, prophylactic and therapeutic drugs. Additionally, the PE supports AD of field medical equipment and drugs essential for combat casualty care on all battlefields and OOTW while reducing logistical support requirements. The PE also funds AD systems which provide enhancement of or protection against physiological and psychological factors affecting cognitive and physical performance imposed by military systems, combat operations or the environment. This includes AD of vision corrective devices. Systems include resuscitators, blood substitutes, advanced sensors and diagnostic algorithms, field x-ray, and field production of medical grade oxygen, intensive care delivery platforms and litters, and Advanced Surgical Suites for Trauma Care (ASSTC). This program is primarily managed by the U.S. Army Medical Research and Materiel Command. This PE focuses on efforts to demonstrate general military utility to include demonstration and validation in the area of medical materiel and is properly placed in Budget Activity 4.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development				PROJECT D808		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D808 DoD Drug and Vaccine-Advanced Development	3598	3754	2202	3696	3687	3652	4046	4047	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> This project funds demonstration and validation of candidate medical countermeasures such as vaccines and drugs through safety, immunogenicity, and small scale efficacy testing in volunteers against naturally occurring infectious diseases of mission aborting potential. Work performed in laboratories and among troop populations is directed to prevention, diagnosis and treatment of viral, bacterial and parasitic disease, so as to prevent casualties, sustain operational performance and minimize deaths and disability of armed forces during military operations. Some major contractors are The Salk Institute, Swiftwater, PA, University of Illinois, Chicago, IL, South Florida Research Institute, Miami, FL, and Kenya Medical Research Institute, Nairobi, Kenya.</p> <p><u>Acquisition Strategy:</u> Test and evaluate in-house and commercially developed products in extensive government-managed clinical trials to gather data required for FDA licensure.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1407 Continued safety and efficacy evaluations of antimalarial drugs, azithromycin, Halofantrine, WR238605 and antileishmanial drug WR6026. Initiate development of antimalarial drug arteether and topical antileishmanial drug paromomycin. • 1027 Completed expanded Phase II trials of a malaria blood stage vaccine Spf66. • 137 Completed Phase II testing of the recombinant Hantaan vaccine. • 536 Continued Phase I/II trials of the <i>Campylobacter</i> vaccine. • 491 Demonstrated and validated off the shelf technologies to develop telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases. <p>Total 3598</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1768 Conduct expanded trial to evaluate safety and efficacy of antimalarial drugs WR238605, arteether, Halofantrine, and antileishmanial drugs WR6026 and paromomycin. • 453 Conduct Phase I testing of a vaccine against hemorrhagic fever renal syndrome caused by Hantaan virus. • 444 Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases. 										
Project D808			Page 2 of 16 Pages				Exhibit R-2 (PE 0603807A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Demonstration and Validation	0603807A Medical Systems - Advanced Development	D808
<p>FY 1997 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 49 Begin Phase I safety trials on the Leishmania Skin Test Antigen. • 49 Initiate Phase II trials on Leishmaniasis Topical Treatment. • 850 Complete Phase I/IIa safety/efficacy trials for RTS,S malaria vaccine. • 49 Begin Phase II testing of <i>Shigella flexneri</i> vaccine. • 92 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 3754</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 750 Conduct expanded Phase II field trials with RTS,S malaria vaccine. • 181 Complete Phase I efficacy trials for detoxified LPS-OMP Group B meningococcal vaccine. • 250 Initiate Phase I safety trials for a vaccine to protect against hemorrhagic fever with renal failure syndrome. • 200 Initiate Phase II clinical trials for <i>Shigella sonnei</i> vaccine. • 80 Conduct Phase II study on Leishmania Skin Test Antigen. • 250 Continue Phase I/II studies for <i>S. flexneri</i> vaccine. • 491 Complete Phase II efficacy studies for antimalarial drug WR238605. <p>Total 2202</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1025 Complete Phase I safety trials and initiate Phase I/II efficacy trials for a vaccine to protect against hemorrhagic fever with renal failure syndrome. • 350 Continue Phase II field trials with RTS,S malaria vaccine. • 165 Conduct Phase I safety and immunogenicity trials for <i>Shigella sonnei</i> vaccine. • 100 Conduct Phase II efficacy study for Leishmania Skin Test Antigen. • 250 Initiate Phase I safety studies for Puumula vaccine. • 500 Begin Phase I studies for a Dengue Tetravalent vaccine. • 100 Initiate testing of a diagnostic kit for visceral Leishmania. • 100 Initiate testing of a diagnostic kit for <i>P. falciparum</i> malaria. • 1106 Initiate clinical studies for malaria vaccine, reduced immunization schedule. <p>Total 3696</p>		
Project D808	Page 3 of 16 Pages	Exhibit R-2 (PE 0603807A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)														DATE February 1997			
BUDGET ACTIVITY 4 - Demonstration and Validation							PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development							PROJECT D808			
B. Project Change Summary							<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>				
FY 1997 President's Budget							3845		3835		3790		3746				
Appropriated Value							3953		3754								
Adjustments to Appropriated Value							-355										
FY 1998 Pres Bud Request							3598		3754		2202		3696				
Change Summary Explanation: Funding: FY98: Funds reprogrammed (-1588) to higher priority requirements.																	
C. Other Program Funding Summary: Not Applicable																	
D. Schedule Profile: Multiple medical developmental products will advance through various events throughout the FY.																	
		FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Malaria Spf66 MLST 1/2			X*														
<i>Campylobacter</i> MLST 1																	
MLST 2 IPR									X								
Hantaan MLST Special IPR									X								
<i>Shigella flexneri</i> 2aSpecial IPR			X*														
<i>Shigella flexneri</i> 602 MLST 1									X								
<i>Shigella flexneri</i> 602 MLST 2														X			
<i>Shigella sonnei</i> MLST 1														X			
Antimalarial Drug WR238605 MLST 2														X			
Antileishmanial Drug WR6026 MLST 2									X								
Antimalarial Drug Azthromycin MLST 0/1		X*															
Antimalarial Drug Halofantrine MLST 1									X								
Puumula Vaccine MS I															X		
Dengue, Tetravalent Vaccine MSI																X	
Diagnostic Kit, Visceral Leishmaniasis															X		
Diagnostic Kit, <i>P. falciparum</i>															X		
Malaria Vaccine, Reduced Schedule															X		
LSTA, MS I									X								
Project D808											Page 4 of 16 Pages			Exhibit R-2 (PE 0603807A)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997			
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development							PROJECT D808			
FY 1996						FY 1997				FY 1998				FY 1999		
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
RTS, S, MS I			X*													
Cholera vaccine, special IPR						X										
LSTA, MS II										X						
* Milestone complete																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development					PROJECT D808	
A. <u>Project Cost Breakdown</u>											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Test & Evaluation					2904	2789	1539	3015			
Product Development					211	618	251	351			
Project Management					483	347	412	330			
Total					3598	3754	2202	3696			
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Contracts						0	0	251	351	Cont	602
Salk Institute	CPFF	APR 1988	50556	50556	43325	211	618	0	0	Cont	44154
Support and Management Organizations											
USAMMDA						313	222	295	234	Cont	1064
Contracts						170	125	117	96	Cont	508
Test and Evaluation Organizations											
Walter Reed Army						1809	899	216		Cont	2924
Inst of Research											
Army Laboratories						341	94		225	Cont	660
Navy Laboratories						455	803			Cont	1258
Contracts						299	993	1323	2790	Cont	5405
Government Furnished Property: None											
Subtotal Product Development					43325	211	618	251	351		44756
Subtotal Support and Management						483	347	412	330		1572
Subtotal Test and Evaluation						2904	2789	1539	3015		10247
Total Project					43325	3598	3754	2202	3696		56575

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development				PROJECT D811		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D811 Military HIV Vaccine and Drug-Advanced Development	2532	2581	0	517	782	795	818	786	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> This project funds Congressionally-mandated, militarily relevant HIV research for demonstration and validation of candidate vaccines and drugs through safety, immunogenicity and small scale efficacy testing and behavioral intervention in volunteers. Efforts are directed to answer militarily unique needs affecting manning, mobilization and deployment.</p> <p><u>Acquisition Strategy:</u> Test and evaluate commercially developed vaccine candidates in government managed trials.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1583 Conducted safety and immunogenicity studies in human volunteers in Thailand to determine the best candidate to transition. • 949 Characterized potential cohorts for upcoming field trial. <p>Total 2532</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 2517 Transition to Engineering and Manufacturing Development a vaccine for the prevention of HIV-1. • 64 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 2581</p> <p>FY 1998 Planned Program: Project not funded in FY 98.</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 517 Evaluate vaccines for prevention of HIV to meet FDA data requirements to prove safety and efficacy. <p>Total 517</p>										
Project D811			Page 7 of 16 Pages				Exhibit R-2 (PE 0603807A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development	PROJECT D811																									
<p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="width: 10%; text-align: center;"><u>FY 1996</u></th> <th style="width: 10%; text-align: center;"><u>FY 1997</u></th> <th style="width: 10%; text-align: center;"><u>FY 1998</u></th> <th style="width: 10%; text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">2598</td> <td style="text-align: center;">2636</td> <td style="text-align: center;">1945</td> <td style="text-align: center;">1461</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">2671</td> <td style="text-align: center;">2581</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-139</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">2532</td> <td style="text-align: center;">2581</td> <td style="text-align: center;">0</td> <td style="text-align: center;">517</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY98: Funds reprogrammed (-1945) to higher priority programs. FY99: Funds reprogrammed (-944) to higher priority programs.</p> <p>C. <u>Other Program Funding Summary:</u> Not Applicable</p> <p>D. <u>Schedule Profile:</u> Multiple medical developmental products will advance through various events throughout the FY.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	2598	2636	1945	1461	Appropriated Value	2671	2581			Adjustments to Appropriated Value	-139				FY 1998 Pres Bud Request	2532	2581	0	517
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	2598	2636	1945	1461																							
Appropriated Value	2671	2581																									
Adjustments to Appropriated Value	-139																										
FY 1998 Pres Bud Request	2532	2581	0	517																							
Project D811	Page 8 of 16 Pages	Exhibit R-2 (PE 0603807A)																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development			PROJECT D811				
A. <u>Project Cost Breakdown</u>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Test & Evaluation				2532	2581	0	517				
Product Development				0	0	0	0				
Project Management				0	0	0	0				
Total				2532	2581		517				
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
Army Laboratories						0	0	0	0	0	0
Contracts						2532	2581	0	517	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development						0	0	0	0	0	0
Subtotal Support and Management						0	0	0	0	0	0
Subtotal Test and Evaluation						2532	2581	0	517	Cont	Cont
Total Project						2532	2581	0	517	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development				PROJECT D836		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D836 Combat Medical Materiel-Advanced Development	2593	2844	3723	3616	3752	3765	3997	3797	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> The project supports advanced development of new and improved systems essential for battlefield casualty care, patient transport and evacuation, and return to duty in support of special contingency and conventional force operations. Primary civilian contractors are University of Illinois, Chicago, IL and United Defense Limited Partnership, San Jose, CA.</p> <p><u>Acquisition Strategy:</u> Evaluate commercially developed materiel in government managed tests for hardening or other modification.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 52 Conducted prototype electrochemical sterilization system. • 179 Conducted evaluation of dental filmless imaging system. • 1368 Developed Armored Treatment Vehicle (ATV) prototype; delivered to EXFOR, Ft. Hood, TX. • 64 Demonstrated performance and safety of far forward suction device. • 930 Demonstrated and validated off the shelf technologies to develop telemedicine hardware and concepts for the treatment of combat casualties. <p>Total 2593</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 32 Conduct user and technical testing of a system for life support for trauma and transport. • 117 Transition medical/dental imaging system to procurement. • 1934 Modify US and allied military and commercial medical equipment used for patient examination, diagnosis and treatment in the field; incorporate technological advances into field medical equipment as they come on-line. • 691 Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts for the treatment of combat casualties. • 70 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 2844</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 326 Initiate human safety and initiate efficacy studies of a microencapsulated antibiotic (cephalosporin) and a silver nylon burn dressing for treatment of combat casualties. 										
Project D836			<i>Page 10 of 16 Pages</i>				Exhibit R-2 (PE 0603807A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development	PROJECT D836																									
<ul style="list-style-type: none"> • 885 Conduct MEDITAG testing at Center for Total Access. <p>FY 1998 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 6 Complete development and evaluation of the electrochemical sterilization system. • 809 Conduct technical and user testing of the Life Support for Trauma and Transport System. • 1697 Evaluate Armored Treatment Vehicle prototypes; (DT Testing at Yuma Proving Ground - 800), (Program Mgmt Support PM Bradley - 200), (Division XXI - 697) <p>Total 3723</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1357 Continue human safety and expand efficacy studies of a microencapsulated antibiotic (cephalosporin) and a silver nylon burn dressing for treatment of combat casualties. • 812 Continue MEDITAG testing. • 150 Initiate development and evaluation of microwave infusion warming device. • 685 Complete technical and user testing of the Life Support for Trauma and Transport System. • 612 Evaluate new concepts for a total IV anesthesia system. <p>Total 3616</p>																											
<p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center; border-bottom: 1px solid black;">FY 1996</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 1997</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 1998</th> <th style="text-align: center; border-bottom: 1px solid black;">FY 1999</th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">2660</td> <td style="text-align: center;">2905</td> <td style="text-align: center;">2893</td> <td style="text-align: center;">2867</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">2734</td> <td style="text-align: center;">2844</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-141</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">2593</td> <td style="text-align: center;">2844</td> <td style="text-align: center;">3723</td> <td style="text-align: center;">3616</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 1998: Funds reprogrammed (+830) into this project for the Life Support for Trauma System. FY 1999: Funds reprogrammed (+749) into this project for the Life Support for Trauma System.</p>				FY 1996	FY 1997	FY 1998	FY 1999	FY 1997 President's Budget	2660	2905	2893	2867	Appropriated Value	2734	2844			Adjustments to Appropriated Value	-141				FY 1998 Pres Bud Request	2593	2844	3723	3616
	FY 1996	FY 1997	FY 1998	FY 1999																							
FY 1997 President's Budget	2660	2905	2893	2867																							
Appropriated Value	2734	2844																									
Adjustments to Appropriated Value	-141																										
FY 1998 Pres Bud Request	2593	2844	3723	3616																							
<p>C. Other Program Funding Summary: Not Applicable.</p>																											
<p>Project D836 Page 11 of 16 Pages Exhibit R-2 (PE 0603807A)</p>																											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997			
BUDGET ACTIVITY 4 - Demonstration and Validation						PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development							PROJECT D836			
D. <u>Schedule Profile:</u> Multiple medical developmental products will advance through various events throughout the FY.																
		FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Silver Nylon Burn Dressing MLST 0										X						
Self-Contained Ventilator MLST 1/3 IPR	X*															
Medical-Dental Filmless Imaging System MLST 2 IPR				X												
Intraosseous Infusion Device MLST 1/3 IPR									X							
Armored Treatment and Transport Vehicle MS 1/2					X											
MS 3																X
Field Anesthesia Machine MS 1							X									
MS 2																X
Life Support for Trauma and Transport MS 1												X				
MS 2															X	
MS 3																
Microwave Infusion warming device													X			
* Milestone complete																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development			PROJECT D836				
A. <u>Project Cost Breakdown</u>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Test and Evaluation				741	567	595	883				
Product Development				1098	1910	2479	2220				
Project Management				754	367	649	513				
Total				2593	2844	3723	3616				
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Contracts						806	1462	1942	1720	Cont	5930
USAMMDA						292	447	537	500	Cont	1776
Support and Management Organizations											
USAMMDA						616	300	534	420	Cont	1870
Contracts						138	68	115	93	Cont	414
Test and Evaluation Organizations											
Army Laboratories						741	567	595	883	Cont	2786
Government Furnished Property: None											
Subtotal Product Development						1098	1909	2479	2220		7706
Subtotal Support and Management						754	368	649	513		2284
Subtotal Test and Evaluation						741	567	595	883		2786
Total Project						2593	2844	3723	3616		12776
Project D836			Page 13 of 16 Pages			Exhibit R-3 (PE 0603807A)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development				PROJECT D837		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D837 Soldier System Protection-Advanced Development	1155	817	840	871	1105	1094	2078	1878	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> This project supports demonstration and validation of preventive medicine materiel, including devices, pharmacologicals and other tools, to provide protection, sustainment, and enhancement of the physiological and psychological capabilities of soldiers in the face of combat operations under all environmental conditions. Focus is on reduction in the incidence of personnel losses due to preventable disease and non-battle injuries through development of environmental and physiological performance monitors and other preventive medicine countermeasures.</p> <p><u>Acquisition Strategy:</u> Test and evaluate materiel in government managed trials to meet fielding requirements.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 887 Demonstrated Digital Field Medical Treatment Facility telemedicine appliqué. • 268 Develop coupling attachments for feasibility study on M-40 protective mask blower as an improved air circulation source for chemical warfare agent protective patient wrap; developed alternative air sources using non-developmental item acquisition strategy. <p>Total 1155</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 11 Continue evaluation of Combat Stress Analysis System. • 50 Continue to prepare specifications and fabrication of Armored Ambulance Prototype. • 736 Validate far-forward telementoring and Mobile Medical Mentoring vehicle tactical telemedicine appliqué through participation in digital Force XXI Bde-Corps Advanced Warfighting Exercise. • 20 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 817</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 795 Evaluation alternatives for Warfighting Personnel Status Monitoring. • 45 Complete evaluation of Combat Stress Analysis System. <p>Total 840</p>										
Project D837			Page 14 of 16 Pages				Exhibit R-2 (PE 0603807A)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603807A Medical Systems - Advanced Development	PROJECT D837																									
<p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 829 Warfighting Personnel Status Monitoring Limited User Assessment Testing, Advanced Technology Demonstration. • 42 Initiate production prototyping of Combat Stress Analysis System. <p>Total 871</p>																											
<p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">1185</td> <td style="text-align: center;">835</td> <td style="text-align: center;">829</td> <td style="text-align: center;">857</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">1218</td> <td style="text-align: center;">817</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-63</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">1155</td> <td style="text-align: center;">817</td> <td style="text-align: center;">840</td> <td style="text-align: center;">871</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	1185	835	829	857	Appropriated Value	1218	817			Adjustments to Appropriated Value	-63				FY 1998 Pres Bud Request	1155	817	840	871
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	1185	835	829	857																							
Appropriated Value	1218	817																									
Adjustments to Appropriated Value	-63																										
FY 1998 Pres Bud Request	1155	817	840	871																							
<p>C. <u>Other Program Funding Summary:</u> Not Applicable.</p>																											
<p>D. <u>Schedule Profile:</u> Multiple medical developmental products will advance through various events throughout the FY.</p>																											
Project D837	Page 15 of 16 Pages	Exhibit R-2 (PE 0603807A)																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT			
4 - Demonstration and Validation			0603807A Medical Systems - Advanced Development					D837			
A. Project Cost Breakdown											
			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
Test & Evaluation			0	0	0	0					
Product Development			1103	797	798	827					
Project Management			52	20	42	44					
Total			1155	817	840	871					
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Contracts						1103	797	798	827	Cont	3525
Support and Management Organizations											
USAMMDA						52	20	42	44	Cont	158
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development						1103	797	798	827		3525
Subtotal Support and Management						52	20	42	44		158
Subtotal Test and Evaluation											
Total Project						1155	817	840	871		3683
Project D837			Page 16 of 16 Pages				Exhibit R-3 (PE 0603807A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603854A Artillery Systems Advanced Development
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COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	238590	324380	294495	47102	0	0	0	0	904567
D505 Crusader - Advanced Development	0	235795	322291	293920	47102	0	0	0	0	899108
DC68 TRACTOR YEOMAN	0	2795	2089	575	0	0	0	0	0	5459

Mission Description and Budget Item Justification: This program element supports the Demonstration and Validation efforts for the Crusader - AD Program. Formerly, these efforts were included in PE 0603645A, Armored Systems Modernization (ASM) Advanced Development as Projects D409 Advanced Field Artillery System-Advanced Development and DB88 Future Armored Recovery Vehicle-Advanced Development. This single project combines both Crusader Self Propelled Howitzer-Advanced Development (D409) and Crusader Re-Supply Vehicle-Advanced Development (DB88) into one line in FY 97 based upon the 15 Nov 94 Defense Acquisition Board (DAB) review. The Crusader system is the Army's next generation SPH and RSV. Crusader will have significantly increased capabilities in the areas of lethality, mobility, survivability, resupply, command and control, and sustainability by capitalizing on emerging, advanced technologies. The SPH will also achieve increased lethality levels through independent operations. The RSV will have significantly increased capabilities in the areas of resupply, mobility and survivability and will provide a single source of ammunition, fuel, propellant and other supplies for the SPH. This program element focuses on efforts associated with the technology demonstration and validation of Crusader and is correctly placed in Budget Activity 4.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603854A Artillery Systems Advanced Development					PROJECT D505	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D505 Crusader - Advanced Development	0	235795	322291	293920	47102	0	0	0	0	899108
<p>A. <u>Mission Description and Justification:</u> This project supports the demonstration and validation efforts for the Crusader - AD Program. Formerly, these efforts were included in PE 0603645A, Armored Systems Modernization (ASM) Advanced Development as Projects D409 AFAS-AD and DB88 FARV-AD. This single project combines both Crusader Self Propelled Howitzer-Advanced Development (D409) and Crusader Re-Supply Vehicle-Advanced Development (DB88) into one line in FY 97 based upon the 15 Nov 94 Defense Acquisition Board (DAB) review. The Crusader system is the Army's next generation SPH and artillery RSV. Crusader will have significantly increased capabilities in the areas of lethality, mobility, survivability, resupply, command and control, and sustainability by capitalizing on emerging, advanced technologies. The SPH will also achieve increased lethality levels through independent mission execution. The SPH will also achieve increased lethality levels through independent operations. The RSV will have significantly increased capabilities in the areas of resupply, mobility and survivability and will provide a single source of ammunition, fuel, propellant and other supplies for the SPH.</p> <p><u>Acquisition Strategy:</u> Not applicable</p> <p>FY 1996 Accomplishments: See Projects D409 and DB88 in PE 0603645A for accomplishments.</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 205346 Product development: Continue developmental efforts under the Crusader developmental Phases I & II contract; continue efforts in support of maturation and integration of critical technologies. Initiate prototype fabrication and demonstration. Conduct system design review. Conduct Phase I IPR • 19067 Support and management: Continue project management efforts, to include scientific and engineering analysis, product development team support, and engineering management services. • 5620 Test and evaluation: Purchase propellant, ammunition and fuzes required for the initiation of Engineering Development Testing (EDT)-A testing; begin EDT-A testing. • 5762 Small Business Innovation Research /Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 235795</p>										
Project D505			Page 2 of 6 Pages				Exhibit R-2 (PE 0603854A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997			
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603854A Artillery Systems Advanced Development			PROJECT D505			
FY 1998 Planned Program:										
•	293990	Product development: Continue developmental efforts under the Crusader development Phase II contract. Continue Prototype fabrication and demonstration.								
•	19990	Support and management: Continue project management efforts; to include scientific and engineering analysis, product development team support and engineering management services.								
•	8311	Test and evaluation: Purchase ammo for EDT and continue EDT-A testing.								
Total	322291									
FY 1999 Planned Program:										
•	261423	Product development: Continue developmental efforts under the Crusader development Phase II contract. Initiate long lead item buys. Complete Prototype fabrication and demonstration.								
•	20570	Support and management: Continue project management efforts; to include scientific and engineering analysis, product development team support and engineering management services.								
•	11927	Test and evaluation: Continue EDT-A testing and initiate combined Developmental Testing/Operational Testing.								
Total	293920									
B. Project Change Summary										
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
FY 1997 President's Budget		0	255916	324285	296054					
Appropriated Value			235795							
Adjustments to Appropriated Value										
FY 1998 President's Budget Request		0	235795	322291	293920					
C. Other Program Funding Summary										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
RDTE, A Budget Activity 4	135724								0	546347
PE 0603645A, Project D409 Crusader SPH-AD										
RDTE, A Budget Activity 4	45923								0	127370
PE 0603645A, Project DB88 Crusader RSV-AD										
RDTE, A Budget Activity 5					311211	434690	433920	202648	Cont	Cont
PE 0604854A, Project D503 Crusader - ED										
RDTE, A Budget Activity 4				499	1156	107	109	3485	Cont	Cont
PE 0604854A, Project D2KT Crusader OT										
Project D505										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997					
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603854A Artillery Systems Advanced Development						PROJECT D505					
C. <u>Other Program Funding Summary</u>											To	Total				
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>						
RDTE, A Budget Activity 5	6058	6585	`						0	36159						
PE 0604645A, Project D175 MOFA																
D. <u>Schedule Profile</u>																
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Award Dev Phases I/II Contract System						X										
Design Review																
Dev Phase I In Process Review (Authorization to enter Phase II)							X									
Integration Checkout													X			
SPH/RSV available for test														X		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603854A Artillery Systems Advanced Development					PROJECT D505	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Product Development						205346	293990	261423			
Support and Management						19067	19990	20570			
Test and Evaluation						5620	8311	11927			
SBIR/STTR						5762					
Total						235795	322291	293920			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
United Defense, Minneapolis, MN	SS/CPIF	Sep 94	TBD	TBD			179143	274693	246531	41730	742097
ARDEC, Picatinny Arsenal, NJ	PO						23258	17255	13904	50	54467
TACOM, Warren, MI	PO						867	469	401	0	1737
ARL, Aberdeen Proving Ground, MD	PO						1378	1123	137	35	2673
Various OGAs							375	375	375	0	1125
Various contracts							325	75	75	0	475
Support and Management Organizations											
PM Crusader, Picatinny Arsenal, NJ							4472	5360	5600	840	16272
ARDEC, Picatinny Arsenal, NJ	PO						9084	9000	9000	600	27684
Project D505											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603854A Artillery Systems Advanced Development					PROJECT D505	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
ACALA, Rock Island, IL	PO						148	150	160	80	538
TACOM, Warren, MI	PO					2008	2100	2200		1150	7458
ARL, Aberdeen Proving Ground, MD	PO					800	830	860		450	2940
Various OGA's						956	1000	1050		600	3606
Various Contracts						1599	1550	1700		400	5249
SBIR/STTR						5762					5762
Test and Evaluation Organizations											
TECOM, Yuma Proving Grd, AZ, CSTA, APG, MD	PO					5620	8311	11927		1167	27025
Government Furnished Property: None											
Subtotal Product Development						205346	293990	261423		41815	802574
Subtotal Support and Management						24829	19990	20570		4120	69509
Subtotal Test and Evaluation						5620	8311	11927		1167	27025
Total Project						235795	322291	293920		47102	899108

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603856A SCAMP BLK II (SPACE)				PROJECT D389		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D389 SCAMP BLK II*	0	8250	73	9669	15668	34284	26823	24833	Continuing	Continuing
<p>*\$5.5M SCAMP BLK II Engineering Feasibility Efforts (EFE) reported under 0303142A.D386 in FY 1996</p> <p>A. Mission Description and Budget Item Justification: Project D389 - SCAMP BLK II. The Single Channel Anti-Jam Manportable (SCAMP) BLK II Terminal will be a manpackable, satellite communications terminal to be employed by units that require range extension for command and control communications. Block II will be used by priority ground tactical users to transmit and receive intelligence, command and control traffic. It will transmit in the Extremely High Frequency (EHF) band and receive in the Super High Frequency (SHF) band. It will provide Low Data Rate (LDR) secure voice at 2400 bps and secure data at 75-2400 bps, as well as interface with Common Hardware/Software devices such as the Lightweight Computer Units and the Hand-Held Terminal Unit. The SCAMP BLK II will have embedded COMSEC, TRANSEC and GPS. In addition to operation on MILSTAR satellites, the SCAMP Block II will operate on all satellites which utilize the MIL-STD-1582C LDR waveform. It will operate in the transmit, receive or standby mode throughout an entire mission (typically 30 days). SCAMP BLK II EHF terminal will provide direct support to the tactical warfighter mobile forces with anti-jam protection, low probability of intercept, and low probability of detection. Engineering Feasibility Efforts (EFE) to develop the SCAMP BLK II in the range of 12-15 pounds was approved in the Acquisition Decision Memorandum. EFE began in FY96 and will continue through FY99. These efforts will provide confidence in technical approach and lead to a Milestone II Engineering Manufacturing Phase. This project provides for the demonstration and validation of advanced technologies and is therefore appropriately funded in Budget Activity 4.</p> <p>Acquisition Strategy: SCAMP BLK II will be a manpackable terminal in the 12-15 lb. range. SCAMP BLK II began Engineering Feasibility Efforts (EFE) in FY96 placing emphasis on downsizing the following subsystems: Radio Frequency (RF) Generator, Digital Processor, Transmitter and Antenna. These subsystems will utilize technologies such as Millimeter Microwave Integrated Circuits (MIMIC), custom Very Large Scale Integrated Circuits (VLSIC) and increased efficiency power devices.</p> <p>FY 1996 Accomplishments: Program funded under PE 0303142A.D386 (See asterisked note above)</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 5963 Implements integration of Engineering Feasibility Efforts (EFE) for functional prototype terminals • 763 Continues paging prototype system efforts • 1331 Continues Defense Advanced Research Project Agency (DARPA) advanced communications technologies and System engineering efforts • 193 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 8250</p>										
Project D389			Page 1 of 3 Pages				Exhibit R-2 (PE 0603856A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997										
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603856A SCAMP BLK II (SPACE)					PROJECT D389										
FY 1998 Planned Program:																				
• 73 Continue prototype development																				
Total 73																				
FY 1999 Planned Program:																				
• 4985 Completes Prototype development																				
• 3534 Test, evaluate and demonstrate the prototype																				
• 1150 Conduct Milestone II Decision Review																				
Total 9669																				
B. Project Change Summary																				
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>													
FY 1997 President's Budget	0		8080		9302		3663													
Appropriated Value	0		7910																	
Adjustments to Appropriated Value	0																			
FY 1998 Pres Bud Request	0		8250		73		9669													
Change Summary Explanation:																				
Funding: FY97: Not a new start. Funds reprogrammed to 0603856A.D389 from 0303142A.D386.																				
FY98: (-9229) Funds reprogrammed to higher priority requirements																				
FY99: (+6006) Continue/complete prototype development/evaluations/demonstrations/reviews																				
C. Other Program Funding Summary																				
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To</u>	<u>Total</u>		
Other Procurement Army 2 - SSN: BC 4110	0		0		0		0		0		0		30052		62569		Compl	Cost		
																	Cont	Cont		
D. Schedule Profile																				
		<u>FY 1996</u>					<u>FY 1997</u>					<u>FY 1998</u>					<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Continue EFE					X*															
Prototype Development and Integration						X														
Prototype Demonstrations/Evaluations																	X			
MSII																		X		
Project D389												Page 2 of 3 Pages				Exhibit R-2 (PE 0603856A)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603856A SCAMP BLK II (SPACE)					PROJECT D389	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Contractor						2013	0	737			
Government Systems Engineering and Project Management						6044	73	8932			
SBIR/STTR						193					
Total						8250	73	9669			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Other Contracts	C-CP	Various	N/A	TBD			1793	0	737	Cont	2530
Govt Support	MIPR/PWD	Various		TBD			2929	0	4248	Cont	7177
SBIR/STTR							193				193
Support and Management Organizations											
Other Contracts	MIPR/PWD	Various		TBD			1140	0	887	Cont	2027
Govt Support	MIPR/PWD	Various		TBD			666	73	1175	Cont	1914
Lincoln Labs	MIPR	Various		TBD			255	0	200	Cont	455
Lab Activities	MIPR	Various		TBD			1274	0	2422	Cont	3696
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development							4915		4985		9900
Subtotal Support and Management							3335	73	4684		8092
Subtotal Test and Evaluation											
Total Project							8250	73	9669		17992
Project D389					Page 3 of 3 Pages			Exhibit R-3 (PE 0603856A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604201A Aircraft Avionics				PROJECT DC97		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC97 Aircraft Avionics	20073	14694	21669	12729	6111	1107	52427	36759	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> This Program Element funds the development of avionics systems required to horizontally and vertically integrate the battlefield (commonly referred to as "digitization of the battlefield"). The following tasks in this PE support research efforts in the engineering and manufacturing development phases of these systems, therefore, the PE is correctly placed in Budget Activity 5.</p> <p>Project DC97 - Aircraft Avionics:</p> <ul style="list-style-type: none"> • The AN/ARC-220 Nap-Of-Earth (NOE) Communications High Frequency (HF) Radio provides a long-range (300 kilometers), non-line-of-sight digital and voice communication capability which is reliable, secure, easy to operate, with automatic link establishment and electronic counter-countermeasures. The AN/ARC-220 will be form/fit interchangeable with the AN/ARC-199 HF radio, meet military standards for compatibility with the 1553 data bus, night vision lighting, data transmission, and shipboard operations. • The Army Airborne Command and Control System (A2C2S) functions as a highly mobile command post. When mounted in the UH-60 helicopter with auxiliary equipment, it provides tactical voice, data, and imagery digitized battlefield communications both in secure and nonsecure modes for corps, division, and brigade commanders. The system provides battle commanders access to critical situational awareness and off-board national asset intelligence information via satellite communications. It also provides digitized battlefield communications links with Army combined arms team members, joint service and combined force elements, and intercommunications facilities for up to six operators, and joint interoperability as well as maritime and air traffic control communications. The A2C2S is in response to real world needs of combat maneuver commanders to perform highly mobile and responsive digital, voice, and imagery command and control (C2) functions in the UH-60 helicopter. The UH-60 A2C2S system will enable the commander and essential staff to remain highly mobile with the capability to interject critical C2 across the designated battle area without sacrificing access to information products or jeopardizing continuity of operations due to command post relocation. Interoperability is enhanced with this system by providing the capability to communicate digitally with Navy or Air Force close air support as well as relaying target information. This system will allow Army aviation forces access to C2 and situational awareness information for conduct of close, deep, rear, and security operations. The A2C2S is used to provide C2 for disaster relief, peacekeeping, drug interdiction, and both low and high intensity conflict missions. The A2C2S will play a major role in eliminating costly fratricide incidents via the capability to closely monitor and control operations. Satellite communications provide access to tactical communication systems and enable communication with the force and command structure from Joint Chiefs of Staff (JCS) down to battalion when required. <p><u>Acquisition Strategy:</u> This project is comprised of multiple systems. The A2C2S is being developed by the Naval Research Laboratory. The production contract will be competitively awarded.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 2859 Continued EMD for AN/ARC-220 NOE Communications HF Radio (5 prototypes) • 479 Continued program management support for the AN/ARC-220 NOE Communications HF Radio 										
Project DC97			Page 1 of 6 Pages				Exhibit R-2 (PE 0604201A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604201A Aircraft Avionics	PROJECT DC97
<p>FY 1996 Accomplishments: (continued)</p> <ul style="list-style-type: none"> • 9707 Initiated development of Enhanced Joint Communications Interface Terminals (JCIT): four A2C2S prototypes • 311 Continued design and development of A2C2S Workstation Consoles • 538 Initiated technical documentation for A2C2S • 327 Initiated A2C2S Workstation Software • 837 Continued development of A2C2S Antenna Interface Module (AIM) - Phase II • 3710 Initiated test and integration for A2C2S • 919 Continued program management support for the A2C2S • 386 Initiated systems engineering, logistics processes for A2C2S <p>Total 20073</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 8484 Continue development of Enhanced JCIT, workstation consoles and other A2C2S prime mission equipment • 1211 Continue development of A2C2S Antenna Interface Module (AIM) • 1224 Continue development of A2C2S Workstation Software • 553 Continue test and integration procedures for A2C2S Engineering Development Model • 1957 Continue system engineering, logistics, and technical documentation for A2C2S • 906 Continue program management support for the A2C2S • 359 Small Business Innovation Research /Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 14694</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 14806 Continue development of Enhanced JCIT, workstation consoles and other A2C2S prime mission equipment • 2600 Continue development of A2C2S Antenna Interface Module (AIM) • 2038 Continue development of A2C2S Workstation Software • 525 Continue test and integration procedures for A2C2S Engineering Development Model (EDM) • 550 Continue system engineering, logistics, and technical documentation for A2C2S • 1150 Continue program management support for the A2C2S <p>Total 21669</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 9679 Continue development of Enhanced JCIT, Workstation Consoles and other A2C2S prime mission equipment 		
Project DC97	Page 2 of 6 Pages	Exhibit R-2 (PE 0604201A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997																																																																																																																																																																											
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<ul style="list-style-type: none"> • 1000 Complete development of A2C2S Antenna Interface Module (AIM) <p>FY 1999 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 100 Complete development of A2C2S Workstation Software • 400 Continue test and integration procedures for A2C2S Engineering Development Model (EDM) • 500 Continue system engineering, logistics, and technical documentation for A2C2S • 1050 Continue program management support for the A2C2S <p>Total 12729</p> <p>B. Project Change Summary</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 1996</u></th> <th style="text-align: right;"><u>FY 1997</u></th> <th style="text-align: right;"><u>FY 1998</u></th> <th style="text-align: right;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">21442</td> <td style="text-align: right;">15008</td> <td style="text-align: right;">14787</td> <td style="text-align: right;">1335</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">22044</td> <td style="text-align: right;">14694</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">-1971</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Budget Request</td> <td style="text-align: right;">20073</td> <td style="text-align: right;">14694</td> <td style="text-align: right;">21669</td> <td style="text-align: right;">12729</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY98 (+6882) and FY99 (+11394) increased to continue EMD.</p> <p>C. Other Program Funding Summary</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="text-align: right;"><u>FY 1996</u></th> <th style="text-align: right;"><u>FY 1997</u></th> <th style="text-align: right;"><u>FY 1998</u></th> <th style="text-align: right;"><u>FY 1999</u></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>To</u></th> <th style="text-align: right;"><u>Total</u></th> </tr> </thead> <tbody> <tr> <td>Aircraft Procurement, Army (APA):</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: right;"><u>Compl</u></td> <td style="text-align: right;"><u>Cost</u></td> </tr> <tr> <td>Airborne Communications -AA0705 BLIN 1033*</td> <td style="text-align: right;">17320</td> <td style="text-align: right;">42047</td> <td style="text-align: right;">47450</td> <td style="text-align: right;">43395</td> <td style="text-align: right;">45803</td> <td style="text-align: right;">0</td> <td style="text-align: right;">24283</td> <td style="text-align: right;">20511</td> <td style="text-align: right;">Cont</td> <td style="text-align: right;">Cont</td> </tr> <tr> <td>Airborne Command and Control Console AA0710 BLIN 1026**</td> <td></td> <td></td> <td></td> <td style="text-align: right;">12890</td> <td style="text-align: right;">13424</td> <td style="text-align: right;">18243</td> <td style="text-align: right;">37641</td> <td style="text-align: right;">53600</td> <td style="text-align: right;">53600</td> <td style="text-align: right;">189398</td> </tr> </tbody> </table> <p>* Represents ARC-220 only, which is a portion of the funding in SSN AA0705. ** Represents A2C2S only, which is a portion of the funding in SSN AA0710.</p> <p>D. Schedule Profile:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="4" style="text-align: center;">FY 1996</th> <th colspan="4" style="text-align: center;">FY 1997</th> <th colspan="4" style="text-align: center;">FY 1998</th> <th colspan="4" style="text-align: center;">FY 1999</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Initiated Preproduction Qualifications - AN/ARC-220 HF radio</td> <td>X*</td> <td></td> </tr> <tr> <td>Continued AN/ARC-220 NDI EMD Effort</td> <td>X</td> <td></td> </tr> <tr> <td>Initiate development of Enhanced JCIT Prototypes</td> <td>X*</td> <td></td> </tr> <tr> <td>Continue design and Development of A2C2S Workstation Consoles</td> <td>X</td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Project DC97</p>										<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	21442	15008	14787	1335	Appropriated Value	22044	14694			Adjustments to Appropriated Value	-1971				FY 1998 Pres Budget Request	20073	14694	21669	12729		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>	Aircraft Procurement, Army (APA):									<u>Compl</u>	<u>Cost</u>	Airborne Communications -AA0705 BLIN 1033*	17320	42047	47450	43395	45803	0	24283	20511	Cont	Cont	Airborne Command and Control Console AA0710 BLIN 1026**				12890	13424	18243	37641	53600	53600	189398		FY 1996				FY 1997				FY 1998				FY 1999				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	Initiated Preproduction Qualifications - AN/ARC-220 HF radio	X*																Continued AN/ARC-220 NDI EMD Effort	X																Initiate development of Enhanced JCIT Prototypes	X*																Continue design and Development of A2C2S Workstation Consoles	X				X				X				X			
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				Page 3 of 6 Pages				Exhibit R-2 (PE 0604201A)																																																																																																																																																																										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604201A Aircraft Avionics						PROJECT DC97									
D. Schedule Profile:					FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Develop Technical Documentation - A2C2S Test and Integration Procedures	X				X				X				X							
Initiate A2C2S Prototype Integration	X*																			
Initiate A2C2S Tests and Demonstrations	X*																			
Continue development of A2C2S Antenna Interface Module (AIM)	X				X				X				X							
Initiate/continue A2C2S Systems Engineering, Logistics Processes		X*			X				X				X							
Continue development of Enhanced JCIT, Work Station Consoles and other Prime Mission Equipment					X				X				X							
Continue development of A2C2S Workstation Software	X				X				X				X							
* Denotes completed effort																				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604201A Aircraft Avionics					PROJECT DC97	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Product Development					17336	13429	20519	11679			
Program Management Support:					1398	906	1150	1050			
Test and Evaluation Support					1339						
SBIR/STTR						359					
Total					20073	14694	21669	12729			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Rockwell International Corporation Cedar Rapids, IA	FFP/OPT	Aug 94	12486	12486	10966	1520					12486
Naval Research Laboratory	MIPR		66980	66980	8630	14270	11421	18419	10079	4161	66980
Aviation Applied Technology Directorate	MIPR		Cont	Cont	718	1546	2008	2100	1600	Cont	Cont
Support and Management Organizations											
Aviation Electronic Combat PM	MIPR		Cont	Cont	50	432	449	600	500	Cont	Cont
Communications and Electronics Command	MIPR		Cont	Cont	3426	700	62	150	150	Cont	Cont
USA Aviation and Troop Command	MIPR		Cont	Cont		186	366	400	400	Cont	Cont
Project DC97					Page 5 of 6 Pages				Exhibit R-3 (PE 0604201A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604201A Aircraft Avionics					PROJECT DC97	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Support and Management Organizations (cont)											
Army Research Lab/ Air Force			129	129	20	80	29			0	129
Test and Evaluation Organizations:											
USA TEXCOM	MIPR		1339	1339		1339					1339
SBIR/STTR							359				359
Government Furnished Property: Not Applicable											
Subtotal Product Development					20314	17336	13429	20519	11679	Cont	Cont
Subtotal Support and Management					3496	1398	906	1150	1050		Cont
Subtotal Test and Evaluation						1339	359				1698
Total Project					23810	20073	14694	21669	12729	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604220A Armed, Deployable OH-58D				PROJECT D538		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D538 Crew Station Mission Equipment Trainer (CSMET)	688	1130	0	0	0	0	0	0	0	1818
<p>A. Mission Description and Budget Item Justification: The Crew Station Mission Equipment Trainer (CSMET) is a desktop simulation training device that is designed to support training requirements for the OH-58D Kiowa Warrior flight crew. The CSMET effort responds to the lack of training devices, simulators or simulations (TDSS) available to fielded Kiowa Warrior units. Currently, the aircraft itself provides the only primary sustainment training device. Training provided through the use of the actual aircraft is at best limited due to the inability to employ total system capabilities under combat conditions, i.e., weapon systems. When the actual aircraft is not available, the aviator cannot continue to practice crew skills. As a result, aircrew skills decay rapidly. Maintaining a high level of aircrew skill has direct impact on combat readiness and proficiency. The CSMET will support refresher and sustainment training of those skills required to initialize, operate and employ the weapons systems, aviation survivability equipment, automatic target handover system, communication and navigation equipment, mast mounted sight, data transfer system, Aviator Night Vision Imaging System (ANVIS) display, and airborne video tape recorder. The CSMET will network with other simulation devices for collective training. The project in this Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is, therefore, correctly placed in Budget Activity 5.</p> <p>Acquisition Strategy: The acquisition strategy is based primarily on the integration of government-furnished data and commercially available non-developmental items. Government-owned OH-58D Kiowa Warrior Cockpit Procedures Trainer Ada software will be integrated into the computer and image generator hardware of choice based on maximum compatibility and interoperability with other aviation simulation systems. Acquisition will be accomplished in four phases -- pre-prototype, prototype, production, and support/sustainment -- and will be accomplished utilizing an Integrated Product Team approach among various government agencies.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 510 Awarded Phase I Development Contract - Study Effort and Development of Prototype • 178 Government support <p>Total 688</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 778 Award Phase II Development Contract - Prototype Build/Systems Integration • 40 Award Contract - Upgrade Government-Furnished Equipment • 242 Maintenance support for operational testing development and for operational testing • 42 Government Support • 28 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) programs <p>Total 1130</p>										
Project D538			Page 1 of 3 Pages				Exhibit R-2 (PE 0604220A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604220A Armed, Deployable OH-58D					PROJECT D538	
FY 1998 Planned Program: Project not funded in FY 98											
FY 1999 Planned Program: Project not funded in FY 99											
B. Project Change Summary											
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
FY 1997 President's Budget		706		1154		0		0			
Appropriated Value		726		1130							
Adjustments to Appropriated Value		-38									
FY 1998 Pres Bud Request		688		1130		0		0			
C. Other Program Funding Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Comp</u>	<u>Total Cost</u>
APA Budget Activity 2											
AZ2200 Kiowa Warrior (CSMET)*				3230	7390	4210	2550				17380
*Represents only part of the funding in SSN AZ2200.											
D. Schedule Profile											
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3
Award Development Contract (May 96)			X*								
Design Phase (May 96)			X*								
Initiate Build Phase (Nov 96)				X*							
Begin Test Phase (Feb 97)					X						
*Denotes completed effort											
Project D538											
Page 2 of 3 Pages											
Exhibit R-2 (PE 0604220A)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE February 1997		
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
5 - Engineering and Manufacturing Development	0604220A Armed, Deployable OH-58D			D538
A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Engineering Development				
Prototype Build/System Integration	688	703		
Developmental Testing		115		
Government Support of Developmental Testing		22		
Operational Testing		242		
Government Support of Operational Testing		20		
SBIR/STTR		28		
Total	688	1130		
B. <u>Budget Acquisition History and Planning Information:</u> Not Applicable				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604223A Comanche
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<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	284131	331424	282009	371927	441309	586978	634102	634580	Continuing	Continuing
DC72 T800 Engine Engineering Development (LH)	35885	41234	44533	41107	34690	33498	32384	31288	Continuing	Continuing
D2LT Comanche Operational Test	0	0	0	0	36	107	333	768	Continuing	Continuing
D327 Comanche	248246	290190	237476	330820	406583	553373	601385	602524	Continuing	Continuing

Mission Description and Budget Item Justification: This program element provides for the development and operational testing and evaluation of the RAH-66 Comanche and the T800 growth engine. The Comanche is a multi-mission aircraft optimized for the critical battlefield mission of tactical armed reconnaissance. It provides a globally self-deployable attack platform for light/contingency forces. Comanche is the solution to the reconnaissance deficiencies (no night/adverse weather/high/hot/stand-off capability) and is a key component on the digitized battlefield in winning the information war. The Comanche will replace the obsolete Vietnam era fleet (AH-1, OH-6, and OH-58A/C). Project DC72 provides for development and qualification of the T800 and growth engines and air vehicle support for integration of the same into the Comanche aircraft. Project D2LT includes funding for the operational testing of Comanche to include Comanche simulation accreditation for Limited User Test and Initial Operational Test & Evaluation. Project D327 provides for development of the airframe, mission equipment package, and integration of the whole system to include training and logistic support. The projects in this program element support research efforts that complete Demonstration/Validation (Dem/Val) prototype efforts and transition to the engineering and manufacturing development phase of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604223A Comanche			PROJECT DC72		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC72 T800 Engine Engineering Development (LH)	35885	41234	44533	41107	34690	33498	32384	31288	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> Project DC72 - T800 Engine Engineering Development (LH): This project includes tasks to design, develop and qualify an advanced technology engine. It includes the development and qualification of the T800 and growth engines and air vehicle support for integration of the same into the Comanche aircraft. The growth engine is for the Army's RAH-66 Comanche and other applications.</p> <p><u>Acquisition Strategy:</u> Continue work with current contractor leading to FAA certification, military qualification and eventual production.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 7968 Continued basic engine air vehicle support • 18339 Continued growth engine development and conducted growth engine Critical Design Review (CDR) • 9578 Continued contractor development testing <p>Total 35885</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 8535 Continue basic engine air vehicle support • 13969 Continue growth engine development • 13663 Continue contractor development testing • 4079 Begin manufacturing growth engine for flight test • 988 Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 41234</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 10475 Continue basic engine air vehicle support • 13960 Continue growth engine development • 12752 Continue contractor development testing • 7346 Continue manufacturing growth engines for flight test <p>Total 44533</p>										
Project DC72			Page 2 of 10 Pages				Exhibit R-2 (PE 0604223A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997																												
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development								PE NUMBER AND TITLE 0604223A Comanche								PROJECT DC72																								
FY 1999 Planned Program:																																								
<ul style="list-style-type: none"> • 7744 Continue basic engine air vehicle support • 14974 Continue growth engine development • 13678 Continue contractor development testing • 4711 Continue manufacturing growth engines for flight test 																																								
Total 41107																																								
B. Project Change Summary																																								
<table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">35830</td> <td style="text-align: right;">35616</td> <td style="text-align: right;">35663</td> <td style="text-align: right;">35531</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">36835</td> <td style="text-align: right;">41234</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">-950</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 BES/Pres Bud Request</td> <td style="text-align: right;">35885</td> <td style="text-align: right;">41234</td> <td style="text-align: right;">44533</td> <td style="text-align: right;">41107</td> </tr> </tbody> </table>																	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	35830	35616	35663	35531	Appropriated Value	36835	41234			Adjustments to Appropriated Value	-950				FY 1998 BES/Pres Bud Request	35885	41234	44533	41107
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Change Summary Explanation: Funding - FY98 (+8870) and FY99 (+5576) change is primarily due to a realignment of funds between the Comanche air vehicle and the engine, and reductions for savings in matrix support. FY97 (+5618) Congressional increase.																																								
C. Other Program Funding Summary: There are no other related RDT&E or other appropriation efforts.																																								
D. Schedule Profile																																								
		<u>FY 1996</u>					<u>FY 1997</u>					<u>FY 1998</u>					<u>FY 1999</u>																							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																								
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Project DC72																																								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604223A Comanche				PROJECT DC72	
A. <u>Project Cost Breakdown</u>						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>		
Product Development						35400	40099	44246	40814		
Program Management Support						485	147	287	293		
Government Furnished Personnel/Equipment/Facilities						0	0	0	0		
Test & Evaluation						0	0	0	0		
SBIR/STTR							988				
Total						35885	41234	44533	41107		
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations (includes contractor testing)											
LHTEC (0453)	C/CPFF	April 92			156366	35400	40099	44246	40814	Cont	Cont
LHTEC (B017)	C/FFP	Jul 85	276821	276821	276821					0	276821
LHTEC(0518)	CPFF	Jul 93	460	460	460					0	460
AVCO (B019)	C/FFP	Nov 84	128526	128526	128526					0	128526
SBIR/STTR							988				988
Support and Management Organizations											
Comanche PMO & Gov't Agencies	MIPR				12364	85	147	287	293	Cont	Cont
PATS contracts	C/FFP			96	96					0	96
Rail	C/FFP	Sep 87		2806	2806					0	2806
Other Contracts	Agreement					400				0	400
Test and Evaluation Organizations											
Gov't Agencies	MIPR				9613	9613					9613
Project DC72						Page 4 of 10 Pages			Exhibit R-3 (PE 0604223A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604223A Comanche				PROJECT DC72		
Government Furnished Property										
Item	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property: None										
Support and Management Property										
Gov't Agencies	MIPR			13133	0	0	0	0	0	13133
Test and Evaluation Property: None										
Subtotal Product Development				562173	35400	41087	44246	40814	Cont	Cont
Subtotal Support and Management				28399	485	147	287	293	Cont	Cont
Subtotal Test and Evaluation				9613					0	9613
Total Project				600185	35885	41234	44533	41107	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604223A Comanche	PROJECT D327
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D327 Comanche	248246	290190	237476	330820	406583	553373	601385	602524	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D327 - Comanche: The Comanche helicopter is a highly sustainable and operationally flexible air cavalry system, incorporating significant reductions in personnel and support equipment, capturing the latest combat technologies and capable of accepting upgrades to meet ever-changing threats. It will dominate the battlefield in the close, deep and rear operations; provide a decisive air cavalry capability in day, night, and adverse weather. It will be operationally tailorable to regional conflicts and provide the battle commander with timely, detailed reconnaissance information and an unprecedented level of lethality.

Acquisition Strategy: Continue work with current contractor leading to Engineering and Manufacturing Development and eventual production.

FY 1996 Accomplishments:

- 24825 Began digitization effort
 - 176357 Continued Dem/Val prototype engineering development
 - 38258 Conducted first flight, prototype # 1 and continued flight test program
 - 8806 Continued manufacturing of prototype # 2
- Total 248246

FY 1997 Planned Program:

- 29019 Continue digitization effort
 - 203835 Continue Dem/Val prototype engineering development
 - 40440 Continue flight test program for prototype #1
 - 9915 Complete manufacturing of prototype #2
 - 6981 Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Programs
- Total 290190

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																														
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604223A Comanche	PROJECT D327																														
<p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 23748 Continue digitization effort • 158687 Continue Dem/Val prototype engineering development • 39371 Conduct first flight of prototype #2 and continue flight test program for prototype #1 • 8299 Update prototypes #1 and #2 • 7371 Begin manufacturing Early Operational Capability (EOC) aircraft <p>Total 237476</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 33082 Continue digitization effort • 183236 Continue Dem/Val prototype engineering development • 58370 Continue flight test program for prototypes #1 and #2 • 8615 Continue to update prototypes #1 and #2 • 47517 Continue manufacturing Early Operational Capability (EOC) aircraft <p>Total 330820</p>																																
<p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">255106</td> <td style="text-align: right;">253028</td> <td style="text-align: right;">253127</td> <td style="text-align: right;">348693</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">262268</td> <td style="text-align: right;">290190</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">-14022</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: right;">248246</td> <td style="text-align: right;">290190</td> <td style="text-align: right;">237476</td> <td style="text-align: right;">330820</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY98 (- 15651) and FY99 (-17873) change is primarily due to a realignment of funds between the Comanche air vehicle and the engine, and reductions for savings in matrix support. FY97 (+37162) Congressional increase.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	255106	253028	253127	348693	Appropriated Value	262268	290190			Adjustments to Appropriated Value	-14022				FY 1998 Pres Bud Request	248246	290190	237476	330820					
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	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Total</u> <u>Cost</u>																							
APA																																
A08300 Comanche							104128	149249	Cont																							
<p>Project D327 Page 7 of 10 Pages Exhibit R-2 (PE 0604223A)</p>																																

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604223A Comanche						PROJECT D327					
D. Schedule Profile		FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Begin digitization effort	X																
Continue Dem/Val prototype engineering development	X																
Conduct first flight, prototype #1 and continue flight test program		X															
Continue manufacturing of prototype #2	X																
Continue digitization effort					X												
Continue Dem/Val prototype engineering development					X												
Continue flight test program for prototype #1					X												
Complete manufacturing of prototype #2								X									
Continue digitization effort									X								
Continue Dem/Val prototype engineering development										X							
Conduct first flight of prototype #2 and continue flight test program for prototype #1													X				
Update prototypes #1 and #2									X								
Begin manufacturing Early Operational Capability (EOC) aircraft											X						
Continue digitization effort														X			
Continue Dem/Val prototype engineering development														X			
Continue flight test program for prototypes #1 and #2														X			
Continue to update prototypes #1 and #2														X			
Continue manufacturing Early Operational Capability (EOC) aircraft														X			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604223A Comanche					PROJECT D327	
A. <u>Project Cost Breakdown</u>											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Product Development					223182	258742	215488	306699			
Program Management Support					23111	18679	18080	18087			
Government Furnished Personnel/Equipment/Facilities					1395	3393	1446	2717			
Test & Evaluation					558	2395	2462	3317			
SBIR/STTR						6981					
Total					248246	290190	237476	330820			
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations (includes contractor testing)											
Boeing Sikorsky JPO A004	C/CPIF	April 91			1724958	223182	254596	211393	302708	Cont	Cont
Product Develop- (Other)							4146	4095	3991	Cont	Cont
Other Completed Contracts					370288	0	0	0	0	0	370288
SBIR/STTR							6981				6981
Support and Management Organizations											
Rail	C/FFP	Sep 87			32954	4822	4723	5000	5000	Cont	Cont
SysTeam	C/FFP	Oct 91	15181	15181	12461	2720	0	0	0	0	15181
PATS contracts	C/FFP				13	62	1147	1500	1500	Cont	Cont
Other Contracts	Agreement				12208	3613	3439	1815	1604	Cont	Cont
PMO/Gov't Agencies	MIPR				67807	11894	9370	9765	9983	Cont	Cont
Test and Evaluation Organizations											
Gov't Agencies	MIPR				7463	558	2395	2462	3317	Cont	Cont
Project D327					Page 9 of 10 Pages			Exhibit R-3 (PE 0604223A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604223A Comanche			PROJECT D327			
Government Furnished Property										
Item	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property: None										
Support and Management Property										
Other Gov't Agencies	MIPR			10190	1395	3393	0	0	Cont	Cont
Test and Evaluation Property										
Other Gov't Agencies	MIPR						1446	2717	Cont	Cont
Subtotal Product Development				2095246	223182	265723	215488	306699	Cont	Cont
Subtotal Support and Management				135633	24506	22072	18080	18087	Cont	Cont
Subtotal Test and Evaluation				7463	558	2395	3908	6034	Cont	Cont
Total Project				2238342	248246	290190	237476	330820	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development						
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	62250	73886	66212	51490	11499	10334	23712	31636	Continuing	Continuing
DL12 Signals Warfare Development	13360	16065	13874	7228	5239	5650	15583	17545	Continuing	Continuing
DL15 Army Reprogramming and Analysis Team (ARAT)	2830	3764	4024	3323	0	0	0	0	0	17670
DL16 TROJAN Development	517	1261	1278	1333	0	0	0	0	0	4389
DL18 SHORTSTOP Development	6800	9151	0	0	0	0	0	0	0	24475
D665 Aircraft Survivability Equipment Development	38743	43645	46870	37248	6144	4684	8129	14091	Continuing	Continuing
D2VT Suite of Integrated Infrared Countermeasures Operational Test (SIIRCM)	0	0	166	2358	116	0	0	0	0	2640
<p>Mission Description and Budget Item Justification: This program element encompasses engineering and manufacturing development for tactical electronic warfare (EW), signals warfare (SW), aircraft survivability equipment (ASE), battlefield deception, rapid software reprogramming and protection of personnel and equipment from hostile artillery. EW encompasses the development of tactical EW equipment and systems mounted in both ground and air vehicles. The systems under this program provide the Army with the capability to degrade or deny hostile forces the effective use of their communications, countermortar/counterbattery radars, surveillance radars, infrared/optical battlefield surveillance systems and electronically fused munitions. Existing Army EW systems must be replaced or upgraded to maintain their capability in the face of threat technical advancements. This program element satisfies requirements for brigade, division, corps and higher commanders to conduct electronic warfare to meet tactical and Special Electronic Mission Aircraft (SEMA) requirements, attach/scout, and assault/cargo mission requirements. Signals Warfare Development provides for development of multifunction ground based and airborne intelligence and electronic warfare systems. The High Value Asset Defense System will provide effective protection of personnel and equipment from electronically fused munitions. TROJAN developments will complete Proof-of-Principle R&D for specific TROJAN applications in advanced threat signals processing and prototype software upgrades; high frequency (HF) algorithms for compact antenna array technology (CAAT) configured into small aperture antenna arrays; search and acquisition capabilities for unattended signal collectors; and new digital intelligence collection, processing and dissemination technology. The ARAT Project will develop, test and equip an Army wide infrastructure capable of rapidly reprogramming electronic combat software embedded in offensive and defensive weapon systems. The projects in this PE are in the engineering and manufacturing development phase of the acquisition cycle and therefore are correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development	PROJECT DL12
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL12 Signals Warfare Development	13360	16065	13874	7228	5239	5650	15583	17545	Continuing	Continuing

A. Mission Description and Justification: Signals Warfare Development provides for a family of integrated ground-based and heliborne intelligence and electronic warfare common sensor systems. The Ground Base Common Sensor (GBCS) is an intercept and emitter location system. It provides division commanders with the capability to search, intercept, listen to, precisely locate for hard-kill or order-of-battle resolution, or render ineffective through electronic attack, threat command and control and fire control communications nets. It also identifies and precisely locates threat countermortar and counterbattery ground surveillance radar emissions, and identifies enemy conventional and Low Probability of Intercept (LPI) communications and non-communications emitters and jam enemy conventional and LPI communications emitters. GBCS is an evolutionary system which is intended to continually overmatch threat capabilities through a continuous modernization philosophy. Modular components, commercial standards, and open architecture features facilitate change in a cost effective manner of changing parts via P³I vice whole system replacement. This open architecture feature satisfies the Army requirement to conduct tactical ground Communications Intelligence, Electronic Intelligence, Electronic Support, and Electronic Attack against threat communications and non-communications signals; enhances the Commander's ability to outmaneuver and destroy the enemy by locating or jamming threat command and control, fire control, and air defense centers. The GBCS will be used in two platform configurations. The GBCS-Light (GBCS-L) will be deployed on a highly mobile multipurpose wheeled vehicle (HMMWV) in support of Light Divisions. The GBCS-Heavy (GBCS-H) will be deployed on a tracked vehicle in support of Armored and Mechanized Infantry Divisions. The third platform of the Intelligence and Electronic Warfare Common Sensor System is the Advanced QUICKFIX (AQF) which provides for a material change to the existing heliborne QUICKFIX communications intercept, collection, processing, direction finding, and jamming system and will be deployed to Army Divisions and Armored Cavalry Regiments (ACR). Configured in a Blackhawk Helicopter (EH-60A), it provides the moving platform necessary to provide for location accuracies sufficient for "steel on target" requirements, as well as for extension of radio Line of Sight (LOS) against target emitters. This project provides for engineering and manufacturing development (EMD) and testing of Intelligence and Electronic Warfare Common Sensor (IEWCS) Subsystems and Systems leading to Milestone III and product improvement of systems after initial production. The Subsystems are:

a. The Tactical and Communication Jammer (TACJAM-A) will enhance the Division Commander's ability to outmaneuver and kill the enemy by isolating and suppressing enemy fire control and command and control (C²) nets at critical points in the battle; provide electromagnetic overwatch of the threat C² spectrum inclusive of both conventional and modern modulations (LPI); freeze the enemy in place by jamming C²; and eliminate enemy counterfire by locating High Value Targets (HVTs) for targeting. TACJAM-A consists of state-of-the-art modular and scaleable Electronic Support Measures (ESM) and Electronic Countermeasures (ECM) subsystems configured for use on a variety of air and ground prime movers (tracked, wheeled and heliborne).

b. The Communication High Accuracy Location System (CHALS-X) provides the targeting capability required to support the Division Commander's requirement to locate and kill the enemy by providing location of high value targets. Airborne systems mixed with ground based systems will be capable of precisely locating enemy weapon systems and units (regardless of whether the enemy uses conventional or modern radios) producing target locations sufficiently accurate for first round fire for effect by organic artillery.

c. The Common Modules ELINT Subsystem (CMES) provides search, intercept, direction finding (DF), precision location and analysis of the primary non-communication (radar) battlefield threat emitters. While operating in a fully automatic mode, it will enhance the Division Commander's ability to outmaneuver and kill the

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development	PROJECT DL12
<p>enemy by specifically identifying HVTs such as enemy countermortar, and counterbattery ground surveillance radar at critical points in the battle and will provide precise emitter locations with targeting accuracy.</p> <p>The United States Marine Corps is utilizing the same subsystems as the GBCS and configuring them in a Light Armored Vehicle as a part of the Mobile Electronic Warfare Support System (MEWSS) improvement program.</p> <p>This unclassified project is joint with the National Security Agency's Defense Cryptologic Program (DCP), Program Element 030885G, which provides a portion of the funds required for the development of the precision location subsystem and system integration of GBCS-L and GBCS-H.</p> <p>Acquisition Strategy: GBCS provides the commanders of Divisions, Brigades and ACR with an organic capability to listen to, precisely locate for hard-kill or order-of-battle resolution, or render ineffective through electronic attack, threat command and control and fire control communications nets, and identify and precisely locate threat countermortar and counterbattery ground surveillance radar emissions, and other communications nets. The system is specifically designed to ensure transportability, prime mover maintainability, and over terrain mobility equal to that of the supported divisions, regiments, and brigades while exploiting or eliminating - at the commander's discretion - the latest, most modern type of hostile modulations and transmissions techniques at the key time and place on the battlefield. GBCS is an evolutionary system which is intended to continually overmatch threat capabilities through a continuous modernization philosophy. Modular components, commercial standards, and open architecture features facilitate change in a cost effective manner by enhancing software or changing parts via P³I vice whole system replacement. This open architecture feature satisfies the Army requirement to conduct tactical ground communications intelligence, electronic intelligence, electronic support, and electronic attack against threat communications and non-communications signals; enhances the commander's ability to outmaneuver and destroy the enemy by locating or jamming threat command and control, fire control, and air defenses centers.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 241 Completed TACJAM-A ESM Development • 7401 Continued (GBCS/AQF) Integration effort <ul style="list-style-type: none"> - Fielded EMD Models of GBCS and AQF Systems to Task Force XXI - Improved GBCS/AQF by including other advanced communication modifications/techniques as well as advanced signal analysis and improved signal sorting parameters - Began integration of TACJAM-A ECM into AQF • 1749 Conducted operation demonstration customer test/development test (OCDT) on GBCS • 3044 High level software design and initiated hardware development • 925 Provided contractor maintenance support for Task Force XXI <p>Total 13360</p>		
Project DL12	Page 3 of 28 Pages	Exhibit R-2 (PE 0604270A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604270A Electronic Warfare (EW) Development	DL12
FY 1997 Planned Program:		
• 87	Conduct special in-process review (SIPR) on AQF ECM	
• 4622	Continue GBCS/AQF improvements to include advanced digital modulations and techniques, remote collection techniques, finish ECM subsystem integration into AQF and begin integration into GBCS-L and GBCS-H, other product improvements resulting from Task Force XXI	
• 6900	GBCS-L/AQF software fixes	
• 1106	Conduct training and provide contractor depot repair in support of IOT&E for GBCS-L	
• 1072	Contractor maintenance support for Task Force XXI	
• 1900	ADEXJAM incremental	
• 378	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)	
Total	16065	
FY 1998 Planned Program:		
• 2996	Begin integration of ECM subsystem into GBCS-L and GBCS-H	
• 1367	Complete signal analyzer upgrade and provide for production line cutover	
• 4289	Start GBCS/AQF pre-planned product improvement (P3I); continued advanced digital modulations, reconfigurable tuner, co-channel analysis, analog-to-digital converter, improved signal analysis, enhanced sorting parameters capability and improve HF tuners	
• 2945	OCDT for GBCS-H and AQF	
• 1629	Conduct training and provide contractor depot repair in support of IOT&E for GBCS-H and AQF	
• 318	Conduct Milestone III for GBCS-H and AQF	
• 186	Complete IOTE on GBCS-L	
• 144	Conduct Milestone III for GBCS-L	
Total	13874	
FY 1999 Planned Program:		
• 6694	Continue GBCS/AQF P3I	
• 245	Conduct testing on previously implemented improvements	
• 289	Complete GBCS/AQF development of advanced capabilities and remote collection	
Total	7228	
Project DL12	Page 4 of 28 Pages	Exhibit R-2 (PE 0604270A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development						PROJECT DL12	
B. Project Change Summary					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
FY 1997 President's Budget Request					13692	16414	16223	9884				
Appropriated Value					13831	16065						
Adjustments to Appropriated Value					-471							
FY 1998 Pres Bud Request:					13360	16065	13874	7228				
Change Summary Explanation:												
Funding: FY 1998/FY 1999: Funding reductions from President's Budget are the result of Army Science Board report (Reengineering the Institutional Army, the Acquisition Perspective) recommended reductions (FY 98 -2349/FY 99 -2656)												
Schedule: IOT&E for GBCS-L rescheduled from 4QFY96 to 4QFY97 due to integration problems. IOT&E for AQF rescheduled from 4QFY97 to 3QFY98 due to subsystem availability.												
C. Other Program Funding Summary											To	Total
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>		
OPA (SSN BZ7326)	45470	47033	26817	37269	88615	90635	93674	107640	Cont'd	Cont'd		
OPA (SSN BZ9753)	0	0	0	0	6179	12561	13083	21987	Cont'd	Cont'd		
APA (SSN AB3000)	37142	13899	38140	37301	55833	68509	78011	86141	Cont'd	Cont'd		
RDTE Budget Activity 7 DCP PE 030885G, GBCS	18949	19824	19324	19624	19724	20893	20924	21260	Cont'd	Cont'd		
RDTE Budget Activity 7 DCP PE 030885G, CHALS-X	3038	2998	4165	5515	6046	6828	4201	4285	Cont'd	Cont'd		
D. Schedule Profile											FY 1999	
	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones												
Award Limited Production Contract	X*											
Milestone III on GBCS-L						X						
Milestone III on AQF								X				
Milestone III on GBCS-H								X				
Complete Development of Advanced Capabilities										X		
T&E Milestones												
Project DL12	Page 5 of 28 Pages						Exhibit R-2 (PE 0604270A)					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development							PROJECT DL12			
D. Schedule Profile	FY 1996					FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Begin IOTE on GBCS-L									X								
Complete IOTE on GBCS-L										X							
Conduct IOTE on AQF													X				
Conduct IOTE on GBCS-H													X				
Contract Milestones																	
Field RDT&E Model of GBCS-L		X*															
SIPR - AQF ECM									X								
Task Force XXI		X*	X*	X*	X	X											
*Denotes completed milestone																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development					PROJECT DL12	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Primary Hardware Development					3504	2627	3750	2983			
Software Development					3216	6641	4283	2216			
Systems Engineering					421	1739	703	365			
Integrated Logistics Support					841	1032	894	465			
Quality Assurance; Reliability; Maintainability & Availability					672	825	715	371			
Developmental Test & Evaluation					784	962	2824	433			
Government Engineering Support					1658	713	355	199			
Program Management Support					606	326	98	55			
Program Management Personnel					1658	822	252	141			
SBIR/STTR						378					
Total					13360	16065	13874	7228			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC **	Project Office EAC **	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	*Total Program
Product Development Organizations											
Sanders/AEL	C-CPIF	Jun 89	216686	216334	205051	5880	1900	985	0	0	213816
IBM/Loral	SS-CPFF	Jun 90	52997	52997	47623	300	0	0	0	0	47923
ESI	C-CPAF	Sep 91	189463	186424	103764	685	1000	0	0	0	105449
FMC	SS-CPFF	Sep 90	15913	15913	12377	1436	1900	700	500	0	16913
LMFS-O (GBCS/AQF)	C-FFP	Nov 95	94577	94577	0	887	6337	8974	6323	Cont'd	Cont'd
Loral-AD/EXJAM	SS-CPIF	Mar 96			0	0	1900	0	0	0	1900
Misc.					2638	250	0	10	3	Cont'd	Cont'd
SBIR/STTR					0	0	378	0	0	0	378
Support and Management Organizations											
QuesTech	FFP	May 95				630	625	80	15	Cont'd	Cont'd
Project DL12					Page 7 of 28 Pages				Exhibit R-3 (PE 0604270A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development					PROJECT DL12	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performin g Activity EAC **	Project Office EAC **	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	*Total Program
In-House	Direct				5566	1724	1515	625	380	Cont'd	Cont'd
CECOM	MIPR				4904	1026	0	0	0	Cont'd	Cont'd
Ft Monmouth NJ											
Test and Evaluation Organizations											
EPG/Ft. Hood	MIPR				2035	542	510	2500	7	Cont'd	Cont'd
Government Furnished Property											
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property											
NOTE: TACJAM-A/CHALS-X/EFVS, Sanders-AEL/IBM-Loral/FMC, respectively, identified above as Product Development Organizations											
Support and Management Property: N/A											
Test and Evaluation Property: N/A											
Subtotal Product Development					371453	9438	13415	10669	6826	411801	
Subtotal Support and Management					10470	3380	2140	705	395	17090	
Subtotal Test and Evaluation					2035	542	510	2500	7	5594	
Total Project					383958	13360	16065	13874	7228	434485	
*Total Program does not includes funding from other sources.											
**Project Office EAC includes Marine Corps and National Security Agency funds which are not included in the Total Program (Army budget).											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development	PROJECT DL15
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL15 Army Reprogramming and Analysis Team (ARAT)	2830	3764	4024	3323	0	0	0	0	0	17670

A. Mission Description and Justification: Army Reprogramming and Analysis Team (ARAT) for Target Sensing Systems (TSS) project will design, develop, implement, test, equip and institutionalize an Army-wide infrastructure capable of rapidly reprogramming electronic combat software embedded in offensive and defensive weapon systems. ATSS are those tactical weapons and sensor systems which rely on embedded, well-defined target or emitter signature data for specific identification. Systems supported by this project include but are not limited to: radar warning receiver and jammer sub-systems of attack, scout, utility and SEMA aircraft; aircraft survivability equipment; automated intelligence collection systems and jammers; advanced threat sensors for air defense, artillery and missile applications, and use as vehicle /troop self-protection systems. The project focuses on advanced information management technologies to: automate the threat recognition process; evaluate the operational impact of threat changes on inventoried sensor; develop, test and evaluate software to counter the change; develop tactical loading devices for deploying or deployed forces; and institutionalize the infrastructure to accomplish these tasks as well as distribute/disseminate the new software.

Acquisition Strategy: The ARAT to TSS project will design, develop, implement, test, equip and institutionalize all Army-wide infrastructure capable of reprogramming electronic combat software embedded in offensive and defensive weapons systems. The program requirements for software engineering, development, support equipment engineering acquisition, operational training and test and evaluations support will be acquired by the use of time and material contracts. This strategy will further such major program events such as the test and evaluation of off-the-shelf and developmental loading devices, the completion of connectivity of a secure Wide Area Network with all reprogramming centers and the development of flagging models for specific electronic combat survivability systems.

FY 1996 Accomplishments:

- 1083 Tested and evaluated off-the-shelf and developmental memory loading devices for aviation electronic combat (AEC) equipment
- 425 Modified or developed database management tools for AEC equipment
- 500 Evaluated hardware/software and developed measurement and signature intelligence (MASINT) on-line database access capability
- 375 Upgraded ARAT communications systems
- 447 Expanded on the application of Electronic Intelligence (ELINT) flagging models for additional Mission Data Sets

Total 2830

FY 1997 Planned Program:

- 1517 Modify or develop database management tools for ADA, IEW, Fire Support and Armor TSS
- 1120 Test and evaluate off-the-shelf and developmental loading devices for ADA, IEW, Fire Support and Armor TSS
- 375 Initiate study on the feasibility of electronic broadcast reprogramming

Project DL15 Page 9 of 28 Pages Exhibit R-2 (PE 0604270A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development	PROJECT DL15																									
<p>FY 1997 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 380 Improve or modify ARAT flagging capability for ELINT systems • 280 Enhance MASINT database on-line capability • 92 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 3764</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 975 Initiate integration of Electro-optic/Infrared (EO/IR) based systems into reprogramming infrastructure • 427 Develop and design communications architecture paths to support CONUS and OCONUS field unit communications • 1583 Begin to implement support plans for PM, Aviation Electronic Combat (SIRFC to AMPS interface) • 702 Begin development of specific flagging models for AN/APR-39A(V)2 Radar Warning Receiver • 337 Development of Multi-Service Electronic Combat Secure Web Site. <p>Total 4024</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 828 Finalize implementation of support plans for PM, Aviation Electronic Combat (SIRFC to AMPS interface) • 749 Test and evaluate the communications architecture paths to support CONUS to OCONUS field unit communications • 379 Finalize Flagging Model for the AN/APR-39A(V)2 Radar Warning Receiver • 883 Begin Flagging Model for the Suite of Integrated RF Countermeasures (SIRFC) • 484 Develop training materials for commanders staff & unit level personnel (Warfighters Handbook) <p>Total 3323</p>																											
<p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="width: 15%; text-align: center;"><u>FY 1996</u></th> <th style="width: 15%; text-align: center;"><u>FY 1997</u></th> <th style="width: 15%; text-align: center;"><u>FY 1998</u></th> <th style="width: 15%; text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">2903</td> <td style="text-align: center;">3845</td> <td style="text-align: center;">4331</td> <td style="text-align: center;">3596</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">2933</td> <td style="text-align: center;">3764</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-103</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">2830</td> <td style="text-align: center;">3764</td> <td style="text-align: center;">4024</td> <td style="text-align: center;">3323</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	2903	3845	4331	3596	Appropriated Value	2933	3764			Adjustments to Appropriated Value	-103				FY 1998 Pres Bud Request	2830	3764	4024	3323
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	2903	3845	4331	3596																							
Appropriated Value	2933	3764																									
Adjustments to Appropriated Value	-103																										
FY 1998 Pres Bud Request	2830	3764	4024	3323																							
<p>C. Other Program Funding Summary: Not applicable.</p>																											
<p>Project DL15 Page 10 of 28 Pages Exhibit R-2 (PE 0604270A)</p>																											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997										
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development							PROJECT DL15									
D. Schedule Profile							FY 1996		FY 1997			FY 1998			FY 1999								
							1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Development of Multi-Service Electronic Combat Secure Web Site.														X				X					
Finalize implementation of support plans for PM, Aviation Electronic Combat (SIRFC to AMPS interface)																			X				X
Test and evaluate the communications architecture paths to support CONUS to OCONUS field unit communications																		X				X	
Finalize Flagging Model for the AN/APR-39A(V)2 Radar Warning Receiver																	X			X			
Begin Flagging Model for the Suite of Integrated RF Countermeasures (SIRFC)																		X				X	
Develop Training Materials for Commanders Staff & Unit level personnel (Warfighters Handbook)																				X			X
*Denotes a completed effort																							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	
BUDGET ACTIVITY			PROJECT	
5 - Engineering and Manufacturing Development			February 1997	
PE NUMBER AND TITLE			PROJECT	
0604270A Electronic Warfare (EW) Development			DL15	
A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Government Engineering Support	425	510	511	524
Contract Engineering Support	1570	1837	1488	949
Development Support Equipment Acquisition	90	575	600	600
Operational Training	150	150	200	150
PM Support	300	300	700	700
Test and Evaluation	200	200	300	200
Travel	95	100	225	200
SBIR/STTR		92		
Total	2830	3764	4024	3323
B. <u>Budget Acquisition History and Planning Information:</u> Not applicable				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development				PROJECT DL16		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL16 TROJAN Development	517	1261	1278	1333	0	0	0	0	0	4389

A. Mission Description and Budget Item Justification: This project is a Tactical Intelligence and Related Activities (TIARA) program. A key factor in modern warfare is the ability to collect, process and use information about an adversary while preventing him from obtaining similar information. TROJAN is a combined operational and readiness mission system which uses advanced networking technology to provide seamless rapid radio relay, secure communications to include voice, data, facsimile, and electronic reconnaissance support to U.S. forces throughout the world. TROJAN operations may be easily tailored to fit military intelligence unit training schedules and surged during specific events to involve every aspect of the tactical intelligence collection, processing, analysis and reporting systems. This project engineers, tests and evaluates new digital intelligence collection, processing and dissemination technology using the fielded TROJAN systems, prior to the acquisition of those technologies. The process that will enable the United States to win the battlefield information war is referred to as digitization. This capability will allow us to process and disseminate real-time intelligence data from various sources; it forms the intelligence needed to issue orders inside the threat decision cycle. To that end, it is imperative the TROJAN system keep pace with digitization initiatives in order to respond aggressively to the emerging intelligence communication threats.

Acquisition Strategy: Competitive contract award utilizing firm fixed price and best value selection procedures for engineering and manufacturing development.

FY 1996 Accomplishments:

- 123 Conducted operational test, evaluation and engineering of video compression/processing technologies to the TROJAN intelligence processing workstation
- 394 Performed operational evaluation of specific TROJAN applications for non-standard modulations using digital signal processing technologies

Total 517

FY 1997 Planned Program:

- 375 Continue operational evaluation on specific TROJAN applications for non-standard modulations techniques using digital processing technologies (1Q97-4Q97)
- 328 Complete operational test, evaluation and engineering of video compression/processing technologies on fielded TROJAN systems
- 527 Acquire previously developed specialized software for classified pre-processing and enhanced signal processing algorithms
- 31 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)

Total 1261

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development						PROJECT DL16	
FY 1998 Planned Program:												
•	267	Operational test and evaluation of previously developed specialized software and enhanced signal processing algorithms										
•	500	Implement and test Area Common User System (ACUS) Interfaces technology for the TROJAN intelligence network										
•	511	Acquire and apply multi-bandwidth compression algorithm technology to maximize TROJAN intelligence collection network throughput										
Total	1278											
FY 1999 Planned Program:												
•	512	Continue operational assessment of multi-bandwidth compression algorithm technology to maximize TROJAN intelligence collection network throughput										
•	321	Apply IEW dissemination applications based on Task Force XXI lessons learned										
•	500	Apply tactical transcription functionality at the RSOCs to support tactical to national partnership										
Total	1333											
B. Project Change Summary												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>							
FY 1997 President's Budget		531	1288	1363	1430							
Appropriated Value		536	1261									
Adjustments to Appropriated Value		-19										
FY 1998 Pres Bud Request		517	1261	1278	1333							
C. Other Program Funding Summary												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total	
										<u>Compl</u>	<u>Cost</u>	
OPA BA0331		3176	2114	3349	3648	4505	4659	4770	4896	Cont'd	Cont'd	
OPA BA0333		15336	2085	479	478	0	0	0	0			
D. Schedule Profile												
Acquisition Milestones		FY 1996			FY 1997			FY 1998			FY 1999	
	1	2	3	4	1	2	3	4	1	2	3	4
Contract Award for Video Compression/Processing												
		X*										
Contract Award for Non-Standard Mod using Digital Signal Processing Tech.												
		X*										
Contract Award for Spec Software for Sig Proc Algorithms						X						
Project DL16												
Page 15 of 28 Pages												
Exhibit R-2 (PE 0604270A)												

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development							PROJECT DL16				
D. Schedule Profile							FY 1996		FY 1997			FY 1998			FY 1999			
Acquisition Milestones							1	2	3	4	1	2	3	4	1	2	3	4
Contract Award for enhanced Sig Proc Algorithms																		X
Contract Award for Area Common User System (ACUS) Interfaces for TROJAN Intel Network																		X
Contract Award for Multi-bandwidth compression algorithms																		X
Contract Award for dissemination applications																		X
Contract Award for Transcription Functionality at the RSOCs																		X
Engineering Milestones																		
Prototype insertion-video compression/processing												X	X					
Spec software for signal processing algorithms																		X
Enhanced signal processing algorithms																		X
Area Common User System (ACUS) interface for TROJAN Intel Net																		X
Multi-bandwidth compression algorithms																		X
Dissemination applications																		X
Transcription functionality at RSOCs																		X
*Denotes a completed effort																		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development					PROJECT DL16	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Hardware Development					312	753	760	792			
Software Development					205	477	518	541			
SBIR/STTR						31					
Total					517	1261	1278	1333			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations:											
Misc.	C/CPFF	Mar 96	517	517	0	517	1230	1278	1333		4358
	MIPR	Jan 97	1261	1261							
	MIPR	Jan 98	1278	1278							
	MIPR	Jan 99	1333	1333							
SBIR/STTR							31				31
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development			PROJECT DL18		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL18 SHORTSTOP Development	6800	9151	0	0	0	0	0	0	0	24475
<p>A. <u>Mission Description and Budget Item Justification</u> SHORTSTOP development is the continuation of the SHORTSTOP program which was initiated as a Quick Reaction Program (QRP) to a CENTCOM Statement of Need (SON) developed in the early part of Operation Desert Shield/Desert Storm. Thirty six Limited Procurement Urgent units (AN/VLQ-9) were procured and fourteen have been upgraded to a multi-band configuration (AN/VLQ-10). Sixteen AN/VLQ-9s and ten AN/VLQ-10s are currently deployed in Bosnia in support of Operation Joint Endeavor. The SHORTSTOP Operational Requirements Document, approved Apr 94, calls for a system with a lightweight autonomous configuration which shall be quickly and easily deployed via vehicles or manpack. In order to maximize tactical utility, it further requires that the set be capable of operation from either a battery or suitable external power source. The current EMD program for the SHORTSTOP Electronic Protection System will provide a lightweight, fully integrated Radio Frequency Countermeasure system to provide protection for personnel and other high value assets against proximity fuzed munitions. There will be three configurations of the SHORTSTOP Electronic Protection System: a manpack system, a stand alone system, and a vehicle mounted system. SHORTSTOP will be used by Infantry, Engineering, Armored, Field Artillery, and Intelligence units to enhance survivability.</p> <p><u>Acquisition Strategy:</u> A contract was awarded in July 1994 on a competitive basis for the development of a lightweight autonomous configuration of the SHORTSTOP Electronic Protection System.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 4369 Completed hardware design • 1336 Completed software design and began integration with hardware • 1095 Began fabrication of nine (9) prototypes <p>Total 6800</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 6032 Complete fabrication/contractor qualification testing of nine (9) prototypes • 500 Award T&M contract for support of Government Technical and Operation Test • 485 Design/fabricate Fuze Immulator to support testing • 435 Design/develop 1553 instrumentation data interface to support live fire test • 95 Develop installation kit for vehicle mount version • 1380 Conduct technical and operational test • 224 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 9151</p>										
Project DL18			Page 18 of 28 Pages				Exhibit R-2 (PE 0604270A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development						PROJECT DL18					
FY 1998 Planned Program: Project not funded in FY 98																
FY 1999 Planned Program: Project not funded in FY 99																
B. Project Change Summary																
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>					
FY 1997 President's Budget		7488			9348			0			0					
Appropriated Value		7563			9151			0			0					
Adjustments to Appropriated Value		-763														
FY 1998 Pres Bud Request		6800			9151			0			0					
C. Other Program Funding Summary												<u>To</u>	<u>Total</u>			
Other Procurement, Army												<u>Compl</u>	<u>Cost</u>			
SSN: VA8000 - SHORTSTOP		0	5000	0	0	0	0	0	0	0	0	0	0	5000		
D. Schedule Profile																
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Complete hardware design				X*												
Complete software design and begin integration with hardware				X*												
Begin fabrication of nine (9) prototypes				X*												
Complete fabrication of nine (9) prototypes							X									
Conduct contractor qualification testing								X								
Award T&M support contract								X								
Design/Fabricate Fuze Immulator						X										
Design/develop 1553 instrumentation data interface						X										
Develop installation kits						X										
Deliver nine (9) EMD prototypes							X									
Conduct Technical Test									X							
Conduct Operational Test									X							
*Denotes completed milestone																
Project DL18																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development	PROJECT DL18
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A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Primary Hardware Development	5626	4962		
Test and Evaluation		2875		
Government Engineering Support	735	731		
Program Management Support	439	359		
SBIR/STTR		224		
Total	6800	9151		

B. Budget Acquisition History and Planning Information: Not Applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development	PROJECT D665
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D665 Aircraft Survivability Equipment Development	38743	43645	46870	37248	6144	4684	8129	14091	Continuing	Continuing

A. Mission Description and Justification: Aircraft Survivability Equipment Development provides for the development and system integration of Aircraft Survivability Equipment (ASE) to achieve survivability, reduce vulnerability, and enhance combat effectiveness required to fulfill special electronic mission aircraft (SEMA), attack/scout, and assault/cargo mission requirements. Equipment developed will increase combat effectiveness and potential for mission accomplishment by reducing or eliminating the ability of threat air defense systems to detect, hit, damage or destroy Army aircraft. Developments respond to the approved requirements documents, test and type classification for production and fielding of ASE systems to address infrared, radar, laser and optical/electro-optical directed air defense threats. Efforts in development include new or upgraded systems to counter monopulse, millimeter wave, frequency agile, pulse doppler and continuous wave radars, passive infrared missile seekers and laser directed weapon systems. Continual adjustments are made to this program to meet the changing and evolutionary nature of technology and threat. This program has joint service applications that are coordinated through the Joint Technical Coordinating Group for Aircraft Survivability (JTTCG/AS), as well as NATO applications coordinated through DoD. This project also provides the technical base for electronic warfare equipment for Comanche and Special Operations Aircraft. The projects in this program element support research efforts that complete Demonstration/Validation (Dem/Val) prototype efforts and transition into the Engineering and Manufacturing Development (EMD) phase of the acquisition strategy and are, therefore, correctly placed in Budget Activity 5.

Acquisition Strategy: Project is comprised of multiple programs which have been competitively awarded.

FY 1996 Accomplishments:

- 15950 Continued EMD of Suite of Integrated Infrared Countermeasure (SIIRCM). New nomenclature assigned - formerly ATIRCM/CMWS.
 - 3246 Continued EMD of Advanced Infrared Countermeasure Munitions (AIRCMM)
 - 15704 Continued EMD of the AN/ALQ-211 Suite of Integrated Radio Frequency Countermeasures (SIRFC). New nomenclature assigned - formerly ATRJ
 - 1171 Continued development of Advanced Visual-Electro-Optical Signature Suppression and Analysis (AVESSA)
 - 250 Continued integration efforts of ASE systems
 - 2422 Continued in-house and program management administration
- Total 38743

FY 1997 Planned Program:

- 19431 Continue EMD of SIIRCM
- 2530 Continue EMD of AIRCMM
- 16228 Continue EMD of SIRFC
- 1139 Continue development of AVESSA

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development	PROJECT D665																									
<p>FY 1997 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 100 Complete integration efforts of ASE systems • 3226 Continue in-house and program management administration • 991 Small Business Innovative Research/Small Business Technical Transfer (SBIR/STTR) <p>Total 43645</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 28968 Continue EMD of SIIRCM • 1897 Continue EMD of the AIRCMM • 11964 Continue EMD of SIRFC • 800 Continue development of AVESSA • 3241 Continue in-house and program management administration <p>Total 46870</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 27859 Continue EMD of SIIRCM • 1250 Complete EMD of the AIRCMM • 4000 Complete EMD of the SIRFC • 554 Complete development of AVESSA • 3585 Continue in-house and program management administration <p>Total 37248</p>																											
<p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="width: 15%; text-align: center;"><u>FY 1996</u></th> <th style="width: 15%; text-align: center;"><u>FY 1997</u></th> <th style="width: 15%; text-align: center;"><u>FY 1998</u></th> <th style="width: 15%; text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">38828</td> <td style="text-align: right;">38579</td> <td style="text-align: right;">34606</td> <td style="text-align: right;">34542</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">39219</td> <td style="text-align: right;">43645</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">-476</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: right;">38743</td> <td style="text-align: right;">43645</td> <td style="text-align: right;">46870</td> <td style="text-align: right;">37248</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: +12264 of ASE APA, BA4 AZ3504 was converted to RDT&E in FY98; +2706 of ASE APA, BA4 AZ3504 was converted to RDT&E in FY99.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	38828	38579	34606	34542	Appropriated Value	39219	43645			Adjustments to Appropriated Value	-476				FY 1998 Pres Bud Request	38743	43645	46870	37248
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	38828	38579	34606	34542																							
Appropriated Value	39219	43645																									
Adjustments to Appropriated Value	-476																										
FY 1998 Pres Bud Request	38743	43645	46870	37248																							
Project D665	Page 22 of 28 Pages	Exhibit R-2 (PE 0604270A)																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development					PROJECT D665		
C. Other Program Funding Summary										To	Total	
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>		
APA, BA 4 AZ3504 ASE	50109	436	905	34412	46203	41601	100667	104090	Cont	Cont		
APA, BA 2 AA0720 ASE Modifications	12915	25777	4578	3922	11982	22592	17975	15351	Cont	Cont		
D. Schedule Profile												
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
Continue EMD of SIIRCM	X											
Continue EMD of AIRCMM	X											
Continue EMD of SIRFC	X											
Continue dev of AVESSA	X											
Continue EMD of SIIRCM					X							
Continue EMD of AIRCMM					X							
Continue EMD contract of SIRFC					X							
Continue dev of AVESSA					X							
Continue EMD of SIIRCM												
Continue EMD of AIRCMM												
Continue EMD of SIRFC												
Continue EMD of AVESSA												
Continue EMD of SIIRCM										X		
Complete EMD of AIRCMM											X	
Complete EMD of SIRFC											X	
Complete development of AVESSA												X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development					PROJECT D665	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
R&D Contracts					32091	33534	31209	18156			
Test and Evaluation					432	1724	8557	11536			
Government Engineering Support					1177	1124	704	549			
Program Management Engineering Support					5043	6272	6400	7007			
SBIR/STTR						991					
Total					38743	43645	46870	37248			
B. Budget Acquisition History and Planning Information:											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: Note: Miscellaneous includes funding to various activities (ATCOM, St. Louis, MO/CECOM, Fort Monmouth, NJ) for ASE programs											
Thiokol (AIRCMM)	C/CPHF	Sep 95	6740	6740	1000	2300	1710	1070	660	0	6740
ITT Corp (SIRFC)	C/CPAF	Jul 94	55756	55756	19450	15018	14700	5337	1140	111	55756
Sanders(ATIRCM)	C/CPAF	Sep 95	57910	57910	2282	12414	10981	19879	12218	136	57910
Misc.	Contracts				6980	2359	6143	4923	4138	Cont	Cont
Misc.	MIPR				1099	1177	1124	704	549	Cont	Cont
Support and Management Organizations : Note: Miscellaneous includes funding to various activities (ATCOM, St. Louis, MO/CECOM, Fort Monmouth, NJ) for ASE programs											
Support Contracts	C/FFP	Nov 94			562	545	640	515	515	Cont	Cont
Misc.	MIPR				6522	4498	5632	5885	6492	Cont	Cont
Test and Evaluation Organizations: Note: Miscellaneous includes funding to various activities for ASE programs.											
Misc.	MIPR				853	432	1411	1525	254	Cont	Cont
TECOM	MIPR							3069	8446	0	11515
EPG	MIPR						313	3963	2836		7112
SBIR/STTR							991			0	991
Government Furnished Property: None											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997	
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT	
5 - Engineering and Manufacturing Development		0604270A Electronic Warfare (EW) Development				D665	
	Total						
	Prior to						
	<u>FY1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Budget to</u>	<u>Total</u>
Subtotal Product Development	30811	33268	34658	31913	18705	Cont	Cont
Subtotal Support and Management	7084	5043	6272	6400	7007	Cont	Cont
Subtotal Test and Evaluation	853	432	1724	8557	11536	Cont	Cont
SBIR/STIR			991			0	991
Total Project	38748	38743	43645	46870	37248	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																												
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development				PROJECT D2VT																												
COST (In Thousands)		FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
D2VT Suite of Integrated Infrared Countermeasures Operational Test (SIIRCM)		0	0	166	2358	116	0	0	0	0	2640																									
<p>A. Mission Description and Justification: This project supports the operational test for the Suite of Integrated Infrared Countermeasures (SIIRCM) and is new start in FY 1998. This project will provide active and passive Infrared Countermeasure (IRCM) protection against infrared guided weapons. The system is designed to meet operational requirements for a modular IRCM system capable of providing awareness and self protection jamming countermeasures. The system is applicable to the AH-64, MH-47E, MH-60K, RC-12K, EH-60, UH-60, and CH-47D aircraft. The program has been designated a Tri-Service program, with application to the Air Force and Navy aircraft.</p> <p>Acquisition Strategy: Not applicable</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 166 Commence SIIRCM Operational Test Support <p>Total 166</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 2358 Continue SIIRCM Operational Test Support <p>Total 2358</p> <p>B. Project Change Summary</p> <table border="0"> <thead> <tr> <th></th> <th align="right"><u>FY 1996</u></th> <th align="right"><u>FY 1997</u></th> <th align="right"><u>FY 1998</u></th> <th align="right"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> </tr> <tr> <td>Appropriated Value</td> <td align="right">0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td align="right">0</td> <td align="right">0</td> <td align="right">166</td> <td align="right">2358</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: Project initiated in FY 1998 to support SIIRCM operational test. (FY 98 +166; FY99 +2358)</p>													<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	0	0	0	0	Appropriated Value	0				Adjustments to Appropriated Value					FY 1998 Pres Bud Request	0	0	166	2358
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																																
FY 1997 President's Budget	0	0	0	0																																
Appropriated Value	0																																			
Adjustments to Appropriated Value																																				
FY 1998 Pres Bud Request	0	0	166	2358																																
Project D2VT		Page 26 of 28 Pages				Exhibit R-2 (PE 0604270A)																														

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development					PROJECT D2VT	
C. Other Program Funding Summary	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To <u>Compl</u>	Total <u>Cost</u>	
APA, BA 4 AZ3507 ASE (ATIRCM)				10634	18064	13649	64557	67842	Cont	Cont	
APA, BA 2 AA0720 ASE Modifications* (ATIRCM)		9167		1112	9396	13657	14835	15351	Cont	Cont	
*Represents only part of the funding in this SSN.											
D. Schedule Profile	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>				
	1	2 3	4	1	2 3	4	1	2 3	4		
Initiate SIIRCM Test Support						X					
Continue SIIRCM Test Support								X			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270A Electronic Warfare (EW) Development				PROJECT D2VT			
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Test and Evaluation						166	2358				
Total						166	2358				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations:											
OPTEC								166	2358	116	2640
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation						166		2358		116	2640
Total Project						166		2358		116	2640

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	49912	39308	24045	26228	22695	31632	30880	30118	Continuing	Continuing
DB19 ASAS Evolutionary Acquisition	48496	35660	21598	23813	22695	31632	30880	30118	Continuing	Continuing
D2FT ASAS Operational Test	1416	3648	2447	2415	0	0	0	0	Continuing	Continuing
<p>Mission Description and Budget Item Justification: This program element funds the development of the All Source Analysis System (ASAS) Evolutionary Acquisition (EA) system and its operational testing. ASAS is the automated support system for the intelligence and electronic warfare (IEW) functional area of the Army Battle Command System (ABCS). It is a tactically deployable Automated Data Processing (ADP) system designed to support management of IEW operations and target development in battalions, brigades, armored cavalry regiments (ACR), separate brigades, divisions, corps, and echelons above corps (EAC). The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and therefore are correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)	PROJECT DB19
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DB19 ASAS Evolutionary Acquisition	48496	35660	21598	23813	22695	31632	30880	30118	Continuing	Continuing

A. Mission Description and Justification: Project DB19 - ASAS Evolutionary Acquisition: This project funds the development of the Army's only tactical intelligence fusion project, the ASAS Block II Evolutionary Acquisition, within the Intelligence Fusion Project Office. The successful execution of military operations requires a flexible and modular intelligence and targeting system that will provide tactical commanders a common view of the battlefield and a means for gaining a timely and comprehensive understanding of enemy force deployments, capabilities, and potential courses of action. The ASAS is a ground based, mobile, command and control, intelligence processing system. The ASAS system provides automated support to the combat commander in the areas of intelligence and collection management, all-source target and situation analysis, single- and multi-source processing, intelligence reporting, electronic warfare, and operational security as well as automation support to the battlefield commander's command and control.

Acquisition Strategy: The ASAS Block II development program will build upon and expand the capabilities and functionalities developed and produced in the ASAS Block I System including conversion to the Army Tactical Command and Control System (ATCCS) Common Hardware/Software Open architecture and the OSD directed Common Operating Environment (COE) and Modernized Integrated Database (MIDB). Additional software capabilities include enhanced intelligence and command and control functionality, jump and degraded mode operations, enhanced communications, and improved reliability and supportability. ASAS Block II strategy maximizes the use of Government Furnished Equipment (GFE), government and commercial Non-Developmental Item (NDI) software, reuse of proven Office of Secretary of Defense (OSD) and ATCCS Command, Control, Communications and Intelligence (C3I) software, multiple prototype deliveries and continuous user test and evaluation opportunities. This strategy provides early user capabilities and streamlines acquisition. Building upon experience and feedback gained from the fielded ASAS and other tactical fusion prototypes, ASAS Block II will undergo Army Systems Acquisition Review Council (ASARC) Milestone III review in FY 99.

In March 1994, the Army was directed to accelerate fielding the ASAS capability across the force (including all Military Intelligence reserve units and National Guard brigades) by FY99. This ASAS-Extended program accomplishes this through: reuse of proven Block I software; leveraging the traditional acquisition successes of Block I; use of relatively low cost NDI equipment; and tailoring the existing training and maintenance support structure. The Army's intent is to keep fielded ASAS technology as current as possible by initiating value engineering and technology insertion to the fielded ASAS, and by packaging some of the ASAS Block II software drops into capability packages and inserting them into the fielded ASAS. These capability packages will be used with all of the fielded ASAS systems and modules. ASAS Block II will be fielded to Army active and reserve armored cavalry regiments, separate brigades, divisions, corps, and echelons-above corps. Brigades and Battalions will receive Collateral Remote Workstations.

Project DB19
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Exhibit R-2 (PE 0604321A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)	PROJECT DB19
FY 1996 Accomplishments:		
<ul style="list-style-type: none"> • 43281 • 2343 • 2872 Total 	<ul style="list-style-type: none"> Continued ASAS Block II Evolutionary E&MD Capability Packages <ul style="list-style-type: none"> -Developed and integrated ASAS Common Applications -Developed and integrated Joint Collection Management Tools -Incorporated DOD directed Common Operating Environment (COE) -Add MIDB Capability -Developed Remote Workstation-Collateral for Task Force XXI Conducted Development/Operational/Assessment Testing Procured and provided GFE for Product Development & Test 	
FY 1997 Planned Program:		
<ul style="list-style-type: none"> • 31253 3572 835 Total 	<ul style="list-style-type: none"> Continue ASAS Block II Evolutionary Acquisition E&MD Capability Packages <ul style="list-style-type: none"> -Implement COE-Compliant System Services and Common Applications -Complete Unified Database Schema -Develop Operational Diagnostic Capability -Rehost and improve All Source intelligence functionality from Blk I to Blk II -Enhance RWS to meet evolving DIV XXI capabilities Conduct Development/Operational/Assessment Testing Small Business Innovation Research/Small Business Technical Transfer (SBIR/STTR) 	
FY 1998 Planned Program:		
<ul style="list-style-type: none"> • 19213 2385 Total 	<ul style="list-style-type: none"> Continue ASAS Block II Evolutionary Acquisition E&MD Capability Packages <ul style="list-style-type: none"> -Implement COE-Compliant System Services and Common Applications -Develop, Integrate and Test CP3 All Source Comms Module -Develop Operational Diagnostic Capability -Complete MIDB Effort -Integrate and Test CP4 (enhanced comms functionality; jump/degraded mode ops) -Rehost and improve All Source intelligence functionality from Blk I to Blk II -Enhance RWS to meet evolving EXFOR XXI capabilities Conduct Development/Operational/Assessment Testing 	
Project DB19	Page 3 of 9 Pages	Exhibit R-2 (PE 0604321A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)					PROJECT DB19							
FY 1999 Planned Program:																	
<ul style="list-style-type: none"> • 21378 Continue ASAS Block II Evolutionary Acquisition E&MD Capability Packages <ul style="list-style-type: none"> -Integrate and Test CP4 (enhanced comms functionality; jump/degraded mode ops) -Rehost and improve All Source intel functionality from Blk I to Blk II -Enhance RWS to meet evolving EXFOR XXI capabilities -Level 5/6 COE migration and hardening -Develop objective target analysis capability -Interface initial CI/HUMINT capability into ACE • 2435 Complete CP4 Testing (PQT) including: <ul style="list-style-type: none"> -Block II Operational Test -CP4 Material Release -Block II Milestone III and Block III Milestone II 																	
Total 23813																	
B. Project Change Summary																	
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>									
FY1997 President's Budget		49716		32433		21666		23918									
Appropriated Value		50218		35660													
Adjustments to Appropriated Value		-1722															
FY1998 Pres Bud Request		48496		35660		21598		23813									
C. Other Program Funding Summary																	
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>						
OPA (K28801) ASAS Modules		10277	12282	7772	25256	57216	65847	59056	49482	Cont	Cont						
Spares (BS9704)		1982	0	0	0	1868	5561	8893	10207	Cont	Cont						
D. Schedule Profile																	
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Phase 2 (Remote Workstation		X*	X*	X*	X	X											
Functionality) Prototype Delivery																	
ASAS-Extended Unit Sets		X*			X	X	X	X	X				X	X			
Block II Unit Sets																X	
*Initial software drop delivered																	
Project DB19				Page 4 of 9 Pages				Exhibit R-2 (PE 0604321A)									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)				PROJECT DB19	
A. Project Cost Breakdown						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>		
Systems Development						39405	30825	17640	19077		
Contractor Engineering						2502	2100	1600	2000		
Government In House Support						3717	1900	1600	1900		
Test						2872	0	758	836		
SBIR/STTR							835				
Total						48496	35660	21598	23813		
B. Budget Acquisition History and Planning Information : Following for Block II ASAS.											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Lockheed Martin	CPAF	Oct 93	113600	113600	41289	26748	23025	11242	10739	Cont	113043
Tobyhanna Depot	MIPR					4075	2835	1000	2200	Cont	10110
Contractor Eng						5347	4750	4239	4541	Cont	18877
Systems Eng						1300	1050	800	1200	Cont	4350
SBIR/STTR						835					835
Support and Management Organizations											
Contractor Spt						2502	2100	1600	2000	Cont	8202
Gov't In House						3717	1900	1600	1900	Cont	9117
Test and Evaluation Organizations: None											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)				PROJECT DB19		
Government Furnished Property										
Item	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
CHS II	MIPR			1587	1100	0	359	397	0	3443
Support and Management Property: None										
Test and Evaluation Property										
Test sets	CHS II			0	2872	0	758	836	0	4466
Subtotal Product Development				42876	39405	31660	17640	19077		150658
Subtotal Support and Management					6219	4000	3200	3900		17319
Subtotal Test and Evaluation					2872		758	836		4466
Total Project				42876	48496	35660	21598	23813		172443

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)	PROJECT D2FT
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D2FT ASAS Operational Test	1416	3648	2447	2415	0	0	0	0	Continuing	Continuing

A. Mission Description and Justification: Project D2FT - ASAS Test and Evaluation: This project finances the direct costs of planning and conducting testing and evaluation of the ASAS by the Operational Test and Evaluation Command (OPTEC). ASAS is an Acquisition Category (ACAT) I system with several dedicated iterations of Test and Evaluation (Technical and Operational) between FY 95 and FY 99. Testing and evaluations are conducted under conditions, as close as possible, to those encountered in actual combat with typical user troops trained to employ the system. As necessary, OPTEC provides Army leadership with an evaluation of effectiveness and suitability of the system. Project D2FT is restructured from PE 0605712A. TECOM provides the Army leadership with testing of the ASAS, and is not a new start.

Acquisition Strategy: Not applicable, see B19 above.

FY 1996 Accomplishments:

- 1416 Conducted ASAS Block II Technical and Operational Testing and Evaluation
- Total 1416

FY 1997 Planned Program:

- 3559 Conduct ASAS Block II Technical and Operational Testing and Evaluation
 - 89 Small Business Innovation Research/Small Business Technical Transfer (SBIR/STTR)
- Total 3648

FY 1998 Planned Program:

- 2447 ACE Characterization Test and Evaluation
- Total 2447

FY 1999 Planned Program:

- 2415 Phase IV PPQT
- Total 2415

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604321A All Source Analysis System (TIARA)				PROJECT D2FT			
A. <u>Project Cost Breakdown</u>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Operational Test , Evaluation , Assessment				1416	3559	2447	2415				
SBIR/STTR					89						
Total				1416	3648	2447	2415				
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing <u>Activity</u>	Contract Method/Type or Funding <u>Vehicle</u>	Award or Obligation <u>Date</u>	Performing Activity <u>EAC</u>	Project Office <u>EAC</u>	Total Prior to <u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
OPTEC						1416	3559	2447	2415	Cont	9837
SBIR/STTR							89				89
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation						1416	3648	2447	2415		9926
Total Project						1416	3648	2447	2415		9926

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604325A Follow-On To TOW				PROJECT DE18		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE18 Follow-On to TOW	944	5479	13949	50884	71935	63147	73127	72503	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: Provides for Engineering and Manufacturing Development for Follow-On To TOW (FOTT), a vehicle mounted, crew served Heavy Anti-Tank Missile System which will replace/supplement the TOW missile family. It will be integrated onto and fired from the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) with Improved Target Acquisition System (ITAS) and on the Bradley Fighting Vehicle (BFV) with Improved Bradley Acquisition Sub-System (IBAS) platforms. The FOTT will be capable of operating out to the maximum range required in the FOTT Operational Requirements Document (ORD) and will perform under day/night adverse weather conditions and obscurants. The FOTT will be countermeasures hardened and will increase crew survivability. Projects within this element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in budget activity 5.</p> <p>Acquisition Strategy: The FOTT program will provide a systems approach by leveraging existing missile technologies. This next-generation missile will be compatible with both current and emerging TOW missile platforms. The EMD contract will be competitively awarded. EMD activities will include both missile design and platform integration.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 944 EMD Preparation: Initiated Program Milestone II Documentation; Prepared Draft Request for Proposal; and Conducted System and Technical Analysis. <p>Total 944</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1045 Continue EMD Preparation: Develop Milestone II Documentation , System Specification and Final Request for Proposal. • 4300 Support Contractor Pre-EMD Risk Reduction Tests: Provide Range Support, Range Instrumentation Suite, Range Facility Support, Range Target Sets, Range Test Management, Execution and Data Reduction, TOW Platform Shipment, Integration and Refurbishment. • 134 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 5479</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1696 Release EMD RFP; Conduct Source Selection; Complete Milestone II; and Award EMD Contract. • 1097 Pre-CDR Component Hardware Analysis and Procurement of Component Hardware to Support Pre-CDR Tests. • 9685 Initiate Component Design and System Engineering Analysis for Preliminary Design Review. 										
Project DE18			Page 1 of 3 Pages				Exhibit R-2 (PE 0604325A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604325A Follow-On To TOW					PROJECT DE18					
FY 1998 Planned Program: (continued)																
<ul style="list-style-type: none"> • 598 Prepare for Early User Assessment. • 873 Procure Open System Integration and Simulation Laboratory (SIL) Hardware and Software. 																
Total 13949																
FY 1999 Planned Program:																
<ul style="list-style-type: none"> • 1493 Conduct Early User Assessment and Post Assessment Analysis to support PDR. • 12764 Conduct Component Design and System Engineering Analysis for PDR; Conduct PDR. • 18138 Initiate Procurement of Hardware for Pre-Production Test. • 5910 Conduct Pre-CDR Tests and Update FOTT Systems Simulations associated with HMMWV and BFVS Virtual Prototypes, Hardware-in-the-Loop, and SIL. • 12579 Continue System Engineering Analysis for Critical Design Review. 																
Total 50884																
B. Project Change Summary																
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>									
FY 1997 President's Budget	968		5596		15397		49387									
Appropriated Value	995		5479													
Adjustments to Appropriated Value	-51															
FY 1998 Pres Bud Request	944		5479		13949		50884									
Change Summary Explanation: FY1998/FY1999 Funding Adjustments (FY 98 -1448/FY 99 +1497) for higher priority requirements.																
C. Other Program Funding Summary																
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>						
Missile Procurement, Army									<u>Compl</u>	<u>Cost</u>						
TOW 2 C59300	9686	13571	1326	0	0	0	0	0			2280829					
FOTT H04500								34092	20854		54946					
D. Schedule Profile																
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Release RFP									X							
Complete Source Selection													X			
Award EMD Contract													X			
Preliminary Design Review																X
Project DE18												Exhibit R-2 (PE 0604325A)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604325A Follow-On To TOW					PROJECT DE18	
A. <u>Project Cost Breakdown</u>											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Primary Hardware Development							11655	45413			
Program Management Support					894	1045	1696	1986			
Developmental Test and Evaluation					50	4300	598	3485			
SBIR/STTR						134					
Total					944	5479	13949	50884			
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Prime	TBD	TBD	TBD	TBD				11655	45413	Cont'd	57068
Support and Management Organizations											
PM CCAWS, RSA, AL	PO					279	400	471	523		1673
MICOM, RSA, AL	PO					605	672	953	1072		3302
Miscellaneous	PO					10	73	272	391		746
Test and Evaluation Organizations											
TECOM, APG, MD	PO					50	4200	598	3485		8333
SBIR/STTR							134				134
Government Furnished Property: None											
Subtotal Product Development								11655	45413		57068
Subtotal Support and Management						894	1145	1696	1986		5721
Subtotal Test and Evaluation						50	4334	598	3485		8467
Total Project						944	5479	13949	50884		71256
Project DE18					Page 3 of 3 Pages			Exhibit R-3 (PE 0604325A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604604A Medium Tactical Vehicles	PROJECT DH07
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DH07 Family of Medium Tactical Vehicles (FMTV)	2923	5874	3729	0	0	1613	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element (PE) supports modernization of the Army's medium truck fleet. The Family of Medium Tactical Vehicles (FMTV) will replace aging M44 Series 2 1/2 ton trucks, M39 and M809 Series 5 ton trucks which are beyond their average useful life of 20-22 years. FMTV will also provide a follow-on to the current M939/A2 Series 5 ton truck. Body styles currently under development under Project DH07 were deferred from the first five year multi-year contract due to budget constraints. Bringing these vehicles on line as soon as possible supports the pure fleetings of FMTV to reduce the logistics impact and operating and support costs. This project supports the development of the FMTV Special Body Variants [Medium Tactical Vehicle (MTV) Tanker, MTV Expansible Van, Light Medium Tactical Vehicle (LMTV) Trailer and MTV Trailer]. FMTV is required to fill 2 1/2 (LMTV) and 5 ton truck (MTV) requirements, resolve operational deficiencies and operate throughout the theater as multi-purpose transportation vehicles used by combat, combat support and combat service support units. This system is designed to be rapidly deployable worldwide and operate on primary and secondary roads, trails, and cross-country terrain. Vehicles operate in all climatic conditions. In FY 1996, FY 1997 and FY 1998, Project DH07 funds the Army's portion of the Medium Tactical Truck Remanufacture Program (MTTR). This research and development effort is a prelude to embarking on a major remanufacture program to increase the mobility, maintainability and reliability of the existing 5 ton fleet. Funding in FY97 through FY99 harmonizes the Army effort with the U.S. Marine Corps Medium Tactical Vehicle Remanufacture (MTVR) program as directed by Congress. This Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

Acquisition Strategy: The acquisition strategy is to obtain a Level III Technical Data Package for the FMTV Special Body Variants that were omitted from the first production contract due to budget constraints. This Technical Data Package will be combined with the Technical Data Package obtained from the first contract to enable all models to be produced under the second FMTV production contract. The acquisition strategy for the Medium Tactical Truck Remanufacture Program (MTTR) is to award two prototype contracts, which will lead to production.

- FY 1996 Accomplishments:**
- 1500 FMTV Technical Data Package
 - 976 Prototype Contracts (MTTR)
 - 191 Source Selection Evaluation Board (SSEB) (MTTR)
 - 106 Technical Support Contract (MTTR)
 - 150 Government Engineering (MTTR)
- Total 2923

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604604A Medium Tactical Vehicles			PROJECT DH07				
FY 1997 Planned Program:											
•	4162	Prototype Contracts (MTTR)									
•	250	Technical Support Contract (MTTR)									
•	569	Support Costs (Engineering/Quality/Matrix) (MTTR)									
•	750	Developmental Testing (MTTR)									
•	143	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs									
Total	5874										
FY 1998 Planned Program:											
•	2850	Developmental Testing (MTTR)									
•	750	Support Costs (Engineering/Quality/Matrix) (MTTR)									
•	129	Technical Support Contract (MTTR)									
Total	3729										
FY 1999 Planned Program: Program not funded											
B. Project Change Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>						
FY 1997 President's Budget		1459	0	0	0						
Appropriated Value		1500	5874								
Adjustments to Appropriated Value		+1423									
FY 1998 Pres Bud Request		2923	5874	3729	0						
Change Summary Explanation:											
Funding: FY96 - + 1500 DA reprogramming to FMTV (Tech Data Package).											
FY97 - + 5874 Congressional Add											
FY98 - + 3729 Reprogrammed during the FY 98 POM cycle.											
C. Other Program Funding Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total
OPA1 Family of Medium Tactical Vehicles (MYP) D15500		146043	238868	209446	364843	272948	332484	444648	459061	Cont	Cont
OPA1 5 Ton Extended Svc Pgm (ESP) DV0010					47314	81983	81715	32700	32786	Cont	Cont
Project DH07		Page 2 of 5 Pages					Exhibit R-2 (PE 0604604A)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604604A Medium Tactical Vehicles	PROJECT DH07
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D. <u>Schedule Profile</u>	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Release Request For Proposal (MTVR)			X*													
Source Selection Evaluation (MTTR)				X*												
Award Prototype Contract (MTTR)					X*	X*										
Developmental Testing (MTTR)								X								
Award Production Contract (MTTR)													X			
* Milestone Complete																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604604A Medium Tactical Vehicles					PROJECT DH07	
A. <u>Project Cost Breakdown</u>											
				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Product Development				2923	5024	879					
Developmental Testing					707	2850					
SBIR/STTR					143						
Total				2923	5874	3729					
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Teledyne (Prototype)	C-FFP	Oct 88	13515	13515	13515						13515
Tactical Truck (Prototype)	C-FFP	Oct 88	14500	14500	14500						14500
Stewart Stevenson (Prototype)	C-FFP	Oct 88	17204	17204	17204						17204
Stewart Stevenson (Tech Data Pkg)	C-FFP	Oct 91	10100	10100	10100						10100
Stewart Stevenson (Tech Data Pkg update)	SS-FFP	Jun 92	3416	3416	1916	1500					3416
Stewart Stevenson (Special Bodies Prototype)	SS-CPFF	Sep 92	12774	12774	12774						12774
In-House/Eng TACOM, MI			3142	3142	1673	150	569	750			3142
Govt Eng (all other fld activities)			1024	1024	1024						1024
Project DH07				Page 4 of 5 Pages				Exhibit R-3 (PE 0604604A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604604A Medium Tactical Vehicles					PROJECT DH07	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
SSEB, TACOM, MI (MTTR)			191	191		191					191
Oshkosh Truck Corp. (Prototype MTTR)	C-CPFF		2415	2415		488	1927				2415
AM General (Prototype MTTR)	C-CPFF		2723	2723		488	2235				2723
Camber (Tech Spt Contract)			485	485		106	250	129			485
SBIR/STTR			143	143			143				143
Support and Management Organizations: N/A											
Test and Evaluation Organizations											
TECOM (APG) (FMTV)			7765	7765	7765						7765
TECOM (YPG) (FMTV)			3000	3000	3000						3000
TEXCOM (FMTV)			4964	4964	4964						4964
TECOM (MTTR)			3600	3600			750	2850			3600
Government Furnished Property - None											
Subtotal Product Development					72706	2923	5124	879			81632
Subtotal Support and Management											
Subtotal Test and Evaluation					15729		750	2850			19329
Total Project					88435	2923	5874	3729			100961

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604609A Smoke, Obscurant and Target					PROJECT D200	
				Defeating System - Engineering Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D200 Smoke/Obscurant Systems	1915	0	0	703	937	2552	4814	8362	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> This program element supports the conduct of Engineering and Manufacturing Development (EMD) in smoke and obscurant agents, munitions, and devices to improve survivability of the combined arms force, complement combined weapons systems, and enhance force effectiveness and combat power. Funding supports (1) Motorized Dual Purpose Mechanical Smoke Generator, M56 mounted on the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) to provide large area visual, infrared (IR) and millimeter wavelength (MMW)-radar obscurant; (2) Generator, Smoke, Mechanical, Mechanized Smoke Obscurant System, M58, consists of components of the M56 mounted on a M113A3 carrier. The M58 will equip smoke units in heavy units resulting in improved vehicle maneuverability and survivability; (3) M81 MMW/IR Smoke Grenades which support the Vehicle Integrated Defense System; (4) Vehicle Engine Exhaust Smoke System which provides on-board obscurant of heavy armor systems. The M81 provides IR and MMW screening from smart Anti-Tank Guided Missiles (ATGM) and top attack weapons. The project in this Program Element supports efforts in the engineering and manufacturing development phase of the acquisition strategy and is therefore correctly placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> Project D200 - Smoke/Obscurants: The M58 Mechanized Smoke System, primarily an in-house effort, was type classified from the EMD phase. The M58 will purchase smoke generator components, the driver's viewer enhancer and gas particulate filter units on contracts and furnish as GFE to Anniston Army Depot to integrate the components on the converted platform (M113A3). The M56 P3I Modularity program is an in-house effort in the EMD phase. The program will increase the visual obscurant capability of the system from 60 to 90 minutes, and will be developed and tested at CBDCOM. The proven design will then be integrated into the on-going competitively awarded five-year multi-year production contract for the M56 Smoke Generator System. The Vehicle Engine Exhaust Smoke System (VEESS) will be developed in-house and will be applied to systems via modification work order.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1515 M56-P3I Modularity: Completed design (drawings/technical data). • 300 M56-P3I Modularity: Conducted technical/user testing. • 100 M56-P3I Modularity: Conducted Milestone III In-Process Review. <p>Total 1915</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98.</p>										
Project D200			Page 1 of 4 Pages				Exhibit R-2 (PE 0604609A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997			
BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT			
5 - Engineering and Manufacturing Development	0604609A Smoke, Obscurant and Target Defeating System - Engineering Development						D200			
FY 1999 Planned Program:										
•	703	VEESS-Integrate engineering study/proof of principle and initiate maintenance work order preparation and approval.								
Total	703									
B. Project Change Summary										
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
FY 1997 President's Budget		1945			2745					
Appropriated Value		2000								
Adjustments to Appropriated Value		-85								
FY 1998 Pres Budget Request		1915			703					
Change Summary Explanation: FY 1999 funding (-2042) reprogrammed to PE 0602622A, A552 to support technology base for P3I MMW program.										
C. Other Program Funding Summary										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total
									<u>Compl</u>	<u>Cost</u>
RDTE,A Budget Activity 2, PE 0602622A Project A552 Smoke/Novel Effects Munitions	1728	2259	4739	6691	4167	4231	4314	4411	Cont'd	Cont'd
RDTE,A Budget Activity 4, PE 063627A, Project DE79 Smoke, Obscurant and Equipment Defeating Systems	2623	6246	0	0	0	0	0	5155	Cont'd	Cont'd
OPA-3,A Appropriation										
M99103, M56 Smoke Generator	0	12506	12560	19115	0	0	20831	18882	Cont'd	Cont'd
M99107, M58 Smoke Generator	12301	11587	9195	10895	7965	10566	11903	9937	Cont'd	Cont'd
M99104, M157A2 Smoke Generator	5052	3475	0	0	0	0	0	0	0	8527
G70700, LVOSS	0	0	2164	4752	2317	0	0	0	0	9233
<div style="display: flex; justify-content: space-between; margin-top: 20px;"> Project D200 Page 2 of 4 Pages Exhibit R-2 (PE 0604609A) </div>										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)														DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development								PE NUMBER AND TITLE 0604609A Smoke, Obscurant and Target Defeating System - Engineering Development								PROJECT D200			
D. <u>Schedule Profile</u>																			
		FY 1996				FY 1997				FY 1998				FY 1999					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
M56-Complete P3I Modularity Design	X*																		
M56-Complete P3I Mod Tech/User Test		X*																	
M56-Conduct P3I Modularity MS III			X*																
VEESS-Initiate Maint Work Order													X						
*Milestone completed																			
Project D200						Page 3 of 4 Pages						Exhibit R-2 (PE 0604609A)							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604611A Javelin				PROJECT D499	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	Cost to Complete	Total Cost
D499 JAVELIN	2249	6014	8018	5277	0	0	0	0	634870
<p>A. <u>Mission Description and Budget Item Justification</u> This Program Element (PE) provides for the continuation of Engineering and Manufacturing Development (EMD) of a manportable antitank weapon system for the combined arms team employment. The infantry must have the capability to defeat numerically superior armored forces. The present medium infantry antitank weapon is DRAGON. The system developed within this PE will replace the DRAGON to provide enhanced lethality for the early entry force. It will have a high kill rate against all known armor threats at extended ranges under day/night, adverse weather conditions and in the presence of battlefield obscurants. This system will be hardened against countermeasures and will not require extensive training for effective employment. Active protection system developments will be considered and modifications studied to defeat these devices if necessary. Integration of Advanced Main Charge Warhead and Lethality Improvement Tracker Enhancement technologies will be pursued. This project supports research efforts in the engineering and manufacturing development phase of the acquisition strategy and therefore is appropriate to Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> Not Applicable.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 93 Program Management • 1667 Test Support • 378 Lethality Improvement Tracker Enhancement (LITE) • 111 Advanced Main Charge Warhead (AMCW) <p>Total 2249</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 301 Program Management • 600 Test Support • 1035 Lethality Improvement Tracker Enhancement • 3931 Advanced Main Charge Warhead • 147 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 6014</p>									
Project D499			Page 1 of 4 Pages			Exhibit R-2 (PE 0604611A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604611A Javelin					PROJECT D499		
FY 1998 Planned Program:												
•	400	Program Management										
•	1044	Test Support										
•	1403	Lethality Improvement Tracker Enhancement										
•	5171	Advanced Main Charge Warhead										
Total	8018											
FY 1999 Planned Program:												
•	264	Program Management										
•	4661	Test Support										
•	352	Advanced Main Charge Warhead										
Total	5277											
B. Project Change Summary												
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1998</u>				
FY 1997 President's Budget		973		1643		1548		0				
Appropriated Value		1000		6014								
Adjustments to Appropriated Value		+1249										
FY 1998 Pres Budget Request		2249		6014		8018		5277				
Change Summary Explanation: FY96 funding (+1249) reprogrammed in for tracker performance upgrade. FY 98/99 adjustments (FY 98 +6470/FY 99 +5277) to support Advanced Main Charge Warheads.												
C. Other Program Funding Summary												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Complete</u>	<u>Total Cost</u>	
Missile Procurement, Army												
CC0007 Javelin (AAWS-M)		200858	195281	143112	326623	465962	409511	475873	7061	95314	2756628	
D. Schedule Profile												
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>	
	1	2	3	4	1	2	3	4	1	2	3	4
Conduct System Level Live Fire Tests		X*										
First Unit Equipped			X*									
Full Rate Production Decision (ASARC)						X						
Award Year One of First Multiyear Contract						X						
Project D499												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604611A Javelin	PROJECT D499
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<u>D. Schedule Profile</u>	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advanced Main Charge Warhead(AMCW)					X											
AMCW Final Design										X						
AMCW Lethality Test													X			
AMCW Live Fire Phase I/II Tests															X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604611A Javelin					PROJECT D499	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Program Management					93	301	400	264			
Test Support					1667	600	1044	4661			
Lethality Improvement Tracker Enhancement					378	1035	1403				
Advanced Main Charge Warhead					111	3931	5171	352			
SBIR/STTR						147					
Total					2249	6014	8018	5277			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TI/MM JV EMD	C/CPIF	21Jun89	462700	465500	493456	0	3884				493456
TI/MM JV AMCW	CPIF	28Mar94	N/A	N/A	4521	111	1082	5171	352		14086
TI/MM JV LITE	CPAF	28Jun96	N/A	N/A		378	1802	1403			2963
SBIR/STTR							147				
Support and Management Organizations											
Support Contractor	8(a) C/PPF		N/A	N/A	6747						6747
Program Mgmt					80232	93	301	400	264		81290
Test and Evaluation Organizations											
TECOM					19513	705	600	1044	4661		26523
OPTEC					8843	937					9780
ARL						25					25
Government Furnished Property: Not Applicable.											
Subtotal Product Development Organizations					497977	489	5113	6574	352		510505
Subtotal Support and Management Organizations					86979	93	301	400	264		88037
Subtotal Test and Evaluation Organizations					28356	1667	600	1044	4661		36328
Total					613312	2249	6014	8018	5277		634870

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604619A Landmine Warfare				PROJECT D088		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D088 Wide Area Munition (WAM)	29453	26288	19800	23075	0	0	0	0	0	251916
<p>A. <u>Mission Description and Budget Item Justification:</u> The Wide Area Munition (WAM), a “smart,” remotely-reprogrammable antitank mine, provides unique control and offensive capability for a variety of missions. WAM will significantly reduce Army losses by using advanced smart munitions technology on the battlefield. The program provides for Engineering and Manufacturing Development (EMD) of the Basic WAM deployed by hand emplacement with one-way communications. The pre-planned product improvement Basic WAM with two-way command and control and redeployable capabilities will use advanced sensors, computer technology, and warhead technology to extend the range and lethality of the WAM. The project in this Program Element supports the EMD phase of the acquisition strategy for the WAM and is, therefore, appropriately placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> The Basic WAM transitioned to Low Rate Production (LRP) in 3QFY96. A sole source Fixed Price Incentive Fee contract was awarded to the EMD contractor for the LRP quantity. Type classification standard is planned for 4QFY97. Production buys will be included under the LRP contract as Firm Fixed Price options. A sole source Cost Plus Incentive Fee contract for EMD of an improved WAM was awarded to the Basic WAM developer in FY 1996. Type Classification standard of the improved WAM is planned for 4QFY99.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 4887 Completed basic WAM integration and assembly design • 12291 Fabricated technical test/initial operational test and evaluation (TT/IOTE)/live fire hardware for basic WAM • 6800 Initiated TT/IOTE/live fire test for basic WAM • 650 Designed and built basic WAM prototype individual trainer and collective trainer software • 4825 Initiated design efforts for WAM PIP integration of two-way command & control and redeployability <p>Total 29453</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 21427 Complete TT/IOTE/live fire test for basic WAM • 750 Conduct testing for basic WAM individual trainer and collective trainer software • 3508 Conduct WAM PIP Initial Platform and Control Unit design effort • 603 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 26288</p>										
Project D088			Page 1 of 4 Pages				Exhibit R-2 (PE 0604619A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604619A Landmine Warfare			PROJECT D088			
FY 1998 Planned Program:										
•	8841	Conduct WAM PIP preliminary design and functional configuration audit								
•	2809	Procure hardware for WAM PIP contractor prototype testing and TT/IOTE								
•	3300	Conduct contractor prototype testing								
•	650	Conduct testing of WAM PIP prototype individual trainers and collective trainer software								
•	4200	Complete design of control station, trainers and software								
Total	19800									
FY 1999 Planned Program:										
•	10130	Complete WAM PIP design and conduct functional configuration audit								
•	5145	Complete fabrication of TT/IOTE hardware for WAM PIP								
•	6500	Complete TT/IOTE for WAM PIP								
•	1300	Complete testing of trainers and software								
Total	23075									
B. Project Change Summary										
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
FY97 President's Budget		30179	17609	17500	19027					
Appropriated Value		31028	26288							
Adjustments to Appropriated Value		-1575	0							
FY 1998 President's Budget Request		29453	26288	19800	23075					
Change Summary Explanation:										
Funding: FY 1998 (+2300) and FY 1999 (+4048) adjustments were required to offset shortfalls in WAM basic program and allow WAM PIP to maintain scheduled (4Q99) Type Classification.										
C. Other Program Funding Summary										
RDTE, A Budget Activity 5	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total
PE 0604808A, Project D016, Mine Systems Engineering Development	4968	5384	0	3600	4000	11255	11960	21786	Compl	Cost
Ammunition, A Appropriation										
WAM, E78100	14581	9991	15323	17891	28132	31469	60972	61092	Cont'd	Cont'd
WAM Individual Trainer, E78103	1819	0	0	0	0	0	0	0	0	1819
Project D088										
Page 2 of 4 Pages					Exhibit R-2 (PE 0604619A)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604619A Landmine Warfare					PROJECT D088	
C. Other Program Funding Summary											To	Total
RDTE, A Budget Activity 5		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>	
WAM Collective Trainer, E78104		0	1928	0	0	1721	1624	0	0	0	5273	
D. Schedule Profile												
		FY 1996			FY 1997			FY 1998		FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4
Conduct Basic WAM Low Rate			X*									
Production Milestone Review												
Complete Live Fire Test				X*								
Complete TT/IOTE Testing						X						
Complete Functional Configuration Audit						X						
Complete Basic WAM Milestone III						X						
Complete Initial WAM PIP Trade-Off				X*								
Studies & Initiate Design Efforts												
Complete WAM PIP Ground Platform						X						
Preliminary Design Review												
Complete Contractor System Test								X				
WAM PIP Functional Specification									X			
Complete Procurement, Fabrication of TT									X			
System Hardware												
Complete IOT&E Testing											X	
WAM PIP Milestone III												X
* Milestone Completed												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604619A Landmine Warfare					PROJECT D088	
A. <u>Project Cost Breakdown</u>											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Primary Hardware Development					18621	17080	12850	10678			
Test and Evaluation					3321	2501	1900	6000			
Government Engineering Support					6735	5436	4300	5597			
Government Program Management					776	668	750	800			
SBIR/STTR						603					
Total					29453	26288	19800	23075			
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or	Contract										
Government	Method/Type	Award or	Performing	Project	Total						
Performing	or Funding	Obligation	Activity	Office	Prior to					Budget to	Total
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>
Product Development Organizations											
Textron	CPIF	June 1996	40443	40443	0	2000	14915	12850	10678	0	40443
Textron	CPIF	June 1990	138876	138876	120090	16621	2165	0	0	0	138876
Support and Management Organizations											
ARDEC					15803	3072	3441	2500	3050	0	27866
PM-MCD					3452	776	668	750	800	0	6446
Other (Misc)					9254	3663	1995	1800	2547	0	19259
SBIR/STTR					0	0	603	0	0	0	603
Test and Evaluation Organizations											
TECOM					4701	3321	2501	1900	6000	0	18423
Government Furnished Property: None.											
Subtotal Product Development					120090	18621	17080	12850	10678		179319
Subtotal Support and Management					28509	7511	6707	5050	6397		54174
Subtotal Test and Evaluation					4701	3321	2501	1900	6000		18423
Total Project					153300	29453	26288	19800	23075		251916
Project D088											
Page 4 of 4 Pages											
Exhibit R-3 (PE 0604619A)											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604622A Family of Heavy Tactical Vehicles						
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	2605	1958	0	0	0	0	13757	18773	Continuing	Continuing
D659 Family of Heavy Tactical Vehicles	803	1958	0	0	0	0	0	0	2761	2761
DE43 Semi-Trailer Van	1802	0	0	0	0	0	0	0	1802	1802
DE49 Heavy Expanded Mobility Tactical Truck	0	0	0	0	0	0	8785	8831	Continuing	Continuing
DE53 Line Haul/Light Equipment Transporter	0	0	0	0	0	0	4972	9942	Continuing	Continuing
<p>Mission Description and Budget Item Justification: Program element funds various heavy tactical vehicle capabilities to support combat and combat support missions. These missions include the following: line haul, local haul, unit resupply, and transporting water, ammo, and general cargo. This program element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604622A Family of Heavy Tactical Vehicles				PROJECT D659		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D659 Family of Heavy Tactical Vehicles	803	1958	0	0	0	0	0	0	2761	2761
<p>A. Mission Description and Justification: This project supports requirements to develop expanded heavy tactical vehicle capabilities to meet the emerging needs of Army users. Specific requirements have been identified for development of alternate flatrack studies; a Palletized Load System (PLS) Universal Power Interface Kit, which will provide interface for various PLS flatrack or module-based applications; a Heavy Expanded Mobility Tactical Truck-Load Handling System (HEMTT-LHS), required to determine the effectiveness of the lighter PLS in meeting the mission requirement of airborne units through its enhanced air deployability; the HEMTT Extended Service Program (ESP); and the Forward Repair System (FRS), intended to meet the requirements for a maintenance shop capability to keep up with rapidly moving combat vehicles.</p> <p>Acquisition Strategy: The acquisition strategy is to develop and test prototypes to determine producibility and feasibility of incorporating vehicles into future production contracts.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 136 Flatrack Prototype Overrun/Testing/Studies. • 142 GFE for Prototype/Concept Evaluation (FRS). • 20 Vehicle Modeling for 5000 Gallon Fueler. • 135 HEMTT-LHS Conversion. • 60 PLS Universal Power Interface Kit Development. • 220 Modeling/Testing for Fuel Tank Flatrack/Rollover Studies. • 90 PLS Alternator. <p>Total 803</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 200 Analysis of HEMTT ESP design alternatives • 570 Analysis of selected designs • 380 HEMTT ESP modeling • 760 HEMTT ESP testing • 48 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 1958</p>										
Project D659			Page 2 of 7 Pages				Exhibit R-2 (PE 0604622A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604622A Family of Heavy Tactical Vehicles	PROJECT D659
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FY 1998 Planned Program: Program not funded in FY 98

FY 1999 Planned Program: Program not funded in FY 99

B. Project Change Summary	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
FY 1997 President's Budget	824	0	0	0
Appropriated Value	845	1958		
Adjustments to Appropriated Value	-42			
FY 1998 Pres Bud Request	803	1958	0	0

Change Summary Explanation: Funding: FY97 (+1958) Congressional increase to support development of the HEMTT ESP

C. Other Program Funding Summary	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
									<u>Compl</u>	<u>Cost</u>
OPA1, DA0500, Family of Heavy Tactical Vehicles	119655	243841	9071	162647	59098	97389	124946	124254	Cont	Cont

D. Schedule Profile	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
	1	2	3	4
Provided GFE for FRS Prototype	X*			
FRS Concept Evaluation/Test		X*		
Awarded Prototype Contract (HEMTT-LHS)		X*		
Award HEMTT Dev/Prototype Contract			X	
HEMTT ESP test			X	

*Milestone Complete

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604622A Family of Heavy Tactical Vehicles					PROJECT D659		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Product Development				590	1150						
Developmental Testing				213	760						
SBIR/STTR					48						
Total				803	1958						
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Oshkosh Truck Corp.	CPFF	Sep 96				94					94
Oshkosh Truck Corp.	FFP	Sep 96					213				213
Niehoff In-House Eng	FFP	Sep 96					90				90
GFE		Jul 96					102				102
GFE		Mar 96					91				91
Oshkosh Truck Corp.	CPFF	Mar 97						1150			1150
SBIR/STTR								48			48
Support and Management Organizations: None											
Test and Evaluation Organizations											
TECOM		Sep 96					213	760			973
Government Furnished Property: None											
Subtotal Product Development						590	1198				1788
Subtotal Support and Management											
Subtotal Test and Evaluation						213	760				973
Total Project						803	1958				2761
Project D659				<i>Page 4 of 7 Pages</i>				Exhibit R-3 (PE 0604622A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604622A Family of Heavy Tactical Vehicles	PROJECT DE43
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE43 Semi-Trailer Van	1802	0	0	0	0	0	0	0	1802	1802

A. Mission Description and Justification: This project supports requirements to develop expanded heavy tactical vehicle capabilities to meet the emerging needs of Army users. Specific requirements have been identified for development of potable water in the corps/brigade support areas. Currently, the XM1098 is the only 5000 Gallon Water Carrier in the Army's inventory. This vehicle can only be utilized in warm weather climates where there is no danger of the water freezing or becoming too hot for consumption. The users' water requirements will be better satisfied by enabling the XM1098 to be used in a variety of temperature scenarios. The heater/chiller kit will enhance the XM1098 capability by maintaining the tanker water temperature in the desirable range of 40-80 degrees Fahrenheit. The kit will also provide the capability of providing on-demand hot (180 degree F) and cold (55 degree F) water, regardless of ambient conditions. This funding supports the second phase of this project which will be an integrated technical demonstration of the feasibility of a heater/chiller system comprised of an external insulation, integrated power supply, an on-demand heating/cooling system and a recirculation system. This effort also includes fluid level and temperature gauges, and upgraded lighting systems not currently available on the XM1098.

Acquisition Strategy: The acquisition strategy is to develop and demonstrate two technology test beds to address the potential technology enhancements to the XM1098.

FY 1996 Planned Program:

- 100 Market survey of Technical Alternatives.
 - 200 Thermal Simulation and Analysis.
 - 200 System characteristics (Develop Corrosion Resistant Coating).
 - 200 Cross Country Mobilization Simulation & Analysis.
 - 150 Technology Integration.
 - 200 Conceptual Design.
 - 400 Technology Component Acquisition.
 - 50 System Modification.
 - 200 System Installation.
 - 52 Technology Demonstration.
 - 50 Final Report.
- Total 1802

FY 1997 Planned Program: Program not funded in FY 97

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604622A Family of Heavy Tactical Vehicles	PROJECT DE43
--	---	-------------------------------

FY 1998 Planned Program: Program not funded in FY 98

FY 1999 Planned Program: Program not funded in FY 99

B. Project Change Summary

	FY 1996	FY 1997	FY 1998	FY 1999
FY 1997 President's Budget	1848	0	0	0
Appropriated Value	1900			
Adjustment to Appropriated Value	-98			
FY 1998 Pres Bud Request	1802	0	0	0

C. Other Program Funding Summary: None

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Market Survey		X*														
Thermal Simulation and Analysis		X*														
System Characteristics (Develop Corrosion Resistant Coating)		X*														
Cross Country Mobilization Simulation					X											
Technology Integration					X											
Conceptual Design						X										
Tech Component Acquisition						X										
System Modification							X									
System Installation								X								
Technology Demonstration									X							
System Test										X						
Final Report												X				

*Milestone Complete

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604622A Family of Heavy Tactical Vehicles			PROJECT DE43				
A. <u>Project Cost Breakdown</u>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Project Development				1802							
Integration/Demonstration											
Total				1802							
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
CAETECH	CPFF	Nov 95				1802					1802
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development						1802					1802
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project						1802					1802

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604633A Air Traffic Control	PROJECT D586
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D586 Air Traffic Control	5073	7377	1705	1729	2026	2079	2251	2354	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element funds continuously evolving efforts for the development of Air Traffic Control (ATC) systems for both tactical and fixed base applications. It funds the integration and qualification of an Air Traffic Navigation, Integration, and Coordination System (ATNAVICS) and Mobile Tower System (MOTS). This system provides urgently needed communications and precision/non-precision approach and flight following capability in support of Army tactical airfields, remote landing zones, drop zones, pickup zones and temporary helicopter operating areas worldwide. MOTS automated tower system is designed to integrate with secure modernized aircraft communications. This is a non-developmental item (NDI) program. Fixed base ATC efforts funded by this line include Navigation Air Systems Modernization, Communication System Modernization and digitization of the ATC structure. The tasks in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Acquisition Strategy: The acquisition strategy is to procure an ATNAVICS prototype through a Cost Plus Fixed Fee (CPFF) contract for integration of electronic/radar components to include design, development, and testing of an integrated prototype over a three year period. An additional component of the strategy is to continue concept exploration and design definition of the MOTS.

FY 1996 Accomplishments:

ATNAVICS

- 4657 Continued Prototype System for Developmental Testing/Initial Operational Test Evaluation
- 295 System performance

TAIS

- 50 System concept design definition
 - 71 Conducted suitability study and cost saving data
- Total 5073

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604633A Air Traffic Control	PROJECT D586																									
<p>FY 1997 Planned Program:</p> <p>ATNAVICS</p> <ul style="list-style-type: none"> • 6577 Continue development of prototype • 574 Developmental and Operational Testing <p>MOTS</p> <ul style="list-style-type: none"> • 50 Pre-market analysis for state of the art systems solution • 176 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 7377</p> <p>FY 1998 Planned Program:</p> <p>ATNAVICS</p> <ul style="list-style-type: none"> • 1130 Development and Operational Testing • 475 Refurbishment for Fielding <p>MOTS</p> <ul style="list-style-type: none"> • 50 Market Analysis • 50 Evaluation and Suitability Study and Cost Savings Data <p>Total 1705</p> <p>FY 1999 Planned Program:</p> <p>MOTS</p> <ul style="list-style-type: none"> • 360 Design Definitization/Integration Analysis • 1369 Procure Prototype System for Developmental Testing <p>Total 1729</p>																											
<p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%; text-align: center;"><u>FY 1996</u></th> <th style="width: 15%; text-align: center;"><u>FY 1997</u></th> <th style="width: 15%; text-align: center;"><u>FY 1998</u></th> <th style="width: 15%; text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">1764</td> <td style="text-align: right;">5549</td> <td style="text-align: right;">1825</td> <td style="text-align: right;">1860</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">1813</td> <td style="text-align: right;">7377</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">+3260</td> <td></td> <td></td> <td style="text-align: center;">-</td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: right;">5073</td> <td style="text-align: right;">7377</td> <td style="text-align: right;">1705</td> <td style="text-align: right;">1729</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 96 (+3260) reprogrammed in support of ATNAVICS development. FY97 (+1828) Congressional reprogramming from procurement for ATNAVICS.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	1764	5549	1825	1860	Appropriated Value	1813	7377			Adjustments to Appropriated Value	+3260			-	FY 1998 Pres Bud Request	5073	7377	1705	1729
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	1764	5549	1825	1860																							
Appropriated Value	1813	7377																									
Adjustments to Appropriated Value	+3260			-																							
FY 1998 Pres Bud Request	5073	7377	1705	1729																							
Project D586	Page 2 of 5 Pages	Exhibit R-2 (PE 0604633A)																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604633A Air Traffic Control	PROJECT D586
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C. <u>Other Program Funding Summary</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u> <u>Compl</u>	<u>Total</u> <u>Cost</u>						
									Cont'd	Cont'd						
APA AA0050 - Air Traffic Control	12555	6395	5802	5854	9210	40256	30797	36364								
D. <u>Schedule Profile</u>																
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ATNAVICS System Performance				X						X						
ATNAVICS Testing							X							X		
MOTS Pre-Market Analysis (State of Art Sys Solution)						X				X						
ATNAVICS Development/Operational Testing										X				X		
MOTS Market Analysis										X						
MOTS Evaluation and Suitability Study/Cost Savings Data										X						
ATNAVICS Refurbishment for Fielding										X					X	
MOTS Design Definitization/Integration Analysis														X		
Procure MOTS Prototype System for Development Testing															X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604633A Air Traffic Control					PROJECT D586		
A. Project Cost Breakdown												
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Contractor Engineering Support					344	297	145	145				
Primary Hardware Development					4061	5943		969				
Program Management Support					456	387	430	435				
Development Test and Evaluation						574	1130	180				
Government Furnished Equipment					212							
SBIR/STTR						176						
Total					5073	7377	1705	1729				
B. Budget Acquisition History and Planning Information:												
Performing Organizations												
Contractor or	Contract											
Government	Method/Type	Award or	Performing	Project	Total							
Performing	or Funding	Obligation	Activity	Office	Prior to					Budget to	Total	
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>	
Product Development Organizations												
Raytheon	CPFF	Mar 96		13631	9570	4061				0	13631	
Raytheon	CPFF	Dec 97		6658			5943			715	6658	
MOTS	TBD	Dec 99							969	Cont	Cont	
Support and Management Organizations												
Army Aviation & Troop Command (ATCOM)						708	456	387	345	350	Cont	Cont
CECOM						1248	344	297	230	230	Cont	Cont
Test and Evaluation Organizations												
TEXCOM								574	1130	180	Cont	Cont
SBIR/STTR								176				176

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604633A Air Traffic Control					PROJECT D586	
Government Furnished Property										
	Contract									
Item	Method/Type	Award or		Total					Budget to	Total
<u>Description</u>	or Funding	Obligation	Delivery	Prior to					Complete	Program
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>		
Product Development Property										
					212					212
Support and Management Property: None										
Test and Evaluation Property: None										
Subtotal Product Development				9570	4273	5943		969	Cont	Cont
Subtotal Support and Management				1956	800	684	575	580	Cont	Cont
Subtotal Test and Evaluation						750	1130	180	Cont	Cont
Total Project				11526	5073	7377	1705	1729	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604640A Advanced Command and Control Vehicle					PROJECT DG27	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DG27 Future Command and Control Vehicle	17306	7734	8867	0	0	0	0	0	0	111934
<p>A. <u>Mission Description and Budget Item Justification:</u> The Command and Control Vehicle (C2V) is a highly mobile, survivable, and responsive tracked platform designed for use by battalion through corps battle staffs in heavy force operations. It provides a reconfigurable (tailorable) command and control capability able to host both current and future command, control, communications, computer, and intelligence (C4I) systems. The C2V supports the Army's Force XXI/Digitization efforts and will be compatible with Army Tactical Command and Control Systems. The C2V began as a Desert Storm initiative in response to shortcomings in the current M577 Command Post Vehicle. The C2V is currently in Low Rate Initial Production (LRIP) and is appropriately placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> C2V approved for type classification and Low Rate Initial Production (LRIP) quantity of 46 vehicles in 4Q96. Based on the LRIP decision, the Army will procure 439 C2V vehicles. Follow-on Sole-Source/Firm Fixed Price & Cost Plus Incentive Fee contracts and Fixed Price with Options (FPO) contracts are in place for C2V Low Rate Initial Production (LRIP). C2V LRIP focus on testing and production planning to meet Initial Operational Test and Evaluation (IOTE) and First Unit Equipped (FUE) in FY99.</p> <p>FY 1996 Accomplishments</p> <ul style="list-style-type: none"> • 4525 Developed Technical Data Package; Began Producibility Engineering Effort • 2657 Logistics Engineering Effort • 4234 Continued Design Engineering; Component/Production Verification and Contractor Test Support • 961 Prototype Manufacturing • 759 Began Live Fire Testing • 2016 Conducted Technical Testing and Limited User Testing • 2154 Project Management <p>Total 17306</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 652 Complete Technical Data Package/Continue Producibility Engineering Effort • 1382 Logistics Effort • 775 Prototype Manufacturing • 872 Complete Technical Testing 										
Project DG27			Page 1 of 4 Pages				Exhibit R-2 (PE 0604640A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																																																					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604640A Advanced Command and Control Vehicle	PROJECT DG27																																																																					
<p>FY 1997 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 1549 Continue Live Fire Testing • 1085 Direct Support Electrical System Test Set/Advanced Collective Integrated Protective System Development/Procurement • 1245 Project Management • 174 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 7734</p> <p>FY 1998 Planned Program</p> <ul style="list-style-type: none"> • 1804 Complete Contractor Test Support; Perform Refurbishment/Rework of Test Vehicles • 2602 Complete Live Fire Testing • 4418 Complete Production Verification Testing • 43 Project Management <p>Total 8867</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">17739</td> <td style="text-align: right;">6649</td> <td style="text-align: right;">6759</td> <td style="text-align: right;">0</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">18238</td> <td style="text-align: right;">7734</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">-932</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 President's Budget Request</td> <td style="text-align: right;">17306</td> <td style="text-align: right;">7734</td> <td style="text-align: right;">8867</td> <td style="text-align: right;">0</td> </tr> </tbody> </table> <p>Change Summary Explanation:</p> <p style="padding-left: 20px;">Funding: 1085 increase in FY 97 applied to DSESTS/ACIPS.</p> <p style="padding-left: 20px;">Funding: 2108 increase in FY 98 due to realignment from WTCV to complete Live Fire testing.</p> <p>C. Other Program Funding Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To</u></th> <th style="text-align: center;"><u>Total</u></th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th style="text-align: center;"><u>Compl</u></th> <th style="text-align: center;"><u>Cost</u></th> </tr> </thead> <tbody> <tr> <td>GA84200 Command & Control Vehicle</td> <td></td> <td style="text-align: right;">48939</td> <td style="text-align: right;">30897</td> <td style="text-align: right;">62681</td> <td style="text-align: right;">100013</td> <td style="text-align: right;">122929</td> <td style="text-align: right;">86755</td> <td style="text-align: right;">123902</td> <td style="text-align: center;">Cont.</td> <td style="text-align: center;">Cont.</td> </tr> <tr> <td>GE0173 Spares (Initial) C2V</td> <td></td> <td></td> <td style="text-align: right;">941</td> <td style="text-align: right;">882</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">Cont.</td> <td style="text-align: center;">Cont.</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	17739	6649	6759	0	Appropriated Value	18238	7734			Adjustments to Appropriated Value	-932				FY 1998 President's Budget Request	17306	7734	8867	0		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>										<u>Compl</u>	<u>Cost</u>	GA84200 Command & Control Vehicle		48939	30897	62681	100013	122929	86755	123902	Cont.	Cont.	GE0173 Spares (Initial) C2V			941	882					Cont.	Cont.
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																																																																			
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									<u>Compl</u>	<u>Cost</u>																																																													
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GE0173 Spares (Initial) C2V			941	882					Cont.	Cont.																																																													
Project DG27	Page 2 of 4 Pages	Exhibit R-2 (PE 0604640A)																																																																					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604640A Advanced Command and Control Vehicle						PROJECT DG27								
D. <u>Schedule Profile</u>																				
		FY 1996					FY 1997					FY 1998					FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Deliver Pre-Production Vehicles	X*																			
Begin Live Fire Testing		X*																		
LRIP IPR				X*																
Award LRIP Contracts					X*															
Complete Developmental/Technical Tests						X														
Support to Task Force XXI						X														
Complete Production Verification Test													X							
Complete Live Fire Testing													X							
* Milestone Completed.																				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT				
5 - Engineering and Manufacturing Development			0604640A Advanced Command and Control Vehicle				DG27				
A. Project Cost Breakdown											
			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
Design Engineering			11416	3119	1804						
Prototype Manufacture			961	775							
Test			2775	2421	7020						
Project Management			2154	1245	43						
SBIR/STTR				174							
Total			17306	7734	8867						
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
United Defense LP			63914	65718	50528	10577	2809	1804			65718
Other Contracts			18046	19131	16246	1800	1085				19131
Support and Management Organizations											
TACOM					3343	1300	945	23			5611
CECOM					4059	854	300	20			5233
US Army Europe					2481						2481
SBIR/STTR							174				174
Test and Evaluation Organizations											
APG, YPG, White Sands					1370	2775	2421	7020			13586
Government Furnished Property: None											
Subtotal Product Development					66774	12377	3894	1804			84849
Subtotal Support and Management					9883	2154	1419	43			13499
Subtotal Test and Evaluation					1370	2775	2421	7020			13586
Total Project					78027	17306	7734	8867			111934
Project DG27			Page 4 of 4 Pages				Exhibit R-3 (PE 0604640A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604641A Tactical Unmanned Ground Vehicle				PROJECT DE47		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE47 Tactical Unmanned Ground Vehicle (TUGV)	0	2823	2687	2663	2656	2641	0	0	0	13470
<p>A. <u>Mission Description and Budget Item Justification:</u> The Army has the lead for this joint service program. The development of a Tactical Unmanned Ground Vehicle (TUGV) provides the commanders the ability to see the battlespace while at the same time reducing soldiers' exposure during dangerous reconnaissance, surveillance, target acquisition (RSTA) and nuclear biological and chemical (NBC) detection missions. Performs as a force multiplier, eliminates trickle-down combat information, reduces the "fog-of-war" and fills the brigade intelligence gap. Most importantly, the TUGV will displace brigade and battalion commanders from the bottom of the combat intelligence food chain. Six unmanned systems per battalion, operating out front, provide a force multiplication capability where TUGV's report the nature of the terrain, find the enemy, locate obstacles, acquire targets, detect chemical vapors, and provide this information directly to those who need it the most--the battalion commander's battle staff. This project is OSD funded through Milestone II (3rd Qtr FY 98). This PE supports the critical transition of Defense Advance Research Project Agency (DARPA) developed technologies to the Project Manager (PM) Unmanned Ground Vehicles so that they can be assessed (maturity, supportability, operationally) during user appraisals, packaged and readied for incorporation into the TUGV Engineering and Manufacturing Development (EMD) performance specifications. This project is not a new start, was previously funded by OSD PE 0603709D. PE supports research efforts in the engineering, manufacturing and design phase of the acquisition cycle and is therefore placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> The Joint Project Office is following a disciplined Evolutionary Acquisition strategy. This strategy requires horizontal technology integration (HTI) of emerging sensors, lasers, and command and control data link technologies so that the first generation TUGV will enable soldiers to perform dangerous RSTA, NBC detection, and targeting missions from remote and safer locations. This program differs from traditional acquisition programs by incorporating an in-house Program Definition and Risk Reduction phase. Prototype systems are being built during this phase using state-of-the-art sensors, controlling actuators, low bandwidth communications, mission planning, and off-road navigation technologies. This program definition and risk reduction phase will produce a system and interface specifications and detailed analysis to demonstrate Milestone (MS) I exit criteria and facilitate Cost and Operational Effectiveness Analysis (COEA) studies. The program utilizes a TUGV Integrating Integrated Product Team (IIPT) approach. A full and open competition will be conducted at MS II to select a system prime contractor.</p> <p>FY 1996 Accomplishments: Project funded in FY 1996 under OSD PE 0603709D.</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 2754 Transfer mature technologies from DARPA Demonstration (Demo) II Program [off-road and way point navigation, low bandwidth teleoperation and mission planning, and long-range Thermal Weapon Site (TWS)]. Integrate and demonstrate HTI of critical sensor technologies from both Demo II and other Program Managers. Support user appraisal activities with the US Army Infantry School, Ft. Benning, GA. • 69 Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 2823</p>										
Project DE47			<i>Page 1 of 4 Pages</i>			Exhibit R-2 (PE 0604641A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604641A Tactical Unmanned Ground Vehicle					PROJECT DE47	
FY 1998 Planned Program:											
• 2687 Complete transfer of mature technologies from DARPA Demo II Program (off-road and way point navigation, low bandwidth teleoperation and mission planning, and long-range TWS). Integrate and demonstrate HTI of critical sensor technologies from both Demo II and other PMs.											
Total 2687											
FY 1999 Planned Program:											
• 2663 In compliance with Evolutionary Acquisition Strategy, identify and transition technological enhancement candidates from DARPA into TUGV EMD design.											
Total 2663											
B. Project Change Summary											
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
FY 1997 President's Budget		0		2884		2886		2877			
Appropriated Value		0		2823		0		0			
Adjustments to Appropriated Value		0		0		0		0			
FY 1998 BES/Pres Bud Request		0		2823		2687		2663			
C. Other Program Funding Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
										<u>Compl</u>	<u>Cost</u>
OSD funding in PE 0603709D.			10363	11974	13079	13687	14806	10283			
D. Schedule Profile											
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3
Milestone I Decision		X*									
Approved Joint ORD		X*									
Begin Developmental Testing		X*									
Initiate User Appraisals			X*								
Critical Tech Tr - Contract Award				X*							
Develop Draft EMD RFP				X*							
Release EMD RFP					X						
Initiate EMD Source Selection						X					
Initiate Milestone II Documentation						X					
Complete Phase I User Appraisal								X			
EMD MS II Decision									X		
Project DE47											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604641A Tactical Unmanned Ground Vehicle							PROJECT DE47			
D. Schedule Profile	FY 1996				FY 1997				FY 1998				FY 1999				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Award EMD Contract														X			
Initiate DARPA Tech Enhancement Effort															X		
*Denotes completed effort																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604641A Tactical Unmanned Ground Vehicle					PROJECT DE47	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
DARPA Technology transfer, integration, assessment & HTI						2754	2687	2663			
SBIR/STTR						69					
Total						2823	2687	2663			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed Martin	CPFF	Jan 97					2370	2301	2286	Cont	6957
Support and Management Organizations											
MICOM RDEC	MOA	Oct 96					384	386	377	Cont	1147
RSA, AL											
Test and Evaluation Organizations:											
SBIR/STTR							69				69
Government Furnished Property: N/A											
Subtotal Product Development							2370	2301	2286		6957
Subtotal Support and Management							384	386	377		1147
Subtotal Test and Evaluation							69				69
Total Project							2823	2687	2663		8173

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604642A Light Tactical Wheeled Vehicle						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	3970	2937	9909	39919	896	1766	0	0	59397	59397
DE40 Hi Mob Multi-Purp Whld Veh (HMMWV) Prototype	0	2937	9909	39919	896	1766	0	0	55427	55427
DE41 Armored Security Vehicle (ASV)	3970	0	0	0	0	0	0	0	3970	3970
<p>Mission Description and Budget Item Justification: This PE supports all Light Tactical Wheeled Vehicles such as the High Mobility Multi-purpose Wheeled Vehicle (HMMWV), HMMWV Extended Service Program (ESP), Commercial Utility Cargo Vehicle (CUCV) and the Armored Security Vehicle (ASV). In FY 1996 Project DE41 funds the Armored Security Vehicle (ASV) and HMMWV Extended Service Program (ESP). Beginning in FY 1997, Project DE40 funds the RDT&E effort for development of the remanufacture program as well as the next generation HMMWV leading to procurement in FY 2000. The next generation HMMWV represents a new start in FY1998. This Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604642A Light Tactical Wheeled Vehicle				PROJECT DE40		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE40 Hi Mob Multi-Purp Whld Veh (HMMWV) Prototype	0	2937	9909	39919	896	1766	0	0	55427	55427

A. Mission Description and Budget Item Justification: The HMMWV is a lightweight, high performance, four-wheel drive, air transportable and air droppable, high mobility tactical family of wheeled vehicles. The HMMWV continued production is required to support expanding mission roles. In addition to the continued roles of Personnel Carrier, TOW Anti-tank Carrier, Armament Carrier, Shelter Carrier and Ambulance, new missions and threats have generated the need to increase payload and protection levels for the HMMWV. The new HMMWV's will have reduced vehicle width which will permit the vehicle to be loaded into the CH-53, as well as operate better in Third World environments on narrow streets. The HMMWV will comply with all Federal and European Community safety and environmental standards, to include full roll-over protection in accordance with Federal Motor Vehicle Safety Standards (FMVSS) for off-road construction equipment. The HMMWV consists of a single chassis that can be adapted to any one of four models at Direct Support (DS) or General Support (GS) level. The four models include: Cargo/Utility, Armor, Ambulance and Shelter Carrier. This Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

Acquisition Strategy: The acquisition strategy for the development phase of the HMMWV is to award one prototype contract, which will lead to a non-competitive award of a five-year multi-year production contract in FY 2000.

FY 1996 Accomplishments: In FY 1996 Project DE41 funds the Armored Security Vehicle (ASV) and HMMWV Extended Service Program (ESP).

FY 1997 Planned Program:

- 2605 Service Support Contract
- 260 Support Costs (Engineering/Quality/Matrix)
- 72 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs

Total 2937

FY 1998 Planned Program:

- 5000 Prototype Contract (HMMWV II)
- 2600 Prototype Contract (ReMan HMMWV)
- 1000 Source Selection Evaluation
- 1309 Support Costs (Engineering/Quality/Matrix)

Total 9909

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604642A Light Tactical Wheeled Vehicle					PROJECT DE40		
FY 1999 Planned Program:												
•	16271	Prototype Contract (HMMWV II)										
•	3100	Prototype Contract (ReMan HMMWV)										
•	5700	Technical Data										
•	7533	Support Costs (Engineering/Quality/Matrix)										
•	7315	Developmental Testing										
Total	39919											
B. Project Change Summary												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>							
FY 1997 President's Budget												
Appropriated Value												
			2937									
Adjustments to Appropriated Value												
FY 1998 Pres Bud Request												
			2937	9909	39919							
Change Summary Explanation:												
Funding: FY97 (+ 2937) Congressional increase												
FY98 (+9909) and FY99 (+39919) restructure to support next generation HMMWV.												
C. Other Program Funding Summary												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total	
										<u>Compl</u>	<u>Cost</u>	
OPA1 HMMWV (D15400)		124959	162691	66233	14124	120494	114498	129019	234510	Cont	Cont	
OPA1 HMMWV ESP (DV0230)					49890	85195	89863	31710	31793	Cont	Cont	
D. Schedule Profile												
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>	
	1	2	3	4	1	2	3	4	1	2	3	4
Source Selection Evaluation (RDT&E)								X				
Award RDT&E Contract								X				
Integrated Testing										X		
Project DE40												
Page 3 of 7 Pages												
Exhibit R-2 (PE 0604642A)												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604642A Light Tactical Wheeled Vehicle					PROJECT DE40	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Product Development						2865	9909	32604			
Developmental Testing							0	7315			
SBIR/STTR						72					
Total						2937	9909	39919			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Contractor TBD	CPFF							7600	19371	150	27121
SSEB								1000			1000
TACOM, MI In-House/Eng							260	1309	7533	1012	10114
TACOM, MI AM General, System Tech Spt							2605				2605
Technical Data									5700	1500	7200
Pkg Contract TBD SBIR/STTR							72				72
Support and Management Organizations											
N/A											
Test and Evaluation Organizations											
TECOM (APG)									7315		7315
Government Furnished Property - None											
Subtotal Product Development							2937	9909	32604	2662	48112
Subtotal Support and Management											
Subtotal Test and Evaluation									7315		7315
Total Project							2937	9909	39919	2662	55427
Project DE40											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604642A Light Tactical Wheeled Vehicle				PROJECT DE41		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE41 Armored Security Vehicle (ASV)	3970	0	0	0	0	0	0	0	3970	3970

A. Mission Description and Budget Item Justification: The Armored Security Vehicle (ASV) is a turreted, lightly armored all-wheel drive combat support vehicle which will provide essential protection to selected Military Police units in highly exposed threat environments. The Military Police (MP) currently use the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV). The ASV is required to provide improved ballistic protection and to increase payload and NBC protection to the MP teams. The need for such a wheeled vehicle was highlighted by recent humanitarian missions such as Operation Restore Hope in Somalia and the conflict in Bosnia. There is no other comparable system in the inventory which offers the ballistic protection, transportability and mobility of the ASV. Congress directed FY 1995 funding for this program under PE 0604328D to insure all Services' needs were met. A joint service memorandum is in place. In FY 1996, Project DE41 also includes funding for the HMMWV Extended Service Program (ESP). The Program Executive Office, Tactical Wheeled Vehicles initiated the Joint Army/Marine Corps HMMWV ESP program in FY 1995. FY 1996 funding will continue this previous effort, thus enabling procurement of vehicles with updated design, which will allow insertion of evolving performance requirements and extend the service life of the vehicle another 14 years. This Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

Acquisition Strategy: The acquisition strategy for ASV awarded one prototype contract (Dec 95), which leads to a non-competitive award of a four-year production contract in FY 1997. The acquisition strategy for the HMMWV ESP is to develop a remanufacture package.

FY 1996 Accomplishments:

- 1606 Prototype Contract (ASV)
- 624 Government Engineering/Quality Support (ASV)
- 294 Pre-Production Qualification Test (PPQT) (ASV)
- 1446 Initiate Remanufacture Package (HMMWV ESP)

Total 3970

FY 1997 Planned Program: Program not funded in FY 97

FY 1998 Planned Program: Program not funded in FY 98

FY 1999 Planned Program: Program not funded in FY 99

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE											
BUDGET ACTIVITY											February 1997											
5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE					PROJECT											
						0604642A Light Tactical Wheeled Vehicle					DE41											
B. Project Change Summary											<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>								
FY 1997 President's Budget											4073											
Appropriated Value											4187											
Adjustments to Appropriated Value											-217											
FY 1998 Pres Bud Request											3970											
C. Other Program Funding Summary											<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total		
																			<u>Compl</u>	<u>Cost</u>		
OPA1 Armored Security Vehicle (D02800)											18230	9470	8877	7052						43629		
D. Schedule Profile											<u>FY 1996</u>	<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4						
Initiate Remanufacture Package (HMMWV ESP)													X*									
PPQT Testing (ASV)														X								
Release Production Request For Proposal (ASV)														X								
Production Contract Award (ASV)															X							
*Milestone Complete																						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604642A Light Tactical Wheeled Vehicle			PROJECT DE41				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Product Development				3676							
Developmental Testing				294							
Total				3970							
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TEXTRON (ASV Prototype)	FFP	Dec 95				1606					1606
In-House/Eng TACOM, MI						624					624
AM General (Reman Pkg)						1446					1446
HMMWV ESP											
Support and Management Organizations											
N/A											
Test and Evaluation Organizations											
TECOM (APG)						294					294
Government Furnished Property - None											
					Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Subtotal Product Development						3676					3676
Subtotal Support and Management											
Subtotal Test and Evaluation						294					294
Total Project						3970					3970
Project DE41											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604645A Armored Systems Modernization (ASM) - Engineering Development					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	32425	6585	0	0	0	0	0	33338	Continuing	Continuing
D022 Future Scout Vehicle (FSV)	0	0	0	0	0	0	0	33338	Continuing	Continuing
D175 Advanced Field Artillery System Multi-Option Fuze	6058	6585	0	0	0	0	0	0	0	36159
D413 Armored Gun System (AGS)	26367	0	0	0	0	0	0	0	0	269476
<p><u>Mission Description and Budget Item Justification:</u> This program element supports the Engineering and Manufacturing Development efforts for the Advanced Field Artillery System (AFAS) Multi-Option Fuze for Artillery (MOFA), Armored Gun System (AGS) and the Future Scout Vehicle (FSV). MOFA will provide proximity, time delay and point detonation functions for 105mm and 155mm bursting projectiles. The AGS is a strategically deployable, tactically transportable, lightly armored, highly mobile, direct fire weapon system. The FSV will replace the current ground scout systems in the battalion/brigade and division/regiment levels. The projects in this program element support research efforts in the Engineering and Manufacturing Development phase of the acquisition cycle and are therefore correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604645A Armored Systems Modernization (ASM) - Engineering Development					PROJECT D175	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D175 Advanced Field Artillery System Multi-Option Fuze	6058	6585	0	0	0	0	0	0	0	36159
<p>A. <u>Mission Description and Justification:</u> Crusader is the Army's next generation 155mm self-propelled howitzer system that will provide a significant increase in artillery survivability, mobility and operational capability and effectiveness through utilization and integration of advanced technology in its subsystems and combat components. This project finances the Engineering and Manufacturing Development phase of MOFA. MOFA will provide proximity, delay, time and point detonation functions for 105mm and 155mm bursting projectiles. MOFA will be inductively (or manually) set contributing to Crusader's critical automated ammunition handling capability, allowing Crusader to meet rate of fire (10-12 rounds/min) and autonomous operations requirements.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 4980 Final hardware design, integration and build • 568 Program management, management engineering services • 510 Qualification testing/development and operational testing <p>Total 6058</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 4076 Design enhancements and updates, production readiness review • 750 Program management, management engineering services • 1598 Continuation of Developmental and Operational testing, completion of qualification testing and type classification testing • 161 Small Business Innovation Research /Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 6585</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p>										
Project D175			<i>Page 2 of 9 Pages</i>				Exhibit R-2 (PE 0604645A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE													
											February 1997													
BUDGET ACTIVITY					PE NUMBER AND TITLE							PROJECT												
5 - Engineering and Manufacturing Development					0604645A Armored Systems Modernization (ASM) - Engineering Development							D175												
B. Project Change Summary					<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>													
FY 1997 President's Budget					6215	6726	0	0																
Appropriated Value					6388	6585																		
Adjustments to Appropriated Value					-330																			
FY 1998 President's Budget Request					6058	6585	0	0																
C. Other Program Funding Summary					<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To Comp</u>		<u>Total Cost</u>	
RDTE, A Budget Activity 4 PE 603645, Project D409 - AFAS					135724																	546347		
Ammo, A Appropriation ER8017 MOFA Production									6056	30890	59040	59950	61192	119200								336328		
RDTE, A Budget Activity 4 PE 603854, Project D505 Crusader - AD					235795	322291	293920	47102														899108		
D. Schedule Profile					<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Acquisition Milestones (AM)																								
AM - Hardware Delivery (PPQT)					X*				X															
T&E Milestones - Pre-Production Qualification Test (PPQT)									X				X											
T&E Milestones - Baseline Design Testing					X*																			
Contract Completion (Task V)									X															
Type Classification I													X											
* Milestone completed																								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE					
BUDGET ACTIVITY						February 1997					
5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE					
						0604645A Armored Systems Modernization (ASM)					
						PROJECT					
						D175					
						- Engineering Development					
A. Project Cost Breakdown						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>		
Product Development						4980	4076				
Support and Management						568	750				
Test and Evaluation						510	1598				
SBIR/STTR							161				
Total						6058	6585				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or	Contract										
Government	Method/Type	Award or	Performing	Project	Total						
Performing	or Funding	Obligation	Activity	Office	Prior to					Budget to	Total
Activity	Vehicle	Date	EAC	EAC	FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Complete	Program
Product Development Organizations											
Alliant Tech Sys	CPIF	May 92	20233	20331	14023	2766	2500			0	19389
Hopkins, MN											
Raytheon/TI Joint	SS-CPFF	Mar 94			1788					0	1788
Ventures,											
Twesbury, MA											
AMCCOM,					4412	2214	1415			0	8102
ARDEC, Dover,											
NJ; Adelphi, MD											
SBIR/STTR							161				
Support and Management Organizations											
AMCCOM,					2347	568	750			0	3665
ARDEC, Dover											
NJ; Adelphi, MD											
Test and Evaluation Organizations											
TECOM, Yuma,					946	510	1598			0	3054
AZ, APG, ARL,											
ARDC, HAFB											
Project D175						Page 4 of 9 Pages			Exhibit R-3 (PE 0604645A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 1997		
BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT		
5 - Engineering and Manufacturing Development	0604645A Armored Systems Modernization (ASM) - Engineering Development				D175		
Government Furnished Property: None							
	Total Prior to					Budget to	Total
	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	20223	4980	4076				
Subtotal Support and Management	2347	568	750				
Subtotal Test and Evaluation	946	510	1598				
Total Project	23516	6058	6585				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604645A Armored Systems Modernization (ASM) - Engineering Development				PROJECT D413																											
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
D413 Armored Gun System (AGS)	26367	0	0	0	0	0	0	0	0	269476																									
<p>A. Mission Description and Justification: The Armored Gun System (AGS) is a strategically deployable, tactically transportable, lightly armored, highly mobile, direct fire weapon system. The AGS will support light infantry forces in offensive and defensive operations, low and mid intensity conflicts. The AGS will be employed during contingency force operations; therefore it must be capable of insertion via low velocity air drop (LVAD) and execute forced entry operations. Its role is to support infantry units in direct fire mode for point fire target destruction, generally against bunkers, threat medium armor systems, buildings, and in Military Operations in Urban Terrain. System capabilities include C-130 LVAD (Level I Armor), Roll-on/Roll-off C130/C141 (Level II Armor), Roll-on/Roll-off C-17 (Level III Armor), 105mm main gun (XM35) with autoloader, 3 man crew, fire control equivalent to M1 and mobility with Level III armor greater than the M551 Sheridan. The Army terminated the AGS program because of changing Research Development and Acquisition (RDA) priorities and budgetary pressures.</p> <p>Acquisition Strategy: The AGS program was terminated. The funding in FY 1996 will be used for an orderly close-out of the program.</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 22450 EMD • 456 Technical Testing phase-out • 236 Vulnerability Testing Completion • 3225 Project Management <p>Total 26367</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p> <p>B. Project Change Summary</p> <table border="0"> <thead> <tr> <th></th> <th align="right"><u>FY 1996</u></th> <th align="right"><u>FY 1997</u></th> <th align="right"><u>FY 1998</u></th> <th align="right"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td align="right">32758</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> </tr> <tr> <td>Appropriated Value</td> <td align="right">33677</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td align="right">-7310</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 President's Budget Request</td> <td align="right">26367</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> </tr> </tbody> </table>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	32758	0	0	0	Appropriated Value	33677				Adjustments to Appropriated Value	-7310				FY 1998 President's Budget Request	26367	0	0	0
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY 1997 President's Budget	32758	0	0	0																															
Appropriated Value	33677																																		
Adjustments to Appropriated Value	-7310																																		
FY 1998 President's Budget Request	26367	0	0	0																															
Project D413				Page 6 of 9 Pages				Exhibit R-2 (PE 0604645A)																											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604645A Armored Systems Modernization (ASM)					D413		
				- Engineering Development							
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Prototype Design, Mfg & Support				6132							
XM35 Gun Design, Mfg, & Support				1105							
Government Testing				823							
Training Devices				50							
Program Management				3225							
Other Govt Support				181							
EMD Termination				14851							
Total				26367							
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
United Defense LP San Jose, CA	SS/CPIF	Jun 92	TBD	215472	190969	19254				0	210223
SAAB Tng Sys Huskvarna, Swed	FFP	Sep 94	4605	4605	4605					0	4605
Misc Govt Agcy	MIPR				10207	2174				0	12381
Support and Management Organizations											
PM AGS Warren, MI	MIPR				7884	3225				0	11109
Miscellaneous	MIPR				1955	181				0	2136
Test and Evaluation Organizations											
ATC APG, MD	MIPR				8487	699				0	9186
Misc Govt Agcy	MIPR				2471	124				0	2595
Project D413				Page 8 of 9 Pages				Exhibit R-3 (PE 0604645A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604645A Armored Systems Modernization (ASM) - Engineering Development					PROJECT D413	
Government Furnished Property:										
Item	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property										
XM35 Gun	MIPR	Aug 91	Nov 92	11068					0	11068
Support and Management Property										
XM35 Gun	MIPR			3112	480				0	3592
Test and Evaluation Property										
XM35 Gun	MIPR			2351	230				0	2581
Subtotal Product Development				216849	21428					238277
Subtotal Support and Management				12951	3886					16837
Subtotal Test and Evaluation				13309	1053					14362
Total Project				243109	26367					269476

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	19114	46705	56196	63069	58914	39210	19294	0	0	343859
DG15 TRACTOR CARD	219	0	415	1492	0	0	0	0	0	2126
DG25 M1 Breacher	6501	34102	43748	51420	58745	39210	19294	0	0	253020
DG26 Heavy Assault Bridge	12394	12603	12033	10157	169	0	0	0	0	88674
<p><u>Mission Description and Budget Item Justification:</u> This Program Element (PE) supports the development of new, advanced combat engineer systems that will have mobility characteristics comparable to the maneuver forces supported. Two programs are included in the PE: the Grizzly (M1 Breacher) and the Wolverine (Heavy Assault Bridge). The base for both vehicles is an M1 Abrams Tank chassis. The Grizzly will integrate a versatile/survivable full-width mine clearing blade with automatic depth control, a power driven excavating arm, and an armored commander's control station on the chassis. The Wolverine will integrate a bridge capable of supporting Military Load Class (MLC) 70 loads and a software controlled launching mechanism. All projects in this PE support efforts in the Engineering and Manufacturing Development (EMD) phase of the life cycle acquisition strategy, and are correctly located in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development				PROJECT DG25		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DG25 M1 Breacher	6501	34102	43748	51420	58745	39210	19294	0	0	253020
<p>A. <u>Mission Description and Justification:</u> The Grizzly (M1 Breacher) will provide the Combat Engineer with significantly improved mission effectiveness and crew/vehicle survivability while clearing minefields and removing complex natural and man-made obstacles at the forward edge of the battlefield. The Grizzly will be capable of moving with, and be as survivable as, the force it is supporting. It will provide the maneuver force with the freedom required to successfully execute assigned ground combat mission requirements. Funding in this phase will support vehicle system technical evolution to meet operational requirements prior to production, production planning, and government testing prior to a Milestone III decision; and in addition, will support the development of Grizzly training devices.</p> <p><u>Acquisition Strategy:</u> Research and development efforts have leveraged the accomplishments of the Combat Mobility Vehicle Advanced Technology Transition Demonstrator (CMV-ATTD) contract. Design modifications have been written into the Advanced Development contract for the powertrain and other chassis components/systems necessary to insure that the Grizzly will meet the mission profile required by the Operational Requirements Document. Through the production buy the vehicle will be sole sourced to United Defense Limited Partnership (UDLP), Ground Systems Division, York, PA. The contracts for training devices development and production will be awarded by STRICOM with maximum use on existing commercial off-the-shelf hardware and software.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 815 Prepared Grizzly EMD Contract • 1205 Provided Government and Contractor Program Management and Systems Engineering • 4481 Conducted EMD Design Refinement and Logistics Development Efforts <p>Total 6501</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 22760 Perform Design Refinement and Prototype Refurbishment • 4271 Conduct Logistics Analysis, Component Testing and Simulation • 6238 Provide Government and Contractor Program Management and Systems Engineering to Include Integrated Process Teams, Product Assurance, Vulnerability Analyses, Vetronics, Digitization and Logistics Support Analyses • 833 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 34102</p>										
Project DG25			Page 2 of 11 Pages				Exhibit R-2 (PE 0604649A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development	PROJECT DG25																									
<p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 21961 Complete EMD Vehicle Design and Rebuild Two Prototype Vehicles • 8413 Perform Component Testing and Simulation and Accomplish Program Logistics Requirements • 468 Procure System Support Package • 9452 Provide Government and Contractor Program Management and Systems Engineering to Include Integrated Process Teams, Product Assurance, Vulnerability Analyses, Vetronics, Digitization and Logistics Support Analyses • 3454 Begin Design of Grizzly Training Devices <p>Total 43748</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 6920 Conduct Production Qualification Test I and Limited User Test • 13490 Perform Component Testing and Simulation and Accomplish Program Logistics Requirements • 16152 Continue Refinement of Design to Support Vehicle Production Configuration • 11891 Provide Government and Contractor Program Management and Systems Engineering to Include Integrated Process Teams, Product Assurance, Vulnerability Analyses, Vetronics, Digitization and Logistics Support Analyses • 2967 Complete Design of Training Devices <p>Total 51420</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget Request</td> <td style="text-align: center;">10619</td> <td style="text-align: center;">33337</td> <td style="text-align: center;">20032</td> <td style="text-align: center;">8530</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">10918</td> <td style="text-align: center;">34102</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-4417</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 President's Budget Request</td> <td style="text-align: center;">6501</td> <td style="text-align: center;">34102</td> <td style="text-align: center;">43748</td> <td style="text-align: center;">51420</td> </tr> </tbody> </table> <p>Change Summary Explanation:</p> <p style="padding-left: 20px;">Funding: Decreased funding in FY 1996 (-3999) was a result of extending the Demonstration and Validation phase of the program and congressional adjustments (-418). Additional funding in FY 1998 (+23716) and FY 1999 (+42890) supports live fire test requirements, simulator development, test vehicle costs, and unit cost reduction efforts.</p> <p style="padding-left: 20px;">Schedule: The EMD phase was extended approximately 28 months to mitigate risk in system design maturation.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget Request	10619	33337	20032	8530	Appropriated Value	10918	34102			Adjustments to Appropriated Value	-4417				FY 1998 President's Budget Request	6501	34102	43748	51420
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget Request	10619	33337	20032	8530																							
Appropriated Value	10918	34102																									
Adjustments to Appropriated Value	-4417																										
FY 1998 President's Budget Request	6501	34102	43748	51420																							
Project DG25	Page 3 of 11 Pages	Exhibit R-2 (PE 0604649A)																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development						PROJECT DG25		
C. Other Program Funding Summary											To	Total	
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>			
RDTE, A Budget Activity 4													
PE 0603649A, Project DG24, M1 Breacher AD	13591											71128	
PA, WTCV, GZ3200, Breacher MOD				10444	10964	83399	86313	125900	Cont'd			Cont'd	
PA, WTCV, G84000, Breacher Trng Dev						397	15726	1527				17650	
PA, WTCV, GEO175, Breacher Spares							2334	2666	Cont'd			Cont'd	
D. Schedule Profile													
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
Conduct Milestone II Review					X*								
Award Engineering and Manufacturing Development (EMD) Contract					X*								
EMD Preliminary Design Review (PDR)						X							
EMD Critical Design Review (CDR)								X					
Begin Prototype Rebuild								X					
Begin Pre-Production Qualification Test (PQT) I													X
* Milestone Completed													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development					PROJECT DG25	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Development Engineering					3773	22760	25415	19119			
Logistics Support					638	4079	7067	11958			
System Test & Evaluation					70	192	1814	8452			
System Management					2020	6238	9452	11891			
SBIR/STTR						833					
Total					6501	34102	43748	51420			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
United Defense York, PA	SS-CPIF	Jan 97	NA	128986		5312	25768	35142	34976	27788	128986
United Defense York, PA	SS-CPFF	Apr 00	NA	64316						64316	64316
General Dynamics Land Sys (GDLS), Warren, MI	SS-CPFF	Dec 96	NA	5313		100	3503	400	1310		5313
Unk (simulator)	Competitive-Cost Plus	Jan 98	Unknown	5715				3074	2641	0	5715
Other Contracts	Various	Various	NA	910		345	200	150	130	430	1255
Support and Management Organizations											
TACOM Warren, MI						553	2280	2609	3001	1797	10240
Other Gov't Agencies						61	1108	1785	1602	508	5064
Project DG25					Page 5 of 11 Pages			Exhibit R-3 (PE 0604649A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development					PROJECT DG25	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Contract Spt to Program						130	410	120	840	310	1810
SBIR/STTR							833				833
Test and Evaluation Organizations											
TECOM									6790	21970	28760
APG, MD											
Government Furnished Property											
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Test and Evaluation Property											
System Support Package	Requisition	Mar 97	Jun 97					468	130	130	728
Subtotal Product Development						5757	29471	38766	39057	92534	205585
Subtotal Support and Management						744	4631	4514	5443	2615	17947
Subtotal Test and Evaluation								468	6920	22100	29488
Total Project						6501	34102	43748	51420	117249	253020

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development				PROJECT DG26		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DG26 Heavy Assault Bridge	12394	12603	12033	10157	169	0	0	0	0	88674
<p>A. <u>Mission Description and Justification:</u> The Wolverine will provide Military Load Class (MLC) 70 vehicles the capability to cross 24-meter gaps (26-meter bridge). The Wolverine will have mobility characteristics comparable to the maneuver forces it will support. The launch time for the bridge will be five minutes or less; the retrieval time will be a total of ten minutes or less which includes five minutes to engage plus five minutes to place the vehicle in a travel mode. The base for the Wolverine is an M1A2 Abrams Tank chassis. The Wolverine simulator is an institutional operator training system (near term implementation) and will evolve into a future unit collective training system (mid to far term) implementation. Five institutional operator simulator systems will be located and housed at Ft. Leonard Wood to accomplish Advanced Individual Training (AIT) for the Military Occupational Specialty (MOS) 12B Combat Engineer on Wolverine driver/operator mission functions. Each simulator system will have the capability to train two Wolverine crews (4 MOS 12Fs) concurrently. The simulators will optimize training effectiveness at reduced institutional OPTEMPO costs.</p> <p><u>Acquisition Strategy:</u> Side-by-side Demonstration Testing was completed in FY 1993 on three different prototype bridges and launchers for Phase I of Engineering and Manufacturing Development (EMD). As a result of the testing and submission of proposals, one contractor, General Dynamics Land Systems Division (GDLS), was selected to complete Phase II of EMD with a Cost-Plus-Award-Fee contract. A contract was awarded in FY 1996 for 2 Wolverine systems with an option for four additional systems that will complete development testing. Follow-on Fixed Price contracts will be awarded for LRIP and Production requirements. STRICOM will award contracts for the development of training devices. It is planned that the contractor will develop simulators for both Wolverine and the Grizzly. Maximum use will be made of existing software from M-1 Tank Driver Trainer and actual system vehicle dynamics and operation software.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 7657 Continued EMD Phase II Contract; Completed Prototype Build; Completed Contract Testing and Supported Government Testing • 2600 Continued Developmental Contract • 119 Awarded Various Engineering Services Contracts • 2018 Performed Program Management; Conducted Logistics Demonstration, Started PPQT <p>Total 12394</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 10222 Engineering Development Contract for Migration to System Enhancement Program and Test Program Sets (TPS) development • 2073 Complete EMD II Contract • 308 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs 										
Project DG26			Page 7 of 11 Pages				Exhibit R-2 (PE 0604649A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development	PROJECT DG26																									
<p>Total 12603</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 400 Contractor Support For Test • 1600 Developmental Contract • 287 Program Management • 6698 Start Live Fire Test and Purchase System Support Package • 335 Award Design for Training Device Contract and Provide Government Program Management • 2713 Begin Design of Simulator <p>Total 12033</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 800 Contractor Support of Test • 1000 Developmental Contract and Refurbishment of Test Vehicles • 298 Program Management • 5438 Conclude Live Fire Test, Conduct Production Verification Test, and Support IOT&E • 288 Provide Government Program Management for Training Devices • 2333 Complete Design of Simulator <p>Total 10157</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">12714</td> <td style="text-align: center;">2073</td> <td style="text-align: center;">4548</td> <td style="text-align: center;">8191</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">13071</td> <td style="text-align: center;">12603</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-677</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 President's Budget Request</td> <td style="text-align: center;">12394</td> <td style="text-align: center;">12603</td> <td style="text-align: center;">12033</td> <td style="text-align: center;">10157</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: Increase in FY 1997 reflects a congressional increase of 9300 for migration to Abrams System Enhancement Program (SEP) and 1230 for Test Program Sets development. Increase in FY 1998 (7485) and FY 1999 (1966) for Live Fire Test requirements and the inclusion of the Wolverine training device R&D funding.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	12714	2073	4548	8191	Appropriated Value	13071	12603			Adjustments to Appropriated Value	-677				FY 1998 President's Budget Request	12394	12603	12033	10157
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	12714	2073	4548	8191																							
Appropriated Value	13071	12603																									
Adjustments to Appropriated Value	-677																										
FY 1998 President's Budget Request	12394	12603	12033	10157																							
Project DG26	Page 8 of 11 Pages	Exhibit R-2 (PE 0604649A)																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604649A Engineer Mobility Equipment Development						PROJECT DG26		
C. <u>Other Program Funding Summary</u>											To	Total	
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>			
PA, WTCV, GZ3250, HAB MOD	14611	51322	42205	51950	71190	90110	111467	122511	Cont'd		Cont'd		
PA, WTCV, GE0177, HAB Spares			930	887	1416	1475	1864	2191	Cont'd		Cont'd		
PA, WTCV, G84600 HAB Training Devices				398	15723	1313	1100				18534		
D. <u>Schedule Profile</u>													
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
Begin Prod. Qualification Testing (PQT)			X*										
Award of 6 Test Vehicles				X*									
End PQT Testing					X								
Milestone IIIa					X								
LRIP Contract Award						X							
Award of Contract for Test Vehicles								X					
Begin Live Fire/Vulnerability Test						X							
End Live Fire/Vulnerability Test									X				
Begin PVT										X			
Begin IOT&E													X
End PVT													X
* Milestone Completed													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
5 - Engineering and Manufacturing Development				0604649A Engineer Mobility Equipment Development						DG26	
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Development Engineering				9711	12150	3642	2256				
Logistics Support				666	145	640	550				
System Test & Evaluation				1280		7129	6765				
System Project Management				737		622	586				
SBIR/STTR					308						
Total				12394	12603	12033	10157				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Gen Dyn Land Sys Sterling Hgts, MI	C-CPAF	Jan 94	NA	36420	26690	7657	2073				36420
Gen Dyn Land Sys Sterling Hgts, MI	SS-CPFF	Feb 96	NA	NA		2600	10222	2000	1300		16122
SMS Corp St. Louis, MO	SS-FFP	May 92	NA	NA	5798						5798
Unknown (Training Devices)	Competitive-Cost Plus	Jan 98	NA	5046				2713	2333	0	5046
Other Contracts	Various	Various	NA	NA	753	119					872
Support and Management Organizations											
PMO Support ANAD Anniston, AL					5267	727		287	298		6579
SBIR/STTR					396						396
PM STRICOM	MIPR	Oct 97					308	335	288	169	792
Project DG26				Page 10 of 11 Pages				Exhibit R-3 (PE 0604649A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
5 - Engineering and Manufacturing Development										February 1997	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
5 - Engineering and Manufacturing Development					0604649A Engineer Mobility Equipment Development					DG26	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Other Gov't Agencies					1375	10					1385
Test and Evaluation Organizations											
TECOM					635	1247			5738		7620
APG, MD											
AMSAA								5150			5150
APG, MD											
WSMR					25				200		225
White Sands, NM											
Government Furnished Property											
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property											
Various Gov't Sources	MIPR	Various	Various		379	1					380
Test and Evaluation Property											
To Be Determined	MIPR	Apr 96	Jun 96			33		1548			1581
Subtotal Product Development					33620	10377	12295	4713	3633		64638
Subtotal Support and Management					7038	737	308	622	586	169	9460
Subtotal Test and Evaluation					660	1280		6698	5938		14576
Total Project					41318	12394	12603	12033	10157	169	88674

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	37658	34870	33456	21255	21817	18692	27214	17414	Continuing	Continuing
DL69 Horizontal Technology Integration Second Generation FLIR (HTI SGF)	27872	18036	11477	0	0	0	0	0	0	95765
DL70 Night Vision Devices Engineering Development	9786	9283	9981	11277	21817	18692	27214	17414	Continuing	Continuing
DL74 Long Range Advanced Scout Surveillance System (LRAS3)	0	7551	11998	9978	0	0	0	0	0	29527
<p><u>Mission Description and Budget Item Justification:</u> This program element provides night vision technologies required for U.S. defense forces to engage enemy forces twenty-four hours a day under conditions with degraded visibility due to darkness, adverse weather and battlefield obscurants. Developments and improvements to high performance night vision electro-optics, laser, thermal and radar systems and systems integration of related multi-sensor suites will enable near to long range target identification, acquisition and engagement as well as improve battlefield command and control in “around the clock” combat operations. Project DL69 is focused on inserting key thermal sensor technology into common battle groups. Project DL70 focuses on a variety of night vision electro-optical equipment for use by individual soldiers and a variety of other systems such as a Synthetic Aperture Radar (SAR), Moving Target Indicator (MTI) radar and the Target Location Observation System (TLOS). Project DL74 focuses on a long range multi-sensor system utilizing Horizontal Technology Integration Second Generation Forward Looking Infrared (FLIR) (HTI SGF) thermal sensors and other technologies, for use by US Army scouts. The projects in this PE support development efforts in the engineering and manufacturing development phases of the acquisition strategy and therefore are correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development				PROJECT DL69	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL69 Horizontal Technology Integration Second Generation FLIR (HTI SGF)	27872	18036	11477	0	0	0	0	0	0	95765
<p>A. Mission Description and Justification- Horizontal Technology Integration Second Generation Forward Looking Infrared (FLIR) (HTI SGF) will enable the Army to insert key thermal sensor technology into the highest priority forces [the M2A3 Bradley Fighting Vehicle System (BFVS), the Long Range Advanced Scout Surveillance System (LRAS3), and the M1A2 Abrams]. The HTI SGF will allow all vehicles in a common battle group to see the same thermal image. The HTI SGF development is in two parts, an "A" kit, which is specific to the vehicle, and includes integration and installation, and a "B" kit, which includes the common FLIR sensor and display. Funds in this project will develop the "B" kit. In addition, Aviation B Kit capabilities will be demonstrated to meet FY 1997 Congressional direction.</p> <p>Acquisition Strategy: The common Second Generation FLIR sensor and display "B" Kit is being developed and fabricated using a competitively awarded cost plus award fee contract.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 25895 Continued development, fabrication of "B" Kit, integration kits and pilot line. • 810 Initiated sight level qualifications (contractor technical testing) of EMD prototypes for HTI SGF. • 1167 Performed qualification testing of EMD "B" kit prototypes. <p>Total 27872</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 12317 Complete development and fabrication of "B" kit for M1A2 and M2A3. • 286 Complete sight level qualification testing of EMD prototypes for HTI SGF. • 5000 Fabricate prototype Aviation B Kit for demonstration • 433 Small Business Innovative Research / Small Business Technology Transfer (SBIR/STTR) <p>Total 18036</p>										
Project DL69			Page 2 of 15 Pages				Exhibit R-2 (PE 0604710A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																																																																																																	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development	PROJECT DL69																																																																																																																	
<p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 409 Support M1A2 Vehicle Testing. • 408 Support BFVS Vehicle Testing. • 8410 Fabricate "B" Kits for LRAS3 test units. • 2250 Finalize Ground HTI "B" Kit Interface Control Document and final specifications. <p>Total 11477</p> <p>FY 1999 Planned Program: No planned program</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">28584</td> <td style="text-align: right;">13443</td> <td style="text-align: right;">3317</td> <td style="text-align: right;">0</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">28873</td> <td style="text-align: right;">18036</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">-1001</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: right;">27872</td> <td style="text-align: right;">18036</td> <td style="text-align: right;">11477</td> <td style="text-align: right;">0</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 1998 adjustments due to Army Science Board efficiency reductions (-223) and for proper funding of LRAS3 LRIP units (+7937).</p> <p>C. Other Program Funding Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To</u></th> <th style="text-align: center;"><u>Total</u></th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th style="text-align: center;">Compl</th> <th style="text-align: center;">Cost</th> </tr> </thead> <tbody> <tr> <td>6.4 RDTE 0604710A, A Kit LRAS3 (DL74)</td> <td style="text-align: right;">0</td> <td style="text-align: right;">7551</td> <td style="text-align: right;">11998</td> <td style="text-align: right;">9978</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: center;">0</td> <td style="text-align: right;">29527</td> </tr> <tr> <td>6.7 RDTE 0203735A, A Kit (D330)</td> <td style="text-align: right;">22438</td> <td style="text-align: right;">38113</td> <td style="text-align: right;">3599</td> <td style="text-align: right;">0</td> <td style="text-align: center;">0</td> <td style="text-align: right;">144042</td> </tr> <tr> <td>LRAS3 K38300 OPA2</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">37567</td> <td style="text-align: right;">45473</td> <td style="text-align: right;">45795</td> <td style="text-align: right;">40552</td> <td style="text-align: right;">44886</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> <tr> <td>WTCV G80717 M2A3 Bradley "B" Kit</td> <td style="text-align: right;">0</td> <td style="text-align: right;">25752</td> <td style="text-align: right;">16409</td> <td style="text-align: right;">53407</td> <td style="text-align: right;">53645</td> <td style="text-align: right;">64437</td> <td style="text-align: right;">50997</td> <td style="text-align: right;">53047</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> <tr> <td>WTCV GA0700 M1 Abrams A and "B" Kit</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">11491</td> <td style="text-align: right;">54591</td> <td style="text-align: right;">75331</td> <td style="text-align: right;">79163</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> <tr> <td>WTCV GA0750 Abrams Upgrade A and "B" Kit</td> <td style="text-align: right;">0</td> <td style="text-align: right;">22951</td> <td style="text-align: right;">73926</td> <td style="text-align: right;">103228</td> <td style="text-align: right;">87381</td> <td style="text-align: right;">61603</td> <td style="text-align: right;">35658</td> <td style="text-align: right;">39401</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> </tbody> </table> <p>The 0203735A program element funds the "A" kit portion of the HTI SGF development, for the M1 Abrams Tank. WTCV funds the production tails for these platforms.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	28584	13443	3317	0	Appropriated Value	28873	18036			Adjustments to Appropriated Value	-1001				FY 1998 Pres Bud Request	27872	18036	11477	0		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>										Compl	Cost	6.4 RDTE 0604710A, A Kit LRAS3 (DL74)	0	7551	11998	9978	0	0	0	0	0	29527	6.7 RDTE 0203735A, A Kit (D330)	22438	38113	3599	0	0	0	0	0	0	144042	LRAS3 K38300 OPA2	0	0	0	37567	45473	45795	40552	44886	Cont	Cont	WTCV G80717 M2A3 Bradley "B" Kit	0	25752	16409	53407	53645	64437	50997	53047	Cont	Cont	WTCV GA0700 M1 Abrams A and "B" Kit	0	0	0	0	11491	54591	75331	79163	Cont	Cont	WTCV GA0750 Abrams Upgrade A and "B" Kit	0	22951	73926	103228	87381	61603	35658	39401	Cont	Cont
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																																																																																																															
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WTCV GA0700 M1 Abrams A and "B" Kit	0	0	0	0	11491	54591	75331	79163	Cont	Cont																																																																																																									
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Project DL69	Page 3 of 15 Pages	Exhibit R-2 (PE 0604710A)																																																																																																																	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development						PROJECT DL69				
D. <u>Schedule Profile</u>						FY 1996		FY 1997		FY 1998		FY 1999				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate Developmental Testing for M2A3 Vehicle				X*												
“B” Kit Initial Qualification				X*												
M1A2 sight Qualification				X*												
Special In-Process Review for B Kit					X*											
Initiate M2A3 Limited User Test						X										
Low Rate Initial Production M2A3							X									
Support M1A2 Vehicle Testing									X							
Support BFVS Vehicle Testing									X							
Finalize ICD and Specs for Ground HTI “B” Kit										X						
Aviation B Kit Fabrication								X								
Aviation B Kit Integration into AH-64 (platform funded)									X							
Aviation B Kit Flight Demo (platform funded)										X						
*Milestone Completed																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development				PROJECT DL69			
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				25872	16161	10916	0				
Government Engineering Support				1543	981	395	0				
Project Management Support				457	461	166	0				
SBIR/STTR					433						
Total				27872	18036	11477					
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Producibility	Various	March 94	3876	3876	3876	0	0			0	3876
Contracts											
Texas Instruments, McKinney, TX	C/CPAF	July 94	70401	70401	28124	22232	9203	10842		0	70401
SADA II, SBRC	C/FP	March 96	2116	2116	0	2116	0	0		0	2116
T&M Hughes, El Segundo, CA	SS/T&M	July 96	3556	3556	0	1524	1958	74		0	3556
Lockheed Martin, Orlando, FL	CPFF	February 97		5000	0	0	5000	0		0	5000
Support and Management Organizations											
Project Mgmt					856	457	461	166		0	1940
ASARC Support	MIPR				250	0	0	0		0	250
CECOM NVESD	MIPR				5274	1543	981	395		0	8193
SBIR/STTR							433				433
Test and Evaluation Organizations: None. Technical/qualification tests are performed by contractor and all Operational Tests are funded by Host platforms.											
Government Furnished Property: None											
Project DL69				Page 5 of 15 Pages			Exhibit R-3 (PE 0604710A)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 1997			
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT		
5 - Engineering and Manufacturing Development		0604710A Night Vision Systems - Engineering Development				DL69		
		Total Prior to				Budget to	Total	
		<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development		38380	27872	18036	11477			95765
Subtotal Support and Management								
Subtotal Test and Evaluation								
Total Project		38380	27872	18036	11477			95765

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development					PROJECT DL70	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL70 Night Vision Devices Engineering Development	9786	9283	9981	11277	21817	18692	27214	17414	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Night Vision Devices Engineering Development: This project develops and improves high performance night vision electro-optics, thermal and laser systems, and systems integration of related multi-sensor suites to enable near to long range target acquisition and engagement as well as improve battlefield command and control in “around-the-clock” combat operations. Near term systems in development are: Thermal Weapon Sight (TWS) Pre-planned Product Improvements (P3I) - TWS a forward looking infrared (FLIR) used for surveillance and fire control with individual and crew served weapons. The TWS with P3I is a part of the Land Warrior program, and supports crew-served weapon applications. The TWS P3I module is an eyesafe laser rangefinder (LRF) with compass/vertical angle measurement (C/VAM) and ballistic calculation and adjustment. Target Location Observation System (TLOS) - an active/passive day/night sight for individual soldiers to detect Optical and Electro Optical threat, can be used as a covert illuminator and fire direction pointer. Driver’s Vision Enhancer (DVE) - a thermal imaging device used for driving combat, combat service, and combat service support vehicles and allows drivers to see obstacles through fog and battlefield obscurants. The DVE P3I will enhance the image quality for the driver by optimizing the interaction between the driver, sensor and environmental observables, and will incorporate an image intensifier (I2) channel in order to provide the driver with the optimum image in all weather conditions. Lightweight Laser Designator/Rangefinder (LLD/R) - a day/night manportable laser designator/rangefinder capable of designating vehicle targets out to 5km and ranging targets out to 9995 meters and processing target location data for export through a digital interface. Integrated Sensor Suite (ISS) programs will provide the structure for interoperability of sensors to include: MELIOS, LLD/R, TLOS, LVRS, TWS, DVE, LRAS-3, Synthetic Aperture Radar (SAR), Infrared Line Scanner (IRLS), FLIR, visible imagers, hyperspectral cameras and Moving Target Indicator (MTI) radars. This will facilitate the merging of existing sensor data for digital distribution within the Army’s Technical Architecture (ATA). Continue development and evaluation of multispectral (infrared and visual) target acquisition capabilities to be incrementally inserted into ongoing production efforts (TLOS, LRAS-3 and other laser systems).</p> <p><u>Acquisition Strategy:</u> The several programs under development in this line (i.e., TWS, TLOS, LLDR, DVE and ISS) are based on competitively awarded cost plus incentive fee contracts.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1194 Integrated commercial off-the-shelf (COTS) components and evaluated as potential upgrades to TLOS program. • 873 Conducted TLOS P3I studies. • 1319 Conducted operational evaluation of TWS P3I that incorporates a Laser Rangefinder. • 1168 Initiated development for DVE P3I prototypes. • 1766 Continued development of LLDR engineering prototype. 										
Project DL70			Page 7 of 15 Pages				Exhibit R-2 (PE 0604710A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development	PROJECT DL70																									
<ul style="list-style-type: none"> • 3466 Initiated an ISS utilizing MTI radar, FLIR and daylight imagers for use on remotely controlled airships and other airborne platforms. <p>Total 9786</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 573 Complete development of TLOS-related prototypes incorporating results from COTS evaluation and studies. • 900 Conduct HTI Laser trade studies to support developmental/COTS/NDI Integration program • 2203 Complete development of DVE P3I prototypes. • 1428 Provide TWS support to Land Warrior program and complete P3I efforts. • 2146 Conduct limited user test on engineering prototype LLDR, Award LLDR EMD contract. • 1819 Conduct Integration and Demonstration of the ISS. • 214 Small Business Innovative Research / Small Business Technology Transfer (SBIR/STTR) <p>Total 9283</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 3920 Develop and integrate LLDR EMD models. • 4040 Conduct ISS integration, test and evaluation to include data dissemination for multiple applications. • 2021 Continue development and evaluation of multispectral target acquisition capabilities <p>Total 9981</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 3800 Conduct technical tests and user operational evaluation of LLDR EMD models. • 4207 Continue ISS integration and technical tests. • 3270 Prepare to transition identified multispectral target acquisition capabilities <p>Total 11277</p>																											
<p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="width: 15%; text-align: center;"><u>FY 1996</u></th> <th style="width: 15%; text-align: center;"><u>FY 1997</u></th> <th style="width: 15%; text-align: center;"><u>FY 1998</u></th> <th style="width: 15%; text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">10029</td> <td style="text-align: center;">12482</td> <td style="text-align: center;">11304</td> <td style="text-align: center;">16256</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">10130</td> <td style="text-align: center;">9283</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-344</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">9786</td> <td style="text-align: center;">9283</td> <td style="text-align: center;">9981</td> <td style="text-align: center;">11277</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 1998 and FY 1999 adjustments due to Army Science Board efficiency reductions (FY 98 -1323/FY 99 -4979).</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	10029	12482	11304	16256	Appropriated Value	10130	9283			Adjustments to Appropriated Value	-344				FY 1998 Pres Bud Request	9786	9283	9981	11277
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	10029	12482	11304	16256																							
Appropriated Value	10130	9283																									
Adjustments to Appropriated Value	-344																										
FY 1998 Pres Bud Request	9786	9283	9981	11277																							
Project DL70	Page 8 of 15 Pages	Exhibit R-2 (PE 0604710A)																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)															DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development										PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development					PROJECT DL70		
C. Other Program Funding Summary																	
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>						
Night Vision Devices KA3500 OPA2		83726	164862	85312	83805	141813	141979	149915	148841	Compl	Cost	Continue	Continue				
D. Schedule Profile																	
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Complete TWS user test (IOTE)						X											
TWS Milestone III Production decision							X										
TWS Full Production competitive award									X								
Initiate DVE Enhancements		X*															
Initiate DVE Enhancements DT/OT			X*														
DVE Milestone III IPR					X												
Initiated TLOS P3I FLIR finder Demonstrator	X*																
Complete TLOS related prototypes					X												
Initiate HTI Laser Trade Studies						X											
Award Multispectral Target Acquisition									X								
LLDR Limited User Evaluation						X	X										
LLDR Milestone I/II IPR					X												
LLDR EMD Award						X											
LLDR EMD Integration									X								
LLDR Technical Test													X				
LLDR User Operational Tests																X	
Conduct HTI Laser NDI system user evaluation									X	X							
Initiate ISS Integration		X*															
Initiate ISS Test, Evaluation & Demonstration					X												
ISS Data Dissemination Evaluation									X								
Conduct ISS Technical Tests													X				
*Milestone Completed																	
Project DL70																	
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
5 - Engineering and Manufacturing Development				0604710A Night Vision Systems - Engineering Development						DL70	
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				5318	5073	7450	8250				
Contractor Engineering / Trade Studies				873	900	0	0				
Government Engineering Support				528	458	471	551				
Project Management Support				352	300	325	325				
Test and Evaluation				2715	2338	1735	2151				
SBIR/STTR					214						
Total				9786	9283	9981	11277				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Hughes Aircraft Co., El Segundo, CA	C/CPIF	Dec 90	42490	42490	42490	0	0			0	42490
Lockheed-Sanders, Nashua, NH	C/CPIF	Feb 92	18769	18769	18769					0	18769
Magnavox, Mahwah, NJ	C/CPIF	Aug 93	8321	8321	7571	250	500			0	8321
Texas Instruments, McKinney, TX	C/CPIF	Aug 93	11524	11524	10774	250	500			0	11524
Various (Studies and Prototypes)	C/CPIF	3Q96				2591	573				3164
Litton Laser, Apopka, FL	C/CP	Aug 95			1556	1000	0			0	2556
LLDR (TBS)	C/CP	2Q97				0	1800	3500	3050	750	9100
Project DL70				Page 10 of 15 Pages				Exhibit R-3 (PE 0604710A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
5 - Engineering and Manufacturing Development										February 1997	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
					0604710A Night Vision Systems - Engineering Development					DL70	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Nichols Research, Huntsville, AL (ISS Integration)	C/CPIF	2Q96		700	0	100	200	200	200	0	700
HTI Laser Trade Studies (TBS)	C/CP	3Q97					900			0	900
Multispectral target acq. (TBS)	C/CPIF	2Q98						1900	3000	Continue	4900
EOIR, VA (ISS)	C/CP	2Q97			0	0	750			0	750
California Microwave, MD	C/CPIF	Mar 96			0	2000	750			0	2750
ISS (TBS)	C/CP	2Q98			0	0	0	1850	2000	Continue	3850
Support and Management Organizations											
Project Mgmt					2203	352	300	325	325	Continue	3505
CECOM NVESD	MIPR				5585	453	383	396	476	Continue	7293
Other Support	MIPR				2230	75	75	75	75	Continue	2530
SBIR/STTR							214				214
Test and Evaluation Organizations											
OPTEC	MIPR				3739	980	1377	955	1345	Continue	8396
Oth. Gov't Agency	MIPR				0	1735	961	780	806	Continue	4282
Government Furnished Property: None											
Subtotal Product Development					81160	6191	5973	7450	8250	750	109774
Subtotal Support and Management					10018	880	972	796	876		13542
Subtotal Test and Evaluation					3739	2715	2338	1735	2151		12678
Total Project					94917	9786	9283	9981	11277	750	135994

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development				PROJECT DL74		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL74 Long Range Advanced Scout Surveillance System (LRAS3)	0	7551	11998	9978	0	0	0	0	0	29527
<p>A. <u>Mission Description and Justification</u> Project DL74 - Long Range Advanced Scout Surveillance System (LRAS3): This project will develop the Long Range Advanced Scout Surveillance System (LRAS3), which is a long range multi-sensor system for US Army scouts which will provide the capability to detect, recognize, identify, range and determine location of potential targets. Currently, US Army scouts do not have the necessary equipment to perform these functions “around the clock.” LRAS3 will utilize the HTI SGF thermal sensor and will enable scouts to function “around the clock” in adverse weather and penetrate battlefield obscurants</p> <p><u>Acquisition Strategy:</u> This project will pursue a competitive acquisition utilizing best value source selection procedures for the Engineering and Manufacturing Development contract.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 100 Milestone I/II IPR to acquire 4 prototypes for Development Test (DT), 2 for limited user test, and 10 LRIP units for Operational Test • 135 Conduct Source Selection Evaluation Board for LRAS3 • 7132 Award EMD contract. • 184 Small Business Innovative Research / Small Business Technology Transfer (SBIR/STTR) <p>Total 7551</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 4700 Complete EMD prototype development for LRAS3 DT. • 1273 Conduct DT • 5000 Fabricate “A” Kits for LRAS3 LRIP. • 500 Perform operational assessment • 525 Initiate refurbishment of LRAS3 Prototypes used in DT to support OT. <p>Total 11998</p>										
Project DL74			Page 12 of 15 Pages				Exhibit R-2 (PE 0604710A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development					PROJECT DL74						
FY 1999 Planned Program:																	
<ul style="list-style-type: none"> • 4700 Complete refurbishment of Prototypes and spares for OT and LRIP units after OT. • 4021 Conduct Operational Test. • 1257 Milestone III/Full Production/Type Classification IPR 																	
Total 9978																	
B. Project Change Summary																	
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>									
FY 1997 President's Budget		0		7712		7025		4475									
Appropriated Value				7551													
Adjustments to Appropriated Value																	
FY 1998 Pres Bud Request		0		7551		11998		9978									
Change Summary Explanation: Funding: FY 1998 and FY 1999 increases are to accelerate funding of LRIP test units (FY 98 +4973/FY 99 +5503)																	
C. Other Program Funding Summary																	
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>						
0603774A D131 Budget Activity 4		3167	2769	2939	2893	3298	4193	5150	5172	Continue	Continue						
6.4 RDTE 0604710A, B Kit (DL69)		27872	18036	11477	0	0	0	0	0	0	95765						
LRAS-3 K38300 OPA2		0	0	0	37567	45473	45795	40552	44886	Continue	Continue						
D. Schedule Profile																	
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Milestone I/II/LRIP IPR						X											
Award EMD Contract							X										
PDR							X										
CDR								X									
Initiate fabrication of test units.									X								
Complete Prototype Development for DT										X							
Conduct Development Test													X				
Initiate Prototype Refurbishment														X			
Conduct Operational Assessment										X							
Project DL74													Page 13 of 15 Pages		Exhibit R-2 (PE 0604710A)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997																
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604710A Night Vision Systems - Engineering Development						PROJECT DL74																	
D. Schedule Profile																													
													FY 1996				FY 1997				FY 1998				FY 1999				
													1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Complete Refurbishment/Spares for OT																									X				
Initiate Operational Test																											X		
Complete Refurbishment of LRIP Units																												X	
Milestone III/FP/TC IPR																												X	
Award Production																												X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604710A Night Vision Systems - Engineering Development					DL74		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development					7132	11077	6546				
Project Management Support					135	141	141				
Test and Evaluation					0	500	3011				
Government Engineering Support					100	280	280				
SBIR/STTR					184						
Total					7551	11998	9978				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
TBS	C/CPIF	2Q97				0	7132	11077	6546	0	24755
Support and Management Organizations											
Project Mgmt						0	135	141	141	0	417
CECOM NVESD	MIPR					0	100	280	280	0	660
SBIR/STTR							184				184
Test and Evaluation Organizations											
TEXCOM	MIPR					0	0	500	0	0	500
OPTEC	MIPR					0	0	0	3011	0	3011
Government Furnished Property: None											
Subtotal Product Development							7132	11077	6546		24755
Subtotal Support and Management							419	421	421		1261
Subtotal Test and Evaluation								500	3011		3511
Total Project							7551	11998	9978		29527
Project DL74				Page 15 of 15 Pages				Exhibit R-3 (PE 0604710A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment						
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	16049	76428	55964	43539	31947	31865	34527	32833	Continuing	Continuing
DC40 Unit/Organizational Equipment	3003	1746	1795	1811	1841	2026	2064	2072	Continuing	Continuing
DL40 Clothing and Equipment	2094	4851	3684	4330	3592	4476	4865	4889	Continuing	Continuing
D548 Military Subsistence System	802	792	884	1294	1643	1765	1877	1884	Continuing	Continuing
D667 Land Warrior	0	47893	33031	16965	7664	8892	11204	9388	Continuing	Continuing
D668 Soldier Enhancement Program	10150	21146	14563	14645	14706	14706	14517	14600	Continuing	Continuing
D680 Mounted Warrior	0	0	2007	4494	2501	0	0	0	0	8992
<p>Mission Description and Budget Item Justification: Supports Engineering and Manufacturing Development (EMD) and Non-Developmental Item (NDI) evaluation of unit/organizational equipment, weapons/munitions, clothing and individual equipment, fabric shelters, field service equipment, food and food service equipment to enhance soldier efficiency, effectiveness, lethality, sustainability and survivability. New food items and food service equipment will be developed to reduce food service logistics requirements for all four Services. The organizational equipment program supports development of a new generation of field device support items: small, large and collective protective shelters; decontamination items; and improved space heaters to shelter and sustain the soldiers in the field and improve quality of life. The Land Warrior program will produce the first fully integrated fighting system for dismounted combat soldiers. The Soldier Enhancement Program provides "soldier items" that can be procured in three years or less. The projects in this Program Element support research efforts in the Engineering and Manufacturing Development phase of the acquisition cycle and are therefore correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment				PROJECT DC40		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC40 Unit/Organizational Equipment	3003	1746	1795	1811	1841	2026	2064	2072	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develop and field soft shelters, showers, latrines and heaters to improve unit sustainability and combat effectiveness. The Force Provider package of tents, laundries, showers, and latrines supports improved soldier quality of life as well as humanitarian aid and disaster relief. Improved maintenance tents will ensure continuous operation and combat readiness of helicopters and vehicles. The Family of Space Heaters replaces unsafe and inefficient space heaters and offers new capabilities to heat modern tents. The Laundry Advanced System (LADS) replaces aging M85 Field Laundries on a 1:4 basis.</p> <p><u>Acquisition Strategy:</u> Developments transition to procurement.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1995 Completed testing and made production decision on latrines and batch laundry as part of the Force Provider pre-planned product improvement (P3I) designed to provide rest and refit facilities in an austere environment. • 320 Completed PQT and type classified the Space Heater - Convective (SHC) to increase safety, reliability and efficiency of field heaters. • 45 Completed development and type classified the Modular General Purpose Tent System (MGPTS) for Low Rate Initial Production contract. • 643 Initiated procurement action second generation LAS prototypes for Technical Testing and Operational Testing (TT/OT). <p>Total 3003</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1670 Award integrated contract for development and procurement of the LADS which includes water recycle capability and eliminates hazardous waste products. • 34 For Family of Field Latrines (FOFL), type classify the Force Provider latrine as the Army's follow-on latrine. • 42 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 1746</p>										
Project DC40			Page 2 of 27 Pages				Exhibit R-2 (PE 0604713A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997								
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment	PROJECT DC40								
FY 1998 Planned Program:										
•	1000	Conduct DT/OT on LADS prototypes, type classify, and transition to production.								
•	259	Conduct Milestone II decision. Upgrade the NBC Protective Cover for fire protection capability for use in the hospital tent liner. Conduct market search, and award contract for fabric development.								
•	400	Fabricate upgraded frame support system for the MGPTS Pre-planned Production Improvement.								
•	136	Conduct market investigation for the Recon Heater, procure NDI prototypes, and conduct concept evaluation.								
Total	1795									
FY 1999 Planned Program:										
•	356	Conduct technical testing on the NBC Protective Cover.								
•	300	Conduct test and evaluation for the MGPTS upgraded frame system and upgraded specification to improve modularity, flooring, and ventilation capability.								
•	355	Conduct technical and operational test and evaluation on the Recon Heater and type classify the performance specification.								
•	200	Conduct market survey for field reproduction and procure NDI prototypes.								
•	150	Conduct market survey for command post equipment and procure NDI prototypes for evaluation.								
•	150	Conduct market survey for Field Pressure Washer and procure NDI prototypes for evaluation.								
•	300	Develop upgraded equipment/sub-components for the Advanced Cloth Reproduction.								
Total	1811									
B. Project Change Summary										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>						
FY 1997 President's Budget	4106	1784	1923	1949						
Appropriated Value	4220	1746								
Adjustments to Appropriated Value	-1217									
FY 1998 Pres Bud Request	3003	1746	1795	1811						
<u>Change Summary Explanation:</u> Funding - In FY 1996 reduction was reprogrammed to higher priority requirements (-1103).										
C. Other Program Funding Summary										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
RDTE, 0603747.DCO9, Unit/Org Equipment	2126	1289	1955	1737	2025	1989	2033	1564	Compl	Cost
OPA 3, M80200, Force Provider	11892	24981	11633	24188	23390	22956	19839	19876	Cont	Cont
Project DC40	<i>Page 3 of 27 Pages</i>							Exhibit R-2 (PE 0604713A)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)														DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment						PROJECT DC40			
C. <u>Other Program Funding Summary</u>																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>					
OPA 3, M86200, LADS					5401	8334	6822	14284	9938	Compl	Cost					
										Cont	Cont					
D. <u>Schedule Profile</u>																
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conduct TT for Force Provider (laundry and latrines)				X*												
Conduct TT/OT of LADS prototypes								X								
TC MGPTS				X*												
TC Space Heater and SHC					X											
Awards LADS R&D/Procurement Contract					X				X							
Conduct TT/OT on LADS																
Type Classify LADS													X			
Fabricate MGPTS Frame P3I													X			
Develop NBC-PC Fabric Upgrade													X			
Conduct TT/OT on Recon Heater													X			
Type Classify Recon Heater																X
Type Classify Follow-on-Latrine						X										
Conduct TT for NBC-Protective Cover (PC)														X		
*Milestone completed																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment			PROJECT DC40				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				3003	1704	1795	1811				
SBIR/STTR					42						
Total				3003	1746	1795	1811				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
SSCOM	In-House				298	861	429	359	411	Cont	2358
Acumen	Various	Various			5068	1264	782	947	810	Cont	8871
Foster Miller											
Tech Rsch Grp											
Hunter Mfg											
GTS											
ARO	MIPR				29						29
OGA											
Support and Management Organizations											
SSCOM					915	378	71	89	90	Cont	1543
Test and Evaluation Organizations											
TECOM/ATC	MIPR				2651	500	422	400	500	Cont	4473
CRIC											
SBIR/STTR							42				42
Government Furnished Property: None											
Subtotal Product Development					5395	2125	1211	1306	1221		11258
Subtotal Support and Management					915	378	71	89	90		1543
Subtotal Test and Evaluation					2651	500	464	400	500		4515
Total Project					8961	3003	1746	1795	1811		17316
Project DC40											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment				PROJECT DL40		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL40 Clothing and Equipment	2094	4851	3684	4330	3592	4476	4865	4889	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develop state-of-the-art individual clothing and equipment to improve the effectiveness, sustainability and quality of life of the individual soldier. Funding shown in FY 1996-FY 1998 reflects transfer of funds from DL40 to OSD PE 0604384BP to support the Chemical/Biological Defense program in accordance with Public Law 103-60 Title XVII.</p> <p><u>Acquisition Strategy:</u> Soldier Modernization will be accomplished via integrated acquisition programs embodying procurement approaches ranging from NDI/modified NDI through integrated programs such as Land Warrior, Mounted Warrior, and Air Warrior. Acquisition strategies will vary from: 1) quick fixes in 36 months or less from concept to type classification (TC) such as Soldier Enhancement Programs (SEP); 2) modular improvements which require limited RDT&E and can be completed in more than 36 months from concept to TC; and 3) more technically challenging areas of integration and digitization in the Land Warrior program.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 264 Refined requirements based upon Operation Joint Endeavor threat, conducted Design Review, finalized component designs, awarded contract for DT/OT prototypes for Body Armor Set Individual Basic (BASIC) P3I. • 887 Conducted mini-test #2 and Design Review, started DT/OT for the Improved Toxological Agent Protective (ITAP) Suit. • 855 Form Integrated Product Team (IPT) for Modular Body Armor (MBA) and Modular Load System (MLS), completed Acquisition Strategy for one contract for both systems, conducted pre-proposal conference with draft request for proposal (RFP), received proposals and completed source selection. • 88 Procured test items and initiated evaluation of the Optional Uniform Fabric. <p>Total 2094</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 550 Conduct DT/OT, complete assessment reports, obtain Milestone III approval, transition Technical Data Package (TDP) to Defense Personnel Support Center for the BASIC P3I. • 250 Complete DT/OT and assessment reports, obtain MS III approval, transition to procurement for the ITAP. • 3664 Award single RDTE contract for MBA and MLS, evaluate up to three competing designs in Customer Evaluation and lab testing downselect (using Expert Choice to select up to two competing designs for DT/OT test items), conduct Explosive Ordnance Detachment (EOD) suit domestic/foreign market survey and procure EOD suit prototypes, downselect for prototype test items. • 98 Milestone I Decision on the Optional Uniform, procure test item and initiate field test. 										
Project DL40			Page 6 of 27 Pages				Exhibit R-2 (PE 0604713A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment	PROJECT DL40																				
<p>FY 1997 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 173 Procure prototypes, conduct feasibility evaluation, modify patterns and size tariff, complete technical data and forward to procurement center for integrated sizing of the Battle Dress Uniform. • 116 Small Business Innovation Research/Small Business technology Transfer (SBIR/STTR) Program <p>Total 4851</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 155 Conduct a pre-production prove-out of the BASIC P3I. • 2648 Fabricate test items and initiate the DT/OT of the MBA and MLS. • 323 Develop design modifications and procure prototypes for a wear test and acceptability evaluation of the Maternity Utility Work Uniform and Coat, Men's Dress Coat and Trousers, Women's Coat, and the All-Weather Coat (Men's and Women's). • 300 Conduct a market survey, test new materials, develop designs, and initiate test of a Disposable Emergency Ensemble. • 258 Procure test prototypes, conduct an abbreviated DT/OT, obtain approval of Static Resistant Cold Weather Clothing, and transition to procurement. <p>Total 3684</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 620 Complete DT/OT and assessment reports for the MBA and MLS. • 305 Conduct a wear test and acceptability evaluation of the Maternity Utility Work Uniform and Coat, Men's Dress Coat and Trousers, Women's Coat, and the All-Weather Coat (Men's and Women's). • 800 Modify designs, procure test prototypes, and initiate the DT/OT of the Advanced Combat Uniform. • 900 Modify designs, procure test prototypes, complete DT/OT, and obtain Milestone III approval of the Advanced Combat Helmet (ACH) and the Concealable Body Armor. • 500 Complete test of the Disposable Emergency Ensemble, obtain Milestone III approval, and transition to procurement. • 1205 Develop initial designs, conduct an early user evaluation, and refine designs for Climate Control Equipment (heating and cooling) for the individual soldier. <p>Total 4330</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: center;"><u>FY 1996</u></th> <th style="width: 10%; text-align: center;"><u>FY 1997</u></th> <th style="width: 10%; text-align: center;"><u>FY 1998</u></th> <th style="width: 10%; text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">2145</td> <td style="text-align: center;">4955</td> <td style="text-align: center;">3962</td> <td style="text-align: center;">4690</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">2205</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-111</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	2145	4955	3962	4690	Appropriated Value	2205				Adjustments to Appropriated Value	-111			
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Project DL40		Exhibit R-2 (PE 0604713A)																				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment							PROJECT DL40					
D. <u>Schedule Profile</u>	FY 1996					FY 1997				FY 1998				FY 1999					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Market Survey for a Disposable Emergency Ensemble//Material tests and designs//DT and OT//Reports, Milestone III and transition to production										X				X			X		X

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment				PROJECT D548		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D548 Military Subsistence System	802	792	884	1294	1643	1765	1877	1884	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Engineering and Manufacturing Development (EMD) and Non-Developmental Item (NDI) evaluation of food and food service equipment to enhance soldier efficiency and survivability. New food items and food service equipment will be developed to reduce food service logistics requirements for all four Services. Development of Joint Service Food/Food Service Equipment to improve individual combat effectiveness and reduce logistics burden and Operation and Support costs of subsistence support for service men and women. Develop multi-fuel, rapidly deployable field food service equipment to support combat, humanitarian missions and operations-other-than-war. Improve equipment to enhance safety in food service, utilize battlefield fuels and decrease fuel and water requirements. Program is reviewed and validated twice annually by the DoD Food and Nutrition Research and Engineering Board as part of the Joint Service DoD Food Program.</p> <p><u>Acquisition Strategy:</u> Developments transition to procurement</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 244 Completed technical/operational testing and type classified the Multi-Fuel Burner Unit (MBU) designed to replace the M2 Burner which uses current battlefield fuels for safer, more efficient heating in all field kitchen systems. • 98 Conducted technical and user testing of the Air Force Initial Deployment Kitchen and transitioned Technical Data Package (TDP) to procurement to increase mission responsiveness and improve customer satisfaction by means of an all-electric, rapidly deployable, all-climate feeding system. • 460 Fabricated test prototypes and initiated Development Testing/Early User Test and Evaluation (DT/EUT&E) on the Containerized Kitchen to increase flexibility and efficiency of future field feeding system. <p>Total 802</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 131 Complete design/development of MBU interface components for integration into the Army Field Feeding System (AFFS). • 335 Complete DT/EUT&E and type classify, and develop procurement documentation for the Containerized Kitchen. • 165 Procure, fabricate and evaluate in a complete kitchen low cost safety improvements for the Mobile Kitchen Trailer (MKT). • 142 Procure and evaluate electrification upgrades to Air Force field kitchens. • 19 Small Business Innovation Research/Small Business technology Transfer (SBIR/STTR) Program <p>Total 792</p>										
Project D548			Page 11 of 27 Pages				Exhibit R-2 (PE 0604713A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																																																																
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment	PROJECT D548																																																																																
<p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 363 Design/fabricate vented components and equipment to remove combustion by-products of the MBU. • 178 Develop component efficiency upgrades for field kitchen Improved Heat and Serve Ration Heater. • 303 Conduct field evaluations for improvements to the MKT. • 40 Conduct in-house development of the Tilt Griddle/Deep Fat Fryer to improve operational effectiveness/ performance of field kitchens. <p>Total 884</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 230 Conduct technical and user testing and transition the TDP for vented Army field feeding equipment for use with the MBU. • 400 Complete technical and user testing of the Rapid Deployment Kitchen and transition TDP to procurement. • 380 Fabricate prototypes and begin DT/OT of the Thermal Powered Washer for the Food Sanitation Center. • 123 Fabricate prototype and initiate testing of Tilt Griddle/ Deep Fat Fryer. • 161 Conduct market survey and develop prototype for modification of existing Army equipment for the Containerized Ice Maker. <p>Total 1294</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">823</td> <td style="text-align: center;">809</td> <td style="text-align: center;">938</td> <td style="text-align: center;">1388</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">844</td> <td style="text-align: center;">792</td> <td></td> <td></td> </tr> <tr> <td>Adjustment to Appropriated Value</td> <td style="text-align: center;">-42</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 /Pres Bud Request</td> <td style="text-align: center;">802</td> <td style="text-align: center;">792</td> <td style="text-align: center;">884</td> <td style="text-align: center;">1294</td> </tr> </tbody> </table> <p>C. Other Program Funding Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To</u> <u>Compl</u></th> <th style="text-align: center;"><u>Total</u> <u>Cost</u></th> </tr> </thead> <tbody> <tr> <td>RDTE, 0603747.D610, Food Adv Dev</td> <td style="text-align: center;">2050</td> <td style="text-align: center;">1905</td> <td style="text-align: center;">2263</td> <td style="text-align: center;">2569</td> <td style="text-align: center;">3097</td> <td style="text-align: center;">3342</td> <td style="text-align: center;">3744</td> <td style="text-align: center;">3761</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> <tr> <td>OPA 3, M86400, Kitchen, Containerized, Field</td> <td></td> <td></td> <td></td> <td style="text-align: center;">7626</td> <td style="text-align: center;">7429</td> <td style="text-align: center;">7502</td> <td style="text-align: center;">6033</td> <td style="text-align: center;">10823</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> <tr> <td>OPA 3, MA8050, Items Less Than \$2.0M (CSS-EQ) [MDEP RJS2]</td> <td style="text-align: center;">901</td> <td style="text-align: center;">872</td> <td style="text-align: center;">154</td> <td style="text-align: center;">240</td> <td style="text-align: center;">392</td> <td style="text-align: center;">1053</td> <td style="text-align: center;">1991</td> <td style="text-align: center;">1992</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> <tr> <td>OPA 3, M66500, Sanitation Center, Field Feeding</td> <td style="text-align: center;">685</td> <td style="text-align: center;">664</td> <td></td> <td></td> <td style="text-align: center;">696</td> <td style="text-align: center;">3349</td> <td style="text-align: center;">1934</td> <td style="text-align: center;">1938</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	823	809	938	1388	Appropriated Value	844	792			Adjustment to Appropriated Value	-42				FY 1998 /Pres Bud Request	802	792	884	1294		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u> <u>Compl</u>	<u>Total</u> <u>Cost</u>	RDTE, 0603747.D610, Food Adv Dev	2050	1905	2263	2569	3097	3342	3744	3761	Cont	Cont	OPA 3, M86400, Kitchen, Containerized, Field				7626	7429	7502	6033	10823	Cont	Cont	OPA 3, MA8050, Items Less Than \$2.0M (CSS-EQ) [MDEP RJS2]	901	872	154	240	392	1053	1991	1992	Cont	Cont	OPA 3, M66500, Sanitation Center, Field Feeding	685	664			696	3349	1934	1938	Cont	Cont
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Project D548	Page 12 of 27 Pages	Exhibit R-2 (PE 0604713A)																																																																																

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)														DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment							PROJECT D548						
D. <u>Schedule Profile</u>																				
		FY 1996					FY 1997					FY 1998					FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Complete DT/OT of MBU	X*																			
Type Classify MBU				X*																
Conducted DT/OT of Initial Deployment Kitchen (IDK)	X*																			
Transition TDP of IDK to procurement				X*																
Conduct DT/OT of Containerized Field Kitchen						X														
Type Classify Containerized Field Kitchen								X												
Test MKT prototypes													X							
Complete fabrication of vented equipment for MBU													X							
Transition TDP of vented MBU equipment																	X			
Transition RDK to procurement																	X			
*Milestone completed																				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment			PROJECT D548				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				802	773	884	1294				
SBIR/STTR					19						
Total				802	792	884	1294				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
SSCOM	In-House				5459	312	281	312	710	Cont	7074
GTS	Various	Various			61	250	200	328	120	Cont	959
Hunter Mfg											
ATCOM	MIPR				35						35
Support and Management Organizations											
SSCOM					365	40	40	44	64	Cont	553
Test and Evaluation Organizations											
TECOM/ATC					1162	200	252	200	400	Cont	2214
SBIR/STTR							19				19
Government Furnished Property: None											
Subtotal Product Development					5555	562	481	640	830		8068
Subtotal Support and Management					365	40	40	44	64		553
Subtotal Test and Evaluation					1162	200	271	200	400		2233
Total Project					7082	802	792	884	1294		10854
Project D548											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment				PROJECT D667		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D667 Land Warrior	0	47893	33031	16965	7664	8892	11204	9388	Continuing	Continuing
<p>A. Mission Description and Justification: Land Warrior (LW) is an integrated fighting system for dismounted combat soldiers. The LW program will enhance the soldier's battlefield capabilities through the development and integration of an assortment of Army systems/components and technologies into a cohesive, timely, and combat effective system. These systems/components include an integrated individual soldier computer/radio, enhancements to protective clothing and individual equipment, integrated headgear with helmet mounted display and image intensifier, and modular weapon system with thermal weapon sight, infrared aiming light, laser rangefinder, digital compass, video camera, and close combat optic. LW will bring the dismounted soldier into the digital battlefield.</p> <p>Acquisition Strategy: The LW Engineering and Manufacturing Development (EMD) program is designed to field currently existing/mature technologies to meet soldier requirement deficiencies. The Force XXI Land Warrior program will be developing advanced technology components for insertion into the LW consolidated program. An Integrated Product Team (IPT) was formed to determine which technologies from the S&T program will be integrated into the LW program. LW EMD transitions to procurement.</p> <p>FY 1996 Accomplishments: Funded in RDTE PE 0603001.DJ50, Force XXI Soldier</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 6850 Fabricate LW prototypes for Development Testing (DT) and procure long lead items for Initial Operational Test and Evaluation (IOTE). • 4376 Conduct LW contractor and government testing, and prepare test support package. • 12419 Fix deficiencies resulting from Early Operational Exercise (EOE) and contractor testing, finalize LW hardware/software design/integration, and conduct independent verification and validation (IV&V) of software. Ensure contractor and government compliance with Army Technical Architecture. • 12193 Implement LW functional plans: Integrated Logistics Support (ILS), configuration management, etc., publish LW draft system manuals; and conduct maintenance training in preparation for Logistics Demo. • 1600 Technical Insertion Integrated Product Team (IPT) activities between LW and Force XXI LW efforts (PE 0603001A). • 6403 Program Management, Government and contractor engineering support, from other government agencies to provide oversight of contractor effort. • 500 Initial program management and engineering support for other government agencies to provide studies and market surveys for the Mounted Warrior program. • 2383 HQ and BASOPS support. • 1169 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program 										
Project D667			Page 15 of 27 Pages				Exhibit R-2 (PE 0604713A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment	PROJECT D667																									
<p>Total 47893</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 7431 Contractor program management, complete Production Qualification Test (PQT) (C); fix deficiencies, and conduct IV&V of software. Ensure system compliance with Army Technical Architecture. • 6283 Fabricate and deliver prototypes for PQT (G) and Initial Operational Test and Evaluation (IOTE) and to support Early User Test (EUT) which is Force XXI LW demo. Procure IOTE items and supplies. • 9403 Conduct PQT(G), logistics demo, IOTE training, and conduct IOTE • 1697 Government participation (IPT) for Design and Development and Technical Insertion Integrated Product Team (IPT) activities between LW and Force XXI LW efforts (PE 0603001A). • 4914 Program management and engineering support from other government agencies to provide oversight of contractor effort. Write specifications for LW production contract • 3303 HQ and BASOPS support. <p>Total 33031</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 10447 Contractor program management, fix deficiencies from IOTE, and conduct IV&V of software. Ensure system compliance with Army Technical Architecture. • 3125 Program Management and engineering support from other government agencies to provide oversight of contractor effort. Conduct technical and program reviews (FCA, PCA, and PRR) and briefings to achieve MS III. Develop/coordinate documentation of release of RFP and conduct SSEB to award production contract. • 1697 Government participation (IPT) for design and development and Technical Insertion Integrated Product Team (IPT) activities between LW and Force XXI LW efforts (PE 0603001A). • 1696 HQ and BASOPS support. <p>Total 16965</p> <p>B. Program Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 Presidents Budget</td> <td style="text-align: center;">0</td> <td style="text-align: center;">48917</td> <td style="text-align: center;">37616</td> <td style="text-align: center;">20354</td> </tr> <tr> <td>Appropriated Value</td> <td></td> <td style="text-align: center;">47893</td> <td></td> <td></td> </tr> <tr> <td>Adjustment to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Request</td> <td style="text-align: center;">0</td> <td style="text-align: center;">47893</td> <td style="text-align: center;">33031</td> <td style="text-align: center;">16965</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 Presidents Budget	0	48917	37616	20354	Appropriated Value		47893			Adjustment to Appropriated Value					FY 1998 Pres Request	0	47893	33031	16965
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment					PROJECT D667						
C. Other Program Funding Summary											To	Total				
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>						
RDTE, 0603001.DJ50, Force XXI Land Warrior	30548	15936	11298	7016	6423	6434	7669	7997	Cont	Cont						
OPA 3, M80500, Land Warrior				66206	94486	104601	24089	119101	Cont	Cont						
OPA 4, MS3610, Initial Spares-Land Warrior					215	251	270	268	Cont	Cont						
WTCV, GB3007, M4 Carbine Mods	900	2114	2152	5318	5640							16124				
WTCV GZ2800 M16 Rifle Mods	2751	5526	7603	7060								22940				
D. Schedule Profile																
	FY 1996			FY 1997				FY 1998			FY 1999					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Early Operational Experimentation (EOE)			X*													
Hardware Preliminary Design Review (PDR)			X*													
LW Software Design Review and Mock-ups			X*													
EOE Hardware Critical Design Review (CDR)			X*													
EOE				X*												
LW Hardware PDR					X											
LW CDR						X										
Fabricate/Deliver DT prototypes							X									
Contractor Production Qualification Test									X							
Government Production Qualification Test									X							
Logistics Demonstration										X						
Fabricate/Deliver OT items										X						
IOTE Training											X					
IOTE												X				
Early User Test												X				
Milestone III/Production Award														X		
*Milestone completed																
Project D667																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604713A Combat Feeding, Clothing, and Equipment					D667		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
System Engineering and Program Management					4434	3795	2325				
System Test and Evaluation					1476	7600	1669				
Prototype Development and Manufacturing					37262	18333	11275				
Other RDTE Costs					3552	3303	1696				
SBIR/STTR					1169						
Total					47893	33031	16965				
B. Budget Acquisition History and Planning Information:											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Hughes	CPIF	Jul 95			244		40860	21681	13267	Cont	76052
NRDEC	MIPR										
CECOM	MIPR										
TACOM (PM-SA)	MIPR										
ARL	MIPR										
SIBR/STTR							1169				1169
Support and Management Organizations											
SSCOM	FAD				252		4388	3750	2029	Cont	10419
PM Soldier	In-House										
Modern Tech Corp	Task Order										
Test and Evaluation Organizations											
ARL-SLAD	MIPR						1476	7600	1669	Cont	10745
OPTEC	MIPR										
TECOM	MIPR										
AMSAA	MIPR										
IV&V Contractor	Task Order										
Project D667				Page 18 of 27 Pages				Exhibit R-3 (PE 0604713A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 1997		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT		
5 - Engineering and Manufacturing Development		0604713A Combat Feeding, Clothing, and Equipment			D667		
Government Furnished Property: None							
		Total Prior to				Budget to Complete	Total Program
		<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	
Subtotal Product Development		244		42029	21681	13267	77221
Subtotal Support and Management		252		4388	3750	2029	10419
Subtotal Test and Evaluation				1476	7600	1669	10745
Total Project		496		47893	33031	16965	98385

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment				PROJECT D668		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D668 Soldier Enhancement Program	10150	21146	14563	14645	14706	14706	14517	14600	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> The objective of the Soldier Enhancement Program (SEP) is to increase the lethality, command and control, sustainability, mobility, and survivability of the soldier through accelerated acquisition of lighter, more lethal weapons and improved "soldier items" including lighter, more comfortable load-bearing equipment, field gear, survivability items, communications equipment, and navigation aids. For SEP purposes, soldiers are managed in three categories: dismounted soldiers, combat crews (air and ground), and other soldiers. Projects generally take three years to complete.</p> <p><u>Acquisition Strategy:</u> SEP procurement consists of Non-Developmental Items (NDI) or modified NDI that can be fielded in three years or less. Items that are technologically challenging requiring more than three years development are pursued under the appropriate system area. SEP items are reviewed and approved for development one year and begin development during the next year. Procurement varies by appropriation.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1670 Completed development/type classification: 40mm IR Illumination Round, HMMWV Mount, Medium Machine Gun, Close Combat Optics, M24 Flash Suppressor/Blast Attenuator, Miniature Binoculars, Portable Periscope, Improved Butt Pack, Improved Rain Suit, Small Unit Shower, Mounted Crewman Boot, Improved Personnel Armor System Ground Troops (PASGT) Helmet Suspension, Inconspicuous Body Armor, Fighting Position Excavator, Soldier Fighting Cover, Armor Crew/Infantry Mask, and Selectable Lightweight Attack Munitions. • 5119 Continued development/procured prototypes and/or tested: Modular Weapon System, Surveillance Battle Damage Assessment (BDA) Device, Machine Gun Optics, XM84 Stun Hand Grenade II, M203 for the M4 Carbine, Lightweight Chemical Overgarment, Improved Chemical/Biological Glove, Combat Medic Vest, Improved Flotation Device, Small Unit Shower, Fighting Position Revetment Kit, Enhanced Incendiary Grenade, and Individual Soldier Radio. • 1874 Initiated market surveys and developed: Commercial Boot Survey, Midsize Riot Control Dispenser, Non-Lethal 40mm Grenade, Shin/Knee Guards for Riot Control, Anti-Reflection Device, Compression Sack, and Non-Lethal 5.56mm Cartridge and M249 Feed Tray Cover. • 972 Program Management and in-house efforts. • 515 Terminated: Lightweight Leader Computer, 40MM Smoke Projectile and Individual Sand Bagging Accessory. <p>Total 10150</p>										
Project D668			Page 20 of 27 Pages				Exhibit R-2 (PE 0604713A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604713A Combat Feeding, Clothing, and Equipment	D668
FY 1997 Planned Program:		
• 6221	Complete development/type classify: Modular Weapon System, M203 for the M4 Carbine, Surveillance BDA Device, Machine Gun Optics, XM84 Stun Hand Grenade II, M249 Feed Tray Cover, M4 Improved Buttstock, Lightweight Chemical Overgarment, Improved Chemical/Biological Glove, Shin/Knee Guards for Riot Control, Combat Medic Vest, Compression Sack, Improved Flotation Device, Small Unit Shower, Midsize Riot Control Disperser, Individual Soldier Radio and Fighting Position Revetment Kit.	
• 4948	Continue development/procure prototypes and/or test: Non Lethal 40MM Grenade, Non-Lethal 5.56MM Cartridge, Enhanced Incendiary Grenade and Anti-Reflection Device.	
• 7466	Initiate market surveys and/or development: Heavy Sniper Weapon System, M249 Flexmount, Weapon Flashlight, Back-up Iron Sight for M4/M16, Close Quarters Battle Sling for the M4 Carbine, Shoulder Holster for 9mm Pistol (Left/Right Handed), Boresight Device for PAQ4, 12 Gauge Non-Lethal Point and Crowd Control, 40mm High Velocity Canister Cartridge, Blast Protective Boots, Elbow and Knee Pads for BDU, On the Move Hydration System, Ballistic Shin Guards, Pistol Belt Extender, Improved Underlying Insulating Layers for Extended Cold Weather Clothing System (ECWCS), Alternate Wear Hot Weather Boot, Extreme Cold Weather Boot, Ballistic/Non-Ballistic Face and Body Shield, Fuel Bar, Handheld Infrared Flare/Smoke & Grenade, and Blacklight.	
• 30	Terminated: Canteen Cup Cooler	
• 1980	Program management and in-house efforts.	
• 501	Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program	
Total	21146	
FY 1998 Planned Program:		
• 3076	Complete development/type classify: Anti-Reflection Device, M249 Flexmount, M4 Improved Buttstock, Weapon Flashlight, Close Quarters Battle Sling for the M4 Carbine, Back-up Iron Sight for M4/M16, Blast Protective Boots, Elbow and Knee Pads for BDU, On the Move Hydration System, Ballistic Shin Guards, Pistol Belt Extender, Improved Underlying Insulating Layers for ECWCS, Alternate Wear Hot Weather Boot, Extreme Cold Weather Boot, Ballistic/Non-Ballistic Face and Body Shield, Fuel Bar, Low Profile Flotation Collar, Emergency Breathing Device, and Enhanced Incendiary Grenade.	
• 4275	Continue development/procure prototypes and/or test: Heavy Sniper Weapon System, Boresight Device for PAQ4, 12 Gauge Non-Lethal Point and Crowd Control, 40mm High Velocity Canister Cartridge, Physical Fitness Uniform, Handheld Infrared Flare/Smoke, Grenade and Blacklight.	
• 5862	Initiate market surveys/development on new items, in the process of approval, to begin development in FY 1998.	
• 1350	Program management and in-house efforts.	
Total	14563	
Project D668	Page 21 of 27 Pages	Exhibit R-2 (PE 0604713A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment			PROJECT D668			
FY 1999 Planned Program:										
•	2076	Complete development/type classify: Heavy Sniper Weapon System, Boresight Device for PAQ4, 12 Gauge Non-Lethal Point and Crowd Control, 40mm High Velocity Canister Cartridge, Physical Fitness Uniform, Handheld Infrared Flare/Smoke Grenade and Blacklight								
•	6148	Continue development/procure prototypes and /or test projects for which market surveys/development commenced in FY 1998.								
•	5071	Initiate market surveys/development on new items to commence in FY 1999.								
•	1350	Program management and in-house efforts.								
Total	14645									
B. Project Change Summary										
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
FY 1997 President's Budget		10398	21598	20743	35368					
Appropriated Value		10690	21146							
Adjustments to Appropriated Value		-540								
FY 1998 Pres Bud Request		10150	21146	14563	14645					
Change Summary Explanation: FY1998 and FY1999 funding reprogrammed to support higher priority requirements.										
C. Other Program Funding Summary										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
OPA 3, MA6800, Soldier Enhancement			1709	7157	8532	5815	3963	3971	Cont	Cont
WTCV, GC0076, Small Arms (SEP)	2350	5839	4178	5598	6536	6954	2488	1992	Cont	Cont
WTCV, GZ1290, Squad Automatic Weapon (MODS)					8874	11605	8468	7877	Cont	Cont
WTCV, GZ2800, M16 Rifle Mods	2751	5526	7603	7060						23023
WTCV, GB3007, M4 Carbine Mods	900	2116	2152	5318	5640					16169
WTCV, GZ1300, MG Mods	6292									6292
WTCV, GL3200, Items Less Than 2M	668	1007								1676
WTCV, GC0925, Mods		800	1413	1404	1268	1260				6146
PAA, F47500, 7.62mm AP	3944	1998	1994	1979						9915
PAA, F47600, 5.56mm AP	1655	1998	1976	1979	1979	1980	1985	1990	Cont	Cont
PAA, F00900, 40mm Canister								6000		6000
OPA 2, BA5300, Soldier Enhancement (C/E)			1003	7496	6487	9824	7925	8651	Cont	Cont
OPA 2, K30800, LVRS	2314	2592	2483	3477	4179	1293	1488	1492	Cont	Cont
Project D668										
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment					PROJECT D668						
C. <u>Other Program Funding Summary</u>										To	Total					
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>						
OMA, 114092000, Central Funding and Fielding	40565	87739	42405	54222	79734	82242	84025	85848	Cont	Cont						
D. <u>Schedule Profile:</u>																
	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SEP Requirements Reviews		X*	X*			X										
SEP Projects Reviews				X*				X								
*Milestone completed																
Note: Numerous individual projects are ongoing under the Soldier Enhancement Program (SEP) and each project has its own milestone schedule.																
Project D668					Page 23 of 27 Pages					Exhibit R-2 (PE 0604713A)						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment					PROJECT D680	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D680 Mounted Warrior	0	0	2007	4494	2501	0	0	0	0	8992
<p>A. <u>Mission Description and Justification:</u> Mounted Warrior (MW) is an integrated modular system that will enhance the combat crewman's fighting capabilities. The MW system will be used by a wide variety of combat crewmen and will be tailored based on Mission, Enemy, Terrain/Weather, Troops Available and Time (METT-T). The physical burden imposed by cumbersome personal equipment can degrade a crewman's effectiveness by increasing rates of fatigue, reducing mobility and restricting his ability to perform mission functions. Consideration will be given to optimizing the balance between vehicle mounted and crewman mounted equipment and designing an overall system that will improve the crewman's endurance, safety, mission performance and crewman/vehicle interface. The MW system will provide hands free, tetherless communications, increased laser eye protection, maximum individual protection from nuclear, biological and chemical (NBC) contaminations, spall, flame and heat, and will provide for better performance of crew tasks without reducing tactility and agility.</p> <p><u>Acquisition Strategy.</u> The MW program is designed to field currently existing/mature technologies to meet the needs of the Combat Vehicle Crewman (CVC).</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 250 Complete source selection and award contract for MW program integration. • 1069 Identify existing and mature technologies for MW system design. Ensure contractor and government compliance with Army Technical Architecture. • 500 Conduct early operational evaluation (EOE) of components. • 188 Program management and government oversight of contractor effort. <p>Total 2007</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 540 Fabricate MW prototypes for Developmental Testing (DT). • 360 Program management and government oversight of contractor effort. • 1000 Conduct MW DT (contractor and government testing) and prepare test support package. • 1400 Fix deficiencies, finalize MW hardware/software design/integration, and conduct independent verification and validation of software. 										
Project D680			Page 25 of 27 Pages				Exhibit R-2 (PE 0604713A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997								
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604713A Combat Feeding, Clothing, and Equipment					PROJECT D680								
<p>FY 1999 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 1000 Implement MW functional plans: integrated logistics support (ILS), configuration management, etc.; publish MW draft system manuals; and conduct maintenance training in preparation for the Logistics Demonstration. • 194 Procurement of MW long lead items for IOTE. <p>Total 4494</p>																		
B. Project Change Summary																		
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>										
FY 1997 President Budget		0		0		0		0										
Appropriated Value																		
Adjustments to Appropriated Value																		
FY 1998 Pres Bud Request		0		0		2007		4494										
Change Summary Explanation: Funding - Project is a new start in FY 1998 (+2007), FY 1999 increased (+4494) to continue.																		
C. Other Program Funding Summary																		
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To <u>Compl</u>	Total <u>Cost</u>							
OPA 3, M80600, Mounted Warrior							997	2491	4491	Cont	Cont							
D. Schedule Profile																		
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
MS 0		X*																
Trade-off determination				X*														
Operational Requirements Document Approval						X												
Milestone I/II						X												
Development contract award									X									
Early operational evaluation components												X						
Fabricate MW prototypes for DT													X					
Conduct MW DT																	X	
Procure MW long lead items for IOTE																	X	
Project D680																		

DATE
February 1997

BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
**0604713A Combat Feeding, Clothing, and
Equipment**

*Milestone completed

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604713A Combat Feeding, Clothing, and Equipment					D680		
A. Project Cost Breakdown											
				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Program Management						188	360				
System Engineering						1069	2400				
System Test and Evaluation						500	1000				
Develop and Manufacture Prototypes							734				
Other RDTE						250					
Total						2007	4494				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Contractor-TBD	CPIF	Oct 98						869	2234	Cont	3103
RDEC SPT	MIPR							200	400		600
Spt Contractor	Task Order							250	1000		1250
Support and Management Organizations											
PM Soldier	In-House							188	360		548
Test and Evaluation Organizations											
OPTEC	MIPR							150	350	Cont	500
TECOM	MIPR							350	150		500
Government Furnished Property: None											
Subtotal Product Development								1319	3634		4953
Subtotal Support and Management								188	360		548
Subtotal Test and Evaluation								500	500		1000
Total Project								2007	4494		6501
Project D680				Page 27 of 27 Pages				Exhibit R-3 (PE 0604713A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development
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COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	50140	48788	76749	73048	65533	46932	47560	57057	Continuing	Continuing
DC82 Louisiana Maneuvers	1525	0	0	0	0	0	0	0	0	10030
DC91 Distributive Interactive Simulation	7985	0	0	0	0	0	0	0	0	9345
D241 Non-System Training Devices	28996	35951	60512	57306	49309	30811	26222	39600	Continuing	Continuing
D396 Tactical Simulation (TIARA)	1975	2722	5665	5047	4765	4494	5963	6357	Continuing	Continuing
D573 STRICOM and Naval Air Warfare Center Training Systems Division (NAWCTSD)	9659	10115	10572	10695	11459	11627	15375	11100	Continuing	Continuing

Mission Description and Budget Item Justification: Program Element funds engineering development of Non-System Training Devices to support force-on-force training at the Combat Training Centers (CTC), general military training and training on more than one item/system, as compared with system devices which are developed in support of a specific item/weapon system. Training devices and training simulations provide force multipliers that improve combat effectiveness by providing realistic training while helping to control rapidly escalating costs. Training devices maximize the transfer of knowledge, skills and experience from the training situation to a combat situation. Force-on-force training at the National Training Center (NTC), Ft. Irwin, CA; Joint Readiness Training Center (JRTC), Ft. Polk, LA, and Combat Maneuver Training Center (CMTC), Hohenfels, Germany; and battle staff training in Battle Command Training Program (BCTP) will provide increased combat readiness through realistic collective training in low, mid, and high intensity scenarios. Project DC82, Louisiana Maneuvers, was intended to energize and guide the restructuring of the Army while simultaneously keeping it combat-ready for any contingency. Project DC91, Distributive Interactive Simulation (DIS), included engineering development of techniques and technology for DIS and related simulations and simulator efforts (transferred to PE 0604760 in FY 97). Project D241, Non-System Training Devices-Combined Arms, develops simulation training devices for Army-wide use, including the CTCs. Project D396, Tactical Simulation, is an intelligence simulation/driver for both training [intelligence driver for Corps Battle Simulation (CBS) and Warfighter Simulation 2000 (WARSIM)] and testing. Project D573, STRICOM/Naval Air Warfare Center Training Systems Division (NAWCTSD) Support, funds in-house costs of project support by US Army Simulation, Training and Instrumentation Command (STRICOM) and NAWCTSD. This Program Element supports research efforts in the engineering and manufacturing development phase of the acquisition cycle and is therefore correctly placed in Budget Activity 5.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development				PROJECT DC82																											
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
DC82 Louisiana Maneuvers	1525	0	0	0	0	0	0	0	0	10030																									
<p>A. <u>Mission Description and Justification:</u> DC82 - Louisiana Maneuvers (LAM): LAM served as a laboratory for the Army to practice its roles and missions, to develop and explore options, to assess and direct progress, to provide a framework for decisions by senior leaders, and to facilitate the Army's transformation. LAM consisted of a series of related exercises forming a campaign to assess the Army of the 21st century in areas of policy, doctrine, organization, training, materiel, leader development, and soldier issues shaping the force. As an evolving process, LAM exploited the results and outcomes of each exercise by incorporating lessons learned in order to enhance the value of follow-on exercises. Overall, LAM focused the Army's self-assessment of institutional effectiveness, provided direction for change, and oriented the Army's leadership to accomplish the national military strategy with available resources.</p> <p><u>Acquisition Strategy:</u> Competitive development.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 465 Continued development of analytic and operational models, simulation and other technology in support of Force XXI. • 1060 Support of AUSA events. <p>Total 1525</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p> <p>B. <u>Project Change Summary</u></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><u>FY 1996</u></td> <td style="text-align: center;"><u>FY 1997</u></td> <td style="text-align: center;"><u>FY 1998</u></td> <td style="text-align: center;"><u>FY 1999</u></td> </tr> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">5810</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">5973</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustment to Appropriated Value</td> <td style="text-align: center;">-4448</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">1525</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table> <p>Change Summary Explanation: In FY 1996, (-4285)funding was reprogrammed to higher priority requirements.</p>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	5810	0	0	0	Appropriated Value	5973				Adjustment to Appropriated Value	-4448				FY 1998 Pres Bud Request	1525	0	0	0
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY 1997 President's Budget	5810	0	0	0																															
Appropriated Value	5973																																		
Adjustment to Appropriated Value	-4448																																		
FY 1998 Pres Bud Request	1525	0	0	0																															
Project DC82				Page 2 of 18 Pages				Exhibit R-2 (PE 0604715A)																											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development				PROJECT DC82		
C. <u>Other Program Funding Summary</u>										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Compl</u>	<u>Total Cost</u>
OPA2, Appropriation	940	0	0	0	0	0	0	0	0	940
BE4162 MACOM Automation Systems										
D. <u>Schedule Profile:</u> Not Applicable										
Project DC82			Page 3 of 18 Pages				Exhibit R-2 (PE 0604715A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development				PROJECT DC91																											
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
DC91 Distributive Interactive Simulation	7985	0	0	0	0	0	0	0	0	9345																									
<p>A. <u>Mission Description and Justification:</u> DC91 - Distributive Interactive Simulation (DIS) - This project focuses on engineering development of techniques and DIS technology of wide area simulation networking in support of modeling and simulation, doctrinal development, training, and operations, utilizing live, virtual and constructive simulations. Effective FY 97 this project is transferred to PE 0604760A, which more clearly describes the program effort.</p> <p><u>Acquisition Strategy:</u> Competitive development leading to competitive procurement against performance specifications.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1348 Provided system engineering, configuration management, systems interoperability and standards development for the Army Synthetic Environment. • 950 Performed DIS verification, validation and accreditation methodology. • 531 Developed enhancements to modular semi-automated forces software. • 2856 Continued engineering and development of Battlelab Reconfigurable Simulators. • 2300 Development conducted in support of Army Warfighting Experiment and Synthetic Theater of War. <p>Total 7985</p> <p>FY 1997 Planned Program: Project moved to PE 0604760A.</p> <p>FY 1998 Planned Program: Project not funded.</p> <p>FY 1999 Planned Program: Project not funded.</p> <p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border: none;"> <tr> <td></td> <td style="text-align: center;"><u>FY 1996</u></td> <td style="text-align: center;"><u>FY 1997</u></td> <td style="text-align: center;"><u>FY 1998</u></td> <td style="text-align: center;"><u>FY 1999</u></td> </tr> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">5972</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">6139</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustment to Appropriated Value</td> <td style="text-align: center;">+1846</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">7985</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	5972	0	0	0	Appropriated Value	6139				Adjustment to Appropriated Value	+1846				FY 1998 Pres Bud Request	7985	0	0	0
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY 1997 President's Budget	5972	0	0	0																															
Appropriated Value	6139																																		
Adjustment to Appropriated Value	+1846																																		
FY 1998 Pres Bud Request	7985	0	0	0																															
Project DC91			Page 5 of 18 Pages				Exhibit R-2 (PE 0604715A)																												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development					PROJECT DC91		
Change Summary Explanation: Funding - FY 96 (+2013) Funding increase to support Army Warfighting Experiements.												
C. <u>Other Program Funding Summary</u>										To	Total	
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>		
OPA 3, Appropriation KA6000, Recon Simulators	12222	13825	13823	12803	8997	8282	4960	4969	Cont'd	Cont'd		
OMA, Reconfigurable Simulators	16900	11634	16033	13000	13000	14000	18000	18000	Cont'd	Cont'd		
D. <u>Schedule Profile</u>												
	FY 1996			FY 1997			FY 1998			FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4
Award Contract	X*											
DIS Verification and Validation		X*										
Reconfigurable Simulator Contract	X*											
* Completed Milestones												
Project DC91			Page 6 of 18 Pages					Exhibit R-2 (PE 0604715A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development					PROJECT D241	
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D241 Non-System Training Devices	28996	35951	60512	57306	49309	30811	26222	39600	Continuing	Continuing
<p>A. Mission Description and Justification: D241 - NSTD Combined Arms: This project is used to develop prototype training devices to support Combined Arms (Infantry, Armor, Aviation, Air Defense, Artillery, Engineer, Chemical, and Support troops) training and multi-system training within the Army, to include the Reserve Components. Corps Battle Simulation (CBS) is the Army's standard command and staff training simulation at the corps/division level. Brigade/Battalion Battle Simulation (BBS) is a simulation that trains commanders and their staffs in command and control skills via two sided, free play, real time computer driven exercises. Combat Service Support Training Simulation System (CSSTSS) is a training simulation which supports training at battalions through echelons-above-corps levels to provide the level of detail required to train logistics commanders and staffs. CSSTSS will be incorporated into the Warfighter Simulation (WARSIM). WARSIM will be the next generation battle simulation to replace CBS and BBS. WARSIM will utilize current technology to efficiently provide training support and linkage to other simulations and simulators. WARSIM will comply with Simulation Interoperability Standards Organization (SISO) standards and open architecture to meet the Army's training requirements into the next century, to include High Level Architecture (HLA) compliance. WARSIM is also the land component element of the Joint Simulation System (JSIMS), which is a joint initiative managed by the JSIMS Joint Program Office. Multiple Integrated Laser Engagement Simulation 2000 (MILES 2000) will provide additional cost effective weapon system capabilities during tactical engagement exercises. The Fire Support Combined Arms Tactical Trainer (FSCATT) provides for initial and sustainment gunnery training, and can be linked as part of the CATT family. FSCATT is designated as the Army's only Defense Acquisition Pilot Program IAW the Federal Acquisition Streamlining Act (FASTA). The Engagement Skills Trainer (EST) provides individual and squad level home station training with a deployable small arms engagement trainer, resulting in a significant savings in ammunition costs. This project funds the development of training devices, simulators, simulations and instrumentation for the Combat Training Centers (CTC's) to include Opposing Forces Surrogate Vehicles (OSV's) for display of doctrinally correct threat at the CTC's; Joint Readiness Training Center Military Operations in Urban Terrain (JRTC MOUT) for training in a realistic MOUT environment; Combat Training Center Opposing Forces (OPFOR) Surrogate Tracked Vehicles (STV) modernization to simulate the T-80 Main Battle Tank and additional OPFOR tracked vehicles at the NTC, JRTC and CMTC; National Training Center Objective Instrumentation System (NTC OIS) to provide a completely digital based system for full tactical system connectivity and DIS compatibility. Devices developed will enable the Army to train units collectively to obtain synergistic results through the employment of weapons and support systems in their respective battlefield roles.</p> <p>Acquisition Strategy: Competitive development efforts leading to competitive procurement against performance specifications.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 568 Continued limited BBS enhancements. • 1585 Completed development of CSSTSS for transition into WARSIM. 										
Project D241			Page 8 of 18 Pages				Exhibit R-2 (PE 0604715A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604715A Non-System Training Devices - Engineering Development	D241
<p>FY 1996 Accomplishments: (continued)</p> <ul style="list-style-type: none"> • 6485 Continued development of devices, simulators and simulations to support training at the Combat Training Centers, Air Ground Engagement System (AGES) II/CTC, JRTC MOUT, JRTC-Instrumentation System (IS). • 3355 Completed CBS 1.5.3 and continued limited enhancements to CBS. • 10340 Exercised contract option to downselect to prime contractor for WARSIM 2000 EMD. • 6663 Continued development of FSCATT Phase I. <p>Total 28996</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 20629 Development of WARSIM 2000 EMD. • 820 Initiate development MILES 2000 for new weapon systems (i.e., M1A2, M1A2 System Enhancement Program and Bradley A3). • 3749 Complete development of FSCATT Phase I. • 3209 Continue limited enhancements to CBS. • 6665 Continue development of devices, simulators and simulations to support training at Combat Training Centers to include JRTC MOUT Phase II. • 879 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 35951</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 40863 Development of WARSIM 2000 EMD. • 1113 Initiate development of Engagement Skills Trainer. • 18080 Continue development of devices, simulators and simulations to support training at Combat Training Centers to include JRTC Opposing Forces Surrogate Vehicle (OSV) BMP(2000), JRTC MOUT Phase II(3216), CTC OPFOR Tracked Vehicles(10500) and NTC OIS(2364). • 456 Continue limited /high priority refinements to CBS Source Code, to support major training exercises (i.e., Prairie Warrior 98). <p>Total 60512</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 33389 Development of WARSIM 2000 EMD and commencement of test. • 4897 Continue development of Engagement Skills Trainer. • 18936 Continue development of devices, simulators and simulations to support training at the Combat Training Centers, to include JRTC MOUT Phase II(5183), CTC OPFOR Tracked Vehicles(8300) and NTC OIS(5453). • 84 Continue limited /high priority refinements to CBS Source Code, to support major training exercises (i.e., Prairie Warrior 99). 		
Project D241	Page 9 of 18 Pages	Exhibit R-2 (PE 0604715A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development						PROJECT D241			
Total											57306			
B. Project Change Summary														
			<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
FY 1997 President's Budget											27354	29752	31390	26925
Appropriated Value											28121	35951		
Adjustment to Appropriated Value											875	0		
FY 1998 Pres Bud											28996	35951	60512	57306
Change Summary Explanation: Funding: FY 98 (+29122)/FY 99 (+30381) - funding increase to support WARSIM, the Combat Training Center programs and Engagement Skills Trainer.														
C. Other Program Funding Summary											To	Total		
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>				
OPA3, Appropriation	70455	84153	49668	60349	126360	164249	104968	116938	Cont'd	Cont'd				
NA0100 Training Devices, Non-System														
OPA3, Appropriation	39959	17311	26724	30444	43898	58929	74263	36425	Cont'd	Cont'd				
MA6600 CTC Support														
OPA3, Appropriation	0	17377	19860	28359	25578	16630	0	0	0	107804				
NA0174 Fire Support Combined Arms Tactical Trainer														
D. Schedule Profile														
			<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4		
WARSIM Downselect Option/Award			X*											
AGES II/CTC-IS Site Integration			X*											
EST Contract Award						X								
EST Preliminary Design Review (PDR)								X						
EST Critical Design Review (CDR)									X					
JRTC-IS IOC					X									
JRTC OSV BMP MS I/III						X								
JRTC OSV BMP PDR							X							
JRTC OSV BMP TEST								X						
Project D241											Page 10 of 18 Pages		Exhibit R-2 (PE 0604715A)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development				PROJECT D396		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D396 Tactical Simulation (TIARA)	1975	2722	5665	5047	4765	4494	5963	6357	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> D396 - Tactical Simulation (TACSIM): TACSIM/ Warfighters' Simulation (WARSIM) 2000 Intelligence Module (WIM): TACSIM is the intelligence driver for the Corps Battle Simulation (CBS). WIM will replace TACSIM in FY98 and will be used as the intelligence driver for WARSIM 2000. It provides simulated, raw intelligence data to drive the intelligence analysis function during major training exercises (i.e., Prairie Warrior, Ulchi Focus Lens, Atlantic Resolve, BCTP Warfighter Exercises and various Corps/Division and Joint exercises). TACSIM/WIM is a TIARA program.</p> <p><u>Acquisition Strategy:</u> Competitive development leading to competitive procurement against performance specifications.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 868 Completed TACSIM 2.1.5.3 development. • 175 Completed TACSIM/Aggregate Level Simulation Protocol (AGSP) interface development. • 457 Initiated TACSIM 2.1.5.4 development/compatibility with CBS. • 475 Continued development of WARSIM intelligence capability. <p>Total 1975</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 400 Provide Government project management, engineering, technical, and contract support. • 733 Maintain contractor support services to WIM project effort. • 1522 Contract award for development of WIM capability. • 67 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 2722</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 420 Provide Government project management, engineering, technical, and contract support. • 410 Maintain contractor support services to WIM project effort. • 4835 Continue WIM software development under contract. <p>Total 5665</p>										
Project D396			<i>Page 13 of 18 Pages</i>				Exhibit R-2 (PE 0604715A)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development						PROJECT D396									
<p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 100 Provide Government/Contract support. • 420 Maintain support services to WIM project effort. • 4327 Finalize WIM Initial Operating Capability (IOC) software development; continue development of WIM Full Operating Capability (FOC) software version. • 200 Support formal technical testing of WIM software for IOC. <p>Total 5047</p>																					
B. Project Change Summary																					
			<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>			<u>FY 1999</u>							
FY 1997 President's Budget			2025				2781				3100			2295							
Appropriated Value			2083				2722														
Adjustment to Appropriated Value			-108				0														
FY 1998 Pres Bud			1975				2722				5665			5047							
Change Summary Explanation: Funding: FY 98(+2565)/FY 99(+2752) - funding increase to support the WARSIM 2000 intelligence model.																					
C. Other Program Funding Summary: Not applicable																					
D. Schedule Profile																					
			<u>FY 1996</u>					<u>FY 1997</u>					<u>FY 1998</u>					<u>FY 1999</u>			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Software Build					X*						X										
Developmental Test and Evaluation			X*				X														
WIM Contract Award							X														
WIM IOT&E Complete																	X				
WIM IOC																	X				
* Completed Milestones																					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development				PROJECT D573		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D573 STRICOM and Naval Air Warfare Center Training Systems Division (NAWCTSD)	9659	10115	10572	10695	11459	11627	15375	11100	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> D573 - STRICOM and NAWCTSD: This project funds STRICOM personnel salaries and support costs and a proportionate Army share of the operating costs of the Naval Air Warfare Center Training Systems Division (NAWCTSD) through an Inter-Service support agreement which is reviewed annually.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 8459 Funded STRICOM personnel and support. • 1200 Funded NAWCTSD support. <p>Total 9659</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 8915 Funds STRICOM personnel and support. • 1200 Funds NAWCTSD support. <p>Total 10115</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 9322 Funds STRICOM personnel and support. • 1250 Funds NAWCTSD support. <p>Total 10572</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 9445 Funds STRICOM personnel and support. • 1250 Funds NAWCTSD support. <p>Total 10695</p>										
Project D573			<i>Page 16 of 18 Pages</i>				Exhibit R-2 (PE 0604715A)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604715A Non-System Training Devices - Engineering Development	PROJECT D573																									
<p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">9717</td> <td style="text-align: center;">10332</td> <td style="text-align: center;">10761</td> <td style="text-align: center;">10679</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">9987</td> <td style="text-align: center;">10115</td> <td></td> <td></td> </tr> <tr> <td>Adjustment to Appropriated Value</td> <td style="text-align: center;">-328</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud</td> <td style="text-align: center;">9659</td> <td style="text-align: center;">10115</td> <td style="text-align: center;">10572</td> <td style="text-align: center;">10695</td> </tr> </tbody> </table> <p>C. <u>Other Program Funding Summary:</u> Not applicable</p> <p>D. <u>Schedule Profile:</u> The nature of this project does not lend itself to acquisition milestones.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	9717	10332	10761	10679	Appropriated Value	9987	10115			Adjustment to Appropriated Value	-328	0			FY 1998 Pres Bud	9659	10115	10572	10695
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	9717	10332	10761	10679																							
Appropriated Value	9987	10115																									
Adjustment to Appropriated Value	-328	0																									
FY 1998 Pres Bud	9659	10115	10572	10695																							
Project D573	Page 17 of 18 Pages	Exhibit R-2 (PE 0604715A)																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604716A Terrain Information - Engineering Development (TIARA)					PROJECT D579	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D579 Field Army Map Sys Eng Dev	8509	7144	2942	2686	2034	2502	2247	2163	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> This program element funds development of the Digital Topographic Support System/Quick Response Multicolor Printer (DTSS/QRMP). The current terrain analysis, topographic and reproduction support provided by Army Engineer Terrain Teams is a slow, labor intensive process that does not meet the needs of the Force XXI battlefield in which the commander must have the ability to rapidly obtain terrain information and topographic products. The Combat Terrain Information Systems (CTIS) Modernization Plan stated the requirement to proceed immediately with the Downsized DTSS configuration and further identified that QRMP functionality would be incorporated into the DTSS for a single integrated terrain analysis and reproduction capability. It has been determined that the downsized capability is now more appropriate to support contingency operations, operations other than war, and split based operations. The DTSS/QRMP will be deployed at Division, Corps, and EAC in support of these missions. The DTSS/QRMP will automate the updating and processing of terrain information into terrain analysis products, provide rapid reproduction of low volume, up-to-date, large format, full color imagery maps, situation overlays, special graphics (e.g. captured enemy maps) and other topographic and terrain products. Using the most current technology available, the functional capabilities of DTSS and QRMP will be developed into a single interoperable architecture. Part of imagery exploitation includes the development of a Multi-Spectral Imagery Processor (MSIP), which provides an image map making capability. Due to current world events and the possibility of contingency missions in areas where standard map products are not available, image map production has become an urgent need. The CTIS project office was tasked with the mission to issue the DTSS-MSIP as an interim measure to topographic units. The project in this Program Element supports research efforts in the Engineering and Manufacturing Development (E&MD) phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> The Acquisition Strategy being pursued for the DTSS/QRMP EMD phase is to utilize Army standard equipment and the Common Hardware/Software (CHS) computer workstations in conjunction with non-development item (NDI) components to develop an integrated baseline hardware configuration. The plan is to utilize the Combat Terrain Information Systems (CTIS) System Engineering and Integration (SE&I) contractor to execute the EMD phase, to perform system integration, and provide units for formal test and evaluation. The procurement of the Multi-Spectral Image Processor (MSIP) was approved by the Army. The acquisition of the MSIP relied upon existing contracts and commercial-off-the-shelf to the fullest extent possible. Existing DTSS units will be upgraded to a 5-ton ISO 20 foot shelter configuration. The upgraded 5-ton systems will provide an integrated capability while preserving the Army's investment in the DTSS. Program Management responsibility and milestone decision authority have been assigned to the Program Executive Officer for Command, Control, and Communications Systems (PEO C3S). Project management is provided by the Project Director (PD) for Combat Terrain Information Systems. The contracting strategy for the DTSS/QRMP program is to execute the EMD phase through the current SE&I contractor, Lockheed Martin Corporation. A Competitive Cost Plus Fixed Fee (CPFF) contract was awarded for the CTIS SE&I contract. A competitively awarded, Firm Fixed Price (FFP) contract is anticipated for the Full Rate Production of the DTSS/QRMP. Upgrades to the existing DTSS units will also be accomplished through the CTIS SE&I contract. The computer workstations for CTIS programs are being procured through the PM for Common Hardware and Software.</p>										
Project D579			Page 1 of 5 Pages				Exhibit R-2 (PE 0604716A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604716A Terrain Information - Engineering Development (TIARA)	PROJECT D579																																	
<p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 2000 Completed development of DTSS Upgrade • 5674 Continued development of downsized DTSS /QRMP • 600 Continued P3I Program (Interoperability) • 235 Initiated test and evaluation of EMD Prototypes <p>Total 8509</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 5469 Complete development of downsized DTSS/QRMP • 500 Conduct test and evaluation of EMD Prototypes • 1000 Initiate P3I development for DTSS/QRMP • 175 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 7144</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 2942 Continue P3I development for DTSS/QRMP - communications and ABCS interoperability <p>Total 2942</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 2686 Continue P3I development for DTSS/QRMP - communications and ABCS interoperability. <p>Total 2686</p>																																			
<p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 Presidents Budget</td> <td style="text-align: right;">8728</td> <td style="text-align: right;">7369</td> <td style="text-align: right;">3108</td> <td style="text-align: right;">2877</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">8817</td> <td style="text-align: right;">7144</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">-308</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: right;">8509</td> <td style="text-align: right;">7144</td> <td style="text-align: right;">2942</td> <td style="text-align: right;">2686</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 Presidents Budget	8728	7369	3108	2877	Appropriated Value	8817	7144			Adjustments to Appropriated Value	-308				FY 1998 Pres Bud Request	8509	7144	2942	2686								
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<p>C. <u>Other Program Funding Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To</u></th> <th style="text-align: center;"><u>Total</u></th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th style="text-align: center;"><u>Compl</u></th> <th style="text-align: center;"><u>Cost</u></th> </tr> </thead> <tbody> <tr> <td>OPA - KA2550 - DTSS</td> <td style="text-align: right;">6736</td> <td style="text-align: right;">6417</td> <td style="text-align: right;">7465</td> <td style="text-align: right;">8405</td> <td style="text-align: right;">10607</td> <td style="text-align: right;">9831</td> <td style="text-align: right;">4763</td> <td style="text-align: right;">6268</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>										<u>Compl</u>	<u>Cost</u>	OPA - KA2550 - DTSS	6736	6417	7465	8405	10607	9831	4763	6268	Cont	Cont
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>																									
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OPA - KA2550 - DTSS	6736	6417	7465	8405	10607	9831	4763	6268	Cont	Cont																									
<p>Project D579</p>																																			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604716A Terrain Information - Engineering Development (TIARA)						PROJECT D579								
D. <u>Schedule Profile</u>																				
		FY 1996					FY 1997					FY 1998					FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Delivery of DTSS/QRMP Build 1 S/W		X*																		
Delivery of Enhanced DTSS-MSIPs			X*																	
Initiated DTSS (Heavy) Upgrades				X*																
Complete DTSS (Heavy) Upgrades										X										
Start Downsized DTSS/QRMP					X*															
Developmental Test and Evaluation/ Operational Test and Evaluation (DT&E/OT&E)																				
Initiate Fielding of Upgraded DTSS								X												
Downsized DTSS/QRMP Milestone III								X												
Award DTSS/QRMP Production Contract									X											
Conduct Production Verification Testing of Downsized DTSS/QRMP													X							
Initiate Fielding of Downsized DTSS/QRMP															X					
*Milestone Complete																				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604716A Terrain Information - Engineering Development (TIARA)					PROJECT D579	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Primary System Development					3358	1800	500	500			
Software Development					2508	2272	1300	1100			
Government Furnished Equipment					150	500	30	30			
Government Engineering Support (includes Test Support)					632	1044	300	229			
Contractor Engineering Support					900	500	300	300			
Licenses and Maintenance					11	30	12	27			
Project Management and Administration					950	823	500	500			
SBIR/STTR						175					
Total					8509	7144	2942	2686			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996*	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Loral Defense Akron, OH	C/CPFF/FFP Prod Option	7/87	35657	35657	35657	0	0			0	35657
Lockheed Martin Ft Wash, PA	C/CPFF	1/93	21023	21023	11100	5851	3955			0	20906
In-House Support/TEC	MIPR					976	970	512	527	Cont	2985
TBD	TBD	TBD						1800	1600	Cont	3400
SBIR/STTR							175				175
Support and Management Organizations											
CSC Fairfax, VA											
SYTEX McLean, VA	FFP thru PM Intel Fusion					400	150	100	100	Cont	750
Project D579					Page 4 of 5 Pages			Exhibit R-3 (PE 0604716A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604716A Terrain Information - Engineering Development (TIARA)					PROJECT D579	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996*	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
MITRE Corp McLean, VA OGAs	FFRDC thru CECOM MIPR					500	350	200	200	Cont	1250
Test and Evaluation Organizations											
TECOM	MIPR					235	500		29	Cont	764
Government Furnished Property											
Item Description	Contract Method/Type or Funding Vehicle	Award of Obligation Date	Delivery Date		Total Prior to FY 1996*	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Property											
SUN's (ECS)	REQS	VAR	VAR		300	150				0	450
TBD					0		500	30	30	Cont	560
Support and Management Property: None											
Test and Evaluation Property: None											
Subtotal Product Development					47057	6977	5600	2342	2157		64133
Subtotal Support and Management						1297	1044	600	500		3441
Subtotal Test and Evaluation						235	500		29		764
Total Project					47057	8509	7144	2942	2686		68338
*NOTE: Prior year funding only covers the Prime Contractors.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604726A Integrated Meteorological System (IMETS) (TIARA)					PROJECT DD85	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DD85 Integrated Meteorological System (IMETS)	0	0	1946	1931	2398	1851	0	0	0	8126
<p>A. <u>Mission Description and Budget Item Justification:</u> This program element, Integrated Meteorological System (IMETS), funds the development of the IMETS evolving upgrades to the IMETS Block II, integrating the Defense Information Infrastructure (DII) and Common Operating Environment (COE). The IMETS is a mobile tactical automated weather data receiving, processing, and dissemination system designed to provide timely weather and environmental effect forecasts, observations, and decision aid support to the Army. The IMETS is an Army-furnished system consisting of a standard shelter and vehicle, and Army Common Hardware and Software of the Army Battle Command System which will be operated by Air Force weather personnel and maintained within planned Army support for systems and components IAW AR115-10/AFR 105-3. This project supports research efforts in the engineering and manufacturing development phase of the acquisition cycle and is therefore correctly placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> The IMETS Block III development program will build on the Block II initiative including conversion to the DII and the Army C4I Technical Architecture. The IMETS NDI acquisition strategy has proven successful in the fielding of eleven systems since program initiation in FY92. This development strategy will be continued to include software modules as they mature and become part of the COE library. A common map server update is of primary focus along with increased user distributed communication environment interoperability. Weather tactical decision aid upgrades and updated forecaster aids will be developed to include products from the Air Force initiative of the High Resolution Weather Satellite Receiver, the Small Tactical Terminal for Defense Meteorological Satellite Program (DMSP) and high resolution domestic and foreign weather satellite data. Weather Application modules from the Army Research Laboratory will be integrated and fielded as a capability upgrade to the current software baseline.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96.</p> <p>FY 1997 Planned Program: Project not funded in FY 97.</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1000 Develop, investigate and apply advanced technologies to the IMETS prototype for expanded capabilities and performance in the area of battlescale forecast modeling, addition to the Integrated Weather Effects Decision Aid, evaluation of the DoD Meteorological Satellite Program Special Sensor Data, environmental record data, for integration into the Weather Effects database. • 946 Evaluate, configure and integrate high performance expanded tech base prototype capabilities into operational IMETS prototypes <p>Total 1946</p>										
Project DD85			Page 1 of 4 Pages				Exhibit R-2 (PE 0604726A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604726A Integrated Meteorological System (IMETS) (TIARA)						PROJECT DD85							
FY 1999 Planned Program:																			
<ul style="list-style-type: none"> • 1000 Continue to investigate, develop and apply advanced software and hardware processing, storage, display and input/output (I/O) technologies to tech base prototypes of high performance expanded weather applications capabilities. • 931 Continue to evaluate, configure and integrate tech base prototype capabilities into operational IMETS prototypes 																			
Total 1931																			
B. Project Change Summary																			
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>											
FY 1997 President's Budget				0	0	0	0	0											
Appropriated Value																			
Adjustments to Appropriated Value																			
FY1998 Pres Bud Request				0	0	1946	1931												
Change summary Explanation: FY 98 and FY 99 fund develop IMETS Block II integration of Army Research Laboratory and Air Force weather products.																			
C. Other Program Funding Summary																			
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To</u>	<u>Total</u>
OPA 2 - SSN: BW 0021-IMETS				7463	3140	1379	0	8846	0	0	0	0	0	0	0	0	0	Cont	Cost
D. Schedule Profile																			
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>					
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Develop tech base prototype																			
Expand Battlescale Forecast model																			
Expand Integrated Weather Effects Decision Aid																			
Integrate Defense MetSat Program																			
Environmental Data Record																			
Develop/integrate Vis5D program																			
Develop heat/cold tactical decision aid																			
Generate basic Down Wind Message from BFM																			
Develop Target Area Meteorological capability																			
Project DD85																			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY						PE NUMBER AND TITLE						PROJECT					
5 - Engineering and Manufacturing Development						0604726A Integrated Meteorological System (IMETS) (TIARA)						DD85					
D. <u>Schedule Profile</u>						FY 1996		FY 1997				FY 1998		FY 1999			
						1	2	3	4	1	2	3	4	1	2	3	4
Develop visibility, thunderstorm and turbulence model												X					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT				
5 - Engineering and Manufacturing Development			0604726A Integrated Meteorological System (IMETS) (TIARA)				DD85				
A. Project Cost Breakdown			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
Systems Development					1296	1281					
Project Management					250	250					
Matrix Management					350	350					
Test					50	50					
Total					1946	1931					
B. Budget Acquisition History and Planning Information:											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Logicon					9600						9600
ARL	MIPR							1000	1000	1800	3800
Misc. Contracts	PWD							946	931	1800	3677
Support and Management Organizations											
CECOM	MIPR									649	649
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development					9600			1946	1931	3600	17077
Subtotal Support and Management										649	649
Subtotal Test and Evaluation											
Total Project					9600			1946	1931	4249	17726
Project DD85			Page 4 of 4 Pages				Exhibit R-3 (PE 0604726A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604739A JTT/CIBS-M (TIARA)				PROJECT D702		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D702 Common Integrated Broadcast Service-Modules	0	4765	4499	4447	4426	4409	0	0	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> The Integrated Broadcast Service (IBS) is the worldwide, DoD standard network for transmitting tactical and strategic intelligence and targeting data. The Common Integrated Broadcast Service - Modules (CIBS-M) Joint Program (all services and SOCOM) was created to consolidate and replace existing IBS receiver functionality/capability, inherent with the duplicative existing systems, with a “common family” of IBS modules (both hardware and software). This is a FY 97 new start required to implement the IBS plan and consolidate/eliminate duplication of effort previously spread across multiple PEs/SSNs DoD wide. This program funds design, development, test and evaluation of initial CIBS hardware and software modules, as well as implementing performance expanding modifications to the family of CIBS-M equipment. This program element supports development efforts in the Engineering and Manufacturing development phases of the Acquisition Strategy and is therefore, correctly placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> The CIBS-M family of modules will be the sole provider of IBS Modules to a variety of IBS receivers across all DOD component agencies. The Joint Program will competitively develop hardware and software modules and procure the required modules for integration into host receiver (e.g. MATT, CTT, TRE) systems. Additionally, this line provides for necessary modifications to IBS modules as the broadcast networks continue to evolve and modify their formats and protocols.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96.</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 3359 Develop CIBS Module discrete designs and combinations • 911 Develop DAMA Compliant CIBS-M software module • 378 Integrate and Test DAMA Compliant software module • 117 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 4765</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1450 Complete CIBS-Module prototype fabrication • 1644 Complete CIBS-Module Development • 1405 Host system integration/test <p>Total 4499</p>										
Project D702			<i>Page 1 of 3 Pages</i>			Exhibit R-2 (PE 0604739A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604739A JTT/CIBS-M (TIARA)						PROJECT D702	
FY 1999 Planned Program:												
•	2800	Design Next Generation CIBS-Modules										
•	799	Design/Develop "Over the Air" Software Load Capability										
•	848	Host System Integration/Test										
Total	4447											
B. Project Change Summary												
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>				
FY 1997 Presidents Budget		0		4867		4845		4819				
Appropriated Value		0		4765								
Adjustments to Appropriated Value		0										
FY 1998 Pres Bud Request		0		4765		4499		4447				
C. Other Program Funding Summary												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>	
V29600 JTT/CIBS-M (Tiara)		29076	18991	11438	11703	25527	26450	12904	13554	Cont	Cont	
BA1081 Integrated Broadcast Terminal Mod (Tiara)		0	3361	3294	932	0	0	0	0	0	7587	
D. Schedule Profile												
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>				
	1	2	3	4	1	2	3	4	1	2	3	4
Award CIBS-M Contract				X								
DAM Module Design Review					X							
Prototype Test						X						
Initial CIBS Module												
Preliminary Design Review						X						
Critical Design Review							X					
Prototype Test								X				
Next Generation Module												
Preliminary Design Review									X			
Critical Design Review										X		
Prototype Test											X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604739A JTT/CIBS-M (TIARA)					PROJECT D702		
A. <u>Project Cost Breakdown</u>												
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Hardware Development						2492	693	850				
Software Development						1211	1645	2471				
Host System Integration						0	1405	848				
Technical Test						740	541	173				
Project Management						205	215	105				
SBIR/STIR						117						
Total						4765	4499	4447				
B. <u>Budget Acquisition History and Planning Information</u>												
Performing Organizations												
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program	
Product Development Organizations												
TBD	C/PFF	Feb 97	TBD	TBD	0	0	4443	4284	4342	Cont	13069	
SBIR/STTR							117				117	
Support and Management Organizations												
CECOM MIPR						0	205	215	105		525	
Test and Evaluation Organizations: None												
Government Furnished Property: None												
Subtotal Product Development							4560	4284	4342		13186	
Subtotal Support and Management							205	215	105		525	
Subtotal Test and Evaluation												
Total Project							4765	4499	4447		13711	
Project D702					Page 3 of 3 Pages			Exhibit R-3 (PE 0604739A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604740A Tactical Surveillance System - Engineering Development					PROJECT D661	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D661 Suite of Survivability Enhancements System	2954	0	0	0	0	0	0	0	0	2954
<p><u>Mission Description and Budget Item Justification:</u> This program element which involves the Suite of Survivability Enhancements Systems (SSES) program is a Horizontal Technology Integration (HTI) effort to develop, produce and apply an integrated suite of common electronic sensors and countermeasures to Army ground combat vehicles. SSES will protect Army vehicles by providing advance warning of attack and activating countermeasures which will obscure our vehicles and jam, decoy or deflect enemy munitions. The first phase of the SSES program will field Laser Warning Receivers (LWR) to Bradley A3 vehicles. Initially, AN/AVR-2A Laser Warning Receivers, currently in production for Army aviation platforms, will be modified for ground vehicle use. In addition, a Commander's Decision Aid (CDA) will be developed that will integrate current and future sensors and countermeasures to provide manual, semiautomatic and automatic activation of countermeasures. The next phase of the SSES program will field Missile Warning Receivers to Bradley A3 vehicles. Additional phases of this program are contemplated which will provide additional countermeasures to the suite, and field the suite to other vehicles. This PE supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> Follow-on to existing contracts.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1400 Modified 3 vehicle sets of AN/AVR-2A's • 1000 Initiated integration of Laser Warning Receiver into Bradley A3 • 444 Provided Technical Support to SSES • 110 Designed Integration (GDLS) <p>Total 2954</p> <p>FY 1997 Planned Program: Funded under PE 0203735A Project D718 Combat Vehicle Improvement Programs</p> <p>FY 1998 Planned Program: Funded under PE 0203735A Project D718 Combat Vehicle Improvement Programs</p> <p>FY 1999 Planned Program: Funded under PE 0203735A Project D718 Combat Vehicle Improvement Programs</p>										
Project D661			Page 1 of 3 Pages				Exhibit R-2 (PE 0604740A)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604740A Tactical Surveillance System - Engineering Development						PROJECT D661				
B. <u>Project Change Summary</u>																
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>						
FY 1997 President's Budget	0			0			0			0						
Appropriated Value	2844			0			0			0						
Adjustments to Appropriated Value	110			0			0			0						
FY 1998 President's Budget Request	2954			0			0			0						
C. <u>Other Program Funding Summary:</u> Not Applicable																
D. <u>Schedule Profile</u>																
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone Decision Authority IPR			X*													
Laser Warning Receiver Modification				X*												
Bradley A3 A-Kit Development				X												
* Milestones Completed																
Project D661				Page 2 of 3 Pages				Exhibit R-2 (PE 0604740A)								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
5 - Engineering and Manufacturing Development				0604740A Tactical Surveillance System - Engineering Development						D661	
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Technical Support				242							
Program Management Support				203							
Contract - Hughes, UDLP, GDLS				2509							
Total				2954							
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Hughes	Prod/FFP	Jun 96	1400	1400		1400					1400
UDLP	CPFF	Jun 96	1000	1000		850					850
GDLS	CPFF	Aug 96				140					140
Camber	CPAF	Aug 96				119					119
Support and Management Organizations											
PM ASI	MIPR	Jun 96					168				168
Surviac	MIPR	Aug 96					15				15
CECOM	MIPR	Jun 96					100				100
SLAD, NM	MIPR	Jul 96					100				100
STRICOM, FL	MIPR	Jul 96					42				42
TARDEC	MIPR	Jun 96					20				20
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development						2509					2509
Subtotal Support and Management							445				445
Subtotal Test and Evaluation											
Total Project							2954				2954
Project D661				Page 3 of 3 Pages				Exhibit R-3 (PE 0604740A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604741A Air Defense Command, Control, Intelligence - Engineering Development					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	21810	20031	18350	6698	7635	8536	22163	19204	Continuing	Continuing
D126 FAAD Command and Control Engineering Development	18966	20031	18350	6698	7635	8536	22163	19204	Continuing	Continuing
D146 Air Defense Tactical Operations Center	2844	0	0	0	0	0	0	0	Continuing	Continuing
<p>Mission Description and Budget Item Justification: The Forward Area Air Defense Command, Control and Intelligence (FAAD C2I) System provides critical forward area air defense automated information to support the command and control decision process at various levels of command. The mission is to collect, digitally process and disseminate target information, air threat warning, and command and control information to all FAAD weapons [AVENGER, Bradley STINGER Fighting Vehicle (BSFV), Manportable Air Defense System (MANPADS), and combined arms]. Unique FAAD C2I software will provide the mission capability by integrating FAAD C2 engagement operations software using Common Hardware/Software (CHS), Standard Integrated Command Post System (SICPS), Enhanced Position Location Reporting System (EPLRS), Joint Tactical Information Distribution System (JTIDS), Single Channel Ground and Air Radio System (SINCGARS), Light and Special Division Interim Sensor (LSDIS), Global Positioning System (GPS), Airborne Warning and Control System (AWACS), Ground Based Sensor (GBS), and the Army Battle Command System (ABCS) architecture. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and therefore are correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604741A Air Defense Command, Control, Intelligence - Engineering Development					PROJECT D126	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D126 FAAD Command and Control Engineering Development	18966	20031	18350	6698	7635	8536	22163	19204	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Project D126 - FAAD Command and Control Eng Dev: The Forward Air Defense Command and Control (FAAD C2) System is an automated system deployed with FAAD weapons to provide accurate and timely command, control and targeting information for the weapon systems. The system utilizes non-developmental item sensors, computers, displays and interface hardware integrated with data communication equipment. It automates mission related functions and uses the Single Channel Ground and Airborne Radio Systems (SINCGARS) for voice and the Army Data Distribution System (ADDS) for data.</p> <p><u>Acquisition Strategy:</u> The acquisition strategy relies heavily on non-developmental items (NDI) and evolutionary software development to rapidly overcome our current air defense command, control and intelligence deficiencies and to keep pace with the advancing technologies. The concept of evolutionary software development is being followed and will be accomplished in Blocks - I, II, III and IV. Blocks I and II have been completed. Block III is currently being developed.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 18100 Continued Block III Software Development • 400 Prepared for Block III Users Test • 466 Prepared for Technology Insertion <p>Total 18966</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1877 Conduct Block III Users Test (UT) • 17447 Continue Block III Software Development • 300 Prepare for Block III Development Test (DT) • 407 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 20031</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 2499 Digitization integration • 15751 Continue Block III development • 100 Block III System Certification Test <p>Total 18350</p>										
Project D126				<i>Page 2 of 7 Pages</i>				Exhibit R-2 (PE 0604741A)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604741A Air Defense Command, Control, Intelligence - Engineering Development					PROJECT D126						
FY 1999 Planned Program:																
<ul style="list-style-type: none"> • 100 System Certification Test • 1201 Complete Block III SW development • 3247 Digitization integration • 2150 Begin Block IV development 																
Total 6698																
B. Project Change Summary																
	<u>FY 1996</u>	<u>F 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>												
FY1997 President's Budget	19281	20516	14944	2042												
Appropriated Value	19474	20031														
Adjustments to Appropriated Value	-508															
FY 1998 Pres Bud Request	18966	20031	18350	6698												
Change Summary Explanation: Funding: FY98 (+3406) 2499 for digitization; 907 for Blk III SW development/FY99 (+4656) 3247 for digitization; 1409 to initiate Blk IV SW development																
C. Other Program Funding Summary																
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>						
									<u>Compl</u>	<u>Cost</u>						
RDTE, DE10 - SENTINEL GBS	500				6094	9589	9289			25472						
OPA 2, WK5053 - SENTINEL GBS	61882	68783	41014	40071	34283	51545	16688	34206	CONT	CONT						
OPA 2, AD5050 - FAAD C2	42880	36715	13080	8262	0	0	0	8261	0	135157						
OPA 2, AD5070 - AD TAC OPNS CTR							14779	14844	CONT	CONT						
Spares (BA9702/MA9702/BS9702) - FAAD C2	1600	1259	1555	885	0	0	0		0	9617						
Spares (BS973BS97322) - SENTINAL GBS	2324	3610	5258	5382	0	0	0	0	0	16920						
D. Schedule Profile																
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>					<u>FY 1999</u>	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
First Unit Equipped Block II	X*															
System Certification Test					X											
System Certification Test								X								
System Certification Test										X						
First Unit Equipped - Objective System																X
Project D126																
Page 3 of 7 Pages																
Exhibit R-2 (PE 0604741A)																

		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604741A Air Defense Command, Control, Intelligence - Engineering Development	
*Denotes completed milestone		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604741A Air Defense Command, Control, Intelligence - Engineering Development					PROJECT D126	
A. Project Cost Breakdown						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>		
Major Contracts						15405	15301	14821	4949		
Support Contract						500	1000	1000	200		
PMO/In-house/Other						2542	2414	2229	1249		
GFE/Testing						519	909	300	300		
SBIR/STTR							407				
Total						18966	20031	18350	6698		
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performin g Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
TRW	C/CPIF	Sep 86	176461	176461	176461						176461
TRW	SS/CPIF	Aug 92	32206	32206	32206						32206
TRW	SS/CPIF	Sep 94	53194	53194	7700	14200	13311	12821	4949	CONT	52981
TRW	SS/T&M	Sep 93	4900	4900	1000	1205	1888	2000		CONT	6093
Matrix (RDEC)	MIPR				2163	1188	1072	1130	554	CONT	6107
SBIR/STTR							407				407
Support and Management Organizations											
SETA, CAS	SS/CPFF	Feb 91	10879	10879	10879						10879
In-House/ Other					6108	1854	2343	2099	895	CONT	13299
Test and Evaluation Organizations											
ADATD, Ft Bliss					8687	319	810	100	100	CONT	10016
OPTEC					2000						2000

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604741A Air Defense Command, Control, Intelligence - Engineering Development				PROJECT D126		
Government Furnished Property										
	Contract									
Item	Method/Type	Award or		Total					Budget to	Total
<u>Description</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Prior to</u>					<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>		
Product Development Property										
CHS	MIPR			400	200	200	200	200	CONT	1200
JTIDS	MIPR	1988		6000					0	6000
Support and Management Property: None										
Test and Evaluation Property: None										
Subtotal Product Development				225930	16793	16878	16151	5703		281455
Subtotal Support and Management				16987	1854	2343	2099	895		24178
Subtotal Test and Evaluation				10687	319	810	100	100		12016
Total Project				253604	18966	20031	18350	6698		317649

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604741A Air Defense Command, Control, Intelligence - Engineering Development				PROJECT D146																											
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
D146 Air Defense Tactical Operations Center	2844	0	0	0	0	0	0	0	Continuing	Continuing																									
<p>A. <u>Mission Description and Justification:</u> Project D146 - Air Defense Tactical Operations Center: Air Defense Artillery (ADA) requires a standardized, integrated, automated command post (CP) and fire direction center (FDC) capability that will fully interoperate with all US Army and Joint C3I and Air Defense systems, and selected systems of allied nations. These capabilities will be incorporated in an Air Defense Tactical Operations Center (ADTOC). The ADTOC must incorporate air defense and theater missile defense force operations and engagement operations functions into a single command, control, communications and intelligence system. Project D146 finances the direct costs of developing an ADTOC that will be used to provide a single system command, control, communications, and intelligence system that will support the requirements of any air defense weapon system at any echelon of Corps and below.</p> <p><u>Acquisition Strategy:</u> The acquisition strategy relies heavily on NDI and existing modules of Army/Joint/DoD software which will be integrated to provide a modular, reconfigurable, standard digital ADTOC for all air defense units, battery to brigade. Brigade ADTOCs will be automated first with expansion to all weapon systems.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 2844 Development and integration studies <p>Total 2844</p> <p>FY 1997 Planned Program: Project not funded in FY 1997</p> <p>FY 1998 Planned Program: Project not funded in FY 1998</p> <p>FY 1999 Planned Program: Project not funded in FY 1999</p> <p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">968</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">978</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">+1866</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">2844</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 1996 (+1866) for unfunded ADTOC development.</p>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	968				Appropriated Value	978				Adjustments to Appropriated Value	+1866				FY 1998 Pres Bud Request	2844			
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY 1997 President's Budget	968																																		
Appropriated Value	978																																		
Adjustments to Appropriated Value	+1866																																		
FY 1998 Pres Bud Request	2844																																		
Project D146				Page 6 of 7 Pages				Exhibit R-2 (PE 0604741A)																											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY			PE NUMBER AND TITLE					PROJECT			
5 - Engineering and Manufacturing Development			0604741A Air Defense Command, Control, Intelligence - Engineering Development					D146			
A. <u>Project Cost Breakdown</u>			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
Contracts			2221								
In-house/Other			623								
Total			2844								
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Misc. Contrs	PWD					2221					2221
Matrix Support	MIPR					410					410
Support and Management Organizations											
In-house/Other						213					213
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development						2631					2631
Subtotal Support and Management						213					213
Subtotal Test and Evaluation											
Total Project						2844					2844
Project D146			Page 7 of 7 Pages				Exhibit R-3 (PE 0604741A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development
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COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	10648	9575	2582	2533	5365	4642	7589	7049	Continuing	Continuing
DL59 Diagnostic/Expert System Development	3732	9575	2582	2533	5365	4642	7589	7049	Continuing	Continuing
D537 Integrated Family of Test Equipment	6916	0	0	0	0	0	0	0	0	64290

Mission Description and Budget Item Justification: This program element provides for development of modular, reconfigurable automatic test equipment (ATE) to satisfy test and fault isolation requirements across equipment commodities and to meet operational readiness needs of sophisticated systems and state-of-the-art technologies. An urgent requirement exists at all levels of maintenance for ATE to support complex communications and electronics-intensive commodities such as missiles, aircraft, and combat vehicles. The Integrated Family of Test Equipment (IFTE), with improvements as required to keep pace with technologies employed in the supported weapon systems, can meet these mission requirements into the next century. This program element further provides for identification and evaluation of the capabilities of commercial and nondevelopmental items to satisfy requirements for manual and semi-automatic general purpose test, measurement, and diagnostic equipment at the division level. Expert systems and artificial intelligence applications are also being developed under this program element to provide paperless maintenance manuals/procedures and battlefield electronic displays which will reduce the Army's investment in test program sets and in maintenance publications and procedures. These projects are appropriately assigned to Budget Activity 5, since they provide for engineering and manufacturing development of new ATE systems to meet the test and diagnostic requirements of the Army's weapon systems, and for incorporation of state-of-the-art technologies into the Army's ATE systems.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development				PROJECT DL59		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL59 Diagnostic/Expert System Development	3732	9575	2582	2533	5365	4642	7589	7049	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> This project funds development of expert/diagnostic systems and general purpose test equipment. These systems and equipment are required to overcome existing deficiencies and voids in organic test and diagnostic capabilities and to ensure the operational readiness, accuracy, and effectiveness of the Army's weapons and combat support systems. The project provides for development of diagnostic technologies and state-of-the-art general purpose test equipment for: support to the Army's weapon systems, improvement of general purpose test equipment to meet new testing and technological requirements, market surveys of commercially available general purpose test equipment to determine applicability to Army requirements, evaluations and validations of diagnostic software on targeted hardware, and development/evaluation of test programs sets (TPS) for use with standard automatic test equipment (ATE). Applications of state-of-the-art technologies in expert systems and artificial intelligence, paperless maintenance and troubleshooting manuals, electro-optics displays for battlefield use, and soldier-friendly equipment will be developed to meet identified requirements.</p> <p><u>Acquisition Strategy:</u> When the necessary expertise and capability are available within the Department of Defense, services are ordered from the government source; otherwise, commercial contracts are used. Equipment required for development projects is obtained by contract from the commercial supplier. Candidate nondevelopmental items (NDI) and commercial equipment are identified and evaluated through market surveys and bid sample testing.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1583 Commenced development of software tools for new contact test sets (CTS). • 140 Performed bench testing of NDI equipment. • 2009 Performed initial integration and testing of prototype Electro-Optic Test Facility. <p>Total 3732</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 655 Test new CTS hardware. • 390 Test new state-of-the-art commercial equipment for use in Army test equipment programs. • 1023 Continue integration and testing of Electro-Optic Test Facility (EOTF). • 340 Continue development of software tools for new CTS. • 3444 Complete development of Kiowa Warrior electronic TPS. • 3500 Commence development/rehost of Apache TPS. • 223 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program 										
Project DL59			Page 2 of 9 Pages				Exhibit R-2 (PE 0604746A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																																																																																																	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development	PROJECT DL59																																																																																																																	
<p>Total 9575</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 682 Continue to test new state-of-the-art commercial equipment for use in Army test equipment programs. • 1200 Complete integration and testing of EOTF. • 700 Complete development of software tools for new CTS. <p>Total 2582</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 510 Continue to test new state-of-the-art commercial equipment for use in Army test equipment programs. • 1000 Develop diagnostic software for use with Army automatic test equipment. • 1023 Evaluate common solutions for Army and other Service test and diagnostic requirements. <p>Total 2533</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">5288</td> <td style="text-align: center;">2793</td> <td style="text-align: center;">2770</td> <td style="text-align: center;">2733</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">5437</td> <td style="text-align: center;">9575</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-1705</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">3732</td> <td style="text-align: center;">9575</td> <td style="text-align: center;">2582</td> <td style="text-align: center;">2533</td> </tr> </tbody> </table> <p>Change Summary Explanation: FY 1996 adjustment reprogrammed for higher priority Army requirements.</p> <p>C. Other Program Funding Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To Compl</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>OPA2, K18400, Base Shop Test Facility</td> <td style="text-align: center;">35511</td> <td style="text-align: center;">17076</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">307736</td> </tr> <tr> <td>OPA3, MB4001, Base Shop Test Facility</td> <td></td> <td></td> <td style="text-align: center;">4321</td> <td style="text-align: center;">17013</td> <td style="text-align: center;">34625</td> <td style="text-align: center;">5451</td> <td style="text-align: center;">4464</td> <td style="text-align: center;">1988</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> <tr> <td>OPA2, K51600, Contact Test Set</td> <td style="text-align: center;">1953</td> <td style="text-align: center;">4408</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">94364</td> </tr> <tr> <td>OPA3, MB4002, Contact Test Set</td> <td></td> <td></td> <td style="text-align: center;">10507</td> <td style="text-align: center;">24164</td> <td style="text-align: center;">11432</td> <td style="text-align: center;">53308</td> <td style="text-align: center;">39380</td> <td style="text-align: center;">48894</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> <tr> <td>OPA3, MB2201, Electronic Repair Shelter</td> <td></td> <td></td> <td style="text-align: center;">5678</td> <td style="text-align: center;">3789</td> <td style="text-align: center;">3787</td> <td style="text-align: center;">2975</td> <td style="text-align: center;">1716</td> <td></td> <td></td> <td style="text-align: center;">17945</td> </tr> <tr> <td>OPA2, KA4100, Electro Optic Equipment</td> <td style="text-align: center;">3859</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">3859</td> </tr> <tr> <td>OPA3, MB4003, Electro Optic Equipment</td> <td></td> <td></td> <td></td> <td style="text-align: center;">14262</td> <td style="text-align: center;">5782</td> <td style="text-align: center;">5423</td> <td style="text-align: center;">8927</td> <td style="text-align: center;">8944</td> <td style="text-align: center;">Cont</td> <td style="text-align: center;">Cont</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	5288	2793	2770	2733	Appropriated Value	5437	9575			Adjustments to Appropriated Value	-1705				FY 1998 Pres Bud Request	3732	9575	2582	2533		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Compl</u>	<u>Total Cost</u>	OPA2, K18400, Base Shop Test Facility	35511	17076								307736	OPA3, MB4001, Base Shop Test Facility			4321	17013	34625	5451	4464	1988	Cont	Cont	OPA2, K51600, Contact Test Set	1953	4408								94364	OPA3, MB4002, Contact Test Set			10507	24164	11432	53308	39380	48894	Cont	Cont	OPA3, MB2201, Electronic Repair Shelter			5678	3789	3787	2975	1716			17945	OPA2, KA4100, Electro Optic Equipment	3859									3859	OPA3, MB4003, Electro Optic Equipment				14262	5782	5423	8927	8944	Cont	Cont
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																																																																																																															
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Project DL59	Page 3 of 9 Pages	Exhibit R-2 (PE 0604746A)																																																																																																																	

		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development	
D. <u>Schedule Profile:</u> Not Applicable.		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
5 - Engineering and Manufacturing Development				0604746A Automatic Test Equipment Development						DL59	
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Systems Engineering				1932	2187	1232	983				
Software Development/Engineering				592	5944	450	1000				
Testing				734	655	750	300				
Miscellaneous				474	566	150	250				
SBIR/STTR					223						
Total				3732	9575	2582	2533				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
McDonnell Douglas Corp., Huntington Beach, CA	SS/FFP	May 96	4100	4100	4100						4100
Honeywell, Inc. Albuquerque, NM	SS/FFP	Apr 96	4675	4675	4675						4675
McDonnell Douglas Corp., Mesa, AZ	SS/CPIF	Mar 96	8225	8225	8225						8225
Northrop Grumman, Bethpage, NY						1385	6152	900	500	Cont	8937
Other Contracts					35537	1182	1889	482	833	Cont	39923
Gov't In-House					8260	1165	1311	1200	1200	Cont	13136
SBIR/STTR							223				223
Support and Management Organizations: None											
Project DL59				Page 4 of 9 Pages				Exhibit R-3 (PE 0604746A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
5 - Engineering and Manufacturing Development					0604746A Automatic Test Equipment Development					DL59	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations: None											
Government Furnished Property: None.											
Subtotal Product Development					60797	3732	9575	2582	2533	79219	
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project					60797	3732	9575	2582	2533	79219	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development				PROJECT D537																											
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
D537 Integrated Family of Test Equipment	6916	0	0	0	0	0	0	0	0	64290																									
<p>A. <u>Mission Description and Justification:</u> This project provides for development and upgrade of automatic test equipment (ATE) to support electronics-intensive weapon systems at all maintenance levels. The IFTE systems will automatically test and verify the operation of line replaceable units and screen shop replaceable units through use of test program sets (TPS) and software developed or upgraded under this project.</p> <p><u>Acquisition Strategy:</u> When the necessary expertise and capacity are available within the Department of Defense, services are ordered from the government source; otherwise, commercial contracts are used.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 3738 Developed/modified TPS for Kiowa Warrior improved processors • 54 Rehosted TPSs for use with Electronic Repair Shelter • 1999 Developed/rehosted Kiowa Warrior and Apache TPSs for use with the Electro-Optics Test Facility • 1125 Developed software interface for Contact Test Set, Soldier Portable On-System Repair Tool (CTS SPORT) with automated logistics systems. <p>Total 6916</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p> <p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border: none;"> <tr> <td></td> <td style="text-align: center;"><u>FY 1996</u></td> <td style="text-align: center;"><u>FY 1997</u></td> <td style="text-align: center;"><u>FY 1998</u></td> <td style="text-align: center;"><u>FY 1999</u></td> </tr> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">9727</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">10000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustment to Appropriated Value</td> <td style="text-align: center;">-3084</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">6916</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table> <p>Change Summary Explanation: FY 1996 adjustment reprogrammed for higher priority Army requirements.</p>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	9727	0	0	0	Appropriated Value	10000				Adjustment to Appropriated Value	-3084				FY 1998 Pres Bud Request	6916	0	0	0
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
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FY 1998 Pres Bud Request	6916	0	0	0																															
Project D537				Page 6 of 9 Pages				Exhibit R-2 (PE 0604746A)																											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development				PROJECT D537		
C. <u>Other Program Funding Summary</u>										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u> <u>Compl</u>	<u>Total</u> <u>Cost</u>
OPA2, K18400, Base Shop Test Facility	35511	17076								307736
OPA3, MB4001, Base Shop Test Facility			4321	17013	34625	5451	4464	1988	Cont	Cont
OPA2, K51600, Contact Test Set	1953	4408								94364
OPA3, MB4002, Contact Test Set			10507	24164	11432	53308	39308	48894	Cont	Cont
OPA3, MB2201, Electronic Repair Shelter			5678	3789	3787	2975	1716			17945
OPA2, KA4100, Electro Optic Equipment	3859									3859
OPA3, MB4003, Electro Optic Equipment				14262	5782	5423	8927	8944	Cont	Cont
D. <u>Schedule Profile:</u> Not Applicable.										
Project D537			Page 7 of 9 Pages			Exhibit R-2 (PE 0604746A)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604746A Automatic Test Equipment Development				PROJECT D537			
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Systems Engineering				1999							
Software Development				4917							
Total				6916							
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
SAIC, San Diego, CA	C/CPAF	Various	1961	1961	1961						1961
Northrop Grumman, Bethpage, NY	SS/FFP	Jan 95 -Jul 96	3856	3856	2340	1516					3856
Grumman Aerospace Corp., Bethpage, NY	Various	Various	40873	40873	40873						40873
Honeywell, Inc., Albuquerque, NM	SS/FFP	Oct 96	3738	3738		3738					3738
Other Contracts					2934	1264					4198
Gov't In-House Funded Reqstns					8592	398					8990
					674						674
Government Furnished Property: Not Applicable.											
Project D537				Page 8 of 9 Pages			Exhibit R-3 (PE 0604746A)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997	
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT	
5 - Engineering and Manufacturing Development		0604746A Automatic Test Equipment Development				D537	
		Total Prior to				Budget to	Total
		<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>
Subtotal Product Development		57374	6916				64290
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project		57374	6916				64290

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development						
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	15631	20895	9242	18603	15974	16466	16914	Continuing	Continuing
DC73 Synthetic Theater of War	0	10033	5837	0	0	0	0	0	0	15870
DC74 Developmental Simulation Technology	0	2577	2436	3008	3525	3593	3702	3801	Continuing	Continuing
DC77 Interactive Simulation	0	3021	8622	4224	9092	8391	8780	8928	Continuing	Continuing
DC78 Computer Generated Forces*	0	0	4000	2010	5986	3990	3984	4185	Continuing	Continuing

*Project DC78 is not a new start, but rather a realignment of funds from Interactive Simulation (DC77) to more appropriately identify/manage accomplishments of Computer Generated Forces as determined by the Army Modeling Simulation Office (AMSO).

Mission Description and Budget Item Justification: Distributed Interactive Simulation (DIS) is a synthetic environment within which humans may interact through a systematic connection of different subcomponent simulations, simulators and/or instrumented live task forces. These DIS components may reside at multiple and distant locations, using different simulation equipment, tied together through use of a standard communication architecture. This Program Element provides for the engineering development and application of DIS technology to electronically link all subcomponents together to recreate a scaleable battlefield, both horizontally and vertically. The synthetic environment is used to verify the scenarios, tactics/techniques and procedures, train testers on new hardware/software and conduct trial test runs before costly live field tests. Project DC73, Synthetic Theater of War, supports engineering development and integration of the Synthetic Theater of War-Army (STOW-A) and Force XXI. Project DC74, Developmental Simulation Technology, provides engineering development of DIS tools, techniques, standards and applications in support of the Army's Core DIS Facilities (CDF) at Forts Knox, Benning and Rucker, and the Operational Support Facility in Orlando, FL. Project DC77, Interactive Simulation, focuses on engineering development of techniques and technology for DIS and related simulations and simulator efforts. Project DC78 develops and upgrades computer generated forces software systems which support experimentation, concept evaluation, materiel development and training. Work done on this program will have benefit across the Army and DoD by providing standards for interoperability and software reuse in this emerging domain. This Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition cycle and therefore is correctly placed in Budget Activity 5.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development				PROJECT DC73		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC73 Synthetic Theater of War	0	10033	5837	0	0	0	0	0	0	15870
<p>A. <u>Mission Description and Justification:</u> Project DC73 - Synthetic Theater of War: This project supports engineering development and integration of the Synthetic Theater of War (STOW) and Force XXI. Development focuses on leveraging existing and emerging technology in a manner that produces substantial and continual improvements in combat readiness through the use of full spectrum, high fidelity, distributed simulation capability to support a large scale DIS user based exercise/experiment for JOINT VENTURE training and analytical needs.</p> <p><u>Acquisition Strategy:</u> Development and procurement through delivery orders to competitively selected contractors providing Systems Engineering and Integration and Advanced Development Simulation Technology, based on performance specifications.</p> <p>FY 1996 Accomplishments: Project not funded</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 2997 Develop and apply distributed simulation technology to support the Synthetic Theater of War. • 1330 Conduct Army Model and Simulation assessment and develop an interactive database catalog of Army systems and their characteristics. • 5461 Develop and integrate emerging simulation technology in support of Force XXI training program. • 245 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 10033</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 4837 Continue development of distributed simulation technology to support the Synthetic Theater of War. • 1000 Develop and integrate emerging simulation technology in support of Force XXI training program. <p>Total 5837</p> <p>FY 1999 Planned Program: Project not funded in FY 99.</p>										
Project DC73			Page 2 of 15 Pages				Exhibit R-2 (PE 0604760A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC73						
B. <u>Project Change Summary</u>					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>								
FY 1997 President's Budget					0	10248	6287	0								
Appropriated Value					0	10033										
Adjustments to Appropriated Value					0	0										
FY 1998 Pres Bud					0	10033	5837	0								
C. <u>Other Program Funding Summary</u>																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Compl</u>	<u>Total Cost</u>					
OPA3, KA6000, Reconfigurable Simulators					12222	13825	13823	12803	8997	8282	4960	4969	Cont'd	Cont'd		
RDTE, A Budget Activity 5, PE0604715A, Project DC91, Distr Interactive Simulation					5685	0	0	0	0	0	0	0	0	5685		
OMA, Reconfigurable Simulators					12100	10899	10070	7150	6650	8150	11950	11950	Cont'd	Cont'd		
D. <u>Schedule Profile</u>					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>								
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Award Engr & Integration Contract						X*			X							
*Milestone Complete																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC73	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Systems Engineering & Integration						2868	4043				
Hardware Design & Development						1750	490				
Reliability, Availability and Maintainability						738	920				
Training Support Packages						4027	0				
Verification, Validation & Accreditation						405	384				
SBIR/STTR						245					
Total						10033	5837				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Lockheed-Martin, Orlando, Fl	DO/CPAF	Nov 96	6089	6089	0	0	2849	3240	0	0	6089
Cubic Applications Inc., Lacey, WA	DO/CPIF	Jan 97	TBD	1330	0	0	1290	0	0	0	1290
ARI, Alexandria, VA	DO/CPIF	Feb 97	TBD	4710	0	0	3747	963	0	0	4710
SBIR/STTR							245				245
Support and Management Organizations											
Miscellaneous	Various	Various	2707	2707	0	0	1497	1250	0	0	2747
Test and Evaluation Organizations											
Miscellaneous	Various	Various	789	789	0	0	405	384	0	0	789

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 1997	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
5 - Engineering and Manufacturing Development		0604760A Distributive Interactive Simulations - Engineering Development			DC73	
	Total					
	Prior to				Budget to	Total
	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>
Subtotal Product Development			8131	4203		12334
Subtotal Support and Management			1497	1250		2747
Subtotal Test and Evaluation			405	384		789
Total Project			10033	5837		15870

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC74	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC74 Developmental Simulation Technology	0	2577	2436	3008	3525	3593	3702	3801	Continuing	Continuing
<p>A. <u>Mission Description and Justification</u> : Project DC74 - Developmental Simulation Technology: This project supports the Core Distributed Interactive Simulation (DIS) Facilities (CDF) at Fort Knox, KY, Fort Rucker, AL, Fort Benning, GA and the Operational Support Facility in Orlando, FL, which provide virtual combined arms battlefield with the warfighter-in-the-loop to evaluate weapon system concepts, tactics, doctrine and test plans.</p> <p><u>Acquisition Strategy:</u> Competitive development leading to competitive procurement against performance specifications</p> <p>FY 1996 Accomplishments: Development activities funded in PE 0604759A, Major Test and Evaluation, Project DC55, Distributive Dev Simulation Technology.</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1150 Develop DIS tools such as exercise conduct and visual systems generation, which enable combat, materiel and training developers and testers to perform experiments to test tactics, doctrine and weapon design. • 1364 Continue development and systems integration of new and emerging equipment and software technology for use in the Core DIS Facilities. • 63 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 2577</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 900 Develop Dismounted Warrior Network which will integrate technologies to provide dismounted and small unit simulation capability to support experimentation, concept evaluation, and materiel acquisition. • 850 Continue development of tools which provide improved capabilities for experiment and exercise generation and after-action analysis. • 686 Continue development and systems integration of new and emerging equipment and software technology for use in the Core DIS Facilities. <p>Total 2436</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 3008 Continue development of Advanced Distributed Simulation Technology support which enables combat, materiel and training developers and testers to perform experiments to test tactics, doctrine and weapon design. <p>Total 3008</p>										
Project DC74			Page 6 of 15 Pages				Exhibit R-2 (PE 0604760A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development							PROJECT DC74				
B. <u>Project Change Summary</u>																
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>								
FY 1997 President's Budget		0		2632		2615		3249								
Appropriated Value		0		2577												
Adjustments to Appropriated Value		0		0												
FY 1998 Pres Bud		0		2577		2436		3008								
C. <u>Other Program Funding Summary</u>																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Compl</u>	<u>Total Cost</u>					
RDTE, A Budget Activity 5, PE 0604715A, Project DC91, Distr Interactive Simulation		5685	0	0	0	0	0	0	0	0	9370					
RDTE, A Budget Activity 5, PE 0604760A, Project DC77, Interactive Simulation		0	3021	8622	4224	9092	8391	8780	8928	Cont'd	Cont'd					
OPA3, KA6000, Reconfigurable Simulators		12222	13825	13823	12803	8997	8282	4960	4969	Cont'd	Cont'd					
OMA, Reconfigurable Simulators		12100	10899	10070	7150	6650	8150	11950	11950	Cont'd	Cont'd					
D. <u>Schedule Profile</u>																
		<u>FY 1996</u>			<u>FY 1997</u>				<u>FY 1998</u>			<u>FY 1999</u>				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advanced Distributed Simulation Technology (ADST) II Delivery Order Contract Award					X*				X				X			
*Milestone Complete																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC74	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Systems Engineering & Integration					0	1689	1486	1847			
Primary Hardware Development					0	425	600	675			
Reliability, Availability and Maintainability					0	400	350	486			
SBIR/STTR						63					
Total						2577	2436	3008			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed-Martin, Orlando, FL	DO/CPAF	Nov 96	TBD	TBD	0	0	1905	1796	2260	Cont'd	5961
SBIR/STTR							63				63
Support and Management Organizations											
Miscellaneous	Various	Various	TBD	TBD	0	0	409	440	448	Cont'd	1297
Test & Evaluation Organizations											
Miscellaneous	Various	Various	TBD	TBD	0	0	200	200	300	Cont'd	700
Subtotal Product Development							1968	1796	2260		6024
Subtotal Support and Management							609	640	748		1997
Subtotal Test and Evaluation											
Total Project							2577	2436	3008		8021
Project DC74					Page 8 of 15 Pages			Exhibit R-3 (PE 0604760A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC77	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC77 Interactive Simulation	0	3021	8622	4224	9092	8391	8780	8928	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Project DC77 - Interactive Simulation: This project focuses on engineering development of techniques and DIS technology of wide area simulation networking in support of modeling and simulation, doctrinal development, training, and operations, utilizing live, virtual and constructive simulations. Development also supports related simulations and simulator efforts, including the Battlelab Reconfigurable Simulators. Development activities associated with this project were budgeted in Program Element 0604715A, Non-System Training Devices Engineering Development, Project DC91, Distributive Interactive Simulation, in FY 1995 and FY 1996.</p> <p><u>Acquisition Strategy:</u> Competitive development leading to competitive procurement against performance specifications</p> <p>FY 1996 Accomplishments: Funded under Project DC 91, Distributive Interactive Simulation, PE 0604715A</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 508 Provide systems engineering and develop standards, interoperability and accreditation processes, and DIS tools to support the synthetic environment. • 450 Develop software upgrades/enhancements to support the re-architecture of modular semi-automated forces (MODSAF) computer generated forces system. • 1989 Continue development of the Ground, Early Entry Operations, and Aviation Battlelab Reconfigurable Simulators. • 74 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 3021</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1087 Provide systems engineering and continue development of standards, interoperability and accreditation processes, and DIS tools to support the synthetic environment. • 6535 Continue development of the Aviation, C4I and Dismounted Infantry Battlelab Reconfigurable Simulators. • 1000 Develop improved representation of C4I and environmental effects in the synthetic environment <p>Total 8622</p>										
Project DC77			Page 9 of 15 Pages				Exhibit R-2 (PE 0604760A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC77	
FY 1999 Planned Program:											
<ul style="list-style-type: none"> • 2424 Provide systems engineering and continue development of standards, interoperability and accreditation processes, and DIS tools to support the synthetic environment. • 1000 Continue development of the C4I and Dismounted Infantry Battlelab reconfigurable simulators. • 800 Develop dynamic terrain and mobility models for use by the simulation community. 											
Total 4224											
B. Project Change Summary											
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
FY 1997 President's Budget		0		3086		10956		6737			
Appropriated Value		0		3021							
Adjustments to Appropriated Value		0		0							
FY 1998 Pres Bud		0		3021		8622		4224			
Change Summary Explanation:											
Funding: FY 98(-2334)/FY 99(-2513) funds moved to Computer Generated Forces (DC78) for central management/accomplishment identity as determined by the Army Modeling Simulation Office (AMSO).											
C. Other Program Funding Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Compl</u>	<u>Total Cost</u>
RDTE, A Budget Activity 5, PE 0604715A, Project DC91, Distr Interactive Simulation		5685	0	0	0	0	0	0	0	0	9370
OPA3, KA6000, Reconfigurable Simulators		12222	13825	13823	12803	8997	8282	4960	4979	Cont'd	Cont'd
OMA, Reconfigurable Simulators		12100	10899	10070	7150	6650	8150	11950	11950	Cont'd	Cont'd
D. Schedule Profile											
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3
Advanced Distributed Simulation Technology II Delivery Order Contract Award					X*				X		
Software Engineering Institute (SEI) Delivery Order Contract Award					X*				X		
Project DC77											
Page 10 of 15 Pages											
Exhibit R-2 (PE 0604760A)											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development							PROJECT DC77				
D. <u>Schedule Profile</u>						FY 1996		FY 1997				FY 1998			FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
BLRSI (Battlelab Reconfigurable Simulator) Option Contract Award						X*				X			X				
* Milestones Complete																	
Project DC77						Page 11 of 15 Pages						Exhibit R-2 (PE 0604760A)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC77	
A. Project Cost Breakdown											
					<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>
Systems Engineering & Integration							500		1337		2324
Develop DIS tools, techniques, standards							458		750		900
Reconfigurable Simulator Hardware/Software Development							1989		6535		1000
SBIR/STTR							74				
Total							3021		8622		4224
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Hughes Training Inc., Orlando, FL	CPIF	Feb97	TBD	TBD	0	0	487	4456	300	Cont'd	5243
Lockheed-Martin, Orlando, FL	DO/CPAF	Oct96	TBD	TBD	0	0	886	2021	2845	Cont'd	5752
Support and Management Organizations											
Miscellaneous SBIR/STTR	Various	Various	TBD	TBD	0	0	1349 74	1725	849	Cont'd	3923 74
Test and Evaluation Organizations											
Miscellaneous	Various	Various	TBD	TBD	0	0	225	420	230	Cont'd	875
Subtotal Product Development								1373	6477	3145	10995
Subtotal Support and Management								1423	1725	849	3997
Subtotal Test and Evaluation								225	420	230	875
Total Project								3021	8622	4224	15867
Project DC77					Page 12 of 15 Pages			Exhibit R-3 (PE 0604760A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC78	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC78 Computer Generated Forces*	0	0	4000	2010	5986	3990	3984	4185	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Project DC78 - Computer Generated Forces: This project provides for the development of software systems to realistically represent activities of units and forces in simulation. This representation is used to support concept evaluation, experimentation, materiel acquisition and training communities. This project funds improvements, new functionality, enhancements and re-architecture of Modular Semi-Automated Forces (ModSAF). Other initiatives include the systems engineering and design for improvements to the architecture and interoperability of Army SAFs, and the evolution to an Army universal computer generated forces system.</p> <p><u>Acquisition Strategy:</u> Competitive development leading to competitive procurements against performance specifications.</p> <p>FY 1996 Accomplishments: Funded within Project DC 91, Distributive Interactive Simulation, PE 0604715A.</p> <p>FY 1997 Planned Program: Funded within Project DC 77, Interactive Simulation, PE 0604760A.</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 900 Develop and integrate expansion of ModSAF battlefield operating systems representation/upper echelon behavior capabilities. • 2615 Development/re-architecture of ModSAF to provide for High Level Architecture (HLA) and Close Combat Tactical Trainer (CCTT) SAF compatibility. • 485 Verification and validation of newly integrated software. <p>Total 4000</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 310 Develop and integrate expansion of ModSAF battlefield operating systems representation/upper echelon behavior capabilities. • 1420 Continue engineering development of the ModSAF-CCTT Semi-Automated Forces merge. • 280 Verification and validation of newly integrated software. <p>Total 2010</p>										
Project DC78			Page 13 of 15 Pages				Exhibit R-2 (PE 0604760A)			

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC78																																																																																																																									
<p>B. <u>Project Change Summary</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">4000</td> <td style="text-align: center;">2010</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 98(+4000)/FY 99(+2010) funds moved from Interactive Simulation (DC77) to more appropriately identify/manage accomplishments of Computer Generated Forces (DC78) as determined by the Army Modeling Simulation Office (AMSO).</p> <p>C. <u>Other Program Funding Summary</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To</u></th> <th style="text-align: center;"><u>Total</u></th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>Compl</u></td> <td style="text-align: center;"><u>Cost</u></td> </tr> </thead> <tbody> <tr> <td>RDTE, A Budget Activity 5, PE 0604715A, Project DC91, Distributive Interactive Simulation</td> <td style="text-align: center;">5685</td> <td style="text-align: center;">0</td> <td style="text-align: center;">5685</td> </tr> <tr> <td>RDTE, A Budget Activity 5, PE 0604760A, Project DC77, Interactive Simulation</td> <td style="text-align: center;">0</td> <td style="text-align: center;">3021</td> <td style="text-align: center;">8622</td> <td style="text-align: center;">4224</td> <td style="text-align: center;">9092</td> <td style="text-align: center;">8391</td> <td style="text-align: center;">8780</td> <td style="text-align: center;">8928</td> <td style="text-align: center;">Cont'd</td> <td style="text-align: center;">Cont'd</td> </tr> </tbody> </table> <p>D. <u>Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;"></th> <th colspan="4" style="text-align: center;"><u>FY 1996</u></th> <th colspan="4" style="text-align: center;"><u>FY 1997</u></th> <th colspan="4" style="text-align: center;"><u>FY 1998</u></th> <th colspan="4" style="text-align: center;"><u>FY 1999</u></th> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </thead> <tbody> <tr> <td>ADST II Delivery Order Contract Award</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> </tr> </tbody> </table>													<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	0	0	0	0	Appropriated Value	0	0			Adjustments to Appropriated Value	0	0			FY 1998 Pres Bud	0	0	4000	2010		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>										<u>Compl</u>	<u>Cost</u>	RDTE, A Budget Activity 5, PE 0604715A, Project DC91, Distributive Interactive Simulation	5685	0	0	0	0	0	0	0	0	5685	RDTE, A Budget Activity 5, PE 0604760A, Project DC77, Interactive Simulation	0	3021	8622	4224	9092	8391	8780	8928	Cont'd	Cont'd		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	ADST II Delivery Order Contract Award									X					X		
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																																																																																																																															
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	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																																																																																																																			
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Project DC78				Page 14 of 15 Pages				Exhibit R-2 (PE 0604760A)																																																																																																																											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604760A Distributive Interactive Simulations - Engineering Development					PROJECT DC78	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Engineering Development and Integration							3515	1720			
Verification and Validation							485	290			
Total							4000	2010			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed-Martin Inc., Orlando, FL	DO/CPAF	Dec 98	TBD	TBD	0	0	0	2915	1150	Cont'd	4065
Support and Management Organizations											
Miscellaneous	Various	Various	TBD	TBD	0	0	0	600	570	Cont'd	1170
Test and Evaluation Organizations											
Miscellaneous	Various	Various	TBD	TBD	0	0	0	485	290	Cont'd	775
Subtotal Product Development								2915	1150		4065
Subtotal Support and Management								600	570		1170
Subtotal Test and Evaluation								485	290		775
Total Project								4000	2010		6010
Project DC78					Page 15 of 15 Pages			Exhibit R-3 (PE 0604760A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)					PROJECT D909	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D909 Tactical Exploitation of National Capabilities - Eng Dev	23266	15235	19113	19531	26094	25097	28203	28359	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> This project supports the engineering development/enhancement of the Electronic Tactical User Terminal (ETUT), Mobile Integrated Tactical Terminal (MITT), Forward Area Support Terminal (FAST), Advanced Electronic Processing Dissemination System (AEPDS) and Tactical Exploitation System (TES). The Army's emerging TES will incorporate the standards and protocols dictated by the Common Imagery Ground/Surface System (CIGSS) program. TES brings all of the existing and emerging Army TENCAP capabilities (AEPDS, MIES, and ETRAC) into an integrated common baseline; downsized, modular and scaleable to meet a wide range of contingency requirements. TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems [including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (DARP) (PE 0305154D)]. Specific details are provided in the Tactical Intelligence and Related Activities (TIARA) Congressional Justification Book, Volume II and in the Army TENCAP Master Plan. This PE supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> The Army Space Program Office (ASPO) strives for an acquisition environment emphasizing stable funding, low density acquisition, minimal use of MILSPECS, and managed competition. By tailoring existing technology, leveraging the best commercial practices, and using commercial and government off-the-shelf software, ASPO minimizes risk while maximizing efficiency. Finally, dedicated cradle to grave Integrated Logistics Support (ILS) for TENCAP systems is accomplished through a coordinated effort by government and contractor personnel and facilities.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 12102 Continued software upgrades and enhancements for the refinement of the TENCAP Common Baseline to fully exploit national capabilities such as integration of communications capabilities to meet changing architectures and implementation of software appliqué to provide the operational commander with enhanced battlefield intelligence products. • 606 Completed the retrofit of ETUT with enhanced MITT hardware and software. • 2356 Continued effort to combine ETUT and EPDS capabilities into AEPDS. • 900 Completed building/fielding of five additional MITTs. • 1094 Initiated engineering development of TES. • 6208 Continued support to TENCAP program management and administrative activities [e.g. FFRDC (Aerospace), ARL support, ASPO support, Army Topographic Engineering Center (TEC) and Contractor SETA support]. <p>Total 23266</p>										
Project D909				Page 1 of 5 Pages			Exhibit R-2 (PE 0604766A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)	D909
FY 1997 Planned Program:		
•	4608 Continue software upgrades and enhancements for the refinement of the TENCAP Common Baseline to fully exploit national capabilities such as integration of communications capabilities to meet changing architectures and implementation of software appliqué to provide the operational commander with enhanced battlefield intelligence products.	
•	5106 Continue engineering development of TES.	
•	2197 Complete effort to combine ETUT and EPDS capabilities into AEPDS.	
•	2958 Continue support to TENCAP program management and administrative activities [e.g. FFRDC (Aerospace), ARL support, ASPO support , Army Topographic Engineering Center (TEC) and Contractor SETA support.	
•	366 Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)	
Total	15235	
FY 1998 Planned Program:		
•	6965 Continue software upgrades and enhancements for the refinement of the TENCAP Common Baseline to fully exploit national capabilities such as integration of communications capabilities to meet changing architectures and implementation of software appliqué to provide the operational commander with enhanced battlefield intelligence products. In addition to staying current with national and theater capabilities, will include integration of Global Broadcast System (GBS) and the Joint Tactical Terminal (JTT) into the TENCAP systems.	
•	8585 Continue engineering development of TES.	
•	3563 Continue support to TENCAP program management and administrative activities [e.g. FFRDC (Aerospace), ARL support, ASPO support , Army Topographic Engineering Center (TEC) and Contractor SETA support].	
Total	19113	
FY 1999 Planned Program:		
•	5703 Continue software upgrades and enhancements for the refinement of the TENCAP Common Baseline to fully exploit national capabilities such as integration of communications capabilities to meet changing architectures and implementation of software appliqué to provide the operational commander with enhanced battlefield intelligence products. In addition to staying current with national and theater capabilities, will include integration of Global Broadcast System (GBS) and the Joint Tactical Terminal (JTT) into the TENCAP systems.	
•	10405 Continue engineering development of TES.	
•	3423 Continue support to TENCAP program management and administrative activities [e.g. FFRDC (Aerospace), ARL support, ASPO support , Army Topographic Engineering Center (TEC) and Contractor SETA support].	
Total	19531	
Project D909	<i>Page 2 of 5 Pages</i>	Exhibit R-2 (PE 0604766A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)						PROJECT D909						
B. Project Change Summary					FY 1996	FY 1997	FY 1998	FY 1999									
FY 1997 President's Budget					23861	15758	20631	21235									
Appropriated Value					24101	15235											
Adjustments to Appropriated Value					-835												
FY 1998 BES/Pres Bud Request					23266	15235	19113	19531									
C. Other Program Funding Summary					FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To	Total			
RDTE, A Budget Activity 4																	
PE 0603766A Project D907					26796	25354	20920	23714	24751	29020	30920	31095	<u>Compl</u>	<u>Cost</u>			
TENCAP-Adv Dev																	
RDTE, D Budget Activity 7																	
PE 0305154D DARP					41526	50287	0	0	0	0	0	0	Cont	Cont			
PE 0305208D DARP																	
Other Procurement Army, OPA-2																	
BZ7315 TENCAP					4473	1756	1679	1728	4598	13703	14779	16822	Cont	Cont			
Procurement, Defense Wide																	
PE 0305154D DARP					80822	89945	0	0	0	0	0	0	Cont	Cont			
PE 0305208D DARP																	
D. Schedule Profile					FY 1996	FY 1997	FY 1998	FY 1999									
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Complete Development and Field five Additional MITTs					X*												
Complete Retrofit and Refield ETUTs					X*												
Complete and Field DAMA Appliqué into SUCCESS Radios									X								
Initiate Engineering Development of TES									X*								
Install GSD into FAST Systems									X*								
Complete AEPDS									X								

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)														DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development										PE NUMBER AND TITLE 0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)						PROJECT D909			
D. Schedule Profile	FY 1996					FY 1997					FY 1998				FY 1999				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Initiate integration of GBS into AEPDS/TES										X									
Initiate integration of JTT into AEPDS/TES													X						
Complete integration of GBS into AEPDS/TES																X			
* Milestone completed																			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition
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COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	190472	161816	202302	129466	146633	126860	65653	22287	0	1797674
D641 BAT	101439	67186	46077	2548	4075	0	0	0	0	948801
D687 BAT P3I	35214	18819	64556	70774	77488	61948	10727	5172	0	359652
D688 ATACMS BLK II	53535	75806	91669	44777	13233	12076	0	0	0	300851
D686 ATACMS BLK IIA	0	0	0	11094	47983	52836	54926	17115	0	183954
D2NT BAT Operational Test	284	5	0	273	3854	0	0	0	0	4416

Mission Description and Budget Item Justification: The BAT system supports the Army's deep fires doctrine that calls for the destruction and disruption of threat forces and long range weapons at ranges in excess of 100 kilometers before they can influence the maneuver battle. In the past, the only options have been to engage these targets with attack helicopters or fixed wing aircraft. While effective, these options place critical resources and their air crews at risk. The BAT system significantly reduces this risk through its autonomous acquisition and terminal guidance capabilities to attack well defended armored forces behind enemy lines. The BAT system includes the BAT submunition, a pre-planned product improvement (P3I) BAT submunition, the Army Tactical Missile System Block II (ATACMS BLK II) missile, and the ATACMS BLK IIA missile. BAT is a dual-sensor (acoustic and infrared) submunition that autonomously seeks out and destroys moving armored vehicles without human interaction. It is an unpowered, aerodynamically stable vehicle, approximately 36 inches long, 5.5 inches in diameter and weighs 44 pounds. BAT and BAT P3I submunitions are carried deep into enemy territory by the two Army TACMS variants, then dispensed over a large target array to selectively attack and destroy individual targets. The BAT P3I program will improve the sensor and warhead subassemblies to increase lethality and to enable the BAT submunition to attack cold, stationary, armored targets and other targets of high value. The ATACMS BLK II missile is a version of the currently fielded and combat-proven Army TACMS Block I missile and is designed to carry 13 BAT or BAT P3I submunitions. The ATACMS BLK IIA missile is an extended range version of the ATACMS BLK II missile and will carry 6 BAT P3I submunitions out to ranges in excess of 200 kilometers. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition				PROJECT D641	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D641 BAT	101439	67186	46077	2548	4075	0	0	0	0	948801
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D641-BAT: The BAT submunition is an unpowered, aerodynamically stable vehicle approximately 36 inches long, 5.5 inches in diameter, and weighs 44 pounds. The BAT is an acoustic and infrared terminally guided submunition that searches for, tracks, and destroys armored, mobile targets. BAT submunitions are carried deep into enemy territory by a variant of the Army Tactical Missile System (ATACMS Block II), then dispensed over numerous high-payoff targets to selectively attack and destroy individual targets. By utilizing acoustic technology, BAT has the advantage of a large footprint which allows it to compensate for target location errors. Being a certified round, the BAT submunition has a low sustainment cost.</p> <p><u>Acquisition Strategy:</u> The BAT system is a sole source EMD program.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 73550 Conducted EMD Program • 19089 Conducted Carrier Integration Activities and other studies • 8800 Conducted Test Range and Target Operation, Maintenance and Improvements <p>Total 101439</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 53329 Conduct EMD Program • 5458 Conduct Carrier Integration Activities and other studies • 6800 Conduct Test Range and Target Operations, Maintenance and Improvements • 1599 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 67186</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 25432 Procure Operational and Live Fire Test Hardware and Support [90 Low Rate Initial Production (LRIP) units] • 14910 Support Carrier Flight Testing and Other Integration Activities • 5535 Conduct Test Range and Target Operation, Maintenance and Improvement • 200 Studies, development, and validation of future improvement programs <p>Total 46077</p>										
Project D641			Page 2 of 19 Pages				Exhibit R-2 (PE 0604768A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997								
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition						PROJECT D641								
FY 1999 Planned Program:																				
<ul style="list-style-type: none"> • 2313 Conduct Test Range and Target Operation, Maintenance and Improvement • 115 Conduct Integration Activities • 100 Deliver Operational Test and Live Fire Test Assets • 20 Studies, development, and validation of future improvement programs 																				
Total 2548																				
B. Project Change Summary																				
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>												
FY 1997 President's Budget		96324		68622		24789		0												
Appropriated Value		99028		67186																
Adjustments to Appropriated Value		+2411																		
FY 1998 Pres Bud Request		101439		67186		46077		2548												
<p>Change Summary: FY 1998 funding adjustment to support procurement of LRIP IOTE test articles and testing (+21288). FY 1999 funding adjustment to support delivery of articles and testing (+2548).</p>																				
C. Other Program Funding Summary																				
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>	<u>Complete</u>	<u>Cost</u>		
Missile Procurement, Army																				
CA 6100 BAT				85208		100137		170243		200839		200109		238948		762459	1757943			
D. Schedule Profile																				
		<u>FY 1996</u>					<u>FY 1997</u>					<u>FY 1998</u>					<u>FY 1999</u>			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Complete Design Verification Test (DVT)				X*																
Complete Wind Tunnel/Sled Tests						X														
Complete Subsystem Qual								X												
Initiate Contractor Developmental Test (CDT)					X*															
Complete CDT								X												
Award LRIP I Contract										X										
Award LRIP II Contract														X						
Start LRIP I Deliveries																		X		
<p>Project D641 Page 3 of 19 Pages Exhibit R-2 (PE 0604768A)</p>																				

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BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604768A Brilliant Anti-Armor (BAT) Submunition

* Milestone completed.

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition					PROJECT D641		
A. Project Cost Breakdown												
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Contractor Engr Support					86665	49509	37655	120				
Developmental Test & Evaluation					4581	5262	1600	2113				
Program Management Spt					3775	4356	2223	000				
Program Management Personnel					6418	6460	4599	315				
SBIR/STTR						1599						
Total					101439	67186	46077	2548				
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or	Contract											
Government	Method/Type	Award or	Performing	Project	Total							
Performing	or Funding	Obligation	Activity	Office	Prior to					Budget to	Total	
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>	
Product Development Organizations												
Northrop	SS/CPAF/	5 Jun 91			545192	86665	49509	37655	120	000	719141	
Grumman Corp	CPFF/CPIF/											
	FPIF											
SBIR/STTR							1599				1599	
In-House Support	PO	OCT			57563	6418	6460	4599	315	000	75355	
Support and Management Organizations												
SETA & Program	SS/CPFF	NOV			53057	1934	2594	1165	000	000	58750	
Mgmt Spt												
Misc. OGA	PO	OCT			42930	1841	1762	1058	000	000	47591	
Test and Evaluation Organizations												
Range Support	PO	OCT			15881	2736	2458	600	1908	3600	27183	
Other Test	PO	OCT			12853	1845	2804	1000	205	475	19182	
Government Furnished Property: Not applicable.												
Subtotal Product Development					602755	93083	57568	42254	435		796095	
Subtotal Support and Management					95987	3775	4356	2223			106341	
Subtotal Test and Evaluation					28734	4581	5262	1600	2113	4075	46365	
Total Project					727476	101439	67186	46077	2548	4075	948801	
Project D641					Page 4 of 19 Pages			Exhibit R-3 (PE 0604768A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition				PROJECT D687	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D687 BAT P3I	35214	18819	64556	70774	77488	61948	10727	5172	0	359652
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D687-BAT P3I: The BAT P3I submunition maintains the BAT length, diameter, and weight configurations. The BAT P3I is a multi-sensored, terminally guided submunition that searches for, tracks, and destroys specific targets including mobile armored combat vehicles, cold stationary armored combat vehicles, Surface-to-Surface Missile (SSM) Transporter Erector Launchers (TELs), and Heavy Multiple Rocket Launchers (MRL). BAT P3I submunitions are carried deep into enemy territory by variants of the Army Tactical Missile System (ATACMS), then dispensed over numerous high-payoff targets to selectively attack and destroy individual targets. BAT P3I is intended to increase submunition lethality and expand the target arrays to be attacked. Being a certified round, the BAT P3I submunition has a low sustainment cost. This program will incorporate new seeker, warhead, and microprocessor technologies into the current BAT configuration while maintaining the current BAT form, fit and maximum commonality of BAT components. This program includes studies/demonstrations pertaining to technology advancements, alternate carriers, target recognition, and acoustic/infrared/millimeter wave characterization of expanded target sets.</p> <p><u>Acquisition Strategy:</u> The BAT P3I system is a sole source Program Definition and Risk Reduction (PDRR) program with competitive seeker subcontractors.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 30260 Conducted P3I PDRR program • 3958 Hardware-in-the-Loop (long lead and design) • 996 Test Range/Warhead Activities <p>Total 35214</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 16012 Conduct P3I PDRR program • 723 Receipt and Assembly of Major Components of the Hardware-in-the-Loop Facility • 915 Develop Warhead Lethality Models • 609 Conduct Captive Flight Test (CFT) • 100 Studies, Development and Validation of Future Improvement Programs • 460 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 18819</p>										
Project D687			Page 5 of 19 Pages				Exhibit R-2 (PE 0604768A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition						PROJECT D687					
FY 1998 Planned Program:																	
•	53270	Continue System Development and Complete P3I PDRR Program															
•	1226	Continue Simulation and Testing Program															
•	2300	Conduct CFTs															
•	4613	Integrate and Test Seekers in the Hardware-in-the-Loop Facility															
•	2947	Conduct Warhead Testing															
•	200	Studies, development, and validation of future improvement programs															
Total	64556																
FY 1999 Planned Program:																	
•	60144	Begin EMD															
•	3301	Conduct Integration Testing Program															
•	1976	Continue Hardware-in-the-Loop Seeker Assessments															
•	5153	Conduct Simulations and Algorithm Development															
•	200	Studies, development, and validation of future improvement programs															
Total	70774																
B. Project Change Summary																	
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
FY 1997 President's Budget		36121				34221				64804				64137			
Appropriated Value		37136				18819											
Adjustments to Appropriated Value		-1922															
FY 1998 Pres Bud Request		35214				18819				64556				70774			
Change Summary Explanation: FY 1999 funding increase to support restructure of BAT P3I EMD program and additional funding required to maintain LRIP schedule (+6637).																	
C. Other Program Funding Summary: There are no other related RDT&E or other appropriation efforts.																	
D. Schedule Profile																	
		FY 1996				FY 1997				FY 1998				FY 1999			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Captive Flight Tests (CFT)							X				X						
Target Signature Collection		X*															
Project D687																	
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Exhibit R-2 (PE 0604768A)																	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition								PROJECT D687				
D. Schedule Profile						FY 1996		FY 1997			FY 1998			FY 1999				
						1	2	3	4	1	2	3	4	1	2	3	4	
Warhead Testing									X*	X*			X	X	X			
Hardware-in-the-Loop Testing												X						
Milestone II														X				
EMD CFT														X	X	X		
Design Verification Test																	X	
*Milestone completed.																		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition					PROJECT D687	
A. <u>Project Cost Breakdown</u>											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Contract Engineering Support					26759	15448	50849	60804			
Developmental Test & Evaluation					697	530	3150	3804			
Program Management Support					1306	606	3227	1329			
Program Management Personnel					6452	1775	7330	4837			
SBIR/STTR						460					
Total					35214	18819	64556	70774			
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Northrop	SS-CPIF	DEC			9990	26759	15448	50849	60804	111549	275399
Grumman Corp							460				460
SBIR/STTR					2260	6452	1775	7330	4837	11988	34642
In-House Support	PO	OCT									
Support and Management Organizations											
SETA & Prog	SS-CPFF	NOV			710	491	251	725	854	2521	5552
Mgmt Spt											
MISC OGA	PO	OCT			1039	815	355	2502	475	950	6136
Activities											
Test and Evaluation Organizations											
Range Support	PO	OCT			25	0	0	700	2200	8260	11185
Other Test	PO	OCT			930	697	530	2450	1604	20067	26278
Activities											
Government Furnished Property: Not applicable.											
Project D687											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition				PROJECT D688	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D688 ATACMS BLK II	53535	75806	91669	44777	13233	12076	0	0	0	300851
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D688-Army Tactical Missiles System Block II: The Army Tactical Missile System Block II (ATACMS BLK II) will be a ground launched, solid propellant, inertially guided Global Positioning System (GPS) aided missile system with 13 BATs or P3I BATs as its payload. The mission of the ATACMS BLK II is to delay, disrupt, neutralize, or destroy armored combat vehicles and other postulated high-payoff targets. Once the BAT P3I submunition is incorporated into the ATACMS BLK II, these targets will include cold stationary armored combat vehicles, mobile armored combat vehicles, heavy multiple rocket launchers and missile transporter/launchers. ATACMS BLK II will carry and dispense BAT and BAT P3I submunitions deep in enemy territory where these submunitions will automatically track and destroy numerous high-payoff targets. GPS technology will increase accuracy in flight, mitigating target location errors. ATACMS BLK II will be launched from the M270 launcher. Further, these funds will allow for future improvement program studies/demonstrations pertaining to technology advancements, payload variants, propulsion, guidance and control, and fire control improvements. This includes studies addressing Block II integration with other platforms.</p> <p><u>Acquisition Strategy:</u> The Army Tactical Missile System Block II is a sole source performance specification requirement program.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 47654 EMD including initiation of Block II/BAT Integration Activities. • 300 Initiated Range Planning and Activities to Accommodate Block II Flight Tests • 5581 Accelerated planned activities for an early Development Flight Test <p>Total 53535</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 71360 Conduct EMD Program to include Preliminary Design Review(PDR), Critical Design Review(CDR) and Block II/BAT Integration Activities • 400 Conduct Sled Tests (OGA) • 570 Prepare for and begin Production Proveout Test (PPT) Flight Program (OGA) • 1374 Begin Command and Control Software Design, Development and Test • 250 Studies, development, and validation of future improvement programs • 1852 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 75806</p>										
Project D688			Page 10 of 19 Pages				Exhibit R-2 (PE 0604768A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997								
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition	PROJECT D688								
FY 1998 Planned Program:										
• 14000	Begin Pilot Production Line and Begin IOT&E Activities									
• 69594	Continue EMD Including Submunition Integration									
• 5010	Complete Production Proveout Test (PPT) Flights /Begin Preproduction Qualification Test (PQT) Flights									
• 350	Conduct "Interim" Launcher Integration Tests									
• 2465	Continue Command and Control Software Design, Development and Test									
• 250	Studies, development, and validation of future improvement programs									
Total	91669									
FY 1999 Planned Program:										
• 36412	Continue EMD and Subsystem Qualification									
• 3189	Complete PQT and conduct DT/OT Flight Tests									
• 1075	Conduct M270A1 Integration Tests									
• 1451	Conduct C4I System Integration Tests									
• 1300	Continue Command and Control Software Design, Development and Test									
• 1100	Prepare for Ground and Flight Operational Test									
• 250	Studies, development, and validation of future improvement programs									
Total	44777									
B. Project Change Summary										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>						
FY 1997 President's Budget	62095	77559	76779	36319						
Appropriated Value	63840	75806								
Adjustments to Appropriated Value	-10305									
FY 1998 Pres Bud Request	53535	75806	91669	44777						
Change Summary Explanation: FY 1996 funding adjustment due to undistributed Congressional reductions and rescissions (-3305) and reprogramming to BAT Program (Project D641) (-7000) which was a higher priority requirement. FY 1998/1999 funding adjustments to support BAT P3I integration activities with the Block II missile (+14890/+8458).										
C. Other Program Funding Summary			To	Total						
Missile Procurement, Army	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Cost</u>
CA 6105 ATACMS BLK II				60781	80741	109907	84471	128281	509138	973319
Project D688	<i>Page 11 of 19 Pages</i>				Exhibit R-2 (PE 0604768A)					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition	PROJECT D688
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<u>D. Schedule Profile</u>	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Static Test	X*	X*														
Sled Test					X*											
CDR						X										
PDR					X*											
PPT Flight Test								X	X							
PQT Flight Test										X	X	X				
DT/OT Flight Test														X		
Award LRIP Contract														X		

*Milestone Completed

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition					PROJECT D688		
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Contractor Engr Support					47112	56000	63226	24441				
Development Test & Evaluation					712	5640	13969	9109				
Program Management Spt					1678	4944	5984	4454				
Program Management Personnel					4033	7370	8490	6773				
SBIR/STTR						1852						
Total					53535	75806	91669	44777				
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program	
Product Development Organizations												
LMV	SS/CPIF	JULY 95			7411	47112	56000	63226	24441	2664	200854	
In-House Support	PO	OCT			1419	4033	7370	8490	6773	2199	30284	
SBIR/STTR							1852				1852	
Support and Management Organizations												
SETA & Program	SS/CPFF	OCT			858	1166	1133	1777	1564	1944	8442	
Mgmt Spt												
Misc. OGA	PO	OCT				512	3811	4207	2890	9210	20630	
Activities												
Test and Evaluation Organizations												
Range Support	PO	OCT				450	5191	12309	8318	6998	33266	
Other Test	PO	OCT			67	262	449	1660	791	2294	5523	
Activities												
Government Furnished Property: Not applicable.												
Subtotal Product Development					8830	51145	65222	71716	31214	4863	232990	
Subtotal Support and Management					858	1678	4944	5984	4454	11154	29072	
Subtotal Test and Evaluation					67	712	5640	13969	9109	9292	38789	
Total Project					9755	53535	75806	91669	44777	25309	300851	
Project D688					Page 13 of 19 Pages				Exhibit R-3 (PE 0604768A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition				PROJECT D686																					
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																				
D686 ATACMS BLK IIA	0	0	0	11094	47983	52836	54926	17115	0	183954																				
<p>A. Mission Description and Budget Item Justification: Project D686-Army TACMS Block IIA: The Army TACMS Block IIA (ATACMS Block IIA) will be a ground launched, solid propellant, inertially guided Global Positioning System(GPS) aided missile system with six BAT P3I submunitions as its payload. The ATACMS Block IIA will be launched from the M270 launcher in response to the same Command and Control (C2) nodes applicable to the Block I, Block IA, and Block II missiles. Since the Block IIA payload only houses six submunitions rather than 13, as in the Block II, it is capable of achieving extended ranges comparable to the Block IA. The mission of the ATACMS Block IIA will be to delay, disrupt, or destroy the Block II target sets plus cold stationary tanks and armored combat vehicles as well as moving and stationary surface-to-surface missile (SSM) transporter erector launchers (TELs) at extended ranges. The Block IIA missile will dispense 6 BAT P3I submunitions at ranges beyond the Block II system.</p> <p>Acquisition Strategy: The Army Tactical Missile System Block IIA is a sole source performance specification requirement program.</p> <p>FY 1996 Accomplishments: Project not funded in FY 1996</p> <p>FY 1997 Planned Program: Project not funded in FY 1997</p> <p>FY 1998 Planned Program: Project not funded in FY 1998</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 300 Department of the Army In-Process Review (DA IPR) • 8937 Initiate and Conduct EMD Program; Conduct Submunition Integration Activities • 1857 Conduct Test Range and Target Operation, Maintenance and Improvement <p>Total 11094</p> <p>B. Project Change Summary</p> <table style="width:100%; border: none;"> <tr> <td></td> <td align="center"><u>FY 1996</u></td> <td align="center"><u>FY 1997</u></td> <td align="center"><u>FY 1998</u></td> <td align="center"><u>FY 1999</u></td> </tr> <tr> <td>FY 1997 President's Budget Appropriated Value</td> <td></td> <td></td> <td align="right">11133</td> <td align="right">35990</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td></td> <td></td> <td align="right">0</td> <td align="right">11094</td> </tr> </table> <p>Change Summary Explanation: FY 1998/1999 funding adjustments to support Block IIA delay of one year to pay for higher Army priorities (-11133/-24896).</p>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget Appropriated Value			11133	35990	Adjustments to Appropriated Value					FY 1998 Pres Bud Request			0	11094
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																										
FY 1997 President's Budget Appropriated Value			11133	35990																										
Adjustments to Appropriated Value																														
FY 1998 Pres Bud Request			0	11094																										
Project D686		Page 14 of 19 Pages				Exhibit R-2 (PE 0604768A)																								

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition						PROJECT D686			
C. <u>Other Program Funding Summary</u>											To	Total		
Missile Procurement, Army					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Complete</u>	<u>Cost</u>
CA 6110 ATACMS BLK IIA										9868	62542	459320	531730	
D. <u>Schedule Profile</u>														
		FY 1996			FY 1997			FY 1998			FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	4	
DA IPR												X		
EMD Contract													X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition					PROJECT D686		
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Contractor Engr Support								7259				
Development Test & Evaluation								1857				
Program Management Spt								900				
Program Management Personnel								1078				
Total								11094				
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program	
Product Development Organizations												
LMV	SS/CPFF								7259	118028	125287	
In-House Support	PO	OCT							1078	11862	12940	
Support and Management Organizations												
SETA & Program Mgmt Spt	SS/CPFF	OCT							900	5624	6524	
Test and Evaluation Organizations												
Range Support	PO	OCT							654	25783	26437	
Other Test Activities	PO	OCT							1203	11563	12766	
Government Furnished Property: Not applicable.												
Subtotal Product Development								8337	129890	138227		
Subtotal Support and Management								900	5624	6524		
Subtotal Test and Evaluation								1857	37346	39203		
Total Project								11094	172860	183954		
Project D686					Page 16 of 19 Pages				Exhibit R-3 (PE 0604768A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition				PROJECT D2NT																											
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
D2NT BAT Operational Test	284	5	0	273	3854	0	0	0	0	4416																									
<p>A. Mission Description and Budget Item Justification: Project D2NT-OPTEC: Project D2NT finances the direct costs of planning and conducting operational testing and evaluation of the BAT submunition by the Operational Test and Evaluation Command (OPTEC). The BAT submunition is an Acquisition Category (ACAT) I system with a dedicated Initial Operational Test and Evaluation in FY 1998 in support of a Low Rate Initial Production (LRIP) decision. Operational testing is conducted under conditions, as similar as possible, to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides the Army leadership with an independent test and evaluation of both the effectiveness and suitability of the system.</p> <p>Acquisition Strategy: Not applicable.</p> <p>FY 1996 Accomplishments::</p> <ul style="list-style-type: none"> • 284 IOTE planning and preparation <p>Total 284</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 5 IOTE planning and preparation <p>Total 5</p> <p>FY 1998 Planned Program: Project not funded in FY 1998</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 273 IOTE planning and preparation <p>Total 273</p> <p>B. Project Change Summary</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td align="right">291</td> <td align="right">5</td> <td align="right">223</td> <td align="right">1079</td> </tr> <tr> <td>Appropriated Value</td> <td align="right">299</td> <td align="right">5</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td align="right">-15</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td align="right">284</td> <td align="right">5</td> <td align="right">0</td> <td align="right">273</td> </tr> </tbody> </table> <p>Change Summary Explanation: FY 1998/1999 funding adjustments to support ATACMS Block II/BAT IOTE schedule (-223/-806).</p>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	291	5	223	1079	Appropriated Value	299	5			Adjustments to Appropriated Value	-15				FY 1998 Pres Bud Request	284	5	0	273
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY 1997 President's Budget	291	5	223	1079																															
Appropriated Value	299	5																																	
Adjustments to Appropriated Value	-15																																		
FY 1998 Pres Bud Request	284	5	0	273																															
Project D2NT		Page 17 of 19 Pages				Exhibit R-2 (PE 0604768A)																													

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition	PROJECT D2NT
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C. Other Program Funding Summary: There are no other related RDT&E or other appropriation efforts.

D. Schedule Profile

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conduct IOTE Activities	X*	X*	X*		X*								X	X		

*Milestone completed

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604768A Brilliant Anti-Armor (BAT) Submunition			PROJECT D2NT				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Operational Test and Evaluation				284	5	0	273				
Total				284	5	0	273				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
Other Test Activities						284	5	0	273	3854	4416
Government Furnished Property: Not applicable.											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation						284	5	0	273	3854	4416
Total Project						284	5	0	273	3854	4416

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604770A Joint Surveillance/Target Attack Radar System					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	15302	9624	6940	5670	4121	13490	19188	19205	Continuing	Continuing
D202 Army Joint STARS (TIARA)	13613	9624	6940	5670	4121	13490	19188	19205	Continuing	Continuing
D2CT JSTARS Operational Test (TIARA)	1689	0	0	0	0	0	0	0	0	5040
<p><u>Mission Description and Budget Item Justification:</u> This is a Tactical Intelligence and Related Activities (TIARA) program. US Forces have an urgent need for a wide-area surveillance and target attack radar system capable of continuous coverage out to a depth in excess of 100km beyond their Forward Line of Troops. Commanders must have the capability to detect, locate, classify and track moving and stationary targets for situation assessment to avoid surprise and attack targets out to the range of existing and developing weapons. The Joint Surveillance and Target Attack Radar System (JSTARS) provides battle management and targeting of enemy units at critical times and places so commanders can employ their organic forces and firepower in support of deep, close and rear operations. The joint Army/Air Force program objective is to develop a radar, datalink, ground station, and airframe that will provide the capability to locate, track and classify tracked and wheeled vehicles beyond ground line-of-sight during the day, night and under most weather conditions. Radar data is distributed to ground station modules via a secure surveillance and control data link. The Army developed the ground components of the JSTARS under this PE, project D202. In remaining years, the Army will continue to develop, and validate performance enhancing Pre-Planned Product Improvements (P3I). Also included in this PE is project D2CT with FY 96 funding for the Multi-Service Operational Test and Evaluation (MOTE). The projects in this program element support development efforts in the Engineering and Manufacturing Development phases of the Acquisition Strategy and therefore are correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604770A Joint Surveillance/Target Attack Radar System				PROJECT D202		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D202 Army Joint STARS (TIARA)	13613	9624	6940	5670	4121	13490	19188	19205	Continuing	Continuing
<p>A. Mission Description and Justification: The Army will develop the ground components of the JSTARS under this PE/Project. The Ground Station Module (GSM) is being developed in a Block approach. Block I Ground Station Modules (GSM) utilize the same prime mission equipment and will be developed and deployed on different platforms. The Block I Medium GSM (MGSM) is housed in a standard S280 shelter and mounted on a 5 Ton Truck. The rapidly deployable Block I Light GSM (LGSM) is housed in a Standard Integrated Command Post Shelter (SICPS) and mounted on a High Mobility Multi-Purpose Wheeled Vehicle (HMMWV). A Block I Heavy GSM (HGSM) prototype was also assembled. This variant integrated the GSM prime mission equipment into a Command and Control Vehicle (C2V) (a Bradley variant). Also included in this project is the development of the Block II GSM now called the Common Ground Station (CGS). The CGS will integrate signal, imagery, and other intelligence processing into a single ground station, resulting in enhanced battle management as well as significant cost savings. These enhancements are being implemented in a phased approach of Pre-Planned Product Improvements (P3I) initiatives and provide significant expansion of the system performance parameters. Significant enhancements include: integration of Secondary Imagery Dissemination, extended range (SATCOM relay) capability, full on the move and manportable operations as well as integration/interface with other service/allied sensor systems.</p> <p>Acquisition Strategy: In December 1995, the JSTARS Ground Station Program awarded an eight year [basic plus seven one year options] production contract to acquire the balance of ground stations required to meet Army needs. The first two years of the contract are Low Rate Initial Production (LRIP) with the first deliveries participating in a September 1997 Operational Test. This test will support the Milestone III decision scheduled for May 1998. The contract also includes provisions for the design, development and test of various P3Is. Following P3I prove out, the modifications are folded into the production contract via fixed price contract revisions.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1834 Completed LGSM EMD Program • 10559 Initiated Phase I CGS Design/System Enhancements • 1220 Conducted CGS Phase I Critical Design Review (CDR) <p>Total 13613</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 5710 Complete Secondary Imagery Dissemination Integration • 2106 Initiate Sensor Integration (P3I) • 1590 IOT&E Support • 218 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) 										
Project D202			Page 2 of 9 Pages				Exhibit R-2 (PE 0604770A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604770A Joint Surveillance/Target Attack Radar System					PROJECT D202						
Total 9624																	
FY 1998 Planned Program:																	
• 2904 Continue Additional Sensor Integration (P3I)																	
• 1771 Trainer/Training Enhancements																	
• 2265 IOT&E Support																	
Total 6940																	
FY 1999 Planned Program:																	
• 2814 Complete CGS Expanded Capability Development																	
• 2200 Provide Additional Simulators/Embedded Training Capability																	
• 656 Test CGS Expanded Performance Capabilities																	
Total 5670																	
B. Project Change Summary																	
						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>								
FY 1997 Presidents Budget						25747	9857	7202	6068								
Appropriated Value						26007	9624										
Adjustments to Appropriated Value						-12394											
FY 1998 Pres Bud Request						13613	9624	6940	5670								
C. Other Program Funding Summary																	
						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>		
BA1080 Joint STARS (TIARA)						82376	85321	118873	89180	91196	102224	36146	18039	<u>Compl</u>	<u>Cost</u>		
BS9724 Joint STARS Spares						3569	8770	6346	6487	6600	6687	7439	4747	Cont	Cont		
NATO AGS C35						9500	0	13500	15105								
NATO AGS BA 1082						0	0	26153	32575								
D. Schedule Profile																	
						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>								
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CGS LRIP Award		X*															
Conduct CGS PDR																	
Complete LGSM EMD Program																	
		X*															
Project D202													Page 3 of 9 Pages		Exhibit R-2 (PE 0604770A)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604770A Joint Surveillance/Target Attack Radar System								PROJECT D202		
D. Schedule Profile						FY 1996		FY 1997			FY 1998			FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conduct CGS Phase I CDR			X*													
Start CGS Technical Test					X*											
First CGS LRIP Delivery						X										
Initial CGS Operator Training							X									
Conduct Final CGS Technical Test								X								
Complete CGS Operational Test								X								
Prepare CGS Operator Test Report										X						
Milestone III										X						
Develop Advanced Imagery Capability														X		
Complete Advanced P3I Technical Test															X	
Complete Advanced P3I Operational Assessment																X
*Milestone Completed																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604770A Joint Surveillance/Target Attack Radar System					PROJECT D202	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Primary Hardware Development					6059	3904	1611	2064			
Software Development					3226	2084	1852	2079			
Integrated Logistics Support					265	270	105	95			
Developmental/Operational Test and Evaluation					650	1590	2265	525			
Contractor Engineering Support					1649	801	625	455			
Government Engineering Support					435	193	144	179			
Program Management Support					455	177	170	136			
Program Management Personnel					874	387	168	137			
SBIR/STTR						218					
Total					13613	9624	6940	5670			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Motorola (96-C-S201)	SS/CPFF	Nov 95	10063	8339	0	1750	1848	1024	871	2746	8339
Motorola (96-C-S204)	C/FP	Dec 95	34048	34048	0	8117	4275	2955	3616	14975	34048
Cubic (93-C-0166)	SS/FPI	Apr 93	6439	6439	4833	946	642	0	0	0	6439
SBIR/STTR							218				
Support and Management Organizations											
CECOM	MIPR					435	193	144	179		951
Proj Management						1329	564	338	273		2504
Misc.	MIPR					294	144	109	101		648
Test and Evaluation Organizations											
Various	MIPR					650	1590	2265	525		5030
Project D202											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604770A Joint Surveillance/Target Attack Radar System				PROJECT D202		
Government Furnished Property										
	Contract									
Item	Method/Type	Award or		Total					Budget to	Total
<u>Description</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Prior to</u>					<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>		
Product Development Property										
Various	Reqn			600	92	140	105	105	Cont	Cont
Support and Management Property: N/A										
Test and Evaluation Property: N/A										
Subtotal Product Development				132137	10905	7133	4084	4592	Cont	Cont
Subtotal Support and Management					2058	901	591	553	Cont	Cont
Subtotal Test and Evaluation					650	1590	2265	525	Cont	Cont
Total Project				132137	13613	9624	6940	5670	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																																																												
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604770A Joint Surveillance/Target Attack Radar System				PROJECT D2CT																																																												
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																																																										
D2CT JSTARS Operational Test (TIARA)	1689	0	0	0	0	0	0	0	0	5040																																																										
<p>A. Mission Description and Justification: Project D2CT provides for the Army's costs associated with the Multi-Service Operational Test and Evaluation (MOTE). All MOTTE activities were completed by 2Q96. This Joint Service Initial Operational Test and Evaluation (IOT&E) supports both the US Army and US Air Force for the Joint STARS Full Scale Production Decisions. (US Air Force in FY 96 and US Army in FY 98)</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 789 Conducted MOTTE • 900 Completed Test Analysis and Reports <p>Total 1689</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p> <p>B. Project Change Summary</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td align="right">1733</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> </tr> <tr> <td>Appropriated Value</td> <td align="right">1750</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td align="right">-61</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td align="right">1689</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>C. Other Program Funding Summary</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To Complete</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>BA1080 Joint STARS Army TIARA Funding</td> <td align="right">80376</td> <td align="right">85428</td> <td align="right">118873</td> <td align="right">90134</td> <td align="right">92274</td> <td align="right">103439</td> <td align="right">36514</td> <td align="right">18154</td> <td align="center">Cont</td> <td align="center">Cont</td> </tr> <tr> <td>BS9724</td> <td align="right">3569</td> <td align="right">8770</td> <td align="right">6346</td> <td align="right">6487</td> <td align="right">6600</td> <td align="right">6687</td> <td align="right">7439</td> <td align="right">4747</td> <td align="center">Cont</td> <td align="center">Cont</td> </tr> </tbody> </table>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	1733	0	0	0	Appropriated Value	1750	0	0	0	Adjustments to Appropriated Value	-61	0	0	0	FY 1998 Pres Bud Request	1689					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Complete</u>	<u>Total Cost</u>	BA1080 Joint STARS Army TIARA Funding	80376	85428	118873	90134	92274	103439	36514	18154	Cont	Cont	BS9724	3569	8770	6346	6487	6600	6687	7439	4747	Cont	Cont
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																																																																
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BS9724	3569	8770	6346	6487	6600	6687	7439	4747	Cont	Cont																																																										
Project D2CT				Page 7 of 9 Pages				Exhibit R-2 (PE 0604770A)																																																												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604770A Joint Surveillance/Target Attack Radar System							PROJECT D2CT					
D. <u>Schedule Profile</u>			FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
MOTE Pre Test Planning and Training																		
MOTE			X*															
Prepare MOTE Report				X*														
*Denotes completed milestone																		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604770A Joint Surveillance/Target Attack Radar System					PROJECT D2CT		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Operational Test and Evaluation				1689	0	0	0				
Total				1689	0	0	0				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: N/A											
Support and Management Organizations: N/A											
Test and Evaluation Organizations											
OPTEC	MIPR	Dec 94			3307	1689	0			0	4996
Government Furnished Property: Not applicable											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation					3307	1689					4996
Total Project					3307	1689					4996

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604778A Positioning Systems Development (SPACE)				PROJECT D168		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D168 NAVSTAR Global Positioning System (GPS) Equipment	436	428	419	409	458	453	0	0	0	2603
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D168 provides for Army participation in the research and development phases of Army weapon systems requiring positioning/navigational capabilities. It provides for the engineering development of several alternatives for integration of GPS receivers into selected systems. These alternatives include, but are not limited to, Embedded/Integrated GPS, Advanced GPS Receivers (AGR), Tactical GPS Anti-Jam Technology (TGAT) and Differential GPS. The project in this program element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> Perform studies and analyses of host vehicles to support development of alternative GPS applications.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 163 Procured and tested items in the marketplace to remain current with NDI alternatives (to include embedding) • 161 Advanced GPS receiver framework conceptualization (non-hardware work)to meet evolving user requirements. • 112 Air receiver exploration for MAGR follow-on replacement <p>Total 436</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 111 Improve accuracy and time to fix studies for follow-on equipment requirements • 150 Test program for NDI aviation GPS receiver (MAGR follow-on/replacement) • 156 Improve survivability of GPS capability (renewed anti-jam/anti-spoof and other threats response) • 11 Small Business Innovation Research/Small Business Technology Transfer(SBIR/STTR) <p>Total 428</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 120 Continue improving accuracy and time to fix studies • 134 Continue survivability studies • 165 Explore emerging capabilities based on follow-on satellite configuration options <p>Total 419</p>										
Project D168			<i>Page 1 of 3 Pages</i>				Exhibit R-2 (PE 0604778A)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604778A Positioning Systems Development (SPACE)			PROJECT D168			
FY 1999 Planned Program:										
•	200	Continue exploration of emerging capabilities								
•	109	Support miniaturization studies								
•	100	Conduct studies on interfacing GPS with other systems								
Total	409									
B. <u>Project Change Summary</u>										
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
FY 1997 President's Budget		448	437	436	424					
Appropriated Value		452	428							
Adjustments to Appropriated Value		-16								
FY 1998 Pres Bud Request		436	428	419	409					
C. <u>Other Program Funding Summary</u>										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY2002</u>	<u>FY2003</u>	To	Total
K47800, Other Procurement, Army, NAVSTAR	49040	26255	6796	7018	6895	33332	33967	51991	Compl	Cost
GPS									40000	255295
D. <u>Schedule Profile:</u> Not applicable										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT)					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	56282	26110	2823	2866	7205	3054	18599	29641	0	288427
D571 Close Combat Tactical Trainer	56282	26110	2823	2866	7205	3054	0	0	0	240187
D582 Engineer CATT	0	0	0	0	0	0	18599	29641	0	48240
<p>Mission Description and Budget Item Justification: The Combined Arms Tactical Trainer (CATT) is a family of combined arms simulation systems designed to support the Army's simulation-based Combined Arms Training Strategy. The specific systems that comprise CATT include Close Combat Tactical Trainer (CCTT), Aviation Combined Arms Tactical Trainer (AVCATT), Engineer Combined Arms Tactical Trainer (ENCATT), Fire Support Combined Arms Tactical Trainer (FSCATT) and Air Defense Combined Arms Tactical Trainer (ADCATT). CATT enables units, from crew to the battalion task force level, to conduct a wide variety of combat tasks on a realistic, interactive synthetic battlefield. CATT's combination of manned simulators and staff officer workstations enables units to train as a combined arms team in a cost effective manner. CATT reinforces the successes and corrects the shortcomings of the Simulator Network (SIMNET) and Aviation Network (AIRNET) demonstration programs executed by the Defense Advanced Research Projects Agency (DARPA). By practicing skills in CATT, units are able to make more effective use of scarce and costly live fire and maneuver exercises as well as train tasks deemed too hazardous to conduct in the field. Fielded in both fixed site and mobile/transportable versions, CATT enables both Active and Reserve component units to prepare for real world contingency missions. Units taking their CATT systems with them on operational deployments, such as peacekeeping missions, are able to sustain essential warfighting skills when not at their home station. By being able to process a wide array of terrain data bases and modify the behavior of the computer generated opposing forces, CATT offers a virtually unlimited array of training options to support the Army's many regional contingency missions. The combination of tough field and live fire training and realistic simulation training in CATT is the catalyst to prepare soldiers and their leaders for the uncertainties they will face in an unpredictable world. The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.</p>										
<i>Page 1 of 5 Pages</i>					Exhibit R-2 (PE 0604780A)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT)				PROJECT D571		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D571 Close Combat Tactical Trainer	56282	26110	2823	2866	7205	3054	0	0	0	240187
<p>A. Mission Description and Justification: Project D571 - Close Combat Tactical Trainer: Provides for engineering and manufacturing development (EMD) and pre-planned product improvements for the Close Combat Tactical Trainer (CCTT) which will enhance readiness of both active and reserve component forces. The program will develop a networked system of interactive computer driven simulators, emulators and semi-automated forces that replicate combat vehicles and weapon systems, combat support systems, combat service support systems, and command and control systems to create a fully integrated real-time collective task training environment. This trainer will allow soldiers to practice, repetitively, techniques which, if performed on real equipment, would be too hazardous, time-consuming and expensive. These trainers enhance realism and allow soldiers and units to learn tactical combat lessons on maneuver, command and control, and improved teamwork for increased survivability.</p> <p>Acquisition Strategy: Competitive cost plus award fee contract for EMD phase. Competitive procurement against performance specifications.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 47655 Completed spiral build 7. Produced and delivered a fixed company team site (38 modules) and 2 mobile platoon sets (11 modules); performed software/hardware physical configuration audit; conducted Preproduction Qualification Test (PPQT) for both fixed and mobile systems and prepared for fixed and mobile Initial Operational Test and Evaluation (IOT&E). • 6317 Maintained support services to the program office. • 2310 Provided government program management, engineering, technical and contract support. <p>Total 56282</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 20750 Complete deliveries, complete semi-automated forces improvements, conduct and support development testing and IOT&E, correct deficiencies from testing, complete documentation and audit trail, and prepare for pre-planned product improvements. • 2612 Maintain support services to the program office. • 2110 Provide government program management, engineering, technical and contract support. • 638 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 26110</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 2823 Execute Engineering Change Proposals (ECPs) and minor software changes based on user experience and operational testing. 										
Project D571			Page 2 of 5 Pages				Exhibit R-2 (PE 0604780A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT)					PROJECT D571						
Total					2823											
FY 1999 Planned Program:																
• 2866 Continue ECPs and minor software changes based on user experience and operational testing.																
Total					2866											
B. Project Change Summary					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>								
FY 1997 President's Budget Request					57742	26713	3033	3095								
Appropriated Value					59475	26110										
Adjustments to Appropriated Value					-3193	0										
FY 1998 Pres Bud					56282	26110	2823	2866								
Change Summary Explanation: FY 96 project funds decremented (-1460) for undistributed Congressional reductions and rescissions.																
C. Other Program Funding Summary					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>		
													<u>Compl</u>	<u>Cost</u>		
OPA3, Appropriation					29259	78342	92968	116141	34106	33546	0	0	0	423242		
NA0170 SIMNET/CCTT																
Military Construction, A Appropriation					10500	11900	13300	7300	0	0			0	50500		
Operation and Maintenance, A Appropriation					394	4801	6303	10929	10661	10190	10411	10636	Cont'd	Cont'd		
D. Schedule Profile					<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>			<u>FY 1999</u>
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Spiral Build 7					X*											
Quick Start Decision					X*											
PPQT Fixed System/Formal Qualification								X								
Test																
IOT&E Fixed System									X							
PPQT/IOT&E Mobile System									X							
* Completed Milestones																
Project D571					Page 3 of 5 Pages				Exhibit R-2 (PE 0604780A)							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604780A Combined Arms Tactical Trainer (CATT)					PROJECT D571	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Contractor Development					34617	17004	0	0			
Contractor Program Management/System Engineering					13038	3746	0	0			
Program Office/Technical Support					2300	2110	250	250			
Government Agency Support					3590	1039	216	106			
Support Contracts					2737	1573	0	0			
Engineering Changes/Software Changes					0	0	2357	2510			
SBIR/STTR						638					
Total					56282	26110	2823	2866			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Loral FSC	C-CPAF/T&M/FFP	Nov 92	195831	195831	112776	47655	20750	2357	2510	9783	195831
Support and Management Organizations											
NAWC-TSD	MIPR	Dec 92	12532	12532	7146	2300	2110	250	250	476	12532
RCI	T&M	Feb 93	3687	3687	3687	0	0	0	0	0	3687
CECOM	MIPR	Nov 93	7655	7655	3350	2490	1812	0	0	0	7652
MICOM	MIPR	Jan 94	1020	1020	1020	0	0	0	0	0	1020
Sherikon	T&M	Oct 94	4400	4400	1800	1800	800	0	0	0	4400
Miscellaneous	Various	Various	15065	15065	12068	2037		216	106	0	14427
SBIR/STTR							638				638
Test and Evaluation Organizations: None											
Government Furnished Property: None											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997	
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT	
5 - Engineering and Manufacturing Development			0604780A Combined Arms Tactical Trainer (CATT)			D571	
	Total Prior to					Budget to	Total
	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	112776	47655	20750	2357	2510	9783	195831
Subtotal Support and Management	29071	8627	5360	466	356	476	44356
Subtotal Test and Evaluation							
Total Project	141847	56282	26110	2823	2866	10259	240187

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604801A Aviation - Engineering Development				PROJECT DC45		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC45 Aircrew Integrated Systems (ACIS)	4885	5403	5109	6067	2076	2065	2172	2181	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> Project DC45 Aircrew Integrated Systems (ACIS) formerly Aviation Life Support Equipment (ALSE) - Engineering Manufacturing Development (EMD) This project provides engineering and manufacturing development for those systems and items of equipment which are unique and necessary for the sustainment and enhanced survivability of Army aircrews and passengers on the future integrated battlefield and during related training activities. EMD programs will focus on air vehicle integration, airworthiness qualification and user evaluation of multiple technologies to improve aircrew mission performance, aircrew comfort, aircrew and aircrew station interface, safety, and survivability. These programs include: advanced laser protection against emerging new threat systems; product improvements to existing helmets to improve performance and increase commonality; development and adaptation of airbag technology to Army aircraft to improve crash protection and enhance aircrew survivability; and follow-on air vehicle integration and test of Air Warrior program effort to enhance and maximize aircrew performance in force modernized aircraft. Maximum advantage will be taken of simulation to reduce program technical risk through early user evaluation and to reduce program design and test cost and schedules. Both joint and service independent efforts will be pursued under the scope of this project. The project in this Program Element supports research efforts in the EMD phase of the Acquisition Strategy and is correctly placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> DC45 - The Cockpit Air Bag Systems (CABS) B-kit components will be competitively procured using an approved performance specification and interface drawings (except that the initial production quantity will be procured sole-source from the developer.) The CABS A-kit hardware will be aircraft specific and will be procured competitively. CABS will be installed via field retrofit and production line incorporation (where applicable.) Pre-Planned Product Improvement (P3I) of the helmet is awarded, as required, to the helmet developer, Gentex Corp. Performance specifications for the joint service advanced laser eye protection program are being developed and will be used for production competition. A maximum of two competitive contractor teams will develop a functional analysis and breadboard mock-up of the Air Warrior ensemble during a Program Definition and Risk Reduction phase. Then, one team will be selected to develop the Air Warrior ensemble during a combined Program Definition and Risk Reduction (PDRR) and EMD phase.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 970 Continued CABS EMD for AH-64 Apache and adapted CABS components for common application to other aircraft platforms, • 2932 Initiated transition from Joint CABS Program Definition Risk Reduction (PDRR) to UH-60 CABS EMD program (including in-house effort) • 718 Continued AIHS (Aircrew Integrated Helmet System) P³I efforts in EMD • 265 Initiated EMD for Advanced Laser Eye Protection (LEP) effort (Joint Service) <p>Total 4885</p>										
Project DC45			Page 1 of 6 Pages				Exhibit R-2 (PE 0604801A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604801A Aviation - Engineering Development			PROJECT DC45				
FY 1997 Planned Program:											
•	3714	Continue EMD for UH-60 CABS									
•	898	Continue AIHS P ³ I efforts in EMD									
•	670	Complete EMD for the Advanced LEP (Joint Service)									
•	121	Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) Programs									
Total	5403										
FY 1998 Planned Program:											
•	5109	Initiate Air Warrior EMD with combined PDRR effort									
Total	5109										
FY 1999 Planned Program:											
•	6067	Continue Air Warrior EMD with combined PDRR effort									
Total	6067										
B. <u>Project Change Summary</u>											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>						
Previous President's Budget		5002	5518	7596	6910						
Appropriated Value		5142	5403								
Adjustments to Appropriated Value		-257									
Current Budget Submit/President's Budget		4885	5403	5109	6067						
Change Summary Explanation: Funding: FY98 reduction due to execution difficulties (-1700) FY98/99 also reduced for efficiencies (FY98 -787/FY99 -843).											
C. <u>Other Program Funding Summary</u>											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total
RDTE, A BA 4 PE 0603801A Project DB45, ACIS - AD		9401	8913	2545	2460	0	0	2801	2817	<u>Compl</u>	<u>Cost</u>
Aircraft Procurement Army (APA) (ACIS) SSN AZ3110		7142	13280	12472	10003	8982	8920	23856	36827	Cont	Cont
Project DC45											
Page 2 of 6 Pages						Exhibit R-2 (PE 0604801A)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604801A Aviation - Engineering Development							PROJECT DC45						
D. Schedule Profile																				
		FY 1996					FY 1997					FY 1998					FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
AH-64 CABS																				
Preliminary Design Review	X*																			
Devel Verification Testing				X*																
UH-60 CABS																				
Contract Award				X*																
Critical Design Review					X*															
Qualification Testing						X														
Development Test (DT)							X													
LRIP Decision								X												
AIHS P³I																				
Continue Head Tracker EMD	X*																			
Conduct Demo on Static AH-64			X*																	
Develop Breadboard Prototype				X*																
Continue Breadboard Prototype Dev					X*															
Airworthiness Test of Prototype						X														
Flight Test Breadboard on AH-64							X													
Advanced Laser Eye Protection (LEP)																				
Initiate EMD Phase			X*																	
Conceptual Design Review						X														
Preliminary Design Review							X													
Initiate Design Verification Testing								X												
Air Warrior																				
Begin combined advanced development/EMD design testing										X										
Air Warrior Preliminary Design Review											X									
Air Warrior Critical Design Review												X								
Air Warrior prototype development initiated													X							
Air Warrior production component requirements evaluated														X						
Air Warrior prototype testing initiated															X					
Project DC45																				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604801A Aviation - Engineering Development	PROJECT DC45
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D. <u>Schedule Profile</u>	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Continue Air Warrior EMD/prototype development																X

*Denotes milestone completed

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604801A Aviation - Engineering Development					PROJECT DC45	
A. <u>Project Cost Breakdown</u>					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Product Development Organizations					2536	3448	3746	4558			
Support and Management Organizations					2109	1341	903	841			
Test and Evaluation Organizations					240	493	460	668			
SBIR/STTR					0	121	0	0			
Total Project					4885	5403	5109	6067			
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Perform Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
AH-64 CABS	SS-CPFF	May 1994	2128	2128	1550	578					2128
Simula - Phoenix, AZ											
UH-60 CABS	SS-CPFF	May 1996	3994	3994		1734	2260				3994
Simula - Phoenix, AZ											
AIHS P³I	SS-CPFF	Dec 1997	873	873			873				873
Gentex - Carbondale, PA											
Advanced LEP	SS-CPFF	Jan 1997	315	315			315				315
AOTEC - South Bridge, MA											
Air Warrior	C-CPFF	Jan 1998						3746	4558	Cont	Cont
Contractor TBD											
Miscellaneous	SS/C-CPFF	thru FY 1996			9735	224					9959
SBIR/STTR											
								121			121
Project DC45					Page 5 of 6 Pages			Exhibit R-3 (PE 0604801A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604801A Aviation - Engineering Development					PROJECT DC45	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Perform Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Support and Management Organizations											
Various	MIPR	Various			6474	2109	1341	903	841	Cont	Cont
Test and Evaluation Organizations											
Government	MIPR				2989	240	493	460	668	Cont	Cont
Agencies											
Subtotal Product Development					11285	2536	3569	3746	4558	Cont	Cont
Subtotal Support and Management					6474	2109	1341	903	841	Cont	Cont
Subtotal Test and Evaluation					2989	240	493	460	668	Cont	Cont
Total Project					20748	4885	5403	5109	6067	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	14845	23661	3577	24865	49143	45398	6979	11404	Continuing	Continuing
D134 Objective Individual Combat Weapon Engineering Development (OICW)	0	0	0	0	1777	1765	3744	4632	Continuing	Continuing
D284 Multipurpose Individual Munition	8172	13813	2922	18964	23212	11147	0	0	0	78230
D531 105mm Howitzer Ammunition Improvement	3432	5067	0	0	0	0	0	0	0	19838
D613 Mortar Systems	2768	0	0	0	10966	13225	0	0	0	46942
D695 XM982	0	0	655	5901	10729	16169	0	0	0	33454
D712 Non-Lethal Programs	0	3215	0	0	0	0	0	0	0	3215
DAS1 Small Arms Improvement	473	1566	0	0	2459	3092	3235	6772	Continuing	Continuing

Mission Description and Budget Item Justification: Provides for engineering development of weapons and munitions systems. The Multi-Purpose Individual Munition (MPIM) provides the infantry with a fire-and-forget weapon capable of defeating enemy forces in buildings, bunkers and lightly armored vehicles. The howitzer ammunition effort supports development of ammunition for the M119A1 Howitzer. The mortar systems effort supports qualification of an Improved Mortar Ballistic Computer (IMBC) and type classification of training and illumination cartridges for the 120mm mortar. The XM982 extended range Dual Purpose Improved Conventional Munition (DPICM) combines base burn and rocket assisted technologies in an extended range 155mm artillery projectile. It will extend the range of the M198, M190A5, M190A6, 155mm Paladin and the Light Weight Howitzer to approximately 37 kilometers, with the Modular Artillery Charge System (MACS) in Crusader extending the range to 47 kilometers. The non-lethal program provides for force response options for non-lethal immobilization of personnel and materiel through development of non-lethal capabilities for multiple weapon systems/platforms. The small arms improvement program develops technology to enhance lethality, target acquisition, fire control, training effectiveness and /or reliability for small arms weapon systems. This project develops a universal mounting bracket for the MK19-3 Grenade Machine Gun. Projects within this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are, therefore, correctly placed in Budget Activity 5.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development				PROJECT D284		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D284 Multipurpose Individual Munition	8172	13813	2922	18964	23212	11147	0	0	0	78230
<p>A. <u>Mission Description and Justification:</u> Provides for an Engineering Manufacturing Development (EMD) of a lightweight, shoulder fired, multiple purpose weapon. Provides the infantry with a fire and forget weapon capable of defeating enemy forces in buildings, bunkers, and lightly armored vehicles. The Multiple Purpose Individual Munition/Short Range Anti-Tank Weapon (MPIM/SRAW) is capable of being fired quickly from its carrying configuration and can be safely fired from an enclosure for the close battle. It will replace the current AT4 system which was designed to defeat only light armor. This system will have tremendously increased lethality over the AT4 and will be multiple target capable. System design will allow for growth, service life extension and technology insertion to support the U. S. Army mission of crisis response to regionally based threats. The Army and U. S. Marine Corps have signed a memorandum of agreement for a horizontal technology integration effort utilizing the USMC SRAW flight module/launcher as the carrier for the MPIM warhead.</p> <p><u>Acquisition Strategy:</u> The MPIM/SRAW is a 65-month two phase EMD program which will leverage off the USMC 42-month SRAW EMD contract awarded in June 1994 and the 18-month U. S. Army technology demonstration MPIM/SRAW contract awarded in January 1995. The MPIM/SRAW EMD Phase 1 contract (18 month risk mitigation effort) was awarded in October 1996 with an EMD Phase 2 (maturation) contract (option) award in April 1998. Funding for initial production facilitization (IPF) and long lead items (LLI) procurement begins in FY 01 to facilitate maintaining an FY 02 First Unit Equipped (FUE). Low rate initial production (LRIP) will begin in FY 02. Full rate production begins in FY 04.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1132 Preparation for Milestone II Decision • 1003 Preparation of Model EMD contract (Alpha Acquisition) • 2500 Awarded Phase I of EMD contract • 610 Initiated warhead module design improvements • 2057 Procured EMD Phase 1 missile hardware to support flight tests • 270 Conducted survey missile test • 340 Conducted wind tunnel test • 260 Initiated simulation validation verification and analysis (VV&A) <p>Total 8172</p>										
Project D284			Page 2 of 24 Pages				Exhibit R-2 (PE 0604802A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development	PROJECT D284
FY 1997 Planned Program:		
•	1868 Continue Phase 1 EMD effort	
•	750 Complete warhead module design improvements	
•	3700 Initiate Phase 2 EMD contract	
•	700 Complete simulation VV&A	
•	1750 Conduct Phase 1 EMD flight tests and analysis	
•	3000 Initiate procurement of missile hardware for pre-production test (PPT) flight tests	
•	850 Initiate integrated logistics support (ILS), quality and environmental programs to support EMD	
•	858 Finalize system level specification for preliminary design review (PDR)	
•	337 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs	
Total	13813	
FY 1998 Planned Program:		
•	1216 Conduct system level analysis	
•	700 Initiate procurement of range support hardware for PPT flights	
•	606 Support PDR	
•	400 Prepare and conduct early user demonstration (EUD)	
Total	2922	
FY 1999 Planned Program:		
•	2806 Continue Phase 2 EMD effort	
•	1722 Complete procurement of missile hardware for PPT flight tests	
•	2700 Conduct PPT flight tests	
•	620 Complete procurement of range support hardware for PPT flight tests	
•	2320 Conduct grenade safe and arm (S&A) trade studies, analysis and tests	
•	1520 Design and fabricate missiles for electromagnetic environmental effects (E3) analyses and tests	
•	1720 Continue ILS, quality and environmental programs to support EMD	
•	870 Prepare for critical design review (CDR)	
•	4366 Initiate procurement of missile hardware for pre-production qualification testing (PPQT)	
•	320 Conduct lethality analysis	
Total	18964	
Project D284	<i>Page 3 of 24 Pages</i>	Exhibit R-2 (PE 0604802A)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D284									
B. Project Change Summary																				
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>										
FY 1997 President's Budget	11973			14108			9353			17346										
Appropriated Value	12309			13813																
Adjustments to Appropriated Value	-4137			0																
FY 1998 Pres Bud Request	8172			13813			2922			18964										
Change Summary Explanation:																				
Funding: FY 96 - Project decremented for Army reprogramming to higher priority requirements.																				
FY 98 (-6431) reduction due to Army restructure of the MPIM/SRAW program to an incremental EMD.																				
FY 99 (+1618) increase due to Army restructure of the MPIM/SRAW program to an incremental EMD.																				
Schedule: The Army has restructured the MPIM/SRAW program to an incremental EMD, an 18 month risk mitigation (Phase 1) prior to award of the 47-month EMD phase (Phase 2) option.																				
C. Other Program Funding Summary																				
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To Comp</u>		<u>Total Cost</u>	
PE 0603313A, Project D387	4907		625		0		0		0		0		0		0		0		5532	
Missile Procurement, Army, SSN C09100 (Multi-Purpose Individual Munition)	0		0		0		0		0		5969		32195		27877		1051000		1117041	
D. Schedule Profile																				
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Preparation for Milestone II				X*																
Model EMD contract preparation				X*																
Award EMD Phase 1 contract				X*																
Complete telemetry missile flight tests								X												
Corporate/government Phase 1 reviews					X	X	X		X											
Award EMD Phase 2 contract												X								
Complete EUD tests													X							
Conduct PDR													X							
Complete PPT																X				
X* Denotes completed effort																				
Project D284																				
Page 4 of 24 Pages																				
Exhibit R-2 (PE 0604802A)																				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D284	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Primary hardware development					4851	10549	0	14300			
Program management support					2991	1827	2572	2578			
SBIR/STTR					0	337	0	0			
Developmental Test and Evaluation					330	1100	350	2086			
Total					8172	13813	2922	18964			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Lockheed -Martin Aeronutronics (EMD phase 1)	SS/CPIF	Oct 96	7000	7000	0	4851	2149	0	0	0	7000
Lockheed-Martin (EMD phase 2)	SS/Cost sharing	Apr 98**	43100	43100	0	0	8400	0	14300	20400	43100
Support and Management Organizations											
PM CCAWS, RSA	PO				0	1150	813	1205	1237	3642	8047
MICOM, RSA, AL	PO				0	1483	776	659	794	3060	6772
Misc.	PO				0	358	238	708	547	3235	5086
SBIR/STTR							337				337
Test and Evaluation Organizations											
TECOM: APG	PO				0	330	1100	350	2086	3972	7838
Misc.	PO				0	0	0	0	0	50	50
**April 98 contract to be awarded using FY 1997 funds.											
Project D284				Page 5 of 24 Pages				Exhibit R-3 (PE 0604802A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997	
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT	
5 - Engineering and Manufacturing Development		0604802A Weapons and Munitions - Engineering Development				D284	
	Total Prior to <u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to <u>Complete</u>	Total <u>Program</u>
Subtotal Product Development		4851	10549		14300	20400	34700
Subtotal Support and Management		2991	2164	2572	2578	9937	15087
Subtotal Test and Evaluation		330	1100	350	2086	4022	6458
Total Project		8172	13813	2922	18964	34359	56245

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development				PROJECT D531	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D531 105mm Howitzer Ammunition Improvement	3432	5067	0	0	0	0	0	0	0	19838
<p>A. <u>Mission Description and Justification:</u> This project provides for the fielding of an extended range 105mm artillery projectile for the M119A1 Howitzer and development of self-destruct fuzing technology for munitions.</p> <p><u>Acquisition Strategy:</u> Initial low rate production of cartridge, artillery, 105mm Dual Purpose Improved Conventional Munition (DPICM), XM915, begins in FY 1997 and will be sole sourced to the developer under fixed price contracts.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1688 Self destruct fuze contract • 300 Projectile metal parts contract • 1444 Engineering evaluation of performance <p>Total 3432</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1700 Load, assembly and pack (LAP) of cartridge for development test and evaluation • 1785 Conduct DT&E tests • 1458 Test and evaluation management, engineering evaluation of performance • 124 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 5067</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p>										
Project D531			Page 7 of 24 Pages				Exhibit R-2 (PE 0604802A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997										
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D531										
B. Project Change Summary																					
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>										
FY 1997 President's Budget		3520			3076			0			0										
Appropriated Value		3619			5067			0			0										
Adjustments to Appropriated Value		-187			0			0			0										
FY 1998 Pres Bud Request		3432			5067			0			0										
Change Summary Explanation: FY 97 (+1991) Congressional increase for continued development of the XM915/916 munition.																					
C. Other Program Funding Summary																					
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To</u>		<u>Total</u>	
Procurement , Ammunition, Army; Cartridge, Artillery, 105mm DPICM, SSN E53500		0		14172		0		0		0		0		0		0		<u>Compl</u>		<u>Cost</u>	
		0		14172		0		0		0		0		0		0		0		14172	
D. Schedule Profile																					
		<u>FY 1996</u>					<u>FY 1997</u>					<u>FY 1998</u>					<u>FY 1999</u>				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
Complete EMD testing						X															
Projectile metal parts contract			X*																		
Eng eval of perf; follow up on all testing									X												
Type Classification									X												
*Denotes a completed milestone																					
Project D531													Page 8 of 24 Pages		Exhibit R-2 (PE 0604802A)						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D531	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Program engineering and management support					1296	1458	0	0			
SBIR/STTR					0	124					
Contract engineering support					1420	0	0	0			
Test and evaluation support					716	3485	0	0			
Total					3432	5067					
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TACOM:ARDEC	ALLOT	Oct 92	5527	5527	4829	1296	1582	0	0	0	7707
Chamberlain: SAAP, Scranton	OPEN/CPIF	Sep 93	1100	1100	1244	270	0	0	0	0	1514
Amrom Corp.	OPEN/CPIF	Sep 93	590	590	858	0	0	0	0	0	858
KDI	OPEN/CPIF	Sep 93	3914	3914	4022	1150	0	0	0	0	5172
Olin	OPEN/FP	Sep 93	117	117	117	0	0	0	0	0	117
Norris Industries	OPEN/CPIF	Sep 93	371	371	371	0	0	0	0	0	371
Dayron Corp.	OPEN/CPIF	Sep 94	238	238	238	0	0	0	0	0	238
LSAAP	FP/ALLOT	Jul 94	1792	1792	988	0	1700	0	0	0	2688
Support and Management Organizations: None											
Test and Evaluation Organizations											
TECOM-YPG, AZ			3193	3193	663	716	1661	0	0	0	3040
SBIR/STTR							124				124
Subtotal Product Development					12667	2716	3282				
Subtotal Support and Management											
Subtotal Test and Evaluation					663	716	1785				
Total Project					13330	3432	5067				
Project D531				Page 9 of 24 Pages				Exhibit R-3 (PE 0604802A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development				PROJECT D613	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D613 Mortar Systems	2768	0	0	0	10966	13225	0	0	0	46942
<p>A. <u>Mission Description and Justification:</u> This program provides funds to develop existing and emerging technology to enhance the effectiveness, lethality, versatility of use, mobility, and accuracy of mortar systems. Current mortar systems include conventional ammunition with a variety of fuzing applications, weapons that range from man-portable 60mm to vehicle-mounted 120mm mortars, and related equipment such as fire control, mortar ballistic computer, training devices, and ammunition. This project provides for the qualification of a full range training cartridge for the 120mm Battalion Mortar System. This cartridge provides a realistic training alternative at a lower cost than training with high explosive service ammunition. It also provides for the qualification of a mortar illumination round (conventional and infrared). Additional dollars were added in FY96 to fund Task Force XXI Advanced Warfighting Experiment on Mortar Fire Control. Starting in FY 2000, it provides for development of a digital Mortar Fire Control System (MFCS) which will reduce set up times by a factor of 8, while increasing accuracy. It will be compatible with the Advanced Field Artillery Tactical Data System (AFATDS) and fully integrate mortars into the fire support plan.</p> <p><u>Acquisition Strategy:</u> The full range training cartridge enters production with the developer as an option to the development contract in FY 96. Follow-on buys are competitive. The illumination round enters production in FY 97.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 482 Program Manager in-house costs • 332 Shell body producibility • 1439 Task Force XXI demonstration support • 116 Increment container process optimization • 227 XM931 testing • 48 Fin optimization/load, assembly and pack optimization • 124 XM930 test hardware fabrication <p>Total 2768</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p>										
Project D613			Page 10 of 24 Pages				Exhibit R-2 (PE 0604802A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development						PROJECT D613					
FY 1999 Planned Program: Project not funded in FY 99																	
B. Project Change Summary																	
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>										
FY 1997 President's Budget	1556		0		0		0										
Appropriated Value	1600																
Adjustments to Appropriated Values	+1168																
FY 1998 Pres Bud Request	2768		0		0		0										
Change Summary Explanation: Funding - FY 96 (+1168) increase to fund Task Force XXI Advanced Warfighting Experiment on Mortar Fire Control																	
C. Other Program Funding Summary																	
Procurement, Ammunition, Army:	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>							
	<u>Compl</u>	<u>Cost</u>															
SSN E25504, XM929	65812	34967	0	0	26266	26913	27793	24921	0	260039							
SSN E25507, XM931	18244	50952	24432	32159	40124	41356	30154	21216	0	258637							
SSN E25503, XM930	0	25975	0	0	0	0	0	0	0	32240							
SSN E25501, XM934	0	0	29908	29888	22884	0	0	0	0	161042							
Other Procurement, Army: K99200 (IMBC)	4827	6841	0	0	0	0	0	0	0	38649							
Other Procurement, Army: K99300 (MFCS)	0	0	0	0	0	0	38003	38197	0	76860							
D. Schedule Profile																	
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Conduct DT/OT of the IMBC	X*																
Type classify (LP) the IMBC	X*																
Type Classify (standard) the IMBC					X												
Type classify XM930 Illumination round					X												
Type classify XM931 FRTC				X*													
*Completed milestone																	
Project D613				Page 11 of 24 Pages				Exhibit R-2 (PE 0604802A)									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D613	
A. <u>Project Cost Breakdown</u>											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Product development					2059	0	0	0			
Management /engineering support					482	0	0	0			
Test and evaluation					227	0	0	0			
Total					2768						
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Pocal industries, Moscow, PA	SS/CPIF	2Q95	3392	3392	3344	48		0	0	0	3392
Miltope: Hope Hull, AL	C/FP	1Q95	310	310	310	0	0	0	0	0	310
ARDEC	WR	2Q94	1124	1124	1124	1439	0	0	0	0	2563
MTA: Huntsville, AL	SS/FP	3Q94	351	351	351	0	0	0	0	0	351
Mitre: Tinton Falls, NJ	SS/FP	3Q94	78	78	78	0	0	0	0	0	78
ARDEC: M930	WR	3Q95	1252	1252	1252	0	0	0	0	0	1252
Pine Bluff Arsenal	WR	3Q95	576	576	576	124	0	0	0	0	700
Crane Army Depot	WR	3Q95	868	868	868	0	0	0	0	0	868
Diehl Gmbh: Ger	C/FP	3Q95	202	202	202	0	0	0	0	0	202
Martin Marietta	C/FP	3Q95	233	233	233	0	0	0	0	0	233
Chamberlain Mfg	SS/FP	3Q96	332	332	0	332	0	0	0	0	332
Ferrulmatic: NJ	C/FP	3Q95	560	560	560	0	0	0	0	0	560
ARMTEC Coacella,CA	SS/FP	3Q96	116	116	0	116	0	0	0	0	116
Project D613					Page 12 of 24 Pages				Exhibit R-3 (PE 0604802A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D613	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
ARDEC: (IMBC)	WR	1Q95	1908	1908	1908	0	0	0	0		1908
ARDEC: (MFCS)	WR	1Q00	13156	13156	0	0	0	0	0	13156	13156
Support and Management Organizations											
PM Mortars	Allot	1Q94	1286	1286	804	482	0	0	0	0	1286
ARDEC	WR	1Q94	3100	3100	3100	0	0	0	0	0	3100
CECOM	WR	1Q94	76	76	76	0	0	0	0	0	76
Camber Corp., NJ	SS/FP	3Q94	413	413	413	0	0	0	0	0	413
SET: TN	SS/SP	3Q94	120	120	120	0	0	0	0	0	120
PM Mtrs: IMBC	Allot	1Q95	119	119	119	0	0	0	0	0	119
ARDEC	WR	1Q95	63	63	63	0	0	0	0	0	63
ACALA	WR	1Q95	135	135	135	0	0	0	0	0	135
ARDEC: M931	WR	3Q95	3041	3041	3041	0	0	0	0	0	3041
ARDEC: (MFCS)	WR	1Q00	6765	6765	0	0	0	0	0	6765	6765
Test and Evaluation Organizations											
TECOM, WSMR, NM	WR	2Q95	130	130	130	0	0	0	0	0	130
CSTA: APG	WR	2Q95	140	140	140	0	0	0	0	0	140
WSMR: IMBC	WR	2Q95	153	153	153	0	0	0	0	0	153
WSMR: (MFCS)	WR	1Q00	4270	4270	0	0	0	0	0	4270	4270
TEXCOM Fld Spt Acty, Ft. Hood	WR	4Q95	8	8	8	0	0	0	0	0	8
CSTA: APG (M931)	WR	4Q95	987	987	760	227	0	0	0	0	987
AMSAA: APG	WR	3Q95	75	75	75	0	0	0	0	0	75
WES: Vicksburg, MS	WR	4Q95	40	40	40	0	0	0	0	0	40

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D695	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D695 XM982	0	0	655	5901	10729	16169	0	0	0	33454
<p>A. <u>Mission Description and Justification:</u> The XM982 is an extended range Dual Purpose Improved Conventional Munition (DPICM) projectile which combines base burn and rocket assisted technologies in an extended range 155mm artillery projectile. It will be compatible with all current and future 155mm artillery systems in the U. S. inventory. The XM982 will extend the range of the M198, M109A5, 155mm Paladin (M109A6), and the Light Weight Howitzer to approximately 37 kilometers. The XM982 with the Modular Artillery Charge System (MACS) extends the Crusader range to 47 kilometers. Survivability is increased by allowing greater stand-off from threats and faster defeat of potential threats.</p> <p><u>Acquisition Strategy:</u> Engineering and Manufacturing Development (EMD) will consist of a system contract to design, test and manufacture hardware and then produce Development Test hardware for Government Test and Evaluation. Development Testing, consisting of safety tests and firing table tests, will be accomplished by TECOM at TECOM Proving Grounds during EMD. Production will be performed by the EMD contractor. The EMD contract will include unpriced options.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 545 Government support for engineering: Integrated Product Team (IPT), contract solicitation, engineering support for development testing. • 110 Program management: technical evaluation; program execution <p>Total 655</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1390 Government support for engineering: Integrated Product Team (IPT), contract solicitation, engineering support for development testing. • 4081 Contracts for propellants, fuzing and metal parts • 110 Program management • 320 Test and evaluation <p>Total 5901</p>										
Project D695			<i>Page 15 of 24 Pages</i>				Exhibit R-2 (PE 0604802A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997										
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D695										
B. Project Change Summary																				
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>													
FY 1997 President's Budget	0		0		0		0													
Appropriated Value	0		0																	
Adjustments to Appropriated Value	0		0																	
FY 1998 Pres Bud Request	0		0		655		5901													
Change Summary Explanation: Funding: FY 1998: This program is a new start in EMD as it transitions from the technology base.																				
C. Other Program Funding Summary																				
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To</u>		<u>Total</u>	
Procurement, Ammunition, Army, SSN E80100																	<u>Compl</u>		<u>Cost</u>	
Proj, Arty, 155mm XM982	0		0		0		0		0		0		16753		24979		<u>Cont</u>		<u>Cont</u>	
D. Schedule Profile																				
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone II										X										
Award initial EMD contract																	X			
Milestone III: 4Q FY 2002																				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D695		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Contractor Engineering Support				0	0	0	4081				
Government Engineering Support				0	0	545	1390				
Program Management Support				0	0	110	110				
Developmental Test and Evaluation				0	0	0	320				
Total						655	5901				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TBD	C/CPIF	1Q99	TBD	TBD	0	0	0		4081	16816	20897
Support and Management Organizations											
ARDEC-Picatinny								545	960	4002	5507
PM SADARM					0	0	0	110	110	390	610
Test and Evaluation Organizations											
TECOM					0	0	0	0	750	5690	6440
Government Furnished Property: None											
Subtotal Product Development									4081	16816	20897
Subtotal Support and Management							655	1070	4392	6117	
Subtotal Test and Evaluation									750	5690	6440
Total Project							655	5901	26898	33454	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D712	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D712 Non-Lethal Programs	0	3215	0	0	0	0	0	0	0	3215
<p>A. <u>Mission Description and Justification:</u> This program will demonstrate the application of non-lethal technologies, devices and munitions that are explicitly designed and employed to incapacitate personnel and/or materiel while minimizing fatalities and undesired damage to property and the environment. Non-lethal devices have the potential to provide the foundation for regional and peacekeeping operations to be successful, and may allow military forces to respond to such conflicts through the use of an established Graduated Response Matrix. The application of non-lethal capabilities that minimizes collateral damage while providing for safe employment and mission accomplishment will enhance operational effectiveness.</p> <p><u>Acquisition Strategy:</u> Upon completion of user demonstration and feedback, selected non-lethal devices/munitions will be integrated into the appropriate acquisition phase depending on their design maturity and ability to fulfill the user's needs.</p> <p>FY 1996 Accomplishments: No FY 1996 program</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1985 Acoustics: Initiate integration of initial health hazard assessment into acoustic source design configuration and propagation measurement, for demonstration tests and potential weapon /platform applications • 690 Kinetics: Initial validation test of health hazard (target) assessment model (HHTAM) for blunt impact munitions. Functional purchase description development for urgent release items. Safety test and evaluation of kinetic systems in support of dismounted battlespace battle lab's warfighting experiments • 365 Entanglements: Conduct safety and performance testing of gun-fired 40mm ballistically deployed entanglement munition with integrated fuze • 97 Vehicle stopper: Complete commercial off-the-shelf (COTS) electric discharge vehicle stopper performance evaluation • 78 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 3215</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p>										
Project D712			Page 18 of 24 Pages				Exhibit R-2 (PE 0604802A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development						PROJECT D712				
B. <u>Project Change Summary</u>																
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
FY 1997 President's Budget	0				3284				1064				0			
Appropriated Value	0				3215											
Adjustments to Appropriated Value	0				0											
FY 1998 Pres Bud Request	0				3215				0				0			
Change summary explanation: Funding - FY 1998 (-1064) funds transferred to the Marine Corps, executive agent for non-lethal warfare. Marine Corps will continue the R&D effort.																
C. <u>Other Program Funding Summary:</u> Not applicable.																
D. <u>Schedule Profile</u>																
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Demonstrate a 40mm weapon-launched ballistic entanglement munition							X									
Demonstrate a 40mm weapon launched ballistic "sticky net" munition									X							
Demonstrate a COTS electric discharge electric vehicle stopper							X									
Fabricate & test next generation of acoustic sources									X						X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT D712		
A. <u>Project Cost Breakdown</u>												
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Product development					0	3137	0	0				
SBIR/STTR						78						
Management and engineering support					0	0	0	0				
Test and evaluation					0	0	0	0				
Total						3215						
B. <u>Budget Acquisition History and Planning Information</u>												
Performing Organizations												
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program	
Product Development Organizations												
ARDEC: NJ	CPFF	2Q/3Q97	3040	3040	0	0	3040	0	0	0	3040	
ARL: MD	NA	2Q97	175	175	0	0	175	0	0	0	175	
Support and Management Organizations: None												
Test and Evaluation Organizations: None												
Government Furnished Property: Not applicable												
Subtotal Product Development							3215				3215	
Subtotal Support and Management												
Subtotal Test and Evaluation												
Total Project							3215				3215	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT DAS1	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DAS1 Small Arms Improvement	473	1566	0	0	2459	3092	3235	6772	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> This program provides funds to develop existing and emerging technology to enhance lethality, target acquisition, fire control, training effectiveness, and reliability for small arms weapon systems. Current small arms include a variety of personal defense weapons (.38 caliber, .45 caliber; 9mm), individual weapons (5.56mm-7.62mm), crew-served weapons (5.56mm-40mm) and related equipment such as fire control, training devices and ammunition. Current efforts focus on improvements to the MK19-3 Grenade Machine Gun (GMG) and M2 Heavy Barrel Machine Gun. Improvements to the M2 Heavy Barrel, Caliber .50 Machine Gun include a Quick Change Barrel (QCB) kit, mounting surfaces, and trigger safety. Improvements to the MK19-3 GMG include a universal mounting bracket that provides a common mounting interface for various fire control devices. The current rear sight lacks sufficient structural integrity to mount such devices, including night vision equipment. Funding is sufficient to complete development, testing, and modification of the MK19-3 Grenade Machine Gun technical data package (TDP) and type classification (TC) of the QCB.</p> <p>Acquisition Strategy: The universal mounting bracket will enter production as an engineering change to the current MK19-3 Grenade Machine Gun technical data package. Currently fielded systems will be modified through a MK19-3 modification effort. Several non-developmental item (NDI) solutions exist for the caliber .50 QCB. The strategy will employ full and open competition, production qualification and operational testing leading to TC standard.</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 101 Drafted performance specifications • 50 Purchased commercial hardware • 237 Performed validation testing • 85 Finalized performance specifications <p>Total 473</p>										
Project DAS1			Page 21 of 24 Pages				Exhibit R-2 (PE 0604802A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development								PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development								PROJECT DAS1			
FY 1997 Planned Program:																			
<ul style="list-style-type: none"> • 86 Solicit competitive hardware • 588 Conduct technical evaluation • 157 Award hardware contract • 362 Production qualification • 185 Operational test • 150 Type classification • 38 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs 																			
Total 1566																			
FY 1998 Planned Program: Project not funded in FY 98																			
FY 1999 Planned Program: Project not funded in FY 99																			
B. Project Change Summary																			
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>						
FY 1997 President's Budget	486				0				0				0						
Appropriated Value	500				1566														
Adjustments to Appropriated Value	-27				0														
FY 1998 Pres Bud Request	473				1566				0				0						
Summary Change Explanation: Funding - FY 97 (+1566) Congressional increase to support MK 19 modifications.																			
C. Other Program Funding Summary: Not applicable.																			
D. Schedule Profile																			
	FY 1996				FY 1997				FY 1998				FY 1999						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Draft performance specifications		X*																	
Purchase commercial hardware				X															
Perform validation tests							X												
Finalize performance specs (brackets)							X												
Solicit competitive hardware (QCB)							X												
Project DAS1																			
Page 22 of 24 Pages																			
Exhibit R-2 (PE 0604802A)																			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development						PROJECT DAS1						
D. <u>Schedule Profile</u>	FY 1996					FY 1997					FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Conduct technical evaluation (QCB)									X									
Award hardware contract (QCB)										X								
Production qualification test (QCB)											X							
Operational test (QCB)												X						
Type classification (QCB)													X					
* Milestone completed																		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					PROJECT DAS1	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Other government support					423	1300	0	0			
SBIR/STTR						38					
Program management support					50	228	0	0			
Total					473	1566					
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
ARDEC	MIPR	2Q97	731	731	0	363	731	0	0	CONT	1094
Support and Management Organizations											
PM, Small Arms	MIPR	Multiple	228	228	0	50	198	0	0	CONT	248
ACALA	MIPR	3Q97	45	45	0	10	37	0	0	CONT	47
SBIR/STTR							38				38
Test and Evaluation Organizations											
Aberdeen Test Center	MIPR	3Q97	390	390	0	50	390	0	0	CONT	440
TEXCOM	MIPR	1Q98	100	100	0	0	100			CONT	100
Contractor	FFP	1Q98	72	72	0	0	72	0	0	CONT	72
Government Furnished Property: None											
Subtotal Product Development						473	1566				2039
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project						473	1566				2039
Project DAS1					Page 24 of 24 Pages			Exhibit R-3 (PE 0604802A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	19132	19903	28039	26932	24393	16598	28730	31681	Continuing	Continuing
DH01 Combat Engineer Equipment Engineering Development	9901	9433	8566	7617	2621	1053	1551	11652	Continuing	Continuing
DH02 Bridge Site Mobility	0	0	0	0	0	0	5077	0	0	5100
DH14 Logistics Support Equipment Engineering Development	579	86	4829	100	105	102	103	101	Continuing	Continuing
DL39 General Support Equipment Engineering Development	1319	1641	2286	2589	2247	2187	4688	4238	Continuing	Continuing
DL41 Fuels and Equipment Engineering Development	1135	1011	1071	1081	1057	1052	1306	1314	Continuing	Continuing
DL42 Camouflage System Engineering Development	734	942	896	843	405	397	345	361	Continuing	Continuing
DL43 Engineering Development	0	0	0	1114	2802	2499	4335	2830	Continuing	Continuing
DL44 Distribution System, 105kW	0	0	0	0	0	0	805	0	0	800
D194 Engine Driven Generators Engineering Development	1423	2183	7534	9015	8184	5290	2244	1417	Continuing	Continuing
D279 Airdrop Equipment Engineering Development	1416	1414	1359	1354	1380	1371	4864	4701	Continuing	Continuing
D429 Rigid Wall Shelter Engineering Development	2296	3193	1498	1024	1159	1152	2157	2166	Continuing	Continuing
D461 Marine Oriented Logistics Equipment Engineering Development	329	0	0	2195	4433	1495	1255	2901	Continuing	Continuing

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development	
<p><u>Mission Description and Budget Item Justification:</u> This Program Element (PE) supports engineering and manufacturing development (EMD) of new and advanced combat support and combat service support equipment and therefore belongs in Budget Activity 5.</p>		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DH01	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DH01 Combat Engineer Equipment Engineering Development	9901	9433	8566	7617	2621	1053	1551	11652	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item</u> : This project supports the development and transition to procurement of military tactical bridging for wet and dry gap bridging requirements such as the Common Bridge Transporter (CBT), the Improved Ribbon Bridge (IRB) Bays, and the Heavy Dry Support Bridge (HDSB). All bridging work is in support of the increased military load class (MLC) requirements for the Abrams tank. This project also provides for the non-developmental item (NDI) acquisition of the Deployable Universal Combat Earthmover (DEUCE) and market investigations of other engineer construction equipment.</p> <p><u>Acquisition Strategy</u>: CBT - Competitive RDTE followed by downselect for procurement. HDSB - Competitive RDTE followed by downselect for procurement. DEUCE - Competitive procurement of integrated NDI.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 400 Conducted Source Selection for HDSB • 280 Conducted Milestone II Review for HDSB • 7446 Awarded two HDSB Engineering Manufacturing Development (EMD) contracts • 190 Initiated IRB technical and configuration baseline • 400 Conducted Milestone III for CBT • 674 Completed preproduction qualification test for DEUCE • 41 Conducted Milestone III IPR for DEUCE • 72 Conducted market investigation for construction equipment • 119 Developed armored DEUCE Cab • 279 Completed Logistics Development for the DEUCE <p>Total 9901</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 7539 Fabricate HDSB EMD prototypes • 274 Prepare for Contractor Testing of HDSB EMD prototype • 274 Prepare for award of IRB bays RDTE contract 										
Project DH01			Page 3 of 43 Pages				Exhibit R-2 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development	PROJECT DH01																									
<ul style="list-style-type: none"> • 1024 Initiate development and upgrade of IRB bays <p>FY 1997 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 92 Conduct market investigation for construction equipment • 230 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 9433</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 6471 Continue fabrication of HDSB prototypes • 541 Prepare for contractor testing of the HDSB • 655 Contractor testing of Bridge prototypes for the HDSB • 317 Fabricate IRB prototypes • 215 Prepare for testing of IRB prototypes • 367 Conduct market investigation for construction equipment <p>Total 8566</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 2094 Continue fabrication of HDSB Launcher prototypes • 923 Continue contractor testing of Bridge prototypes for the HDSB • 3206 Initiate pre-production qualification test for HDSB • 1026 Test IRB prototypes • 368 Conduct market investigation for construction equipment <p>Total 7617</p>																											
<p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">9425</td> <td style="text-align: center;">9635</td> <td style="text-align: center;">7737</td> <td style="text-align: center;">4614</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">9691</td> <td style="text-align: center;">9433</td> <td></td> <td></td> </tr> <tr> <td>Adjustment to Appropriated Value</td> <td style="text-align: center;">+210</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">9901</td> <td style="text-align: center;">9433</td> <td style="text-align: center;">8566</td> <td style="text-align: center;">7617</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 1998 funding was increased (+829k) due to expected higher HDSB fabrication costs.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	9425	9635	7737	4614	Appropriated Value	9691	9433			Adjustment to Appropriated Value	+210				FY 1998 Pres Bud Request	9901	9433	8566	7617
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	9425	9635	7737	4614																							
Appropriated Value	9691	9433																									
Adjustment to Appropriated Value	+210																										
FY 1998 Pres Bud Request	9901	9433	8566	7617																							
Project DH01	Page 4 of 43 Pages	Exhibit R-2 (PE 0604804A)																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DH01						
FY 1999 funding was increased (+3003k) due to the requirement for a pre-production qualification test for the HDSB.																
C. Other Program Funding Summary																
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To <u>Compl</u>	Total <u>Cost</u>						
RDTE, 0603804.DG01, Combat Engineer Equipment, Advanced Development							940	1415	Cont	Cont						
OPA3, G82400, Heavy Dry Support Bridge							944	1415	Cont	Cont						
OPA3, M26800, Bridge, Float-Ribbon, Transporter	3709	4296	4200	4303	4315	4321	9239	9554	Cont	Cont						
OPA3, M26600, Bridge, Float-Ribbon, Interior Bays					3143	3735	8332	12820	Cont	Cont						
OPA3, M26700, Bridge, Float-Ribbon, Ramp Bays					1346	2124	2381	5069	Cont	Cont						
OPA3, M06105, Deployable Universal Combat Earthmover	9522	7701	8885	9508	9342	7410	10317	9376	Cont	Cont						
OPA3,GA1100, Line of Communications Bridge							5681	1796	Cont	Cont						
OPA3, M27200 Float Bridge Propulsion							2083	4770	Cont	Cont						
OPA3, GA1200 Bridge Site Mobility								4341	Cont	Cont						
OPA3, Various Construction Equipment Items	21329	67249	24682	65422	71921	77645	67138	83148	Cont	Cont						
D. Schedule Profile																
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conduct PQT for DEUCE		X*														
Conduct Milestone III IPR for DEUCE				X*												
Conduct Milestone II Review for HDSB				X*												
Award HDSB EMD contract				X*												
Fabricate HDSB EMD Prototypes						X										
Conduct Milestone III Review for CBT								X*								
Release Request for Proposal for IRB Bays					X*											
Award IRB bays contract					X											
Upgrade IRB Prototypes						X										
Conduct PPQT for IRB												X				
Project DH01											Page 5 of 43 Pages		Exhibit R-2 (PE 0604804A)			

DATE
February 1997

BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
**0604804A Logistics & Engineer Equipment -
Engineering Development**

Conduct Construction Equipment Market Investigation	X*	X	X	X
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*Milestone completed

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE					
BUDGET ACTIVITY						February 1997					
5 - Engineering and Manufacturing Development						PROJECT					
PE NUMBER AND TITLE						DH01					
0604804A Logistics & Engineer Equipment - Engineering Development											
A. Project Cost Breakdown						FY 1996	FY 1997	FY 1998	FY 1999		
DH01 DEUCE & Construction Equipment											
Program Management Support						41					
Integrated Logistics Support (ILS)						279					
Prototype Hardware Development						119					
Developmental and Operational Testing						666					
Construction Equip Market Investigations						72	92	368	366		
Miscellaneous						8					
DH01 BRIDGING (HDSB, CBT & IRB)											
Primary Hardware Development						7000	8563	6786	2097		
Developmental Test and Evaluation						210	50	728	4138		
Program Management Support (three programs)						1506	498	638	864		
Miscellaneous								46	152		
SBIR/STTR							230				
Total						9901	9433	8566	7617		
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or	Contract										
Government	Method/Type	Award or	Performing	Project	Total						
Performing	or Funding	Obligation	Activity	Office	Prior to					Budget to	
Activity	Vehicle	Date	EAC	EAC	FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Complete	
Product Development Organizations											
Caterpillar, Inc.	FFP	Jul 95	2776	2776	2776	119				2895	
Williams Fairley	C-CPFF	Aug 96	24684			7000	7539	7126	3019	Cont 24684	
Eng Ltd/ Karlskronavarvet											
Contractor TBD	C-CPFF	Mar 97					1024	315		0 1339	
TARDEC					2447	72	92	368	366	Cont 3345	
Support and Management Organizations											
None											
Project DH01						Page 6 of 43 Pages			Exhibit R-3 (PE 0604804A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DH01	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Test and Evaluation Organizations											
TECOM	1095	Various			632	876	50	73	3216	Cont	4847
Miscellaneous											
TACOM	1095	Various			638	1834	498	684	1016	Cont	4670
SBIR/STTR							230				230
Subtotal Product Development					5223	7191	8655	7809	3385		32263
Subtotal Support and Management											
Subtotal Test and Evaluation					634	876	50	73	3216	Cont	Cont
Miscellaneous					638	1834	728	684	1016	Cont	Cont
Total Project					6493	9901	9433	8566	7617		41823

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development				PROJECT DH14		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DH14 Logistics Support Equipment Engineering Development	579	86	4829	100	105	102	103	101	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develops and transitions to procurement a series of Material Handling Equipment (MHE) items.</p> <p><u>Acquisition Strategy:</u> All Terrain Lifter Articulated System (ATLAS) - Competitive procurement of integrated NDI. Cargo Container Retriever (CCR) - Pre-Planned Product Improvements (P3I) to ATLAS. MHE - Competitive procurements for miscellaneous MHE.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 350 Completed preproduction qualification testing of the ATLAS • 150 Completed ATLAS logistics development • 79 Conducted market investigations for MHE. <p>Total 579</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 25 Conduct market investigations for the Container Cargo Retriever • 25 Conduct market investigations for warehouse MHE • 34 Conduct market investigations for other general MHE • 2 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 86</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 82 Conduct Market investigations for Light Weight Container Handling Equipment. • 500 Provide engineering support for development of technical data package (TDP) for Rough Terrain Container Handler (RTCH). • 1000 Provide test support for development of TDP for RTCH. • 3000 Procure test hardware/software for development of TDP for RTCH. • 50 Prepare for award of FY 99 production contract for Rough Terrain Container Crane (RTCC). • 25 Conduct Milestone III IPR for RTCC. • 172 Using best value approach, conduct paper downselect for RTCC. 										
Project DH14			Page 8 of 43 Pages				Exhibit R-2 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DH14		
Total 4829												
FY 1999 Planned Program:												
<ul style="list-style-type: none"> • 30 Development of performance specifications for MHE. • 30 Conduct market investigations for warehouse MHE. • 40 Conduct market investigations for other general MHE. 												
Total 100												
B. Project Change Summary												
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>					
FY 1997 President's Budget	1324		88		88		88					
Appropriated Value	1362		86									
Adjustments to Appropriated Value	-783											
FY 1998 Pres Bud Request	579		86		4829		100					
Change Summary Explanation:												
Funding: FY 1996 funding decreased (-713) due to changed Type Classification (TC) strategy for the ATLAS and funds were reprogrammed to other RDTE projects requiring additional RDTE funding and (-32) for undistributed Congressional reductions and rescissions.												
FY 1998 funding was increased (+4741) to allow RDTE efforts for the RTCH and the RTCC.												
C. Other Program Funding Summary												
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>		
RDTE, 0603804.DG14, Logistics Support Equipment, Advanced Development	92	86	96	98	105	101	103	100	Compl	Cost		
OPA3, M41800, All Terrain Lifting Articulating System	13640	15941	3554	10498	10505	10510	19930	23851	Cont	Cont		
OPA3, MA8600, Items Less Than \$2.0M (MHE)	27543	2664	1724	1715	1854	1843	1984	1988	Cont	Cont		
OPA3, M41200, Forklift, DE, PT, RT, 50,000 lbs	10587			24396	35774	50181	16863	16894	Cont	Cont		
OPA3, X00900, Rough Terrain Container Crane				13844	11433	8813				34090		
D. Schedule Profile												
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>	
	1	2	3	4	1	2	3	4	1	2	3	4
Prototype delivery (ATLAS)		X*										
Project DH14												
Page 9 of 43 Pages												
Exhibit R-2 (PE 0604804A)												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development								PROJECT DH14			
D. Schedule Profile	FY 1996				FY 1997				FY 1998				FY 1999				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Production Qualification Test (PQT) Initiated (ATLAS)		X*															
Type Classification Generic (ATLAS)				X*													
1st Production Quality call up (ATLAS)				X*													
Conduct Market Investigations for MHE				X*			X					X					X
Award Prototype Contract for RTCH								X									
Conduct RTCH PQT											X	X					
Prepare/Conduct Milestone III IPR for RTCC										X							
Prepare RFP for Prod. Contract for RTCC											X						
Conduct Sole Source Evaluation Board												X					
Paper Downselect for RTCC													X				
Conduct Market Investigation for Light Weight Container Handler													X				
Develop performance specifications for MHE																	X
Conduct market investigations for warehouse MHE																	X
Conduct market investigations for other general MHE																	X
*Milestone completed																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604804A Logistics & Engineer Equipment - Engineering Development					DH14		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Government Engineering and Other Support				100		300					
Primary Hardware Development						3000					
Developmental Test and Evaluation				350		1000					
Program Management Support				50		450					
Miscellaneous				79	84	79	100				
SBIR/STTR					2						
Total				579	86	4829	100				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
TRAC	CPFF	May 95	1541	1541	1541						1541
International RTCH Contractors	CPFF	Dec 97						3000			3000
TBD											
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Miscellaneous:											
TARDEC	MIPR	Various			1270	100	84	300	100	Cont	Cont
PM CE/MHE	PO	Various			388	129		450		Cont	Cont
TECOM	MIPR	Various			670	350		1000		Cont	Cont
SBIR/STTR							2				
Government Furnished Property : None											
Project DH14				Page 11 of 43 Pages				Exhibit R-3 (PE 0604804A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997		
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT		
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development				DH14		
		Total Prior to <u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to <u>Complete</u>	Total <u>Program</u>
Subtotal Product Development		1541			3000		Cont	Cont
Subtotal Support and Management							Cont	Cont
Subtotal Test and Evaluation							Cont	Cont
Miscellaneous		2328	579	86	1829	100	Cont	Cont
Total Project		3869	579	86	4829	100	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DL39	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL39 General Support Equipment Engineering Development	1319	1641	2286	2589	2247	2187	4688	4238	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develop and transition to procurement water purification equipment, maintenance equipment and environmental control units (ECU) that do not use ozone depleting refrigerants.</p> <p><u>Acquisition Strategy:</u> Development and transition to competitive procurement for all items under this project.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 86 Conducted tests on 36K British Thermal Units per Hour (BTUH) Environmental Control Units (ECU) prototypes. • 150 Conducted Milestone I/II in process review for 1500 gallons per hour (GPH) Reverse Osmosis Water Purification Unit (ROWPU). • 279 Completed trade off analysis of subsystems for 1500 GPH ROWPU. • 504 Designed and fabricated integrated Test Bed Unit. • 300 Initiated contract package for design/fabrication of 1500 GPH ROWPU engineering and manufacturing development (EMD) prototypes. <p>Total 1319</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 164 Prepare data package for improved ECU procurement. • 470 Perform technical feasibility testing of Integrated Test Bed Unit. • 200 Update program management documentation for 1500 GPH ROWPU program. • 768 Award contract for fabrication of EMD 1500 GPH ROWPU. • 39 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 1641</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1400 Design and fabricate EMD prototype 1500 GPH ROWPU. • 435 Prepare production qualification test (PQT) and initial operational test and evaluation (IOTE) test plan for the 1500 GPH ROWPU. • 451 Complete tests on 18K ECU prototype. 										
Project DL39			Page 13 of 43 Pages				Exhibit R-2 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997			
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT				
5 - Engineering and Manufacturing Development	0604804A Logistics & Engineer Equipment - Engineering Development					DL39				
Total	2286									
FY 1999 Planned Program:										
•	450	Complete fabrication of 1500 GPH ROWPU prototypes.								
•	1200	Conduct PQT and IOT&E on the 1500 GPH ROWPU.								
•	380	Update Program Management Documentation (PMD) for 1500 GPH ROWPU.								
•	100	Develop purchase description for 18K ECU.								
•	150	Develop purchase description for large diesel heaters (250K+ BTUH).								
•	309	Complete testing of large heater prototypes.								
Total	2589									
B. Project Change Summary										
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
FY 1997 President's Budget		1603	1677	2136	2356					
Appropriated Value		1649	1641							
Adjustments to Appropriated Value		-330								
FY 1998 Pres Bud Request		1319	1641	2286	2589					
Change Summary Explanation:										
Funding: FY 1996 funding was decreased (-246) due to reprogramming to higher Army priority RDTE projects and (-38) for undistributed Congressional reductions and rescissions.										
C. Other Program Funding Summary										
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
RDTE, 0603804.DK39, General Support	707	851	1689	1809	1980	2103	2424	2431	Compl	Cost
Equipment Advanced Development									Cont	Cont
OPA 3, MF9300, Air Conditioners, Various Sizes	3083	1461	1468	4770	4637	4712	1438	1988	Cont	Cont
OPA 3, MA7600, Items Less Than \$2.0M (Water Equipment)	2584	2968	2862	6464	9098	8505	5654	4391	Cont	Cont
OPA 3, R05100, Water Purifier Unit Reverse Osmosis 3000 GPH				28345	28490	33283	19554	10628	Cont	Cont
OPA 3, R05200, Water Purifier Unit Reverse Osmosis 1500 GPH								5963	Cont	Cont
Project DL39										
					Page 14 of 43 Pages					
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)														DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development							PROJECT DL39		
C. <u>Other Program Funding Summary</u>																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>					
						5116	5073	4365	0	Compl	Cost					
										Cont	Cont					
D. <u>Schedule Profile</u>																
		FY 1996				FY 1997				FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Conduct tests on 36K British Thermal Units per Hour (BTUH) Environmental Control Units (ECU) prototypes				X*												
Conduct Milestone I/II In Process Review for 1500 GPH ROWPU		X*														
Complete trade-off analysis of subsystem for 1500 GPH ROWPU			X*													
Initiate contract package for design/ fabrication of 1500 GPH ROWPU EMD prototypes			X*													
Award 1500 GPH ROWPU EMD prototype contract					X											
Update Program Management Documentation						X										
Initiate design and fabrication of the prototype 1500 GPH ROWPU							X									
Prepare PQT and IOT&E test plans for 1500 GPH ROWPU									X							
Complete 18K ECU tests										X						
Complete fabrication of 1500 GPH ROWPU prototypes											X					
Conduct PQT and IOT&E for 1500 GPH ROWPU												X				
Update PMD 1500 GPH ROWPU																X
Develop 18K ECU purchase description														X		
Project DL39																

DATE
February 1997

BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
**0604804A Logistics & Engineer Equipment -
Engineering Development**

	FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Develop large diesel heater purchase description/complete tests																X

*Milestone completed

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DL39		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Hardware Development				806	831	1325	1295				
Operational Test and Evaluation											
Development Test and Evaluation				86	450	500	855				
Government Engineering and Support				325	261	331	265				
Government Program Support				50	60	100	103				
Miscellaneous				52		30	71				
SBIR/STTR					39						
Total				1319	1641	2286	2589				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Miscellaneous											
TARDEC	In-House	Various			970	643	350	435	510	Cont	Cont
CECOM	In-House	Various				86	71	123	191	Cont	Cont
Radian	Task Order	Various			25		100			Cont	Cont
CRREL	MIPR	Various			75	20	20	10	25	Cont	Cont
Dugway PG	MIPR	Various			25	30	50		10	Cont	Cont
BRTRC	Task Order	Various			170	24	100	50	150	Cont	Cont
ARL	MIPR	Various			25	15	50	10	25	Cont	Cont
ATCOM	MIPR	Various			55	15	50	10	25	Cont	Cont
Vitro Inc.	Task Order	Various			83	36	50			Cont	Cont
NSF	MIPR	Jan 95			85					Cont	Cont
USBR	MIPR	Feb 95			30					Cont	Cont
Project DL39				Page 16 of 43 Pages				Exhibit R-3 (PE 0604804A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DL39	
Contractor or Government Performing <u>Activity</u>	Contract Method/Type or Funding <u>Vehicle</u>	Award or Obligation <u>Date</u>	Performing Activity <u>EAC</u>	Project Office <u>EAC</u>	Total Prior to <u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to <u>Complete</u>	Total <u>Program</u>
CECOM	MIPR	Various						100	100	Cont	Cont
CHIPPM	MIPR	Various			12	50		10	25	Cont	Cont
NFESC	MIPR	Various				400	200	250	250	Cont	Cont
TECOM	MIPR	Various					50	325	650	Cont	Cont
Dugway PG	MIPR						50		10		60
Contractor (TBD)	CPFF	Dec 96					461	800	400	Cont	Cont
Contractor (TBD)	CPFF	Various						163	208	Cont	Cont
MTMC	MIPR	Various							10	Cont	Cont
SBIR/STTR							39				Cont
Government Furnished Property - None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation											
Subtotal Miscellaneous											
Total Project					1555	1319	1641	2286	2589	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development				PROJECT DL41		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL41 Fuels and Equipment Engineering Development	1135	1011	1071	1081	1057	1052	1306	1314	Continuing	Continuing
<p>A. Mission Description and Justification: Develop and transition to procurement petroleum storage and distribution systems.</p> <p>Acquisition Strategy: Development of and transition to competitive procurement for all items under this project.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 495 Completed Phase II PPQT, logistics demonstration, and physical configuration audit for Lightweight Arctic Forward Area Refueling (LAFARE). • 100 Conducted Milestone III - type classification for LAFARE. • 430 Performed market investigation and tested improved Tactical Fuel Storage and Distribution System (TFSD) candidate items. • 60 Prepared statement of work and specifications for design and testing of TFSD components. • 50 Continued long term exposure testing of tank fabrics. <p>Total 1135</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 35 Award TFSD design contract. • 667 Design and fabricate TFSD initial prototypes. • 150 Initiate TFSD component testing. • 85 Procure long lead items for petroleum quality analysis set (PQAS) EMD prototypes. • 50 Continue long term exposure testing of tank fabrics. • 24 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 1011</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 150 Prepare contract package for PQAS EMD contract. • 70 Administer source selection process for PQAS. • 230 Develop PQAS specification. • 421 Continue fabrication, assembly and testing TFSD components. • 200 Continue long term exposure and durability testing of tank fabrics. 										
Project DL41			Page 18 of 43 Pages				Exhibit R-2 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997														
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DL41														
Total					1071																			
FY 1999 Planned Program:																								
• 1022 Award and administer PQAS EMD contract for design, fabrication and test system prototype.																								
• 59 Complete specification for TFSD components.																								
Total					1081																			
B. Project Change Summary																								
					<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>													
FY 1997 President's Budget					1187		1033		1155		1177													
Appropriated Value					1220		1011																	
Adjustments to Appropriated Value					-85																			
FY 1998 Pres Bud Request					1135		1011		1071		1081													
C. Other Program Funding Summary																								
					<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To</u>		<u>Total</u>	
RDTE, 0603804.DK41, POL Distribution Equipment Advanced Development					864		872		859		824		899		892		944		946		Cont		Cont	
OPA 3, MA7400, Items Less Than \$2.0M (POL)					4554		6442		6275		5914		6991		6883		7981		7886		Cont		Cont	
OPA 3, M60300 Fuel System Supply Point									559		1923		2170		3806		5355		Cont		Cont			
OPA 3, R21800 Forward Area Refuel System, Aviation									2743		2340		2371		3877		3884		Cont		Cont			
D. Schedule Profile																								
					<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>													
					1 2 3 4		1 2 3 4		1 2 3 4		1 2 3 4		1 2 3 4		1 2 3 4		1 2 3 4							
Complete Phase II PPQT and logistic demonstration for LAFARE					X*																			
Complete market investigation of TFSD components					X*																			
Complete physical configuration audit of LAFARE TDP					X*																			
Conduct Milestone III IPR for LAFARE					X*																			
Award TFSD competitive design contract									X															
Project DL41										Page 19 of 43 Pages					Exhibit R-2 (PE 0604804A)									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)														DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development							PROJECT DL41			
D. <u>Schedule Profile</u>																	
		FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Procure long lead items for PQAS EMD prototypes							X										
Prepare contract package for PQAS EMD														X			
Administer source selection process														X			
Develop PQAS specification														X			
Award PQAS EMD contract														X			
Complete TFSD component specifications														X			
*Milestone completed																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DL41		
A. <u>Project Cost Breakdown</u>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Hardware Development				613	421	301	751				
Test and Evaluation				103	46	230	80				
Government Engineering and Support				346	470	450	160				
Government Program Support				73	50	90	90				
SBIR/STTR					24						
Total				1135	1011	1071	1081				
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations -TARDEC											
Support and Management Organizations - ARL, Navy, ATCOM											
Test and Evaluation Organizations - TECOM, TEXCOM											
Miscellaneous:											
TARDEC	In-House	Various			242	298	500	450	311	Cont	Cont
Contractors	Various	Various			2566	529	437	446	720	Cont	Cont
TECOM	MIPR	9702			24	113	40	50	30	Cont	Cont
TEXCOM	MIPR	9402			20	10	10			Cont	Cont
ARL	MIPR	9602				25		25	20	Cont	Cont
Navy	MIPR	9701				160		100		Cont	Cont
SBIR/STTR							24				Cont
Government Furnished Property - None											
Subtotal Miscellaneous					2852	1135	1011	1071	1081	Cont	Cont
Total Project					1428	1135	1011	1071	1081	Cont	Cont
Project DL41				Page 21 of 43 Pages				Exhibit R-3 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development				PROJECT DL42		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL42 Camouflage System Engineering Development	734	942	896	843	405	397	345	361	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Project DL42, which was restructured in FY 96 from DH01, provides for development and transition to procurement low cost, low observable systems for suppression of visual, near-infrared, thermal, radar, and acoustic signatures of highly mobile and semi-mobile weapon assets.</p> <p><u>Acquisition Strategy:</u> Develop camouflage systems for the Services and transition items to competitive procurement.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 734 Conducted production prove-out testing for desert Ultralightweight Camouflage Screening System (ULCANS). <p>Total 734</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 539 Develop desert ULCANS. • 380 Develop urban ULCANS for Military Operations in Urban Terrain (MOUT) Advanced Concept Technology Demonstration (ACTD). • 23 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 942</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 534 Continue development of ULCANS. • 250 Demonstrate urban ULCANS for MOUT ACTD. • 112 Incorporate desert ULCANS <p>Total 896</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 400 Develop hyperspectral signature enhancements in ULCANS. • 329 Develop multispectral camouflage system (MSCS) - mobile equipment. • 114 Incorporate arctic and urban ULCANS. <p>Total 843</p>										
Project DL42			Page 22 of 43 Pages				Exhibit R-2 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DL42						
 B. Project Change Summary																
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>								
FY 1997 President's Budget		1255		962		962		959								
Appropriated Value		1290		942												
Adjustments to Appropriated Value		-556														
FY 1998 Pres Bud Request		734		942		896		843								
Change Summary Explanation:																
Funding: FY 1996 funding reduction (-493) was reprogrammed to higher Army priority RDTE projects and (-28) to pay undistributed Congressional reductions and rescissions. Reduction in FY 1998 (-66) and FY 1999 (-116) funding was also realigned to higher Army priority RDTE projects (-130).																
Schedule: Delayed ULCANS program by three quarters.																
 C. Other Program Funding Summary																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To Compl	Total Cost					
RDTE, 0602712.AH35, Camouflage Technology				799	2058	2161	2486	2538	2598	Cont	Cont					
 D. Schedule Profile																
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Desert ULCANS P3I Milestone Decision Review (MDR)										X						
Arctic ULCANS P3I MDR															X	
Urban ULCANS P3I MDR																X

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development				PROJECT DL43																						
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																				
DL43 Engineering Development	0	0	0	1114	2802	2499	4335	2830	Continuing	Continuing																				
<p>A. <u>Mission Description and Justification:</u> Develops engineer support equipment such as firetrucks, electrical distribution systems, and floodlights which are used for garrison and field operations.</p> <p><u>Acquisition Strategy:</u> EMD and transition to production.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 400 Develop performance specifications for multiple Engineer Support Equipment (ESE). • 500 Conduct market investigation for multiple ESE items. • 214 Conduct market investigation testing for multiple ESE items. <p>Total 1114</p> <p>B. <u>Project Change Summary</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget Appropriated Value</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td align="right">0</td> <td align="right">0</td> <td align="right">0</td> <td align="right">1114</td> </tr> </tbody> </table> <p>Change Summary Explanation: Project is a new start in FY 1999 and was therefore increased (+1114).</p>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget Appropriated Value	0	0	0	0	Adjustments to Appropriated Value					FY 1998 Pres Bud Request	0	0	0	1114
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																										
FY 1997 President's Budget Appropriated Value	0	0	0	0																										
Adjustments to Appropriated Value																														
FY 1998 Pres Bud Request	0	0	0	1114																										
Project DL43			Page 25 of 43 Pages				Exhibit R-2 (PE 0604804A)																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT DL43	
C. <u>Other Program Funding Summary</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To <u>Compl</u>	Total <u>Cost</u>	
OPA 3, M15800, Truck, Firefighting, Multipurpose				2137	4354	4485	4707	3244	Cont	Cont	
OPA 3, M56400, Generator Set, DE, 750kW							3187	3287	Cont	Cont	
OPA 3, M59100, Distribution System, 150kW							2990	3084	Cont	Cont	
OPA 3, M72100, Floodlight Set, Electric, Trailer Mounted				1994	1993	1993	4045	4212	Cont	Cont	
OPA 3, MA8050, Items Less than \$2.0M (CSS Equipment)	4620	1152	1180	3891	3039	4336	13516	13288	Cont	Cont	
D. <u>Schedule Profile</u>	<u>FY 1996</u>		<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
	1	2 3	4	1	2 3	4	1	2 3	4	1 2 3 4	
Conduct market investigation										X	
Conduct pre-production testing										X	
Develop performance specifications										X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604804A Logistics & Engineer Equipment - Engineering Development					DL43		
A. <u>Project Cost Breakdown</u>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Developmental Test and Evaluation							200				
Performance Specification Development							400				
Market Investigations							514				
Total							1114				
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Miscellaneous											
TARDEC	PO	Various							914	Cont	Cont
TECOM	MIPR	Various							200	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation											
Subtotal Miscellaneous									1114	Cont	Cont
Total Project									1114	Cont	Cont
Project DL43				Page 27 of 43 Pages				Exhibit R-3 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT D194	
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D194 Engine Driven Generators Engineering Development	1423	2183	7534	9015	8184	5290	2244	1417	Continuing	Continuing
<p>A. Mission Description and Justification: Develop and transition to procurement a series of diesel engine driven generator sets/auxiliary power units and provide continual modernization of fielded sets in order to meet federally mandated environmental statutes with reduced weight and size and reduced thermal signatures.</p> <p>Acquisition Strategy: Develop and transition to competitive procurement all items in this project.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 261 Began fabrication of 5kW 28 Volt Direct Current (VDC) Auxiliary Power Unit (APU) Pre-Production Qualification Test (PPQT) models. • 245 Began testing of 5kW 28VDC APU PPQT models. • 267 Completed fabrication of 5kW 28VDC APU PPQT models. • 650 Awarded competitive contracts for design and prototype development of 3kW Tactical Quiet Generator (TQG). <p>Total 1423</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 130 Complete testing of 5kW 28VDC APU PPQT models. • 129 Complete preparation of formal program review of 5kW 28VDC APU. • 1568 Continue development of 3kW TQG sets. • 311 Evaluate designs for lightweight 3kW TQG sets from competitive contract. • 45 Small Business Innovation Research/Small business Technology Transfer (SBIR/STTR) Program <p>Total 2183</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 2400 Continue hardware development for 3kW TQG • 2100 Test and evaluation for the 3kW TQG • 759 Develop logistics data for the 3kW TQG • 1900 Initiate hardware development for Prime Power System (PPS) • 375 Initiate 100 & 200kW Utility Set Program 										
Project D194			Page 28 of 43 Pages				Exhibit R-2 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT D194							
Total 7534																	
FY 1999 Planned Program:																	
<ul style="list-style-type: none"> • 400 Complete development, testing, and transition 3kW generator set to procurement. • 5015 Complete hardware and initiate test/evaluation of PPS • 3600 Initiate hardware development for 100 & 200kW sets 																	
Total 9015																	
B. Project Change Summary																	
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>										
FY 1997 President's Budget	812		2230		269		286										
Appropriated Value	833		2183														
Adjustments to Appropriated Value	+590																
FY 1998 Pres Bud Request	1423		2183		7534		9015										
Change Summary Explanation:																	
Funding: FY 1996 funding was increased (+611) to allow acceleration of the 3kW TQG.																	
FY 1998 (+7265)/FY 1999 (+8729) increase to allow RDTE on 3kW TQG, PPS and 100 & 200kW Utility Set Program.																	
C. Other Program Funding Summary																	
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total							
									<u>Compl</u>	<u>Cost</u>							
RDT&E;PE0603804A/DG11	216	213	214	1371	1020	743	616	570	Cont	Cont							
OPA,BA3;Generators & Assoc Equip (MA9800)	13482	29980	7706	74952	101113	90717	43990	41452	Cont	Cont							
D. Schedule Profile																	
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>						<u>FY 1999</u>	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Begin fabrication of 5kW 28VDC APU PQT models	X*																
Begin testing of 5kW 28VDC APU PQT models				X*													
Complete fabrication of 5kW 28VDC PQT models			X*														
Project D194																	
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
5 - Engineering and Manufacturing Development					0604804A Logistics & Engineer Equipment - Engineering Development					D194	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Primary Hardware Development					1008	1478	3700	5400			
Test and Evaluation					182	130	2100	1900			
Government Engineering & Support					70	430	1100	1200			
Program Management					75	60	565	515			
Miscellaneous					88	40	69				
SBIR/STTR						45					
Total					1423	2183	7534	9015			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Contractors	CPFF	9406				1008	1448	4500	6600	Cont	13556
Various											
Support and Management Organizations None											
Test and Evaluation Organizations											
Miscellaneous:											
CECOM	In-House	Various	NA	NA		215	510	1734	1715	Cont	4174
TECOM	MIPR	Various				200	180	1300	700	Cont	2380
SBIR/STTR							45				45
Government Furnished Property None											
Subtotal Product Development						1008	1448	4500	6600		13556
Subtotal Support and Management											
Subtotal Test and Evaluation						415	735	3034	2415		6599
Total Project						1423	2183	7534	9015		20155
Project D194					Page 31 of 43 Pages			Exhibit R-3 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT D279	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D279 Airdrop Equipment Engineering Development	1416	1414	1359	1354	1380	1371	4864	4701	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develop and transition to procurement cargo and personnel parachutes, airdrop containers and associated equipment. Air delivery equipment will improve safety and facilitate airborne cargo insertions into non-permissive environments.</p> <p><u>Acquisition Strategy:</u> Developments transition to competitive procurement.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 343 Type classified 60,000 pound airdrop system (single and linked platform). • 300 Completed the Army airdrop capability effort directly supporting the USAF C17 program ensuring a fully operational airborne capability and improving airborne soldier safety. • 773 Conducted technical/operational tests of the Guided Parafoil Air Drop System - Light (GPADS-L) as part of the Warfighting Rapid Acquisition Program (WRAP). <p>Total 1416</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 300 Fabricate test items and conduct technical testing of prototype Advanced Research Parachute System (ARPS) to improve the safety and lethality of Force XXI Airborne assault operations. • 1079 Acquire and evaluate prototype systems for 500 foot, medium weight (20,000 lbs) Air Drop System providing improved accuracy and significantly reduced vulnerability for Army combat equipment and USAF delivery aircraft, during airborne assault operations. • 35 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 1414</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1200 Conduct component development for ARPS. Begin developmental testing for ARPS. • 159 Initiate combined Technical Test/User Test for 500 foot Low Velocity Aerial Delivery System (LVADS) - Medium. <p>Total 1359</p>										
Project D279			Page 32 of 43 Pages				Exhibit R-2 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development						PROJECT D279	
FY 1999 Planned Program:												
•	600	Complete development testing for ARPS.										
•	500	Complete test and evaluation and type classify 500 foot LVADS - Medium.										
•	254	Initiate program for Advanced Parafoil Aerial Delivery System (APADS)/GPADS - Medium.										
Total	1354											
B. <u>Project Change Summary</u>												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>							
FY 1997 President's Budget		1452	1444	1452	1452							
Appropriated Value		1493	1414									
Adjustments to Appropriated Value		-77										
FY 1998 Pres Bud Request		1416	1414	1359	1354							
C. <u>Other Program Funding Summary</u>												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>	
RDTE, 0603804.D266, Airdrop Equipment Advanced Development		1116	1414	1359	1353	1336	1503	4864	4700	Compl Cont	Cost Cont	
OPA 3, R10901, Low Velocity Airdrop Delivery System (LVADS)						1586	1090					2676
OPA 3, R10903 Enhanced Container Delivery System (ECDS)						5252						
OPA 3, R10904 Advanced Tactical Parachute Delivery System (ATPDS)							14874					
D. <u>Schedule Profile</u>												
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>	
	1	2	3	4	1	2	3	4	1	2	3	4
Support USAF to Defense Acquisition Board (DAB) Decision on C-17 Aircraft	X*											
Type Classify 60K airdrop system		X*										
GPADS-L TT and CT			X*									
Award ARPS TOA and design contract					X							
Project D279												
Page 33 of 43 Pages												
Exhibit R-2 (PE 0604804A)												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development							PROJECT D279			
D. Schedule Profile	FY 1996					FY 1997					FY 1998				FY 1999		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Acquire and evaluate systems for 20K Airdrop System								X									
Start ARPS development test													X				
Complete ARPS development test																X	
Type Classify 500 foot LVADS (Medium)																	X
*Milestone completed																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604804A Logistics & Engineer Equipment - Engineering Development					D279		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				936	924	149	741				
Program Management Support				185	155	210	163				
Test and Evaluation				295	300	1000	450				
SBIR/STTR					35						
Total				1416	1414	1359	1354				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
SSCOM	In-House				16947	936	924	159	754	Cont	19720
Metric Systems	TBD	TBD								Cont	
MICOM	MIPR									Cont	
DA Staff											
Def Eval Spt Acty											
Army Nat'l Guard											
Support and Management Organizations											
SSCOM					2390	185	155	200	150	Cont	3080
Test and Evaluation Organizations											
SSCOM	In-House				6023	295	300	1000	450	Cont	8068
Ft. Bragg	MIPR										
TECOM/YPG											
SBIR/STTR							35				35
Government Furnished Property: None											
Project D279				Page 35 of 43 Pages				Exhibit R-3 (PE 0604804A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE February 1997			
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT		
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development				D279		
		Total Prior to				Budget to	Total	
		<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development		16947	936	924	159	754		19720
Subtotal Support and Management		2390	185	155	200	150		3080
Subtotal Test and Evaluation		6023	295	335	1000	450		8103
Total Project		25360	1416	1414	1359	1354		30903

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT D429	
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D429 Rigid Wall Shelter Engineering Development	2296	3193	1498	1024	1159	1152	2157	2166	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Develops a series of Rigid Wall Shelters (RWS) with added capabilities and enhanced survivability.</p> <p><u>Acquisition Strategy:</u> Developments transition to procurement funded through PM interchange requirements, except the Large Standard Integrated Command Post System (SICPS) shelter will be procured through OPA2.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 826 Type classified version 3 of the SICPS shelter. • 548 Tested new technology components [engine, generator, Environmental Control Unit (ECU), regenerative Chemical Biological (CB) filters] for objective SICPS; lighter weight, quieter, less maintenance. • 269 Fabricated International Standards Organization (ISO) P3I components. • 653 Fabricated Upgraded Lightweight Multipurpose Shelter (LMS) prototypes. <p>Total 2296</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 490 Conduct Technical Testing of ISO P3I Components. • 570 Conduct testing of LMS upgrade. • 915 Conduct testing of new technology SICPS components. • 1140 Complete design and begin fabrication of large SICPS P3I components (on-board power and collective protection). • 78 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program <p>Total 3193</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 306 Complete development of ISO Component P3I. • 306 Complete development of LMS upgrade. • 451 Develop new component technology for SICPS P3I Shelter. • 435 Develop concept design of the Ballistically Hardened Shelter (BHS). 										
Project D429			Page 37 of 43 Pages				Exhibit R-2 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																															
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development	PROJECT D429																																															
<p>Total 1498</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 600 Award design and fabrication contract for the BHS. • 424 Conduct front end analysis on Camouflage, Concealment and Detection (CCD) Shelter. <p>Total 1024</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: right;">2791</td> <td style="text-align: right;">3261</td> <td style="text-align: right;">2386</td> <td style="text-align: right;">1093</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">2870</td> <td style="text-align: right;">3193</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">-574</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: right;">2296</td> <td style="text-align: right;">3193</td> <td style="text-align: right;">1498</td> <td style="text-align: right;">1024</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 1996 funding was decreased (-495) for undistributed Congressional and reductions and rescissions. FY 1998 funding decrease (-888) necessary to realign to ATCCS program to reduce fielding delays.</p> <p>C. Other Program Funding Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>To</u></th> <th style="text-align: center;"><u>Total</u></th> </tr> </thead> <tbody> <tr> <td>RDTE, 0603804.D428, Rigid Wall Shelter Engineering Development</td> <td style="text-align: right;">2464</td> <td style="text-align: right;">3868</td> <td style="text-align: right;">2431</td> <td style="text-align: right;">870</td> <td style="text-align: right;">983</td> <td style="text-align: right;">977</td> <td style="text-align: right;">1970</td> <td style="text-align: right;">1977</td> <td style="text-align: center;"><u>Compl</u> Cont</td> <td style="text-align: center;"><u>Cost</u> Cont</td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	2791	3261	2386	1093	Appropriated Value	2870	3193			Adjustments to Appropriated Value	-574				FY 1998 Pres Bud Request	2296	3193	1498	1024		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>	RDTE, 0603804.D428, Rigid Wall Shelter Engineering Development	2464	3868	2431	870	983	977	1970	1977	<u>Compl</u> Cont	<u>Cost</u> Cont
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																																													
FY 1997 President's Budget	2791	3261	2386	1093																																													
Appropriated Value	2870	3193																																															
Adjustments to Appropriated Value	-574																																																
FY 1998 Pres Bud Request	2296	3193	1498	1024																																													
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>																																							
RDTE, 0603804.D428, Rigid Wall Shelter Engineering Development	2464	3868	2431	870	983	977	1970	1977	<u>Compl</u> Cont	<u>Cost</u> Cont																																							
Project D429	Page 38 of 43 Pages	Exhibit R-2 (PE 0604804A)																																															

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)														DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development							PROJECT D429			
D. <u>Schedule Profile</u>																	
		FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Milestone III for non-expandable Electro-Magnetic Interference (EMI) ISO shelter		X*															
TT of ISO EMI P3I components								X									
Milestone III version 3 SICPS Rigid Wall Shelter			X*														
TT LMS Upgrade								X									
Complete ISO EMI P3I														X			
Complete LMS Upgrade														X			
Develop SICPS P3I technology															X		
Develop BHS Concept															X		
Award BHS prototype contract																X	
Conduct CCD FEA																X	
*Milestone completed																	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT D429		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				960	1423	761	519				
Program Management Support				490	812	369	252				
Test and Evaluation				846	880	368	253				
SBIR/STTR					78						
Total				2296	3193	1498	1024				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
SSCOM	In- House				12660	960	1423	761	519	Cont	16323
DEEPCO (Also Radian, Ft. Belvoir (Also TEXCOM,	Various GTS.) MIPR	Various		ARL, Army Nat'l Guard.)							
Support and Management Organizations											
SSCOM					5551	490	812	369	252	Cont	7474
Test and Evaluation Organizations											
TECOM					8279	846	880	368	253	Cont	10626
SBIR/STTR							78				78
Government Furnished Property: None											
Subtotal Product Development					12660	960	1423	761	519		16323
Subtotal Support and Management					5551	490	812	369	252		7474
Subtotal Test and Evaluation					8279	846	958	368	253		10704
Total Project					26490	2296	3193	1498	1024		34501
Project D429					Page 40 of 43 Pages				Exhibit R-3 (PE 0604804A)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development					PROJECT D461	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D461 Marine Oriented Logistics Equipment Engineering Development	329	0	0	2195	4433	1495	1255	2901	Continuing	Continuing
<p>A. Mission Description and Justification: This project provides engineering development of Army watercraft systems. Efforts for the Pusher Tug and Floating Crane will provide the engineering development necessary to meet the operational requirements for these craft. The FY 96 effort completed the Lighter Amphibian Resupply Cargo -60 (LARC-LX) phase, began a prototype for Communication, Electronic, and Navigation (CEN) suite, and completed anchor mooring and safety enhancements for the Causeway. FY 99 efforts will include full scale prototyping for the Containerized Maintenance Facility (CMF); full scale development of the Rapidly Installed Breakwater (RIB); and initiate development of the Harbor Master Communication Center (HMCC).</p> <p>Acquisition Strategy: Floating Crane -- Competitive procurement to performance specification. Pusher Tug -- Competitive procurement to performance specification</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 45 Developed optimum "pusher knee" configuration for the pusher tug. • 45 Developed the design and storage of camel for interface between floating crane and cargo ships. • 58 Completed mooring, anchor, and safety enhancements for Causeway. • 136 Began prototype effort of Communications, Electronics, and Navigation suite for watercraft. • 45 Completed test and evaluation of LARC-LX prototype. <p>Total 329</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 812 Full scale development of the Containerized Maintenance Facility (CMF). • 1309 Full scale development of the Rapidly Installed Breakwater (RIB). • 74 Initiate development of the Harbor Master Communication Center (HMCC). <p>Total 2195</p>										
Project D461			Page 41 of 43 Pages				Exhibit R-2 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604804A Logistics & Engineer Equipment - Engineering Development						PROJECT D461	
B. <u>Project Change Summary</u>												
			<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
FY 1997 President's Budget			339		0		0		2366			
Appropriated Value			348									
Adjustments to Appropriated Value			-19									
FY 1998 Pres Bud Request			329		0		0		2195			
C. <u>Other Program Funding Summary</u>												
			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
RDTE, 0603804A, D526, Marine Oriented											Compl	Cost
Logistics, Davanced Development											Cont	Cont
OPA 3, M32400, Floating Crane, 100-250 Ton						330	1210	0	1351	703		
OPA 3, M44500, Pusher Tug, Small		3652	6877	6782	4000				5000	4000	Cont	Cont
OPA 3, M32500, Rapidly Installed Breakwater							1589					1589
OPA 3, M11300, Containerized Maintenance Facility				0	978	997	997					2972
D. <u>Schedule Profile</u>												
			<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>
	1	2	3	4	1	2	3	4	1	2	3	4
Pusher Tug contract award			X*									
Pusher Tug material release								X				
Floating Crane Milestone I/III					X*							
Floating Crane contract award						X						
Rapidly Installed Breakwater Prototype											X	
Containerized Maintenance Facility contract award											X	
Initiate Development of the Harbor Master Communication Center												X
*Milestone completed												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604804A Logistics & Engineer Equipment - Engineering Development					D461		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Contractor Engineering Support (includes test & evaluation)				299			2112				
Program Management Support				30			83				
Total				329			2195				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
International Consultants, Inc.	SS-FP				1967	299			2112	Cont	Cont
Support and Management Organizations											
ATCOM					58	30			83	Cont	171
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development					1967	299			2112	Cont	Cont
Subtotal Support and Management					58	30			83	Cont	Cont
Subtotal Test and Evaluation											
Total Project					2025	329			2195	Cont	Cont
Project D461				Page 43 of 43 Pages				Exhibit R-3 (PE 0604804A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604805A Command, Control, Communications Systems - Engineering Development
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COST (<i>In Thousands</i>)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	16740	9556	11052	16395	16423	15890	15768	15629	Continuing	Continuing
D097 C3I Interoperability Network Activity	4090	1660	4178	4274	3180	3195	3090	3210	Continuing	Continuing
D098 Tactical Radio Accessories	185	542	508	506	0	0	0	0	0	4734
D282 SINCGARS-V Engineering Development	7189	6883	0	0	0	0	0	0	0	19897
D485 C4I Interoperability Standardization and Certification	1892	471	3205	5078	5419	4786	4550	4405	Continuing	Continuing
D488 Tactical Net Radio Communications	3384	0	0	0	0	0	0	0	Continuing	Continuing
D589 Army Systems Engineering & Warfighting Technical Support	0	0	3161	6537	7824	7909	8128	8014	Continuing	Continuing

Mission Description and Budget Item Justification: Supports the Army Enterprise Strategy to achieve interoperability within the Army and with the Joint/Combined forces. This program includes Engineering and Manufacturing Development (EMD), interoperability evaluation of Army command, control, communications and intelligence (C3I) systems and equipment, and the supporting interoperability facilities. Also included is engineering development of life-cycle capability to develop, test, and maintain interoperability, and support an interoperability development and evaluation process consisting of an Army interoperability board and technical management to ensure that the integration of new technologies for emerging systems support joint interoperable Force XXI architecture for Army battlefield digitization. Also included is the Army portion of engineering development efforts in support of the Combat Survivor Evader Locator System (CSEL). This includes the Single Channel Ground and Airborne Radio System (SINCGARS) product improvements identified in the SINCGARS System Improvement Plan; the Frequency Hopping Multiplexer (FH MUX) which allows multiple radios to operate on one antenna for reduced visual signature and rapid transportability and set-up; and follow-on programs to demonstrated technologies evolving from Wireless Network Access, Communications Network Planning and Management and initiatives to establish a Multiband Radio Integrated testbed. The projects in this Program Element support research efforts in the engineering and manufacturing development phase of the acquisition process and therefore are correctly placed in Budget Activity 5.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604805A Command, Control, Communications					PROJECT D097	
				Systems - Engineering Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D097 C3I Interoperability Network Activity	4090	1660	4178	4274	3180	3195	3090	3210	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D097 - C3I Interoperability Network Activity: CECOM has been designated the System Engineer and Army Interoperability Certifier for the Army's Force XXI Battlefield Digitization. CECOM as a material developer, directly supports the PEOs/PMs in the Development and Acquisition of Command, Control, Communications, Computer and Intelligence/Electronic Warfare (C4I/EW) systems. CECOM also has the life-cycle software engineering mission to sustain hundreds of these systems when fielded. The Digital Integrated Lab (DIL) was established to significantly improve the Army's ability to ensure interoperability on the digital battlefield. The Army Interoperability Network (AIN) provides a wide area communications backbone to electronically link geographically dispersed C4I elements whether "stand alone" or embedded within a weapons platform, and has been endorsed by senior OSD and DA officials. The AIN suite of distributed communication sites and services provides the communications network necessary to electronically connect remote C4I/EW systems, labs/testbeds, field sites, developer facilities and Battle Labs. The DIL/AIN rapidly replicates existing and evolving tactical battlefield environments to enable and facilitate comprehensive evaluations of new prototypes, evolutionary system developments, new technologies, commercial products and systems interoperability. It is a virtual lab that integrates the Army's many programs and products, horizontally. The DIL remote external connections are provided for, primarily, by the AIN. The project also includes the development and evolutionary upgrades of protocol test tools to assure the capability to assess interoperability and compliance with the Army's Technical Architecture's Variable Message Format (VMF) and MIL-STD-188-220A standards suites. In addition it provides the capabilities to develop, test and maintain interoperability and support a continuous life-cycle interoperability development and evaluation process. Overall, this facilitates the software development process and allows interoperability to be built into the C4I/EW systems, by supporting affordable continuous sustainment and modernization of Army C4I/EW systems for the warfighter and Force XXI.</p> <p><u>Acquisition Strategy:</u> The efforts funded in this project are non-system specific, therefore no acquisition strategy is provided.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 115 Sustained AIN Hub sites and communications • 1207 Provided 5000+ test days of AIN support to DIL, PEOs, PMs, PDSS, etc., to achieve sustained C4I system/software Army/Joint interoperability • 1315 Provided remote external digitization connections and telecommunications services for the DIL • 827 Force XXI DIL Interoperability Certifications for C4I/EW systems for field use and Battlelab evaluations and experimentation • 126 Essential AIN modernization to meet requirements • 225 AIN remote site sustainment upgrades, capital equipment improvements • 275 DIL test equipment, surrogate hardware, capital improvements to support Force XXI <p>Total 4090</p>										
Project D097			Page 2 of 19 Pages				Exhibit R-2 (PE 0604805A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604805A Command, Control, Communications Systems - Engineering Development	PROJECT D097		
FY 1997 Planned Program:				
•	123 Sustain AIN Hub sites and communications			
•	1076 Provide 5000+ test days of AIN support to DIL, PEOs, PMs, PDSS, etc., to achieve sustained C4I system/software Army/Joint interoperability			
•	120 Essential AIN modernization to meet requirements			
•	301 AIN remote site sustainment upgrades, capital equipment improvements			
•	40 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)			
Total	1660			
FY 1998 Planned Program:				
•	1700 Provide remote external digitization connections and telecommunications services for the DIL			
•	281 VMF Test Tool development, to support development, fielding and DIL certification of C4I systems			
•	238 188-220 Test Tool development , to support development, fielding and DIL certification of C4I systems			
•	1959 Provide AIN nationwide network sustainment and test support for 7500 test-days to achieve C4I/EW systems/software Army/Joint interoperability.			
Total	4178			
FY 1999 Planned Program:				
•	1719 Provide remote external digitization connections and telecommunications services for the DIL			
•	281 Complete VMF Test Tool development and provide evolutionary upgrades as standards evolve			
•	238 Complete 188-220 Test Tool development and provide evolutionary upgrades as standards evolve			
•	2036 Provide AIN nationwide network sustainment and test support for 9000 test-days to achieve C4I/EW systems/software Army/Joint interoperability			
Total	4274			
B. Project Change Summary				
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
FY1997 Presidents Budget	1734	1715	1704	1684
Appropriated Value	1751	1660		
Adjustments to Appropriated Value	2339			
FY 1998 Pres Bud Request	4090	1660	4178	4274
Change Summary Explanation:				
Funding: FY96/FY98/FY99 - Funds reprogrammed to support Force XXI digitization efforts (FY 96 +2339, FY 98 +2474, FY 99 +2590)				
Project D097	Page 3 of 19 Pages	Exhibit R-2 (PE 0604805A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	
BUDGET ACTIVITY			PROJECT	
5 - Engineering and Manufacturing Development			February 1997	
PE NUMBER AND TITLE			PROJECT	
0604805A Command, Control, Communications Systems - Engineering Development			D097	
A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Contractual Engineering Support	1807	1075	1535	1629
Government Engineering Support	350	350	414	424
Development Test and Evaluation	300	150		
Telecommunications Services	1315		1261	1261
Spare parts, upgrades test equipment	275		439	439
Product Development			529	521
Training	10	10		
Travel	33	35		
SBIR/STTR		40		
Total	4090	1660	4178	4274
B. <u>Budget Acquisition History and Planning Information:</u> Not applicable				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604805A Command, Control, Communications					PROJECT D098	
				Systems - Engineering Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D098 Tactical Radio Accessories	185	542	508	506	0	0	0	0	0	4734
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D098 - Tactical Radio Accessories: This project will provide for development efforts for the Combat Survivor Evader Locator System (CSEL), a joint program led by the Air Force. This program will provide service, joint, and/or composite operational recovery/rescue forces with the capability to pinpoint the location of and establish communication with downed personnel in need of extraction from hostile territories. The CSEL system will include the capability to pass data directly into the standard warfighter command, control, communications, computer, and intelligence (C4I) systems envisioned by the C4I for the Warrior Concept. The user's equipment will consist of a small hand-held unit used for geopositioning, over the horizon data communications, and two-way line of sight voice communications.</p> <p><u>Acquisition Strategy:</u> The joint Air Force led acquisition strategy is a research and development approach for the handheld unit, followed by a product contract award in FY98.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 185 Supported Air Force Development efforts on CSEL program <p>Total 185</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 529 Support Air Force Development efforts on CSEL program • 13 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 542</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 508 Support Air Force Development efforts on CSEL program <p>Total 508</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 506 Support Air Force Development efforts on CSEL program <p>Total 506</p>										
Project D098			<i>Page 5 of 19 Pages</i>				Exhibit R-2 (PE 0604805A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604805A Command, Control, Communications Systems - Engineering Development					PROJECT D098									
<u>B. Project Change Summary</u>																			
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>											
FY1997 President's Budget		189		569		531		529											
Appropriated Value		191		542															
Adjustments to Appropriated Value		-6																	
FY1998 Pres Bud Request		185		542		508		506											
<u>C. Other Program Funding Summary</u>																			
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To</u>	<u>Total</u>
ARMY, OPA2 B03200, Combat Survivor Evader Locator (CSEL)				5677		14019		19164		7383		7396		7424		14624		75687	
<u>D. Schedule Profile</u>																			
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
CSEL Program, Milestone I		X*																	
CSEL Program Milestone III								X											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604805A Command, Control, Communications Systems - Engineering Development					PROJECT D098		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Support Air Force Development efforts on CSEL program				185	529	508	506				
SBIR/STTR					13						
Total				185	542	508	506				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations											
SBIR/STTR							13				13
Spt to Air Force on CSEL			4721	4721	2993	185	529	508	506	0	4721
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management					2993	185	542	508	506		4734
Subtotal Test and Evaluation											
Total Project					2993	185	542	508	506		4734
Project D098				Page 7 of 19 Pages			Exhibit R-3 (PE 0604805A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604805A Command, Control, Communications					PROJECT D282	
				Systems - Engineering Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D282 SINCGARS-V Engineering Development	7189	6883	0	0	0	0	0	0	0	19897
<p>A. <u>Mission Description and Budget Item Justification:</u> Project D282 - SINCGARS-V Engineering Development: This program provides for analysis and implementation of overall product improvements to the SINCGARS Combat Net Radio. Product improvements included are Global Positioning System (GPS) interfaces, Airborne Battlefield Combat Identification System (BCIS), Forward Error Correction (FEC) (data transmission enhancement techniques), improved data capability, weight reduction (to include an Alternate Configuration Receiver Transmitter, Battery Box and Vehicular Appliqué), MANPRINT (ease of operations), vehicular system re-engineering, improved electronic counter-counter measure (ECCM) performance and switched system dial-up interfacing. Program provides simplified operations, improved performance of existing capabilities, new operational capabilities and reduced life cycle costs.</p> <p><u>Acquisition Strategy:</u> The Alternate Configuration Receiver-Transmitter and associated items development design products may be used by competitive producers as a part of the anticipated FY 97 production competition of the SINCGARS radio.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 8 Airborne BCIS Demonstration • 2775 Initiated development effort for ITT SIP Alternate Configuration Radio • 2730 Initiated development effort for GD SIP Alternate Configuration Radio • 76 Program Management Support • 100 Handheld SINCGARS Radio • 1500 TF XXI Support <p>Total 7189</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 3225 Complete development effort for ITT SIP Alternate Configuration Radio • 3225 Complete development effort for GD SIP Alternate Configuration Radio • 265 Complete design verification testing/demonstrations for both ITT and GD Alternate Configuration Radio • 168 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 6883</p>										
Project D282			Page 8 of 19 Pages				Exhibit R-2 (PE 0604805A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604805A Command, Control, Communications Systems - Engineering Development						PROJECT D282		
FY 1998 Planned Program: Project not funded in FY 98													
FY 1999 Planned Program: Project not funded in FY 99													
B. <u>Project Change Summary</u>													
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>					
FY1997 President's Budget		7191		7031		0		0					
Appropriated Value		7264		6883									
Adjustments to Appropriated Value		-75											
FY1998 Pres Bud Request		7189		6883		0		0					
C. <u>Other Program Funding Summary</u>													
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>		
Army, OPA2 SSN:B00500		331082	293989	280925	13507	13892	0	0	0	Compl	Cost		
Army, OPA2 SSN:J30500		12366	12102	9239	0	0	0	0	0	Cont	Cont		
Army, OPA2, SSN:Z16800		13705	13539	0	0	0	0	0	0				
D. <u>Schedule Profile</u>													
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
Award Alternate Configuration	X*												
Development Contracts													
ECP Cut In to Airborne Production			X*										
Exercise Alternate Configuration Dev				X*									
Contr Opt													
* Milestone completed													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
5 - Engineering and Manufacturing Development				0604805A Command, Control, Communications Systems - Engineering Development						D282	
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Contractor Engineering				6424	6450						
Development Test & Evaluation				765	265						
SBIR/STTR					168						
Total				7189	6883						
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
SBIR/STTR								168			168
ITT Ft. Wayne, IN	SS/CPFF	Oct 94	3829	3829	3821	8	0			0	3829
GD Tallassee, FL	SS/CPFF	Dec 94	6300	6300	300	2775	3225			0	6300
ITT Ft. Wayne, IN	SS/CPFF	Jan 95	7455	7455	1500	2730	3225			0	7455
Support and Management Organizations:											
Misc.	TBD	Dec 94	1115	1115	204	911	0			0	1115
Test and Evaluation Organizations											
EPG, MD	MIPR	Jan 96	1030	1030	0	765	265			0	1030
Government Furnished Property: None											
Subtotal Product Development					5621	5513	6618				17752
Subtotal Support and Management					204	911					1115
Subtotal Test and Evaluation						765	265				1030
Total Project					5825	7189	6883				19897
Project D282				Page 10 of 19 Pages				Exhibit R-3 (PE 0604805A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604805A Command, Control, Communications					PROJECT D485	
				Systems - Engineering Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D485 C4I Interoperability Standardization and Certification	1892	471	3205	5078	5419	4786	4550	4405	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification</u> C4I Interoperability Standardization and Certification: The Army Enterprise Strategy, DOD 4630.5, DODI 4630.8, C4I for the Warrior, and CJSCI 6212.01, mandate the establishment and sustainment of interoperability between Army C4I systems, and within the Army and Joint/Allied C4I communities. This includes operation of the Army board to synergize and integrate the Army's interoperability certification testing and analysis, and configuration management functions. Provide the Army focal point for the review, staffing, coordination and development of Army positions for the interface interoperability standards and specifications. Direct the integration of the Army systems' requirements and operational concepts documents with the joint standards and interface documents. Included is the Army's participation in Joint/Allied and intra-Army interoperability certification testing and the Army's representation in the Joint/Allied Configuration Management Process. This project also includes the development, configuration management of two key elements of the Army/Joint Technical Architectures - Variable Message Format and MIL-STD-188-220A standards suites, that are required for successful Force XXI and Joint Exercises. The Digital Integrated Lab (DIL) has been adopted by the Army leadership for Force XXI to evaluate system's interoperability and identify interoperability issues early on in system design to provide the material developer with opportunities to modify and adjust the system without major programmatic impacts. The DIL performs protocol conformance, interoperability and certification testing for the Army's Force XXI battlefield digitization effort; it tests equipment and identifies interoperability issues, develops interoperability assessments, certification recommendations, and test reports. The DIL facilitates engineered solutions by replicating digital battlefield environments to support Advanced Technology Demonstrations, Advanced Warfighting Experiments, and realistic evaluation of new tactics, doctrine and operational concepts. It is the fundamental component for systems engineering and integration to optimize the evolution of architectures and systems for the digital battlefield.</p> <p><u>Acquisition Strategy:</u> The efforts funded within this project are non-system specific, therefore no Acquisition Strategy is provided.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 434 Represented Army in 12 Army/Joint configuration control boards • 50 Maintained Army Five Year Master Test Schedule • 300 Army participation in 11 Joint Certification Tests of 25 systems • 200 Represented Army in 6 Joint Analysis Review Panels for 25 systems • 626 Developed/deployed VMF Test Tool Build-1 (initial capability) • 282 Developed/deployed 188-220 Tester Build -0.1 (initial Monitor/Decode) <p>Total 1892</p>										
Project D485			Page 11 of 19 Pages				Exhibit R-2 (PE 0604805A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604805A Command, Control, Communications Systems - Engineering Development	PROJECT D485		
FY 1997 Planned Program:				
•	409 Represent Army in 12 Army/Joint configuration control boards			
•	50 Maintain Army Five Year Master Test Schedule			
•	12 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)			
Total	471			
FY 1998 Planned Program:				
•	1572 Force XXI DIL Interoperability Certifications for C4I/EW systems for field use and Battlelab evaluations and experimentation			
•	1077 Army Force XXI and Joint VMF Standards Development, improvement, test and analysis			
•	556 Army Force XXI and Joint 188-220A Standards Development, improvement, test and analysis			
Total	3205			
FY 1999 Planned Program:				
•	1755 Force XXI DIL Interoperability Certifications for C4I/EW systems for field use and Battlelab evaluations and experimentation			
•	826 Army Force XXI and Joint VMF Standards Development, improvement, test and analysis			
•	556 Army Force XXI and Joint 188-220A Standards Development, improvement, test and analysis			
•	1078 TADIL & USMTF standards Army/Joint CM process			
•	863 TADIL & USMTF Joint Certification Testing			
Total	5078			
B. Project Change Summary				
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
FY1997 Presidents Budget	484	481	481	480
Appropriated Value	489	471		
Adjustments to Appropriated Value	1403			
FY 1998 Pres Bud Request	1892	471	3205	5078
Change Summary Explanation:				
Funding: FY1996/FY1998/FY1999 - Funding reprogrammed to support Force XXI and Joint /Allied Digitization Exercises (FY 96 +1403, FY 98 +2724, FY 99 +4598)				
Project D485	Page 12 of 19 Pages	Exhibit R-2 (PE 0604805A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	
BUDGET ACTIVITY			PROJECT	
5 - Engineering and Manufacturing Development			February 1997	
PE NUMBER AND TITLE			PROJECT	
0604805A Command, Control, Communications Systems - Engineering Development			D485	
A. <u>Project Cost Breakdown</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Government Engineering Support	170	459	1054	1923
Contractor Engineering Support	1652		2151	3155
Telecommunications Services	70			
SBIR/STTR		12		
Total	1892	471	3205	5078
B. <u>Budget Acquisition History and Planning Information:</u> Not applicable				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604805A Command, Control, Communications					PROJECT D488	
				Systems - Engineering Development						
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D488 Tactical Net Radio Communications	3384	0	0	0	0	0	0	0	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification</u> : Tactical Net Radio Communications: Develops the Frequency Hopping Multiplexer (FH MUX) which allows multiple radios to operate on one antenna for reduced visual signature and rapid transportability and set-up. Performs procedural interoperability testing and provides the Army's gateway to interoperability test network for certification of Army C3I systems. Develops Wireless Network Access (WNA) to provide communications interface to CHS host computers and transmission security for tactical operations. Provide for executive agent and requirements for test and evaluation of the Joint Task Force Communications Planning and Management System.</p> <p>The Frequency Hopping Multiplexer (FH MUX) preproduction hardware fabrication was finalized in FY 96 with emphasis on models and qualification testing. In support of Task Force XXI (TF XXI) analyses will be performed to mitigate co-site interference amongst various radios and frequency allocations assigned. Support will focus on communication systems engineering of tactical radios to mitigate platform interference and provide for maximum communication ranges. The CECOM Mobile Test Van will be upgraded to provide for integration of evolving technologies. Efforts to establish an EMI/EMC co-site testbed and audio technology facility will be initiated. Applications for antenna technology will focus on developing wideband HF and VHF antennas which are structurally embedded in the airborne or ground mobile platform. Future Data Radio [FDR/Near-Term Digital Radio (NTDR)] will be added into the Digital Integrated Lab (DIL) network, for demonstration and experimentation purposes.</p> <p><u>Acquisition Strategy:</u> The acquisition strategy for the FH MUX is to award a sole source contract for up to 50 FH MUX Pre-Production Qualification Test (PPQT) model units to Xetron Corporation, Cincinnati, OH, the current developer of the FH MUX. This contract was an essential preparatory phase to the planned full rate production contract awarded in 3QFY96 and provided substantial reduction in production risk.</p> <p>FY 1996 Accomplishments</p> <ul style="list-style-type: none"> • 552 FH MUX Preproduction Hardware Fabrication • 648 Program Management, design review, test & evaluation, data support for Pre-production Qualification Testing (PPQT) for the FHMUX • 420 Developed application of land and airborne structurally embedded antennas • 704 Integration of FDR to NTDR into DIL • 100 Initiated audio lab upgrade • 370 Initiated Co-site EMI/EMC testbed • 100 Mobile test van upgrades & equipment integration • 220 Tactical Radio integration support to TF XXI • 200 Frequency allocation & co-site analysis support to Task Force XXI • 70 Enhanced testing of interference cancellation technologies at EPG 										
Project D488			Page 14 of 19 Pages				Exhibit R-2 (PE 0604805A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604805A Command, Control, Communications Systems - Engineering Development					PROJECT D488						
Total 3384																	
FY 1997 Planned Program: Project not funded in FY 97																	
FY 1998 Planned Program: Project not funded in FY 98																	
FY 1999 Planned Program: Project not funded in FY 99																	
B. Project Change Summary																	
			<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>								
FY 1997 Presidents Budget			3465														
Appropriated Value			3501														
Adjustments to Appropriated Value			-117														
FY 1998 Pres Bud Request			3384														
C. Other Program Funding Summary																	
			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To Compl</u>	<u>Total Cost</u>					
OPA2, SSN BA1205			24028	35699	0	0	0	0	0	0	0	59727					
D. Schedule Profile																	
			<u>FY 1996</u>			<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
FHMUX Production Award			X*														
Delivery FHMUX PPQ Units						X											
FHMUX Production Award (OPTION)						X											
Delivery FHMUX Units									X								
* Milestone has been completed																	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604805A Command, Control, Communications Systems - Engineering Development					PROJECT D589	
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D589 Army Systems Engineering & Warfighting Technical Support	0	0	3161	6537	7824	7909	8128	8014	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> Army Systems Engineering & Warfighting Technical Support: This project provides essential, multi-disciplined, highly technical, non-parochial, Army-level expertise in both System Engineering and Technical Architecture (TA) matters as directed by the Army Acquisition Executive (AAE) and Vice Chief of Staff of the Army (VCSA). The Army Technical Architecture (ATA) provides the ‘building code’ foundation for designing, building, fielding, and supporting interoperable systems in an expedient and cost-effective manner. The Army System Engineer’s (ASE’s) work efforts associated with the development and implementation of the ATA under this project are critical path elements to achieve the Army’s Force XXI digitization mission, provide the ability to fight and win on tomorrow’s battlefield, and assure compatibility with both Joint and Coalition Warfighters. It provides for integration of emerging technologies to support the next generation of digitization across all battlefield operating systems for the 21st century. It provides essential technical expertise and planning for integration of new technologies (ATDs, ACTDs, other services and commercial) and documentation to achieve the technical evolution to a joint interoperable architecture and to achieve rapid acquisition for fielding to Force XXI. Provides analysis and hands-on support to the warrior, by supporting development of the operational architecture and implementing new C4I Warrior information technologies.</p> <p><u>Acquisition Strategy:</u> The efforts funded in the project are non-system specific, therefore no acquisition strategy is provided.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1200 Conduct major design evaluations of Army systems for ATA Interoperability Compliance • 1212 Ensure ATA Interoperability Implementation through IPT/Contract actions and assess the ATA compatibility of Army Science and Technology Programs • 432 Maintain existing ATA Information Technology Standards • 317 Technically influence the development and implementation of the Joint Command, Control, Communications and Computer Intelligence TA <p>Total 3161</p>										
Project D589			Page 17 of 19 Pages				Exhibit R-2 (PE 0604805A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604805A Command, Control, Communications Systems - Engineering Development	PROJECT D589																									
<p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1978 Expand major ATA Compliance design evaluations to encompass both interoperability and standardization (SW Reuse) • 1291 Extend coverage of IPTs/Contract Actions participation to all critical Army systems to ensure ATA Implementation • 505 Assess ATA compatibility of all major Army S&T Programs • 573 Investigate the maturity of emerging, complex, multi-discipline information technology standards for inclusion in the ATA • 401 Assess suite of ATA interoperability protocols selected by the Weapons and M&S communities • 391 Assess System ATA Implementation Schedules for Army Interoperability Synchronization • 495 Technically influence the extension of the Joint Technical Architecture (JTA) to non-C4I systems • 389 Technically influence commercial and international standards forums • 514 Provide integration of new technologies for emerging systems into joint interoperable Force XXI architecture in support of Battlefield Operating Systems for the 21st century. <p>Total 6537</p>																											
<p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 1996</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 1997</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 1998</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY1997 Presidents Budget</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">3161</td> <td style="text-align: center;">6537</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY98/FY99 Increase as a result of priority associated with support for Army Technical Architecture (FY 98 +3161, FY 99 +6537)</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY1997 Presidents Budget	0	0	0	0	Appropriated Value	0				Adjustments to Appropriated Value	0				FY 1998 Pres Bud Request	0	0	3161	6537
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY1997 Presidents Budget	0	0	0	0																							
Appropriated Value	0																										
Adjustments to Appropriated Value	0																										
FY 1998 Pres Bud Request	0	0	3161	6537																							
Project D589	Page 18 of 19 Pages	Exhibit R-2 (PE 0604805A)																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	4644	4693	4483	5408	6509	6369	7875	8544	Continuing	Continuing
D812 Military Human Immunodeficiency Virus (HIV) Vaccine and Drug-Engineering Development	189	189	0	306	1454	1375	1815	1774	Continuing	Continuing
D832 Combat Medical Materiel-Engineering Development	1508	1659	2346	2420	2363	2329	3307	3477	Continuing	Continuing
D834 Soldier System Protection-Engineering Development	854	865	931	941	925	915	1159	1950	Continuing	Continuing
D849 Infectious Disease Drug and Vaccine-Engineering Development	2093	1980	1206	1741	1767	1750	1594	1343	Continuing	Continuing
<p><u>Mission Description and Budget Item Justification:</u> This engineering and manufacturing development program funds: (1) improved medical equipment and drugs essential to counteracting lethal and human performance degrading effects of infectious diseases, and (2) medical equipment essential to meeting medical requirements on the integrated battlefield, with emphasis on decreased size/weight and high mobility, yet supporting large numbers of combat casualties. Additionally, foreign medical materiel may be procured for exploitation of advanced technology and development to meet Army medical defense goals. This program element supports the full-scale development of vaccines, prophylactic and therapeutic drugs, resuscitation fluids and drug products for Acquired Immune Deficiency Syndrome (AIDS). This program funds engineering and manufacturing development for both large and small Combat Casualty Care end items for location of casualty, diagnosis, rapid intensive care delivery, intensive care evacuation platforms, and rapidly mobile, lightweight surgical facilities and equipment. Additionally, the program element funds engineering and manufacturing development of medical equipment which provides protection against physiological, psychological or environmental factors which degrade physical performance. This includes engineering development of vision corrective devices for protective masks. This program is primarily managed by the U.S. Army Medical Research and Materiel Command. The projects in this program element support research efforts in the engineering and manufacturing development phase of the acquisition cycle and are therefore correctly placed in Budget Activity 5.</p>										
<i>Page 1 of 15 Pages</i>						Exhibit R-2 (PE 0604807A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development				PROJECT D812		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D812 Military Human Immunodeficiency Virus (HIV) Vaccine and Drug-Engineering Development	189	189	0	306	1454	1375	1815	1774	Continuing	Continuing

A. Mission Description and Justification: This project funds Congressionally mandated, militarily relevant HIV medical countermeasures. This provides for engineering and manufacturing development of sufficient candidate vaccines and drugs to permit large-scale field testing and education/training materials. Efforts are directed to answer militarily unique needs affecting manning, mobilization and deployment. The major contractor is Henry M. Jackson Foundation for the Advancement of Military Medicine, Rockville, MD.

Acquisition Strategy: Test and evaluate commercially developed vaccine candidates in government-managed trials.

FY 1996 Accomplishments:

- 95 Characterized cohorts for a Phase III test of a vaccine to prevent infection with HIV.
- 94 Conducted Phase I trials to evaluate vaccine products for transitioning to Phase III.

Total 189

FY 1997 Planned Program:

- 92 Develop and prepare cohorts for a Phase III test of a vaccine to prevent infection with HIV.
- 93 Conduct additional Phase I trials and begin Phase II trials and selected products to evaluate vaccine products for transitioning to Phase III.
- 4 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 189

FY 1998 Planned Program: Project not funded in FY 98.

FY 1999 Planned Program:

- 106 Develop cohorts for Phase III trial.
- 200 Conduct Phase II trial necessary for transition of HIV vaccines to Phase III trials.

Total 306

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development	PROJECT D812																									
<p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">193</td> <td style="text-align: center;">193</td> <td style="text-align: center;">288</td> <td style="text-align: center;">288</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">199</td> <td style="text-align: center;">189</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-10</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">189</td> <td style="text-align: center;">189</td> <td style="text-align: center;">0</td> <td style="text-align: center;">306</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 1998: Funds reprogrammed (-288) to higher priority requirements.</p> <p>C. <u>Other Program Funding Summary:</u> Not Applicable.</p> <p>D. <u>Schedule Profile:</u> Multiple medical developmental products will advance through the various events throughout the FY.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	193	193	288	288	Appropriated Value	199	189			Adjustments to Appropriated Value	-10				FY 1998 Pres Bud Request	189	189	0	306
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	193	193	288	288																							
Appropriated Value	199	189																									
Adjustments to Appropriated Value	-10																										
FY 1998 Pres Bud Request	189	189	0	306																							
Project D812	Page 3 of 15 Pages	Exhibit R-2 (PE 0604807A)																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development					PROJECT D812	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Test & Evaluation					189	189	0	306			
Product Development					0	0	0	0			
Project Management					0	0	0	0			
Total					189	189	0	306			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations											
USAMMDA						0	0	0	0	0	
Contracts						0	0	0	0	0	
Test and Evaluation Organizations											
Army Laboratories						0	0	0	0	0	
Contracts						0	0	0	0	0	
H.M. Jackson Foundation	C/Coop Agreement	Apr 93	125000	125000	38042	189	189	0	306	Cont	38726
Government Furnished Property: None.											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project											
					38042	189	189		306		38726
					38042	189	189		306		38726

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development					PROJECT D832	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D832 Combat Medical Materiel-Engineering Development	1508	1659	2346	2420	2363	2329	3307	3477	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> This project supports engineering and manufacturing development to field new and improved medical materiel essential for combat casualty care to reduce logistical support requirements and minimize loss from duty rates. The major contractor is the United Defense Limited Partnership, San Jose, CA.</p> <p><u>Acquisition Strategy:</u> Test and evaluate commercially developed materiel for hardening or other modification in government managed trials.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 117 Reviewed commercial progress of Hypertonic Saline Dextrane with FDA. • 775 Fabricated armored ambulance prototype and prepared specifications. • 283 Supported the engineering development and user evaluation of telemedicine hardware and concepts for the treatment of combat casualties. • 333 Conducted technical and user evaluations of the intraosseous infusion device. <p>Total 1508</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 83 Transition Hypertonic Saline Dextran to procurement. • 286 Conduct technical and user evaluations of Engineering Design Model of armored treatment vehicle. • 1250 Support the engineering development and user evaluations of telemedicine hardware and concepts for the treatment of combat casualties. • 40 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 1659</p>										
Project D832			Page 5 of 15 Pages				Exhibit R-2 (PE 0604807A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development	PROJECT D832																									
<p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 464 Continue development and technical testing of the portable field oxygen concentrator. • 200 Patient Movement Item Testing at Military Laboratories. • 763 ATTV medical integration costs onto C2V platform, IOT&E. • 275 NDI User Testing of Medical Equipment. • 350 AZTEC Advanced Technology Demonstration Quantico and Fort Bragg. • 294 Limited User Assessment Testing LSTAT. <p>Total 2346</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 222 Complete development; secure air worthiness certification of the portable field oxygen concentrator. • 910 Conduct user testing and integration of the Armored Treatment Vehicle. • 812 Conduct operational testing and begin Low Rate Initial Production of MEDITAG. • 476 Begin IOT& E testing LSTAT. <p>Total 2420</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">1546</td> <td style="text-align: center;">1695</td> <td style="text-align: center;">1736</td> <td style="text-align: center;">1852</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">1590</td> <td style="text-align: center;">1659</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-82</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">1508</td> <td style="text-align: center;">1659</td> <td style="text-align: center;">2346</td> <td style="text-align: center;">2420</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY98: Funds reprogrammed (610) into this project for the ATV. FY99: Funds reprogrammed (568) into this project for the ATV.</p> <p>C. Other Program Funding Summary: Not Applicable.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	1546	1695	1736	1852	Appropriated Value	1590	1659			Adjustments to Appropriated Value	-82				FY 1998 Pres Bud Request	1508	1659	2346	2420
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
FY 1997 President's Budget	1546	1695	1736	1852																							
Appropriated Value	1590	1659																									
Adjustments to Appropriated Value	-82																										
FY 1998 Pres Bud Request	1508	1659	2346	2420																							
Project D832	Page 6 of 15 Pages	Exhibit R-2 (PE 0604807A)																									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development							PROJECT D832							
D. <u>Schedule Profile:</u> Multiple medical developmental products will advance through the various events throughout the FY																				
		FY 1996					FY 1997					FY 1998					FY 1999			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Field Medical Oxygen Generation and Distribution System MLST 3																				
Intraosseous Infusion Device MLST 3																				
Hypertonic Saline Dextran MLST 3																				
Field Anesthesia Machine MLST 1																				
MLST 2																				
Life Support Trauma and Transport System																				
MLST 2																				
MLST 3																				
Armored Transport and Treatment Vehicle																				
MLST 1/2																				
MLST 3																				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT				
5 - Engineering and Manufacturing Development			0604807A Medical Materiel - Engineering Development				D832				
A. Project Cost Breakdown			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
Test and Evaluation			615	1334	607	626					
Product Development			690	61	1407	1064					
Program Management			203	264	332	730					
Total			1508	1659	2346	2420					
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Contracts						690	61	1407	1062	Cont	3220
Support and Management Organizations											
USAMMDA						94	176	291	227	Cont	788
Contracts						109	88	41	505	Cont	743
Test and Evaluation Organizations											
Army Laboratories						615	1334	607	626	Cont	3182
Government Furnished Property: None											
Subtotal Product Development						690	61	1407	1062		3220
Subtotal Support and Management						203	264	332	732		1531
Subtotal Test and Evaluation						615	1334	607	626		3182
Total Project						1508	1659	2346	2420		7933

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development				PROJECT D834		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D834 Soldier System Protection-Engineering Development	854	865	931	941	925	915	1159	1950	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> This project supports engineering development of preventive medicine materiel, including devices, pharmacologicals and other tools, to provide protection, sustainment, and enhancement of the physiological and psychological capabilities of soldiers in the face of combat operations under all environmental conditions. Focus is on reduction in the incidence of personnel losses due to preventable disease and non-battle injuries through development of environmental and physiological performance monitors and other preventive medicine countermeasures. A major contractor is Stanford Research Institute, Palo Alto, CA.</p> <p><u>Acquisition Strategy:</u> Test and evaluate commercially developed materiel for hardening or other modification in government managed trials.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 854 Supported the engineering development and user evaluation of telemedicine hardware and concepts for soldier protection. <p>Total 854</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 844 Support the engineering development and user evaluation of telemedicine hardware and concepts for soldier protection. • 21 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 865</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 931 Conduct trials to evaluate safety and efficacy of performance enhancing drugs. <p>Total 931</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 941 Complete safety and efficacy trials of performance enhancing drugs; prepare regulatory filings. <p>Total 941</p>										
Project D834			Page 9 of 15 Pages				Exhibit R-2 (PE 0604807A)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development	PROJECT D834																									
<p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">876</td> <td style="text-align: center;">884</td> <td style="text-align: center;">919</td> <td style="text-align: center;">927</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">901</td> <td style="text-align: center;">865</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">-47</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">854</td> <td style="text-align: center;">865</td> <td style="text-align: center;">931</td> <td style="text-align: center;">941</td> </tr> </tbody> </table> <p>C. <u>Other Program Funding Summary:</u> Not Applicable.</p> <p>D. <u>Schedule Profile:</u> Multiple medical developmental products will advance through the various events throughout the FY.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	876	884	919	927	Appropriated Value	901	865			Adjustments to Appropriated Value	-47				FY 1998 Pres Bud Request	854	865	931	941
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																							
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Appropriated Value	901	865																									
Adjustments to Appropriated Value	-47																										
FY 1998 Pres Bud Request	854	865	931	941																							
Project D834	Page 10 of 15 Pages	Exhibit R-2 (PE 0604807A)																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE				
BUDGET ACTIVITY							February 1997				
5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE			PROJECT				
				0604807A Medical Materiel - Engineering Development			D834				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Test & Evaluation				0	44	897	711				
Product Development				834	817	0	0				
Project Management				20	4	34	230				
Total				854	865	931	941				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Contracts						834	817	0	0	Cont	1651
Support and Management Organizations											
USAMMDA						20	4	34	51	Cont	109
Contracts						0	0	0	179		179
Test and Evaluation Organizations:											
Army Labs						0	44	897	711	Cont	1652
Government Furnished Property: None											
Subtotal Product Development						834	817				1651
Subtotal Support and Management						20	4	34	230		288
Subtotal Test and Evaluation							44	897	711		1652
Total Project						854	865	931	941		3591
Project D834											
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development	PROJECT D849
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COST (<i>In Thousands</i>)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D849 Infectious Disease Drug and Vaccine-Engineering Development	2093	1980	1206	1741	1767	1750	1594	1343	Continuing	Continuing

A. Mission Description and Justification: This project funds engineering and manufacturing development of sufficient candidate medical countermeasures to permit large-scale field testing and complete studies required for FDA licensure. Work performed in laboratories and among troop populations is directed to prevention, diagnosis, and treatment of viral, bacterial and parasitic diseases, so as to prevent casualties, sustain operational performance and minimize deaths and disability of armed forces during military operations.

Acquisition Strategy: Test and evaluate in-house and commercially developed vaccine candidates in government managed trials to meet FDA requirements.

FY 1996 Accomplishments:

- 440 Completed Phase III trials for the whole cell cholera vaccine.
 - 592 Initiated field trials of Enterotoxigenic *E. coli* whole cell live vaccine.
 - 911 Conducted safety and efficacy tests of the antimalarial drug Azithromycin.
 - 150 Completed contingency protocol for vaccination of troops in Bosnia with tick-borne encephalitis (TBE).
- Total 2093

FY 1997 Planned Program:

- 283 Prepare License Application for Argentine Hemorrhagic Fever Vaccine.
 - 947 Complete safety and efficacy testing of antimalarial drug Azithromycin.
 - 273 Conduct Phase II efficacy study for *Campylobactor* vaccine.
 - 281 Continue efficacy trial on ETEC vaccine.
 - 147 Initiate Phase I safety study for TBE vaccine.
 - 49 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.
- Total 1980

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																									
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604807A Medical Materiel - Engineering Development	PROJECT D849																									
<p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 359 Continue trials required to accumulate data to support FDA regulatory filings for <i>Campylobacter</i>, ETEC and tick-borne encephalitis vaccines. • 250 Continue extended Phase II trials for <i>Shigella flexneri</i> 602. • 150 Prepare New Drug Application (NDA) for antimalarial drug Azithromycin. • 447 Continue field trials to evaluate efficacy of antimalarial drugs WR238605 and Halofantrine. <p>Total 1206</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 423 Complete expanded field trials proving the efficacy of <i>Campylobacter</i>, ETEC and vaccinia-vectored Hantaan M-S vaccines. • 30 Support manufacturer's FDA regulatory filing for licensure of tick-borne encephalitis vaccine. • 661 Conduct expanded field trials to prove efficacy of <i>Shigella flexneri</i> 602, detoxified LPS-OMP meningitis group B, multivalent Dengue vaccines and a <i>Leishmania</i> skin test antigen. • 116 Field antimalarial drug Azithromycin. • 511 Conduct full scale expanded field trials to evaluate efficacy of antimalarial drugs WR238605 and Halofantrine. <p>Total 1741</p> <p>B. Project Change Summary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td style="text-align: center;">1993</td> <td style="text-align: center;">2022</td> <td style="text-align: center;">2053</td> <td style="text-align: center;">2031</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">2048</td> <td style="text-align: center;">1980</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: center;">45</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: center;">2093</td> <td style="text-align: center;">1980</td> <td style="text-align: center;">1206</td> <td style="text-align: center;">1741</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 1998: Funds reprogrammed (-847) to higher priority programs. FY 1999: Funds reprogrammed (-290) to higher priority programs.</p> <p>C. Other Program Funding Summary: Not Applicable.</p>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	1993	2022	2053	2031	Appropriated Value	2048	1980			Adjustments to Appropriated Value	45				FY 1998 Pres Bud Request	2093	1980	1206	1741
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Project D849	Page 13 of 15 Pages	Exhibit R-2 (PE 0604807A)																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE				
BUDGET ACTIVITY							February 1997				
5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE			PROJECT				
				0604807A Medical Materiel - Engineering Development			D849				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Test & Evaluation				1701	1442	911	433				
Product Development				55	0	0	0				
Project Management				337	538	295	1308				
Total				2093	1980	1206	1741				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Contracts						55	0	0	0	Cont	55
Support and Management Organizations											
USAMMDA						280	374	195	310	Cont	1159
Contracts						57	164	100	123	Cont	444
Test and Evaluation Organizations											
Army Laboratories						442	313	215	318	Cont	1288
Walter Reed Army Inst of Research						1069	509	296	480	Cont	2354
Contracts						0	0	0	0	Cont	
Navy Laboratories						190	620	400	510	Cont	1720
Government Furnished Property: None											
Subtotal Product Development						55					55
Subtotal Support and Management						337	538	295	433		1603
Subtotal Test and Evaluation						1701	1442	911	1308		5362
Total Project						2093	1980	1206	1741		7020
Project D849				Page 15 of 15 Pages				Exhibit R-3 (PE 0604807A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604808A Landmine Warfare/Barrier - Engineering Development					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	6802	7556	22605	44133	41782	27530	25691	35593	Continuing	Continuing
D016 Mine Systems Engineering Development	4968	5384	0	0	0	11255	11960	21786	Continuing	Continuing
D415 Mine Neutralization/Detection	1834	2172	22605	44133	41782	16275	13731	13807	Continuing	Continuing
<p><u>Mission Description and Budget Item Justification:</u> This program element provides for engineering and manufacturing development of mine and countermine systems. Project D016, Mine Systems Engineering Development, provides for the increased tactical effectiveness and responsiveness of landmines by supporting the development of a minefield command and control system for the Wide Area Munition (WAM) and improved sensors that increase countermeasure resistance of Volcano mines which can be dispensed rapidly from helicopters, ground dispensers, artillery systems and tactical aircraft. Project D415, Mine Neutralization/Detection Engineering Development, is the engineering and manufacturing development for the Airborne Standoff Minefield Detection System (ASTAMIDS), Explosive Standoff Minefield Breacher (ESMB), and Handheld Stand-off Minefield Detection System (HSTAMIDS). It provides a group of mutually supported mine detection and neutralization devices to counter a variety of threat mines, minefields and obstacles necessary for implementing the Army's Countermine Modernization Plan. This program element supports Engineering and Manufacturing Development (EMD) and is, therefore, appropriately placed in Budget Activity 5.</p> <p>NOTE: For FY1999 and FY2000, Project D016 should be ZERO as reflected above and Project D415 should be increased by \$3.6M in FY1999 and by \$4.0M in FY2000 as reflected above. These increases were inadvertently placed in the wrong project, but do not impact the PE total. The Army database will be corrected at the next opportunity.</p>										
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604808A Landmine Warfare/Barrier - Engineering Development				PROJECT D016		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D016 Mine Systems Engineering Development	4968	5384	0	0	0	11255	11960	21786	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Provides for engineering and manufacturing development of scatterable mines and new smart munitions.</p> <p><u>Acquisition Strategy:</u> A command and control capability is being developed as a product improvement to Wide Area Munition (WAM) and will be incorporated into the WAM product improvement program.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 660 Completed Preliminary System Safety Design • 1000 Conducted C2 System Design effort • 1808 Completed Communication Network Preliminary Design • 1500 Conducted Application Specific Integrated Circuit (ASIC)Design <p>Total 4968</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1950 Receiver/Transmitter critical circuit design • 784 Complete ASIC design • 910 Build brassboard Receiver/Transmitter • 1609 Control Station Interface electronics design • 131 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 5384</p> <p>FY 1998 Planned Program: Program not funded</p> <p>FY 1999 Planned Program: Program not funded</p>										
Project D016			Page 2 of 8 Pages				Exhibit R-2 (PE 0604808A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604808A Landmine Warfare/Barrier - Engineering Development				PROJECT D415		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D415 Mine Neutralization/Detection	1834	2172	22605	44133	41782	16275	13731	13807	Continuing	Continuing
<p>A. Mission Description and Justification: This project provides engineering and manufacturing development for the Airborne Standoff Minefield Detection System (ASTAMIDS), Explosive Standoff Minefield Breacher (ESMB), Handheld Stand-off Minefield Detection System (HSTAMIDS), and Interim Vehicle Mounted Mine Detector (IVMMD). It provides a group of mutually supported mine detection and neutralization devices to counter a variety of threat mines, minefields and obstacles necessary for implementing the Army's Countermine Modernization Plan.</p> <p>Acquisition Strategy: ASTAMIDS and IVMMD - Sole source production contract awarded to competitively competed development contractor; ESMB - Competitively competed development contract followed by competitively competed production contract.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1147 Awarded Contract and Procured Test Hardware for Interim IVMMD. • 687 Conducted Test and Evaluation for IVMMD. <p>Total 1834</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 100 Conduct Milestone II Review for ASTAMIDS. • 1569 Conduct Source Selection and Initiate Engineering Development Design for ASTAMIDS. • 450 Conduct Milestone II review for IVMMD • 53 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 2172</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 1300 Conduct Milestone II review, prepare solicitation, source selection, and award EMD contract for ESMB. • 2100 Build hardware and conduct contractor testing for ESMB. • 5332 Initiate engineering, development, design for ESMB. • 11132 Complete ASTAMIDS EMD design. • 2641 Initiate ASTAMIDS system fabrication/integration. • 100 Initiate IOT&E and PQT planning for ASTAMIDS. 										
Project D415			<i>Page 5 of 8 Pages</i>				Exhibit R-2 (PE 0604808A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604808A Landmine Warfare/Barrier - Engineering Development			PROJECT D415			
Total 22605										
FY 1999 Planned Program:										
<ul style="list-style-type: none"> • 8662 Continue ESMB engineering, development, and design. • 8000 Build ESMB hardware and conduct contractor testing. • 350 Conduct ESMB configuration design review (CDR). • 18200 Complete ASTAMIDS fabrication/integration of test hardware. • 800 Complete PQT, and IOT&E for ASTAMIDS • 7315 Conduct HSTAMIDS source selection and initiate EMD. • 806 Procure HSTAMIDS long lead test hardware. 										
Total 44133										
B. Project Change Summary				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
FY 97 President's Budget				1881	14232	22866	36637			
Appropriated Value				1990	2172					
Adjustments to Appropriated Value				-156						
FY 98 Pres Bud Request				1834	2172	22605	44133			
Change Summary Explanation:										
Funding: FY 97 transfer of \$12M by direction of Congress to 0603619A D606 to continue DEM/VAL, conduct evaluation of alternative technologies and delay start of EMD for ASTAMIDS.										
FY99 increase of \$3.9M in accordance with restructured EMD phase for ASTAMIDS and \$3.6M to accelerate HSTAMIDS.										
Schedule: Milestone II IPR for ASTAMIDS delayed until 4Q97. Milestone III for ASTAMIDS rescheduled for 4Q00.										
C. Other Program Funding Summary									To	Total
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Compl</u>	<u>Cost</u>
RDTE, A Budget Activity 4										
PE 0603619A, Project D606, Countermine/Barrier Advanced Development	35768	27860	15115	6956	6368	17564	8600	9800	Cont	Cont
OPA 3, A Appropriation										
M80101, IVMMD			6400	4333	3992					14725
S11500, ASTAMIDS						11144	12003	12059	Cont	Cont
Project D415	<i>Page 6 of 8 Pages</i>						Exhibit R-2 (PE 0604808A)			

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604808A Landmine Warfare/Barrier - Engineering Development						PROJECT D415			
C. <u>Other Program Funding Summary</u>																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>					
M80300, ESMB							3413	7413	7417	Compl	Cost					
										Cont	Cont					
D. <u>Schedule Profile</u>																
		FY 1996			FY 1997			FY 1998			FY 1999					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Award Contract and Procure Test Hardware for IVMMMD		X*														
Conduct Test and Evaluation for IVMMMD				X*												
Conduct Milestone III Review IVMMMD					X											
Conduct Milestone II Review for ASTAMIDS								X								
Conduct Source Selection and Initiate Engineering Development Design for ASTAMIDS								X								
Complete ASTAMIDS EMD Design													X			
Conduct Milestone II for ESMB									X							
Conduct ESMB Design Review																X
Conduct Milestone II for HSTAMIDS													X			
Award HSTAMIDS EMD Contract													X			
*Milestone Complete																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604808A Landmine Warfare/Barrier - Engineering Development					D415		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development				1097	1119	16305	36933				
Test and Evaluation				190		1600	1420				
Government Engineering and Support				447	800	4300	5080				
Government Program Management				100	200	400	700				
SBIR/STTR					53						
Total				1834	2172	22605	44133				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
TBD	TBD	TBD					1119	16305	36933	Cont	54357
Misc.	Various	Various				1097				0	1097
SBIR/STTR							53				53
Support and Management Organizations											
NVESD/CECOM		Various				547	800	3500	4100	Cont	8947
Misc.		Various					200	1200	1680	Cont	3080
Test and Evaluation Organizations											
TECOM		Various				190		1600	1420	Cont	3210
Misc.		Various									
Government Furnished Property: None											
Subtotal Product Development						1097	1172	16305	36933		55507
Subtotal Support and Management						547	1000	4700	5780		12027
Subtotal Test and Evaluation						190		1600	1420		3210
Total Project						1834	2172	22605	44133		70744
Project D415				Page 8 of 8 Pages			Exhibit R-3 (PE 0604808A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604814A Sense and Destroy Armor Munition - Engineering Development					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	15764	9934	22372	20813	12873	1960	0	0	0	1004761
D2ST SADARM Operational Test	0	300	5494	0	0	0	0	0	0	5794
D644 Generic SADARM Engineering Development	15764	9634	16878	20813	12873	1960	0	0	0	998967
<p><u>Mission Description and Budget Item Justification:</u> Sense and Destroy Armor (SADARM) munitions will provide an enhanced fire/counterfire capability for 155mm howitzer delivery systems. SADARM can attack targets well beyond the Forward Line of Troops (FLOT) in a fire-and-forget mode. SADARM can be used in day and night, inclement weather and degraded battlefield conditions.</p> <p>These capabilities will be enhanced by the SADARM Product Improvement (PI) program which begins in FY 1997. The PI SADARM submunition will have an enlarged footprint (permitting each submunition to cover approximately three times the area of the baseline SADARM), improved infrared sensor to see targets at higher altitudes, and a combined effects (multi-frag) warhead permitting it to kill more targets. As a result, the PI SADARM will be more effective against its primary target (self-propelled howitzers) and secondary targets (light and heavy missile launchers, surface-to-air missile sites, air defense units, surface-to-surface missiles and towed howitzers). When ejected from the 155mm projectile, the PI SADARM submunitions deploy and descend toward the ground at a constant velocity and spin rate. The submunitions contain an improved sensing mechanism which combines a dual-mode millimeter wave sensor with an improved infrared sensor array. If a target is present within the scan area (approximately 53,000 square meters or 12 football fields). The submunition detects and destroys the target with the new combined effects warhead.</p> <p>The projects within this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are, therefore, correctly placed in Budget Activity 5.</p>										
<i>Page 1 of 9 Pages</i>						Exhibit R-2 (PE 0604814A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604814A Sense and Destroy Armor Munition - Engineering Development				PROJECT D2ST																											
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
D2ST SADARM Operational Test	0	300	5494	0	0	0	0	0	0	5794																									
<p>A. <u>Mission Description and Justification:</u> This project finances the direct costs of planning and conducting operational test and evaluation of the Sense and Destroy Armor (SADARM) munitions by the Operational Test and Evaluation Command (OPTEC). SADARM is an Acquisition Category (ACAT) IC system with an Initial Operational Test and Evaluation (IOTE) in FY 1998. Operational testing is conducted under conditions that approximate, as closely as possible, those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system. Project D2ST is restructured from SSN E66300, Projectile, Artillery, 155mm SADARM, M898, Procurement Ammunition, Army, and is not a new start.</p> <p>FY 1996 Accomplishments : Project not funded in FY 96</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 293 Planning and preparation for test during the 3QFY98 IOTE • 7 Small Business Innovation Research (SBIR) Program <p>Total 300</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 5494 IOTE 3QFY98 <p>Total 5494</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p> <p>B. <u>Project Change Summary</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td align="right">0</td> <td align="right">309</td> <td align="right">5575</td> <td align="right">0</td> </tr> <tr> <td>Appropriated Value</td> <td></td> <td align="right">300</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td align="right">0</td> <td align="right">300</td> <td align="right">5494</td> <td align="right">0</td> </tr> </tbody> </table> <p>C. <u>Other Program Funding Summary:</u> None</p>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	0	309	5575	0	Appropriated Value		300			Adjustments to Appropriated Value					FY 1998 Pres Bud Request	0	300	5494	0
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY 1997 President's Budget	0	309	5575	0																															
Appropriated Value		300																																	
Adjustments to Appropriated Value																																			
FY 1998 Pres Bud Request	0	300	5494	0																															
Project D2ST				Page 2 of 9 Pages			Exhibit R-2 (PE 0604814A)																												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604814A Sense and Destroy Armor Munition - Engineering Development							PROJECT D2ST							
D. <u>Schedule Profile</u>																				
		FY 1996					FY 1997					FY 1998					FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Initiate preparation for 3Q FY 1998 IOTE					X															
IOTE											X									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604814A Sense and Destroy Armor Munition - Engineering Development					D2ST		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Operational Test and Evaluation				0	293	5494	0				
SBIR					7						
Total					300	5494					
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
OPTEC, Alex, VA					0	0	293	5494	0	0	5787
SBIR							7				7
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation						300	5494				5794
Total Project						300	5494				5794
Project D2ST				Page 4 of 9 Pages				Exhibit R-3 (PE 0604814A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604814A Sense and Destroy Armor Munition - Engineering Development				PROJECT D644		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D644 Generic SADARM Engineering Development	15764	9634	16878	20813	12873	1960	0	0	0	998967
<p>A. <u>Mission Description and Justification:</u> Sense and Destroy Armor (SADARM)</p> <p><u>Acquisition Strategy - R&D:</u> The cost plus incentive fee (CPIF) contracts were awarded in FY 1986 to Aerojet Electrosystems and Honeywell. In FY 1991, a design select eliminated the Honeywell competition. Aerojet then selected Honeywell (now Alliant Techsystems) as their prime sub-contractor and have continued this relationship into production. The Engineering and Manufacturing Development contract with Aerojet has been completed. Starting in FY 1997, a contract will be awarded for a product improvement to the basic SADARM. This effort will focus on expanding the lethal search area of the submunition and improving its ability to kill targets.</p> <p><u>Production:</u> A four-year low rate production (LRP) program was initiated in FY 1995. Two contract awards are planned, each with subsequent annual options.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1900 Conducted 155mm performance testing • 8350 Producibility efforts/testing • 5514 Transited to production efforts <p>Total 15764</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 640 Hardware in-the-loop support • 1750 Initial/design planning for combined effects warhead • 4000 Trade studies and test for electronics sensor/software • 850 Test hardware • 2167 Government support and development of initial test criteria/schedules/plans • 227 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 9634</p>										
Project D644			<i>Page 5 of 9 Pages</i>				Exhibit R-2 (PE 0604814A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604814A Sense and Destroy Armor Munition - Engineering Development			PROJECT D644				
FY 1998 Planned Program:											
•	600	Hardware in-the-loop support									
•	2050	Design of the combined effects warhead									
•	9200	Electronic sensor software development									
•	1650	Test hardware									
•	3378	Government support to development									
Total	16878										
FY 1999 Planned Program:											
•	750	Hardware in-the-loop support									
•	3400	Design of the combined effects warhead									
•	8800	Electronic sensor software development									
•	4000	Test hardware									
•	3863	Government support to development									
Total	20813										
B. Project Change Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>						
FY 1997 President's Budget Request		16164	9840	17000	21000						
Appropriated Value		16617	9634								
Adjustments to Appropriated Value		-853									
FY 1998 Pres Bud Request		15764	9634	16878	20813						
C. Other Program Funding Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
Procurement, Ammunition, Army, SSN E66300		41103	93671	67909	77572	84335	83724	89597	99699	1738558	2383992
Proj, Arty, 155mm SADARM, M898											
LRIP Quantities		150	600	507							
Project D644											
Page 6 of 9 Pages											
Exhibit R-2 (PE 0604814A)											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)														DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development								PE NUMBER AND TITLE 0604814A Sense and Destroy Armor Munition - Engineering Development								PROJECT D644				
D. <u>Schedule Profile</u>																				
		FY 1996					FY 1997					FY 1998					FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Final verification tests		X*																		
Award option to first LRP contract			X*																	
Award second LRP contract						X														
Conduct Initial Production Test (IPT)							X													
Award Product Improvement Contract						X														
ASARC III													X							
PI SADARM Captive Flight Test														X						
IOTE: 3Q FY 1998																				
MSIII: 1Q FY 1999																				
Award Full Scale Prod: 2Q FY 1999																				
FUE: 1Q FY 1999																				
* Denotes completed milestone																				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT	
5 - Engineering and Manufacturing Development				0604814A Sense and Destroy Armor Munition - Engineering Development						D644	
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Contractor Engineering Support				11572	7240	13500	16950				
Government Engineering Support				1630	1767	2799	2702				
Program Management Support				635	250	250	250				
Developmental Test and Evaluation				1927	150	329	911				
SBIR/STTR					227						
Total				15764	9634	16878	20813				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Prod Improv:- Aerojet- Azusa, CA	SS/CPAF	FEB 97	TBD	TBD	0	0	6600	12900	16200	11200	46900
Aerojet-Azusa, CA	C/CPAF	SEP 86	436202	442460	424630	11572				0	436202
ARDEC-Picatiny					59403	1065	640	600	750	800	63258
Alliant Tech Sys Hopkins, MN	C/CPAF	SEP 86	TBD	188714	188038	0	0	0	0	0	188038
Loral Vought Sys Dallas, TX	SS/CPAF	SEP 88	TBD	90535	90535	0	0	0	0	0	90535
Miscellaneous	Multiple	Multiple			7645	0	0	0	0	0	7645
Support and Management Organizations											
Prod Improv: ARDEC											0
PM SADARM							250	250	250	350	1100
Picatiny Arsenal					12245	1630	1767	2699	2202	2116	22659
Project D644				Page 8 of 9 Pages				Exhibit R-3 (PE 0604814A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604814A Sense and Destroy Armor Munition - Engineering Development					PROJECT D644	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
PMO-MLRS, Huntsville, AL					16266					0	16266
Miscellaneous SBIR/STTR					8368	500		227		0	8868
Test and Evaluation Organizations											
YPG, Yuma, AZ					20352	765	40	329	911	367	22764
WSMR New Mexico					26487					0	26487
Miscellaneous					67076	232	110	100	500	0	68018
Government Furnished Property: None											
Subtotal Product Development					770251	12637	7240	13500	16950	12000	832578
Subtotal Support and Management					36879	2130	2244	2949	2452	2466	49120
Subtotal Test and Evaluation					113915	997	150	429	1411	367	117269
Total Project					921045	15764	9634	16878	20813	14833	998967

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604816A Longbow
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COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	21969	10644	0	0	0	0	0	0	0	575057
DC31 Longbow - Apache	8782	4895	0	0	0	0	0	0	0	556121
DC87 Longbow - Apache TESS	13187	5749	0	0	0	0	0	0	0	18936

Mission Description and Budget Item Justification: Longbow will provide the AH-64 with a fire-and-forget Hellfire capability, greatly increasing weapon system effectiveness and aircraft survivability. The weapon system will be employable by day or night, in adverse weather, and in countermeasures environments. Project DC31 includes the efforts necessary to synchronize the integration of the Fire Control Radar (FCR) and the Radio Frequency (RF) missile onto the Apache aircraft. It includes two versions of the Longbow Apache AH-64D series aircraft: (1) the AH-64D with the FCR mission kit plus the upgraded 701C engine, and (2) the AH-64D without the FCR mission kit and engine upgrade. Funds were added to Project DC31 in FY97 for Second Generation Forward Looking Infrared (FLIR). Project DC87 provides funding for the Longbow Apache Tactical Engagement Simulation System (TESS). The TESS will perform RF missile simulations in addition to the functions of the Multiple Integrated Laser Engagement System/Air-to-Ground Engagement System for force-on-force collective training after fielding. Project DC87 also includes follow-on development of the Longbow Crew Trainer. The projects in this Program Element support research efforts started in the engineering and manufacturing development phase of the acquisition strategy and are, therefore, correctly placed in Budget Activity 5.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604816A Longbow				PROJECT DC31		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC31 Longbow - Apache	8782	4895	0	0	0	0	0	0	0	556121
<p>A. <u>Mission Description and Justification</u> The Longbow program encompasses modifications to the AH-64 Apache as well as upgrades to the aircraft systems for the AH-64D series to efficiently and effectively integrate the FCR and RF missile. The system provides an adverse weather fire-and-forget missile capability that increases the AH-64 lethality and survivability. The Longbow Apache also retains the capability to fire the Semi-Active Laser Hellfire. The greatly improved design increases the operational capability of the crew and provides increased lethality and survivability, while complying with Congressional direction to standardize the fleet to a common configuration.</p> <p><u>Acquisition Strategy:</u> The acquisition strategy involves a sole source contract during the Engineering and Manufacturing Development phase leading to a production contract in FY 96.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 6416 McDonnell Douglas Helicopter Systems (MDHS) Prime Contract • 1236 Longbow Limited Liability Corporation Contract Blade Position Indicator System (BPIS) • 492 In-house support • 638 Optical Relay Tube (ORT) Handgrip Modification <p>Total 8782</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 4775 Second Generation FLIR (Forward Looking Infrared) • 120 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 4895</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p>										
Project DC31			<i>Page 2 of 9 Pages</i>			Exhibit R-2 (PE 0604816A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604816A Longbow					PROJECT DC31							
B. Project Change Summary																	
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>												
FY 1997 President's Budget		9008	0	0	0												
Appropriated Value		9261	4895														
Adjustments to Appropriated Value		-479															
FY 1998 BES/Pres Bud Request		8782	4895	0	0												
Change Summary Explanation: Funding: FY97 (+4895) Congressional increase for 2nd Generation FLIR.																	
C. Other Program Funding Summary																	
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>						
Aircraft Procurement, Army (AA6607)*		346162	320739	417680	500071	556814	576846	571865	595512	2234325	6195739						
*Includes procurement funding for TESS (shown in Project DC87) and for spares and advanced procurement.																	
D. Schedule Profile																	
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Line Replaceable Units Qualification		X*															
Environmental Control System Redesign		X*															
Optical Relay Tube (ORT) Handgrip Mod				X*													
Second Generation FLIR on contract					X												
Integration/Flight Testing FLIR									X								
Blade Position Indicator System			X*														
*Denotes completed activity.																	
Project DC31		Page 3 of 9 Pages						Exhibit R-2 (PE 0604816A)									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604816A Longbow					PROJECT DC31	
A. <u>Project Cost Breakdown</u>											
				<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>	
Contractor Engineering and Development				8290		4000					
Government In-House Program Management				492							
Other Government Support				0		775					
Process Action Team Support (PATS) Contractor Program Support				0							
SBIR/STTR						120					
Total				8782		4895					
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
McDonnell Douglas Helicopter Systems (Airframe Modifications)	CPIF	Aug 89		459566	453150	6416				0	459566
Lockheed Martin ORT Handgrip Modifications	Basic Ordering Agreement			3889	3251	638				0	3889
Longbow Limited Liability Corp BPIS				1236		1236				0	1236
Lockheed Martin Second Generation FLIR	Basic Ordering Agreement			4000			4000			0	4000
Support and Management Organizations											
Govt. Prog. Mgmt.	Varies	Quarterly			75026	492				0	75518
PATS Contractors	Varies	Quarterly			6903					0	6903
Project DC31				<i>Page 4 of 9 Pages</i>				Exhibit R-3 (PE 0604816A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604816A Longbow					PROJECT DC31	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
SBIR/STTR							120			0	120
Test and Evaluation Organizations											
Test Activities	Varies	Quarterly			4114					0	4114
FLIR Testing	Aviation Tech Test Center (Ft. Rucker)						775			0	775
Government Furnished Property Not applicable											
Subtotal Product Development					456401	8290	4000				468691
Subtotal Support and Management					81929	492	120				82541
Subtotal Test and Evaluation					4114		775				4889
Total Project					542444	8782	4895				556121

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																											
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604816A Longbow			PROJECT DC87																											
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																									
DC87 Longbow - Apache TESS	13187	5749	0	0	0	0	0	0	0	18936																									
<p>A. Mission Description and Justification: The Tactical Engagement Simulation System (TESS) will perform RF missile simulations in addition to the functions of the Multiple Integrated Laser Engagement System/Air-to-Ground Engagement System for force-on-force collective training after fielding. Project DC87 also includes follow-on development of the Longbow Crew Trainer. The TESS consists of an "A" kit and a "B" kit.</p> <p>Acquisition Strategy: The Apache Attack Helicopter Project Manager's Office will contract with McDonnell Douglas Helicopter Systems to do the provisioning for the "A" kit that consists of on-board software for data interface operator control software, wiring, and power source taps for the "B" kit.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 7164 Development, fabrication, and integration of the TESS "A" kit and "B" kit • 3084 Development, fabrication, and integration to upgrade Combat Training Centers (CTCs) • 1989 Continued development of the Longbow Crew Trainer • 950 Fire Control Radar Engineering Support <p>Total 13187</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 4608 Complete integration of the TESS "A" and "B" kits • 1000 Complete integration of the CTC interface • 141 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 5749</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p> <p>B. Project Change Summary</p> <table border="0"> <thead> <tr> <th></th> <th align="right"><u>FY 1996</u></th> <th align="right"><u>FY 1997</u></th> <th align="right"><u>FY 1998</u></th> <th align="right"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget</td> <td align="right">13937</td> <td align="right">5872</td> <td align="right">0</td> <td align="right">0</td> </tr> <tr> <td>Appropriated Value</td> <td align="right">14329</td> <td align="right">5749</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td align="right">-1142</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 BES/Pres Bud Request</td> <td align="right">13187</td> <td align="right">5749</td> <td align="right">0</td> <td align="right">0</td> </tr> </tbody> </table>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget	13937	5872	0	0	Appropriated Value	14329	5749			Adjustments to Appropriated Value	-1142				FY 1998 BES/Pres Bud Request	13187	5749	0	0
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																															
FY 1997 President's Budget	13937	5872	0	0																															
Appropriated Value	14329	5749																																	
Adjustments to Appropriated Value	-1142																																		
FY 1998 BES/Pres Bud Request	13187	5749	0	0																															
Project DC87	<i>Page 6 of 9 Pages</i>				Exhibit R-2 (PE 0604816A)																														

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604816A Longbow					PROJECT DC87						
C. <u>Other Program Funding Summary</u>																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>					
		0	0	3435	3599	8000	8000	8000	8000	<u>Compl</u>	<u>Cost</u>					
Longbow Apache TESS (AA6607)*										0	39034					
*This procurement funding represents only the portion of this line to be used for the TESS effort. The total procurement line (AA6607) includes additional funding for all other Longbow Apache efforts.																
D. <u>Schedule Profile</u>																
		<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiated TESS "A" & "B" kits development, fabrication and integration			X*													
Continue TESS "A" & "B" kits integration						X										
Longbow Crew Trainer		X*														
Complete TESS "A" & "B" kits integration										X						
*Denotes completed activity.																

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604816A Longbow					PROJECT DC87	
A. <u>Project Cost Breakdown</u>					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Contractor Engineering and Development					11198	5608					
Longbow Crew Trainer Development					1989	0					
SBIR/STTR						141					
Total					13187	5749					
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
McDonnell Douglas Helicopter System					0	7903	3626		0	0	11529
Lockheed Martin Electro Optics Systems						2728					2728
Intercostal Electronics						907					907
Support and Management Organizations:											
STRICOM					0	343				0	343
CECOM					0	356	500			0	856
Longbow Limited Liability Corp.					0	950	400			0	1350
In House Support SBIR/STTR					0	0	668			0	668
SBIR/STTR							141			0	141
Test and Evaluation Organizations:											
Test Activities	Varies	Quarterly			0	0	414			0	414
Government Furnished Property Not applicable											
Project DC87					Page 8 of 9 Pages			Exhibit R-3 (PE 0604816A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604816A Longbow	PROJECT DC87
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	Total Prior to <u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Subtotal Product Development	0	11538	3626				
Subtotal Support and Management	0	1649	1709				
Subtotal Test and Evaluation	0	0	414				
Total Project	0	13187	5749				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	23669	16411	19784	13379	9957	9912	10430	10472	Continuing	Continuing
D482 Combat Identification EMD	23669	13575	14773	7867	6956	6916	7439	7481	Continuing	Continuing
D901 All Service Combat ID Evaluation Team	0	2836	3003	3006	3001	2996	2991	2991	Continuing	Continuing
D902 Dismounted Soldier CID	0	0	2008	2506	0	0	0	0	0	4497
<p><u>Mission Description and Budget Item Justification:</u> The world situation and modern warfare are evolving in a manner that dictates making reliable identification of friends, foes, and neutrals an absolute necessity, but increasingly difficult to achieve. The ability of weapons systems to engage targets at ranges longer than the capability to positively identify them significantly increases the potential for fratricide. This Program Element (PE) is directed toward the design and development of distinct technology devices to help minimize this battlefield deficiency. The projects within this PE are in the Engineering and Manufacturing Development (EMD) phase and the PE is correctly assigned in Budget Activity 5. Project D482 addresses the ground-to-ground vehicle mounted mission area, Project D901 addresses improvement of tactics, techniques and procedures across all mission areas, and Project D902 addresses the ground-to-ground dismounted mission area. Project D902 is a new start.</p>										
<i>Page 1 of 12 Pages</i>						Exhibit R-2 (PE 0604817A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development					PROJECT D482	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D482 Combat Identification EMD	23669	13575	14773	7867	6956	6916	7439	7481	Continuing	Continuing
<p>A. Mission Description and Justification: The Battlefield Combat Identification System (BCIS) is the lead Army horizontal technology initiative using the "A kit" (platform specific) and "B kit" (common to all platforms) philosophy. The program takes advantage of acquisition streamlining and directs industry to use commercial parts and practices to shorten acquisition timelines and to reduce cost. The purpose of BCIS is to reduce fratricide, a problem made increasingly difficult for gunners as we participate in coalition warfare where partners operate weapon systems formerly associated with adversaries. BCIS is a millimeter wave (mmW), ground-ground (G-G), point-of-engagement system which provides through-the-sight, day/night, all weather positive identification of BCIS equipped U.S., Allied and coalition platforms. Shooters query potential targets at ranges that can extend beyond 5 km. Friendly platforms targeted by friendly shooters generate automatic electronic responses in less than one second. BCIS is resistant to electronic countermeasures, active exploitation and deception. BCIS will be demonstrated during the Army Digitization Exercise, Task Force XXI. It will be used by combat, combat support, and combat services support units.</p> <p>Acquisition Strategy: A competitive, cost plus award fee contract, for 45 EMD units and option quantities, was awarded Aug 93. Additional quantities have been procured for participation in TF XXI AWE and the Combat ID International Demonstration. This contract has been modified to include producibility engineering efforts that will lead to the Low Cost Design for the BCIS.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 673 Completed technical and user testing. • 14375 Completed hardware build for platform integration, and training/maintenance for TF XXI. • 3812 Initiated producibility engineering design efforts. • 3000 All Service Combat Identification Evaluation Team (ASCIET) Support. • 1809 Completed hardware build for International Demonstration. <p>Total 23669</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 3359 Provide technical, integration, training and maintenance support for TF XXI experiment. • 2225 Complete producibility engineering design effort. • 5171 Initiate fabrication, assembly and test of Low Cost Producibility models. • 2500 Develop/update system software for Low Rate Initial Production models. • 320 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs 										
Project D482			Page 2 of 12 Pages				Exhibit R-2 (PE 0604817A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997																																																																					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development	PROJECT D482																																																																					
Total 13575 FY 1998 Planned Program: <ul style="list-style-type: none"> • 450 Continue logistic support for BCIS leave behind systems. • 1470 Complete fabrication and assembly of Low Cost Producibility models. • 530 Conduct Interoperability Testing. • 12323 Initiate fabrication, assembly and test LRIP systems for IOTE. Total 14773 FY 1999 Planned Program: <ul style="list-style-type: none"> • 550 Continue logistic support for BCIS leave behind systems. • 3578 Complete fabrication, assembly and test of IOTE hardware. • 3000 Conduct government PPQT and IOTE. • 739 Conduct MS III efforts and initiate request for proposal preparation. Total 7867 B. Project Change Summary <table style="width: 100%; margin-left: 20px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget Request</td> <td style="text-align: right;">21853</td> <td style="text-align: right;">13886</td> <td style="text-align: right;">9730</td> <td style="text-align: right;">9752</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: right;">22074</td> <td style="text-align: right;">13575</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td style="text-align: right;">1595</td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 Pres Bud Request</td> <td style="text-align: right;">23669</td> <td style="text-align: right;">13575</td> <td style="text-align: right;">14773</td> <td style="text-align: right;">7867</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: Funding provided for additional BCIS units to support International Demonstration (FY 96 +1595) and IOT&E (FY 98 +5043).</p> C. Other Program Funding Summary: Work in this program element is related to and fully coordinated with efforts in PE 0602120 (Battlefield Ground Combat Identification Technology) and PE 0603772 (Ground Combat Identification Demonstration). <table style="width: 100%; margin-left: 20px; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;">To</th> <th style="text-align: center;">Total</th> </tr> <tr> <th></th> <th colspan="8"></th> <th style="text-align: center;"><u>Compl</u></th> <th style="text-align: center;"><u>Cost</u></th> </tr> </thead> <tbody> <tr> <td>RDTE, A Budget Activity 2, PE 0602120A</td> <td style="text-align: right;">3291</td> <td style="text-align: right;">3604</td> <td style="text-align: right;">3532</td> <td style="text-align: right;">3552</td> <td style="text-align: right;">3438</td> <td style="text-align: right;">3584</td> <td style="text-align: right;">3671</td> <td style="text-align: right;">3769</td> <td style="text-align: center;">continues</td> <td style="text-align: center;">continues</td> </tr> <tr> <td>Proj AH15 Ground Combat Identification Tech</td> <td></td> </tr> </tbody> </table>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget Request	21853	13886	9730	9752	Appropriated Value	22074	13575			Adjustments to Appropriated Value	1595				FY 1998 Pres Bud Request	23669	13575	14773	7867		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total										<u>Compl</u>	<u>Cost</u>	RDTE, A Budget Activity 2, PE 0602120A	3291	3604	3532	3552	3438	3584	3671	3769	continues	continues	Proj AH15 Ground Combat Identification Tech										
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Project D482		Exhibit R-2 (PE 0604817A)																																																																					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development					PROJECT D482	
	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost		
RDTE A, Budget Activity 3, PE 0603772A Proj D281 Ground Combat ID Demo	6624	6897	3362	0	0	0	0	0	0	31454		
D. Schedule Profile	FY 1996		FY 1997		FY 1998		FY 1999					
	1	2	3	4	1	2	3	4	1	2	3	4
Completed technical and user testing	X*											
Completed hardware build for platform integ, maint/training for TF XXI		X*										
Initiate producibility engrg design effort		X*										
Complete hardware build for Int'l Demo			X*									
Provide tech, integ, tng/maint for TF XXI				X								
Develop software including French wave- form and appliqué/DDL interface				X								
Complete producibility engrg design effort					X							
Initiate fab, assy, test of LRIP models (35)					X							
Complete fab/assy of LRIP models (35)						X						
Continue TF XXI hardware support						X						
Conduct Interoperability Test							X					
Initiate fab, assy/test of IOTE hardware							X					
Complete fab, assy/test of IOTE hardware								X				
Conduct Platform Compatibility Demo									X			
Conduct PPQT/IOTE									X			
Conduct MS III efforts and initiate RFP prep												X
* Denotes Milestones completed												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development					PROJECT D482	
A. Project Cost Breakdown											
					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Primary Hardware Development					14302	10027	12376	4090			
Platform Integration					2060		1212				
System Engineering/Program Management Support											
Government					1280	1264	478	389			
Contractor					1454	1014	310	139			
Program Management Personnel					900	950	397	249			
Development Test and Evaluation					673			1250			
Operational Test and Evaluation								1750			
ASCIET					3000						
SBIR/STTR						320					
Total					23669	13575	14773	7867			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TRW	C/CPAF	12 Aug 93	69807	69807	29012	14302	10027	12376	4090		69807
GDLS	SS/CPFF	29 Apr 94	8715	8715	6655	1560		500			8715
Misc.	MIPR				3102	500		712			4314
Support and Management Organizations											
Proj Management	Multiple				7579	2354	1964	707	388		12992
CECOM	MIPR				5276	1280	1264	478	389		8687
Test and Evaluation Organizations											
TECOM	MIPR				1850				1250		3100
TEXCOM	MIPR	15 Oct 95				673			1750		2423
ASCIET	MIPR	2Q 96			973	3000					3973
SBIR/STTR							320				320
Project D482					Page 5 of 12 Pages				Exhibit R-3 (PE 0604817A)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT
5 - Engineering and Manufacturing Development	0604817A Combat Identification - Engineering & Manufacturing Development					D482
Government Furnished Property: Not Applicable						
	Total Prior to					Budget to Total
	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>Complete</u> <u>Program</u>
Subtotal Product Development	38769	16362	10027	13588	4090	82836
Subtotal Support and Management	12855	3634	3228	1185	777	21679
Subtotal Test and Evaluation	2823	3673	320		3000	9816
Total Project	54447	23669	13575	14773	7867	114331
Project D482						
Page 6 of 12 Pages						
Exhibit R-3 (PE 0604817A)						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development					PROJECT D901	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D901 All Service Combat ID Evaluation Team	0	2836	3003	3006	3001	2996	2991	2991	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> All Service Combat Identification Evaluation Team (ASCIET) Support. ASCIET is an expanded effort aimed at fostering improved tactics, techniques, and procedures (TTP) across all combat identification mission areas. The Army, Navy, Air Force and Marine Corps are designated as the participating Services with the Air Force designated as the lead Service. ASCIET is chartered to employ the equipment and personnel of all Services to evaluate, investigate and assess various concepts of combat identification on the battlefield. ASCIET will also offer Federally Funded Research and Development Centers (FFRDCs), Service Battle Laboratories, and industry the opportunity to review and evaluate emerging technologies in multi-Service environment on a noninterference basis as a risk reduction and verification. ASCIET began in FY 95 as an effort to evaluate and revise joint TTP using current and new combat ID systems and technologies in a field environment. ASCIET was funded through Project D482. Restructuring was required because ASCIET is an independent effort from the BCIS EMD work.</p> <p><u>Acquisition Strategy:</u> Not applicable</p> <p>FY 1996 Accomplishments: Funded through PE 0604817A</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 43 Demonstrate situational awareness to BCIS through digital data link reporting to include friend indication, GPS location, unit ID, SINGARS call sign/frequency. • 1482 Demonstrate A-G target identification capability for rotary wing (OH-58D) platforms via SINGARS SIP(+) radio and embedded GPS interface (EGI). • 818 Demonstrate direct target ID capability for both fixed wing (AV-8B) and rotary wing (AH-64). • 424 Demonstrate automated "nine line" message generation utilizing Automatic Target Hand-off System (ATHS) II data link to locate and identify targets for fixed wing aircraft. • 69 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs. <p>Total 2836</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 750 Assess joint C3I interoperability. • 750 Assess surface-air and air-air CI capabilities in joint environment. • 1503 Evaluate surface-air, air-ground, ground-ground CI systems. 										
Project D901			Page 7 of 12 Pages				Exhibit R-2 (PE 0604817A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997											
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development						PROJECT D901											
Total 3003																							
FY 1999 Planned Program:																							
<ul style="list-style-type: none"> • 1506 Evaluate surface-air emerging technologies. • 750 Continue assessing surface-air and air-ground capabilities in joint environment. • 750 Continue joint C3I interoperability. 																							
Total 3006																							
B. Project Change Summary:						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>														
FY 1997 President's Budget						0	2897	0	0														
Appropriated Value								2836															
Adjustments to Appropriated Value																							
FY 1998 Pres Bud Request								2836	3003	3006													
Change Summary Explanation: Funding: FY98/FY99 - Funding provided to continue Army participation in ASCIET																							
C. Other Program Funding Summary: None																							
D. Schedule Profile																							
		<u>FY 1996</u>						<u>FY 1997</u>						<u>FY 1998</u>						<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Conduct field test and demonstrations							X	X															
Assess joint C3I interoperability									X														
Assess surface-air, air-ground capabil.									X														
Evaluate surface-air, air-ground, ground-ground CI systems														X									
Evaluate surface-air emerging tech																				X			
Continue evaluating surface-air, air-ground, ground-ground																				X			
Continue joint C3I operability																				X			
Project D901						Page 8 of 12 Pages						Exhibit R-2 (PE 0604817A)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development					PROJECT D901		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
ASCIET					2767	3003	3006				
SBIR/STTR					69						
Total					2836	3003	3006				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations:											
ASCIET	MIPR						2767	3003	3006	12000	20776
SBIR/STTR							69				69
Government Furnished Property: Not Applicable											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project											
							2836	3003	3006	12000	20845
							2836	3003	3006	12000	20845

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development					PROJECT D902	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D902 Dismounted Soldier CID	0	0	2008	2506	0	0	0	0	0	4497
<p>A. <u>Mission Description and Justification:</u> The Combat Identification System for the Dismounted Soldier (CIDDS) is a lightweight, laser-based, question and answer type system, used to positively identify friendly soldiers. The system includes a compact, eyesafe, diode laser interrogator; a laser detector assembly; an electronic processor unit; and an omni-directional RF responder. The laser transmitter also includes a near infrared aiming light for aiming the soldier's weapon at night when using Night Vision Goggles. The system will provide range of at least two kilometers under clear weather conditions and will exceed the soldier's target acquisition capability under degraded atmospheric conditions. It will have sufficient angular resolution to resolve individual targets, but not require precise pointing accuracy for robust response. The system will also be directly interoperable with the integrated soldier-to-soldier combat ID functions to be embedded in the Land Warrior equipment suite. The system will fulfill requirements stated in the Joint Service Operational Requirements Document for use by Army, Marine and Special Operations applications. This is not a new start, efforts were previously funded under PE 0602120A project AH15, Ground Combat Identification Technology.</p> <p><u>Acquisition Strategy:</u> A competitive, cost plus contract for delivery and testing of approximately 150 units for IOTE.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program:</p> <ul style="list-style-type: none"> • 509 Conduct best value proposal evaluation/Milestone II activities. • 250 Conduct MS II Decision Review activities. • 1249 Initiate Hardware/Software engineering design effort <p>Total 2008</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1000 Complete hardware engineering design effort. • 650 Complete special tooling/peculiar support equipment development. • 856 Continue software engineering development/design effort. <p>Total 2506</p>										
Project D902			<i>Page 10 of 12 Pages</i>				Exhibit R-2 (PE 0604817A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604817A Combat Identification - Engineering & Manufacturing Development					PROJECT D902			
B. Project Change Summary													
			<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>				
FY 1997 President's Budget Appropriated Value							0		0				
Adjustments to Appropriated Value													
FY 1998 Pres Bud Request							2008		2506				
Change Summary Explanation: Funding: FY98/FY99 funding provided to begin E&MD													
C. Other Program Funding Summary													
			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To <u>Compl</u>	Total <u>Cost</u>	
RDTE, A Budget Activity 2, PE 0602120A			3291	3604	3532	3552	3438	3584	3671	3769			
Proj AH15 Ground Combat Identification Tech													
OPA2,BA0515 Combat I D Aiming Light							9980	11748	14620	14536			
D. Schedule Profile													
			<u>FY 1996</u>		<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>		
	1		2	3	4	1	2	3	4	1	2	3	4
Contract Award								X					
Conduct MS II								X					
Initiate hdw/sftw eng design									X				
Complete hdw design											X		
Complete spec tools/spt equipment design											X		
Continue software design effort											X		
Project D902			Page 11 of 12 Pages					Exhibit R-2 (PE 0604817A)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT		
5 - Engineering and Manufacturing Development				0604817A Combat Identification - Engineering & Manufacturing Development					D902		
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Primary Hardware Development						1839	2298				
System Engineering/Program Management Support											
Government						79	108				
Contractor						0					
Program Management Personnel						90	100				
Total						2008	2506				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organization											
TBS	CPAF	3Q98	TBD	TBD				1848	2306	0	4154
Support and Management Organizations											
CECOM	MIPR				0	0	0	160	200	0	360
Test and Evaluation Organizations: None											
Government Furnished Property: Not Applicable											
Subtotal Product Development								1848	2306		
Subtotal Support and Management								160	200		360
Subtotal Test and Evaluation											
Total Project								2008	2506		360
Project D902				Page 12 of 12 Pages				Exhibit R-3 (PE 0604817A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604818A Army Tactical Command and Control Hardware & Software
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COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	27231	15780	20022	18697	19717	19709	21910	22267	Continuing	Continuing
DC34 Army Tactical C2 Systems (ATTCS) Engineering	19638	8159	7951	7790	8381	8349	8742	8978	Continuing	Continuing
D323 Common Hardware Software (CHS)	7593	7621	12071	10907	11336	11360	13168	13289	Continuing	Continuing

Mission Description and Budget Item Justification: The umbrella program to exploit automation technology for the conduct of combat operations is the Army Tactical Command and Control System (ATCCS) program which is a component of the Army Battle Command System (ABCS). The ATCCS program provides automation in the five battlefield functional areas (BFAs) with the following specific systems: (1) Maneuver Control System (MCS); (2) Advanced Field Artillery Tactical Data System (AFATDS); (3) All Source Analysis System (ASAS) for Intelligence/Electronic Warfare; (4) Forward Area Air Defense Command, Control and Intelligence System (FAADC2I); and (5) Combat Service Support Control System (CSSCS) and to other Army Joint and Allied systems. To provide an overall technically sound, cost effective, and operationally responsive approach, the design and development of ATCCS must be accomplished on a total systems basis. The ATCCS Engineering program provides the required systems engineering to assure integrated Army tactical command and control, and the utilization of common hardware and software throughout the five ATCCS nodal systems. The Common Hardware Software (CHS) project provides common hardware and software to customers to meet their developmental and fielding needs. The projects in this program element support the ATCCS programs which, for the most part, are in the engineering and manufacturing development phase of the acquisition process and, therefore, are correctly placed in Budget Activity 5.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604818A Army Tactical Command and Control Hardware & Software					PROJECT DC34	
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DC34 Army Tactical C2 Systems (ATTCS) Engineering	19638	8159	7951	7790	8381	8349	8742	8978	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Project DC34 - Army Tactical C2 Systems (ATCCS) Engineering: The Air/Land Battle Doctrine requires military leaders to make sound and timely command and control decisions to direct the activities of assigned and supporting units. The umbrella program to exploit automation technology in support of this mission is the ATCCS Program, a component of the ABCS. The effort to achieve horizontal integration of the ATCCS BFAs, although going on independently in each BFA, was not disciplined enough to address all connections and needs within the entire spectra of command, control and communications. Therefore, to ensure this horizontal integration effort is complete and automated, a significant management, systems engineering and integration effort is required.</p> <p><u>Acquisition Strategy:</u> This project provides the technical and programmatic disciplines required for systems engineering and integration, experimentation, acquisition management, testing, Ada software development, interoperability, fielding, and sustainment to assure an interoperable, affordable ATCCS. The Program Executive Officer Command, Control and Communications Systems (PEO C3S) has planned an evolutionary approach to fielding the ATCCS as soon as possible.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 1560 Performed functional analysis and updated command post analysis to support ABCS and Army Warfighter Experiments (AWE) • 867 Extended the ABCS data architecture and standardization program to additional functional areas • 542 Continued the technology insertion program, e.g., advanced communication protocols, advanced networking, tactical decision aids, and distributed databases • 6779 ABCS/Task Force XXI interoperability engineering and system level engineering support • 487 Incorporated technology for Brigade and Below Command and Control (B2C2) applications into embedded applications • 1842 Conducted/supported system configuration developmental/operational demonstrations in preparation for the MCS Limited User Test (LUT) and other BFA Operational Tests (OTs) • 4322 Division XXI TOCs • 3239 Division XXI system integration and interoperability <p>Total 19638</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 500 Perform functional analysis and update command post analysis to support ABCS and AWE 										
Project DC34			Page 2 of 9 Pages				Exhibit R-2 (PE 0604818A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604818A Army Tactical Command and Control Hardware & Software	
<ul style="list-style-type: none"> • 900 Implement the ABCS data architecture and standardization program in all Battlefield Functional Areas (BFAs) to facilitate Army Technical Architecture (ATA) compliance 		
<p>FY 1997 Planned Program: (continued)</p>		
<ul style="list-style-type: none"> • 1245 Continue ABCS/AWE system level training and logistics development 		
<ul style="list-style-type: none"> • 3415 ABCS/AWE interoperability engineering and system level engineering support 		
<ul style="list-style-type: none"> • 1400 Conduct/support system configuration developmental/operational demonstrations in conjunction with MCS IOT&E and other BFA OTs 		
<ul style="list-style-type: none"> • 500 Develop the ABCS security architecture to support Division 2000 		
<ul style="list-style-type: none"> • 199 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) 		
<p>Total 8159</p>		
<p>FY 1998 Planned Program:</p>		
<ul style="list-style-type: none"> • 300 Perform functional analysis and update command post analysis to support ABCS and AWE 		
<ul style="list-style-type: none"> • 1250 Continue ABCS/AWE system level training and logistics development 		
<ul style="list-style-type: none"> • 3651 ABCS/AWE interoperability engineering and system level engineering support/perform dependency analyses and verification and validation of all BFA fielded software, including common and unique applications 		
<ul style="list-style-type: none"> • 1450 Conduct and support system configuration developmental/operational demonstrations in conjunction with BFA OTs and AWEs 		
<ul style="list-style-type: none"> • 500 Develop and Implement the ABCS security architecture 		
<ul style="list-style-type: none"> • 800 Implement the ABCS data architecture and standardization program to all Battlefield Functional Areas to facilitate ATA compliance 		
<p>Total 7951</p>		
<p>FY 1999 Planned Program:</p>		
<ul style="list-style-type: none"> • 300 Perform functional analysis and update command post analysis to support ABCS 		
<ul style="list-style-type: none"> • 1200 Continue the ABCS system level training and logistics development 		
<ul style="list-style-type: none"> • 3540 ABCS interoperability engineering and system level eng support/perform dependency analyses and verification and validation of all BFA fielded software, including common and unique applications 		
<ul style="list-style-type: none"> • 1450 Conduct and support system configuration developmental/operational demonstrations in conjunction with BFA OTs 		
<ul style="list-style-type: none"> • 800 Implement the ABCS data architecture and standardization program for all BFAs to facilitate ATA compliance 		
<ul style="list-style-type: none"> • 500 Develop and Implement ABCS security architecture 		
<p>Total 7790</p>		
<p>Project DC34 Page 3 of 9 Pages Exhibit R-2 (PE 0604818A)</p>		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)												DATE February 1997							
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604818A Army Tactical Command and Control Hardware & Software						PROJECT DC34							
B. <u>Project Change Summary</u>						<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>							
FY 1997 President's Budget						10408		8645		8579		8460							
Appropriated Value						10513		8159											
Adjustments to Appropriated Value						9125													
FY 1998 Pres Bud Request						19638		8159		7951		7790							
Change Summary Explanation:																			
Funding: FY 96 increased (+6389) to support the Division XXI requirements for Systems Engineering, Integration, and Interoperability (+2736) and hardware for the Tactical Operations Centers (TOCs).																			
C. <u>Other Program Funding Summary:</u> Not Applicable																			
D. <u>Schedule Profile</u>																			
	<u>FY 1996</u>					<u>FY 1997</u>					<u>FY 1998</u>					<u>FY 1999</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Finalize Objective ATCCS specification			X*																
ATCCS System Confidence Demo-6				X*															
ATCCS V1 Operational Test & Evaluation					X*														
Participate in Task Force XXI AWE						X													
ATCCS System Confidence Demo-7								X											
Participate in Division XXI AWE									X										
ATCCS Log Maint Demo												X							
ATCCS System Confidence Demo-8													X						
ATCCS Log Maint Demo															X				
ATCCS System Confidence Demo-9																X			
Project DC34														Page 4 of 9 Pages		Exhibit R-2 (PE 0604818A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604818A Army Tactical Command and Control Hardware & Software			PROJECT DC34				
A. <u>Project Cost Breakdown</u>				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
System Engineering and Integration Support				19638	7960	7951	7790				
SBIR/STTR					199						
Total				19638	8159	7951	7790				
B. <u>Budget Acquisition History and Planning Information</u>											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
TRW	PWD					2492	967				3459
CSC	PWD					2632					2632
CSC	PWD					4864	4669	5763	5764	Cont	21060
GTE	PWD					3683					3683
MITRE	MIPR					2925	336	350	350	Cont	3961
Misc. Contracts	PWD					2229	1264	1200	1050	Cont	5743
Matrix-CECOM	MIPR					813	724	638	626	Cont	2801
SBIR/STTR							199				199
Support and Management Organizations: None											
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development						19638	8159	7951	7790		43538
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project						19638	8159	7951	7790		43538
Project DC34				Page 5 of 9 Pages				Exhibit R-3 (PE 0604818A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604818A Army Tactical Command and Control Hardware & Software				PROJECT D323		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D323 Common Hardware Software (CHS)	7593	7621	12071	10907	11336	11360	13168	13289	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> Project D323 Common Hardware Software (CHS): CHS is the program through which the Army builds its integrated efforts for tying together the Army Command and Control Systems. The project provides vehicles (contracts) through which customers can acquire state-of-the-art common hardware/software and associated peripherals to meet developmental and fielding needs. The project also provides software technology support and command post internal structures within shelters. The common software supports Army, other Services and Joint systems. The CHS program is instrumental in digitizing the battlefield.</p> <p><u>Acquisition Strategy:</u> The overall goal is to improve interoperability and lower life cycle costs by standardizing Battlefield Command and Control (C2) automation through centralized buys of non-developmental items (NDI), standardized protocols and reusable software. Four NDI hardware versions are available to meet specific needs of each Battlefield Functional Area (BFA): handheld, portable, transportable and lightweight computer unit.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 2589 Continued management of the acquisition and delivery of CHS equipment (LCU/CHS-1/CHS-2) in support of customer requirements • 3639 Continued execution of common hardware and common software reuse programs • 905 Continued testing CHS-2 equipment (User Confidence Test, Reliability, First Article Test). Manage total testing program in support of customer requirements • 460 Continued exploring state of the art technology insertion in support of ABCS <p>Total 7593</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 2655 Continue management of the acquisition and delivery of CHS equipment (LCU/CHS-2) in support of customer requirements • 3704 Continue execution of common hardware, software technology and command post programs • 467 Continue supporting customers testing efforts with CHS equipment • 650 Continue exploring state of the art technology insertion in support of ABCS • 145 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) <p>Total 7621</p>										
Project D323			<i>Page 6 of 9 Pages</i>				Exhibit R-2 (PE 0604818A)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604818A Army Tactical Command and Control Hardware & Software	PROJECT D323		
FY 1998 Planned Program:				
• 2651	Continue management of the acquisition and delivery of CHS equipment (LCU/CHS-2) in support of customer requirements			
• 3697	Continue execution of common hardware, software technology and software reuse programs			
• 469	Continue supporting customers testing efforts with CHS equipment			
• 695	Continue the exploration of state of the art technology insertion in support of ABCS programs			
• 4559	Develop, integrate and upgrade Army Common Operating Environment (COE) products, technology insertion and Command Control Vehicle (C2V) interoperability upgrade and testing			
Total	12071			
FY 1999 Planned Program:				
• 2599	Continue management of the acquisition and delivery of CHS-2 equipment in support of customer requirements			
• 3499	Continue execution of common hardware, software technology and software reuse programs			
• 450	Continue supporting customers testing efforts with CHS equipment			
• 695	Continue exploring state of the art technology insertion in support of ABCS programs			
• 3664	Continue developing, integrating and upgrading Army COE products, technology insertion and C2V interoperability upgrade and testing			
Total	10907			
B. Project Change Summary				
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
FY 1997 President's Budget	7755	7784	7730	7627
Appropriated Value	7833	7621		
Adjustments to Appropriated Value	-240			
FY 1998 Pres Bud Request	7593	7621	12071	10907
Change Summary Explanation:				
Funding: FY 98/FY99: Funds realigned to this project to support development of Common Operating Environment (COE) software essential to implement the				
Army Technical Architecture (ATA) Migration plans and digitization efforts (FY 98 +4341, FY 99 +3280)				
C. Other Program Funding Summary: Not Applicable				
Project D323				
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Exhibit R-2 (PE 0604818A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604818A Army Tactical Command and Control Hardware & Software								PROJECT D323			
D. <u>Schedule Profile</u>																	
		FY 1996				FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
CHS-2 Production Delivery V-2/V3 Start		X*															
Last LCU orders processed								X									
Last CHS-1 orders processed								X									
CHS-2 Technology Insertion (continuous)									X	X	X	X	X	X	X	X	
*Milestone Complete																	
Project D323					Page 8 of 9 Pages					Exhibit R-2 (PE 0604818A)							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604818A Army Tactical Command and Control Hardware & Software				PROJECT D323			
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Program Management Personnel				4595	4626	4870	4805				
Contract Engineering Support				2998	2850	7201	6102				
SBIR/STTR					145						
Total				7593	7621	12071	10907				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
Matrix-CECOM						1287	1248	1314	1297	Cont	5146
Misc. Contracts						2998	2750	7201	6102	Cont	19051
SBIR/STTR							145				145
Support and Management Organizations											
In-House (CHS)						3308	3478	3556	3508	Cont	13850
Test and Evaluation Organizations											
None											
Government Furnished Property: None											
Subtotal Product Development						4285	4143	8515	7399		24342
Subtotal Support and Management						3308	3478	3556	3508		13850
Subtotal Test and Evaluation											
Total Project						7593	7621	12071	10907		38192
Project D323				Page 9 of 9 Pages			Exhibit R-3 (PE 0604818A)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604820A Radar Development				PROJECT DE10		
COST (In Thousands)	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE10 FAAD Ground Based Sensor	500	0	0	0	6064	9535	9229	0	0	25328
<p>A. <u>Mission Description and Budget Item Justification:</u> The Forward Area Air Defense Ground Based Sensor (FAAD GBS), AN/MPQ-64, consists of a radar-based sensor with its prime mover/power, identification friend or foe (IFF), and FAAD Command, Control, and Intelligence (C2I) interfaces. The sensor is an advanced three dimensional battlefield X-Band air defense phased-array radar with an instrumented range of 40 km. The FAAD GBS is capable of operating day or night, in adverse weather conditions, in the battlefield environments of dust, smoke, aerosols, and enemy countermeasures. It provides 360 degree azimuth coverage for acquisition tracking. The FAAD GBS contributes to the digital battlefield by automatically detecting, classifying, identifying, and reporting targets [cruise missiles, and unmanned aerial vehicles (UAV's), rotary wing and fixed wing aircraft]. Targets can be hovering to fast moving, as well as, from nap of the earth to the maximum engagement altitude of FAAD weapons. Very accurate and quick reacting, FAAD GBS acquires targets sufficiently forward of the Forward Line of Troops to improve FAAD weapon reaction time and allow engagement at optimum ranges. The FAAD GBS integrated IFF reduces the potential for fratricide of Army Aviation and Air Force aircraft. Highly mobile and reliable, the FAAD GBS Anti-Radiation Missile and Electronic Countermeasures resistant performance support Army Corps and Divisional Air Defense operations across the full spectrum of conflict. This project is related to an engineering and manufacturing development program and is therefore correctly placed in BA 5.</p> <p><u>Acquisition Strategy:</u> The FAAD GBS pre-production contract was awarded on a competitive best value basis with options for Low Rate Initial Production and Full Rate Production.</p> <p>FY 1996 Accomplishments:</p> <ul style="list-style-type: none"> • 500 Completed reliability testing <p>Total 500</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program: Project not funded in FY 99</p>										
Project DE10			Page 1 of 3 Pages				Exhibit R-2 (PE 0604820A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604820A Radar Development					PROJECT DE10	
B. Project Change Summary											
		<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>			
FY 1997 President's Budget		0		0		0		0			
Appropriated Value		0									
Adjustments to Appropriated Value		500									
FY 1998 Pres Bud Request		500		0		0		0			
Change Summary Explanation: Funding: FY 96 - Funding reprogrammed from 0604270A.DL18 to support reliability testing (+500)											
C. Other Program Funding Summary											
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>To</u>	<u>Total</u>
										<u>Compl</u>	<u>Cost</u>
Other Procurement, Army 2 (SSN WK 5053)		61882	68783	41014	40071	34283	51545	16688	34206	28111	386245
Spares (SSN BS 9732)		2324	3610	5258	5382						16574
D. Schedule Profile											
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>
	1	2	3	4	1	2	3	4	1	2	3
		X*									4
Award 1st FSP Option											
Participate in Task Force XXI			X	X	X						
Conduct Production Verification Test				X	X						
Award 2nd FSP Option					X						
FUE Production						X					
Award 3rd FSP Option							X				
Award 4th FSP Option										X	
*Milestone Completed											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1997					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604820A Radar Development				PROJECT DE10			
A. Project Cost Breakdown						<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>		
Test Support						500					
Total						500					
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations											
Hughes Aircraft Company	C/FFP	Feb 92	56836	56836	56836					17128	73964
MICOM	MIPR				18704						18704
Other/Misc.	MIPR				5270						5270
Support and Management Organizations											
MICOM	MIPR				20125					1919	22044
Other/Misc.	MIPR				1707						1707
Test and Evaluation Organizations											
OPTEC	MIPR				24180						24180
Other/Misc.	MIPR				7703						7703
TECOM	MIPR				1133	500				5781	7414
Government Furnished Property: None											
Subtotal Product Development						80810				17128	97938
Subtotal Support and Management						21832				1919	23751
Subtotal Test and Evaluation						33016	500			5781	39297
Total Project						135658	500			24828	160986
Project DE10				Page 3 of 3 Pages				Exhibit R-3 (PE 0604820A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604823A Firefinder			PROJECT DL85		
COST <i>(In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DL85 Firefinder Pre-Planned Product Improvement	0	2496	2564	12022	23248	24000	5788	0	0	70118
<p>A. <u>Mission Description and Budget Item Justification:</u> The Firefinder Pre-Planned Product Improvement (P3I) program will upgrade the AN/TPQ-37 Artillery Locating Radar by replacing the Antenna Transceiver Group (ATG). This upgrade is in response to the approved Mission Need Statement (MNS) for the Advanced Firefinder System which describes an urgent need for a more survivable, longer range and less manpower intensive radar. An Operational Requirements Document (ORD) for Firefinder AN/TPQ-37 (Block II) Pre-Planned Product Improvement (P3I) was approved 25 Sep 96. This upgrade will double the current range performance and improve the target throughput to 50 targets per minute in a highly mobile, transportable and survivable system. The Firefinder P3I will also be capable of missile detection at maximum ranges of 150-300 km and will be capable of interfacing with Theater Missile Defense Systems. The system will be capable of C-130 roll-on/roll-off transportability for rapid deployment. Crew size will be reduced. This program will also leverage off the AN/TPQ-36(V)8 Electronics Upgrade program by using the same modern shelter and radar signal processor. The Firefinder P3I will be integrated into the targeting structure by interfacing with the Advanced Field Artillery Tactical Data System (AFATDS). A new PE/Project beginning in FY 97 was established for this Materiel Change (MC). This MC will be in the Engineering and Manufacturing Development phase of the acquisition cycle and is therefore correctly placed in Budget Activity 5.</p> <p><u>Acquisition Strategy:</u> A replacement for the Antenna Transceiver Group will be developed as an upgrade to the AN/TPQ-37 on a competitive basis.</p> <p>FY 1996 Accomplishments: Project not funded in FY96.</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 700 Award multiple study contracts for evaluation of program risks and cost/performance trade-offs • 378 Prepare program and cost documentation to support a Milestone II decision • 476 Prepare and release draft solicitation for industry comment • 159 Finalize and issue solicitation to award an EMD contract in FY 98 • 285 Conduct Integrated Process Team (IPT) with industry to finalize system specification • 437 Prepare Analysis of Alternatives (AOA) and Threat Analysis • 61 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 2496</p>										
Project DL85			Page 1 of 5 Pages				Exhibit R-2 (PE 0604823A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604823A Firefinder					PROJECT DL85	
FY 1998 Planned Program:												
•	384	Conduct Source Selection Evaluation Board (SSEB)										
•	1956	Award EMD contract and initiate hardware/software design of new ATG										
•	224	Conduct hardware Preliminary Design Review (PDR)										
Total	2564											
FY 1999 Planned Program:												
•	1790	Complete hardware design										
•	287	Conduct Critical Design Review (CDR)										
•	8922	Begin prototype fabrication										
•	1023	Integrate the AN/TPQ-36(V)8 Electronics Shelter with new ATG										
Total	12022											
B. <u>Project Change Summary</u>												
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>							
FY 1997 President's Budget		0	551	2839	13234							
Appropriated Value		0	2496									
Adjustments to Appropriated Value		0										
FY 1998/Pres Bud Request		0	2496	2564	12022							
C. <u>Other Program Funding Summary</u>												
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To	Total		
Other Procurement, Army 2									<u>Compl</u>	<u>Cost</u>		
SSN: BA5100 Firefinder P3I						67455	97084	129312	458000	751851		
D. <u>Schedule Profile</u>												
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>	
	1	2	3	4	1	2	3	4	1	2	3	4
Conduct IPTs					X							
Award BAA contracts					X							
Prepare Analysis of Alternatives (AOA)					X							
Prepare and release draft solicitation						X						
Finalize and issue solicitation for EMD							X					
FY98 award								X				
Complete documentation for Milestone II									X			
Obtain Milestone II Approval									X			
Project DL85												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development							PE NUMBER AND TITLE 0604823A Firefinder							PROJECT DL85			
D. Schedule Profile	FY 1996				FY 1997				FY 1998				FY 1999				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Conduct SSEB									X								
Award EMD Contract										X							
Begin prototype fabrication														X			
Integrate AN/TPQ-36(V)8 Shelter															X		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1997	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604823A Firefinder					PROJECT DL85	
A. Project Cost Breakdown					<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>			
Specification/Technical Parameters Development						1422					
Primary Hardware Development							1796	11057			
System Engineering											
Government						663	168	369			
Contractor						150	80	156			
Source Selection Evaluation Board							384				
Program Management Personnel						200	136	440			
SBIR/STTR						61					
Total						2496	2564	12022			
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or	Contract										
Government	Method/Type	Award or	Performing	Project	Total					Budget to	Total
Performing	or Funding	Obligation	Activity	Office	Prior to					Complete	Program
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1996</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>		
Product Development Organizations											
TBD	C/CPIF	Mar 98		57080				1796	11057	44227	57080
Misc.	BAA/FFP	Jan 97		700			700				700
CECOM	MIPR						722				722
SSEB	MIPR			384				384	0		384
Support and Management Organizations											
Misc.	MIPR						150	216	596	2643	3605
CECOM	MIPR						863	168	369	1620	3020
SBIR/STTR							61				61
Test and Evaluation Organizations											
White Sands	MIPR									2113	2113
Yuma	MIPR									1410	1410
Misc.	MIPR									1273	1273
Government Furnished Property: Not Applicable											
Project DL85					Page 4 of 5 Pages			Exhibit R-3 (PE 0604823A)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1997
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604823A Firefinder	PROJECT DL85
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	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Subtotal Product Development			1422	2180	11057	44227	58886
Subtotal Support and Management			1074	384	965	4263	6686
Subtotal Test and Evaluation						4796	4796
Total Project			2496	2564	12022	53286	70368

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	2937	0	897	313993	437444	434029	206133	Continuing	Continuing
D503 Crusader - ED	0	0	0	0	311211	434690	433920	202648	Continuing	Continuing
D509 ATCAS	0	2937	0	398	1626	2647	0	0	0	7608
D2KT Crusader Operational Test	0	0	0	499	1156	107	109	3485	Continuing	Continuing
<p><u>Mission Description and Budget Item Justification:</u> This new program element supports the engineering and manufacturing development efforts for the Crusader-ED program and Advanced Field Artillery System Operational Test. This element also supports the Advanced Towed Cannon Artillery System (ATCAS). The projects in this program support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.</p>										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development				PROJECT D509		
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
D509 ATCAS	0	2937	0	398	1626	2647	0	0	0	7608
<p>A. <u>Mission Description and Justification:</u> Advanced Towed Cannon Artillery System (ATCAS) will provide the replacement for the M198 155mm Howitzer and achieve significant strategic and tactical mobility improvements. This is a joint program with the Marine Corps as the lead service funding the development of the basic howitzer. The Army will fund the research and development of the product improvements to include: Inertial Navigation System, Electric Drives for Automated Elevation and Deflection Control, a Semi-Automated Loader, Laser Ignition System and Digital Direct Fire Sight.</p> <p><u>Acquisition Strategy:</u> To develop and integrate the product improvements on the USMC-developed howitzer. Development will be primarily by subcontract, while integration is expected to be done by the howitzer prime contractor. The development of the digital fire control will leverage the demonstration hardware developed as part of the Rapid Force Projection Initiative (RFPI) program and software developed by PM Paladin.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1000 Perform P3I integration efforts on to the LW155 EMD Howitzer • 400 Continue engineering efforts to incorporate the laser ignition system in the towed platform • 915 Create LW towed howitzer and P3I component simulations to reduce technical risk and evaluate engineering change proposals • 550 Conduct a 52Caliber trade-off study to determine cost, weight, reliability tradeoffs if a 52cal cannon assembly were applied to the LW155 Howitzer • 72 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 2937</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 398 Initiate integrated Early User Test /Engineering Development <p>Total 398</p>										
Project D509			<i>Page 2 of 7 Pages</i>				Exhibit R-2 (PE 0604854A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE February 1997										
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development					PROJECT D509										
B. Project Change Summary																				
	<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>										
FY 1997 President's Budget	0			0			0			412										
Appropriated Value				2937																
Adjustments to Appropriated Value																				
FY 1998 President's Budget Request	0			2937			0			398										
Change Summary Explanation: Funding: FY 1997(+2937) Congressional increase to support the joint of LW155 Howitzer Program.																				
C. Other Program Funding Summary																				
	<u>FY 1996</u>		<u>FY 1997</u>		<u>FY 1998</u>		<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>FY 2003</u>		<u>To</u>		<u>Total</u>	
																	<u>Compl</u>		<u>Cost</u>	
RDTE, Marine Corps, PE 060635, C2112	14,392		13,269		35,303		33,915		8,624										71,558	
Procurement Marine Corps, BLIN 218500							7,590		106,359		148,435		142,081		142,034		198,578		745,077	
Procurement, Army WTCV, SSN G01700													4631				Cont		Cont	
D. Schedule Profile																				
	<u>FY 1996</u>				<u>FY 1997</u>				<u>FY 1998</u>				<u>FY 1999</u>							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
P3I Integration Efforts on the LW155							X													
Perform Laser Ignition Integration						X														
Initiate/Develop Component Simulations						X														
Conduct Trade off Study							X													
Initiate Evaluation of Automated FC													X							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development			PROJECT D509				
A. Project Cost Breakdown				<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>				
Government Engineering Support					1,365		298				
Contractor Engineering Support					1,400						
Program Management Support					100		100				
SBIR/STTR					72						
Total					2937		398				
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	FY 1996	FY 1997	FY 1998	FY 1999	Budget to Complete	Total Program
Product Development Organizations											
ARDEC-Picatunny	1095	Feb 97	TBD		0		885		298	773	1956
Benet Labs	1095	Feb 97	TBD		0		550				550
Contractor -TBD	SS/CPIF	Mar 97	TBD		0		1330			3,400	4730
SBIR/STTR							72				72
Support and Management Organizations											
PM-JLW		Feb 97	TBD		0		100		100	100	300
Test and Evaluation Organizations: None											
Government Furnished Property: None											
Subtotal Product Development							2837		298	4173	7308
Subtotal Support and Management							100		100	100	300
Subtotal Test and Evaluation											
Total Project							2937		398	4273	7608
Project D509				Page 4 of 7 Pages				Exhibit R-3 (PE 0604854A)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1997																						
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development					PROJECT D2KT																					
<i>COST (In Thousands)</i>	FY 1996 Actual	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost																				
D2KT Crusader Operational Test	0	0	0	499	1156	107	109	3485	Continuing	Continuing																				
<p>A. <u>Mission Description and Justification:</u> Project D2KT Crusader Operational Test: Crusader operational testing will be conducted to answer issues relating to system effectiveness and suitability. Testing will be accomplished initially at section level (howitzer crew) and progress to battery and battalion levels to determine overall mission effectiveness and force structure suitability.</p> <p><u>Acquisition Strategy:</u> Not applicable</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 499 Initiate integrated Early User Test/Engineering Development Tests. <p>Total 499</p>																														
<p>B. <u>Project Change Summary</u></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td align="center"><u>FY 1996</u></td> <td align="center"><u>FY 1997</u></td> <td align="center"><u>FY 1998</u></td> <td align="center"><u>FY 1999</u></td> </tr> <tr> <td>FY 1997 President's Budget Appropriated Value</td> <td align="center">0</td> <td align="center">0</td> <td align="center">0</td> <td align="center">499</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 President's Budget Request</td> <td align="center">0</td> <td align="center">0</td> <td align="center">0</td> <td align="center">499</td> </tr> </table>												<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	FY 1997 President's Budget Appropriated Value	0	0	0	499	Adjustments to Appropriated Value					FY 1998 President's Budget Request	0	0	0	499
	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>																										
FY 1997 President's Budget Appropriated Value	0	0	0	499																										
Adjustments to Appropriated Value																														
FY 1998 President's Budget Request	0	0	0	499																										
Project D2KT			Page 5 of 7 Pages				Exhibit R-2 (PE 0604854A)																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)													DATE February 1997			
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development						PROJECT D2KT				
C. <u>Other Program Funding Summary</u>																
		<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	To Compl	Total Cost					
RDTE A, Budget Activity 4,																
PE 0603645, Project D409 AFAS		135724												546347		
PE 0603645, Project DB88 FARV		45923												127370		
PE 0603854, Project D505 Crusader - AD			235795	322291	293920	47102								899108		
RDTE A, Budget Activity 5,																
PE 0604854, Project D503 Crusader - EMD						311211	434690	433920	202648	Cont			Cont			
D. <u>Schedule Profile</u>																
		<u>FY 1996</u>			<u>FY 1997</u>			<u>FY 1998</u>			<u>FY 1999</u>					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initiate combined Early Developmental Testing/Early User Testing													X			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1997				
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT				
5 - Engineering and Manufacturing Development			0604854A Artillery Systems - Engineering Development				D2KT				
A. Project Cost Breakdown			<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>					
Product Development											
Support and Management											
Test and Evaluation						499					
Total						499					
B. Budget Acquisition History and Planning Information:											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1996	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	Budget to Complete	Total Program
Product Development Organizations: None											
Support and Management Organizations: None											
Test and Evaluation Organizations											
TECOM, YPG, AZ, CSTA, APG, MD, Ft. Sill, OK, OPTEC, VA									499	Cont	Cont
Government Furnished Property: None											
Subtotal Product Development											
Subtotal Support and Management											
Subtotal Test and Evaluation									499	Cont	Cont
Total Project									499	Cont	Cont