ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - ENG MANUFACTURING DEV	**0604201A - Aircraft Avionics**	**C97**

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
C97 ACFT AVIONICS	10053	41893	57474	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

PLEASE NOTE: This administration has not addressed FY2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

This Program Element (PE) funds the development of avionics systems required to horizontally and vertically integrate the battlefield. Tasks in this PE support research efforts in the engineering and manufacturing development phases of these systems. All of these systems support the Legacy-to-Objective transition path of the Transformation Campaign Plan.

The Army Airborne Command and Control System (A2C2S) is the Army's only airborne C2 system supporting corps, division and brigade commanders. This system is critical to enhance the Battle Command Group's ability to effectively perform combat unit operations and serve as a force multiplier in Army XXI. It provides the capability to access the tactical internet to manipulate, store, manage, and analyze situational awareness information, intelligence data, mission plans, and mission progress data to support the command and control decision making process. The A2C2S will provide situational awareness and command & control hosting Army Battle Command System (ABCS) such as Maneuver Control Systems (MCS), All Source Analysis System (ASAS), Advanced Field Artillery Tactical Data System (AFATDS), and Force XXI Battle Command Brigade and Below (FBCB2). The A2C2S provides communication capability that supports deep operations with non-line-of-sight communications such as High Frequency (HF) and Demand Assigned Multiple Access (DAMA), and Satellite Communications System Satellite Command (SATCOM). In addition, the system has the potential to improve the ability of state, local, and federal agencies to communicate and coordinate in a crisis environment such as hurricanes, forest fires, or terrorist incidents using weapons of mass destruction.

The Improved Data Modem (IDM) is the key link to joining Army Aviation with the digital battlefield and provides digital communication interoperability and flexibility on a fluid battlefield. Developed as an open system architecture, the IDM takes advantage of commercially available software and hardware solutions to enforce common communications protocols and the Joint Variable Message Format (JVMF). IDM improves Army Aviation's lethality and operational tempo through the exchange of fast and accurate data-burst communications through the Army's Fire Support and Tactical Internet (TI), providing seamless communications across the digital battlefield. These RDT&E funds are required to develop and integrate IDM hardware and software interfaces for the CH-47F, UH-60M, and S/W Development for RAH-66 embodying the Embedded Battlefield Command (EBC) software. The IDM provides a flexible, software-driven digital messaging system interoperable with existing Battlefield Operating Systems and the Joint Forces.

The Joint Tactical Radio System (JTRS) aircraft installation lays the foundation for achieving network connectivity across the radio frequency (RF) spectrum and provides the means for digital information exchanges, both vertically and horizontally, between joint warfighting elements, while enabling connectivity to civil and national authorities. The JTRS will provide affordable, high-capacity, tactical radios to meet the interoperability requirements with all DOD services. The JTRS will provide an internal capability through an open systems architecture approach in compliance with

the joint technical architecture which improves system performance at minimal cost and effort. These RDT&E funds are required to design, develop, integrate, and qualify the aircraft installation kits (A Kits) to accommodate the JTRS in Army rotary wing aircraft. Installed A Kits and JTRS will provide the AH-64D, CH-47F, UH-60M/Q, and Special Operations Aircraft the capability to transmit receive, bridge and gateway between similar and diverse waveforms over multiple communications media & networks.

FY 2000 Accomplishments

- 2985 Continued Limited System Development and Evaluation BLK I (A2C2S)
- 3762 Continued Limited A2C2S Prototype Fabrication and Platform Integration
- 1440 Continued Limited Systems Engineering and Logistics (A2C2S)
- 644 Integrated Development of IDM into CH-47F Systems Integration Lab in Support of IDM Integration
- 1126 Initiated Development of CH-47F Detail Design Data for Wiring in Support of IDM Integration
- 96 Initiated Program Management Support for the IDM-CH-47F Integration Effort

Total 10053

FY 2001 Planned Program

- 3740 Continue System Development and Evaluation BLK I (A2C2S)
- 6250 Develop, Fabricate, & Deploy Prototype Systems 1&2, Initiate System 3 (A2C2S)
- 3805 Continue Systems Engineering, Logistics, and Software Integration (A2C2S)
- 212 ABCS System Engineering and Integration Efforts (A2C2S)
- 1245 Initiate Test Planning, Developmental Testing, and Prepare for DCX II (A2C2S)
- 477 Deploy System 1 to 4ID (A2C2S)
- 4600 Initiate effort to integrate IDM/EBC software into the UH-60M
- 10615 Complete CH-47F Test Plans, Software Development, and B-Kit Integration in Support (IDM)
- 835 Initiate Information Assurance Efforts (IDM)
- 1000 Initiate software development for the RAH-66 (IDM)

FY 2001 Planned Program (Continued)

- 897 Continue Program Management Support (IDM)
- 1500 Initiate development of JTRS A-Kit for AH-64D, CH-47F, and UH-60M/Q
- 2372 Initiate Systems Engineering and Logistics efforts (JTRS)
- 349 Initiate Program Management support (JTRS)
- 1000 Initiate ICNIA compliance for JTRS requirements/architecture
- 175 Initiate IDE Development (JTRS)
- 1576 Initiate contractual effort to support AH-64D, CH-47F, and UH-60M/Q (JTRS)
- 1245 Small Business Innovative Research (SBIR)/ Small Business Technology Transfer Program (STTR)

Total 41893

FY 2002 Planned Program

- 5820 Continue System Development and Evaluation BLK I and Initiate BLK II (A2C2S)
- 3151 Award Demonstration Contract (Leader Follower Concept) (A2C2S)
- 11132 Complete and Deploy System 3, Develop, Fabricate, and Deploy Systems 4 & 5, Initiate Systems 6 & 7 (A2C2S)
- 3124 Retrofit Systems 1 & 2 (A2C2S)
- 1228 Initiate Development and Fabrication on UH-60M (A2C2S)
- 5646 Continue Systems Engineering, Logistics, and Software Integration (A2C2S)
- 280 ABCS System Engineering and Integration (A2C2S)
- 4196 Continue Developmental Testing, Participate in DCX II, and Prepare for LUT (A2C2S)
- 775 Support System 3 Deployment to SFOR with 101st (A2C2S)
- 4347 Continue effort to integrate IDM/EBC software into the CH-47F.
- 229 Continue Program Management Support (IDM)
- 8663 Continue development of JTRS A-Kit, CH-47F,and UH60-M/Q and procure prototypes for AH-64D
- 3452 Continue Systems Engineering and Logistics efforts (JTRS)
- 877 Continue program management support for the A-Kit development

FY 2002 Planned Program (Continued)

- 2061 Initiate development of JTRS A-Kit for SOA
- 2308 Continue ICNIA compliance to JTRS requirements/architecture
- 185 Continue IDE development

Total 57474

B. Program Change Summary	FY 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	6324	42280	33411	0
Appropriated Value	6372	42280	0	0
Adjustments to Appropriated Value	0	0	0	0
a. Congressional General Reductions	0	0	0	0
b. SBIR / STTR	-171	0	0	0
c. Omnibus or Other Above Threshold Reductions	-26	0	0	0
d. Below Threshold Reprogramming	3900	0	0	0
e. Rescissions	-22	-387	0	0
Adjustments to Budget Years Since FY2001 PB	0	0	24063	0
Current Budget Submit (FY 2002/2003 PB)	10053	41893	57474	0

Adjustments to FY 2002 and FY 2003 are for development, demonstration and integration of A2C2S on the UH-60M, and integration and other efforts related to the JTRS program.

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C. Other Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
Airborne Command and Control SSN AA0710 (A2C2S)	0	0	0	0	0	0	0	0	0	0
Aircraft Avionics SSN AA0700 (IDM)	14733	32194	42900	0	0	0	0	0	0	0
Joint Tactical Radio System SSN AA0702 (JTRS)	0	0	0	0	0	0	0	0	0	0

D. Acquisition Strategy: This project is comprised of multiple systems:
1)The A2C2S is being developed by the Government with the Aircraft OEM as a consultant. A competitive contract will be awarded in FY02 with options.
2)The IDM/EBC nonrecurring engineering and software development will be performed by Rockwell/Boeing for CH-47F, by Sikorsky for UH-60M, and by TRW/ICI for RAH-66. The B-kits will be procured and installed during CH-47F and UH-60M production.
3)Initial JTRS A-Kit hardware development, installation and integration will be procured via host platform vendor. Full production contract will be competitively awarded.

E. Schedule Profile	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Continue System Development and Evaluation BLK I and BLK II (Initiate BLK II in FY02) (A2C2S)	1-4Q	1-4Q	1-4Q	0	0	0	0	0
Continue/Complete A2C2S Prototype Fabrication and Platform Integration (Systems 1 to 7) (A2C2S)	1-4Q	1-4Q	1-4Q	0	0	0	0	0
Continue Software Engineering, Software Integration, and Logistics Planning for A2C2S	1-4Q	1-4Q	1-4Q	0	0	0	0	0
Initiate/Complete Demonstration Contract (Leader Follower Concept) (A2C2S)			3-4Q	0	0	0	0	0
Deploy System 1 to 4ID (A2C2S)		3Q		0	0	0	0	0
Support System 3 Deployment to SFOR with 101st AASLT DIV (A2C2S)			2-4Q	0	0	0	0	0

E. Schedule Profile (continued)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Continue Developmental Testing (A2C2S)		2-4Q	1-4Q	0	0	0	0	0
DCX II (A2C2S)			1Q	0	0	0	0	0
LUT (A2C2S)				0	0	0	0	0
Integrated development of IDM into CH-47F Systems Integration Lab in support of IDM integration	2Q			0	0	0	0	0
Initiated development of CH-47F detail design data for wiring in support of IDM integration	2Q			0	0	0	0	0
Initiated/Continue effort to Integrate IDM/EBC software into the UH-60M and CH-47F		2Q	2Q	0	0	0	0	0
Complete CH-47F test plans, software development, and B-Kits in support of IDM		1-2Q		0	0	0	0	0
Initiate RAH-66 Software Development(IDM)		2Q		0	0	0	0	0
Initiate/Continue Program Management support for IDM		1-4Q	1-4Q	0	0	0	0	0
Conduct Information Assurance Certification effort for IDM		3Q		0	0	0	0	0
Receive JTRS MDAP decision		1Q		0	0	0	0	0
Initiate development of JTRS A-Kit for AH-64D, CH-47F, and UH-60M/Q		3Q		0	0	0	0	0
Initiate development of JTRS A-Kit for SOA			1Q	0	0	0	0	0
Initiate/Continue Systems Eng/Log Efforts for JTRS		1-4Q	1-4Q	0	0	0	0	0
Initiate/Continue Prog Mgmt Support for JTRS A-Kit		1-4Q	1-4Q	0	0	0	0	0
Initiate system level testing for AH-64D, CH-47F, UH-60M/Q, and SOA for JTRS				0	0	0	0	0
ICNIA Efforts for JTRS		2Q	1-4Q	0	0	0	0	0
Integrated Digital Environment (IDE) for JTRS		2Q	1-4Q	0	0	0	0	0

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Dev and Eval (BLK I and BLK II) (A2C2S)	Various	Various	43133	3740	1Q	5821	1Q	0	0	0	0	Continue
b . Prototype Integration (Sys 1-7 & UH-60M)(A2C2S)	MIPR/CPAF	Army Aviation TD Ft. Eustis, VA/TBD	7732	6250	1Q	12361	1Q	0	0	0	0	Continue
c . Demonstration Contract (Leader Follower Concept) (A2C2S)	CPAF/C	TBD	0	0		6275	2Q	0	0	0	0	Continue
d . Systems Engineering (A2C2S)	Various	Various	20387	943	1Q	1946	1Q	0	0	0	0	Continue
e . GFE (A2C2S)	MIPR	Naval Research Lab, Wash, D.C.	578	0		0		0	0	0	0	0
f . Integrated Development of IDM into CH47-F SIL (IDM)	MIPR	AMCOM, AL	644	0		0		0	0	0	0	0
g . Initiated development of CH-47F wiring design (IDM)	MIPR	AMCOM, AL	1126	0		0		0	0	0	0	0
h . UH-60M and CH-47F Integration of B-Kit (IDM)	MIPR	AMCOM,AL	0	4600	2-3Q	4346	2Q	0	0	0	0	Continue

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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
i . CH-47F Test Plans, software development and B-Kit Integration in support of the IDM	MIPR	Various	0	10615	1-2Q	0		0	0	0	0	0
j . RAH-66 Software Development(IDM)	MIPR	Naval Research Lab, Wash, D.C.	0	1000	2Q	0		0	0	0	0	0
k . A-Kit AH-64D , CH-47F, and UH-60M/Q R&D Contract (JTRS)	CPFF	Boeing, Mesa, AZ, Boeing, Philadelphia, PA and Sikorsky, Stratford, CT	0	1500	3Q	8663	2Q	0	0	0	0	Continue
l . Systems Engineering, Logistics Efforts (JTRS)	MIPR	Various	0	2372	1-4Q	3452	1-4Q	0	0	0	0	Continue
m . A-Kit SOA R&D Contract (JTRS)	CPFF	TBD	0	0		2061	1Q	0	0	0	0	Continue
n . Contractual efforts to support platforms (JTRS)	MIPR	Various	0	1575	2-3Q	0		0	0	0	0	0
Subtotal:			73600	32595		44925		0		0	0	Continue

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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Software Integration(A2C2S)	CPFF	TBD	0	250	1Q	980	1Q	0	0	0	0	Continue
b . Systems Logistics Support (ILS,NET,Tech)(A2C2S)	Various	Various	1219	1455	1Q	1474	1Q	0	0	0	0	Continue
c . System 1 Deployment to 4ID (A2C2S)	Various	Various	0	477	3Q	0		0	0	0	0	0
d . System 3 Deployment to SFOR with 101st (A2C2S)	Various	Various	0	0		775	1Q	0	0	0	0	0
e . ABCS System Engineering and Integration Efforts	MIPR	Various	0	212	1Q	280	1Q	0	0	0	0	Continue
f . Software Development (A2C2S)	MIPR	Naval Research Labs, Wash, D.C.	18209	0		0		0	0	0	0	0
g . Training Development (A2C2S)	CPFF	CAS, AL	90	0		0		0	0	0	0	0
h . Configuration Management/Technical Data (A2C2S)	MIPR	Naval Research Lab Wash, D.C.	1449	0		0		0	0	0	0	0
i . Technical Data (A2C2S)	CPFF/SS	Dynamics Research Corp, Andover, MA NRL, Wash D.C.	772	0		0		0	0	0	0	0

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II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
j . ICNIA compliance to JTRS requirements (JTRS)	MIPR	TRW, CA	0	1000	2Q	2308	1-4Q	0	0	0	0	0
k . Integrated Digital Environment for JTRS	CPFF	ARINC, NJ	0	175	2Q	185	2Q	0	0	0	0	0
Subtotal:			21739	3569		6002		0		0	0	Continue

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Developmental Test & Evaluation (A2C2S)	MIPR	ATEC/RTTC/AATD/ AED	0	1245	1Q	2516	1Q	0	0	0	0	Continue
b . DCX II (FY02) and LUT (FY03) (A2C2S)	Various	Various	351	0		1680	1Q	0	0	0	0	Continue
c . Operational Test & Evaluation (A2C2S)	MIPR	TEXCOM FT. Hood, TX	250	0		0		0	0	0	0	0
d . IA Certification (IDM)	MIPR	AMCOM, AL	0	835	3Q	0		0	0	0	0	0

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III. Test and Evaluation (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			601	2080		4196		0		0	0	Continue

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management Operations (A2C2S)	Various	Various	5503	1157	1Q	1245	1Q	0	0	0	0	Continue
b . Government Engineering Support (A2C2S)	MIPR	AMCOM, AL	742	0		0		0	0	0	0	0
c . PM Spt (Digitization)	CPFF/C MIPR	AMCOM PATS, AL	215	0		0		0	0	0	0	0
d . PM Spt (IDM)	MIPR	AMCOM, AL	96	897	1-4Q	229	1-4Q	0	0	0	0	Continue
e . PM Spt (JTRS)	MIPR	AMCOM, AL	0	350	1-4Q	877	1-4Q	0	0	0	0	Continue
f . SBIR/STTR			0	1245		0		0	0	0	0	0
Subtotal:			6556	3649		2351		0		0	0	Continue

Project Total Cost:			102496	41893		57474		0		0	0	Continue