

**UNCLASSIFIED**

**EXHIBIT R-2, FY 2001 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET**

**DATE: February 2000**

**BUDGET ACTIVITY: 5**

**PROGRAM ELEMENT: 0604264N**

**PROGRAM ELEMENT TITLE: Aircrew Systems Development**

**(U) COST: (Dollars in Thousands)**

<u>Project Number &amp; Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
W0606 Aircrew Systems Development	15,212	14,222	8,881	9,061	9,193	9,442	CONT.	CONT.	
W2736 K-36 Ejection Seat Integration and Qualification			6,439	9,398	2,968	2,472	2,964	CONT.	CONT.
<b>TOTAL</b>	<b>15,212*</b>	<b>14,222**</b>	<b>17,466</b>	<b>18,279</b>	<b>12,029</b>	<b>11,665</b>	<b>12,406</b>	<b>CONT.</b>	<b>CONT.</b>

\*FY99 Budget reflects a \$2,500K Congressional add to address stability deficiencies executed under Project Unit W2421, which has been revised by \$79K for Congressional undistributed adjustments.

\*\*FY00 Budget reflects a \$7,500K Congressional add for Ejection Seat Testing and stability Development effort executed under Project Unit W2779, which has been revised by \$42K for Across-the-Board Congressional rescission.

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Aircrew Systems Development program provides engineering and manufacturing development (EMD) of Aviation Life Support Systems to protect aircrews from current and future threats including: directed energy weapons, chemical/biological/radiological agents/fallout, ballistic projectiles, temperature extremes, heat/fire, low concentration oxygen environments, high dynamic forces during emergency egress, and high "G" forces. The program also provides development for the following capabilities: head protection, in flight restraint, emergency egress and descent, escape and evasion, survival and rescue, crash protection, and anthropometric sizing for small aircrew. Acquisition initiatives include: competition, the application of streamlining initiatives, use of non-developmental items (NDI), joint and tri-service developments, and the pursuit of NATO/allied cooperative ventures, which expedite introduction of new products into Navy and Marine Corps fixed and rotary wing aircraft, reduce costs, and promote commonality.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

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**EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET**

**DATE: February 2000**

**BUDGET ACTIVITY: 5**

**PROGRAM ELEMENT: 0604264N**

**PROJECT NUMBER: W0606**

**PROGRAM ELEMENT TITLE: Aircrew Systems Development**

**PROJECT TITLE: Aircrew Systems Development**

**(U) COST: (Dollars in Thousands)**

<u>Project Number &amp; Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
W0606 Aircrew Systems Development	15,212	14,222	8,881	9,061	9,193	9,442	CONT.	CONT.	
W2736 K-36 Ejection Seat Integration and Qualification			6,439	9,398	2,968	2,472	2,964	CONT.	CONT.
<b>TOTAL</b>	<b>15,212*</b>	<b>14,222**</b>	<b>17,466</b>	<b>18,279</b>	<b>12,029</b>	<b>11,665</b>	<b>12,406</b>	<b>CONT.</b>	<b>CONT.</b>

\*FY99 Budget reflects a \$2,500K Congressional add to address stability deficiencies executed under Project Unit W2421, which has been revised by \$79K for Congressional undistributed adjustments.

\*\*FY00 Budget reflect a \$7,500K Congressional add for Ejection Seat Testing and stability Development effort executed under Project Unit W2779, which has been revised by \$42K for Congressional undistributed adjustments.

**(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

**(U) SUBPROJECTS:**

- **(U) ESCAPE AND CRASH SAFETY:** Naval Aircrew Common Ejection Seat Pre-Planned Product Improvement (NACES P3I), K-36/3.5 Ejection Seat Integration and Qualification, Advanced Crashworthy Aircrew Survival Systems (ACASS), Joint Cockpit Air Bag System (JCABS), Crashworthy Troop Seats (CWTS), and Non-NACES and Small Occupant Escape System Improvements.
- **(U) LIFE SUPPORT/THREAT PROTECTION:** Extreme Cold Weather Improvement Program (ECWIP), Personal Protective Apparel (PPA) formally AMELIA, PRC-112P3I, Aircrew Accommodation Expansion Program (AAEP), Advanced Oxygen Delivery System (AODS), Advanced Oxygen Mask (AOM), Aircrew Cooling, and Advanced Integrated Life Support Systems (AILSS).
- **(U) HELMET, VISION AND DISPLAYS:** Joint Night Vision Systems (JNVS), Net Centric Military Operations in Urban Terrain (MOUT) Night Vision Devices (NVD), Joint Helmet Mounted Cueing System (JHMCS), Integrated Day/Night All Weather Helmet (IDNAWH), Joint Service Advanced Laser Eye Protection Visor (JALEPV) Program, and Agile Frequency Laser Eye Protection, Laser Eye Protection Improvement Program (LEPIP) EDU-5 (Spectacles).

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**PROGRAM ELEMENT TITLE: Aircrew Systems Development**

**PROJECT TITLE: Aircrew Systems Development**

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1999 ACCOMPLISHMENTS:

- (U) (9,140) NACESP3I: Conducted system qualification testing and aircraft integration efforts, and approved Engineering Change Proposal (ECP). Completed Phase II technology trade-off and integration studies and conducting subsystem demonstration testing (DT) on selected candidate technologies. AV8B Seat; initiated system redesign efforts. CWTS: Conducting H-1 DT. Continued preliminary design on H-3 & H-46.
- (U) (881) ECWIP: Continued DT (Operational Testing (OT) is not required for abbreviated acquisition program (AAP)) for cold weather clothing and survival items. AMELIA: Conducted DT of modified equipment and submitted ECPs for approval. OT not required for AAP. AAEP: Submitted cockpit mappings with recommendations to some of the required platforms inventory. AILSS: Commenced demonstration and validation of technology options.
- (U) (5,191) NVS: Continued to monitor and participate in JNVS testing Product Improvements. JHMCS: Completed platform integration and software development. Commenced DT/OT. JALEPV: Delivered pre-production visors, MSII completed, started production. LEPIP EDU-5/P Spectacles: Completed OT. Completed MSIII. Commenced development of Net-Centric MOUT I squared charge coupled device (CCD's).

2. FY 2000 PLAN:

- (U) (9,183) NACESP3I: Finalize NACES I Physical Configuration Audit and approve audit for a/c platform installation. Conduct system DT testing on selected candidate technologies. CWTS: Complete H-1 (4BN) Full Scale Development (FSD) aircraft installation and aircraft OT. Commence preparation of H-3/H-46 platform ECP's. Non-NACES and Small Occupant Escape System improvements: Conduct DT/OT on selected subsystems.
- (U) (1,847) ECWIP: Commence Pre-Planned Product Improvement (P3I) DT for cold weather clothing and survival items and prepare improvement ECP's. AMELIA: Commence P3I DT of modified equipment and process P3I ECP's. AAEP: Continue cockpit mappings and make recommendations to uncompleted platforms. AILSS: Continue demonstration and validation of technology options (integrating with Aircrew Cooling and other systems). Initiate DT studies.
- (U) (3,192) NVS: Continue monitoring and participating in JNVS testing, product improvements. JHMCS: F/A-18 E/F OT. Integrated All Weather Day/Night Helmet System (IDNAWH) MS II. Demonstrate digital Net-Centric MOUT NVD.

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**PROGRAM ELEMENT TITLE: Aircrew Systems Development**

**PROJECT TITLE: Aircrew Systems Development**

**3. FY 2001 PLAN:**

- (U) (11,751) NACES P3I: Conduct NACES II DT on selected candidate technologies. K-36 /3.5 Ejection Seat Integration and Qualification: Develop systems requirements document, risk reduction for energetic and electronic conversion to U.S. standard. CWTS: Complete H-3, H-46 a/c installation. Non-NACES and Small Occupant Escape System improvements: Conduct DT/OT on selected subsystems.
- (U) (3,964) ECWIP: Complete DT/OT for cold weather clothing and survival items and continue ECP's. AMELIA: Continue DT and OT of modified equipment and ECP's. Aircrew Cooling: Commence DT/OT studies. AAEP: Complete cockpit mapping and make recommendations to platforms. AILSS: Select validated technology option and commence full scale DT of selection.
- (U) (1,751) NVS: Monitor and participate in JNVS testing and product improvements. Continue JHMCS OT. Transition digital Net-Centric MOUT NVDs MSII. IDNAWH MSII, Preliminary Design Review (PDR)/Critical Design Review (CDR).

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DATE: February 2000

<b>BUDGET ACTIVITY: 5</b>	<b>PROGRAM ELEMENT: 0604264N</b>	<b>PROJECT NUMBER: W0606</b>
	<b>PROGRAM ELEMENT TITLE: Aircrew Systems Development</b>	<b>PROJECT TITLE: Aircrew Systems Development</b>

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget:	11,322	6,801	11,198
(U) Appropriated Value:	11,954	*14,301	
(U) Adjustments from President's Budget:	+3,890	+7,421	+6,268
(U) FY 2001 President's Budget Submit:	15,212	14,222	17,466

CHANGE SUMMARY EXPLANATION:

(U) Funding: FY99 reflects a \$3,999 thousand increase for a the AV-8B seat redesign system and a \$130 thousand increase for Contract and Advisory Assistance services; offset by a \$171 thousand decrease for Small Business Innovation Research (SBIR) assessment, a \$14 thousand decrease for a minor program adjustment and a \$54 thousand decrease for revised economic assumptions. FY 2000 reflects a \$7,500 thousand increase for the K 36 Ejection Seat Testing and Development; offset by a \$79 thousand decrease for an Across-the-Board Congressional rescission. FY 2001 reflects a \$6,500 increase for the K36/3.5 Ejection Seat Integration, a \$71 thousand increase for Naval Working Capital Fund (NWCF) adjustment and a \$40 thousand increase for Military and Civilian Pay; offset by a \$137 thousand decrease for Strategic Sourcing Plan Savings (SSP) and NWCF adjustment, a \$119 thousand for revised economic assumptions, and a \$87 thousand decrease for reprioritization of requirements within the Navy.

\* FY2000 Appropriated Value reflects \$6,801 for W0606 and \$7,500 for W2779

(U) Schedule: FY 99 - CWTS H-1 T&E Milestone slipped from 4Q FY 99 to 3Q FY 00 due to contract award protest, and engineering design and testing delays. 2Q PNR EMD Contract Award has been removed due to funding being shifted to higher priority efforts, JHMCS and NVS. FY 99 - 3Q JHMCS OT T&E Milestone changed from 4Q due to program acceleration. 4Q AODS DT T&E Milestone has been removed due to funding being shifted to higher priority efforts, JALEPV, JHMCS. FY 00 – Panoramic NVG MSI has been removed because this effort will be encompassed within the IAWDNH. FY 00 - NACES I P3I schedule accelerated to include PCA in 2Q. JHMCS schedule slip has moved MS III into FY02. JALEPV MS III slip has moved into FY01. Program start of Joint Navy/Air Force program to develop K-36/3.5 Ejection Seat.

(U) Technical: N/A

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PROGRAM ELEMENT TITLE: Aircrew Systems Development

PROJECT TITLE: Aircrew Systems Development

(U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	FY 1999 <u>Actual</u>	FY 2000 <u>Estimate</u>	FY 2001 <u>Estimate</u>	FY 2002 <u>Estimate</u>	FY 2003 <u>Estimate</u>	FY 2004 <u>Estimate</u>	FY 2005 <u>Estimate</u>	To <u>Complete</u>
AVIATION LIFE SUPPORT-OPN	22,706	36,847	20,374	21,055	23,014	26,278	26,797	CONT

Related RDT&E

(U) P.E. 0603216N (Aviation Survivability), P.E. 0604706F (Life Support Equipment, related Air Force efforts), P.E. 0604713A (Combat Feeding, Clothing and Equipment, related Army efforts. Coordinated through the OSD sponsored Tri-Service Life Support RDT&E Steering Committee), P.E. 0604384BP (Chemical Biological (CB) program), P.E. 06084201F (Common Avionics related Air Force efforts).

(U) D. ACQUISITION STRATEGY: Commercial Off-The-Shelf (COTS)/NDI where possible, cost plus award fee contracts, Cost as an Independent Variable. Majority of programs non-ACAT programs with no specific acquisition strategies.

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**PROGRAM ELEMENT TITLE: Aircrew Systems Development**

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**(U) E. SCHEDULE PROFILE**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>TO COMPLETE</u>
(U) Program Milestones	2Q/99 AOM MSII 3Q/99 AODS MSII 4Q/99 LEPIP MSIII 4Q/99 NACES I P3I ECP	2Q/00 AAEP* 3Q/00 IAWDNH MSII	1Q/01 CWTS H-3, & H-46 ECP 4Q/01 NACES II P3I CDR 2Q/01 ECWIP ECP'S 2Q/01 AAEP* 4Q/01 NON-NACES ECP 2Q/01 AMELIA ECP'S 1Q/01 JALEPV MS III 2Q/01 K-36/3.5 SRR	NACES II P3I - TBD 3Q/02 CWTS H-3 & H-46 4Q/03 NON-NACES P3I 4Q/02 AMELIA 4Q/02 ECWIP 4Q/01 AAEP 4Q/03 AILSS 1Q/02 JHMCS MS III K-36/3.5 - TBD
(U) Engineering Milestones	4Q/99 JALEPV ECP			
(U) T&E Milestones	1Q/99 JALEPV OA 3Q/99 CWTS H-1, H-3, & H-46 DT 4Q/99 NACES I P3I DT 3Q/99 AAEP* 4Q/99 ECWIP DT/OT 3Q/99 AOM DT 4Q/99 AMELIA DT 3Q/99 JHMCS OT	1Q/00 NACES I P3I (PCA) 3Q/00 CWTS H-1 DT/OT 3Q/00 CWTS H3/46 DT 3Q/00 JHMCS F/A-18 E/F OT 3Q/00 AMELIA P3I DT 2Q/00 NACES II P3I DEMO 3Q/00 ECWIP P3I DT 3Q/00 NON-NACES DT	2Q/01 NACES II P3I DT 2Q/01 NON-NACES DT 4Q/01 IAWDNH PDR/ CDR 4Q/01 CWTS H-1, DT 2Q/01 AILSS DT H-46 ECP 1Q/01 JHMCS OT 3Q/01 K-36/3.5 DT	NACES II P3I - TBD 4Q/03 NON-NACES 3Q/02 CWTS H-1 3Q/02 CWTS H-3 & H-46 4Q/03 IAWDNH K-36/3.5 - TBD
(U) Contract Milestones				

\* - AAEP covers numerous platforms. This denotes milestone reached for various platform(s) during Fiscal Year.

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**EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS**

**DATE: February 2000**

**Budget Activity: 5**

**PROGRAM ELEMENT: 0604264**

**PROJECT NUMBER: W0606**

**PROJECT TITLE: Aircrew Systems Development**

<u>Cost Categories:</u>	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Systems Engineering (Misc. less \$1M)	WX/RX	NAWCAD Patuxent River, MD	21669	3430	Various	2632	Various	4589	Various	CONT.	CONT.	
Systems Engineering	WX/RX	NAWCAD Patuxent River, MD		3216	Various	1305	Various	1127	Various	CONT	CONT	
Systems Engineering	WX/RX	NAWCWD China Lake, CA				1305	Various	1127	Various	CONT	CONT	
JHMCS Hardware Development	MIPR	WPAFB WPAFB, Ohio	3500	2350	Jan 99	429	Jan 00				6350	6350
<b>Subtotal Product Development</b>			<b>25169</b>	<b>8996</b>		<b>5671</b>		<b>6843</b>		<b>CONT.</b>	<b>CONT.</b>	
ILS (Misc. less \$1M)	WX/RX	NAWCAD Patuxent River, MD	13583	858	Various	615	Various	631	Various	CONT.	CONT.	
<b>Subtotal Support</b>			<b>13583</b>	<b>858</b>		<b>615</b>		<b>631</b>		<b>CONT.</b>	<b>CONT.</b>	

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**EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS**

**DATE: February 2000**

<b>Cost Categories:</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Yrs Cost</b>	<b>FY 1999 Cost</b>	<b>FY 1999 Award Date</b>	<b>FY 2000 Cost</b>	<b>FY 2000 Award Date</b>	<b>FY 2001 Cost</b>	<b>FY 2001 Award Date</b>	<b>Cost to Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental T&E (Misc. less \$1M)	WX/RX	NAWCAD Patuxent River, MD	23739	340	Various	778	Various	245	Various	CONT.	CONT.	
	WX/RX	NAWCWD China Lake, CA	3566	620	Various	344	Various	1283	Various	CONT	CONT	
	WX/RX	NADEP Cherry Point, NC	37	150	Various	34	Various	300	Various	CONT	CONT	
Developmental T&E	WX/RX	NAWCAD Patuxent River, MD		3215	Various	2424	Various	2093	Various	CONT	CONT	
Developmental T&E	WX/RX	NAWCWD China Lake, CA				2424	Various	2092	Various	CONT	CONT	
Operational T&E (Misc. less \$1M)	WX/RX	NAWCAD Patuxent River, MD	3037	419	Various	1277	Various	3307	Various	CONT.	CONT.	
<b>Subtotal Test &amp; Evaluation</b>			<b>30379</b>	<b>4744</b>		<b>7281</b>		<b>9320</b>		<b>CONT.</b>	<b>CONT.</b>	
MISC (LESS THAN \$1M)	WX/RX	NAWCAD Patuxent River, MD	4550	614	Various	655	Various	672	Various	CONT.	CONT.	
<b>Subtotal Management</b>			<b>4550</b>	<b>614</b>		<b>655</b>		<b>672</b>		<b>CONT.</b>	<b>CONT.</b>	
<b>Total Cost</b>			<b>73681</b>	<b>15212</b>		<b>14222</b>		<b>17466</b>		<b>CONT.</b>	<b>CONT.</b>	

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