

UNCLASSIFIED

PE NUMBER: 0604400F

PE TITLE: Joint Unmanned Combat Air System (J-UCAS)

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604400F Joint Unmanned Combat Air System (J-UCAS)

| Cost (\$ in Millions) | FY 2004 Actual | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | Cost to Complete | Total |
|---|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------|
| Total Program Element (PE) Cost | 0.000 | 0.000 | 272.300 | 400.100 | 554.100 | 780.500 | 955.200 | 1,064.100 | 0.000 | 0.000 |
| 5058 Unmanned Combat Air Vehicle (UCAV) | 0.000 | 0.000 | 272.300 | 400.100 | 554.100 | 780.500 | 955.200 | 1,064.100 | 0.000 | 0.000 |

Note: In FY06 the Joint Unmanned Combat Air Systems (J-UCAS) program was transferred from the Defense Advanced Research Projects Agency (DARPA) to be a joint program led by the Air Force with Navy representation. The program is undergoing a restructure and will realign the adjusted resources in the next budget cycle to advance the J-UCAS program. Funding is being realigned from PE 0604400D8Z to PE 0604400F.

(U) A. Mission Description and Budget Item Justification

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD), Information Operations/ Electronic Attack, Persistent Intelligence, Surveillance, Reconnaissance (ISR), and persistent ground attack missions within the emerging global command and control architecture for the warfighting community. The program is focused on demonstrating capabilities that support both Services and enable an operational system development decision by the end of the decade.

FY04 program guidance established the J-UCAS Program Office and funding for both Air Force (PEs 0207256F and 0604731F) and Navy (PE 0603114N) programs. Efforts previously conducted under the DARPA/Air Force and DARPA/Navy programs were combined into the J-UCAS program. FY05 program guidance directed FY05 and outyear funding for DARPA and both Services moved into Defense-wide Program Elements (0603400D8Z and 0604400D8Z). FY06 program guidance directed a reduction of funds in FY06-FY09, an increase in FY10/11, and realignment of funds from OSD to Air Force (PEs 0603400F and 0604400F).

The J-UCAS program combines and expands the efforts that were previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program. Although these efforts were targeted towards service-specific needs, the Department recognized the potential for significant synergy by combining the programs. The accomplishments and ongoing efforts of the X-45A technology demonstrator, as well as the development of the X-47A demonstrator, are reducing the risk of the "operationalized" demonstration system being developed for a joint early operational assessment (OA) planned for the FY07-10 timeframe. The J-UCAS concept incorporates the next generation family of demonstrator air vehicles, together with common subsystems (e.g. sensors, payloads, communications) and a Common Operating System to achieve the system's diverse mission functionality. These common system elements will maximize mission flexibility and operational versatility while reducing overall costs and maintaining schedule toward a joint early OA.

This is a BA 04 program, Advanced Component Development and Prototypes, for development of the common systems and technologies as well as the Boeing and Northrop Grumman demonstrator programs. These funds will also cover the cost of conducting the joint operational assessment, including modeling, simulation, and flight testing.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604400F Joint Unmanned Combat Air System (J-UCAS)

(U) **B. Program Change Summary (\$ in Millions)**

| | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--------------------------------------|----------------|----------------|----------------|----------------|
| (U) Previous President's Budget | | | 0.000 | 0.000 |
| (U) Current PBR/President's Budget | 0.000 | 0.000 | 272.300 | 400.100 |
| (U) Total Adjustments | 0.000 | 0.000 | | |
| (U) Congressional Program Reductions | | | | |
| Congressional Rescissions | | | | |
| Congressional Increases | | | | |
| Reprogrammings | | | | |
| SBIR/STTR Transfer | | | | |

(U) **Significant Program Changes:**

FY06: The program is undergoing a restructure and will realign the adjusted resources in the next budget cycle to advance the J-UCAS program. Funding is being realigned from PE 0604400D8Z to PE 0604400F.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

| BUDGET ACTIVITY | | | | PE NUMBER AND TITLE | | | | PROJECT NUMBER AND TITLE | | |
|---|-------------------|---------------------|---------------------|---|---------------------|---------------------|---------------------|--|---------------------|-------|
| 04 Advanced Component Development and Prototypes (ACD&P) | | | | 0604400F Joint Unmanned Combat Air System (J-UCAS) | | | | 5058 Unmanned Combat Air Vehicle (UCAV) | | |
| Cost (\$ in Millions) | FY 2004 Actual | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | Cost to Complete | Total |
| 5058 Unmanned Combat Air Vehicle (UCAV) | 0.000 | 0.000 | 272.300 | 400.100 | 554.100 | 780.500 | 955.200 | 1,064.100 | 0.000 | 0.000 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

Note: In FY06 the Joint Unmanned Combat Air Systems (J-UCAS) program was transferred from the Defense Advanced Research Projects Agency (DARPA) to be a joint program led by the Air Force with Navy representation. The program is undergoing a restructure and will realign the adjusted resources in the next budget cycle to advance the J-UCAS program. Funding is being realigned from PE 0604400D8Z to PE 0604400F.

(U) **A. Mission Description and Budget Item Justification**

The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint effort to develop and demonstrate unmanned combat capabilities for high-threat Suppression of Enemy of Air Defense (SEAD), Information Operations/ Electronic Attack, Persistent Intelligence, Surveillance, Reconnaissance (ISR), and persistent ground attack missions within the emerging global command and control architecture for the warfighting community. The program is focused on demonstrating capabilities that support both Services and enable an operational system development decision by the end of the decade.

FY04 program guidance established the J-UCAS Program Office and funding for both Air Force (PEs 0207256F and 0604731F) and Navy (PE 0603114N) programs. Efforts previously conducted under the DARPA/Air Force and DARPA/Navy programs were combined into the J-UCAS program. FY05 program guidance directed FY05 and outyear funding for DARPA and both Services moved into Defense-wide Program Elements (0603400D8Z and 0604400D8Z). FY06 program guidance directed a reduction of funds in FY06-FY09, an increase in FY10/11, and realignment of funds from OSD to Air Force (PEs 0603400F and 0604400F).

The J-UCAS program combines and expands the efforts that were previously conducted under the DARPA/Air Force Unmanned Combat Air Vehicle (UCAV) program and the DARPA/Navy Naval UCAV (UCAV-N) program. Although these efforts were targeted towards service-specific needs, the Department recognized the potential for significant synergy by combining the programs. The accomplishments and ongoing efforts of the X-45A technology demonstrator, as well as the development of the X-47A demonstrator, are reducing the risk of the "operationalized" demonstration system being developed for a joint early operational assessment (OA) planned for the FY07-10 timeframe. The J-UCAS concept incorporates the next generation family of demonstrator air vehicles, together with common subsystems (e.g. sensors, payloads, communications) and a Common Operating System to achieve the system's diverse mission functionality. These common system elements will maximize mission flexibility and operational versatility while reducing overall costs and maintaining schedule toward a joint early OA.

This is a BA 04 program, Advanced Component Development and Prototypes, for development of the common systems and technologies as well as the Boeing and Northrop Grumman demonstrator programs. These funds will also cover the cost of conducting the joint operational assessment, including modeling, simulation, and flight testing.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

| | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|--|----------------|----------------|----------------|----------------|
| (U) Continue development of J-UCAS systems, specifically the Boeing and Northrop Grumman demonstrator programs, as well as the common operating system and sensors | | | 272.300 | 400.100 |
| (U) Prepare for joint Operational Assessment (OA) | | | | |

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

0604400F Joint Unmanned Combat
Air System (J-UCAS)

PROJECT NUMBER AND TITLE

5058 Unmanned Combat Air Vehicle
(UCAV)

(U)

(U) Total Cost

0.000

0.000

272.300

400.100

(U) **C. Other Program Funding Summary (\$ in Millions)**

| | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> | <u>FY 2011</u> | <u>Cost to</u> | <u>Total Cost</u> |
|--|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|
| | <u>Actual</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Complete</u> | |
| (U) DARPA (PE0603285E) | 41.385 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | |
| (U) NAVY RDT&E (PE0603114N) | 117.865 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | |
| (U) AF RDT&E (PE0604731F) | 160.551 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | |
| (U) AF RDT&E (PE0207256F) | 2.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | |
| (U) Defense-Wide RDT&E (PE0603400D8Z) | 0.000 | 354.794 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | |
| (U) Defense-Wide RDT&E (PE0604400D8Z) | 0.000 | 217.401 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | |
| (U) AF RDT&E (PE0603400F) | 0.000 | 0.000 | 77.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | |

(U) **D. Acquisition Strategy**

The J-UCAS Advanced Component and Prototype Development acquisition strategy is to build on the work being conducted under PE 0603400D8Z (J-UCAS Advanced Technology Development and Risk Reduction) and prove the operational value of the J-UCAS concept in the joint operational assessment. The J-UCAS program blends the advantages of both the Advanced Technology Demonstration (ATD) and the Advanced Concept Technology Demonstration (ACTD) concepts to facilitate rapid development and integration of advanced technologies in an experimental system that addresses operational needs. Using the next generation of demonstrator air vehicle families, together with common subsystems and a Common Operating System, this nontraditional approach also incorporates key acquisition considerations (i.e., user requirements, comprehensive system lifecycle perspective, and rigorous risk mitigation processes) to provide the necessary insights, operational data and identified options for the services to make an informed decision for accelerated acquisition near the end of the decade.

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| Exhibit R-3, RDT&E Project Cost Analysis | | | | | | | | | | | | DATE February 2005 | | |
|---|---|--|--|-------------------------------|---|---|---|-------------------------------|---|-------------------------------|---|---|-------------------|---|
| BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P) | | | | | | PE NUMBER AND TITLE 0604400F Joint Unmanned Combat Air System (J-UCAS) | | | | | | PROJECT NUMBER AND TITLE 5058 Unmanned Combat Air Vehicle (UCAV) | | |
| (U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions) | <u>Contract</u> <u>Method &</u> <u>Type</u> | <u>Performing</u> <u>Activity &</u> <u>Location</u> | <u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u> | <u>FY 2004</u> <u>Cost</u> | <u>FY 2004</u> <u>Award</u> <u>Date</u> | <u>FY 2005</u> <u>Cost</u> | <u>FY 2005</u> <u>Award</u> <u>Date</u> | <u>FY 2006</u> <u>Cost</u> | <u>FY 2006</u> <u>Award</u> <u>Date</u> | <u>FY 2007</u> <u>Cost</u> | <u>FY 2007</u> <u>Award</u> <u>Date</u> | <u>Cost to</u> <u>Complete</u> | <u>Total Cost</u> | <u>Target</u> <u>Value of</u> <u>Contract</u> |
| (U) <u>Product Development</u> X-45; X-47; Common Operating System Integrator/Broker | Section 845, OTA Agreement | Boeing Phantom Works, St. Louis, MO; Northrop Grumman, El Segundo, CA; Johns Hopkins Applied Physics Lab, Balt. MD. | | | | | | 272.300 | | 400.100 | | | 672.400 | |
| Subtotal Product Development Remarks: | | | 0.000 | 0.000 | | 0.000 | | 272.300 | | 400.100 | | 0.000 | 672.400 | 0.000 |
| (U) <u>Support</u> Subtotal Support Remarks: | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.000 |
| (U) <u>Test & Evaluation</u> Subtotal Test & Evaluation Remarks: | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.000 |
| (U) <u>Management</u> Subtotal Management Remarks: | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.000 |
| (U) Total Cost | | | 0.000 | 0.000 | | 0.000 | | 272.300 | | 400.100 | | 0.000 | 672.400 | 0.000 |

| Exhibit R-4, RDT&E Schedule Profile | | DATE February 2005 |
|--|--|--|
| BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P) | PE NUMBER AND TITLE 0604400F Joint Unmanned Combat Air System (J-UCAS) | PROJECT NUMBER AND TITLE 5058 Unmanned Combat Air Vehicle (UCAV) |
| <p>N/A -- These funds cover the development of the common systems and technologies as well as the Boeing and Northrop Grumman demonstrator programs. In addition, these funds cover the cost of conducting the joint operational assessment, including modeling, simulation, and flight testing.</p> | | |

Project 5058

R-1 Shopping List - Item No. 58-7 of 58-8

Exhibit R-4 (PE 0604400F)

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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE

**0604400F Joint Unmanned Combat
Air System (J-UCAS)**

PROJECT NUMBER AND TITLE

**5058 Unmanned Combat Air Vehicle
(UCAV)****(U) Schedule Profile**FY 2004FY 2005FY 2006FY 2007

(U) J-UCAS Demonstrator Development Begins

1Q

(U) Common System Development Begins

3Q

(U) X-45A Flight Demonstrations Conclude

2Q

(U) Common Operating System Build 0

1Q

(U) Joint Operational Assessment Begins

4Q