

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | | | DATE February 2003 | |
|--|-------------------|---------------------|---------------------|---------------------|--|---------------------|---------------------|---------------------|------------------------------|------------|
| BUDGET ACTIVITY 07 - Operational System Development | | | | | PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons | | | | | |
| COST (\$ in Thousands) | FY 2002 Actual | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | Cost to Complete | Total Cost |
| Total Program Element (PE) Cost | 157,542 | 284,730 | 356,570 | 455,232 | 312,151 | 63,937 | 97 | 0 | 0 | 1,820,171 |
| 4495 Avionics Modernization Program | 72,052 | 54,414 | 66,063 | 985 | 0 | 0 | 0 | 0 | 0 | 325,096 |
| 4835 Reliability Enhancement & Reengining Program | 85,490 | 230,316 | 290,507 | 454,247 | 312,151 | 63,937 | 97 | 0 | 0 | 1,495,075 |
| Quantity of RDT&E Articles | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) **A. Mission Description**

674495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort for the C-5. It implements Global Air Traffic Management (GATM) and navigation/safety capability and the All Weather Flight Control System (AWFCS). It installs Deputy Secretary of Defense (DepSecDef) directed navigation/safety equipment: Terrain Awareness and Warning System (TAWS) and Traffic Alert and Collision Avoidance System (TCAS), reducing the threat of controlled flight into terrain and mid-air collisions. GATM capability, which encompasses communications, navigation, and surveillance requirements will be incorporated into the aircraft to meet current and future International Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress towards free flight capability. The AWFCS portion of AMP replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system and replaces aging, non-supportable mechanical instruments in the engine and flight systems. Connectivity to mobility command and control capabilities will also be incorporated in the AMP design. The TCAS portion was accelerated ahead of the rest of the AMP mod and was completed 31 Oct 02. Two AMP RDT&E test articles are funded for installation and flight test in FY02/03/04.

674835: Reliability Enhancement and Re-engining Program (RERP): Phase II of an Air Force planned two-phase modernization effort for the C-5. It improves aircraft reliability, maintainability and availability. RERP will enable the C-5 to achieve wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while reducing total ownership costs (TOC). This effort centers around replacing TF-39 engines with a more reliable, commercially Off-the-Shelf (COTS) turbofan engine with increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase payload capability and access to Global Air Traffic Management (GATM) airspace. It also decreases aircraft time to climb, increases engine-out climb gradient for takeoff, improves transportation system throughput, and decreases engine removals. Additionally, numerous other system modifications will be performed (e.g., auxiliary power units, electrics, hydraulics, fuel system, fire suppression system, pressurization/air conditioning system, landing gear, and airframe) to increase fleet availability and reduce total ownership costs. Three RDT&E test articles are funded for installation and flight test in FY05/06/07.

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

DATE

February 2003

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

(U) **B. Budget Activity Justification**

674495: Avionics Modernization Program (AMP): This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

674835: Reliability Enhancement and Re-engining Program (RERP): This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

(U) **C. Program Change Summary (\$ in Thousands)**

| | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>Total Cost</u> |
|---|----------------|----------------|----------------|-------------------|
| (U) Previous President's Budget | 166,508 | 277,795 | 293,138 | 1,787,492 |
| (U) Appropriated Value | 156,508 | 291,095 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -1,564 | -3,078 | | |
| b. Small Business Innovative Research | -4,233 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | -3,287 | | |
| d. Below Threshold Reprogram | 7,600 | | | |
| e. Rescissions | -769 | | | |
| (U) Adjustments to Budget Years Since FY 2003 PBR | | | 63,432 | 32,679 |
| (U) Current Budget Submit/FY 2004 PBR | 157,542 | 284,730 | 356,570 | 1,820,171 |

(U) **Significant Program Changes:**

Since FY03PB:

C-5 AMP

-After the FY02 Appropriation, BTR funding for engineering changes was made to the program (+\$8.0M) and a rescission (-\$0.2M) was made in support of Congressional action.

-After the FY03 Appropriation, Congress made a General Reduction to RDT&E funds (-\$0.6M).

-Adjustments (+\$47M) were made to the FY04 program as a result of program restructure to reduce risk. Additionally, an adjustment for nonpay purchase inflation and budget issues (-\$1.2M) was made in FY04.

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

DATE

February 2003

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons(U) **C. Program Change Summary (\$ in Thousands) Continued**(U) **Significant Program Changes Continued:**

C-5 RERP

-After the FY02 Appropriation, Congress made a General Reduction to RDT&E funds (-\$1.6M), an additional reduction (-\$4.2M) was taken in support of Small Business Innovative Research, a BTR of funds (-\$0.4M) was made, and a rescission (-\$0.6M) was made in support of Congressional action.

-After the FY03 Appropriation, Congress made a General Reduction to RDT&E funds (-\$2.5M) and another adjustment (-\$3.3M) was taken for Inflation Savings.

-Adjustments (+\$23.0M) were made to the FY04 program to match the OSD Cost Analysis Improvement Group (CAIG) estimate. Additionally, an adjustment for nonpay purchase inflation and budget issues (-\$5.4M) was made in FY04.

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

DATE

February 2003

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

PROJECT

4495

| COST (\$ in Thousands) | FY 2002 Actual | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | Cost to Complete | Total Cost |
|-------------------------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------|
| 4495 Avionics Modernization Program | 72,052 | 54,414 | 66,063 | 985 | 0 | 0 | 0 | 0 | 0 | 325,096 |

(U) **A. Mission Description**

674495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort for the C-5. It implements Global Air Traffic Management (GATM) and navigation/safety capability and the All Weather Flight Control System (AWFCS). It installs Deputy Secretary of Defense (DepSecDef) directed navigation/safety equipment: Terrain Awareness and Warning System (TAWS) and Traffic Alert and Collision Avoidance System (TCAS), reducing the threat of controlled flight into terrain and mid-air collisions. GATM capability, which encompasses communications, navigation, and surveillance requirements will be incorporated into the aircraft to meet current and future International Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress toward free flight capability. The AWFCS portion of AMP replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system and replaces aging, non-supportable mechanical instruments in the engine and flight systems. Connectivity to mobility command and control capabilities will also be incorporated in the AMP design. The TCAS portion was accelerated ahead of the rest of the AMP mod and was completed 31 Oct 02. Two AMP RDT&E test articles are funded for installation and flight test FY02/03/04. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

(U) **FY 2002 (\$ in Thousands)**

| | |
|--------------|--|
| (U) \$0 | Accomplishment/Planned Program |
| (U) \$12,421 | System Engineering/Program Management |
| (U) \$32,191 | AMP Kit Design/Development/Contractor Test |
| (U) \$18,950 | Prototype Fabrication/Install |
| (U) \$5,976 | Mission Support |
| (U) \$2,514 | Government Flight Test Cost |
| (U) \$72,052 | Total |

(U) **FY 2003 (\$ in Thousands)**

| | |
|--------------|--|
| (U) \$0 | Accomplishment/Planned Program |
| (U) \$8,116 | System Engineering/Program Management |
| (U) \$34,658 | AMP Kit Design/Development/Contractor Test |
| (U) \$2,852 | Prototype Fabrication/Install |
| (U) \$5,248 | Mission Support |

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Exhibit R-2A (PE 0401119F)

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

DATE

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development**0401119F C-5 Airlift Squadrons****4495**(U) **A. Mission Description Continued**(U) FY 2003 (\$ in Thousands) Continued

(U) \$3,540 Government Flight Test Cost

(U) \$54,414 Total

(U) FY 2004 (\$ in Thousands)

(U) \$0 Accomplishment/Planned Program

(U) \$13,760 System Engineering/Program Management

(U) \$42,087 AMP Kit Design/Development/Contractor Test

(U) \$2,950 Prototype Fabrication/Install

(U) \$4,150 Mission Support

(U) \$3,116 Government Flight Test Cost

(U) \$66,063 Total

(U) **B. Project Change Summary**

Since FY03 PB:

C-5 AMP

-After the FY02 Appropriation, BTR funding for engineering changes was made to the program (+\$8.0M) and a rescission (-\$0.2M) was made in support of Congressional action.

-After the FY03 Appropriation, Congress made a General Reduction to RDT&E funds (-\$0.6M).

-Adjustments (+\$47M) were made to the FY04 program as a result of program restructure to reduce risk. Additionally, an adjustment for nonpay purchase inflation and budget issues (-\$1.2M) was made in FY04.

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

| | <u>FY 2002</u> | <u>FY 2003</u> | <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>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) AF RDT&E | | | | | | | | | | |
| (U) Other APPN | | | | | | | | | | |
| (U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, | 4,035 | 52,492 | 79,887 | 81,267 | 34,705 | | | | 239,500 | 554,627 |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit) | | | | | | | | DATE February 2003 | | |
|--|----------------|-----------------|-----------------|--|-----------------|-----------------|-----------------|------------------------------|-----------------|-------------------|
| BUDGET ACTIVITY 07 - Operational System Development | | | | PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons | | | | PROJECT 4495 | | |
| (U) C. Other Program Funding Summary (\$ in Thousands) | | | | | | | | | | |
| | <u>FY 2002</u> | <u>FY 2003</u> | <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>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> | |
| BP-11 | | | | | | | | | | |
| (U) Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability Enhancement and Re-engining Program, BP-11 | 0 | 0 | 0 | 0 | 149,331 | 443,994 | 711,577 | 891,641 | 6,561,488 | 8,758,031 |
| (U) D. Acquisition Strategy Avionics Modernization Program: Program acquisition strategy establishes a single integrating contractor (Lockheed Martin Aero) to modify and qualify integrated Commercial Off-the-Shelf (COTS) line replaceable units (LRUs) and software to meet C-5 performance and Global Air Traffic Management (GATM) requirements, update existing C-5 engineering and technical data, develop interface control specifications based on performance requirements, prototype the new system, and support ground and flight testing. AMP contract awarded to the Lockheed Martin Aero/Honeywell team on 22 January 1999. \$9.7M in FY99 procurement was added in the FY00 PB to accelerate Traffic Alert and Collision Avoidance System (TCAS) installations ahead of the rest of AMP. TCAS installs completed 31 Oct 02. The AMP modification is planned for the entire C-5 fleet. | | | | | | | | | | |
| (U) E. Schedule Profile | | | | | | | | | | |
| | | <u>FY 2002</u> | | | | <u>FY 2003</u> | | | <u>FY 2004</u> | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 |
| (U) Acquisition Strategy Panel (FY97/4) | | | | | | | | | | |
| (U) Contract Award (FY99/1) | | | | | | | | | | |
| (U) Preliminary Design Review (PDR) (FY00/3) | | | | | | | | | | |
| (U) Critical Design Review (CDR) (FY01/3) | | | | | | | | | | |
| (U) TCAS Kit Installations Start (FY00/2) | | | | | | | | | | |
| (U) TCAS Kit Installations End (FY03/1) | | | | | | * | | | | |
| (U) AMP Prototype Installation Start (FY02/3) | | | | | * | | | | | |
| (U) First Flight/Developmental Test Start (FY03/1) | | | | | | * | | | | |
| (U) Production Installation Start (FY04/3) | | | | | | | | | | X |
| (U) Prod Installation Complete (FY07/2) | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> Project 4495 Page 6 of 15 Pages Exhibit R-2A (PE 0401119F) </div> | | | | | | | | | | |

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit) | | | | | | | | | | DATE February 2003 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|----------------|--|---|---|----------------|---|------------------------------|---|----------------|--|--|--|----------------|--|--|--|----------------|--|--|--|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|
| BUDGET ACTIVITY 07 - Operational System Development | | | | | PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons | | | | | PROJECT 4495 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"><div style="width: 35%;"><p>(U) <u>E. Schedule Profile Continued</u></p><p>* = completed event X = planned event</p></div><div style="width: 60%; text-align: center;"><table style="margin: auto;"><thead><tr><th colspan="4"><u>FY 2002</u></th><th colspan="4"><u>FY 2003</u></th><th colspan="4"><u>FY 2004</u></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></tr></thead><tbody><tr><td colspan="12" style="height: 400px;"></td></tr></tbody></table></div></div> | | | | | | | | | | | | <u>FY 2002</u> | | | | <u>FY 2003</u> | | | | <u>FY 2004</u> | | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | | | | | | | | | |
| <u>FY 2002</u> | | | | <u>FY 2003</u> | | | | <u>FY 2004</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development

0401119F C-5 Airlift Squadrons

4495

(U) **A. Project Cost Breakdown (\$ in Thousands)**

| | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> |
|--|----------------|----------------|----------------|
| (U) System Engineering/Program Management | 12,421 | 8,116 | 13,760 |
| (U) AMP Kit Design/Development/Contractor Test | 32,191 | 34,658 | 42,087 |
| (U) Prototype Fabrication/Install | 18,950 | 2,852 | 2,950 |
| (U) Mission Support | 5,976 | 5,248 | 4,150 |
| (U) Government Flight Test Cost | 2,514 | 3,540 | 3,116 |
| (U) Total | 72,052 | 54,414 | 66,063 |

(U) **B. Budget Acquisition History and Planning Information (\$ in Thousands)**(U) **Performing Organizations:**

| <u>Contractor or</u> <u>Government</u> <u>Performing</u> <u>Activity</u> | <u>Contract</u> <u>Method/Type</u> <u>or Funding</u> <u>Vehicle</u> | <u>Award or</u> <u>Obligation</u> <u>Date</u> | <u>Performing</u> <u>Activity</u> <u>EAC</u> | <u>Project</u> <u>Office</u> <u>EAC</u> | <u>Total Prior</u> <u>to FY 2002</u> | <u>Budget</u> <u>FY 2002</u> | <u>Budget</u> <u>FY 2003</u> | <u>Budget</u> <u>FY 2004</u> | <u>Budget to</u> <u>Complete</u> | <u>Total</u> <u>Program</u> |
|---|--|---|--|---|---|---------------------------------|---------------------------------|---------------------------------|-------------------------------------|--------------------------------|
| <u>Product Development Organizations</u> | | | | | | | | | | |
| Lockheed Martin Aero | CPAF | Jan 99 | | 288,118 | 119,313 | 63,562 | 45,626 | 58,797 | 820 | 288,118 |
| <u>Support and Management Organizations</u> | | | | | | | | | | |
| WR-ALC/LA | | | | 9,924 | 4,570 | 1,700 | 1,874 | 1,725 | 55 | 9,924 |
| ASC/GRA | | | | 16,380 | 6,195 | 4,276 | 3,374 | 2,425 | 110 | 16,380 |
| <u>Test and Evaluation Organizations</u> | | | | | | | | | | |
| 418 Test Squadron (Edwards AFB) | | | | 10,674 | 1,504 | 2,514 | 3,540 | 3,116 | | 10,674 |

(U) **Government Furnished Property:**

| <u>Item</u> <u>Description</u> | <u>Contract</u> <u>Method/Type</u> <u>or Funding</u> <u>Vehicle</u> | <u>Award or</u> <u>Obligation</u> <u>Date</u> | <u>Delivery</u> <u>Date</u> | <u>Total Prior</u> <u>to FY 2002</u> | <u>Budget</u> <u>FY 2002</u> | <u>Budget</u> <u>FY 2003</u> | <u>Budget</u> <u>FY 2004</u> | <u>Budget to</u> <u>Complete</u> | <u>Total</u> <u>Program</u> |
|-------------------------------------|--|---|--------------------------------|---|---------------------------------|---------------------------------|---------------------------------|-------------------------------------|--------------------------------|
| <u>Product Development Property</u> | | | | | | | | | |
| N/A | | | | | | | | | |

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development**0401119F C-5 Airlift Squadrons****4495**(U) Government Furnished Property Continued:Support and Management Property

N/A

Test and Evaluation Property

N/A

| | <u>Total Prior</u> <u>to FY 2002</u> | <u>Budget</u> <u>FY 2002</u> | <u>Budget</u> <u>FY 2003</u> | <u>Budget</u> <u>FY 2004</u> | <u>Budget to</u> <u>Complete</u> | <u>Total</u> <u>Program</u> |
|---------------------------------|---|---------------------------------|---------------------------------|---------------------------------|-------------------------------------|--------------------------------|
| <u>Subtotals</u> | | | | | | |
| Subtotal Product Development | 119,313 | 63,562 | 45,626 | 58,797 | 820 | 288,118 |
| Subtotal Support and Management | 10,765 | 5,976 | 5,248 | 4,150 | 165 | 26,304 |
| Subtotal Test and Evaluation | 1,504 | 2,514 | 3,540 | 3,116 | | 10,674 |
| Total Project | 131,582 | 72,052 | 54,414 | 66,063 | 985 | 325,096 |

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

DATE

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BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

PROJECT

4835

| COST (\$ in Thousands) | FY 2002 Actual | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | Cost to Complete | Total Cost |
|---|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------|
| 4835 Reliability Enhancement & Reengining Program | 85,490 | 230,316 | 290,507 | 454,247 | 312,151 | 63,937 | 97 | 0 | 0 | 1,495,075 |

(U) **A. Mission Description**

674835: Reliability Enhancement and Re-engining Program (RERP): Phase II of an Air Force planned two-phase modernization effort for the C-5. It improves aircraft reliability, maintainability and availability. RERP will enable the C-5 to achieve wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while reducing total ownership costs (TOC). This effort centers around replacing TF-39 engines with a more reliable, commercially Off-the-Shelf (COTS) turbofan engines with increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase payload capability and access to Global Air Traffic Management (GATM) airspace. It also decreases aircraft time to climb, increases engine-out climb gradient for takeoff, improves transportation system throughput, and decreases engine removals. Additionally, numerous other system modifications will be performed (e.g., auxiliary power units, electrics, hydraulics, fuel system, fire suppression system, pressurization/air conditioning system, landing gear, and airframe) to increase fleet availability and reduce total ownership costs. Three RDT&E test articles are funded for installation and flight test in FY05/06/07. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

(U) **FY 2002 (\$ in Thousands)**

| | |
|--------------|--|
| (U) \$0 | Accomplishment/Planned Program |
| (U) \$5,136 | Systems Engineering/Program Management |
| (U) \$58,662 | RERP Design/Development |
| (U) \$12,520 | Prototype Fabrication/Install |
| (U) \$6,004 | Mission Support |
| (U) \$3,168 | Government Test Support |
| (U) \$85,490 | Total |

(U) **FY 2003 (\$ in Thousands)**

| | |
|---------------|--|
| (U) \$0 | Accomplishment/Planned Program |
| (U) \$23,800 | Systems Engineering/Program Management |
| (U) \$150,856 | RERP Design/Development |
| (U) \$44,100 | Prototype Fabrication/Install |
| (U) \$4,574 | Mission Support |

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Exhibit R-2A (PE 0401119F)

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

DATE

February 2003

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

PROJECT

4835(U) **A. Mission Description Continued**(U) FY 2003 (\$ in Thousands) Continued

(U) \$6,986 Government Test Support

(U) \$230,316 Total

(U) FY 2004 (\$ in Thousands)

(U) \$0 Accomplishment/Planned Program

(U) \$24,652 Systems Engineering/Program Management

(U) \$197,476 RERP Design/Development

(U) \$55,598 Prototype Fabrication/Install

(U) \$4,731 Mission Support

(U) \$8,050 Government Test Support

(U) \$290,507 Total

(U) **B. Project Change Summary**

Since FY03 PB:

C-5 RERP:

-After the FY02 Appropriation, Congress made a General Reduction to RDT&E funds (-\$1.6M), an additional reduction (-\$4.2M) was taken in support of Small Business Innovative Research, a BTR of funds (-\$0.4M) was made, and a rescission (-\$0.6M) was made in support of Congressional action.

-After the FY03 Appropriation, Congress made a General Reduction to RDT&E funds (-\$2.5M) and another adjustment (-\$3.3M) was taken for Inflation Savings.

-Adjustments (+\$23.0M) were made to the FY04 program to match the OSD Cost Analysis Improvement Group (CAIG) estimate. Additionally, an adjustment for nonpay purchase inflation and budget issues (-\$5.4M) was made in FY04.

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

| | <u>FY 2002</u> | <u>FY 2003</u> | <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>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) AF RDT&E | | | | | | | | | | |
| (U) Other APPN | | | | | | | | | | |
| (U) Aircraft Procurement,AF, BA-5,C-5 Mods, Reliability Enhancement and | 0 | 0 | 0 | 0 | 149,331 | 443,994 | 711,577 | 891,641 | 6,561,488 | 8,758,031 |

Project 4835

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Exhibit R-2A (PE 0401119F)

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| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit) | | | | | | | | DATE February 2003 | | |
|---|----------------|-----------------|-----------------|--|-----------------|-----------------|-----------------|------------------------------|-----------------|-------------------|
| BUDGET ACTIVITY 07 - Operational System Development | | | | PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons | | | | PROJECT 4835 | | |
| (U) C. Other Program Funding Summary (\$ in Thousands) | | | | | | | | | | |
| | <u>FY 2002</u> | <u>FY 2003</u> | <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>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> | |
| Re-engining Program, BP-11 | | | | | | | | | | |
| (U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-11 | 4,035 | 52,492 | 79,887 | 81,267 | 34,705 | | | | 239,500 | 554,627 |
| (U) D. Acquisition Strategy Reliability Enhancement and Re-engining Program (RERP): The approved FY02 acquisition strategy called for the modification of the entire C-5 aircraft fleet starting with the 50 B-models first. System Development & Demonstration (SDD) includes 1 C-5A and 2 C-5Bs. The program acquisition strategy is to consider every opportunity to use commercially available components and processes to modernize C-5 products and processes to meet or exceed required system performance and support, so as to renew the weapon system until 2040. The program acquisition strategy also seeks to construct a government/industry partnership to identify solutions, assign responsibility, and execute to achieve AMC requirements. RERP will use fleet availability, ownership cost, and system performance to balance solutions against program cost. Lockheed Martin Aero has been selected as the prime contractor through a sole source arrangement. Lockheed has selected General Electric (Powerplant) and Goodrich (Pylon) as the major subcontractors. | | | | | | | | | | |
| (U) E. Schedule Profile | | | | | | | | | | |
| | | <u>FY 2002</u> | | | | <u>FY 2003</u> | | | <u>FY 2004</u> | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 |
| (U) Acquisition Strategy Panel (ASP) (FY00/1) | | | | | | | | | | |
| (U) Pre-EMD Contract Award (FY00/2) | | | | | | | | | | |
| (U) Milestone B/DAB (FY02/1) | | | * | | | | | | | |
| (U) SDD Contract Award (FY02/1) | | | * | | | | | | | |
| (U) SDD Start (FY02/1) | | | * | | | | | | | |
| (U) Preliminary Design Review (PDR)(FY03/2) | | | | | | X | | | | |
| (U) Critical Design Review (CDR)(FY04/1) | | | | | | | | | X | |
| (U) First Prototype Flight (FY06/1) | | | | | | | | | | |
| (U) MS C (FY07/2) | | | | | | | | | | |
| (U) LRIP Installations Begin (FY08/1) | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> Project 4835 Page 12 of 15 Pages Exhibit R-2A (PE 0401119F) </div> | | | | | | | | | | |

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

DATE

February 2003

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0401119F C-5 Airlift Squadrons

PROJECT

4835

(U) E. Schedule Profile Continued

| <u>FY 2002</u> | | | | <u>FY 2003</u> | | | | <u>FY 2004</u> | | | |
|----------------|---|---|---|----------------|---|---|---|----------------|---|---|---|
| 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| | | | | | | | | | | | |

(U) SDD Complete (FY08/4)

* = completed event

X = planned event

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| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | | DATE February 2003 | | | |
|---|---------------------------------------|--------------------|-------------------|-------------------|--------------------------------|--------------------|----------------|-----------------------|----------------|------------------|----------------|
| BUDGET ACTIVITY | | | | | PE NUMBER AND TITLE | | | | PROJECT | | |
| 07 - Operational System Development | | | | | 0401119F C-5 Airlift Squadrons | | | | 4835 | | |
| (U) <u>A. Project Cost Breakdown (\$ in Thousands)</u> | | | | | | | | | | | |
| | | | | | | | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | | |
| (U) | System Engineering/Program Management | | | | | | 5,136 | 23,800 | | | 24,652 |
| (U) | RERP Design/Development | | | | | | 58,662 | 150,856 | | | 197,476 |
| (U) | Proof Fabrication/Install | | | | | | 12,520 | 44,100 | | | 55,598 |
| (U) | Mission Support | | | | | | 6,004 | 4,574 | | | 4,731 |
| (U) | Government Test Support | | | | | | 3,168 | 6,986 | | | 8,050 |
| (U) | Total | | | | | | 85,490 | 230,316 | | | 290,507 |
| (U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u> | | | | | | | | | | | |
| (U) <u>Performing Organizations:</u> | | | | | | | | | | | |
| | <u>Contractor or</u> | <u>Contract</u> | | | | | | | | | |
| | <u>Government</u> | <u>Method/Type</u> | <u>Award or</u> | <u>Performing</u> | <u>Project</u> | | | | | | |
| | <u>Performing</u> | <u>or Funding</u> | <u>Obligation</u> | <u>Activity</u> | <u>Office</u> | <u>Total Prior</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget to</u> | <u>Total</u> |
| | <u>Activity</u> | <u>Vehicle</u> | <u>Date</u> | <u>EAC</u> | <u>EAC</u> | <u>to FY 2002</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>Complete</u> | <u>Program</u> |
| <u>Product Development Organizations</u> | | | | | | | | | | | |
| | Lockheed Martin Aero | FFP | Feb 00 | | 47,075 | 47,075 | 0 | 0 | | 0 | 47,075 |
| | (Pre-EMD) | | | | | | | | | | |
| | Lockheed Martin Aero (SDD) CPAF | | Dec 01 | | 1,364,770 | 3,100 | 72,318 | 204,756 | 277,726 | 806,870 | 1,364,770 |
| <u>Support and Management Organizations</u> | | | | | | | | | | | |
| | WR-ALC/LA | | | | 6,792 | 600 | 2,054 | 1,012 | 1,042 | 2,084 | 6,792 |
| | ASC/GRA | | | | 22,589 | 3,910 | 3,950 | 3,562 | 3,689 | 7,478 | 22,589 |
| <u>Test and Evaluation Organizations</u> | | | | | | | | | | | |
| | 418 Test Squadron (Edwards | | | | 35,849 | 3,645 | 3,168 | 6,986 | 8,050 | 14,000 | 35,849 |
| | AFB) | | | | | | | | | | |
| (U) <u>Government Furnished Property:</u> | | | | | | | | | | | |
| | | <u>Contract</u> | | | | | | | | | |
| | | <u>Method/Type</u> | <u>Award or</u> | | | | | | | | |
| | <u>Item</u> | <u>or Funding</u> | <u>Obligation</u> | <u>Delivery</u> | | <u>Total Prior</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget</u> | <u>Budget to</u> | <u>Total</u> |
| | <u>Description</u> | <u>Vehicle</u> | <u>Date</u> | <u>Date</u> | | <u>to FY 2002</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>Complete</u> | <u>Program</u> |
| Project 4835 | | | | | | | | | | | |

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Exhibit R-3 (PE 0401119F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development

0401119F C-5 Airlift Squadrons

4835

(U) Government Furnished Property Continued:

| <u>Item</u> | <u>Contract</u> <u>Method/Type</u> <u>or Funding</u> | <u>Award or</u> <u>Obligation</u> | <u>Delivery</u> <u>Date</u> | <u>Total Prior</u> <u>to FY 2002</u> | <u>Budget</u> <u>FY 2002</u> | <u>Budget</u> <u>FY 2003</u> | <u>Budget</u> <u>FY 2004</u> | <u>Budget to</u> <u>Complete</u> | <u>Total</u> <u>Program</u> |
|---|--|--------------------------------------|--------------------------------|---|---------------------------------|---------------------------------|---------------------------------|-------------------------------------|--------------------------------|
| <u>Product Development Property</u> | | | | | | | | | |
| Misc. Equipment, and Parts | MO/RD *** | 9 Sep 02 | FY03-FY04 | | 4,000 | 14,000 | | | 18,000 |
| *** Miscellaneous Obligation/Reimbursement Document | | | | | | | | | |
| <u>Support and Management Property</u> | | | | | | | | | |
| N/A | | | | | | | | | |
| <u>Test and Evaluation Property</u> | | | | | | | | | |
| N/A | | | | | | | | | |
| | | | | <u>Total Prior</u> <u>to FY 2002</u> | <u>Budget</u> <u>FY 2002</u> | <u>Budget</u> <u>FY 2003</u> | <u>Budget</u> <u>FY 2004</u> | <u>Budget to</u> <u>Complete</u> | <u>Total</u> <u>Program</u> |
| <u>Subtotals</u> | | | | | | | | | |
| Subtotal Product Development | | | | 50,175 | 76,318 | 218,756 | 277,726 | 806,870 | 1,429,845 |
| Subtotal Support and Management | | | | 4,510 | 6,004 | 4,574 | 4,731 | 9,562 | 29,381 |
| Subtotal Test and Evaluation | | | | 3,645 | 3,168 | 6,986 | 8,050 | 14,000 | 35,849 |
| Total Project | | | | 58,330 | 85,490 | 230,316 | 290,507 | 830,432 | 1,495,075 |