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

DATE: February 2002

BUDGET ACTIVITY: 07 - Operational System Development

PE NUMBER AND TITLE: 0207268F Aircraft Engine Component Improvement Program (CIP)

PROJECT: 1012

| COST ($ in Thousands) | | FY 2001 Actual | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 1012 | Aircraft Engine Component Improvement Program | 154,308 | 173,351 | 186,690 | 211,027 | 168,278 | 171,514 | 174,764 | Continuing | TBD |
| | Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**(U) A. Mission Description**

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines throughout their service life. The program's highest priority is to maintain flight safety. Aircraft Engine CIP corrects service revealed deficiencies and reduces total ownership costs (RTOC). Additional goals include improved system Operational Readiness (OR) and Reliability and Maintainability (R&M). Historically, aircraft systems change missions, tactics, and environments to meet changing threats throughout their lives. Numerous new problems can develop in the engines through actual use and Engine CIP provides the only funds to develop fixes for these field problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. Engine CIP starts with delivery of the first production engine purchased with procurement funds, and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older inventory engines operational. Engine CIP addresses out-of-warranty usage and life and enables the Air Force to obtain additional warranties when manufacturers incorporate Engine CIP improvements into production engines. Since operational and safety problems arise throughout a system's service life, Engine CIP must be maintained at a level to provide the engineering support to make the changes essential for continued satisfactory system performance at affordable costs. Engine CIP ensures continued improvements in engine R&M factors, which reduce outyear support costs. Historically, R&M related Engine CIP efforts reduce outyear Operations and Maintenance (O&M) and spares costs by a ratio greater than 21 to 1. MAJCOMs assume a viable Engine CIP effort is in place when submitting their budget requests for O&M and engine spares. Without the outyear cost avoidance provided by Engine CIP, outyear support funding would have to be significantly increased.

(U) FY 2001 ($ in Thousands)

| | | |
|---|---|---|
| (U) | $126,026 | Continuing CIP tasks (such as, but not limited to, improvement, support equipment, and repair tasks) |
| (U) | $21,702 | Continuing engine testing (such as, but not limited to, altitude, sea level, and flight tests) |
| (U) | $3,000 | Continuing petroleum, oil, lubricants (POL), see below note |
| (U) | $3,580 | Continuing mission support |
| (U) | $154,308 | Total |

Note: POL ends after FY01 as per process change directed in July 01 by the AF Petroleum Office after realignment under Defense Energy Support Center. Starting in

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**(U) A. Mission Description Continued**

(U) FY 2001 ($ in Thousands) Continued
FY02, allocation is included in Continuing CIP tasks.

(U) FY 2002 ($ in Thousands)

| | | |
|---|---|---|
| (U) | $139,715 | Continuing CIP tasks (such as, but not limited to, improvement, support equipment, and repair tasks) |
| (U) | $29,436 | Continuing engine testing (such as, but not limited to, altitude, sea level, and flight tests) |
| (U) | $4,200 | Continuing mission support |
| (U) | $173,351 | Total |

(U) FY 2003 ($ in Thousands)

| | | |
|---|---|---|
| (U) | $159,590 | Continuing CIP tasks (such as, but not limited to, improvement, support equipment, and repair tasks) |
| (U) | $21,500 | Continuing engine testing (such as, but not limited to, altitude, sea level, and flight tests) |
| (U) | $5,600 | Continuing mission support |
| (U) | $186,690 | Total |

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

This program is in budget activity 7 - Operational System Development, Research Category 6.6 because all efforts support fielded systems.

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

| | | FY 2001 | FY 2002 | FY 2003 | Total Cost |
|---|---|---|---|---|---|
| (U) | Previous President's Budget | 165,395 | 175,101 | 187,144 | TBD |
| (U) | Appropriated Value | 166,926 | 175,101 | | |
| (U) | Adjustments to Appropriated Value | | | | |
| | a. Congressional/General Reductions | -1,531 | -1,750 | | |
| | b. Small Business Innovative Research | -5,992 | | | |
| | c. Omnibus or Other Above Threshold Reprogram | | | | |
| | d. Below Threshold Reprogram | -3,820 | | | |
| | e. Rescissions | | | | |
| (U) | Adjustments to Budget Years Since FY 2002 PBR | -1,275 | | -454 | |

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|---|---|

| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
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**(U) C. Program Change Summary ($ in Thousands) Continued**

| | FY 2001 | FY 2002 | FY 2003 | Total Cost |
|---|---|---|---|---|
| (U) Current Budget Submit/FY 2003 PBR | 154,308 | 173,351 | 186,690 | TBD |

(U) Significant Program Changes:
Funding increases starting in FY01 were primarily due to F119 Engine (F-22) CIP work which commenced in FY01.
FY 2001 decrease of $1,275K due to payment of F-16 F110-GE-100 engine cancelled year bill.
FY 2002 decrease of $1,750K due to RDT&E General Reduction and Congressional Action Multi-Appropriation.
FY 2003 decrease of $454K due to nonpay purchase inflation adjustment.

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

| | FY 2001 Actual | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) AF RDT&E | | | | | | | | | |
| (U) Other APPN | | | | | | | | | |

RELATED ACTIVITIES:
(U) - PEs # 0604268A and #0604268N, Army/Navy Aircraft Engine CIPs for prior years
(U) - PEs # 0203752A and #0205633N, Army/Navy Aircraft Engine CIPs for FY 1996 and following years

**(U) E. Acquisition Strategy**

Contracts within this Program Element are awarded sole source to engine manufacturers. CIP tasks are generally assigned to original engine manufacturers. Tasks are assigned based on available funding and prioritization of candidate tasks.

**(U) F. Schedule Profile**

| | FY 2001 | | | | FY 2002 | | | | FY 2003 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |

(U)

Not applicable. CIP is a level of effort program that funds 600-700 separate engineering tasks per year.

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

DATE: February 2002

BUDGET ACTIVITY: 07 - Operational System Development

PE NUMBER AND TITLE: 0207268F Aircraft Engine Component Improvement Program (CIP)

PROJECT: 1012

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

| | | FY 2001 | FY 2002 | FY 2003 |
|---|---|---|---|---|
| (U) | Contracted Tasks | 126,026 | 139,715 | 159,590 |
| (U) | AFFTC Flight Tests | 4,637 | 711 | 1,500 |
| (U) | AEDC Altitude Tests | 17,065 | 28,725 | 20,000 |
| (U) | Petroleum/Oil/Lubricants (POL) - see below note | 3,000 | 0 | 0 |
| (U) | Mission Support | 3,580 | 4,200 | 5,600 |
| (U) | Total | 154,308 | 173,351 | 186,690 |

Note: POL ends after FY01 as per process change directed in July 01 by the AF Petroleum Office after realignment under Defense Energy Support Center. Starting in FY02, allocation is included in Contracted Tasks

**(U) B. Budget Acquisition History and Planning Information ($ in Thousands)**

**(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 2001 | Budget FY 2001 | Budget FY 2002 | Budget FY 2003 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| GE-Evandale, OH | CPAF | Dec 99 | N/A | N/A | | 53,578 | 62,555 | 63,090 | Continuing | TBD |
| Pratt & Whitney | CPAF | Dec 99 | N/A | N/A | | 62,380 | 65,588 | 82,419 | Continuing | TBD |
| GE-Lynn, MA | CPFF | Dec 99 | N/A | N/A | | 5,079 | 5,287 | 6,241 | Continuing | TBD |
| Rolls Royce/Allison | CPFF | Jan 98 | N/A | N/A | | 1,190 | 1,372 | 1,846 | Continuing | TBD |
| Teledyne | CPFF | Dec 99 | N/A | N/A | | 2,500 | 3,120 | 3,763 | Continuing | TBD |
| Allied Signal/Honeywell | CPFF | Jan 98 | N/A | N/A | | 677 | 599 | 885 | Continuing | TBD |
| Williams International | CPFF | Jan 98 | N/A | N/A | | 340 | 896 | 905 | Continuing | TBD |
| Sundstrand | CPFF | Jan 98 | N/A | N/A | | 282 | 298 | 441 | Continuing | TBD |

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|---|---|

| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
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**(U) Performing Organizations Continued:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | |
| In House Support/ Misc Studies | | 3,580 | 4,200 | 5,600 | Continuing | TBD |
| Petroleum/Oil/Lubricants (POL) | See below note | 3,000 | 0 | 0 | Continuing | TBD |

Note: POL ends after FY01 as per process change directed in July 01 by the AF Petroleum Office after realignment under Defense Energy Support Center. Starting in FY02, allocation is included in Product Development totals.

| | | | | | | |
|---|---|---|---|---|---|---|
| Test and Evaluation Organizations | | | | | | |
| AFFTC-Edwards AFB, CA | | 4,637 | 711 | 1,500 | Continuing | TBD |
| AEDC-Arnold AFB, TN | | 17,065 | 28,725 | 20,000 | Continuing | TBD |
| Subtotals | Total Prior to FY 2001 | Budget FY 2001 | Budget FY 2002 | Budget FY 2003 | Budget to Complete | Total Program |
| Subtotal Product Development | | 126,026 | 139,715 | 159,590 | TBD | TBD |
| Subtotal Support and Management | | 6,580 | 4,200 | 5,600 | TBD | TBD |
| Subtotal Test and Evaluation | | 21,702 | 29,436 | 21,500 | TBD | TBD |
| Total Project | | 154,308 | 173,351 | 186,690 | TBD | TBD |

Footnote: Total prior to FY 2001 is not reflected above because the program was funded in procurement through FY 1979 and RDT&E funding began in FY 1980.