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RCS: DD-A&T(Q&A)823-436



Advanced Pilot Training (APT)

As of FY 2021 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

Program Information

Program Name

Advanced Pilot Training (APT)

DoD Component

Air Force

Responsible Office

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Date Assigned: July 30, 2018

References

SAR Baseline (Development Estimate)

Component Acquisition Executive (CAE) Approved Acquisition Program Baseline (APB) dated September 25, 2018

Approved APB

Component Acquisition Executive (CAE) Approved Acquisition Program Baseline (APB) dated September 25, 2018

Mission and Description

The Advanced Pilot Training (APT) program will replace the T-38C and associated Ground Based Training Systems (GBTS) used in the United States Air Force's Specialized Undergraduate Pilot Training program, which provides advanced training for pilots in Air Education and Training Command's fighter and bomber track as well as its Introduction to Fighter Fundamentals course. The T-38C currently used for advanced training first entered service in 1961. The APT aircraft, with updated avionics and an improved GBTS, will bring new capabilities including improved high gravitational force and high angle of attack maneuvering, and will provide training opportunities more closely aligned with today's fourth and fifth-generation fighters.

The new aircraft and training systems will be fielded at five bases: Joint Base San Antonio-Randolph, Texas; Laughlin Air Force Base (AFB), Texas; Vance AFB, Oklahoma; Columbus AFB, Mississippi; and Sheppard AFB, Texas.

Executive Summary

Program Highlights Since Last Report

The Milestone Decision Authority approved Milestone (MS) B on September 25, 2018. The United States Air Force awarded a Fixed Price Incentive Firm and Firm Fixed Price Indefinite Delivery/Indefinite Quantity contract to The Boeing Company on September 27, 2018. The award of this contract followed a deliberate, meticulous, and transparent source selection process.

With the award of the Engineering and Manufacturing Development effort, the program is proceeding with system development and test. The program conducted a Ground Based Training System (GBTS) Preliminary Design Review (PDR) on August 1, 2019, and the Aircraft PDR / Critical Design Review (CDR) in September 10-13, 2019. Upcoming events include a system level CDR in FY 2020.

In accordance with 2366b certification for APT made at the MS B, the MDA approved two waivers. The requirement pursuant to 10 U.S.C. 2366b(a)(1) to conduct a PDR prior to MS B was waived, and in accordance with the waiver, the program office successfully accomplished the Aircraft and GBTS PDRs, meeting the Pre-MS B PDR waiver. The MDA also approved a waiver for the requirement to determine that the program complies with all relevant policies, regulations, and directives of the DoD as it pertains to compliance with the DoD policy on the development of an Independent Technical Risk Assessment (ITRA). The United States Air Force will reevaluate the need for an ITRA prior to a MS C decision based on applicable requirements in effect at that time.

There are no significant program issues at this time.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

| History of Significant Developments Since Program Initiation | |
|--|--|
| Date | Significant Development Description |
| September 2018 | The Milestone Decision Authority approved Milestone (MS) B on September 25, 2018 |
| November 2018 | The program conducted a Post-Award Conference from November 13-15, 2018. |
| February 2019 | The program conducted a System Requirements Review (SRR). |
| August 2019 | The program conducted a Ground Based Training System (GBTS) Preliminary Design Review (PDR). |
| September 2019 | The program conducted an Aircraft PDR / Critical Design Review (CDR). |

Threshold Breaches

APB Breaches

| | | |
|---------------------|-------------|-------------------------------------|
| Schedule | | <input type="checkbox"/> |
| Performance | | <input type="checkbox"/> |
| Cost | RDT&E | <input type="checkbox"/> |
| | Procurement | <input type="checkbox"/> |
| | MILCON | <input checked="" type="checkbox"/> |
| | Acq O&M | <input type="checkbox"/> |
| O&S Cost | | <input type="checkbox"/> |
| Unit Cost | PAUC | <input type="checkbox"/> |
| | APUC | <input type="checkbox"/> |

Explanation of Breach

The MILCON APB cost breach was not caused by cost overruns, rather results from new and refined aircraft depot and Air Education and Training Command (AETC) facility requirements and cost estimation model changes. Although the MILCON APB cost threshold increased, the impacts to the APT Program's Program Acquisition Unit Cost are inconsequential, which based on the 2019 POE is currently at a -1.5% variance from the original APB. The APT Milestone Decision Authority was notified, with a program deviation report memorandum, that the program's MILCON APB threshold was breached.

Nunn-McCurdy Breaches

| | | |
|------------------------------|------|------|
| Current UCR Baseline | | |
| | PAUC | None |
| | APUC | None |
| Original UCR Baseline | | |
| | PAUC | None |
| | APUC | None |

Schedule



| Schedule Events | | | | |
|-----------------|-----------------------------------|---|----------|------------------|
| Events | SAR Baseline Development Estimate | Current APB Development Objective/Threshold | | Current Estimate |
| Milestone B | Sep 2018 | Sep 2018 | Sep 2018 | Sep 2018 |
| CDR | Mar 2020 | Mar 2020 | Sep 2020 | Mar 2020 |
| Milestone C | Jun 2023 | Jun 2023 | Dec 2023 | Mar 2022 (Ch-1) |
| FRP Decision | Apr 2025 | Apr 2025 | Sep 2025 | Mar 2024 (Ch-1) |
| RAA | Oct 2025 | Oct 2025 | Mar 2026 | Jul 2024 (Ch-1) |

Change Explanations

(Ch-1) The current estimate for MS C changed from June 2023 to March 2022, the current estimate for FRP Decision changed from April 2025 to March 2024, and the RAA changed from October 2025 to July 2024 as a result of the Integrated Baseline Review (IBR).

Notes

1/ RAA shall be completed NLT 90 days prior to declaring IOC. RAA is used in lieu of IOC and is defined as delivery of the following: minimum of 14 aircraft, Ground Based Training System, necessary in-place logistics elements, necessary in-place operational elements, AETC training enterprise, installation infrastructure, facilities, APT Program Office, and contractor support, procedures, and processes capable of sustaining operations.

Acronyms and Abbreviations

AETC - Air Education and Training Command
 CDR - Critical Design Review
 NLT - Not Later Than
 RAA - Required Assets Available

Performance

| Performance Characteristics | | | | |
|---|---|---|------------------|---|
| SAR Baseline Development Estimate | Current APB Development Objective/Threshold | Demonstrated Performance | Current Estimate | |
| Sustainment – Operational Availability (Ao) for Aircraft Sustainment – Materiel Availability (Am) for Aircraft Sustainment – Operational Availability (Ao) for each GBTS simulator (WST, OFT, UTD) | | | | |
| Ao ≥ 80% at 20,000 fleet hours. (Am) ≥ 76% at 20,000 fleet hours. Ao ≥ 95% | Ao ≥ 80% at 20,000 fleet hours. (Am) ≥ 76% at 20,000 fleet hours. Ao ≥ 95% | (T=O) Ao ≥ 80% at 20,000 fleet hours. (Am) ≥ 76% at 20,000 fleet hours. Ao ≥ 95% | TBD | Ao is estimated for 93.17%. (Am) is estimated for 80%. Ao ≥ 95%. (Ch-1) |
| Sustained G for Aircraft. | | | | |
| ≥ 7.5 Gs | ≥ 7.5 Gs | ≥ 6.5 Gs | TBD | ≥ 7.0 Gs (Ch-2) |
| GBTS– The ability to accurately display objects as well as the ability to accurately replicate aircraft performance to enable positive transference of skill sets from the GBTS to the aircraft | | | | |
| Visual Acuity - The mean visual resolution for the WST and OFT (at 9,000 feet and 6,000 feet respectively) shall be less than or equal to 2.5 arc-minutes per optical line pair and must include accurate and relative aircraft sizing, shape, features, angle off, aspect angle and closure rates at these distances. Performance Fidelity - The WST and OFT shall replicate in form all cockpit controls, switches and avionics systems as well as applicable cockpit controls, switches and avionics systems in function. The WST and OFT performance shall enable positive transference of syllabus required skill sets from the GBTS to the aircraft. | Visual Acuity - The mean visual resolution for the WST and OFT (at 9,000 feet and 6,000 feet respectively) shall be less than or equal to 2.5 arc-minutes per optical line pair and must include accurate and relative aircraft sizing, shape, features, angle off, aspect angle and closure rates at these distances. Performance Fidelity - The WST and OFT shall replicate in form all cockpit controls, switches and avionics systems as well as applicable cockpit controls, switches and avionics systems in function. The WST and OFT performance shall enable positive transference of | (T=O) Visual Acuity - The mean visual resolution for the WST and OFT (at 9,000 feet and 6,000 feet respectively) shall be less than or equal to 2.5 arc-minutes per optical line pair and must include accurate and relative aircraft sizing, shape, features, angle off, aspect angle and closure rates at these distances. Performance Fidelity - The WST and OFT shall replicate in form all cockpit controls, switches and avionics systems as well as applicable cockpit controls, switches and avionics systems in function. The WST and OFT performance shall enable positive transference of | TBD | Visual Acuity - The mean visual resolution for the WST and OFT (at 9,000 feet and 6,000 feet respectively) shall be less than or equal to 2.5 arc-minutes per optical line pair and must include accurate and relative aircraft sizing, shape, features, angle off, aspect angle and closure rates at these distances. Performance Fidelity - The WST and OFT shall replicate in form all cockpit controls, switches and avionics systems as well as applicable cockpit controls, switches and avionics systems in function. The WST and OFT performance shall enable positive transference of |

| | syllabus required skill sets from the GBTS to the aircraft. | syllabus required skill sets from the GBTS to the aircraft. | | syllabus required skill sets from the GBTS to the aircraft. |
|--|--|--|-----|--|
| Net-Ready | | | | |
| N/A | N/A | N/A | N/A | N/A |
| Force Protection | | | | |
| N/A | N/A | N/A | N/A | N/A |
| System Survivability | | | | |
| N/A | N/A | N/A | N/A | N/A |
| Energy: Fuel capacity for Aircraft | | | | |
| The aircraft's unrefueled range shall be sufficient to effectively complete the most fuel-demanding APT syllabus directed sortie. | The aircraft's unrefueled range shall be sufficient to effectively complete the most fuel-demanding APT syllabus directed sortie. | (T=O) The aircraft's unrefueled range shall be sufficient to effectively complete the most fuel-demanding APT syllabus directed sortie. | TBD | The aircraft's unrefueled range shall be sufficient to effectively complete the most fuel-demanding APT syllabus directed sortie. |
| Training | | | | |
| Core personnel (pilots, GBTS operators and maintainers) shall be trained with the APT FoS to the proficiency level relevant to flight test requirements (AFMC) and SUPT, PIT, and IFF syllabi (AETC) as well as associated maintenance directives. Core AFMC pilots and maintainers will complete training NLT 60 days prior to the first EMD aircraft delivery. Core AETC pilots and maintainers will complete training NLT 60 days prior to the first AETC assigned aircraft delivery; Core GBTS operators will complete training NLT 30 days prior to delivery of GBTS components (WST, OFT, UTD) | Core personnel (pilots, GBTS operators and maintainers) shall be trained with the APT FoS to the proficiency level relevant to flight test requirements (AFMC) and SUPT, PIT, and IFF syllabi (AETC) as well as associated maintenance directives. Core AFMC pilots and maintainers will complete training NLT 60 days prior to the first EMD aircraft delivery. Core AETC pilots and maintainers will complete training NLT 60 days prior to the first AETC assigned aircraft delivery; Core GBTS operators will complete training NLT 30 days prior to | (T=O) Core personnel (pilots, GBTS operators and maintainers) shall be trained with the APT FoS to the proficiency level relevant to flight test requirements (AFMC) and SUPT, PIT, and IFF syllabi (AETC) as well as associated maintenance directives. Core AFMC pilots and maintainers will complete training NLT 60 days prior to the first EMD aircraft delivery. Core AETC pilots and maintainers will complete training NLT 60 days prior to the first AETC assigned aircraft delivery; Core GBTS operators will complete training NLT 30 days prior to | TBD | Core personnel (pilots, GBTS operators and maintainers) shall be trained with the APT FoS to the proficiency level relevant to flight test requirements (AFMC) and SUPT, PIT, and IFF syllabi (AETC) as well as associated maintenance directives. Core AFMC pilots and maintainers will complete training NLT 60 days prior to the first EMD aircraft delivery. Core AETC pilots and maintainers will complete training NLT 60 days prior to the first AETC assigned aircraft delivery; Core GBTS operators will complete training NLT 30 days prior to |

| | | | |
|--|---|---|---|
| | delivery of GBTS components (WST, OFT, UTD) | delivery of GBTS components (WST, OFT, UTD) | delivery of GBTS components (WST, OFT, UTD) |
|--|---|---|---|

Requirements Reference

Capability Development Document (CDD) for Advanced Pilot Training Family of Systems approved by Joint Requirements Oversight Council Memorandum dated October 31, 2016.

Change Explanations

(Ch-1) The current Estimate for Operational Availability (Ao) for Aircraft Sustainment changed from $\geq 80\%$ at 20,000 fleet hours to an estimate for 93.17% due to information learned at Critical Design Review (CDR). The Current Estimate for Materiel Availability (Am) for Aircraft Sustainment changed from $\geq 76\%$ at 20,000 fleet hours to an estimate for 80% due to information learned at CDR.

(Ch-2) The Current Estimate for Sustained G for Aircraft changed from $\geq 7.5Gs$ to $\geq 7.0 Gs$ due to information learned at CDR.

Notes

1/ Net-Ready, Force Protection, and System Survivability KPPs considered "not-applicable" by JROC per Joint Staff J6 adjudication as of the October 31, 2016 JROC Memorandum.

Acronyms and Abbreviations

AETC - Air Education and Training Command
 AFMC - Air Force Materiel Command
 Am - Materiel Availability
 Ao - Operational Availability
 FoS - Family of Systems
 GBTS - Ground Based Training Systems
 Gs - Gravitational Force
 IFF - Introduction to Fighter Fundamentals
 NLT - Not Later Than
 O - Objective
 OFT - Operational Flight Trainer
 PIT - Pilot Instructor Training
 SUPT - Specialized Undergraduate Pilot Training
 T - Threshold
 UTD - Unit Training Device
 WST - Weapon System Trainer

Track to Budget

RDT&E

| Appn | BA | PE |
|-----------|----------------------------------|-------------|
| Air Force | 3600 | 05 0605223F |
| Project | Name | |
| 655340 | Advanced Trainer Replacement T-X | |

Procurement

| Appn | BA | PE |
|-----------|----------------------------------|-------------|
| Air Force | 3010 | 07 0804701F |
| Line Item | Name | |
| 75 | Advanced Trainer Replacement T-X | |
| Air Force | 3010 | 03 0804701F |
| Line Item | Name | |
| APT000 | Advanced Trainer Replacement T-X | |
| Air Force | 3010 | 06 0804701F |
| Line Item | Name | |
| APT000 | Advanced Trainer Replacement T-X | |
| Air Force | 3080 | 04 0804701F |
| Line Item | Name | |
| 845010 | Advanced Trainer Replacement T-X | |

MILCON

| Appn | BA | PE |
|-----------|-----------------------------|-------------|
| Air Force | 3300 | 02 0804701F |
| Project | Name | |
| BMZ000 | Advance Trainer Replacement | |
| Air Force | 3300 | 01 0804701F |
| Project | Name | |
| VARIOUS | Advance Trainer Replacement | |

Cost and Funding

Cost Summary

| Total Acquisition Cost | | | | | | | |
|------------------------|-----------------------------------|---|--------|--------------------|-----------------------------------|-----------------------------------|------------------|
| Appropriation | BY 2018 \$M | | | BY 2018 \$M | TY \$M | | |
| | SAR Baseline Development Estimate | Current APB Development Objective/Threshold | | Current Estimate | SAR Baseline Development Estimate | Current APB Development Objective | Current Estimate |
| RDT&E | 1237.4 | 1237.4 | 1361.1 | 1214.6 | 1315.3 | 1315.3 | 1294.0 |
| Procurement | 6669.0 | 6669.0 | 7335.9 | 6736.7 | 8395.8 | 8395.8 | 8410.2 |
| Flyaway | -- | -- | -- | 5019.7 | -- | -- | 6275.7 |
| Recurring | -- | -- | -- | 4698.6 | -- | -- | 5873.2 |
| Non Recurring | -- | -- | -- | 321.1 | -- | -- | 402.5 |
| Support | -- | -- | -- | 1717.0 | -- | -- | 2134.5 |
| Other Support | -- | -- | -- | 1200.1 | -- | -- | 1488.8 |
| Initial Spares | -- | -- | -- | 516.9 | -- | -- | 645.7 |
| MILCON | 169.0 | 169.0 | 185.9 | 193.8 ¹ | 200.2 | 200.2 | 230.1 |
| Acq O&M | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 8075.4 | 8075.4 | N/A | 8145.1 | 9911.3 | 9911.3 | 9934.3 |

¹ APB Breach

Current APB Cost Estimate Reference

Service Cost Position dated September 10, 2018

Cost Notes

A Program Office Estimate completed December 03, 2019.

- Ejection seat/escape system qualification may cause additional government testing costs. The Program Office Estimate incorporated costs for the associated schedule risk to government test support requirements.

| Total Quantity | | | |
|----------------|-----------------------------------|-------------------------|------------------|
| Quantity | SAR Baseline Development Estimate | Current APB Development | Current Estimate |
| RDT&E | 5 | 5 | 5 |
| Procurement | 346 | 346 | 346 |
| Total | 351 | 351 | 351 |

Cost and Funding

Funding Summary

| Appropriation Summary | | | | | | | | | |
|---|-------|---------|---------|---------|---------|---------|---------|-------------|--------|
| FY 2021 President's Budget / December 2019 SAR (TY\$ M) | | | | | | | | | |
| Appropriation | Prior | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | FY 2025 | To Complete | Total |
| RDT&E | 341.9 | 340.4 | 248.7 | 206.4 | 119.4 | 34.1 | 3.1 | 0.0 | 1294.0 |
| Procurement | 0.0 | 0.0 | 0.3 | 333.3 | 332.9 | 496.0 | 923.3 | 6324.4 | 8410.2 |
| MILCON | 0.0 | 31.6 | 23.4 | 0.0 | 51.2 | 15.6 | 32.9 | 75.4 | 230.1 |
| Acq O&M | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PB 2021 Total | 341.9 | 372.0 | 272.4 | 539.7 | 503.5 | 545.7 | 959.3 | 6399.8 | 9934.3 |
| PB 2020 Total | 350.6 | 380.1 | 279.7 | 531.5 | 504.2 | 546.2 | 727.0 | 6618.4 | 9937.7 |
| Delta | -8.7 | -8.1 | -7.3 | 8.2 | -0.7 | -0.5 | 232.3 | -218.6 | -3.4 |

Funding Notes

Air Force rephased RDT&E funds by \$14.8M in FY 2021 with a partial payback occurring in FY 2022 (\$8.8M). MILCON was reduced by \$1.5M in FY 2021. FY2025 increased MILCON by \$19.4M and 3080 Procurement by \$3.5M, and a decrease in RDT&E by \$8.9M.

Procurement reflects acceleration of aircraft production beginning in FY 2025 with Full Rate Production Lot 4.

| Quantity Summary | | | | | | | | | | |
|---|---------------|-------|---------|---------|---------|---------|---------|---------|-------------|-------|
| FY 2021 President's Budget / December 2019 SAR (TY\$ M) | | | | | | | | | | |
| Quantity | Undistributed | Prior | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | FY 2025 | To Complete | Total |
| Development | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Production | 0 | 0 | 0 | 0 | 12 | 12 | 16 | 36 | 270 | 346 |
| PB 2021 Total | 5 | 0 | 0 | 0 | 12 | 12 | 16 | 36 | 270 | 351 |
| PB 2020 Total | 5 | 0 | 0 | 0 | 12 | 12 | 16 | 26 | 280 | 351 |
| Delta | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | -10 | 0 |

Cost and Funding

Annual Funding By Appropriation

| Annual Funding | | | | | | | |
|---|----------|----------------------------------|---|-----------------------------|------------------|------------------|------------------|
| 3600 RDT&E Research, Development, Test, and Evaluation, Air Force | | | | | | | |
| Fiscal Year | Quantity | TY \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2011 | -- | -- | -- | -- | -- | -- | 0.6 |
| 2012 | -- | -- | -- | -- | -- | -- | 2.2 |
| 2013 | -- | -- | -- | -- | -- | -- | 0.6 |
| 2014 | -- | -- | -- | -- | -- | -- | 1.5 |
| 2015 | -- | -- | -- | -- | -- | -- | 7.8 |
| 2016 | -- | -- | -- | -- | -- | -- | 4.1 |
| 2017 | -- | -- | -- | -- | -- | -- | 5.7 |
| 2018 | -- | -- | -- | -- | -- | -- | 82.6 |
| 2019 | -- | -- | -- | -- | -- | -- | 236.8 |
| 2020 | -- | -- | -- | -- | -- | -- | 340.4 |
| 2021 | -- | -- | -- | -- | -- | -- | 248.7 |
| 2022 | -- | -- | -- | -- | -- | -- | 206.4 |
| 2023 | -- | -- | -- | -- | -- | -- | 119.4 |
| 2024 | -- | -- | -- | -- | -- | -- | 34.1 |
| 2025 | -- | -- | -- | -- | -- | -- | 3.1 |
| Subtotal | 5 | -- | -- | -- | -- | -- | 1294.0 |

| Annual Funding | | | | | | | |
|---|----------|----------------------------------|---|-----------------------------|------------------|------------------|------------------|
| 3600 RDT&E Research, Development, Test, and Evaluation, Air Force | | | | | | | |
| Fiscal Year | Quantity | BY 2018 \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2011 | -- | -- | -- | -- | -- | -- | 0.7 |
| 2012 | -- | -- | -- | -- | -- | -- | 2.4 |
| 2013 | -- | -- | -- | -- | -- | -- | 0.6 |
| 2014 | -- | -- | -- | -- | -- | -- | 1.6 |
| 2015 | -- | -- | -- | -- | -- | -- | 8.1 |
| 2016 | -- | -- | -- | -- | -- | -- | 4.2 |
| 2017 | -- | -- | -- | -- | -- | -- | 5.7 |
| 2018 | -- | -- | -- | -- | -- | -- | 81.4 |
| 2019 | -- | -- | -- | -- | -- | -- | 229.0 |
| 2020 | -- | -- | -- | -- | -- | -- | 322.6 |
| 2021 | -- | -- | -- | -- | -- | -- | 231.1 |
| 2022 | -- | -- | -- | -- | -- | -- | 188.0 |
| 2023 | -- | -- | -- | -- | -- | -- | 106.6 |
| 2024 | -- | -- | -- | -- | -- | -- | 29.9 |
| 2025 | -- | -- | -- | -- | -- | -- | 2.7 |
| Subtotal | 5 | -- | -- | -- | -- | -- | 1214.6 |

| Annual Funding 3010 Procurement Aircraft Procurement, Air Force | | | | | | | |
|--|----------|----------------------------------|---|-----------------------------|------------------|------------------|------------------|
| Fiscal Year | Quantity | TY \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2022 | 12 | 203.8 | 36.1 | 29.0 | 268.9 | 59.8 | 328.7 |
| 2023 | 12 | 193.6 | 27.3 | 21.8 | 242.7 | 86.0 | 328.7 |
| 2024 | 16 | 250.4 | 36.1 | 39.8 | 326.3 | 166.3 | 492.6 |
| 2025 | 36 | 557.5 | 39.0 | 9.8 | 606.3 | 313.5 | 919.8 |
| 2026 | 42 | 576.3 | 101.5 | 50.0 | 727.8 | 328.9 | 1056.7 |
| 2027 | 60 | 811.9 | 307.0 | 44.7 | 1163.6 | 299.3 | 1462.9 |
| 2028 | 60 | 806.8 | 98.5 | 50.0 | 955.3 | 335.0 | 1290.3 |
| 2029 | 60 | 807.9 | 210.3 | 66.3 | 1084.5 | 237.4 | 1321.9 |
| 2030 | 48 | 640.7 | 154.8 | 36.7 | 832.2 | 212.2 | 1044.4 |
| 2031 | -- | -- | 11.9 | 35.9 | 47.8 | 43.6 | 91.4 |
| 2032 | -- | -- | 1.8 | 18.5 | 20.3 | 36.5 | 56.8 |
| Subtotal | 346 | 4848.9 | 1024.3 | 402.5 | 6275.7 | 2118.5 | 8394.2 |

| Annual Funding 3010 Procurement Aircraft Procurement, Air Force | | | | | | | |
|--|----------|----------------------------------|---|-----------------------------|------------------|------------------|------------------|
| Fiscal Year | Quantity | BY 2018 \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2022 | 12 | 180.2 | 32.0 | 25.6 | 237.8 | 52.8 | 290.6 |
| 2023 | 12 | 167.8 | 23.7 | 18.9 | 210.4 | 74.5 | 284.9 |
| 2024 | 16 | 212.8 | 30.7 | 33.8 | 277.3 | 141.3 | 418.6 |
| 2025 | 36 | 464.5 | 32.5 | 8.2 | 505.2 | 261.1 | 766.3 |
| 2026 | 42 | 470.7 | 82.9 | 40.8 | 594.4 | 268.7 | 863.1 |
| 2027 | 60 | 650.2 | 245.8 | 35.8 | 931.8 | 239.7 | 1171.5 |
| 2028 | 60 | 633.4 | 77.3 | 39.3 | 750.0 | 263.0 | 1013.0 |
| 2029 | 60 | 621.8 | 162.0 | 51.0 | 834.8 | 182.7 | 1017.5 |
| 2030 | 48 | 483.5 | 116.7 | 27.7 | 627.9 | 160.2 | 788.1 |
| 2031 | -- | -- | 8.8 | 26.6 | 35.4 | 32.2 | 67.6 |
| 2032 | -- | -- | 1.3 | 13.4 | 14.7 | 26.5 | 41.2 |
| Subtotal | 346 | 3884.9 | 813.7 | 321.1 | 5019.7 | 1702.7 | 6722.4 |

End Item related costs include aircraft procurement and labor associated with the end item quantity. Non-end item related costs includes potential changes to program scope that are not associated with the quantity of the primary unit of measure.

| Annual Funding 3080 Procurement Other Procurement, Air Force | | | | | | | |
|---|----------|----------------------------------|---|-----------------------------|------------------|------------------|------------------|
| Fiscal Year | Quantity | TY \$M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2021 | -- | -- | -- | -- | -- | 0.3 | 0.3 |
| 2022 | -- | -- | -- | -- | -- | 4.6 | 4.6 |
| 2023 | -- | -- | -- | -- | -- | 4.2 | 4.2 |
| 2024 | -- | -- | -- | -- | -- | 3.4 | 3.4 |
| 2025 | -- | -- | -- | -- | -- | 3.5 | 3.5 |
| Subtotal | -- | -- | -- | -- | -- | 16.0 | 16.0 |

| Annual Funding 3080 Procurement Other Procurement, Air Force | | | | | | | | |
|---|----------|----------------------------------|---|-----------------------------|------------------|------------------|------------------|------|
| Fiscal Year | Quantity | BY 2018 \$M | | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program | |
| 2021 | -- | -- | -- | -- | -- | -- | 0.3 | 0.3 |
| 2022 | -- | -- | -- | -- | -- | -- | 4.2 | 4.2 |
| 2023 | -- | -- | -- | -- | -- | -- | 3.8 | 3.8 |
| 2024 | -- | -- | -- | -- | -- | -- | 3.0 | 3.0 |
| 2025 | -- | -- | -- | -- | -- | -- | 3.0 | 3.0 |
| Subtotal | -- | -- | -- | -- | -- | -- | 14.3 | 14.3 |

| Annual Funding 3300 MILCON Military Construction, Air Force | | |
|--|------------------|-------|
| Fiscal Year | TY \$M | |
| | Total Program | |
| 2020 | | 31.6 |
| 2021 | | 23.4 |
| 2022 | | -- |
| 2023 | | 51.2 |
| 2024 | | 15.6 |
| 2025 | | 32.9 |
| 2026 | | 10.1 |
| 2027 | | 27.4 |
| 2028 | | 29.9 |
| 2029 | | 8.0 |
| Subtotal | | 230.1 |

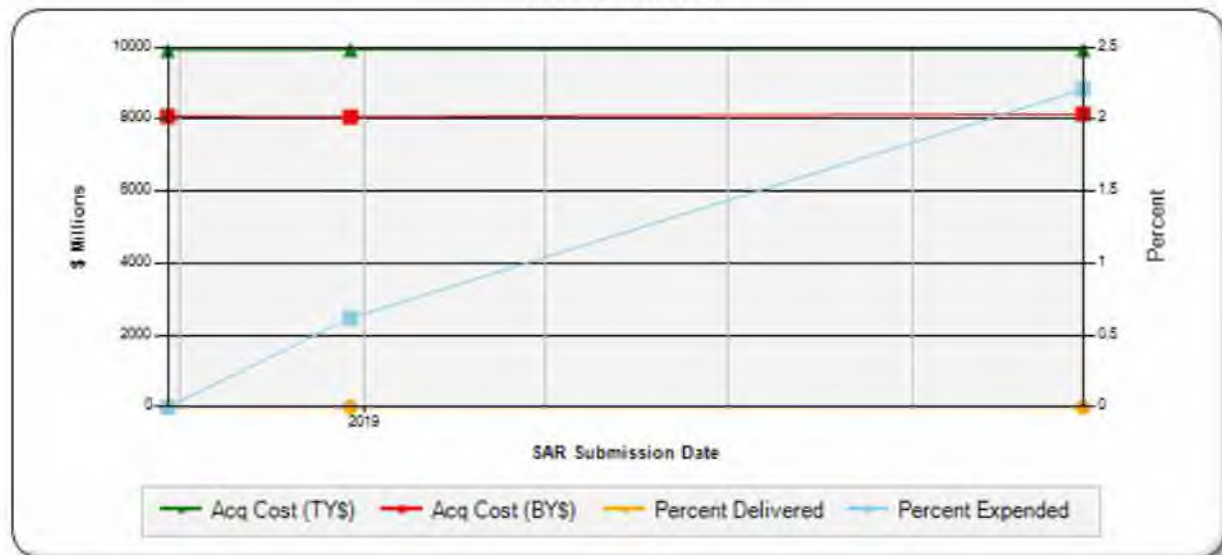
| Annual Funding 3300 MILCON Military Construction, Air Force | | |
|--|------------------|-------|
| Fiscal Year | BY 2018 \$M | |
| | Total Program | |
| 2020 | | 28.9 |
| 2021 | | 21.0 |
| 2022 | | -- |
| 2023 | | 44.1 |
| 2024 | | 13.2 |
| 2025 | | 27.2 |
| 2026 | | 8.2 |
| 2027 | | 21.8 |
| 2028 | | 23.3 |
| 2029 | | 6.1 |
| Subtotal | | 193.8 |

The MILCON APB cost breach was not caused by cost overruns, rather results from new and refined aircraft depot and Air Education and Training Command (AETC) facility requirements and cost estimation model changes. Although the MILCON APB cost threshold increased, the impacts to the APT Program's Program Acquisition Unit Cost are inconsequential, which based on the 2019 POE is currently at a -1.5% variance from the original APB. The APT Milestone Decision Authority was notified, with a program deviation report memorandum, that the program's MILCON APB threshold was breached.

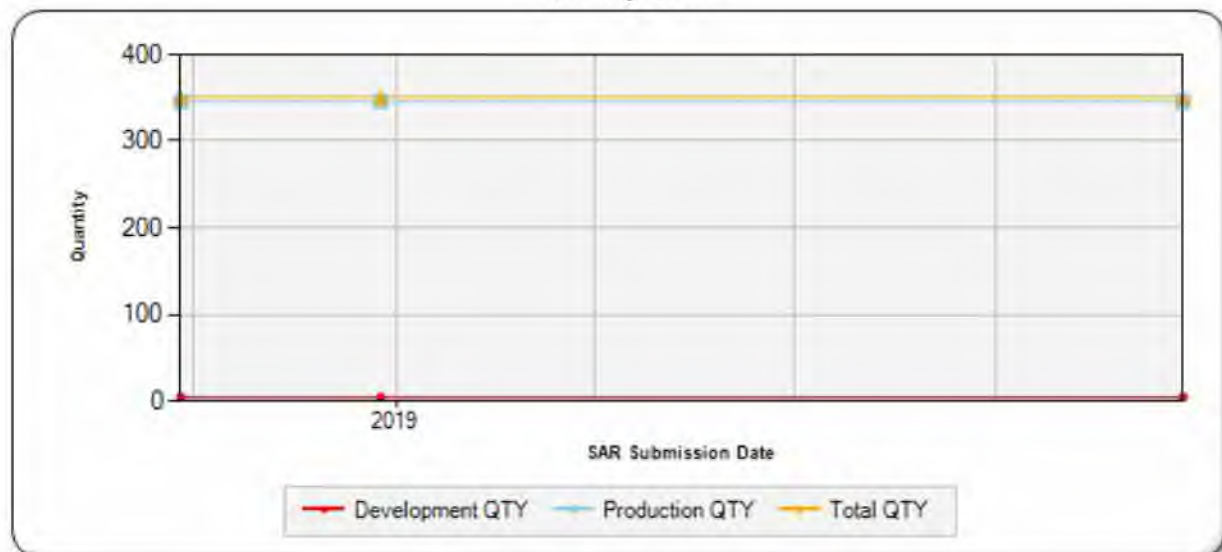
Charts

APT first began SAR reporting in September 2018

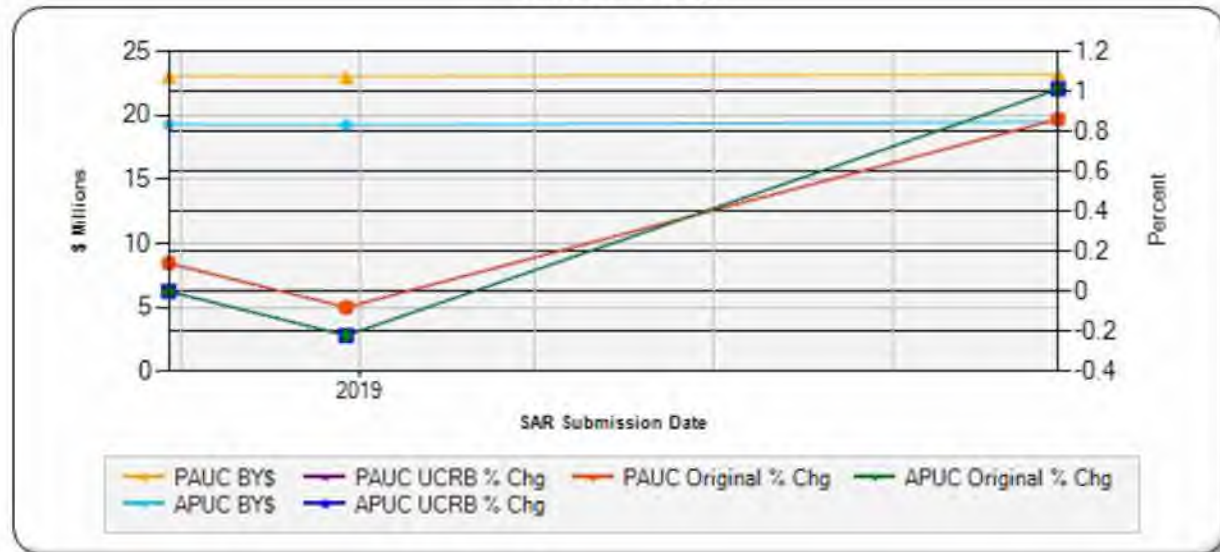
Program Acquisition Cost - APT
Base Year 2018 \$M



Quantity - APT



Unit Cost - APT
Base Year 2018 \$M



Risks

Significant Schedule and Technical Risks

| Significant Schedule and Technical Risks | |
|--|--|
| Current Estimate (December 2019) | |
| 1. | Moderate Schedule Risk: Escape System Not Qualified / Certified to Support EMD Aircraft Installation |
| 2. | Moderate Schedule Risk: Ejection Seat Development and Execution |
| 3. | Moderate Schedule Risk: GBTS Facility Availability at JBSA-Randolph. |
| 4. | Moderate Schedule Risk: Type 1 Mx Training on Aircraft |
| 5. | Low Schedule Risk: Delegation of Material Review Authority |

Risks

Risk and Sensitivity Analysis

| Risks and Sensitivity Analysis | |
|---|---|
| Current Baseline Estimate (September 2018) | |
| 1. | Total Acquisition Cost - \$8,075.4M (BY 2018); PAUC - \$23.007M; Schedule Risk to EMD: The September 2018 SCP accounts for the condensed acquisition timeline for EMD on this program. Therefore, there is a risk that Milestone C may not occur in FY 2022, potentially impacting cost and production timeline. Risk mitigation for this schedule risk includes the program proactively engaging with the contractor to ensure milestones are met and the government restricts any scope creep that could potentially impact schedule. |
| 2. | Contract Type Risk for Production: As with any long-term fixed price production contract, the SCP recognizes that the Economic Price Adjustment (EPA) clause may not sufficiently account for changes to the economic environment. If the EPA does not prove sufficient to economic realities, the contractor may be at risk for financial instability. |
| Original Baseline Estimate (September 2018) | |
| 1. | There are currently no risks associated with this baseline date. |
| Revised Original Estimate (N/A) | |
| None | |
| Current Procurement Cost (December 2019) | |
| 1. | There are no risks at this time. |

Low Rate Initial Production

| Item | Initial LRIP Decision | Current Total LRIP |
|--------------------------|-----------------------|--------------------|
| Approval Date | 9/11/2018 | 9/11/2018 |
| Approved Quantity | 35 | 35 |
| Reference | Milestone B ADM | Milestone B ADM |
| Start Year | 2023 | 2023 |
| End Year | 2025 | 2025 |

The Current Total LRIP Quantity is more than 10% of the total production quantity . The Milestone B ADM signed on September 11, 2018 approved an LRIP quantity of 35 aircraft. The program is acquiring 351 production aircraft composed of 346 procurement funded aircraft and 5 RDT&E funded aircraft. The 5 RDT&E funded aircraft will be upgraded to the production configuration.

Foreign Military Sales

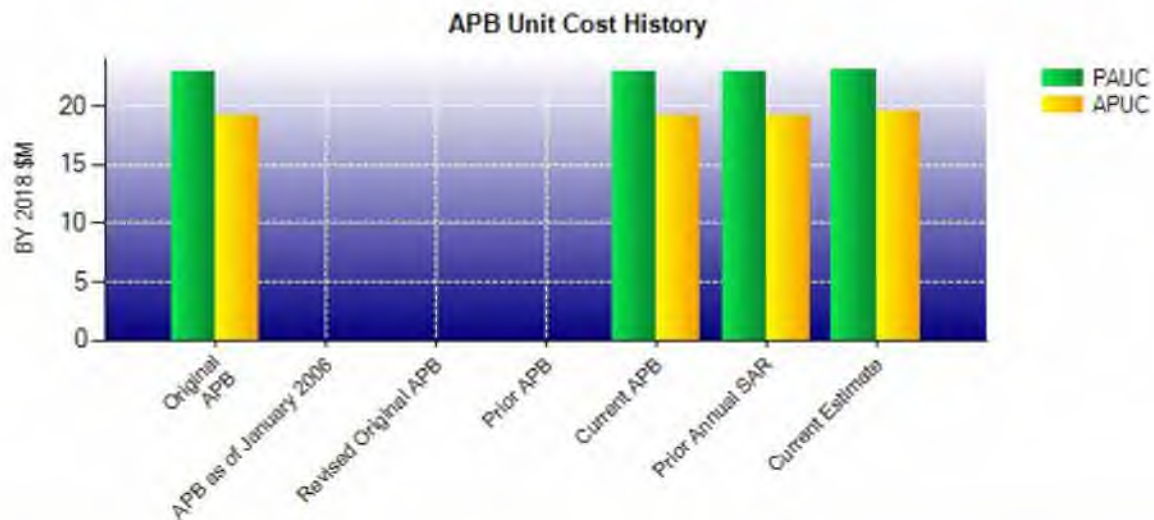
None

Nuclear Costs

None

Unit Cost

| Current UCR Baseline and Current Estimate (Base-Year Dollars) | | | |
|--|--|------------------------------------|----------|
| Item | BY 2018 \$M | BY 2018 \$M | % Change |
| | Current UCR Baseline (Sep 2018 APB) | Current Estimate (Dec 2019 SAR) | |
| Program Acquisition Unit Cost | | | |
| Cost | 8075.4 | 8145.1 | |
| Quantity | 351 | 351 | |
| Unit Cost | 23.007 | 23.205 | +0.86 |
| Average Procurement Unit Cost | | | |
| Cost | 6669.0 | 6736.7 | |
| Quantity | 346 | 346 | |
| Unit Cost | 19.275 | 19.470 | +1.01 |
| Original UCR Baseline and Current Estimate (Base-Year Dollars) | | | |
| Item | BY 2018 \$M | BY 2018 \$M | % Change |
| | Original UCR Baseline (Sep 2018 APB) | Current Estimate (Dec 2019 SAR) | |
| Program Acquisition Unit Cost | | | |
| Cost | 8075.4 | 8145.1 | |
| Quantity | 351 | 351 | |
| Unit Cost | 23.007 | 23.205 | +0.86 |
| Average Procurement Unit Cost | | | |
| Cost | 6669.0 | 6736.7 | |
| Quantity | 346 | 346 | |
| Unit Cost | 19.275 | 19.470 | +1.01 |



| APB Unit Cost History | | | | | |
|------------------------|----------|-------------|--------|--------|--------|
| Item | Date | BY 2018 \$M | | TY \$M | |
| | | PAUC | APUC | PAUC | APUC |
| Original APB | Sep 2018 | 23.007 | 19.275 | 28.237 | 24.265 |
| APB as of January 2006 | N/A | N/A | N/A | N/A | N/A |
| Revised Original APB | N/A | N/A | N/A | N/A | N/A |
| Prior APB | N/A | N/A | N/A | N/A | N/A |
| Current APB | Sep 2018 | 23.007 | 19.275 | 28.237 | 24.265 |
| Prior Annual SAR | Dec 2018 | 22.989 | 19.232 | 28.313 | 24.301 |
| Current Estimate | Dec 2019 | 23.205 | 19.470 | 28.303 | 24.307 |

SAR Unit Cost History

| Current SAR Baseline to Current Estimate (TY \$M) | | | | | | | | | |
|---|---------|-------|--------|-------|--------|-------|-------|-------|-----------------------|
| PAUC Development Estimate | Changes | | | | | | | | PAUC Current Estimate |
| | Econ | Qty | Sch | Eng | Est | Oth | Spt | Total | |
| 28.237 | 0.073 | 0.000 | -0.182 | 0.000 | -0.923 | 0.000 | 1.098 | 0.066 | 28.303 |

| Current SAR Baseline to Current Estimate (TY \$M) | | | | | | | | | |
|---|---------|-------|--------|-------|--------|-------|-------|-------|-----------------------|
| Initial APUC Development Estimate | Changes | | | | | | | | APUC Current Estimate |
| | Econ | Qty | Sch | Eng | Est | Oth | Spt | Total | |
| 24.265 | 0.061 | 0.000 | -0.168 | 0.000 | -0.966 | 0.000 | 1.114 | 0.041 | 24.307 |

| SAR Baseline History | | | | |
|----------------------|-----------------------|--------------------------|-------------------------|------------------|
| Item | SAR Planning Estimate | SAR Development Estimate | SAR Production Estimate | Current Estimate |
| Milestone A | N/A | N/A | N/A | N/A |
| Milestone B | N/A | Sep 2018 | N/A | Sep 2018 |
| Milestone C | N/A | Jun 2023 | N/A | Mar 2022 |
| IOC | N/A | Oct 2025 | N/A | Jul 2024 |
| Total Cost (TY \$M) | N/A | 9911.3 | N/A | 9934.3 |
| Total Quantity | N/A | 351 | N/A | 351 |
| PAUC | N/A | 28.237 | N/A | 28.303 |

Cost Variance

| Summary TY \$M | | | | |
|-------------------------------------|--------|-------------|--------|--------|
| Item | RDT&E | Procurement | MILCON | Total |
| SAR Baseline (Development Estimate) | 1315.3 | 8395.8 | 200.2 | 9911.3 |
| Previous Changes | | | | |
| Economic | +4.7 | +33.1 | +0.5 | +38.3 |
| Quantity | -- | -- | -- | -- |
| Schedule | -- | -- | -- | -- |
| Engineering | -- | -- | -- | -- |
| Estimating | +6.6 | -26.7 | +2.1 | -18.0 |
| Other | -- | -- | -- | -- |
| Support | -- | +6.1 | -- | +6.1 |
| Subtotal | +11.3 | +12.5 | +2.6 | +26.4 |
| Current Changes | | | | |
| Economic | -0.7 | -11.9 | -- | -12.6 |
| Quantity | -- | -- | -- | -- |
| Schedule | -6.0 | -58.0 | -- | -64.0 |
| Engineering | -- | -- | -- | -- |
| Estimating | -25.9 | -307.4 | +27.3 | -306.0 |
| Other | -- | -- | -- | -- |
| Support | -- | +379.2 | -- | +379.2 |
| Subtotal | -32.6 | +1.9 | +27.3 | -3.4 |
| Total Changes | -21.3 | +14.4 | +29.9 | +23.0 |
| Current Estimate | 1294.0 | 8410.2 | 230.1 | 9934.3 |

| Summary BY 2018 \$M | | | | |
|-------------------------------------|--------|-------------|--------|--------|
| Item | RDT&E | Procurement | MILCON | Total |
| SAR Baseline (Development Estimate) | 1237.4 | 6669.0 | 169.0 | 8075.4 |
| Previous Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | -- | -- | -- |
| Schedule | -- | -- | -- | -- |
| Engineering | -- | -- | -- | -- |
| Estimating | +6.8 | -20.5 | +1.7 | -12.0 |
| Other | -- | -- | -- | -- |
| Support | -- | +5.7 | -- | +5.7 |
| Subtotal | +6.8 | -14.8 | +1.7 | -6.3 |
| Current Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | -- | -- | -- |
| Schedule | -5.8 | -- | -- | -5.8 |
| Engineering | -- | -- | -- | -- |
| Estimating | -23.8 | -232.2 | +23.1 | -232.9 |
| Other | -- | -- | -- | -- |
| Support | -- | +314.7 | -- | +314.7 |
| Subtotal | -29.6 | +82.5 | +23.1 | +76.0 |
| Total Changes | -22.8 | +67.7 | +24.8 | +69.7 |
| Current Estimate | 1214.6 | 6736.7 | 193.8 | 8145.1 |

Previous Estimate: December 2018

| RDT&E | \$M | |
|--|-----------|-----------|
| Current Change Explanations | Base Year | Then Year |
| Revised escalation indices. (Economic) | N/A | -0.7 |
| Schedule variance due to rephasing of APT effort from FY 2021 to FY 2022. (Schedule) | -5.8 | -6.0 |
| Revised estimate due to realignment of funding to higher priority Air Force programs. (Estimating) | -24.2 | -26.3 |
| Adjustment for current and prior escalation. (Estimating) | +0.4 | +0.4 |
| RDT&E Subtotal | -29.6 | -32.6 |

| Procurement | \$M | |
|---|-----------|-----------|
| Current Change Explanations | Base Year | Then Year |
| Revised escalation indices. (Economic) | N/A | -11.9 |
| Acceleration of the procurement buy profile in FY 2025 due to a refinement of estimates and change in estimating assumptions. (Schedule) | 0.0 | -58.0 |
| Revised estimating due to accelerated procurement buy profile acceleration. (Estimating) | -232.2 | -307.4 |
| Increase in Other Support due to changes in estimate assumptions as they relate to the acceleration of the procurement buy profile and to align the Depot funding (Budget Program 19) to FY 2021 PB (Aircraft Procurement, Air Force (APAF)). (Support) | +280.0 | +345.9 |
| Increase in Initial Spares due to a change in estimate assumptions and to align to the FY 2021 PB "to complete" total (APAF). (Support) | +31.7 | +29.8 |
| Increase in Other Support due to changes in estimating assumptions (Other Procurement, Air Force). (Support) | +3.0 | +3.5 |
| Procurement Subtotal | +82.5 | +1.9 |

| MILCON | \$M | |
|---|-----------|-----------|
| Current Change Explanations | Base Year | Then Year |
| Revised estimate to align to the Air Education and Training Command current requirements for the Ground Based Training Systems Facility. (Estimating) | +23.1 | +27.3 |
| MILCON Subtotal | +23.1 | +27.3 |

Contracts

| Contract Identification | |
|-----------------------------|---|
| Appropriation: | RDT&E |
| Contract Name: | Advanced Pilot Training |
| Contractor: | Boeing (Defense, Space, and Security) |
| Contractor Location: | 6200 JS McDonnell Blvd Saint Louis, MO 63134-1939 |
| Contract Number: | FA8617-18-F-8001 |
| Contract Type: | Fixed Price Incentive(Firm Target) (FPIF), Firm Fixed Price (FFP) |
| Award Date: | September 27, 2018 |
| Definitization Date: | September 27, 2018 |

| Contract Price | | | | | | | |
|------------------------------|---------|-----|------------------------------|---------|-----|-------------------------------------|-----------------|
| Initial Contract Price (\$M) | | | Current Contract Price (\$M) | | | Estimated Price At Completion (\$M) | |
| Target | Ceiling | Qty | Target | Ceiling | Qty | Contractor | Program Manager |
| 813.4 | 865.2 | 5 | 813.4 | 865.2 | 5 | 824.5 | 853.5 |

| Contract Variance | | | |
|---|---------------|--|-------------------|
| Item | Cost Variance | | Schedule Variance |
| Cumulative Variances To Date (12/23/2019) | -12.4 | | -18.2 |
| Previous Cumulative Variances | -- | | -- |
| Net Change | -12.4 | | -18.2 |

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to three Work Breakdown Structure line items, Airframe Integration, Assembly, Test and Checkout; Fuselage; and Wing. The largest variance is the Fuselage Work Breakdown Structure due to inefficiencies with the level of maturity, fatigue analysis, and extracting loads and performing Finite Element load comparisons for stress analysis.

The unfavorable cumulative schedule variance is due to four Work Breakdown Structure line items, Airframe Integration, Assembly, Test and Checkout; Engine; Crew Station Subsystem; and Flight Test. The largest variance is caused by the Engine Work Breakdown Structure due to a delayed submittal of a requirements document and extended engine troubleshooting and repair.

Notes

Incorrect contract number (FA8617-18-D-6219) was reported in previous SAR generating above statement. Correct contract number is stated above (FA8617-18-F-8001).

Total contract Target Price, Ceiling Price, and Estimated Price at Completion includes FPIF and FFP CLINS.

Deliveries and Expenditures

| Deliveries | | | | |
|----------------------------------|-----------------|----------------|----------------|-------------------|
| Delivered to Date | Planned to Date | Actual to Date | Total Quantity | Percent Delivered |
| Development | 0 | 0 | 5 | 0.00% |
| Production | 0 | 0 | 346 | 0.00% |
| Total Program Quantity Delivered | 0 | 0 | 351 | 0.00% |

| Expended and Appropriated (TY \$M) | | | |
|------------------------------------|--------|----------------------------|--------|
| Total Acquisition Cost | 9934.3 | Years Appropriated | 10 |
| Expended to Date | 219.3 | Percent Years Appropriated | 45.45% |
| Percent Expended | 2.21% | Appropriated to Date | 713.9 |
| Total Funding Years | 22 | Percent Appropriated | 7.19% |

The above data is current as of February 10, 2020.

Operating and Support Cost

Cost Estimate Details

| | |
|--------------------------|--------------------|
| Date of Estimate: | September 10, 2018 |
| Source of Estimate: | SCP |
| Quantity to Sustain: | 350 |
| Unit of Measure: | Aircraft |
| Service Life per Unit: | 40.00 Years |
| Fiscal Years in Service: | FY 2023 - FY 2073 |

Information provided from the September 2018 SCP for MS B.

Total aircraft quantity is 351. 350 aircraft will be sustained by Air Education & Training Command. 1 aircraft will be sustained by Air Force Materiel Command and is not part of the SCP.

Sustainment Strategy

The APT Program Office's sustainment strategy leverages existing United States Air Force maintenance and supply capabilities and locations to most efficiently deliver system reliability, operational availability, maintainability, and affordability to the user. The sustainment strategy was developed to provide the Government "freedom of choice" throughout the life cycle by posturing for organic sustainment. The Government will operate with an Organizational level (O-level), limited Intermediate level (I-level) and Depot level (D-level) of repair for the APT Program. This will mirror the current T-38C maintenance construct, consisting of base dependent competed contract workforce and civil service support. The Contractor will provide pre-operational support through the completion of EMD. Contractor Field Service Representatives (FSRs) will be positioned at each of the five training locations to provide initial training and long-term, on-site product support assistance. The Contractor will provide FSR support as required for each depot location. The depot maintenance strategy will be implemented at the delivery of the first production aircraft, but not later than Initial Operational Capability. Subsequent depot operations will expand incrementally based upon the Depot Maintenance Activation Working Group developed activation plan. The APT Program Office will closely coordinate with the Air Force Sustainment Center to facilitate planning, execution, and evaluation of the D-level process and the follow-on stand-up of commodity support capability. Limited Interim Contractor Support will be used for D-Level repair of unique/peculiar items until organic capability is stood up.

Antecedent Information

The antecedent system is the T-38 system. T-38 costs are based on average cost data on a 10-year average cost from FY2007-FY2016, provided by the 2017 T-38 System Program Office Sustainment Program Office Estimate. The T-38C data was normalized by cost element using flying hours, total aircraft inventory (TAI) or primary aircraft authority (PAA), where TAI was 436, PAA was 343 of PAA, and the average flying hours were 88,247. The costs were then adjusted to 101,052 flight hours in order to provide a similar cost comparison between the two systems.

| Annual O&S Costs BY2018 \$M | | | |
|--------------------------------|---|--|---------------------------|
| Cost Element | APT Average Annual Cost Per Aircraft | | T-38 (Antecedent) 2017 |
| Unit-Level Manpower | 0.484 | | 0.444 |
| Unit Operations | 0.728 | | 0.432 |
| Maintenance | 1.442 | | 0.519 |
| Sustaining Support | 0.121 | | 0.042 |
| Continuing System Improvements | 0.189 | | 0.173 |
| Indirect Support | 0.082 | | 0.471 |
| Other | 0.000 | | 0.000 |
| Total | 3.046 | | 2.081 |

APT cost are derived from the total O&S costs in the September 2018 SCP.

T-38 costs are derived from the normalized FY2017 costs from the 2017 T-38 SPO Sustainment POE.

| Item | Total O&S Cost \$M | | | |
|-----------|--|---------|------------------|-------------------|
| | APT | | | T-38 (Antecedent) |
| | Current Development APB Objective/Threshold | | Current Estimate | |
| Base Year | 44666.9 | 49133.6 | 42638.9 | 12616.6 |
| Then Year | 85983.2 | N/A | 85983.2 | N/A |

APT total O&S costs from the September 2018 SCP.

T-38 total O&S costs represent Air Force total ownership cost data from 2002-2016, in BY18\$. The data was normalized by cost element using the 10-year average of flying hours (FH), total aircraft inventory (TAI) or primary aircraft authority (PAA). The costs were then adjusted to 101,052 flight hours in order to provide a similar cost comparison between the two systems.

Equation to Translate Annual Cost to Total Cost

APT Total O&S Costs \$M (BY18\$) = Annual Costs BY 2018 \$M * 40 year service life * 350 aircraft.

| O&S Cost Variance | | |
|--|----------------|---------------------|
| Category | BY 2018 \$M | Change Explanations |
| Prior SAR Total O&S Estimates - Dec 2018 SAR | 42638.9 | |
| Programmatic/Planning Factors | 0.0 | |
| Cost Estimating Methodology | 0.0 | |
| Cost Data Update | 0.0 | |
| Labor Rate | 0.0 | |
| Energy Rate | 0.0 | |
| Technical Input | 0.0 | |
| Other | 0.0 | |

| | |
|------------------|---------|
| Total Changes | 0.0 |
| Current Estimate | 42638.9 |

Disposal Estimate Details

| | |
|---|--------------------|
| Date of Estimate: | September 10, 2018 |
| Source of Estimate: | SCP |
| Disposal/Demilitarization Total Cost (BY 2018 \$M): | 88.6 |

Disposal costs are derived from the SCP.