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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Modernized Selected Acquisition Report (MSAR) T-7 Advanced Pilot Training (T-7 APT)

FY 2025 President's Budget

Effective: December 31, 2023

Defense Acquisition Visibility Environment

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Table of Contents

Common DoD Abbreviations	3
Program Description	5
Responsible Office	6
Executive Summary	7
Schedule	9
Performance	11
Acquisition Budget Estimate	15
Unit Costs	17
Life-Cycle Costs	19
Technologies and Systems Engineering	22
Performing Activities and Contracts	23
Production	25
Deliveries and Expenditures	26
International Program Aspects	27

(U) Common DoD Abbreviations

\$B	Billions of Dollars
\$K	Thousands of Dollars
\$M	Millions of Dollars
ACAT	Acquisition Category
Acq O&M	Acquisition-Related Operations and Maintenance
ADM	Acquisition Decision Memorandum
APA	Additional Performance Attribute
APB	Acquisition Program Baseline
APPN	Appropriation
APUC	Average Procurement Unit Cost
BA	Budget Authority or Budget Activity
Blk	Block
BY	Base Year
CAE	Component Acquisition Executive
CAPE	Cost Assessment and Program Evaluation
CARD	Cost Analysis Requirements Description
CCE	Component Cost Estimate
CCP	Component Cost Position
CDD	Capability Development Document
CLIN	Contract Line Item Number
CPD	Capability Production Document
CY	Calendar Year or Constant Year
DAB	Defense Acquisition Board
DAE	Defense Acquisition Executive
DAES	Defense Acquisition Executive Summary
DAVE	Defense Acquisition Visibility Environment
DoD	Department of Defense
DSN	Defense Switched Network
EMD	Engineering and Manufacturing Development
EVM	Earned Value Management
FD	Full Deployment
FDD	Full-Deployment Decision
FMS	Foreign Military Sales
FOC	Full Operational Capability
FRP	Full-Rate Production
FY	Fiscal Year
FYDP	Future Years Defense Program
ICD	Initial Capabilities Document
ICE	Independent Cost Estimate
Inc	Increment
IOC	Initial Operational Capability
IT	Information Technology
JROC	Joint Requirements Oversight Council
KPP	Key Performance Parameter
KSA	Key System Attribute

LRIP	Low-Rate Initial Production
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
MILCON	Military Construction
N/A	Not Applicable
O	Objective
O&M	Operations and Maintenance
O&S	Operating and Support
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
PAUC	Program Acquisition Unit Cost
PB	President's Budget
PE	Program Element
PEO	Program Executive Officer
PM	Program Manager
POE	Program Office Estimate
R&MF	Revolving and Management Funds
RDT&E	Research, Development, Test, and Evaluation
SAR	Selected Acquisition Report
SCP	Service Cost Position
T	Threshold
TBD	To Be Determined
TY	Then Year
U.S.	United States
U.S.C	United States Code
UCR	Unit Cost Reporting
USD(A&S)	Under Secretary of Defense (Acquisition and Sustainment)

(U) Program Description

Full Name T-7 Advanced Pilot Training	Short Name T-7 APT
PNO 436	Milestone Decision Authority Component Acquisition Executive
Lead Component Department of the Air Force	Program Executive Office Mobility & Training Aircraft Directorate (AFPEO/MB)
Joint Program No	Acquisition Type Major Defense Acquisition Program
Adaptive Acquisition Pathway Major Capability Acquisition	Acquired Systems APT
Acquisition Category IB	
Acquisition Status Active Acquisition	

Mission

The T-7A Red Hawk Advanced Pilot Training (APT) program will replace the T-38C and associated Ground Based Training System (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 pilot training first entered service in 1961. The T-7A Red Hawk 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; Columbus Air Force Base, Mississippi; Laughlin Air Force Base, Texas; Vance Air Force Base, Oklahoma; Sheppard Air Force Base, Texas.

(U) Responsible Office**Program Executive Officer**

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MB)

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(U) Executive Summary

Program Highlights Since Last Report

Program Highlights Since Last Report

The Program has received three of five EMD aircraft and begun flight testing at Edwards Air Force Base (AFB), California. The Program accepted the first plane in September 2023 and EMD flight testing started in November 2023 at Edwards AFB, California. The Program has increased schedule risk based on control laws (software), flight test completion, and device integration and test which results in a slip of Milestone C from February 2025 to May 2025. The schedule risk related to escape system and 8K projectors, as previously reported, remains. Refinement of flight control laws will require future software updates throughout developmental testing. The Program is fully funded and is estimated within APB metrics for RDT&E and Procurement appropriations.

Significant Developments Since Prior Report

Following a schedule breach against the September 2018 APB, the Service Acquisition Executive signed a new APB on April 27, 2023.

Initial Military Flight Release was obtained on June 9, 2023.

T-7A Red Hawk tail #21-7002 first flight took place on June 22, 2023, piloted by Boeing test pilots, and the United States Air Force (USAF) first flight took place on June 28, 2023. In September 2023, the USAF accepted and received the first T-7A Red Hawk, Tail #21-7002.

T-7A Red Hawk Tail #21-7003 first flight took place on November 9, 2023, piloted by Boeing test pilots, and the USAF first flight took place on November 14, 2023. In December 2023, the USAF accepted and received the second T-7A Red Hawk, Tail #21-7003.

T-7A Red Hawk Tail #21-7001 first flight took place on December 13, 2023, piloted by Boeing test pilots, and the USAF first flight took place on December 19, 2023, piloted by USAF and Boeing test pilots. In December 2023 the USAF accepted the third T-7A Red Hawk, Tail #21-7001, into the USAF inventory.

Flight test and climactic lab testing utilizing EMD aircraft started in January 2024.

A Department of the Air Force Guidance Memorandum allows USAF test pilots to fly Company Owned Company Operated aircraft under the FAA certificate process.

The MDA approved two waivers in accordance with 10 U.S.C. 2366b certification for APT made at Milestone B: The requirement pursuant to 10 U.S.C. 2366b(a)(1) to conduct a Preliminary Design Review (PDR) prior to Milestone B was waived on September 11, 2018, and in accordance with the waiver, the Program Office successfully accomplished the Air Vehicle and Ground Bases Training System PDRs, meeting the Pre-Milestone B PDR waiver. The MDA also approved a waiver on September 24, 2018, 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 USAF will perform an ITRA prior to its Milestone C decision.

Defense Cost and Resource Center (DCARC) Cost and Software Data Reporting (CSDR) Compliance Rating: Green Advisory. Latest CSDR report state program is Red, however, the referenced reports that are showing as late, are all tied to the first production lot, currently planned for execution next year (following May 2025 Milestone C decision). There is one outstanding report from Boeing, but there is still three months until final due date.

There are no significant software-related issues with the program at this time; however, the program has increased schedule risk based on control laws (software) as mentioned above.

(U) History of Significant Developments Since Program Inception

Date	Description
September 2018	The Milestone Decision Authority approved Milestone 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.
August 2019	The program conducted a Ground Based Training System (GBTS) PDR.
September 2019	The program conducted an Aircraft PDR / Critical Design Review (CDR).
July 2020	The program completed GBTS CDR.
August 2020	The program completed Air Vehicle CDR.
September 2021	The program completed Preliminary Integrated Interactive Multimedia Instruction Review.
April 2022	The program conducted the Initial Rollout Ceremony for the first T-7A "Red Hawk" aircraft.
April 2023	New Acquisition Program Baseline signed by Service Acquisition Executive.
September 2023	USAF accepted and received T-7A Red Hawk Tail 21-7002.
December 2023	USAF accepted and received T-7A Red Hawk Tail 21-7001.
December 2023	USAF accepted and received T-7A Red Hawk Tail 21-7003.

(U) Schedule**(U) Schedule Events**

Events		Development APB (Milestone) 9/25/2018 Objective	Development Chg 1 (Current) 4/27/2023 Objective / Threshold		Current Estimate 12/31/2023	Actual
Milestone B	MS B	Sept 2018	Sept 2018	Sept 2018	-	25 Sept 2018
CDR	CDR	Mar 2020	Mar 2020	Sept 2020	-	31 Aug 2020
Milestone C	MS C	Jun 2023	Feb 2025	Feb 2026	May 2025	-
RAA	IOC	Oct 2025	Nov 2026	Nov 2027	Oct 2027	-
FRP Decision	FRP Decision	Apr 2025	Jan 2027	Jan 2028	Jan 2027	-

Notes

Milestone C current estimate changed from February 2025 to May 2025 because of increased schedule risk based on control laws (software) and flight test completion. RAA current estimate changed from November 2026 to October 2027 because of change in Milestone C current estimate and because of the reduction in number of aircraft planned for purchase in the first lot of low-rate initial production from 14 to seven.

According to the T-7 contract, RAA shall be completed no later than 90 days prior to declaring IOC. As such, RAA is used in the table above as it is further defined, in the system specification, as delivery of the minimum of one squadron (14 aircraft), Ground Based Training System, necessary in-place logistics elements, necessary in-place operational elements, Air Education and Training Command training enterprise up and running, installation infrastructure in place, and contractor support and processes capable of sustaining operations.

Schedule Baseline Deviation Explanation

None

(U) Current Significant Schedule Risks and Risks Identified at Milestones/Decisions

Event	Date	Description
Current	12/31/2023	Risk: Insufficient Time to Deliver Peculiar and Common Support Equipment is a high schedule risk. Mitigation: A mitigation plan is being worked for this risk.
Current	12/31/2023	Risk: Escape System Qualification is a high schedule issue. Mitigation: A handling plan is being worked for this issue.
Current	12/31/2023	Risk: Insufficient time to complete cert/verification on all APT Tech Manuals & Support Equipment procedures is a high schedule risk. Mitigation: A mitigation plan is being worked for this risk.

Current	12/31/2023	Risk: Incomplete Support Equipment Impacting OT&E, and Entrance into Milestone C, and LRIP is a high schedule risk. Mitigation: A mitigation plan is being worked for this risk.
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(U) Performance

(U) Performance Attributes

Sustainment - Operational Availability (Ao) for Aircraft Sustainment - Materiel Availability (Am) for Aircraft Sustainment - Operational Availability (Ao) for each GBTS simulator (WST, OFT, UTD)			KPP
Current Estimate 12/31/2023		Estimated to meet or exceed current APB Threshold.	
Demonstrated Performance -		TBD	
Development Chg 1 (Current) 4/27/2023	Objective	Ao > = 80% at 20,000 fleet hours. (Am) > = 76% at 20,000 fleet hours. Ao > = 95%	
	Threshold	Ao > = 80% at 20,000 fleet hours. (Am) > = 76% at 20,000 fleet hours. Ao > = 95%	
Development APB (Milestone) 9/25/2018	Objective	Ao > or = 80% at 20,000 fleet hours. (Am) > or = 76% at 20,000 fleet hours. Ao > or = 95%	
Sustained G for Aircraft.			KPP
Current Estimate 12/31/2023		Estimated to meet or exceed current APB threshold.	
Demonstrated Performance -		TBD	
Development Chg 1 (Current) 4/27/2023	Objective	> = 7.5 Gs	
	Threshold	> = 6.5 Gs	
Development APB (Milestone) 9/25/2018	Objective	> or = 7.5 Gs	
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			KPP
Current Estimate 12/31/2023		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.	
Demonstrated Performance -		TBD	
Development Chg 1 (Current)	Objective	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	

4/27/2023		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.
	Threshold	(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 syllabus required skill sets from the GBTS to the aircraft.
Development APB (Milestone) 9/25/2018	Objective	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.
Energy: Fuel capacity for Aircraft		KPP
Current Estimate 12/31/2023		The aircraft's unrefueled range shall be sufficient to effectively complete the most fuel-demanding APT syllabus directed sortie.
Demonstrated Performance -		TBD
Development Chg 1 (Current) 4/27/2023	Objective	The aircraft's unrefueled range shall be sufficient to effectively complete the most fuel-demanding APT syllabus directed sortie.
	Threshold	(T=O) The aircraft's unrefueled range shall be sufficient to effectively complete the most fuel-demanding APT syllabus directed sortie.
Development APB (Milestone) 9/25/2018	Objective	The aircraft's unrefueled range shall be sufficient to effectively complete the most fuel-demanding APT syllabus directed sortie.
Training		KPP
Current Estimate 12/31/2023		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)
Demonstrated Performance -		TBD
Development Chg 1 (Current) 4/27/2023	Objective	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)
	Threshold	(T=0) 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)
Development APB (Milestone) 9/25/2018	Objective	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)
Force Protection		KPP
Current Estimate 12/31/2023		N/A
Demonstrated Performance -		-
Development Chg 1 (Current) 4/27/2023	Objective	NA
	Threshold	NA
Development APB (Milestone) 9/25/2018	Objective	NA

Net-Ready		KPP
Current Estimate 12/31/2023		N/A
Demonstrated Performance -		-
Development Chg 1 (Current) 4/27/2023	Objective	NA
	Threshold	NA
Development APB (Milestone) 9/25/2018	Objective	NA
System Survivability		KPP
Current Estimate 12/31/2023		N/A
Demonstrated Performance -		-
Development Chg 1 (Current) 4/27/2023	Objective	NA
	Threshold	NA
Development APB (Milestone) 9/25/2018	Objective	NA

(U) Requirement Source:

Sponsor(s): United States Air Force

1. Capability Development Document, *Capability Development Document (CDD) for Advanced Pilot Training Family of Systems*

Validated By: Joint Requirements Oversight Council, October 31, 2016

Notes

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.

Performance Deviation Explanation

None

(U) Acquisition Budget Estimate**(U) Total Acquisition Estimates and Quantities**

Category (\$M) Base Year: 2018	Development APB (Milestone) 9/25/2018 CY\$ obs Objective	Development Chg 1 (Current) 4/27/2023 CY\$ obs Objective / Threshold		Current Estimate PB 2025 CY\$ obs / TY\$ obs	
		RDT&E	1,237.4	1,237.4	1,361.1
Procurement	6,669.0	6,669.0	7,335.9	5,368.5	7,703.9
MILCON	169.0	169.0	185.9	514.0*	680.0
O&M	0.0	0.0	0.0	-	-
Total Acquisition	8,075.4	8,075.4	-	7,053.5	9,682.0
Program Acquisition Unit Cost	23.007	23.007	25.308	20.095	27.584
Average Procurement Unit Cost	19.275	19.275	21.203	15.516	22.266
Program End-Item Quantity					
Development	5	5		5	
Procurement	346	346		346	
O&M-Acquired	-	-		0	

* Baseline Deviation

Budget Notes

The MILCON APB cost breach was previously reported in the December 2019 SAR. A PDR was submitted (December 16, 2019), to the MDA, recommending a re-baseline of the program to clear this breach at the Milestone C Decision.

Quantity Notes

None

Cost Baseline Deviation Explanation

Parameter	Explanation
Acquisition Cost (MILCON)	The MILCON APB cost breach was previously reported in the December 2019 SAR. A Program Deviation Report was submitted (December 16, 2019) to the MDA recommending a re-baseline of the program to clear this breach at the Milestone C Decision.

(U) Risk and Sensitivity Analysis

Current Procurement Estimate Risks (12/31/2023)

1	<p>Risk: Ejection seat/escape system qualification may cause additional government testing costs. Mitigation: The POE incorporated costs for the associated schedule risk to government test support requirements.</p>
<p>Current Baseline Risks (4/27/2023)</p>	
<p>(1) At Milestone B, Total Acquisition Cost - \$8,075.4M (BY 2018); PAUC - \$23.007M; Total Acquisition Cost, PAUC, and APUC will be updated when a new Service Cost Position is approved at cost Review Board before MS C. Total O&S Cost baseline will be updated when new Service Cost Position is approved at Cost Review Board before MS C.</p>	
<p>Original Baseline Risks (9/25/2018)</p>	
<p>(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. (3) There are currently no risks associated with this baseline date.</p>	

(U) Unit Costs**(U) Current Estimate Compared with Current Baseline**

Category (CY\$M) Base Year: 2018	Current Baseline 04/27/2023	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	8,075.4	7,053.5	
Program Quantity	351	351	
PAUC	23.007	20.095	-12.65%
Average Procurement Unit Cost			
Procurement Cost	6,669.0	5,368.5	
Procurement Quantity	346	346	
APUC	19.275	15.516	-19.50%

(U) Current Estimate Compared with Original Baseline

Category (CY\$M) Base Year: 2018	Original Baseline 09/25/2018	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	8,075.4	7,053.5	
Program Quantity	351	351	
PAUC	23.007	20.095	-12.66%
Average Procurement Unit Cost			
Procurement Cost	6,669.0	5,368.5	
Procurement Quantity	346	346	
APUC	19.275	15.516	-19.50%

(U) Cost Growth Details**Impacts of Schedule Changes on Unit Cost**

Not Applicable.

Impacts of Performance Changes on Unit Cost

Not Applicable.

Actions taken or Proposed to Control Future Cost Growth

Not Applicable.

Status of Each Major Contract and Significant Factors Contributing to Cost and Schedule Variance; Projected Effects on Future Program Costs

See Contracts section.

Notes

None

(U) Life-Cycle Costs

(U) Operating and Support and Disposal Cost Estimates Compared with Baseline

Category (\$M) Base Year: 2018	Development APB (Milestone) 9/25/2018 CY\$ obs Objective	Development Chg 1 (Current) 4/27/2023		Current Estimate CY\$ obs / TY\$ obs	
		CY\$ obs	Objective / Threshold		
Total O&S	44,666.9	44,666.9	49,133.6	38,272.1	87,848.5
Total Disposal	-	-	-	-	-

(U) Current Cost Estimate Sources

Operating and Support Cost

Type: Budget

Approved by: FY 2025 PB, January 04, 2024

Disposal/Demilitarization Cost

Type: Budget

Approved by: FY 2025 PB, January 04, 2024

Operating and Support Baseline Deviation Explanation

None

Cost Notes

Sustainment Strategy

The T-7A Red Hawk sustainment strategy includes organic Depot Maintenance, Supply Chain Management, and Product Support Integration for the aircraft and Contractor Logistics Support for the ground based training systems and maintenance training systems.

O&S and Disposal Cost Sources: For Programs with an O&S Cost estimate or Disposal Cost estimate the O&S Cost Source and Disposal Cost Source listed in the MSAR are inaccurate due to a system limitation. See MSAR Supplement for corrected source(s).

(U) Operating and Support Variance with Prior Estimate

(CY\$M) Base Year: 2018	Estimate	
Prior Estimate (12/31/2022)	47,044.0	
Current Estimate	38,272.1	
Category	Variance	Explanation

(CY\$M) Base Year: 2018		Estimate	
Unit-Level Manpower		-615.1	Personnel ramp up and ramp down counts aligned to beddown aircraft percentage; updated rate conversions.
Unit Operations		-3,251.5	Fuel usage was reduced; updated rate conversions.
Maintenance		-3,438.8	Run rate data points updated; engine sustainment costs adjusted; updated rate conversions.
Sustaining Support		-73.5	Run rate data points updated; simulator operation and repair adjustments; updated rate conversions.
Continuing System Improvements		-2,922.2	Update with new unit flyaway costs; updated software maintenance; updated rate conversions.
Other		1,529.1	Updated rate conversions.; change in rounding methodology used in MSAR data collection systems.
Not Categorized			
		0.0	

(U) Operating and Support Cost Element Structure Estimates by Acquired System

(CY\$M) Base Year: 2018							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
APT	7,642.2	8,739.8	18,595.6	1,564.1	1,730.5	0.0	38,272.1
Program	7,642.2	8,739.8	18,595.6	1,564.1	1,730.5	0.0	38,272.1

(U) Annual Operating and Support Costs per Unit Compared with Antecedent System

(CY\$M) Base Year: 2018							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
APT	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(U) Operating and Support Cost Estimate Assumptions

System	Quantity to Sustain	Unit Expected Service Life (Years)	Unit of Measure	Fiscal Years Operational
APT	350	40.0	Aircraft	2026 - 2076

Additional O&S Estimate Assumptions

None

Antecedent Estimate Assumptions

None

O&S Annual Cost Calculation Memo

T-38 is antecedent system. T-38 cost estimate is not included in this MSAR.

(U) Technologies and Systems Engineering

(U) Current Significant Technical Risks and Risks Identified at Milestones/Decisions

Event	Date	Description
Current	12/31/2023	Risk: Integration of 8K Native Constant Resolution Visual System into Weapon System Trainer / Operational Flight Trainer Design is a moderate performance risk. Mitigation: A mitigation plan is being worked for this risk.
Current	12/31/2023	Risk: T-7 Test Pre-Operational Support Readiness is a high performance risk. Mitigation: A mitigation plan is being worked for this risk.

(U) Performing Activities and Contracts**(U) External Government Activities**

None

(U) Contracts and Efforts

Contract Title	Contract Number / Effort	Contractor	Phase
Engineering, Mfg & Development (EMD) Order	FA861718F8001	Boeing: Defense, Space and Security	Development

(U) Contract and Effort Identification, Price, Quantity and Performance

Contract Number:	FA861718F8001	Order Number:	-
Contract Title:	Engineering, Mfg & Development (EMD) Order	Strategy:	-
CAGE:	-- Boeing: Defense, Space and Security	Contracting Office:	-
City, State/Province:	Saint Louis, MO		
Effort Number:	-	Supported Phase:	Development
Type:	Fixed-Price Incentive (Firm Target)	Award Date:	September 27, 2018
Latest Modification Date:	-	Definitization Date:	-
Latest Modification No.:	-	Work Start Date:	September 27, 2018
Technical Data Rights:	-		
Notes:	Engineering, Mfg & Development (EMD) of 5 Advanced Pilot Training aircraft and ground based training systems.		

Initial Price (TY\$M) Target / Ceiling	Current Price (TY\$M) Target / Ceiling	Estimate at Completion (TY\$M) Contractor / PM	Initial Quantity	Current Quantity	Delivered Quantity
725.9 777.8	725.9 777.8	772.9 77.8	5	5	3

Work Completed (%):	87.61%
Cost Variance (TY\$M):	-22.2
Schedule Variance (TY\$M):	-24.5

Factors Contributing to Cost Variance and Projected Effects on Program Costs

The biggest drivers for unfavorable Cost Variance this period were "Crew Station Subsystem" (\$1.1M), "Automatic Flight Control" (\$0.5M), "Other Program Management (Program Integration)" (\$1.2M).

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

The biggest driver for unfavorable Schedule Variance this period was "Flight Test" (\$1.2M). This was the only WBS element that tripped the schedule variance threshold this reporting period.

(U) Production**(U) Low-Rate Initial Production**

	Original LRIP Determination	Current LRIP Determination
Total LRIP Quantity	35	35
Date	9/11/2018	9/11/2018
Reference	Milestone B ADM	Milestone B ADM
LRIP Period	FY 2023 - 2025	FY 2023 - 2025
Total Procurement Quantity	346	346
LRIP Percentage of Total	10.1%	10.1%

Rationale if LRIP Quantity Exceeds 10% of Total Procurement Quantity (Current Determination)

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 five RDT&E funded aircraft will be upgraded to the production configuration.

LRIP Notes

None

(U) Deliveries and Expenditures

(U) Acquisition Funding

	Total Estimate	Actual to Date	Actual, Percent Complete
Years Appropriated	-	-	-
Appropriations (TY, \$M)	9,682.0	9,682.0	100.0%
Expenditures (TY, \$M)	9,682.0	808.1	8.3%

(U) End Items Delivered

	Total Required	Planned to Date	Actual to Date	Actual, Percent Complete
Development	5			
APT		5	3	
Procurement	346			
Total	351	5	3	0.9%

Notes

None

(U) International Program Aspects**General Memo**

Not Applicable.

Exportability and Business Issues

Not Applicable.

Is design for international exportability planned?	Yes	Industry/Partner Exportability Cost-Sharing?	No
----------------------------------------------------	-----	----------------------------------------------	----

Program Protection: Technology Security and Foreign Disclosure Issues

Not Applicable.

(U) Agreements

No International Agreements have been defined for T-7 APT



UNCLASSIFIED

**Modernized
Selected Acquisition Report
Supplement**

**T-7 Advanced Pilot Training
(T-7 APT)**

FY 2025 President's Budget
As of: December 31, 2023

UNCLASSIFIED

MSAR Supplement Sections

Program Description

Program Use of the Adaptive Acquisition Framework

Technologies and Systems Engineering

Funding Sources (Acquisition)

Funding Sources (Operating and Support)

Acquisition Estimate and Quantity Summary

Annual Acquisition Estimates by Appropriation Account

Acquired System Annual End-Item Quantities by Appropriation Account

Nuclear Costs

Operational Fielding Plan

O&S Independent Cost Estimate

Annual Operating and Support Estimates by Cost Element

Program Description

Full Name

T-7 Advanced Pilot Training

Short Name

T-7 APT

PNO

436

Lead Component

Air Force

AAF Pathway

MCA

Acquisition Type

MDAP

Acquired Systems

APT

Related Programs

Full Name	PNO	Pathway	Type	ACAT/ BCAT	Acquisition Status	Costs in SAR?	
						Acq	O&S

Program Use of the Adaptive Acquisition Framework

This Acquisition is accomplished by a single program in the Major Capability Acquisition Pathway.

Technologies and Systems Engineering

T-7 Advanced Pilot Training

Major Software Efforts

Title	Status	Fielding Date	Description

Major Engineering Changes

Title	Original Need Date	Fielding Date	Description, Rationale and Program Impacts

Funding Sources (Acquisition)

Acquisition Funding Notes

The Program continues to be fully funded with a fixed price contract structure. The delays due to test discoveries have caused funding misalignment as some development test requirements move to the right compared to the original schedule. The FY 2025 PB reduced the first LRIP buy to seven aircraft (from requirement of 14). The MILCON APB cost breach was previously reported in the December 2019 SAR. A Program Deviation Report was submitted (December 16, 2019) to the MDA, recommending a re-baseline of the Program to clear this breach at the Milestone C Decision estimated FY 2025.

T-7 Advanced Pilot Training

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
RDT&E	3600F	04	0604233F - Specialized Undergraduate Pilot Training	0604233F	999999 -		x
RDT&E	3600F	05	0605223F - Advanced Pilot Training	0605223F	655340 - Advanced Trainer Replacement T-X		
Procurement	3010F	03	APT000 - Advanced Trainer Replacement T-X	0804701F	-		
Procurement	3010F	06	000999 - Initial Spares/Repair Parts	0804701F	-	x	
Procurement	3010F	07	000075 - Other Production Charges	0804701F	-	x	

Funding Sources (Operating and Support)

Note: Budget lines fund activities executed by the Program Office or Sustainment Office.

Operating and Support Funding Notes

T-7 Advanced Pilot Training

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
O&M	3400F	03	032B - Flight Training	0804701F	-		

Acquisition Estimate and Quantity Summary

T-7 Advanced Pilot Training

Acquisition Estimates

Category	PB 2025	TY (\$M)	Current Base Year	Original Base Year	Report Fiscal Year
			CY2018 (\$M)	CY2018 (\$M)	CY2024 (\$M)
RDT&E		1,298.0	1,170.9	1,170.9	1,429.5
Procurement		7,703.9	5,368.5	5,368.5	6,554.1
MILCON		680.0	514.0	514.0	627.6
O&M		-	-	-	-
Total Acquisition		9,682.0	7,053.5	7,053.5	8,611.2
PAUC		27.584	20.095	20.095	24.533
APUC		22.266	15.516	15.516	18.943

Acquisition End-Item Quantities

System	PB 2025	Development	Procurement
APT		5	346
Total		5	346

Unit Description

The T-7 APT unit of measure is an aircraft. The T-7A Red Hawk Advanced Pilot Training (APT) program will replace the T-38C and associated Ground Based Training System (GBTS).

Current and Future Years Defense Program Summary, TY(\$M)

Appropriation	Prior	2024	2025	2026	2027	2028	2029	To Complete	Total
RDT&E	1,073.7	75.0	84.0	30.8	5.3	5.4	5.5	18.4	1,298.0
Procurement	11.5	12.9	301.0	663.1	731.9	910.7	928.8	4,144.1	7,703.9
MILCON	78.5	39.5	138.1	241.7	182.2	-	-	-	680.0
O&M	-	-	-	-	-	-	-	-	-
PB 2025 Total	1,163.7	127.5	523.1	935.5	919.4	916.0	934.2	4,162.5	9,682.0

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

T-7 Advanced Pilot Training

Source for TY\$-CY\$ Conversion: SAF/FMCE Raw and Weighted Inflation Indices for DAF Accounts: 23 Feb 2024

3600F - Research, Development, Test & Eval, AF					
fiscal year		Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2018 (\$M)
Total		1,298.0	1,298.0	-	1,170.9
2011		0.621	0.6	0.905693	0.7
2012		2.230	2.2	0.921474	2.4
2013		0.648	0.6	0.937047	0.7
2014		1.496	1.5	0.950111	1.6
2015		7.747	7.7	0.959655	8.1
2016		4.132	4.1	0.974330	4.2
2017		5.686	5.7	0.994718	5.7
2018		77.608	77.6	1.015629	76.4
2019		236.803	236.8	1.034511	228.9
2020		326.985	327.0	1.061118	308.2
2021		214.645	214.6	1.110972	193.2
2022		162.592	162.6	1.170571	138.9
2023		32.513	32.5	1.212176	26.8
2024		74.980	75.0	1.243051	60.3
2025		83.985	84.0	1.269728	66.1
2026		30.826	30.8	1.296392	23.8
2027		5.255	5.3	1.323616	4.0
2028		5.366	5.4	1.351412	4.0
2029		5.471	5.5	1.379792	4.0
2030		13.225	13.2	1.408767	9.4
2031		5.188	5.2	1.438351	3.6

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

T-7 Advanced Pilot Training

Source for TY\$-CY\$ Conversion: SAF/FMCE Raw and Weighted Inflation Indices for DAF Accounts: 23 Feb 2024

3010F - Aircraft Procurement, Air Force									
fiscal year	End Item Recurring Flyaway	Non-End Item Recurring Flyaway	Non-Recurring Flyaway	Initial Spares	Depot Activation	Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2018 (\$M)
Total	5,297.3	591.6	-	504.2	256.6	945.3	7,594.931	-	5,285.045
2011							-	0.923597	-
2012							-	0.937631	-
2013							-	0.956697	-
2014							-	0.970630	-
2015							-	0.984140	-
2016							-	1.003456	-
2017							-	1.024457	-
2018							-	1.054322	-
2019							-	1.090900	-
2020							-	1.137028	-
2021							-	1.185685	-
2022							-	1.224796	-
2023						10.507	10.507	1.255013	8.372
2024					-	-	-	1.280306	-
2025	144.292	26.097		19.638	22.979	64.820	277.826	1.307326	212.515
2026	438.755	45.958		43.161	51.702	63.775	643.351	1.334780	481.990
2027	371.858	48.701		37.545	154.454	104.426	716.984	1.362811	526.107
2028	683.686	64.324		54.982	7.654	87.689	898.335	1.391430	645.620
2029	611.927	66.043		56.076	7.806	174.341	916.193	1.420650	644.911
2030	836.691	89.441		78.156	5.268	146.924	1,156.480	1.450483	797.307
2031	823.218	85.972		78.743	5.507	112.545	1,105.985	1.480943	746.811
2032	808.712	81.257		74.472	0.391	62.734	1,027.566	1.512043	679.588
2033	576.674	58.566		36.374	0.400	44.266	716.280	1.543796	463.973
2034	0.939	9.158		6.036	0.410	27.126	43.669	1.576216	27.705
2035	0.586	9.133		6.187		26.886	42.792	1.609316	26.590
2036		6.571		6.341		13.531	26.443	1.643112	16.093
2037		0.330		6.500		5.690	12.520	1.677617	7.463

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

T-7 Advanced Pilot Training

Source for TY\$-CY\$ Conversion: SAF/FMCE Raw and Weighted Inflation Indices for DAF Accounts: 23 Feb 2024

3080F - Other Procurement, Air Force									
fiscal year	End Item Recurring Flyaway	Non-End Item Recurring Flyaway	Non-Recurring Flyaway	Initial Spares	Depot Activation	Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2018 (\$M)
Total	-	-	-	-	-	109.0	108.974	-	83.444
2011							-	0.905396	-
2012							-	0.921818	-
2013							-	0.935403	-
2014							-	0.947932	-
2015							-	0.959515	-
2016							-	0.973583	-
2017							-	0.992303	-
2018							-	1.014256	-
2019							-	1.034486	-
2020							-	1.054144	-
2021						0.300	0.300	1.094024	0.274
2022							-	1.159605	-
2023						0.700	0.700	1.205811	0.581
2024						12.949	12.949	1.235665	10.479
2025						23.154	23.154	1.262525	18.339
2026						19.722	19.722	1.289038	15.300
2027						14.907	14.907	1.316108	11.327
2028						12.324	12.324	1.343747	9.171
2029						12.566	12.566	1.371965	9.159
2030						12.054	12.054	1.400776	8.605
2031						0.298	0.298	1.430193	0.2

Annual Acquisition Estimates by Appropriation Account
(Aligned to Budget Position: PB 2025)

T-7 Advanced Pilot Training

Source for TY\$-CY\$ Conversion: SAF/FMCE Raw and Weighted Inflation Indices for DAF Accounts: 23 Feb 2024

3300F - Military Construction, Air Force					
fiscal year		Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2018 (\$M)
Total		680.0	680.044	-	514.0
2011			-	0.922904	-
2012			-	0.939501	-
2013			-	0.961626	-
2014			-	0.976425	-
2015			-	0.994505	-
2016			-	1.016323	-
2017			-	1.039949	-
2018			-	1.064927	-
2019			-	1.097757	-
2020		31.600	31.600	1.145621	27.6
2021		23.400	23.400	1.196182	19.562
2022		18.590	18.590	1.234216	15.062
2023		4.938	4.938	1.263461	3.908
2024		39.543	39.543	1.289978	30.654
2025		138.100	138.100	1.317108	104.851
2026		241.650	241.650	1.344768	179.696
2027		182.223	182.223	1.373008	132.718

Acquired System Annual End-Item Quantities by Appropriation Account
(Aligned to Budget Position: PB 2025)

T-7 Advanced Pilot Training

3600F - Research, Development, Test & Eval, AF				
fiscal year	APT			Total
Total	5			5
Undistributed				-
2023	2			2
2024	3			3

Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

T-7 Advanced Pilot Training

3010F - Aircraft Procurement, Air Force				
fiscal year	APT			Total
Total	346			346
Undistributed				-
2023				-
2024				-
2025	7			7
2026	23			23
2027	23			23
2028	36			36
2029	36			36
2030	60			60
2031	60			60
2032	60			60
2033	41			41

Nuclear Costs

T-7 Advanced Pilot Training

Program's Use of Department of Energy Resources

None

Operational Fielding Plan

T-7 Advanced Pilot Training

System: APT

Fielding and Inventory Notes

Some of this Program's Operational Fielding Plan contains Controlled Unclassified Information (CUI) and have been removed per the Implementation Plan for the DoD's Modernized Selected Acquisition Report Process, dated June 2023, which required the SAR be submitted without any designation relation to dissemination control.

APT Fielding Plan and Inventory

fiscal year	Store	Field	Expend/Loss	Decommission	Inventory
2023					-
2024					-
2025					-
2026					-
2027					-
2028					-
2029					-

O&S Independent Cost Estimate

T-7 Advanced Pilot Training

Independent and Current Cost Estimate Comparison

Category	CY2018 (\$M)	Independent Cost Estimate 9/10/2018	Current Estimate 9/20/2023	Variance with ICE (%)
Unit-Level Manpower		6,778.2	7,642.2	13%
Unit Operations		10,192.3	8,739.8	-14%
Maintenance		20,182.2	18,595.6	-8%
Sustaining Support		1,695.2	1,564.1	-8%
Continued System Improvements		2,641.8	1,730.5	-34%
Other		1,148.4	-	-100%
Total O&S		42,637.9	38,272.1	-10%

Independent Cost Estimate Source

Event: Milestone B Decision
 Type: Independent Cost Estimate
 Approved by: OSD Cost Assessment & Program Evaluation, September 10, 2018

Current Cost Estimate Source

Type: Program Office Estimate
 Approved by: Air Force Cost Analysis Agency, September 20, 2023

Cost Estimate Variance Explanation

The primary contribution to the variance between the FY 2018 Independent Cost Estimate and the FY 2023 POE is the milestone shift on the Program from FY 2022 to FY 2025. The shifting of costs three years causes a significant delta in Constant Year 2018 dollars. Another significant difference was in assumptions for annual flight hours (decrease) driving down costs in unit operations and maintenance.

Annual Operating and Support Estimates by Cost Element

T-7 Advanced Pilot Training

System: APT

Source for TY-CY Conversion: USAF OSD Raw/Weighted Inflation Indices (3400/3010)

Operating and Support Cost Elements							
fiscal year	1.0 Unit-Level Manpower	2.0 Unit Operations	3.0 Maintenance	4.0 Sustaining Support	5.0 Continuing System Improvements	Other	Total CY2018 (\$M)
Total	7,642.1	8,739.8	18,595.6	1,564.1	1,730.5	-	38,272.1
2026	21.372	3.977	7.362	3.883	6.787		43.4
2027	28.061	11.779	23.637	4.406	6.793		74.7
2028	37.235	24.339	50.395	5.240	6.800		124.0
2029	46.338	35.111	73.227	7.207	10.416		172.3
2030	59.965	51.552	108.062	10.029	12.117		241.7
2031	75.490	70.273	147.976	15.077	14.053		322.9
2032	106.534	107.575	226.552	16.968	17.897		475.5
2033	134.371	141.491	298.542	26.426	21.378		622.2
2034	163.055	176.444	372.717	27.611	24.952		764.8
2035	184.578	203.218	410.412	33.287	27.678		859.2
2036	182.906	203.748	460.479	34.899	27.705		909.7
2037	179.196	204.270	495.341	33.671	27.732		940.2
2038	179.443	204.854	440.485	33.704	27.760		886.2
2039	179.691	205.440	441.619	33.737	27.787		888.3
2040	179.940	206.028	418.717	33.770	27.814		866.3
2041	180.190	206.618	442.687	38.355	27.841		895.7
2042	180.441	207.211	428.344	38.183	27.868		882.0
2043	180.694	207.805	407.052	37.871	27.896		861.3
2044	180.947	208.402	452.614	39.050	27.923		908.9
2045	181.202	209.000	456.087	39.030	27.950		913.3
2046	181.458	209.601	486.102	39.567	27.978		944.7
2047	181.715	210.204	435.917	38.860	28.005		894.7
2048	181.973	210.809	392.146	38.385	28.033		851.3
2049	182.233	211.417	439.885	38.972	28.060		900.6
2050	182.494	212.026	426.395	38.753	65.003		924.7
2051	182.756	212.638	413.231	38.492	69.500		916.6
2052	183.019	213.251	430.955	38.873	71.048		937.1
2053	183.283	213.867	452.270	39.022	72.599		961.0
2054	183.549	214.486	445.227	38.951	74.152		956.4
2055	183.815	215.106	425.113	38.697	75.709		938.4
2056	184.083	215.729	445.701	38.741	75.783		960.0
2057	184.353	216.353	508.259	39.390	74.370		1,022.7
2058	184.623	216.980	515.414	39.178	72.955		1,029.2

System: APT

Source for TY-CY Conversion: USAF OSD Raw/Weighted Inflation Indices (3400/3010)

Operating and Support Cost Elements							
fiscal year	1.0 Unit-Level Manpower	2.0 Unit Operations	3.0 Maintenance	4.0 Sustaining Support	5.0 Continuing System Improvements	Other	Total CY2018 (\$M)
2059	184.895	217.610	505.634	39.482	71.537		1,019.2
2060	185.168	218.241	465.829	39.152	70.116		978.5
2061	185.442	218.875	467.313	39.182	65.706		976.5
2062	185.717	219.511	468.800	39.212	28.420		941.7
2063	185.994	220.150	470.289	39.242	28.447		944.1
2064	186.272	220.790	471.780	39.272	28.475		946.6
2065	186.551	221.433	473.274	39.302	28.503		949.1
2066	186.832	222.078	474.771	39.332	28.531		951.5
2067	187.088	222.725	475.941	39.362	28.559		953.7
2068	178.735	212.978	455.176	37.556	27.584		912.0
2069	167.343	199.720	427.022	35.138	26.274		855.5
2070	158.386	189.558	405.061	33.276	25.268		811.5
2071	136.987	162.825	348.205	28.520	22.680		699.2
2072	115.715	137.691	294.232	24.061	20.252		592.0
2073	86.542	101.809	217.418	17.748	16.811		440.3
2074	59.231	69.387	147.703	12.068	13.713		302.1
2075	21.627	22.717	48.240	3.932	9.271		105.8
2076	2.619	0.054	-	-	-		2.7