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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Modernized Selected Acquisition Report (MSAR) B-52 Radar Modernization Program (RMP) (B-52 RMP)

FY 2025 President's Budget

Effective: December 31, 2023

Defense Acquisition Visibility Environment

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(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 B-52 Radar Modernization Program (RMP)	Short Name B-52 RMP
PNO 574	Milestone Decision Authority Component Acquisition Executive
Lead Component Department of the Air Force	Program Executive Office Bombers Directorate (AFPEO/BOMBERS)
Joint Program No	Acquisition Type Major Defense Acquisition Program
Adaptive Acquisition Pathway Major Capability Acquisition	Acquired Systems B-52 RMP
Acquisition Category IB	
Acquisition Status Active Acquisition	

Mission

The B-52 Radar Modernization Program (RMP) supports nuclear and conventional operations by upgrading or replacing, in whole or in part, the current APQ-166 radar Line Replaceable Units (LRU) on the B-52H aircraft. The APQ-166 system will be increasingly difficult to sustain due to diminished manufacturing sources and obsolescent technologies; the current failure rate of the APQ-166 places long duration missions at risk. This modernization program will encompass the radar antenna array and up to 14 individual LRUs that comprise the entire radar system. The RMP will provide development, production and installation of new components and systems to replace the legacy equipment, which will be installed on all 76 B-52H aircraft. RMP will take advantage of advances in technology and on-going development efforts to acquire, to the maximum extent possible, off-the-shelf components and integrate them into the B-52. The use of new technology will increase both the overall reliability of the radar system and the capabilities for new missions. This Radar Modernization Program will allow the operational command (AF Global Strike Command) to fully utilize the capabilities of the B-52H aircraft to employ an array of weapons and to perform mission-essential navigation and weather avoidance functions. In addition, all the applicable training devices which process radar data or represent the radar subsystem must also be modified and upgraded in conjunction with the aircraft modifications. This upgrade will affect all three Weapon System Trainers (WST), the WST Training Systems Integration Laboratory (SIL), both B-52 Offensive Station Maintenance Trainers (OSMT), and the Bombing-Navigation System Maintenance Trainers (BNSMT).

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

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(U) Executive Summary

Program Highlights Since Last Report

The B-52H Radar Modernization Program (RMP), referred to hereafter as B-52 RMP, is in the Engineering Manufacturing & Development (EMD) phase and continues to make progress in hardware development and modification. The new radar, a derivative of the AN/APG-79, has now been officially designated the AN/APQ-188.

B-52 RMP is now entering the software development stage to integrate the AN/APQ-188 into the B-52H. The initial drop of software is over 70% complete and there are currently no significant software related issues. Contractor supply chain (parts) delays and material availability constraints created challenges to delivering the Display & Sensor System Processors (DASSP), the brains of the RMP Program and a necessary aircraft component for the Radar Development Lab (RDL) to continue software development. Delayed DASSP deliveries, and other hardware, continue to put pressure on laboratory development and qualification efforts.

The Program inducted the first EMD Test Aircraft for modification with the RMP system and test instrumentation on May 25, 2023, and the modification is over 45% complete. The Program successfully delivered the first radar to the RDL in August 2023 and successfully applied power in December 2023.

The Program discovered material defects with the Radome design. The Program is moving forward with a major redesign and replanning effort and held a Delta Critical Design Review on February 27-29, 2024. Impacts to the flight test Program and Milestone C Decision Point #1 (DP1) (March 2025) are still to be determined, but the Program estimates the first Radome delivery will occur in 4th Quarter FY 2025. The delay should not impact Operational Test or IOC (FY 2027).

The Program expects to complete the following milestones in Calendar Year 2024:

- Delivery of eight additional EMD radar units to support two test aircraft, environmental qualification testing, software integration laboratories, and spares.
- The first delivery of a fully operational radar system laboratory expected in May 2024, with system-level developmental laboratory testing planned to begin in June 2024.
- Delivery of the first fully modified RMP aircraft beginning of system-level open-air developmental testing by November 2024 at Edwards Air Force Base.

The Program schedule is at the APB Threshold for Milestone C Decision Points #1 (March 2025) and Milestone C Decision Points #2 (September 2025). While there are funding shortfalls in future years, FY 2024 levels are sufficient to execute all requirements, including a potential FY 2024 \$9M SAC-D mark, which, if realized, will be mitigated within the portfolio. The President's Budget for FY 2025 RDT&E ensures the EMD effort is fully funded. Procurement funding in FY 2025 is also fully funded to support LRIP lot 1. However, Procurement shortfalls for FY 2026 and beyond will need to be addressed by Air Force Global Strike Command (AFGSC) in the FY 2026 Budget.

The Program's current FY 2023 Non-Advocate Cost Assessment (NACA) is within APB Objective and Threshold values. However, the FY 2023 POE uses a more detailed set of cost estimating assumption and exceeds the APB Thresholds in Procurement Cost and APUC (12.6%). The Program team believes the FY 2023 POE is the more realistic cost estimate and sent a Program Deviation Report to the MDA on September 19, 2023. The PAUC (10.1%) is slightly above the APB Threshold and is being monitored as a potential breach. The Program team provided an update to the MDA on October 3, 2023, and will continue to manage within current APB constraints. The Program Team and Cost Estimators will review all assumptions in the FY 2024 POE and FY 2024 NACA to ensure a consistent approach.

Defense Cost and Resource Center Cost and Software Data Reporting (CSDR) Compliance Rating: Red: Any outstanding CSDR deliverables greater than 12 months overdue, or formally rejected CSDR deliverables outstanding greater than 30 days overdue.

(U) History of Significant Developments Since Program Inception

Date	Description
March 2018	The Joint Requirements Oversight Council approved the Capability Development Document.
August 2018	The Program team completed the System Requirements Review.
October 2018	The Program team completed the System Functional Review.
July 2019	The Prime Contractor completed subsystem supplier selections.
October 2020	The Program team completed the System Preliminary Design Review.
June 2021	The Program entered EMD via the Milestone B Acquisition Decision Memorandum.
February 2022	The Program team completed the System Critical Design Review.
March 2023	The Program team released a Request for Proposal for LRIP.
May 2023	The Contractor team inducted Test Aircraft #1 for Modification.
August 2023	The Contractor team delivered the first EMD Test Radar to the Radar Development Laboratory.

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

Events		Development APB (Milestone) 6/9/2021 Objective	Development APB (Current) 6/9/2021 Objective / Threshold		Current Estimate 12/31/2023	Actual
REDACTED						
REDACTED						
REDACTED						
REDACTED						
REDACTED						
REDACTED						
REDACTED						

Notes

This Program's schedule events are CUI and have therefore been redacted from this MSAR. However, it may be noted that changes to the schedule are due to supply chain (parts) delays and material availability constraints for equipment planned for laboratories and the environmental qualification program. The contractor is challenged to deliver DASSP to the Radar Development Laboratory, which continues to put pressure on delivery schedules for equipment destined for laboratories and the qualification program. Boeing is working aggressively to mitigate impacts, and dates for all acquisition events are within APB Threshold and Objective windows.

- Milestone C Decision Point #1 is for approval to buy the first production lot and comply with Milestone C requirements with the following criteria
- Manufacturing Readiness Assessment conducted. Manufacturing Readiness Level seven achieved.
- Hardware maturity demonstrated through:
 - Environmental testing, EM Interference, EM Compatibility, and safety-of-flight testing completed.
 - Hardware interfaces demonstrated in ground testing.
 - Capability to create high-resolution Synthetic Aperture Radar map demonstrated during flight testing.
 - DT interim technical report and OT periodic report completed.
 - Statutory documents for Milestone C completed.
- Milestone C Decision Point #2 is for approval of remaining program production with the

following specific entrance criteria:

- Production Readiness Review conducted.
- System flight testing conducted and documented in DT interim technical report.
- Operational assessment documented in OT periodic report.

Schedule Baseline Deviation Explanation

None

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

Event	Date	Description
Current	12/31/2023	<p>Title: Display and Sensor System Processor (DASSP) Graphics Processor Unit (GPU) Components Life of Type Buy (LoTB)</p> <p>Risk: IF B-52 RMP is not able to procure Display and Sensor System Processor (DASSP) Graphics Processor Unit (GPU) card components before the supplier runs out of stock, THEN major program milestones including LRIP, FRP, and Operations and Support will be at high risk of schedule slip due to the need to redesign and recertify.</p> <p>Mitigation: 1) Determine way forward (3010 New Start) - Complete, 2) New Start Prior Approval submitted to OSD - Complete, 3) Congressional New Start Approval, 4) Updated RFQ to Curtiss-Wright, 5) RFP to Boeing, 6) Proposal Received from Boeing, 7) Contract Award to procure obsolescent components, and 8) Procurement of obsolescent components.</p>
Current	12/31/2023	<p>Title: Radome Integrated Test</p> <p>Risk: Independent characterization testing of the Radome and radar is planned to occur. Limited plan for radiating integration testing of a flight represented configuration prior to flight test. IF Radome is not evaluated with Electronic Warfare and radar system, THEN any Radio Frequency issues occurring at Flight Test will delay Procurement</p> <p>Mitigation: 1) Decision for radiate testing prior to flight test - Complete, 2) ID Radome qualification testing site - Complete, 3) RF Interoperability analysis - Complete, 4) Qualification Testing, 5) Receive TG in RSIL - Complete, 6) Receive Radar in RSIL, 7) Receive Radome in RSIL, 8) RSIL ATO, and 9) RSIL Testing Complete.</p>
Current	12/31/2023	<p>Title: Radar Development Laboratory (RDL) Authority to Operate (ATO) (NOTE: This risk has been realized and is now an Issue.)</p> <p>Risk: Radar Development Laboratory (RDL) with radar bench approved for classified operation. IF the RDL with the radar bench is not approved for classified operations when needed THEN Increment 0.5 software development, integration, and test activities will be delayed.</p> <p>Mitigation: 1) Identify Alternate Authority to approve use of RDL with radar bench - Complete, 2) Coordinate with DCSA to determine minimum information required in ATO package submission - Complete, 3) Attain Boeing concurrence to submit ATO package with minimum information identified by DCSA - Complete, 4) Identify intermediate and final configs that will enable classified processing and what functionality percentage will be accepted for Day One RDL ATO - complete, 5) Receive all hardware for final ATO config - incomplete, 6) Submit final config certification, and 7) DCSA approve.</p>
Current	12/31/2023	<p>Title: Software Development</p> <p>Risk: The concurrent overlap of capability drops, Source Lines of Code quantity, software complexity, and contractor team experience in</p>

		<p>implementing a large-scale software effort increases the probability of delay to complete software development and test. IF software functions are not implemented by planned increments, THEN flight testing will be delayed</p> <p>Mitigation: 1) Software Specification Review - Complete, 2) Software PDR preliminary software design complete - Complete, 3) Software CDR (software development begins) - Complete, 4) Delivery of first SAS for S/W development - Complete, 5) SIL 3 ATO - Complete, 6) RDL ATO with Radar (RDL ATO Risk) - waiting, 7) RSIL receives ATO, 8) Increment .5 Process Review (TRR), 9) .5 delivered to A/C for test, and 10) MS C DP 1 Software Criteria Demonstrated</p>
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(U) Performance

Additional information for this section is provided in the classified annex to this submission.

(U) Performance Attributes

REDACTED		
Current Estimate 12/31/2023		
Demonstrated Performance -		
Development APB (Current) 6/9/2021	Objective	
	Threshold	
Development APB (Milestone) 6/9/2021	Objective	
REDACTED		
Current Estimate 12/31/2023		
Demonstrated Performance -		
Development APB (Current) 6/9/2021	Objective	
	Threshold	
Development APB (Milestone) 6/9/2021	Objective	
REDACTED		
Current Estimate 12/31/2023		
Demonstrated Performance -		
Development APB (Current) 6/9/2021	Objective	
	Threshold	
Development APB (Milestone) 6/9/2021	Objective	
REDACTED		
Current Estimate 12/31/2023		
Demonstrated Performance -		
Development APB (Current) 6/9/2021	Objective	
	Threshold	
Development APB (Milestone) 6/9/2021	Objective	
REDACTED		
Current Estimate 12/31/2023		
Demonstrated Performance		

-		
Development APB (Current) 6/9/2021	Objective	
	Threshold	
Development APB (Milestone) 6/9/2021	Objective	
REDACTED		
Current Estimate 12/31/2023		
Demonstrated Performance -		
Development APB (Current) 6/9/2021	Objective	
	Threshold	
Development APB (Milestone) 6/9/2021	Objective	
REDACTED		
Current Estimate 12/31/2023		
Demonstrated Performance -		
Development APB (Current) 6/9/2021	Objective	
	Threshold	
Development APB (Milestone) 6/9/2021	Objective	

(U) Requirement Source:
Sponsor(s): United States Air Force

1. Capability Development Document, *B-52 RMP CDD*

Validated By: Joint Requirements Oversight Council, March 12, 2018

Notes

1. Due to a system data migration error, the Objective and Threshold values as shown are reversed. The Objective MTBCF requirement is 1000 flight hours and the Threshold MTBCF requirement is 300 flight hours.

Performance Deviation Explanation

None

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

Category (\$M) Base Year: 2021	Development APB (Milestone) 6/9/2021 CY\$ obs Objective	Development APB (Current) 6/9/2021 CY\$ obs Objective / Threshold		Current Estimate PB 2025 CY\$ obs / TY\$ obs	
RDT&E	1,157.1	1,157.1	1,272.8	1,250.5	1,402.2
Procurement	885.0	885.0	973.5	976.8*	1,285.8
Total Acquisition	2,042.1	2,042.1	-	2,227.3	2,688.0
Program Acquisition Unit Cost	26.870	26.870	29.557	29.307	35.368
Average Procurement Unit Cost	11.959	11.959	13.155	13.201*	17.375
Program End-Item Quantity					
Development	2	2		2	
Procurement	74	74		74	
O&M-Acquired	-	-		0	

* Baseline Deviation

Budget Notes

None

Quantity Notes

None

Cost Baseline Deviation Explanation

Parameter	Explanation
Acquisition Cost (Procurement)	The FY 2023 POE identified Procurement cost will exceed APB Threshold. The Program Team believes the FY 2023 POE is the more realistic cost estimate and sent a Program Deviation Report (PDR) to the MDA on September 19, 2023. The Program Team provided an update to the MDA on October 3, 2023 and will continue to manage within current APB constraints.
Program Acquisition Unit Cost	None
Average Procurement Unit Cost	The FY 2023 POE identified the APUC will exceed APB Threshold (12.83% growth from the APB Objective). The Program Team believes the 2023 POE is the more realistic cost estimate and sent a PDR to the MDA on September 19, 2023. The Program Team provided an update to the MDA on October 3, 2023 and will continue to manage within current APB constraints.

(U) Risk and Sensitivity Analysis

Current Procurement Estimate Risks (12/31/2023)	
1	<p>Title: Display and Sensor System Processor (DASSP) Graphics Processor Unit (GPU) Components Life of Type Buy (LoTB)</p> <p>Risk: IF B-52 RMP is not able to procure Display and Sensor System Processor (DASSP) Graphics Processor Unit (GPU) card components before the supplier runs out of stock, THEN major program milestones including LRIP, FRP, and Operations and Support will be at high risk of schedule slip due to the need to redesign and recertify.</p> <p>Mitigation: 1) Determine way forward (3010 New Start) - Complete, 2) New Start Prior Approval submitted to OSD - Complete, 3) Congressional New Start Approval, 4) Updated RFQ to Curtiss-Wright, 5) RFP to Boeing, 6) Proposal Received from Boeing, 7) Contract Award to procure obsolescent components, and 8) Procurement of obsolescent components.</p>
Current Baseline Risks (6/9/2021)	
None	
Original Baseline Risks (6/9/2021)	
None	

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

Category (CY\$M) Base Year: 2021	Current Baseline 06/09/2021	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	2,042.1	2,227.3	
Program Quantity	76	76	
PAUC	26.870	29.307	9.07%
Average Procurement Unit Cost			
Procurement Cost	885.0	976.8	
Procurement Quantity	74	74	
APUC	11.959	13.201	10.38%

(U) Current Estimate Compared with Original Baseline

Category (CY\$M) Base Year: 2021	Original Baseline 06/09/2021	Current Estimate PB 2025	% Change
Program Acquisition Unit Cost			
Acquisition Cost	2,042.1	2,227.3	
Program Quantity	76	76	
PAUC	26.870	29.307	9.07%
Average Procurement Unit Cost			
Procurement Cost	885.0	976.8	
Procurement Quantity	74	74	
APUC	11.959	13.201	10.38%

(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

The FY 2023 POE identified the APUC will exceed APB Threshold (12.83%). The program team believes the FY 2023 POE is the more realistic cost estimate and sent a Program Deviation Report to the Milestone Decision Authority on September 19, 2023. The program team provided an update to the MDA on October 3, 2023 and will continue to manage within current constraints as Red on Cost. FY 2023 POE increased the PAUC to 10.19%, slightly over the APB Threshold. The program team is monitoring PAUC as a potential breach because small downward changes of RDT&E cost estimates and EMD execution could potentially lower PAUC below threshold. PAUC will be reevaluated with the FY 2024 NACA and FY 2024 POE.

(U) Life-Cycle Costs

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

Category (\$M) Base Year: 2021	Development APB (Milestone) 6/9/2021 CY\$ obs Objective	Development APB (Current) 6/9/2021 CY\$ obs Objective / Threshold		Current Estimate CY\$ obs / TY\$ obs	
Total O&S	391.8	391.8	431.0	383.8	638.4
Total Disposal	-	-	-	-	-

(U) Current Cost Estimate Sources

Operating and Support Cost

Type: Program Office Estimate

Approved by: AFLCMC/FZC, August 17, 2023

Disposal/Demilitarization Cost

Type: Program Office Estimate

Approved by: AFLCMC/FZC, August 17, 2023

Operating and Support Baseline Deviation Explanation

None

Cost Notes

Draft Life Cycle Sustainment Plan approved at Milestone B

- Two Level Maintenance
- Interim Contractor Support until Organic Depot Maintenance capability
- Depot Source of Repair completed in January 2021.
- Hardware at Warner Robbins Air Logistics Center (ALC)
- Software as Oklahoma City ALC
- Manpower: No expected crew manpower increase
- Supply: Planning organic Sustaining Support and Initial Spares evaluated via Readiness Modeling
- Training: Contractor will provide initial training. Primary systems updated via Air Force Global Strike training systems plan
- Support Equipment will utilize existing common equipment to max extent possible

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: 2021	Estimate	
Prior Estimate (12/31/2022)	441.9	
Current Estimate	383.8	
Category	Variance	Explanation
Unit-Level Manpower	0.0	
Unit Operations	0.0	
Maintenance	-44.4	Overall decrease due to schedule shift to one year delay. and additional year of Interim Contractor Support (added to Procurement cost estimate).
Sustaining Support	-11.1	Overall decrease due to schedule shift to one year delay. and additional year of Interim Contractor Support (added to Procurement cost estimate).
Continuing System Improvements	-2.6	Overall decrease due to schedule shift to one year delay. and additional year of Interim Contractor Support (added to Procurement cost estimate).
Other	-0.1	Application of FY 2025 indices.
Not Categorized	-0.0	

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

(CY\$M) Base Year: 2021							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
B-52 RMP	0.0	0.0	260.6	61.0	62.2	0.0	383.8
Program	0.0	0.0	260.6	61.0	62.2	0.0	383.8

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

(CY\$M) Base Year: 2021							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
B-52 RMP	0.0	0.0	0.2	0.0	0.0	0.0	0.3

(U) Operating and Support Cost Estimate Assumptions

System	Quantity to Sustain	Unit Expected Service Life (Years)	Unit of Measure	Fiscal Years Operational
B-52 RMP	74	20.0	Total Aircraft Inventory (TAI)	2030 - 2050

Additional O&S Estimate Assumptions

None

Antecedent Estimate Assumptions

None

O&S Annual Cost Calculation Memo

There is no identified Antecedent System for this Program.

(U) Technologies and Systems Engineering

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

Event	Date	Description
Current	12/31/2023	No Technology development risks identified. The program Acquisition Strategy is predicated on the reuse of an existing radar system.

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

None

(U) Contracts and Efforts

Contract Title	Contract Number / Effort	Contractor	Phase
B-52 RMP EMD	FA862819D1000	THE BOEING COMPANY	Development

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

Contract Number:	FA862819D1000	Order Number:	FA862821F1006
Contract Title:	B-52 RMP EMD	Strategy:	FAR 15: Negotiated Contracts
CAGE:	1N929 - THE BOEING COMPANY	Contracting Office:	AFLCMC/WBD - B-52 Division
City, State/Province:	OKLAHOMA CITY, OK		

Effort Number:	-	Supported Phase:	Development
Type:	Cost Plus Incentive Fee (Cost Based)	Award Date:	June 14, 2021
Latest Modification Date:	-	Definitization Date:	January 31, 2022
Latest Modification No.:	-	Work Start Date:	June 15, 2021
Technical Data Rights:	-		

Notes:**Target Price Change Explanation**

The EMD Undefined Contract Action (UCA) was awarded with a total Not To Exceed (NTE) price of \$704.7M. The scope of this effort is to develop, build, integrate, install, test and verify the Bomber Modernized Radar System satisfies all operational and derived requirements, support production or deployment decisions, and establish the initial product baseline for all configuration items. However, on January 31, 2022, the EMD UCA definitization contract mod was awarded at a total price of \$523.4M. Shortly after, on February 16, 2022, Engineering Change Proposal (ECP) A was awarded as a Undefined Change Order (UCO), with an NTE price of \$165M and on March 10, 2022, ECP C was awarded as a UCO with an NTE price of \$37,960,000. Additionally, due to degrading EVM cost performance \$6.5M in supplier overruns have been awarded.

General Variance Explanation

Due to ongoing and frequent errors, Defense Contract Management Agency has decertified the contractor's EVM system. The reported EVM variance data is directly pulled from the Contractor's system.

The full EMD baseline was delivered in the March 2022 Integrated Program Management Report, as a result of definitizing the EMD UCA on January 31, 2022, which is why EVM reporting started in the March 2022. Although Boeing baselined their schedule on January 17, 2023, there are still some unbaselined costs that are erroneously included in the cumulative Actual Cost of Work Performed. Removing these costs typically results in a more accurate Cost Performance Index (CPI). Currently, cumulative Schedule Performance Index is 88% and CPI is 82%, due to Boeing working

through a baseline reconciliation with major subcontractors and plan updating accurate performance in the upcoming months.

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
523.6	523.6	738.7	738.7	730.9	738.7	2	2	-

Work Completed (%): 49.66%

Cost Variance (TY\$M): -79.3

Schedule Variance (TY\$M): -38.9

Factors Contributing to Cost Variance and Projected Effects on Program Costs

The unfavorable Cost Variance is due to Boeing working through a baseline reconciliation with major subcontractors and plan updating accurate performance in the upcoming months. Due to Supply chain (parts) delays and material availability constraints, the contractor is challenged to deliver the Display & Sensor System Processors (DASSP), the brains of the RMP program, and a necessary aircraft component for the Radar Development Lab to continue software development.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

The unfavorable Schedule Variance is due to Boeing working through a baseline reconciliation with major subcontractors and plan updating accurate performance in the upcoming months. Delayed DASSP deliveries, and other hardware, continue to put pressure on laboratory development and qualification efforts.

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

	Original LRIP Determination	Current LRIP Determination
Total LRIP Quantity	28	28
Date	6/10/2021	3/24/2023
Reference	Milestone B ADM	LRIP Request for Proposal Release approval by the MDA
LRIP Period	FY 2024 - 2026	FY 2025 - 2028
Total Procurement Quantity	74	74
LRIP Percentage of Total	37.8%	37.8%

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

The MDA approval added an update to the LRIP Incentive Fee Plan, whereby:

Cost: 100% of the negotiated fee will be allocated to cost.

Schedule: An additional pool of incentive dollars (amount to be determined during negotiation) will be used to incentivize the first six kit deliveries.

LRIP Notes

The program will split the Milestone C event into two separate decision points. The reason for this split is to enable procurement of the initial lot in time to support production line stand-up required to meet the FY 2026 IOC date.

The program would need to purchase long-lead items in FY 2024 to meet the number of assets required by the IOC date. The two Milestone C decision points allow the use of procurement funds in support of the program timeline and also mitigate risk.

The LRIP quantity increased from 11 aircraft (15% of total quantities) to 28 aircraft (38% of total quantities). This is due to elimination of AP. In the prior approval Acquisition Strategy, the inclusion of AP in the production strategy enabled Lot 2 procurement to occur after the FRP decision.

(U) Deliveries and Expenditures**(U) Acquisition Funding**

	Total Estimate	Actual to Date	Actual, Percent Complete
Years Appropriated	-	-	-
Appropriations (TY, \$M)	2,688.0	2,688.0	100.0%
Expenditures (TY, \$M)	2,688.0	773.5	28.8%

(U) End Items Delivered

	Total Required	Planned to Date	Actual to Date	Actual, Percent Complete
Development	2			
Procurement	74			
Total	76	-	-	-

Notes

The Development quantity identified in the table of two is for the EMD Test aircraft modifications.

(U) International Program Aspects

General Memo

Not Applicable

Exportability and Business Issues

Not Applicable

Is design for international exportability planned?	No	Industry/Partner Exportability Cost-Sharing?	No
If not, has the MDA approved an exportability waiver for a U.S.-only design?	Not Applicable		

Program Protection: Technology Security and Foreign Disclosure Issues

Not Applicable

(U) Agreements

No International Agreements have been defined for B-52 RMP



UNCLASSIFIED

Modernized Selected Acquisition Report Supplement

B-52 Radar Modernization Program (RMP) (B-52 RMP)

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
B-52 Radar Modernization Program (RMP)

Short Name
B-52 RMP

PNO
574

Lead Component
Air Force

AAF Pathway
MCA

Acquisition Type
MDAP

Acquired Systems
B-52 RMP

Related Programs

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

Program Use of the Adaptive Acquisition Framework

The B-52 Radar Modernization Program (RMP) supports nuclear and conventional operations by replacing the legacy, unsupportable APQ-166 radar system with the new AN/APQ-188 radar system on B-52H aircraft. The APQ-166 system will be increasingly difficult to sustain due to diminished manufacturing sources and obsolescent technologies; the current failure rate of the APQ-166 places long-duration missions at risk. This modernization program will encompass the radar antenna array and up to 14 individual LRUs that comprise the entire radar system. Development, production and installation of new components and systems to replace the legacy equipment; to be installed on all 76 B-52H aircraft. RMP will take advantage of advances in technology and on-going development efforts to acquire, to the maximum extent possible, off-the-shelf components and integrate them into the B-52. The use of new technology will increase both the overall reliability of the radar system and the capabilities for new missions. This Radar Modernization Program will allow the operational command (AF Global Strike Command) to fully utilize the capabilities of the B-52H aircraft to employ an array of weapons and to perform mission-essential navigation and weather avoidance functions. In addition, all the applicable training devices which process radar data or represent the radar subsystem must also be modified and upgraded in conjunction with the aircraft modifications.

This upgrade will affect the Bombing-Navigation System Maintenance Trainers (BNSMTs), a desktop trainer, as well as the Mission Employment Trainer (MET), and a Family of Systems (FoS) concept that includes Handheld/Wearable and Point-of-Use Devices, Medium-Fidelity Deployable Devices and High-Fidelity Devices covering the entire training spectrum. This program also upgrades one B-52 Software Integration Lab (SIL) with radar functionality, and builds a new Radar Development Lab and a new Radar SIL.

Technologies and Systems Engineering

B-52 Radar Modernization Program (RMP)

Major Software Efforts

Title	Status	Fielding Date	Description
RMP Software	Development	Sep 2026	Software for the Radar and the Display & Sensor System Processor (DASSP) \$108.2M

Major Engineering Changes

Title	Original Need Date	Fielding Date	Description, Rationale and Program Impacts
RMP ECP-A	Nov 2023	Sep 2026	Changes from pre-EMD phase drove updated EMD proposals from Boeing and suppliers for missed scope.

Funding Sources (Acquisition)

Acquisition Funding Notes

B-52 Radar Modernization Program (RMP)

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
RDT&E	3600F	07	0101113F - B-52 Squadrons	0101113F	675056 - B-52 Radar Modernization Program (RMP)		
Procurement	3010F	05	B05200 - B-52	0101113F	-	x	
Procurement	3010F	06	000999 - Initial Spares/Repair Parts	0101113F	-	x	
Procurement	3010F	07	000000 - COMMON SUPPORT EQUIPMENT	0101113F	-	x	

Funding Sources (Operating and Support)

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

Operating and Support Funding Notes

The program is not receiving any O&S funding for the FY 2025 PB or during the current FYDP.

B-52 Radar Modernization Program (RMP)

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
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Acquisition Estimate and Quantity Summary

B-52 Radar Modernization Program (RMP)

Acquisiton Estimates

Category	PB 2025	Current Base Year		Original Base Year		Report Fiscal Year
		TY (\$M)	CY2021 (\$M)	CY2021 (\$M)	CY2024 (\$M)	
RDT&E		1,402.2	1,250.5	1,250.5		1,434.5
Procurement		1,285.8	976.8	976.8		1,120.6
MILCON		-	-	-		-
O&M		-	-	-		-
Total Acquisition		2,688.0	2,227.3	2,227.3		2,555.2
PAUC		35.368	29.307	29.307		33.620
APUC		17.375	13.201	13.201		15.144

Acquisiton End-Item Quantities

System	PB 2025	Development	Procurement
B-52 RMP		2	74
Total		2	74

Unit Description

A unit consists of one radar modernization kit.

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

Appropriation	Prior	2024	2025	2026	2027	2028	2029	To Complete	Total
RDT&E	797.1	204.3	179.8	143.2	64.2	9.7	3.9	-	1,402.2
Procurement	-	-	129.6	132.6	208.5	206.1	170.2	438.9	1,285.8
MILCON	-	-	-	-	-	-	-	-	-
O&M	-	-	-	-	-	-	-	-	-
PB 2025 Total	797.1	204.3	309.3	275.8	272.6	215.9	174.1	438.9	2,688.0

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

B-52 Radar Modernization Program (RMP)

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 CY2021 (\$M)
Total		1,402.2	1,402.2	-	1,250.5
2017		4.300	4.3	0.934669	4.6
2018		18.511	18.5	0.954318	19.4
2019		38.836	38.8	0.972059	40.0
2020		122.279	122.3	0.997060	122.6
2021		177.919	177.9	1.043904	170.4
2022		188.016	188.0	1.099905	170.9
2023		247.201	247.2	1.138999	217.0
2024		204.349	204.3	1.168010	175.0
2025		179.765	179.8	1.193076	150.7
2026		143.220	143.2	1.218131	117.6
2027		64.161	64.2	1.243712	51.6
2028		9.734	9.7	1.269830	7.7
2029		3.920	3.9	1.296496	3.0

Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

B-52 Radar Modernization Program (RMP)

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 CY2021 (\$M)
Total	593.5	241.6	6.9	84.2	162.7	196.9	1,285.8	-	976.8
2017							-	0.962613	-
2018							-	0.990675	-
2019							-	1.025045	-
2020							-	1.068388	-
2021							-	1.114107	-
2022							-	1.150857	-
2023							-	1.179250	-
2024							-	1.203016	-
2025	86.680	11.645		12.245		18.980	129.6	1.228405	105.5
2026	69.750	9.650		9.592	23.973	19.606	132.6	1.254202	105.7
2027	39.550	47.949	6.910	8.469	78.866	26.738	208.5	1.280540	162.8
2028	113.064	28.485		14.555	20.416	29.624	206.1	1.307431	157.7
2029	82.500	20.540		11.351	20.742	35.028	170.2	1.334888	127.5
2030	120.060	41.916		16.610	16.950	36.482	232.0	1.362920	170.2
2031	81.880	29.908		11.328	0.583	27.907	151.6	1.391541	108.9
2032		30.600			0.597	1.425	32.6	1.420764	23.0
2033		20.870			0.611	1.133	22.6	1.450600	15.6

Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

B-52 Radar Modernization Program (RMP)

3600F - Research, Development, Test & Eval, AF				
fiscal year	B-52 RMP			Total
Total	2			2
Undistributed	2			2

Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

B-52 Radar Modernization Program (RMP)

3010F - Aircraft Procurement, Air Force				
fiscal year	B-52 RMP			Total
Total	74			74
Undistributed				-
2025	11			11
2026	17			17
2027	17			17
2028	17			17
2029	12			12

Nuclear Costs

B-52 Radar Modernization Program (RMP)

Program's Use of Department of Energy Resources

None

Operational Fielding Plan

B-52 Radar Modernization Program (RMP)

System: B-52 RMP

Fielding and Inventory Notes

74 B-52H aircraft will be modified during Planned Depot Maintenance (PDM) at Tinker Air Force Base, Oklahoma with kits procured and delivered from the Prime Contractor, Boeing. Installations will begin in FY 2027 with 11 kits in Lot 1. Installation of Lots 2 - 5 will continue at the PDM rate of 17 kits per year through FY 2031.

B-52 RMP Fielding Plan and Inventory

fiscal year	Store	Field	Expend/Loss	Decommission	Inventory
2023					-
2024					-
2025					-
2026					-
2027		11			11
2028		17			28
2029		17			45

O&S Independent Cost Estimate

B-52 Radar Modernization Program (RMP)

Independent and Current Cost Estimate Comparison

Category	CY2021 (\$M)	Independent Cost Estimate 5/19/2021	Current Estimate 8/17/2023	Variance with ICE (%)
Unit-Level Manpower			-	-
Unit Operations			-	-
Maintenance		219.0	260.6	19%
Sustaining Support		85.6	61.0	-29%
Continued System Improvements		68.0	62.2	-9%
Other			-	-
Total O&S		372.6	383.8	3%

Independent Cost Estimate Source

Event: Milestone B
 Type: Independent Cost Estimate
 Approved by: OSD Cost Assessment & Program Evaluation, May 19, 2021
 Note: Milestone B CAPE ICE did not break out the O&S Costs into CAPE categories.

Current Cost Estimate Source

Type: Program Office Estimate
 Approved by: Jeremy Mitchell, Chief, Cost and Economics Division (AFLCMC/FZC), August 17, 2023

Cost Estimate Variance Explanation

The minimal cost estimate variance between the FY 2021 Milestone B ICE and the FY 2023 POE is based on differing methodologies, updated indices, rates, phasing adjustments, etc.

Annual Operating and Support Estimates by Cost Element

B-52 Radar Modernization Program (RMP)

System: B-52 RMP

Source for TY-CY Conversion: Formal OSD indices FY 2024 PB

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 CY2021 (\$M)
Total	-	-	260.6	61.0	62.2	-	383.8
2030			3.284	0.129			3.4
2031			7.696	0.240			7.9
2032			12.910	3.140	3.214		19.3
2033			12.935	3.146	3.220		19.3
2034			12.960	3.151	3.227		19.3
2035			12.986	3.157	3.233		19.4
2036			13.011	3.162	3.239		19.4
2037			13.037	3.168	3.246		19.5
2038			13.062	3.174	3.252		19.5
2039			13.088	3.179	3.258		19.5
2040			13.113	3.185	3.265		19.6
2041			13.139	3.191	3.271		19.6
2042			13.165	3.196	3.277		19.6
2043			13.191	3.202	3.284		19.7
2044			13.217	3.208	3.290		19.7
2045			13.242	3.213	3.297		19.8
2046			13.268	3.219	3.303		19.8
2047			13.294	3.225	3.310		19.8
2048			13.320	3.231	3.316		19.9
2049			13.346	3.236	3.323		19.9
2050			13.373	3.242	3.329		19.9