

B-52 Radar Modernization Program (RMP)



In spring 2025, the Air Force notified Congress of a significant Nunn-McCurdy cost breach in the B-52 Radar Modernization Program (RMP), due to ongoing technical integration challenges. To address cost growth, the Air Force is restructuring the program around a minimum viable product (MVP) approach, which will deliver basic radar functionality first and defer other new capabilities to future upgrades. This restructuring will require updates to the program's T&E Strategy.

SYSTEM DESCRIPTION

The B-52 RMP will replace the legacy AN/APQ-166 radar with the AN/APQ-188 Bomber Modernized Radar System. Replacement of the aging legacy radar is intended

to increase system reliability and reduce sustainment costs. The Bomber Modernized Radar System will also provide new high-resolution ground mapping capabilities to improve target location accuracy and capabilities to track moving surface and air targets.

MISSION

Theater commanders will use units equipped with the RMP-modified B-52 to conduct long-range, all-weather conventional and nuclear strike operations that employ a wide range of munitions against ground and maritime targets in

low-to-medium adversary threat environments. B-52 theater mission tasks include strategic attack, time-sensitive targeting, air interdiction, close air support, suppression/destruction of enemy air defenses, maritime mining, and nuclear deterrence.

PROGRAM

The B-52 RMP is an Acquisition Category IB Major Defense Acquisition Program. DOT&E approved the B-52 RMP TEMP in April 2021. In June 2021, the Air Force completed the Milestone B (MS B) decision and awarded a five-year engineering and manufacturing development contract to Boeing.

Following its Critical Design Review in February 2022, the program has continued to face significant technical challenges including integrating the new radar onto the B-52 aircraft. These challenges led to cost growth that triggered a significant Nunn-McCurdy breach in spring 2025.

As a result, the Air Force is revising the acquisition strategy to focus on delivering an MVP to control costs. This MVP will include a subset of the capabilities originally documented in the MS B Capability Development Document, with other functionalities deferred to future increments, including the new wideband nose radome. Modification of test aircraft and development of initial flight software, which began in FY23, is ongoing. The MVP will utilize the legacy radome in place of developing a new radome. The Air force will need to characterize the capability of the new radar with the legacy radome. Developmental

and integrated flight testing is scheduled to begin in FY26, with a MS C decision planned for 4QFY26. A full-rate production decision for the remaining aircraft will follow IOT&E in FY28.

DOT&E approved the B-52 Cybersecurity T&E Strategy in September 2023. This strategy defines a comprehensive, integrated cybersecurity test approach across all planned modernization programs, including the Commercial Engine Replacement Program, the RMP, multiple communication system upgrades, and system sustainment programs.

» MAJOR CONTRACTORS

- The Boeing Company – Oklahoma City, Oklahoma
- Raytheon, a subsidiary of RTX – El Segundo, California

TEST ADEQUACY

The DOT&E-approved April 2021 TEMP no longer aligns with the restructured program due to the Nunn-McCurdy breach and subsequent shift to an MVP strategy. An update to the TEMP is required, prior to the MS C decision in 4QFY26, for the reduced capability set to define the test scope for the MVP, establish new performance metrics, and realign the integrated test schedule. The B-52 Cybersecurity T&E Strategy defines an adequate cybersecurity test approach across all B-52 modernization programs, but it will require an RMP-specific update prior to the MS C decision point.

PERFORMANCE

» EFFECTIVENESS, SUITABILITY, AND SURVIVABILITY

Modification of two test aircraft and development of initial system flight software began in FY23. Developmental and integrated flight testing are scheduled to begin in FY26. DOT&E will assess the operational effectiveness, suitability, and survivability of the B-52 RMP following IOT&E in FY28.

RECOMMENDATIONS

The Air Force should:

1. Update the B-52 RMP TEMP prior to the MS C decision to align with the new MVP strategy, to include revised test objectives and success criteria for the reduced capability set.
2. Characterize radar performance with the legacy radome design to inform operational employment tactics, as recommended in the FY24 Annual Report.
3. Develop and submit for DOT&E approval an RMP-specific Cybersecurity T&E Strategy prior to the program's MS C decision, as recommended in the FY24 Annual Report.