

B-52 Radar Modernization Program (RMP)



The B-52 Radar Modernization Program (RMP) completed the Critical Design Review milestone in February 2022. Modification of two test aircraft and development of initial system flight software will begin in FY23. Developmental and integrated flight test will begin in FY24 leading to IOT&E, full-rate production and operational fielding in FY27.

SYSTEM DESCRIPTION

The B-52H RMP will replace

the legacy APQ 166 radar with the modified APG-79 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 capabilities to track moving surface and air targets.

MISSION

Theater Commanders use units equipped with the B-52H 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-52H 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-52H RMP is an Acquisition Category IB Major Defense Acquisition Program. DOT&E approved the B-52H RMP Test and Evaluation Master Plan (TEMP) in April 2021. In June 2021, the Air Force completed the Milestone B decision and awarded a five-year Engineering, Manufacturing, and Development contract to Boeing. A two-part Milestone C decision is planned in FY24 and FY25 to modify 28 low rate initial production aircraft. A Full-Rate Production decision for the remaining 46 aircraft will follow IOT&E in FY27.

The program completed Critical Design Review in February 2022. Modification of two test aircraft and development of initial system flight software will begin in FY23. Developmental and integrated flight testing is planned to begin

in FY24 leading to IOT&E in early FY27. Installation of the Tactical Data Link communication system upgrade necessary to complete RMP operational test requirements is behind schedule, which may reduce early operational test opportunities.

The February 2021 USD(R&E) developmental test assessment concluded that the program test schedule was high risk, with significant similarities to previous aircraft radar development programs that encountered developmental delays. Emerging system integration issues include potential electromagnetic interference between radar and electronic attack systems and regulation of radar operating temperatures in extreme low-temperature environments. Both issues are being assessed by Air Force and Boeing engineering teams.

The Air Force plans to submit a B-52H enterprise cybersecurity test strategy for DOT&E approval in 1QFY23. This strategy defines a comprehensive, integrated cybersecurity test approach across all planned modernization programs, including B-52H Commercial Engine Replacement Program, the B-52H RMP, and multiple communication system upgrade programs.

» MAJOR CONTRACTORS

- The Boeing Company – Oklahoma City, Oklahoma

- Raytheon Technologies – Waltham, Massachusetts

TEST ADEQUACY

DOT&E approved the B-52H RMP TEMP in April 2021. The TEMP defines an adequate operational test strategy and necessary test resources for integrated testing and IOT&E. The B-52H enterprise cybersecurity test strategy defines an adequate cybersecurity test approach across all modernization programs.

PERFORMANCE

» EFFECTIVENESS, SUITABILITY, AND SURVIVABILITY

Modification of two test aircraft and development of initial system flight software will begin in FY23. Developmental and integrated flight test will begin in FY24. IOT&E will assess operational effectiveness, suitability, and survivability in early FY27.

RECOMMENDATION

The Air Force should:

1. Evaluate opportunities for accelerated Tactical Data Link integration to allow early evaluation of key communication system interoperability requirements.