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MQ-25 Stingray: Background and Issues for Congress

Introduction

The U.S. Navy is developing an aircraft carrier-based unmanned aircraft system (UAS) to perform aerial refueling and intelligence, surveillance, and reconnaissance (ISR) missions. The MQ-25 Stingray, if the system enters production in FY2026 as planned, would be the U.S. Department of Defense's (DOD's) first unmanned tanker and the Navy's first carrier-based unmanned aerial vehicle (UAV). Congress has expressed an interest in the Navy's efforts to develop a carrier-based drone and in the future structure of the carrier air wing.

According to the Navy's FY2026 budget submission to Congress, by providing the carrier air wing with a dedicated aerial tanker, the MQ-25 would extend the effective operating range of crewed fighter aircraft in the air wing and reduce the strain on the fighter aircraft that are currently modified to provide mid-air refueling capabilities for other aircraft in the air wing. In congressional testimony, Navy officials have further described the Stingray as a "pathfinder" to what they describe as the "air wing of the future"—one in which UAVs could potentially conduct various missions.

For FY2026, the Navy requested $1.04 billion in discretionary procurement and research, development, test, and evaluation (RDT&E) funding for the MQ-25. If approved by Congress, the Navy's FY2026 request would fund the procurement of three MQ-25 aircraft and represent the first year of low-rate initial production (LRIP) of the aircraft. The MQ-25 program of record currently estimates a total of 76 aircraft, including 67 operational aircraft and nine test and developmental aircraft.

Background

In 1999, the Navy and the U.S. Defense Advanced Research Projects Agency (DARPA) began to develop a multi-mission, carrier-based unmanned combat aerial vehicle (UCAV), a goal Congress supported in the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (P.L. 106-398, §220). Over the following decade, the Navy, DOD, and Congress considered various possible configurations of a carrier-based combat UAV and the types of missions in which the vehicle might be able to engage. These initiatives resulted in the Unmanned Carrier Launched Surveillance and Strike (UCLASS) program, the requirements for which DOD initially approved in 2011 and revised in 2013.

In 2016, the Navy shifted development of a carrier-based UAV from combat to refueling missions and announced that the Carrier Based Aerial Refueling System (CBARS) would replace UCLASS. In a 2016 summary of the program, the Navy said that the MQ-25 would relieve the Navy F/A-18E/F Super Hornet fighters of having to conduct air-to-air refueling missions for carrier air wings, allowing the Super Hornet fighters to focus on combat missions and extending the operational range of strike aircraft.

The Navy selected Boeing to produce the Stingray aircraft in 2018 and awarded the company a fixed-price contract for the initial engineering manufacturing development (EMD) aircraft. Boeing delivered a static test aircraft for testing in 2024 and, according to congressional testimony that year, Navy officials planned for deliveries of the EMD aircraft to commence in 2025. Separately, a Boeing-owned Stingray demonstrator, the "T1" (see **Figure 1**), conducted its first flight in 2019 and its first mid-air refueling of another aircraft in 2021. The T1 lacked some features of the developmental and production aircraft.

Figure 1. MQ-25 Stingray Demonstrator

Source: Samantha Jenkins, Defense Visual Information Service.
Note: The Boeing-owned MQ-25 Stingray "T1" demonstrator in 2021.

MQ-25 Stingray

Design

The primary elements of the MQ-25 Stingray program are the air vehicle and the mission control station. The MQ-25 air vehicle remains in development, and the Navy has not publicly released detailed technical specifications for the aircraft. The Navy's stated objective for the Stingray is for it to be able to deliver at least 14,000 pounds of fuel and as much as 16,000 pounds of fuel at a distance of 500 nautical miles (575 miles).

Boeing said in 2021 that it would build the MQ-25 at MidAmerica St. Louis Airport in Mascoutah, IL, and in 2024 the company opened a $200-million production factory there. Boeing selected the Rolls-Royce AE 3007N

turbofan engine, produced in Indianapolis, IN, to power the MQ-25. Other contractors include BAE Systems, which is providing the vehicle management system and other components. The Stingray will reportedly use the Cobham Aerial Refueling Store, the same equipment used by tanker-configured F/A-18E/F fighters, for mid-air refueling.

The Unmanned Carrier Aviation Mission Control System (UMCS, or MD-5) is the planned ground control station for the MQ-25 Stingray, as well as potentially for future UAVs that the Navy could integrate into the carrier air wing. According to the Navy's FY2026 budget submission, the UMCS is to consist of the hardware, software, and networks that allow pilots to plan and conduct flight missions, including the consoles, beyond line-of-sight communications, and the Lockheed Martin-developed Multi Domain Control Capability (MDCX) software. The Navy is procuring both ship-installed (MD-5C) and shore-based (MD-5D) versions of the UMCS, as well as a mobile version (MD-5E) for carriers that do not have the full control station installed. The Navy installed its first UMCS on the USS *George H.W. Bush* (CVN 77) in 2024.

Schedule and Cost

The DOD Office of Inspector General (DODIG), in a 2023 audit of the MQ-25 program, highlighted the potential risks associated with the Navy's development and production schedule. One risk the DODIG identified was the Navy's plan to begin LRIP before the service had completed its developmental and operational tests of the production-representative MQ-25 aircraft. The DODIG recommended that the Navy either delay its decision to start LRIP "until the Program Office conducts sufficient tests and evaluations," or update its risk management documentation for the program. In response, Navy officials underscored what they described as the importance of the MQ-25 program, and said that the program office had updated its risk assessment and delayed program milestone decisions.

In 2023, the Navy approved a new schedule for the MQ-25 program that replaced a schedule adopted at the program's outset and postponed milestones by approximately two years. According to DOD's December 2023 Selected Acquisition Report (SAR) for the MQ-25, the Navy postponed the start of flight tests of the EMD aircraft from 2022 to 2025 and delayed initial operational capability (IOC) from 2025 to 2026. The DOD SAR attributed the delays to multiple factors, including issues with aspects of the aircraft's design and build process and the impact of the COVID-19 pandemic on Boeing suppliers.

The Government Accountability Office (GAO), in its 2025 *Weapon Systems Annual Assessment*, estimated the total acquisition cost of the MQ-25 Stingray program at approximately $15.9 billion and the acquisition unit cost at $209 million, a 4% increase from a prior estimate. The GAO report cited the Navy's plan to begin LRIP before it completed testing the production-representative aircraft as a potential risk for future "cost increases and further delays."

In its FY2026 budget submission to Congress, the Navy said it was "implementing an evolutionary acquisition strategy to develop, fly, deploy, and evolve" the MQ-25. The Navy also reported that it expected to achieve initial operational capability with the MQ-25 by the end of FY2027, not in 2026 as it previously planned. Navy officials have reportedly stated that the service still plans to fly the MQ-25 in 2025, and according to statements by Boeing officials in July 2025, the company has begun ground tests of the MQ-25.

FY2025-Enacted Budget

In its FY2025 congressional budget submission, the Navy requested $898.0 million for the MQ-25 Stingray program and UMCS in part to begin production of the first three LRIP MQ-25 aircraft. In the Servicemember Quality of Life Improvement and National Defense Authorization Act for Fiscal Year 2025 (P.L. 118-159), Congress authorized the requested funding for the MQ-25 without changes. In the Full-Year Continuing Appropriations and Extensions Act, 2025 (P.L. 119-4), a full-year continuing resolution, Congress maintained funding for the program at the FY2024 level of approximately $424.6 million and, in effect, did not allow the Navy to procure the first three MQ-25 aircraft.

FY2026 Budget Request

In its FY2026 congressional budget submission, the Navy requested approximately $1.04 billion in procurement and RDT&E funding, including funding to procure the first three LRIP aircraft that it had sought in its FY2025 budget request. Additionally, in the 2025 reconciliation legislation known as the One Beautiful Bill Act (P.L. 119-21), Congress provided $100 million in FY2025 funding to "accelerate production of MQ-25 aircraft." In its FY2026 budget justification, DOD said it planned to apply such funding to procuring the first three aircraft in FY2026.

Issues for Congress

Congress may, as part of its oversight of Navy programs, consider the following issues:

- Whether the Navy anticipates additional delays to the start of testing and, if so, the potential impact of such delays on the development and fielding of the MQ-25.
- The Navy's plan for managing the impact of potential issues identified during its flight testing of the test and developmental aircraft on its production schedule.
- The possible implications, if any, of the delays to the MQ-25 program for the Navy's carrier air wings and for the modified F/A-18E/F Super Hornet fighters that perform the mid-air refueling mission for the air wings.
- Whether the Navy is considering modifying the MQ-25 to conduct attack or electronic warfare missions, and whether the Air Force is considering the MQ-25 as a possible land-based tanker.
- The Navy's plan to use the MQ-25 and UMCS as the basis for developing the tactics, technology, and expertise that would allow the service to integrate other unmanned systems into the carrier air wing.

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