

# MQ-25 Stingray

## Despite Delays, Navy to Accelerate Delivery of Unmanned Tanker

BY JAN TEGLER

**T**he Navy announced in April 2023 a second delay in the debut of its carrier-based unmanned aerial refueling aircraft, the Boeing MQ-25A Stingray.

Initial operational capability slipped from 2025 to late 2026 for the drone the Navy has called the “pathfinder” for future carrier air wings that could be 60 percent unmanned by 2040.

Rear Adm. Stephen Tedford, the Navy’s program executive officer for unmanned aviation and strike weapons, attributed the delay to difficulties faced by Boeing in establishing a mature production line. The company in 2018 won a \$805 million contract to build the first four Stingrays, with the Navy exercising a \$84.7 million option to purchase three additional aircraft in 2020.

Then in late November, the Defense Department’s Office of the Inspector General released an audit of the service’s management of the program. It found that “the Navy planned to make crucial production decisions before conducting tests and evaluations to ensure the program meets operational requirements.”

Originally planned to be in-service by 2024, the MQ-25 is designed to take over the aerial refueling duties now performed by F/A-18 Super Hornets in carrier air wings and perform additional future missions including intelligence, surveillance and reconnaissance as well as joint all-domain functions including advanced communications.

The service’s decision to proceed without sufficient testing added to the risk that the MQ-25 program “will not meet its operational capability requirements, which could require costly and time-consuming engineering changes and may delay the MQ-25A’s deployment,” the audit stated.

The inspector general’s audit recommended the service either delay the initial production and initial operating capability decisions until sufficient tests are conducted or ensure the pro-

gram’s risk management documentation is updated to identify, assess and mitigate the impacts of making these decisions before conducting developmental test and evaluation and initial operational test and evaluation.

Capt. Daniel Fucito, who leads PMA-268, the unmanned carrier aviation office responsible for the MQ-25, said the Navy’s decision to delay initial operating capability prior to the release of the report will allow the service and Boeing sufficient time to complete and test the seven flight-worthy engineering and manufacturing development, or EMD, aircraft being built ahead of production and adequately train pilots and maintainers.

“This will also provide increased opportunity for the correction of deficiencies discovered in tests,” Fucito noted. The Navy is adjusting the current plan for MQ-25 development, test and production toward a more traditional acquisition strategy, he added.

A production decision for the Stingray and a low-rate initial production contract award previously proposed for 2023 will be postponed for now, Fucito said.

Troy Rutherford, Boeing MQ-25 program vice president, said the company expects low-rate production to begin late this year or early in 2025.

An unresolved question is what the MQ-25 will cost. The most recent Selected Acquisition Report on the Stingray is from December 2022. The report put the total cost of the MQ-25 program at \$16.5 billion. The Navy’s fiscal year 2024 budget estimates list the cost of each MQ-25 at \$136.2 million, however the report noted an increase in average procurement unit cost.

Despite setbacks for the MQ-25 effort, the service and the Sting-



ray’s maker contend it is still on a rapid path to deployment.

“The Navy and Boeing took aggressive risk on cost, schedule and testing and we expect to see benefits from that early learning in the program long-term,” Fucito said. “Our intent is to accelerate the delivery of these aircraft to the fleet as soon as possible.”

Rutherford compared MQ-25’s gestation to typical time from contract award to initial operating capability across the Defense Department, which averages 14 years, he said.

“When we look at IOC in 2026, it shows how lean-forward both the Navy and Boeing were in saying we’re going to rapidly develop this faster than any other production program out there. We’re still in front of that average,” he said.

Boeing currently has five Stingrays in production at its St. Louis facility, Rutherford said. With a contract award for low-rate initial production aircraft, the company will transition production to a newly built site, he noted.

Boeing invested \$200 million on a new production facility at Mid-America Airport attached to Scott Air Force Base in Missouri. It will complete final assembly there for the current airplanes and conduct flight tests there, he said.

Rutherford added that Boeing’s production line problems have mostly been resolved. Post-COVID challenges, including issues with the quality of coatings applied to Stingray’s metal components and drilling holes in the components during the fabrication process, a practice known





MQ-25 Stingray

as “full size determinant assembly,” were the result of work done by “sub-tier processing facilities.”

Boeing now has checks in place to ensure proper execution of manufacturing processes, Rutherford said. Manufacturing delays also came down to “the length of time it took for the supply base and even our own manufacturing to stand up in a post-COVID world where we had to train new employees and gather a new employee base,” he explained.

While Boeing is responsible for the air vehicle, the Navy is responsible for the Unmanned Carrier Aviation Mission Control System, or UMCS, the means by which pilots will command and control Stingrays. Known as “air vehicle pilots,” they will fly MQ-25s from a ground control station within unmanned warfare center installations aboard aircraft carriers.

Fucito said that the USS George H.W. Bush is being modified with control system updates and a ground control station. Carriers USS Carl Vinson and USS Theodore Roosevelt will receive the same modifications in fiscal year 2025.

The Navy “is making great progress with ongoing lab integration events to demonstrate the capabilities of the UMCS” in coordination with Boeing and Lockheed Martin, the builder/developer of the MD-5 ground control station, he said.

The Navy has no current timeline for fielding future Stingray capabilities. Fucito said capabilities beyond refueling and deployment phases for them are still being determined.

J.J. Gertler, senior defense analyst for the Teal Group, observed that the delays for the MQ-25 program are concerning, particularly as the aircraft will serve as the foundation for future carrier air wings and have roles beyond refueling.

“MQ-25 is not being treated as a program,” he said. “It’s being treated as an experiment. The difference is if you do an experiment with an [unmanned combat air vehicle] and it works out, you’ve got [an unmanned combat aerial vehicle]. But if you only do an experiment with a tanker and it works out, you’ve got a tanker and you’ve still got to develop a UCAV.”

While the Navy hasn’t outlined exactly what aircraft types future air wings will consist of, service leaders have mentioned a combination that includes MQ-25, collaborative combat aircraft — also called robotic wingmen — and the service’s sixth generation fighter, known as F/A-XX.

“At some point they have to make MQ-25 and F/A-XX work together,” Gertler added. “But we haven’t seen a plan that I know of for that.”

Fucito responded: “MQ-25 will play a key role in the air wing of the future and as such has been assessed alongside all current naval platforms for capability; what exactly that entails and details for future platforms are still being determined.”

Tim Walton, senior fellow at the Hudson Institute’s Center for Defense Concepts and Technology, said the Navy hasn’t said much about the possibility that MQ-25s could receive gas as well as refuel aircraft.

“That would be a really important capability, because if you could do that, it gives the MQ-25 very long range,” he noted. “Sure, it could refuel other aircraft in other locations, but you could use it for forward [intelligence, surveillance and reconnaissance] and targeting.”

“There’s absolute potential there,” Boeing’s Rutherford said. Current Navy requirements call for the unmanned tanker to be capable of offloading at least 14,000 pounds of fuel up to 500 nautical miles away from the carrier.

“The next phase of autonomy is for MQ-25 to be able to shuttle tank off a KC-46 or receive fuel from another MQ-25. That’s definitely in the Navy’s roadmap and our roadmap,” Rutherford maintained.

Training is underway for the personnel who will fly the MQ-25. The first eight MQ-25 warrant officer pilots finished undergraduate training, earning their wings of gold in May 2023, according to Fucito. The eight pilots have now become part of Unmanned Carrier-Launched Multi-Role Squadron VUQ-10 at Naval Air Station Patuxent River, Maryland.

There, they join multiple naval aviators with previous manned flight experience who will later perform instructor duties at VUQ-10 and operate the MQ-25 in support of the Integrated Test Team.

Twenty-two MQ-25s are to be in-service by 2028, according to the Navy. But concerns raised by the inspector general and other government reports introduce doubt to the Navy’s contention that the “pathfinder” Stingrays will be in service in meaningful numbers before 2030.

Walton said the service will have to accelerate delivery of the Stingray and fund the program appropriately to ensure carrier air wings can fight effectively in contested environments against China.

“I would say that it’s even more important that the Navy invests in the suite of capabilities related to autonomy and command, control and communications that will allow MQ-25 to conduct operations in contested environments,” he said.

“Otherwise, what we’ll find is that regardless of what the number is in the 2028 timeframe, that 22 number, you might not be able to use those as effectively as you want,” he added. **ND**