

U.S. Navy Completes Final Testing Milestone for Unmanned Surface Vessel Program



The unmanned surface vessel (USV) Ranger steams alongside the USV Mariner as both ships transit the Pacific Ocean during a photo exercise as part of Integrated Battle Problem (IBP) 23.2, Sep. 7, 2023. IBP 23.2 is a Pacific Fleet exercise to test, develop and evaluate the integration of unmanned platforms into fleet operations to create warfighting advantages. (U.S. Navy photo by MC2 Jesse Monford)

By Program Executive Office Unmanned and Small Combatants (PEO USC) Public Affairs, Dec. 18, 2024

WASHINGTON – The U.S. Navy recently achieved its final key milestone in the development of Unmanned Surface Vessel (USV) integrated capabilities by successfully completing a continuous 720-hour power demonstration on an engine system for use aboard future USVs. This demonstration is part of a larger USV testing effort to assess the capability and resilience of engine systems to operate autonomously for extended periods. The latest test marked the final system to be evaluated. Engine development and operation is critical for the expansion of unmanned naval operations and for realizing the future vision of a manned-unmanned Hybrid Fleet.

The 2021 National Defense Authorization Act directed the Navy to complete the 720-hour test milestone before initiating development on large USVs. In the final engine test, Precise Power Systems conducted testing on behalf of Austal USA. Testing took place at Daimler Trucks North America Aftermarket Solutions in Tooele, Utah, from June 19 to September 5. The Navy's Program Executive Office Unmanned and Small Combatants

(PEO USC) and the Unmanned Maritime Systems program office (PMS 406) oversaw the demonstration.

“This milestone marks a pivotal advancement in our naval strategy, as it enhances our capabilities in unmanned operations,” said Rear. Adm. Kevin Smith, head of PEO USC. “Successfully demonstrating a power system that can sustain autonomous operations for 30 days without maintenance not only bolsters our readiness but also sets the stage for a truly integrated manned-unmanned Fleet, ensuring we remain at the forefront of maritime innovation.”

During the 720-hour test, no human intervention, corrective, or preventative maintenance was allowed on the equipment. Successfully completing this milestone means the tested model engine, MTU 8V4000M24S, is eligible for future use aboard USV platforms. It indicates that propulsion systems are mature enough to power an unmanned ship for 30 days without requiring maintenance. The team developing the engine will apply lessons learned during the test to enhance future models to increase reliability even more than demonstrated.

Prior to this test, five teams successfully completed their separate 720-hour testing milestones. The successful teams include:

- Bollinger and Carter Machinery on behalf of Caterpillar in Chesapeake, Virginia was the first team to achieve this milestone in December of 2023. They demonstrated sufficient mechanical reliability of the 1550 kw Caterpillar 3512C model engine.
- Fincantieri Marinette Marine (FMM) and Carter Machinery on behalf of Caterpillar in Chesapeake, VA demonstrated mechanical durability of the Caterpillar 2300 kW rated 3516 main propulsion diesel, lube oil and fuel system.

- Gibbs & Cox and Southwest Research Institute in San Antonio, Texas on behalf of Cummins also validated the reliability of the QSK95 diesel engine paired with an ABB AMG 0560M04 LAE generator.
- Huntington Ingalls Incorporated (HII), in partnership with the U.S. Coast Guard, conducted a successful 720-hour demonstration on behalf of MTU of the MTU 20V 4000 M93L, a Main Propulsion Diesel Engine configuration.
- L3 Harris, on behalf of Cummins, validated the reliability of the QSK60 diesel engine, a Main Propulsion Diesel Engine configuration, and the QSM11, a Marine Diesel Generator Set in Camden, New Jersey.

“This milestone is a significant step forward in the continued development of integrated unmanned surface capabilities. The successful execution of these tests highlights our commitment to deliver cutting-edge solutions that can meet the evolving needs of our Fleet,” said Capt. Matthew Lewis, program manager of the Unmanned Maritime Systems program office.

The Navy’s Unmanned Maritime Systems program office is a part of the Program Executive Office Unmanned and Small Combatants portfolio, which designs, develops, builds, and delivers the Navy’s unmanned maritime systems; mine warfare systems; special warfare systems; expeditionary warfare systems; and small surface combatants.