

V-22 Begins Sea Trials Aboard USS Saipan

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The V-22 Osprey entered another phase of its flight test program Jan. 15 when one of the MV-22 engineering and manufacturing development (EMD) aircraft flew aboard the USS Saipan, beginning sea trials scheduled to last until mid-February.

The tiltrotor aircraft joined up with the LHA class ship off the coast of Norfolk, Va., where the aircraft will undergo about 30 days of testing to meet two primary objectives.

The first objective is to do dynamic interface testing which involves validating and expanding the general launch and recovery envelope relative to winds over the deck for the ship's helicopter spots where the V-22 could land. There are 10 helicopter spots, each having launch and recovery parameters in terms of speed and relative direction of wind.

"The envelope expansion testing is critical because it will evaluate the aircraft's handling qualities as well as reveal any problems that need correcting," said Lt. Col. John Rudzis, V-22 government flight test director. "This is to ensure that the fleet pilots can safely hover, take off, and land from any of these spots within the designated launch and recovery envelope."

The sea trials test plan requires the V-22 to do practice landings on five of the ship's 10 helicopter spots to determine how it handles in a variety of conditions, such as strong winds or rough seas. In addition, the pilots will practice a simulated one engine inoperative procedure. This includes a no-hover vertical landing to the aft end of the ship, vertical take-offs from a helicopter spot, and shipboard short take-offs.

Rudzis said the dynamic interface testing is in support of and in preparation for the V-22's next sea period during Operational Evaluation scheduled to begin in October 1999. In addition to the dynamic interface testing, the V-22 will do external loads tests in which it will pick up a 4,000-pound netted load from a single hook on the aircraft, and some night flying, both for the first time in a shipboard environment.

"I think the aircraft is going to do very well in all aspects and I am looking forward to pushing the flying as much as we can," said Rudzis.

The second objective is aircraft/shipboard compatibility testing which will show that the V-22 fits on the LHA's hangar deck, elevators, the launch and recovery spots, and can be parked, positioned, stowed and maintained aboard ship. An important part of this testing will validate that in the wing-fold, blade-stow position, the V-22 fits in the elevator and can be lowered into the hangar deck. The V-22 will also do what is known as spotting. According to Rudzis, this maneuver is an important part of shipboard compatibility testing because when the ship is loaded with a full complement of aircraft, the V-22 must be able to land, quickly stow rotors and the wings, and be moved to its parking spot. Although a full complement of squadron aircraft will not be present during the sea trials, SH-3 and CH-46 helicopters from squadrons HC-8, HC-6 and HC-2 will provide search and rescue as well as logistics support.

Another important aspect of shipboard capability is how well maintenance functions can be performed. Marine maintainers from the V-22's Multi-Service Operational Test Team (MOTT) will perform the maintenance with some maintenance contractors from the Bell Boeing team. In the process of conducting these tests, the job of the MOTT maintainers will be to maintain the V-22 as well as to record, validate and assess all Marine maintenance work. This means that all procedures, manuals, tools and support equipment will be assessed for how well they allow maintainers to accomplish standard maintenance.

"We will also be assessing how well maintainers and the aircraft interact with the ship and support equipment they will be using, the effects of salt water on the V-22 and how corrosion may factor into this," said Staff Sgt. Tony Huntington, a CH-53 crewchief and now a V-22 MOTT crewchief and maintainer. He added that they also will assess the availability of support equipment, storage facilities for special equipment and how this unique equipment is transported to and from the ship.

While maintainers do not expect any extraordinary maintenance work during sea trials, Staff Sgt. Joseph Cottle, an experienced CH-46E maintainer and now a V-22 airframe mechanic, said they will have an intense schedule. They are doing visual pre-flight and post-flight inspections, troubleshooting any concerns the pilots or crewchiefs may have after a flight, and validating everything on the aircraft during the 35-hour inspection, including how long it takes to complete maintenance jobs on the ship. This inspection occurs each time the aircraft completes 35 hours of flight time. On the hangar deck, MOTT maintainers will do simulated and actual maintenance on the aircraft to assess how difficult it is to work in confined spaces on a platform that is constantly moving with equipment that has to be chained down. On the flight deck, they will do daily inspections, wash the engines with the aircraft parked and be expected to secure the aircraft within five minutes after it lands. According to Huntington, "The ship's air boss expects the V-22 to be precisely positioned so that other operations can safely continue. Since space is a valuable commodity, even a slight departure from the designated area is unacceptable.

"This is a very challenging test period and there are always inherent risks associated in a shipboard environment," said Huntington. "The things that are easy to handle on land such as engine washing and refueling will be increasingly difficult on a ship."

As MOTT maintainers, it is their job to assess these things as well as all maintenance procedures, and to identify any maintenance problems and deficiencies now so changes can be made before the aircraft gets to the fleet.

"Since we are the final line before the aircraft gets to the fleet, we want to ensure that they get an aircraft that is the best it can be," said Cottle.

The Bell Boeing Tiltrotor Team, comprised of Bell Helicopter Textron, Inc., in Fort Worth, Texas, and The Boeing Company in Philadelphia, developed the V-22 tiltrotor for the U.S. Marine Corps, Navy and U.S. Special Operations Command. Bell Helicopter Textron, Inc., is a wholly owned subsidiary of Textron, Inc. of Providence, R. I.

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