



First Marines get back into V-22 Osprey

By Gidge Dady
NAVAIR V-22 Public Affairs

NAVAL AIR SYSTEMS COMMAND, PATUXENT RIVER, MD – As two Marines climbed back into the MV-22 on June 4 after nearly 18 months, “Ooh-rahs” echoed throughout hangar 109, home of the V-22 Integrated Test Team here.

Maj Paul “Pup” Ryan, MV-22 government flight test director and Staff Sgt Denis, “Ollie” Oliverio, V-22 developmental test crewchief, are the first Marines to get re-qualified in the Osprey since it was grounded following the Dec. 11, 2000 mishap.

“Climbing back into the aircraft felt like clock-work. The V-22 team and aircraft were completely prepped and ready to go. The aircraft flew great, it was very ‘tight’ and performed well. I continue to be impressed by its performance and this flight was a great experience,” said Ryan who has over 175 hours in the MV-22.

SECNAV, CMC inspect V-22 at Pax River

By Bob Leder
Bell Boeing Communications

Naval Air Systems Command (NAVAIR) Chief Test Pilot Major Paul Ryan said “It flies great, sir,” when asked by Secretary of the Navy Gordon England about the MV-22’s flying qualities.

Secretary England and Marine Corps Commandant General James Jones recently completed a whirlwind visit to Naval Air Station Patuxent River, Md., to fly in V-22 aircraft No. 10—the first MV-22 to return to flight status following the 17-month operational pause.

Although the aircraft had flown earlier in the day and was ready to fly again, severe thunderstorms rolled through the area, can-



Photo by Vernon Pugh

MV-22 Osprey Aircraft No. 10 takes off from the flight ramp near its Patuxent River, Md., flight test facility.

This flight enabled both Marines to regain their currency in the MV-22. Ryan and Oliverio flew with Tom Macdonald, chief V-

22 Integrated Test Team pilot, for this training flight.

The two and one half hour flight, which was conducted within 20 miles of the test facility, included low airspeed maneuvers, vertical takeoffs and landings, short takeoffs and rolling landings, 360 degree turns, three conversions, flying at various airspeeds in airplane mode and an instrument approach.

Over the next several months, a total of six Marine and contractor pilots will begin flying to become current as well.

Prior to getting current in the Osprey, pilots continue to train in simulators, make use of computer-based training and log flight time in other rotor and fixed wing aircraft.

The Osprey returned to flight on May 29, marking the resumption of developmental flight testing here that could last several years. Over the next 18 months and prior to the fleet getting the Block A Upgrade V-22

celing the scheduled flight. Secretary England took the cancellation in stride, but promised that he would return soon to fly in the air-

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Photo by Mark Gibson

Gen. James Jones addresses a group of Marines.

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PM Perspective: Air show to solidify customer support

By Mike Tkach
Vice President, Program Director
V-22 Program Office, Pax River, Md.

As this issue of the OSPREY FACTS goes to press, Colonel Dan Schultz and I are on our way to the Farnborough International Air Show in England. During the show, the U.S. Marine



U.S. Marine Corps Commandant, Gen. James L. Jones, will address media at this year's Farnborough Air Show as he did two years ago (above).

Corps Commandant, General James Jones, intends to brief the international media to mark his continued support for the V-22 and to discuss the significant progress we've made on the V-22 since returning to flight.

At a great aviation event such as Farnborough, one gets the true sense of the worldwide support we have for the V-22. Sometimes, that may be overshadowed by the strident and often grossly inaccurate charges of our critics.

The fact remains that the V-22 program has the overwhelming support of both our initial customers, the U.S. Marine Corps and the U.S. Air Force, as well as potential customers from around the world.

The supporters of this platform want us to succeed because they know there is not another aircraft in the world today that can do what the V-22 can do.

All of us who are part of Team Osprey fully appreciate how vital this program is to our nation's future.

We're back on track. Aircraft No. 10 is flying. Aircraft No. 7, a CV-22 at Edwards Air Force Base, is scheduled to fly in August and Aircraft No. 8 will return to flight in September. I am extremely proud of everyone involved with our return to flight efforts and our commitment to provide a superb operational aircraft to the fleet.

Osprey completes first testing lifetime

By Loren Cothorn
Bell Helicopter Communications

The V-22 Airframe Fatigue Test Program (AFTP) Full-Scale Wing/Fuselage Fatigue Test Article recently completed its first lifetime of low cycle load testing at Bell Helicopter Textron in Fort Worth, Texas. One lifetime is equivalent to 10,000 flight hours.

"This is a great accomplishment for the V-22 program as we continue to prove the safety and reliability of the V-22," said Werner Idler, AFTP IPT lead.

This is the first V-22 airframe fatigue test ever performed at Bell Helicopter. Idler said the test has been successful and everything has run smoothly.

"The test has been instrumental in improving components of the airframe," said Ron Cihak, chief, Structural Test Lab Engineering. "Several significant improvements to the structure already have been made based on the results of the test so far."

Bell Boeing designated a V-22 Fatigue Test Program team and five of the people work full-time on the program. "We have the best people working on this test. They are efficient and have a lot of aircraft experience," said Idler.

The team performed a series of takeoffs, airplane and helicopter maneuvers, landings and ground maneuvers during the 20,000 flight hours of low cycle load testing. Also, a block of high cycle loading equivalent to 30,000 flight hours will be performed. Up to 18 million load conditions will be applied by the end of the program.

The objective of the fatigue test is to demonstrate airframe durability. Since the V-22 combines the vertical lift of a helicopter and the speed of an airplane, the test must demonstrate it can withstand loads in both airplane and helicopter modes. The fatigue test must also verify no fatigue damage from rotor-induced high cycle loads.

"The test is a durability test, but the purpose is to identify areas we have issues with and either design production repairs or allow redesign of components for future aircraft," said Idler.

The fatigue tests are conducted in a fixture consisting of 250,000 lbs. of steel that hold the fuselage/wing structure of the V-22.

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Supplier Newswire: Diverse aerospace company helps keep MV-22 Osprey moving

By Peter Parsons
Eaton Aerospace

Like all aircraft programs, working closely with suppliers is key to keeping aircraft development on schedule and moving forward. These suppliers help to provide everything from design assistance and engineering support to logistics guidance and training for field support once the aircraft is released to the squadrons. One such supplier for the Osprey program is Eaton Aerospace's Aeroquip Fluid Conveyance Group, based in Jackson, MI.



Swag tool

Eaton Aerospace has been supplying the aircraft industry hydraulic couplings, hoses, clamps and fittings for more than 60 years. Today, they are a key supplier to the hydraulic system of the V-22 Osprey program at both the Bell Helicopter A Textron Company and The Boeing Company's production sites.

One of the many products supplied to the Osprey is the Aeroquip brand Rynglok hydraulic fitting system. This system is a family of axially swaged fittings that are permanently attached to the hydraulic tubing to define the extensive web of tubing used to transmit hydraulic pressure throughout the aircraft.

Rynglok components' fittings have been specially designed to meet the performance requirements of high pressure, critical applications such as those encountered on the 5,000-psi Osprey hydraulic systems.

The fittings are made from all titanium 6Al-4V alloy to provide high strength capabili-

ties with minimal weight penalties.

The Rynglok design was the first of its kind to offer the axial swage technology. This feature incorporates a separate titanium ring that is advanced over the fitting to mechanically swage the fitting onto the outer diameter of the tube.

Once advanced, it remains in place to provide a continuous clamp loading of the fitting to ensure the attachment remains leak-free over the life of the components.

In addition, because the Rynglok design is all titanium alloy, there are no elastomer or composite materials to degrade over time or that could become compromised from exposure to fuel, hydraulic fluids or environmental conditions such as heat, sunlight or ozone.

Rynglok require no special storage or handling. Fittings are quickly and easily installed through the use of a hydraulic driven hand held swaging tool.

Once properly trained, the Osprey support/maintenance unit can safely install a fitting in minutes and knows the attachment is qualified to meet the system's requirements.

One key factor in the decision to use the Rynglok design was the selection of Rynglok as the primary hydraulic fitting for the F-18 E/F Super Hornet, produced at the Boeing St. Louis facility.

More than 600 fittings are used on each Super Hornet, with over 100 aircraft delivered to the Navy to date. Testing and qualification of the Rynglok design for these two military programs have resulted in the evaluation of thousands of fittings, in hundreds of performance tests.

In addition to the use at the Osprey manufacturing sites, Rynglok has also been extensively tested and qualified by the Navy, Air Force and Army and has been directed as one of the primary methods of repair of fixed and rotary wing aircraft in all branches of the services.

Rynglok Repair System Tool Kits are deployed at bases worldwide and used extensively to reduce aircraft downtime via quick and permanent repair methods.

Eaton's Aerospace Fluid Conveyance Group also supplies quick disconnect couplings, high-pressure Kevlar re-enforced hydraulic hoses and complex swivel joints used on many critical subassemblies on the Osprey, including the tiltrotor engine nacelles and wing fold sections.

Key suppliers providing a large array of critical performance components help to consolidate supply chain management, and ultimately lower overall product costs. Eaton Aerospace is just one of the many such Osprey partners.

For more information about Eaton Aerospace, visit them on the Internet at www.eaton.com

Eaton Aerospace's
Rynglok hydraulic
fitting system



Photos courtesy Eaton Aerospace

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craft—one of the first goals he announced when he was appointed as Secretary of the Navy. Prior to his current position, Mr. England was a senior executive with Fort Worth-based Lockheed Martin Corporation and had followed the V-22 from cross-town aerospace neighbor Bell Helicopter.

Bell Boeing V-22 Program Director Mike Tkach met with Secretary England and Gen. Jones during a one-hour conference room discussion on the program. “This was an excellent meeting, and the Secretary expressed his continued confidence in the aircraft and the program,” Tkach noted.

During a tour of the V-22 ITT hangar, Secretary England and Gen. Jones inspected V-22 Aircraft No. 8 and reviewed for themselves the numerous upgrade modifications to the V-22. Aircraft No. 8 has been reserved for the flight test program’s High Rate of Descent testing.

Following the hangar and aircraft tour, Secretary England addressed several hundred Bell Boeing and NAVAIR employees and Marines. He told the audience to not be swayed by detractors of the V-22 program,



Photo by Mark Gibson

Gunnery Sgt. Tom Spidel (left) explains the improvements that have been made to the nacelles of V-22 Aircraft No. 8 to Secretary of the Navy Gordon England and Marine Corps Commandant James Jones during a recent visit. Aircraft No. 8 has been reserved for the flight test program’s High Rate of Descent testing.

promising the Osprey continues to have his support. Afterwards, Secretary England met with and spoke to dozens of civilian employ-

ees, while Gen. Jones distributed personalized coins to many of the Marines working on the V-22 as tokens of his appreciation.

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aircraft, up to seven incrementally upgraded MV-22 Ospreys will be part of the methodical and event-driven developmental flight test program that V-22 program officials state will “prove out” the capabilities and performance of this aircraft.

“I am happy with all the incredible work that has been done during our ‘down time’ and I am confident that we are returning to flight with a safe aircraft. It was a great feeling to be back in the air with the Osprey,” said Oliverio, whose flight time in the V-22 exceeds 250 hours.

As part of the phased approach to return to flight, the Osprey will fly a certain number of flight hours and then undergo inspections to ensure that all modifications continue to meet established criteria. These inspections will continue throughout the test program at Pax River.

“We have a great machine that is mechanically superior both in hardware and software than ever before,” said Ryan.

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The test article has 127 computer controlled, hydraulic cylinders and around 418 sensors to record stresses. The data acquisition system can record about 2 billion data points for each 10,000-hr. lifetime. Cihak said that the test fixture contains 5.25 miles of wire and two miles of hydraulic hose. The airframe undergoes a minimum of two walk-through inspections during each day of active testing. Every 250 hours, high stress areas are inspected, and every 1,000 hours, an intense, three-day inspection occurs.

The first completed lifetime is followed by a second lifetime test scheduled for mid to late June, however, some Bell engineers believe they will start the second round of low cycle load testing earlier. “We’re very lucky in the lab to have some aircraft-oriented technicians, and I think we’ll beat our next start date,” said Mark Southard, lead test engineer.

The completion of the first low cycle load testing is a step closer to the overall testing



A V-22 Osprey undergoes testing of its components during the Airframe Fatigue Test Program.

of the V-22. Idler said that the rudder, flapperon, overwing fairing and aft fuselage/empennage have already been tested to two lifetimes in addition to high cycle testing.

“It’s exciting to be a part of this technology, and I think the tiltrotor technology will be revolutionary,” said Southard.