

MV-22 OSPREY AND VMX-22

The MV-22 Osprey tiltrotor is a revolutionary, vertical/short takeoff and landing (V/STOL), multi-purpose tactical aircraft that will replace the current fleet of Vietnam-era CH-46E and CH-53D aircraft currently in Marine Corps service. The MV-22 will join the EFV and LCAC as an integral part of the Seabasing capabilities necessary to execute *Expeditionary Maneuver Warfare*, and as such procurement of the Osprey remains the Marine Corps' number one aviation acquisition priority. The MV-22's specific missions will include expeditionary assault from land or sea, raid operations, medium cargo lift, tactical recovery of aircraft and personnel (TRAP), fleet logistic support, and special warfare.

The MV-22's 38-foot prop-rotor system and engine/transmission nacelle mounted on each wing tip allow it to operate as a helicopter for takeoff and landing. Once airborne, the nacelles rotate forward 90 degrees, converting the aircraft into a high-speed, high-altitude, fuel-efficient turbo-prop aircraft. The MV-22's design also incorporates the advanced but mature technologies of composite materials, fly-by-wire flight controls, and digital cockpits. The Osprey is capable of carrying 24 combat-equipped Marines or a 10,000-lb. external load. With a 2,100-nautical mile range with single aerial refueling, the aircraft also has a strategic self-deployment capability.



The MV-22 is a multi-mission aircraft designed for use by all the Services. The Marine Corps, Navy, and Air Force are committed to the fielding of this unique aircraft. MV-22 aircraft will be produced in three blocks, as follows:

- >> **Block A** series aircraft will provide an improved aircraft with which the Marine Corps can train and fight. This includes a software enhancement, nacelle reconfiguration, and additional reliability and maintainability (R&M) improvements.
- >> **Block B** series aircraft will provide further improvements in effectiveness and suitability for operators and maintainers to include improved access to the nacelle for inspection purposes and substantial R&M improvements.
- >> **Block C** configuration aircraft will incorporate mission enhancements

Flight-testing of the MV-22 was delayed in the aftermath of the two mishaps in 2000, and resumed in May 2002 to address the aeromechanical issues raised by these accidents. Included in the now on-going testing process is a rigorous, strictly regimented inspection process to verify and validate all of the aircraft's modifications and clearances. The Integrated Test Team (ITT) at NAS Patuxent River, Edwards AFB, and the Bell facility at Amarillo have flown more than 1030 hours since the V-22 returned to flight.

Since the MV-22 is neither a fixed-wing nor rotary-wing platform, it has a unique designation as a tiltrotor. The aeromechanics, composite structure, maintenance concepts, and concept of employment are inherently unique and best addressed in a squadron solely focused on tiltrotor operational test. Marine Tiltrotor Operational Test and Evaluation Squadron Twenty-Two (VMX-22) stood up on August 28, 2003 to meet these requirements. VMX-22, located at MCAS New River, NC, reports to the Commander, Operational Test and Evaluation Force (COMOPTEVFOR), who in turn reports test data and results to the Office of the Secretary of Defense, Director Operational Test and Evaluation (OSD DOT&E).

VMX-22 is an independent test organization under the operational control of COMOPTEVFOR and administrative control of the Deputy Commandant for Aviation with the charter to:

- >> Address future requirements
- >> Build an operational tactics guide
- >> Develop tactics, techniques & procedures
- >> Sponsor tiltrotor issues and concepts of employment
- >> Prepare the foundation for the training syllabus of the tiltrotor fleet readiness squadron (VMMT)

The squadron provides a solid framework for MV-22 operational testing and lays the groundwork for a long-term "Tiltrotor Center of Excellence."