Illustration by Ugo Crisponi, aviationgraphic.com

V-22 Osprey

The V-22 Osprey "tilt-rotor" is a unique multimission aircraft capable of vertical and short takeoff and landing. Typically, it takes off and lands like a helicopter. However, when airborne, its engine nacelles and 38-foot, three-bladed proprotors can rotate forward 90 degrees for horizontal flight, converting the Bell Boeing aircraft into a more fuel-efficient, higher-speed turboprop aircraft.

The US Marine Corps was the lead service in development of the Osprey and has acquired the largest number. The USMC variant, the MV-22, serves as an assault transport for troops, equipment, and supplies and can operate equally well from ships at sea or expeditionary airfields ashore. The Air Force variant, the CV-22, is used by Special Operations Command for long-range insert and extraction. CV-22 is equipped with extra fuel tanks and integrated threat countermeasures, as well as terrain-following radar and advanced avionic systems that allow it to operate at low altitude, at night, in poor weather, and in high-threat areas. It has been used operationally for long-range infiltration, exfiltration, and resupply missions for SOF of all services.

The V-22's extreme technical complexities produced a long, costly, and difficult development period—consuming 25 years, $22 billion, and 30 lives in crashes. In the early 1990s, Defense Secretary Richard Cheney tried, without success, to kill it. In the 2000s, crashes caused by "vortex ring state" lift problems forced a grounding and significant redesign. Since its operational debut in 2007, Marine and USAF Ospreys have performed well in Afghanistan, Iraq, Libya, Kuwait, and in various African locales. USMC has about 240 in inventory, the Air Force about 50.

—Robert S. Dudney with Walter J. Boyne

USAF Ospreys take off from Kirtland AFB, N.M., on a training mission.

This aircraft: USAF CV-22 Osprey—#11-0057, *Knife 75*—as it appeared in 2015 when assigned to the Air Force's 7th Special Operations Squadron, RAF Mildenhall, UK.

USAF photo by SSgt. Markus Maier

In Brief

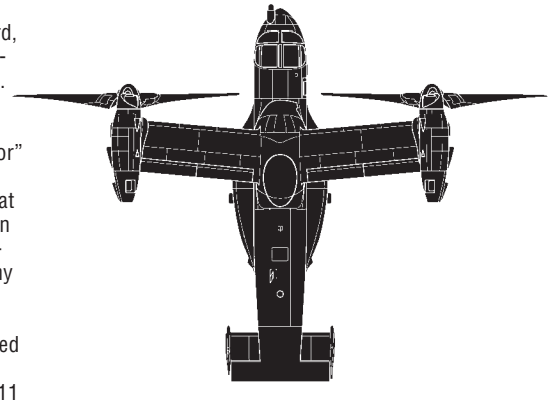
Designed, built by Bell Helicopter and Boeing ★ first flight March 19, 1989 (helo mode) and Sept. 14, 1989 (fixed wing mode) ★ function, assault and SOF transport ★ number built approx 400 ★ crew four (pilot, copilot, two flight engineers) ★ two Rolls-Royce Allison T406/AE1107C turboshaft engines ★ max speed 351 mph ★ cruise speed 277 mph ★ rotor diameter 38 ft ★ length 57 ft 4 in ★ wing span 45 ft 10 in ★ height 22 ft 1 in ★ width (rotor edge to rotor edge) 84 ft 7 in. **Specific to CV-22B:** armament, one .50 cal-M2 Browning machine gun ★ max payload 10,000 lb ★ troop capacity 24 seated or 32 floor-loaded ★ max range 1,011 mi ★ combat radius (with aux tank) 575 mi ★ weight (max T/O) 60,500 lb ★ service ceiling 25,000 ft.

Famous Fliers

Mackay Trophy 2012: USAF Rooster 73 Flight—Ryan Mittelstet, Brett Cassidy, David Shea, Christopher Nin, William Mendel, Arjun Rau, James McKay, Kenneth Zupkow, Taylor Fingarson, Daniel Denney, Alberto Delgado, Jeremy Hoye. **Distinguished Flying Cross:** David Haake (USMC), Michael Hutchings (USMC). **Other USMC Notable:** Michael Murphy (former presidential helicopter pilot, killed in 2000 test crash). **Test Pilots:** Thomas Macdonald (Kincheloe Award 2003); John Rudzis, William Wainwright, Thomas Currie, William Witzig, Kevin Gross, Chris Seymour, Michael Healy, William Leonard, James Lindsey, William Norton, Steven Grohsmeyer, Martin Shubert (Feinberg Award 1999).

Interesting Facts

Deemed the world's first production "tilt-rotor" aircraft ★ carried body of Osama bin Laden from Pakistan to USS *Carl Vinson* for burial at sea ★ spurred into development by 1980 Iran hostage rescue fiasco ★ suffered seven hull-loss accidents ★ won Robert J. Collier Trophy in 1990 ★ opposed, at first, by DOD leaders, but backed by Congress ★ has performed rolling landings and takeoffs on carrier ★ used by presidential candidate Barack Obama in 2008 tour of Iraq ★ featured in 2007 and 2011 "Transformers" movies ★ able to fold rotors for storage in 90 seconds ★ can transition from forward flight to 50-foot hover with no pilot interaction ★ requires use of oxygen masks above 10,000 feet.



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