



Transformers 22

The V-22 is transforming the way the military conducts its missions

By Jeff Barnett

There's possibly no more specialized need for transportation than within the U.S. Department of Defense, and no more specialized aircraft than the Bell Boeing V-22 Osprey. The Defense Department relies on two versions of the same bird—the CV-22 in service with the Air Force Special Operations Command (AFSOC) and the MV-22 in service with the Marine Corps—to perform two very different missions.

These missions take full advantage of the V-22's transformational combination of speed, range and flexibility to help the warfighter accomplish his or her tasking more quickly, effectively and safely than ever before. Boeing manufactures the V-22 in partnership with Bell Helicopter Textron Inc.

MATCHING MISSION TO PERFORMANCE

The USMC relies on its Osprey, the MV-22, to perform the critical mission of assault support transport. Whether it's moving Marines and material from amphibious shipping inland or supporting troops on the ground from austere

land bases, the MV-22 is well-suited for the support role.

AFSOC relies on the CV-22 Osprey to insert and extract special operations forces into highly sensitive, highly dangerous areas, whether behind enemy lines or near vital areas of conflict. Special operations rely on stealth and speed to achieve success; key is getting special operators into action and out of harm's way quickly and safely.

The V-22 has a unique tilt-rotor configuration, which gives the aircraft the ability to expediently change from vertical flight to horizontal flight, taking advantage of the best features of rotorcraft and fixed-wing aircraft. With its engine nacelles in the vertical position, the V-22 can take off, hover and land like a helicopter. Tilting the nacelles forward during flight allows the V-22 to fly like a fixed-wing turboprop aircraft, capable of high-altitude, high-speed flight.

FLEXIBILITY, SPEED AND RANGE

The Osprey's ability to take off and land like a helicopter makes it an optimal solution for forward area maneuver,



according to Boeing officials. Like a helicopter it can land in areas that aren't prepared for fixed-wing aircraft, putting troops and supplies exactly where they are needed with no need for a runway. It also can deliver 24 combat troops and sizable amounts of supplies. This includes up to 20,000 pounds (9,070 kilograms) of internal load and the ability to sling-load, or carry underneath the aircraft, as much as 15,000 pounds (6,800 kilograms).

In addition to its ability to take off, hover and land like a helicopter, the Osprey offers the warfighter the speed and range of a fixed-wing turboprop aircraft. This ability to fly farther (mission radius for the MV-22 is 430 nautical miles—495 miles, or 800 kilometers) and faster (up to 250 knots—288 miles per hour, or 463 kilometers per hour at sea level) than conventional helicopters allows the V-22 to accomplish and expand upon many traditional helicopter missions. And by flying higher and faster than helicopters, the V-22 can avoid many types of air defenses.



“The V-22 is the most technically advanced aircraft flying. It is a revolutionary aircraft helping us win the war on terror.”

– Mike Watson, V-22 electrician

“It’s vital that everyone who builds this aircraft keep their focus on quality and maintain a foreign object debris-free environment. It’s a phenomenal aircraft and I’m thrilled I have the opportunity to work on it.”

– Shalamar Miller, V-22 sheet-metal assembler





COMBAT PROVEN

The USMC specializes in the difficult missions of amphibious assault and ground combat, getting Marines and assets from ships over the horizon and into battle quickly and safely. This tasking makes maneuver and resupply critical to their mission. The Marines rely on the MV-22's range, speed and payload capabilities to move troops and supplies within the theater of operations.

A squadron of MV-22s recently returned from the aircraft's first combat deployment in Operation Iraqi Freedom, where the aircraft flew thousands of sorties, logging nearly 10,000 flight hours. In Iraq, the Osprey performed a wide variety of missions, moving troops and cargo in-theater.

"The aircraft completed every assigned mission," said USMC Lt. Gen. George Trautman, Deputy Commandant for Aviation, during a recent Defense Department bloggers roundtable, "and it did so flying faster, farther and with safer flight profiles than any other assault support aircraft in the history of military operations."

Soon after their return to the United States, the MV-22s

were deployed shipboard and have already been pressed into service in the medical evacuation role. In June, MV-22s from the USS *Bataan* evacuated an injured sailor from the ship to shore-based medical facilities, flying 147 nautical miles (170 miles, or 270 kilometers) in less than 40 minutes.

AFSOC is tightly focused on special operations, and its CV-22 is optimized for flying at night and at low altitudes. To accomplish its mission, the CV-22 Osprey is fitted with terrain-following radar, the Directed Infrared Countermeasure system and the Suite of Integrated Radio Frequency Countermeasures—navigational and defensive systems designed to protect the crew and aircraft. These systems allow low-flying CV-22s to use terrain to remain hidden from radar and visual identification. And since the CV-22 is quieter than conventional rotorcraft, it can enter and leave operational areas with a degree of stealth. These features allow the CV-22 to insert and extract special operators quickly, precisely and unobtrusively.

AFSOC put the CV-22 through its paces during Operation



Flintlock in late 2008, supporting the training of indigenous and international troops in the trans-Saharan region of Africa. The aircraft also was used in Special Operations training in the Caribbean, deploying and recovering special operators in various scenarios. AFSOC also learned much about the aircraft's range and maneuverability earlier this year when it deployed the aircraft to Honduras, where the CV-22 supported a humanitarian aid campaign in the nation's rugged countryside.

Perhaps Lt. Col. Mike McKinney, one of the Air Force's most experienced CV-22 pilots, with more the 500 hours in the Osprey cockpit, put it best. In a recent *Defence Helicopter* article McKinney said, "I have never, ever, been in an aircraft that can do as much stuff as this [one] does." ■

jeff.d.barnett@boeing.com

PHOTOS: U.S. Air Force CV-22 Osprey (pages 28–29). SHELDON COHEN/BELL HELICOPTER U.S. Marine Corps MV-22 Osprey (pages 30–31). U.S. NAVY (INSETS) Boeing V-22 employees. FRED TROILO/BOEING



"Every day, my co-workers and I work in a world-class environment and build this remarkable aircraft ... as if our own children were flying the aircraft."

– Rich Chambers, V-22 sheet-metal assembler

"I've been on the V-22 program from its beginning and was a captain on the first Employee Involvement team that helped design this focused factory. I'm proud to work on this aircraft."

– Jim Cucchi, V-22 sheet-metal assembler

