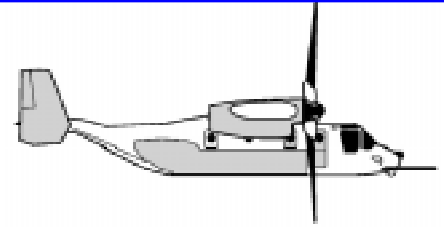


OSPREY FACTS

Formerly Tiltrotor Times



More than 1,000 Pentagon employees visited the Bell Boeing exhibits and static aircraft on display.

Pentagon Hosts Tiltrotor Technology Demo

The U.S. Department of Defense hosted a Tiltrotor Technology Presentation on the Pentagon's River Entrance parade ground to demonstrate the capabilities and versatility of tiltrotor Sept. 8. Secretary of Defense William Cohen spoke at the event, which began with the arrival of the test prototype XV-15 tiltrotor technology demonstrator, followed by the first production-model MV-22 Osprey.

"Every few decades of this century the world has witnessed the arrival of weapons platforms that have truly revolutionized national security," said Cohen. "The powerful and innovative aircraft that you see here today, the tiltrotors, will have just that effect in the coming century. They are going to revolutionize not only our force projection, they are going to transform the entire way that America conceives and sustains its policy of engagement in the decades ahead."

News reporters walked through the Osprey after it landed. The Chairman of the Joint Chiefs of Staff, Gen. Henry Shelton, and the Deputy Secretary of Defense, John Hamre, flew in the MV-22 for about 30 minutes. Several congressmen also received orientation flights. About 1,000 Pentagon employees walked through the V-22 while on display with the XV-15, a NASA-inspired, Bell Helicopter-produced experimental tiltrotor -- the precursor to the MV-22.

Bill Cohen (SecDef) briefed the press and large crowd of Pentagon officials and members of Congress.



Secretary of Defense Speaks at Pentagon Tiltrotor Day (continued)

The Osprey will provide a multi-mission, multi-service versatility and capability applicable to a wide range of contingencies. It is capable of carrying 24 combat-equipped personnel or a 15,000-pound external load. It also has a strategic self-deployment capability with a 2,245 nautical mile range using a single aerial refueling. Its vertical/short takeoff and landing capability allows it to operate as a helicopter for takeoff, hover and landing. Once airborne, the engine nacelles rotate forward 90 degrees, converting the V-22 into a high-speed, high-altitude (25,000 feet), fuel-efficient turbo-prop aircraft.

"Every major study and major review of the future capabilities have pointed to the need for exactly this type of capability," explained Cohen. "The V-22 represents a design that combines efficiency with flexibility; it provides greater survivability so that our pilots and airmen can return home safely.

"The V-22 is going to cut our response times from weeks down to days and days down to hours. These aircraft can fly twice as fast, twice as high, and two to five times farther than the traditional helicopters -- everything from assault operations to disaster relief and humanitarian aid, and peacekeeping."

"**This technology is THE revolution in military affairs.** (Emphasis added) These aircraft, through development and now into production, have stayed on time and within budget," said Cohen. "And as the members of Congress will tell you today, that is no small accomplishment."

Completion of V-22 sea trials was an exit criterion to obtain approval for low rate initial production, Lot 3. Based on the successful completion of the trials on the USS Saipan in August, the Navy has released full funding for Lot 3 and the long-lead funding for Lot 4. Seven MV-22s are scheduled to be built in Lot 3. Lot 4 has 10 MV-22s.

Three additional production aircraft will be delivered to the U.S. Navy this year. These four will eventually be used for operational evaluations that begin this October and complete in May 2000. Successful completion of those evaluations will lead to a full-rate production decision in the fall of 2000.

More event photos, next pages

Tiltrotor Technology



Bill Cohen (SecDef) briefed the press and large crowd of Pentagon officials and members of Congress.



The Marine MV-22 circles the Pentagon during an orientation flight with VIPs aboard, Sept. 8.



The Commandant, Gen. James Jones, visits with Congressman Curt Weldon (Pa).



Boeing photos by Kevin Flynn



Flight tests aboard the U.S. Saipan, August 1999

External loads tests carrying a Humvee were conducted during Sea Trials aboard the U.S. Saipan and Tortuga in August 1999.

DERA-TRW study shows V-22 effectiveness

A British and a U.S. study jointly assessed the potential for the V-22 to meet current and future U.K. vertical airlift requirements. The requirements for this study were based on the Royal Navy's Future Amphibious Support Helicopter program, as well as the U.K.'s recent Strategic Defence Review.

DERA, an executive agency of the Ministry of Defence, located in Farnborough, United Kingdom, and TRW, Inc., of Arlington, Va., evaluated the V-22s operational capability versus that of conventional helicopters using three scenarios. The high-resolution combat results models demonstrated the potential benefits of three key tiltrotor attributes: speed, range and survivability.

“The superior speed of the tiltrotor dramatically improved the rate at which troops, weapons systems and supplies were delivered to the landing zones,” said John Buyers, Bell Boeing program manager at Naval Air Station Patuxent River, Md. Speed also reduced exposure to air defense threats and increased aircraft and payload survivability in the simulations, he explained.

Increased mission radius capability allowed the assault ships to operate well away from land-based anti-ship missile batteries and naval mines according to the report. On land V-22s permitted deeper operations and enhanced survivability as mission planners routed the aircraft around known air defense threats.

The first scenario evaluated was an amphibious assault performed by the Royal Marines as part of a U.S.-led coalition force in the Persian Gulf. In this scenario, the performance of the V-22 was evaluated solely against that of the medium-lift helicopter. DERA and TRW determined that this would be the most likely competitor for the V-22 in the assault role. The study concluded that in the critical first six hours of the simulated assault mission, the V-22 delivered 41 percent more combat power to the landing zones than the medium-lift helicopter in this short-range scenario. At longer ranges the models showed the V-22 able to deliver the complete landing force in 15.7 hours less time, a 50 percent advantage, over the medium-lift helicopter.

The second scenario was a regional conflict inside NATO. In this scenario, the use of support rotorcraft in a number of possible fleet mixes was examined. The scenario showed that an all V-22 force of 27 aircraft could perform all the missions 45 percent faster than the base case of 40 helicopters (i.e., 16 heavy-lift, 8 medium-lift and 16 light-lift helicopters). For a raid on the enemy tank division headquarters, the speed of the tiltrotor allowed mission completion with 39 percent to 47 percent less time exposure to air defense threats. The increased exposure of the helicopters to surface-to-air threats, along with the inherent hardness of the V-22, meant that the helicopter alternatives suffered twice as many combat losses/casualties and had fewer aircraft remaining for subsequent operations.

The third scenario looked at a U.K.-led multi-national force tasked with conducting a non-combatant evacuation operation in Western Africa. With an equal number of three tiltrotors or helicopters, the speed of the tiltrotor allowed all civilians to be evacuated in the shortest period of time; overcoming even the larger passenger capacity of the heavy lift helicopter. The medium or light-lift helicopter would require almost two days to complete the same mission that the V-22 tiltrotor could do in less than 20 hours.

In every scenario the speed, range and survivability of the tiltrotor allowed it to deliver more combat power faster, more effectively and with fewer combat losses than would helicopters. DERA modeling showed that based on SDR operational requirements, several squadrons would be required for the U.K. to meet the military needs of the three scenarios presented. At the request of the MoD, this study did not consider cost as part of the equation. Therefore, all results are based solely on operational capabilities and effectiveness.

The study also indicated the V-22 was capable of performing eight ancillary missions not normally covered under the support rotorcraft category, according to Buyers. These include ship-based Airborne Early Warning, Aerial Tanker platform, and Strategic Self-Deployment.

V-22 magazine and news stories listed

Jane's Defence Weekly, July 14, *Boosting the Optempo* by Scott Gourley

Associated Press, July 21, *First Osprey helicopter delivered to Marines*

AOPA Pilot, August, *Flying Straight Up*

Defense Week, August 23, *V-22 One Course For Final Exam* by Vince Crawley

Seattle Times, Sept. 9, *First Osprey off production line lands at Pentagon* by David Briscoe, AP.

The News Journal, Sept. 9, *Osprey is unveiled as military innovation* by David Briscoe, AP.

Aerospace Daily, Sept. 9, *CV-22 seen increasing capability of Air Force special ops.*

USA Today, Sept. 9, *Is it a helicopter or a plane?*

Defense Daily, Sept. 9, *Marines say prospects for V-22 Multi-Year 'Look Good'* by Hunter Keeter.

Defense Daily, Sept. 9, *CV-22 funds not lkely to be diverted to F-22, General says* by Frank Wolfe.

Seattle Times, Sept. 9, *V-22 Osprey tiltrotor debuts* by David Briscoe, AP.

Inside the Navy, Sept. 13, *Marine Corps V-22 Osprey tiltrotor arrives at Pentagon to nest* by Christopher J. Castelli.

V-22 EMD Flight Test Status as of September 17, 1999

A/C #	Total EMD Hours	Total EMD Flights
7	367	177
8	457	258
9	318	140
10	328	137

Totals 1,470 712

Total V-22 Flight Time	2,654 hrs
Maximum Airspeed Attained	342 kt
Maximum Altitude Attained	25,000 ft
Max Take-Off Gross Weight	60,500 lb
Maximum Load Factor	3.9 Gs

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