

## V-22 sets unofficial world record: external loads

PATUXENT RIVER NAVAL AIR STATION, Md. (August 19, 1998) – Flight testing the new V-22 Osprey tiltrotor has broken new ground in its class and among all rotorcraft.

“The most significant accomplishment of the past week has been the demonstration of the V-22’s ability to carry external loads at very high speeds,” said John Buyers, Bell-Boeing V-22 program director at NAS Patuxent River. “A 10,000 pound load, attached to the aft external cargo hook was carried at a speed of 220 knots.” This is the maximum payload for a single hook on the V-22, while 15,000 pounds can be carried using dual hooks. A Marine Helicopter Support Team conducted the hookups. They have developed procedures for working underneath the V-22 during 15 hookups made during tests.

“This is the fastest airspeed any rotorcraft has carried an external load, no matter what the weight,” said Buyers. From all indications, this constitutes a new unofficial world record. The capability will significantly increase the productivity of vertical lift operations on the battlefield, according to Buyers.

Reports show that pilots felt the aircraft was stable and predictable over the load during hookup procedure and they are unaware of the load during normal flying.

In coming weeks, the V-22 will test dual hook external loads with the military’s HMMWV, or High-mobility, multi-wheeled vehicle. New milestones were also achieved in other areas during recent flight testing.

The V-22 has been demonstrating its versatility. Actual hookups with the aerial refueling drogue behind a KC-130 tanker were flown with good results.

“Although these were known as *dry plugs* with no fuel transferred, the tests verified the ability of the V-22 to maintain a very stable attitude while in the *receive position* directly behind the giveaway aircraft,” Buyers said. This in-flight refueling capability will permit the V-22 to self-deploy worldwide as advertised.

Day and night confined area landings and low altitude tactics tests also were completed successfully. Flare decoys and radar defeating chaff were dispensed from the onboard aircraft survivability equipment. These systems tests, which also were successful, will allow the V-22 to operate in threat environments.

Low Altitude Tactical Terrain flight has been demonstrated during day and night operations. Sustained flight was accomplished at altitudes 500 feet above ground level (AGL) in airplane mode and at 200 feet AGL while partially converted (engine nacelles rotated between airplane and hover mode). These tactics will be an important capability for the service operators in that they will enhance their ability to avoid detection and increase the element of surprise, according to test pilots.

In addition to these operational capability demonstrations, the flight test teams have completed 90 percent of the pilot training required for the operational evaluation pilots. Aircraft 7 is doing some airspeed system evaluations and

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acoustic tests prior to beginning several months of loads calibration testing. Aircraft 8 is performing the external loads demonstrations; aircraft 9 is doing search light evaluations, stores separation tests and pilot training, while aircraft 10 is in a modification period getting ready for operational evaluations. It will return to flight status near the end of August.

The V-22 Integrated Test Team and the Multi-service Operational Test Team turned in another record breaking month in terms of total flight hours during any month. During July, a total of 92.8 hours were flown on aircraft 8, 9, and 10. All four aircraft now have more than 100 flight hours. The Engineering and Manufacturing Development aircraft have flown more than 600 hours in more than 300 flights, bringing the program total up to 1,800 flight hours including Full-scale Development flights. Aircraft 7 leads the fleet with a total of 188 hours and 101 flights.



**V-22 EMD Flight Test Status  
as of August 21, 1998**

A/C #	Total EMD Hours	Total EMD Flights
<b>7</b>	188	102
<b>8</b>	177	94
<b>9</b>	144	65
<b>10</b>	108	49
<b>Totals</b>	<b>617</b>	<b>310</b>
Total V-22 Flight Time	1,801 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	

## V-22 Osprey has international appeal

Bell Boeing officials and customers from the U.S. Marine Corps and U.S. Air Force will brief and answer questions from international news journalists at a Bell-Boeing V-22 press conference during the week long Farnborough Air Show in Britain, Sept. 7-12.

The development of the V-22 tiltrotor aircraft and the operational benefits it provides have caused interest among military requirements planners around the world.

The V-22 is a contender for the United Kingdom's Future Amphibious Support Helicopter (FASH) program. While the V-22 is one of several contenders for this important mission, it is the only FASH candidate that is a tiltrotor aircraft and the only one that can be bought *off the shelf*, without major modifications to meet the FASH requirements.

After successful completion of operational evaluations, which begin in September 1999 and complete in May 2000, the V-22 will be available for export to international customers. The U.S. Navy and Air Force are aggressively supporting Bell-Boeing initiatives to develop the international market for the Osprey. International sales of the V-22 will increase the production rate and reduce the cost of the aircraft for the domestic customer.

# Bell to build tiltrotor assembly center in Amarillo

AMARILLO, TEXAS — Following an eight month nationwide search, Bell Helicopter Textron Inc. announced today the company will build its new Tiltrotor Assembly Center on the airport at Amarillo, Texas. At a press conference at the Amarillo Civic Center, Bell President and Chief Executive Officer Terry Stinson noted, "This Tiltrotor Assembly Center will be the first major aircraft manufacturing facility to be built in Texas in decades."

The Tiltrotor Assembly Center will serve as Bell's manufacturing facility for the V-22 Osprey and the Bell 609 commercial tiltrotor. Bell plans to meet the U.S. Government requirement to deliver 458 V-22 Osprey tiltrotor aircraft.

Stinson was joined at the press conference by U.S. Senators Phil Gramm and Kay Bailey Hutchison as well as U.S. Representative Mac Thornberry, whose Congressional District includes Amarillo. Hutchison, a longtime supporter of the tiltrotor program called the Bell expansion a great day for Texas. "This will ensure Texas will be the world's premiere tiltrotor center for the 21st century," she stated. Thornberry said Amarillo will make a great home for tiltrotor technology and thanked Bell for selecting the Panhandle city for the new plant location.

Bell Executive Vice President for Operations and Site Selection Team leader P.D. Shabay said, "The selection of Amarillo for the location of the Tiltrotor Assembly Center was the result of an intense search. We started with 1200 locations before we narrowed the selection to eight sites in Texas. Although each of the participating cities provided excellent proposals, Amarillo provided the best value for our customers as well as Textron stockholders," Shabay said. "Mayor Kel Seliger and the members of the Amarillo Economic Development Corporation are to be commended for putting together such an outstanding proposal."

A 179 acre site at the Amarillo International Airport will be the actual location for the new \$40 million Tiltrotor Assembly Center. Construction on the approximately 450,000 square foot facility will begin in 90 days with occupancy scheduled for 1999. Previously Bell operated an aircraft modification center at Amarillo from 1968 through 1988.

Next year over 200 people will be employed at the facility. By 2004 that figure is expected to reach 1,200 employees.

In addition to the Amarillo Tiltrotor Assembly Center site selection, Bell announced plans to spend \$300 million on new equipment and facilities at its existing plants in the Fort Worth area to enable the company to move into the production phase of its tiltrotor aircraft product line. At peak production Bell predicts the company will produce as many as 100 tiltrotor aircraft annually including both military and civilian versions of the aircraft.

Bell will create a new Composite Center of Excellence at its main Plant One facility in Fort Worth. Bell is a world leader in composite technology and both tiltrotor aircraft will be virtually all composite aircraft. The work currently being performed at this building will be relocated to another site in Fort Worth that will incorporate an additional 150,000 sq. feet of manufacturing space.

Bell will begin a 100,000 sq. feet expansion of its Machining Center in Grand Prairie. This facility, already one of the largest precision gear manufacturing plants in the United States, will be producing transmissions for tiltrotor aircraft. This is in addition to the significant helicopter related production already at the facility.

Bell also announced that the company and Texas A&M University have entered a strategic partnership that will provide a world class source of technical manpower in support of tiltrotor technology as well as create an academic

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research & development effort in areas such as manufacturing, composites, and new tiltrotor concepts.

With the assistance and support of both Fort Worth and Grand Prairie city governments, Bell expects to recruit and train a skilled workforce to fill between 1,500 and 2,000 new jobs in the Metroplex. To further help with the total new employee training, Bell announced that the Texas Department of Economic Development and the Texas Workforce Commission have pledged in excess of \$2.7 million for training new employees for all locations.

In addition, Shabay said Bell is currently evaluating the establishment of a new site in the Fort Worth area for customer acceptance and delivery of new tiltrotors and helicopters and flight and mechanic training operations. No date has been set for this. Currently Bell trains about 5,000 students annually at its Customer Training Academy in Fort Worth. (BHTI release.)

## MV-22 pilot training program explained



What will the new pilot training program look like for people lining up to fly the first military tiltrotors — the US Marine Corps MV-22 Osprey?

Pilots with rotary and fixed wing background can cross-train. The revolutionary tiltrotor is technically neither a fixed or rotary wing aircraft, but it is effectively both. All pilots with either flight experience seem to adapt to the unique Osprey flight characteristics. When pressed on the question, training officials concede that rotary wing pilots may have a slight advantage in the cross-training process, due to experience in the slow-flight and hover regimes. U.S. Naval Aviators receive at least 100 hours in fixed wing flight

training before branching off to the helicopter training pipeline, so they have time in both aircraft.

Some country's services may not provide both rotary wing and fixed wing training to prospective V-22 pilots.

“Headquarters Marine Corps has determined that all V-22 pilots will undergo the current helicopter pipeline training track, which includes the T-34 Beachcraft Turbo Mentor and the TH-57 Bell Jet Ranger,” said Maj. Jim Schafer, aircrew training officer at Patuxent River Naval Air Station's Multi-service Operational Test Team (MOTT) in Maryland. This decision was based on the Pilot Pipeline Study conducted by the MOTT during the summer of 1996. Twenty-five lieutenants were pulled away from the training command for the two-week study. Of the twenty-five lieutenants, five had received pilot ground school only, five had completed *primary* (60-65 hours of T-34 fixed-wing flight training) and the other fifteen were graduates from the three pilot Navy training tracks (five Jet, five Maritime, five Rotary wing). Each lieutenant received identical V-22 ground school training plus three simulator flights at MCAS New River, NC. In short, the study reflected that there was not an immediate need to alter the current pilot training tracks to accommodate tiltrotor training.

“The training curriculum for the training squadron, VMMT-204, better known as the schoolhouse, at MCAS New River is being designed to provide smooth tiltrotor training to our country’s newly designated aviators as well as our seasoned pilot warriors,” explained Schafer. When the schoolhouse is operating near capacity in 2008, approximately 140 to 150 Marine Corps and Air Force pilots combined will graduate each year.

VMMT-204 will eventually have three full-fidelity, full-motion simulators. They will support tactics, night vision goggle and mission training. There will also be two non-motion flight-training devices, which will be used primarily by the tactical squadrons at New River. The first Cadre instructors used to stand-up the schoolhouse will train one year prior to the opening of the schoolhouse. VMMT-204 is scheduled to be commissioned in June 1999 and receive its first Osprey in December of that year.

There are six operational test pilots going through V-22 pilot training this summer, preparing to conduct the next operational assessment (OT-IID) of the V-22 beginning in September 1998.

“The syllabus for these first six V-22 Operational Test pilots will require about 31 hours of flight training to become aircraft commanders and about 15 hours for copilots,” said Schafer. Although low in V-22 aircraft flight hours, the training received by these pilots was based on the fact that each pilot has an abundance of V-22 simulator training and well over 2000 hours of operational flying experience. The MOTT will provide three aircraft commanders (two Marine Corps and one Air Force) and three Marine Corps copilots for the OT-IID assessments.

What’s it like to do flight training in the tiltrotor?

“It’s an exhilarating, fun aircraft to fly,” Schafer said. “It’s different from the CH-46E that I currently fly, because my rotor disks are now able to be placed anywhere from 0 - 95 degrees. Within seconds I can depart helicopter mode flight and transition to airplane mode flight and obtain speeds well over 200 knots.”

The schoolhouse training system is well into planning and development. The schoolhouse facilities are already built awaiting courseware and simulators. The first three simulators are under contract and the computer-based training (CBT) will be under contract shortly. Between stand-up lecture material, high fidelity CBT and the latest in flight simulator technology, the program will very soon be producing hundreds of tiltrotor aviators for the new flying technology in the new millennium.



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