



Bell Boeing Tiltrotor Team's Osprey Facts



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Philadelphia

Independent Review Panel visits Bell, Boeing

The four-member panel appointed by the U.S. Department of Defense to review all aspects of the V-22 Osprey program conducted visits to Bell and Boeing earlier this month as part of a week long fact-finding tour.

The panel visited Bell Helicopter Textron's final assembly facility in Amarillo, Texas on March 6, its engineering and production facilities in Fort Worth, Texas on March 7 and Boeing Philadelphia's production facilities on March 8. The panel received high-level briefings and facility tours.

The panel, chaired by retired Marine Gen. John R. Dailey, received several technical briefings and detailed tours of Bell and Boeing's production facilities.

Other members include retired Air Force Gen. James B. Davis, Norman R. Augustine, former chairman/CEO of Lockheed Martin, and Dr. Eugene Covert, MIT professor of aeronautics and astronautics.

In addition to its trips to Bell and Boeing, the independent review panel



John Hilaman (left), V-22 director of operations at Boeing, explained V-22 processes to panel members (clockwise) Dailey, Augustine, Covert and Davis.

visited the V-22 training squadron at New River, N.C. and the U.S. Special Operations Command headquarters in Tampa, Fla.

The series of visits were capped off with a public meeting on March 9 in Arlington, Va.

Addressing the review panel were several supporters of the V-22 program, including former Pentagon official Frank Gaffney, who said the aircraft was a

"national asset" that the United States "cannot afford to forego."

While many other speakers asked for additional testing, corrections and program improvements, no one called for the cancellation of the program.

The panel is expected to complete its review and report its findings and recommendations to Secretary of Defense Donald Rumsfeld in April.



Covert looks on as a Boeing Philadelphia employee demonstrates a mechanical process.

V-22 to appear on network TV show

The V-22 Osprey is about to make its small-screen debut in an upcoming episode of the hit network television program, JAG. A television crew visited Edwards Air Force Base (EAFB), Calif., on March 21 to film a handful of sequences for an episode entitled, "To Walk on Wings." Marines stationed at EAFB served as extras for the maintenance scenes.

Although the exact details of the episode are not available, the overall tone is expected to be positive. The plot involves a helocasting scenario where two congressmen are on board a V-22 as part of a congressional orientation flight. During their flight, something *apparently* goes wrong.

Because of the scrutiny of the V-22 program, the aircraft is called on the carpet in a congressional hearing. David James Elliott, the show's protagonist, subsequently defends the Osprey and its capabilities in a court hearing. Stock footage will be played in the



Photo courtesy NAVAIR

background, allowing viewers to see the aircraft take off, land and hover.

JAG, or Judge Advocate General, is an adventure drama about a corps of military lawyers who investigate, prosecute and defend those accused of crimes in the military. The program airs Tuesdays at 8 p.m. on CBS.

The episode featuring the V-22 is tentatively scheduled to air at the end of April.

Bell, Boeing reps speak at tiltrotor conference

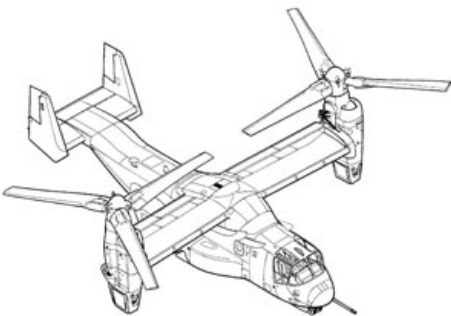
On March 20-22, the University of Texas at Arlington hosted the American Helicopter Society's (Southwest Region) Tiltrotor/Runway Independent Aircraft Technology and Application specialists meeting.

International experts presented technical papers on the latest developments in vertical takeoff and landing aircraft. Topics of interest included Advanced Tiltrotor Design Concepts, Design Criteria and Subsystem and Component Design.

John Murphey, president of Bell Helicopter, gave a presentation on "Industry Vision" and its impact of the future of tiltrotor technology. Engineers and other Bell Boeing representatives also participated in the event.

The three-day conference concluded with a tour of Bell Helicopter's flight test center to view a demo flight of the XV-15.

V-22 performs land, shipboard operations



All photos taken during last year's Operational Evaluation and shipboard operations aboard the USS Bataan. Photos courtesy USMC/NAVAIR.



V-22 Osprey's record comparable to other aircraft

By Robert Charles

Former staff director to the U.S. House of Representatives' National Security Subcommittee

Before Congress prematurely amputates V-22 Osprey's technology from the body of U.S. defense, the flight test performance of other visionary prototypes should be considered. In historical context, the record of the V-22—four accidents in nine years of development—appears neither better nor worse than many parallel projects of lasting value to the nation's defense.

In light of recent events, that comparison is understandably hard to accept, especially for families of the 23 brave Marines who perished in last year's Osprey crash. Those families have a point—flight testing should continue until there is widespread confidence that this unique asset is prepared to safely take brave Marines into combat.

In a broader sense however, innovative aeronautical design and flight testing is always risky. The more humans involved, the riskier it is.

By way of example, in 1948, the U.S. lost 13 brave pilots in military flight-testing accidents, most flying traditional fixed-wing aircraft. That was also the year Capt. Glen Edwards died crash-landing his YB-49 Flying Wing. Today—due in part to his effort—we have a highly capable, state-of-the-art B-2 Stealth Bomber.

We also have Edwards Air Force Base to remind us of the price paid by those who wring out prototypes on their way to operational success.

In the years immediately thereafter, the U.S. tested increasingly innovative airframes, including the X-15 and X-2, paving the way for the SR-71 Blackbird, a plane capable of Mach 3, as well as other supersonic aircraft part of today's standard air arsenal. These developments, too, came at sobering cost.

In 1956, Capt. Iven Kincheloe soared in the Bell X-2 to a record-setting 126,200 feet. Just weeks later, in the exact same plane, Capt. Mel Apt exceeded Mach 3, but promptly perished when his X-2 tumbled out of control. Novel technologies carry disproportionate risk. In fact, despite remarkable flights in the X-15 by pilots like Chuck Yeager, Scott Crossfield and Neil Armstrong, there were also wincing X-15 crashes.

Mr. Armstrong puts one in mind of the Apollo Program that began in the 1960s, and aeronautical innovations in multi-stage rocketry. Today, Americans go to the Space

Station by Shuttle, but not without painful memories of Apollo One, which ended the lives of three superb aviators and astronauts, Ed White, Gus Grissom and Roger Chaffee, or more recently the Challenger crew. In both cases, technology was advancing rapidly, and an unforeseeable glitch among thousands of mission-critical parts precipitated sudden catastrophe.

And in both cases, the program was strengthened by the unforgettable starkness of the event. A deep reality was the same then and now—progress in aviation is necessarily hazardous; those who press the envelope for the sake of the program are, by absolute definition, heroes. In fact, while practicing moon landings on Earth, Neil Armstrong's own vertical take-off platform malfunctioned. He barely escaped with his life, as the platform crashed and burned.

On a more mundane level, military flight training—largely underfunded in presidential budgets over the past half decade—carries its own costs. Between 1997 and 2001, for example, the U.S. Army experienced 26 class A aviation accidents, each one costing at least a million dollars or causing a fatality. In the same period, Army class B aviation accidents—more than \$200,000 in damage or placing five or more people in the hospital—totaled 13.

Between 1999 and 2000 alone, Army aviation accidents in class A rose by 75 percent, while Army aviation class B accidents rose 600 percent. Why? Inherent risk, together with how many dollars are dedicated to pilot training and op-temp, both affect the ultimate price of progress.

Finally, the opportunity cost of not getting back up—painfully perfecting and methodically pressing forward the Osprey—is high. Alternative rotor and fixed-wing airframes are less capable, more costly to maintain and fast aging. The Osprey requires complete wringing out—that much is self-evident. But that is precisely the conclusion reached when the F-18 E/F fighter had to re-prove itself after discovery late in development of serious wing drop and wing baffle problems.

The realities that should govern the Osprey debate now are timeless. First, every life is precious, indeed priceless. Second, aerodynamic engineering is uncertain and cannot be completed in wind tunnels or on computer simulators. Test piloting is required, and crashes are a tragic, sometimes unavoidable, part of that

noble profession.

Neither war-fighting nor flight-testing is for the faint of heart. In the shadow of these stark facts is one final, quiet truth.

To abandon the future in the name of caution is an illusion more dangerous than embracing the uncertainty in progress, no matter how frightening that uncertainty is.

Here, as elsewhere, the Marine Corps Hymn is the final word: "In many a strife, we've fought for life, and never lost our nerve." That spirit embodies the men who died in the Osprey—and it should embody our approach to the Osprey's future.

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Top Marine speaks on V-22

By Linda DeFrance

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Although Gen. James L. Jones, the Marine Corps' senior leader, believes a decade of studies has shown the V-22 tiltrotor Osprey to be the best solution to meet Marine Corps mission requirements, he said his service is not blinded by its love of it.

"I would resist, with all my moral fiber, the idea that we would willingly or knowingly try to bring aboard a program—V-22 or anything else—and so fall in love with the program that we would put people at risk to ride in those vehicles," Jones said at a forum Tuesday night. "We just simply wouldn't do that. And I don't think we've done that."

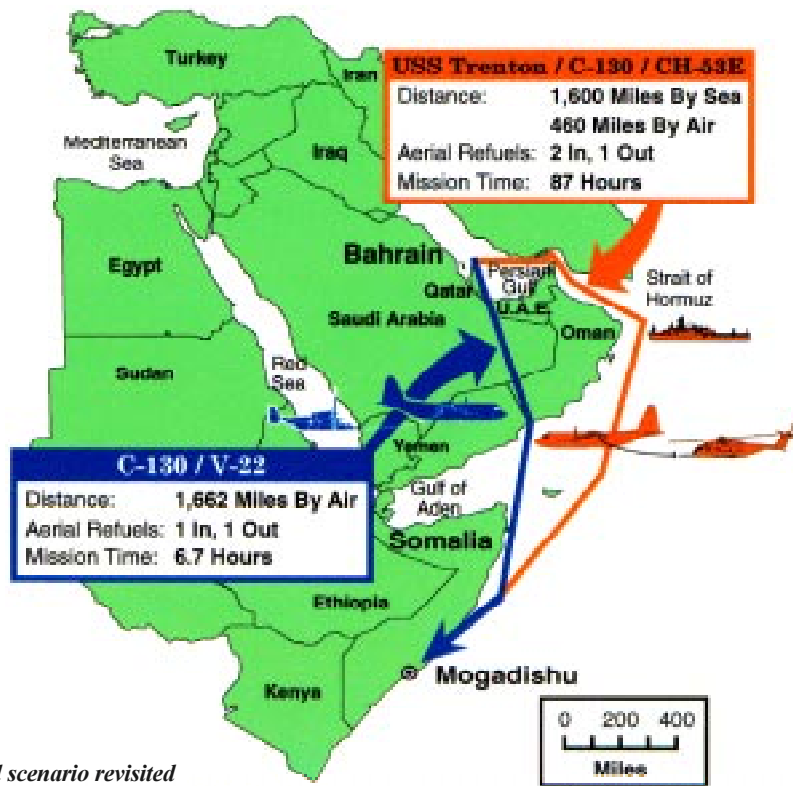
Top Marine Corps officials have been criticized for wanting the V-22 at any cost, following two fatal accidents last year that killed a total of 23 Marines. Currently, the program is under several simultaneous reviews: a program-wide Defense Dept. independent review panel; a DOD inspector general looking into maintenance record falsification charges; accident investigations into the Dec. 11 crash; and also likely Secretary of Defense Donald Rumsfeld's sweeping review encompassing all military programs.

While some reports in the press have said Jones ordered his own review seeking alternatives to the Osprey in light of its

———Top Marine Cont. on Page 4

Operation Eastern Exit

*Non-Combatant Evacuation Operation (NEO)**



V-22 Osprey excels in Eastern Exit

By Norb Josten
USAF and Guard Business Development

This fictional scenario is based on the successful, yet extremely complex, attempt to rescue beleaguered U.S. and Allied Embassy personnel in Mogadishu, Somalia. It serves as an example of the potential benefit of the V-22 Osprey during a Non-Combatant Evacuation Operation, or NEO. This mission was performed by the Marines and the Navy during the build-up to Desert Shield in late-1990.

Mission Recap

The USS Trenton was dispatched from the Persian Gulf with CH-53E aircraft and steamed at maximum sustained speed to a point that would allow two H-53s, with two over-water aerial refuelings each, to fly to Mogadishu.

The refuelings were at night and fraught with difficulties. The aircraft arrived at the embassy compound at first light as the

walls were being scaled by warlord forces. The arrival of the helicopters and U.S. security forces stopped the attack and enabled the evacuation of U.S. and Allied Embassy personnel.

Observations

- With the V-22, the USS Trenton and its force components could have remained on station in the Persian Gulf.
- With the V-22, the risks and the force structure would have been significantly less.
- As the metrics indicate, the mission could have been completed in a fraction of the time by using the V-22 option.
- Overall, the V-22's speed and range would reduce reaction time and risk.

USMC Col. Dan Schultz, who led the Marines in this operation, will be featured in an upcoming issue of Osprey Facts. He becomes the V-22 program manager at PMA-275 in June.

Top Marine speaks on V-22

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troubles over the past year, Jones himself denied such a search (DAILY, Mar. 8).

"The reason we got to V-22 is because we did all the reviews," Jones said at a military strategy forum sponsored by the Washington think-tank *Center for Strategic and International Studies* Tuesday night. "You know, we just didn't say: 'Okay, this is the technology we want and we're not going to consider anything else.' ... I will tell you that no one would go into a program without knowing what the alternatives are."

Following seven Cost and Operational Effectiveness Analyses (COEAs), and several challenges to the program throughout its lifespan which produced a review of alternatives, Jones said the Marines have simply found the V-22 Osprey was the best technology to meet the medium-lift needs of their missions.

"We know the potential replacements," Jones added. "We know the technology. We know the costs. It is something we can really roll out at anytime for anybody ... and that's really how we got into tiltrotor technology—because the assessment was that it was superior to anything else across most standards of measure."

If the V-22 did not come into the inventory, "then we would be faced with adopting a lesser capable alternative," Jones said, saying such a move would be a step backward rather than the leap-ahead technology found in the tiltrotor aircraft. "To me, that would be a step that we would undertake only in extremes. Going backwards is not the best idea."

Having said that, Jones said he is committed to allowing the independent panels to do their work. He said he believes the DOD independent review will answer three critical questions: Is tiltrotor technology mature? Is it robust enough for operational use? And, what is the best way to bring the capability into the fleet as quickly and as economically as possible?

Jones is taking "a balanced wait-and-see approach" with the reviews right now, he said, while he awaits their counsel on the right direction to take with fielding the V-22.