

A Lockheed EC-130Q Hercules, which previously handled the Navy's TACAMO work. The Navy has now decided to acquire the C-130J-30 Super Hercules as its platform for communicating with deployed ballistic-missile submarines.



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# TAKING CHARGE AND MOVING OUT

THE NAVY'S E-6B TACAMO AIRCRAFT  
CONNECTS THE PRESIDENT WITH  
STRATEGIC DETERRENT

BY RICHARD R. BURGESS, SENIOR EDITOR

The acronym TACAMO is one of the Navy's strangest. Translating as "Take Charge and Move Out," it is a cryptic reference to one of U.S. naval aviation's least known roles, but also one of its most important.

It belongs to the men and women who crew the Navy's strategic communications aircraft, the Boeing E-6B Mercury. They are a vital link in the communications between the president of the United States as commander in chief and the Ohio-class ballistic-missile submarines (SSBNs), which deploy a significant portion of the nation's strategic nuclear deterrent. The E-6B has served since 1989, and the Navy is planning to replace it with a new C-130J Super Hercules aircraft.

The Navy operates 16 E-6Bs, which are derivatives of the old Boeing 707 airliner. They are the largest aircraft in the Navy and are operated by two fleet air reconnaissance (VQ) squadrons, which originally were cryptically named in that they have no reconnaissance role like the

Navy's EP-3E squadron, VQ-1. The two E-6B squadrons, VQ-3 and VQ-4, are based at Tinker Air Force Base, Oklahoma, where their large aircraft can be maintained with the help of the Air Force.

The TACAMO aircraft are equipped with a long trailing wire antenna used to relay very-low-frequency radio messages to submerged ballistic-missile submarines. The airframes go through considerable stress as they maintain high angle of bank for long periods to maintain tight orbits to wind the trailing-wire antenna into a vertical position, needed for the radio waves to penetrate the water most effectively.

The E-6Bs not only keep in communication with the Navy's SSBNs but also serve in the command post role, formerly carried out until 1998 by the now-retired EC-135C "Looking Glass" aircraft. Carrying Air Force crew as well as Navy, the E-6B is equipped with the Airborne Launch Control System, by which the Air Force's Minuteman III intercontinental ballistic missiles can be launched if authorized by the commander in chief.

### Standing Up E-XX

The Navy is moving out on a new aircraft to take over the TACAMO role.

"The E-6B is based on the 707 commercial derivative aircraft first introduced in 1956," said Capt. Adam T. Scott, Airborne Strategic Command, Control, and Communications Program Office program manager. "The E-6B aircraft are the last 16 aircraft to roll off the 707 production line. The aircraft's expected service life at the time of purchase was approximately 25,000 flight hours. The Airborne Strategic Command, Control and Communications Program Office (PMA-271) completed a service-life extension program extending the useful life out to approximately 45,000 hours, which should equate to the mid-2030s. The E-6B continues to meet its mission requirements and will continue to do so until properly relieved. In late fiscal 2020, the Department of Defense accelerated the recapitalization of the [TACAMO] mission. This decision recognizes the balance between the aging E-6B mission and the criticality of the TACAMO mission."

Scott said the Navy is "standing up the TACAMO re-

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capitalization program [E-XX] within PMA-271. We have the initial acquisition strategy with the milestone decision authority for approval. We conducted our first industry day and continue to complete market research. E-XX was designated a major defense acquisition program in November 2020" as a pre-milestone B acquisition category 1B program, almost top priority.

The request for information issued Dec. 18 by PMA-271 announced the Navy intends to negotiate and award sole-source contracts to Lockheed Martin for efforts associated with the procurement of up to three C-130J-30 "Stretch" green airframes in fiscal 2022/2023 for testing and analysis.

The C-130J is the current, much more modern version of the C-130 and is flown by the Air Force, Marine Corps and Coast Guard, as well as many foreign air forces. The C-130J-30 is similar but has a 15-foot-longer fuselage. The rugged C-130J can operate from many more airfields than the current E-6B Mercury.

The choice of the C-130J also is noteworthy in that the predecessor aircraft to the E-6B was the EC-130G/Q versions of the Hercules.

"The Navy is fully capable of supporting my mission requirements to ensure survivable communications to the ballistic-missile submarines, and I think they're making a great decision to go to the C-130," said Adm. Charles Richard, commander, U.S. Strategic Command, speaking in a Jan. 5 webinar to the Defense Writers Group.



U.S. AIR FORCE / Staff Sgt. Jacob Skovo

A U.S. Navy E-6B Mercury aircraft, assigned to Strategic Communications Wing 1 at Tinker Air Force Base, Oklahoma, receives post-flight maintenance after landing at Offutt Air Force Base, Nebraska, July 15, 2019. In August 1989, the E-6A replaced the EC-130Q in the performance of the Navy's Take Charge and Move Out mission which links the National Command Authority with naval ballistic missile forces during times of crisis.

PMA-271 “continues to sustain the E-6B aircraft and ensure it meets the mission requirements of the United States Strategic Command, Fleet Forces Command and our operators and maintainers at Strategic Communications Wing One,” Scott said.

“The Multi-Role Tactical Common Data Link and Family of Beyond Line-of-Sight Terminals and the Presidential and National Voice Conferencing modifications are being installed concurrently along with the Digital Red Switch System and a new Auxiliary Power Unit,” he said. “To date, one aircraft has been modified and returned to the fleet for continued testing, aircraft numbers two and three are in modification. Other ongoing modifications include a replacement very low frequency [VLF] receiver, modifications to our VLF transmit system and we are completing the final installation of the carbon brakes system.

“Aging aircraft have components that require re-industrialization of repairs and manufacturing,” Scott said.

“These components drive long turn-around times to return critical components back to the fleet. One recent example is spar chords. The number of spar chord replacements has been on the rise. As we’ve proactively refilled the stock on hand, our manufacturers have found a lack of raw materials. The original material to make the components simply is no longer available. Our engineering team in conjunction with our industry partners were forced to approve the use of alternate materials,” he said.

“Another example of a sustainment challenge we’ve recently solved — again with spar chords as the example — is converting two-dimensional drawings into three-dimensional models,” Scott said. “In this example, the team had to account for advances in manufac-



turing from the time the parts were originally manufactured to today. In other areas, the team is using additive manufacturing to ensure Strategic Communications Wing One continues to meet its critical mission requirements in support of our nation's nuclear deterrence mission."

### Air Force Support

With a vested interest in the mission of the E-6B, the Air Force provides major support the program.

"We employ the artisans at the Oklahoma City Air Logistics Complex at Tinker Air Force Base to perform our heavy depot maintenance," Scott said. "Additionally, the Air Force is in the primary owner of some shared components on the E-6B such as the C3 system and Milstar. The Air Force provides repairs for these components and returns ready for installation units back to E-6B. The Air Force also flies the 707 for their [E-8] Joint Surveillance and Target Attack Radar System program. The Air Force has been and continues to be a helpful partner. When the E-6B needed a spar chord,

the JSTARS team provided the program with a loaner."

The Navy also has acquired another 707 derivative, a former Royal Air Force E-3D Sentry, for modification into an aircraft to be operated by replacement training squadron VQ-7 for E-6B crews. The large radome and the struts that support it will be removed, as well as the aerial refueling probe.

"The aircraft will need to have the center of gravity changed to more accurately reflect that of an E-6B," Scott said. "This aircraft, when fielded in fiscal year 2024, will reduce 600 flight hours and 1,200 landings on operational aircraft annually. This effort supports the program's goal to maximize mission readiness at an affordable cost. It also represents an outstanding example of the partnership between the United States Department of Defense and the United Kingdom's Ministry of Defense. This aircraft was procured in under two months after receipt of funds because of the partnership and urgency shared between the U.S. and U.K. teams." ■

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