

E-2D Advanced Hawkeye

Executive Summary

- The Navy completed E-2D operational testing for Delta System/Software Configuration (DSSC) Build 3 upgrades in FY20 and demonstrated an initial aerial refueling (AR) capability.
- The classified DOT&E DSSC-3 FOT&E report, signed on July 27, 2020, noted improved Naval Integrated Fire Control (NIFC) capabilities, but assessed shortfalls in reliability, availability, and logistic supportability.

System

- The E-2D Advanced Hawkeye is a carrier-based airborne early warning and command and control aircraft.
- Significant changes to this variant of the E-2 include: upgraded engines to provide increased electrical power and cooling relative to current E-2C aircraft; a strengthened fuselage to support increased aircraft weight; replacement of the radar system, communications suite, and mission computer; and incorporation of an all-glass cockpit, which permits the co-pilot to act as a tactical fourth operator.
- The radar upgrade replaces the E-2C mechanically scanned radar with a phased-array radar that has combined mechanical and electronic scan capabilities. The upgraded radar is designed to improve littoral and overland detection performance and Theater Air and Missile Defense capabilities.
- The E-2D Advanced Hawkeye Program includes all simulators, interactive computer media, and documentation to conduct maintenance, as well as aircrew shore-based initial and follow-on training.
- DSSC-3 included the Automated Identification System, Mode 5 Interrogator, Embedded National Tactical Receiver, Automatic Dependent Surveillance-Broadcast, Accelerated



Mid-Term Interoperability Improvement Program, NIFC improvements, and the introduction of AR.

Mission

Combatant Commanders will use the E-2D Advanced Hawkeye, whether operating from the aircraft carrier or from land, to accomplish the following missions:

- Theater air and missile detection and early warning
- Battlefield management, command, and control
- Acquisition, tracking, and targeting of surface warfare contacts
- Surveillance of littoral area objectives and targets
- Tracking of strike warfare assets

Major Contractor

Northrop Grumman Aerospace Systems – Melbourne, Florida

Activity

- The Navy completed the third FOT&E period (OT-D3) from March 2019 through January 2020 in accordance with the DOT&E-approved test plan for effectiveness and suitability evaluations. The test focused on DSSC-3 software and hardware upgrades and the introduction of AR.
- The Navy did not complete operational cybersecurity testing during OT-D3 as required by the DOT&E-approved Test and Evaluation Master Plan Revision E.
- The Navy conducted cybersecurity testing in 1QFY21.

Assessment

- E-2D AR testing in FY20 demonstrated the platform can effectively conduct AR with fixed-wing tankers, to include the F/A-18E/F, during daytime operations. Although the Navy did not conduct night AR testing with F/A-18 E/F during the

operational testing period, the E-2D successfully accomplished night AR with strategic tankers.

- AR provides a dramatic increase in operational range, endurance, and safety at sea.
- Improving operator comfort on long endurance flights and expanding the AR envelope to include additional altitudes, airspeeds, and tanking platforms will give commanders more flexibility at sea.
- As detailed in the DOT&E classified DSSC-3 FOT&E report, operational test results demonstrated an increase in NIFC capabilities.
- DSSC-3 operational test data reinforce previous DOT&E assessments that noted shortfalls in radar reliability, aircraft availability, and logistic supportability.

Recommendations

The Navy should:

1. Increase radar and aircraft reliability in order to improve suitability.
2. Increase the operational AR flight clearance envelope to give operational commanders more flexibility at sea.