Backgrounder

Boeing Defense Space & Security
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737 Airborne Early Warning and Control

Description and Purpose:
737 Airborne Early Warning and Control (AEW&C) is a state-of-the-art system providing powerful airborne surveillance, communications and battle management.

Customers:
The Australian Defence Force selected the 737 AEW&C system in July 1999. A contract for Project Wedgetail was signed in December 2000 for four 737–700 aircraft and six AEW&C systems plus options for three additional systems. In 2004, Australia exercised options to purchase two additional 737-700 aircraft. Two of the aircraft were modified into the AEW&C configuration at a Boeing facility in Seattle. The other four were modified by Boeing Defence Australia in a company facility at Royal Australian Air Force (RAAF) base Amberley.

Boeing delivered the two aircraft in November 2009 and has been supporting RAAF training on the AEW&C system, which includes the aircraft as well as the Operational Flight Trainer, Operational Mission Simulator and Mission Support System.

In May 2010, the aircraft were initially accepted by the Commonwealth of Australia into the RAAF fleet. This major milestone demonstrated that the 737 AEW&C system was ready for operational training and use. It also represented the culmination of years of design, development, modification and testing by the Boeing-led team.

Since then, four more Wedgetail aircraft have been delivered and are in operation by the RAAF. In Nov. 2012, the program reached a major milestone when the RAAF declared Initial Operating Capability (IOC) for the fleet. IOC means the Wedgetail aircraft is ready to be operationally deployed anywhere in the world and takes into account not only the aircraft, but also logistics and sustainment, training of air crews, ground crews and technical support staff. In Dec. 2012, the Commonwealth completed its acquisition of the AEW&C aircraft and related mission systems by accepting the final design of the Wedgetail airborne mission segment. In May 2015, RAAF officially declared Final Operational Capability (FOC) for the Wedgetail aircraft.

In November 2000, the Republic of Turkey selected a Boeing-led team to begin contract negotiations on developing a new AEW&C system. A contract was signed in June 2002 and officially started in July 2003. The program, known as Peace Eagle, includes four 737 AEW&C aircraft plus ground support segments for mission crew training, mission

support and system maintenance support. Boeing delivered the first three Peace Eagle aircraft in 2014. The fourth aircraft will be delivered in 2015.

Boeing signed a contract in November 2006 to provide four 737 AEW&C aircraft for the Republic of Korea's EX program, known as Peace Eye. The Boeing team's solution also includes ground support segments for flight and mission crew training, mission support and aircraft and system modification support.

Peace Eye aircraft #1 was delivered to the Republic of Korea Air Force in September 2011 followed by delivery of the second aircraft in Dec. The third Peace Eye aircraft was delivered to the ROKAF in May 2012. The fourth, and final aircraft in the fleet, was delivered in Oct. 2012.

In 2014 Boeing was awarded a 4-year Technical Support Program (TSP) contract to provide seamless support for the Peacy Eye fleet following the expiration of the interim support program.

Boeing is working daily with the Defense Program Administration Agency and the ROKAF to provide the best possible support for this Republic of Korea national defense asset. Our joint E737 team of ROKAF maintainers and Boeing support experts regularly address part related issues to ensure mission readiness.

737 AEW&C gives Korea a powerful capability for airborne surveillance, communications and battle management. It also provides increased security for the Korean peninsula against today's threats and threats in the future.

General Characteristics:

- 737-700 increased gross weight (IGW) airframe
- Northrop Grumman "MESA" electronically scanned array radar system
  - 360 degrees/Air and Maritime modes/200 + nmi range/All Weather
  - IFF: 300 nmi
- Open system architecture/COTS
- 6 to 10 multi-role/purpose consoles
- Precision Tracker
- Communications include, but are not limited to, (3) HF, (4) VHF/UHF, (4) UHF and Link 11 & 16 (Customer selects encryption capability) (2) Have Quick
- Operational ceiling: 41,000 ft
- Range: 3,500 nm
- Flight Crew: 2
- Mission Crew: 6 to 10

Miscellaneous:

The platform is the Boeing Next-Generation 737-700 featuring 21st century avionics, navigation equipment and flight deck. Because of its high technology, the aircraft requires minimal downtime for maintenance.

The 737 series is one of the most popular and reliable jet aircraft in the world. Its popularity has resulted in a worldwide base of suppliers, parts and support equipment. The Multi-role Electronically Scanned Array (MESA) radar is the critical sensor aboard the 737 AEW&C. The steerable beam, L-band electronically scanned array is designed to provide optimal performance in range, tracking, and accuracy. The radar is able to track airborne and maritime targets simultaneously and can help the mission crew direct the control of fighter aircraft while continuously scanning the operational area.

The so-called ’top hat’ portion of the MESA radar provides a practical solution for fore and aft coverage while maintaining the low drag profile of the dorsal array system. This allows the system to be installed on the mid-size 737-700 platform without significant impact on aircraft performance. Another innovation is the integrated Identification Friend or Foe sharing of the primary radar arrays to further reduce weight, improve reliability, and simplify target correlation. In addition, the 737 AEW&C has an advanced open system architecture with a standards-based design for cost-effective commonality and maximum flexibility.

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