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NAVAIR PMA-231 Overview

On February 2, U.S. Navy Captain Peter Arrobio, Program Manager for **PMA-231, the E-2/C-2 Airborne Command & Control Systems Program Office**, discussed the status of the E-2C Hawkeye, E-2D Advanced Hawkeye, and C-2A Greyhound programs, including platform evolution and future opportunities.

The PMA-231 mission is to "develop, acquire, and sustain unmatched carrier-based command, control, and logistics aircraft while ensuring warfighter are equipped to go to the fight and win, today and tomorrow!" A goal of the program includes providing an elevated, persistent surveillance sensor for the Naval Integrated Fire Control (NIFC), From-The-Air (FTA) & From-The-Sea (FTS) kill chains. Additionally, the program focuses on office supporting and sustaining the Fleet and keeping aircraft operationally ready, improving supply chain and depot level maintenance posture, and ensuring overall tactical relevance throughout the Fleet. CAPT Arrobio puts it simply as **"Find it, track it, kill it and deliver it while riding combat readiness."** E-2D & E-2C Hawkeye Airborne Early Warning (AEW) systems are the core of this effort, with a focus right now on "supporting and sustaining the fleet."

The E-2D builds upon the E-2C Hawkeye 2000 success in the Navy fleet as its carrier-based tactical battle management AEW C2 aircraft. The Hawkeye provides all-weather airborne early warning, airborne battle management, and command and control functions for the Carrier Strike Group and Joint Force Commander. Additional missions include surface surveillance coordination, air interdiction, offensive and defensive counter air control, close-air support coordination, time critical strike coordination, search and rescue airborne coordination, and communications relay. An integral component of the Carrier Strike Group air wing, the E-2C uses computerized radar, Identification Friend or Foe (IFF), and electronic surveillance sensors to provide early warning, threat analysis against potentially hostile air and surface targets. **The most recent variant of the E-2, currently still in production, is the E-2D Advanced Hawkeye. It incorporated arguably the most capable airborne sensor systems ever designed and produced—and the core of the carrier strike group's air defense mission.**

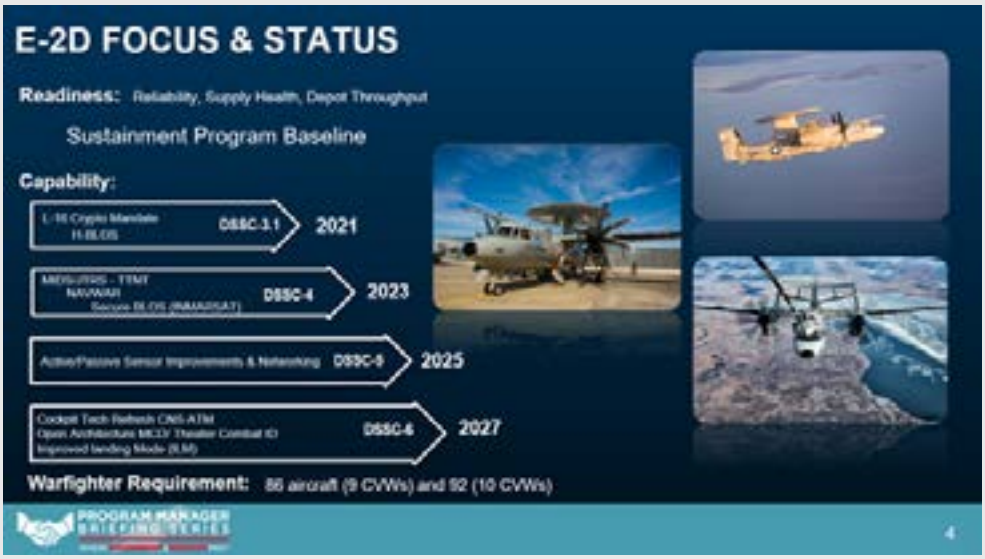
The E-2D continues the Navy's integrated warfighting legacy by providing broad area coverage resulting in a broader range of capabilities. With the E-2D's enhanced ability to work in the littoral and over land, the platform offers a critical power to protect our nation's interests. The Hawkeye's command and control (C2) capability makes it a multi-mission platform through its ability to coordinate concurrent missions that may arise during a single flight. This includes

airborne strike, land force support, rescue, and drug interdiction operations, and managing a reliable communications network between widely dispersed nodes. Platform upgrades, including a tactical fourth operator display, allow the five-person crew more flexibility to fulfill these diverse missions. As the prime industry contractor, Northrop Grumman Corporation, puts it, the E-2D Hawkeye is serving as a "digital quarterback" to "sweep ahead of strike, manage the mission, and keep our net-centric carrier battle groups out of harm's way." It can also be described as "a flying brain in the sky" and the "sixth sense of a naval fleet." The most important and significantly useful capability of the E-2D Hawkeye is the Advanced Warning and Control System (AWACS). It is the focal point in advancing missions and taking it to the next level no matter what it is. The system gives the warfighter extended battlespace awareness in information operations that deliver battle control, missile and air defense, and multiple sensor fusion capabilities in an airborne system. To put it simply, it can track and analyze a vast range of information and data both airborne and seaborne consecutively while coordinating a quick response. On top of that, it can also detect the wide mix of friends and enemies on the battlefield and keep track of them.

CAPT Arrobio explains that the number one goal today is 28 mission capable (MC) E-2D aircraft by July 1, 2021, and 22 Fully Mission Capable (FMC) to be decided at a later date. They are trying to reach a point where an aircraft can take off and land as efficiently as possible, or as CAPT Arrobio explains, is capable of "the flight tonight." To advance this goal, the current focus is getting the aircraft off the ground and flying in the air as quickly as possible and so the Navy did a whole study on all the facets that make this possible. They are using the Navy Sistine system, which is comprised of six pillars to achieve that target. The first pillar is on the organizational level maintenance, including repairs and inspections on the flight line to compress the timeline and get things out faster. The second pillar is the maintenance operating cell and aircraft on the ground, a team that works together to get the right part to the right aircraft promptly, located in Norfolk. Another two important aspects include a focus on fleet readiness centers, and that is the reform taking place in those centers to shorten the PMI level 2 inspection period from the time it took the E-2D 500 days all the way down to 319 or even 220 days. There have also been talks about shortening the engineering maintenance reform through the recent development of reliability control, which is a component-by-component review and ensures the same reliability numbers. Lastly, there is the introduction of the governance accountability and reliability insurance; CAPT Arrobio runs this and makes sure everybody has what they need to complete their work.

CAPT Arrobio discussed fiscal austerity's realities, which has already caused an unfortunate halt on upgrading the Hawkeye's AN/ALQ-217 Electronic Support Measures system. These budget challenges will likely continue for the foreseeable future. That said, with fifty percent of PMA-231 focusing on E-2D, there still are several upgrades to the system on the horizon. The first key initiative with a milestone of FY 2021 is the Link-16 Crypto Modernization and Frequency Remapping (CM/FR), DSSC 3. 1, and Hybrid-Beyond Line of Sight (H-BLOS). Second, DSSC-4 will bring about the transition from the Multifunctional Information Distribution System (MIDS) Joint Tactical Radio System (JTRS) to an ungraded Tactical Targeting Networking Technology (TTNT) in FY 2023. DSSC-5 will provide active and passive sensor improvements and networking in FY 2025, and DSSC-6 in FY 2027 will see the introduction of the Hawkeye Cockpit Technology Refresh that can be sustained through the 2040s to bridge the

gap in component obsolete issues. This initiative will also provide for open architecture MCD/ Theater Combat ID.



The warfighter requirements for the E-2D is 86 aircraft (9 CVWs) and 92 (10 CVWs). There are 77 currently funded and soon to be 78. There is also a multi-Year Procurement II (MYP II) that covers 22 U.S. Navy aircraft for FY 2022 through 2023. Additionally, through Foreign Military Sales FMS), Japan has received three of four E-2Ds, with nine more coming at the beginning of FY 2022. In early December 2020, France signed a Letter of Offer and Acceptance to procure three E-2D Advanced Hawkeye aircraft by 2027. Taiwan is also upgrading its six E-2K Hawkeye early warning aircraft to E-2D level to be completed by 2024. Northrop Grumman has five deliveries this year. The last three are delivered in August, October, and December and anticipating being 30 days ahead of schedule in each of the respective months. Finally, while there have long been plans to end the E2 production line, FMS remains strong with more demand coming along. The PMA-231 is committed to the warfighter with plans for sustainment and readiness of E-2D Hawkeye through 2040.

The E-2D Hawkeye is arguably the most capable airborne sensor system ever designed and produced — and the core of the carrier strike group's air defense mission. Furthermore, the E-2D's ALQ-217 system can provide inputs to the EW picture, along with satellite systems, the systems aboard an EP-3 or RC-135, not to mention the systems of the EA-18G Growler. For this reason, AOC will closely monitor funding for the ALQ-217 and other upgrade initiatives. As more attention is paid to gray zone operations and great power competition, AEW through, in part, the E-2D Hawkeye becomes the "tip of the spear" to gain and maintain EMS Superiority.