

E-2 Hawkeye, THE EYES OF THE FLEET

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Above: An E-2C Hawkeye in full glory, getting readied for another mission over the Pacific Ocean.

Left: To save space on an aircraft carrier the Hawkeye's wings can be folded hydraulically along the fuselage.

An aircraft carrier and its accompanying vessels are important targets for the enemy. If the opponent has the power, it will try to attack and destroy the fleet that has taken up weapons against him. To prevent the enemy succeeding in that mission, the fleet needs to be aware of an attack at a very early stage. For that task, the Northrop Grumman E-2 Hawkeye was especially designed. One of the primary roles of the Hawkeye is airborne early warning and that, of course, under all kinds of weather.

ROUGH START

Developing the E-2 started in the second half of the 1950s. The first prototype flew in 1960 and the aircraft entered service in the US Navy in 1964. The aircraft is easily recognisable by the disk-shaped radar above the fuselage and the distinctive four-fin tail. The start of the E-2 in US Navy service was a rough one. Major problems, especially with overheated computers/avionics and corrosion, led to the decision to halt the production after 59 E-2s were built. To turn the Hawkeye into a successful aircraft, manufacturer Grumman and the US Navy rushed plans to improve the design, which led to the conversion of 49 E-2As into E-2Bs. But the performance of the Hawkeye could be much better and further improvements resulted in the C-version. The C-model entered service in 1973 and included an improved radar, the AN/

ALR-59 Passive Detection System, upgraded engines and far better cooling of the computers and avionics. In later years, other new upgrades were applied, like new eight-bladed propellers and a glass cockpit. The newest variant of the Hawkeye is the D-type, the next-generation model, which is now entering service in the US Navy. Plans are in place to produce 75 D-models for the US Navy until 2023, proving that this aircraft has turned into a success after all.

Like a lot of aircraft, the E-2 has a nickname. In fact, it has two: "Super Fudd" (because it replaced the E-1 Tracer "Willy Fudd") and "Hummer" (because of the distinctive sounds of its turboprop engines). But E-2 crews seldom use these nicknames. They prefer its original name, "Hawkeye".



Above: **1** A 'sportive' E-2 takeoff during a Red Flag mission out of Nellis Air Force Base, NV, USA. **2** E-2C from Carrier Airborne Early Warning Squadron One One Three (VAW-113) 'Black Eagles' performing a touch-and-go. **3** This C-2A Greyhound, cargo brother of the E-2, shows the new eight-bladed propellers, also present on the E-2C. **4** A clear view at the 24ft (7.3m) diameter circular antenna radome that provides the E-2 its characteristic look.

Above: A landing signal officer (LSO) grades a practice carrier landing performed by one of his squadron colleagues. Below: Assigned to aircraft carrier Ronald Reagan, E-2C '165817' approaches runway 27 at its home (land) base NBVC Point Mugu, CA, USA.

EARLY WARNING AND OTHER CAPABILITIES

The Hawkeye provides airborne early warning and command & control functions for carrier battle groups. The platform is used in many other ways, like surface surveillance coordination, strike and interceptor control, search and rescue guidance, and communications relay. Airborne early warning and command & control are vital for battle management. It provides the senior

commanders a complete operational picture to make strategic decisions possible and offer connectivity between all parties involved in the battle. Because of the real-time information, commanders can quickly respond to changing battle situations. Some Hawkeyes are tasked for special missions: homeland security operations and tracking drug smugglers.

E-2 FLEET SQUADRONS

The E-2s are assigned to Carrier Airborne Early Warning squadrons. There are four Hawkeyes in a squadron; to man the aircraft, six crews are available. A crew consists of five persons: the pilot (aircraft commander), the copilot, a radar officer, a combat information centre officer and an aircraft control officer. Crews are trained at NAS Norfolk, Virginia.

The E-2 can detect aircraft at ranges greater than 550 km. Because

of that, the E-2s are truly the eyes of the fleet. The radar is capable of tracking more than 2,000 targets and controlling the interception of over 40 enemy targets at the same time. During combat missions, the aircraft commander in the plane or a warfare commander on the aircraft carrier decides which targets should be engaged. To train for combat missions, the crew often uses the simulator. Of course they also train in the air.

CARRIER LANDING QUALIFICATIONS

When not at sea, the pilots have to keep their carrier landing qualifications up to date. They simulate carrier landings at land bases by conducting a series of touch-and-goes. This process is called Field Carrier Landing Practice (FCLP). Like on a carrier, an optical landing system (OLS) is used to give glide path information to pilots in the final phase of their touchdown. A series of coloured lights is used to signal the incoming aircraft. A landing signal officer (LSO) grades and evaluates each landing. The LSO guides the pilot during the last three-quarters of a mile by talking and signalling to the pilot to keep the aircraft on the right glide path. During

the landing, the LSO holds the "pickle switch", the wire to control the lights and to give a wave-off signal in case the pilot is out of limits for a safe landing. In that case, a red light flashes to warn the pilot to go around and make another attempt to land safely. The pickle switch is held above the head to signal a foul deck.

A regular FCLP involves about eight to twelve touch-and-goes and lasts about 45 minutes. Often during FCLPs, one aircraft is used by several pilots. After a pilot has flown a session, the E-2 is parked with engines running and another pilot steps in. That saves a lot of time and money.

GETTING READY FOR BATTLE

The squadrons also participate in exercises to keep up their skills of working together with other kinds of aircraft during missions. The most realistic training takes place at NAS Fallon, Nevada, home of the Navy Fighter Weapons School or TOPGUN. Here, US Navy and Marines crews are prepared for real combat missions in a realistic warzone environment.

To prepare for a deployment at sea, the unit goes through a nine-month pre-deployment training programme together with the other units that will deploy as well. During this training, the "crawl, walk, run" growth path is followed. At the end of the training, crews are 100% ready for the job that is asked of them during their long deployment at sea. **PW**

Cargo brother: C-2

The E-2 has a brother, the C-2 Greyhound, which is a spinoff of the E-2.

This aircraft is designed as a cargo aircraft to deliver passengers, supplies, parts and mail to and from aircraft carriers. For that reason, the C-2 has a wider fuselage than the E-2 and it is equipped with a rear-loading ramp.

Production of the Greyhound began in 1965 and the newest development is the Service Life Extension Programme, which increases the operating service life of the C-2 from 15,000 landings and 10,000 flight hours to 36,000 landings.

