

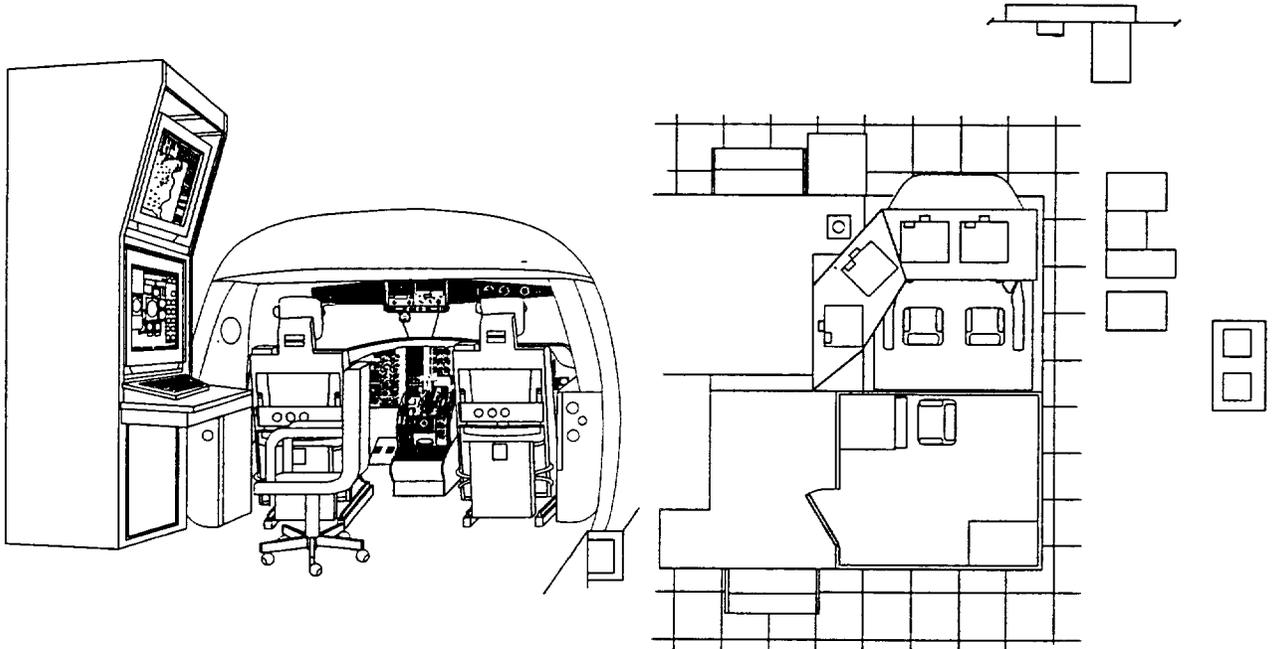
SUMMARY OF E-2C Operational Flight Trainer (OFT)

JUNE 1996

Device 2F166

NAVAL AIR WARFARE CENTER

ORLANDO, FL JDA



TRAINING CATEGORY:

AVIATION

ORIGINATING AGENCY:

NAWCTSD

SECURITY CLASSIFICATION OF DEVICE:

Device 2F166 is unclassified.

PURPOSE OF DEVICE:

Develop pilot proficiency in E-2C aircraft operations in day and night environments under clear through poor visibility conditions.

INTENDED USE:

The OFT provides an effective degree of simulation in relation to the actual E-2C Hawkeye aircraft (BUNO 163028) in the areas of flight and navigation under direct supervision of an instructor. The OFT is utilized for initial qualification, transition, requalification proficiency, and tactical flight training under instrument flight conditions. Flight scenarios include Aircraft Carrier Landing System (ACLS) approach.

The OFT is also used to reinforce training in normal, degraded, and emergency operations of simulated aircraft systems.

FUNCTIONAL DESCRIPTION:

Device 2F166 is installed in a single room training facility with a high bay area. The OFT consists of a simulated E-2C cockpit, an instructor operator station (IOS), a visual system, a host computer with associated peripheral equipment, and a control loading system. The cockpit shell is that of an actual E-2C aircraft. The entrance to the cockpit extends the full width and height of the cockpit to facilitate monitoring by the instructor. The cockpit contains functional controls and indicators which replicate the actual E-2C operational equipment. The visual system provides realistic, real-time, night, dusk, and day-time scenes through the simulated cockpit windows. These scenes enable the cockpit crew to experience the same visual perception during training as would be experienced during actual flight. The control loading system provides simulation of the forces, reactions, and movements of the primary flight controls.

The training capabilities include cockpit familiarization, preflight procedures, startup, takeoff, navigation, instrument flight, landing, shutdown, and post flight procedures under normal and emergency

conditions. In addition to providing simulation of normal flight functions, the trainer provides the Instructor with the capability of selecting desired environmental parameters and introducing aircraft equipment malfunctions, as required, to simulate problem situations. Because the instructor station is located close to the trainee station, the instructor is afforded a vantage point from which to monitor pilot actions and reactions and control training. In addition, the situation is advantageous in that it provides the instructor with continuous and accurate information feedback relative to the training system environment; this feedback information is required for the instructor to accurately manipulate the training environment in a real world fashion and to use it as a basis for interpreting and scoring trainee performance.

Flight dynamics simulation in the trainer is included in the computer main simulation program and consists of control surface deflections, automatic flight control system, ground contact, aerodynamic forces and moments, weights and balances, atmospheric environment, and flight equations.

The trainer is capable of two basic modes of operation: Free-Flight and Demonstration. The Free-Flight mode is an instructional mode and is used to run a training exercise for pilot/copilot familiarization and proficiency in a learning situation. The Demonstration mode is used by the instructor to automatically demonstrate a trainer mission, or segment thereof, to the trainee(s). In this mode, the trainer is flown hands-off and all instruments and controls are exercised by the computer program. At the instructor's discretion, the demonstration ride may contain up to 15 minutes of a mission, such as with a briefing, or any segment within that mission. The Demonstration mode is selected and initialized by the instructor.

In the Free-Flight mode, the instructor is provided with the instant replay capability of recording simulated aircraft performance. The instructor can play back these recorded segments for trainee critique or demonstration purposes. When dynamic replay takes place, all cockpit controls and indicators are activated to provide the instructor and trainee(s) with a demonstrative visual critique in a learning situation.

The Program Reset mode of operation automatically resets the trainer to the pre-programmed set of initial conditions. When activated, this mode clears the temporary performance playback record, termi-

nates operational sub-modes, clears all computer controlled malfunctions and instructor display monitors, and freezes the trainer in preparation for scenario restart.

PHYSICAL INFORMATION:

The trainer requires facility area space of 47 ft. by 48 ft. 6 inches (2280 ft²) and contains the trainer assembly, and raised platform structure. The raised floor is a pedestal and stringer type with removable 2-foot square tiles.

Other supporting facilities such as office space, briefing room, and storage areas, are in addition to the trainer area requirements.

EQUIPMENT REQUIRED (Not Supplied):

None

POWER REQUIREMENTS:

120/208 vac, 4 wire, 60 Hz, three phase, 115 amperes per phase maximum.

PUBLICATIONS FURNISHED:

System Operation and Maintenance Manual, NAWCTSD P-7204-1, (U).

Planned Maintenance System Maintenance Requirement Cards, NAWCTSD P-7205, (U).

Commercial Off-The-Shelf Manuals, NAWCTSD P-7206 (U).

Instructor Utilization Handbook, NAWCTSD P-6751 (U).

On-the-Job Training System Handbook, NAWCTSD P-6752 (U).

PERSONNEL (estimated):

Instructor - One instructor pilot qualified in E-2C procedures in day and night environments.

Assistant Instructor/Operator - One instructor/operator qualified in E-2C OFT operations.

Trainee - One student pilot and one student copilot.

Maintenance Personnel - Four maintenance technicians.

CONTRACT IDENTIFICATION:

Manufactured by Contraves STS, Tampa, Florida, under NAWCTSD Contract No. N61339-93-C-0020.

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