

INTERIM DESCRIPTION

Directory change pages will be issued upon completion of final device description.

NO ILLUSTRATION AVAILABLE

CH-46D OPERATIONAL FLIGHT TRAINER, DEVICE 2F117B**TRAINING CATEGORY:**

AVIATION (Operational Flight/Weapon System)

ORIGINATING AGENCY:

DCNO/AIR

SECURITY CLASSIFICATION:

Device 2F117B is unclassified.

INTENDED USE:

The CH-46D Operational Flight Trainer will be used to train Naval Aviators (pilots and copilots) in all CH-46D helicopter procedures, ground handling flight characteristics, normal and emergency flight modes, communications, navigation, and cross country missions. Training will also include carrier, water base landing and takeoff simulation.

FUNCTIONAL DESCRIPTION:

The CH-46D Operational Flight Trainer shall simulate the CH-46D aircraft. The trainer shall be designed so that the trainee station, in addition to its normal free flight mode, shall be capable of operation in semiautomatic training mode, demonstration mode, and checkride mode.

The following systems shall be simulated for normal, abnormal, alternate, and emergency operation. The systems to be simulated shall include power plant, flight control, transmission, fuel supply, rotor, electrical power supply hydraulic power supply, landing gear, anti-icing, external cargo hook systems, and other relevant systems. The trainer shall consist of the following major components:

1. Trainee Station - shall consist of a reproduction of the flight compartment (pilot and copilot positions) of the CH-46D helicopter including the doors and windows.

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The cockpit instruments, pedestal, consoles, (including the circuit breakers and communication panels) shall be simulated or actual to represent the design helicopter. All indicators, instruments, controls, and labels on each panel, pedestal, and consoles shall be included.

2. Instructor Station - shall be housed to the rear of the trainee compartment. All components of the instructor station shall be out of the normal line of sight of trainees. The instructor station shall be provided with a console, which includes a multi-purpose Cathode Ray Tube display system, controls and indicators necessary to monitor and control the training station. The CH-46D flight simulator shall provide four (4) separate modes of operation: free flight, semi-automatic training, demonstration, and checkride.

In the free flight mode, training shall be under the positive control of an instructor. The instructor shall have the capability to insert not less than four (4) preprogrammed malfunctions. In semiautomatic mode, the system shall be capable of initiating nine (9) exercises.

In the demonstration mode, the instructor shall be able to activate the trainee instruments and the cockpit motion platform to demonstrate an aircraft maneuver. When the training device is operated in the checkride mode, trainee error shall be displayed on the instructor CRT and for hard copy printout, without instructor intervention. Once initiated the checkride program shall continue until it is completed, or until a situation develops from which the trainee cannot continue, e.g., trainer crash.

The instructor station shall continue the following controls:

- A. Controls for operation of CRT.
- B. Keyboard for insertion of data.
- C. Controls to reposition the aircraft.
- D. Controls for the motion system.
- E. Controls to select modes of operation.
- F. Control to freeze and unfreeze the device.

3. Digital Computer System - shall provide the computations and control of the motion system, trainee station, instructor station and other equipment. Computer peripheral equipment shall be provided to support the digital system.

Peripheral equipment shall include a keyboard teletypewriter, a high speed punched card reader and controller, an off-line card punch to prepare input cards for the card reader, a Versatec printer/plotter, and magnetic disc and tape unit.

Interface equipment and system software requirements shall be provided as an integral part of the digital computer system.

4. Motion System - shall provide a minimum of 6 degrees of freedom consisting of pitch, roll, and yaw, heave and sway. The sensations of motion shall be representative of sensations experienced in actual aircraft resulting from changes in attitude and flight path. The effects of rough air buffet shall be simulated. Physical motion of the trainee station shall be provided in all effected degrees of freedom while simulating rough air and shall be coordinated with instrument indications.

5. Maintenance Station - consisting of a work bench surface, set of drawers and instrument shelf, located in the computer area. The work area shall be approximately 3 x 8' x 39" high.

Provisions for a future visual system shall be included in the basic design of the CH-46D Operational Flight Trainer.

PHYSICAL INFORMATION:

The trainer components shall be capable of passing through entrances which are 9' wide and 12' high minimum.

The weight of trainer components excluding cockpit and motion systems shall not exceed structural capabilities of false flooring.

Cockpit shell and interior finish color shall be the same as the design basis helicopter.

Cockpit shell shall be fabricated from glass reinforced plastic.

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INSTALLATION AREA:

The trainer is designed to be a fixed base installation.

POWER REQUIREMENTS:

The equipment shall be designed to operate from a power source of 120/208 volt, 3-phase, 4-wire 60 Hz.

A power source of 277/480 VAC, 3-phase, 4-wire, one neutral ground 60 Hz shall be provided for the motion hydraulic unit located in the pump room.

PERSONNEL:

Instructors: One (1)

Trainees: Two (2)
(Pilot and Copilot)

CONTRACT IDENTIFICATION:

Manufactured by Reflectone, Inc., Tampa, FL under NAVTRASYSSEN Contract No. N61339-79-C-0038.

LOCAL STOCK NUMBER:

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