



858-1585

AV-8B AIRCRAFT FLIGHT CONTROL SYSTEM MAINTENANCE TRAINER, DEVICE 11H99

TRAINING CATEGORY:

MAINTENANCE TRAINING (Misc)

ORIGINATING AGENCY:

DCNO/AIR

SECURITY CLASSIFICATION:

Device 11H99 is unclassified.

PURPOSE:

To integrate various hardware/human interface inputs and observations into a trainer system which facilitates the instructor directed organizational "O" level maintenance training of Aircraft Hydraulic/Pneumatic Mechanic (MOS 6055), Aircraft Electrical Systems Technician (MOS 6335), and Aircraft Structures Mechanic (MOS 6095) with minimal support activity

INTENDED USE:

To provide flight control systems maintenance training including troubleshooting and unscheduled corrective maintenance involving tasks of identifying instructor inserted malfunctions/failures and removal replacement of designated components within the AV-8B flight control systems.

FUNCTIONAL DESCRIPTION:

The trainer simulates the aircraft flight control systems. The systems simulated are modeled in a static condition (aircraft on ground, standard atmosphere, temperature, and zero acceleration). A full mockup of the cockpit/fuselage with left wing, and a GSE module board containing items found in other parts of the aircraft are provided as part of the student station to accomplish the training objectives. The trainer is divided into five (5) major functional systems: power distribution, computation, real-time input/output (I/O), instructor display/control, and student station systems. The power distribution system includes the hardware for distribution and monitoring 120/208 VAC, 60 Hz. power, 115/230 VAC, 400 Hz. power and 28 VDC power. The computation system consists of the computer peripherals and trainer software simulation modules. The I/O system provides all analog and digital input/output signal requirements between the computation system and the trainer hardware. The instructor display/control system includes the alphanumeric display terminal, instructor control panel, tetherless remote instructor command keypad (TRICK), and alarm/annunciator panel. The trainer consists of a replica

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of the cockpit and left side aircraft structure, including wing and tail section. The cockpit is dimensionally identical to the actual aircraft and includes two- and three-dimensional representations for system panels and components with functional capabilities. The fuselage simulation models the left wing, utilizing actual aircraft flight control system components driven at reduced hydraulic pressure are used to obtain realistic feel and response characteristics. Simulation includes the three (3) primary control systems, pitch, roll, and yaw, reactions control for flaps and SAAHS. Flight control system components (cockpit/fuselage, and GSE module board) are electrically interlinked through the instructor station and computation system. The GSE module board contains a simulated electrical power unit, a simulated hydraulic power source and simulated external power and hydraulic cables. The instructor station display/control system provides the interface between the instructor and student station, providing overall trainer control capabilities. The instructor station is used to initially load the trainer program, enter initial conditions, freeze the training scenario and perform computation system diagnostics. The DORT program determines trainer operational capability. The I/O system is tested via a closed loop BITE test with a displayed fault indication to a card when a malfunction is detected.

PHYSICAL INFORMATION:

Item	Size (in.) W x L x H
1. Computation System Unit 101 CPU 101A2 Floppy Disc Drive 101A3 Mini-Disc Drive 101A5	25-1/2 x 37 x 71
2. Instruction Station Unit 102 Instructor Alphanumeric Display Terminal 102A1 Instructor Control Panel 102A2	32 x 45 x 26 16 x 20 x 13 8 x 11 x 9
3. TRICK Unit 103	3 x 7-1/2 x 1-1/2
4. Power Distribution Cabinet Unit 104	32 x 28 x 78
5. I/O Cabinet Unit 105	45-1/2 x 24 x 78
6. Alarm/Annunciator Panel Unit 108	6-1/2 x 7-1/2 x 10
7. Cockpit/Fuselage Unit 109	233 x 520 x 144
8. Hydraulic Power Unit Unit 111	30 x 36 x 60
9. GSE Module Board Unit 112	39-1/2 x 30 x 75

OPERATIONAL EQUIPMENT:

The operational equipment used in the trainer has been modified to facilitate trainer simulation and/or stimulation requirements.

EQUIPMENT REQUIRED (NOT SUPPLIED):

Refer to NTSC P-6073 Maintenance Instructions Manual (U).

POWER REQUIREMENTS: (VOLTAGE)

Trainer:
120/208 VAC, 3-Phase, 60 Hz, 25 amps/phase
115/230 VAC, 3-Phase, 400 Hz, 15 amps/phase
28 VDC, 50 amps

Total VA: 15,588

Hydraulic Power Unit:
120/208 VAC, 3-Phase, 60 Hz, 10 amps/phase

Total VA: 6,235

INSTALLATION REQUIREMENTS:

Floor Area: 45' x 28'7"
Equipment Access: 12' door
Personnel Access: 3' door
Ceiling Height: Minimum 12'

PUBLICATIONS FURNISHED:

NTSC P-6068, CCDS (U)
NTSC P-6073, Maintenance Manual (U)
NTSC P-6073-S1 through -S4, Vendor Equipment
Maintenance Instructions Manuals
NTSC P-5195, Operator's Manual (U).

PERSONNEL:

Instructor: One (1) qualified AV-8B Flight
Control Systems Maintenance
Instructor

Students: Class of up to Ten (10).

Student Observers: One (1)

CONTRACT IDENTIFICATION:

Manufactured by Reflectone Inc. (50237),
Tampa, FL 33614 under NAVTRASYS-SCEN Con-
tract No. N61339-84-C-0003.

LOCAL STOCK NUMBER:

6910-LL-C00-6575