

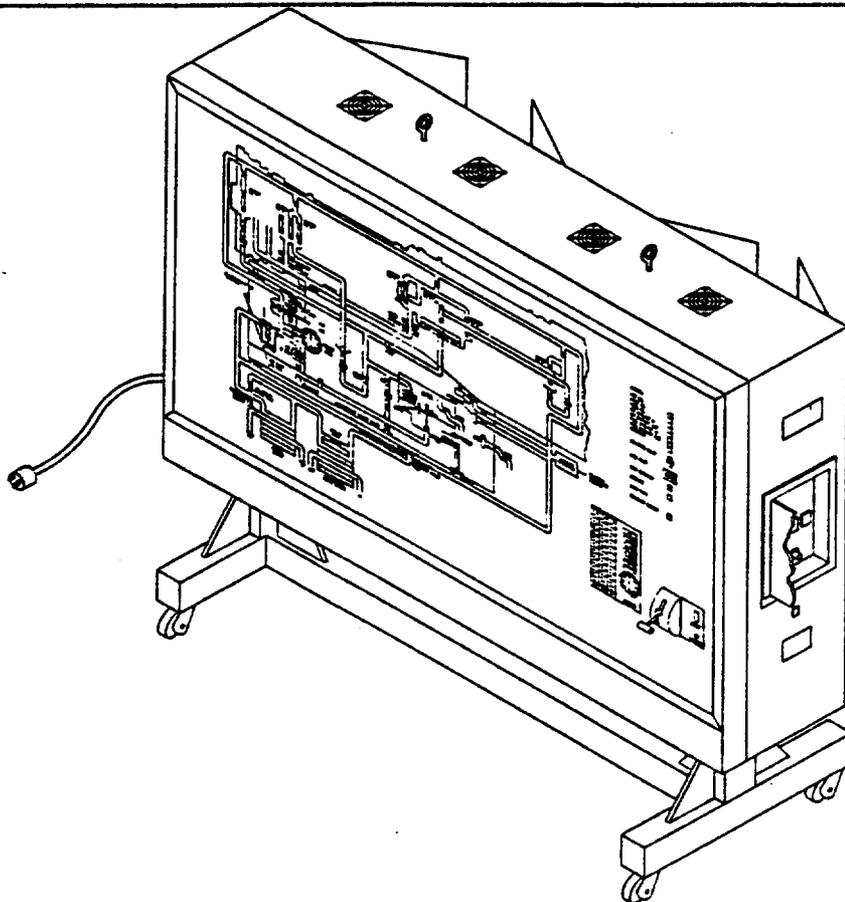
**SUMMARY OF
AD OIL SYSTEM MAINTENANCE TRAINER**

APRIL 1994

Device 11H142

NAVAL AIR WARFARE CENTER TRAINING SYSTEMS DIVISION

ORLANDO, FLORIDA



TRAINING CATEGORY:

Aviation

ORIGINATING AGENCY:

DCNO/AIR

SECURITY CLASSIFICATION OF

DEVICE:

Device 11H142 is unclassified.

PURPOSE OF DEVICE:

Demonstrate the operating oil system of a typical turbojet engine for both the wet sump and dry sump modes.

INTENDED USE:

The AD Oil System Maintenance Trainer is used to train maintenance personnel in the normal and irregular flow of oil through a turbojet engine. System components of the turbojet

engine are as typified by the F-404-GE-400 engine.

Malfunctions that can be demonstrated using the trainer are:

- (1) Low oil pressure (30 psi)
- (2) High oil pressure (55 psi)
- (3) Clogged oil filter
- (4) Chip detector for #1 bearing
- (5) Chip detector for #4 bearing
- (6) Chip detector for #5 bearing
- (7) Chip detector for #6 bearing
- (8) Chip detector for main oil pump
- (9) Chip detector for scavenge pump
- (10) Low oil level warning
- (11) Oil pressure fluctuation

FUNCTIONAL DESCRIPTION:

Device 11H142 is a dual-inverted T-type panel trainer that is used to complement the instructor's explanation of the operating oil system. The trainer consists of two major functional components. The Front Panel with

all the displays and legends for student viewing, and the Instructor Control Panel that functions as the operator interface.

The Front Panel contains the components required to simulate either wet sump mode or dry sump mode of operation, as well as an Indicator Panel and Throttle Quadrant with engine switches. In the wet sump mode of operation, the wet sump tank, as well as oil lines that transfer oil into and out of the oil tank, are illuminated. In the dry sump mode of operation, the dry sump tank and components specific to the dry sump mode are illuminated.

The Indicator Panel is a three dimensional panel that displays a portion of the information that is normally viewed by the pilot. The information that is displayed on the panel are:

- Engine RPM (0-100 percent)
- Fuel flow (0-6,000 pounds/hour)
- Exhaust gas temperature (0-1000°C)
- Low oil level indicator
- Oil filter bypass indicator
- Chip detector indicator for #1 bearing
- Chip detector indicator for #4 bearing
- Chip detector indicator for #5 bearing
- Chip detector indicator for #6 bearing
- Chip detector indicator for main oil pump
- Chip detector indicator for scavenge pump
- Oil pressure flip flop indicator
- Oil pressure gauge

The Throttle Quadrant is a three dimensional simulation of the throttle, which also contains an "Engine Master" switch and a guarded "Engine Start" switch. The throttle quadrant works in conjunction with the Indicator Panel to control engine RPM, fuel flow, exhaust gas temperature, and oil pressure indications when manually moved from the "OFF" through "IDLE" to "MILITARY" positions.

The Instructor Control Panel (ICP) is located on the right side of the trainer, and is covered by a key-lockable hinged door. The ICP contains the controls for the operating mode, backlighting intensity, oil flow frequency, and malfunction insertion. Malfunction insertion is controlled from a keypad, with the activated malfunction being displayed on the two-digit numeric display.

PHYSICAL INFORMATION:

The trainer is a dual-inverted T-type supported panel trainer that is equipped with four lockable casters to facilitate ease of movement. The physical specifications on the trainer are:

<u>Item</u>	<u>Specification</u>
Weight	795 pounds
Height Retracted	72 inches
Height Extended	90 inches
Height of Main Structure	48 inches
Width	96 inches
Depth of Base Structure	32 inches
Depth of Main Enclosure	18 inches

EQUIPMENT REQUIRED (Not Supplied):

None

POWER REQUIREMENTS:

Standard 120 VAC, 60 Hz wall outlet capable of supplying 12 AMPS.

INSTALLATION REQUIREMENTS:

AMBIENT AIR TEMPERATURE - between 60°F and 90°F

RELATIVE HUMIDITY - 30% to 90%, noncondensing

PHYSICAL - capable of accommodating the previous physical dimensions

PUBLICATIONS FURNISHED:

Training System Utilization Handbook, Oil System Maintenance Trainer, Device 11H142, NAWCTSD P-7062, (U)

Operation and Maintenance Guide, Oil System Maintenance Trainer, Device 11H142, NAWCTSD P-7061, (U)

SLC 500 Modular Hardware Style, Installation and Operation Manual, NAWCTSD P-7061-S1, (U)

PERSONNEL:

Instructor - One instructor/operator qualified in the theoretical concepts and principles of operation of a typical jet engine oil system.

Trainee - Student(s) in basic maintenance and operation training for jet engine oil flow systems.

CONTRACT IDENTIFICATION:

Manufactured by DME Corporation, Orlando Division, under NAVAIRWARCENTRASYS DIV Contract No. N61339-92-C-0074.

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