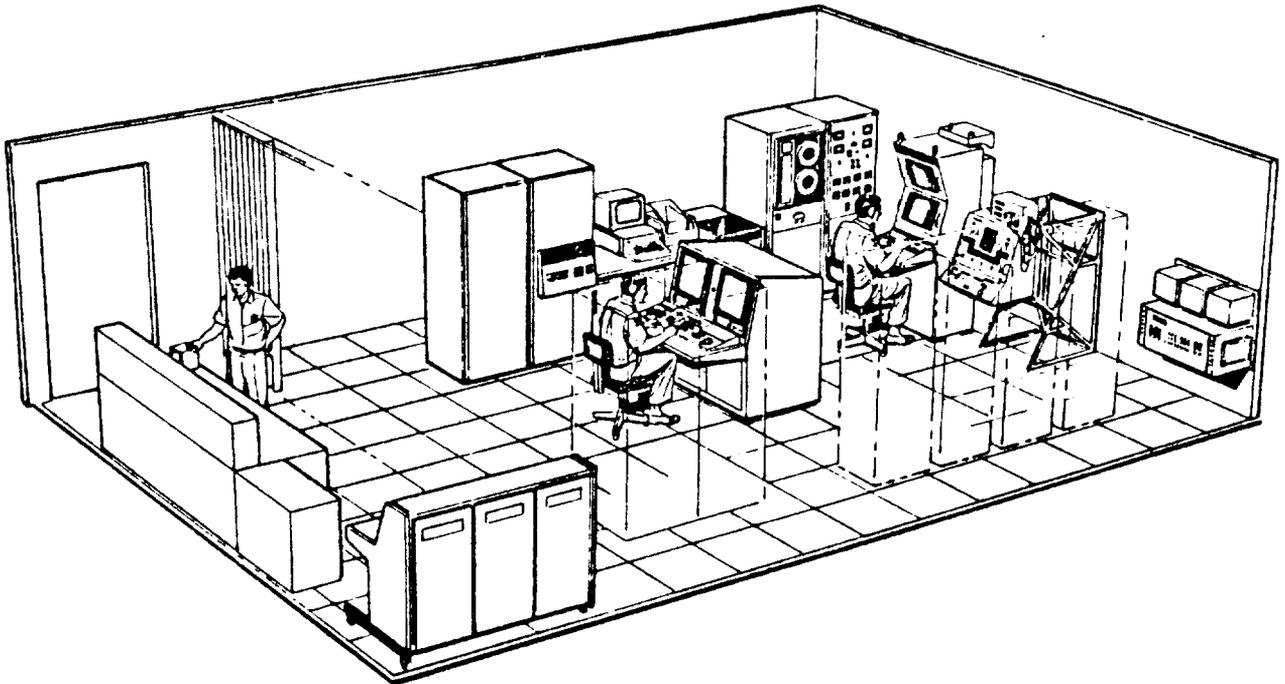


DIRECTORY OF NAVAL TRAINING DEVICES



FFG SQS-56 SONAR OPERATOR TRAINER, DEVICE 14E28

TRAINING CATEGORY:

ANTI-SUBMARINE WARFARE (Sonar)

ORIGINATING AGENCY:

NTEC

SECURITY CLASSIFICATION:

Device 14E28 is Confidential.

INTENDED USE:

Initial and refresher classroom training in the individual and joint operation of the SQS-56, and MK-309. Device 14E28 may be integrated with Device 20F15 to provide FFG-7 team training.

PURPOSE OF DEVICE:

To provide a simulated dynamic environment for training operators of the AN/SQS-56 sonar and MK-309 fire control panel, in the FFG-7 configuration.

FUNCTIONAL DESCRIPTION:

Device 14E28 simulates operational SQS-56 receivers. Sonar "Ping's" produced by the SQS-56 are sensed and the corresponding sonar echoes are produced based on a simulated environment maintained in a digital computer. SQS-56 and MK-309 switch settings are sensed and reflected in the simulation.

Both active and passive sonar simulation are provided. Active returns from surface and subsurface vehicles are simulated, as well as deceptive returns from reverberation, wakes, knuckles, icebergs, and whales. Passive sound sources include distant shipping, fish, dolphins, rain and sea state.

The 14E28 gaming area is 128,000 yard square ocean, 25,000' deep, and located anywhere in the world. Ocean effects such as propagation loss, bottom bounce, and multipath are simulated based on an actual ocean data base unique to the geographic area.

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Device 14E28 may be partitioned to three (3) main groups: digital computer system, AAI-designed hardware, and government-furnished operational equipment. The digital computer system is composed of an SEL 32/77 computer, moving head disc, magnetic tape drive, paper tape unit, and computer operator terminal. AAI equipment includes a simulation/interface cabinet, SQS-56 interface cabinet, power distribution cabinet, and instructor station. Government furnished equipment includes unmodified Raytheon SQS-56 cabinets and a MK-309 weapon control console.

The 14E28 instructor console is used to control and monitor training. It consists of two (2) color-graphic displays, function keys, a multi-function keyboard, and a communication panel.

MAJOR PHYSICAL INFORMATION:

UNIT 1 (Instructor Station)

47.0" H x 50.3" D x 44.0" W - Wt. 550 lbs.

UNIT 7 (Interface/Simulation Cabinet)

77.5" H x 34.5" D x 28.0" W - Wt. 800 lbs.

UNIT 8 (Sonar Interface Cabinet)

77.5" H x 34.5" D x 28.0" W - Wt. 800 lbs.

UNIT 10 (Power Distribution Cabinet)

77.5" H x 28.0" D x 28.0" W - Wt. 600 lbs.

UNIT 11 (Computer Cabinet)

71.0" H x 33.0" D x 25.0" W - Wt. 750 lbs.

UNIT 18 (Peripheral Cabinet)

71.0" H x 33.0" D x 25.0" W - Wt. 500 lbs.

UNIT 2, 3, 4, 5, 9 (GFE SQS-56)

Fluke Trendar Cardtester

45.5" H x 32" D x 66" W - Wt. 400 lbs.

POWER REQUIREMENTS:

120/208 Volt ($\pm 10\%$), 3-Phase, 4-Wire, 60 Hz. ($\pm 5\%$), 82 Amp per phase.

INSTALLATION REQUIREMENTS:

The floor space required for the device is 28'6" x 20' with a raised floor system and air conditioning must be $70^{\circ} \pm 2^{\circ}$ F. Chilled water is required for the SQS-56 sonar system. Four (4) of the GFE units exert high loads on the floor (Unit 4, 545 lbs/Sq. Ft.).

PUBLICATIONS FURNISHED:

1. Operations and Maintenance Instruction Manual with Parts List, Sonar Operator Trainer, Device 14E28, NAVTRADEV P-4708 (U)
2. MK-309 Control Panel NAVSEA OPS 4075 (C)
3. AN/SQS-56 Sonar Set SE315 OT, MMO 010 (U)

PERSONNEL:

Instructor/Operator: One (1) Chief or PO1 qualified to teach sonar operation.

Trainees: One (1)

Maintenance: One (1) TD or ET, mean PM/24 Hr = 4 Man hrs mean corrective maintenance downtime = 30 minutes

CONTRACT IDENTIFICATION:

Manufactured by AAI Corp., Baltimore, MD under NAVTRASYS-SCEN Contract No. N61339-79-C-0080.

LOCAL STOCK NUMBER:

6940-LL-C00-4182