

**SUBMARINE COMBAT SYSTEM TEAM TRAINER, DEVICE 21A43****TRAINING CATEGORY:**

UNDERSEA OPERATIONS (SHIP) (Tactics)

ORIGINATING AGENCY:

NAVSEA

SECURITY CLASSIFICATION:

Device 21A43 is unclassified.

PURPOSE OF DEVICE:

To enhance and support the training requirements of the Submarine Combat Control System (CCS) MK-1.

INTENDED USE:

To interface with Attack Centers in various submarine training activities for training on actual and simulated equipment of the CCS MK-1 system.

FUNCTIONAL DESCRIPTION:

The device will function to provide training for submarine personnel in a realistic environment for the Submarine Combat Control System (CCS) MK-1.

Device 21A43 is divided into five (5) subsystems.

The purpose of each subsystem follows:

TSS - provides the tactical portion of the environment in which the CCS MK-1 training takes place. All equipment is militarized shipboard hardware with the exception of the Simulated MK 408 Status and Firing Panel; and the Simulated Emergency Preset Console.

PSS - is the center of the simulation portion of the training environment. Training problem control is provided by PSS software with simulated values provided to the TSS software. The values represent the ocean, ownship, weapon, and target parameters required to support TTS, DSS, and IIS processing.

DSS - provides the instructor interface to the PSS program. A wide variety of display formats allow each instructor to control the structure of the training exercise and to monitor the students' progress toward a solution.

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ISS - provides the interface between the computers of the simulation environment and the signal processors of the tactical environment. ISS equipment is a combination of signal converters, status displays, and control consoles.

These four (4) subsystems share an interdependency of data. Each subsystem has one or more interfaces with each of the other subsystems.

CSS - not directly integrated with any of the processing subsystems. Rather, it serves as a link which allows human communication among all subsystems. Multiple voice channels are provided to enable communication between trainees, instructors, and maintainers.

The device is capable of operating in four (4) combinations of modes:

- (1) Stand Alone Mode (SAM)
- (2) Integrated with Device 21B64 - Tactical Team Mode (TTM)
- (3) Integrated with Device 21B68
- (4) Integrated simultaneously with Device 21B64 and Device 21B68

The equipment provides the instructor with scenario scripts. These scripts (canned problems) can be altered in the preview mode. The instructor, via the Generalized Operator Console, has the ability to change parameters in the problem while in the "preview" mode via CONN Commands. When the system is then exercised in the "run" mode, those changes are automatically input and the scenario is adjusted to reflect those changes.

PHYSICAL INFORMATION:

Other peripheral required equipment add up to 92 lbs. No unit of the device will have a floor load in excess of 250 lbs/sq inch. The major units of the device with dimensions and weights are shown below.

| | Qty | Dimensions (inches) | | | lbs |
|--|-----|---------------------|---------|--------|-----|
| | | Length | Depth | Height | |
| Vax Computer, 8350/2 | 1 | 29.00 | 32.00 | 41.600 | 500 |
| Vax Expansion Unit | 1 | 20.30 | 31.50 | 41.700 | 368 |
| Disk & Cabinet Assy, RA60-EA | 1 | 21.30 | 36.00 | 41.700 | 656 |
| Tape Drive, TU81E-BQ | 1 | 21.50 | 30.00 | 41.600 | 380 |
| Vax Oper Console IA100-BA | 1 | 22.00 | 15.00 | 7.000 | 41 |
| Video Terminal, V1320-IJ2 | 2 | 13.125 | 15.25 | 11.250 | 26 |
| VT22K-AA, Keyboard | 2 | 21.00 | 6.75 | 2.000 | 45 |
| Generalized Operator's Console-Type II G303028-2 | 4 | 46.125 | 22.3125 | 59.625 | 400 |
| Generalized Operator's Console-Type III | 1 | 46.125 | 22.3125 | 67.875 | 400 |
| Display Controller, Type II | 1 | 22.375 | 30.875 | 81.250 | 550 |
| Large Screen Display Projector, VPH-1030Q1 | 1 | 21.00 | 29.25 | 7.750 | 80 |
| Screen, Mat White, VPS-100F 1 | 1 | 96.00 | 0 | 72.000 | 18 |
| Attack Ctr Monitor, GM-859C | 1 | 19.00 | 20.00 | 18.000 | 18 |
| Hard Copy Unit, Techtronix 4632 | 1 | 16.00 | 25.66 | 11.630 | 65 |
| SIM EPC | 1 | 23.00 | 8.00 | 21.500 | 200 |
| Standard Interface Unit | 1 | 37.00 | 23.50 | 76.000 | 500 |
| Problem Time Clock | 3 | 11.94 | 6.38 | 4.500 | 15 |
| MCU/PTC | 3 | 11.94 | 6.38 | 10.360 | 20 |
| Attack Ctr Change Over Switch | 2 | 24.00 | 27.00 | 70.000 | 350 |
| Audio Control Cabinet | 1 | 23.25 | 24.00 | 69.00 | 350 |
| SIM MK 40B S1 P | 1 | 24.00 | 24.09 | 21.55 | 172 |

The maximum dimensions for equipment are 46.125" long, 81.250" high, and 36.00" deep. Equipment will operate within the following ambient room conditions: Operating Temperature of 60° to 110° F, Relative Humidity up to 90% noncondensing due to temperature change. Air conditioning requirements for the device total 118,746.2 BTU/Hr.

POWER REQUIREMENTS:

The device requires the following voltages: 120/208V, 60 Hz, 1-phase, 115V, 60 Hz, 3-phase. The total KVA (MIN) for the device is 63.793.

PUBLICATIONS FURNISHED:

1. NAVTRADEV P-5563
Instructor Utilization Handbook (U)
2. NAVTRADEV P-5558
Operation and Maintenance Manual (U)
3. NAVTRADEV P-5559
Planned Maintenance System (U)
4. NAVTRADEV P-5560
Commercial Equipment Manual (U)
5. NAVTRADEV P-5564
On-The-Job Training Handbook (U)
6. NAVSEA OD 49330
MK-117 Installation Data (U)
7. NAVSEA SW 282-B4-GTP-010
CSS MK-1 General Information (U)
8. NTSC Specification 233-123 (U)

PERSONNEL:

Instructor/Operator: Two (2) each per shift

Trainees: Variable with attack team training requirements and observers

Maintenance: One (1) per training shift
Two (2) per maintenance shift

RELATED TRAINING EQUIPMENT:

21B68 Submarine Tactical Visual Training System, 21B64 Sonar Operator Trainer, Combat Control System MK-1.

CONTRACT IDENTIFICATION:

Manufactured by Raytheon Co., Portsmouth, RI, under NAVSEA Contract No. N00140-82-G-BZ20-0001.

LOCAL STOCK NUMBER:

6930-LL-C00-5422