

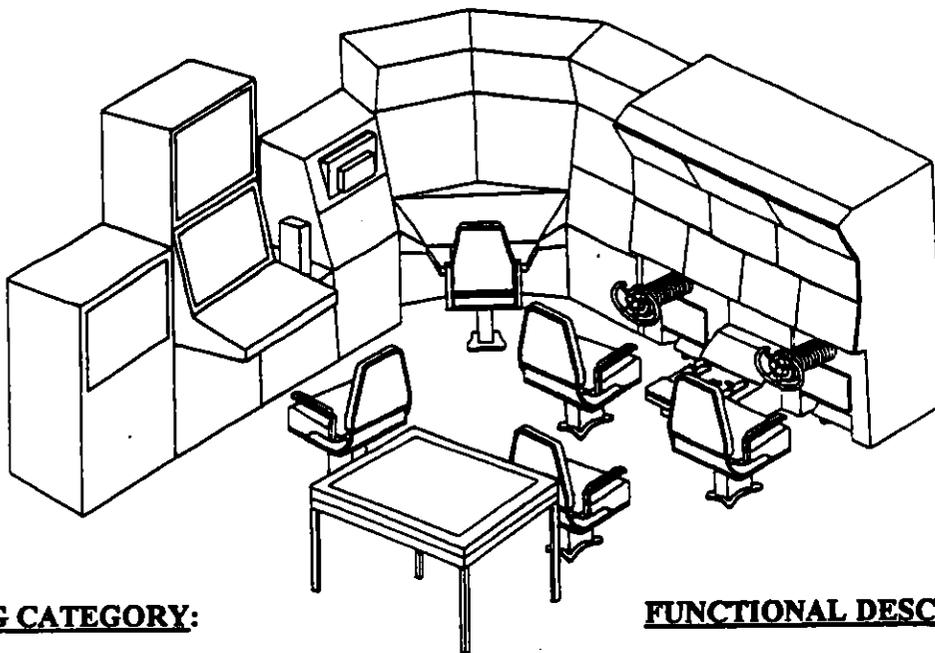
SUMMARY OF
SEAWOLF SHIP CONTROL OPERATOR TRAINER

March 1997

Device 21C13

NAVAL AIR WARFARE CENTER TRAINING SYSTEMS DIVISION

ORLANDO, FLORIDA



TRAINING CATEGORY:

Undersea Operations (Ship) (Ship Control/Damage Control)

ORIGINATING AGENCY:

NAVSEA

SECURITY CLASSIFICATION OF DEVICE:

Device 21C13 is secret.

PURPOSE OF DEVICE:

To provide ship control team training and ship control basic operator training.

INTENDED USE:

Device 21C13 is a self-contained training system at the US Naval Submarine School, New London, CT used to train SSN-21 SEAWOLF ship control personnel in normal, under ice and casualty situations.

FUNCTIONAL DESCRIPTION:

Device 21C13 will support the following Navy standard courses: SEAWOLF Ship control Team Training, Submarine Officer Basic Course and Basic Enlisted Submarine School.

The major components of the Device 21C13 enclosed cab are:

- a. Simulated operational equipment consoles which consist of a Ship Control Panel (SCP), a Ballast Control Panel (BCP), a High Frequency Sonar Station (HFSS), a Line Scan Recorder (LSR), a Horizontal Plotter, an Officer of the Deck (ODD) Station, 5 Flood Control Valves and Emergency Main Ballast Tank (EMBT) Fore and Aft Blow valves.
- b. Instructor Operator Station (IOS).
- c. Interface Electronics (IFE) Cabinet.
- d. Interior communications System.
- e. Sound Effects System.

The Device 21C13 major components exterior to the cab are:

- a. Digital Computation Systems
- b. Motion Platform System
- c. Motion Control Console (MCC)
- d. Air conditioning System

The trainer simulates, in real time, onboard submarine systems for both normal and degraded operations as effected by IOS insertable malfunctions.

This system provides operational and tactical mission training for members of the Ship Control party in all aspects of SSN 21 ship control.

The training environment is controlled and trainee responses are evaluated from the IOS which views of all trainee stations. Control functions normally located external to the Ship control Station (SCS) are located at the IOS. Trainer operation can be frozen, reset to the beginning of the exercise or continue from the freeze point.

Device 21C13 has many safety features. Safety interlocks are incorporated into the motion system electronic circuits.

Motion is prevented until such time that all safety interlock circuits are closed and the motion system is enabled. The opening of any circuit after motion is enabled will cause cab motion to immediately stop. Additionally, Emergency Power Shutdown switches are located at the computer room, pump room, upper and lower high bay areas.

The SSN 21 boat utilizes Flat Panel Displays (FPDs) for ship control functions as well as status displays. Device 21C13 uses tactical FPDs and tactical FPD software.

PHYSICAL INFORMATION:

Device 21C13 equipments are permanently installed at NAVSUBSCOL Building 152 High Bay area (Room 114), Mech Room (Room 117), External Concrete Pad and Computer Room (Room 214). Located in the High Bay area are: Cab and Motion System 20,810 lbs, Motion Control Console 260 lbs.

Located in the Mech Room are: Hydraulic Pump Assembly 2,500 lbs, Hydraulic Control Panel 400 lbs, A/C Air Handler 200 lbs.

The major components located in the Computer Room are: Uninterruptable Power Supply (UPS) 578 lbs, Line Filter 170 lbs, Aux Power Panel 100 lbs, Main Power Control Panel 200 lbs, APSE Work Station 95 lbs, APSE 95 lbs, Gateway Station 80 lbs, Ship-in-a-Box (SIB) 155 lbs, HFSS APSW 80 lbs, HFSS/IOS Computer 30 lbs, HFSS & HFSS Display 1 Computers 495 lbs, SCPU Computer 245 lbs.

EQUIPMENT REQUIRED (not supplied):

None

POWER REQUIREMENTS:

The trainer requires electrical service from the facility power source consisting of a 120/208-VAC, 60-Hz, 3-phase, 4-wire wye, grounded neutral supply. The maximum peak power requirement is 45 KVA and maximum starting power 90 KVA.

PUBLICATIONS FURNISHED:

Operation and Maintenance Instructions with Parts Catalog NAWCTSD P-6916-1, (U).

Commercial-Off-The-Shelf Manuals NAWCTSD P-7041, (U).

Planned Maintenance System Documentation NAWCTSD P-6719, (U).

Computer System Operator's Manual NAWCTSD P-6919, (U).

PERSONNEL:

Instructor/Operator: one at the IOS.

Trainees:

Helmsman, Inboard control column
Helmsman, Outboard control column diving
Officer of the Watch
Officer of the Deck
Chief of the Watch
Sonar Operator

Trainee Observers:

4

Maintenance Men:

2 COMS technicians available as required.

CONTRACT IDENTIFICATION:

Manufactured by DynaLantic Corp., Deer Park, NY under NAVAIRWARCENTRASYS DIV Contract No. N61339-91-C-0118.

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