

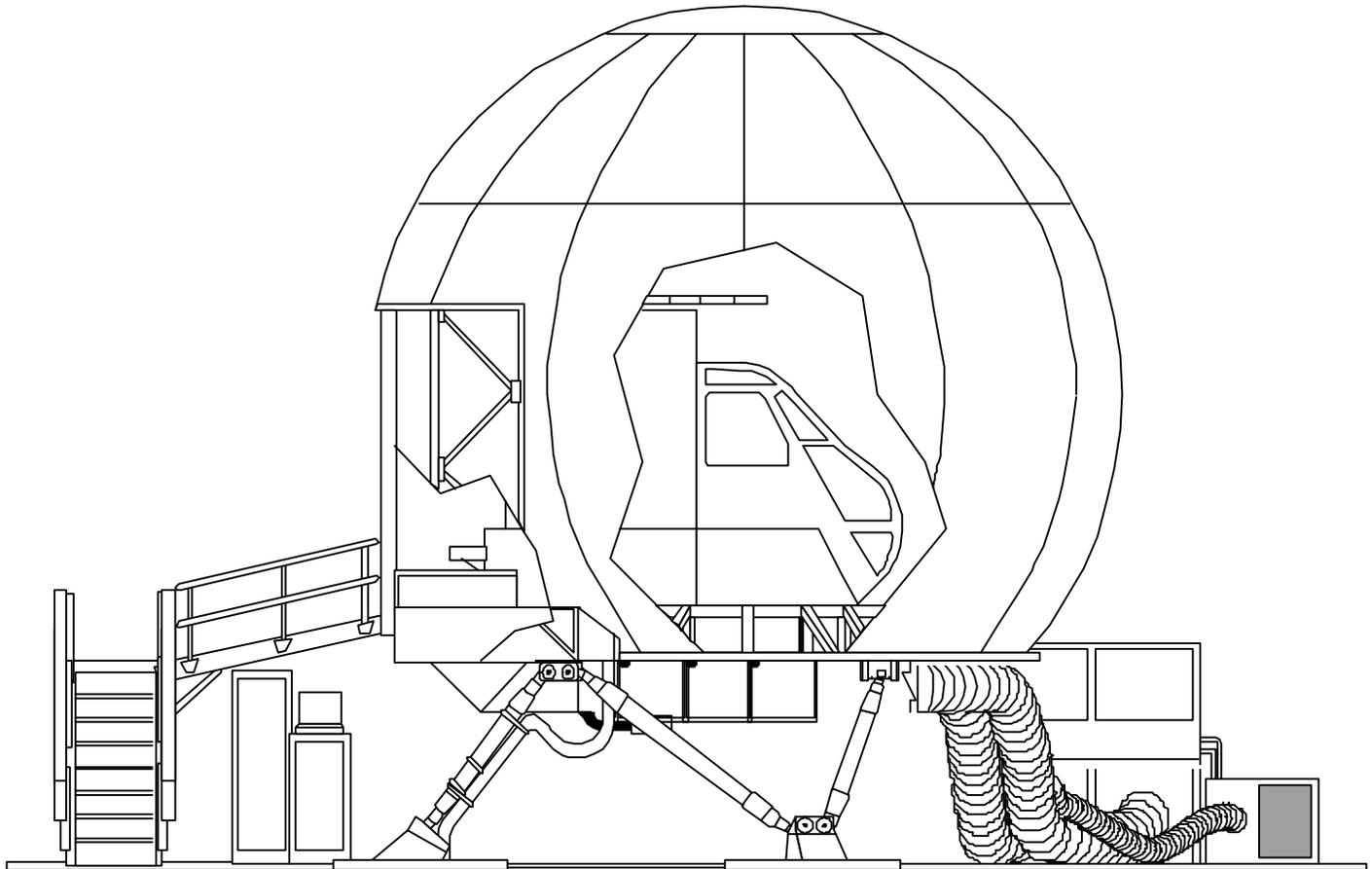
SUMMARY OF CH-46E WEAPONS SYSTEM TRAINER (WST)

26 February 1999

Device 2F173

NAVAL AIR WARFARE CENTER TRAINING SYSTEMS DIVISION

ORLANDO, FLORIDA



TRAINING CATEGORY:

AVIATION

ORIGINATING AGENCY:

CNO/AIR

SECURITY CLASSIFICATION OF DEVICE:

Device 2F173 is unclassified.

PURPOSE OF DEVICE:

To provide training in cockpit preflight and starting procedures, aircraft maneuvers, normal and emergency procedures, navigational and instrument flight procedures, landing and takeoff procedures, and shutdown and post flight procedures.

INTENDED USE:

To provide initial qualification transition and requalification proficiency under instrument flight conditions in terms of operational flight training.

FUNCTIONAL DESCRIPTION:

Overview: The CH-46E, Device 2F173 Weapon Systems Trainer (WST) is intended to train crew members of a CH-46E helicopter in all modes of the operational aircraft's mission.

The trainer provides the capability for procedure and proficiency training of pilots and copilots under both normal and emergency conditions in the operation, navigation and communications of the CH-46E helicopter in fulfillment of their designated missions.

The instructor is physically located on-board the flying platform in an enclosure directly behind the

cockpit in order to observe the trainees. He is provided with a system of training program indications that keeps him constantly in touch with the developing situation and the progress of training.

The trainer provides the means of developing proficiency in the operation of controls, interpretation of instrument indications, operation of navigation and communication systems, and coping with a variety of emergency situations as experienced in takeoff, hover, flight, and landing. The physical configuration and interior appearance of the trainer environment is accurately simulated.

Visuals: The environment for human senses of sight, feel, and sound is realistically simulated. The visual scene through the windshields and windows is provided by five channels of computer generated image equipment. The five channels are the copilot's side and front windows, center window, pilot's front and side windows, and pilot's chin window.

All five channels of the visual scenes are calculated relative to the pilot's or copilot's eyepoint. The environment is established through functional instrument presentations, realistic communications and navigation reception and transmission, cockpit noises and vibrations, realistic feel in the control system stick and pedals, and airframe motions as experienced during takeoff, hover, flight at various altitudes, and landing.

Host Computer: The host computer chassis is a Harris Nighthawk HN 5808 Computer, built around a Motorola 88110 reduced instruction set computer (RISC) architecture. The HN-5808 computer consists of a 19-slot chassis assembly with self-contained power supply and control panel. Installed in the base of the chassis are two 4.0-GB disk drives and one 150-MB tape streamer. The HN-5808 uses a CX/UX real-time UNIX operating system and is supported by a wide collection of software development tools, advanced technology compilers, and a comprehensive ADA multi-tasking language environment. Once loaded with CH-46E WST simulation program, the host computer controls all real-time operations of the trainer.

PHYSICAL INFORMATION

| Major Equipment: | Weight | Size | Ib. |
|----------------------------|-------------|------|------|
| Host Computer Cabinet | 24x35x78 | | 400 |
| Power Distribution Cabinet | 30x31x78 | | 600 |
| Cockpit A/C | 44x50x28 | | 360 |
| Ingress/Egress Ramp | 50x53x88 | | 1900 |
| Dome Assembly | 300x300x262 | | 1700 |
| Motion Controller Cabinet | 24x36x68 | | 250 |
| Visual A/C Evaporator | 80x34x54 | | 350 |
| Visual A/C Condenser | 78x36x33 | | 250 |
| Special Purpose Computer | 24x36x65 | | 350 |

| | | |
|--------------------------|-----------|--------|
| Units #s 1& 2 | (each) | (each) |
| Special Purpose Computer | 45x36x78 | 1250 |
| Units #s 3, 4 & 5 | (each) | (each) |
| Hydraulic Power Unit | 131x71x94 | 15,054 |

| Installation Requirements | Floor Space | Ceiling Height |
|---------------------------|-----------------|----------------|
| Computer Room Area: | 30' x 24' | 9' - 0" |
| High Bay Area: | 37' 6" x 42' 8" | 40' - 0" |
| Hydraulic Room Area: | 14' x 20' | 9' - 0" |
| Brief/Debrief Room: | 9' x 10' | 9' - 0" |

EQUIPMENT REQUIRED (Not Supplied):

None.

POWER REQUIREMENTS:

1. WST – 120/208 vac, 60 Hz, 3 phase, 1600 Amp Service
2. Visual A/C Evaporator/Condenser – 277/480 vac, 60 Hz, 3 phase, 1200 Amp Service
3. Cabin A/C – 277/480 vac, 60 Hz, 3 phase, 100 Amp Service
4. Hydraulic Unit – 277/480 vac, 60 Hz, 3 phase, 1200 Amp Service

PUBLICATIONS FURNISHED:

Operation and Maintenance Instructions, NAVTRADEV P-4243-1 (U)
 Operation and Maintenance Instructions, NAVTRADEV P-4243-2 (U)
 Maintenance Requirement Cards, NAVTRADEV P-4244 (U)
 Instructor's Utilization Handbook (IUH), NAVTRADEV P-4313 (U)

PERSONNEL:

Instructor: One qualified Instructor Pilot.
Operator: Instructor-operated.
Trainee: Two student Pilots.
Trainee Observers: One.
Maintenance Technicians: Six per 40-hour utilization week.

CONTRACT IDENTIFICATION:

Reflectone, Inc., Tampa, Florida, under NTEC Contract No. N61339-75-C-0131 manufactured Device 2F117, which was later modified to a Weapons System Trainer, Device 2F173, by Hughes Training, Inc. (HTI).

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