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United States Coast Guard

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COMDTINST 4790.2C
27 NOVEMBER 2018

COMMANDANT INSTRUCTION 4790.2C

Subj: COAST GUARD MINIATURE/MICROMINIATURE (2M) MODULE TEST AND REPAIR (MTR) PROGRAM

- Ref:
- (a) Certification Manual for Miniature/Microminiature (2M) Module Test and Repair (MTR) Program, NAVSEA TE000-AA-MAN-010/2M
 - (b) Supply Policy and Procedures Manual (SPPM), COMDTINST M4400.19 (series)
 - (c) Naval Engineering Manual, COMDTINST M9000.6 (series)
 - (d) Naval Supply Publication 485 (NAVSUP P-485), Volume I, Afloat Supply (series)
 - (e) Cutter Capital Asset Management Plan (CCAMP), COMDTINST 4700.1 (series)
 - (f) Ordnance Manual, COMDTINST M8000.2 (series)
 - (g) Electronics Manual, COMDTINST M10550.25 (series)

1. PURPOSE. This Instruction defines the maintenance policies and procedures for test and repair of Electronic Assemblies (EAs) and circuit card assemblies (CCAs) contained in Hull, Mechanical, and Electrical (HM&E), Navy-Type/Navy-Owned (NT/NO), Navy-Type/Coast Guard-Owned (NT/CGO) equipment, and applicable Commercial Off the Shelf (COTS) equipment. It applies to Coast Guard (CG) activities involved in the maintenance and material support of this equipment.
2. ACTION. All Coast Guard unit commanders, Commanding Officers, Officers in Charge, Deputy/Assistant Commandants, and Chiefs of Headquarters staff elements must ensure that the provisions of this Instruction are followed.
3. DIRECTIVES AFFECTED. Coast Guard Miniature/Microminiature (2M) Module Test and Repair (MTR) Program, COMDTINST 4790.2B is cancelled.

DISTRIBUTION – SDL No.169

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	X	X		X	X	X		X	X		X		X	X							X	X				
B	X	X				X			X		X	X	X	X				X			X				X	
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NON-STANDARD DISTRIBUTION: B:a CG-64, CG-6811, CG-41, CG-444, CG-451, CG-9335, CG-751 B:b LANTAREA, PACAREA; B:c (NAVAIR N98), (SPAWAR N2N6),(NAVSEA N96)

4. BACKGROUND.

- a. **Program Objective.** The 2M/MTR Program exists to improve equipment Operational Availability (Ao) and reduce the no failure evident (NFE) rate of supported EAs and CCAs returned to the logistics pipeline. Additionally, the program provides technicians at the operational level an additional tool to troubleshoot complex systems and the ability to screen and repair faulty EAs if appropriate. Doing test and repair at the lowest level enhances ship sustainability and helps to ensure optimum economic use of resources in achieving maximum operational readiness.
- b. **Program Components.** The program has two distinct components: MTR and 2M.
 - (1) The MTR Program provides the diagnostic equipment, tools, techniques and training for certified technicians to perform highly reliable, high quality screening of complex EAs. It develops and provides electrical/electronic module test and repair capabilities to Organizational (O-level) and Depot (D-level) maintenance facilities for both shore and afloat commands. MTR involves screening suspected faulty EAs to confirm the presence of a fault and then identifying the failed component(s). This involves interpreting both the visual condition and the electrical characteristics of EAs and individual components and comparing the characteristics of suspected faulty EAs with baseline characteristics stored in a locally accessible database.
 - (2) Historically, even though there were highly trained personnel aboard most surface and many shore facilities, the failed EAs were returned to depot sites for repair. The 2M/MTR Program established dedicated, structured work centers to repair these EAs at a significant cost reduction and increase in equipment up-time. These dedicated work centers are comprised of selected Special Purpose Electronic Test Equipment (SPETE), the 2M-repair station, trained technicians from existing billeted personnel, required directives, and reporting procedures.
 - (3) One of the major components in the success of the 2M/MTR work center is the AN/USM-674(V) Test Station. This test station works by applying a current-limited AC signal across two points of a component. The result is a unique analog signature, which represents the overall health of the device under test. These stations are controlled by a Windows-based computer, which is part of the SPETE and not counted as part of the standard workstation allowance. The test stations are software driven by the Personal Computer (PC) and are capable of digitizing the analog signatures for storage by the PC. This enables a technician to learn and save signatures of a good EA and utilize the stored information to screen suspect EAs.
 - (a) The Navy's In Service Engineering Agent (ISEA) has developed the signature diagnostics data, logistics information, schematic diagrams, and graphic display assembly drawings into a paperless software package, referred to as a "test routine." A test routine for each individual EA is compiled into a "Gold Disk" database. The "Gold Disk" database is subject to change; as new techniques for repair become available, they are evaluated and institutionalized into the MTR program.

- (4) 2M involves rework and repair of wiring connectors and damaged EAs, including replacement of discrete components and integrated circuits (ICs).
- (a) The 2M Program provides the repair equipment, tools, techniques and training for certified technicians to perform highly reliable, high quality repairs on complex EAs. 2M is an integral part of the Navy's Progressive Repair initiative. The 2M Program supports electronic repair at the Organizational (O) and Depot (D) maintenance levels. The use of 2M applies to all electronic equipment following the direction of Maintenance Policy for United States Navy Ships, OPNAVINST 4700.7 (series), Naval Aviation Maintenance Program (NAMP), OPNAVINST 4790.2 (series), and Maintenance of Naval Electronic Equipment OPNAVINST 4790.13 (series). 2M electronic repair saves money by avoiding maintenance costs associated with the turn-in of NFE EAs to the depots, repairing EAs at the lowest possible level. This results in an overall improvement to fleet readiness through increased self-sustainability of the repair site. 2M is divided into two distinct capability levels:
- [1] Miniature Electronic Repair. Includes the repair of single and double-sided EAs, focusing on discrete and multi lead, through-hole components. Miniature repair includes removal and replacement of these components, removal and re-application of conformal coatings, wiring and soldering of various terminals and connectors, removal and replacement of damaged conductors and printed circuit board laminate. Miniature repair also covers electrostatic discharge familiarization and handling procedures to minimize Electrical Static Discharge (ESD) risks to the EAs.
- [2] Microminiature Electronic Repair. More technically demanding than the miniature level of repair described above. Microminiature repair involves high-density component packaging, multilayer conductor and laminate repair, jumper wire installation, flex-print repair, edge-lighted plastic panel repair, welded lead repair, and surface-mounted technology (SMT) repair. Microminiature repair is an advanced capability when compared to Miniature repair; Miniature training is a prerequisite for Microminiature training.
- (5) 2M/MTR Work Center. A fully outfitted 2M/MTR work center consists of the following equipment:
- (a) AN/USM-674(V) Test Station capable of graphically displaying the relationship between voltage and current across and through an electronic component. The test station software guides the technician through the diagnostic testing process and displays for comparison the tested component and known characteristics resident in the database.
- (b) 2M Electronic Repair Station consisting of various power and hand tools, a microscope, and miscellaneous supplies and consumable materials required to repair EAs.

- (c) A “Piece Parts” Allowance Parts List (APL) of frequently used maintenance-critical repair components. The Piece Parts APL is supply coded Operating Space Item. 2M/MTR piece parts listed in this APL are ordered, staged in VIDMAR cabinets at the 2M work center. Operating Space Item parts consumed during 2M repairs must be reordered on a one-for-one basis as usage is reported and are eligible for demand base stocking by the supply department.
- (d) ESD Control consisting of safety equipment designed to protect EAs under test or repair by discharging electrical potentials residing upon work surfaces and technicians’ skin.

(6) Program Support.

- (a) The Naval Undersea Warfare Center (NUWC) Field Engineering Office (FEO), Norfolk Detachment is the Navy’s ISEA for the diagnostic (MTR) portion of the program.
- (b) Naval Surface Warfare Center (NSWC), Crane Division is the ISEA for the repair (2M) portion of the program.
- (c) Coast Guard Training Center Yorktown hosts 2M/MTR “C” schools and trains Coast Guard personnel tasked with utilizing the program.
- (d) The NT/NO Core Technology at C3CEN, CT-C3, provides program oversight, system support and ensures units are adhering to program requirements.
- (e) Commandant (CG-6811) provides funding and oversight to the 2M/MTR Program.

5. DISCLAIMER.

- a. All designated shore units listed in Enclosure (1) currently selected Naval Engineering Department (NED) and Electronic Support Detachments (ESD) must maintain fully outfitted and certified 2M/MTR work centers.
- b. All 418’ WMSLs, 378’ WHECs, 270’ WMECs, and Offshore Patrol Cutters (OPCs) must maintain fully outfitted and certified 2M/MTR work centers.
- c. 2M/MTR stations may be installed at other units with the approval of the 2M/MTR Program Manager and the appropriate chain of command.
- d. The equipment must be maintained in accordance with applicable planned maintenance schedules and controlling documents. Each work center and technician must re-certify every 18 months in order to maintain current certifications in accordance with Reference (a).
- e. Units must show good stewardship and scan all EAs for feasibility of repair regardless of the Source Maintenance and Recoverability (SM&R) code indicating an EA is

commercial off the shelf or consumable. In many cases the work center may not be able to repair an EA. However, the work center should be given every opportunity to repair EAs prior to requesting a replacement EA. Naval Supply Publication 485 provides direction and authorization for 'O' level repair of a 'D' level item if 2M MTR test/repair capability is available. The single letter "D" or "E" beside the COG digits 1, 7 and 9 indicates that an item is 'O' level repairable. An explanation of SM&R codes is contained in Reference (a).

- f. Neither Circuit Card Assemblies (CCA) nor Electronic Modules (EM) will be ordered until a CCA or EM has been screened by the unit's MTR work center, and an attempt to repair has been made by the units 2M work center. A screening form has been included in Enclosure (3), which must be completed and sent to the proper technical authority for review. This form can also be located on C3CEN's 2M Portal Page: https://cg.portal.uscg.mil/units/c3cen/NTNO/SitePages/2M_MTR.aspx
 - g. As funding is allocated, the program office will provide required equipment to outfit approved units designated to maintain a 2M/MTR work center.
6. MAJOR CHANGES. This revision details the updated procedures for screening CCAs and entering the screening results into the Navy database. Also, the Instruction provides updated qualification codes for formal schools.
 7. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS.
 - a. The development of this Instruction and the general policies contained within it have been thoroughly reviewed by the originating office in conjunction with the Office of Environmental Management, Commandant (CG-47). This Instruction is categorically excluded under current Department of Homeland Security (DHS) categorical exclusion (CATEX) A3 from further environmental analysis in accordance with "Implementation of the National Environmental Policy Act (NEPA)", DHS Instruction Manual 023-01-001-01 (series).
 - b. This Instruction will not have any of the following: significant cumulative impacts on the human environment; substantial controversy or substantial change to existing environmental conditions; or inconsistencies with any Federal, State, or local laws or administrative determinations relating to the environment. All future specific actions resulting from the general policy in this Instruction must be individually evaluated for compliance with the National Environmental Policy Act (NEPA), Department of Homeland Security (DHS) and Coast Guard NEPA policy, and compliance with all other applicable environmental mandates.
 8. DISTRIBUTION. No paper distribution will be made of this Instruction. An electronic version will be located on the following Commandant (CG-612) web sites. Internet: <http://www.dcms.uscg.mil/directives> and CGPortal: <https://cg.portal.uscg.mil/library/directives/SitePages/Home.aspx>. An electronic copy will

also be located on the NT/NO Portal Page:

<https://cg.portal.uscg.mil/communities/ntno/SitePages/Home.aspx>.

9. PROCEDURES.

a. **Progressive Level of Repair Hierarchy:**

- (1) The strategic goal of the 2M/MTR Program is to avoid the current process of discarding damaged electronics that are not supported by a Product Line that might otherwise be repaired at the unit. For Product Line and Core Technology supported equipment the end goal is to return equipment to full operational capabilities as quickly as possible, saving the unit funding, providing immediate repair of operational equipment and removing logistical burden.
- (2) The progressive repair process is the sequential attempt to test and repair CCAs/EAs. Reference (a) requires that repairs be attempted/made at the lowest possible level. Reference (b) describes repairable management for Depot Level Repairable (DLR) and Field Level Repairable (FLR) items. MTR repair technicians will screen a CCA in an attempt to isolate a fault, while 2M techs will attempt to repair all CCAs/EAs within their training and capability, regardless of the SM&R code.
- (3) If the organizational level 2M/MTR facility is unable to repair the EA, or if screening efforts are inconclusive, the EA can be outsourced to a local 2M/MTR facility for further screening and repair. If there is not a local 2M/MTR site nearby or the work center is unable to assist in repair, the EA will be sent to the depot for repair.
- (4) Cutters without MTR capabilities will send suspect EAs directly to the designated depot repair site, unless the Product Line or Core Technology has otherwise directed the return of an EA to a specific repair point.
- (5) Repaired EAs will be thoroughly operationally (power-on) tested, and if completely functional, must be returned to the host equipment or placed in shipboard stores. All fully repaired EAs will be considered Condition "A" assets after a successful operational test.

b. **Exceptions:**

- (1) Cutters without onboard 2M/MTR capability and without a shore side 2M repair site may return EAs directly to the depot without screening.
- (2) In accordance with Reference (b), a faulty EA may be returned to the depot without repair if the unit is unable to obtain replacement parts within 72 hours. A Module Test and Repair Tracking System (MTRTS) report should be filled out to document the disposition. See Paragraph 14 for more details regarding the MTRTS.
- (3) If the local work center is unable to complete testing to identify faulty components or the estimated time of repair is outside of operational requirements, units should

follow standard CASREP procedures to obtain replacement. The failed EA must be recorded in MTRTS, with the appropriate disposition code.

- (4) If the repair is determined to be beyond a technician's capability, the repair can be outsourced to another repair site. A MTRTS report should be filled out to document the disposition.
- (5) If the repair is a Micro level repair and the unit is only certified as a Miniature repair site, then the repair can be outsourced to the nearest Microminiature site. If there is not a Microminiature repair site in the immediate area, normal CASREP procedures should be followed. A MTRTS report should be filled out to document the disposition.

10. RECORDS MANAGEMENT CONSIDERATIONS. This Instruction has been thoroughly reviewed during the directives clearance process, and it has been determined there are no further records scheduling requirements, in accordance with Federal Records Act, 44 U.S.C. 3101 et seq., NARA requirements, and Information and Life Cycle Management Manual, COMDTINST M5212.12 (series). This policy does not have any significant or substantial change to existing records management requirements.

11. PIECE PARTS HELP.

a. **Fleet Readiness Action Team (FRAT):**

- (1) The FRAT provides a means for all Department of Defense (DoD) 2M/MTR activities to expedite urgent repairs of MTR Gold Disk-applicable, and CASREP/critical system electronic assemblies, and CCAs at NUWC DET FEO Norfolk. FRAT is not authorized to circumvent the supply system, and may procure Piece Parts for units only when a part is not available in the in-house inventory, not available through DLA, or when long lead time for a part sourced from DLA is determined to be unacceptable given the urgency of the repair.
- (2) Components can be issued from internal stock or directly from component manufacturers contracted to supply the Federal stock system, to avoid delays on backordered components.
- (3) All 2M/MTR sites have access to the requisition form located on the MTR CD in the Coast Guard folder. An example is also provided for guidance. Once completed, the form can be emailed to NUWC for action.

12. RESPONSIBILITIES.

a. **Commandant (CG-68):**

- (1) Serves as Sponsor to the 2M/MTR program.
- (2) Generates and provide policy regarding the 2M/MTR program.

(3) Establishes Memorandums of Agreement (MOAs) with appropriate Navy activities to maintain lifecycle support of existing and future 2M/MTR facilities.

(4) Distributes funding for the 2M/MTR Program.

b. Commanding Officer (C3CEN):

(1) Serves as Program Manager for all lifecycle requirements.

(2) Provides technical direction regarding the 2M/MTR Program.

(3) Monitors the effectiveness of the 2M/MTR Program and adapt to changes in the program and technology to maximize utilization and unit support throughout the Coast Guard.

(4) Implements and require adherence to 2M/MTR screening policy and procedures.

(5) Conducts re-certification inspections of field units in order to maintain their 18-month certifications.

(6) Identifies training shortfalls and work with the Rating Force Manager to ensure training reflects program needs.

(7) Analyzes data collected via the program's database to identify program weaknesses and recommend ways to improve program effectiveness.

(8) Provides logistics, maintenance, and management support to 2M/MTR facilities, to include assistance to units in maintaining site certification.

(9) Identifies and assist in the development of new diagnostic data for use in screening and troubleshooting EAs.

c. Engineering and Weapons School, Training Center Yorktown:

(1) Provides 2M/MTR program and technical training as directed by Headquarters Training Managers.

(2) Maintains a 2M/MTR repair station to support screening and repair of EAs associated with the MK92 Fire Control System laboratory.

(3) Maintains Certification as a 2M/MTR School as per Reference (d).

d. Unit Commanding Officers:

(1) Ensures all suspected faulty EAs are screened prior to returning to the depot for repair.

(2) Ensures at least one technician is formally trained in the operation and maintenance of the unit's 2M/MTR equipment.

- (3) Ensures 2M/MTR stations and personnel are certified in accordance with Reference (d).
- (4) Maintains Piece Parts allowances, consumable materials, and miscellaneous support items.
- (5) Reports all MTR-related screening and repair actions via the Module Test and Repair Tracking System (MTRTS) in accordance with Reference (d). Only MTR-related maintenance actions should be reported this way. Other maintenance actions must be reported in accordance with References (a), (e), (f), and (g).
- (6) Performs Preventative Maintenance and enters 2M/ MTR equipment into the Navy Preventative Maintenance schedule.

13. CERTIFICATION LEVELS.

- a. Table 1 identifies 2M/MTR certification levels and required training. Coast Guard personnel will only receive Direct Access Competency Codes for Miniature, Microminiature, Module Test & Repair and 2M Instructor. Coast Guard personnel **do not** receive a Navy Engineering Code (NEC) Code.
- b. Currently, only the 2M/MTR Liaisons and 2M Instructors can fill the role of Technician Recertifier (RC). There is no Competency Code for RC in the Coast Guard; qualifications are obtained through attending A-100-0058 course (c). The 2M/MTR Liaisons act in the role of Certification Agents (CA) and Fleet Coordinators (FC). Due to the uniqueness of the positions and likely possibility in the future of a non-2M or MTR experienced technician filling the position, Liaisons should make all attempts for cross training due to the number of 2M/MTR sites, vast distances of travel for recertification and inherent specialized skill set.

TABLE 1.

Certification Level		Training Required	NEC (USN)	PMOS (USMC)	Comp Code (USCG)
Miniature Technician (MN)	A-100-0072	Miniature Electronics Repair	9527	6423	2MRPR 2MMINI
Microminiature Technician (MC)	A-100-0073 A-100-0072	Microminiature Electronics Repair Miniature Electronics Repair	9526	6423	2MMRPR 2MMICRO
MTR Technician (MTR)	A-100-0076	Module Test & Repair (MTR) Equipment Operator			MTR 2MMTROP

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Certification Level		Training Required	NEC (USN)	PMOS (USMC)	Comp Code (USCG)
Miniature MTR Technician (MN MTR)	A-100-0072 A-100-0076	Miniature Electronics Repair MTR Equipment Operator			
2M MTR Technician (2M MTR)	A-100-0072 A-100-0073 A-100-0076	Miniature Electronics Repair Microminiature Electronics Repair MTR Equipment Operator	1591		2MMTRTECH
2M Instructor (2M IN)	A-100-0074 A-012-0011 A-100-0072 A-100-0073	2M Instructor Pipeline Instructor Training / IDC (JC comp code) Miniature Electronics Repair Microminiature Electronics Repair	9509	6423	2MINST
MTR Instructor (MTR IN)	A-012-011 A-100-0076	MTR Instructor IQP Instructor Training MTR Equipment Operator			MTRINST
2M MTR Instructor (2M MTR IN)	A-100-0074 A-012-0011 A-100-0072 A-100-0073 A-100-0076	2M Instructor Pipeline MTR Instructor IQP Instructor Training Miniature Electronics Repair Microminiature Electronics Repair MTR Equipment Operator			2MMTRINST
2M MTR Technician Recertifier (RC)	A-100-0058 A-100-0072 A-100-0073 A-100-0076 A-100-0144	2M MTR Technician Recertifier Miniature Electronics Repair Microminiature Electronics Repair MTR Equipment Operator 2M MTR Technician Recertifier Requalification	9503	6423	2MCERT

Certification Level		Training Required	NEC (USN)	PMOS (USMC)	Comp Code (USCG)
2M MTR Inspector (INSP)	A-100-0072 A-100-0073 A-100-0076 A-100-0058 A-100-0144	2M MTR Inspector JQR Miniature Electronics Repair Microminiature Electronics Repair MTR Equipment Operator 2M MTR Technician Recertifier 2M MTR Technician Recertifier Requalification			2MINSP
FRC 2M MTR Program Coordinator (FRC)	A-100-0072 A-100-0073 A-100-0076 A-100-0058 A-100-0144	2M MTR Inspector JQR Miniature Electronics Repair Microminiature Electronics Repair MTR Equipment Operator 2M MTR Technician Recertifier 2M MTR Technician Recertifier Requalification			2MFRC
2M MTR Fleet Coordinator (FC)	A-100-0072 A-100-0073 A-100-0076 A-100-0058 A-100-0144 A-100-0074 A-012-0011	Previous 9503 or 9509 2M MTR Inspector JQR Miniature Electronics Repair Microminiature Electronics Repair MTR Equipment Operator 2M MTR Technician Recertifier 2M MTR Technician Recertifier Requalification 2M Instructor Pipeline Instructor Training			

Certification Level		Training Required	NEC (USN)	PMOS (USMC)	Comp Code (USCG)
2M Certification Agent (CA)	Appointed: A-100-0072 A-100-0073	Previous 9503 or 9509 2M MTR Program Manager Miniature Electronics Repair Microminiature Electronics Repair			
MTR Certification Agent (CA)	Appointed: A-100-0076	2M MTR Program Manager MTR Equipment Operator			

14. FORMS/REPORTS.

a. Module Test and Repair Tracking System (MTRTS):

- (1) MTRTS software provides the ability to document, track, and generate reports of maintenance actions related to the screening, fault isolation, and repair of EAs, and the reporting of “No Failure Evident” (NFE). Collection of this maintenance action data will allow program managers to monitor component failure, adjust Piece Parts APL provisioning, and measure the effectiveness of this progressive level of screening and repair.
 - (a) The MTRTS Business Rules are used to properly document all screening attempts. Refer to the latest MTR Test Routine for the MTRTS Business Rules.
 - (b) NUWC provides the lifecycle support for the MTRTS. This includes software deliveries and upgrades, and collection and compilation of data.
 - (c) All 2M/MTR maintenance actions performed, including screenings, fault/no fault found, and repairs accomplished, are reported using the MTRTS. Reporting instructions are issued with the MTRTS software.
 - (d) Only 2M/MTR related maintenance actions should be reported via the MTRTS. All other maintenance actions should be reported in accordance with References (a), (e), (f) and (g).

15. REQUEST FOR CHANGES. The Point of Contact (POC) for this Instruction is the NT/NO Program Manager (CG-6811). Submit all recommended changes to the Combat Weapons Systems Office, Commandant (CG-6811).

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Encl: (1) Approved 2M/MTR Sites
Encl: (2) MTR Supported Equipment
Encl: (3) 2M/MTR Screening Form

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Approved 2M/MTR sites

CGC BERTHOLF	ALAMEDA, CA	11701
CGC WAESCHE*	ALAMEDA, CA	11702
CGC STRATTON*	ALAMEDA, CA	11703
CGC HAMILTON*	CHARLESTON, SC	11704
CGC MUNRO*	ALAMEDA, CA	11706
CGC JAMES*	CHARLESTON, SC	11705
CGC KIMBALL*	HONOLULU, HI	11707
CGC MELLON	SEATTLE, WA	11403
CGC DOUGLAS MUNRO	KODIAK, AK	11410
CGC JOHN MIDGETT	SEATTLE, WA	11412
CGC BEAR	PORTSMOUTH, VA	11501
CGC TAMPA	PORTSMOUTH, VA	11502
CGC HARRIET LANE	PORTSMOUTH, VA	11503
CGC NORTHLAND	PORTSMOUTH, VA	11504
CGC SPENCER	BOSTON, MA	11505
CGC SENECA	BOSTON, MA	11506
CGC ESCANABA	BOSTON, MA	11507
CGC TAHOMA	PORTSMOUTH, NH	11508
CGC CAMPBELL	PORTSMOUTH, NH	11509
CGC MOHAWK	KEY WEST, FL	11510
CGC FORWARD	PORTSMOUTH, VA	11511
CGC LEGARE	PORTSMOUTH, VA	11512
CGC THETIS	KEY WEST, FL	11513
USCGC HEALY*	SEATTLE, WA	14102
USCGC POLAR STAR*	SEATTLE, WA	14501
BASE BOS WAT (NMW)	BOSTON, MA	31-31120-NMW
BASE PORTS WAT (NMW)	PORTSMOUTH, VA	31-31040-NMW
BASE MB MWA DIV (NM)	KEY WEST, FL	31-53002
BASE SEA NAVAL ENG DEPT (N)**	SEATTLE, WA	31-31011-NMM
BASE ALAM WAT (NMW)	ALAMEDA, CA	31090
WAT CHARLESTON	CHARLESTON, SC	31-31150
BASE SEA ESD	SEATTLE, WA	31-31010-ESD
BASE MB ESD	MIAMI, FL	31-31020-ESD
BASE KOD ESD	KODIAK, AK	31-31140-ESD
BASE HONO ESD	HONOLULU, HI	31-31060-ESD
BASE NOLA ESD	NEW ORLEANS, NO	31-31070-ESD
CAMSLANT CHESAPEAKE	VIRGINIA BEACH, VA	32425
TRACEN YORKTOWN	YORKTOWN, VA	63100
TRACEN PETALUMA	PETALUMA, CA	61200
ERF BALTIMORE	BALTIMORE, MD	59201

- * Planned future installations.
- ** For the purposes of clarity and due to limitations within the Navy Database systems Base, Seattle Naval Engineering Department will use 31011 for its UIC. Base Seattle ESD will use 31010 UIC. This provides clarity in the reporting process.

Enclosure (1) to COMDTINST 4790.2C

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MTR Supported Equipment

<u>Equipment Type</u>	<u>Military Specification</u>	<u>Nomenclature</u>
ANNOUNCING SYS	AM-2210G/WTC	SP Phone Amplifier
ANNOUNCING SYS	LS-518A/SIC	Intercom System
ANNOUNCING SYS	LS-519A/SIC	Intercom System
ANTENNA COUPLER	CU-1799/SRA COUPLER ANTENNA	HF Transmitter
ANTENNA COUPLER	CU-1800/SRA, COUPLER,ANTENNA	HF Transmitter
ANTENNA COUPLER	CU-1801/SRA, COUPLER,ANTENNA	HF Transmitter
ANTENNA COUPLER	CU-1802/SRA, COUPLER,ANTENNA	HF Transmitter
ANTENNA COUPLER	OA-9123/SRC	Antenna Coupler
ANTENNA COUPLER	OA-9277/SRC, COUPLER ANTENNA	Antenna Coupler
COMMAND CONTROL	110' WPB SPECIFIC AUXILIARY CONTROL SYS	110' Cutter Propulsion Console
COMMAND CONTROL	CV-3591(P)/U	AN/USC-43 Digital Voice Terminal
COMMAND CONTROL	PROPULSION CONSOLE (378' WHEC)	378' Cutter Main Propulsion Console
COMMAND CONTROL	CV-3989/SP	RADDS Signal Converter
COMMAND CONTROL	AN/SPQ-12 or 14	RADDS- SPA-25G
COMMAND CONTROL	SB-4229A(V)5/SP	RADDS- SPA-25G
CRYPTO (VOICE)	TA-970/U, TELEPHONE SET	Secure Red Handset
CRYPTO (VOICE)	TA-980/U, TELEPHONE SET	Secure Red Handset
CRYPTO (VOICE)	TA-990/U, TELEPHONE SET	Secure Red Handset
DIGIT COMPUTER	COMPUTER DATA SYSTEM SET (AN-UYK-7)	Fire Control Computer
DIGIT COMPUTER	INPUT/OUTPUT DEVICE (OJ-172)	Fire Control I/O Console
ELEC CM-PASSIVE	AM-7251/WLR-1H	ECM System
ELEC CM-PASSIVE	C-11477A/WLR-1H	ECM System
ELEC CM-PASSIVE	CV-3687A/WLR-1H	ECM System
ELEC CM-PASSIVE	J-4215/WLR-1H	ECM System
ELEC CM-PASSIVE	AM-7002B/SLQ-32(V)	ECM System
ELEC CM-PASSIVE	AM-7002C/SLQ-32(V)	ECM System
ELEC CM PASSICE	AM-7002D/SLQ-32(V)	ECM Systems AMPL,RF
ELEC CM PASSIVE	R-2121A/SLQ-32(V),	ECM System RCVR,DIR FIND
ELEC CM-PASSIVE	AN/SLQ-32A(V)2	ECM System
ELEC CM-PASSIVE	CP-1922/SLQ-32(V)	ECM System
ELEC CM PASSIVE	CP-1370C/SLQ-32(V)	ECM System PRCSR ,SIG DTA
ELEC CM-PASSIVE	CV-3540A/SLQ-32(V)	ECM System
ELEC CM-PASSIVE	CV-3540B/SLQ-32(V)	ECM System
ELEC CM PASSIVE	CV-3540D/SLQ-32(V)	ECM System
ELEC CM-PASSIVE	OJ-446C/SLQ-32(V)	ECM System
ELEC CM-PASSIVE	R-2120/SLQ-32(V)	ECM System
ELEC CM-PASSIVE	R-2121A/SLQ-32(V)	ECM System
ELEC CM-PASSIVE	R-2445/SLQ-32(V)	ECM System
IFF SYSTEMS	AN/UPM-155	IFF System
IFF SYSTEMS	ID-1844/UPA-59A(V), IND,INTRATARGET DATA	IFF System
IFF SYSTEMS	ID-1844A/UPA-59A(V)	IFF System
IFF SYSTEMS	ID-1844B/UPA-59A(V)	IFF System
IFF SYSTEMS	KY-761(P)/UPA-59A(V), DECODER,VIDEO	IFF System
IFF SYSTEMS	KY-761A(P)/UPA-59A(V)	IFF System
IFF SYSTEMS	KY-761B(P)/UPA-59A(V)	IFF System
IFF SYSTEMS	PP-6099A/APX-72	IFF System
IFF SYSTEMS	PP-6099B/APX-72	IFF System
IFF SYSTEMS	RT-859A/APX-72, RECEIVER-TRANSMITTER	IFF System
IFF SYSTEMS	TD-937B/SPX, ELECTRONIC GATE	IFF System
IFF SYSTEMS	TS-1843A/APX TEST SET TRANSPONDER SET	IFF System
IFF SYSTEMS	AN/UPX-37, INTERROGATOR SET	IFF System
INTELLIGENCE	ON-143(V)8/USQ, INTERCONNECTING GROUP	SATCOM Interface
MISC COMM	RD-390(V)/UNH	Recorder, Communications
SWITCHBOARD	SA-2112(V)1/STQ, SWITCHING MATRIX	Secure Voice Switch

Enclosure (2) to COMDTINST 4790.2C

SWITCHBOARD	C-10276/SSC CONTROL INDICATOR	Secure Voice Switch
SWITCHBOARD	SA-2742/BSC,SW-UN,DIG-AUD SGL,RED(SBCS)	Secure Voice Switch
SWTICHBOARD	SA-2743/BSC,SW-UN,DIG-AUD SGL,BLK(SBCS)	Secure Voice Switch
MISC SECURITY	C-10315/U	Switchboard
NAVIGATION AIDS	AN/UQN-4, SOUNDING SET,SONAR	Analog Fathometer
NAVIGATION AIDS	AN/WRN-6(V)4	Global Positioning System
NAVIGATION AIDS	C-11702/UR	GPS Display Unit
NAVIGATION AIDS	ID-1566/UQN-4, W/FC6 INDICATOR DEPTH	Analog Fathometer
NAVIGATION AIDS	RT-888/UQN-4, SONAR RECEIVER-TRANSMITTER	Analog Fathometer
ORDNANCE	MK15 CIWS ELEX ENCLOSURE	Fire Control
ORDNANCE	MK15 CIWS LOCAL CONTROL PANEL	Fire Control
ORDNANCE	MK75/76MM GUN CONTROL PANEL	Gun System
ORDNANCE	MK92 FIRE CONTROL SYSTEM RADAR	Fire Control
ORDNANCE	MK92 FIRE CONTROL SYSTEM SERVO CONTROL	Fire Control
ORDNANCE	MK92 FIRE CONTROL SYSTEM WCC	Fire Control
ORDNANCE	MK92 MOD 1 FC COMBINED ANTENNA SYS	Fire Control
RADAR DISTR SYS	AN/SPA-25G(V)1	Display Unit
RADAR DISTR SYS	AN/SPA-25G, INDICATOR GROUP	Display Unit
RADAR DISTR SYS	IP-1491/SPA-25G	Display Unit
RADAR DISTR SYS	IP-1723/SPA-25(V)	Display Unit
RECEIVERS	AN/GRR-24	UHF Receiver
RECEIVERS	AN/GRR-24(V)	UHF Receiver
RECEIVERS	AN/GRR-24(V)7	UHF Receiver
RECEIVERS	R-1051E/URR, RECEIVER,RADIO	HF Receiver
RECEIVERS	R-2368(V)3/URR	HF Receiver
RECEIVERS	R-2368A/URR	HF Receiver
TRANSMITTER	AN/WSC-3	UHF Receiver
TRANSMITTER	AM-7584/USC-61(C)	UHF Amplifier
SAT COMM SYS	RT-1107A(V)3/WSC-3A(V) SER L	SATCOM DAMA
SAT COMM SYS	TD-1271B/U	SATCOM Multiplexer
SATELLITE	AM-6534/SSR-1, AMPLIFIER CONVERTER	SAT Receiver
SATELLITE	AN/SSR-1A	SAT Receiver
SATELLITE	AN/WSC-3(V)6, LOS STD INTERFACE	UHF LOS
SATELLITE	C-9597A/WSC-1(V), CONTROL ANTENNA	SATCOM Antenna Control
SATELLITE	C-9597B/WSC, CONTROL ANTENNA	SATCOM Antenna Control
SATELLITE	MD-900/SSR-1, COMBINER DEMODULATOR	SATCOM Demodulator
SATELLITE	MD-900A/SSR-1A(V), COMBINER DEMODULATOR	SATCOM Demodulator
SATELLITE	MT-6068/WSC-3(V)	SATCOM
SATELLITE	MT-6068A/WSC-3(V)	SATCOM
SATELLITE	MT-6069A/WSC-3(V)	SATCOM
SATELLITE	ON-143(V)14/USQ,INTERCONNECTING GROUP	SATCOM Interface
SATELLITE	USQ-125	DTS CONTROL COMPUTER
SATELLITE	RT-1107(V)15/WSC-3(V), RECEIVER-TRANSMTR,RADIO	SATCOM DAMA
SATELLITE	RT-1107(V)17/WSC-3(V)	SATCOM DAMA
SATELLITE	RT-1107(V)6/WSC-3 SER D, RECVR TRANSMTR,LOS	SATCOM DAMA
SATELLITE	RT-1107(V)6/WSC-3 SER L60001	SATCOM DAMA
SATELLITE	RT-1107(V)6/WSC-3 SER N	SATCOM DAMA
SATELLITE	RT-1107(V)7/WSC-3 SER L70001, XCVR,LOS	SATCOM DAMA
SATELLITE	RT-1107(V)7/WSC-3 SER N, RCVR TRANSMTR,LOS	SATCOM DAMA
SATELLITE	RT-1107(V)7/WSC-3 SER P70001, XCVR,LOS	SATCOM DAMA
SATELLITE	RT-1107(V)8/WSC-3	SATCOM DAMA
SATELLITE	RT-1107A/WSC-3 SER B	Receiver/Transmitter
SATELLITE	TD-1063/SSR-1, DEMULTIPLEXER	FLEET Broadcast SATCOM
SATELLITE	TD-1063A/SSR-1, DEMULTIPLEXER	FLEET Broadcast SATCOM
TACAN	OE-273(V)/URN, ANTENNA GROUP	TACAN Antenna
TACAN	OE-273A(V)/URN, ANTENNA GROUP	TACAN Antenna
TACAN	OX-52/URN-25, TRANSPONDER GROUP	TACAN Unit 1
TACAN	RT-1276/URN-25 P/O OX-52/URN-25	TACAN
TEST EQUIPMENT	AN/ULQ-16(V)2 PULSE ANALYZER SET	ECM Pulse Analyzer

Enclosure (2) to COMDTINST 4790.2C

TEST EQUIPMENT
TEST EQUIPMENT
TEST EQUIPMENT
TEST EQUIPMENT

ELECTRONIC TEST STATION (TRACKER 2000)
PRC2000-2M REWORK SYSTEM
SEMICONDUCTOR TEST SET (AN/USM-646)
IM-265/PDQ RADIACMTR,SINGLE LINE DSPL

2M/MTR Diagnostic/Repair System
2M/MTR Diagnostic/Repair System
2M/MTR Diagnostic/Repair System
Radiation Meter

TRANSCEIVERS
TRANSCEIVERS

AN/GRC-211,VHF MULTICHANNEL
RT-1369/GRC-211,RECEIVER-TRANSMITTER

VHF LOS Transceiver
VHF LOS Transceiver

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2M/MTR Screening Form



All CCAs, including CCAs that are not supported by Gold Disk, are required to be screened prior to ordering replacements IAW COMDTINST 4790.2C.

Neither Circuit Card Assemblies (CCA) nor Electronic Modules (EM) will be ordered until the CCA or EM has been screened by the unit's Module Test and Repair (MTR) work center, and an attempt to repair has been made by the unit's Miniature/Micro-miniature (2M) work center.

Date Screened: Nomenclature: NSN:

Part #: Cost: \$ Gold Disk (GD) Supported Yes/No:

Gold Disk Supported

Test Routine #:

During visual inspection, was there any obvious sign of damage? Y/N:

If yes, describe damage:

Was fault evident during testing? Y/N:

If yes, were Piece Parts (PP) available to repair? Y/N:

PP#: Cost: \$

Non-GD Supported CCA's

Failure evident Y/N:

Visual inspection complete? Y/N:

If yes, describe damage:

Was there a RFI card available for comparative testing? Y/N:

If yes, describe results:

Screen all components with known signatures (i.e. resistors, capacitors, diodes, and transistors).

If repairable, what component is needed to correct fault?

Enclosure (3) to COMDTINST 4790.2C

Signatures:

2M/MTR Technician: _____

EMO/DIVO: _____

SK: _____

Send to proper Technical Authority via email (i.e. FSD or C3CEN).