Technical Manual

CERTIFICATION MANUAL
FOR
MINIATURE/MICROMINIATURE (2M)
MODULE TEST AND REPAIR (MTR) PROGRAM

Organizational, Intermediate, and Depot Level

This manual supersedes:
NAVSEA TE000-AA-MAN-010/2M, dated 21 May 2007
NAVAIR SE-004-PQS-000, dated 21 May 2007

PUBLISHED BY DIRECTION OF COMMANDER, NAVAL SEA SYSTEMS COMMAND

12 September 2011

Numerical Index of Effective Sections/Pages

List of Current Changes

Original 0   12 September 2011

Only those sections/pages assigned to the manual are listed in this index. Insert _____-dated _____. If changed pages are issued to a section, insert the changed pages in the applicable section. The portion of text affected in a changed or revised section is indicated by change bars or the change symbol "R" in the outer margin. Pointing hands or change bars as applicable indicate changes to illustrations.

Section Number	Title
Cover	
Page A	Numerical Index of Effective Sections/Pages
Page B	Forward
001 00	INTRODUCTION
002 00	2M MTR PERSONNEL
003 00	2M MTR SITES

Total number of pages in this document is 93 consisting of the following:

Section/Page No.	Change No.	Section/Page No.	Change No.
Cover	0	Appendix A / A-1:1	0
Certification Sheet	0	Appendix B / B-1:2	0
A	0	Appendix C / C-1:3	0
B Foreword	0	Appendix D / D-1:4	0
001 / 1:5	0	Appendix E / E-1:2	0
002 / 6:38	0	Appendix F / F-1:10	0
003 / 39:58	0	Appendix G / G-1: 4	0
		Appendix H / H-1:1	0
		Appendix I / I-1:4	0

Foreword

This manual provides certification procedures and reporting requirements for the following:

- Miniature/Microminiature (2M) Module Test and Repair (MTR) Personnel (Naval Maritime and Aviation; and US Coast Guard)

- 2M MTR Training Sites (Naval Maritime and Aviation; and US Coast Guard)

- 2M MTR Repair, and 2M MTR Inspector Sites (Naval Maritime and US Coast Guard only)

Note: *Certifications of Naval Aviation 2M MTR Repair and Certifying Sites are covered in COMNAVAIRFORINST 4790.2 (series)*

These requirements and quality control procedures are provided so that all activities involved in the certification process shall be familiar with them.

This manual is designed to assist the following program users in the certification process:

- SYSTEMS COMMANDS

- FORCE COMMANDERS

- TYPE COMMANDERS

- MAINTENANCE AND LOGISTICS COMMANDS

- EXPEDITIONARY FORCES

- REGIONAL MAINTENANCE CENTERS

- DEPOTS

- TRAINING SITES

- COMMANDING OFFICERS

- END USERS

Use of this manual increases the accuracy and efficiency of the 2M MTR Program in two ways:

- The end user can ensure the command is capable of providing quality 2M MTR diagnostic testing and repairs per applicable directives

- The use of this manual shall ensure that uniform certification requirements and procedures are used by all activities

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CERTIFICATION MANUAL FOR THE 2M MTR PROGRAM

12 September 2011

Introduction

References

Reference Number	Title
NAVSEAINST 4790.17 (series)	Fleet Test and Repair of Shipboard Electronic Equipment
OPNAVINST 4700.7 (series)	Maintenance Policy for Naval Ships
COMNAVAIRFORINST 4790.2 (series)	Naval Aviation Maintenance Program
OPNAVINST 4790.4 (series)	Ships' Maintenance and Material Management (3-M) Manual
OPNAVINST 4790.13 (series)	Maintenance of Surface Ship Electronic Equipment
COMFLTFORCOMINST 4790.3 (series)	Joint Fleet Maintenance Manual
NAVSUP Publication 485	Afloat Supply Procedures
COMDTINST 4790.2 (series)	Coast Guard Module Test and Repair (MTR) Program
COMNAVSPECWARCOMINST 9401.1 (series)	Miniature/Microminiature/Automatic Test Equipment Repair Program
COMNAVAIRFORINST 4790.42 (series)	Miniature/Microminiature Electronics Repair and Module Test and Repair Work Center
NAVAIR 01-1A-23 **NAVSEA SE004-AK-TRS-010/2M**	Standard Maintenance Practices for Miniature/ Microminiature (2M) Electronic Assembly Repair
NAVSEA S9665-CY-OMP-010/PRC-2000/U	PRC-2000-2M System, Electronic Rework Power Unit Operation and Maintenance Manual
NAVSEA SE010-A7-MMC-010/MBT-250-SD/U	Station Electronic Rework Power Unit, MBT-250-SD, Operation and Maintenance, Organizational/Intermediate Level
NAVSEA MIP 6652/005	Pace Soldering Station Maintenance Requirement Cards (MRCs)
NAVSEA MIP 4911/003	Module Test and Repair (MTR) System Maintenance Requirement Cards (MRCs)
NTSP S-30-8711B	Navy Training Systems Plan (NTSP), Navy Miniature/ Microminiature (2M) Module Test and Repair (MTR) Program
A-100-0008	2M MTR Technician Pipeline
A-100-0058	2M Technician Recertifier Course
A-100-0072	Miniature Electronics Repair Course
A-100-0073	Microminiature Electronics Repair Course
A-100-0074	2M Instructor Pipeline
A-100-0076	Module Test & Repair Equipment Operator Course
A-100-0135	2M Instructor Initial Skills Course
A-100-0136	2M Instructor Certification/Recertification Course
A-100-0144	2M Technician Recertifier Requalification Course
NAVEDTRA 135	Navy School Management Manual

Reference Number	Title
00032540	8007-0161(00WU8) PRC2000-2M System Allowance Parts List (APL)
00035587	8007-0161NAVAIR Unique, PRC2000-2M APL
00041450	Portable 2M Kit, APL
00036925	2M MTR Piece Parts-ACU4, ACU5 APL
00035230	2M MTR Piece Parts- LCC, LPD, LSD APL
00036683	2M MTR Augmented Piece Parts- LCC, LPD, LSD APL
00035228	2M MTR Piece Parts-CG, DDG51 APL
00036684	2M MTR Augmented Piece Parts-CG, DDG51 APL
00035229	2M MTR Piece Parts-FFG7 APL
00036686	2M MTR Augmented Piece Parts-FFG7 APL
00035231	2M MTR Piece Parts-MCM APL
00038733	2M MTR Piece Parts-SSBN APL
00031205	Standardized IMA/MTR APL
00036544	Expanded IMA/MTR APL
00039106	2M MTR Piece Parts-LPD-17
00046414	2M MTR Augmented Piece Parts-LPD-17
00040856	2M MTR Piece Parts-LHA, LHD, AS
00031457	2M MTR Piece Parts-USGC-WHEC
000A1714	2M MTR Piece Parts-USCG-WMEC
000A2963	2M MTR Piece Parts-USCG-WAGB-20
000A1787CL	AN/USM-674(V)3 Test Station, Electrical / Electronic
000A1788CL	AN/USM-674(V)4 Test Station, Electrical / Electronic
00033099	2M MTR SUBTRACEN
00033100	PP 2M MTR Surface Training Centers
00036924	PP – AEGIS Training Center
00040153	2M MTR Piece Parts – GEMD
00040154	2M Piece Parts TSC
00045345	2M MTR PP COMTELSTA
00045595	2M MTR PP FACSFAC
000A0393	2M MTR PP NOPF / NAVFAC
000A1712	2M MTR Piece Parts USCG NESU
000A1713	2M MTR Piece Parts USCG ESU

Index

1.1   PURPOSE

This manual provides the certification criteria for all 2M MTR technicians and sites under the auspices of the 2M MTR Program.

Certification identifies personnel who have demonstrated the ability to do quality 2M MTR diagnostic testing and repair, and provides the means of implementing approved new techniques and procedures.

The Certification Process establishes standards and procedures to ensure the continued quality of 2M MTR diagnostic testing and repair performed by the fleet.

1.2   RESPONSIBILITIES

Major program administration and management responsibilities are defined in:

- OPNAVINST 4700.7 (series)

- COMNAVAIRFORINST 4790.2 (series)

- NAVSEAINST 4790.17 (series)

- COMDTINST 4790.2B (series)

1.3   CERTIFICATION LEVELS

Table 1-1 identifies 2M MTR certification levels, required training, and job classification codes.

Table 1-1 2M MTR Certification Levels

Certification Level		Training Required	USN NEC	USMC PMOS	USCG Comp Code
Miniature Technician (MN)	A-100-0072	Miniature Electronics Repair	9527	6423	2MRPR
Microminiature Technician (MC)	A-100-0073 *A-100-0072	Microminiature Electronics Repair Miniature Electronics Repair	9526	6423	2MMRPR
MTR Technician (MTR)	A-100-0076	Module Test & 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		
2M Technician Recertifier (RC)	A-100-0058 *A-100-0072 *A-100-0073 A-100-0144	2M Technician Recertifier Miniature Electronics Repair Microminiature Electronics Repair 2M Technician Recertifier Requalification	9503	6423	
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 Technician Recertifier 2M Technician Recertifier Requalification			

Certification Level		Training Required	USN NEC	USMC PMOS	USCG Comp Code
2M Instructor (2M IN)	A-100-0074	2M Instructor Pipeline	9509	6423	2MINST
	*A-012-0011	Instructor Training			
	*A-100-0072	Miniature Electronics Repair			
	*A-100-0073	Microminiature Electronics Repair			
MTR Instructor (MTR IN)		MTR Instructor IQP			
	*A-012-0011	Instructor Training			
	*A-100-0076	MTR Equipment Operator			
2M MTR Fleet Coordinator (FC)		Previous 9503 or 9509			
		2M MTR Inspector JQR			
	*A-100-0072	Miniature Electronics Repair			
	*A-100-0073	Microminiature Electronics Repair			
	*A-100-0076	MTR Equipment Operator			
	*A-100-0058	2M Technician Recertifier			
	A-100-0144	2M Technician Recertifier Requalification			
2M Certification Agent (CA)		Previous 9503 or 9509			
	Appointed:	2M MTR Program Manager			
	*A-100-0072	Miniature Electronics Repair			
	*A-100-0073	Microminiature Electronics Repair			
MTR Certification Agent (CA)	Appointed:	2M MTR Program Manager			
	*A-100-0076	MTR Equipment Operator			

1.4   PERSONNEL REPORTING

2M MTR Instructors, Technician Recertifiers, Inspectors, Fleet Coordinators, and Certification Agents shall report completion of 2M MTR personnel initial certification and recertification in the 2M MTR database.

Reporting shall be completed via the website located at https://sharepoint.cran.nmci.navy.mil/extranet/2m/default.aspx.

For user access, contact the 2M MTR SharePoint Manager at DSN 482-1510.

If 2M MTR SharePoint access is not available for an extended period, reporting shall be completed via e-mail to Crane.2M.program@navy.mil.

All US Coast Guard personnel initial certification and recertifications shall be reported in USCG Direct Access in addition to being reported in the 2M MTR database.

12 September 2011

2M MTR Personnel Certification and Recertification

2.1 MINIATURE ELECTRONIC REPAIR TECHNICIAN

2.1.1 Functions and Capabilities

2M repairs to circuit card assemblies and electronic modules by Miniature Electronic Repair Technicians shall be limited to those as specified in this paragraph.

Technicians certified as Miniature Electronic Repair Technicians are authorized to repair electrical and electronic enclosures, assemblies, subassemblies, and modules as follows:

- Wiring and soldering of terminals and connectors (wires AWG 26 and larger)

- Removal and replacement of discrete components and integrated circuits on single-sided and double-sided through-hole technology circuit card assemblies

- Removal and replacement of conformal coatings on single-sided and double-sided through-hole technology circuit card assemblies

- Removal and replacement of damaged pads and conductors on single-sided and double-sided through-hole technology circuit card assemblies

- Removal and replacement of damaged laminate on single-sided and double-sided through-hole technology circuit card assemblies

Note: *The repair of flat packs is no longer authorized to be performed by Miniature Electronic Repair Technicians. Repair of flat packs is now a Microminiature Electronic Repair.*

Completed repairs shall meet the applicable workmanship standards of NAVAIR 01-1A-23 / NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair.

2.1.2 Initial Certification Requirements

To be eligible for training at the miniature level, technicians must be either assigned or en route to an activity requiring Miniature Electronic Repair Technicians.

To receive initial certification, the technician must complete the Miniature Electronics Repair Course, A-100-0072, by demonstrating proficiency in performing the following tasks:

- Demonstrate safety and ESD procedures

- Identify the base laminate, conformal coating, and conformal coating removal methods on a minimum of four conformally coated circuit card assemblies

- Remove silicone resin conformal coating from a minimum of two components

- Remove epoxy resin conformal coating from a minimum of two components

- Remove acrylic resin conformal coating from a minimum of two components

- Remove polyurethane resin conformal coating from a minimum of two components

- Remove a minimum of eight discrete components from a double-sided circuit card assembly

- Clean, tin, form and install a minimum of five horizontal mount, axial leaded components on a double-sided circuit card assembly using straight-through lead terminations

- Clean, tin, form and install a minimum of five horizontal mount, axial leaded components on a double-sided circuit card assembly using full clinch lead terminations

- Clean, tin, form and install a minimum of two horizontal mount, axial leaded components with stress relief bends on a double-sided circuit card assembly using semi-clinch lead terminations

- Clean, tin, form and install a minimum of two vertical mount, axial leaded components on a double-sided circuit card assembly using straight-through lead terminations

- Clean, tin and install a minimum of five radial leaded transistors with spacers on a double-sided circuit card assembly using straight-through lead terminations

- Clean, tin and install a minimum of five radial leaded CK (pocketbook) capacitors with spacers on a double-sided circuit card assembly using straight-through lead terminations

- Excavate, straight wall, undercut and bevel a minimum of one surface patch laminate repair

- Perform a minimum of one through-the-board patch laminate repair

- Perform a minimum of one lap solder conductor repair

- Perform a minimum of one end of conductor (pad and conductor) repair

- Perform a minimum of one conductor repair using the clinched staple method

- Strip a minimum of ten insulated wires using mechanical strippers

- Strip a minimum of four insulated wires using thermal strippers

- Strip and tin a minimum of ten 20-gauge wires

- Strip and tin a minimum of four 22-gauge wires

- Perform a minimum of two single wire installations on a turret terminal

- Perform a minimum of two two-wire installations on a turret terminal

- Perform a minimum of two single wire installations on a hook terminal

- Perform a minimum of two two-wire installations on a hook terminal

- Perform a minimum of two single wire installations on a pierced tab terminal

- Perform a minimum of two single-wire installations to a solder cup using a soldering iron

- Perform a minimum of two single-wire installations to a solder cup using resistive tweezers

- Remove and replace a minimum of one dual in-line package from an uncoated circuit card assembly

- Remove and replace a minimum of one dual-in-line package from a conformally coated circuit card assembly

- Complete the Miniature Recertification Performance Test (Appendix C) as a comprehensive miniature repair technique performance test

2.1.2.1 Initial Certification Reporting Requirements

Upon completion of the Miniature Electronics Repair Course, A-100-0072:

- The 2M Instructor shall issue a 2M MTR Certification Identification Card (Appendix A)

- The 2M Instructor shall enter the certification information into the 2M MTR database

- Navy personnel are awarded Navy Enlisted Classification (NEC) 9527

- Marine Corps (aviation) personnel are awarded Primary Military Occupational Specialty (PMOS) 6423

- Coast Guard personnel are awarded Competency Code 2MRPR

- Non-military personnel receive a PIM and a Certificate of Completion

2.1.3   Recertification Requirements

Miniature Electronic Repair Technicians must demonstrate proficiency by performing the tasks listed in the Miniature Recertification Performance Test (Appendix C).

- Recertification should be completed before the current certification expires

A 2M MTR Inspector shall recertify Miniature Electronic Repair Technicians every 18 months.

A 2M Technician Recertifier shall recertify Miniature Electronic Repair Technicians assigned to NAVAIR repair sites every 18 months.

Recertifying technicians may use NAVAIR 01-1A-23 / NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair to answer questions and perform procedures.

2.1.3.1   Recertification Standards

A technician shall satisfactorily complete all required recertification tasks within a three-day period.

All recertification projects must meet minimum acceptance criteria.

2.1.3.2   Recertification Reporting Requirements

Upon completion of the Miniature Recertification Performance Test:

- The recertifier shall sign the performance test and issue it to the recertifying technician

- The recertifier shall issue a 2M MTR Certification Identification Card (Appendix A) to the recertifying technician

- The recertifier shall enter the certification information into the 2M MTR database

- NAVAIR technicians shall forward the completed NAVPERS 1070/613 to the AIMD Officer or OIC for signature

2.1.3.3 Remediation

If the technician cannot demonstrate the ability to complete the recertification tasks listed in the Miniature Recertification Performance Test (Appendix C) within the three-day period, the recertifier may allow up to an additional two days to complete satisfactorily all required tasks and to provide remedial training.

Remediation shall consist of review of specifications, techniques used, and demonstrations on areas previously identified as unsatisfactory.

If recertification is unsuccessful within a five-day period, the technician shall return to their activity to practice.

Thirty days after the unsuccessful recertification, the technician may schedule a follow-on recertification with the cognizant 2M MTR Inspector or 2M Technician Recertifier.

2.1.3.4 Recertification Failure

Technicians may be decertified during the recertification process.

The recertifier shall provide notification of inability to recertify at the miniature level to the technician's command.

It is the technician's command's responsibility to take appropriate action.

For active duty Navy personnel, the technician's command shall recommend removal of the 9527 NEC, and monitor the EDVR for applicable changes.

Submission of NEC Change/Recommendation (EPMAC 1221/1) is required to remove an NEC.

If a technician is denied certification and the EPMAC 1221/1 is not submitted, the EDVR may still show that technician as filling a 2M NEC requirement.

A command manpower review and NEC realignment is recommended to account for those Miniature Electronic Repair Technicians no longer assigned NEC 9527 responsibilities due to changing job position or advancement.

2.1.4 Substandard Performance Decertification

Technicians performing substandard 2M repairs shall be considered decertified by their command and are required to schedule recertification with the cognizant 2M MTR Inspector or 2M Technician Recertifier.

The recertifier shall provide remedial training in the areas identified as deficient.

If remediation is unsuccessful, the recertifier shall follow the reporting procedures described in paragraph 2.1.3.4.

2.2   MICROMINIATURE ELECTRONIC REPAIR TECHNICIAN

2.2.1   Functions and Capabilities

2M repairs to circuit card assemblies and electronic modules by Microminiature Electronic Repair Technicians shall be limited to those as specified in this paragraph.

Technicians certified as Microminiature Electronic Repair Technicians are authorized to repair electrical and electronic enclosures, assemblies, subassemblies, and modules as follows:

- All miniature electronic repair techniques and processes (paragraph 2.1.1refers)

- Wiring and soldering of terminals and connectors (wires AWG 28 and smaller)

- Removal and replacement of discrete components and integrated circuits on multilayer circuit card assemblies

- Removal and replacement of damaged conductors and laminate on multilayer circuit card assemblies

- Installation and repair of jumper wiring

- Removal and replacement of flat packs

- Disassembly and repair of flexible printed circuitry assemblies

- Repair of edge-lighted (plastic) panels

- Removal and replacement of components with welded leads

- Removal and replacement of surface mount technology components

- Removal and replacement of damaged laminate, lands, and conductors on surface mount technology circuit card assemblies

Completed repairs shall meet the applicable workmanship standards of NAVAIR 01-1A-23 / NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair.

2.2.2   Initial Certification Requirements

To receive initial certification, the technician must complete the Microminiature Electronics Repair Course, A-100-0073, by demonstrating proficiency in performing the following tasks:

- Demonstrate safety and ESD procedures

- Perform a minimum of one flexible printed circuitry repair

- Perform a minimum of one subsurface conductor repair on a multilayer circuit card assembly

- Install three jumper wires on a multilayer circuit card assembly

- Install and remove a minimum of five 1206 surface mount devices

- Install and remove a minimum of five 0805 surface mount devices

- Install and remove a minimum of five 0603 surface mount devices

- Install and remove a minimum of five 0402 surface mount devices

- Install and remove a minimum of five surface mount tantalum capacitors on ceramic circuit card assemblies

- Install and remove a minimum of five metal electrode face (MELF) components

- Install and remove a minimum of five small outline transistors (SOTs)

- Install and remove a minimum of two small outline integrated circuits (SOICs)

- Install and remove a minimum of two 30 mil pitch plastic quad flat packs (PQFPs)

- Install and remove a minimum of two 20 mil pitch plastic quad flat packs (PQFPs)

- Install and remove a minimum of two plastic leaded chip carriers (PLCCs)

2.2.2.1 Initial Certification Reporting Requirements

Upon completion of the Microminiature Electronics Repair Course, A-100-0073:

- The 2M Instructor shall issue a 2M MTR Certification Identification Card (Appendix A)

- The 2M Instructor shall enter the certification information into the 2M MTR database

- Navy personnel are awarded NEC 9526

- Marine Corps (aviation) personnel have microminiature certification added to PMOS 6423 qualifications

- Coast Guard personnel are awarded Competency Code 2MMRPR

- Non-military personnel receive a PIM and a Certificate of Completion

2.2.3 Recertification Requirements

Microminiature Electronic Repair Technicians must demonstrate proficiency by performing the tasks listed in the Microminiature Recertification Performance Test (Appendix D).

- Recertification should be completed before the current certification expires

A 2M MTR Inspector shall recertify Microminiature Electronic Repair Technicians every 18 months.

A 2M Technician Recertifier shall recertify Microminiature Electronic Repair Technicians assigned to NAVAIR repair sites every 18 months.

Recertifying technicians may use NAVAIR 01-1A-23/NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair to answer questions and perform procedures.

2.2.3.1 Recertification Standards

A technician shall satisfactorily complete all required recertification tasks within a three-day period.

All recertification projects must meet minimum acceptance criteria.

2.2.3.2 Recertification Reporting Requirements

Upon completion of the Microminiature Recertification Performance Test:

- The recertifier shall sign the performance test and issue it to the recertifying technician

- The recertifier shall issue a 2M MTR Certification Identification Card (Appendix A) to the recertifying technician

- The recertifier shall enter the certification information into the 2M MTR database

- NAVAIR technicians shall forward the completed NAVPERS 1070/613 to the AIMD Officer or OIC for signature

2.2.3.3 Remediation

If the technician cannot demonstrate the ability to complete the recertification tasks listed in the Microminiature Recertification Performance Test (Appendix D) within the three-day period, the recertifier may allow up to an additional two days to complete satisfactorily all required tasks and provide remedial training.

Remediation consists of review of specifications, techniques used, and demonstrations on areas previously identified as unsatisfactory.

If recertification is unsuccessful within a five-day period, the technician shall return to their activity to practice.

Thirty days after the unsuccessful recertification, the technician may schedule a follow-on recertification with the cognizant 2M MTR Inspector or 2M Technician Recertifier.

2.2.3.4 Recertification Failure

Technicians may be decertified during the recertification process.

The recertifier shall provide notification of inability to recertify at the microminiature level to the technician's command.

It is the command's responsibility to take appropriate action.

For active duty Navy personnel, the technician's command shall recommend removal of NECs, and monitor the EDVR for applicable changes.

Submission of NEC Change/Recommendation (EPMAC 1221/1) is required to remove an NEC.

If a technician is denied certification and the EPMAC 1221/1 is not submitted, the EDVR may still show that technician as filling a 2M NEC requirement.

A command manpower review and NEC realignment is recommended to account for those Microminiature Electronic Repair Technicians no longer assigned NEC 9526 responsibilities due to changing job position or advancement.

2.2.4 Substandard Performance Decertification

Technicians identified as performing substandard 2M repairs shall be considered decertified by their command and are required to schedule recertification with the cognizant 2M MTR Inspector or 2M Technician Recertifier.

The recertifier shall provide remedial training in the areas identified as deficient.

If recertification is unsuccessful, the recertifier shall follow the reporting procedures described in paragraph 2.2.3.4.

2.3 MTR TECHNICIAN

2.3.1 Functions and Capabilities

Technicians certified as MTR Technicians are authorized to test circuit card assemblies and electronic modules using the MTR test station.

2.3.2 Initial Certification Requirements

To be eligible for MTR training, technicians must be either assigned or en route to an activity requiring MTR Technicians.

To receive initial certification, the technician must complete the Module Test and Repair Equipment Operator Course, A-100-0076, by demonstrating proficiency in performing the following tasks:

- Demonstrate safety and ESD procedures

- Demonstrate ability to verify that current software is loaded on the Controller

- Demonstrate the ability to configure the hardware settings in the MTR test station

- Load Databases into the MTR Dispatcher

- Download a test routine using the MTR Dispatcher

- Troubleshoot a faulted circuit card assembly and identify the faulty component

- Complete MTRTS Maintenance Action documentation on a faulted circuit card assembly

- Complete MTRTS Maintenance Actions with Instructor provided scenarios

- Demonstrate proficiency with the Piece Parts database

- Provide a MTRTS Backup file for submission

2.3.2.1 Initial Certification Reporting Requirements

Upon completion of Module Test and Repair Equipment Operator Course, A-100-0076:

- The MTR Instructor shall issue a 2M MTR Certification Identification Card (Appendix A)

- The MTR Instructor shall enter the certification information into the 2M MTR database

Note: *Miniature/Microminiature Certification Expiration date remains unchanged. The MTR certification expiration will be coincident to the Miniature or Microminiature expiration date.*

- Non-military personnel receive a Certificate of Completion

2.3.3   Recertification Requirements

MTR Technicians must demonstrate proficiency by performing the tasks listed in the MTR Recertification Performance Test (Appendix E).

- Recertification should be completed before the current certification expires

A 2M MTR Inspector shall recertify MTR Technicians every 18 months.

2.3.3.1 Recertification Standards

A technician shall satisfactorily complete all required tasks within a one-day period.

2.3.3.2 Recertification Reporting Requirements

Upon completion of the MTR Recertification Performance Test:

- The inspector shall sign the performance test and issue it to the recertifying technician

- The inspector shall issue a 2M MTR Certification Identification Card (Appendix A) to the recertifying technician

- The inspector shall enter the certification information into the 2M MTR database

2.3.3.3 Remediation

If the technician cannot demonstrate the ability to complete the recertification tasks listed in the MTR Recertification Performance Test (Appendix E) within the one-day period, the inspector may allow an additional day to complete satisfactorily all required tasks and provide remedial training if necessary.

Remediation shall consist of review of specifications, techniques used, and demonstrations on areas previously identified as unsatisfactory.

If recertification is unsuccessful within a two-day period, the technician shall return to their activity to practice.

Thirty days after the unsuccessful recertification, the technician may schedule a follow-on recertification with the cognizant 2M MTR Inspector.

2.3.3.4 Recertification Failure

The MTR Technician may be decertified during the recertification process.

The inspector shall provide notification of inability to recertify to the technician's command.

2.3.4 Substandard Performance Decertification

Technicians identified as being unable to test circuit card assemblies and electronic modules using the MTR test station shall be considered decertified by their command and are required to schedule recertification with the cognizant 2M MTR Inspector.

The inspector shall provide remedial training in the areas identified as deficient.

If recertification is unsuccessful, the inspector shall follow the reporting procedures described in paragraph 2.3.3.4.

2.4 2M MTR TECHNICIAN

2.4.1 Functions and Capabilities

Technicians certified as 2M MTR Technicians are authorized to perform all the tasks required of a Microminiature Electronic Repair Technician and an MTR Technician (paragraphs 2.2.1 and 2.3.1 refer).

2.4.2   Initial Certification Requirements

To be eligible for designation as a 2M MTR Technician, technicians must be either assigned or en route to an activity requiring 2M MTR Technicians.

2.4.2.1 Initial Certification Reporting Requirements

Upon completion of the Miniature Electronics Repair Course, A-100-0072, the Microminiature Electronics Repair Course, A-100-0073, and the Module Test and Repair Equipment Operator Course, A-100-0076 (the 2M MTR Technician Pipeline Course, A-100-0008):

- Navy 2M MTR Technicians are awarded NEC 1591 with the submission of Form NAVPERS 1221/6 Navy Enlisted Classification Change Request

- The instructor shall issue a 2M MTR Certification Identification Card (Appendix A)

- The instructor shall enter the certification information in the 2M MTR database

2.4.3   Recertification Requirements

2M MTR Technicians must demonstrate proficiency by performing the tasks listed in the Microminiature Recertification Performance Test (Appendix D) and the MTR Recertification Performance Test (Appendix E).

- 2M and MTR recertifications should be completed before the current certifications expire

A 2M MTR Inspector shall recertify 2M MTR Technicians every 18 months at the Microminiature and MTR levels.

A 2M Technician Recertifier who has completed the Module Test and Repair Equipment Operator Course, A-100-0076 shall recertify 2M MTR Technicians assigned to NAVAIR repair sites every 18 months at the Microminiature and MTR levels.

2.4.3.1 Recertification Standards

Microminiature recertification shall be in accordance with the Microminiature Recertification Standards, paragraph 2.2.3.1.

MTR recertification shall be in accordance with the MTR Recertification Standards, paragraph 2.3.3.1.

2.4.3.2 Recertification Reporting Requirements

Upon completion of the Microminiature and MTR Recertification Performance Tests:

- The recertifier shall sign the performance tests and issue them to the recertifying technician

- The recertifier shall issue a 2M MTR Certification Identification Card (Appendix A) to the recertifying technician

- The recertifier shall enter the certification information into the 2M MTR database

2.4.3.3 Remediation

If the technician cannot demonstrate the ability to complete the recertification tasks listed in Appendices D and E of this manual, the remediation procedures outlined in paragraphs 2.2.3.3 and/or 2.3.3.3 apply.

2.4.3.4 Recertification Failure

2M MTR Technicians may be decertified during the recertification process.

The recertifier shall follow the notification procedures outlined in paragraphs 2.2.3.4 and/or 2.3.3.4.

Follow-on recertification shall be scheduled with the cognizant 2M MTR Inspector or 2M Technician Recertifier.

2.4.4 Substandard Performance Decertification

Technicians identified as performing substandard 2M repairs and/or identified as being unable to test circuit card assemblies or electronic modules using the MTR test station shall be considered decertified by their command and are required to schedule recertification with the cognizant 2M MTR Inspector or 2M Technician Recertifier.

The recertifier shall provide remedial training in the areas identified as deficient.

If recertification is unsuccessful, the recertifier shall follow the reporting procedures described in paragraph 2.2.3.4 and/or paragraph 2.3.3.4.

2.5   2M TECHNICIAN RECERTIFIER

2.5.1   Functions and Capabilities

2M Technician Recertifiers are capable of performing all tasks required of Miniature and Microminiature Technicians (paragraphs 2.1.1 and 2.2.1 refer).

Technicians certified as 2M Technician Recertifiers are authorized to perform recertification of 2M Technicians assigned to NAVAIR 2M repair sites only.

NAVAIR 2M repair sites are listed in the 2M MTR Certification Activity Codes List (Appendix B), under the NAVAIR FRCs/AIMDs and Marine Corps Aviation headings.

2.5.2   Initial Certification Requirements

To be eligible for training at the 2M Technician Recertifier level, technicians must hold a current Microminiature certification and be either assigned or en route to an activity specifically designated as a site requiring 2M Technician Recertifiers.

To receive initial certification, the technician must complete the 2M Technician Recertifier Course, A-100-0058, by demonstrating proficiency in performing the following tasks:

- Demonstrate safety and ESD procedures

- Properly evaluate Instructor provided 2M repair projects

- Successfully complete a Microminiature Recertification Performance Test in accordance with Appendix D

- Demonstrate ability to evaluate proficiency of 2M technicians through application of the Microminiature Recertification Performance Test (Appendix D) including remediation, as required

2.5.2.1 Initial Certification Reporting Requirements

Upon completion of 2M Technician Recertifier Course, A-100-0058:

- The certifying instructor shall issue a 2M MTR Certification Identification Card (Appendix A)

- The certifying instructor shall enter the certification information into the 2M MTR database

- Navy personnel are awarded NEC 9503

- Marine Corps (aviation) personnel have 2M Technician Recertifier certification added to PMOS 6423 qualifications

2.5.3 Recertification Requirements

2M Technician Recertifiers shall be recertified every 18 months by completion of the 2M Technician Recertifier Requalification Course, A-100-0144.

- The A-100-0144 course should be completed before the current certification expires

2.5.3.1 Recertification Standards

The 2M Technician Recertifier Requalification Course, A-100-0144 shall be completed successfully.

2.5.3.2 Recertification Reporting Requirements

Upon completion of 2M Technician Recertifier Recertification Course, A-100-0144:

- The certifying instructor shall issue a 2M MTR Certification Identification Card (Appendix A) to the recertifying recertifier

- The certifying instructor shall enter the certification information into the 2M MTR database

2.5.3.3 Recertification Failure

2M Technician Recertifiers may be decertified during the recertification process.

The recertifying instructor shall provide notification of inability to recertify to the technician recertifier's command.

It is the command's responsibility to take appropriate action.

For active duty Navy personnel, the technician recertifier's command shall recommend removal of NECs and monitor the EDVR for applicable changes.

Submission of NEC Change/Recommendation (EPMAC 1221/1) is required to remove an NEC.

If a technician recertifier is denied certification and the EPMAC 1221/1 is not submitted, the EDVR may still show that technician recertifier as filling a 2M NEC requirement.

A command manpower review and NEC realignment is recommended to account for those 2M Technician Recertifiers no longer assigned NEC 9503 responsibilities due to changing job position or advancement.

2.5.4   Substandard Performance Decertification

Technician Recertifiers identified as providing substandard technician recertification shall be considered decertified by their command and are required to attend the 2M Technician Recertifier Requalification Course, A-100-0144.

The A-100-0144 Instructor shall provide remedial training in the areas identified as deficient.

If the Technician Recertifier is unable to complete the A-100-0144 course, the Instructor shall follow the reporting procedures described in paragraph 2.5.3.3.

2.6   2M MTR INSPECTOR

Note: *2M MTR Inspectors apply to Naval Maritime and USCG only.*

2.6.1   Functions and Capabilities

2M MTR Inspectors are capable of performing all tasks required of Miniature, Microminiature, and MTR Technicians (paragraphs 2.1.1, 2.2.1, and 2.3.1 refer).

Technicians certified as 2M MTR Inspectors are authorized to:

- Perform 2M MTR site certifications

- Perform 2M and MTR Technician recertifications

- Evaluate, advise, and assist local 2M and MTR technicians

2M MTR Inspectors are experienced 2M MTR Technicians and/or 2M Instructors (paragraphs 2.4.1 and 2.7.1 refer).

2.6.2   Initial Certification Requirements

To become a 2M MTR Inspector, personnel must have:

- Completed a previous tour as a 2M MTR Technician and/or 2M MTR Instructor and be either assigned or en route to an activity requiring 2M MTR Inspectors

- Hold the rank of E-8, or above, or a General Schedule GS-12, or above

To receive initial certification, the technician must demonstrate proficiency in performing the following tasks:

- Demonstrate safety and ESD procedures

- Complete the Module Test and Repair Equipment Operator Course, A-100-0076

- Complete the 2M Technician Recertifier Course, A-100-0058, or the 2M Technician Recertifier Requalification Course, A-100-0144, as appropriate

- Complete the 2M MTR Inspector Job Qualification Requirement (JQR) (Appendix G) under the instruction of a currently certified 2M MTR Fleet Coordinator

- Satisfactorily perform 2M and MTR Technician recertifications, 2M MTR Site certifications and 2M MTR Personnel and Site reporting procedures under the instruction of a currently certified 2M MTR Fleet Coordinator

2.6.2.1 Initial Certification Reporting Requirements

Upon completion of the initial certification requirements:

- The 2M MTR Inspector's command shall forward a list of qualifications and the completed JQR to the 2M MTR Fleet Coordinator

- The 2M MTR Fleet Coordinator shall issue a 2M MTR Inspector Designation Letter

- The 2M MTR Fleet Coordinator shall issue a 2M MTR Certification Identification Card (Appendix A)

- The 2M MTR Fleet Coordinator shall enter the certification information in the 2M MTR database

2.6.3   Recertification Requirements

The 2M MTR Fleet Coordinator shall recertify 2M MTR Inspectors every 12 months as part of the 2M MTR Inspector Sites process as outlined in paragraph 3.3.3.

- The 2M MTR Fleet Coordinator may extend this interval to 18 months so recertification will coincide with the 2M MTR Inspector Site Certification

2M MTR Inspectors must demonstrate proficiency by:

- Completing the 2M Technician Recertifier Requalification Course, A-100-0144 or by performing the tasks listed in the Microminiature Recertification Performance Test (Appendix D)

- Performing the tasks listed in the MTR Recertification Performance Test (Appendix E)

The 2M MTR Fleet Coordinator shall accompany and observe the 2M MTR Inspector during a 2M MTR Repair Site certification.

The 2M MTR Fleet Coordinator certifies the 2M MTR Inspector as qualified to conduct 2M MTR site certifications.

2.6.3.1   Recertification Standards

The 2M MTR Technician Qualification shall be kept current.

The 2M MTR Inspector shall satisfactorily conduct a 2M MTR Repair Site certification under the observation of the 2M MTR Fleet Coordinator.

2.6.3.2   Recertification Reporting Requirements

Upon completion of the 2M MTR Inspector recertification requirements (paragraph 2.6.3):

- The 2M MTR Fleet Coordinator shall issue a 2M MTR Inspector Designation Letter

- The certification results shall be submitted to the 2M and MTR Certification Agents

- The 2M MTR Fleet Coordinator shall enter the recertification information in the 2M MTR database

2.6.3.3 Recertification Failure

2M MTR Inspectors may be decertified during the certification process by failing to meet any of the criteria listed in paragraph 2.6.3.

The 2M MTR Fleet Coordinator shall provide notification of inability to recertify to the inspector's command.

It is the command's responsibility to take appropriate action.

For active duty Navy personnel, the inspector's command shall recommend removal of NECs and monitor the EDVR for applicable changes.

Submission of NEC Change/Recommendation (EPMAC 1221/1) is required to remove an NEC.

If an inspector is denied certification and the EPMAC 1221/1 is not submitted, the EDVR may still show that instructor as filling a 2M NEC requirement.

A command manpower review and NEC realignment is recommended to account for those 2M MTR Inspectors no longer assigned NEC 9503 responsibilities due to changing job position or advancement.

2.6.4   Substandard Performance Decertification

Inspectors identified as providing substandard 2M MTR recertification shall be considered decertified by their command and are required to schedule recertification with the 2M MTR Fleet Coordinator.

The 2M MTR Fleet Coordinator shall provide remedial training in the areas identified as deficient.

If recertification is unsuccessful, the 2M MTR Fleet Coordinator shall follow the reporting procedures described in paragraph 2.6.3.3.

2.7   2M INSTRUCTOR

2.7.1   Functions and Capabilities

2M Instructors are capable of performing all tasks required of Miniature Technicians and Microminiature Technicians (paragraphs 2.1.1 and 2.2.1 refer).

Technicians certified as 2M Instructors are authorized to conduct the following courses:

- Miniature Electronics Repair, A-100-0072

- Microminiature Electronics Repair, A-100-0073

- 2M Technician Recertifier, A-100-0058

- 2M Technician Recertifier Requalification, A-100-0144

- 2M Instructor Initial Skills, A-100-0135

- 2M Instructor Certification/Recertification, A-100-0136

- 2M Instructor Pipeline, A-100-0074

- 2M MTR Technician Pipeline, A-100-0008

Note: *To instruct the A-100-0008 course, the 2M Instructor must have completed the Module Test and Repair Equipment Operator Course, A-100-0076.*

2.7.2   Initial Certification Requirements

To be eligible for training at the 2M Instructor level, technicians must hold a current microminiature certification and be either assigned or en route to an activity requiring 2M Instructors.

To receive initial certification, the technician must complete the 2M Instructor Pipeline Course, A-100-0074, by demonstrating proficiency in performing the following tasks:

- Demonstrate safety and ESD procedures

- Navy and Marine Corps (aviation) personnel complete the Journeyman Instructor Training Course, A-012-0011

- Coast Guard personnel complete the Instructor Development Course

- Complete a project example (to a graded standard of 85) for each graded step of each lesson topic of the Miniature Electronic Repair Course, A-100-0072, and the Microminiature Electronic Repair Course, A-100-0073

- Satisfactorily demonstrate grading ability for each graded step of each lesson topic of the Miniature Electronic Repair Course, A-100-0072, and the Microminiature Electronic Repair Course, A-100-0073

- Personalize their Instructor Guide and demonstration cards, and review the PowerPoint slides while observing a qualified 2M Instructor instruct each lesson topic and each demonstration in the Miniature Electronic Repair Course, A-100-0072, and the Microminiature Electronic Repair Course, A-100-0073

- Satisfactorily instruct each lesson topic and demonstration in the Miniature Electronic Repair Course, A-100-0072, and the Microminiature Electronic Repair Course, A-100-0073

2.7.2.1 Initial Certification Reporting Requirements

Upon completion of the 2M Instructor Pipeline Course, A-100-0074:

- The certifying instructor shall issue a 2M MTR Certification Identification Card (Appendix A)

- The certifying instructor shall enter the certification information into the 2M MTR database

- Navy personnel are awarded NEC 9509

- Marine Corps (aviation) personnel have 2M Instructor certification added to PMOS 6423 qualifications

- Coast Guard personnel are awarded a Competency Code 2MINST

2.7.3   Recertification Requirements

A 2M MTR Inspector or 2M Certification Agent shall recertify 2M Instructors every 18 months at the Microminiature level in accordance with the paragraph 2.2.3.

Note: *If Microminiature certification is not maintained, the 2M Instructor is not qualified to conduct any 2M training.*

The 2M Certification Agent shall certify the 2M Instructor's ability to conduct the courses listed in paragraph 2.7.1 every 12 months in conjunction with the 2M Training Site Certification.

The 2M Certification Agent shall review, advise, and assist 2M Instructor personnel in matters concerning 2M training, organization, and administration, as applicable.

The 2M Certification Agent and a 2M certified Master Training Specialist (MTS) or certified 2M Instructor, shall observe each 2M Instructor perform a lecture and demonstration.

The 2M Certification Agent shall observe the evaluating MTS or 2M Instructor debrief the recertifying 2M Instructor's lecture or demonstration.

If required, the evaluating MTS or 2M Instructor shall provide remedial training to the observed 2M Instructor to improve areas identified as deficient.

The 2M Certification Agent shall verify the following for each 2M Instructor:

- Current Microminiature certification

- Primary or secondary instructor in one Miniature Electronics Repair Course and one Microminiature Electronics Repair Course in the preceding 12 months

- Two satisfactory technical evaluations in the preceding 12 months (one 2M lecture and one 2M demonstration)

- Completion of 2M Instructor Pipeline or 2M Instructor Requalification for previously qualified Instructors

2.7.3.1 Recertification Standards

Microminiature recertification shall be in accordance with the Microminiature Recertification Standards, paragraph 2.2.3.1.

Each observed lecture and demonstration shall be conducted using current curriculum material, tools, equipment, safety, ESD, repair techniques, and soldering procedures.

2.7.3.2 Recertification Reporting Requirements

The 2M Certification Agent shall document Instructor recertification using a 2M Training Site Certification letter.

The 2M Certification Agent shall issue each recertified instructor a 2M MTR Certification Identification Card (Appendix A).

The 2M Certification Agent shall enter the certification information in the 2M MTR database.

The 2M Certification Agent shall submit the recertification results to the command representative (Commanding Officer, OIC, or Department Head), with a copy to the 2M MTR Program Manager.

2.7.3.3 Remediation

If the 2M Instructor cannot satisfactorily present a lecture and/or demonstration in accordance with paragraph 2.7.4, the 2M Instructor shall be remediated and required to present satisfactorily the substandard lecture and/or demonstration to the 2M Certification Agent.

2.7.3.4 Recertification Failure

2M Instructors may be decertified during the recertification process by failing to meet any of the criteria listed in paragraph 2.7.3.

The 2M Certification Agent shall provide notification of inability to recertify to the instructor's command.

It is the command's responsibility to take appropriate action.

For active duty Navy personnel, the instructor's command shall recommend removal of NECs and monitor the EDVR for applicable changes.

Submission of NEC Change/Recommendation (EPMAC 1221/1) is required to remove an NEC.

2.7.4 Substandard Performance Decertification

2M Instructors identified as providing substandard 2M instruction shall not be assigned as primary instructors and are required to remediate with their Leading 2M Instructor.

The Leading 2M Instructor shall provide remedial training and monitor the 2M Instructor until the deficiencies are resolved.

If remediation is unsuccessful, the Leading 2M Instructor shall follow the reporting procedures described in paragraph 2.7.3.4.

2.7.5 Previously Qualified 2M Instructor Recertification Requirements

A previously qualified 2M Instructor returning to an instructor billet is required to complete successfully the Miniature/Microminiature Instructor Qualification/Requalification Course, A-100-0136.

Upon completion of the A-100-0136 course, the certifying instructor shall follow the reporting procedures of paragraph 2.7.2.1.

2.8   MTR INSTRUCTOR

2.8.1   Functions and Capabilities

MTR Instructors are capable of performing all tasks required of MTR Technicians (paragraph 2.3.1 refers).

Technicians certified as MTR Instructors are authorized to conduct the Module Test and Repair Equipment Operator course, A-100-0076.

2.8.2   Initial Certification Requirements

To be eligible for training at the MTR Instructor level, technicians must be either assigned or en route to an activity requiring MTR Instructors.

To receive initial certification, the technician must demonstrate proficiency in performing the following tasks:

- Navy and Marine Corps (aviation) personnel complete the Journeyman Instructor Training Course, A-012-0011

- Coast Guard personnel complete the Instructor Development Course

- Complete A-100-0076, Module Test and Repair Equipment Operator course

- Personalize their Instructor Guide and review the PowerPoint slides while observing a qualified MTR Instructor instruct each lesson topic and Lab of the A-100-0076 Module Test and Repair Equipment Operator course

- Satisfactorily instruct each lesson topic of the A-100-0076 Module Test and Repair Equipment Operator course

2.8.2.1   Initial Certification Reporting Requirements

Upon completion of the MTR Instructor Qualification Process, the certifying MTR Instructor shall issue a 2M MTR Certification Identification Card (Appendix A).

2.8.3 Recertification Requirements

A 2M MTR Inspector or MTR Certification Agent shall recertify MTR Instructors' technician skills every 18 months at the MTR level in accordance with paragraph 2.3.3.

Note: *If MTR certification is not maintained, the MTR Instructor is not qualified to conduct MTR training.*

The MTR Certification Agent shall certify the MTR Instructor's ability to conduct the A-100-0076, Module Test and Repair Equipment Operator course every 12 months in conjunction with the MTR Training Site Certification.

The MTR Certification Agent shall review, advise, and assist MTR Instructor personnel in matters concerning MTR training, organization and administration, as applicable.

The MTR Certification Agent shall observe each MTR Instructor perform a lecture.

The MTR Certification Agent shall provide remedial training to the observed MTR Instructor to improve areas identified as deficient.

The MTR Certification Agent shall verify the following for each MTR Instructor:

- Current MTR certification

- Primary or secondary instructor in one MTR Equipment Operator Course in the preceding 12 months

- Two satisfactory technical evaluations in the preceding 12 months

- Completion of MTR Instructor Qualification Process

2.8.3.1 Recertification Standards

MTR recertification shall be in accordance with the MTR Recertification Standards, paragraph 2.3.3.1.

Each observed lecture shall be conducted using current curriculum material, tools, equipment, safety, ESD, and troubleshooting techniques.

2.8.3.2 Recertification Reporting Requirements

The MTR Certification Agent shall document the certification process using a 2M MTR Training Site Certification.

The MTR Certification Agent shall enter the certification information in the 2M MTR database.

The certification results shall be submitted to the command representative (Commanding Officer, OIC, or Department Head), with a copy to the 2M MTR Program Manager.

2.8.3.3 Remediation

If the MTR Instructor cannot satisfactorily present a lecture in accordance with paragraph 2.9.3, the MTR Instructor shall be remediated and required to present satisfactorily the substandard lecture to the MTR Certification Agent.

2.8.3.4 Recertification Failure

MTR Instructors may be decertified during the recertification process by failing to meet any of the criteria listed in paragraph 2.8.3.

The MTR Certification Agent shall provide notification of inability to recertify to the appropriate parent command.

2.8.4 Substandard Performance Decertification

MTR Instructors identified as providing substandard MTR instruction shall not be assigned as primary instructors and are required to remediate with their Leading MTR Instructor.

The Leading MTR Instructor shall provide remedial training and monitor the MTR Instructor until the deficiencies are resolved.

If remediation is unsuccessful, the Leading MTR Instructor shall follow the reporting procedures described in paragraph 2.8.3.4.

2.9   2M MTR FLEET COORDINATOR

Note: *2M MTR Fleet Coordinator applies to Naval Maritime only.*

2.9.1   Functions and Capabilities

2M MTR Fleet Coordinators are capable of performing all tasks required of Miniature Technicians, Microminiature Technicians, MTR Technicians, and 2M MTR Inspectors (paragraphs 2.1.1, 2.2.1, 2.3.1, and 2.6.1 refer).

Technicians certified as 2M MTR Fleet Coordinators are authorized to:

- Coordinate, schedule, and perform 2M MTR Site certifications

- Perform 2M and MTR Technician recertifications

- Perform 2M MTR Inspector certifications

- Provide feedback concerning 2M MTR Program matters

- Manage 2M MTR activities where 2M MTR Inspectors are assigned

2M MTR Fleet Coordinators are experienced 2M MTR Inspectors and/or former 2M Instructors (paragraphs 2.6.1 and 2.7.1 refer).

The Norfolk Ship Support Activity and the Southwest Regional Maintenance Center shall maintain technicians certified as 2M MTR Fleet Coordinators.

2.9.2   Initial Certification Requirements

Appointment of 2M MTR Fleet Coordinators shall be coordinated with, and authorized by the 2M MTR Program Manager.

To become a 2M MTR Fleet Coordinator, personnel must have:

- Completed a previous tour as a 2M MTR Inspector and/or 2M Instructor

- Be either assigned or en route to a command requiring 2M MTR Fleet Coordinators

- Hold the rank of E-8, or above, or a General Schedule GS-12, or above

To receive initial certification, the technician must demonstrate proficiency in performing the following tasks:

- Demonstrate safety and ESD procedures

- Complete the 2M Technician Recertifier Course, A-100-0058, or the 2M Technician Recertifier Requalification Course, A-100-0144, as appropriate

- Complete the 2M MTR Inspector JQR (Appendix G) under the instruction of a currently certified 2M MTR Fleet Coordinator

- Satisfactorily perform 2M and MTR Technician recertifications, 2M MTR Site certifications and 2M MTR Personnel and Site reporting procedures under the observation of both the 2M and MTR Certification Agents

2.9.2.1 Initial Certification Reporting Requirements

Upon completion of the initial certification requirements:

- The 2M and MTR Certification Agents shall complete 2M and MTR Fleet Coordinator Designation Letters

- The 2M and MTR Certification Agents shall enter the certification information in the 2M MTR database

2.9.3   Recertification Requirements

The 2M and MTR Certification Agents shall recertify the 2M MTR Fleet Coordinators every 12 months as part of the 2M MTR Inspector Sites process as outlined in paragraph 3.3.3.

2M MTR Fleet Coordinators must demonstrate proficiency by:

- Completing the 2M Technician Recertifier Requalification Course, A-100-0144 or by performing the tasks listed in the Microminiature Recertification Performance Test (Appendix D)

- Performing the tasks listed in the MTR Recertification Performance Test (Appendix E)

The 2M and MTR Certification Agents shall:

- Review the certification status of the sites and inspectors under the 2M MTR Fleet Coordinator's cognizance

- Accompany and observe the 2M MTR Fleet Coordinator during a 2M MTR Repair or Inspector Site certification

The 2M and MTR Certification Agents certify the 2M MTR Fleet Coordinator as qualified to conduct 2M MTR site certifications and as qualified to manage the fleet 2M MTR program.

2.9.3.1 Recertification Standards

The 2M MTR Technician Qualification shall be kept current.

The 2M MTR Fleet Coordinator shall manage satisfactorily the 2M MTR repair and Inspector sites under their cognizance.

The 2M MTR Fleet Coordinator shall satisfactorily conduct a 2M MTR Repair or Inspector Site certification under the observation of both the 2M and MTR Certification Agents.

2.9.3.2 Recertification Reporting Requirements

Upon successful completion of the 2M MTR Fleet Coordinator recertification requirements:

- The 2M and MTR Certification Agents shall document the process by completing the 2M MTR Fleet Coordinator Designation Letter

- The 2M and MTR Certification Agents shall enter the certification information in the 2M MTR database

2.9.3.3 Recertification Failure

2M MTR Fleet Coordinators may be decertified during the certification process by failing to meet any of the criteria listed in paragraph 2.9.3.

The 2M and/or MTR Certification Agent shall provide notification of inability to recertify to the Fleet Coordinator's command and to the 2M MTR Program Manager.

It is the Fleet Coordinator's command and the 2M MTR Program Manager's responsibility to take appropriate action.

2.9.4 Substandard Performance Decertification

2M MTR Fleet Coordinators identified as providing substandard 2M MTR management or recertification shall be considered decertified by their command and are required to schedule recertification with the 2M and/or MTR Certification Agents.

The 2M and/or MTR Certification Agents shall provide remedial training in the areas identified as deficient.

If recertification is unsuccessful, the 2M and/or MTR Certification Agents shall follow the reporting procedures described in paragraph 2.9.3.3.

2.10 2M AND MTR CERTIFICATION AGENTS

2.10.1 Functions and Capabilities

2M and MTR Certification Agents are appointed by the 2M MTR Program Manager who shall annually task them to perform the 2M and MTR Certification Agent functions (NAVSEAINST 4790.17 refers).

2.10.1.1 2M Certification Agent

In accordance with NAVSEAINST 4790.17, the Naval Surface Warfare Center, Crane Division shall act as the 2M Certification Agent.

2M Certification Agents are capable of performing all tasks required of Miniature and Microminiature Technicians (paragraphs 2.1.1 and 2.2.1 refer).

Personnel certified as 2M Certification Agents act on behalf of the Naval Sea Systems Command on matters relating to the 2M Program and 2M certification process.

2M Certification Agents are authorized to perform certifications of 2M Instructors, 2M Training Sites and 2M MTR Fleet Coordinators.

When required, the 2M Certification Agent may perform 2M Technician recertification and perform the duties of a 2M Instructor.

The 2M Certification Agent shall advise and assist 2M MTR Fleet Coordinators in matters concerning the 2M Program.

The 2M Certification Agent shall ensure the 2M MTR Fleet Coordinator's activity has current information on:

- Tool lists

- Facility certification and reporting procedures

- 2M Program updates

- 2M documentation

2.10.1.2 MTR Certification Agent

In accordance with NAVSEAINST 4790.17, the Naval Undersea Warfare Center Detachment, Fleet Engineering Office, Norfolk shall act as the MTR Certification Agent.

MTR Certification Agents are capable of performing all tasks required of MTR Technicians (paragraph 2.3.1 refers).

Personnel certified as MTR Certification Agents act on behalf of the Naval Sea Systems Command on matters relating to MTR Program and MTR certification process.

The MTR Certification Agent performs certifications of MTR Instructors, MTR training sites, and 2M MTR Fleet Coordinators.

When required, the MTR Certification Agent may perform MTR technician recertification and perform the duties of an MTR Instructor.

The MTR Certification Agent shall advise and assist 2M MTR Fleet Coordinators in matters concerning the MTR Program.

The MTR Certification Agent shall ensure the 2M MTR Fleet Coordinator's activity has current information on:

- MTR equipment

- Facility certification and reporting procedures

- MTR Program updates

- MTR documentation

2.10.2 Initial Requirements

Initial qualification requirements include the following:

- Demonstration of safety and ESD procedures

- Prior experience as a 2M MTR Inspector, and/or 2M Instructor (2M CA)

- Thorough knowledge of 2M soldering techniques and standards, ESD handling procedures, and surface mount technology to inspect facilities and personnel for conformance to 2M MTR Program requirements (2M CA)

- Thorough knowledge of MTR troubleshooting techniques, system fault isolation skills, operational software, and ESD handling procedures to inspect MTR facilities and personnel for conformance to 2M MTR Program requirements (MTR CA)

- Effective oral communication skills to provide demonstrations of new and established methods of test and repair

- Effective written communication skills to incorporate new techniques into existing documentation, prepare reports, and make recommendations to appropriate command authorities

2.10.3 Recertification Requirements

A 2M MTR Fleet Coordinator shall recertify 2M Certification Agents every 18 months at the Microminiature level (paragraph 2.2.3 refers).

A 2M MTR Fleet Coordinator shall recertify MTR Certification Agents every 18 months at the MTR level (paragraph 2.3.3 refers).

Recertification should be completed before the current certification expires.

12 September 2011

2M MTR Site Certification

3.1   2M MTR REPAIR SITES

Note: *2M MTR Repair Site Certifications apply to Naval Maritime and USCG only. Refer to COMNAVAIRFORINST 4790.2 (series) for Naval Aviation processes.*

3.1.1   Initial Certification Requirements

Authority to diagnose and repair electronic assemblies shall be granted only to those maintenance activities evaluated as being capable of providing quality 2M MTR electronics diagnostic testing and repair.

Activities performing organizational, intermediate, depot, or contractor (where 2M MTR requirements are invoked in the contract) 2M MTR maintenance on Navy procured electronic assemblies, regardless of physical location, shall be certified by a 2M MTR Inspector.

A 2M MTR site shall be identified as capable of performing diagnostic testing and repair when personnel, equipment facility requirements are met in accordance with the 2M MTR Repair Site Certification Process, paragraph 3.1.2.

3.1.1.1 Initial Certification Reporting Requirements

The 2M MTR Inspector shall document the certification process using a 2M MTR Repair Site Certification Letter.

2M MTR Repair Site Certification letters must be signed by either the Norfolk Ship Support Activity or the Southwest Regional Maintenance Center.

The 2M MTR Inspector shall document the site certification data in the 2M MTR database.

3.1.2   2M MTR Repair Site Certification Process

The 2M MTR Repair Site Certification Process consists of the following actions:

1.   Identify activity (with UIC) being certified.

2.   List the date of the certification.

3.   Identify the certifying activity.

4.   Conduct an arrival briefing with command representative [Commanding Officer (CO), Officer in Charge (OIC), Electronics Material Officer (EMO), Combat Systems Maintenance Officer (CSMO), or Department Head], and appropriate 2M MTR personnel (2M MTR Work Center Supervisor, 2M MTR Technician, etc.).

5.   Identify all assigned 2M MTR personnel including:

   ♦   Name

   ♦   Rate or Rank

   ♦   Planned rotation date (PRD)

   ♦   Work center

   ♦   Certification level

   ♦   Certification expiration date

The 2M MTR Inspector performing the certification should also assist the activity in reviewing applicable manning documents [Enlisted Distribution Verification Report (EDVR)] for personnel with a 2M MTR NEC, PMOS, SMOS, or Competency Code who are out of certification to evaluate retention of the NEC, PMOS, SMOS, or Competency Code.

6.   Inventory and verify performance of the applicable 2M MTR equipment.

   a.   Document the serial number(s), quantities, and location(s) of the following equipment in the 2M MTR database, noting differences with the current configuration:

   ♦   2M Electronic Rework Power Unit: PRC-2000, MBT-250, ST-25, etc.

   ♦   Auxiliary Equipment: microscope, fiber optic lamp, ESD constant monitoring station, preheater, etc.

   ♦   MTR Equipment: MTR Test Station Controller, MTR Test Equipment, ESD constant monitoring station, Uninterruptible Power Supply, and associated accessories

   b.   Inventory consumables, tools, and support equipment using the 2M MTR Workstation Checklist (Appendix F).

   c.   Verify applicable 2M MTR equipment is operational per the 2M MTR Equipment Verification Process (Appendix H).

7.   Discuss and evaluate proposed changes in tools, equipment, techniques, and 2M MTR training curriculum.

8.   Verify all support equipment used for 2M MTR diagnostic testing and repair is supported by an approved allowance list (APL).

a. Provide the technicians with information regarding approved changes to the allowance lists.

♦   The Coordinated Shipboard Allowance List (COSAL) or Coordinated Shore-Based Allowance List (COSBAL)

♦   2M Electronic Repair System APL

♦   Portable 2M Kit (MBT-250-SD Station) APL

♦   AN/USM-674(V) APL

♦   2M MTR Piece Parts and Augmented Piece Parts APL

9. Verify all equipment used for 2M MTR included into the activity's preventive maintenance program.

♦   Pace Soldering Station (PRC-2000, MBT-250 and ESD Constant Monitoring) MRCs, MIP 6652/005

♦   AN/USM-674 MRCs, MIP 4911/003

10. Evaluate the site facility to ensure compliance with NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

11. For Intermediate Level 2M MTR facilities, verify that a Quality Assurance program is functioning to ensure high reliability 2M MTR repairs are being conducted.

12. Verify that at least one paper or electronic copy of applicable 2M MTR reference documents is available at or near the workstation.

Note: *Multiple workstations in the same location do not require multiple copies of each document.*

♦   NAVSEA SE004-AK-TRS-010/2M, 2M Standard Maintenance Practices Manual

♦   NAVSEA S9665-CY-OMP-010/PRC-2000/U, PRC-2000 Technical Manual

♦   NAVSEA SE010-A7-MMC-010/MBT-250-SD/U, MBT-250 Technical Manual

♦   NAVSEA TE000-AA-MAN-010/2M, 2M MTR Certification Manual

13. Verify that the 2M MTR work center has all the materials required for ESD prevention and is following proper ESD procedures (mat, wrist straps, and static-shielded bags).

14. Verify 2M MTR maintenance actions and piece parts usage is documented in the Module Test and Repair Tracking System (MTRTS).

a. Measure the overall effectiveness of the 2M MTR Program by comparing the command's requisition data to the MTRTS.

b.   Verify 2M repairs are documented in accordance with OPNAVINST 4790.4(series) Chapters 6 and 7, via OPNAV 4790/2K Ship's Maintenance Action Form (2-Kilo), Action Taken Code 7 (series)

c.   Verify the MTRTS is being used in accordance with established procedures to document circuit card assembly screening and repair

15.   Verify the Supply Department personnel are fully aware of the policies and procedures contained in COMFLTFORCOMINST 4790.3 (JFMM), and NAVSUP Publication 485, Afloat Supply Procedures.

16.   Summarize the certification.

2M MTR deficiencies noted in the certification results may be minor or major and caused by missing, worn, or inoperable tools and equipment, a safety violation, or facility environmental deficiency.

a.   Major Deficiencies

A major deficiency impairs the capability to perform any specific task of a 2M repair or MTR fault isolation and shall result in:

♦   Downgrading of a 2M station from Microminiature to Miniature

♦   The decertification of either the 2M or MTR site capabilities pending correction of the deficiency

Examples of 2M MTR major deficiencies include:

♦   Missing ESD control capabilities (e.g. missing or defective ESD mat or wrist strap)

♦   ESD procedures not followed

♦   Equipment used for 2M MTR is not included into the activity's preventive maintenance program

♦   Any combination of missing tools or inoperable 2M or MTR equipment that would prevent completing 2M MTR troubleshooting and repair (missing several sizes of extractor tips, missing all flush and diagonal cutting pliers, HAZMAT, Huntron probes etc.)

♦   Missing eye protection (missing both safety goggles and spectacles)

♦   2M MTR site failing to meet the minimum standards of NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements

♦   A technician is unable to sit with their legs under the workbench to operate properly footswitches that are on the deck or on a permanently installed stable platform

♦ Insufficient quantity of individual power receptacles to support required 2M and/or MTR equipment

♦ Lack of required certified 2M MTR technicians

♦ Lack of a quality assurance program (Intermediate Level facilities only)

b. Minor Deficiencies

A minor deficiency does not impair the capability to perform 2M repair processes or MTR diagnostic operations.

Examples of 2M MTR minor deficiencies include:

♦ Missing a single size of extractor tip, eyelet, or ball mill

♦ Missing MTR software revisions

♦ Any missing or worn test system accessories, outdated software, or other item requiring replacement to support complete MTR Test Station configuration

♦ Unauthorized software on MTR controller

c. General Comments

List any comments and/or information; especially note outstanding performance by personnel or the activity.

List 2M MTR screening, CASREPs averted, cost avoidance, and rate of effectiveness data.

Provide any recommendations for the personnel or activity to improve.

17. Insert the overall results of the certification process in terms of [capable/incapable] per the criteria below:

a. Miniature Repair Capability

The 2M MTR Inspector shall identify a 2M repair site as miniature repair capable when an activity meets the requirements identified above and the following additional requirements:

♦ A minimum of one repair technician, with at least six months remaining before transfer and at least six months remaining on their current Miniature Electronic Repair Technician certification, for each miniature workstation

♦ Two technicians per workstation are recommended (three technicians are recommended for single-station sites)

♦ The 2M MTR program approved equipment and tools required to perform miniature repairs as listed in 2M MTR Workstation Checklist (Appendix F)

♦ A designated work area with adequate facilities, including ventilation, lighting, work area, and work surface as outlined in NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements

b. Microminiature Repair Capability

The 2M MTR Inspector shall identify a 2M repair site as microminiature repair capable when an activity meets the Miniature Repair Capability requirements and the following additional requirements:

♦ A minimum of one repair technician, with at least six months remaining before transfer and at least six months remaining on their current Microminiature Repair Technician certification, for each microminiature workstation

♦ Two technicians per workstation are recommended (three technicians are recommended for single-station sites)

♦ A microminiature workstation may be certified at the miniature level if there is a shortage of Microminiature Electronic Repair Technicians, but there is a currently certified Miniature Electronic Repair Technician for the workstation

♦ The 2M MTR program approved equipment and tools required to perform microminiature repairs as listed in 2M MTR Workstation Checklist (Appendix F)

♦ A designated work area with adequate facilities, including ventilation, lighting, work area, and work surface as outlined in NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements

c. MTR Station Capability

The 2M MTR Inspector shall identify an MTR site capable of diagnostic testing when an activity meets following requirements:

♦ A minimum of one certified MTR station operator, with at least six months remaining before transfer and at least six months remaining on their current MTR Technician certification, for each MTR workstation

♦ Two station operators per workstation are recommended

♦ A minimum of support equipment and accessories required to perform diagnostic testing as listed in the 2M MTR Workstation Checklist (Appendix F)

18. Conduct a departure briefing with a command representative (Commanding Officer, OIC, Supply Officer, EMO, CSMO, Department Head, and/or DLR Manager) and appropriate 2M MTR personnel (2M MTR Work Center Supervisor, 2M MTR Technician, etc.).

a. All discrepancies and recommendations for improvement shall be discussed and documented.

3.1.3   Recertification Requirements

A 2M MTR Inspector shall certify all 2M MTR repair sites every 18 months in accordance with the 2M MTR Site Certification Process, paragraph 3.1.2.

- To facilitate scheduling this interval may be extended to 24 months by only the 2M MTR Fleet Coordinator or Coast Guard Liaison, as appropriate

2M MTR repair sites shall be recertified whenever 2M MTR workstations are relocated to ensure compliance with NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

2M MTR repair sites are identified as 2M repair and/or MTR capable when personnel, equipment and facility requirements are met.

Each repair site shall have the minimum number of certified technicians with at least 6 months remaining onboard (six months remaining to PRD) and at least six months remaining on their current 2M MTR certification in order to be certified.

2M MTR Repair Site Certification letters must be signed by the Norfolk Ship Support Activity or the Southwest Regional Maintenance Center.

3.1.3.1   Recertification Reporting Requirements

The 2M MTR Inspector shall document the recertification process using a 2M MTR Repair Site Certification Letter.

Certification results shall be presented directly to the command representative.

The 2M MTR Inspector shall be responsible for entering site certification, technician, and workstation data into the 2M MTR database.

3.1.3.2   Decertification

2M MTR Repair Sites may be decertified during the certification process by failing to meet any of the criteria listed in paragraph 3.1.3.

The 2M MTR Fleet Coordinator shall provide notification of inability to recertify to the Commanding Officer and the 2M MTR Program Manager.

3.2   2M MTR TRAINING SITES

3.2.1   Initial Certification Requirements

Certification of 2M MTR training sites shall be required for any activity teaching the following 2M and MTR courses:

- Miniature Electronics Repair, A-100-0072

- Microminiature Electronics Repair, A-100-0073

- Module Test and Repair Equipment Operator Course, A-100-0076

- 2M MTR Technician Pipeline, A-100-0008

- 2M Technician Recertifier, A-100-0058

- 2M Technician Recertifier Requalification, A-100-0144

- 2M Instructor Initial Skills, A-100-0135

- 2M Instructor Certification/Recertification, A-100-0136

- 2M Instructor Pipeline Course, A-100-0074

Activities are certified by the 2M and MTR Certification Agents to instruct the aforementioned courses when they meet the personnel, equipment, and facility requirements in accordance with the 2M MTR Training Site Certification Process, paragraph 3.2.2.

3.2.1.1 Initial Certification Reporting Requirements

The 2M and MTR Certification Agents shall document the certification process using a 2M Training Site Certification Letter and a MTR Training Site Certification Letter.

The certification results shall be submitted to the command representative (Commanding Officer, OIC, and/or Department Head), with a copy to:

- 2M MTR Program Manager

- Center for Surface Combat Systems, Dahlgren for CSCS Det East, CSCS Det Mayport, CSCS Det West, and CSCS Det Pearl Harbor

- Naval Aviation Technical Training, Pensacola for CNATTU Whidbey Island and CNATT Det Atsugi

3.2.2   2M MTR Training Site Certification Process

The 2M MTR Training Site Certification Process consists of the following actions:

1. Identify activity (with UIC) being certified.

2. List the date of the certification.

3. Identify certifying activity.

4. Conduct an arrival briefing with a command representative (Commanding Officer, OIC, Department Head, and/or Division Director) and appropriate 2M MTR personnel (2M MTR Group/Course Supervisor and/or 2M and MTR Instructors).

5. Identify all assigned 2M or MTR Instructor personnel including:

    ♦   Name

    ♦   Rate or Rank

    ♦   Planned Rotation Date (PRD)

    ♦   Certification level

    ♦   Certification expiration date

6. Inventory and verify performance of the applicable 2M MTR equipment.

    a. Document the serial number(s), quantities, and location(s) of the following equipment in the 2M MTR database, noting differences with the current configuration:

        ♦   2M Electronic Rework Power Unit: PRC-2000, MBT-250, ST-25, etc.

        ♦   Auxiliary Equipment: microscope, fiber optic lamp, ESD constant monitoring station, preheater, etc.

        ♦   MTR Equipment: MTR Test Station Controller, MTR Support Equipment, ESD constant monitoring station, Uninterruptible Power Supply, and associated accessories

    b. Inventory consumables, tools, and support equipment using the 2M MTR Workstation Checklist (Appendix F).

7. Discuss and evaluate proposed changes in tools, equipment, techniques, and 2M and MTR training curriculum.

8. Verify training site has an ample supply of:

    ♦   Course identified circuit cards

        ◊   A-100-0072-001, double-sided CCA

        ◊   A-100-0072-002, conductor repair / single-sided CCA

        ◊   A-100-0073-003, laminate coupon

        ◊   A-100-0073-001, multilayer

        ◊   A-100-0073-002, SMT

        ◊   A-100-0073-003, flex print

- MTR Training Boards

        ◊   07-7762 Huntron Demo Board

        ◊   06-3056 Huntron Troubleshooting CCA

- Current MTR Test Routines and MTR Operating Software

- Terminals

- Eyelets

- Solder cups

- Components

- Consumables

List discrepancies and corrective actions.

9. Evaluate the site facility to ensure compliance with NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

    a. Obtain a copy of the current Industrial Hygiene Survey.

10. Verify access to the 2M MTR SharePoint site for following 2M MTR documents:

- OPNAVINST 4790.7 (series), Maintenance Policy for U.S. Navy Ships

- OPNAVINST 4790.13 (series), Maintenance of Surface Ship Electronic Equipment

- NAVSEAINST 4790.17 (series), Fleet Test and Repair of Shipboard Electronic Equipment

- NAVSEA TE000-AA-MAN-010/2M, 2M MTR Certification Manual

- 2M MTR NTSP S-30-8711 (series), 2M MTR Naval Systems Training Plan

- Appropriate 2M MTR TYCOM instruction(s)

11. Verify appropriate instructional materials are current and available:

- Administrator's Guide

- Lesson Plan

♦ Performance Tests

♦ Testing Plan

♦ Trainee Guide

♦ Training Course Control Document

♦ Audiovisual aids

For the following 2M MTR courses:

♦ Miniature Electronics Repair, A-100-0072

♦ Microminiature Electronics Repair, A-100-0073

♦ Module Test and Repair Equipment Operator, A-100-0076

♦ 2M Instructor Initial Skills, A-100-0135

♦ 2M Instructor Certification/Recertification, A-100-0136

♦ 2M Technician Recertifier Course, A-100-0058

♦ 2M Technician Recertifier Requalification Course A-100-0144

List discrepancies and corrective action.

12. Review the activity's Master Course File for 2M MTR training deficiencies.

   a. If applicable, report course of action to correct deficiencies.

13. Review 2M MTR student End-of-Course critiques.

   a. Note trends, deficiencies, etc.

   b. If applicable, report course of action to correct deficiencies.

14. Review the activity's training records.

   This shall include a review of:

   ♦ Instructor training records

   ♦ Courses conducted

   ♦ Number of training quotas available since last training site certification

   ♦ Number of training quotas utilized since last training site certification

   ♦ The number of students certified, by skill level, since last training site certification

15. Verify each classroom meets applicable capability per the following criteria:

   a. Miniature Repair Training Capability

The 2M Certification Agent shall identify a 2M MTR training site as miniature training capable when the activity meets all the requirements cited above and the following additional requirements:

♦ A minimum of four to one student/instructor laboratory ratio is required, utilizing a minimum of one certified 2M Instructor per laboratory classroom with the balance of required instructors either certified 2M Instructors or Instructors in the 2M Instructor Pipeline Course

♦ Each classroom shall have a minimum of one complete set of equipment and tools per student and one additional set for 2M Instructor preparation and demonstrations, as prescribed by the Miniature Electronics Repair Course, A-100-0072, and using the 2M MTR Workstation Checklist (Appendix F)

♦ A minimum of one paper copy of NAVSEA SE004-AK-TRS-010/2M, 2M Standard Maintenance Practices, per student

♦ One paper or electronic copy of NAVSEA S9665-CY-OMP-010/PRC-2000U / NAVAIR 17-15-99, PRC-2000 Technical Manual, per classroom

♦ Each classroom meets the ventilation, lighting, work area, and work surface requirements, as outlined in NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements

♦ One operational Miniature/Microminiature Display Trainer (MMDT) consisting of closed circuit television camera, monitor, and microscope per classroom

b. Microminiature Repair Training Capability

The 2M Certification Agent shall identify a 2M MTR training site as microminiature training capable when the activity meets all the miniature requirements cited above and the following additional requirements:

♦ A minimum of one complete set of equipment and tools per student, as prescribed by the Microminiature Electronics Repair Course, A-100-0073, and using the 2M MTR Workstation Checklist (Appendix F)

♦ One complete set of equipment and tools per classroom for 2M instructor preparation and demonstrations, as prescribed by the Microminiature Electronics Repair Course, A-100-0073, and using the 2M MTR Workstation Checklist (Appendix F)

c. MTR Training Capability

The MTR Certification Agent shall identify an MTR training site as MTR training capable when the activity meets all the requirements cited above and the following additional requirements:

- ♦ A minimum of six to one student/instructor ratio is required utilizing a minimum of one certified MTR Instructor per classroom

- ♦ A minimum of one complete set of test equipment, tools and accessories per student and one additional set per classroom for MTR Instructor preparation , as prescribed by the MTR Equipment Operator Course, A-100-0076, and using the 2M MTR Workstation Checklist (Appendix F)

- ♦ A minimum of one paper copy of NAVSEA ST900-HN-GPT-010 Department of Defense Module Test and Repair Users Manual per student

- ♦ Each classroom meets the ventilation, lighting, work area, and work surface requirements, as outlined in NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements

16. 2M MTR Instructor Evaluations

   a. Evaluate 2M Instructors to ensure technical and process fidelity in accordance with NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair.

   b. Evaluate MTR Instructors to ensure technical and process fidelity in accordance with NAVSEA ST900-HN-GPT-010 Department of Defense Module Test and Repair Users Manual.

17. Summarize the certification:

   2M and MTR deficiencies noted in the certification results may be minor or major and caused by missing, worn, or inoperable tools and equipment, a safety violation, or facility environmental deficiency.

   a. Major Deficiencies

   A major deficiency impairs the capability to perform any specific task of a 2M repair process or MTR fault isolation and is cause for failure of the site certification.

   Examples of 2M MTR major deficiencies include:

   - ♦ Missing ESD control capabilities (e.g. missing or defective ESD mat or wrist strap)

   - ♦ ESD procedures not followed

   - ♦ Any combination of missing tools or inoperable 2M or MTR equipment that would prevent completing a 2M MTR troubleshooting and repair, (missing several sizes of extractor tips, missing all flush and diagonal cutting pliers, HAZMAT, Huntron probes etc.)

   - ♦ Missing eye protection (missing both safety goggles and spectacles)

  ♦ 2M MTR training site failing to meet the minimum standards of NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements

  ♦ A student is unable to sit with their legs under the workbench to operate properly footswitches that are on the deck or on a permanently installed stable platform

  ♦ Insufficient quantity of individual power receptacles to support required 2M and/or MTR equipment

   b.   Minor Deficiencies

   A minor deficiency does not impair the capability to perform 2M repair processes or MTR diagnostic operations.

   Examples of 2M MTR minor deficiencies include:

  ♦ Missing a single size of extractor tip, eyelet, or ball mill

  ♦ Missing current MTR software revision

  ♦ Any missing or worn test system accessories, outdated software, or other item requiring replacement to support complete MTR Test Station configuration

   c.   General Comments

   List any comments and/or information; especially note outstanding performance by personnel or the activity.

   Provide any recommendations for the personnel or activity to improve.

18. Insert the overall results of the certification process in terms of [capable/incapable] of providing instruction leading to the accomplishment of the following training:

  ♦ Miniature Electronics Repair

  ♦ Microminiature Electronics Repair

  ♦ Module Test and Repair Equipment Operator

  ♦ 2M Technician Recertifier

  ♦ 2M Instructor

19. Conduct a departure briefing with a command representative (Commanding Officer, OIC, Department Head, and/or Division Director) and appropriate 2M MTR personnel (2M MTR Group/Course Supervisor and/or 2M or MTR Instructors).

   a.   All deficiencies, recommendations for improvement, and commitments shall be discussed and documented.

3.2.3 Recertification Requirements

The 2M and MTR Certification Agents shall certify all 2M MTR training sites every 12 months in accordance with the 2M MTR Training Site Certification Process, paragraph 3.2.2.

- NAVSEA may extend this interval up to 18 months to facilitate scheduling

Activities are certified by the 2M and MTR Certification Agents as qualified to instruct the following courses when they meet personnel, equipment, and facility requirements:

- Miniature Electronics Repair, A-100-0072

- Microminiature Electronics Repair, A-100-0073

- Module Test and Repair Equipment Operator, A-100-0076

- 2M MTR Technician Pipeline, A-100-0008

- 2M Technician Recertifier, A-100-0058

- 2M Technician Recertifier Requalification, A-100-0144

- 2M Instructor Initial Skills, A-100-0135

- 2M Instructor Certification/Recertification, A-100-0136

- 2M Instructor Pipeline Course, A-100-0074

3.2.3.1 Recertification Reporting Requirements

The 2M and MTR Certification Agents shall document the certification process using a 2M Training Site Certification Letter and a MTR Training Site Certification Letter.

The certification results shall be submitted to the command representative (Commanding Officer, OIC, and/or Department Head), with a copy to:

- 2M MTR Program Manager

- Center for Surface Combat Systems, Dahlgren for CSCS Det East, CSCS Det Mayport, CSCS Det West, and CSCS Det Pearl Harbor

- Naval Aviation Technical Training, Pensacola for CNATTU Whidbey Island and CNATT Det Atsugi

The 2M and MTR Certification Agents shall be responsible for entering 2M and MTR Instructor and workstation data into the 2M MTR database.

3.2.3.2 Decertification

2M MTR Training Sites may be decertified during the certification process by failing to meet any of the criteria listed in paragraph 3.2.3.

The 2M and/or MTR Certification Agent shall provide notification of inability to recertify to the Commanding Officer and the 2M MTR Program Manager.

3.3   2M MTR INSPECTOR SITES

Notes: *2M MTR Inspector Site Certifications apply to Naval Maritime and USCG only. Refer to COMNAVAIRFORINST 4790.2 (series) for Naval Aviation processes.*

2M MTR Inspector Sites are provided equipment by NAVSEA for the purpose of technician recertification and remediation.

2M MTR Inspector Sites and 2M MTR Repair Sites shall be separately maintained.

3.3.1   Initial Certification Requirements

2M MTR Inspector Site Certification is required for any activity performing 2M MTR site certifications and recertification of 2M MTR technicians.

The 2M MTR Fleet Coordinator certifies 2M MTR Inspector sites.

The 2M and MTR Certification Agents certify 2M MTR Fleet Coordinators and the Fleet Coordinator's Inspector Site.

3.3.1.1 Initial Certification Reporting Requirements

The 2M MTR Fleet Coordinator, 2M Certification Agents, and MTR Certification Agents shall document the certification process using a 2M MTR Inspector Site Certification Letter.

3.3.2   2M MTR Inspector Site Certification Process

The 2M MTR Inspector Site Certification Process consists of the following actions:

1.   Identify activity (with UIC) being certified.

2.   List the date of the certification.

3. Identify certifying activity.

4. Conduct an arrival briefing with a command representative (Commanding Officer, OIC, Department Head, and/or Division Director) and appropriate 2M MTR personnel (2M MTR Inspector and/or Fleet Coordinator).

5. Identify all assigned 2M MTR Inspectors and/or Fleet Coordinator including:

    ♦   Name

    ♦   Rate or Rank

    ♦   Planned Rotation Date (PRD)

    ♦   Certification level

    ♦   Certification expiration date

6. Inventory and verify performance of the applicable 2M MTR equipment.

    a. Document the serial number(s), quantities, and location(s) of the following equipment in the 2M MTR database, noting differences with the current configuration:

        ♦   2M Electronic Rework Power Unit: PRC-2000, MBT-250, ST-25, etc.

        ♦   Auxiliary Equipment: microscope, fiber optic lamp, ESD constant monitoring station, preheater, etc.

        ♦   MTR Equipment: MTR Test Station Controller, MTR Test Equipment, ESD constant monitoring station, Uninterruptible Power Supply, and associated accessories

    b. Inventory consumables, tools, and support equipment using the 2M MTR Workstation Checklist (Appendix F).

7. Discuss and evaluate proposed changes in tools, equipment, techniques, and 2M and MTR training curriculum.

8. Verify Inspector site has an ample supply of:

    ♦   Practice circuit cards

    ♦   MTR recertification CCAs

    ♦   Current MTR Test Routines and MTR Operating Software

    ♦   Terminals

    ♦   Eyelets

    ♦   Solder cups

    ♦   Components

♦   Consumables

List discrepancies and corrective actions.

9.   Evaluate the site facility to ensure compliance with NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

10. Verify access to the 2M MTR SharePoint site for following 2M MTR documents:

♦   OPNAVINST 4790.7 (series), Maintenance Policy for U.S. Navy Ships

♦   OPNAVINST 4790.13 (series), Maintenance of Surface Ship Electronic Equipment

♦   NAVSEAINST 4790.17 (series), Fleet Test and Repair of Shipboard Electronic Equipment

♦   NAVSEA TE000-AA-MAN-010/2M, 2M MTR Certification Manual

♦   2M MTR NTSP S-30-8711 (series), 2M MTR Naval Systems Training Plan

♦   Appropriate 2M MTR TYCOM instruction(s)

11. Verify 2M MTR Inspectors and/or Fleet Coordinators are reporting completion of 2M MTR Repair Site certifications and 2M MTR personnel recertifications in the 2M MTR database.

12. Verify documented completion of 2M MTR Inspector JQR for each 2M MTR Inspector and/or Fleet Coordinator.

13. Review and document the certification status of all the 2M MTR Sites under the purview of the 2M MTR Inspector or Fleet Coordinator.

14. The 2M MTR Fleet Coordinator shall accompany and observe the 2M MTR Inspector during a 2M MTR repair site certification.

a.   The 2M and MTR Certification Agents shall accompany and observe the 2M MTR Fleet Coordinator during a 2M MTR repair or certifying site certification.

15. Summarize the certification:

2M and MTR deficiencies noted in the certification results may be minor or major and caused by missing, worn, or inoperable tools and equipment, a safety violation, or facility environmental deficiency.

a.   Major Deficiencies

A major deficiency impairs the capability to perform any specific task of a 2M repair process or MTR fault isolation and is cause for failure of the site certification.

Examples of 2M MTR major deficiencies include:

♦   Missing ESD control capabilities (e.g. missing or defective ESD mat or wrist strap)

♦ ESD procedures not followed

♦ Any combination of missing tools or inoperable 2M or MTR equipment that would prevent completing a 2M MTR troubleshooting and repair , (missing several sizes of extractor tips, missing all flush and diagonal cutting pliers, HAZMAT, Huntron probes etc.)

♦ Missing eye protection (missing both safety goggles and spectacles)

♦ 2M MTR inspector site failing to meet the minimum standards of NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements

♦ A recertifying technician unable to sit with their legs under the workbench to operate properly footswitches that are on the deck or on a permanently installed stable platform

♦ Insufficient quantity of individual power receptacles to support required 2M equipment and/or MTR equipment

b.   Minor Deficiencies

A minor deficiency does not impair the capability to perform 2M repair processes or MTR diagnostic operations.

Examples of 2M MTR minor deficiencies include:

♦ Missing a single size of extractor tip, eyelet, or ball mill

♦ Missing MTR software revisions

♦ Any missing or worn test system accessories, outdated software, or other item requiring replacement to support complete MTR Test Station configuration

c.   General Comments

List any comments and/or information; especially note outstanding performance by personnel or the activity.

Provide any recommendations for the personnel or activity to improve.

16. Insert the overall results of the certification process in terms of [capable/incapable] of conducting 2M MTR site certifications and 2M MTR personnel recertifications in accordance with this manual.

17. Conduct a departure briefing with a command representative (Commanding Officer, OIC, or Department Head) and appropriate 2M MTR personnel (2M MTR Inspectors and/or Fleet Coordinator).

a.   All discrepancies, recommendations for improvement, and commitments shall be discussed and documented.

3.3.3   Recertification Requirements

The 2M MTR Fleet Coordinators shall certify all 2M MTR inspector sites every 12 months in accordance with the 2M MTR Inspector Site Certification Process, paragraph 3.3.2.

- NAVSEA may extend this interval up to 18 months to facilitate scheduling

3.3.3.1   Recertification Reporting Requirements

The 2M MTR Fleet Coordinator or the 2M and MTR Certification Agents certify activities as qualified to conduct 2M MTR technician recertifications and site certifications when minimum levels of certified personnel, equipment outfitting, and facility requirements are met.

The 2M MTR Fleet Coordinator and the 2M and MTR Certification Agents shall document the certification process using a 2M MTR Inspector Site Certification Letter.

The certification results shall be submitted to:

- The command representative (Commanding Officer, OIC, or Department Head)

- 2M MTR Program Manager

3.3.3.2   Decertification

2M MTR Inspector Sites may be decertified during the certification process by failing to meet any of the criteria listed in paragraph 3.3.3.

The 2M MTR Fleet Coordinator, 2M Certification Agent and/or MTR Certification Agent shall provide notification of inability to recertify to the Commanding Officer and the 2M MTR Program Manager.
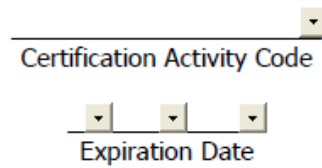
Appendix A

2M MTR Certification Identification Card

The card below is an example of the 2M MTR Certification Identification Card. The next page is a PDF printable form with dropdowns for making 2M MTR Certification Identification cards.

Appendix B

2M MTR Certification Activity Code List

Activity	Code	Activity	Code
Certification Agents			
NSWC Crane	CRTA	NUWC Det FEO Norfolk	CRTB
Atlantic Fleet Inspectors			
NSSA Norfolk	RNOV	SERMC Mayport	RMAF
Pacific Fleet Inspectors			
PHNSY and IMF Pearl Harbor	RPHH	PSNSY and IMF Det Everett	REVW
SRF and JRMC Det Sasebo	RSAS	SRF and JRMC Yokosuka	RYOJ
SWRMC San Diego	RSDC	USS FRANK CABLE	AS40
Training Commands			
372 TRS Det 11 Davis-Monthan	TRDM	372 TRS Det 17 Spangdahlem	TRSP
CNATT Det Atsugi	TRAT	CNATTU Whidbey Island	TRWH
CSCS Det East (Norfolk)	TRNO	CSCS Det Mayport	TRMA
CSCS Det Pearl Harbor	TRPH	CSCS Det West (San Diego)	TRSD
USCG TC Yorktown	TRYT		
Trident Refit Facilities			
Bangor	TFBA	Kings Bay	TFKB
NAVAIR Depots			
FRC East	NDCP	FRC Southwest	NDNI
FRC Southeast	NDJA		
NAVAIR FRCs / AIMDs			
FRC Atsugi	AATS	FRC Corpus Christi	ACOR
FRC Fallon	AFAL	FRC Fort Worth	AJFW
FRC Jacksonville	AJAX	FRC Lakehurst	AJWG
FRC Lemoore	ALEM	FRC Mayport	AMAY
FRC Misawa	AMIS	FRC NAF Washington	AWDC
FRC New Orleans	AJNO	FRC Norfolk	ANOR
FRC North Island	ANOI	FRC Oceana	AOCE
FRC Pax River	APAX	FRC Point Mugu	APMU
FRC Whidbey Island	AWHI	AIMD Guam	AHSC

Activity	Code	Activity	Code
NAVAIR FRCs / AIMDs			
NAS Kingsville	AKNG	NAS Meridian	AMER
NAS Sigonella	ASIG	NAS Pensacola	APEN
NAVSTA Rota	AROT	USS ENTERPRISE	CV65
USS NIMITZ	CV68	USS DWIGHT D EISENHOWER	CV69
USS CARL VINSON	CV70	USS THEODORE ROOSEVELT	CV71
USS ABRAHAM LINCOLN	CV72	USS GEORGE WASHINGTON	CV73
USS JOHN C STENNIS	CV74	USS HARRY S TRUMAN	CV75
USS RONALD REAGAN	CV76	USS GEORGE H W BUSH	CV77
USS GERALD R FORD	CV78	USS PELELIU	LHA5
USS AMERICA	LHA6	USS WASP	LHD1
USS ESSEX	LHD2	USS KEARSARGE	LHD3
USS BOXER	LHD4	USS BATAAN	LHD5
USS BONHOMME RICHARD	LHD6	USS IWO JIMA	LHD7
USS MAKIN ISLAND	LHD8		
Marine Corps Aviation			
HMX-1 Quantico	MHMX	MALS 11 Miramar	MA11
MALS 12 Iwakuni	MA12	MALS 13 Yuma	MA13
MALS 14 Cherry Point	MA14	MALS 16 Miramar	MA16
MALS 24 Kaneohe Bay	MA24	MALS 26 New River	MA26
MALS 29 New River	MA29	MALS 31 Beaufort	MA31
MALS 36 Futenma	MA36	MALS 39 Pendleton	MA39
MALS 41 JRB Fort Worth	MA41	MALS 49 Stewart ANGB	MA49

Appendix C

Miniature Recertification Performance Test

NAME (Last, First, MI):   RATE:

ACTIVITY: UIC: PRD:

The Miniature Electronic Repair Technician must satisfactorily complete the projects listed below. All specifications are contained in NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M (work package references are noted below). All work must comply with the workmanship standards listed in the respective work package sections.

Project	
Identify four of five and remove two of the following conformal coating types: AR, ER, SR, UR, or XY	
	Technician self-evaluation
• Conformal coating identification... 6.3.3	
• Discrete Component Leads 7.4.1	
• Discrete Component Body (Applicable to All Components) 7.4.2	
• Laminate.. 11.4.1	
• Pads and Conductors... 12.4.1	
Install a single wire on a pierced tab terminal	
	Technician self-evaluation
• Wires 8.4.1	
• Insulated Wire Stripping.. 8.4.2	
• Insulated Wire Tinning 8.4.3	
• Insulation Clearance 8.4.4	
• Soldering (Specific to Installation of Wires on Terminals) 8.4.5	
• Pierced Tab Terminals 8.5.3	
• Solder Acceptability Requirements 5.13.1	
• Post Solder Connection Cleanliness 5.13.2	
Excavate, Straight Wall, Undercut, and Bevel a Surface Patch Laminate Repair	
	Technician self-evaluation
• Laminate.. 11.4.1	
• Pads and Conductors... 12.4.1	
• Surface Patch Excavation 11.4.2	

Project

Install a double wire on a turret or hook terminal

Technician self-evaluation

- Wires 8.4.1
- Insulated Wire Stripping...8.4.2
- Insulated Wire Tinning 8.4.3
- Insulation Clearance...8.4.4
- Soldering (Specific to Installation of Wires on Terminals) 8.4.5
- Turret Terminals...8.5.1
- Hook Terminals 8.5.2
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Install a single wire to a solder cup

Technician self-evaluation

- Wires 8.4.1
- Insulated Wire Stripping... 8.4.2
- Insulated Wire Tinning 8.4.3
- Installation of Wires in Solder Cups 9.4.4
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Remove and replace a horizontal mount, full clinch, axial lead component on a double-sided CCA

Technician self-evaluation

- Discrete Component Leads 7.4.1
- Discrete Component Body (Applicable to All Components) 7.4.2
- Pads and Conductors.. 12.4.1
- Laminate.. 11.4.1
- Component Lead Tinning 7.4.4
- Component Lead Forming... 7.4.9
- Component Orientation 7.4.10
- Horizontal, Axial Leaded Component Mounting 7.4.11
- Full Clinch Lead Terminations 7.4.18
- Solder Acceptability Requirements (Specific to Installation of Through-Hole Components)................................ 7.4.19
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Project	
Conductor repair: pad replacement with a flat-set eyelet	
	Technician self-evaluation
• Pads and Conductors.. 12.4.1	
• Laminate... 11.4.1	
• Eyeleting... 12.4.2	
• Lap Solder Repair... 12.4.4	
• Solder Acceptability Requirements 5.13.1	
• Post Solder Connection Cleanliness 5.13.2	
Remove and replace a 14/16 lead dual in-line package (DIP)	
	Technician self-evaluation
• Discrete Component Leads 7.4.1	
• Discrete Component Body (Applicable to All Components) 7.4.2	
• Pads and Conductors.. 12.4.1	
• Laminate... 11.4.1	
• Component Lead Tinning 7.4.4	
• Component Lead Forming... 7.4.9	
• Component Orientation 7.4.10	
• Dual In-Line Package Mounting................................. 7.4.15	
• Solder Acceptability Requirements (Specific to Installation of Through-Hole Components)................................ 7.4.19	
• Solder Acceptability Requirements 5.13.1	
• Post Solder Connection Cleanliness 5.13.2	

During the recertification, the technician observed all safety precautions and maintained a clean, orderly, and electrostatic discharge (ESD) safe work area. [SAT/UNSAT]

EVALUATION BY:

START DATE: COMPLETION DATE:

OVERALL PERFORMANCE:

NOTES:

Original To: [Technician (Training Record)]
Copy To: [2M MTR Inspector or 2M Technician Recertifier]

Appendix D

Microminiature Recertification Performance Test

NAME (Last, First, MI):   RATE:

ACTIVITY: UIC: PRD:

The Microminiature Electronic Repair Technician must satisfactorily complete the projects listed below. All specifications are contained in NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M (work package references are noted below). All work must comply with the workmanship standards listed in the respective work package sections.

Project	
Identify four of five and remove two of the following conformal coating types: AR, ER, SR, UR, or XY	
	Technician self-evaluation
• Conformal coating identification... 6.3.3	
• Discrete Component Leads 7.4.1	
• Discrete Component Body (Applicable to All Components) 7.4.2	
• Laminate.. 11.4.1	
• Pads and Conductors... 12.4.1	
Install a single wire on a pierced tab terminal	
	Technician self-evaluation
• Wires 8.4.1	
• Insulated Wire Stripping... 8.4.2	
• Insulated Wire Tinning 8.4.3	
• Insulation Clearance... 8.4.4	
• Soldering (Specific to Installation of Wires on Terminals) 8.4.5	
• Pierced Tab Terminals 8.5.3	
• Solder Acceptability Requirements 5.13.1	
• Post Solder Connection Cleanliness 5.13.2	
Install a double wire on a turret or hook terminal	
	Technician self-evaluation
• Wires 8.4.1	
• Insulated Wire Stripping... 8.4.2	
• Insulated Wire Tinning 8.4.3	
• Insulation Clearance... 8.4.4	
• Soldering (Specific to Installation of Wires on Terminals) 8.4.5	

Project

- Turret Terminals 8.5.1
- Hook Terminals 8.5.2
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Remove and replace a 14/16 lead dual in-line package (DIP)

Technician self-evaluation

- Discrete Component Leads 7.4.1
- Discrete Component Body (Applicable to All Components) 7.4.2
- Pads and Conductors 12.4.1
- Laminate 11.4.1
- Component Lead Tinning 7.4.4
- Component Lead Forming 7.4.9
- Component Orientation 7.4.10
- Dual In-Line Package Mounting 7.4.15
- Solder Acceptability Requirements 7.4.19
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Remove and replace a SOT

Technician self-evaluation

- Component Leads 18.12.4
- Lands and Conductors 18.12.5
- Laminate 11.4.1
- Component Mounting 18.12.6
- Components with Flat Ribbon, L, Inward L, or Gull Wing Leads 18.12.10
- Surface Mount Soldering Anomalies 18.12.16
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Remove and replace conductor on flexible laminate

Technician self-evaluation

- Flexible Laminate 13.4.1
- Laminate Removal 13.4.2
- Conductor Removal and Replacement 13.4.3
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Project

Repair multilayer CCA laminate and conductors by excavating down two layers, remove and replace lower level conductor only

Technician self-evaluation

- Pads and Conductors.. 12.4.1
- Laminate.. 11.4.1
- Excavation 15.4.1
- Conductor Replacement... 15.4.2
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Remove and install a MELF or chip resistor or chip capacitor

Technician self-evaluation

- Component Cracks and Chip-Outs 18.12.1
- Component Metallization Loss.................................. 18.12.2
- Component Leaching... 18.12.3
- Lands and Conductors 18.12.5
- Laminate Damage.. 11.4.1
- Component Mounting.. 18.12.6
- Rectangular or Square End Chip Components with 1, 3, or 5 Sided Terminations (Chip Resistor or Chip Capacitor) 18.12.8
- Chip Components with Cylindrical End Cap Terminations (MELF) 18.12.9
- Surface Mount Soldering Anomalies 18.12.16
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Remove and install a SOIC

Technician self-evaluation

- Component Leads.. 18.12.4
- Lands and Conductors 18.12.5
- Laminate Damage.. 11.4.1
- Component Mounting.. 18.12.6
- Components with Flat Ribbon, L, Inward L, or Gull Wing Leads 18.12.10
- Surface Mount Soldering Anomalies 18.12.16
- Solder Acceptability Requirements 5.13.1
- Post Solder Connection Cleanliness 5.13.2

Project	
Remove and install a PQFP or PLCC	
	Technician self-evaluation
• Component Leads... 18.12.4	
• Lands and Conductors 18.12.5	
• Laminate Damage... 11.4.1	
• Component Mounting... 18.12.6	
• Components with Flat Ribbon, L, Inward L, or Gull Wing Leads (PQFP) 18.12.10	
• Components with J-Leads (PLCC) 18.12.14	
• Surface Mount Soldering Anomalies 18.12.16	
• Solder Acceptability Requirements 5.13.1	
• Post Solder Connection Cleanliness 5.13.2	

During the recertification, the technician observed all safety precautions and maintained a clean, orderly, and electrostatic discharge (ESD) safe work area. [SAT/UNSAT]

EVALUATION BY:

START DATE: COMPLETION DATE:

OVERALL PERFORMANCE:

NOTES:

Original To: [Technician (Training Record)]
Copy To: [2M MTR Inspector or 2M Technician Recertifier]

Appendix E

MTR Recertification Performance Test

NAME (Last, First, MI):   RATE:

ACTIVITY: UIC: PRD:

The MTR Technician must satisfactorily complete the following tasks:

Demonstrate ability to verify that current software is loaded on the Controller. Fill in each blank for latest software version.

_____   Huntron Workstation

_____   MTR Tracking System

_____   MTR Dispatcher

_____   DVD Test Routine Release number

_____   Anti-Virus (Norton/McAfee)

_____   2M Piece Parts (APL Maintenance)

_____   Demonstrate knowledge of program documentation located on the MTR Test Routine DVD-ROM.

_____   Demonstrate the ability to configure the Hardware Settings and Preferences using Huntron Workstation software.

_____   Demonstrate the knowledge of AN/USM-674 Diagnostics and the ability to accomplish the applicable PMS

_____   Load Databases into the MTR Dispatcher.

_____   Download a Test Routine from MTR Dispatcher (P/N 214225-1).

_____   Troubleshoot a faulted circuit card assembly and identify the faulty component.

_____   Complete MTR Tracking System entry on faulted CCA.

_____   Complete MTR Tracking System entry with Recertifier provided scenarios.

_____   Create a MTRTS Backup File for submission to NUWC DET FEO Norfolk.

What e-mail address do you send the report to? _____

Demonstrate the ability to query and maintain the 2M Piece Parts program to include the following:

_____ Query the database by NIIN

_____ Query the database by part number

_____ Update a record to reflect utilization (ISSUE) of a piece part

_____ Identify the characteristics, part numbers and alternate NIINs of a given piece part

_____ Create a report showing all piece parts that should be ordered

_____ Create a report that can be utilized to verify 2M Piece Parts cabinet inventory

_____ Backup and restore the database

During the recertification, the technician observed all safety precautions and maintained a clean, orderly, and electrostatic discharge (ESD) safe work area. [SAT/UNSAT]

EVALUATION BY:

START DATE: COMPLETION DATE:

OVERALL PERFORMANCE:

NOTES:

Original To: [Technician (Training Record)]
Copy To: [2M MTR Inspector or 2M Technician Recertifier]

Appendix F

2M MTR Workstation Checklist

1. 2M HAZMAT

NOMENCLATURE	NSN	P/N	Port*	Mini*	Micro*
ADHESIVE (Epoxy Patch)	8040-00-061-8303	EPK 0151	1	1	1
ANTISTATIC AND CLEANER COMPOUND	6850-01-283-9966	6001		1	1
CLEANING COMPOUND, Optical Lens	6850-00-392-9751	A-A-59199		1	1
DESOLDERING WICK (#1)	3439-00-545-3396	50-1-5	3	3	3
DESOLDERING WICK (#2)	3439-01-324-8208	50-2-5	3	3	3
DESOLDERING WICK (#3)	3439-00-009-2334	50-3-5	3	3	3
FLUX, Soldering	3439-00-069-5815	FORMULA 196		1	1
INSULATING COMPOUND, Acrylic	5970-01-029-7961	1B31	Opt	Opt	Opt
INSULATING COMPOUND, Polyurethane	5970-01-013-8611	01744-00095	Opt	Opt	Opt
INSULATING COMPOUND, Silicone	5970-01-363-8394	RTV-3140	Opt	Opt	Opt
ISOPROPYL ALCOHOL, Technical	6810-00-983-8551	TT-I-735	1	1	1
MINERAL OIL, USP	6505-01-573-2805		1	1	1
PAD, Solder Wiping (Flux Pen)	3439-01-510-2558	83-1000-0186	1	Opt	Opt
RESIN, Dental Acrylic	6520-01-061-0664	651011			Opt
SOLDER, Paste _OR_ SOLDER, Paste	3439-01-384-2071 3439-01-456-5438	6-SN63-211A 615D			Opt Opt
SOLDER, Tin Alloy (.015) _OR_ SOLDER, Tin Alloy (.015)	3439-01-008-7580 3439-01-510-5302	SN63WRMAP3 24-6337-9703	1 1	1 1	1 1
SOLDER, Tin Alloy (.025) _OR_ SOLDER, Tin Alloy (.028)	Open Purchase 3439-01-008-7577	24-6337-9718 SN63WRMAP3		1 1	1 1
SOLDER, Tin Alloy (.031) _OR_ SOLDER, Tin Alloy (.036)	3439-01-510-6209 3439-01-008-7578	24-6337-9710 SN63WRMAP3	1 1	1 1	1 1
SOLDER, Tin Alloy (.062) _OR_ SOLDER, Tin Alloy (.063)	Open Purchase 3439-00-473-2000	24-6337-9711 SN63WRMAP3		1 1	1 1

Opt = Optional item, † = or Equivalent

2. 2M Consumables

NOMENCLATURE	NSN	P/N	Port*	Mini*	Micro*
ALIGNMENT TOOL (Orangewood Stick)	5120-00-293-2081	ESA319633	1	1	1
APPLICATOR, Disposable, Cotton	6515-01-234-6838	362	1	1	1
BAG, Static Dissipative, 12 x 16	8105-01-386-3868	7101216ZL	3	3	3
BAG, Static Dissipative, 8 x 10	8105-01-386-3899	7100810ZL	3	3	3
BAG, Static Dissipative, 4 x 8	8105-01-386-3874	7100408ZL	3	3	3
BLADE, Surgical Knife, Detachable (#11)	6515-00-660-0010	GGH0080SZ11	1	1	1

2. 2M Consumables

NOMENCLATURE	NSN	P/N	Port*	Mini*	Micro*
BLADE, Surgical Knife, Detachable (#15)	6515-00-660-0008	GGH0080SZ15	1	1	1
BRUSH, Acid Swabbing	7920-00-514-2417	A-A-289	12	12	12
BRUSH, Bristle, Dental (Hard)	6520-01-056-7376	06161	1	1	1
BRUSH, Wire, Tube (1/8" Dia.)	7920-00-018-7091	1127-0006-P5	1	1	1
BRUSH, Wire, Scratch (3/16" Dia.)	7920-01-364-1908	1127-0014-P5	1	1	1
BUR, Dental (#35 Inverted Cone)	6520-01-003-2267	14853	1	1	1
BUR, Dental (#1/2 Straight)	6520-01-003-3132	382302	1	1	1
BUR, Dental (#2 Straight)	6520-01-003-2269	14826	1	1	1
BUR, Dental (#4 Straight)	6520-01-003-2270	14832	1	1	1
BUR, Dental (#6 Straight)	6520-01-003-2271	14838	1	1	1
BUR, Dental (#8 Straight)	6520-01-003-3131	14844	1	1	1
BUR, Dental (#559 Fissure Cutter)	6520-01-003-2260	14877	1	1	1
DISK, Abrasive (Silicon Carbide)	6520-00-523-2150	11.780	1	1	1
EYELET, Metallic (CME15)	5325-00-139-0328	CME15	10	10	10
EYELET, Metallic (CME26)	5325-00-234-7913	CME26C	10	10	10
EYELET, Metallic (CME36)	5325-00-558-1785	CME36C	10	10	10
EYELET, Metallic (CME46)	5325-01-076-9499	CME46C	10	10	10
FILE, Rotary (Slotting Saw)	3455-00-189-7191	1112-0061-P10	2	2	2
GLOVE, Chemical Protective (Antistatic)	8415-01-563-5208	BQF09-L		1	1
LABEL, ESD Warning, 2" X 2" _OR_ LABEL, ESD Warning, 5/8" X 2"	7690-01-077-4894 Open Purchase	L-81 758ST0673	1 1	1 1	1 1
PAPER, Abrasive (400 Grit)	5350-00-224-7201	ANSIB74.18	1	1	1
PAPER, Abrasive (600 Grit)	5350-00-224-7215	ANSIB74.18	1	1	1
PAPER, Lens	6640-00-240-5851	NNNP40		1	1
STRIP, Metal (Copper Foil) _OR_ TAPE, Pressure Sensitive (Copper) _OR_ FOIL, Copper, 0.002" X 1" X 50'	9535-00-268-9571 7510-00-149-0308 Open Purchase	ASTM B152 1181-1 CDA110SOFX1	1 1 1	1 1 1	1 1 1
TOWEL, Paper (Small)	7920-00-721-8884	900S	1	1	1
TRACK PAD REPAIR KIT (PACE® Cir-Kit) _OR_ TRACK REPAIR KIT (A.P.E.)	4940-01-054-0041 5895-01-136-2705	6993-0037 2570-0010	1 1	1 1	1 1

3. 2M Tools

NOMENCLATURE	NSN	P/N	Port*	Mini*	Micro*
ANVIL, Jeweler's	5120-00-618-4913	12.312	1	1	1
BINOCULAR, Clip-On (ESCHENBACH®)	6650-17-115-9749	16362	1		
BOTTLE, Applicator (Flux, Felt Tip)	8125-01-562-3877	FD-PEN-ESD		1	1
BOTTLE, Applicator (Flux, Straight Tip)	8125-01-562-3875	FD-2-ESD		1	1

3. 2M Tools

NOMENCLATURE	NSN	P/N	Port*	Mini*	Micro*
BRUSH, Wire, Scratch (Brass)	7920-01-127-4376	71966	1	1	1
BRUSH, Bristle (Glass Tube)	7920-00-018-7052	1127-0002-P5	1	1	1
BURNISHER, Dental	6520-01-055-5086	BB26/27S	1	1	1
CARVER, Dental (Cleoid/Discoid #89-92)	6520-00-935-7254	21294	1	1	1
CARVER, Dental (Hollenback #1/2)	6520-00-935-7171	23106	1	1	1
CASE, Transit	Open Purchase	05-5379	1		
CHISEL, Dental (#23)	6520-01-529-8715	F23/23R	1	1	1
CHISEL, Dental (#3/4)	6520-00-935-7178	CP3/4	1	1	1
CLAMP, C	5120-00-596-4053	A-A-430	1	1	1
DESOLDERING TOOL	3439-00-132-1331	7874B		1	1
DISPENSER, Solvent, ESD Safe	6520-01-529-8711	SD-6-ESD-PP	1	1	1
DRILL SET, Twist (#61 to 80)	5133-00-555-1528	420	1	1	1
DRILL, Twist (#50)	5133-00-189-9295	01078	2	2	2
DRILL, Twist (#51)	5133-00-189-9296	01076	2	2	2
DRILL, Twist (#52)	5133-00-189-9297	01073	2	2	2
DRILL, Twist (#53)	5133-00-189-9298	01069	2	2	2
DRILL, Twist (#54)	5133-00-189-9299	01065	2	2	2
DRILL, Twist (#55)	5133-00-189-9300	10163	2	2	2
DRILL, Twist (#56)	5133-00-189-9301	01058	2	2	2
DRILL, Twist (#57)	5133-00-189-9302	01055	2	2	2
DRILL, Twist (#58)	5133-00-189-9303	01054	2	2	2
DRILL, Twist (#59)	5133-00-189-9304	01052	2	2	2
DRILL, Twist (#60)	5133-00-189-9305	01051	2	2	2
EXPLORER, Dental (#23)	6520-00-528-1000	EXS23	1	1	1
EXPLORER, Dental (#6)	6520-00-528-0000	EXS6	1	1	1
FILE SET, Hand	5110-01-430-6833	S475	1	1	1
FILE, Bone	6520-00-528-5050	23394	1	1	1
GAGE, Compound Pressure ADAPTER, Straight, Pipe to Hose	6685-00-248-6975 4730-01-203-8069	046646 1066X4X4	1	1	1
GAGE, Twist Drill (#1 to 60)	5210-00-221-1893	41G460	1	1	1
GAGE, Twist Drill (#61 to 80)	5210-00-555-7993	5054	1	1	1
GOGGLES, Industrial	4240-01-063-5996	484BAF	1	1	1
HAMMER, Hand	5120-00-061-8540	21-004	1	1	1
HANDLE, Surgical Knife (#9)	6515-00-344-7920	4-16	1	1	1
CLIP, Electrical (Heat Sink)	5999-00-677-9861	HS3	3	3	3
HOLDER, Electrical Card	5998-01-174-3157	315	1		
CIRCUIT BOARD HOLDER	5999-01-184-2449	333		1	1

3. 2M Tools

NOMENCLATURE	NSN	P/N	Port*	Mini*	Micro*
FIXTURE, Lighting (DAZOR®)	6210-01-127-5432	3612	1		
LAMP, Incandescent	6240-00-617-0991	1073	1		
OR LIGHT, Halogen (SUNNEX®)	Open Purchase	HT-302-12	1		
BASE, C-Clamp (SUNNEX®)	Open Purchase	C-Clamp Base	1		
LAMP, Incandescent	6240-01-074-4599	64425	1		
LIGHT, Desk (Blue Gooseneck)	6230-01-033-2081	221217		1	1
LAMP, Incandescent (Flood)	6240-01-029-1113	15R14SC/FL		1	1
LAMP, Incandescent (Spot)	6240-01-029-5988	15R14SC/SP		1	1
OR LIGHT, Fiber Optic (TECHNIQUIP)	Part of Microscope	TQ-FOI		1	1
LAMP, Halogen, 21V/150W	6240-01-331-0841	EKE		1	1
OR LIGHT, Microscope (FRYER MKII Fiber)	6650-01-260-6284	F76221		1	1
LAMP, Halogen, 21V/150W	6240-00-449-6003	EJA		1	1
OR LIGHT, Fiber Optic (FOSTEC®)	Part of Microscope	20500		1	1
LAMP, Halogen, 20V/150W	6240-01-083-5851	DDL		1	1
OR LIGHT, Fiber Optic (STOCKER-YALE)	Part of Microscope	21AS1K100X		1	1
LAMP, Halogen, 21V/150W	6240-01-331-0841	EKE		1	1
MANDREL, Dental Handpiece	6520-00-926-8846	9268846	1	1	1
MICROSCOPE, Optical	6650-01-189-4433	EMZ5†	1	1	1
ROTARY TOOL, Portable (MiniMite®)	5130-01-520-4703	750-02	1		
BATTERY, Storage (MiniMite®)	6140-01-510-4336	755	1		
CHARGER, Battery (MiniMite®)	6130-01-510-4337	756	1		
COLLET NUT KIT (DREMEL®)	5180-01-480-4879	4485	1		
MIXING SLAB, Dental	6520-00-556-2000	27.220	1	1	1
PLATE, Instruction (ESD Caution Sign)	9905-01-342-3044	3870-1		1	1
PLIERS (Micro Duckbill)	5120-01-028-7102	46.0281	1	1	1
PLIERS, Diagonal Cutting (Utility)	5110-01-083-9317	D209-5C	1	1	1
PLIERS (Flat Forming, Soft Tip)	5110-01-513-4297	533-US	1	1	1
PLIERS (Flush Cutting)	5110-01-524-7565	7148E	1	1	1
PLIERS (Angled Flush Cutting)	5110-01-520-5185	7272E	1	1	1
PLIERS, Long Chain Nose	5120-01-513-9587	744-IA-MW1	1	1	1
PLIERS (Micro Round Nose)	5120-00-239-8252	PL291	Opt	Opt	Opt
PLIERS (Round Nose)	5120-00-126-2076	RN54	Opt	Opt	Opt
PUNCH, Center, Solid	5120-01-041-1613	31024	1	1	1
PUNCH, Drive Pin (1/4")	5120-00-240-6083	52584	1	1	1
PUNCH, Drive Pin (5/32")	5120-00-240-6104	52581	1	1	1
RULE, Machinist's	5210-00-234-5223	676	1	1	1
RULE, Pocket	5210-01-513-5248	300ME	1		
SCISSORS, General Surgical	6515-00-365-1200	103-2	1	1	1
SCREWDRIVER, Flat Tip (PACE®)	5120-01-397-4016	1100-0230	1	1	1
SPATULA, Dental (#324)	6520-00-556-8000	CS24		1	1
SPECTACLES, Industrial	4240-01-140-0282	18000	1	1	1

3. 2M Tools

NOMENCLATURE	NSN	P/N	Port*	Mini*	Micro*
SPUDGER	5120-01-514-7806	SH-81	1	1	1
STONE, Sharpening	5345-01-513-8429	HB13T	1	1	1
STRIPPER, Wire, Hand (16-26-AWG)	5110-01-090-5870	45-187	1	1	1
BLADE SET, Wire Stripper	5110-01-380-9346	L-5560		1	1
TIP CLEANER KIT	3439-01-483-2145	6993-0200	1	1	1
TIP TOOL, Thermal Handpiece	5120-01-373-3722	1100-0206	1	1	1
TWEEZERS (Antiwicking AWG18)	5120-00-954-1265	AWG18	1	1	1
TWEEZERS (Antiwicking AWG20)	5120-00-954-1269	AWG20	1	1	1
TWEEZERS (Antiwicking AWG22)	5120-00-954-1270	AWG22	1	1	1
TWEEZERS (Antiwicking AWG24)	5120-00-954-1272	AWG24	1	1	1
TWEEZERS (Curved Point)	5120-01-520-5184	7SA	1	1	1
TWEEZERS (Self Closing)	5120-00-293-0149	7946	1	1	1
VISE, Multiposition (Vacuum Base)	5120-01-488-5048	381	1		
VISE, Multiposition	5120-00-991-1907	301		1	1
VISE, Pin	5120-01-367-7116	165	1	1	1
WORK STATION KIT, Electrostatic	5920-01-512-3815	16475	1		
MAT, Electrostatic Discharging (Soft)	5920-01-169-1322	8811		1	1
_OR_ MAT, Electrostatic Discharging (Rigid)	5920-01-491-3495	8353		1	1
STRIP, Grounding (ESD Wrist Strap)	5999-01-491-7014	2360		1	1
METER (ESD Constant Monitor)	6625-01-491-0711	724		1	1
STRAP, Wrist, ESD	5920-01-491-3509	4720		1	1

4. 2M Support Equipment

NOMENCLATURE	NSN	P/N	Port*	MN*	MC*
SOLDERING STATION (ST-25)	3493-01-576-6864	8007-0528		Opt	Opt
BAG, Carryall, 14"(HUSKY®)	1HM0099-LL-H93-4934	53382		Opt	Opt
SOLDERING STATION (MBT-250)	3439-01-377-7760	8007-0203	1		
FUSE, CART. 2.0 Amp, Slo-Blo	Open Purchase	1159-0247-P5	1		
PUMP, Assembly, Vacuum/Pressure	6105-01-400-4194	6993-0188	Opt		
PUMP REBUILD KIT, Vacuum/Pressure	Open Purchase	6993-0190	Opt		
VISIFILTER®, Fixed	4430-01-149-0247	1309-0020-P1	Opt		
POWER SUPPLY, PPS-400 (PRC-2000)	6130-01-407-1338	7008-0187		1	1
FUSE, CART. 12.0 Amp	5920-01-412-7761	1159-0257-P5		1	1
FUSE, CART. 5.0 Amp, SLO-BLO	5920-01-408-9839	1159-0253-P5		1	1
MOTOR, A/C (Vacuum/Pressure Pump)	6105-01-400-4194	6993-0188		Opt	Opt
PUMP REBUILD KIT, Vacuum/Pressure	Open Purchase	6993-0190		Opt	Opt
MOTOR, A/C (Paste Dispenser Pump)	6105-01-400-4189	1336-0027		Opt	Opt
PIK PUMP (PikVac Pump)	4940-01-424-3212	1334-0021-P1		Opt	Opt
FILTER, Extractor (Internal VISIFILTER®)	4430-01-149-0247	1309-0020-P1		Opt	Opt
O-RING (0.239ID, Pressure Knob)	5331-00-595-6327	AS568B-010		Opt	Opt

4. 2M Support Equipment

NOMENCLATURE	NSN	P/N	Port*	MN*	MC*
HEATER (ST-400 Preheater)	4520-01-575-4044	8007-0435			1
HOLDER, Circuit Board, ST-550	1HM0099-LL-H69-8089	6993-0254-P1			1
OR HEATING UNIT, IR (HS-150 Preheater)	3439-01-330-7824	8040-0001			1
OR PREHEATER, HS-200		8007-0231-GOV			1
CABLE ASSEMBLY (Universal Power Cord)	6150-01-227-5907	7000-0023		1	1
MANUAL, Technical (Tip & Temp Chart)	7610-01-423-7309	5050-0251	Opt	Opt	Opt
HOLDER, Card (Tip & Temp Chart Stand)	9905-01-395-4048	1257-0186	Opt	Opt	Opt
STATION, Cleaning (SMT Cleaning Station)	3439-01-399-3995	6021-0006	1	1	1
CABLE, Power, Electrical (Power Cord)	6145-01-398-0392	1332-0094	1	1	1
FIBER CLEANING TOOL	5120-01-396-1876	1100-0232	1	1	1
BRUSH, Cleaning (Fiber Replacement)	7920-01-395-1564	1127-0013-P2	1	1	1
CLEANING TOOL (Sponge Cleaning Tool)	5120-01-408-9241	1100-0233	1	1	1
SPONGE (Sponge Replacement)	7920-01-395-1560	4021-0006-P5	1	1	1
BRAZING AND SOLDERING SET (SMR Cubby)	3439-01-383-1855	6019-0022-P1		1	1
DESOLDERING TOOL (SX-70 Extractor)	3439-01-348-8883	6010-0077-P1		1	1
HEATING UNIT (SX-70 Heater Assy)	3439-01-390-6746	6010-0080-P1		Opt	Opt
SEAL (SX-70 Front Seal)	5330-01-191-2220	1213-0033-P1		Opt	Opt
GROMMET (SX-70 Rear Seal)	5325-01-027-0930	1213-0001-P1		Opt	Opt
CONNECTOR (Female Quick Disconnect)	5935-01-393-3037	1259-0086		1	1
CONNECTOR (Male Quick Disconnect)	5935-01-393-3036	1259-0087		2	2
TUBING, Nonmettalic (Clear 1" PVC)	9330-01-408-6364	1325-0003-07		2	2
FILTER, Extractor (External Visifilter® II)	4330-01-148-9052	1309-0028-P1		1	1
FILTER ELEMENT (Ext Visifilter® II)	4430-01-499-4616	1309-0027-P50		10	10
TUBING, Glass (SX-70 Glass Tube)	9340-01-325-6184	1265-0009-P1		1	1
FILTER, Extractor (Glass Tube Filter)	4470-01-088-4158	1309-0018-P10		2	2
BAFFLE, Extractor (SX-70 "S" Baffle)	3439-00-248-5263	4010-0033-P1		1	1
PIPE, Plastic (54" Black Silicon Tubing)	4710-01-476-9807	1342-0015-08		1	1
CLAMP, Power Cord (Wire/Tube Holder)	4730-01-398-8488	1321-0085-01-P6		1	1
SCREW, Machine (Set Screw)	5305-01-343-6739	1348-0547-P10		1	1
TIP, Desoldering (SX-70, .030 ID)	3439-01-376-8029	1121-0367-P5		1	1
TIP, Desoldering (SX-70, .040 ID)	3439-01-376-8030	1121-0342-P5		1	1
TIP, Desoldering (SX-70, .060 ID)	3439-01-380-8647	1121-0368-P5		1	1
SOLDERING STATION (SX-70 Hot Cubby)	3439-01-398-2749	6019-0044-P1		1	1
SPONGE (SX-70 Hot Cubby)	7920-01-406-2958	4021-0008-P3		1	1
OR DESOLDERING TOOL (SX-80 Extractor)	3439-01-476-0901	6010-0106-P1	1	1	1
HEATER, Black Connector, SX-80/90	Open Purchase	6010-0107-P1	Opt	Opt	Opt
SEAL, Plain (SX-80/90 Front Seal)	5330-01-510-2452	1213-0087-P1	Opt	Opt	Opt
SEAL, Plain (SX-80/90 Rear Seal)	5330-01-510-2455	1213-0086-P1	Opt	Opt	Opt
CONNECTOR (Female Quick Disconnect)	5935-01-393-3037	1259-0086	1	1	1
CONNECTOR (Male Quick Disconnect)	5935-01-393-3036	1259-0087	2	2	2
TUBING, Nonmettalic (Clear 1" PVC)	9330-01-408-6364	1325-0003-07	2	2	2
FILTER, Extractor (External Visifilter® II)	4330-01-148-9052	1309-0028-P1	1	1	1
FILTER ELEMENT (Ext Visifilter® II)	4430-01-499-4616	1309-0027-P50	10	10	10
ACCESSORY KIT (SX-80/90 Glass Tube)	3439-01-510-9227	6000-0212-P1	1	1	1
FILTER, Extractor (Glass Tube Filter)	4470-01-088-4158	1309-0018-P10	2	2	2
BAFFLE (SX-80/90 "V" Baffle)	Open Purchase	4010-0015-P2	1	1	1

4. 2M Support Equipment

NOMENCLATURE	NSN	P/N	Port*	MN*	MC*
OR FLUX/SODR TRAP (SX-80/90 Paper)	3439-01-480-6255	1309-0054-P10	1	1	1
PIPE, Plastic (54" Black Silicon Tubing)	4710-01-476-9807	1342-0015-08	1	1	1
CLAMP, Power Cord (Wire/Tube Holder)	4730-01-398-8488	1321-0085-01-P6	1	1	1
SCREW, Machine (Set Screw)	5305-01-343-6739	1348-0547-P10	1	1	1
TIP (SX-80, .030 ID, Endura)	3439-01-479-4487	1121-0625-P5	1	1	1
TIP (SX-80, .040 ID, Endura)	3439-01-479-4488	1121-0624-P5	1	1	1
TIP (SX-80,. 060 ID, Endura)	3439-01-479-4489	1121-0626-P5	1	1	1
TIP (SX-80,.020 ID, Precision, Endura)	3439-01-511-1037	1121-0681-P5	1	1	1
TIP (SX-80, .040 ID, Precision, Endura)	3439-01-511-1040	1121-0683-P5	1	1	1
HOLDER (SX-80/90 Hot Cubby)	3439-01-496-8545	6019-0060-P1	1	1	1
SPONGE (SX-80/90 Hot Cubby)	7920-01-406-2958	4021-0008-P3	1	1	1
OR POSITIONER (New SX-80/90 Cubby)	3436-01-565-3830	6019-0082-P1	1	1	1
SPONGE (New SX-80/90 Cubby)	Open Purchase	4021-0013-P5	1	1	1
TIP CLEANER, Brass (New Cubby)	Open Purchase	1129-0018-P1	Opt	Opt	Opt
OR DESOLDERING TOOL (SX-90 Extractor)	3439-01-551-8233	6010-0106-P1	1	1	1
HEATER ASSY (SX-90, Blue Connector)	3439-01-571-1452	6010-0163-P1	Opt	Opt	Opt
SEAL, Plain (SX-80/90 Front Seal)	5330-01-510-2452	1213-0087-P1	Opt	Opt	Opt
SEAL, Plain (SX-80/90 Rear Seal)	5330-01-510-2455	1213-0086-P1	Opt	Opt	Opt
CONNECTOR (Female Quick Disconnect)	5935-01-393-3037	1259-0086	1	1	1
CONNECTOR (Male Quick Disconnect)	5935-01-393-3036	1259-0087	2	2	2
TUBING, Nonmettalic (Clear 1" PVC)	9330-01-408-6364	1325-0003-07	2	2	2
FILTER, Extractor (External Visifilter® II)	4330-01-148-9052	1309-0028	1	1	1
FILTER ELEMENT (Ext Visifilter® II)	4330-01-499-4616	1309-0027-P50	10	10	10
ACCESSORY KIT (SX-80/90 Glass Tube)	3439-01-510-9227	6000-0212-P1	1	1	1
FILTER, Extractor (Glass Tube Filter)	4470-01-088-4158	1309-0018-P10	2	2	2
BAFFLE (SX-80/90 "V" Baffle)	Open Purchase	4010-0015-P2	1	1	1
OR FLUX/SODR TRAP (SX-80/90 Paper)	3439-01-480-6255	1309-0054-P10	1	1	1
PIPE, Plastic (54" Black Silicon Tubing)	4710-01-476-9807	1342-0015-08	1	1	1
CLAMP, Power Cord (Wire/Tube Holder)	4730-01-398-8488	1321-0085-01-P6	1	1	1
SCREW, Machine (Set Screw)	5305-01-343-6739	1348-0547-P10	1	1	1
TIP (SX-90, .030 ID)	3439-01-571-1415	1121-0930-P5	1	1	1
TIP (SX-90, .040 ID)	3439-01-564-4999	1121-0931-P5	1	1	1
TIP, (SX-90, .060 ID)	3439-01-571-1420	1121-0932-P5	1	1	1
TIP (SX-90, .020 ID, Precision)	3439-01-571-1446	1121-0946-P5	1	1	1
TIP (SX-90 .040 ID, Precision)	3439-01-571-1449	1121-0948-P5	1	1	1
HOLDER (SX-80/90 Hot Cubby)	3439-01-496-8545	6019-0060-P1	1	1	1
SPONGE (SX-80/90 Hot Cubby)	7920-01-406-2958	4021-0008-P3	1	1	1
OR POSITIONER (New SX-80/90 Cubby)	3436-01-565-3830	6019-0082-P1	1	1	1
SPONGE (New SX-80/90 Cubby)	Open Purchase	4021-0013-P5	1	1	1
TIP CLEANER, Brass (New Cubby)	Open Purchase	1129-0018-P1	Opt	Opt	Opt
HANDLE, Soldering (Handpiece REDI-RAK Kit)	3439-01-380-8678	6019-0023		1	1
SOLDERING IRON (LF-15 LAPFLO Handpiece)	3439-01-354-3448	7013-0004-02-P1		1	1
TIP (LAPFLO Single Point, Wire)	3439-00-417-7258	6000-0008		1	1
BLADE, Straight (LAPFLO Blade Tip)	3439-01-151-2626	6000-0009		1	1
HANDLE (MC-65 MICROCHINE Handpiece)	3439-01-383-1037	7026-0001-P1		1	1
LEAD, Test (Probe Brake Patch Cord)	6625-01-406-7807	1332-0159		1	1

4. 2M Support Equipment

NOMENCLATURE	NSN	P/N	Port*	MN*	MC*
VACUUM (PV-65 PIK-VAC Handpiece)	4590-00-492-4739	7027-0001-P1			1
CUP, Suction (0.175 Diameter)	5340-01-406-9156	1121-0382			1
CUP, Suction (0.300 Diameter)	5340-01-406-9157	1121-0383			1
CUP, Suction (0.500 Diameter)	5340-01-406-9158	1121-0384-P5			1
TIP, Suction Device (45 Bend, 0.060ID)	5340-01-400-2102	1121-0413-P5			1
HOLDER (Tip REDI-RAK Kit)	3439-01-353-4357	6021-0007		1	1
RESISTWEEZ ASSY (TW-15 Handpiece)	3439-00-155-4597	7009-0005-P1		1	1
KIT, Guide Block	3439-01-481-1797	6993-0105		1	1
SCREW, Machine (Set Screw)	5305-01-399-3860	1405-0182		2	2
TIP (RESISTWEEZ Flat Tips)	3439-01-408-1710	1121-0006-P2		1	1
TIP (RESISTWEEZ Tapered Flat Tips)	3439-01-376-8027	1121-0301-P1		1	1
SOLDERING IRON (PS-80 Soldering Iron)	3439-01-398-2750	6010-0096-P1	1	1	1
_**OR**_ HEATING UNIT (PS-90 Soldering Iron)	3439-01-567-8016	6010-0131-P1	1	1	1
HEATING UNIT (PS-80 Heater Assy)	3439-01-465-4479	6010-0095-P1	Opt	Opt	Opt
SCREW, Machine (Set Screw)	5305-01-343-6739	1348-0547-P10	2	2	2
TIP (PS-80/90, 1/16" Chisel Tip)	3439-01-380-8651	1121-0414-P5	1	1	1
TIP (PS-80/90, 1/32" Conical)	3439-01-387-7688	1121-0336-P5	1	1	1
TIP (PS-80/90, 1/8" Chisel Tip)	3439-01-378-7161	1121-0337-P5	1	1	1
TIP, IR (PS-80/90, Angled MiniWave)	6515-01-529-8701	1121-0610-P5	1	1	1
TIP (PS-80/90, 0/4" Flat Blade)	3439-01-376-8025	1121-0305			1
_**OR**_ TIP (PS-80/90, 0.25" Flat Blade)	3439-01-376-8024	1121-0402			1
TIP (PS-80/90, SOT Tip, 0.063 X 0.12)	3439-01-376-8023	1121-0304-P1			1
TIP (PS-80/90, Small Chip Tip)	3439-01-353-4373	1121-0302-P1			1
TIP (PS-80/90, Large Chip Tip)	3439-01-353-4374	1121-0303-P1			1
TIP (PS-80/90, Bent Conical Tip)	Open Purchase	1121-0526-P5			1
_**OR**_ TIP (PS-80/90, Sharp Bent Conical)	3439-01-562-3905	1121-0830-P5			1
TIP (PS-80/90, 3/32" Chisel Tip)	3439-01-393-3029	1121-0360-P5			1
_**OR**_ TIP (PS-80/90, 3/32" Chisel, Ext Rch)	3439-01-500-0248	1121-0529-P5			1
TIP (PS-80/90, Single Sided Chisel Tip)	3439-01-400-1289	1121-0406-P5	1	1	1
_**OR**_ TIP (PS-80/90, Single Sided, Ext Rch)	3439-01-511-1065	1121-0532-P5	1	1	1
TIP (PS-80/90, MiniWave)	3439-01-562-3908	1121-0490-P5	1	1	1
TIP (PS-80/90, SOIC14 Tunnel Tip)	3439-01-353-4367	1121-0391-P1	1	1	1
TIP(PS-80/90, SOIC20 Tunnel Tip)	3439-01-353-4370	1121-0394-P1			1
HOLDER, Soldering Iron (PS-80 Cubby)	3439-01-465-4480	6019-0050-P1	1	1	1
_**OR**_ HOLDER (PS-90 Hot Cubby)	3439-01-510-8359	6019-0064-P1	1	1	1
SPONGE (PS-80/90 Hot Cubby)	7920-01-406-2958	4021-0008-P3	1	1	1
_**OR**_ HOLDER (New PS-90 Hot Cubby)	1HM009-LL-H69-8097	6019-0081-P1	1	1	1
SPONGE (New PS-90 Hot Cuby)	Open Purchase	4021-0013-P5	1	1	1
TIP CLEANER, Brass (New Cubby)	Open Purchase	1129-0018-P1	Opt	Opt	Opt
SWITCH, Foot (Foot Pedal)	5930-01-301-3563	6008-0115		1	1
HANDLE (TS-15 STRIPTWEEZ Handpiece)	5130-01-399-1399	7012-0002-P1		1	1
TIP (TS-15 Blade Tips (Installed)	Open Purchase	1121-0003-P2		1	1
KIT, Guide Block	3439-01-481-1797	6993-0105		1	1
SCREW, Assembled (Set Screw)	5305-01-399-3862	1405-0106		4	4
TIP (TS-15 Blade Tips)	Open Purchase	1121-0003-P2		Opt	Opt

4. 2M Support Equipment

NOMENCLATURE	NSN	P/N	Port*	MN*	MC*
SOLDERING IRON (TJ-70 THERMOJET)	3439-01-399-4906	7023-0002-P1	1	1	1
HEATING UNIT (THERMOJET Heater)	3439-01-391-7745	6010-0084-P1	Opt	Opt	Opt
CLAMP, Power Cord (Wire/Tube Holder)	4730-01-398-8488	1321-0085-01-P6	1	1	1
SCREW, Machine (Set Screw)	5305-01-343-6739	1348-0547-P10	1	1	1
PIPE, Plastic (54" Black Silicon Tubing)	4710-01-476-9807	1342-0015-08	1	1	1
CONNECTOR (Male Quick Disconnect)	5935-01-393-3036	1259-0087	1	1	1
TIP (THERMOJET, Single Curved Tip)	3439-01-398-2746	1121-0338-P1	1	1	1
TIP(THERMOJET, Double Bent SOIC Tip)	3439-01-383-1859	1121-0330-P1			1
TIP (THERMOJET, Single Flat Tip)	3439-01-380-8934	1121-0371-P1			1
TIP (THERMOJET, Single Straight Tip)	3439-01-380-8853	1121-0366-P1			1
HOLDER (SX-80/90 Hot Cubby)	3439-01-496-8545	6019-0060-P1	1	1	1
SPONGE (SX-80/90 Hot Cubby)	7920-01-406-2958	4021-0008-P3	1	1	1
OR POSITIONER (New SX-80/90 Cubby)	3436-01-565-3830	6019-0082-P1	1	1	1
SPONGE (New SX-80/90 Cubby)	Open Purchase	4021-0013-P5	1	1	1
TIP CLEANER, Brass (New Cubby)	Open Purchase	1129-0018-P1	Opt	Opt	Opt
SOLDERING IRON (TP-65 THERMOPIK)	3439-01-380-8913	7024-0001-P1			1
HEATING UNIT (THERMOPIK Heater)	3439-01-408-0332	6010-0081-P1			Opt
PIPE, Plastic (54" Black Silicon Tubing)	4710-01-476-9807	1342-0015-08			1
CLAMP, Power Cord (Wire/Tube Holder)	4730-01-398-8488	1321-0085-01-P6			1
CONNECTOR (Male Quick Disconnect)	5935-01-393-3036	1259-0087			1
SCREW, Machine (Set Screw)	5305-01-343-6739	1348-0547-P10			1
TIP (THERMOPIK Flatpack Tip)	3439-01-511-6493	1121-0322-002			1
HOLDER (SX-80/90 Hot Cubby)	3439-01-496-8545	6019-0060-P1			1
SPONGE (SX-80/90 Hot Cubby)	7920-01-406-2958	4021-0008-P3			1
OR POSITIONER (New SX-80/90 Cubby)	3436-01-565-3830	6019-0082-P1			1
SPONGE (New SX-80/90 Cubby)	Open Purchase	4021-0013-P5			1
TIP CLEANER, Brass (New Cubby)	Open Purchase	1129-0018-P1			Opt
SOLDERING PLIERS (TT-65 THERMOTWEEZ)	3439-01-381-6323	7025-0001-P1			1
HEATING UNIT (TT-65 Heater w/Sensor)	3439-01-406-7311	6010-0082-P1			Opt
HEATING UNIT (TT-65 w/o Sensor)	3439-01-406-7312	6010-0083-P1			Opt
TOOL (THERMOTWEEZ Tip Alignment)	3439-01-408-0331	1100-0234			1
SCREW, Machine (Set Screw)	5305-01-343-6739	1348-0547-P10			2
TIP (TT, Chip Removal, 0.08")	3439-01-376-8038	1121-0313-P1			1
TIP (TT, Angled Chip Removal 0.10")	3439-01-562-3921	1121-0436-P1			1
TIP (TT, Angled Conical, 1/64")	3439-01-457-8626	1121-0517-P1			1
TIP (TT/PS, 0.50", Box Tips)	3439-01-457-8629	1121-0473-P1			1
TIP (TT, 0.26 X 0.26, Box Tips)	3439-01-399-4904	1121-0417-P1			1
TIP (TT, 0.35 X 0.25, LCCC-24, Box Tips)	3439-01-399-4143	1121-0452-P1			1
TIP (TT, 0.27 X 0.27, PLCC-20, Box Tips)	3439-01-383-1671	1121-0316			1
TIP (TT, 0.37 X 0.37, PLCC-28, Box Tips)	3439-01-376-8040	1121-0317			1
TIP (TT, 0.40 X 0.35, Box Tips)	3439-01-399-4905	1121-0425-P1			1
TIP (TT, 0.57 X 0.57, PLCC-44, Box Tips)	3439-01-386-6118	1121-0318-P1			1
TIP (TT, 0.85 X 0.85, LCCC-132, Box Tips)	3439-01-399-4142	1121-0455-P1			1
TIP (TT, Chip Removal, 0.16")	3439-01-381-6215	1121-0399-P1			1
TIP (TT, 0.70 SOJ/SIMM Removal)	3439-01-376-8028	1121-0416-P1			1
HOLDER (THERMOTWEEZ Hot Cubby)	3439-01-381-6124	6019-0046-P1			1
SPONGE (THERMOTWEEZ Cubby)	7920-01-406-2958	4021-0008-P3			1

4. 2M Support Equipment

NOMENCLATURE	NSN	P/N	Port*	MN*	MC*
OR TOOL STAND (New TT-65 Hot Cubby)	Open Purchase	6019-0083-P1			1
SPONGE (New TT-65 Hot Cubby)	Open Purchase	4021-0013-P5			1
TIP CLEANER, Brass (New Cubby)	Open Purchase	1129-0018-P1			1

5. AN/USM-674 (V) Test Station

NOMENCLATURE	NSN	P/N	MTR Workstation*
LEAD SET, Test (Probes)	6625-01-172-7860	Y8140	1
IC TEST CLIP, .300 8 Pin	6625-01-408-5482	07-1274	2
IC TEST CLIP, .300 14 Pin	6625-01-408-5486	07-1275	2
IC TEST CLIP, .300 16 Pin	6625-01-408-5488	07-1276	2
IC TEST CLIP, .300 18 Pin	6625-01-408-5489	07-1277	2
IC TEST CLIP, .300 20 Pin	6625-01-408-5490	07-1278	2
IC TEST CLIP, .300 22 Pin	6625-01-408-5484	07-1286	2
IC TEST CLIP, .300 24 Pin	6625-01-408-5487	07-1287	2
IC TEST CLIP, .300 28 Pin	6625-01-408-4920	07-1288	2
IC TEST CLIP, .600 22 Pin (Wide)	6625-01-417-6776	07-1279	2
IC TEST CLIP, .600 24 Pin (Wide)	6625-01-417-6775	07-1280	2
IC TEST CLIP, .600 28 Pin (Wide)	6625-01-417-6777	07-1281	2
IC TEST CLIP, .600 40 Pin (Wide)	6625-01-408-5485	07-1283	2
JUMPER, 10 Kohm Resistor	5905-01-409-1923	98-0028	1
JUMPER, 1 Kohm Resistor	5905-01-408-6765	98-0029	1
FOOTSWITCH	5930-00-061-2008	T-91-S	1
TEST CLIP, Lead (Blue)	6625-01-342-5050	98-0036	1
TEST CLIP, Lead (Black)	6625-01-342-0752	601W-36 BLACK	1
ADAPTER, Electrical (UECA)	5935-01-393-9609	98-0086	1
CABLE, 64 Conductor	6150-01-410-8909	98-0072	1
RIBBON CABLE, 40 Pin	6150-01-149-0647	98-0102	2
RIBBON CABLE, 20 Pin	6150-01-497-0643	98-0103	2
STRAP, Scanner	5975-01-499-9308	98-0281	1
CABLE, Triple BNC w/Ferrite	6150-01-497-0650	98-0282	1
WORK SURFACE, Static (3M)	5920-01-491-3495	8343	1
CORD, Grounding (3M)	5999-01-491-7014	2360	1
MONITOR, Continuous, ESD	6625-01-491-0711	724	1
WRIST STRAP, Grounding	5920-01-491-3509	4720	1
OR WORK STATION KIT, Electrostatic	5920-01-512-3815	16475	1
CABLE, RJ45 (PROTRACK/SCANNER)	6150-01-497-0652	98-0283	1
ANALYZER, PROTRACK	NAVSEA provided		1
SCANNER, Semiconductor	NAVSEA provided		1
XKEY FOOTPEDAL (3 Position)	NAVSEA provided	XF-10-US	1
CONTROLLER	NAVSEA provided		1
MONITOR	NAVSEA provided		1
CABLE, USB (6 ft)	NAVSEA provided	98-0481	1
UNINTERRUPTIBLE POWER SUPPLY	NAVSEA provided		1

Appendix G

2M MTR Inspector JQR

1. Microminiature certified.

    ———————————————
    (SIGNATURE AND DATE)

2. 2M Technician Recertifier course (A-100-0058) completed or prior 2M
    MTR Instructor/2M Technician Recertifier.

    ———————————————
    (SIGNATURE AND DATE)

3. Module Test and Repair Equipment Operator course (A-100-0076)
    completed.

    ———————————————
    (SIGNATURE AND DATE)

4. Complete MTR recertification performance test.

    ———————————————
    (SIGNATURE AND DATE)

5. Assist a certified 2M MTR Inspector in four (4) site certifications to include:

    a. Conduct arrival briefs and a departure briefs.

    ————————   ————————   ————————   ————————
                     (SIGNATURE AND DATE)

    b. Requisitions vs. MTRTS screening for the last four calendar quarters.

    ————————   ————————   ————————   ————————
                     (SIGNATURE AND DATE)

    c. Complete inventory of 2M soldering stations inclusive of Appendix F.

    ————————   ————————   ————————   ————————
                     (SIGNATURE AND DATE)

    d. Complete inventory of MTR equipment inclusive of applicable NUWC MTR checklist, include
        model numbers.

    ————————   ————————   ————————   ————————
                     (SIGNATURE AND DATE)

e. Complete operability test of the 2M soldering station(s) IAW applicable PMS procedures.

<table>
<tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr>
</table>

(SIGNATURE AND DATE)

f. Complete MTR operability and meter test of the MTR equipment as outlined in the NUWC checklist or IAW applicable PMS procedures.

<table>
<tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr>
</table>

(SIGNATURE AND DATE)

g. Accumulate all 2M MTR technician data to include PRD, rate, CERT level, CERT expiration date, and work center. Verify EDVR paragraph 8 and EDVR paragraph 7 for 2M Basic Allowance.

<table>
<tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr>
</table>

(SIGNATURE AND DATE)

h. Provide MTRTS utilization training to ship's company as needed.

<table>
<tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr>
</table>

(SIGNATURE AND DATE)

i. Verify appropriate 2M MTR/Piece Parts APLs are installed onboard.

<table>
<tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr>
</table>

(SIGNATURE AND DATE)

j. Verify 2M MTR space meets environmental requirements.

<table>
<tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr>
</table>

(SIGNATURE AND DATE)

k. Verify sufficient number of electrical outlets.

<table>
<tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr>
</table>

(SIGNATURE AND DATE)

l. Verify all applicable instructions and technical manuals are locally available.

<table>
<tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr>
</table>

(SIGNATURE AND DATE)

m. Conduct operational test of ESD Constant Monitoring System IAW PMS.

(SIGNATURE AND DATE)

n. Ensure 2M MTR stations are properly grounded and all ESD precautions are being followed.

(SIGNATURE AND DATE)

o. Provide training to supply personnel on JFMM requirements, NAVSUP P485 procedures, and NAVSUP P484 procedures (Repackaging of RFI DLR'S). Obtain requisition data.

(SIGNATURE AND DATE)

p. Confirm calibration of pressure/vacuum gauge.

(SIGNATURE AND DATE)

q. Verify adequate storage and security of tools, workstation surface minimum of 24"x36" and adequate leg room for technician.

(SIGNATURE AND DATE)

r. Obtain Crane 2M MTR SharePoint access and log onto the 2M MTR database (x4).

(SIGNATURE AND DATE)

s. Verify current MTRTS repair data was submitted (x4).

(SIGNATURE AND DATE)

t. Insert/update technician data (x4) (2M and MTR).

(SIGNATURE AND DATE)

u. Insert/update equipment data (x4) (2M and MTR).

_____   _____   _____   _____
(SIGNATURE AND DATE)

v. Insert/update command certification date update page (x4) (2M and MTR).

_____   _____   _____   _____
(SIGNATURE AND DATE)

6. Evaluate 2M MTR technician recertification projects in lab (three separate convenings).

_____   _____   _____
(SIGNATURE AND DATE)

a. Update technician certification data in 2M MTR database, issue recertification documents (x3).

_____   _____   _____
(SIGNATURE AND DATE)

7. Paperwork familiarization.

_____
(SIGNATURE AND DATE)

8. Demonstrate proficiency in troubleshooting:

a. 2M soldering stations.

_____
(SIGNATURE AND DATE)

b. MTR test station.

_____
(SIGNATURE AND DATE)

9. Complete one site certification under the observation of a certified 2M MTR Inspector or Fleet Coordinator, including updating the 2M MTR database and submit all Site Certification/ Decertification documents to appropriate authority.

_____
(SIGNATURE AND DATE)

Final certifying signature: _____   Date: _____
                            2M MTR Fleet Coordinator

Copy to:

2M MTR Fleet Coordinator
2M MTR Inspector
2M Certification Agent
MTR Certification Agent

Appendix H

2M MTR Equipment Verification Process

1. PRC-2000 / MBT-250

    a. Conduct arrival briefs and a departure briefs.

    b. Verify that MBT-250 passes MRC A-3 (MIP 6652/005).

    c. Verify proper operation of conductive handpieces and pulse heat function (PRC-2000).

    d. Verify proper operation of Dremel® motor driven handpiece (2M Portable Kit).

    e. Verify temperature setback feature is enabled. A setback time of 20 minutes is recommended to preserve handpiece heater and tip life (PRC-2000 and MBT-250).

2. ESD SYSTEM

    a. Verify that the ESD system employed passes MRC M-1 (MIP 6652/005 or MIP 4911/0002).

3. MTR Station

    a. Verify AN/USM-674 passes MRC Q-2 (MIP 4911/003).

    b. Verify that the MTR Station has the latest version of applicable software installed.

Appendix I

2M MTR Points of Contact

Point of Contact	Phone / Email / Web
CNO Program Sponsor	
Chief of Naval Operations Logistics (OPNAV N43) Room NC1-6 2000 Navy Pentagon Washington D.C. 20350-2000	DSN: 329-1678 COM: (703) 601-1678
2M MTR Program Manager	
Commander Naval Sea Systems Command SEA-04RM3 197/4W-1652 1333 Isaac Hull Avenue Washington D.C. 20376	DSN: 326-3380 COM: (202) 781-3380
NAVAIR 2M MTR	
Commander Naval Air Systems Command NAVAIR 6.7 Industrial & Logistics Maintenance & Planning/Sustainment Bldg 416 Ste 200A Patuxent River, MD 20670-1614	DSN: 757-2668 COM: 301-757-2668
2M Certification Agent	
Commander Crane Division, Naval Surface Warfare Center Code GXST Bldg 3287E 300 Highway 361 Crane IN 47522-5001	DSN: 482-1510 COM: (812) 854-1510 EMAIL: crane.2m.program@navy.mil WEB: https://sharepoint.cran.nmci.navy.mil/extranet/2m/
Coast Guard 2M Liaison	
Commander Crane Division, Naval Surface Warfare Center Code GXST Bldg 3287E 300 Highway 361 Crane IN 47522-5001	DSN: 482-8787 COM: (812) 854-8787 EMAIL: crane.2m.program@navy.mil WEB: https://sharepoint.cran.nmci.navy.mil/extranet/2m/

Point of Contact	Phone / Email / Web
MTR Certification Agent	
Director (Code 2504) NAVUNSEAWARCEN DET FEO Norfolk St. Juliens Creek Annex Building 169, Magazine Road Portsmouth, VA 23702	DSN: 386-0800 COM: (757) 396-0800 EMAIL: mtrhelp@navy.mil WEB: https://sharepoint.cran.nmci.navy.mil/extranet/2m/
2M MTR Fleet Coordinator (Atlantic)	
Commander Norfolk Ship Support Activity Code 222 9727 Avionics Loop, BLDG LF-18 Norfolk VA 23511-2124	DSN: 646-3872 X1874 COM: (757) 443-3872 X1874 WEB: https://www.marmc.nmci.navy.mil/200/2MMTR/
2M MTR Fleet Coordinator (Pacific)	
Commanding Officer Southwest Regional Maintenance Center ATTN: Code 240C / 2M MTR 3375 Senn Road, Suite 1 San Diego, CA 92136-5002	DSN: 526-1346 COM: (619) 556-1346
2M MTR Inspector Sites	
Southeast Regional Maintenance Center Naval Station Massey Street Bldg 1488 Mayport FL 32228	COM: (904) 270-5126 X3505 DSN: 960-5126 X3505 WEB: http://www.sermc.surfor.navy.mil/
Commanding Officer ATTN Code 210 2M Recert Lab PSNS & IMF Det Everett 2000 W. Marine View Drive Everett WA 98207-0001	DSN: 727-5405 COM: (425) 304-5405
Pearl Harbor Naval Shipyard Fleet Technical Support Code 210 BLDG 1377 ATTN: 2M MTR Inspector, Code 210.2 680 Pearl Harbor Blvd Pearl Harbor, HI 96860	DSN: (315) 473-0596 COM: (808) 473-0596 WEB: http://www.phnsy.navy.mil/
SRF JRMC Yokosuka Dept Head Code 190 2MMTR Inspector PSC 473 Box 8 FPO AP 96349-0008	DSN: 315-243-9978/3061 COM: 011-8146-816-9978/3061

Point of Contact	Phone / Email / Web
SRF-JRMC Det Sasebo S342 2MMTR Inspector PSC 476 BOX 16 FPO AP 96322	DSN: (315) 252-3706 COM: 011-8195-650-3706
U.S. Navy Training Sites	
Officer in Charge CSCS Det Pearl Harbor 2M/MTR Office 1000 North Road STE 100 Pearl Harbor HI 96860-44610	DSN: (315) 473-0480 COM: (808) 473-0480
Commanding Officer CSCS Det Mayport N3/2M 351 Baltimore Street Bldg 351 Naval Station Mayport, FL 32228-0147	DSN: 960-5260 / 5243 COM: (904) 270-5260 / 5243
Commanding Officer CSCS Det East N752/2M 9550 Farragut Avenue Norfolk VA 23511-2790	DSN: 564-1262 X3040 COM: (757) 444-1262 X3040
Commanding Officer CSCS Det West N752/2M 3975 Norman Scott Rd., Suite 1 San Diego CA 92136-5588	DSN: 526-8548 COM: (619) 556-8548
Officer in Charge CNATT Det Atsugi 2M Division PSC 477 Box 31 FPO AP 96306-2731	DSN: (315) 264-3159 COM: 011-81-3117-64-3159 WEB: https://www.netc.navy.mil/centers/cnatt/atsugi/
Commanding Officer CNATT Unit Whidbey Island Attn: 2M MTR 3665 North Princeton Street Oak Harbor WA 98278-8000	DSN: 820-2733 COM: (360) 257-2733
NAVAIR Depot Training Sites	
Commanding Officer FRC East PSC Box 8021 Code 6.2.3.4 Marine Corps Air Station Cherry Point NC 28533-8021	DSN: 451-7415 COM: (252) 464-7415

Point of Contact	Phone / Email / Web
Commanding Officer FRC Southeast Code 62429 Naval Air Station Jacksonville FL 32212-0016	DSN: 690-5797 COM: (904) 790-5797
Commanding Officer FRC Southwest Code 936 NAS North Island PO Box 357058 San Diego CA 92135-7058	DSN: 735-7950 COM: (619) 545-7950
U.S. Coast Guard Training Site	
Commanding Officer U.S. COAST GUARD TRAINING CENTER YORKTOWN 1 USCG TRACEN YORKTOWN (TEW) Yorktown VA 23690-5000	COM: (757) 856-2287
U.S. Air Force Training Sites	
372 TRS/DET 11 3295 South 5th Street Davis-Monthan AFB AZ 85707-3914	DSN: 228-3520 COM: (520) 228-4224 WEB: http://www.dm.af.mil/
372 TRS/DET 17 Unit 3730 Spangdahlem AB APO AE 09126-3730	DSN: 452-7431 COM: 011-49-6565-61-7431 WEB: http://www.spangdahlem.af.mil