

NAVSEA TE000-AA-MAN-010/2M

NAVAIR SE-004-PQS-000

1 March 2003

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TECHNICAL MANUAL

**CERTIFICATION MANUAL  
FOR  
MINIATURE/MICROMINIATURE (2M)/  
MODULE TEST AND REPAIR (MTR) PROGRAM  
ORGANIZATIONAL, INTERMEDIATE, AND DEPOT LEVEL**



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# NAVSEA TECHNICAL MANUAL CERTIFICATION SHEET

\_ 1 OF \_ 1

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- MINIATURE/MICROMINIATURE (2M)/MODULE TEST AND REPAIR (MTR) PERSONNEL
- 2M/MTR, 2M TRAINING, AND 2M/MTR REVIEWING SITES

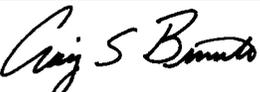
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CONTINUE ON REVERSE SIDE OR ADD PAGES AS NEEDED

**CERTIFICATION STATEMENT**

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**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**1 March 2003**

NUMERICAL INDEX OF EFFECTIVE SECTIONS/PAGES

List of Current Changes

Original 0

1 March 2003

Only those sections/pages assigned to the manual are listed in this index. Insert \_\_\_\_\_, dated \_\_\_\_\_, dated \_\_\_\_\_. Dispose of superseded and deleted sections/pages. 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. Changes to illustrations are indicated by pointing hands or change bars as applicable.

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Section Number	Title
Cover	
Page A	Numerical Index of Effective Sections/Pages
Page C	Foreword
I	Index
II	Introduction
III	2M/MTR Personnel
IV	2M/MTR Sites
V	2M/MTR Reporting

Total number of pages in this document is 84 consisting of the following:

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Section/Page No.	Change No.	Section/Page No.	Change No.
Cover	0	B-1	0
A	0	B-2 Blank	0
B Blank	0	C-1-2	0
C Foreword	0	D-1	0
D Blank	0	D-2 Blank	0
I/1	0	E-1-5	0
I/2 Blank	0	E-6 Blank	0
II/3-5	0	F-1-18	0
II/6 Blank	0	G-1-3	0
III/7-16	0	G-4 Blank	0
IV/17-25	0	H-1-2	0
V/27-31	0	I-1-5	0
V/32 Blank	0	I-6 Blank	0
A-1	0	J-1-4	0
A-2 Blank	0		

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**FOREWORD**

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

- Miniature/Microminiature (2M)/ Module Test and Repair (MTR) Personnel
- 2M/MTR, 2M Training, and 2M/MTR Reviewing Sites

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

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

- SYSTEMS COMMANDS
- FLEET COMMANDERS IN CHIEF
- TYPE COMMANDERS
- MAINTENANCE AND LOGISTICS COMMANDS (COAST GUARD)
- FLEET TECHNICAL SUPPORT CENTERS
- TRAINING SITES
- COMMANDING OFFICERS
- END USERS

Use of this manual increases the accuracy and efficiency of the 2M/MTR Program in two ways. First, the end user can ensure the command is capable of providing quality 2M/MTR diagnostic testing and repairs per applicable directives. Secondly, the use of this manual will ensure that uniform review requirements and procedures are used by all activities.

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**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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1 March 2003

**CERTIFICATION MANUAL FOR 2M/MTR PROGRAM**

**SECTION I. INDEX**

<u>Section</u>	<u>Subject</u>	<u>Page Number</u>
<b>SECTION I.</b>	<b>INDEX</b> .....	1
<b>SECTION II.</b>	<b>INTRODUCTION</b> .....	3
	INTRODUCTION .....	3
	RESPONSIBILITIES .....	3
	CERTIFICATION LEVELS .....	3
	REFERENCE MATERIAL .....	3
<b>SECTION III.</b>	<b>2M/MTR PERSONNEL</b> .....	7
	MINIATURE ELECTRONIC REPAIR TECHNICIAN .....	7
	MICROMINIATURE ELECTRONIC REPAIR TECHNICIAN .....	8
	2M TECHNICIAN RECERTIFIER .....	10
	2M INSTRUCTOR .....	10
	FTSC 2M/MTR FIELD SERVICE ENGINEER AND FLEET COORDINATOR .....	12
	AMMT 2M EVALUATOR .....	14
	MTR STATION OPERATOR .....	14
	2M/MTR TECHNICIAN.....	14
	2M CERTIFICATION AGENT. ....	15
	MTR IN-SERVICE ENGINEERING AGENT (ISEA) .....	15
<b>SECTION IV.</b>	<b>2M/MTR SITES</b> .....	17
	2M/MTR SITES .....	17
	2M TRAINING SITES.....	21
	2M/MTR REVIEWING SITES.....	23
<b>SECTION V.</b>	<b>2M/MTR REPORTING</b> .....	27
	2M/MTR PERSONNEL .....	27
	2M/MTR SITES .....	31
<b>APPENDIX A</b>	PERFORMANCE INFORMATION MEMORANDUM .....	A-1
<b>APPENDIX B</b>	MINIATURE RECERTIFICATION PERFORMANCE TEST .....	B-1
<b>APPENDIX C</b>	2M CERTIFICATION UPDATE .....	C-1
<b>APPENDIX D</b>	MICROMINIATURE RECERTIFICATION PERFORMANCE TEST ...	D-1
<b>APPENDIX E</b>	2M/MTR SITE REVIEW .....	E-1
<b>APPENDIX F</b>	2M/MTR WORKSTATION CHECKLIST .....	F-1
<b>APPENDIX G</b>	2M TRAINING SITE REVIEW .....	G-1
<b>APPENDIX H</b>	2M/MTR REVIEWING SITE VALIDATION.....	H-1
<b>APPENDIX I</b>	2M/MTR POINTS OF CONTACT .....	I-1
<b>APPENDIX J</b>	CERTIFICATION ACTIVITY CODES, 2M/MTR PERSONNEL CERTIFICATION RECORD AND IDENTIFICATION CARDS .....	J-1

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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1 March 2003

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## SECTION II. INTRODUCTION

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1. **INTRODUCTION.** This manual provides the certification and review criteria for all 2M/MTR technicians and sites under the auspices of the 2M/MTR Program. The certification process establishes standards and procedures to ensure the continued quality of 2M/MTR diagnostic testing and repair performed by the fleet. 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 diagnostic testing and repair techniques and procedures.
2. **RESPONSIBILITIES.** Major program administration and management responsibilities are defined in OPNAVINST 4700.7J, 4790.2G, NAVSEAINST 4790.17A, and COMDTINST 4790.2B.
3. **CERTIFICATION LEVELS.** The 2M/MTR Program has six primary levels of certification:
  - Miniature (MN)
  - Microminiature (MC)
  - 2M Technician Recertifier (RC)
  - 2M Instructor (IN)
  - MTR Station Operator (MTR)
  - Certification Agent (CA)
4. **REFERENCE MATERIAL.** 2M/MTR Program reference materials are listed in Table 1. In case of a conflict between the text of this document and the references cited herein, the text of this document takes precedence.

**NOTE**

Utilize latest revision of reference material listed in Table 1.

*Table 1. Reference Material*

<u>Title</u>	<u>Number</u>
2M/MTR Piece Parts- ACU4, ACU5 Allowance Parts List (APL)	00036925
2M/MTR Piece Parts-AE, AO, AOE APL	00035232
2M/MTR Augmented Piece Parts-AE, AO, AOE APL	00036682
2M/MTR Piece Parts-AGF, LCC, LPD, LSD, LST APL	00035230
2M/MTR Augmented Piece Parts- AGF, LCC, LPD, LSD, LST APL	00036683
2M/MTR Piece Parts-ARS Only APL	00037985
2M/MTR Piece Parts-CG, DDG51 APL	00035228
2M/MTR Augmented Piece Parts- CG, DDG51 APL	00036684
2M/MTR Piece Parts-CGN, DD963, DDG993 APL	00035227
2M/MTR Augmented Piece Parts- CGN, DD963, DDG993 APL	00036685
2M/MTR Piece Parts-FFG7 APL	00035229
2M/MTR Augmented Piece Parts- FFG7 APL	00036686

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

<u>Title</u>	<u>Number</u>
2M/MTR Piece Parts-MCM APL	00035231
2M/MTR Piece Parts-MCS APL	00033813
2M/MTR Piece Parts-SSBN APL	00038733
2M/MTR Piece Parts-SSN APL	00035233
2M/MTR Piece Parts-USCG	00031457
2M Master Tool List	NSWCC ltr 4790 Ser 8083/0086 of 6 Jun 00
8007-0161(17794), PRC2000-2M System APL	00032540
8007-0161(17794) NAVAIR Unique, PRC2000-2M APL	00035587
Afloat Supply Procedures	NAVSUP Publication 485
AN/USM-646 (V) 1 ACL, Test Station APL	00029515CL
AN/USM-646 (V)/(V1) & AN/USM-658(V) Test Stations Technical Manuals	DOD ST821-AT-IEM-01D
CINCPACFLT/CINCLANTFLT Joint Fleet Maintenance Manual (JFMM)	CINCPACFLT/CINCLANTFLTINST 4790.3
Classroom Instructor Evaluation Checklist	CNET GEN 1540/4
Coast Guard Module Test and Repair (MTR) Program	COMDTINST 4790.2
Combat Systems, Command, Control, Communications and Computer Readiness Assessment (C5RA)	COMNAVSURPACINST 9093.1 COMNAVSURFLANTINST 9093.1
Fleet Test and Repair of Shipboard Electronic Equipment	NAVSEAINST 4790.17
HSR410(57705), Switcher APL	00012570
Huntron Tracker 5100DS Maintenance Requirement Cards (MRCs)	NAVSEA Maintenance Index Page (MIP) 4911/3
Laboratory Instructor Evaluation Checklist	CNET GEN 1540/11
Maintenance of Surface Ship Electronic Equipment	OPNAVINST 4790.13
Maintenance Policy for Naval Ships	OPNAVINST 4700.7
Miniature/Microminiature (2M)/Automatic Test Equipment (ATE) Electronic Repair Program	COMNAVSURFPACINST 4790.4
Miniature/Microminiature/Automatic Test Equipment Repair Program	COMNAVSPECWARCOMINST 9401.1
Naval Aviation Maintenance Program	OPNAVINST 4790.2
Navy School Management Manual	NAVEDTRA 135
Navy Training Plan (NTP), Navy Miniature/ Microminiature (2M) Electronic Repair Program	NTP S-30-8711A
Portable 2M Kit, APL	00041450

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

<u>Title</u>	<u>Number</u>
PRC-2000-2M System, Electronic Rework Power Unit Operation and Maintenance Manual	NAVSEA S9665-CY-OMP-010/PRC-2000/U NAVAIR 17-15-99 MARINE CORPS TM 09458A-14&P/1B ARMY TM 11-6625-710-14&P
PRC-2000-2M System MRCs	NAVSEA MIP 6652/05 NAVAIR 17-600-193-6-2
Ships' Maintenance and Material Management (3-M) Manual	OPNAVINST 4790.4
Standard Maintenance Practices, Miniature/ Microminiature (2M) Electronic Assembly Repair	NAVAIR 01-1A-23 NAVSEA SE004-AK-TRS-010/2M MARINE CORPS TM 5895-45/1B USAF T.O. 00-25-259
Standardized IMA/MTR APL	00031205
Expanded IMA/MTR APL	00036544
Station Electronic Rework Power Unit, MBT-250-SD, Operation and Maintenance, Organizational/Intermediate Level	NAVSEA SE010-A7-MMC-010/MBT-250-SD/U
Tools X Equipment-2M Repair Stations AEL	2-670034080
Tracker 2000 (57705), Test Set, Semiconductor APL	00020504

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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**1 March 2003**

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**SECTION III. 2M/MTR PERSONNEL**

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**1. MINIATURE ELECTRONIC REPAIR TECHNICIAN.**

a. **CAPABILITIES AND FUNCTIONS.** Technicians certified as Miniature Electronic Repair Technicians are authorized to repair single and double-sided circuit card assemblies (CCAs) and electronic modules (EMs). Authorized miniature repair includes removal and replacement of discrete and multilead components, wiring from various terminals and connectors, removal and application of conformal coatings, removal and replacement of damaged conductors, and repair of CCA laminates. Miniature repair also covers electrostatic discharge (ESD) familiarization and handling procedures to minimize ESD risks to CCAs and EMs.

b. **INITIAL REQUIREMENTS.** To be eligible for training at the miniature level, technicians must be either assigned or enroute to an activity requiring Miniature Electronic Repair Technicians (see NTP S-30-8711). Navy Miniature Electronic Repair Technicians are certified and awarded Navy Enlisted Classification (NEC) 9527 upon completion of A-100-0072, Miniature Electronics Repair. Marine Corps personnel are awarded Primary Military Occupational Specialty (PMOS) 6423. Coast Guard personnel are awarded Qualification Code 12. The 2M training site will follow the Miniature Electronic Repair Technician Initial Certification Reporting Procedures provided in Section V, paragraph 1.a.(1).

**NOTE**

A technician by virtue of holding a current certification is qualified for further training. Individuals completing the course with an overall course grade average of 90 percent or above are highly recommended for further training in A-100-0073, Microminiature Electronics Repair. This percentage is provided as a guide to facilitate effective management decision-making regarding advanced 2M training. The overall course grade average is documented on Appendix A, Performance Information Memorandum (PIM).

c. **FOLLOW-ON REQUIREMENTS.** A 2M Technician Recertifier, Fleet Technical Support Center (FTSC) 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor shall recertify Miniature Electronic Repair Technicians every 18 months. Recertification should be completed before the current certification expires. To receive recertification, the technician must demonstrate the ability to perform the following tasks:

**NOTE**

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.

(1) Identify four of five types and remove two 2M Technician Recertifier or 2M Instructor selected conformal coatings without causing damage to the workpiece:

- Type AR - Acrylic resin
- Type ER - Epoxy resin
- Type SR - Silicone resin
- Type UR - Polyurethane resin
- Type XY - Paraxylyene (Parylene)

(2) Install a single wire on a turret or hook terminal.

(3) Install a double wire on a turret or hook terminal.

(4) Install a single wire to a solder cup.

(5) Perform a pad replacement conductor repair with a flat-set eyelet.

## **NAVSEA TE000-AA-MAN-010/2M**

### **NAVAIR SE-004-PQS-000**

- (6) Install a flush mount, full clinch, and axial lead component on a double-sided CCA.
- (7) Remove and replace a 14/16 lead Dual In-Line Package (DIP).
- (8) Remove and replace a 14/16 lead Flat-Pack.

d. Normally, a technician will satisfactorily complete all required tasks within a two-day period. All projects listed above must be satisfactorily completed to recertify. The standard for performance test grades is a minimum of 75 out of a possible 100. For each process indicator and/or acceptable condition, five points shall be deducted from a possible 100, and an additional 2.5 points for each incorrect technician evaluation of each process indicator. Projects with defect conditions shall be retested. Upon completion, the 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor will follow the Miniature Electronic Repair Technician Recertification Reporting Procedures provided in Section V, paragraph 1.a.(2). If the technician cannot demonstrate miniature capability within the normal two-day period, the recertifier may allow up to an additional three days to complete satisfactorily all required tasks and provide remedial training if necessary. Remediation will 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 his or her activity or work center to practice and reschedule recertification with the recertifier. Miniature Electronic Repair Technicians may be decertified during the recertification process. The recertifier will follow the Miniature Electronic Repair Technician Non-Certification Reporting Procedures provided in Section V, paragraph 1.a.(3).

#### **NOTE**

A technician by virtue of holding a current certification is qualified for further training. Individuals completing the recertification performance test with an overall grade average of 90 percent or above are highly recommended for further training in A-100-0073, Microminiature Electronics Repair. This percentage is provided as a guide to facilitate effective management decision-making regarding advanced 2M training. The overall performance test grade average is documented on Appendix C, 2M Certification Update.

## **2. MICROMINIATURE ELECTRONIC REPAIR TECHNICIAN.**

a. **CAPABILITIES AND FUNCTIONS.** Technicians certified as Microminiature Electronic Repair Technicians are authorized to perform additional repair tasks beyond those taught to Miniature Electronic Repair Technicians. Dexterity and mechanical ability that is required for microminiature repair is greater than that required for miniature repair. Authorized microminiature repair includes high-density component packaging, multilayer conductor repair, flex-print repair, edge-lighted panel repair, and removal and replacement of Surface Mount Devices (SMDs).

b. **INITIAL REQUIREMENTS.** To be eligible for training at the microminiature level, technicians must hold a current miniature certification and be either assigned or enroute to an activity requiring Microminiature Electronic Repair Technicians (see NTP S-30-8711). Technicians who completed A-100-0072, Miniature Electronics Repair or miniature recertification with an overall course/performance test grade average of 90 percent or above as documented on Appendix A/C should receive first consideration for training at the microminiature level. Navy Microminiature Electronic Repair Technicians are certified and awarded NEC 9526 upon completion of A-100-0073, Microminiature Electronics Repair. For Marine Corps personnel, microminiature certification is added to PMOS 6423 qualifications. Coast Guard personnel are awarded Qualification Code 13. The 2M training site will follow the Microminiature Electronic Repair Technician Initial Certification Reporting Procedures provided in Section V, paragraph 1.b.(1).

#### **NOTE**

A technician by virtue of holding a current certification is qualified for further training. Individuals completing the course with an overall course grade average of 95 percent or above are highly recommended for further training in A-100-0058, 2M Technician Recertifier or A-100-0074, 2M Instructor Pipeline. This percentage is provided as a guide to facilitate

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

effective management decision-making regarding advanced 2M training. The overall course grade average is documented on Appendix A, PIM.

c. FOLLOW-ON REQUIREMENTS. A 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor shall recertify Microminiature Electronic Repair Technicians every 18 months. Recertification should be completed before the current certification expires. To receive recertification, the technician must demonstrate the ability to perform the following tasks:

### NOTE

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 or perform procedures.

(1) Identify four of five types and remove two 2M Technician Recertifier or 2M Instructor selected conformal coatings without causing damage to the workpiece:

- Type AR - Acrylic resin
- Type ER - Epoxy resin
- Type SR - Silicone resin
- Type UR - Polyurethane resin
- Type XY - Paraxylylene (Parylene)

(2) Install a single wire on a turret or hook terminal.

(3) Install a double wire on a turret or hook terminal.

(4) Remove and replace a 14/16 lead Dual In-Line Package (DIP).

(5) Repair flexible laminate and conductor or plastic panel defective bulb removal and replacement.

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

(7) Remove and install a Metallized Electrode Face (MELF), chip resistor, or capacitor.

(8) Remove and install a Small Outline Transistor (SOT) or Small Outline Integrated Circuit (SOIC).

(9) Remove and install a Plastic Quad Flat Pack (PQFP), Plastic Leaded Chip Carrier (PLCC), or Leadless Ceramic Chip Carrier (LCCC).

d. Normally, a technician will satisfactorily complete all required tasks within a two-day period. All projects listed above must be satisfactorily completed to recertify. The standard for performance test grades is a minimum of 75 out of a possible 100. For each process indicator and/or acceptable condition, five points will be deducted from a possible 100, and an additional 2.5 points for each incorrect technician evaluation of each process indicator. Projects with defect conditions will be retested. Upon completion, the 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor will follow the Microminiature Electronic Repair Technician Recertification Reporting Procedures provided in Section V, paragraph 1.b.(2). If the technician cannot demonstrate microminiature capability within the normal two-day period, the recertifier may allow up to an additional three days to complete satisfactorily all required tasks and provide remedial training if necessary. Remediation will 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 his or her activity or work center to practice and reschedule recertification with the recertifier. Microminiature Electronic Repair Technicians may be downgraded to the miniature level or decertified during the recertification process. The recertifier will follow the Microminiature Electronic Repair Technician Non-Certification Reporting Procedures provided in Section V, paragraph 1.b.(3).

# NAVSEA TE000-AA-MAN-010/2M

## NAVAIR SE-004-PQS-000

A technician who fails to complete the microminiature repair recertification could be recertified at the miniature level upon completion of the miniature recertification requirements identified in paragraphs 1.c. and 1.d.

### **NOTE**

A technician by virtue of holding a current certification is qualified for further training. Individuals completing the recertification performance test with an overall grade average of 95 percent or above are highly recommended for further training in A-100-0058, 2M Technician Recertifier or A-100-0074, 2M Instructor Pipeline. This percentage is provided as a guide to facilitate effective management decision-making regarding advanced 2M training. The overall performance test grade average shall be documented using Appendix C, 2M Certification Update.

### 3. 2M TECHNICIAN RECERTIFIER.

a. **CAPABILITIES AND FUNCTIONS.** 2M Technician Recertifiers are capable of performing all tasks required of 2M technicians. Primarily, 2M Technician Recertifiers perform recertification of Miniature and Microminiature Electronic Repair Technicians and report completion of 2M personnel recertification in the 2M database.

b. **INITIAL REQUIREMENTS.** To be eligible for training at the 2M Technician Recertifier level, technicians must hold a current microminiature certification and be either assigned or enroute to an activity requiring 2M Technician Recertifiers (see NTP S-30-8711). Technicians who completed A-100-0073, Microminiature Electronics Repair or microminiature recertification with an overall course/performance test grade average of 95 percent or above as documented on Appendix A/C should receive first consideration for training at the 2M Technician Recertifier level. Navy 2M Technician Recertifiers are awarded NEC 9503 upon completion of A-100-0058, 2M Technician Recertifier. For Marine Corps personnel, 2M Technician Recertifier certification is added to PMOS 6423 qualifications. Coast Guard personnel are awarded a Qualification Code 14. The 2M training site will follow the 2M Technician Recertifier Initial Certification Reporting Procedures provided in Section V, paragraph 1.c.(1).

c. **FOLLOW-ON REQUIREMENTS.** 2M Technician Recertifiers shall be recertified every 18 months upon successful completion of A-100-0144, 2M Technician Recertifier Requalification. If a 2M training site is not local, the 2M Technician Recertifier may be recertified by an FTSC 2M/MTR Field Service Engineer or Fleet Coordinator. Microminiature recertification should be completed before the current certification expires. To receive recertification, the 2M Technician Recertifier must complete the microminiature recertification requirements identified in paragraph 2.c. and receive an update from the recertifier on any changes to A-100-0072, Miniature Electronics Repair, A-100-0073, Microminiature Electronics Repair, and A-100-0058, 2M Technician Recertifier course content and repair techniques which have occurred since the last certification. The 2M Technician Recertifier must also demonstrate proficiency in any new repair techniques. The recertifier will follow the 2M Technician Recertifier Recertification Reporting Procedures provided in Section V, paragraph 1.c.(2). 2M Technician Recertifiers may be decertified during the recertification process. The recertifier will then follow the 2M Technician Recertifier Non-Certification Reporting Procedures provided in Section V, paragraph 1.c.(3).

### **NOTE**

If microminiature certification is not maintained, the 2M Technician Recertifier is not qualified to conduct recertification of 2M Technician skills.

### 4. 2M INSTRUCTOR.

a. **CAPABILITIES AND FUNCTIONS.** 2M Instructors are capable of performing all tasks required of 2M Technician Recertifiers and 2M Technicians. 2M Instructors conduct formal training courses for A-100-0072, Miniature Electronics Repair, A-100-0073, Microminiature Electronics Repair, A-100-0058, 2M Technician Recertifier, A-100-0144, 2M Technician Recertifier Requalification, and A-100-0074, 2M Instructor Pipeline.

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

b. INITIAL REQUIREMENTS. To be eligible for training at the 2M Instructor level, technicians must hold a current microminiature certification and be either assigned or enroute to an activity requiring 2M Instructors (see NTP S-30-8711). Technicians who completed A-100-0073, Microminiature Electronics Repair or microminiature recertification with an overall course/performance test grade average of 95 percent or above as documented on Appendix A/B should receive first consideration for training at the 2M Instructor level. Navy 2M Instructors are awarded NEC 9509 upon completion of the following:

- A-012-0011, Instructor Training
- A-100-0074, 2M Instructor Pipeline, which is comprised of:
  - A-100-0135, 2M Instructor Initial Skills
  - A-100-0136, 2M Instructor Certification

For Marine Corps personnel, 2M Instructor certification is added to PMOS 6423 qualifications. A Qualification Code for Coast Guard personnel is under review. The 2M training site will follow the 2M Instructor Initial Certification Reporting Procedures provided in Section V, paragraph 1.d.(1).

c. FOLLOW-ON REQUIREMENTS. An FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, or 2M CA shall recertify 2M Instructors every 18 months at the microminiature level. Microminiature recertification should be completed before the current certification expires or the 2M CA conducts the 2M training site review. To receive recertification, 2M Instructors must complete the microminiature recertification requirements identified in paragraph 2.c. The recertifier will follow the 2M Instructor Recertification Reporting Procedures provided in Section V, paragraph 1.d.(2). 2M Instructors may be decertified during the recertification process. The recertifier will then follow the 2M Instructor Non-Certification Reporting Procedures provided in Section V, paragraph 1.c.(3).

### **NOTE**

If microminiature certification is not maintained, the 2M Instructor is not qualified to conduct initial 2M training or recertification of 2M technician skills.

2M Instructor's ability to conduct formal training courses for A-100-0072, Miniature Electronics Repair; A-100-0073, Microminiature Electronics Repair; A-100-0058, 2M Technician Recertifier; A-100-0144, 2M Technician Recertifier Requalification; and A-100-0074, 2M Instructor Pipeline shall be validated by the 2M CA in conjunction with the 2M training site review. Primarily, the visit by the 2M CA will review, advise, and assist 2M Instructor personnel in matters concerning 2M training organization and administration, as applicable. The following will be validated during the review:

(1) 2M Instructors have active platform exposure as a primary or secondary instructor in at least one complete A-100-0072, Miniature Electronics Repair course and one A-100-0073, Microminiature Electronics Repair course in the six months preceding the review.

(2) 2M Instructor training records, along with copies of evaluations, will be made available to the 2M CA during the site review.

(3) In accordance with NAVEDTRA 135, Instructor Evaluation Program, 2M Instructors must receive at least two evaluations per year, which evaluate the 2M Instructor's technical expertise. Instructor evaluators who are certified 2M Instructors shall conduct these evaluations. At a minimum, one evaluation will be a demonstration of 2M repair techniques with both evaluations having a minimum passing grade of adequate or above. Evaluations will be recorded on the appropriate Instructor Evaluation Form, CNET-GEN 1540/4 (lectures) or CNET-GEN 1540/11 (demonstrations), and maintained in each 2M Instructor's training record.

(4) 2M Instructors performing a lecture or demonstration from the A-100-0072, Miniature or A-100-0073, Microminiature Electronics Repair courses shall ensure that current curriculum material, tools, equipment, safety, repair techniques and soldering procedures are presented.

# NAVSEA TE000-AA-MAN-010/2M

## NAVAIR SE-004-PQS-000

### NOTE

A certified 2M Instructor and Master Training Specialist (MTS) (if available) will perform 2M Instructor evaluations during the 2M Training Site Review.

(5) The 2M CA will observe the evaluating 2M Instructor and MTS debrief the recertifying 2M Instructor's lecture or demonstration. Evaluating 2M Instructor and MTS will provide in-depth, over-the-shoulder remedial training if required to the observed 2M Instructor to improve areas identified as deficient.

(6) Upon satisfactory completion of the 2M training site review, the 2M CA will follow the 2M Instructor Recertification Reporting Procedures provided in Section V, paragraph 1.d.(2). 2M Instructors may be decertified during the recertification process by failing to meet any of the criteria listed in paragraphs 4.c.(1) through (5). The 2M CA will then follow the 2M Instructor Non-Certification Reporting Procedures provided in Section V, paragraph 1.d.(3).

d. **PREVIOUSLY QUALIFIED 2M INSTRUCTOR REQUIREMENTS.** A previously qualified 2M Instructor returning to an Instructor billet is required to complete a locally generated Personnel Qualification Standard (PQS) at the 2M training site. PQS requirements will include marking-up lesson plans and completing acceptable projects (graded steps) for a minimum of one lecture and two demonstrations in the A-100-0072, Miniature and A-100-0073, Microminiature Electronics Repair courses. The lectures and demonstrations assigned will be determined by the recertifying training site's locally generated PQS. After the lesson plans are marked-up and acceptable projects (graded steps) are completed, the trainee will be required to teach these same lectures and demonstrations. Final recertification will be granted when the trainee has satisfactorily completed these requirements. The 2M training site will follow the 2M Instructor Initial Certification Reporting Procedures provided in Section V, paragraph 1.d.(1).

### 5. FTSC 2M/MTR FIELD SERVICE ENGINEER AND FLEET COORDINATOR.

#### a. CAPABILITIES AND FUNCTIONS.

(1) FTSC 2M/MTR Field Service Engineers are experienced certified 2M Technician Recertifiers or Instructors. FTSC 2M/MTR Field Service Engineers perform 2M and Module Test and Repair (MTR) site reviews, to evaluate, advise, and assist local 2M/MTR technicians.

(2) FTSC 2M/MTR Fleet Coordinators.

(a) FTSC 2M/MTR Fleet Coordinators are experienced certified 2M Technician Recertifiers or Instructors billeted by the parent command. FTSC 2M/MTR Fleet Coordinators are billeted to coordinate, schedule and perform 2M/MTR Site reviews, assist with 2M/MTR Program matters and manage 2M/MTR activities of FTSC Detachments where 2M Field Service Engineers are billeted.

(b) FTSC 2M/MTR Fleet Coordinators may also perform recertification of 2M Technician Recertifiers and FTSC 2M/MTR Field Service Engineer personnel at the microminiature level when recertification by attending A-100-0144, 2M Technician Recertifier Requalification is not feasible.

(c) FTSC 2M/MTR Fleet Coordinators are responsible to assign or perform 2M/MTR Field Service Engineer functions at FTSC Detachment locations where 2M/MTR Field Service Engineers are not assigned.

#### b. INITIAL REQUIREMENTS.

(1) To become an FTSC 2M/MTR Field Service Engineer, personnel must have completed a previous tour as a certified 2M Technician Recertifier (NEC 9503) or 2M Instructor (NEC 9509) and be either assigned or enroute to an FTSC or FTSC Detachment requiring FTSC 2M/MTR Field Service Engineers. FTSC 2M/MTR Field Service Engineers are also required to complete A-100-0076, AN/USM-646 Test Measuring and Diagnostic Equipment (TMDE) Operator/Maintenance course and locally generated PQS under the instruction of a currently certified FTSC 2M/MTR Field Service Engineer or FTSC 2M/MTR Fleet Coordinator. PQS requirements will include the performance of 2M/MTR technician recertifications, 2M/MTR

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

site reviews, and 2M/MTR Personnel and Site reporting procedures. Parent FTSC or FTSC Detachment will forward documented completion of PQS requirements to the FTSC 2M Fleet Coordinator.

(2) To become an FTSC 2M/MTR Fleet Coordinator, personnel must have completed a previous tour as a certified 2M Technician Recertifier (NEC 9503) or 2M Instructor (NEC 9509), be either assigned or enroute to an FTSC requiring FTSC 2M/MTR Fleet Coordinators, and satisfactorily complete the same course and PQS requirements of an FTSC 2M/MTR Field Service Engineer. Parent FTSC will document and maintain completion of PQS requirements.

### c. FOLLOW-ON REQUIREMENTS.

(1) FTSC 2M/MTR Field Service Engineers and Fleet Coordinators shall be recertified every 18 months upon successful completion of A-100-0144, 2M Technician Recertifier Requalification. If a 2M training site is not local, the FTSC 2M/MTR Field Service Engineer may be recertified by a FTSC 2M/MTR Fleet Coordinator. Microminiature recertification should be completed before the current certification expires. To receive recertification, the FTSC 2M/MTR Field Service Engineer or Fleet Coordinator shall complete the microminiature recertification requirements identified in paragraph 2.c. and receive an update from the 2M Instructor on any changes to A-100-0072, Miniature Electronics Repair, A-100-0073, Microminiature Electronics Repair, and A-100-0058, 2M Technician Recertifier course content and repair techniques which have occurred since the last certification. The FTSC 2M/MTR Field Service Engineer or Fleet Coordinator shall also demonstrate proficiency in any new repair techniques. The 2M Instructor will follow the FTSC 2M/MTR Field Service Engineer and Fleet Coordinator Recertification Reporting Procedures provided in Section V, paragraph 1.e.(2). FTSC 2M/MTR Field Service Engineers or Fleet Coordinators may be decertified during the recertification process. The 2M Instructor will then follow the FTSC 2M/MTR Field Service Engineer and Fleet Coordinator Non-Certification Reporting Procedures provided in Section V, paragraph 1.e.(3).

#### **NOTE**

If microminiature certification is not maintained, the FTSC 2M/MTR Field Service Engineer or Fleet Coordinator is not qualified to conduct recertification of 2M Technician skills. However, they shall continue to be qualified to perform 2M/MTR site reviews.

(2) The FTSC 2M/MTR Fleet Coordinator will validate the FTSC 2M/MTR Field Service Engineer every 18 months. The FTSC 2M/MTR Fleet Coordinator may extend this interval up to 24 months to facilitate scheduling. Primarily, the FTSC 2M/MTR Fleet Coordinator will advise or assist FTSC 2M/MTR Field Service Engineer personnel in matters concerning 2M Program management and administration, as applicable. This shall include ensuring the FTSC 2M/MTR Field Service Engineer's activity has updated information on tool lists, facility review and reporting procedures, and 2M/MTR Program updates. The FTSC 2M/MTR Fleet Coordinator shall accompany and observe the FTSC 2M/MTR Field Service Engineer during a 2M/MTR site review. Upon completion of the validation, the FTSC 2M/MTR Fleet Coordinator will follow the 2M/MTR Reviewing Site Validation Reporting Procedures provided in Section V, paragraph 2.c.

(3) The 2M CA will validate the FTSC 2M/MTR Fleet Coordinator every 18 months. The 2M CA may extend this interval up to 24 months to facilitate scheduling. Primarily, the 2M CA will advise or assist FTSC 2M/MTR Fleet Coordinator personnel in matters concerning 2M Program management and administration, as applicable. This shall include ensuring the FTSC 2M/MTR Fleet Coordinator's activity has updated information on tool lists, facility review and reporting procedures, and 2M/MTR Program updates. The 2M CA shall accompany and observe the FTSC 2M/MTR Fleet Coordinator during a 2M-repair site review.

(4) Upon satisfactory completion of the validation, the FTSC 2M/MTR Fleet Coordinator or 2M CA will follow the FTSC 2M/MTR Field Service Engineer and Fleet Coordinator Recertification Reporting Procedures provided in Section V, paragraph 1.e.(2). FTSC 2M/MTR Fleet Coordinators or Field Service Engineers may be decertified during the validation process by failing to meet any of the criteria listed in paragraphs 5.c.(1) through (3). The FTSC 2M/MTR Fleet Coordinator or 2M CA will then follow the FTSC 2M/MTR Field Service Engineer and Fleet Coordinator Non-Certification Recertification Reporting Procedures provided in Section V, paragraph 1.e.(3).

## **NAVSEA TE000-AA-MAN-010/2M**

### **NAVAIR SE-004-PQS-000**

#### **6. AVIATION MAINTENANCE MANAGEMENT TEAM (AMMT) 2M EVALUATOR.**

a. **CAPABILITIES AND FUNCTIONS.** AMMT 2M Evaluators are experienced Aviation Electronics Technicians (AT) or Aviation Electricians Mates (AE). It is also recommended that AMMT 2M Evaluators possess experience as previously certified 2M Technician Recertifiers or Instructors. Primarily, AMMT 2M Evaluators perform AMMT visits, to evaluate, advise, or assist Aircraft Intermediate Maintenance Department (AIMD) 2M Technician Recertifiers with 2M Program matters.

b. **INITIAL REQUIREMENTS.** To become an AMMT 2M Evaluator, personnel must be an experienced AT or AE and be either assigned or enroute to an activity requiring AMMT 2M Evaluators. AMMT 2M Evaluators are also required to complete a Type Commander (TYCOM) specified training period where they accompany an experienced 2M Evaluator on AMMT visits prior to conducting visits alone. There is no initial certification reporting procedures.

c. **FOLLOW-ON REQUIREMENTS.** AMMT 2M Evaluators will be validated every 18 months by the 2M CA. The 2M CA may extend this interval up to 24 months to facilitate scheduling. Primarily, the 2M CA will advise or assist AMMT 2M Evaluator personnel in matters concerning 2M Program management and administration, as applicable. This shall include ensuring the AMMT 2M Evaluator's activity has updated information on tool lists, facility review and reporting procedures, and 2M Program updates. The 2M CA shall accompany and observe the AMMT 2M Evaluator during an AMMT visit. Upon completion of the validation, the 2M CA will follow the 2M/MTR Reviewing Site Validation Reporting Procedures provided in Section V, paragraph 2.c.

#### **7. MTR STATION OPERATOR.**

a. **CAPABILITIES AND FUNCTIONS.** MTR Station Operators possess the qualifications necessary to operate and maintain the AN/USM-646(V) TMDE and to document and report maintenance actions at an MTR workstation.

b. **INITIAL REQUIREMENTS.** To be qualified as an MTR Station Operator, the technician must satisfactorily complete the A-100-0076, AN/USM-646 TMDE Operator/Maintenance course. There is no initial certification reporting procedures. The MTR training site will follow the Initial MTR Station Operator Reporting Procedures provided in Section V, paragraph 1.f.(1).

c. **FOLLOW-ON REQUIREMENTS.** There are no performance based follow-on requirements for the MTR Operator. The FTSC 2M/MTR Field Service Engineer or Fleet Coordinator during the 2M/MTR site review will advise or assist NAVSEA MTR Station Operators in matters concerning MTR Program management and administration, as applicable. This shall include ensuring the NAVSEA MTR Station Operator's activity has updated information on equipment, software, reporting procedures, and MTR Program updates. The FTSC 2M/MTR Field Service Engineer and Fleet Coordinator will follow the Follow-On MTR Station Operator Reporting Procedures provided in Section V, paragraph 1.f.(2) to document the findings and recommendations of the validation.

#### **8. 2M/MTR TECHNICIAN.**

a. **CAPABILITIES AND FUNCTIONS.** 2M/MTR Technicians are capable of performing all tasks required of a Microminiature Electronic Repair Technician and MTR Station Operator. Primarily 2M/MTR Technicians perform corrective maintenance on circuit cards and electronic modules by troubleshooting and repairing the faulty cards and modules.

b. **INITIAL REQUIREMENTS.** To be eligible for training as a 2M/MTR Technician, technicians must be either assigned or enroute to an activity requiring 2M/MTR Technicians (see NTP S-30-8711). 2M/MTR Technicians are certified and awarded NEC ET-1591 upon completion of A-100-0072, Miniature Electronics Repair, A-100-0073, Microminiature Electronics Repair, and A-100-0076, AN/USM-646 TMDE Operator/Maintenance courses. The 2M training site will follow the 2M/MTR Technician Initial Certification Reporting Procedures provided in Section V, paragraph 1.g.(1).

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

c. FOLLOW-ON REQUIREMENTS. A 2M Technician Recertifier or 2M Instructor shall recertify 2M/MTR Technicians every 18 months at the microminiature level. Microminiature recertification should be completed before the current certification expires. To receive recertification, the 2M/MTR Technician must complete the microminiature recertification requirements identified in paragraph 2.c. The 2M Technician Recertifier or 2M Instructor will follow the 2M/MTR Technician Recertification Reporting Procedures provided in Section V, paragraph. 2M/MTR Technicians may be decertified during the recertification process. The 2M Technician Recertifier or 2M Instructor will then follow the 2M/MTR Technician Non-Certification Reporting Procedures provided in Section V, paragraph 1.g.(2).

### 9. CERTIFICATION AGENT (CA).

a. CAPABILITIES AND FUNCTIONS. In accordance with NAVSEAINST 4790.17A, Naval Surface Warfare Center, Crane Division is to act as the 2M CA. The 2M CA performs validation and review of 2M Instructors, AMMT 2M Evaluators, FTSC 2M/MTR Fleet Coordinators, and 2M training sites as necessary. The 2M CA also updates 2M repair certification criteria as required.

b. INITIAL REQUIREMENTS. The 2M CA is appointed by NAVSEA 04M3. Initial certification requirements include the following:

- (1) Have prior 2M fleet experience as a certified 2M Technician Recertifier or 2M Instructor.
- (2) Have thorough knowledge of 2M soldering techniques and standards, ESD handling procedures and surface mount technology to inspect satisfactorily 2M facilities and personnel for conformance to 2M Program requirements.
- (3) Have effective oral communication skills to provide demonstrations of new and established methods of repair.
- (4) Have effective written communication skills to incorporate new techniques into existing documentation, prepare reports, and make recommendations to appropriate command authorities.
- (5) Have the capability of meeting and dealing effectively with a broad range of military and civilian personnel.

c. FOLLOW-ON REQUIREMENTS. The 2M CA's qualifications are validated every 18 months by NAVSEA 04M3. The 2M CAs are expected to be thoroughly knowledgeable about all technical aspects of the 2M Program. A FTSC 2M/MTR Fleet Coordinator will recertify the 2M CA every 18 months at the microminiature level. Microminiature recertification should be completed before the current certification expires.

### 10. MTR IN-SERVICE ENGINEERING AGENT (ISEA).

a. CAPABILITIES AND FUNCTIONS. In accordance with COMNAVSEASYS COM Itr Ser 04DS/150 of 1 May 92, Naval Undersea Warfare Center Detachment, Norfolk is to act as the MTR ISEA. The MTR ISEA performs validation and review of MTR training sites and the MTR portion of FTSC 2M/MTR Field Service Engineer or Fleet Coordinator qualifications as necessary. The MTR ISEA also updates the MTR Checklist and training curriculum as required.

b. INITIAL REQUIREMENTS. The MTR ISEA is appointed by NAVSEA 04M3. Initial qualification requirements include the following:

- (1) Have a thorough knowledge of MTR troubleshooting techniques; system fault isolation skills, and operational software, ESD handling procedures to satisfactorily instruct MTR facilities and personnel for conformance to MTR Program requirements.
- (2) Have effective oral communication skills to provide demonstrations of new and established methods of MTR system fault isolation and software conflict recognition.

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

(3) Have effective written communication skills to incorporate new techniques into existing documentation, prepare reports, and make recommendations to appropriate command authorities.

(4) Have the capability of meeting and dealing effectively with a broad range of military and civilian personnel.

c. FOLLOW-ON REQUIREMENTS. The MTR ISEA's qualifications are validated every 18 months by NAVSEA 04M3 to ensure that they are thoroughly knowledgeable about all technical aspects of the MTR Program.

1 March 2003

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## SECTION IV. 2M/MTR SITES

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### 1. 2M/MTR SITES.

a. INITIAL REVIEW REQUIREMENTS. Authority to diagnose, repair, or rework electronic assemblies will be granted only to those maintenance activities evaluated as being capable of providing quality 2M/MTR electronics diagnostics testing and repair. Activities performing organizational, intermediate, depot, and contractor 2M/MTR maintenance (where 2M/MTR requirements are invoked in the contract) on Navy procured electronic assemblies, regardless of physical location, will be reviewed by an FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, the AMMT 2M Evaluator, or the 2M CA. A 2M/MTR site will be identified as capable of performing high quality diagnostic testing and repairs when minimum levels of certified personnel, equipment outfitting, and facility requirements are met. The FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, AMMT 2M Evaluator, or 2M CA will follow the 2M/MTR Site Review Reporting Procedures provided in Section V, paragraph 2.a. The 2M/MTR site review process consists of the following actions:

(1) Conduct an arrival briefing with a command representative (Commanding Officer, Officer in Charge (OIC), Electronics Material Officer (EMO), Combat Systems Maintenance Officer (CSMO), AIMD Officer, Marine Aviation Logistics Squadron (MALS) Aviation Maintenance Officer (AMO), Department Head, or Division Director), and appropriate 2M/MTR personnel (2M Technician Recertifier, 2M/MTR-workcenter supervisor, etc.).

(2) Verify 2M/MTR maintenance actions and piece parts usage is documented in accordance with established procedures.

(a) NAVSEA.

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

2 Verify the Module Test and Repair Tracking System (MTRTS) is also being used in accordance with established procedures to document circuit card assembly screening and repair.

**NOTE**

NAVSEA cognizant activities are mandated by the Joint Fleet Maintenance Manual (JFMM) to attempt repair on all suspect faulty CCA/EM and document the 2M/MTR maintenance actions into the MTRTS.

(b) NAVAIR. Refer to OPNAVINST 4790.2H, VOL III, paragraph 9.3.1b (4).

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

(3) Identify all assigned 2M/MTR personnel including name, rate, Planned Rotation Date (PRD), work center, certification level, and certification expiration date.

**NOTE**

The FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, or AMMT 2M Evaluator performing the review should also assist the activity in reviewing applicable manning documents [Enlisted Distribution Verification Report (EDVR)] for personnel with 2M/MTR NEC or PMOS who are out of certification to evaluate retention of the NEC or the PMOS [also see Section V, paragraph 1.a.(3)].

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

(4) Verify support equipment used for 2M/MTR diagnostic testing and repair has been included into the activity's preventive maintenance program.

(a) NAVSEA. Pace Soldering Station (PRC-2000 and MBT-250 2M System) Maintenance Requirement Cards (MRCs), Maintenance Index Page (MIP) 6652/005, and/or AN/USM-646 MRCs, MIP 4911/003.

(b) NAVAIR. Technical Manual (TM), Periodic Maintenance Requirements Manual, PRC-2000-2M System Electronic Rework Power Unit PACE, Incorporated GLDA, PRC-2000-2M System MRCs, NAVAIR 17-600-193-2.

(5) Verify performance of the following tasks in reference to applicable 2M/MTR equipment.

(a) NAVSEA.

1 Document the serial number and space location of the following support equipment:

a 2M Electronic Rework Power Unit; MBT-250-SD Station, PRC-2000-Through Hole (TH), PRC-2000-Surface Mount Technology (SMT)

b Auxiliary Equipment; Hot Spot Preheater, Microscope, Fiber Optic Lamp, ESD Constant Monitoring Station

c Diagnostic Testing Equipment; AN/USM-646: Controller, Monitor, Printer, Huntron 5100DS, Huntron 2000, Shortrack 90, Switcher 410

2 Verify applicable 2M/MTR support equipment is operational by checking the following:

a MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT Thermal Management Center (TMC) - conductive and convective handpieces.

b PRC-2000-TH, PRC-2000-SMT - hand tool power and pulse heat.

c MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT – grinding capability.

d MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT - vacuum and pressure pump with a minimum of 16 inches of vacuum and 4 pounds of pressure.

e PRC-2000-SMT - PIK-VAC 3 inches of vacuum and Paste Dispenser 35 pounds of pressure.

f MBT-250-SD Station and PRC-2000-2M System - verify the temperature setback feature is enabled. A setback time of 20 minutes is recommended to preserve handpiece heater and tip life.

g Single conductor ESD Mat/Cord System and/or 3M Model 700 Series ESD Constant Monitor System - verify proper installation and operability.

h AN/USM-646 passes MIP 4911/003 R-1, calibration and relay test.

(b) NAVAIR. PRC-2000-SMT:

1 Document the serial number and space location.

2 Verify applicable 2M-support equipment is operational. Refer to NAVAIR 17-15-99.

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

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

(a) NAVSEA and Coast Guard. The Coordinated Shipboard Allowance List (COSAL) or Coordinated Shore-Based Allowance List (COSBAL), PRC-2000-2M System Allowance Parts List (APL) 00032540, Portable 2M Kit (MBT-250-SD Station) 00041450, AN/USM-646 (V) 1 ACL, Test Station APL 00029515CL, HSR410(57705), Switcher APL 00012570, Tracker 2000 (57705), Test Set, Semiconductor APL 00020504, and/or 2M/MTR Piece Parts and Augmented Piece Parts APL (see Table 1. Reference Material for listing by Ship Class or Shore Site).

(b) NAVAIR, N/A for aviation activities. This validation is encompassed in the Aviation Consolidated Allowance List (AVCAL) or Shore-Based Consolidated Allowance List (SHORCAL) review process for aviation activities.

(7) Verify the 2M/MTR facility complies with NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

(8) Verify that at least one copy of applicable 2M/MTR-reference documents is available at or near the workstation. Multiple workstations in the same location do not require multiple copies of each document.

(a) NAVSEA. NAVSEA SE004-AK-TRS-010/2M; NAVSEA S9665-CY-OMP-010/PRC-2000/U, or NAVSEA SE010-A7-MMC-010/MBT-250-SD/U; NAVSEA TE000-AA-MAN-010/2M; DoD ST821-AT-IEM-010.

(b) NAVAIR. NAVAIR 01-1A-23; NAVAIR 17-15-99; NAVAIR SE-004-PQS-000; and NAVAIR 17-600-193-6-2.

(9) Verify the AN/USM-646 Test Station has the latest version of all applicable software installed.

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

(11) Verify 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).

(12) Provide the technicians with information regarding approved changes to tool and allowance lists.

(13) Ensure the Supply Department personnel are fully aware of the Progressive Repair Program and the policies and procedures contained in CINCLANTFLT/CINCPACFLTINST 4790.3, the JFMM and NAVSUP Publication 485, Afloat Supply Procedures. Measure the overall effectiveness of the 2M/MTR Program by comparing the command's supply "Depot Level Repairable (DLR) Carcass Report" with MTRS data.

(14) Conduct a departure briefing with a command representative (Commanding Officer, OIC, EMO, CSMO, AIMD Officer, MALS AMO, Department Head, or Division Director), and appropriate 2M/MTR personnel (2M Technician Recertifier, 2M/MTR-workcenter supervisor, etc.). All discrepancies and recommendations for improvement shall be discussed and documented.

b. **MINIATURE REPAIR CAPABILITY**. The FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, AMMT 2M Evaluator, or 2M CA will identify a 2M repair site miniature repair capable when an activity meets the requirements identified in paragraph 1.a. and the following additional requirements:

(1) A minimum of one repair technician currently certified at the miniature level assigned to each miniature workstation. Two technicians per workstation are recommended.

(2) A minimum of equipment and tools required to perform quality miniature repairs as prescribed by Appendix F, 2M/MTR Workstation Checklist. Substitute tools that meet form, fit, and function are acceptable.

(3) A designated work area with adequate facilities, including ventilation, lighting, work area, and work surface as outlined in NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

c. MICROMINIATURE REPAIR CAPABILITY. The FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, AMMT 2M Evaluator, or 2M CA will identify a 2M repair site microminiature repair capable when an activity meets the requirements identified in paragraph 1.a. and the following additional requirements:

(1) A minimum of one repair technician currently certified at the microminiature level assigned to each microminiature workstation. Two technicians per workstation are recommended. A microminiature workstation may be reviewed at the miniature level if there is a shortage of Microminiature Electronic Repair Technicians, but there is a currently certified Miniature Electronic Repair Technician assigned to the workstation.

(2) A minimum of equipment and tools required to perform quality microminiature repairs as prescribed by Appendix F, 2M/MTR Workstation Checklist, including one operational microscope with light source and stand per workstation. Substitute tools that meet form, fit, and function are acceptable.

(3) A designated work area with adequate facilities, including ventilation, lighting, work area, and work surface as outlined in NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

d. MTR STATION CAPABILITY. The FTSC 2M/MTR Field Service Engineer or Fleet Coordinator will identify a MTR site capable of diagnostic testing when an activity meets the requirements identified in paragraph 1.a. and the following additional requirements:

(1) A minimum of one MTR station operator assigned to each MTR workstation. Two station operators per workstation are recommended.

(2) A minimum of support equipment and accessories required to perform diagnostic testing as prescribed by Appendix F, 2M/MTR Workstation Checklist.

e. DEFICIENCIES. 2M/MTR deficiencies noted in the review results may be minor or major and caused by missing, worn or inoperable tools and equipment, a safety violation, or facility environmental deficiency. *A minor deficiency does not impair the capability to perform 2M repair actions or MTR diagnostic operations.* Examples of 2M minor deficiencies include missing a single size of extractor tip, eyelet, or ball mill. Examples of MTR minor deficiencies include missing software revisions, worn dip clips, inoperable Win Pedal, or missing test equipment. *A major deficiency impairs the capability to perform any specific task of a 2M repair or MTR fault isolation and is cause for failure of the 2M/MTR site review.* Examples of major deficiencies include:

(1) Missing ESD control capabilities or procedures not being properly followed, (e.g. missing, or defective, ESD mat or wrist strap).

(2) Any combination of missing tools that would prevent completing some form of 2M repair, (missing several sizes of extractor tips, all flush and diagonal cutting pliers, flexible cable, etc.).

(3) Inoperable 2M Electronic Rework Power Unit (MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT), e.g. failure of handpiece, vacuum, pressure, grinding functions or power source receptacles.

(4) Missing any or all of the Planned Maintenance System (PMS) for support equipment used in 2M repair (Pace Soldering Station; PRC-2000 and MBT-250 2M System).

(5) Missing eye protection (missing both safety goggles and spectacles).

(6) 2M/MTR site failing to meet the minimum standards of NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

(7) The technician is unable to sit with their legs under the workbench to properly operate footswitches that are on the deck or on a permanently installed stable platform.

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

(8) Having less than four individual power receptacles at or near the 2M workstation (required for 2M support equipment and light source). Having less than four individual power receptacles at or near the MTR workstation (required for MTR support equipment).

(9) Lack of certified 2M/MTR technicians as specified in paragraphs 1.b., c., and d.

(10) Inoperable 2M/MTR support equipment.

(11) Required PMS for 2M/MTR support equipment not accomplished in accordance with MRC periodicity.

(12) Any missing or worn test system accessories, outdated software, or other item requiring replacement to support complete AN/USM-646 Test Station configuration.

f. FOLLOW-ON REVIEW REQUIREMENTS. All 2M/MTR sites will be reviewed every 18 months by an FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, AMMT 2M Evaluator, or 2M CA. The reviewer may extend this interval up to 24 months to facilitate scheduling. Also, 2M/MTR sites will be reviewed whenever 2M/MTR workstations are relocated to ensure compliance with NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements. Most afloat and some shore 2M/MTR facility reviews are scheduled to correspond with the periodicity of major TYCOM reviews (NAVSEA Combat Systems, Command, Control, Communications and Computer Readiness Assessment (C5RA) or NAVAIR AMMT visits). The process and requirements will be the same as the initial review. The FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, AMMT 2M Evaluator, or 2M CA will follow the 2M/MTR Site Review Reporting Procedures provided in Section V, paragraph 2.a.

### 2. 2M TRAINING SITES.

a. INITIAL REVIEW REQUIREMENTS. Review of 2M training sites will be required for any activity teaching courses A-100-0072, Miniature Electronics Repair; A-100-0073, Microminiature Electronics Repair; A-100-0058, 2M Technician Recertifier. A-100-0144, 2M Technician Recertifier Requalification, or A-100-0074, 2M Instructor Pipeline. Activities are reviewed by the 2M CA as qualified to instruct the aforementioned courses when they meet minimum manning levels of certified personnel, equipment outfitting and facility requirements. The 2M CA will follow the 2M Training Site Review Reporting Procedures provided in Section V, paragraph 2.b. The 2M training site review process consists of the following actions:

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

(2) Identify all assigned 2M Instructor personnel.

(3) Verify performance of the following tasks in reference to applicable 2M equipment.

(a) Document the serial number and space location of the following support equipment:

1 2M Electronic Rework Power Unit; MBT-250-SD Station, PRC-2000-Through Hole (TH), PRC-2000-Surface Mount Technology (SMT)

2 Auxiliary Equipment; Microscope, Fiber Optic Lamp, ESD Constant Monitoring Station, Hot Spot Preheater

(b) Verify applicable 2M support equipment is operational by checking the following:

1 MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT Thermal Management Center (TMC) - conductive and convective handpieces.

## **NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000**

- 2 PRC-2000-TH, PRC-2000-SMT - hand tool power and pulse heat.
  - 3 MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT – grinding capability.
  - 4 MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT - vacuum and pressure pump with a minimum of 16 inches of vacuum and 4 pounds of pressure.
  - 5 PRC-2000-SMT - PIK-VAC 3 inches of vacuum and Paste Dispenser 35 pounds of pressure.
  - 6 MBT-250-SD Station and PRC-2000-2M System - verify the temperature setback feature is enabled. A setback time of 20 minutes is recommended to preserve handpiece heater and tip life.
  - 7 3M Model 700 Series ESD Constant Monitor System - verify proper installation and operability.
- (4) Inventory 2M consumables, tools, and support equipment using Appendix F, 2M/MTR Workstation Checklist.
- (5) Discuss and evaluate proposed changes in tools, equipment, techniques, and 2M training curriculum, as submitted by the training site or 2M CA.
- (6) Evaluate the facility (2M Training Site) to ensure compliance with NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.
- (7) Verify an ample supply of practice circuit cards, terminals, eyelets, and solder cups, components, consumables, etc.
- (8) Verify at least one copy of the following 2M documents are in the possession of the 2M Course Supervisor: OPNAVINST 4790.2G, VOL V, Chapter 23, OPNAVINST 4790.7J, OPNAVINST 4790.13, NAVSEAINST 4790.17A, NAVSEA TE000-AA-MAN-010/2M, NAVAIR SE-004-PQS-000, appropriate 2M TYCOM instruction(s), and the current 2M NTP S-30-8711.
- (9) Verify appropriate instructional materials are current and available (administrator's guide, lesson plan, performance tests, testing plan, trainee guide, training course control document, and audiovisual aids) for the A-100-0072, Miniature Electronics Repair; A-100-0073, Microminiature Electronics Repair; A-100-0144, 2M Technician Recertifier Requalification; A-100-0074, 2M Instructor Pipeline; and if applicable A-100-0058, 2M Technician Recertifier. List inadequacies and projected corrective action anticipated.
- (10) Review the activity's training records. This will include a review of 2M Instructor's training records, courses conducted, number of training quotas available and utilized, and the certification of students by skill level since last training site review.
- (11) Conduct a departure briefing with a command representative (Commanding Officer, OIC, Department Head or Division Director), and appropriate 2M personnel (2M Group/Course Supervisor or 2M Instructors). All discrepancies and recommendations for improvement shall be discussed and documented.
- b. **MINIATURE TRAINING CAPABILITY.** The 2M CA will identify a 2M training site as miniature training capable when the activity meets the requirements identified in paragraph 1.a and the following additional requirements:
- (1) A minimum of four to one student/instructor ratio is required utilizing a minimum of one certified instructor per classroom.

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

(2) 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 A-100-0072, Miniature Electronics Repair and using Appendix F, 2M/MTR Workstation Checklist.

(3) A minimum of one copy of NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M per student and one copy of NAVSEA S9665-CY-OMP-010/PRC-2000U, NAVAIR 17-15-99 per classroom.

(4) Designated classroom with adequate facilities, including ventilation, lighting, work area, and work surface, as outlined in NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

(5) One operational microscope with light source and stand per student.

(6) One operational Miniature/Microminiature Display Trainer (MMDT) consisting of Close Circuit Television camera, monitor, and microscope.

c. **MICROMINIATURE TRAINING CAPABILITY.** The 2M CA will identify a 2M training site as microminiature training capable when the activity meets the requirements identified in paragraphs 1.a and 1.b and 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 A-100-0073, Microminiature Electronics Repair and using Appendix F, 2M/MTR Workstation Checklist.

d. **FOLLOW-ON REQUIREMENTS.** The 2M CA will review all 2M training sites every 18 months. The 2M CA may extend this interval up to 24 months to facilitate scheduling. The process and requirements will be the same as the initial review. The 2M CA will follow the 2M Training Site Review Reporting Procedures provided in Section V, paragraph 2.b.

### 3. 2M/MTR REVIEWING SITES.

a. **INITIAL REVIEW REQUIREMENTS.** Validation of 2M/MTR reviewing sites (FTSC/FTSC Detachments/AIR TYCOMs) will be required for any activity performing 2M/MTR Site reviews and follow-on certification of 2M/MTR technicians. The FTSC 2M/MTR Fleet Coordinator validates FTSC Detachments. The 2M CA validates FTSC 2M/MTR Fleet Coordinator and AMMT 2M Evaluator activities (FTSCLANT/FTSCPAC/AIR TYCOM). The FTSC 2M/MTR Fleet Coordinator or 2M CA will follow the 2M/MTR Reviewing Site Reporting Procedures provided in Section V, paragraph 2.c. The 2M/MTR reviewing site validation process consists of the following actions:

(1) Conduct an arrival briefing with a command representative (Commanding Officer, OIC, Department Head or Division Director), and appropriate 2M personnel (2M/MTR Field Service Engineers, 2M/MTR Fleet Coordinator, or AMMT 2M Evaluators).

(2) Identify all assigned 2M/MTR Field Service Engineers, 2M/MTR Fleet Coordinator, AMMT 2M Evaluator personnel.

(3) Verify performance of the following tasks in reference to applicable 2M equipment.

(a) Document the serial number and space location of the following support equipment:

1 2M Electronic Rework Power Unit; MBT-250-SD Station, PRC-2000-Through Hole (TH), PRC-2000-Surface Mount Technology (SMT).

2 Auxiliary Equipment; Microscope, Fiber Optic Lamp, ESD Constant Monitoring Station, Hot Spot Preheater.

(b) Verify applicable 2M support equipment is operational by checking the following:

## **NAVSEA TE000-AA-MAN-010/2M**

### **NAVAIR SE-004-PQS-000**

1 MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT Thermal Management Center (TMC) - conductive and convective handpieces.

2 PRC-2000-TH, PRC-2000-SMT - hand tool power and pulse heat.

3 MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT – grinding capability.

4 MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT - vacuum and pressure pump with a minimum of 16 inches of vacuum and 4 pounds of pressure.

5 PRC-2000-SMT - PIK-VAC 3 inches of vacuum and Paste Dispenser 35 pounds of pressure.

6 MBT-250-SD Station and PRC-2000-2M System - verify the temperature setback feature is enabled. A setback time of 20 minutes is recommended to preserve handpiece heater and tip life.

(4) 3M Model 700 Series ESD Constant Monitor System - verify proper installation and operability.

(5) Inventory FTSC/FTSC Detachment 2M consumables, tools, and support equipment using Appendix F, 2M/MTR Workstation Checklist.

(6) Discuss and evaluate proposed changes in tools, equipment, techniques, and 2M training curriculum.

(7) Evaluate the FTSC/FTSC Detachment facility to ensure compliance with NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M Standard Maintenance Practices for 2M Electronic Assembly Repair, WP003 00, Facility Requirements.

(8) Verify FTSC/FTSC Detachment has an ample supply of practice circuit cards, terminals, eyelets, solder cups, components, consumables, etc., to conduct 2M technician recertifications.

(9) Verify at least one copy of the following 2M documents are in the possession of the FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, or AMMT 2M Evaluator: OPNAVINST 4790.2G, VOL V, Chapter 23, OPNAVINST 4790.7J, OPNAVINST 4790.13, NAVSEAINST 4790.17A, NAVSEA TE000-AA-MAN-010/2M, NAVAIR SE-004-PQS-000, appropriate 2M TYCOM instruction(s), and the current 2M NTP S-30-8711.

(10) Verify FTSC 2M/MTR Field Service Engineers and Fleet Coordinators are reporting completion of 2M personnel recertifications in the 2M database or via Appendix J, 2M Personnel Certification Record form.

(11) Verify documented completion of locally generated PQS for each FTSC 2M/MTR Field Service Engineer and/or Fleet Coordinator.

(12) Review the status of all the FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, or AMMT 2M Evaluator 2M/MTR sites.

(13) The FTSC 2M/MTR Fleet Coordinator shall accompany and observe the FTSC 2M/MTR Field Service Engineer during a 2M/MTR site review. The 2M CA shall accompany and observe the FTSC 2M/MTR Fleet Coordinator or AMMT 2M Evaluator during a 2M site review or AMMT visit.

(14) Conduct a departure briefing with a command representative (Commanding Officer, OIC, Department Head or Division Director), and appropriate 2M personnel (2M/MTR Field Service Engineers, 2M/MTR Fleet Coordinator, or AMMT 2M Evaluators).

b. FOLLOW-ON REQUIREMENTS. The FTSC 2M/MTR Fleet Coordinator will validate all FTSC Detachments every 18 months. The 2M CA will validate FTSC/LANT/FTSC/PAC and AIR TYCOM activities

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

every 18 months. The 2M CA may extend this interval up to 24 months to facilitate scheduling. The process and requirements will be the same as the initial review. The FTSC 2M/MTR Fleet Coordinator or 2M CA will follow the 2M/MTR Reviewing Site Reporting Procedures provided in Section V, paragraph 2.c.

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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## SECTION V. 2M/MTR REPORTING

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### 1. 2M/MTR PERSONNEL.

#### **NOTE**

2M Technician Recertifiers, FTSC 2M/MTR Field Service Engineers or Fleet Coordinators, or 2M Instructors shall report completion of 2M personnel initial certification and recertification in the 2M database. Reporting shall be completed via the web site located at <https://acrux2.m42.crane.navy.mil/>. For user access, contact the 2M Program Webmaster at DSN 482-3237. If computer access is not available Appendix J, 2M Personnel Certification Record form will be utilized for mailing.

#### a. MINIATURE ELECTRONIC REPAIR TECHNICIAN.

(1) Initial Certification Reporting Procedures. Miniature Electronic Repair Technicians are certified and awarded NEC 9527 upon completion of A-100-0072, Miniature Electronics Repair. Marine Corps personnel are awarded PMOS 6423. Coast Guard personnel are awarded Qualification Code 12. The 2M Instructor will complete Performance Information Memorandum (PIM) (Appendix A) in accordance with BUPERSINST 1610.10. The completed PIM is signed by the 2M training site command representative and issued to the certifying Miniature Electronic Repair Technician for service record entry. For non-military personnel, the 2M training site will issue a certificate of completion in lieu of a PIM. The 2M Instructor will issue a serialized green certification card (see Appendix J) and be responsible for entering information into the 2M database for up-line reporting.

(2) Recertification Reporting Procedures. A 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor shall recertify Miniature Electronic Repair Technicians every 18 months. A performance test documenting completion of all tasks listed in Section III, the recertifier for miniature recertification will administer paragraph 1.c. The Miniature Recertification Performance Test is provided as Appendix B. Upon completion, the recertifier will sign the performance test, complete the NAVPERS 1070/613 (ADMINISTRATIVE REMARKS/ Page 13, see Appendix C-1), and issue both to the recertifying technician. For Coast Guard personnel, complete the U.S. Coast Guard CG-3307 (see Appendix C-2) in lieu of the NAVPERS 1070/613. The technician shall maintain the completed performance test in their training record under the Qualification and Certification section. NAVAIR technicians shall forward the completed NAVPERS 1070/613 (ADMINISTRATIVE REMARKS/ Page 13), to the AIMD Officer or OIC for signature. All others shall submit the completed NAVPERS 1070/613 (ADMINISTRATIVE REMARKS/Page 13) and U.S. Coast Guard CG-3307 to their command administration department for service record entry. The recertifier will issue a serialized green certification card (see Appendix J) and be responsible for entering information into the 2M database for up-line reporting.

(3) Non-Certification Reporting Procedures. The 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor will provide notification of inability to certify or recertify at the miniature level to the appropriate parent command. It is the parent command's responsibility to recommend removal of NECs, and to monitor the EDVR for applicable changes. Submission of NEC Change/Recommendation (EPMAC 1221/1) is required to remove an NEC. If a Miniature Electronic Repair 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.

#### **NOTE**

It is recommended that 2M Technician Recertifiers, FTSC 2M/MTR Field Service Engineers or Fleet Coordinators, and Instructors maintain a 2M Program Binder. The binder should

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

contain hardcopies of all PIMs (Appendix A), 2M personnel performance tests administered, or a listing of 2M technicians certified or recertified to include name, rate, certification level, expiration date, activity assigned to, PRD, and card serial number for tracking and verification of personnel certification status as necessary.

### b. MICROMINIATURE ELECTRONIC REPAIR TECHNICIAN.

(1) Initial Certification Reporting Procedures. Microminiature Electronic Repair Technicians are certified and awarded NEC 9526 upon completion of A-100-0073, Microminiature Electronics Repair. For Marine Corps personnel, microminiature certification is added to PMOS 6423 qualifications. Coast Guard personnel are awarded Qualification Code 13. The 2M Instructor will complete a PIM (Appendix A) in accordance with BUPERSINST 1610.10. The completed PIM is signed by the 2M training site command representative and issued to the certifying Microminiature Electronic Repair Technician for service record entry. For non-military personnel, the 2M training site will issue a certificate of completion in lieu of a PIM. The 2M Instructor will issue a serialized blue certification card (see Appendix J) and be responsible for entering information into the 2M database for up-line reporting.

(2) Recertification Reporting Procedures. A 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor shall recertify Microminiature Electronic Repair Technicians every 18 months. The recertifier for microminiature recertification will administer a performance test documenting completion of all the tasks listed in Section III, paragraph 2.c. The Microminiature Recertification Performance Test is provided as Appendix D. Upon completion, the recertifier will sign the performance test, complete the NAVPERS 1070/613 (ADMINISTRATIVE REMARKS/ Page 13, see Appendix C-1), and issue both to the recertifying technician. For Coast Guard personnel, complete the U.S. Coast Guard CG-3307 (see Appendix C-2) in lieu of the NAVPERS 1070/613. The technician shall maintain the completed performance test in their training record under the Qualification and Certification section. NAVAIR technicians shall forward the completed NAVPERS 1070/613 (ADMINISTRATIVE REMARKS/ Page 13), to the AIMD Officer or OIC for signature. All others shall submit the completed NAVPERS 1070/613 (ADMINISTRATIVE REMARKS/Page 13) and U.S. Coast Guard CG-3307 to their command administration department for service record entry. The recertifier will issue a serialized blue certification card (see Appendix J) and be responsible for entering information into the 2M database for up-line reporting.

(3) Non-Certification Reporting Procedures. Same as indicated in paragraph 1.a.(3), except at the Microminiature Electronic Repair Technician (NEC 9526) level.

#### **NOTE**

It is recommended that 2M Technician Recertifiers, FTSC 2M/MTR Field Service Engineers or Fleet Coordinators, and 2M Instructors maintain a 2M Program Binder. The binder should contain hardcopies of all PIMs (Appendix A), 2M personnel performance tests administered, or a listing of 2M technicians certified or recertified to include name, rate, certification level, expiration date, activity assigned to, PRD and card serial number for tracking and verification of personnel certification status as necessary.

### c. 2M TECHNICIAN RECERTIFIER.

(1) Initial Certification Reporting Procedures. 2M Technician Recertifiers are awarded NEC 9503 upon completion of A-100-0058, 2M Technician Recertifier. For Marine Corps personnel, 2M Technician Recertifier certification is added to PMOS 6423 qualifications. Coast Guard personnel are awarded Qualification Code 14. The 2M Instructor will complete a PIM (Appendix A) in accordance with BUPERSINST 1610.10. The completed PIM is signed by the 2M training site command representative and issued to the certifying 2M Technician Recertifier for service record entry. For non-military personnel, the 2M training site will issue a certificate of completion in lieu of a PIM. The 2M Instructor will issue a yellow serialized certification card (see Appendix J) and be responsible for entering information into the 2M database for up-line reporting.

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

(2) Recertification Reporting Procedures. 2M Technician Recertifiers shall be recertified every 18 months at the microminiature level by a 2M Instructor upon successful completion of A-100-0144, 2M Technician Recertifier Requalification. If a 2M training site is not local, the 2M Technician Recertifier may be recertified by an FTSC 2M/MTR Fleet Coordinator provided the recertification is completed within the required 18-month period. The recertifier will follow the microminiature recertification reporting requirements provided in paragraph 1.b.(2). The recertifier will issue a serialized yellow certification card (see Appendix J) and be responsible for entering information into the 2M database for up-line reporting.

(3) Non-Certification Reporting Procedures. Same as indicated in paragraph 1.a.(3), except at the 2M Technician Recertifier (NEC 9503) level.

### d. 2M INSTRUCTOR.

(1) Initial Certification Reporting Procedures. 2M Instructors are awarded NEC 9509 upon completion of A-100-0074, 2M Instructor Pipeline. For Marine Corps personnel, 2M Instructor certification is added to PMOS 6423 qualifications. A Qualification Code for Coast Guard personnel is under review. The certifying 2M Instructor will complete a PIM (Appendix A) in accordance with BUPERSINST 1610.10. The completed PIM is signed by the 2M training site command representative and issued to the certifying 2M Instructor for service record entry. For non-military personnel, the 2M training site will issue a certificate of completion in lieu of a PIM. The certifying 2M Instructor will issue a serialized white certification card (see Appendix J) and be responsible for entering information into the 2M database for up-line reporting.

#### (2) Recertification Reporting Procedures.

(a) Follow-On Microminiature Recertification. A 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator shall recertify 2M Instructors every 18 months at the microminiature level. The recertifier will follow the microminiature recertification reporting requirements provided in paragraph 1.b.(2) with the following exceptions:

1 The recertifier will issue a NON-serialized blue certification card (see Appendix J).

2 The recertifier shall be responsible for entering the date of the microminiature recertification in the "comment" field of the recertifying 2M Instructor's personal record in the 2M database.

(b) 2M Instructor Recertification. 2M Instructor's ability to conduct training courses for A-100-0072, Miniature Electronics Repair; A-100-0073, Microminiature Electronics Repair; A-100-0058, 2M Technician Recertifier; A-100-0144, 2M Technician Recertifier Requalification; and A-100-0074, 2M Instructor Pipeline shall be validated every 18 months by the 2M CA in conjunction with the 2M Training Site Review. The findings and recommendations of the 2M CA validation shall be provided to the training site command representative (Commanding Officer, OIC, Department Head or Division Director), via the 2M Training Site Review (Appendix G). The 2M CA will issue a serialized white certification card (see Appendix J) and be responsible for entering information into the 2M database for up-line reporting.

#### (3) Non-Certification Reporting Procedures.

(a) Initial Non-Certification. Same as indicated in paragraph 1.a.(3), except at the 2M Instructor (NEC 9509) level.

(b) Follow-On Microminiature Recertification. Same as indicated in paragraph 1.a.(3), except at the Microminiature Electronic Repair Technician (NEC 9526) level.

(c) 2M Instructor Recertification. Same as indicated in paragraph 1.a.(3), except at the 2M Instructor (NEC 9509) level and the 2M CA will provide notification of inability to recertify to the appropriate parent command via the 2M Training Site Review (Appendix G).

## NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

### e. FTSC 2M/MTR FIELD SERVICE ENGINEER AND FLEET COORDINATOR.

(1) Initial Certification Reporting Requirements. To become an FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, personnel must have completed a previous tour as a certified 2M Technician Recertifier (NEC 9503) or 2M Instructor (NEC 9509) and be either assigned or enroute to an FTSC or FTSC Detachment requiring FTSC 2M/MTR Field Service Engineers. FTSC 2M/MTR Field Service Engineers are also required to complete A-100-0076, AN/USM-646 TMDE Operator/Maintenance course and locally generated Personnel Qualification Standard (PQS) under the instruction of a currently certified FTSC 2M/MTR Field Service Engineer or FTSC 2M/MTR Fleet Coordinator. PQS requirements will include the performance of 2M/MTR technician recertifications, 2M/MTR site reviews, and 2M/MTR Personnel and Site reporting procedures. For FTSC 2M/MTR Field Service Engineers, the parent FTSC or FTSC Detachment will forward documented completion of course and PQS requirements to the FTSC 2M/MTR Fleet Coordinator. For FTSC 2M/MTR Fleet Coordinators, the parent FTSC will document and maintain completion of course and PQS requirements.

(2) Recertification Reporting Requirements. For FTSC 2M/MTR Field Service Engineers to be authorized to perform recertification of Miniature and Microminiature Electronic Repair Technicians and for FTSC 2M/MTR Fleet Coordinators to be authorized to perform microminiature recertification of 2M Technician Recertifiers and FTSC 2M/MTR Field Service Engineers, FTSC 2M/MTR Field Service Engineers and Fleet Coordinators shall be recertified every 18 months at the microminiature level by a 2M Instructor upon successful completion of A-100-0144, 2M Technician Recertifier Requalification. The 2M Instructor will follow the microminiature recertification reporting requirements provided in paragraph 1.b.(2). The 2M Instructor will issue a serialized yellow certification card (see Appendix J) and be responsible for entering information into the 2M database for up-line reporting.

(3) Non-Certification Reporting Requirements. Same as indicated in paragraph 1.a.(3), except at the FTSC 2M Fleet Coordinator (NEC 9503/9509) level.

### f. MTR STATION OPERATOR.

(1) Initial MTR Station Operator Reporting Procedures. To be qualified as an MTR Station Operator, the technician must satisfactorily complete the A-100-0076, AN/USM-646 TMDE Operator/Maintenance course. The MTR Instructor will complete PIM (Appendix A) in accordance with BUPERSINST 1610.10. The completed PIM is signed by the MTR training site command representative and issued to the MTR Station Operator for service record entry. For non-military personnel, the MTR training site will issue a certificate of completion in lieu of a PIM. The MTR (2M) Instructor shall be responsible for entering information into the 2M database for up-line reporting.

(2) Follow-On MTR Station Operator Reporting Procedures. An FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, during the 2M/MTR Site Review, will validate NAVSEA MTR Station Operators every 18 months. The findings and recommendations of the FTSC 2M/MTR Field Service Engineer or Fleet Coordinator shall be provided to the parent command representative (Commanding Officer, OIC, Department Head or Division Director), via the 2M/MTR Site Review (Appendix E).

(3) The FTSC 2M/MTR Field Service Engineer or Fleet Coordinator will provide notification of inability by NAVSEA MTR Station Operators to operate and maintain the AN/USM-646(V) TMDE to the parent command representative (Commanding Officer, OIC, Department Head or Division Director), via the 2M/MTR Site Review (Appendix E). It is the parent command's responsibility to take corrective action necessary to bring the assigned NAVSEA MTR Station Operator within 2M/MTR Site Review requirements.

### g. 2M/MTR TECHNICIAN.

(1) Initial Certification Reporting Procedures. 2M/MTR Technicians are certified and awarded NEC ET-1591 upon completion of A-100-0072, Miniature Electronics Repair, A-100-0073, Microminiature Electronics Repair, and A-100-0076, AN/USM-646 TMDE Operator/Maintenance courses. The 2M/MTR Instructor will complete PIM (Appendix A) in accordance with BUPERSINST 1610.10. The completed PIM is signed by the 2M/MTR training site command representative and issued to the 2M/MTR Technician for service record entry. For non-military personnel, the 2M/MTR training site will issue a certificate of completion in lieu of

# NAVSEA TE000-AA-MAN-010/2M NAVAIR SE-004-PQS-000

a PIM. The 2M/MTR Instructor shall be responsible for entering information into the 2M database for up-line reporting.

(2) Recertification Reporting Procedures.

(a) Microminiature Recertification. Same as indicated in paragraph 1.b.(2).

(b) MTR Station Operator. Same as indicated in paragraph 1.f.(2).

(3) Non-Certification Reporting Procedures.

(a) Microminiature Recertification. Same as indicated in paragraph 1.b.(3).

(b) MTR Station Operator. Same as indicated in paragraph 1.f.(3).

## 2. 2M/MTR SITES.

a. **2M/MTR SITE REVIEW REPORTING PROCEDURES.** 2M/MTR sites are identified as 2M repair and/or MTR capable when minimum levels of certified personnel, equipment outfitting, and facility requirements are met. The FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or AMMT 2M Evaluator shall document the review process. The 2M/MTR Site Review is provided as Appendix E. Other audit reports or checklists which address the minimum 2M/MTR site requirements found in Section IV, paragraphs 1 and 2, may be used by the FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or AMMT 2M Evaluator in place of Appendix E (COMNAVAIRLANT/COMNAVAIRPAC CSEC). For reviews conducted in conjunction with TYCOM reviews, the 2M/MTR Site Review results (Appendix E /CSEC) shall be submitted as part of the appropriate TYCOM review report (NAVSEA C5RA Final Report or NAVAIR AMMT visit). For those reviews not conducted in conjunction with a TYCOM review, the review results will be presented directly to the command representative. The reviewing FTSC 2M/MTR Field Service Engineer or Fleet Coordinator shall be responsible for entering technician and workstation data into the 2M database for up-line reporting.

### **NOTE**

It is recommended that the FTSC 2M/MTR Field Service Engineer or Fleet Coordinator or AMMT 2M Evaluator maintain a 2M/MTR Program Binder. The binder will contain hardcopies of all 2M/MTR Site Reviews (Appendix E)/CSEC for tracking and verification of review status as necessary.

b. **2M TRAINING SITE REVIEW REPORTING PROCEDURES.** Activities are reviewed by the 2M CA as qualified to instruct A-100-0072, Miniature Electronics Repair; A-100-0073, Microminiature Electronics Repair; A-100-0058, 2M Technician Recertifier; A-100-0144, 2M Technician Recertifier Requalification; and A-100-0074, 2M Instructor Pipeline when they meet minimum manning levels of certified personnel, equipment outfitting and facility requirements. The 2M CA shall document the review process using 2M Training Site Review (Appendix G). The review results shall be submitted to the command representative (Commanding Officer, OIC, or Department Head), with a copy to CNET and/or NAMTRAGRU and NAVSEA 04M34. The reviewing 2M CA shall be responsible for entering 2M Instructor and 2M workstation data into the 2M database for up-line reporting.

c. **2M/MTR REVIEWING SITE VALIDATION REPORTING PROCEDURES.** Activities are validated by the FTSC 2M/MTR Fleet Coordinator and 2M CA as qualified to conduct 2M/MTR site reviews when minimum levels of certified personnel, equipment outfitting, and facility requirements are met. The FTSC 2M/MTR Fleet Coordinator and 2M CA shall document the validation process using 2M/MTR Reviewing Site Validation (Appendix H). The validation results shall be submitted to the command representative (Commanding Officer, OIC, or Department Head), with a copy to NAVSEA 04M3 for FTSC/FTSC Detachments and NAVAIR 3.2E for AIR TYCOMs.

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**APPENDIX A**

PERFORMANCE INFORMATION MEMORANDUM (PIM)

1610  
(Orig. Code)  
(Date)

PERFORMANCE INFORMATION MEMORANDUM

From: (Originating Command)

To: (Member's Permanent Duty Command)

Subj: **PERFORMANCE INFORMATION MEMORANDUM ICO (Rank/Rate, Name, and SSN)**

Ref: (a) BUPERSINST 1610.10

1. Period of duty: to .

2. Type of duty:

(TEMDU/TEMADD/AT/ADT, etc. Add "Under Instruction," if applicable.)

3. Duties assigned (or courses attended):

(If the PIM covers course attendance, provide the information needed for Page 4 of the service record: Course Title, Course Identification Number, School Location, NEC Earned (if any), Course Length, Dates Enrolled and Completed, Final Mark, and Class Standing. If the course was not completed, give reason.)

4. Comments:

(All 2M technicians by virtue of holding a current certification are qualified for further training. 2M technicians completing A-100-0072, Miniature Electronics Repair with an overall course grade average of 90 percent or above or A-100-0073, Microminiature Electronics Repair with 95 percent or above and have not received a counseling sheet documenting continued violation of safety procedures are highly recommended for the next level of training. These percentages are provided as a guide to facilitate effective management decision-making regarding advanced 2M training. Technicians entering with these credentials have shown great success in completing the advanced 2M training.)

I.M. OFFICER  
By direction

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000

APPENDIX B

MINIATURE RECERTIFICATION PERFORMANCE TEST

TECHNICIAN NAME: \_\_\_\_\_ RATE: \_\_\_\_\_

ACTIVITY: \_\_\_\_\_ UIC: \_\_\_\_\_ W/C: \_\_\_\_\_ PRD: \_\_\_\_\_

1. 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 with reference work packages noted. All work must comply with the workmanship standards listed in the respective work packages.

PROJECT	REFERENCE WP	EVALUATION
a. Identify four of five and remove two of the following conformal coating types: Type AR, ER, SR, UR, XY	006 00	#GRADE
b. Install a single wire on a turret or hook terminal.	008 00	#GRADE
c. Install a double wire on a turret or hook terminal.	008 00	#GRADE
d. Install a single wire to a solder cup.	009 00	#GRADE
e. Conductor repair: pad replacement with a flat-set eyelet.	012 00	#GRADE
f. Install a horizontal mount, full clinch, axial lead component on a double-sided circuit card assembly (CCA).	007 00	#GRADE
g. Remove and replace a 14/16 lead dual in-line package (DIP)	007 00	#GRADE
h. Remove and replace a 14/16 lead flat-pack.	018 00	#GRADE

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 TEST GRADE AVERAGE: \_\_\_\_\_

NOTES: \_\_\_\_\_

\_\_\_\_\_

Original To: Technician (Training Record)  
Copy To: 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**APPENDIX C**

2M CERTIFICATION UPDATE (NAVY)

**ADMINISTRATIVE REMARKS**

NAVPERS 1070/613 (REV. 10-81)

E-32

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SERVICE MEMBER COMMAND PRINTED HERE

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1. The individual indicated has successfully completed the (Miniature/Microminiature) Electronic Repair Technician requirements for recertification as identified in the Certification Manual for 2M/MTR Program (NAVSEA TE000-AA-MAN-010/2M, NAVAIR SE-004-PQS-000).
2. Recertification was granted (Date).
3. Certification will expire (Date).
4. This entry verifies that the technician is fully qualified and authorized to conduct 2M repairs at the (miniature/microminiature) level.
5. Final overall performance test grade average is (#grade).

(All 2M technicians by virtue of holding a current certification are qualified for further training. 2M technicians completing the recertification performance test with an overall grade average of 90 percent or above for miniature, or 95 percent or above for microminiature and have not received a counseling sheet documenting continued violation of safety procedures are highly recommended for the next level of training. These percentages are provided as a guide to facilitate effective management decision-making regarding advanced 2M training. Technicians entering with these credentials have shown great success in completing the advanced 2M training.)

---

2M TECHNICIAN RECERTIFIER  
FTSC 2M/MTR FIELD SERVICE ENGINEER  
2M INSTRUCTOR

---

ACKNOWLEDGED (SERVICE MEMBER)

---

(NAVAIR) AIMD Officer/OIC

DATE

NAME (LAST, FIRST, MI)	SSN	BRANCH & CLASS

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M CERTIFICATION UPDATE (COAST GUARD)

DEPARTMENT OF TRANSPORTATION U.S. COAST GUARD CG-3307 (Rev. 12-98)	<u>ADMINISTRATIVE REMARKS</u>		
<p>Entry Type:          Reference:          Responsible Level:          Entry:</p>			
1. NAME OF PERMANENT UNIT	2. NAME OF UNIT PREPARING THIS FORM		
3. NAME OF MEMBER (Last, First, MI)	4. SOCIAL SECURITY NO.	5. GRADE/RATE	6. PAGE 7

PREVIOUS EDITION MAY BE USED

Page 1 – To Commandant (CGPC-ADM-3)/ Page 2 - File in Service Record

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**APPENDIX D**

MICROMINIATURE RECERTIFICATION PERFORMANCE TEST

TECHNICIAN NAME: \_\_\_\_\_ RATE: \_\_\_\_\_

ACTIVITY: \_\_\_\_\_ UIC: \_\_\_\_\_ W/C: \_\_\_\_\_ PRD: \_\_\_\_\_

1. 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 with reference Work Packages (WP) noted. All work must comply with the workmanship standards listed in the respective work packages.

PROJECT	REFERENCE WP	EVALUATION
a. Identify four of five and remove two of the following conformal coating types: Type AR, ER, SR, UR, XY	006 00	#GRADE
b. Install a single wire on a turret or hook terminal.	008 00	#GRADE
c. Install a double wire on a turret or hook terminal.	008 00	#GRADE
d. Remove and replace a 14/16 lead Dual In-line Package (DIP).	007 00	#GRADE
e. Repair flexible laminate and conductor <b>OR</b> Plastic panel defective bulb removal and replacement.	013 00 / 016 00	#GRADE
f. Repair multilayer CCA laminate and conductors by excavating down two layers, remove and replace lower level conductor only.	015 00	#GRADE
g. Remove and install a MELF or chip resistor or capacitor.	018 00	#GRADE
h. Remove and install a SOT or SOIC.	018 00	#GRADE
i. Remove and install a PQFP, PLCC, or LCCC.	018 00	#GRADE

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 TEST GRADE AVERAGE: \_\_\_\_\_

NOTES: \_\_\_\_\_

Original To: Technician (Training Record)  
Copy To: 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor

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NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000

APPENDIX E

2M/MTR SITE REVIEW (Cover Letter)

4790  
Ser (#####)  
(Day/Month/Year)

From: Commanding Officer, (Reviewing Activity)  
To: Commanding Officer, (Site Reviewed) and Appropriate TYCOM review report,  
(e.g. NAVSEA C5RA Final Report)

Subj: **MINIATURE/MICROMINIATURE (2M)/MODULE TEST AND REPAIR (MTR) SITE REVIEW**

Ref: (a) NAVSEAINST 4790.17 (Series)  
(b) NAVSEA TE000-AA-MAN-010/2M  
(c) NAVUNSEAWARCEN DET FEO Norfolk ltr 4790 Ser 0201V/141 of 11 May 2000

Encl: (1) Miniature/Microminiature (2M) Module Test and Repair (MTR) Site Review Report

1. A Miniature/Microminiature (2M) and Module Test and Repair (MTR) Site Review was conducted per references (a) and (b) on (Activity) by (Rank/Name), (Day/Month/Year). Results of this review are provided as enclosure (1).

2. 2M Station Serial Number (#####) is capable of providing quality 2M repairs at the (Miniature or Microminiature) level as outlined in references (a) and (b). MTR Test Station (#####) (or Developer Station (#####)) is capable of conducting MTR Electronic Fault Isolation (or Gold Disk development) as outlined in reference (c). The next 2M/MTR Site Review on (Activity) should be conducted in (Month/Year). An outbrief was conducted with (Rate/Name).

3. (Activity) has an effective 2M/MTR Program. The 2M/MTR workcenter is being maximized to the fullest potential. The 2M/MTR workcenter contributes significantly to the operational readiness and provides substantial cost savings to (Site Reviewed). 2M/MTR technician (Rank/Name) should be commended for his/her outstanding efforts.

-OR-

3. During the review, (Reviewing Site) evaluated (Site Reviewed) 2M/MTR Program. The 2M/MTR workcenter is not being utilized to the fullest extent. Effective use of the 2M/MTR workcenter will increase (Site Reviewed) operational readiness and provide substantial cost savings. Details on measuring program effectiveness and recommendations for improving (Site Reviewed) 2M/MTR Program are detailed in enclosure (1).

4. Our point of contact for additional information or assistance is (Rate/Name). He/she may be reached at (###) ###-####, DSN ###-####, or e-mail (Address).

(Signature)  
(Name)  
By direction

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR SITE REVIEW (Cover Letter) - Continued

Copy to:  
NAVSURFWARCENDIV Crane, IN Code 6083  
NAVUNSEAWARCEN DET FEO Norfolk, VA Code 201V  
Appropriate TYCOM  
FTSC 2M/MTR Fleet Coordinator

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

2M/MTR SITE REVIEW [Enclosure (1)]

1. Activity/UIC:
2. Date of Review:
3. Reviewing Activity/FTSC 2M/MTR Field Service Engineer or Fleet Coordinator:
4. Review arrival and departure briefing conducted with:
5. Are 2M/MTR maintenance actions and piece parts usage documented in accordance with established procedures (via OPNAV 4790/2K Ship's Maintenance Action Form (2-Kilo), Action Taken Code 7 (Series) and MTRTS)?
6. List of 2M/MTR Technicians:

<u>NAME</u>	<u>RATE</u>	<u>PRD</u>	<u>WORK CTR</u>	<u>CERT LVL</u>	<u>CARD NO.</u>	<u>CERT EXP DATE</u>
-------------	-------------	------------	-----------------	-----------------	-----------------	----------------------

7. Is all support equipment used for 2M/MTR diagnostic testing and repair included into the activity's preventive maintenance program?

a. NAVSEA. Pace Soldering Station (PRC-2000 and MBT-250 2M System) MRCs, MIP 6652/005, and/or AN/USM-646 MRCs, MIP 4911/003.

b. NAVAIR. TM, Periodic Maintenance Requirements Manual, PRC-2000-2M System Electronic Rework Power Unit PACE, Incorporated GLDA, PRC-2000-2M System MRCs, NAVAIR 17-600-193-2.

8. 2M/MTR Workstation Data
- |  | #1 | #2 | #3 | #4 |
|--|----|----|----|----|
|--|----|----|----|----|

Type (MN/MC):  
Power Unit Type/Ser No.  
Microscope Type/Ser No.  
Preheater Type/Ser No.  
Microscope Type/Ser No.  
Light Source Type/Ser No.  
3M 724 Constant Monitor/Ser No.  
Space Location  
Work Center

Type (MTR):  
Controller/Ser No.  
Monitor/Ser No.  
Printer/Ser No.  
Huntron 5100DS/Ser No.  
Huntron 2000/Ser No.  
Shortrack 90/Ser No.  
Switcher 410/Ser No.  
Space Location:  
Work Center:

9. Is the equipment used for 2M/MTR diagnostic testing and repair operational?
  - a. NAVSEA. Verify applicable 2M/MTR support equipment is operational by checking the following:

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR SITE REVIEW [Enclosure (1)] - Continued

(1) MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT TMC - conductive and convective handpieces.

(2) PRC-2000-TH, PRC-2000-SMT - hand tool power and pulse heat.

(3) MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT – grinding capability.

(4) MBT-250-SD Station, PRC-2000-TH, PRC-2000-SMT - vacuum and pressure pump with a minimum of 16 inches of vacuum and 4 pounds of pressure.

(5) PRC-2000-SMT - PIK-VAC 3 inches of vacuum and Paste Dispenser 35 pounds of pressure.

(6) MBT-250-SD Station and PRC-2000-2M System - verify the temperature setback feature is enabled.

(7) Single conductor ESD Mat/Cord System and/or 3M Model 700 Series ESD Constant Monitor System - verify proper installation and operability.

(8) AN/USM-646 passes MIP 4911/003 R-1, calibration and relay test.

b. NAVAIR. Verify applicable 2M support equipment (PRC-2000-SMT) is operational. Refer to NAVAIR 17-15-99.

10. Is all support equipment used for 2M/MTR diagnostic testing and repair supported by an approved Navy allowance list?

a. NAVSEA. COSAL or COSBAL, PRC-2000-2M System APL 00032540, Portable 2M Kit (MBT-250-SD Station) 00041450, AN/USM-646 (V) 1 ACL, Test Station APL 00029515CL, HSR410(57705), Switcher APL 00012570, Tracker 2000 (57705), Test Set Semiconductor APL 00020504, and/or 2M/MTR Piece Parts and Augmented Piece Parts APL (see Table 1. Reference Material for listing by Ship Class or Shore Site).

b. NAVAIR. N/A for aviation activities. This validation is encompassed in the AVCAL or SHORCAL review process for aviation activities.

11. Does the 2M/MTR facility meet the minimum Facility Requirements for 2M Electronic Assembly Repair? (NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M WP003 00 refers.)

12. Is there at least one copy of applicable 2M/MTR documents at or near the workstation? (Multiple workstations in the same location do not require multiple copies of each document.)

13. Verify the AN/USM-646 Test Station has the latest version of all applicable software installed.

14. Conducted an inventory of 2M/MTR consumables, tools, and support equipment using Appendix F, 2M/MTR Workstation Checklist.

15. Does the 2M/MTR work center have all the materials required for ESD prevention and is following proper ESD procedures (mat, wrist straps, and static-shielded bags)?

16. Are Supply Department personnel fully aware of the Progressive Repair Program and the policies and procedures contained in CINCLANTFLT/CINCPACFLT 4790.3, the JFMM and NAVSUP Publication 485, Afloat Supply Procedures?

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

2M/MTR SITE REVIEW [Enclosure (1)] - Continued

17. The following deficiencies were identified during the review:

- a. Major Deficiencies:
- b. Minor Deficiencies:
- c. General Comments
- d. (Pass/Fail):

18. Recommendations

19. During the review, (Reviewing Site) measured the overall effectiveness of (Site Reviewed) 2M/MTR Program. The Supply "Depot Level Repairable (DLR) Carcass Report" was compared to the MTRTS data. An effective 2M/MTR Program will show all CCAs/EMs being screened for repair and documented in MTRTS prior to Supply Department ordering a replacement module, if it is not repaired. These reports should be used by (Site Reviewed) to periodically self evaluate their 2M/MTR Program. Additionally a review of MTRTS data reveals (Site Reviewed) has/has not submitted MTRTS data for Fiscal Year (FY) ##, ### Quarter (QTR).

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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**APPENDIX F**

2M/MTR WORKSTATION CHECKLIST

a. Consumables

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
ADHESIVE (EPOXY PATCH)	8040-01-359-2719	0151	KT	1 KT	X	X	X
APPLICATOR, DISPOSABLE, COTTON	6515-01-017-2177	96-143	PG of 1000	1 HD	X	X	X
BAG, STATIC DISSIPATIVE, 12 x 16	8105-01-386-3868	MIL-B-81705 TY3	EA	3 EA	X	X	X
BAG, STATIC DISSIPATIVE, 8 x 10	8105-01-386-3899	MIL-B-81705 TY3	EA	3 EA	X	X	X
BAG, STATIC DISSIPATIVE, 4 x 4	8105-01-386-3863	MIL-B-81705 TY3	EA	3 EA	X	X	X
BLADE, SURGICAL KNIFE, DET (NO11)	6515-00-660-0010	GGH0080SZ11	PG of 6	1 EA	X	X	X
BLADE, SURGICAL KNIFE, DET (NO15)	6515-00-660-0008	GGH0080SZ15	PG of 6	1 EA	X	X	X
BRUSH, ACID SWABBING	7920-00-514-2417	A-A-289	GR	12 EA	X	X	X
BRUSH, BRISTLE, DENTAL (HARD)	6520-01-056-7376	6161	PG of 6	1 EA	X	X	X
BRUSH, WIRE, SCRATCH (1/8" DIA.)	7920-00-018-7091	1127-0006-P5	PG of 5	1 EA	X	X	X
BRUSH, WIRE, SCRATCH (3/16" DIA.)	7920-01-364-1908	1127-0014-P5	PG of 5	1 EA	X	X	X
BUR, DENTAL, EXCAVATING (INV CONE)	6520-01-003-2267	14853	PG of 10	1 EA	X	X	X
BUR, DENTAL, EXCAVATING (NO1/2 STR)	6520-01-003-3132	382302	PG of 10	1 EA	X	X	X
BUR, DENTAL, EXCAVATING (NO2 STR)	6520-01-003-2269	14826	PG of 10	1 EA	X	X	X
BUR, DENTAL, EXCAVATING (NO4 STR)	6520-01-003-2270	14832	PG of 10	1 EA	X	X	X
BUR, DENTAL, EXCAVATING (NO6 STR)	6520-01-003-2271	14838	PG of 10	1 EA	X	X	X
BUR, DENTAL, EXCAVATING (NO8 STR)	6520-01-003-3131	14844	PG of 10	1 EA	X	X	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
CLEANING COMPOUND, OPTICAL LENS	6850-00-392-9751	A-A-59199	BT	1 BT		X	X
DESOLDERING WICK (NO1)	3439-00-545-3396	50-1-5	EA	3 EA	X	X	X
DESOLDERING WICK (NO2)	3439-01-324-8208	50-2-5	EA	3 EA	X	X	X
DESOLDERING WICK (NO3)	3439-00-009-2334	40-3-5	SL	3 SL	X	X	X
DISK, ABRASIVE (SILICON CARBIDE)	6520-00-523-2150	11.780	BX of 100	1 BX	X	X	X
EYELET, METALLIC (CME15)	5325-00-139-0328	CME15	EA	10 EA	X	X	X
EYELET, METALLIC (CME26)	5325-00-234-7913	CME26C	EA	10 EA	X	X	X
EYELET, METALLIC (CME36)	5325-00-558-1785	CME36	EA	10 EA	X	X	X
EYELET, METALLIC (CME46)	5325-01-076-9499	CME46	EA	10 EA	X	X	X
FILE, ROTARY (SLOTING SAW)	3455-00-189-7191	1112-0061-P10	PG of 10	2 EA	X	X	X
FLUX-PEN (KESTER)	OPEN PURCHASE	83-1000-0186	EA	1 EA	X		
FLUX, SOLDERING	3439-00-069-5815	MILF14256TYRMA	QT	1 QT		X	X
FOIL, COPPER <b>OR</b>	9535-00-268-9571	QQC576	RO	1 RO	X	X	X
TRACK PAD REPAIR KIT	5895-01-136-2705	2570-0010	EA	1 EA	X	X	X
ISOPROPYL ALCOHOL, TECHNICAL	6810-00-983-8551	TTI735	QT	1 QT	X	X	X
LABEL (ESD)	7690-01-077-4894	L-81	RO	1 RO	X	X	X
MINERAL OIL, USP	6505-00-133-6000	NDC00003-0559061	CO	1 CO		X	X
PAPER, ABRASIVE (400 GRIT)	5350-00-224-7201	P-P-101	PG of 50	1 EA	X	X	X
PAPER, ABRASIVE (600 GRIT)	5350-00-224-7215	P-P-101	PG of 50	1 EA	X	X	X
PAPER, LENS	6640-00-240-5851	NNNP40	PG	1 PG		X	X
SOLDER, PASTE (6-SN63-211A) <b>OR</b>	3439-01-384-2071	6-SN63-211A	EA	1 EA			X

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
SOLDER, PASTE (S290)	3439-01-456-5438	S290	CO	1 EA			X
SOLDER, TIN ALLOY (.015)	3439-01-008-7580	SN63WRMAP3	SL	1 SL	X	X	X
SOLDER, TIN ALLOY (.028) <b>OR</b>	3439-01-008-7577	SN63WRMAP3	SL	1 SL		X	X
SOLDER, TIN ALLOY (.036)	3439-01-008-7578	SN63WRMAP3	SL	1 SL	X	X	X
SOLDER, TIN ALLOY (.031 or .032 or 0.36)	OPEN PURCHASE	SN63WRMAP3	SL	1 SL	X		
SOLDER, TIN ALLOY (.063) <b>OR</b>	3439-00-473-2000	SN63WRMAP3	SL	1 SL		X	X
SOLDER, TIN ALLOY (.090)	3439-01-146-6953	SN63WRMAP3	SL	1 SL		X	X
TOWEL, PAPER (SMALL)	7920-00-721-8884	900S	CS of 60	1 BX	X	X	X
VISIFILTER, REPLACEMENT	4330-01-148-7954	1309-0027-P10	PG of 10	1 EA	X	X	X

b. Tools

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
ORANGEWOOD STICK, ALIGNMENT	5120-00-293-2081	ESA319633	EA	1 EA	X	X	X
ANVIL, JEWELER'S	5120-00-618-4913	35046	EA	1 EA	X	X	X
BRUSH, BRASS, PLATERS	7920-01-127-4376	71966	EA	1 EA	X	X	X
BURNISHER, DENTAL	6520-01-055-5086	BB26/27S	EA	1 EA	X	X	X
CARVER, DENTAL (NO. 89-92)	6520-00-935-7254	CD89/92	EA	1 EA	X	X	X
CARVER, DENTAL HOLL (NO. 1/2)	6520-00-935-7171	23106	EA	1 EA	X	X	X
CHISEL, DENTAL (NO. 3)	OPEN PURCHASE	F23/23R	EA	1 EA	X	X	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
CHISEL, DENTAL (NO. 3/4)	6520-00-935-7178	EG2035	EA	1 EA	X	X	X
CLAMP, C	5120-00-596-4053	A-A-430	EA	1 EA	X	X	X
DISPENSER, FLUX, FELT TIP	OPEN PURCHASE	PB-2-ESD	EA	1 EA		X	X
DISPENSER, FLUX, ESD SAFE, STR TIP	OPEN PURCHASE	FD-2-ESD	EA	1 EA		X	X
DISPENSER, SOLVENT, ESD SAFE	3439-00-552-9309	SD-6-ESD-PP	EA	1 EA	X	X	X
DRILL SET, TWIST (NO. 61 TO 80)	5133-00-555-1528	33A	SE	1 SE	X	X	X
DRILL, TWIST (NO. 50)	5133-00-189-9295	72050	PG of 10	2 EA		X	X
DRILL, TWIST (NO. 51)	5133-00-189-9296	72051	PG of 10	2 EA		X	X
DRILL, TWIST (NO. 52)	5133-00-189-9297	72052	PG of 10	2 EA	X	X	X
DRILL, TWIST (NO. 53)	5133-00-189-9298	72053	PG of 10	2 EA	X	X	X
DRILL, TWIST (NO. 54)	5133-00-189-9299	72054	PG of 10	2 EA	X	X	X
DRILL, TWIST (NO. 55)	5133-00-189-9300	72055	PG of 10	2 EA	X	X	X
DRILL, TWIST (NO. 56)	5133-00-189-9301	72056	PG of 10	2 EA	X	X	X
DRILL, TWIST (NO. 57)	5133-00-189-9302	72057	PG of 10	2 EA		X	X
DRILL, TWIST (NO. 58)	5133-00-189-9303	72058	PG of 10	2 EA		X	X
DRILL, TWIST (NO. 59)	5133-00-189-9304	72059	PG of 10	2 EA		X	X
DRILL, TWIST (NO. 60)	5133-00-189-9305	72060	PG of 10	2 EA		X	X
EXPLORER, DENTAL (#23)	6520-00-528-1000	EXS23	EA	1 EA	X	X	X
EXPLORER, DENTAL (#6)	6520-00-528-0000	EXS6	EA	1 EA	X	X	X
FILE SET, HAND	5110-00-204-2685	GGGF331TY18	SE	1 SE	X	X	X
FILE, BONE	6520-00-528-5050	23394	EA	1 EA	X	X	X

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**2M/MTR WORKSTATION CHECKLIST - Continued**

<b><u>NOMENCLATURE</u></b>	<b><u>NSN</u></b>	<b><u>P/N</u></b>	<b><u>U/I</u></b>	<b><u>CERT QTY</u></b>	<b><u>Portable MBT 250</u></b>	<b><u>Mini PRC-2000 TH</u></b>	<b><u>Micro PRC-2000 SMT</u></b>
GAGE, TWIST DRILL (NO. 1 TO 60)	5210-00-221-1893	41G460	EA	1 EA	X	X	X
GAGE, TWIST DRILL (NO. 61 TO 80)	5210-00-555-7993	GG-G-86	EA	1 EA	X	X	X
GOGGLES, INDUSTRIAL	4240-01-063-5996	40832	EA	1 EA		X	X
HAMMER, HAND	5120-00-061-8540	A-A-1305	EA	1 EA	X	X	X
HANDLE, SURGICAL KNIFE (NO. 9)	6515-00-344-7920	LD257239PC8	EA	1 EA	X	X	X
HEAT SINK, ELECTRICAL (HS3)	5999-00-677-9849	HS3	EA	3 EA	X	X	X
KEY SET, SOCKET HEAD SCREW	5120-00-439-8988	73100	SE	1 SE		X	X
MANDREL, DENTAL (STRAIGHT)	6520-00-926-8846	9268846	PG of 6	1 EA	X	X	X
MINIMITE CORDLESS TOOL	OPEN PURCHASE	750	EA	1 EA	X		
COLLET NUT KIT (DREMEL 750)	OPEN PURCHASE	4485	SE	1 SE	X		
MIXING SLAB, DENTAL	6520-00-556-2000	100-4129	EA	1 EA	X	X	X
PLIERS (MICRO DUCKBILL)	5120-01-028-7102	46.0281	EA	1 EA	X	X	X
PLIERS, DIAGONAL CTG (UTILITY)	5110-01-083-9317	D209-5C	EA	1 EA	X	X	X
PLIERS, FLAT FORMING, SOFT TIP	OPEN PURCHASE	533-US	EA	1 EA	X	X	X
PLIERS, FLUSH CUT	OPEN PURCHASE	7148E	EA	1 EA	X	X	X
PLIERS, FULL FLUSH CUTTER, ANG	OPEN PURCHASE	7272E	EA	1 EA	X	X	X
PLIERS, LONG CHAIN NOSE	OPEN PURCHASE	744-IA-MW	EA	1 EA	X	X	X
PUNCH, CENTER, SOLID	5120-00-293-3510	GGGP831	EA	1 EA	X	X	X
PUNCH, DRIVE PIN (1/4 IN)	5120-00-240-6083	565G	EA	1 EA	X	X	X
PUNCH, DRIVE PIN (5/32 IN)	5120-00-240-6104	565D	EA	1 EA	X	X	X
RULE, MACHINIST'S	5210-00-234-5223	676	EA	1 EA	X	X	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

**2M/MTR WORKSTATION CHECKLIST - Continued**

<b><u>NOMENCLATURE</u></b>	<b><u>NSN</u></b>	<b><u>P/N</u></b>	<b><u>U/I</u></b>	<b><u>CERT QTY</u></b>	<b><u>Portable MBT 250</u></b>	<b><u>Mini PRC-2000 TH</u></b>	<b><u>Micro PRC-2000 SMT</u></b>
SCISSORS, GENERAL SURGICAL	6515-00-365-1200	103-2	EA	1 EA	X	X	X
SCREWDRIVER, FLAT TIP (PACE)	5120-01-397-4016	1100-0230	EA	1 EA	X	X	X
SOLDER REMOVAL TOOL	3439-01-064-1811	AS196	EA	1 EA		X	X
SPATULA, DENTAL (NO. 324)	6520-00-556-8000	CS24	EA	1 EA		X	X
SPECTACLES, INDUSTRIAL	4240-01-140-0282	26000MAXFIT	PR	1 PR	X	X	X
SPUDGER	5120-00-293-3112	A7578690	EA	1 EA	X	X	X
STONE, SHARPENING	OPEN PURCHASE	HB13T	EA	1 EA	X	X	X
STRIPPER, WIRE, HAND (16-26-AWG)	5110-01-090-5870	45-187	EA	1 EA	X	X	X
BLADE, WIRE STRIPPER	5110-01-097-0762	L-5560	SE	1 SE		X	X
TIP CLEANER KIT	3439-01-483-2145	6993-0200	EA	1 EA	X	X	X
TIP TOOL	5120-01-373-3722	1100-0206	EA	1 EA	X	X	X
TWEEZERS, ANTIWICKING (AWG18)	5120-00-954-1265	AWG18	EA	1 EA	X	X	X
TWEEZERS, ANTIWICKING (AWG20)	5120-00-954-1269	AWG20	EA	1 EA	X	X	X
TWEEZERS, ANTIWICKING (AWG22)	5120-00-954-1270	AWG22	EA	1 EA	X	X	X
TWEEZERS, ANTIWICKING (AWG24)	5120-00-954-1272	AWG24	EA	1 EA	X	X	X
TWEEZERS, CURVED POINT	5120-00-288-9685	43118	EA	1 EA	X	X	X
TWEEZERS, SELF LOCKING	5120-00-293-0149	7946	EA	1 EA	X	X	X
WISE, PIN	5120-00-595-8467	48-112	EA	1 EA	X	X	X

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

c. Support Equipment

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
BINOCULAR, CLIP-ON (ESCHENBACH)	OPEN PURCHASE	1636-2	EA	1 EA	X		
CASE, TRANSIT	OPEN PURCHASE	05-5379	EA	1 EA	X		
CLEANING STATION, SMT	3439-01-399-3995	6021-0006	EA	1 EA	X	X	X
CLEANING TOOL, FIBER	5120-01-396-1876	1100-0232	EA	1 EA	X	X	X
FIBER, FILLER, REPLACEMENT	7920-01-395-1564	1127-0013-P2	PG of 2	1 EA	X	X	X
CLEANING TOOL, SPONGE	5120-01-408-9241	1100-0233	EA	1 EA	X	X	X
SPONGE, FILLER, REPLACEMENT	7920-01-395-1560	4021-0006-P5	PG of 5	1 EA	X	X	X
GAGE, COMPOUND PRESSURE	6685-00-248-6975	046646	EA	1 EA	X	X	X
ADAPTER, COMPOUND PRES GAUGE	4730-01-203-8069	005-0991-000	EA	1 EA	X	X	X
HOT SPOT 150 <b>OR</b>	3439-01-330-7824	8040-0001	EA	1 EA			X
HS 200 HEAT WAVE CONVECT/CONDUCT.	OPEN PURCHASE	8007-0231	EA	1 EA			X
HOLDER, CIRCUIT BOARD	5998-01-174-3157	315	EA	1 EA	X		
HOLDER, CIRCUIT BOARD	5999-01-184-2449	333	EA	1 EA		X	X
KIT, REDI-RAK, HANDPIECE	3439-01-380-8678	6019-0023	EA	1 EA		X	X
LIGHT, DESK	OPEN PURCHASE	3612	EA	1 EA	X		
LAMP, INCANDESCENT	6240-00-617-0991	1073	EA	1 EA	X		
LIGHT, DESK (HIGH INTENSITY) <b>OR</b>	6230-01-033-2081	221217	EA	1 EA		X	X
LAMP, INCANDESCENT (FLOOD)	6240-01-029-1113	15R14SC/FL	EA	1 EA		X	X
LAMP, INCANDESCENT (SPOT)	6240-01-029-5988	15R14SC/SP	EA	1 EA		X	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
LIGHT, FIBER OPTIC (Techni-Quip) <b>OR</b>	Part of Microscope	TQ-FOI	EA	1 EA		X	X
LAMP, HALOGEN, 21V/150W	6240-01-331-0841	EKE	EA	1 EA		X	X
LIGHT, FIBER OPTIC (Fryer MkII) <b>OR</b>	Part of Microscope	F76221	EA	1 EA		X	X
LAMP, HALOGEN, 21V/150W	6240-00-261-9936	EJA	EA	1 EA		X	X
LIGHT, FIBER OPTIC (Fostec)	Part of Microscope	20500	EA	1 EA		X	X
LAMP, HALOGEN, 20V/150W	6240-01-083-5851	DDL	EA	1 EA		X	X
MICROCHINE, ROTARY (MC-65)	3439-01-383-1037	7026-0001-P1	EA	1 EA		X	X
PROBE BRAKE, PATCH CORD	6625-01-406-7807	1332-0159	EA	1 EA		X	X
MICROSCOPE, OPTICAL	6650-01-189-4433	VARIOUS	EA	1 EA		X	X
POWER SUPPLY, PPS-85A (MBT-250) <b>OR</b>	OPEN PURCHASE	8007-0203	EA	1 EA	X		
POWER SUPPLY, PPS-400 (PRC-2000)	6130-01-407-1338	7008-0187	EA	1 EA		X	X
CABLE ASSY (UNIVERSAL POWER)	6150-01-227-5907	7000-0023	EA	1 EA		X	X
CHART, TIP & TEMP	7610-01-423-7309	5050-0251	EA	1 EA	X	X	X
STAND, CHART, TIP & TEMP	9905-01-395-4048	1257-0186	EA	1 EA	X	X	X
CONDUCTWEEZ ASSY, (CT-15)	3439-00-041-1985	7020-0001-P1	EA	1 EA			X
KIT, GUIDE BLOCK	3439-01-481-1797	6993-0105	EA	1 EA			X
SCREW, TIP MOUNTING	5305-01-393-5414	1405-0182-P5	PG of 5	4 EA			X
TIP, CT, (SOT)	3439-01-399-8559	1121-0269-P1	EA	1 EA			X
TIP, CT, (14, 16 LEAD SOIC)	3439-01-399-8561	1121-0271-P1	EA	1 EA			X
TIP, CT, (20 LEAD SOIC)	3439-01-399-8560	1121-0270-P1	EA	1 EA			X
TIP, CT, (24, 28 LEAD SOIC)	3439-01-399-8563	1121-0293-P1	EA	1 EA			X

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
CORD, POWER, ELECTRICAL	6145-01-398-0392	1332-0094	EA	1 EA	X	X	X
CUBBY KIT, SMR	3439-01-383-1855	6019-0022	EA	1 EA		X	X
EXTRACTOR, DESOLDERING, (SX-70) <b>OR</b>	3439-01-383-1797	6010-0077-P1	EA	1 EA		X	X
DISCONNECT, QUICK, FEMALE	5935-01-393-3037	1259-0086	EA	1 EA		X	X
DISCONNECT, QUICK, MALE	5935-01-393-3036	1259-0087	EA	2 EA		X	X
FILTER, (VISIFILTER 2)	4330-01-148-9052	1309-0028	EA	1 EA		X	X
GLASS TUBE, (SX-70)	9340-01-325-6184	1265-0009-P1	EA	1 EA		X	X
HOLDER TUBE/WIRE, GRY (PK6)	4730-01-398-8488	1321-0085-01-P6	PG of 6	1 EA		X	X
SCREW, MACHINE (SET SCREW)	5305-01-343-6739	1348-0547-P10	PG of 10	1 EA		X	X
TIP, ADAPT (SX-70)	3439-01-376-8032	1360-0083-P1	EA	1 EA	X	X	X
TIP, SX, 3/16 SHANK, 0.030" ID	3439-01-376-8029	1121-0367-P5	PG of 5	1 EA		X	X
TIP, SX, 3/16 SHANK, 0.040" ID	3439-01-376-8030	1121-0342-P5	PG of 5	1 EA		X	X
TIP, SX, 3/16 SHANK, 0.060" ID	3439-01-380-8647	1121-0368-P5	PG of 5	1 EA		X	X
TOOL STAND, SX-70	3439-01-398-2749	6019-0044-P1	EA	1 EA		X	X
TUBING, (PVC, CLEAR, 1")	9330-01-408-6364	1325-0003-07	EA	2 EA		X	X
TUBING, SIL., .125ID, 54"L, BLACK	4710-01-476-9807	1342-0015-08	EA	1 EA		X	X
EXTRACTOR, DESOLDERING, (SX-80)	3439-01-476-0901	6010-0106-P1	EA	1 EA	X	X	X
DISCONNECT, QUICK, FEMALE	5935-01-393-3037	1259-0086	EA	1 EA	X	X	X
DISCONNECT, QUICK, MALE	5935-01-393-3036	1259-0087	EA	2 EA	X	X	X
FILTER, (VISIFILTER 2)	4330-01-148-9052	1309-0028	EA	1 EA	X	X	X
FLUX/SODR TRAP, PAPER (SX-80) <b>OR</b>	3439-01-480-6255	1309-0054-P10	PG of 10	1 EA	X	X	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
FLUX/SODR TRAP, GLASS (SX-80)	OPEN PURCHASE	6000-0212-P1	PG of 2	1 EA	X	X	X
HOLDER TUBE/WIRE, GRY (PK6)	4730-01-398-8488	1321-0085-01-P6	PG of 6	1 EA	X	X	X
SET SCREW	5305-01-343-6739	1348-0547-P10	PG of 10	1 EA	X	X	X
TIP, ADAPT (SX-80/ENDURA)	OPEN PURCHASE	1360-0286-P1	EA	1 EA	X	X	X
TIP, SX, 3/16 SHANK, 0.030" ID	3439-01-479-4487	1121-0625-P5	PG of 5	1 EA	X	X	X
TIP, SX, 3/16 SHANK, 0.040" ID	3439-01-479-4488	1121-0624-P5	PG of 5	1 EA	X	X	X
TIP, SX, 3/16 SHANK, 0.060" ID	3439-01-479-4489	1121-0626-P5	PG of 5	1 EA	X	X	X
TIP, SX, 3/16 SHANK, FLO-D-SODR	3439-01-479-4494	1121-0631-P5	PG of 5	1 EA	X	X	X
TOOL STAND, SX-80	3439-01-496-8545	6019-0060-P1	EA	1 EA	X	X	X
TUBING, (PVC, CLEAR, 1")	9330-01-408-6364	1325-0003-07	EA	2 EA	X	X	X
TUBING, SIL., 0.125ID, 54" L, BLACK	4710-01-476-9807	1342-0015-08	EA	1 EA	X	X	X
FUSE, CART. 12.0 AMP	5920-01-412-7761	1159-0257-P5	PG of 5	1 EA		X	X
FUSE, CART. 5.0 AMP, SLO-BLO	5920-01-408-9839	1159-0253-P5	PG of 5	1 EA		X	X
FUSE, CART. 2.0 AMP, SLO-BLO	OPEN PURCHASE	1159-0247-P5	PG of 5	1 EA	X		
KIT, DISPENSER, PASTE	3439-01-383-2016	6993-0152	EA	1 EA			X
CUBBY, PASTE DISPENSER	3439-01-383-1890	6019-0038-P1	EA	1 EA			X
DISPENSING NEEDLE (TIP, .013ID, OR.)	3439-01-400-1222	1121-0412-P5	PG of 5	1 EA			X
DISPENSING NEEDLE (TIP, .016ID, BL.)	3439-01-400-1221	1121-0411-P5	PG of 5	1 EA			X
DISPENSING NEEDLE (TIP, .020ID, PU.)	3439-01-400-1224	1121-0410-P5	PG of 5	1 EA			X
DISPENSING NEEDLE (TIP, .023ID, PI.)	3439-01-400-1226	1121-0409-P5	PG of 5	1 EA			X
LAPFLO HANDPIECE, (LF-15)	3439-01-354-3448	7013-0004-02	EA	1 EA		X	X

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
TIP, LF, REFLOW FLAT	3439-00-417-7258	6000-0008	EA	1 EA		X	X
TIP, LF, REFLOW WIRE	3439-01-143-7743	6000-0025	EA	1 EA		X	X
TIP, LF, MULTIPOINT SMD, .270	3439-01-376-8037	1121-0298-P1	EA	1 EA			X
TIP, LF, MULTIPOINT SMD, .540	3439-01-376-8036	1121-0299-P1	EA	1 EA			X
TIP, LF, MULTIPOINT SMD, .44	3439-01-376-8035	1121-0300-P1	EA	1 EA			X
PIK-VAC (PV-65)	4940-01-396-1874	7027-0001-P1	EA	1 EA			X
CUP, VACUUM, .195 DIA.	5340-01-406-9156	1121-0382	PG of 5	1 EA			X
CUP, VACUUM, .300 DIA.	5340-01-406-9157	1121-0383	PG of 5	1 EA			X
CUP, VACUUM, .500 DIA.	5340-01-406-9158	1121-0384	PG of 5	1 EA			X
TIP, VAC, 45 BEND, .060ID, OL	5340-01-400-2102	1121-0413-P5	PG of 5	1 EA			X
REDI-RAK TIP	3439-01-353-4357	6021-0007	EA	1 EA		X	X
RESISTWEEZ HANDPIECE, (TW-15)	3439-00-155-4597	7009-0005-P1	EA	1 EA		X	X
KIT, GUIDE BLOCK ASSY	3439-01-481-1797	6993-0105	EA	1 EA		X	X
SCREW, TIP MOUNTING	5305-01-399-3860	1405-0182	EA	2 EA		X	X
TIP, TW, FLAT	3439-01-408-1710	1121-0006-P2	PG of 2	1 EA		X	X
TIP, TW, TAPERED, FLAT, PAIR	3439-01-376-8027	1121-0301-P1	EA	1 EA			X
TIP, TW, PLCC-18	3439-01-399-8521	1121-0294-P1	EA	1 EA			X
TIP, TW, PLCC-20	3439-01-376-8034	1121-0295-P1	EA	1 EA			X
TIP, TW, PLCC-28	3439-01-376-8033	1121-0296-P1	EA	1 EA			X
TIP, TW, PLCC-44	3439-01-366-3474	1121-0297-P1	EA	1 EA			X
SOLDERING IRON, ELECTRIC (PS-80)	3439-01-465-4478	6010-0096-P1	EA	1 EA	X	X	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
SET SCREW	5305-01-343-6739	1348-0547-P10	PG of 10	1 EA	X	X	X
TIP, PS, 3/16" SHANK, 1/16" CHISEL	3439-01-380-8651	1121-0414-P5	PG of 5	1 EA	X	X	X
TIP, PS, 3/16" SHANK, 1/32" CONICAL	3439-01-387-7688	1121-0336-P5	PG of 5	1 EA	X	X	X
TIP, PS, 3/16" SHANK, 1/8" CHISEL	3439-01-378-7161	1121-0337-P5	PG of 5	1 EA	X	X	X
TIP, PS, 3/16" SHANK, MINIWAVE	OPEN PURCHASE	1121-0610-P5	PG of 5	1 EA	X	X	X
TIP, PS, CHIP COMP., .16W, PR	3439-01-381-6215	1121-0399	EA	1 EA			X
TIP, PS, SINGLE SIDED CHISEL	3439-01-400-1289	1121-0406-P5	PG of 5	1 EA			X
TOOL STAND, PS-80	3439-01-465-4480	6019-0050-P1	EA	1 EA	X	X	X
SWITCH, FOOT (FOOT PEDAL)	5930-01-301-3563	6008-0115	EA	1 EA		X	X
STRIPTWEEZ HANDPIECE, (TS-15)	5130-01-399-1399	7012-0002-P1	EA	1 EA		X	X
KIT, GUIDE BLOCK	3439-01-481-1797	6993-0105	EA	1 EA		X	X
SCREW, TIP MOUNTING	5305-01-399-3862	1405-0106	EA	4 EA		X	X
THERMOJET, (TJ-70)	3439-01-399-4906	7023-0002-P1	EA	1 EA	X	X	X
DISCONNECT, QUICK, MALE	5935-01-393-3036	1259-0087	EA	1 EA	X	X	X
HOLDER TUBE/WIRE, GRY PK6	4730-01-398-8488	1321-0085-01-P6	PG of 6	1 PG	X	X	X
SET SCREW	5305-01-343-6739	1348-0547-P10	PG of 10	1 EA	X	X	X
TIP, TJ, DBL, .17, BENT, SOIC	3439-01-383-1859	1121-0330-P1	EA	1 EA			X
TIP, TJ, FLAT END, .24 X .074	3439-01-380-8934	1121-0371	EA	1 EA			X
TIP, TJ, SINGLE, CURVED	3439-01-398-2746	1121-0338-P1	EA	1 EA	X	X	X
TIP, TJ, SINGLE, STRAIGHT	3439-01-380-8853	1121-0366	EA	1 EA			X
TOOL STAND, SX	3439-01-496-8545	6019-0060-P1	EA	1 EA		X	X

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
TUBING, SIL., 0.125ID, 54" L, BLK	4710-01-476-9807	1342-0015-08	EA	1 EA	X	X	X
THERMOPIK (TP-65)	3439-01-380-8913	7024-0001-P1	EA	1 EA			X
DISCONNECT, QUICK, MALE	5935-01-393-3036	1259-0087	EA	1 EA			X
HOLDER TUBE/WIRE, GRY (PK6)	4730-01-398-8488	1321-0085-01-P6	PG of 6	1 EA			X
SET SCREW	5305-01-343-6739	1348-0547-P10	PG of 10	1 EA			X
TIP, TP, FLATPACK TIP, .66 X .90 ID	3439-01-353-4359	1121-0322-002	EA	1 EA			X
TOOL STAND, SX	3439-01-496-8545	6019-0060-P1	EA	1 EA			X
TUBING, SIL., 0.125ID, 54" L, BLACK	4710-01-476-9807	1342-0015-08	EA	1 EA			X
THERMOTWEEZ (TT-65)	3439-01-383-6323	7025-0001-P1	EA	1 EA			X
SET SCREW	5305-01-343-6739	1348-0547-P10	PG of 10	2 EA			X
TIP, TT, .26 X .26, PR	3439-01-399-4904	1121-0417-P1	EA	1 EA			X
TIP, TT, .35 X .25, LCCC-24, PR	3439-01-399-4143	1121-0452-P1	EA	1 EA			X
TIP, TT, .37 X .37, PLCC-28, PR	3439-01-376-8040	1121-0317	EA	1 EA			X
TIP, TT, .40 X .35, PR	3439-01-399-4905	1121-0425-P1	EA	1 EA			X
TIP, TT, .57 X .57, PLCC-44, PR	3439-01-386-6118	1121-0318	EA	1 EA			X
TIP, TT, .85 X .85, LCCC-132, PR	3439-01-399-4142	1121-0455-P1	EA	1 EA			X
TIP, TT, .14 X .08, LG CHIP COMP.	3439-01-353-4374	1121-0303-P1	EA	1 EA			X
TIP, TT, .70 SOJ/SIMM, PR	3439-01-376-8028	1121-0416	EA	1 EA			X
TOOL STAND, TT	3439-01-381-6124	6019-0046	EA	1 EA			X
TOOL, TIP ALIGNMENT (TT-65)	3439-01-408-0331	1100-0234	EA	1 EA			X
SIGN, ESD CAUTION	9905-01-342-3044	3870-1	EA	1 EA		X	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>Portable MBT 250</u>	<u>Mini PRC-2000 TH</u>	<u>Micro PRC-2000 SMT</u>
TOOL BOX, PORTABLE	5140-00-319-5079	520	EA	1 EA		X	X
TOOL PAK (DELUXE TOOL KIT)	4940-00-149-8185	6005-0013	EA	1 EA	X	X	X
WISE, VACUUM BASE	5120-01-488-5048	381	EA	1 EA	X		
WISE, MULTIPOSITION	5120-00-991-1907	301	EA	1 EA		X	X
WORK STATION KIT, ELECTROSTATIC	4940-01-168-2044	8501	EA	1 EA	X		
WORK STATION KIT <b>OR</b>	4940-01-250-4235	CS4940-0001-1	EA	1 EA		X	X
WATCH, STATIC, MEDIUM	5920-01-235-4141	SWB40-MC7	EA	1 EA		X	X
WATCH, STATIC, LARGE	5920-01-282-9865	SWB40-LC7	EA	1 EA		X	X
WORK SURFACE, STATIC (3M)	5920-01-491-3495	8343	EA	1 EA		X	X
CORD, GROUNDING (3M)	5999-01-491-7014	2360	EA	1 EA		X	X
MONITOR, CONTINUOUS, ESD (3M)	6625-01-491-0711	724	EA	1 EA		X	X
WRIST STRAP, GROUNDING (3M)	5920-01-491-3509	4720	EA	1 EA		X	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

d. AN/USM-646 (V) Test Station

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>MTR Workstation</u>
5100DS, TEST SET, SEMICON.	6625-01-325-3672	5100DS/99-0312	EA	1 EA	X
ADAPTER, ELECTRICAL (UECA)	5935-01-393-9609	98-0086	EA	1 EA	X
CABLE, 40 CONDUCTOR	6150-01-410-8915	98-0071	EA	1 EA	X
CABLE, 64 CONDUCTOR	6150-01-410-8909	98-0072	EA	1 EA	X
CABLE, 20 PIN TEST CLIP	5995-01-409-1539	98-0025	EA	1 EA	X
CABLE, 40 PIN TEST CLIP	6150-01-431-5098	98-0026	EA	1 EA	X
CABLE ASSEMBLY, POWER 115V	6150-01-252-0979	535	EA	1 EA	X
CABLE ASSEMBLY, GPIB	6150-01-391-2045	553577-3	EA	1 EA	X
CABLE, BLACK COMMON CLIP, 36"	6625-01-342-0752	98-0043	EA	1 EA	X
CASE, CARRY, 5100DS	5895-01-415-7810	98-0060	EA	1 EA	X
CIRCUIT CARD, GPIB AT (ISA) BUS	7050-01-268-4323	64667/776113-01	EA	1 EA	X
CIRCUIT CARD, FRONT END ADAPTER	5998-01-408-8675	06-3046	EA	1 EA	X
DEMO BOARD	5998-01-408-3404	06-3059	EA	1 EA	X
HUNTRON PROBES SET	6625-01-172-7860	110012	EA	1 EA	X
IC TEST CLIP, .300 8PIN	6625-01-408-5482	07-1274	EA	1 EA	X
IC TEST CLIP, .300 14PIN	6625-01-408-5486	07-1275	EA	1 EA	X
IC TEST CLIP, .300 16PIN	6625-01-408-5488	07-1276	EA	1 EA	X
IC TEST CLIP, .300 18PIN	6625-01-408-5489	07-1277	EA	1 EA	X
IC TEST CLIP, .300 20PIN	6625-01-408-5490	07-1278	EA	1 EA	X
IC TEST CLIP, .300 22PIN	6625-01-408-5484	07-1286	EA	1 EA	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>MTR Workstation</u>
IC TEST CLIP, .300 24PIN	6625-01-408-5487	07-1287	EA	1 EA	X
IC TEST CLIP, .300 28PIN	6625-01-408-4920	07-1288	EA	1 EA	X
IC TEST CLIP, .600 22PIN (WIDE)	6625-01-417-6776	07-1279	EA	1 EA	X
IC TEST CLIP, .600 24PIN (WIDE)	6625-01-417-6775	07-1280	EA	1 EA	X
IC TEST CLIP, .600 28PIN (WIDE)	6625-01-417-6777	07-1281	EA	1 EA	X
IC TEST CLIP, .600 40PIN (WIDE)	6625-01-408-5485	07-1283	EA	1 EA	X
JACK, TIP, RED, BANANA	5935-00-726-9456	1509-102	EA	1 EA	X
JACK, TIP, BLACK, BANANA	5935-00-729-5559	1509-103	EA	1 EA	X
JUMPER, 10 KOHM RESISTOR	5905-01-409-1923	98-0028	EA	1 EA	X
JUMPER, 1 KOHM RESISTOR	5905-01-408-6765	98-0029	EA	1 EA	X
WINPEDAL	NAVSEA PROVIDED		EA	1 EA	X
CONTROLLER	NAVSEA PROVIDED		EA	1 EA	X
MONITOR	NAVSEA PROVIDED		EA	1 EA	X

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

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>MTR Workstation</u>
LEAD SET, TEST (PROBES)	6625-01-172-7860	Y8140A	EA	1 EA	X
IC TEST CLIP, .300 8PIN	6625-01-408-5482	07-1274	EA	1 EA	X
IC TEST CLIP, .300 14PIN	6625-01-408-5486	07-1275	EA	1 EA	X
IC TEST CLIP, .300 16PIN	6625-01-408-5488	07-1276	EA	1 EA	X
IC TEST CLIP, .300 18PIN	6625-01-408-5489	07-1277	EA	1 EA	X
IC TEST CLIP, .300 20PIN	6625-01-408-5490	07-1278	EA	1 EA	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>MTR Workstation</u>
IC TEST CLIP, .300 22PIN	6625-01-408-5484	07-1286	EA	1 EA	X
IC TEST CLIP, .300 24PIN	6625-01-408-5487	07-1287	EA	1 EA	X
IC TEST CLIP, .300 28PIN	6625-01-408-4920	07-1288	EA	1 EA	X
IC TEST CLIP, .600 22PIN (WIDE)	6625-01-417-6776	07-1279	EA	1 EA	X
IC TEST CLIP, .600 24PIN (WIDE)	6625-01-417-6775	07-1280	EA	1 EA	X
IC TEST CLIP, .600 28PIN (WIDE)	6625-01-417-6777	07-1281	EA	1 EA	X
IC TEST CLIP, .600 40PIN (WIDE)	6625-01-408-5485	07-1283	EA	1 EA	X
JUMPER, 10 KOHM RESISTOR	5905-01-409-1923	98-0028	EA	1 EA	X
JUMPER, 1 KOHM RESISTOR	5905-01-408-6765	98-0029	EA	1 EA	X
FOOTSWITCH	5930-00-061-2008	T-91-S	EA	1 EA	X
TEST CLIP, LEAD (BLUE)	6625-01-342-5050	98-0036	EA	1 EA	X
TEST CLIP, LEAD (BLACK)	6625-01-342-0752	601W-36 BLACK	EA	1 EA	X
PARALLEL CABLE (IEEE 1284)	6150-01-497-2210	98-0230	EA	1 EA	X
ADAPTER, ELECTRICAL (UECA)	5935-01-393-9609	98-0086	EA	1 EA	X
RIBBON CABLE, 40 PIN	6150-01-497-0649	98-0102	EA	1 EA	X
RIBBON CABLE, 20 PIN	6150-01-497-0643	98-0103	EA	1 EA	X
STRAP, SCANNER	0099-LL-H58-1187	98-0281	EA	1 EA	X
CABLE, TRIPLE BNC W/FERRITE	6150-01-497-0650	98-0282	EA	1 EA	X
CABLE, RJ45 (PROTRACK/SCANNER)	6150-01-497-0652	98-0283	EA	1 EA	X
ANALYZER, PROTRACK	NAVSEA PROVIDED		EA	1 EA	X
SCANNER, SEMICONDUCTOR	NAVSEA PROVIDED		EA	1 EA	X
CONTROLLER	NAVSEA PROVIDED		EA	1 EA	X

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR WORKSTATION CHECKLIST - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>MTR Workstation</u>
MONITOR	NAVSEA PROVIDED		EA	1 EA	X
UNINTERRUPTABLE POWER SUPPLY	NAVSEA PROVIDED		EA	1 EA	X

f. Optional MTR Test Equipment Accessories

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>P/N</u>	<u>U/I</u>	<u>CERT QTY</u>	<u>MTR Workstation</u>
PRINTER	NAVSEA PROVIDED		EA	1 EA	X
HSR410, <b>SWITCHER</b>	6625-01-257-7235	HSR410	EA	1 EA	X
CABLE ASSEMBLY (PWR/CLK)	5995-01-341-0919	98-0031	EA	1 EA	X
CABLE ASSEMBLY, SPEC 16 CONN	5995-01-339-9673	98-0032	EA	1 EA	X
CABLE ASSEMBLY, SPEC 40 PIN	5995-01-340-6485	98-0033	EA	1 EA	X
CABLE ASSEMBLY, (BANANA, RED/BLK)	5995-01-340-6393	98-0035	EA	1 EA	X
LEAD, ELECTRICAL 4.4"	6150-01-342-1710	98-0020	EA	1 EA	X
LEAD, ELECTRICAL 6.4" (10K RESISTOR)	6150-01-342-1711	98-0085	EA	1 EA	X
TRACKER <b>2000</b> , TEST SET SEMICONDUCT.	6625-01-258-2893	TRACKER2000A	EA	1 EA	X
GROUND CLIP, BLACK (2)	6625-01-295-0643	10-1088	EA	1 EA	X
HUNTRON PROBES (1)	6625-01-378-9969	10-1999	EA	1 EA	X
MICRO CLIP, BLUE (2)	6625-01-342-5050	98-0036	EA	1 EA	X
SHORTTRACK 90	6625-01-385-1588	99-0180	EA	1 EA	X



**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M TRAINING SITE REVIEW - Continued

b. Spares (for trainee use in case of equipment failure):

- Power Unit Type/Ser No.
- Microscope Type/Ser No.
- Preheater Type/Ser No.
- Microscope Type/Ser No.
- Light Source Type/Ser No.
- 3M 724 Constant Monitor/Ser No.
- Location/Building:
- Classroom:

c. 2M Instructor preparation and demonstration station:

- Power Unit Type/Ser No.
- Microscope Type/Ser No.
- Preheater Type/Ser No.
- Microscope Type/Ser No.
- Light Source Type/Ser No.
- 3M 724 Constant Monitor/Ser No.
- Location/Building:
- Classroom:

7. Conducted inventory of 2M consumables, tools, and support equipment using Appendix F, 2M/MTR Workstation Checklist.

8. Discussed and evaluated the following proposed changes in tools, equipment, techniques, and 2M training curriculum:

9. Does the facility (2M Training Site) meet the minimum facility requirements for 2M Electronics Repair? (NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M, WP003 00 refers.)

10. Verified an ample supply of practice circuit cards, terminals, eyelets, solder cups, components, consumables, etc., in each classroom. (List inadequacies and projected corrective actions.)

11. Verified at least one copy of applicable 2M documents are in the possession of the 2M Course Supervisor.

12. Verified appropriate instructional materials are current and available (administrator's guide, lesson plan, performance tests, testing plan, trainee guide, training course control document, and audiovisual aids); A-100-0072, Miniature Electronics Repair; A-100-0073, Microminiature Electronics Repair; A-100-0144, 2M Technician Recertifier; and if applicable, A-100-0058, 2M Technician Recertifier and A-100-0074, 2M Instructor Pipeline. (List inadequacies and projected corrective action anticipated.)

13. Record of training since the last review (date):

a. Course results:

	<u>A-100-0072</u>	<u>A-100-0073</u>	<u>A-100-0144</u>	<u>A-100-0058</u>	<u>A-100-0074</u>
Training quotas available:					
Quotas utilized/(%):					
Technicians certified/(%):					
Attrition Rate (%)					

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

2M TRAINING SITE REVIEW - Continued

b. Scheduled courses for fiscal/calendar (year):

A-100-0072    A-100-0073    A-100-0144    A-100-0058    A-100-0074  
Date(s)

14. Verified each classroom meets applicable training capability requirements for miniature or microminiature repair.

15. 2M Instructor evaluations:

NAME	COURSE	LESSON TOPIC	EVALUATOR	CRITIQUE COMMENTS
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16. The following deficiencies were identified during the review:

- a. Major Deficiencies:
- b. Minor Deficiencies:
- c. General Comments:

17. Because of this 2M training site review, (activity) personnel and stations were found capable or incapable of providing instruction leading to the accomplishment of miniature and microminiature repair and/or 2M Technician Recertifier and 2M Instructor training.

(CA signature) \_\_\_\_\_  
(CA printed name)

Original To:    Command representative of reviewed activity  
Copy To:        CNET and/or NAMTRAGRU, NAVSEA 04M3 and/or NAVAIR 3.2E and 2M CA

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**APPENDIX H**

2M/MTR REVIEWING SITE VALIDATION

1. Activity/UIC:
2. Date of Review:
3. FTSC 2M/MTR Fleet Coordinator or Certification Agent (CA):
4. Review arrival and departure briefing conducted with:
5. List of FTSC 2M/MTR Field Service Engineers, Fleet Coordinator, or AMMT 2M Evaluators:

<u>NAME</u>	<u>RATE</u>	<u>PRD</u>	<u>WORK CTR</u>	<u>CERT LVL</u>	<u>CARD NO.</u>	<u>CERT EXP DATE</u>
-------------	-------------	------------	-----------------	-----------------	-----------------	----------------------

- |                                       |    |    |    |    |
|---------------------------------------|----|----|----|----|
| 6. FTSC/FTSC Detachment 2M Equipment: | #1 | #2 | #3 | #4 |
|---------------------------------------|----|----|----|----|

a. 2M Workstation Data:

Type (MN/MC):  
 Power Unit Type/Ser No.  
 Microscope Type/Ser No.  
 Preheater Type/Ser No.  
 Microscope Type/Ser No.  
 Light Source Type/Ser No.  
 3M 724 Constant Monitor/Ser No.  
 Location/Building:  
 Room:

	5	#6	#7	#8
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Type (MN/MC):  
 Power Unit Type/Ser No.  
 Microscope Type/Ser No.  
 Preheater Type/Ser No.  
 Microscope Type/Ser No.  
 Light Source Type/Ser No.  
 3M 724 Constant Monitor/Ser No.  
 Location/Building:  
 Room:

b. Spares:

Power Unit Type/Ser No.  
 Microscope Type/Ser No.  
 Preheater Type/Ser No.  
 Microscope Type/Ser No.  
 Light Source Type/Ser No.  
 3M 724 Constant Monitor/Ser No.  
 Location/Building:  
 Room:

7. Verified applicable 2M support equipment is operational.
8. Conducted inventory of FTSC/FTSC Detachment 2M consumables, tools, and support equipment using Appendix F, 2M/MTR Workstation Checklist.

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR REVIEWING SITE VALIDATION - Continued

9. Discussed and evaluated proposed changes in tools, equipment, techniques, and 2M training curriculum.
10. Does the FTSC/FTSC Detachment facility meet the minimum facility requirements for 2M Electronics Repair? (NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M, WP003 00 refers.)
11. Verified the FTSC/FTSC Detachment has an ample supply of practice circuit cards, terminals, eyelets, solder cups, components, consumables, etc., to conduct 2M technician recertifications.
12. Verified at least one copy of applicable 2M documents are in the possession of the FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, or AMMT 2M Evaluator.
13. Verified FTSC 2M/MTR Field Service Engineers and Fleet Coordinators are reporting completion of 2M personnel recertifications in the 2M database or via Appendix J, 2M Personnel Certification Record form.
14. Verified documented completion of locally generated PQS for each FTSC 2M/MTR Field Service Engineer and/or Fleet Coordinator.
15. Reviewed the status of all the FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, or AMMT 2M Evaluator 2M/MTR sites.
16. Observed the FTSC Detachment 2M/MTR Field Service Engineer, Fleet Coordinator, or AMMT 2M Evaluator (Name) satisfactorily conduct a 2M/MTR repair site review at/aboard (Activity).
17. The following deficiencies were identified during the validation:
  - a. Major Deficiencies:
  - b. Minor Deficiencies:
  - c. General Comments:
18. As a result of this validation, the FTSC/FTSC Detachment 2M/MTR Field Service Engineer/Fleet Coordinator or AIR TYCOM 2M Evaluator was found to be capable of conducting 2M/MTR site reviews and 2M/MTR personnel recertifications in accordance with NAVSEA TE000-AA-MAN 010/2M or NAVAIR SE-004-PQS-000.

(FTSC 2M/MTR Fleet Coordinator or CA signature)  
(FTSC 2M/MTR Fleet Coordinator or CA printed name)

Original To: Command representative of reviewed activity  
Copy To: NAVSEA 04M3 or NAVAIR 3.2E

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**APPENDIX I**

**2M/MTR POINTS OF CONTACT**

**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  
WEB <http://www.n4.hq.navy.mil>

**Coast Guard 2M Program Manager**

Director, Coast Guard Command, Control  
Communications and Computers  
Commandant (G-SCE-2)  
U.S. Coast Guard  
2100 2<sup>nd</sup> Street SW  
Washington D.C. 20593

DSN  
COM (202) 267-1897

**NAVSEA 2M Program Manager**

Commander  
Naval Sea Systems Command  
SEA-04M3 197/4E-2086  
1333 Isaac Hull Avenue  
Washington D.C. 20376

DSN 326-3380  
COM (202) 781-3380  
WEB <http://www.navsea.navy.mil>

**NAVAIR 2M Program Manager**

Commander  
NAVAIRSYSCOM Code 3.2E Bldg 416  
Suite 100B, 47013 Hinkle Circle Unit 8  
Patuxent River MD 20670-1628

DSN 757-9128  
COM (301) 757-9128

**NAVSEA 2M Certification Agent**

Commander  
Crane Division, Naval Surface Warfare Center  
Code 6083 Bldg 3330 North  
300 Highway 361  
Crane IN 47522-5001

DSN 482-1510  
COM (812) 854-1510  
EMAIL [latta\\_g@crane.navy.mil](mailto:latta_g@crane.navy.mil)  
WEB <http://www.crane.navy.mil/2m>

**NAVSEA MTR In-Service Engineering Agent (ISEA)**

Director (Code 201V)  
NAVUNSEAWARCEN DET FEO Norfolk  
PO BOX 837  
Norfolk VA 23501-0837

DSN 961-0800  
COM (757) 396-0800  
EMAIL [help@nor.nuwc.navy.mil](mailto:help@nor.nuwc.navy.mil)

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR POINTS OF CONTACT - Continued

**FTSC 2M Fleet Coordinators and AMMT 2M Evaluators**

Commanding Officer  
Fleet Technical Support Center Atlantic  
Code 4103D/2M  
9727 Avionics Loop, BLDG LF-18  
Norfolk VA 23511

DSN 563-3872 X1863  
COM (757) 443-3872 X1863  
WEB <http://www.ftscant.navy.mil>

Commanding Officer  
Fleet Technical Support Center, Pacific  
Code 203/2M Inspector  
P.O. Box 85548  
San Diego CA 92186-5548

DSN 526-1346  
COM (619) 556-1346  
WEB <http://www.ftscpac.navy.mil>

Commander  
Naval Air Force, U.S. Atlantic Fleet  
Code N422C1  
1279 Franklin St.  
NAS Norfolk  
Norfolk VA 23511-2494

DSN 565-9809  
COM (757) 445-9809  
WEB <http://flightdeck.airlant.navy.mil/public>

Commander  
Naval Air Force, U.S. Pacific Fleet  
Code N422C1B  
Box 357051  
San Diego CA 92135-7051

DSN 735-4691  
COM (619) 545-4691  
WEB <http://www.airpac.navy.mil>

Commander  
Naval Air Reserve Force  
Code N421F3  
4400 Dauphine Street  
New Orleans LA 70146-5200

DSN 678-5971  
COM (504) 678-5971

Commander  
Naval Air Systems Command  
Aircraft Controlling Custodian, Bldg. 448, Suite  
001A, AIR 5.0D, 47038 McLeod Road Unit 8  
Patuxent River, MD 20670-1626

DSN 757-8285  
COM (301) 757-8285

**FTSC Detachments**

Officer in Charge  
FTSCLANT DET INGLESIDE  
2M/MTR Field Service Engineer  
120 Coral Sea Drive, Suite 10  
Ingleside TX 78362-5035

DSN 776-4053  
COM (512) 776-4053

Officer in Charge  
FTSCLANT DET Mayport  
2M/MTR Field Service Engineer  
P.O. Box 280038  
Mayport FL 32228-0038

DSN 960-5112  
COM (904) 270-5112

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**2M/MTR POINTS OF CONTACT - Continued**

**FTSC Detachments (Continued)**

Officer in Charge  
FTSCLANT DET NAPLES  
2M/MTR Field Service Engineer  
PSC 810 Box 11  
Naval Support Activity  
FPO AE New York NY 09619-3200

DSN 625-4663  
COM 011-39-0817-24-4663

Officer in Charge  
FTSCLANT DET NEW LONDON  
2M/MTR Field Service Engineer  
P.O. Box 150, Bldg. 88  
Groton CT 06349-5150

DSN 694-2822  
COM (860) 694-2822

Officer in Charge  
FTSCPAC DET EVERETT  
Naval Station Everett  
2M/MTR Field Service Engineer  
2000 W. Marine View Drive  
Everett WA 98207-0001

DSN 727-5405  
COM (425) 304-5405

Officer in Charge  
FTSCPAC DET Pearl Harbor  
Code 208/2M/MTR Field Service Engineer  
P.O. Box 109  
Pearl Harbor HI 96860

DSN (315) 473-0596  
COM (808) 473-0596

Officer in Charge  
FTSCPAC DET SASEBO  
PSC 476 Box 82  
FPO AP 96322-3070

DSN (315) 252-3524  
DSN FAX (315) 252-3705  
COM FROM USA 011-81-6117-52-3524  
COM FROM JAPAN 00579-6117-52-3524

Officer in Charge  
FTSCPAC DET YOKOSUKA  
2M/MTR Field Service Engineer  
PSC 473 Box 105  
FPO AP 96349-2904

DSN 243-5362  
COM 011-81-311-743-5362

**2M Training Sites**

Commander  
AFLOATRAGRUMIDPAC  
N753/2M  
Pearl Harbor HI 96860-7600

DSN (315) 472-8881 X337/352  
COM (808) 472-8881 X337/352

Commanding Officer  
FLETRACEN MAYPORT  
Bldg 351/N3/2M  
P.O. Box 280147  
Naval Station Mayport FL 32228-0147

DSN 960-5260/5239  
COM (904) 270-5260/5239

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

2M/MTR POINTS OF CONTACT - Continued

**2M Training Sites (Continued)**

Commanding Officer  
FLETRACEN NORFOLK  
N343/2M  
9550 Farragut Avenue  
Norfolk VA 23511-2790

DSN 564-1262 X3040  
COM (757) 444-1262 X3040

Commanding Officer  
FLETRACEN San Diego  
N762/2M  
3975 Norman Scott Rd. Suite 1  
San Diego CA 92136-5588

DSN 526-7092/8548  
COM (619) 556-7092/8548

Officer in Charge  
NAMTRAGRU DET Atsugi  
2M  
PSC 477 Box 31  
FPO AP 96306-2731

DSN 264-3159  
COM 011-81-3117-64-3159  
COM FAX 011-81-3117-64-3322

Officer in Charge  
NAMTRAU Whidbey Island  
Bldg 976/2M  
3665 North Princeton Street  
Naval Air Station Whidbey Island  
Oak Harbor WA 98278-8000

DSN 820-2733  
COM (360) 257-2733

Commanding Officer  
NAVAVNDEPOT Cherry Point  
PSC Box 8021 Code 6.2.94200  
Marine Corps Air Station  
Cherry Point NC 28533-8021

DSN 582-7415  
COM (919) 466-7415  
WEB <http://www.nadepcp.navy.mil>

Commanding Officer  
NAVAVNDEPOT Jacksonville  
Code 62429  
Naval Air Station  
Jacksonville FL 32212-0016

DSN 942-4356  
COM (904) 542-4356  
WEB <http://www.nadjx.navy.mil>

Commanding Officer  
Code 936  
NAVAVNDEPOT North Island  
NAS North Island  
PO Box 357058  
San Diego CA 92135-7058

DSN 735-3086  
COM (619) 545-3086  
WEB <http://www.nadepni.navy.mil>

**U.S. Coast Guard Training Site**

Commanding Officer  
USCG TRACEN (TEW)  
End of State Route 238  
Yorktown VA 23690-5000

COM (757) 898-2287  
WEB <http://www.uscg.mil/tcyorktown>

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

2M/MTR POINTS OF CONTACT - *Continued*

**Air Force Training Sites**

372 TRS/DET 11  
3295 South 5<sup>th</sup> Street  
Davis Monthan AFB AZ 85707-3914

DSN 228-3520  
COM (520) 228-4224  
WEB <http://www.dm.af.mil>

TD17/CC  
Unit 3730  
Spangdahlem Air Base  
APO AE 09126-3730

DSN 452-6790  
COM 011-49-6565-61-6790  
WEB <http://www.spangahlem.af.mil>

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

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**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**APPENDIX J**

**CERTIFICATION ACTIVITY CODES**

**AIMD**

USS KITTY HAWK	CV63
USS CONSTELLATION	CV64
USS JOHN KENNEDY	CV67
USS ENTERPRISE	CV65
USS NIMITZ	CV68
USS EISENHOWER	CV69
USS CARL VINSON	CV70
USS ROOSEVELT	CV71
USS ABE LINCOLN	CV72
USS GEORGE WASHINGTON	CV73
USS STENNIS	CV74
USS TRUMAN	CV75
USS REAGAN	CV76
USS TARAWA	LHA1
USS SAIPAN	LHA2
USS BELLEAUWOOD	LHA3
USS NASSAU	LHA4
USS PELELIU	LHA5
USS WASP	LHD1
USS ESSEX	LHD2
USS KEARSARGE	LHD3
USS BOXER	LHD4
USS BATAAN	LHD5
USS BONHOMME RICHARD	LHD6
USS IWO JIMA	LHD7
USS INCHON	MS12
COMSTRATCOMWINGONE TINKER	ACSC
NAS ATLANTA	AATL
NAS ATSUGI	AATS
NAS BARBERS PT.	ABPT
NAS CORPUS CHRISTI	ACOR
NAS DIEGO GARCIA	ADGA
NAS GUANTANAMO BAY	AGIT
NAS JRB FORT WORTH	AJFW
NAS JRB NEW ORLEANS	AJNO
NAS JRB SANTA CLARA	AJSC
NAS JRB WILLOW GROVE	AJWG
NAS JACKSONVILLE	AJAX
NAS KEFLAVICK	AKEF
NAS KEY WEST	AKWT
NAS KINGSVILLE	AKNG
NAS LEMOORE	ALEM
NAS MERIDIAN	AMER
NAS MISAWA	AMIS
NAS NORFOLK	ANOR
NAS NORTH ISLAND	ANOI
NAS OCEANA	AOCE
NAS PENSACOLA	APEN
NAS SIGONELLA	ASIG

**AIMD Continued**

NAS WHIDBEY ISLAND	AWHI
NAVSTA MAYPORT	AMAY
NAVSTA ROOSEVELT ROADS	AROS
NAVSTA ROTA	AROT
NAWC AD PATUXENT RIVER	APAX
NAWS POINT MUGU	APMU

**AMMT**

CNATRA	CNTA
COMNAVAIRESFOR	CNAR
COMNAVAIRLANT	ALAN
COMNAVAIRPAC	APAC
COMNAVAIRSYSKOM	CNAS

**CERTIFICATION AGENT**

NSWC Crane	CRTA
------------	------

**FTSCLANT**

NORFOLK	FLNO
MAYPORT	FLMA
NEW LONDON	FLNL
NAPLES	FLNA
INGLESIDE	FLIN

**FTSCPAC**

SAN DIEGO	FPSD
EVERETT	FPEV
PEARL HARBOR	FPPH
YOKOSUKA	FPYO
SASEBO	FPSA
SINGAPORE	FPSI

**MARINES**

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 26 NEW RIVER, NC	MA26
MALS 29 NEW RIVER, NC	MA29
MALS 31 BEAUFORT	MA31
MALS 36 FUTENMA	MA36
MALS 39 CAMP PENDLETON	MA39
MALS 49 STEWARD ANG BASE	MA49
MALS SE KANEOHE BAY	MASE

**NAVSEA TE000-AA-MAN-010/2M**  
**NAVAIR SE-004-PQS-000**

CERTIFICATION ACTIVITY CODES - Continued

**NADEPS**

CHERRY POINT	NDCP
JACKSONVILLE	NDJA
SAN DIEGO	NDNI

**TRAINING**

ATSUGI	TRAT
DAVIS-MONTHAN	TRDM
MAYPORT	TRMA
NORFOLK	TRNO
PEARL HARBOR	TRPH
SAN DIEGO	TRSD
SPANGDAHLEM	TRSP
WHIDBEY	TRWH
YOKOSUKA	TRYO
YORKTOWN	TRYT

**TRFS**

BANGOR	TFBA
KINGS BAY	TFKB

**The Certification Card No.**

- *The first four characters will represent the activity performing the certification.*
  - *The first numerical digit will identify the year the certification is performed.*
  - *The following numerical digits will identify the type of certification issued in sequence.*
    - *001-099 will represent 2M Technician Recertifiers and Instructors.*
    - *100-499 will represent Miniature level.*
    - *500-999 will represent the Microminiature level.*
- *Example: FLNO0115. This sequence represents that FTSCCLANT Norfolk issued this card in 2001 to the 15th person certified at the miniature level.*

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**2M/MTR PERSONNEL CERTIFICATION RECORD**

**UP-LINE REPORTING**

For those persons unable to update electronically the database, this form is provided for your convenience. Please forward to the following address within 15 days of issuance:

**Commander  
Naval Surface Warfare Center, Crane  
Building 3330 North, Code 6083  
300 Hwy 361  
Crane, Indiana 47522-5001**

The 2M CA is responsible for providing blank certification records and ID cards. Each issuing activity is responsible for keeping a log of all records and ID cards issued. This log will ensure that serial numbers are not skipped or duplicated.

<b>PERSONAL DATA -- PRIVACY ACT OF 1974 -- HANDLE WITH CARE</b>			
NAME (Last, first, middle initial)		CARD NO.	
SOCIAL SECURITY NO.		RATE/GRADE	WORKCENTER
ACTIVITY		UIC	PRD
Y MINI Y MICRO Y MTR  Use the reverse side of this card to justify change in certification	Y INITIAL CERTIFICATION Y RECERTIFICATION Y DISCHARGED Y OUT OF 2M PROGRAM Y TRANSFERRED TO: (Activity and UIC)		
ISSUED BY (Name)		ACTIVITY	
DATE OF ISSUE (Mo./Yr.)		EXPIRATION DATE (MO/Yr.)	

**2M PROGRAM CERTIFICATION RECERTIFICATION RECORD  
NSWCC 12410/18 (REV. 5/99)**

**Privacy Act Statement**

This Department of Defense Certification Manual for 2M/MTR Program provides instructions and guidelines that enables the 2M Program to function and retain data pertinent to various "certified" ship and shore based facilities and activities. As a portion of this data, records concerning personnel identification, location (assigned organization code or workcenter code); are maintained in a secured password controlled database. This document gathers and retains information subject to the Privacy Act of 1974. (5 U.S.C. 552a)

**NAVSEA TE000-AA-MAN-010/2M  
NAVAIR SE-004-PQS-000**

**2M CERTIFICATION IDENTIFICATION CARDS**

2M INSTRUCTOR

Name	
<hr/>	
Rate	Activity
is hereby designated as an Instructor in the Navy Miniature/Microminiature (2M) Electronic Repair Program	
<hr/>	
Certified by	Card No.
<hr/>	
Issued	Activity
<hr/>	
By authority of Commander Naval Sea Systems Command, Washington DC	



(White)

2M TECHNICIAN RECERTIFIER

Name	
<hr/>	
Rate	Activity
is hereby designated as an Inspector in the Navy Miniature/Microminiature (2M) Electronic Repair Program	
<hr/>	
Certified by	Card No.
<hr/>	
Issued	Activity
<hr/>	
By authority of Commander Naval Sea Systems Command, Washington DC	



(Yellow)

2M TECHNICIAN MICROMINIATURE REPAIR

MTR

Name	
<hr/>	
Rate	Activity
is hereby designated as a Microminiature Electronic Repair Technician in the Navy Miniature/Microminiature (2M) Electronic Repair Program	
<hr/>	
Certified by	Card No.
<hr/>	
Issued	Activity
<hr/>	
By authority of Commander Naval Sea Systems Command, Washington DC	



(Blue)

2M TECHNICIAN MINIATURE REPAIR

MTR

Name	
<hr/>	
Rate	Activity
is hereby designated as a Miniature Electronic Repair Technician in the Navy Miniature/Microminiature (2M) Electronic Repair Program	
<hr/>	
Certified by	Card No.
<hr/>	
Issued	Activity
<hr/>	
By authority of Commander Naval Sea Systems Command, Washington DC	



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(Reverse side of all cards)

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Card Number	Level
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Date Expires	

(Insert Classification of TMDER Here and At Bottom of Page) CLASSIFICATION:

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(NAVSEA S0005-AA-GYD-030/TMMP & NAVSEAINST 4160.3A)**

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4. FOR ADDITIONAL INFORMATION, CALL AUTOVON 296-0468 OR COMMERCIAL 805-228-0468

1. NAVSEA TECHNICAL MANUAL NO.  TE000-AA-MAN-010/2M	2. VOL. PART	3. TITLE  CERTIFICATION MANUAL FOR 2M/MTR PROGRAM
4. REV. NO./DATE OR TM CH. NO./DATE- Rev 0/11-1-02	5. SYSTEM/EQUIPMENT NOMENCLATURE	6. SYSTEM/EQUIPMENT IDENTIFICATION/ (MK/MOD/AN/PART NO.)

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**8. GENERAL COMMENTS**

**9. RECOMMENDED CHANGES TO PUBLICATION**

PAGE NO. A.	PARA-GRAPH B.	LINE NO. C.	FIG NO. D.	TABLE E.	F. RECOMMENDED CHANGES AND REASONS TYPE OF PROBLEM (INDICATE SAFETY (S), MAJOR (M), OR MINOR (P))

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-----  
DEPARTMENT OF THE NAVY

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NAVAL SYSTEM DATA SUPPORT ACTIVITY (NSDSA) (5E30)  
4363 MISSILE WAY  
PORT HUENEME, CA 93043-4307

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NAVSEA 4160/1 (5 - 89) (BACK)