

NAVSEA TE000-AA-PLN-010/2M

NAVAIR 4790-PLN-001/2M

1 June 2000

REVISION 3

CERTIFICATION PLAN FOR 2M/MTR PROGRAM

MINIATURE/MICROMINIATURE (2M)/MODULE TEST AND REPAIR (MTR)



This Plan supersedes:
NAVSEA TE000-AA-PLN-010/2M, dated 1 October 1995
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1 OF 1

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PURPOSE: THIS DOCUMENT PROVIDES CERTIFICATION/VALIDATION/REVIEW REPORTING REQUIREMENTS AND PROCEDURES FOR THE FOLLOWING:

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

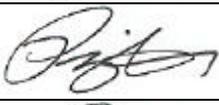
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CONTINUE ON REVERSE SIDE OR ADD PAGES AS NEEDED

CERTIFICATION STATEMENT

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NUMERICAL INDEX OF EFFECTIVE SECTIONS/PAGES

List of Current Changes

Original 0

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Only those sections/pages assigned to the manual are listed in this index. Insert _____, 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 Dispose of superseded and deleted sections/pages.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.

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

Total number of pages in this plan is 73 consisting of the following:

Section/Page No.	Change No	Section/Page No.	Change No.
Cover	0	A-2 Blank	0
A	0	B-1-2	0
B Blank	0	C-1	0
C Foreword	0	C-2 Blank	0
D Blank	0	D-1-2	0
I/1	0	E-1-5	0
I/2 Blank	0	E-6 Blank	0
II/3-5	0	F-1-F-8	0
II/6 Blank	0	G-1-3	0
III/7-18	0	H-1-5	0
IV/19-26	0	H-6 Blank	0
V/27-32	0	I-1-4	0
A-1	0		

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FOREWORD

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

- Miniature/Microminiature (2M)/ Module Test and Repair (MTR) Personnel
- 2M/MTR Repair and Training 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.

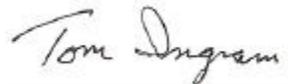
This document is designed to help the following program users in the certification process:

- SYSTEMS COMMANDS
- FLEET COMMANDERS IN CHIEF
- TYPE COMMANDERS
- FLEET TECHNICAL SUPPORT CENTERS
- TRAINING SITES
- COMMANDING OFFICERS
- END USERS

Use of this plan 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 Repairs per applicable directives. Secondly, the use of this plan will ensure that uniform review requirements and procedures are used by all activities.

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CERTIFICATION PLAN FOR 2M/MTR PROGRAM

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SECTION II. INTRODUCTION

1. INTRODUCTION.

a. This publication provides the certification and review criteria for all 2M technicians and sites under the auspices of the Navy 2M Program. The certification process establishes standards and procedures to ensure the continued quality of 2M repairs performed by the fleet. Certification identifies personnel who have demonstrated the ability to do quality 2M repairs, and provides the means of implementing approved new repair techniques and procedures.

2. RESPONSIBILITIES.

a. Major program administration and management responsibilities are defined in OPNAVINST 4700.7J, 4790.2G, and NAVSEAINST 4790.17A.

3. CERTIFICATION LEVELS.

a. The Navy 2M Program has four primary levels of certification:

- (1) Miniature (MN)
- (2) Microminiature (MC)
- (3) 2M Technician Recertifier (RC)
- (4) 2M Instructor (IN)

4. REFERENCE MATERIAL.

a. 2M 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.

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Table 1. Reference Material

Title	Number
2M Electronic Rework Power Unit PP-8087/U and Auxiliary Equipment	NAVSEA SE010-AH-OMP-010/PP-8087/U MARINE CORPS TM 09548A-14&P/1
2M Master Tool List	NSWCC Itr 4790 Ser 8083/U9035 of 22 Mar 99
8007-0161(17794), PRC2000-2M System Allowance Parts List (APL)	00032540
8007-0161(17794) NAVAIR Unique, PRC2000-2M APL	00035587
Afloat Supply Procedures	NAVSUP Publication 485
AN/USM-646(V), 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
CNATRA Miniature/Microminiature Aviation Electronics Repair 2M Maintenance Program	CNATRINST 4790.27
Combat Systems Readiness Review (CSRR)	COMNAVSURPACINST 9093.1B COMNAVSURFLANTINST 9093.1H
Fleet Test and Repair of Shipboard Electronic Equipment	NAVSEAINST 4790.17A
Huntron Tracker 5100DS Maintenance Requirement Cards (MRCs)	NAVSEA Maintenance Index Page (MIP) 4911/3
Intermediate Maintenance with Illustrated Parts Breakdown, Microminiature Repair Station	NAVAIR 17-1-124
Microminiature Repair Station, Periodic Maintenance Requirements Manual	NAVAIR 17-600-141-6-2
Maintenance of Surface Ship Electronic Equipment	OPNAVINST 4790.13
Maintenance Policy for Naval Ships	OPNAVINST 4700.7J
Miniature/Microminiature (2M)/Automatic Test Equipment (ATE) Electronic Repair Program	COMNAVSURFPACINST 4790.4A

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Table 1. Reference Material – Continued.

Title	Number
Miniature/Microminiature/Automatic Test Equipment Repair Program	COMNAVSPECWARCOMINST 9401.1A
Naval Aviation Maintenance Program	OPNAVINST 4790.2G
Navy Training Plan (NTP), Navy Miniature/Microminiature (2M) Electronic Repair Program	NTP S-30-8711C
PP-8087/U, Power Supply, APL	00019082
PP-8087/U, Power Supply, MRCs	NAVSEA MIP 6652/04
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
Preoperational Checklist, Microminiature Repair Station, 1127AS159-1	NAVAIR 17-600-141-6-1
Ships' Maintenance and Material Management (3-M) Manual	OPNAVINST 4790.4C
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
Tools X Equipment-2M Repair Stations AEL	2-670034080
Tracker 2000 (57705), Test Set, Semiconductor APL	00020504

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SECTION III. 2M/MTR PERSONNEL

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). 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.

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). 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. 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. A technician that completes the course with an overall course grade average of 90 percent or above and does not receive a counseling sheet documenting continued violation of safety procedures is 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. Technicians entering with these credentials have shown great success in completing course A-100-0073. The overall course grade average shall be documented on Appendix A in accordance with Section V, paragraph 1.a(1).

c. **FOLLOW-ON REQUIREMENTS.** 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. 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)

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- (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.
- (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 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor 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 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor. Miniature Electronic Repair Technicians may be decertified during the recertification process. The 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor 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. A technician that completes the recertification performance test with an overall grade average of 90 percent or above and does not receive a counseling sheet documenting continued violation of safety procedures is 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. Technicians entering with these credentials have shown great success in completing course A-100-0073. The overall performance test grade average shall be documented on Appendix C in accordance with Section V, paragraph 1.a(2).

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

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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 a recommendation for further training (see paragraphs 1.b. and 1.d. NOTES) should receive first consideration for training at the microminiature level. 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. 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. A technician completing the course with an overall course grade average of 95 percent or above and does not receive a counseling sheet documenting continued violation of safety procedures is highly recommended for further training in A-100-0058, 2M Technician Recertifier or A-100-0074, 2M Instructor. This percentage is 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 courses A-100-0058 or A-100-0074. The overall course grade average shall be documented on Appendix A in accordance with Section V, paragraph 1.b.(1).

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).

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(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 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 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor 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 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor. Microminiature Electronic Repair Technicians may be downgraded to the miniature level or decertified during the recertification process. The 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor will follow the Microminiature Electronic Repair Technician Non-Certification Reporting Procedures provided in Section V, paragraph 1.b.(3). 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. A technician completing the recertification performance test with an overall grade average of 95 percent or above and does not receive a counseling sheet documenting continued violation of safety procedures is highly recommended for further training in A-100-0058, 2M Technician Recertifier or A-100-0074, 2M Instructor. This percentage is 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 courses A-100-0058 or A-100-0074. The overall performance test grade average shall be documented using Appendix C in accordance with Section V, paragraph 1.b.(2).

e. PREVIOUSLY QUALIFIED MICROMINIATURE ELECTRONIC REPAIR TECHNICIAN. Microminiature Electronic Repair Technicians trained before October 1994 and not in receipt of A-100-0143, Microminiature Electronic Repair Difference (SMT) training are required to repeat A-100-0073, Microminiature Electronics Repair course of instruction. Microminiature Electronic Repair Technicians

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holding NEC 9526 and not in receipt of SMT training will have their NEC removed and will be permitted to recertify at the miniature level only.

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, identify equipment and site improvements necessary to meet minimum standards, and apply minimum standards of quality set forth in the Standard Maintenance Practices, 2M Electronic Assembly Repair Manual (NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M) for all levels of repair.

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 with a recommendation for further training (see paragraph 2.b. NOTE) should receive first consideration for training at the 2M Technician Recertifier level. 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. 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 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 a Fleet Technical Support Center (FTSC) 2M/MTR 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 2M Instructor or FTSC 2M/MTR Fleet Coordinator 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 2M Instructor or FTSC 2M/MTR Fleet Coordinator will follow the 2M Technician Recertifier Recertification Reporting Procedures provided in Section V, paragraph 1.c(2).

NOTE

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

2M Technician Recertifiers may be decertified during the recertification process. The 2M Instructor or FTSC 2M Fleet Coordinator will then follow the 2M Technician Recertifier Non-Certification Reporting Procedures provided in Section V, paragraph 1.c(3).

4. 2M INSTRUCTOR.

a. **CAPABILITIES AND FUNCTIONS.** 2M Instructors are capable of performing all tasks required of 2M Technician Recertifiers and 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, culminating in certification.

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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 with a recommendation for further training (see paragraph 2.b. NOTE) should receive first consideration for training at the 2M Instructor level. 2M Instructors are awarded NEC 9509 and for Marine Corps personnel, 2M Instructor certification is added to PMOS 6423 qualifications upon completion of the following:

(1) Graduate A-012-0011, Instructor Training.

(2) Graduate A-100-0074, 2M Instructor course. The A-100-0074, 2M Instructor course includes the following requirements:

(a) Attend A-100-0135, 2M Instructor Initial Skills. This course will have the prospective 2M Instructor attend A-100-0072, Miniature Electronics Repair and A-100-0073, Microminiature Electronics Repair courses to provide an insight on instructional techniques or methodology, assist in personalization of lesson plans and to begin instruction under supervision. Instruction will be under the supervision of a certified 2M Instructor.

(b) Attend A-100-0136, 2M Instructor Certification/Recertification. 2M Instructor trainee will conduct lectures and demonstrations under supervision and conduct final certification lectures or demonstrations. Final certification or recertification will be granted when trainee has been satisfactorily evaluated by a certified 2M Instructor on a minimum of one lecture and demonstration in each of the major areas listed below and meets the following requirements:

- 1 A-100-0072, Miniature Electronics Repair
 - a ESD familiarization and handling procedures
 - b Conformal Coating
 - c Desolder
 - d Component Install
 - e Conductor Repair
 - f Laminate Repair
 - g Wires
 - h Multilead Desoldering
 - i Multilead Soldering
- 2 A-100-0073, Microminiature Electronics Repair
 - a Flexible Printed Wiring Board Repair
 - b Multilayer Repair
 - c Plastic Panel Repair

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d Surface Mount

3 Demonstrate familiarity with Standard Maintenance Practices, 2M Electronic Assembly Repair Manual (NAVAIR 01-1A-23, NAVSEA SE004-AK-TRS-010/2M) to the evaluating 2M Instructor.

4 Demonstrate the ability to assess individual student needs to the evaluating 2M Instructor.

5 Demonstrate ability to identify and critique, in writing, any defects in workmanship. This is accomplished when the 2M Instructor trainee correctly evaluates a minimum of 80 percent of the class projects presented by the evaluating 2M Instructor.

c. The 2M training site will follow the 2M Instructor Initial Certification Reporting Procedures provided in Section V, paragraph 1.d(1).

d. FOLLOW-ON REQUIREMENTS. A 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator 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 2M Technician Recertifier, or FTSC 2M/MTR Field Service Engineer or Fleet Coordinator will follow the 2M Instructor Recertification Reporting Procedures provided in Section V, paragraph 1.d(2).

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 Instructors may be decertified during the recertification process. The 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator will then follow the 2M Instructor Non-Certification Reporting Procedures provided in Section V, paragraph 1.c(3). 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 shall be validated by the 2M Certification Agent (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) 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.

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(3) 2M Instructors performing a lecture or demonstration from the A-100-0072, Miniature or A-100-0073, Microminiature Electronics Repair courses shall ensure that proper curriculum material, tools, equipment, safety, repair techniques and soldering procedures are presented.

(4) 2M Instructors may be required to perform a 2M Instructor evaluation.

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

(6) The 2M CA will provide in-depth, over-the-shoulder remedial training to the 2M Instructor to improve areas identified as deficient. 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. The 2M CA will then follow the 2M Instructor Non-Certification Reporting Procedures provided in Section V, paragraph 1.d.(3).

e. **PREVIOUSLY QUALIFIED 2M INSTRUCTOR REQUIREMENTS.** A previously qualified 2M Instructor (NEC 9509, or PMOS 6423 with previous 2M Instructor certification) returning to an Instructor billet must attend A-100-0136, 2M Instructor Certification/Recertification to update their technical skills and recertify at the 2M Instructor level.

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. Primarily, 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 are experienced certified 2M Technician Recertifiers or Instructors. Primarily, FTSC 2M/MTR Fleet Coordinators perform 2M/MTR site reviews, where FTSC 2M/MTR Field Service Engineers are billeted, to evaluate, advise, and assist with 2M/MTR Program matters. 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.

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 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 repair 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.

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c. FOLLOW-ON REQUIREMENTS.

(1) 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. 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).

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 repair site reviews.

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).

(2) The FTSC 2M/MTR Fleet Coordinator will validate the FTSC 2M/MTR Field Service Engineer every 18 months. The FTSC 2M Fleet Coordinator may extend this interval 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 may accompany and observe the FTSC 2M/MTR Field Service Engineer during a 2M/MTR site review. The findings and recommendations of the validation shall be provided to the FTSC 2M/MTR Field Service Engineer's command representative (Commanding Officer).

(3) The 2M CA will validate the FTSC 2M/MTR Fleet Coordinator every 18 months. The 2M CA may extend this interval 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. The findings and recommendations of the validation shall be provided to the FTSC 2M/MTR Fleet Coordinator's command representative (Commanding Officer).

6. AMMT 2M EVALUATOR.

a. CAPABILITIES AND FUNCTIONS. AMMT 2M Evaluators are experienced, previously certified Microminiature Electronic Repair Technicians. Primarily, AMMT 2M Evaluators perform AMMT visits, where evaluators are billeted, to evaluate, advise, or assist Aircraft Intermediate Maintenance Department (AIMD) 2M Technician Recertifiers with 2M Program matters.

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b. INITIAL REQUIREMENTS. To become an AMMT 2M Evaluator, personnel must have completed a previous tour as a certified Microminiature Electronic Repair Technician (NEC 9526) and be either assigned or enroute to an activity requiring AMMT 2M Evaluators. 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 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. The 2M CA will follow the AMMT 2M Evaluator Reporting Procedures provided in Section V, paragraph 1.f(2).

7. MTR STATION OPERATOR.

a. CAPABILITIES AND FUNCTIONS. MTR Station Operators possess the qualifications necessary to operate and maintain the AN/USM-646(V) Test Measuring and Diagnostic Equipment (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 Test Measuring and Diagnostic Equipment Operator/Maintenance course. There is no initial certification reporting procedures. The MTR training site will follow the MTR Station Operator Reporting Procedures provided in Section V, paragraph 1.g(1).

c. FOLLOW-ON REQUIREMENTS. The FTSC 2M/MTR Field Service Engineer or Fleet Coordinator during the 2M/MTR site review will validate NAVSEA MTR Station Operators every 18 months. Primarily, the FTSC 2M/MTR Field Service Engineer or Fleet Coordinator 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 MTR Station Operator Reporting Procedures provided in Section V, paragraph 1.g(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 2M technicians and MTR Station Operators. Primarily 2M/MTR Technicians perform corrective maintenance on circuit cards and electronic modules by troubleshooting and repairing the faulty cards and modules. 2M/MTR Technicians also perform preventive maintenance as scheduled by Maintenance Requirement Cards for the PRC-2000-2M System and the primary MTR test system (AN/USM-646).

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 Test Measuring and Diagnostic Equipment Operator/Maintenance courses. The 2M training site will follow the 2M/MTR Technician Initial Certification Reporting Procedures provided in Section V, paragraph 1.h(1).

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

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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.h(2).

9. CERTIFICATION AGENT.

a. **CAPABILITIES AND FUNCTIONS.** In accordance with NAVSEAINST 4790.17A, Naval Surface Warfare Center, Crane Division is to act as the 2M Certification Agent (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 04M34. 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 Navy Systems Commands and TYCOMs.

(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 04M34. The 2M CAs are expected to be thoroughly knowledgeable about all technical aspects of the 2M program. An 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 COMNAVSEASYSKOM 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 04M34. 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.

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(2) Have effective oral communication skills to provide demonstrations of new and established methods of MTR system fault isolation and software conflict recognition.

(3) Have written communication skills to incorporate new techniques into existing documentation, prepare reports, and make recommendations to Navy Systems Commands and Type Commanders.

(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 04M34 to ensure that they are thoroughly knowledgeable about all technical aspects of the MTR Program.

1 June 2000

SECTION IV. 2M/MTR SITES

1. 2M REPAIR SITES.

a. INITIAL REVIEW REQUIREMENTS. Authority to repair or rework electronic assemblies will be granted only to those maintenance activities evaluated as being capable of providing quality 2M electronics repair. Activities performing organizational, intermediate, depot, and contractor 2M maintenance (where 2M 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 Repair site will be identified as capable of performing high quality 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 Repair Site Review Reporting Procedures provided in Section V, paragraph 2.a(1). The 2M repair site review process consists of the following actions:

(1) Conduct an arrival briefing with a command representative (Commanding Officer, OIC, Electronics Material Officer, Combat Systems Maintenance Officer, AIMD Officer, MALS AMO, or Department Head), and appropriate 2M personnel (2M Technician Recertifier, 2M-workcenter supervisor, etc.).

(2) Verify 2M repairs are documented in accordance with established procedures.

(a) NAVSEA. Refer to OPNAVINST 4790.4C, Chapter 6 and 7, and Appendix A.

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

NOTE

NAVSEA cognizant activities are mandated by the JFMM to attempt repair on all suspect faulty CCA/EM and document the 2M maintenance actions into the MTRTS.

(3) Identify all assigned 2M personnel including name, rate, social security number, 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 NECs or PMOSs who are out of certification to evaluate retention of the NEC or the PMOS [also see Section V, paragraph 1.a(3)].

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

(a) NAVSEA. PP-8087/U, Power Supply, Maintenance Requirement Cards (MRCs), Maintenance Index Page (MIP) 6652/004 or PRC-2000-2M SystemMRCs, MIP 6652/005.

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(b) NAVAIR. Microminiature Repair Station, Periodic Maintenance Requirements Manual, NAVAIR 17-600-141-6-2; or PRC-2000-2M SystemMRCs, NAVAIR 17-600-193-2.

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

(a) NAVSEA. PP-8087/U or PRC-2000-2M System:

1 Document the serial number and space location.

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

a PP-8087/U - soldering iron and extractor; PRC-2000-2M System-Thermal Management Center (TMC).

b Hand tool power and pulse heat.

c Mechanical drive with flex cable and handpiece attached or microchine.

d PP-8087/U-vacuum & pressure pump with a minimum of 16 inches of vacuum and 16 pounds of pressure; PRC-2000-2M System-vacuum & pressure pump with a minimum of 16 inches of vacuum and four pounds of pressure, PIK-VAC 3 inches of vacuum and Paste Dispenser 35 pounds of pressure.

(b) NAVAIR. 1127AS159-1 or PRC-2000-2M System:

1 Document the serial number and space location.

2 Verify applicable 2M equipment is operational. Refer to Pre-operational Checklist, Microminiature Repair Station, 1127AS159-1, NAVAIR 17-600-141-6-1; NAVAIR 17-1-124 or NAVAIR 17-15-99.

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

(a) NAVSEA. The Coordinated Shipboard Allowance List (COSAL) or Coordinated Shore-Based Allowance List (COSBAL), PP-8087/U Allowance Parts List (APL) 00019082 or PRC-2000-2M System APL 00032540.

(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 facility (2M Repair Site) 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-reference documents are 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 SE010-AH-OMP-010/PP-8087/U or NAVSEA S9665-CY-OMP-010/PRC-2000/U; NAVSEA TE000-AA-PLN-010/2M.

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(b) NAVAIR. NAVAIR 01-1A-23; NAVAIR 17-1-124 and 17-15-99; NAVAIR 4790-PLN-001/2M; NAVAIR 17-600-141-1, NAVAIR 17-600-141-2, or NAVAIR 17-600-193-6-2.

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

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

(11) Conduct a departure briefing with a command representative (Commanding Officer, OIC, Electronics Material Officer, Combat Systems Maintenance Officer, AIMD Officer, MALS AMO, or Department Head), and appropriate 2M personnel (2M Technician Recertifier, 2M-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 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.

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 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. **DEFICIENCIES.** 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. Examples of minor deficiencies include missing a single size of extractor tip, eyelet, or ball mill. A major deficiency impairs

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the capability to perform any specific task of a 2M repair and is cause for failure of the 2M repair site review. Examples of major deficiencies include:

- (1) Missing ESD control capabilities (no, 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 mechanical drive motor or microchine, pump motor, handtool power supply, AC/DC outlet failure, or loss of pressure or vacuum within the 2M-support equipment (1127AS159-1, PP-8087/U, or PRC-2000-2M System).
- (4) Missing any or all of the Planned Maintenance System (PMS) for support equipment used in 2M repair (1127AS159-1, PP-8087/U, or PRC-2000-2M System).
- (5) Missing eye protection (missing both safety goggles and spectacles).
- (6) 2M repair 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.
- (8) Having less than two individual power receptacles mounted on or near the 2M workstation (required for 2M equipment and light source).

e. FOLLOW-ON REVIEW REQUIREMENTS. All 2M-repair sites will be reviewed every 18 months by an FTSC 2M/MTR Field Service Engineer, Fleet Coordinator, AMMT 2M Evaluator, or 2M CA. This interval may be extended to 24 months by the TYCOM to facilitate scheduling. Most afloat and some shore 2M facility reviews are scheduled to correspond with the periodicity of major TYCOM reviews (NAVSEA Combat Systems Readiness Review (CSRR) 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-repair site Review Reporting Procedures provided in Section V, paragraph 2.a.

2. NAVSEA MTR SITES.

a. INITIAL REVIEW REQUIREMENTS. NAVSEA MTR sites will be reviewed by an FTSC 2M/MTR Field Service Engineer or Fleet Coordinator. The FTSC 2M/MTR Field Service Engineer or Fleet Coordinator will follow the MTR Site Review Reporting Procedures provided in Section V, paragraph 2.a. The MTR site review process consists of the following actions:

- (1) Conduct an arrival briefing with a command representative (Commanding Officer, OIC, Electronics Material Officer, Combat Systems Maintenance Officer, or Department Head), and appropriate MTR personnel.
- (2) Verify the Module Test and Repair Tracking System (MTRTS) is being used in accordance with established procedures to document circuit card assembly screening and repair.
- (3) Identify all assigned MTR station operators including name, rate, social security number, PRD, and work center.

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(4) Verify AN/USM-646 Test Station has been included into the activity's preventive maintenance program, MIP 4911/3.

(5) Document the serial numbers and space locations of the following AN/USM-646 equipment.

(a) Controller

(b) Monitor

(c) Printer

(d) Huntron 5100DS

(e) Huntron 2000

(f) Shortrack 90

(g) Switcher 410

(6) Verify the AN/USM-646(V) is operational.

(7) Verify all support equipment used in the MTR work center is supported by an approved Navy allowance list.

(a) AN/USM-646(V) Test Station APL 00029515CL.

(b) Tracker 2000 (57705), Test Set, Semiconductor APL 00020504.

(8) Verify that at least one copy of DoD ST821-AT-IEM-010 is available at or near the MTR workstation. Multiple workstations in the same location do not require multiple copies of DoD ST821-AT-IEM-010.

(9) Inventory the MTR work center using the MTR Checklist provided by Naval Undersea Warfare Center Detachment, Field Engineering Office, Norfolk, VA.

(10) Verify the MTR work center has all the materials required for electrostatic discharge (ESD) prevention and is following proper ESD safety procedures (mat, wrist straps, and static-shielded bags).

(11) Verify the MTR work center has the latest version of all applicable software installed.

(12) 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 Joint Fleet Maintenance Manual (JFMM).

(13) Conduct a departure briefing with a command representative (Commanding Officer, OIC, Electronics Material Officer, Combat Systems Maintenance Officer, or Department Head), and appropriate MTR personnel. All discrepancies and recommendations for improvement shall be discussed and documented.

b. DEFICIENCIES. Deficiencies noted in the MTR Site 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 major deficiency impairs the capability to perform any specific task of MTR fault isolation and is cause for failure of the MTR repair site review.

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(1) Lack of certified AN/USM-646/674(V) technicians trained by an authorized authority.

(2) Inoperable hardware prohibiting normal AN/USM-646/674 operation.

(3) Missing ESD control capabilities or precautions are not being properly followed, (e.g., no, or defective, ESD mat or wrist strap).

(4) Required Planned Maintenance System (PMS) for support equipment used in MTR repair not accomplished in accordance with MRC periodicity, [e.g., AN/USM-646/674 Test Station(s)].

(5) A minor deficiency does not impair the capability to perform MTR diagnostic operations. Examples of minor deficiencies include missing software revisions, worn dip clips, inoperable Win Pedal, or missing test equipment accessories.

(6) Any missing or worn test system accessories, outdated software, or other item requiring replacement to support complete AN/USM-646/674 Test Station configuration.

c. MTR SITE REVIEW criteria is outlined in the MTR Checklist (reference, c of NAVSEA NAVUNSEAWARCEN DET FEO Norfolk ltr 4790 Ser 0201V/141 of 11 May 2000).

d. FOLLOW-ON REVIEW REQUIREMENTS. An FTSC 2M/MTR Field Service Engineer or Fleet Coordinator will review all MTR sites every 18 months. This interval may be extended to 24 months by the TYCOM to facilitate scheduling. Most afloat and some shore MTR facility reviews are scheduled to correspond with the periodicity of major TYCOM reviews (NAVSEA Combat Systems Readiness Review (CSRR)). The process and requirements will be the same as the initial review. The FTSC 2M/MTR Field Service Engineer or Fleet Coordinator will follow the MTR Review Reporting Procedures provided in Section V, paragraph 2.a.

3. 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. Activities are reviewed by the 2M CA as qualified to instruct A-100-0072, Miniature Electronics Repair and A-100-0073, Microminiature Electronics Repair 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, or Department Director), and appropriate 2M personnel (2M Group/Course Supervisor or 2M Instructors).

(2) Identify of all assigned 2M Instructor personnel.

(3) Inventory 2M training equipment, tools, and associated material using Appendix F, 2M Workstation Checklist.

(4) Discuss and evaluate proposed changes in tools, equipment, techniques, and 2M training curriculum, as submitted by the training site or 2M CA.

(5) 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.

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(6) Verify an ample supply of practice circuit cards, terminals, eyelets, and solder cups, components, consumables, etc.

(7) 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-PLN-010/2M, NAVAIR 4790-PLN-001/2M, appropriate 2M TYCOM instruction(s), and the current 2M NTP S-30-8711.

(8) 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; and if applicable A-100-0058, 2M Technician Recertifier. List inadequacies and projected corrective action anticipated.

(9) 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.

(10) Conduct a departure briefing with a command representative (Commanding Officer, OIC, or Department 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 2.a and the following additional requirements:

(1) A minimum of three 2M Instructors (two currently certified and one in training status) per class with twelve seat capacity and two (one currently certified and one in training status) with eight seat capacity.

(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 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 SE010-AH-OMP-010/PP-8087/U, NAVAIR 17-1-124 or 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.

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 2.a and 2.b and the following additional requirements:

(1) 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 Workstation Checklist.

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(2) Operational Microminiature Demonstration System consisting of Close Circuit Television camera, monitor and microscope.

d. FOLLOW-ON REQUIREMENTS. The 2M CA will review all 2M training sites every 18 months. The 2M CA or 2M training site to facilitate scheduling may extend this interval to 24 months. 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.

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SECTION V. 2M/MTR REPORTING

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://acrux.m42.crane.navy.mil:8000/>. For user access, contact the 2M Program Webmaster at DSN 482-3237. If computer access is not available Appendix I, 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. 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 field service record entry. The 2M Instructor will issue a serialized green certification card, which will note the activity performing the certification (see Appendix I). The 2M Instructor shall 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, paragraph 1.c. will be administered by the 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor for miniature recertification. The Miniature Recertification Performance Test is provided as Appendix B. Upon completion, the 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor will sign the performance test, complete the NAVPERS 1070/613 (ADMINISTRATIVE REMARKS/ Page 13, see Appendix C), and issue both to the recertifying technician. 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, see Appendix C), to the AIMD Officer or OIC for signature. All others shall submit the completed NAVPERS 1070/613 (ADMINISTRATIVE REMARKS/Page 13) to their command administration department for field service record entry. The 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor will issue a serialized green certification card, which will note the activity performing the recertification (see Appendix I). The 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor shall 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 (NAVPERS 1221/1) is required to remove an NEC. If a Miniature Electronic Repair Technician is denied certification and the NAVPERS 1221/1 is not submitted, the EDVR may still show that technician as filling a 2M NEC requirement. A command manpower review

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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 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. 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 field service record entry. The 2M Instructor will issue a serialized blue certification card, which will note the activity performing the certification (see Appendix I). The 2M Instructor shall 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. A performance test documenting completion of all the tasks listed in Section III, paragraph 2.c, will be administered by the 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor for microminiature recertification. The Microminiature Recertification Performance Test is provided as Appendix D. Upon completion, the 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor will sign the performance test, complete the NAVPERS 1070/613 (ADMINISTRATIVE REMARKS/ Page 13, see Appendix A), and issue both to the recertifying technician. 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) to their command administration department for field service record entry. The 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor will issue a serialized blue certification card, which will note the activity performing the recertification (see Appendix I). The 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator, or 2M Instructor shall 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.

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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. 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 field service record entry. The 2M Instructor will issue a yellow serialized certification card, which will note the activity performing the certification (see Appendix I). The 2M Instructor shall be responsible for entering information into the 2M database for up-line reporting.

(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 2M Instructor or FTSC 2M/MTR Fleet Coordinator will follow the microminiature recertification reporting requirements provided in paragraph 1.b(2). The 2M Instructor or FTSC 2M/MTR Fleet Coordinator will issue a serialized yellow certification card, which will note the activity performing the recertification (see appendix I). The 2M Instructor or FTSC 2M/MTR Fleet Coordinator shall 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. For Marine Corps personnel, 2M Instructor certification is added to PMOS 6423 qualifications. 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 Instructor for field service record entry. The 2M Instructor will issue a serialized white certification card, which will note the activity performing the certification (see Appendix I). The 2M Instructor shall 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 shall recertify 2M Instructors every 18 months at the microminiature level. The 2M Technician Recertifier, FTSC 2M/MTR Field Service Engineer or Fleet Coordinator will follow the microminiature recertification reporting requirements provided in paragraph 1.b(2). 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 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, or Department Director), via the 2M Training Site Review (Appendix G). The 2M CA will issue a serialized white certification card, which will note the activity performing the recertification (see Appendix I). The 2M CA shall 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 Instructor (NEC 9509) level.

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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 Test Measuring and Diagnostic Equipment 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 repair 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, which will note the activity performing the recertification (see Appendix I). The 2M Instructor shall 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. AMMT 2M EVALUATOR.

(1) Initial Certification Reporting Requirements To become an AMMT 2M Evaluator, personnel must have completed a previous tour as a certified Microminiature Electronic Repair Technician (NEC 9526) and either be assigned or enroute to an activity requiring AMMT 2M Evaluators. There is no initial certification reporting requirements.

(2) Recertification Reporting Requirements AMMT 2M Evaluator' ability to conduct 2M Site Reviews shall be validated every 18 months by the 2M CA. The findings and recommendations of the validation shall be provided to the AMMT 2M Evaluator's command representative (Commanding Officer).

(3) Non-Certification Reporting Requirements The 2M CA will provide notification of inability to conduct 2M Site Reviews to the appropriate parent command. It is the parent command's responsibility to take the corrective action necessary to bring the AMMT 2M Evaluator into compliance.

g. MTR STATION OPERATOR.

(1) Initial Certification Reporting Procedures To be qualified as an MTR Station Operator, the technician must satisfactorily complete the A-100-0076, AN/USM-646 Test Measuring and Diagnostic Equipment 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 field service record entry. The MTR (2M) Instructor shall be responsible for entering information into the 2M database for up-line reporting.

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(2) Recertification 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, or Department Director), via the 2M/MTR Site Review (Appendix E).

(3) Non-Certification Reporting Procedures 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, or Department 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.

h. 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 Test Measuring and Diagnostic Equipment 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 field service record entry. The 2M/MTR Instructor shall be responsible for entering information into the 2Mdatabase 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.g(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.g(3).

2. 2M/MTR SITES.

a. **2M/MTR REPAIR SITE REVIEW REPORTING PROCEDURES.** 2M/MTR repair 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 Repair 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 Repair Site Review results (Appendix E /CSEC) shall be submitted as part of the appropriate TYCOM review report (NAVSEA CSRR 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.

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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 Repair 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 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 2Mdatabase for up-line reporting.

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:

(TEM DU/TEM ADD/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 field 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

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APPENDIX B

MINIATURE RECERTIFICATION PERFORMANCE TEST

TECHNICIAN NAME: _____ RATE: _____ SSN: _____
 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	NOTES
a. Identify four of five types and remove two 2M Inspector or Instructor selected conformal coatings: Type AR – Acrylic Resin Type ER – Epoxy Resin Type SR – Silicone Resin Type UR – Polyurethane Resin Type XY – Paraxylylene (Parylene)	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	

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MINIATURE RECERTIFICATION PERFORMANCE TEST (Contd)

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: _____

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

APPENDIX C

2M CERTIFICATION UPDATE

ADMINISTRATIVE REMARKS

NAVPERS 1070/613 (REV. 10-81)

E-32

COMMAND PRINTED HERE

1. The individual indicated has successfully completed the (Miniature/Microminiature) Electronic Repair Technician requirements for recertification as identified in the 2M Certification Plan (NAVSEA TE000-AA-PLN-010/2M, NAVAIR 4790-PLN-001/2M).
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

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**NAVSEA TE000-AA-PLN-010/2M
NAVAIR 4790-PLN-001/2M**

APPENDIX D

MICROMINIATURE RECERTIFICATION PERFORMANCE TEST

TECHNICIAN NAME: _____ RATE: _____ SSN: _____
 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 noted. All work must comply with the workmanship standards listed in the respective work packages.

PROJECT	REFERENCE WP	EVALUATION	NOTES
i. Identify four of five types and remove two 2M Inspector or Instructor selected conformal coatings: Type AR – Acrylic Resin Type ER – Epoxy Resin Type SR – Silicone Resin Type UR – Polyurethane Resin Type XY – Paraxylylene (Parylene)	006 00	#GRADE	
j. Install a single wire on a turret or hook terminal.	008 00	#GRADE	
k. Install a double wire on a turret or hook terminal.	008 00	#GRADE	
l. Remove and replace a 14/16 lead Dual In-line Package (DIP).	007 00	#GRADE	
m. Repair flexible laminate and conductor <u>OR</u> Plastic panel defective bulb removal and replacement.	013 00	#GRADE	
n. Repair multilayer CCA laminate and conductors by excavating down two layers, remove and replace lower level conductor only.	015 00	#GRADE	
o. Remove and install a Metalized Electrode Face (MELF) or chip resistor or capacitor.	018 00	#GRADE	

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MICROMINIATURE RECERTIFICATION PERFORMANCE TEST - *Continued*

PROJECT	REFERENCE WP	EVALUATION	NOTES
p. Remove and install a Small Outline Transistor (SOT) or Small Outline Integrated Circuit (SOIC).	018 00	#GRADE	
q. Remove and install a Plastic Quad Flat Pack (PQFP), Plastic Leaded Chip Carrier (PLCC), or Leadless Ceramic Chip Carrier (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: _____

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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APPENDIX E

2M/MTR SITE REVIEW REPORT (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 CSRR Final Report)

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

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

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

1. A Miniature/Microminiature (2M) Repair Site Review was conducted per references (a) and (b) on (Activity) by our 2M Inspector representative (Name), (Day/Month/Year). A Module Test and Repair Site (MTR) Inventory/Configuration Review was also conducted per reference (c). Results of these reviews are provided as enclosures (1) and (2).

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

3. 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

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

NAVSEA TE000-AA-PLN-010/2M
NAVAIR 4790-PLN-001/2M

2M REPAIR 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 repairs documented in accordance with established procedures?
6. List of 2M Technicians:

<u>NAME</u>	<u>RATE</u>	<u>SS NUMBER</u>	<u>PRD</u>	<u>WORK CTR</u>	<u>CERT LVL</u>	<u>CERT EXP DATE</u>
-------------	-------------	------------------	------------	-----------------	-----------------	----------------------

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

a. NAVSEA. PP-8087/U, Power Supply, MRCs, MIP 6652/004 or PRC-2000-2M System, MRCs, MIP 6652/005.

b. NAVAIR. Microminiature Repair Station, Periodic Maintenance Requirements Manual, NAVAIR 17-600-141-6-2; and/or PRC-2000-2M System MRCs, NAVAIR 17-600-193-6-2.

8. 2M Workstation Data #1 #2 #3 #4

Type (MN/MC):
 Equipment Type:
 Serial Number:
 Space Location:
 Work Center:

9. Is the equipment used for 2M repair operational?

a. NAVSEA. Verify applicable 2M equipment (PP-8087/U, PRC-2000-2M System) is operational by checking the following:

(1) PP-8087/U-soldering iron and extractor, PRC-2000-2M System TMC

(2) Hand tool power, pulse heat

(3) Mechanical drive with flex cable and handpiece attached, Microchine

(4) PP-8087/U-vacuum & pressure pump with a minimum of 16 inches of vacuum and 16 pounds of pressure, PRC-2000-2M System-vacuum & pressure pump with a minimum of 16 inches of vacuum and 4 pounds of pressure, PIK-VAC 3 inches of vacuum and Paste Dispenser 35 pounds of pressure.

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b. NAVAIR. Verify applicable 2M equipment (1127AS159-1, PRC-2000-2M System) is operational. Refer to Preoperational Checklist, Microminiature Repair Station, 1127AS159-1, NAVAIR 17-600-141-6-1; NAVAIR 17-1-124; and/or NAVAIR 17-15-99.

10. Is all support equipment used for 2M repair supported by an approved Navy allowance list?

a. NAVSEA. COSAL or COSBAL, PP-8087/U APL 00019082 and/or PRC-2000-2M System APL 00032540.

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

11. Does the facility (2M Repair Site) 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 Documents at or near the workstation? (Multiple workstations in the same location do not require multiple copies of each document.)

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

14. The following deficiencies were identified during the review:

a. Major Deficiencies:

b. Minor Deficiencies:

c. General Comments

d. (Pass/Fail):

15. Recommendations

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NAVAIR 4790-PLN-001/2M

MTR SITE INVENTORY/CONFIGURATION REVIEW REPORT [Enclosure (2)]

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

6. List of MTR Station Operators:

<u>NAME</u>	<u>RATE</u>	<u>SS NUMBER</u>	<u>PRD</u>	<u>WORKCENTER</u>
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7. Is the AN/USM-646(V) Test Station included into the activity's preventive maintenance program? (MIP 4911/3)

8. The AN/USM-646(V) Test Station consists of the following:

<u>EQUIPMENT TYPE</u>	<u>SERIAL #</u>	<u>SPACE LOCATION</u>	<u>WORKCENTER</u>
-----------------------	-----------------	-----------------------	-------------------

Controller
Monitor
Printer
Huntron 5100DS
Huntron 2000
Shortrack 90
Switcher 410

9. Is the AN/USM-646(V) Test Station operational?
10. Is all support equipment used in the MTR workcenter supported by an approved Navy allowance list?
 - a. AN/USM-646(V), Test Station APL 00029515CL.
 - b. Tracker 2000 (57705), Test Set, Semiconductor APL 00020504.
11. Is there at least one copy of applicable MTR documents at or near the workstation? (DoD ST821-AT-IEM-010) (Multiple workstations in the same location do not require multiple copies of each document.)
12. Conducted an inventory of the MTR work center utilizing the MTR checklist provided by Naval Undersea Warfare Center Detachment, Field Engineering Office (NAVUNSEAWARCEN- DET FEO), Norfolk.
13. The MTR work center has all the materials required for Electrostatic Discharge (ESD) prevention and is following ESD safety procedures.

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14. The MTR work center has the latest version of all applicable software.

15. Supply Department personnel are fully aware of the Progressive Repair Program and the policy/procedures contained in CINCLANTFLT/CINCPACFLTINST 4790.3, the Joint Fleet Maintenance Manual (JFMM).

16. The following deficiencies were identified during the review:

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

17. Recommendations:

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APPENDIX F

2M WORKSTATION CHECKLIST

1. Consumables

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>QTY</u>	<u>U/I</u>	
ACID SWAB BRUSH	7920-00-514-2417	12	EA	
ADAPTER, GAGE, COMPOUND	4730-01-203-8069	1	EA	
ADHESIVE, EPOXY PATCH	8040-00-061-8303	1	KT	
ALCOHOL-ISOPROPYL or	6810-00-286-5435	1	GL	
ALCOHOL- ISOPROPYL	6810-00-983-8551	1	QT	
ALIGNMENT TOOL	5120-00-293-2081	1	EA	
APPLICATOR, DISP 1000S	6515-01-017-2177	1	PG	
BAFFLE, SOLDER EXTRA	3439-00-248-5263	1	EA	
BAG, ESD	8105-01-386-3868	1	EA	
BLADE, CIRCULAR SAW	3455-00-189-7191	2	EA	
BLADE, DETACHABLE (NO11)	6515-00-660-0010	1	PG	
BLADE, DETACHABLE (NO15)	6515-00-660-0008	1	PG	
BLADE, WIRE STRIPPER	5110-01-097-0762	1	SE	
BRUSH, BRISTLE, DENT, HARD	6520-01-056-7376	1	PG	
BRUSH, PAINT	7510-00-550-8448	1	EA	
BRUSH, SCRUB	7920-00-619-9162	1	EA	
BRUSH, WIRE, SCRATCH	7920-01-127-4376	1	EA	
BULB-FLOOD (HIGH INTENSITY)	6240-01-029-1113	1	EA	
BULB-SPOT (HIGH INTENSITY)	6240-01-029-5988	1	EA	
BUR-BALL NO1/2 STR	6520-01-003-3132	1	PG	
BUR-BALL NO2 STR	6520-01-003-2269	1	PG	
BUR-BALL NO4 STR	6520-01-003-2270	1	PG	
BUR-BALL NO6 STR	6520-01-003-2271	1	PG	
BUR-BALL NO8 STR	6520-01-003-3131	1	PG	
BUR-INV CONE NO35 STR	6520-01-003-2267	1	PG	
CLEANING COMPOUND, O	6850-00-392-9751	1	BT	
CLOTH ABRSV 400 WET-DRY	5350-00-224-7201	1	PG	
CLOTH ABRSV 600 WET-DRY	5350-00-224-7215	1	PG	
COTTON-ASORB	6510-00-201-4000	1	PG	
DESOLDERING WICK (NO3)	3439-00-009-2334	3	SL	
DESOLDERING WICK (NO1)	3439-00-545-3396	3	EA	
DISK-ABRSV SIL CRBD	6520-00-523-2150	1	PG	
DISPENSER, DENTAL AC (FLUX)	6520-00-142-9039	1	EA	
DISPENSER, FLUX (ALCOHOL)	3439-00-552-9309	1	EA	

NAVSEA TE000-AA-PLN-010/2M
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2M WORKSTATION CHECKLIST – Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>QTY</u>	<u>U/I</u>	
ESD CAUTION SGN ALUM	9905-01-342-3044	1	EA	
EYELET, METALLIC (CME15)	5325-00-139-0328	10	EA	
EYELET, METALLIC (CME26C)	5325-00-234-7913	10	EA	
EYELET, METALLIC (CME36)	5325-00-558-1785	10	EA	
EYELET, METALLIC (CME46)	5325-01-076-9499	10	EA	
FLUX, SOLDERING	3439-00-069-5815	1	QT	
FOIL, COPPER	9535-00-268-9571	1	RO	
FUSE (TECHNI-QUIP TQ/FOI-1)	5920-00-228-7882	1	EA	
GAGE, COMPOUND PRESS	6685-00-248-6975	1	EA	
GOGGLES-INDUSTRIAL	4240-01-063-5996	1	EA	
GREASE, AIRCRAFT AND	9150-00-985-7244	1	TU	
HOLDER, CIRCUIT BOARD	5999-01-184-2449	1	EA	
LABEL, ESD WARNING	7690-01-077-4894	1	RO	
LAMP (TECHNI-QUIP TQ/FOI-1)	6240-01-331-0841	1	EA	
LIGHT-HIGH INTENSITY	6230-01-033-2081	1	EA	
MANDREL-DNTL-STRAIGHT	6520-00-926-8846	1	PG	
MICROSCOPE X LIGHTXSTAND	6650-01-189-4433	1	EA	
MINERAL OIL, USP	6505-00-133-6000	1	CO	
OIL, LUBRICATING	9150-00-223-4129	1	QT	
PAPER, LENS	6640-00-240-5851	1	PG	
SOLDER REMOVAL TOOL	3439-01-064-1811	1	EA	
SOLDER WICK NO2	3439-01-324-8208	3	EA	
SOLDER, PASTE (6-SN63-211A) or	3439-01-384-2071	1	EA	
SOLDER, PASTE (S290)	3439-01-456-5438	1	CO	
SOLDER, PASTE (SMTRS)	3439-01-456-5430	1	JR	
SOLDER, TIN ALLOY .015	3439-01-008-7580	1	SL	
SOLDER, TIN ALLOY .028 or	3439-01-008-7577	1	SL	
SOLDER, TIN ALLOY .036	3439-01-008-7578	1	SL	
SOLDER, TIN ALLOY .063 or	3439-00-473-2000	1	SL	
SOLDER, TIN ALLOY .090	3439-01-146-6953	1	SL	
SPECTACLES, INDUSTRIAL	4240-01-140-0282	1	PR	
STONE, SHARPENING	6520-00-536-2150	1	EA	
TAPE, PRESSURE SENSI	7510-00-266-6714	1	RO	
TIP-LAP REFLOW-FLAT	3439-00-417-7258	1	EA	
TIP-LAP REFLOW-WIRE	3439-01-143-7743	1	EA	
TOOL BOX, PORTABLE	5140-00-319-5079	1	EA	
TOWEL, PAPER (SMALL)	7920-00-721-8884	1	BX	
TRACK PAD REPAIR KIT	5895-01-136-2705	1	EA	
WATCH, STATIC MEDIUM	5920-01-235-4141	1	EA	
WATCH, STATIC, LARGE	5920-01-282-9865	1	EA	
WIPER, LARGE	7920-00-965-1709	1	BX	
WORK STATION KIT	4940-01-250-4235	1	EA	

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NAVAIR 4790-PLN-001/2M**

2M WORKSTATION CHECKLIST – Continued

2. Tools

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>QTY</u>	<u>U/I</u>	
ANVIL, JEWELER'S	5120-00-618-4913	1	EA	
BURNISHER, DENTAL	6520-01-055-5086	1	EA	
CARVER-DENTAL #89-92	6520-00-935-7254	1	EA	
CARVER-DENTAL HOLL 1-2	6520-00-935-7171	1	EA	
CHISEL-DENTAL NO 3-4	6520-00-935-7178	1	EA	
CHISEL-DENTAL NO 3	6520-01-074-1814	1	EA	
CLAMP, C	5120-00-596-4053	1	EA	
CLIP, ELECTRICAL	5999-00-677-9849	3	EA	
DRILL SET NO 1 TO 60	5133-00-449-6775	1	SE	
DRILL SET NO 61TO 80	5133-00-555-1528	1	SE	
DRIVE PIN PUNCH (1/4 IN)	5120-00-240-6083	1	EA	
DRIVE PIN PUNCH (5/32 IN)	5120-00-240-6104	1	EA	
EXPLORER, DENTAL #23	6520-00-528-1000	1	EA	
EXPLORER, DENTAL #6	6520-00-528-0000	1	EA	
FILE, BONE	6520-00-528-5050	1	EA	
GAGE, DRILL, NO 1TO60	5210-00-221-1893	1	EA	
GAGE, DRILL, NO 61TO80	5210-00-555-7993	1	EA	
HAMMER-HND MCHST 1-4 LB	5120-00-061-8540	1	EA	
HAND FILE SET	5110-00-204-2685	1	SE	
HANDLE, SURGICAL KNF (NO9)	6515-00-344-7920	1	EA	
KEY SET-SKTH SCR	5120-00-439-8988	1	SE	
MIXING SLAB, DENTAL	6520-00-556-2000	1	EA	
PLIERS, ANG-FLS-CTG 4IN	5110-00-764-4801	1	EA	
PLIERS, JEWELER'S (ROUND NSE)	5120-00-126-2076	1	EA	
PLIERS, DIAGONAL CUT (UTILITY)	5110-01-083-9317	1	EA	
PLIERS, FLAT NOSE 4	5120-01-028-0937	1	EA	
PLIERS, FLUSH CTG	5110-01-088-4320	1	EA	
PLIERS, JEWELERS' (LONG NOSE)	5120-01-096-1492	1	EA	
PLIERS, MICROM-DB	5120-01-028-7102	1	EA	
PLIERS, SMTH JAW RD ED	5120-01-192-4963	1	EA	
PUNCH, CENTER	5120-00-293-3510	1	EA	
SCISSORS, GENERAL SU	6515-00-365-1200	1	EA	
SPATULA-DNTL NO324	6520-00-556-8000	1	EA	
SPUDGER	5120-00-293-3112	1	EA	
STEEL MACHINE RULE	5210-00-234-5223	1	EA	
TOOL, ANTI-WICKING (AWG18)	5120-00-954-1265	1	EA	
TWEEZERS, ANTIWICKIN (AWG20)	5120-00-954-1269	1	EA	
TWEEZERS, ANTIWICKIN (AWG22)	5120-00-954-1270	1	EA	
TWEEZERS, ANTIWICKIN (AWG24)	5120-00-954-1272	1	EA	
TWEEZERS, CRAFTS (CURVED)	5120-00-288-9685	1	EA	
TWEEZERS, CRAFTS (LOCKING)	5120-00-293-0149	1	EA	

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2M WORKSTATION CHECKLIST – Continued

2. Tools - Continued

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>QTY</u>	<u>U/I</u>	
WISE, MULTIPOSITION	5120-00-991-1907	1	EA	<input type="checkbox"/>
WISE, PIN	5120-00-595-8467	1	EA	<input type="checkbox"/>
WIRE STRIPPER 16-26-AWG	5110-01-090-5870	1	EA	<input type="checkbox"/>

3. Support Equipment

a. PP-8087/U

<u>NOMENCLATURE</u>	<u>NSN</u>	<u>QTY</u>	<u>U/I</u>	
CABLE, FLEX	5130-01-024-5071	1	EA	<input type="checkbox"/>
DESOLDERING TIP (.018IN)	3439-01-057-1002	5	EA	<input type="checkbox"/>
DESOLDERING TIP (.036IN)	3439-01-065-9650	5	EA	<input type="checkbox"/>
DESOLDERING TIP (.061IN)	3439-01-078-8351	5	EA	<input type="checkbox"/>
GAGE-THKNS	5210-00-984-7236	1	EA	<input type="checkbox"/>
HANDPIECE-RESIST TWEEZ	3439-00-406-3047	1	EA	<input type="checkbox"/>
HANDPIECE-RTY DR FLEX	5130-01-020-7942	1	EA	<input type="checkbox"/>
HANDPIECE-SLDR EXT SX25V	3439-01-191-4961	1	EA	<input type="checkbox"/>
HANDPIECE-THERM SCRAPE	3439-01-045-0317	1	EA	<input type="checkbox"/>
HANDPIECE-THERMAL STRIP	5130-01-028-7142	1	EA	<input type="checkbox"/>
HEATER ASSY (SOLDER EXT)	3439-00-808-1806	1	EA	<input type="checkbox"/>
HEATING ELE	4540-01-154-0857	1	PR	<input type="checkbox"/>
SCREWDRIVER, FLAT TI	5120-00-236-2140	1	EA	<input type="checkbox"/>
SEAL-FRONT	5330-01-191-2220	1	EA	<input type="checkbox"/>
SETSCREW (SLTD LONG)	5305-00-163-1930	1	EA	<input type="checkbox"/>
SETSCREW-SS SLTD SHORT	5305-01-029-0653	1	EA	<input type="checkbox"/>
SETSCREWS	5305-01-343-6739	1	PG	<input type="checkbox"/>
SOLDERING IRON, ELEC	3439-01-129-3912	1	EA	<input type="checkbox"/>
TIP CLEANERS	3439-00-270-6047	1	SE	<input type="checkbox"/>
TIP-EXTRACTOR .025IN	3439-01-138-7539	5	EA	<input type="checkbox"/>
TIP-RESIST TWEEZER	3439-01-044-5749	1	PG	<input type="checkbox"/>
TIP-SLDG 1-16 IN CHSL	3439-00-149-8197	2	EA	<input type="checkbox"/>
TIP-SLDG 1-8 IN CHSL	3439-00-808-1581	2	EA	<input type="checkbox"/>
TIP-SLDG TAPERCONE	3439-00-149-8196	1	EA	<input type="checkbox"/>
TIP-THERM SCRAPER-SHORT	3439-01-045-0316	1	EA	<input type="checkbox"/>
TIP-THERMAL NI STRIPPE	3439-01-037-2495	1	EA	<input type="checkbox"/>
TUBE, GLASS SOLDER	9340-00-149-8190	1	EA	<input type="checkbox"/>
TUBING, NONMETALLIC	4720-00-848-0900	6	FT	<input type="checkbox"/>
VISIFILTER	4330-01-149-0247	2	EA	<input type="checkbox"/>

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NAVAIR 4790-PLN-001/2M**

2M WORKSTATION CHECKLIST – Continued

b. PRC-2000TH

<u>NOMENCLATURE</u>	<u>PART NUMBER</u>	<u>QTY</u>
ASS'Y, GUIDE BLOCK	6993-0105-P1	1
BRUSH, BRISTLE, TUBE CLEANING	1127-0002	2
BRUSH, FIBER FILLER	1127-0013-P2	1
BRUSH, WIRE, 1/8 INCH DIAMETER	1127-0006	1
BRUSH, WIRE, 3/16 INCH DIAMETER	1127-0014	1
CORD, DETACHABLE POWER	1332-0094	1
CORD, PROBE BRAKE PATCH	1332-0159	1
CORD, UNIVERSAL POWER, SPADE LUG	7000-0023	1
CUBBY, EXTRACTOR	6019-0044	1
CUBBY, SOLDERING IRON	6019-0043	1
DELUXE TOOL PACK	6005-0013-P1	1
FIBER CLEANING TOOL	1100-0232	1
FILTER, SODR-X-TRACTOR	1309-0018-P10	1
FOOT PEDAL, TREADLINE	6008-0115	1
FUSE, 12 AMP, FAST, ¼" X 1 ¼", UL	1159-0257	1
FUSE, 5.0 AMP TIME LAG	1159-0253	1
HANDPIECE, LF-15 LAPFLO	7013-0004-02	1
HANDPIECE, MC-65 MICROCHINE ASSY	7026-0001	1
HANDPIECE, PS-80 SOLDERING IRON OR	6010-0096	1
HANDPIECE, SP-2A SODR-PEN	6025-0014	1
HANDPIECE, SX-70 SODR-X-TRACTOR	6010-0077	1
HANDPIECE, TS-15 STRIPTWEEZ	7012-0002	1
HANDPIECE, THERMOJET, MINI, TJ-70	7023-0002	1
HANDPIECE, TW-15 RESISTWEEZ	7009-0005	1
HOSE, FEMALE QUICK DISCONNECT	1259-0086	2
HOSE, MALE QUICK DISCONNECT	1259-0087	3
KIT, C-TYPE CABLE MARKER	6993-0136-P1	1
KIT, SMR CUBBY	6019-0022-P1	1
PPS-400 POWER SOURCE	7008-0187	1
SCREW, FILISTR	1405-0182-P1	1
SCREW, SET	1348-0547-P10	1
SCREWDRIVER, PACE	1100-0230	1
SMR TOOL HOLDER KIT	6019-0023-P1	1
SMT CLEANING STATION	6021-0006-P1	1
SPONGE CLEANING TOOL	1100-0233	1
SPONGE, FILLER	4021-0006-P5	1
TIP AND TEMPERATURE SELECTION CHART	5050-0251	1
TIP CHART HOLDER	1257-0186-P1	1
TIP CLEANER KIT	6993-0151	1
TIP TOOL	1100-0206	1
TIP, ADAPT, KIT, 1/8" TIP, 3/16" SHANK	1360-0083-P1	1

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2M WORKSTATION CHECKLIST - Continued

b. PRC-2000TH – Continued

<u>NOMENCLATURE</u>	<u>PART NUMBER</u>	<u>QTY</u>
TIP, LF, SINGLE POINT SMD	6000-0008	1
TIP, LF, THERMOPART COATING REMOVAL	6000-0009	1
TIP, REDI-RACK STORAGE ASSY	6021-0007-P1	1
TIP, SP/PS, 1/16" CHISEL, 3/16" SHANK,	1121-0414	1
TIP, SP/PS, 3/16 SHANK, 1/32 CONICAL	1121-0336	1
TIP, SP/PS, 3/16 SHANK, 1/8 CHISEL	1121-0337	1
TIP, SX, 3/16 SHANK, 0.030ID	1121-0367	1
TIP, SX, 3/16 SHANK, 0.040ID	1121-0342	1
TIP, SX, 3/16 SHANK, 0.060ID	1121-0368	1
TUBE, ONE (1) INCH	1325-0003-07	3
TUBE/WIRE HOLDER	1321-0085-01-P6	3
TUBING, 54 INCH BLACK SILICONE	1342-0015-08	2
VISIFILTER II	1309-0028	1

c. PRC-2000-2M System (SMT)

<u>NOMENCLATURE</u>	<u>PART NUMBER</u>	<u>QTY</u>
ASS'Y, GUIDE BLOCK	6993-0105-P1	1
BRUSH, BRISTLE, TUBE CLEANING	1127-0002	2
BRUSH, WIRE, 1/8" DIA., 6" LG.	1127-0006	1
BRUSH, WIRE, 3/16" DIA., 6" LG.	1127-0014	1
CHART, TIP & TEMP	5050-0251	1
CLAMP, HOSE, REUSABLE	1211-0036	3
CLEANING STATION, SMT	6021-0006	1
CORD, POWER, DETACHABLE, DOMESTIC	1332-0094	1
CORD, PROBE BRAKE PATCH	1332-0159	1
CORD, POWER, UNIV., SPADE LUG	7000-0023	1
CUBBY, PASTE DISPENSER	6019-0038	1
CUBBY, SMR	6019-0022	1
DISCONNECT, QUICK, FEM., HOSE	1259-0086	4
DISCONNECT, QUICK, MALE, HOSE	1259-0087	5
FIBER, FILLER, REPLACEMENT	1127-0013-P2	1
FILTER, FELT, PKG 10	1309-0018-P10	1
FOOT PEDAL, TREADLINE	6008-0115	1
FUSE, 12A, FAST, 1/4" x 1 1/4", UL	1159-0257	1
FUSE, 5.0A, TIME LAG, 5 X 20mm, UL	1159-0253	1
HANDPIECE, CONDUCTWEEZ, CT-15	7020-001-P1	1
HANDPIECE, EXTRACTOR, SOLDER, SX-70	6010-0077	1
HANDPIECE, LAPFLO, LP-15	7013-0004-02-P1	1
HANDPIECE, MICROCHINE, MC-65	7026-0001	1
HANDPIECE, PIK-VAC, PV-65	7027-0001-P1	1

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2M WORKSTATION CHECKLIST - Continued

c. PRC-2000-2M System (SMT) – Continued

<u>NOMENCLATURE</u>	<u>PART NUMBER</u>	<u>QTY</u>	
HANDPIECE, REDI-RAK	6019-0023	1	<input type="checkbox"/>
HANDPIECE, RESISTWEEZ, TW-15	7009-0005-P1	1	<input type="checkbox"/>
HANDPIECE, SODR-PEN, 21V 48W, SP-2 OR	6025-0014	1	<input type="checkbox"/>
HANDPIECE, PS-80 SOLDERING IRON	6993-0199-P1	1	<input type="checkbox"/>
HANDPIECE, STRIPTWEEZ HANDPIECE, TS-15	7012-0002-P1	1	<input type="checkbox"/>
HANDPIECE, THERMOJET, MINI, TJ-70	7023-0002	1	<input type="checkbox"/>
HANDPIECE, THERMOPIK, TP-65	7024-0001	1	<input type="checkbox"/>
HANDPIECE, THERMOTWEEZ, TT-65	7025-0001	1	<input type="checkbox"/>
HOLDER, WIRE TO TUBE, PKG 6	1321-0085-01-P6	3	<input type="checkbox"/>
HOT SPOT 150	8040-0001	1	<input type="checkbox"/>
KIT, CABLE MARKERS, C TYPE	6993-0136	1	<input type="checkbox"/>
KIT, CLEANER, TIP	6993-0151	1	<input type="checkbox"/>
KIT, HANDLE, POWER SOURCE	6993-0166	1	<input type="checkbox"/>
KIT, PASTE DISPENSER	6993-0152	1	<input type="checkbox"/>
KIT, STAND, TIP & TOOL, SP or	6019-0043	1	<input type="checkbox"/>
KIT, STAND, TIP & TOOL, PS-80	6019-0050-P1	1	<input type="checkbox"/>
KIT, STAND, TIP & TOOL, SX	6019-0044	3	<input type="checkbox"/>
KIT, STAND, TIP & TOOL, TT	6019-0046	1	<input type="checkbox"/>
KIT, VACUUM CUP	6993-0153	1	<input type="checkbox"/>
LABEL, HANDPIECE, IDENT.	1351-0542	1	<input type="checkbox"/>
POWER SOURCE, DOMESTIC, PPS 400	7008-0187	1	<input type="checkbox"/>
SCREW, FIL HD, 2-56 X 5/32", PKG5	1405-0182-P5	1	<input type="checkbox"/>
SCREW, SET, 8-32 X 1/8", PKG 10	1348-0547-P10	1	<input type="checkbox"/>
SCREWDRIVER, PACE	1100-0230	1	<input type="checkbox"/>
SCREWS, SEMS 2-56 X 3/16"	1405-0106-P5	1	<input type="checkbox"/>
SPONGE, FILLER, REPLACEMENT	4021-0006-P5	1	<input type="checkbox"/>
STAND, CHART HOLDER	1257-0186-P1	1	<input type="checkbox"/>
TIP, ADAPT, KIT, 1/8" TIP, 3/16" SHANK	1360-0083-P1	1	<input type="checkbox"/>
TIP, CT, SMD .210, SET	1121-0269-P1	1	<input type="checkbox"/>
TIP, CT, SMD, .480, PAIR	1121-0271-P1	1	<input type="checkbox"/>
TIP, CT, SMD, .600, PAIR	1121-0270-P1	1	<input type="checkbox"/>
TIP, CT, SOIC, 24/28, PAIR	1121-0293-P1	1	<input type="checkbox"/>
TIP, LF, MULTIPOINT SMD, .270	1121-0298-P1	1	<input type="checkbox"/>
TIP, LF, MULTIPOINT SMD, .540	1121-0299-P1	1	<input type="checkbox"/>
TIP, LF, MULTIPOINT, .44	1121-0300-P1	1	<input type="checkbox"/>
TIP, REDI-RAK	6021-0007	1	<input type="checkbox"/>
TIP, SP/PS, 3/16" SHANK, 1/16" CHISEL HC	1121-0414	1	<input type="checkbox"/>
TIP, SP/PS, 3/16" SHANK, 1/32" CONICAL	1121-0336	1	<input type="checkbox"/>
TIP, SP/PS, 3/16" SHANK, 1/8" CHISEL	1121-0337	1	<input type="checkbox"/>
TIP, SP/PS, 3/16" SHANK, 3/32" CHISEL	1121-0360	1	<input type="checkbox"/>

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2M WORKSTATION CHECKLIST - Continued

c. PRC-2000-2M System (SMT) – Continued

<u>NOMENCLATURE</u>	<u>PART NUMBER</u>	<u>QTY</u>
TIP, SP/PS, CHISEL, SINGLE SIDE	1121-0406-P5	1
TIP, SX 3/16" SHANK, .040 ID	1121-0342-P5	1
TIP, SX, 3/16" SHANK, .030 ID	1121-0367-P5	1
TIP, SX, 3/16" SHANK, .060 ID	1121-0368-P5	1
TIP, SX, FLO, 3/16" SHANK, 3/16" HEAD	1121-0369-P5	1
TIP, SX, MICRO, BENT, .040 ID	1121-0262-P5	1
TIP, TJ, BENT, DBL, .17, SOIC	1121-0330-P1	1
TIP, TJ, FLAT END, .24 X .074	1121-0371-P1	1
TIP, TJ, SINGLE, CURVE	1121-0338-P1	1
TIP, TJ, SINGLE, STRAIGHT	1121-0366-P1	1
TIP, TOOL	1100-0206	1
TIP, TOOL, ALIGNMENT	1100-0234	1
TIP, TP, FP, .66 X .90 ID	1121-0322-002-P1	1
TIP, TT, .26 X .26, PR	1121-0417-P1	1
TIP, TT, .35 X .25, LCCC-24, PR	1121-0452-P1	1
TIP, TT, .37 X .37, PLCC-28, PR	1121-0317-P1	1
TIP, TT, .40 X .35, PR	1121-0425-P1	1
TIP, TT, .57 X .57, PLCC-44, PR	1121-0318-P1	1
TIP, TT, .85 X .85, LCCC-132, PR	1121-0455-P1	1
TIP, TT, CHIP COMP., .16W, PR	1121-0399-P1	1
TIP, TT, CHIP COMPONENT, .08 BLADE, PAIR	1121-0313-P1	1
TIP, TT/IR, .70SOJ/SIMM, PR	1121-0416-P1	1
TIP, TW, PLCC-18	1121-0294-P1	1
TIP, TW, PLCC-20	1121-0295-P1	1
TIP, TW, PLCC-28	1121-0296-P1	1
TIP, TW, PLCC-44	1121-0297-P1	1
TIP, TW, TAPERED, FLAT, PAIR	1121-0301-P1	1
TOOL, CLEANING, FIBER	1100-0232	1
TOOL, CLEANING, SPONGE	1100-0233	1
TUBING, PVC, CLEAR, .125 ID, 1" LG	1325-0003-07	5
TUBING, SILICONE, BLACK, .125 ID, 54" LG	1342-0015-08	3
VISIFILTER II	1309-0028	2

APPENDIX G

2M TRAINING SITE REVIEW

1. Activity/UIC: 2. Date of Review: 3. Certification Agent (CA):

4. Review arrival and departure briefing conducted with:

5. List of 2M Instructors (Include personnel in an "Instructor-in-Training" status, exclude personnel not directly involved with 2M training):

<u>NAME</u>	<u>RATE</u>	<u>SS NUMBER</u>	<u>PRD</u>	<u>CERT LVL</u>	<u>CERT EXP DATE</u>
-------------	-------------	------------------	------------	-----------------	----------------------

6. 2M Training Equipment:

- | | | | | |
|-------------------------|----|-----|-----|-----|
| a. 2M Workstation Data: | #1 | #2 | #3 | #4 |
| Type (MN/MC): | | | | |
| Equipment Type: | | | | |
| Serial Number: | | | | |
| Location/Building: | | | | |
| Classroom: | | | | |
| | #5 | #6 | #7 | #8 |
| Type (MN/MC): | | | | |
| Equipment Type: | | | | |
| Serial Number: | | | | |
| Location/Building: | | | | |
| Classroom: | | | | |
| | #9 | #10 | #11 | #12 |
| Type (MN/MC): | | | | |
| Equipment Type: | | | | |
| Serial Number: | | | | |
| Location/Building: | | | | |
| Classroom: | | | | |
- b. Spares (for trainee use in case of equipment failure):
- Equipment Type:
- Serial Number:
- Location/Building:
- Classroom:

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c. 2M Instructor preparation and demonstration station:

- Equipment Type:
- Serial Number:
- Location/Building:
- Classroom:

7. Conducted inventory of 2M tools using Appendix F, 2M 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. (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/(%):					

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

	<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>
Date(s)					

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

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15. 2M Instructor evaluations:

<u>NAME</u>	<u>COURSE</u>	<u>LESSON TOPIC</u>	<u>EVALUATOR</u>	<u>CRITIQUE COMMENTS</u>
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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 04M34, NAVAIR 2M
Program Cognizant Field Activity (CFA), and 2M CA

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APPENDIX H

2M POINTS OF CONTACT

CNO Program Sponsor

Chief of Naval Operations
Logistics (OPNAV N43)
Room NC1-6
2000 Navy Pentagon
Washington DC 20350-2000

DSN 329-1678
COM (703) 601-1678
WEB <http://www.n4.hq.navy.mil>

NAVSEA 2M Program Manager

Commander
Naval Sea Systems Command
SEA-04M34
2531 Jefferson Davis HWY
Arlington VA 22242-5160

DSN 332-0785 x121
COM (703) 602-0785 x121

NAVAIR 2M Program Manager

Commanding Officer
NAVAIR Code 3.6.3.1 Bldg 446 Suite 100B
47060 McLeod Road Unit 8
Patuxent River MD 20670-1626

DSN 757-3098
COM (301) 757-3098

NAVAIR 2M Program Equipment Manager

Commanding Officer
Code 3144000596/2
Naval Air Engineering Station
Highway 547
Lakehurst NJ 08733-5000

DSN 624-4205
COM (732) 323-4205
FAX (732) 323-4064
EMAIL jones-j@lakehurst.navy.mil

NAVSEA 2M Certification Agent

Commander
Crane Division
Naval Surface Warfare Center
Code 6083 Bldg 3241
300 Highway 361
Crane IN 47522-5001

DSN 482-1510
COM (812) 854-1510
EMAIL 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

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FTSC 2M Fleet Coordinators and AMMT 2M Evaluators

Commanding Officer DSN 961-6209
Fleet Technical Support Center Atlantic COM (757) 485-6209
Code 4103D/2M
9527 Avionics Loop, BLDG LF-18
Norfolk VA 23511

Commanding Officer DSN 526-1346
Fleet Technical Support Center, Pacific COM (619) 556-1346
Code 203/2M Inspector WEB <http://www.ftscpac.navy.mil>
P.O. Box 85548
San Diego CA 92186-5548

Commander DSN 565-9809
Naval Air Force, U.S. Atlantic Fleet COM (757) 445-9809
Code N422C1 WEB <http://flightdeck.airlant.navy.mil/public>
1279 Franklin St.
NAS Norfolk
Norfolk VA 23511-2494

Commander DSN 735-1478
Naval Air Force, U.S. Pacific Fleet COM (619) 545-1478
Code N422C1B WEB <http://www.airpac.navy.mil>
Box 357051
San Diego CA 92135-7051

Commander DSN 678-1334
Naval Air Reserve Force COM (504) 678-1334
Code N61
4400 Dauphine Street
New Orleans LA 70146-5200

FTSC Detachments

Officer in Charge DSN 776-4363
FTSCLANT DET INGLESIDE COM (512) 776-4363
2M Inspector
120 Coral Sea Drive, Suite 10
Ingleside TX 78362-5035

Officer in Charge DSN 960-5112
FTSCLANT DET Mayport COM (904) 270-5112
2M Inspector
P.O. Box 280038
Mayport FL 32228-0038

Officer in Charge DSN 625-4663
FTSCLANT DET NAPLES COM 011-39-0817-24-4663
2M Inspector
PSC 810 Box 11
Naval Support Activity
FPO AE New York NY 09619-3200

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FTSC Detachments (Continued)

Officer in Charge
FTSCLANT DET NEW LONDON
2M Inspector
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 Inspector
2000 W. Marine View Drive
Everett WA 98207-0001

DSN 727-5424
COM (425) 304-5424

Officer in Charge
FTSCPAC DET Pearl Harbor
Code 208/2M Inspector
P.O. Box 109
Pearl Harbor HI 96860

DSN 474-3154
COM (808) 474-3154

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 Inspector
PSC 473 Box 105
FPO AP 96349-2904

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

2M Training Sites

Commander
AFLOATRAGRUMIDPAC
N33/2M
Pearl Harbor HI 96860-7600

DSN 430-0111 X337/352
COM (808) 472-8881 X337/352

Commanding Officer
FLETRACEN MAYPORT
Bldg 351/N311/2M
P.O. Box 280147
Naval Station Mayport FL 32228-0147

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

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

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

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NAVAIR 4790-PLN-001/2M

2M Training Sites (Continued)

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
NAMTRAGRU DET 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>

Air Force Training Sites

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

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

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>

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U.S. Coast Guard Training Site

Commanding Officer
USCG RESTRACEN (DW/WP)
End of State Route 238
Yorktown VA 23690-5000

COM (757) 898-2287

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APPENDIX I

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 INCHON	MS12
COMSTRATCOMWINGONE TINKER	ACSC
NAS ATLANTA	AATL
NAS ATSUGI	AATS
NAS BARBERS PT.	ABPT
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 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

APAC
ALAN

CNATRA

CNTA

COMNAVAIRESFOR

CNAR

CERTIFICATION AGENT

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

MALS

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

NAVSEA TE000-AA-PLN-010/2M
NAVAIR 4790-PLN-001/2M

CERTIFICATION ACTIVITY CODES - Continued

MALS Continued

MALS 49 STEWARD ANG BASE	MA49
MALS SE KANEOHE BAY	MASE

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

UNDESIGNATED

UNDS

The Certification Serial 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.*
 - *100-499 will represent Miniature level.*
 - *500-999 will represent the Microminiature level.*
- *Example: FLN1 0115. This sequence represents that FTSC/LANT Norfolk issued this card in 2001 to the 15th person certified at the miniature level.*

**NAVSEA TE000-AA-PLN-010/2M
NAVAIR 4790-PLN-001/2M**

2M 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 3241, 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.

PERSONAL DATA – PRIVACY ACT OF 1974 – HANDLE WITH CARE		
NAME (Last, first, middle initial)	CARD SERIAL NO.	
SOCIAL SECURITY NO.	RATE/GRADE	WORKCENTER
ACTIVITY	UIC	PRD
<input type="checkbox"/> MINI <input type="checkbox"/> MICRO <input type="checkbox"/> MTR Use the reverse side of this card to justify change in certification	<input type="checkbox"/> INITIAL CERTIFICATION <input type="checkbox"/> RECERTIFICATION <input type="checkbox"/> DISCHARGED <input type="checkbox"/> OUT OF 2M PROGRAM <input type="checkbox"/> 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 2M/MTR Program Certification Plan 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 plan gathers and retains information subject to the Privacy Act of 1974. (5 U.S.C. 552a)

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

**NAVSEA (USER) TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER)
(NAVSEA S0005-AA-GYD-030/TMMP & NAVSEAINST 4160.3A)**

INSTRUCTION: Continue on 8-1/2" x 11" paper if additional space is needed.

1. USE THIS REPORT TO INDICATE DEFICIENCIES, PROBLEMS, AND RECOMMENDATIONS RELATING TO PUBLICATION.
2. BLOCKS MARKED WITH " " ARE TO BE FILLED IN BY THE CONTRACTOR BEFORE PRINTING.
3. FOR UNCLASSIFIED TMDERS, FILL IN YOUR RETURN ADDRESS IN SPACE PROVIDED ON THE BACK, FOLD AND TAPE WHERE INDICATED, AND MAIL. (SEE OPNAVINST 5510.1H FOR MAILING CLASSIFIED TMDERS.)
4. FOR ADDITIONAL INFORMATION, CALL AUTOVON 296-0468 OR COMMERCIAL 805-228-0468

1. NAVSEA TECHNICAL MANUAL NO. TE000-AA-PLN-010/2M	2. VOL. PART	3. TITLE CERTIFICATION PLAN FOR 2M/MTR PROGRAM
4. REV. NO./DATE OR TM CH. NO./ DATE- Rev 3/6-1-00	5. SYSTEM/EQUIPMENT NOMENCLATURE	6. SYSTEM/EQUIPMENT IDENTIFICATION/ (MK/MOD/AN/PART NO.)

7. USER'S EVALUATION OF MANUAL (Check Appropriate Blocks)

A. EXCELLENT		B. GOOD		C. FAIR		D. POOR		E. COMPLETE		F. INCOMPLETE
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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))

10. ORIGINATOR'S NAME AND WORK CENTER (Please Print)	11. SIGNATURE OR 3 - M COORDINATOR	12. DATE SIGNED	13. AUTOVON/ COMM. NO.
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14. SHIP HULL NO. AND/OR STATION ADDRESS (DO NOT ABBREVIATE)

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A. CONTROL NO.	B. COG ISEA	C. DATE	D. PRIORITY	E. TRANSMITTED TO			
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">RECEIVED</td> <td style="width: 33%;">FORWARDED</td> <td style="width: 33%;">DUE</td> </tr> </table>	RECEIVED	FORWARDED	DUE		
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PORT HUENEME, CA 93043-4307

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