

1 August 2003

USER'S LOGISTIC SUPPORT SUMMARY (ULSS)

FOR

PORTABLE 2M KIT



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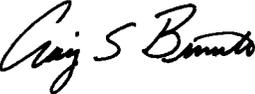
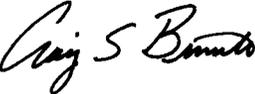
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FOR

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List of Current Changes

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Only those sections/pages assigned to this summary are listed in this index. Insert Change____, dated_. Dispose of superseded sections/pages. If changed pages are issued to a section, insert the changed pages in the applicable summary 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 of each column of text. Changes to illustrations are indicated by pointing hands or change bars, as applicable.

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2	Logistic Support

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vi Blank	0		

RECORD OF CHANGES

Change No.	Date	Title or Brief Description	Entered By

DISTRIBUTION

21A1 COMLANTFLT Norfolk, VA (N431G)
21A2 COMPACFLT Pearl Harbor, HI (N4315)
23B2 COMNAVSPECWARCOM Coronado, CA (N913)
24A1 COMNAVAIRLANT Norfolk, VA (N435, N371)
24A2 COMNAVAIRPAC San Diego, CA (N436G, N4336)
24D1 COMNAVSURFLANT Norfolk, CA (N601A)
24D2 COMNAVSURFPAC San Diego, CA (N641E)
24G1 COMSUBLANT Norfolk, VA (N412, N4114)
24G2 COMSUBPAC Pearl Harbor, HI (N452)
26J2 COMAFLOATRAGRUMIDPAC Pearl Harbor, HI (N753)
29A GUIDED MISSILE CRUISER (CG)
29B AIRCRAFT CARRIER (CV) (CVN)
29E DESTROYER (DD) 963 CLASS
29F GUIDED MISSILE DESTROYER (DDG)
31A AMPHIBIOUS COMMAND SHIP (LCC)
31H AMPHIBIOUS ASSAULT SHIP (LHA)
31I DOCK LANDING SHIP (LSD)
31N MULTI-PURPOSE AMPHIBIOUS ASSAULT SHIP (LHD)
32DD SUBMARINE TENDER (AS)
32KK MISCELLANEOUS COMMAND SHIP (AGF)
A3 CNO Washington, DC (N431, N769T2)
C28D FTSCCLANT DET Ingleside, TX (2M)
C28D FTSCCLANT DET Mayport, FL (2M)
C28D FTSCCLANT DET Naples, IT (2M)
C28D FTSCCLANT DET New London, CT (2M)
C31B FTSCPAC DET Everett, WA (2M)
C31B FTSCPAC DET Pearl Harbor, HI (203-2M)
C31B FTSCPAC DET Sasebo, JA (2M)
C31B FTSCPAC DET Yokosuka, JA (2M)
C58J NAMTRAGRU DET Atsugi, JA (2M)
C58J NAMTRAU Whidbey Island, WA (2M)
C84D NAVUNSEAWARCENDET Norfolk, VA (201V)
FA8 FTSCCLANT Norfolk, VA (4103D)
FB8 FTSCPAC San Diego, CA (203)
FKA1G COMNAVSEASYSCOM Washington, DC (04RP2)
FKM14 NAVICP Mechanicsburg, PA (05835)
FT1 CNET Pensacola, FL (N7613C)
FT24 FLETRACEN Mayport, FL (N311)
FT24 FCTCLANT DET Norfolk, VA (782)
FT24 FLETRACEN San Diego, CA (N7623)

FOREWORD

This User's Logistic Support Summary (ULSS) has been prepared in accordance with NAVSEA S0300-BD-PRO-010/020/030 ILS Procedures Manual, Systems/Equipment, which details the Operational Logistic Support Summary (OLSS) requirements for NAVSEA systems and equipment. This summary only covers the equipment and support for the Navy Portable 2M Kit.

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1.0 EQUIPMENT DESCRIPTION

1.1 Physical Description. The Portable Miniature/Microminiature (2M) Kit is one type of miniature electronic repair station configuration utilized in the Navy 2M electronic repair program (see FIGURE 1). The Portable 2M Kit consists of a portable case, compact rework power unit, and a selection of most critical 2M repair tools and consumables extracted from the existing 2M Allowance Equipage List (AEL), 2-670034080. What follows is a brief description of each.



Portable 2M Kit

FIGURE 1

1.1.1 Transit Case. The transit case is a CH ELLIS® (www.CHELLIS.com) 8300 Series with a custom framed interior and pallet set. Case features include heavy ribbing, aluminum valance frame, positive action lid stays, continuous piano hinge, padded steel core handle, draw bolt locks, and molded-in feet. The case is made of a high molecular weight polyethylene, gray in color, and measures 14 5/8"H X 18 1/8"W X 10"D (3" lid and 7" base). The case base contains two custom framed foam inserts. The lid has a large pocket and lid strap for securing one of two interior tool pallets. Fully loaded with support equipment, tools, and consumables, the Portable 2M Kit weighs approximately 56 pounds.

1.1.2 Soldering-Desoldering Station, MBT-250-SD. MBT-250-SD is a **commercial, off-the-shelf**, self-contained, digital, through-hole soldering desoldering station. The station incorporates the PACE SensaTemp™ (closed-loop) temperature control system which provides up to 185 watts of total power to the three output channels. Microprocessor controlled circuitry allows the user to configure the system to their requirements and recalibrate the system to maintain accuracy and peak performance. Accessory SensaTemp™ handpieces and a variety of special use tips are also included with the station. The MBT-250-SD station and handpieces are located in the base of the transit case.

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1.1.2.1 Power Source, PPS-85. (see FIGURE 2) The power source primarily houses one pump and two circuit card assemblies (CCAs). The motor pump assembly provides pressurized air and vacuum to the front panel PRESSURE and SNAP-VAC ports. The main CCA measures and controls the handpiece temperature established by the operator. The main CCA interfaces to front panel controls and indicators via a wire harness. The display CCA contains the Light Emitting Diodes (LEDs) and temperature control switches for the front panel.



Power Source, PPS-85

FIGURE 2

1.1.2.1.1 Front Panel. The front panel provides three power receptacles (channels) to supply power, tip ground, sensing circuitry and finger switch connection from MBT system to the connected handpiece. Just to the left of the power receptacles is a grounding jack, which will accept a standard banana plug. This receptacle provides positive earth ground to which a ground cable can be connected from the work piece or work surface as part of a static control program. To the right of the power receptacles are vacuum and controllable pressure ports. The SNAP-VAC port provides quick-rise vacuum for solder extractor handpiece. Vacuum is present when handpiece finger switch or optional foot pedal is actuated. Vacuum ceases 1.2 seconds after switch (or foot pedal) released. The PRESSURE port provides variable air flow for hot air jet handpiece. Air pressure is present when handpiece finger switch or optional foot pedal is actuated. Air pressure ceases 1.2 seconds after switch (or foot pedal) is released. Above the power receptacles is a DIGITAL READOUT display. This display provides a three digit display of the current channel (channel with illuminated LED; CH 1, CH 2, or CH 3) temperature information. This includes: Operating Tip Temperature in Temperature Display Mode (normal operation), Tip Offset Constant in Tip Offset Mode, Set Tip Temperature in Tip Set Mode and other information in Calibration (CAL) Mode.

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1.1.2.1.2 Performance Parameters. TABLE 1 lists the performance parameters of the PPS-85 Power Source.

TABLE 1

Power Requirements:	Operates on 87-127 VAC, 50/60 Hz, 185 Watts, 1.6 Amp max, 100% Duty Cycle, Motor on.
Physical Parameters:	Size: 13.5 cm H x 16.5 cm W x 26 cm D (5.3"H x 6.5"W x 10.25"D) Weight: 4.5 Kg. (10 Lbs.)
Environmental Requirements:	Ambient Operating Temperature: 0°C to 50°C (32°F to 120°F) Storage Temperature: -40°C to 100°C (-40°F to 212°F)
Vacuum and Air Vacuum Rise Time: Vacuum: Pressure: Air Flow:	Evacuates 33 cc (2 cubic inch) volume to 25 cm Hg. (10 in. Hg.) in 150 ms. 51 cm Hg. (20 in. Hg.) (nominal) .48 Bar (7 P.S.I.) (nominal MAX setting) 9 SLPM (0.32 SCFM) maximum
Temperature Specifications:	Tip Temperature Range: 38°C to 482°C (100°F to 900°F) nominal Digital Readout Resolution: ±1(°C or °F) Tip Temperature Stability: ±1.1 °C (2 °F) at Idle from Set Tip Temperature
Electrostatic Discharge:	Tip-To-Ground Resistance: Less than 5 ohms AC Leakage: Less than 2 millivolts RMS from 50 Hz to 500 Hz

1.2 Options/Accessories. TABLE 2 lists the current equipment configuration of the Portable 2M Kit, including support equipment, tools, and consumables available in the Navy's inventory at Crane Division, Naval Surface Warfare Center, Crane, IN.

TABLE 2

NOMEN	NIIN	P/N	U/I	CERT QTY
Consumables				
ADHESIVE (EPOXY PATCH)	01-359-2719	0151	KT	1 KT
APPLICATOR, DISPOSABLE, COTTON	01-017-2177	96-143	PG of 1000	1 HD
BAG, STATIC DISSIPATIVE, 12 x 16	01-386-3868	MIL-B-81705 TY3	EA	3 EA
BAG, STATIC DISSIPATIVE, 8 x 10	01-386-3899	MIL-B-81705 TY3	EA	3 EA
BAG, STATIC DISSIPATIVE, 4 x 4	01-386-3863	MIL-B-81705 TY3	EA	3 EA
BLADE, SURGICAL KNIFE, DET (NO11)	00-660-0010	GGH0080SZ11	PG of 6	1 EA
BLADE, SURGICAL KNIFE, DET (NO15)	00-660-0008	GGH0080SZ15	PG of 6	1 EA
BRUSH, ACID SWABBING	00-514-2417	A-A-289	GR	12 EA
BRUSH, BRISTLE, DENTAL (HARD)	01-056-7376	6161	PG of 6	1 EA
BRUSH, WIRE, SCRATCH (1/8" DIA.)	00-018-7091	1127-0006-P5	PG of 5	1 EA
BRUSH, WIRE, SCRATCH (3/16" DIA.)	01-364-1908	1127-0014-P5	PG of 5	1 EA
BUR, DENTAL, EXCAVATING (INV CONE)	01-003-2267	14853	PG of 10	1 EA
BUR, DENTAL, EXCAVATING (NO1/2 STR)	01-003-3132	382302	PG of 10	1 EA
BUR, DENTAL, EXCAVATING (NO2 STR)	01-003-2269	14826	PG of 10	1 EA
BUR, DENTAL, EXCAVATING (NO4 STR)	01-003-2270	14832	PG of 10	1 EA
BUR, DENTAL, EXCAVATING (NO6 STR)	01-003-2271	14838	PG of 10	1 EA
BUR, DENTAL, EXCAVATING (NO8 STR)	01-003-3131	14844	PG of 10	1 EA
DESOLDERING WICK (NO1)	00-545-3396	50-1-5	EA	3 EA
DESOLDERING WICK (NO2)	01-324-8208	50-2-5	EA	3 EA
DESOLDERING WICK (NO3)	00-009-2334	40-3-5	SL	3 SL
DISK, ABRASIVE (SILICON CARBIDE)	00-523-2150	11.780	BX of 100	1 BX
EYELET, METALLIC (CME15)	00-139-0328	CME15	EA	10 EA
EYELET, METALLIC (CME26)	00-234-7913	CME26C	EA	10 EA

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TABLE 2 (Continued)

NOMEN	NIIN	P/N	U/I	CERT QTY
EYELET, METALLIC (CME36)	00-558-1785	CME36	EA	10 EA
EYELET, METALLIC (CME46)	01-076-9499	CME46	EA	10 EA
FILE, ROTARY (SLOTING SAW)	00-189-7191	1112-0061-P10	PG of 10	2 EA
FLUX-PEN (KESTER)	OPEN PURCHASE	83-1000-0186	EA	1 EA
FOIL, COPPER OR TRACK PAD REPAIR KIT	00-268-9571	QQC576	RO	1 RO
ISOPROPYL ALCOHOL, TECHNICAL	01-136-2705	2570-0010	EA	1 EA
LABEL (ESD)	00-983-8551	TTI735	QT	1 QT
PAPER, ABRASIVE (400 GRIT)	01-077-4894	L-81	RO	1 RO
PAPER, ABRASIVE (600 GRIT)	00-224-7201	P-P-101	PG of 50	1 EA
PAPER, ABRASIVE (600 GRIT)	00-224-7215	P-P-101	PG of 50	1 EA
SOLDER, TIN ALLOY (.015)	01-008-7580	SN63WRMAP3	SL	1 SL
SOLDER, TIN ALLOY (.036)	01-008-7578	SN63WRMAP3	SL	1 SL
SOLDER, TIN ALLOY (.031 or .032 or 0.36)	OPEN PURCHASE	SN63WRMAP3	SL	1 SL
TOWEL, PAPER (SMALL)	00-721-8884	900S	CS of 60	1 BX
VISIFILTER, REPLACEMENT	01-148-7954	1309-0027-P10	PG of 10	1 EA
ORANGEWOOD STICK, ALIGNMENT	00-293-2081	ESA319633	EA	1 EA
Tools				
ANVIL, JEWELER'S	00-618-4913	35046	EA	1 EA
BRUSH, BRASS, PLATERS	01-127-4376	71966	EA	1 EA
BURNISHER, DENTAL	01-055-5086	BB26/27S	EA	1 EA
CARVER, DENTAL (NO. 89-92)	00-935-7254	CD89/92	EA	1 EA
CARVER, DENTAL HOLL (NO. 1/2)	00-935-7171	23106	EA	1 EA
CHISEL, DENTAL (NO. 3)	OPEN PURCHASE	F23/23R	EA	1 EA
CHISEL, DENTAL (NO. 3/4)	00-935-7178	EG2035	EA	1 EA
CLAMP, C	00-596-4053	A-A-430	EA	1 EA
DISPENSER, SOLVENT, ESD SAFE	00-552-9309	SD-6-ESD-PP	EA	1 EA
DRILL SET, TWIST (NO. 61 TO 80)	00-555-1528	33A	SE	1 SE
DRILL, TWIST (NO. 52)	00-189-9297	72052	PG of 10	2 EA
DRILL, TWIST (NO. 53)	00-189-9298	72053	PG of 10	2 EA
DRILL, TWIST (NO. 54)	00-189-9299	72054	PG of 10	2 EA
DRILL, TWIST (NO. 55)	00-189-9300	72055	PG of 10	2 EA
DRILL, TWIST (NO. 56)	00-189-9301	72056	PG of 10	2 EA
EXPLORER, DENTAL (#23)	00-528-1000	EXS23	EA	1 EA
EXPLORER, DENTAL (#6)	00-528-0000	EXS6	EA	1 EA
FILE SET, HAND	00-204-2685	GGGF331TY18	SE	1 SE
FILE, BONE	00-528-5050	23394	EA	1 EA
GAGE, TWIST DRILL (NO. 1 TO 60)	00-221-1893	41G460	EA	1 EA
GAGE, TWIST DRILL (NO. 61 TO 80)	00-555-7993	GG-G-86	EA	1 EA
HAMMER, HAND	00-061-8540	A-A-1305	EA	1 EA
HANDLE, SURGICAL KNIFE (NO. 9)	00-344-7920	LD257239PC8	EA	1 EA
HEAT SINK, ELECTRICAL (HS3)	00-677-9849	HS3	EA	3 EA
MANDREL, DENTAL (STRAIGHT)	00-926-8846	9268846	PG of 6	1 EA
MINIMITE CORDLESS TOOL COLLET NUT KIT (DREMEL 750)	OPEN PURCHASE	750	EA	1 EA
MIXING SLAB, DENTAL	OPEN PURCHASE	4485	SE	1 SE
MIXING SLAB, DENTAL	00-556-2000	100-4129	EA	1 EA
PLIERS (MICRO DUCKBILL)	01-028-7102	46.0281	EA	1 EA
PLIERS, DIAGONAL CTG (UTILITY)	01-083-9317	D209-5C	EA	1 EA
PLIERS, FLAT FORMING, SOFT TIP	OPEN PURCHASE	533-US	EA	1 EA
PLIERS, FLUSH CUT	OPEN PURCHASE	7148E	EA	1 EA
PLIERS, FULL FLUSH CUTTER, ANG	OPEN PURCHASE	7272E	EA	1 EA
PLIERS, LONG CHAIN NOSE	OPEN PURCHASE	744-IA-MW	EA	1 EA
PUNCH, CENTER, SOLID	00-293-3510	GGGP831	EA	1 EA
PUNCH, DRIVE PIN (1/4 IN)	00-240-6083	565G	EA	1 EA
PUNCH, DRIVE PIN (5/32 IN)	00-240-6104	565D	EA	1 EA
RULE, MACHINIST'S	00-234-5223	676	EA	1 EA
SCISSORS, GENERAL SURGICAL	00-365-1200	103-2	EA	1 EA

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TABLE 2 (Continued)

NOMEN	NIIN	P/N	U/I	CERT QTY
SCREWDRIVER, FLAT TIP (PACE)	01-397-4016	1100-0230	EA	1 EA
SPECTACLES, INDUSTRIAL	01-140-0282	26000MAXFIT	PR	1 PR
SPUDGER	00-293-3112	A7578690	EA	1 EA
STONE, SHARPENING	OPEN PURCHASE	HB13T	EA	1 EA
STRIPPER, WIRE, HAND (16-26-AWG)	01-090-5870	45-187	EA	1 EA
TIP CLEANER KIT	01-483-2145	6993-0200	EA	1 EA
TIP TOOL	01-373-3722	1100-0206	EA	1 EA
TWEEZERS, ANTIWICKING (AWG18)	00-954-1265	AWG18	EA	1 EA
TWEEZERS, ANTIWICKING (AWG20)	00-954-1269	AWG20	EA	1 EA
TWEEZERS, ANTIWICKING (AWG22)	00-954-1270	AWG22	EA	1 EA
TWEEZERS, ANTIWICKING (AWG24)	00-954-1272	AWG24	EA	1 EA
TWEEZERS, CURVED POINT	00-288-9685	43118	EA	1 EA
TWEEZERS, SELF LOCKING	00-293-0149	7946	EA	1 EA
WISE, PIN	00-595-8467	48-112	EA	1 EA
Support Equipment				
BINOCULAR, CLIP-ON (ESCHENBACH)	OPEN PURCHASE	1636-2	EA	1 EA
CASE, TRANSIT	OPEN PURCHASE	05-5379	EA	1 EA
CLEANING STATION, SMT	01-399-3995	6021-0006	EA	1 EA
CLEANING TOOL, FIBER	01-396-1876	1100-0232	EA	1 EA
FIBER, FILLER, REPLACEMENT	01-395-1564	1127-0013-P2	PG of 2	1 EA
CLEANING TOOL, SPONGE	01-408-9241	1100-0233	EA	1 EA
SPONGE, FILLER, REPLACEMENT	01-395-1560	4021-0006-P5	PG of 5	1 EA
GAGE, COMPOUND PRESSURE	00-248-6975	046646	EA	1 EA
ADAPTER, COMPOUND PRES GAUGE	01-203-8069	005-0991-000	EA	1 EA
HOLDER, CIRCUIT BOARD	01-174-3157	315	EA	1 EA
LIGHT, DESK	OPEN PURCHASE	3612	EA	1 EA
LAMP, INCANDESCENT	00-617-0991	1073	EA	1 EA
POWER SUPPLY, PPS-85A (MBT-250)	OPEN PURCHASE	8007-0203	EA	1 EA
CHART, TIP & TEMP	01-423-7309	5050-0251	EA	1 EA
STAND, CHART, TIP & TEMP	01-395-4048	1257-0186	EA	1 EA
CORD, POWER, ELECTRICAL	01-398-0392	1332-0094	EA	1 EA
EXTRACTOR, DESOLDERING, (SX-80)	01-476-0901	6010-0106-P1	EA	1 EA
DISCONNECT, QUICK, FEMALE	01-393-3037	1259-0086	EA	1 EA
DISCONNECT, QUICK, MALE	01-393-3036	1259-0087	EA	2 EA
FILTER, (VISIFILTER 2)	01-148-9052	1309-0028	EA	1 EA
FLUX/SODR TRAP, PAPER (SX-80) OR	01-480-6255	1309-0054-P10	PG of 10	1 EA
FLUX/SODR TRAP, GLASS (SX-80)	OPEN PURCHASE	6000-0212-P1	PG of 2	1 EA
HOLDER TUBE/WIRE, GRY (PK6)	01-398-8488	1321-0085-01-P6	PG of 6	1 EA
SET SCREW	01-343-6739	1348-0547-P10	PG of 10	1 EA
TIP, ADAPT (SX-80/ENDURA)	OPEN PURCHASE	1360-0286-P1	EA	1 EA
TIP, SX, 3/16 SHANK, 0.030" ID	01-479-4487	1121-0625-P5	PG of 5	1 EA
TIP, SX, 3/16 SHANK, 0.040" ID	01-479-4488	1121-0624-P5	PG of 5	1 EA
TIP, SX, 3/16 SHANK, 0.060" ID	01-479-4489	1121-0626-P5	PG of 5	1 EA
TIP, SX, 3/16 SHANK, FLO-D-SODR	01-479-4494	1121-0631-P5	PG of 5	1 EA
TOOL STAND, SX-80	01-496-8545	6019-0060-P1	EA	1 EA
TUBING, (PVC, CLEAR, 1")	01-408-6364	1325-0003-07	EA	2 EA
TUBING, SIL., 0.125ID, 54" L, BLACK	01-476-9807	1342-0015-08	EA	1 EA
FUSE, CART. 2.0 AMP, SLO-BLO	OPEN PURCHASE	1159-0247-P5	PG of 5	1 EA
SOLDERING IRON, ELECTRIC (PS-80)	01-465-4478	6010-0096-P1	EA	1 EA
SET SCREW	01-343-6739	1348-0547-P10	PG of 10	1 EA
TIP, ADAPT	01-376-8032	1360-0083-P1	EA	1 EA
TIP, PS, 3/16" SHANK, 1/16" CHISEL	01-380-8651	1121-0414-P5	PG of 5	1 EA
TIP, PS, 3/16" SHANK, 1/32" CONICAL	01-387-7688	1121-0336-P5	PG of 5	1 EA
TIP, PS, 3/16" SHANK, 1/8" CHISEL	01-378-7161	1121-0337-P5	PG of 5	1 EA
TIP, PS, 3/16" SHANK, MINIWAVE	OPEN PURCHASE	1121-0610-P5	PG of 5	1 EA
TOOL STAND, PS-80	01-465-4480	6019-0050-P1	EA	1 EA

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TABLE 2 (Continued)

NOMEN	NIIN	P/N	U/I	CERT QTY
THERMOJET, (TJ-70)	01-399-4906	7023-0002-P1	EA	1 EA
DISCONNECT, QUICK, MALE	01-393-3036	1259-0087	EA	1 EA
HOLDER TUBE/WIRE, GRY PK6	01-398-8488	1321-0085-01-P6	PG of 6	1 PG
SET SCREW	01-343-6739	1348-0547-P10	PG of 10	1 EA
TIP, TJ, SINGLE, CURVED	01-398-2746	1121-0338-P1	EA	1 EA
TUBING, SIL., 0.125ID, 54" L, BLK	01-476-9807	1342-0015-08	EA	1 EA
TOOL PAK (DELUXE TOOL KIT)	00-149-8185	6005-0013	EA	1 EA
WISE, VACUUM BASE	01-488-5048	381	EA	1 EA
WORK STATION KIT, ELECTROSTATIC	01-168-2044	8501	EA	1 EA

1.3 Identification.

Nomenclature – Portable 2M Kit

Noun Name – Portable 2M Kit

Manufacturer – Black and Company, 5351 W. Minnesota, Indianapolis, IN 46241

Commercial and Government Entity (CAGE) – 00WU8

National Stock Number (NSN) – None

Subcategory (SCAT) Description – N/A

SCAT Code – N/A

EIC – WRIQ000

Generic Code – N/A

Shore Family Group Code – N/A

Metrology Automated System for Uniform Recall and Reporting (MEASURE) Inventory Number – N/A

2.0 LOGISTIC SUPPORT

2.1 Maintenance Practices.

2.1.1 Navy Support.

2.1.1.1 Maintenance Concept Summary. The Portable 2M Kit is located in the 2M/Module Test and Repair (MTR) work center or other area as designated by the Commanding Officer (CO) and/or his authorized representative. The Portable 2M Kit is used at both the Organizational (O) and Intermediate (I) levels to perform repairs on CCAs to include 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.

Maintenance, both preventive and corrective/unscheduled maintenance, is to be performed by the 2M technician using a functional 2M rework power unit to perform the repairs. For this system there is no difference in maintenance performed at the O and I-level as both are performing O-level maintenance as far as the Portable 2M Kit is concerned.

2.1.1.1.1 Organizational Maintenance.

2.1.1.1.1.1 Preventive Maintenance. Portable 2M Kit, MBT-250-SD Station preventive maintenance will be accomplished in accordance with OPNAVINST 4790.4C by existing organizational level Navy 2M personnel. Planned Maintenance System (PMS) requirements are detailed on Maintenance Index Page (MIP), Control Number 6652/005, and its associated Maintenance Requirements Cards (MRCs). Deficiencies/recommendations will be reported on OPNAV Form 4790/7B, Planned Maintenance System Feedback Report (PMS FBR). Maintaining the functional ability of the MBT-250-SD by routine cleaning, care, and handling is covered in the Station Electronic Rework Power Unit MBT-250-SD Operation and Maintenance Manual (SE010-A7-MMC-010/MBT-250-SD/U).

2.1.1.1.1.2 Corrective/Unscheduled Maintenance. Portable 2M Kit, MBT-250-SD Station corrective or unscheduled maintenance will also be accomplished by existing organizational level Navy 2M personnel. The MBT-250-SD Station has some built-in test capabilities to aid in troubleshooting. The Station Electronic Rework Power Unit MBT-250-SD Operation and Maintenance Manual (SE010-A7-MMC-010/MBT-250-SD/U) provides the required technical information to allow the 2M technician to troubleshoot the system using readily available General Purpose Electronic Test Equipment (GPETE), (Fluke 77/BN Digital Multimeter). In addition, AN/USM-646 / AN/USM-674 Test Station Gold Disks have been developed by NAVUNSEAWARCEN DET Norfolk to aid the 2M technician in locating the defective component in the following Power Source CCAs:

<u>Gold Disk No.</u>	<u>CCA Part No.</u>
001640536.R00	6020-0063, Display CCA
001640537.R0A	6020-0091, Main CCA

Repairs to the CCAs can be performed at other 2M repair sites on the ship or, in cases where no other repair stations are available, taken to another O-level repair site. If replacement component(s) are not available or repair of the CCA is not technically feasible, a replacement CCA will be requisitioned from the Navy Supply System. Upon replacement of any component and/or CCA all applicable part(s) of the Station Electronic Rework Power Unit MBT-250-SD Operation and Maintenance Manual (SE010-A7-MMC-010/MBT-250-SD/U, Operation section), shall be performed.

2.1.1.1.1.3 Maintenance Reporting. OPNAVINST 4790.4C, Ships' Maintenance and Material Management (3-M) Manual reporting procedures are adequate for the Portable 2M Kit, MBT-250-SD Station. Deficiencies/recommendations for planned maintenance will be reported on OPNAV Form 4790/7B, PMS FBR. All corrective maintenance for the Portable 2M Kit, MBT-250-SD Station will be reported in accordance with OPNAVINST 4790.4C, Chapter 6, ORGANIZATIONAL LEVEL MAINTENANCE 3-M REPORTING REQUIREMENTS and Chapter 7, INTERMEDIATE LEVEL MAINTENANCE 3-M REPORTING REQUIREMENTS.

2.1.1.1.2 Intermediate Maintenance. Intermediate level maintenance will be the same as the Organizational level, listed in the preceding paragraphs.

2.1.1.1.3 Depot Maintenance. For the first year, the Portable 2M Kit, MBT-250-SD Station will be covered by a 1-year manufacturer's warranty from defects in material and/or workmanship. After the first year, the 2M In-Service Engineering Agent (ISEA) at Crane Division, Naval Surface Warfare Center will serve as the depot for the MBT-250. Requests for technical assistance in the resolution of maintenance problems beyond the capability of fleet organizational and intermediate level maintenance activities will be directed to the nearest Fleet Technical Support Center (FTSC) or FTSC Detachment. Requests for technical assistance beyond the capability of FTSC/FTSC Detachments and 2M training sites will be directed to the 2M ISEA. All failed UNITS of the MBT-250 will be returned to the 2M ISEA for repair and/or disposal.

2.1.2 Calibration Support. System calibration of the MBT-250 is not required. All MBT-250 power supplies are calibrated before they leave the factory to meet all PACE Inc. published specifications. The power supply automatically re-calibrates itself every 4 minutes of operation. No external re-calibration is required. The SensaTemp handpieces will continue to meet their specifications as long as proper maintenance is practiced when caring for the heater and tips. If there is a requirement to check the actual tip temperature of a SensaTemp handpiece, procedures for attaching a thermocouple wire to the handpiece tip can be found in the Station Electronic Rework Power Unit MBT-250-SD Operation and Maintenance Manual (SE010-A7-MMC-010/MBT-250-SD/U, Service Manual section).

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2.1.3 Manufacturer's Support. PACE INCORPORATED warrants to the first user that the MBT-250-SD Station will be free of defects in materials and workmanship for a period of three (3) years from the date of receipt by such user. This Warranty as applied to blowers and motor pumps is limited to a period of one (1) year. This warranty does not cover wear and tear under normal use, repair or replacement required as a result of misuse, improper application, mishandling or improper storage. Consumable items such as tips, heaters, filters, etc. which wear out under normal use are excluded. Failure to perform recommended routine maintenance, alterations or repairs made other than in accordance with PACE's directions, or removal or alteration of identification markings in any way will void this warranty. This warranty is available only to the first user, but the exclusions and limitations herein apply to all persons and entities. PACE will, at its option, repair or replace any defective products at its facility or other location approved by it at no charge to user, or provide parts without charge for installation by the user in the field at user's expense and risk. User will be responsible for all costs of shipping equipment to PACE or other location for warranty service.

2.2 Support Equipment. No unique support equipment is required. Common hand tools are required to remove the front and rear panels, cables, etc. 2M-repair capability is required for piece part repair/replacement. 2M repair tools are available on the Allowance Equipage List (AEL) for Tools and Equipment-2M Repair Stations, 2-670034080. A socket wrench set (1/4" sq drive), 9Q 5120-00-542-2428 and socket wrench handle (1/4" drive), 9Q 5120-00-221-7957 are required to loosen hex nuts securing the chassis to the case within the Power Source, PPS-85.

2.3 Supply Support.

2.3.1 General. The concept of supply support for the Portable 2M Kit is aligned with the maintenance concept defined in paragraph 2.1.1. Consumable and repair/spare piece parts used to repair the kit will be listed on APL 00041450. Repairable items within the Portable 2M Kit are listed in TABLE 3 below.

TABLE 3

<u>NOMEN</u>	<u>PART NUMBER</u>	<u>SOURCE MAINTENANCE & RECOVERABILITY SM&R</u>
MBT-250-SD Station	8007-0203	PAOOD
Power Source, PPS-85	7008-0210-01	PAOOD
PCB ASSY, MAIN, PPS85A	6020-0091-P1	PAOOO
PCB ASSY, DISPLAY, PPS 85A	6020-0063-P1	PAOOO
SOLDERING IRON, ELECTRIC (PS-90)	6993-0199-P1	PAOOO
SX-80 SOLDER EXTRACTOR	6010-0106	PAOOO
SOLDERING IRON, ELECTRIC (TJ-70)	7023-0002-P1	PAOOO

2.3.2 Non-Standard Support. Initial downloads of 2M Program-funded pre-expended Portable 2M Kit will be supplied to each authorized command to become or supplement 2M electronic repair capabilities. The 2M ISEA will deploy Portable 2M Kits per SEA 04RP2 direction.

2.3.3 Support Planning. The Naval Inventory Control Point (NAVICP) (05835) will develop and maintain the APL. In March 2003, the 2M ISEA submitted a Provisioning Parts List (PPL) to NAVICP (05835) via the Interactive Computer-Aided Provisioning System (ICAPS) to develop an APL (00041450) for the Portable 2M Kit.

2.3.4 Supply Assistance. NAVICP (05835) is available for assistance on all items of the Portable 2M Kit.

2.4 Packaging, Handling, Storage, and Transportation (PHS&T). The PHS&T concept for the Portable 2M Kit utilizes established facilities (Manufacturer, Distributor, and/or Government) and applicable military specifications.

2.4.1 Packaging. For the MBT-250-SD, PACE INCORPORATED (Manufacturer) uses standard commercial packing as required by ASTM 3951-95, Standard Practice for Commercial Packaging. Upon receipt of the unit from Pace, Black and Company (Distributor) unpacks the unit with accessories and repacks in the transit case with other tools and consumable items. Prior to shipment, Crane Division, Naval Surface Warfare Center (Government) shrink-wraps the tool pallets within the case and places the case in a cardboard container for shipment. Once deployed, 2M repair sites shall abide by the requirements contained in NAVSUP P-484, Supply Afloat Packaging Procedures.

2.4.2 Handling. The Portable 2M Kit has no special handling requirements. Personnel associated with the 2M Program need to be aware of the electrostatic discharge (ESD) sensitive nature of the CCAs within the MBT-250-SD and handle them with the appropriate precautions delineated in the Standard Maintenance Practices 2M Electronic Assembly Repair (SE004-AK-TRS-010/2M, Work Package 004 00).

2.4.3 Storage. Storage temperature is -40°C to 100°C (-40°F to 212°F). Adequate control must be maintained to ensure that the Portable 2M Kit is secured to prevent use/misuse by unauthorized personnel.

2.4.4 Transportation. Acceptable transportation modes for the Portable 2M Kit are rail, truck, air, and water. The overall outside dimensions of the kit will allow passage through standard shipboard doorways, arches, and hatches.

2.5 Technical Data.

2.5.1 Technical Manuals (TMs). TMs supporting the Portable 2M Kit are listed in TABLE 4 below:

TABLE 4

<u>TITLE</u>	<u>MANUAL NO./NATION STOCK NO.</u>
*Station Electronic Rework Power Unit MBT-250-SD Operation and Maintenance Manual	SE010-A7-MMC-010/MBT-250-SD/U 0910-LP-100-8487
*This manual contains all of the following:	
Pace Inc. MBT 250 Systems Operation & Maintenance Manual	5050-0380
Pace Inc. MBT 250 Systems Service Manual	5050-0352
Pace Inc. SP-2/PS-80/PS-90 Soldering Irons Operation & Maintenance Manual	5050-0366
Pace Inc. SX-70/SX-80 Sodr-X-Tractor Operation & Maintenance Manual	5050-0312
Pace Inc. TJ-70 Mini ThermoJet Handpiece Operation & Maintenance Manual	5050-0350

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One electronic (CD-ROM) or paper copy of the Station Electronic Rework Power Unit MBT-250-SD Operation and Maintenance Manual (SE010-A7-MMC-010/MBT-250-SD/U) will be furnished with each Portable 2M Kit. Additional copies of the manual may be ordered via normal Navy supply requisitioning procedures. An Adobe Portable Document Format (PDF) file of the manual is also available at the secure 2M Program Information website (<https://acrux.m42.crane.navy.mil>) for viewing and/or downloading. For user access, contact the 2M Program Webmaster at DSN 482-3237.

2.5.2 Technical Data Repository. The 2M ISEA, will maintain a master file of engineering drawings, lists, manuals, logistical technical data and other Portable 2M Kit documentation to include, supply support data and a Configuration Management Plan (CMP). Changes to TMs and engineering drawings will be coordinated between the manufacturer and the 2M ISEA. The 2M ISEA will disseminate all changes to each operating site, in accordance with the NAVSEA Technical Manual Management Program (TMMP) (S0005-AA-PRO-010/TMMP), and the Portable 2M Kit CMP.

2.6 Manpower and Personnel.

2.6.1 Manpower. Prior to fleet outfitting, it was determined that addition of the Portable 2M Kit to the fleet inventory would not require additional personnel for operation. As a result, a HARDMAN analysis is not required. Current technical maintenance allowances for technical billets are sufficient for maintenance of the Portable 2M Kit. Normally, technician assignment for the 2M Work Station (Portable 2M Kit) is a collateral duty.

2.6.2 Staffing. The 2M-repair function is a duty performed by trained and certified technicians who are assigned a primary or secondary Navy Enlisted Classification (NEC). As a result, there are billets identified specifically for 2M electronic repair technicians, inspectors, and instructors. The following NECs have been established for 2M:

NEC 9527 – Miniature Electronic Repair Technician

NEC 9526 – Microminiature Electronic Repair Technician

NEC 1591 – Miniature/Microminiature (2M)/Module Test and Repair (MTR) Technician

NEC 9503 – Miniature/Microminiature Electronic Repair Inspector

NEC 9509 – 2M Instructor

Training requirements are based on a minimum of one (1) 2M technician for each deployed 2M Work Station. Additional technicians per station require Type Commander (TYCOM) justification. Only 2M certified technicians with a minimum NEC of 9527, 9526, 1591, 9503, and/or 9509 may perform 2M repairs or operate the 2M equipment.

2.6.3 Navy Manning Document Update. Personnel currently trained, certified, and assigned to operate and maintain the 2M equipment (MBT-250-SD) are assigned either a primary or secondary NEC, as defined within Navy Training Plan (NTP) S-30-8711. There are no planned manning document changes.

2.7 Training and Training Support.

2.7.1 Navy Training. Formal training for 2M electronics repair is accomplished by Naval Education and Training Command (NETC) at seven (7) training sites:

Afloat Training Group (AFLOATRAGRU) Middle Pacific (MIDPAC), Pearl Harbor, HI

AFLOATRAGRU Western Pacific (WESTPAC), Yokosuka, Japan

Fleet Combat Training Center Atlantic (FCTCLANT) Detachment, Norfolk, VA

Fleet Training Center (FLETRACEN), San Diego, CA
(Designated as the Course Curriculum Model Manager (C²M²))

FLETRACEN, Mayport, FL

Naval Air Maintenance Training Group Detachment (NAMTRAGRUDET), Atsugi, Japan

Naval Air Maintenance Training Unit (NAMTRAU), Whidbey Island, WA

2.7.2 Navy Training Plan (NTP). An NTP, (S-30-8711, 2M Electronic Repair Program) has been developed for the 2M Program. The 2M Program provides for the repair of CCAs in the fleet. The 2M Program supports the Chief of Naval Operations (CNO) philosophy of progressive depot level repair (PDLR) per OPNAVINST 4790.13. The operational fleet and direct fleet support activity requirements are documented in this NTP. This NTP will ensure that the appropriate numbers of trained 2M technicians are available to the fleet to support self-sustainability and the progressive repair of electronic equipment. Training on the Portable 2M Kit is a part of the miniature electronics repair curriculum (A-100-0072). The 2M instructor certifies those technicians who have successfully completed the course. The 2M instructor will complete a Performance Information Memorandum (PIM), in accordance with BUPERSINST 1610.10. The completed PIM is signed by the 2M training site command representative and issued to the certifying technician for service record entry. The 2M instructor will also issue a serialized certification card and be responsible for entering information into the 2M database for up-line reporting.

2.7.3 On-Board Training (OBT). OBT will not be provided to 2M technicians. The 2M NECs do not require Personnel Qualification Standards (PQS) due to the certification of 2M technicians.

2.7.4 Contractor Training. No contractor training is planned.

2.7.5 Training Support Requirements. One miniature electronic repair station (Portable 2M Kit) is required for each technician under training at the 2M training sites. The 2M ISEA has provided each 2M training site with the required support equipment, tools, and consumables for the number and type of courses under their cognizance.

2.8 Related Programs.

2.8.1 Safety. Safety hazard warnings associated with the operation of the MBT-250-SD Station are contained in the Station Electronic Rework Power Unit MBT-250-SD Operation and Maintenance Manual (SE010-A7-MMC-010/MBT-250-SD/U, Operation & Maintenance Manual section, pages 11-13).

2.8.2 Configuration Management. Crane Division, Naval Surface Warfare Center, Code 6083 is the Configuration Manager and point of contact for the Portable 2M Kit. Code 6083 will also:

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Procure and make initial distribution to those ships or activities, which meet the requirements of NAVSEAINS 4790.17A and the Certification Manual for 2M/MTR Program, NAVSEA TE000-AA-MAN-010/2M.

Receive, review and evaluate all proposed Engineering Change Proposals (ECPs).

Preparation of all audit plans to perform random verification of product configuration, both new procurements and current inventory, as appropriate, to meet NAVSEAINST 4130.12A configuration management requirements.