



STANDARD OVERHAUL PRACTICES MANUAL

ELECTRICAL AND ELECTRONIC COMPONENT STANDARD MAINTENANCE INSTRUCTIONS

**PART NUMBER
NONE**

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STANDARD OVERHAUL PRACTICES MANUAL

Revision No. 10
Jul 01/2009

To: All holders of ELECTRICAL AND ELECTRONIC COMPONENT STANDARD MAINTENANCE INSTRUCTIONS 20-11-04.

Attached is the current revision to this STANDARD OVERHAUL PRACTICES MANUAL

The STANDARD OVERHAUL PRACTICES MANUAL is furnished either as a printed manual, on microfilm, or digital products, or any combination of the three. This revision replaces all previous microfilm cartridges or digital products. All microfilm and digital products are reissued with all obsolete data deleted and all updated pages added.

For printed manuals, changes are indicated on the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), O (Overflow, i.e. changes to the document structure and/or page layout), or D (Deleted). Each page in the LEP is identified by Chapter-Section-Subject number, page number and page date.

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TRANSMITTAL LETTER

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Location of Change

Description of Change

NO HIGHLIGHTS

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HIGHLIGHTS

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A = Added, R = Revised, D = Deleted, O = Overflow

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All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

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STANDARD OVERHAUL PRACTICES MANUAL

INTRODUCTION

1. General

- A. The instructions in this manual tell how to do standard shop procedures during maintenance functions from simple checks and replacement to complete shop-type repair.
- B. This manual is divided into separate sections:
 - (1) Title Page
 - (2) Transmittal Letter
 - (3) Highlights
 - (4) Effective Pages
 - (5) Contents
 - (6) Revision Record
 - (7) Record of Temporary Revisions
 - (8) Introduction
 - (9) Procedures
- C. Refer to SOPM 20-00-00 for a definition of standard industry practices, vendor names and addresses, and an explanation of the True Position Dimensioning symbols used.
- D. The data is general. It is not about all situations or specific installations. Use it as a guide to help you write minimum standards.
- E. If the component overhaul instructions are different from the data in this subject, use the component overhaul instructions.

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INTRODUCTION

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STANDARD OVERHAUL PRACTICES MANUAL

ELECTRICAL AND ELECTRONIC COMPONENT STANDARD MAINTENANCE INSTRUCTIONS

1. INTRODUCTION

- A. This subject gives general instructions for overhaul of accessory boxes, printed circuit cards, and component boards. The component overhaul instructions will tell you when to use these instructions. Refer to the component overhaul instructions for special details such as functional tests, troubleshooting and parts lists. If the component overhaul instructions are different than those in this subject, use the component overhaul instructions.
- B. Accessory box assemblies contain printed circuit card or component board assemblies, relays, electrical connectors, a wire bundle assembly, and other chassis mounted components. Most accessory box assemblies have a hinged cover which gives easy access to the components inside.
- C. Printed circuit card assemblies have a circuit board with etched circuits and components such as resistors, capacitors, diodes, transistors, relays, heatsinks, integrated circuits, potentiometers, transformers, and fuses. Contacts at one edge of the board connect to a mating receptacle. These cards are usually coated with an encapsulant.
- D. A component board is almost the same as a printed circuit card but it does not include printed circuitry and encapsulant. Solder terminals or pigtail leads connect the board to the wiring of the next higher assemblies.

2. MATERIALS

- A. Aliphatic naphtha (Ref SOPM 20-60-01)
- B. Isopropyl alcohol (Ref SOPM 20-60-01)
- C. Primer – BMS 10-11, Type 1 (SOPM 20-60-02)

3. GENERAL

- A. Disassemble these components only as necessary to clean, examine or repair the components.
- B. Refer to these standard practices, as applicable:
 - (1) SOPM 20-11-01 for removal and replacement of components from circuit boards
 - (2) SOPM 20-11-02 for electrical connectors
 - (3) SOPM 20-11-03 for terminal lugs and electrical bond areas, and replacement of heat shrinkable tubing
 - (4) SOPM 20-11-06 for wrapped wire connections
 - (5) SOPM 20-12-01 for soldering
 - (6) SOPM 20-12-02 for electrostatic discharge sensitive devices
 - (7) SOPM 20-50-05 for replacement of markers and labels
 - (8) SOPM 20-50-09 for replacement of grommets
 - (9) SOPM 20-50-10 for replacement of identification and other markings
 - (10) SOPM 20-50-12 for application of adhesives
 - (11) SOPM 20-70-01 for protection and storage
- C. When you replace damaged wires, use the same wire type and color as the original, or as shown by the schematic diagram or overhaul instructions.
- D. Remove dust, dirt, and other unwanted material from the unit with low-pressure air suction.

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**STANDARD OVERHAUL PRACTICES MANUAL**

WARNING: WHEN YOU USE ISOPROPYL ALCOHOL OR ALIPHATIC NAPHTHA, TRY NOT TO BREATHE THE VAPORS TOO MUCH. USE THESE CLEANERS ONLY WITH A GOOD FLOW OF AIR. DO NOT GET THESE CLEANERS IN THE EYES, ON THE SKIN OR CLOTHING. KEEP THESE CLEANERS AWAY FROM HEAT, SPARKS, OR OPEN FLAME.

CAUTION: USE ONLY THESE CLEANERS. OTHER CLEANERS COULD DAMAGE ASSEMBLY SURFACES OR CAUSE CIRCUIT FAILURES. ALSO, ISOPROPYL ALCOHOL DISSOLVES ACRYLIC ENCAPSULANT. REFER TO 20-11-01 FOR DETAILS.

- E. Clean interior surfaces and electrical contacts with isopropyl alcohol or aliphatic naphtha. Dry fully with low-pressure air.
- F. Examine the printed circuit board, electrical components, and solder connections with a minimum of 5-power magnification. Make repairs as necessary.
 - (1) Look for moved or loose components, broken leads, and damaged insulating sleeving and solder connections.
 - (2) Look for physical damage such as cracks, distortion, deterioration, oxidation, or overheating.
 - (3) Examine plated contacts for dirt, wear, corrosion, and deterioration.
 - (4) Look for damaged, lifted or broken circuit paths.
 - (5) Look for damaged markings such as reference designations, component outlines, diode orientation symbols, and terminal identifications.
- G. To replace defective rivets or nutplates, remove the old parts. Install replacements with wet primer, BMS 10-11, Type 1, on the mating surfaces.
- H. When you replace electronic parts, use only those specified in the Illustrated Parts List (IPL) of the component overhaul instructions. Do not use unapproved parts, such as "unscreened" parts, which are not specified in the IPL.
- I. When you are done with the overhaul, give the units protection and put them away with standard industry practices. Plastic bags in padded containers can be used. For electrostatic discharge sensitive units, be sure to give them protection per SOPM 20-12-02. Identify the containers by unit name or part number and the date of overhaul.

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