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Date: December 2006 **MIP** 3001 **MRC:** C6 9LTN N **Periodicity:** 18M-4
Series:

Location:

Ship System: Misc. Controller/Starter 3001
System: Misc. Controller/Starter 3001
SubSystem: Misc. Controller/Starter 3001
Equipment: Corrosion Preventative Desiccant

Rates	Man- Hours	Rates	Man- Hours	Rates	Man- Hours
PO3/PO2	0.3				
Total Man- Hours:	0.3	Elapsed Time:	0.3		

MAINTENANCE REQUIREMENT DESCRIPTION

1. Install or Replace Vapor-Phase Corrosion Inhibitor (VCI) Device.
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SAFETY PRECAUTIONS

1. Forces afloat comply with NAVOSH Program Manual for Forces Afloat, OPNAVINST 5100.19 series.
 2. Ensure all tag-out procedures are in accordance with current shipboard instructions.
 3. Voltages dangerous to life may be present, depending on the equipment. Consider all electrical leads to be energized until positively proven that they are de-energized.
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TOOLS, PARTS, MATERIALS, TEST EQUIPMENT**TEST EQUIPMENT**

1. [00901] Multimeter, AC/DC, SCAT 4245

MATERIALS

1. [01144] Tag, safety
 2. [02278] Pencil
 3. [09122] Inhibitor, corrosion, vapor barrier
 4. [09123] Inhibitor, corrosion, vapor barrier
Hazardous Material User's Guide (HMUG) Group 6 , Disposal Method 1
 5. [09124] Inhibitor, corrosion, vapor barrier
Hazardous Material User's Guide (HMUG) Group 6 , Disposal Method 1
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NOTE: Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for identification.

HAZARDOUS MATERIALS CONTROL STATEMENT(U)

The Hazardous Material Users Guide (HMUG), OPNAVINST 5100.28, provides additional control measures, precautions, personal protective equipment (PPE), and spill controls for the hazardous material(s) identified in the Tools, Parts, Materials, Test, Equipment block. Maintenance personnel shall determine if additional PPE is necessary to accomplish the MRC and take appropriate action to obtain and wear such PPE to ensure the safety of maintenance personnel. Report any deficiencies via PMS feedback report.

PROCEDURE

- NOTE 1 :** The following rates may perform this procedure. PO3 and or PO2.
- NOTE 2 :** The use of VCI devices may be specifically described on other system or equipment MIPs/MRCs. In these cases, the specific equipment MRC takes precedence over this MRC.
- NOTE 3 :** When enhanced corrosion protection is needed for electrical enclosures in wet or humid locations, refer to MRC U-1 for application of VCI spray.
- NOTE 4 :** VCI devices are intended to prevent corrosion on steel, aluminum, and copper alloys. VCIs can also help prevent corrosion of solders and brazing alloys. VCI devices are only useful in controlling corrosion in equipment that is closed or has little air flow. VCIs should not be installed in enclosures having forced air ventilation.
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NOTE 5 : VCI compounds change into vapor when they are exposed to air. The vapor spreads throughout the enclosed space, and when it contacts metal surfaces it condenses to form an invisible, very thin protective film. As long as the enclosure is not ventilated, the vapor will remain in the enclosure for a long time, and maintain the protective film. However, if the enclosure is ventilated, the vapors will disperse and cause the VCI compound contained in the foam tape or cartridge to be rapidly used up.

NOTE 6 : Because VCIs work by depositing an ultra-thin film directly on a bare metal surface, the surfaces to be protected must be clean for them to work effectively. Therefore, all dirt, dust, grease, oily films, or other deposits on the metal surfaces to be protected should be cleaned off before installing the VCI.

NOTE 7 : Examples of suggested uses for VCI devices include electronic cabinets and boxes, circuit breaker boxes, motor controller enclosures, terminal boxes, instrumentation enclosures, interior voice communications system (IVCS) boxes, storable lockers, fuse boxes, automatic bus transfer (ABT) boxes, lighting distribution panels, antenna coupler boxes, antenna matching enclosures, and other small areas.

Preliminary

WARNING: Ensure all tag-out procedures are in accordance with current shipboard instructions.

WARNING: Voltages dangerous to life may be present, depending on the equipment. Consider all electrical leads to be energized until positively proven that they are de-energized.

- a. If VCI devices are to be installed inside an enclosure containing electrical or electronic equipment, tag-out equipment.

NOTE 8 : Once VCI vapors have coated metal parts inside an enclosure, the VCI devices do not continue to give off vapors. Therefore, there is no build-up of vapors inside an enclosure, and no risk to other personnel who may be working in another area of a space where this maintenance action is being performed.

CAUTION: VCI devices must not be used in enclosures or equipment cabinets that contain magnetic computer data media (fixed or floppy disks, tapes, etc.).

1. Install or Replace Vapor-Phase Corrosion Inhibitor (VCI) Device.

WARNING: Ensure all tag-out procedures are in accordance with current shipboard instructions.

- a. De-energize circuit(s) to controller and tag "Out of Service".
- b. Open cover/lid/door of enclosure to be treated.
- c. Test unit with multimeter to ensure circuits are de-energized.
- d. If VCI device has previously been installed, allow enclosure to stand open for 1 minute before working inside enclosure.
- e. Locate spot within enclosures to be treated where VCI device may be installed without interfering with moving parts or becoming an obstruction. Recommended locations include inner walls/sides of enclosure such that VCI device does not hinder access to other components inside the enclosure. Ensure not to place VCI device on any moving parts, circuit boards or contacts. Location for VCI device should be selected so that in the unlikely event that it falls off, it will not land on any area or component where it could cause damage or cause moving parts to be obstructed.
- f. Determine volume of enclosure to be protected and select appropriate number and type of VCI device(s) to be used.
VCI devices will protect the following volumes of air:
 - (1) SPMIG 9122 for 1 cubic foot
 - (2) SPMIG 9124 for 5 cubic feet
 - (3) SPMIG 9123 for 11 cubic feet
- g. If expired VCI device is present, remove and clean any adhesive remaining.
- h. If there is moisture or dirt in the enclosure, wipe area with clean dry cloth. If electrical terminals, leads, contacts, or other metal surfaces inside enclosure are dirty as described in NOTE 6, refer to Work Center Supervisor or to appropriate PMS MIP and MRC for equipment to determine proper cleaning procedure.
- i. Remove VCI device from wrapper.
- j. Peel off adhesive backing from VCI device. Do not peel, puncture, or otherwise damage breathable paper covers on cartridge devices.

NOTE 9 : Stickers on the outside of enclosure may become worn, dirty, painted over or removed. An additional sticker on the inside enclosure ensures proper documentation of the last VCI installation.

- k. Stick adhesive side of VCI device on a clean, dry surface.

- l. Tightly close cover/lid/door of enclosure treated.
- m. Update, add, or replace sticker on enclosure showing date of VCI installation.
- n. Remove safety tags and return equipment to readiness condition.

DISPOSAL METHODS FOR HAZARDOUS MATERIAL/WASTE IDENTIFIED IN THE TOOLS, PARTS, MATERIAL, AND TEST EQUIPMENT BLOCK

Method 1: If shipboard HAZMINCEN exists, turn in all spent HM and items contaminated with HM to the shipboard HAZMINCEN for collection, processing, and disposal. Containerize waste in original container or use standard container as listed in Appendix C23-A of OPNAVINST 5100.19E Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat and the Naval Ships' Technical Manual (NSTM), S9086-T8-STM-010/CH-593, Pollution Control. Store in accordance with OPNAVINST 5100.19E, Appendix C23-C and D15-E. Mark, label, or tag the container with the specific contents and any information on the contaminants. This information must also be provided on the DD Form 1348-1A at the time of off-loading. Empty container guidance is available in the CNO Policy Guide for Shipboard Hazardous Material Container Disposal, OPNAV P-45-114-95. Contact the receiving shore activity (e.g., Fleet and Industrial Supply Center and Public Works Center) to determine the appropriate local off-loading requirements.