SUPPLEMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
SOUTHWEST REGION

6950.17A
SW SUP 2

8/20/01

SUBJ: MAINTENANCE OF ELECTRICAL SYSTEMS IN BUILDINGS

SW1. **PURPOSE**. This appendix provides supplemental information for the maintenance of Sola regulators.

SW2. **DISTRIBUTION.** This supplement is distributed to the branch level in the Airway Facilities (AF) Division and all AF field offices.

SW3. **CANCELLATION.** This supplement cancels SW Supplement 1 to Order 6950.17A, dated 11/23/83.

SW4. **BACKGROUND.** Research on Sola regulators has revealed that two potential problems exist which require additional maintenance attention. First, damaged capacitors located within the regulator may be open, leaking, or swollen. This condition may go unnoticed creating a fire hazard or exposure to PCB contaminated dielectric fluid. Second, many Sola regulators were installed using wiring which is not adequate for the operating temperature range of the regulator. This condition also creates a fire hazard.

SW5. **EXPLANATION OF CHANGES.** This supplement provides additional guidance related to PCB contaminated dielectric fluid. It also reflects current Airway Facilities Division organizational titles.

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Marcos Costilla
Manager, Airway Facilities Division

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SW APPENDIX 1. MAINTENANCE OF ELECTRICAL SYSTEMS IN BUILDINGS

SW1. INITIAL INSPECTION.

a. Inspect the bottom plate of the regulator. If the bottom plate is not perforated, drill two 3/8-inch holes near the front panel in the bottom plate. The holes will allow improved air circulation and early detection of leaking capacitors.

b. The maximum size of the overcurrent device is 200 percent of the rated primary current. Replace any primary overcurrent devices that exceed this value.

c. Inspect the field wiring, which brings power into and out of the regulator. Replace wiring which has Type TW (60 ° C) or THW (75 ° C) insulation with Type THHN (90 ° C) insulation.

d. NOTE: This may be accomplished by intercepting field wires near the regulator, mounting a conduit box, and splicing a short section of THHN wire to the existing wires for input and output connection to the regulator.

e. Perform annual inspection as described in paragraph 2.

SW2. ANNUAL INSPECTION.

a. Measure the output voltage of the regulator with an iron vane-type instrument. This voltage termed the median output voltage should be between +1 percent and -4 percent of the nameplate output voltage. Median output voltage deviation from the nameplate rating is due to individual site power factor and load characteristics. Once the median output voltage has been determined for an individual site, variations in the input voltage of ±15 percent shall not cause greater than 2 percent change in the median output voltage. Poor voltage regulation or low output voltage may be an indication of defective (open) capacitors.

b. Remove dirt and dust from regulator by cleaning with compressed air.

c. Visually inspect oil filled capacitors. Capacitors that are swollen or leaking must be replaced. If a failed capacitor is suspected of containing PCB, dispose of same in accordance with EPA/FAA regulations.

NOTE: Capacitors should not be replaced unless they are found to be leaking, swollen, or open. New capacitors have the same failure rate as old ones.

d. Check internal wiring for cracking or signs of overheating. Replace as necessary. Factory wires should not be rubbing together. If any wires are found in contact with one another, carefully reposition the wires to provide space between them.

e. Visually inspect field wiring bringing power into and out of regulator for signs of overheating.