M.I.9684

MODERNIZATION RECOMMENDATION

ELECTRO-MOTIVE
General Motors Corporation

MAIN GENERATOR FIELD CONTROL CIRCUIT RESISTOR RE32 (P/N 8332380)

PURPOSE:

To provide instructions for the replacement of RE32 resistors.

APPLICATION:

Applies to all AC/DC Main Generators.

REFERENCE:

Use the applicable Locomotive Wiring Schematic diagram along with this MODREC publication as a guide to implementing this modification.

For units with AC traction power systems, see DC link discharge procedures in Operating or Service Manuals, and printed on name plate affixed to door of High Voltage Electrical Cabinet.

DISCUSSION:

The RE32 / CA32 combination is used in the main generator field control circuit to suppress inductive voltage spikes and prevent damaging components in the SCR assembly. A voltage spike will occur when GFD drops out (which happens when the unit is isolated, when a ground fault occurs, or during setup for dynamic braking). This circuit is utilized on all AC/DC main generator field control circuits.

The RE 32 resistor continuously dissipates high energy which, over time, will cause the resistor to fail. It is the EMD Service Departments recommendation to upgrade current RE32 resistors with a new design having a higher wattage rating. The new resistor has a ribflex design and is capable of substantially greater power dissipation. The replacement component is approximately the same size as the original and uses the same type of connection, making these parts interchangeable. The part number for this replacement is 40067874.

PROCEDURE:

********* WARNING **********

Locomotives with AC traction power systems operate with a very high and potentially dangerous DC Link voltage that could be present in the electrical cabinets even after the locomotive has been shut down for an extended time period. Refer to the ***SAFETY PRECAUTIONS*** section of your Operator or Service Manual before starting this modification on these locomotives.

1. All Railroad shop safety rules and regulations must be adhered to during this entire modification procedure.

2. Place the Isolation Switch to the **START/STOP/ISOLATE** position, depress the Engine Stop (EFCO) push-button to shut down the engine, open all of the Circuit Breakers (after turbo cool down cycle has expired) and open the Battery Knife Switch. On AC locomotives, verify decay of DC link voltage through ICE display.

3. At the Main Generator Excitation Panel in the Electrical Control Cabinet, disconnect the wires from the existing RE32 resistor (P/N 8332380) assembly. Remove the resistor assembly from the panel, retaining all mounting hardware for re-installation. Install the new resistor (P/N 40067874) onto the panel and reconnect the wires. CAUTION should be exercised in order to avoid cracking or fracturing the resistor enamel near the terminals. Cracked enamel can cause long term reliability problems.

4. Close the Battery Knife Switch followed by the closing of all of the Circuit Breakers.

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