ELECTRO-MOTIVE

M.I. 9651

MAINTENANCE INSTRUCTION

MAR 0 4 1983

MODERNIZATION RECOMMENDATION
DYNAMIC BRAKE GRID PROTECTION

PURPOSE: To provide instructions for the addition of circuits to protect dynamic brake grids in the event of a blower motor failure.

APPLICATION: Six-axle pre Dash-2 locomotives with 0.86 ohm grids and non-extended range dynamic brake; including SD39, SD40, SD45, and F45 locomotives.

REFERENCE: Use the applicable locomotive schematic diagram in conjunction with the diagrams in this publication as a guide in implementing this modification.

DISCUSSION: In the event of a blower motor failure, an unnecessary grid failure will result if no type of protective circuitry is provided. With grid protection applied, a motor failure will be sensed and the unit will automatically lock out of dynamic brake.

With the new system, strategic voltages are sensed in the grid circuit; a magsense comparator on the DG17 panel then interprets these signals to determine the condition of the grid cooling system. If one or both motors fail to operate, the module locks the unit out of dynamic brake until reset by a switch on the panel faceplate. An annunciator on the panel indicates blower failure. Note that complete control of power operation is retained while the dynamic brake is locked out.

MATERIAL REQUIRED:

QUANTITY/UNIT	DESCRIPTION	PART NO.
1	DG17 Panel	9537263
1	DGX Relay	8363168
30 ft. (approx.)	No. 14 Wire/500 ft.	8472022
150 ft. (approx.)	XE Cable/500 ft.	8468611
42	Faston Receptacle	8250906
6	1/2" Lug	8137872

COST OF MATERIAL: The approximate price of new material per locomotive is $1235. This price is for job estimating purposes only. Material will be billed according to prices in effect at time of shipment.

PROCEDURE:

1. Select a convenient location in the high voltage cabinet; mount and label DGX relay.

2. Mount the DG17 panel assembly on the contactor mounting channel located in the lower half of the high voltage cabinet.

3. Refer to Fig. 1 and add the following XE wires:

TAG	FROM	TO
BB34	*RE Grid 6 - Term 2	TB38L8
BB33	TB38L8	DG-7
BM14	*RE Grid 6 - Term 4	TB38L9
BM13	TB38L9	DG-8
BKG14	*RE Grid 6 - Term 1	TB38L10
BKG13	TB38L10	DG-9
BKE24	*RE Grid 1 - Term 2	TB38R10
BKE23	TB38R10	DG-11
BM24	*RE Grid 1 - Term 4	TB38R9
BM23	TB38R9	DG-12
BR44	*RE Grid 1 - Term 1	TB38R8
BR43	TB38R8	DG-10

*These wires run from the electrical cabinet to connections on the grids. Terminals on TB70, in the grid hatch, should be used if available.

4. Refer to Fig. 2 and add the following No. 14 wires:

TAG	FROM	TO
PA1	DG-1	TB30R1
J	DG-1	DG-5
NA1	DG-14	TB30L2
NA10	DG-14	DGX-Z/Coil
DGX6	DG-4	DGX-Y/Coil

5. Step a. refers to units with a circuit similar to that indicated in Fig. 3.

   Step b. refers to units with a circuit similar to that indicated in Fig. 4.

   a. Move MSB wire from OCP-F to DGX-2NO.
      Add a new No. 14 wire from OCP-F to DGX-2C and label as MSBX.

   b. Move MSZ9 wire from BR-F1 to DGX-2C.
      Add a new No. 14 wire from BR-F1 to DGX-2NO and label as MSZA.

TEST PROCEDURE:

1. Engine running, controls and switches set up for dynamic brake.
2. With brake handle at No. 4 position, operate and hold the DG test switch in the test position.
3. After 1 to 15 seconds, B, GFC, and GFX drop out and the DG module annunciator will come on.
4. Release test switch.
5. Release brake handle to set up and operate the DG module reset switch. Module annunciator goes out.

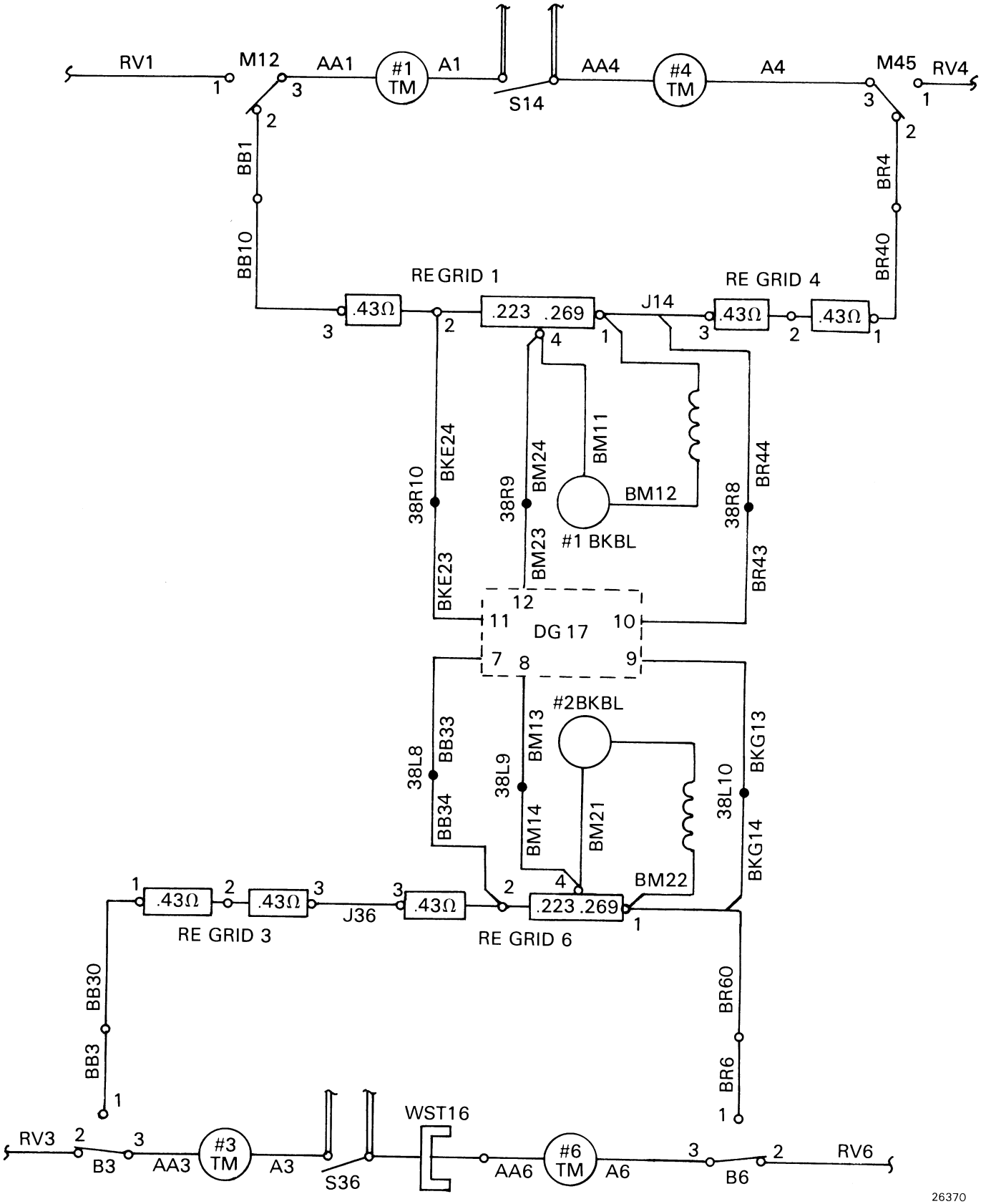

Fig.1 – Modified High Voltage Circuit

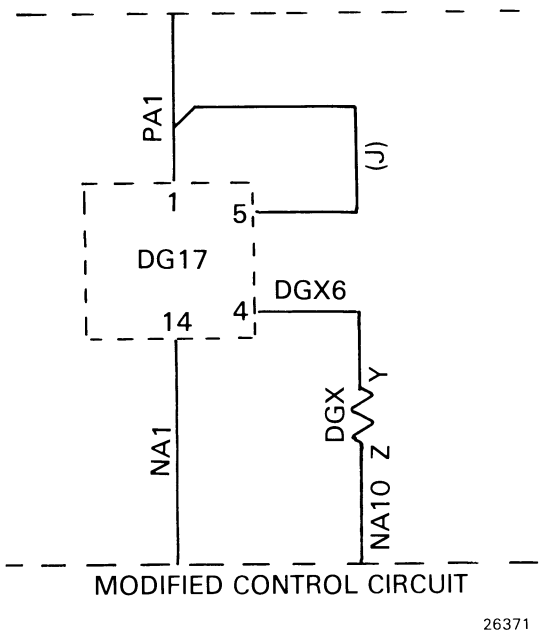

Fig.2 – Modified Control Circuit, DGX Relay

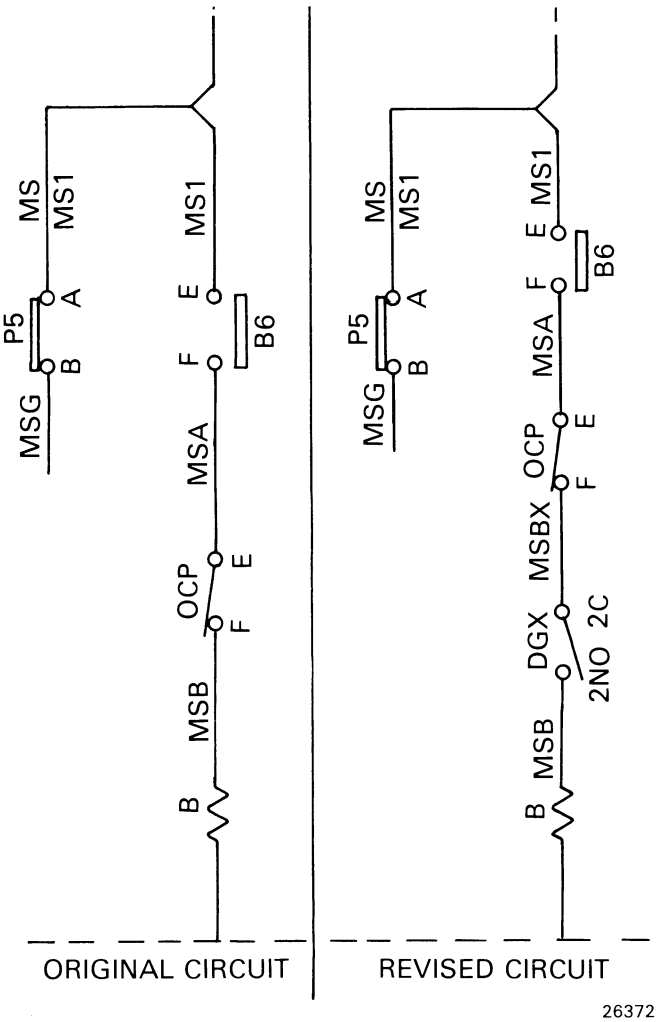

Fig.3 – Modified Control Circuit To "B" Contactor

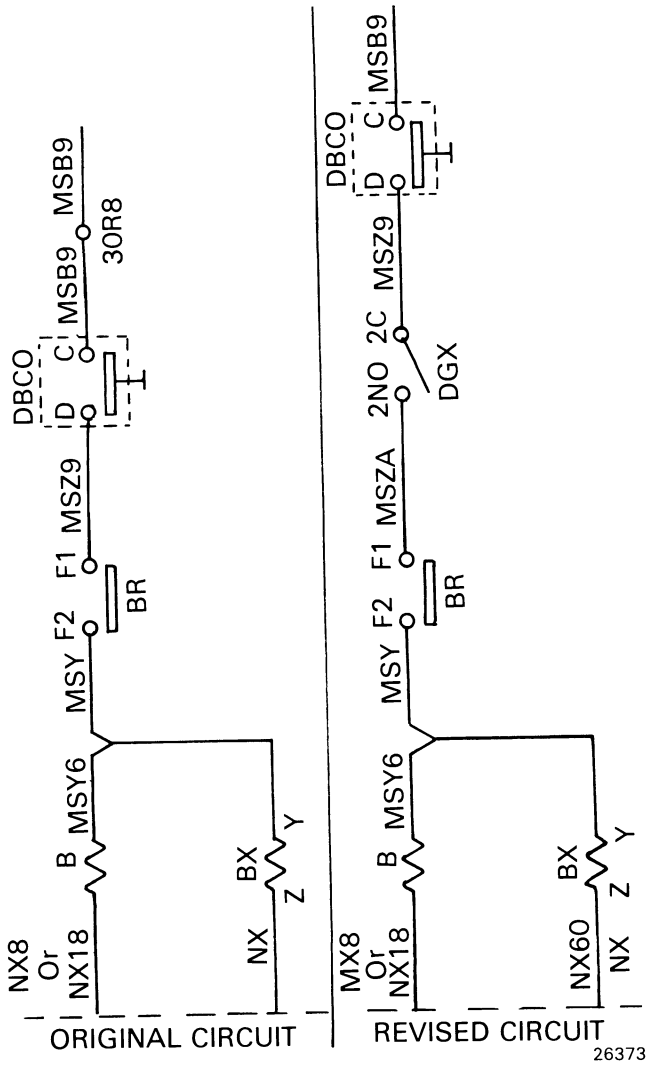

Fig.4 – Modified Control Circuit To "B" Contactor And BX Relay