



ELECTRO-MOTIVE DIVISION • GENERAL MOTORS CORPORATION

# MAINTENANCE INSTRUCTION

## MODERNIZATION RECOMMENDATION REBUILDING MAGNETIC SWITCH ASSEMBLIES

**PURPOSE:** Upgrade certain magnetic switch assemblies to the latest design to obtain maximum efficiency and performance.

**APPLICATION:** Magnetic switches with EMD part numbers:

8330201	8338875	8341261
8328962	8335901	8382810

**REFERENCES:** Parts List No. 5426 in EMD Parts Catalog  
Maintenance Instruction 5428  
Section 7 of Locomotive Service Manual  
Illustrations within this M.I.

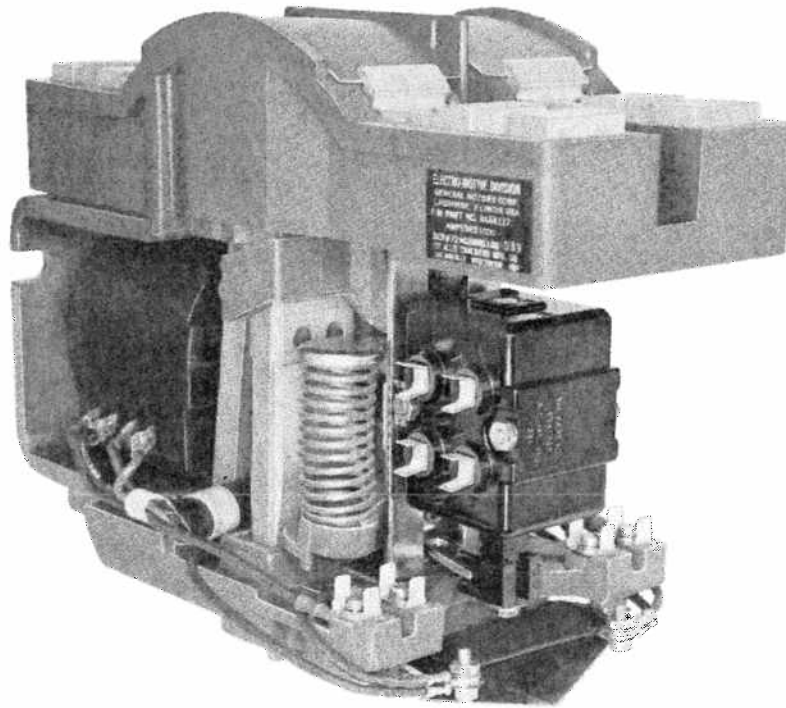
**NEW MATERIAL REQUIRED:**

Magnetic Switch:	8330201				
	8328962	8338875	8335901	8341261	8382810
Rebuilt to P/N:	8464113	8464116	8464114	8464117	8464118
Unit Exchange P/N:	8471767	8471768	8471769	8471770	8471771

Magnetic Switch Assembly Rebuild Kit - 8465934

<u>Part No.</u>	<u>Quantity</u>	<u>Description</u>
8468992	1	Operator
8468990	2	Movable Contact Support Assembly
8468987	2	Bottom Terminal
8468988	2	Clamping Plate
8470047	4	Screw - .25" x 1.0" Flat Head Hex Socket
138604	4	Washer - Lock - .25" Countersunk
8364897	2	Screw - .312" x 2.75" Hex Socket Flat Head
134512	2	Washer - Lock - .312" Countersunk
8339361	2	Movable Contact Assembly
8468989	4	Dual Spring - (Wipe)
8441833	8	Stationary Contact Assembly (Flexible)
8441836	8	Pivot Spring and Cap Assembly
8441834	4	Spacer
-----	1	Nameplate

**COST OF MATERIAL:** The material for this modification will cost \$161.00 per device. This price is for job estimating purposes only. Material will be billed at prices in effect at time of shipment.



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Fig. 1 – New Magnetic Switch Assembly

## PROCEDURE

### DISASSEMBLY PROCEDURE

For easier identification of parts and location see exploded view, Fig. 2. Save all hardware unless instructed to discard in procedure.

1. To remove covers, push one end of covers out of slot in contact assembly top and lift off.
2. Remove two return springs by depressing spring and removing from return spring bracket cap. Caution should be used to prevent the springs from becoming airborne.
3. Remove silastic, two screws with lockwashers, movable hold on irons and movable contact assemblies. Discard screws, lockwashers and movable contact assemblies.
4. Remove three screws with washers and top terminal molding.
5. Remove screw, washers and auxiliary interlock assembly.
6. Remove armature and operator assembly.
7. Remove four screws with washers and two contact support and bottom terminal assemblies. Spring and terminal can be removed from recess in molding by pushing movable contact support out of molding. Caution should be used to prevent spring from becoming airborne. Discard spring, movable contact support and bottom terminal assemblies.
8. Remove screw and washer, bearing pin and operator assembly.
9. Remove roll pin and slide armature linkage – two inner links from one side of operator and two outer links from the other – out of operator.
10. Remove link guide and spring from operator. Discard operator molding only.
11. Place spring in cavity in new operator molding and slide link guide into position.
12. Position armature linkage in operator. Slide the two outer links in from one end of the operator and the two inner links from the other end. Secure with roll pin. See Fig. 3 for correct side of operator for replacing roll pin.
13. Remove two screws, washers and top contact assembly.

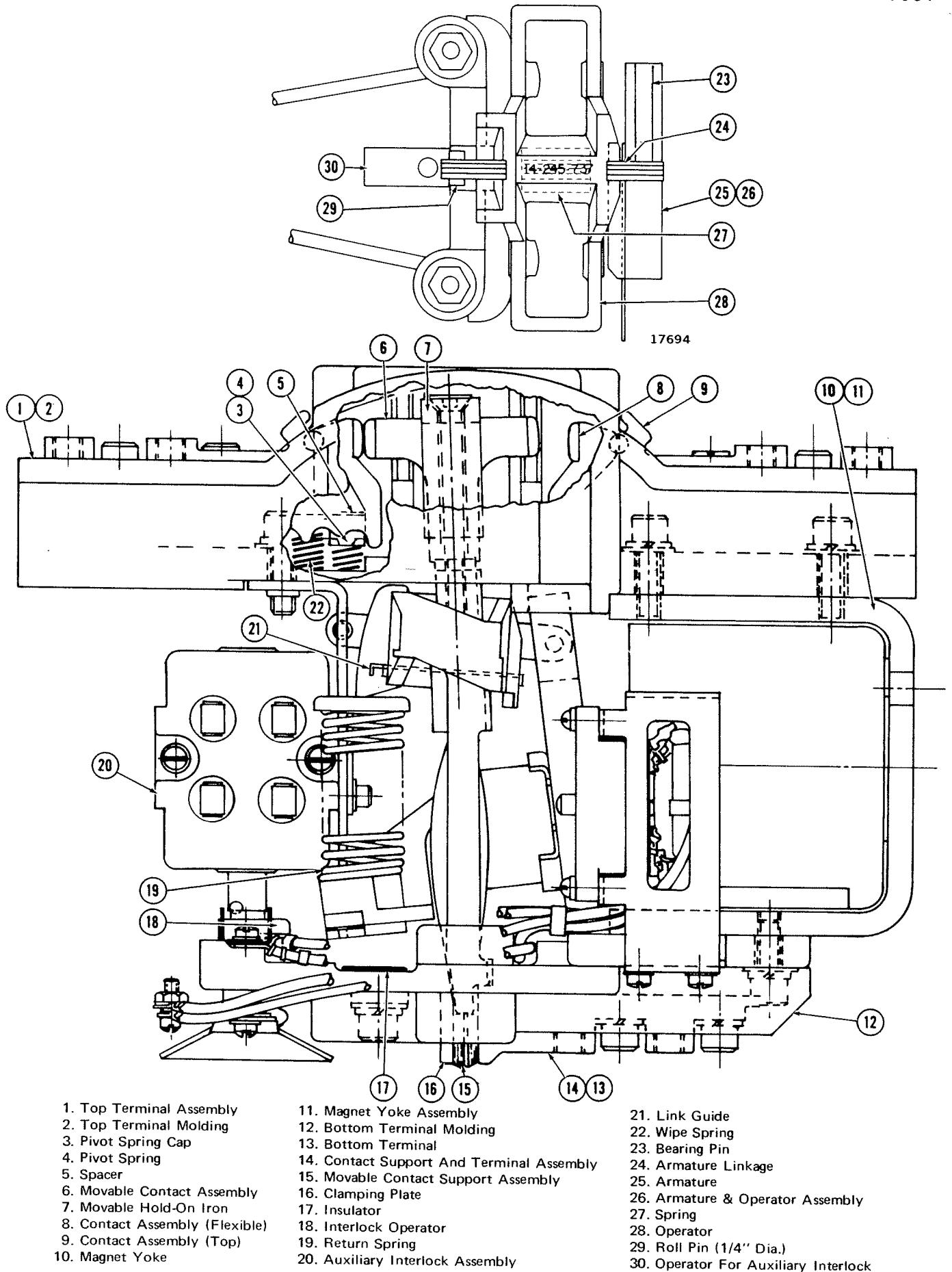


Fig. 2 -- Cut Away View Of Magnetic Switch Assembly

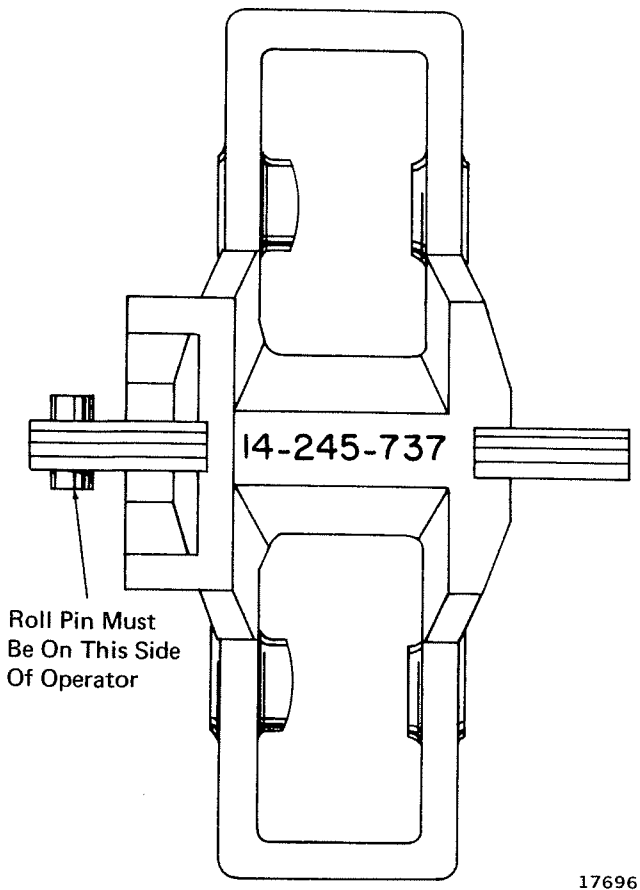


Fig. 3 – Armature And Operator Assembly

14. Lift out stationary contact and all spring assemblies. Discard contact and spring assemblies.
15. Repeat steps 13 and 14 for the other three stationary contact assemblies.

#### ASSEMBLY PROCEDURE

1. Slide armature linkage (24) into slot in armature (25), push bearing pin (23) into hole in armature and linkage, secure with screw and lockwasher.
2. Place top terminal molding (2) in a horizontal position on bench. Be certain that the support areas for springs are free of all foreign particles.
3. Place one dual wiper spring (22) over the projections adjacent to the rear hole in the top terminal molding (2), the wire connecting dual springs must be at the bottom end.
4. Place a pivot spring cap (3) on one end of the pivot springs (4). Place the other end of the spring over the conical front pins in the top terminal molding (2).

5. Insert one spacer (5) with the short leg of the "L" down between pivot springs (4) and the long leg extending back between halves of the dual wiper spring (22).
6. Position two new stationary contacts (8) over dual wiper spring (22) and two pivot springs (4). Be certain that spring caps (3) are firmly seated on pivot springs (4).
7. Insert the pointed nose of contact assembly (top) (9) into the cavity in back of stationary contacts (8) engaging the mating pivots. See instructions in kit for view of stationary contact terminal assembly.
8. With the pivots engaged and the contact assembly (top) (9) held back against the stop in the top terminal molding (2) secure with two 5/16-18 x 7/8" hex socket head capscrews and 5/16" lockwashers.
9. Check for freedom of motion of both stationary contacts (8). The gap behind the contacts should be .045" nominal.
10. Repeat steps 3 through 9 for the other three stationary contact terminal assemblies.
11. Position movable contact support assembly (15) and clamping plate (16) on end of bottom terminal (13) and secure with two 25-20 x 1" flat head hex socket screw and 25 counter-sunk lockwasher. See Fig. 4 for correct mounting of movable contact support assembly (15) to bottom terminal (13).
12. Repeat step 11 for the other contact support and terminal assembly(14).
13. Insert one contact support and terminal assembly (14) through one slot in bottom terminal molding (12). Position against molding and secure with two 5/16-18 x 3/4" hex socket head capscrews and 5/16" lockwashers - helicoil spring. Repeat for other contact support and terminal assembly (14).
14. Insert armature and operator assembly (26) between magnet assembly (11) and contact support and terminal assemblies (14). Movable contact support assemblies (15) to pass through windows in operator (28). Bottom of armature (25) to be seated on bottom terminal molding (12) between guides on molding and against bottom leg on magnet yoke (10).

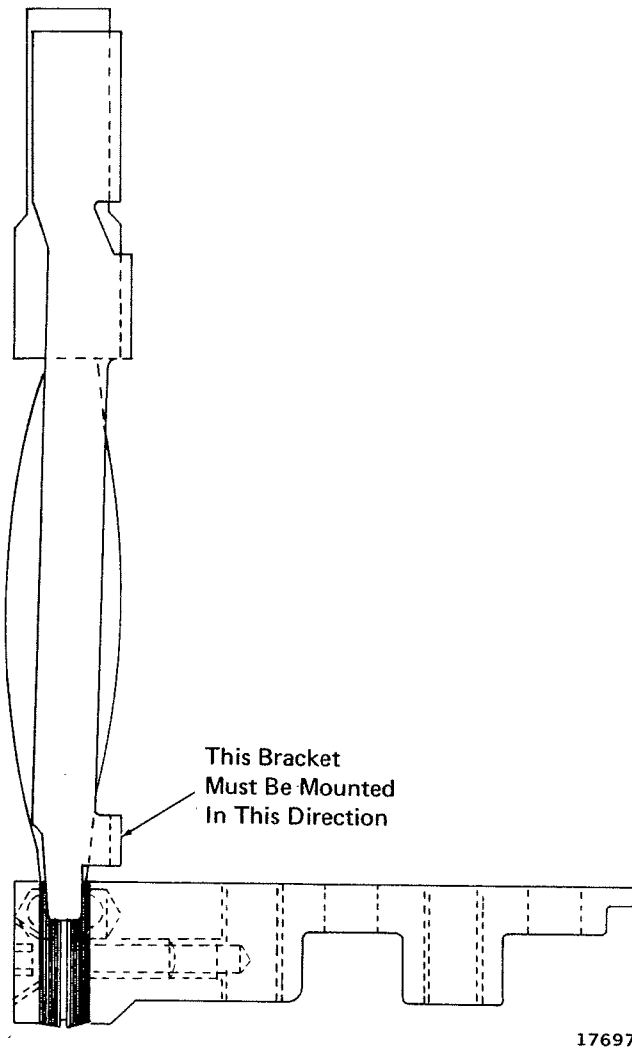


Fig. 4 - Contact Support And Terminal Assembly

15. Locate insulator (17) and auxiliary interlock assembly (20) on bottom terminal molding (12) with operator (30) in slot of interlock operator. Secure with 5/16-18 x 7/8" hex socket head cap screw and 5/16" plain washer and 5/16" helical spring lockwasher.

16. Position top terminal molding assembly (1) over magnet assembly (11), armature and operator assembly (26), contact support and terminal assembly (14) and auxiliary interlock assembly (20). Be certain terminals 1 and 4 are located over coil yoke (10). Secure with three 5/16-18 x 1" hex socket head cap screws, 5/16" plain washer and 5/16" helical spring lockwasher.
17. Position one movable contact (6), and movable hold-on iron (7) over one contact support and terminal assembly (14). Secure with one 5/16-18 x 2-3/4" flat socket head cap screw and 5/16" countersunk lockwasher. Repeat for other movable contact assembly (6). Apply silastic to the heads of both screws.
18. Install return springs (19).
19. Center movable contact support assembly (15) in molding. This is accomplished by loosening two screws holding assembly to bottom terminal (13) and tightening after centering.
20. Assemble top covers in slots in top terminal assemblies (1).

#### TEST PROCEDURE

1. Make certain the main contacts mate with sufficient wipe in both the energized and de-energized positions.
2. Interlock plunger must be within  $\pm .031$ " of flush with top of interlock housing when device is in the open position.
3. Economizing switch must have from .001" to .015" overtravel available with transfer switch fully closed. Adjust by bending operator bracket.