ELECTRO-MOTIVE DIVISION • GENERAL MOTORS CORPORATION
SERVICE DEPARTMENT

MAINTENANCE INSTRUCTION

MOTOR OPERATED TRANSFER SWITCH
SWITCH MODULE

INTRODUCTION

This publication provides maintenance data for the switch module portion of the transfer switch assembly. Refer to Maintenance Instruction M.I. 5421-2 for data on the motor module.

The motor operated transfer switch assembly is made up of from two to six power switches mounted on a common support of length to suit the total number of switches used. The switches are driven by a single motor through a segmented shaft, and a positive feed to the motor is required to move the switch contacts. When the motor operates to drive the switches, all poles operate together, and once the switches are positioned, they will not drop out.

DESCRIPTION

The switch module, Fig. 1, is rated at 1200 amperes and is designed to set up various power circuits. The actual switching function is provided by power contactors which make and interrupt the motor current. Hold-on features are built into the switch module to prevent the contacts from blowing open under fault current conditions.

Each switch module of the composite assembly is coupled to the motor module through couplings along the segmented shaft. Any switch or motor module can be removed or inserted without disturbing the other modules as long as the motor output shaft is manually rotated to the neutral "O" position. The mounting screws are accessible from the front. The movable contacts are operated through a spring-loaded linkage to the output shaft. The springs provide the initial contact loading and the overtravel for contact wear. The stationary contacts are "trifurcated" to provide multiple current paths to minimize voltage drop at the contacts and to provide maximum service.

A motor cut-out relay, when added to the front of the switch module, provides a means of lifting the spring-loaded linkage to lock the movable contacts in the neutral position. A specific traction motor may thus be isolated from the power source. Additional interlock circuits are provided as part of the motor cut-out assembly.

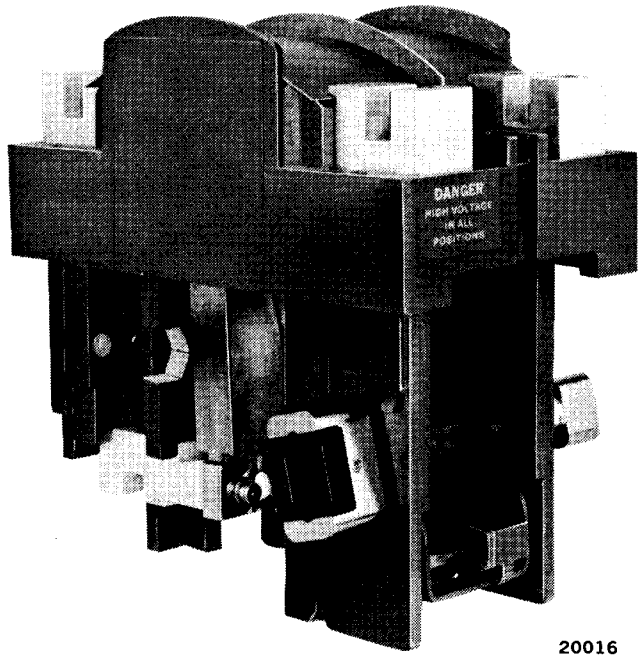

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Fig. 1 – Switch Module

SAFETY PRECAUTIONS

WARNING: The switch module was designed for specific application to set up various circuits where circuits and devices are enclosed in suitably protective cabinets. Care has been taken in the design of the equipment to provide adequately for the safety of operating and service personnel, provided reasonable care and caution are exercised in the performance of operating and service functions.

The following safety considerations should always be carefully observed in the application, operation, or servicing of the equipment.

1. ELECTRICAL RATINGS of the equipment are values that should be considered to be EXTREMELY DANGEROUS to personnel.

2. EQUIPMENT SHOULD ALWAYS BE COMPLETELY DE-ENERGIZED BEFORE HANDLING OR PERFORMING ANY SERVICE OPERATIONS. Moving the switch contacts to the neutral position is not sufficient to render the equipment safe; the power lines must be disconnected or otherwise de-energized. If power lines are not de-energized, all parts of the device should be considered to be at maximum system voltage.

3. IF INSPECTION OF ENERGIZED EQUIPMENT IS NECESSARY, DO NOT TOUCH OR HANDLE ANY PARTS, OR INSPECT AT CLOSE RANGE. The discharge of hot gases and particles is always possible when the device is operated in an energized circuit.

4. Operating temperatures for the switch are high. Some parts of these devices may reach temperatures in excess of 200° F. SERIOUS BURNS CAN RESULT FROM HANDLING THE EQUIPMENT AFTER IT HAS BEEN IN SERVICE AND BEFORE IT HAS BEEN ALLOWED TO COOL.

SWITCH MODULE MAINTENANCE

Only skilled personnel familiar with electrical equipment and the hazards involved should be permitted to service the switch module. All safety precautions must be observed.

Minimum maintenance is required to keep the switch module in serviceable condition. Moving mechanical parts should be free from excess friction. Parts should also be checked for excessive wear. The bearing surfaces of the switch are designed to operate without lubrication. Do not oil or grease at any time.

Overheated parts are a sign of trouble and are recognized by oxidation of the silver plating on copper parts and by discoloration of molded parts. Pitting and discoloration on the contact tips are not critical until such erosion has consumed most of the contact material. Contacts are normally oxidized and smoked from regular service. Other switch parts should not show effects of high temperature operation.

The switch module should be kept clean, connections tight, and should be inspected and serviced at intervals as specified in the applicable Scheduled Maintenance Program.

Switch module maintenance parts have been grouped into 12 kits, Fig. 2. Refer to Service Data at rear of this Maintenance Instruction for kit contents and part numbers.

CONTACT MAINTENANCE

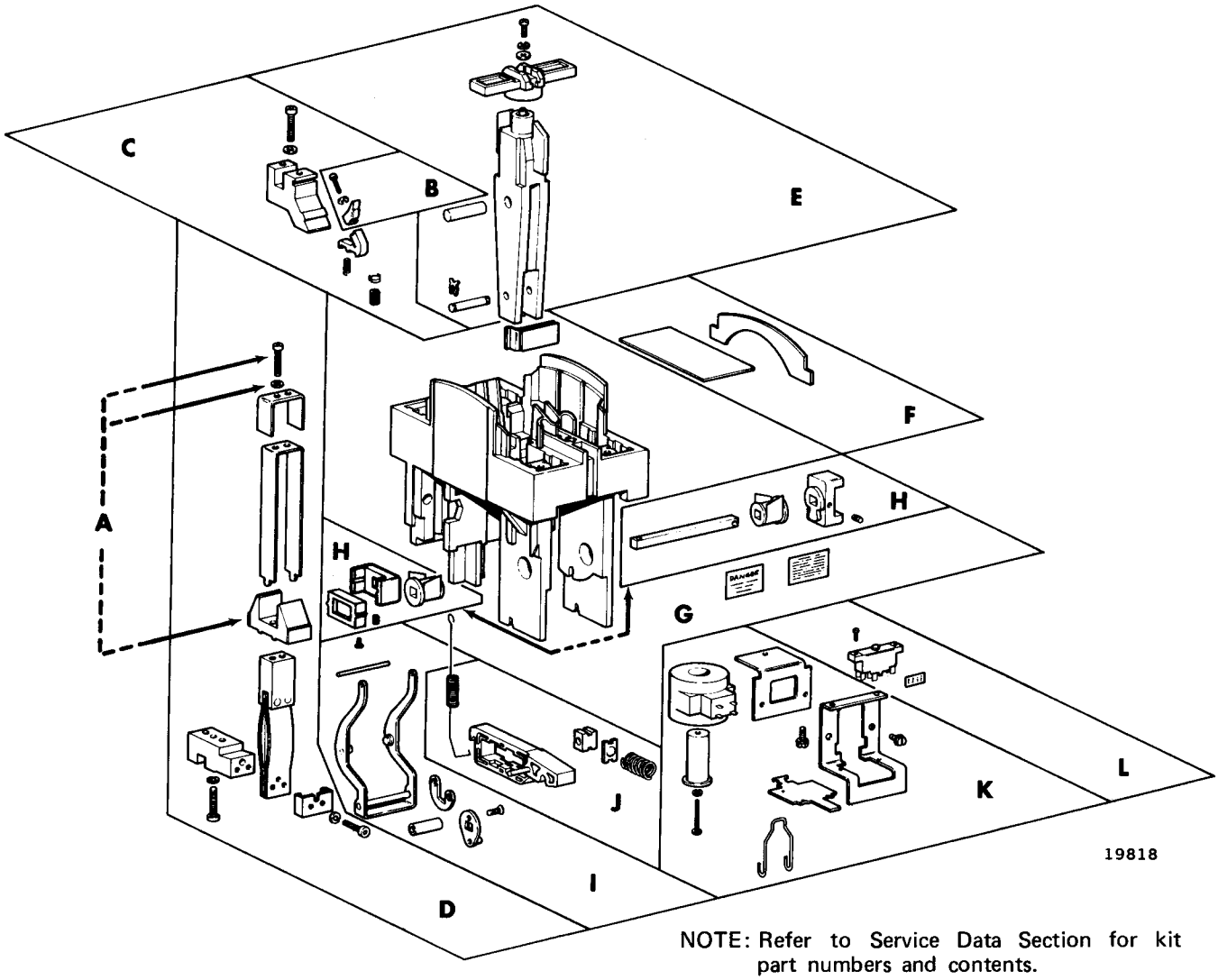
The contacts are not intended to interrupt large currents and are not likely to require much servicing, but should be inspected at regular intervals.

The contact tips must be free of foreign objects, but need not be smooth. Contact tips should not be cleaned, dressed or filed. The contacts will operate satisfactorily even though blackened, pitted, or eroded. Overtravel is provided at the contact support to compensate for allowable wear.

CAUTION: When performing locomotive circuit checks that require circuit isolation at a particular switch module, do not place paper or other insulating material between the contacts. Foreign material left on the contact tips can lead to failure of the switch. Refer to the applicable Locomotive Service Manual for instructions on centering an individual switch of the transfer switch assembly.

INSPECTION

1. Remove top covers by pushing one end of each cover out of slot in top terminal molding and lift off.



NOTE: Refer to Service Data Section for kit part numbers and contents.

Fig. 2 – Switch Module Parts Kits

2. Inspect the four stationary contact assemblies, Fig. 3, (three contacts to each assembly). Refer to Fig. 4 to determine if contacts are usable or require replacement. If one is eroded beyond wear limits shown in Fig. 4, replace stationary contact assembly and the mating movable contact.

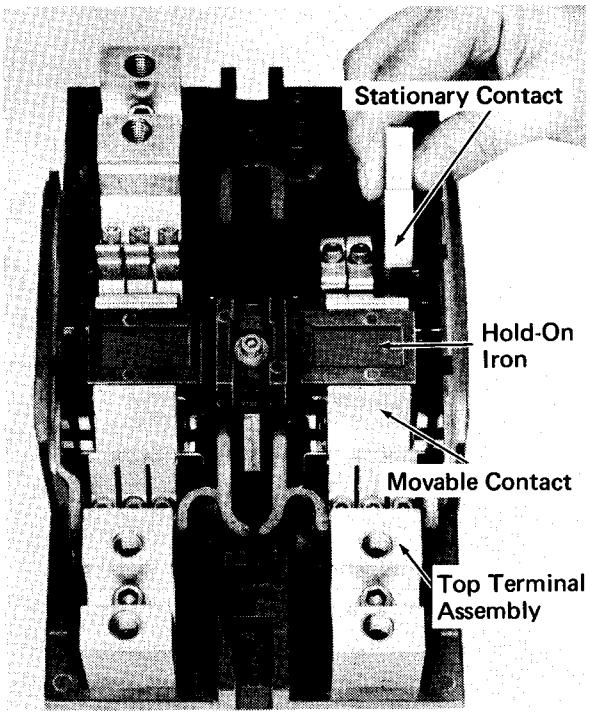
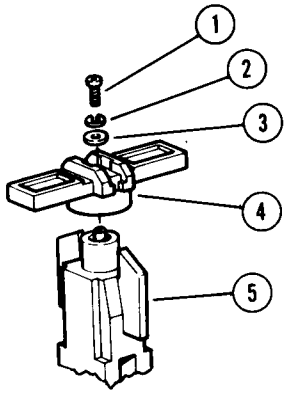


Fig. 3 – Contact Assemblies

REMOVING AND REPLACING MOVABLE CONTACT ASSEMBLY

1. Remove operating head (4, Fig. 5) from operating lever (5) by removing screw (1) and washers (2, 3).



1. Screw
2. Lockwasher
3. Plain Washer
4. Operating Head
5. Operating Lever

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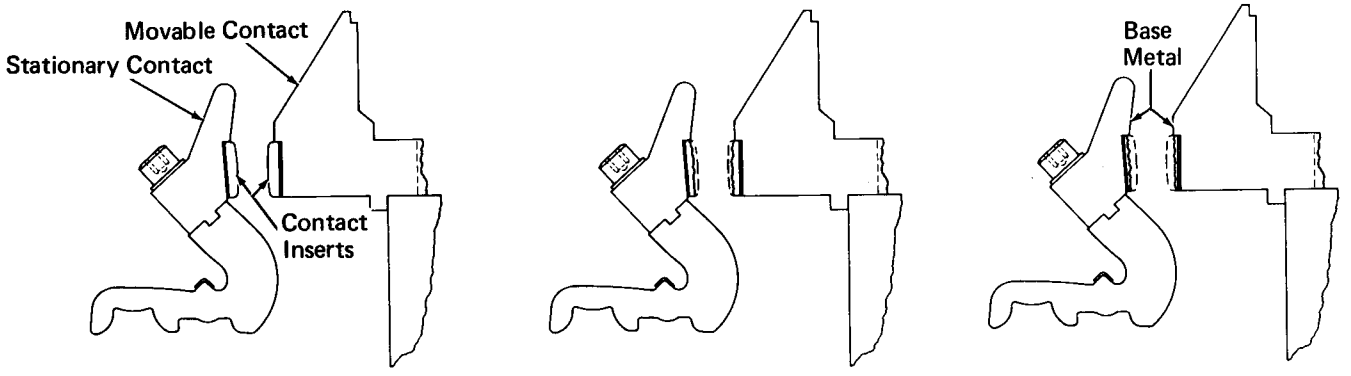
Fig. 5 – Operating Head Assembly



New Contacts

These contact inserts are rough, but still have enough insert material remaining to make them usable.

Contact inserts are worn to contact base metal. Replace stationary and movable contacts.

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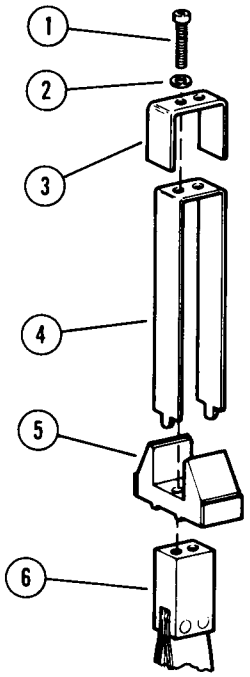
Fig. 4 – Contact Wear Limits

2. Remove two screws (1, Fig. 6), lockwashers (2), hold-on iron (3), pivot bracket (4), and movable contact (5).



1. Screw
2. Lockwasher
3. Hold-On Iron
4. Pivot Bracket
5. Movable Contact
6. Movable Contact Support

Fig. 6 – Movable Contact Assembly

3. Place new movable contact (5) over top of movable contact support (6). Add pivot bracket (4), making certain that lower pivot ends engage with pivot guides. Add the hold-on iron (3) and two new screws and two new lockwashers (1,2), but do not tighten screws at this time.

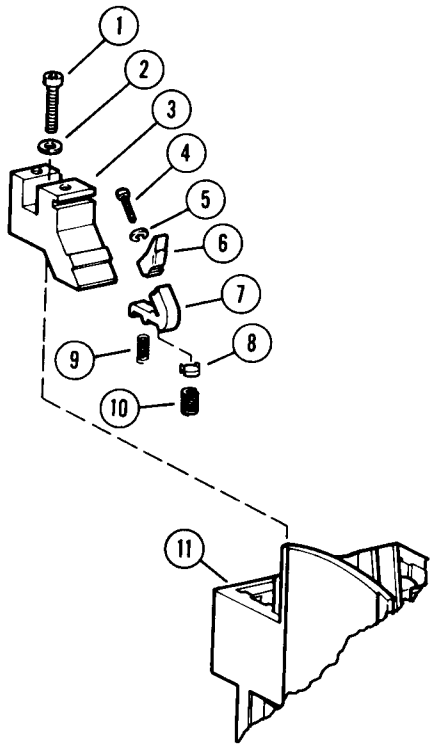
4. Center the hold-on iron within the top terminal molding to provide a minimum of 0.015" clearance on each side. Tighten screws.

5. Repeat Steps 1 thru 4 at the second movable contact assembly.

REMOVING AND REPLACING STATIONARY CONTACT ASSEMBLIES

If inspection has determined that any one of the three stationary contact tips (6, Fig. 7) requires replacement, replace all three to maintain proper contact pressure distribution.

1. Remove screw (1, Fig. 7), releasing top terminal assembly (3) with the three stationary contact tips (6) and supports (7).



1. Screw
2. Lockwasher
3. Top Terminal Assembly
4. Screw
5. Lockwasher
6. Stationary Contact Tip
7. Stationary Contact Support
8. Pivot Spring Cap
9. Wipe Spring
10. Pivot Spring
11. Top Terminal Molding

Fig. 7 – Stationary Contact Assembly

2. Remove three wipe springs (9) and three pivot springs (10) with spring caps (8) from top terminal molding (11).

3. Repeat Steps 1 and 2 to remove the stationary contact assemblies in the remaining three locations.

4. Mate new stationary contact tips (6) to stationary contact supports (7). Secure the tips with new screws (4) and lockwashers (5). Ensure tips are centered on supports.

5. Ensure support areas for wipe springs (9) and pivot springs (10) are free of all foreign particles.

6. Place a wipe spring (9) over each of the three small pins in one of the four contact pockets.

7. Place a pivot spring (10) over each of the three larger pins in the same contact pocket.

8. Attach a pivot spring cap (8) to the bottom of each of the three stationary contact supports (7) by the spring tension of the two ears on spring cap. Bend ears inward, if necessary, to bind on the contact support.

9. Place one contact assembly with attached spring cap over wipe spring and pivot spring, making certain that the spring cap is firmly seated over the top of pivot spring. Position the remaining two contact assemblies in the same manner.

10. Insert the pointed nose of top terminal assembly (3) into the cavity in back of the stationary contact assembly, engaging the pivots of the mating parts.

11. Secure top terminal assembly (3) to top terminal molding (11) with screw (1) and lockwasher (2). Be certain the pivots remain engaged and that the rear end of the top terminal assembly touches the top terminal molding.

12. Check for freedom of motion at each stationary contact. A clearance of 0.020" to 0.045" shall be maintained behind the top edge of each stationary contact, Fig. 8.

13. Install the remaining three sets of stationary contacts and top terminal assemblies using the same procedure.

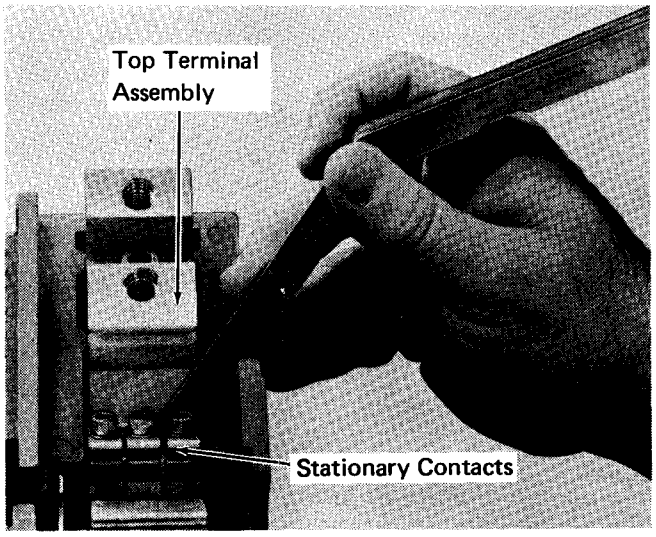


Fig. 8 – Checking Stationary Contact Clearance

REBUILDING SWITCH MODULE

Under ordinary circumstances, replacement of the contacts is the extent of periodic maintenance required to ensure reliable operation. However, if the switch module is to be serviced or rebuilt for other reasons, use the following procedure.

WARNING: Do not disassemble switch module in the control cabinet. Disconnect switch module power cables and leads and remove switch module from the cabinet.

DISASSEMBLY

Remove top cover, Fig. 9, by pushing one end of each cover out of slot in top terminal molding and lifting off. Remove the vertical barrier.

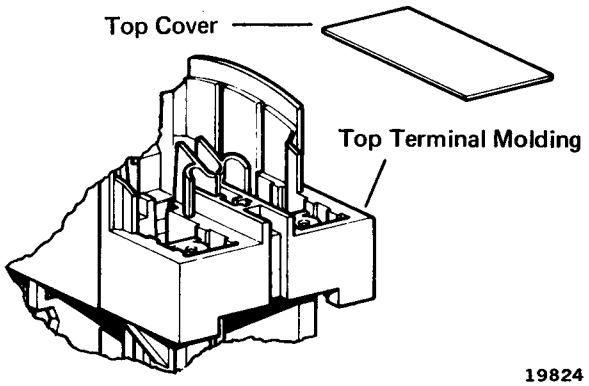


Fig. 9 – Top Cover Assembly

MOVABLE CONTACT ASSEMBLY

1. Remove operating head (4, Fig. 10) from operating lever (5) by removing screw (1) and washers (2, 3).

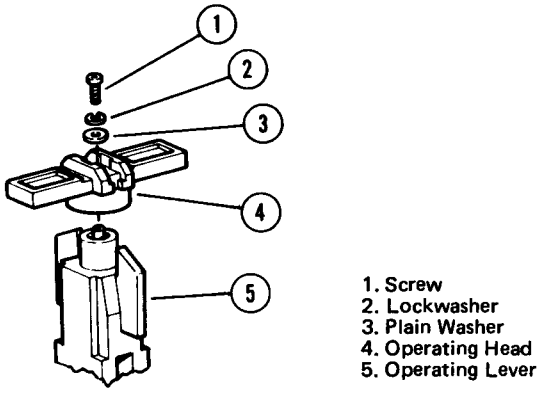


Fig. 10 – Operating Head Assembly

2. Remove two screws (1, Fig. 11) lockwashers (2), hold-on iron (3), pivot bracket (4), and movable contact (5).

3. Remove screw (10), releasing bottom terminal (12) with movable contact support (6).

4. Remove two screws (7) and lockwashers (8), releasing bottom terminal (12) and pivot guide (9) from movable contact support (6).

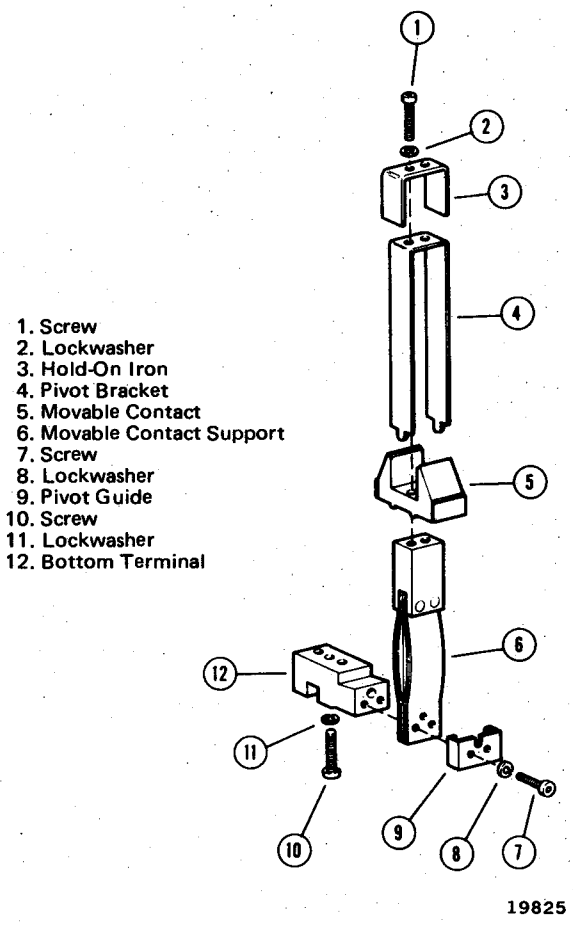


Fig. 11 – Movable Contact Assembly

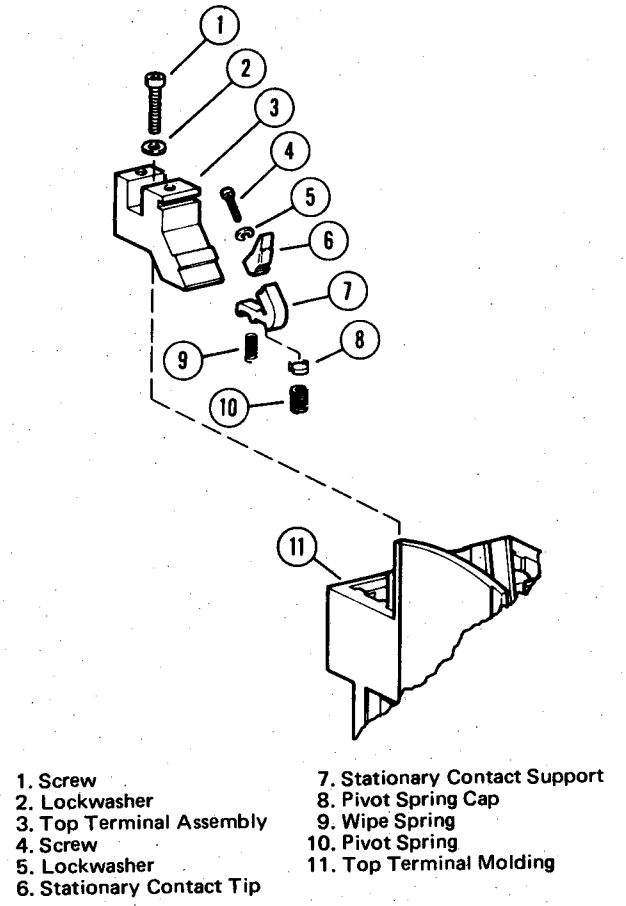


Fig. 12 – Stationary Contact Assembly

5. Repeat Steps 2, 3, and 4 to release the second movable contact assembly.

STATIONARY CONTACT ASSEMBLY

1. Remove screw (1, Fig. 12), releasing top terminal assembly (3) with the three stationary contact tips (6) and supports (7).

2. Remove three wipe springs (9) and three pivot springs (10) with spring caps (8) from top terminal molding (11).

3. Repeat Steps 1 and 2 to remove the stationary contact assemblies in the remaining three locations.

CONTACT SPRING CARRIER ASSEMBLY

1. Invert switch module for easy access to the parts.

2. Unhook spring (12, Fig. 13) from contact spring carrier (11) and push down through top terminal molding (4). Turn spring 90° and pull out through slot in top terminal molding (4).

3. Manually move operating lever (3) until round shaft of the contact spring carrier assembly drops into locking notches in the top terminal molding.

4. Rotate main shaft (5) forward until roll pin in the drive lever (6) clears front end of contact spring carrier (11).

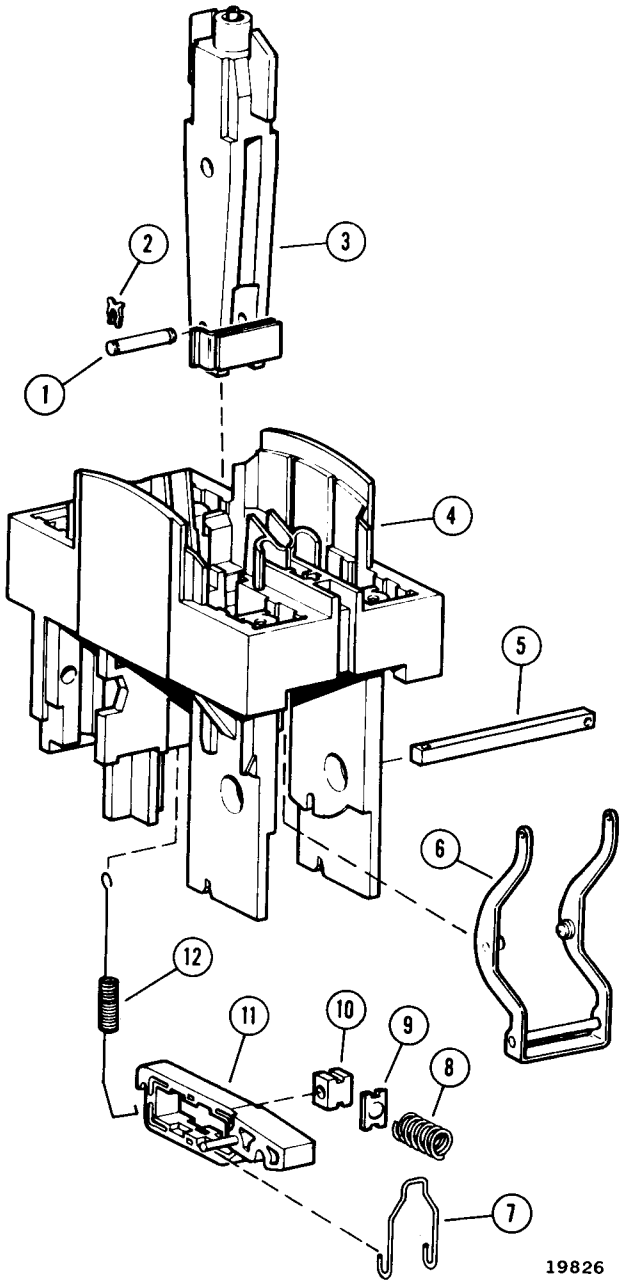
5. If a motor cut-out assembly is part of the switch module (switch module 8453175 only), lift the hooks of the motor cut-out link (7) from the round shaft of the contact spring carrier (11).

6. Compress the rear end of one X-washer (2) and remove it from pin (1). The X-washer should be replaced with new X-washer.

7. Push pin (1) out of operating lever (3) releasing the contact spring carrier assembly.

COMPRESSION SPRING REMOVAL

1. Remove contact spring carrier assembly from switch module as indicated in the Contact Spring Carrier Assembly disassembly paragraph.



1. Lower Level Pin
2. X-Washer
3. Operating Lever
4. Top Terminal Molding
5. Main Shaft
6. Drive Lever
* 7. Motor Cut-Out Link
8. Compression Spring
9. Spring Seat
10. Sliding Block
11. Contact Spring Carrier
12. Spring

*On Switch Module 8453175 Only

Fig. 13 – Contact Spring Carrier Assembly

2. Push either compression spring (8, Fig. 13) out of the assembly by applying pressure at the point where the spring contacts the spring seat (9).

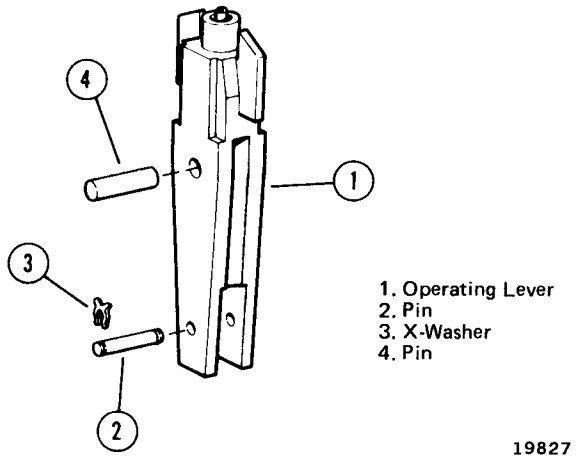
3. Repeat Step 2 for remaining compression spring.

4. Slide the two spring seats (9) and sliding block (10) out of contact spring carrier (11).

OPERATING LEVER ASSEMBLY

NOTE: Movable contact support assemblies must be removed as indicated in the Movable Contact Assembly disassembly paragraph, prior to operating lever removal.

1. If contact carrier assembly has not been removed as indicated previously, and pin (2, Fig. 14) is in operating lever (1), remove pin (2).



1. Operating Lever
2. Pin
3. X-Washer
4. Pin

Fig. 14 – Operating Lever Assembly

2. Remove pin (4) from operating lever (1).

3. Lift operating lever (1) from top of the switch module.

MAIN SHAFT ASSEMBLY

1. Release setscrews (5 and 9, Fig. 15) in each of the couplings (4 and 11).

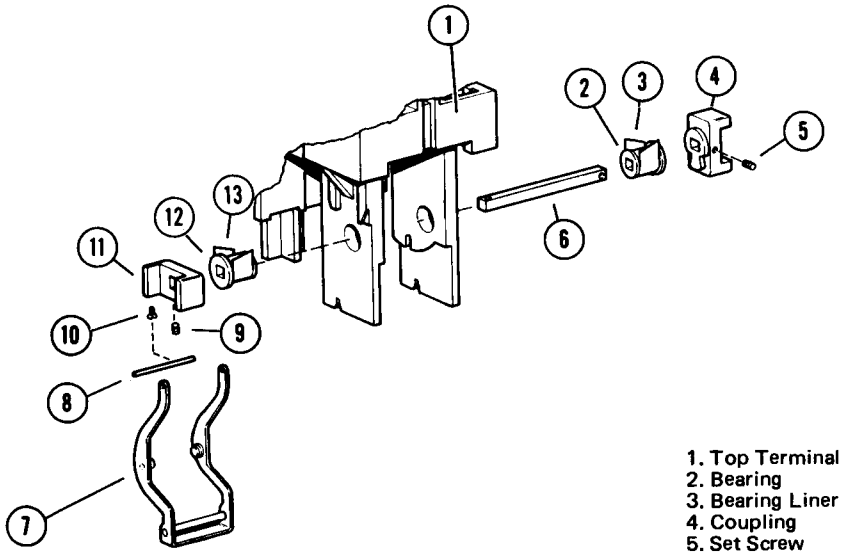
2. Remove couplings (4, 11).

3. Withdraw the main shaft (6) from either side, releasing bearings (2, 12) and bearing liners (3, 13).

4. To remove drive linkage (7) and bearing shaft (8), remove machine screw (10).

MOTOR CUT-OUT ASSEMBLY, (Switch Module 8453175 Only)

NOTE: If contact spring carrier (14 through 18, Fig. 16) has been removed from switch module, skip Steps 1 and 2 to remove motor cut-out assembly from switch module.



1. Top Terminal Molding
2. Bearing
3. Bearing Liner
4. Coupling
5. Set Screw
6. Main Shaft
7. Drive Lever
8. Bearing Shaft
9. Set Screw
10. Machine Screw
11. Coupling
12. Bearing
13. Bearing Liner

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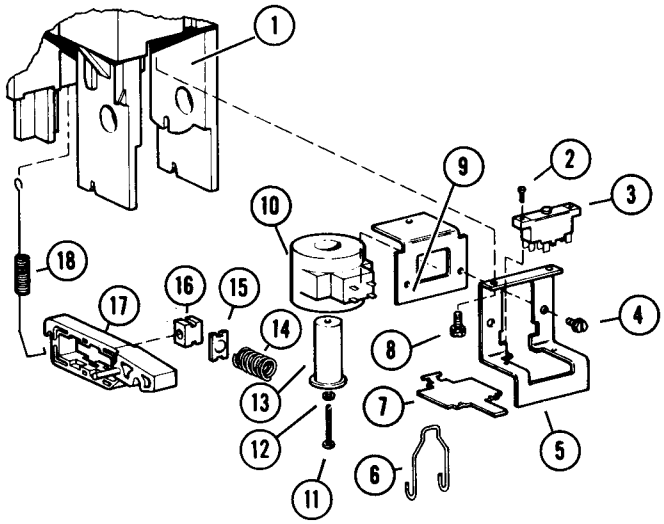
Fig. 15 – Main Shaft Assembly



1. Top Terminal Molding
2. Screw
3. Limit Switch
4. Screw
5. Support Bracket
6. Link
7. Armature
8. Screw
9. Magnet Yoke
10. Magnet Coil
11. Screw
12. Lockwasher
13. Magnet Core
14. Compression Spring
15. Spring Seat
16. Sliding Block
17. Contact Spring Carrier
18. Spring

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Fig. 16 – Motor Cut-Out Switch

1. Lift end of contact spring carrier (17, Fig. 16) until the round shaft enters into the locking notches in top terminal molding (1).

2. Lift the hooked ends of link (6) from the round shaft of the contact spring carrier (17).

3. Remove two screws (8) releasing motor cut-out from the top terminal molding (1).

4. Remove two screws (4) separating armature (7) and support brackets (5) from the assembly of magnet yoke (9) and magnet core (13).

5. Remove screw (11) separating magnet coil (10) from magnet yoke (9) and magnet core (13).

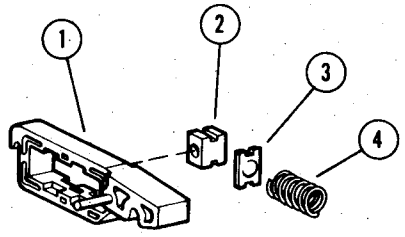
6. Remove two screws (2) to release limit switch (3).

BUILDING SUBASSEMBLIES

To rebuild the switch module, start by rebuilding the major subassemblies. Perform the following procedures.

CONTACT SPRING CARRIER ASSEMBLY

1. Place contact spring carrier (1, Fig. 17) in a holding fixture.



1. Contact Spring Carrier
2. Sliding Block
3. Spring Seat
4. Compression Spring

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Fig. 17 – Contact Spring Carrier Assembly

2. Place one spring seat (3) into position with domed face upward.

3. Place compression spring (4) against spring seat (3). Compress the compression spring with a flat file until it can be positioned against the contact spring carrier as shown in Fig. 18.

4. Turn the assembly end for end, and place sliding block (2, Fig. 17) against the first spring seat (3), so the dovetails of the sliding block interlock with the contact spring carrier (1).

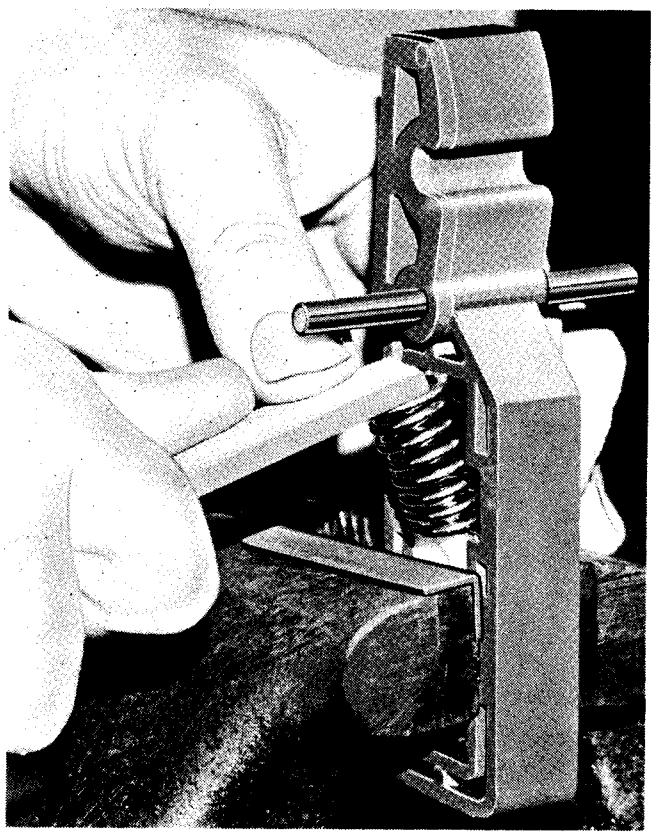

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Fig. 18 – Inserting Spring Into Contact Spring Carrier

5. Place the second spring seat (3) over sliding block (2), domed face upward.

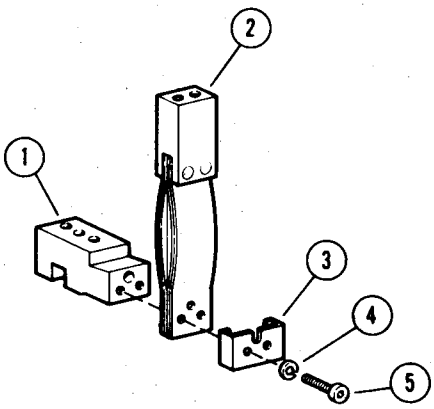
6. Place second compression spring (4) against its spring seat (3). Compress the compression spring with a flat file until it can be positioned in the contact spring carrier.

MOVABLE CONTACT SUPPORT AND BOTTOM TERMINAL ASSEMBLY

1. Position movable contact support (2, Fig. 19) against bottom terminal (1) so rivet head engages with clearance hole in the end of bottom terminal.

2. Place pivot guide (3) around end of movable contact support (2).

3. Assemble with two screws (5) and lockwashers (4), but do not tighten screws at this time.



1. Bottom Terminal
2. Movable Contact Support
3. Pivot Guide
4. Lockwasher
5. Screw

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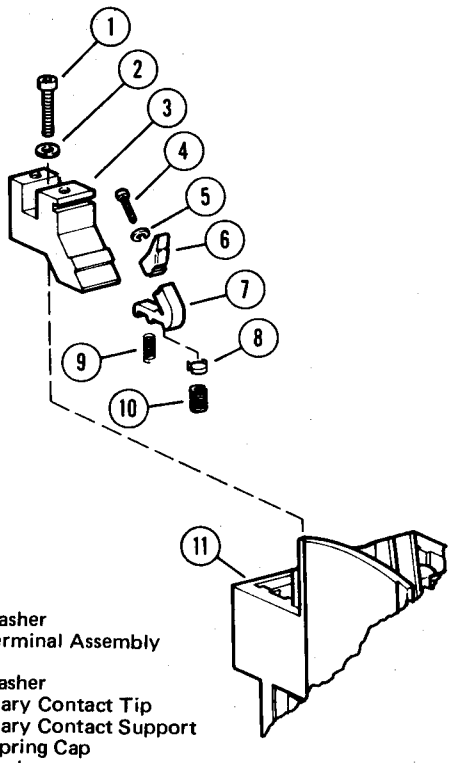
Fig. 19 – Movable Contact Support And Bottom Terminal Assembly

STATIONARY CONTACT ASSEMBLIES

1. Mate stationary contact tips (6, Fig. 20) to stationary contact supports (7). Secure the tips with screws (4) and lockwashers (5). Ensure tips are centered on supports.



1. Screw
2. Lockwasher
3. Top Terminal Assembly
4. Screw
5. Lockwasher
6. Stationary Contact Tip
7. Stationary Contact Support
8. Pivot Spring Cap
9. Wipe Spring
10. Pivot Spring
11. Top Terminal Molding

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Fig. 20 – Stationary Contact Assembly

2. Ensure support areas for wipe springs (9) and pivot springs (10) are free of all foreign particles.

3. Place a wipe spring (9) over each of the three small pins in one of the four contact pockets in the top terminal molding (11).

4. Place a pivot spring (10) over each of the three larger pins in the same contact pocket.

5. Attach a pivot spring cap (8) to the bottom of each of the three stationary contact supports (7) by the spring tension of the two ears on spring cap. Bend ears inward, if necessary, to bind on the contact support.

6. Place one contact assembly with attached spring cap over wipe spring and pivot spring, making certain that the spring cap is firmly seated over the top of pivot spring. Position the remaining two contact assemblies in the same manner.

7. Insert the pointed nose of top terminal assembly (3) into the cavity in back of the stationary contact assembly, engaging the pivots of the mating parts.

8. Secure top terminal assembly (3) to top terminal molding (11) with screw (1) and lockwasher (2). Be certain the pivots remain engaged and that the rear end of the top terminal assembly touches the top terminal molding.

9. Check for freedom of motion at each stationary contact. A clearance of 0.020" to 0.045" shall be maintained behind the top edge of each stationary contact, Fig. 21.

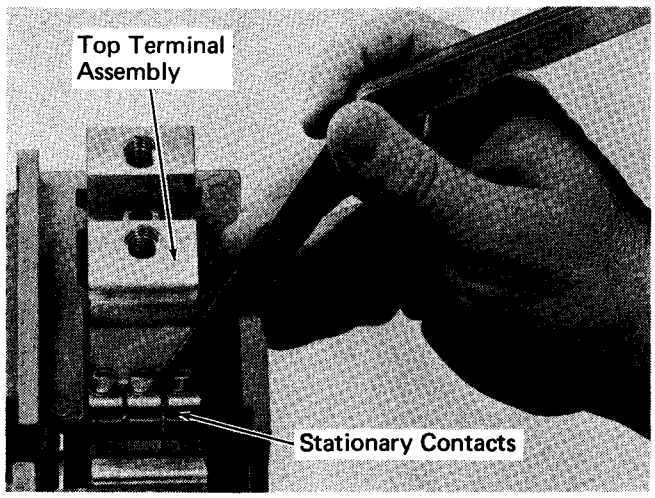

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Fig. 21 – Checking Stationary Contact Clearance

10. Install the remaining three sets of stationary contacts and top terminal assemblies using the same procedure.

DRIVE LINKAGE ASSEMBLY

1. Place long legs of links (2, Fig. 22) on studs on inside of drive lever (1) in the position shown.

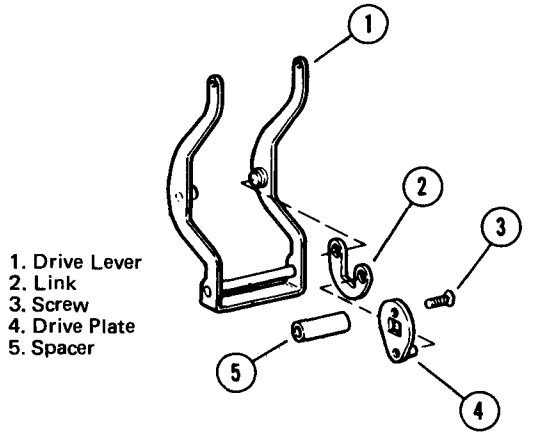


Fig. 22 – Drive Linkage Assembly

2. Place studs on drive plates (4) through the holes on the short legs of links (2) from the inside.

3. Position spacer (5) between holes in drive plates (4) and secure with screws (3). Apply locktite to screw threads.

MOTOR CUT-OUT ASSEMBLY, (Switch Module 8453175 Only)

1. Position magnet coil (10, Fig. 23) onto magnet yoke (9) with coil terminals through the rectangular window on magnet yoke (9).

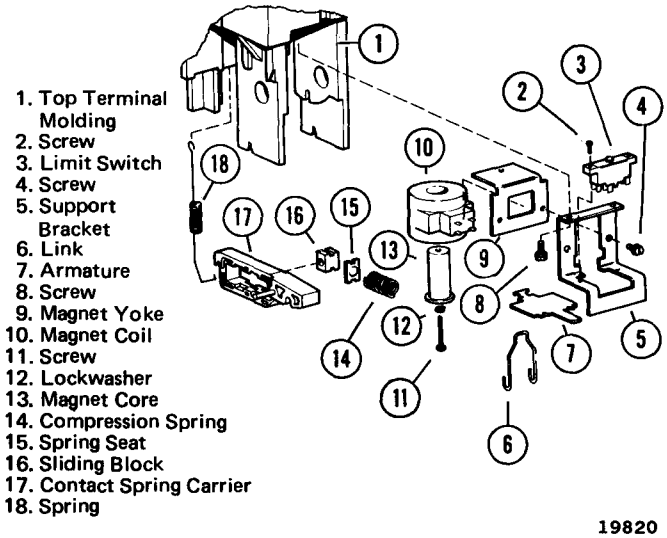


Fig. 23 – Motor Cut-Out Switch

2. Remove magnet coil (observing which end is the "top"). Place a 1/16" bead, 1-1/2" diameter, of silicone RTV compound on the magnet yoke (9) where the magnet coil (10) was resting.

3. Replace magnet coil (10) in its original position, insert magnet core (13), and secure with screw (11) and lockwasher (12).

4. Place armature (7) over magnet core (13) and magnet yoke (9) with the embossed tabs downward and overhanging the magnet yoke (9).

5. Place support bracket (5) over armature (7) and secure with two screws (4).

6. Place limit switch (3) between tang of armature (7) and ledge on support bracket (5) over tapped holes. Secure with screws (2).

FINAL ASSEMBLY

Perform the following procedure to complete the switch module assembly.

1. Place bearing shaft (44, Fig. 24) through the two holes in drive lever (43).

2. Place bearing shaft (44) in slots in top terminal molding (55) and secure with screw (46) between legs of drive lever (43). Apply Locktite to screw (46).

3. Place coupling (12) on main shaft (9) so that set screw (13) engages with hole in shaft and tighten set screw.

4. Place bearing (10) over main shaft (9) with large end against coupling (12). Place free end of main shaft (9) through right-side bearing hole in top terminal molding (56).

5. Wrap bearing liner (11) around bearing (10) and push into right-side bearing hole in top termnal molding (56).

6. Rotate main shaft (9) so right-hand set screw hole faces forward. Push shaft through drive plate (32) with links (33) at bottom. Push shaft through left-side bearing hole.

7. Place second bearing (48) over shaft with large end outward.

8. Wrap bearing liner (47) around bearing (48) and push into left-side hole in top terminal molding (56).

1. Screw
2. Lockwasher
3. Plain Washer
4. Operating Head
5. Operating Lever
6. Stationary Hold-On Iron
7. Cover
8. Arc Barrier
9. Main Shaft
10. Bearing
11. Bearing Liner
12. Coupling
13. Set Screw
*14. Screw
*15. Switch
*16. Screw
*17. Support Bracket
*18. Link
*19. Armature
*20. Screw
*21. Magnet Yoke
*22. Screw
*23. Lockwasher
*24. Magnet Core
*25. Magnet Coil
26. Compression Spring
27. Spring Seat
28. Sliding Block
29. Contact Spring Carrier
30. Spring
31. Screw
32. Drive Plate
33. Link
34. Spacer
35. Hollow Split Pin
36. Screw
37. Lockwasher
38. Pivot Guide
39. Movable Contact Support
40. Screw
41. Lockwasher
42. Bottom Terminal
43. Drive Lever
44. Shaft Bearing
45. Set Screw
46. Screw
47. Bearing Liner
48. Bearing
49. Coupling
50. Coupling Insert
51. Movable Contact
52. Pivot Bracket
53. Movable Hold-On Iron
54. Lockwasher
55. Screw
56. Top Terminal Molding
57. Lower Level Pin
58. "X" Type Washer
59. Upper Level Pin
60. Pivot Spring
61. Wipe Spring
62. Pivot Spring Cap
63. Stationary Contact Support
64. Stationary Contact
65. Lockwasher
66. Screw
67. Top Terminal Assembly
68. Lockwasher
69. Screw

*Motor Cut-Out Assembly, Switch Module 8453175 Only

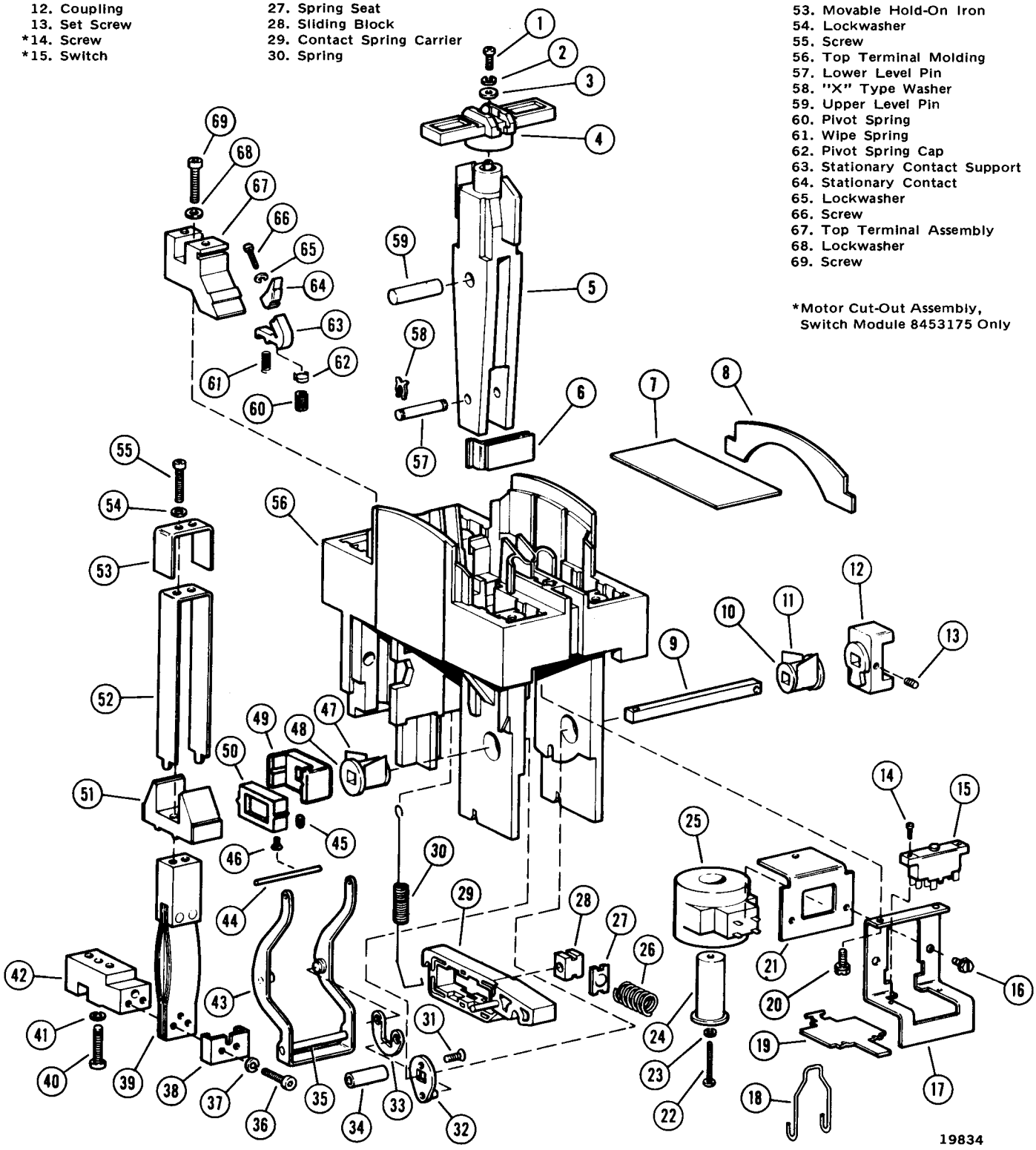


Fig. 24 – Switch Module Exploded View

9. Place coupling (49) onto left-end of shaft so that the set screw (45) is also engaged with hole in the shaft. Tighten set screw.

10. Position the operating lever (5) into top terminal molding (56) and hold in position with pin (59).

11. Place top terminal molding in the inverted position. Attach the two movable contact and bottom terminal assemblies (36 through 42) to top terminal molding (56) with screws (40) and lockwashers (41). Place the assembly in upright position.

12. Place movable contacts (51) over top end of movable contact supports (39). Add pivot brackets (52) making certain that lower pivot ends engage with the pivot guides (38). Add the movable hold-on irons (53) and secure with two screws (55) and lockwashers (54).

13. Center the movable hold-on irons (53) within the top terminal molding (56) to provide a minimum of 0.015" clearance on each side. Tighten the two screws (36) at the bottom terminal which were left loose in Building Subassemblies procedure.

14. Position the operating head (4) over the top of operating lever (5) with the ends of operating head engaging both movable contacts. Install screw (1), lockwasher (2), and plain washer (3).

15. Invert the switch module. Position the contact spring carrier assembly (26 through 29) into the forked end of operating lever (5). Couple contact spring carrier assembly to operating lever with pin (57). Clamp a new "X" type washer (58) into groove on each end of pin.

16. Push end of spring (30) with loop through slot in rear center of top terminal molding (56) and turn 90°.

17. Hook other end of spring (30) in slot at rear of contact spring carrier (29).

18. Press the front end of spring carrier (29) and rotate main shaft (9) until roll pin of drive lever (43) engages with notch in contact spring carrier (29).

19. Place the switch module in upright position. Push barrier (8) into the slots in top terminal molding (56).

20. Snap two covers (7) into position between notches in top terminal molding (56).

MOTOR CUT-OUT ASSEMBLY, (Switch Module 8453175 Only)

1. Slide the motor cut-out assembly into front cavity in the top terminal molding (56, Fig. 24) and secure with two screws (20).

2. Place center section of link (18) over hook on armature (19).

3. Lift front end of contact spring carrier (29) and hook ends of link (18) over round pin of contact spring carrier (29).

SERVICE DATA

SPECIFICATIONS

RATING . . . . . 1200 Amperes

HI POT

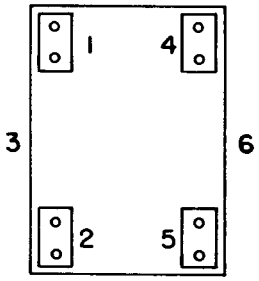
60 Hz, 1 Minute

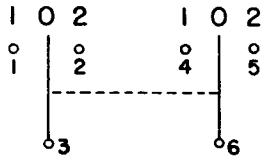
Contacts To Mounting

Between Poles . . . . . 5400 V RMS

Between Open Contacts

NOTE: Hi Pot values above 5400 volts are not recommended.

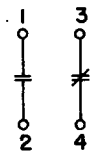




Main Contact Schematic Diagram

MOTOR CUT-OUT, SWITCH MODULE 8453175 ONLY

Coil Rating . . . . . 74 V DC
Coil Resistance (at 20° C) . . . . . 190 Ohms (±10%)
Coil Pickup (maximum at 20° C) . . . . . 48 V DC
Contact Gap (motor cut-out energized) . . . . . 0.094" minimum, after removing free motion in movable contact assembly



NOTE: Motor cut-out de-energized.

Limit Switch Schematic Diagram

MAINTENANCE PARTS

Switch module maintenance parts have been grouped into 12 kits. The kit part numbers and contents are as follows:

MOVABLE CONTACT ASSEMBLY KIT (Section A, Fig. 2) 8492373

Movable Contact
Lockwasher
Screw

SERVICE DATA (CONT'D)

STATIONARY CONTACT TIP KIT (Section B, Fig. 2) 8492374

Stationary Contact Tip
Lockwasher
Screw

TOP TERMINAL ASSEMBLY KIT (Section C, Fig. 2) 8492375

Top Terminal
Stationary Contact Support
Spring
Lockwasher
Screw
Pivot Spring Cap
Spring

MOVABLE CONTACT SUPPORT KIT (Section D, Fig. 2) 8492376

Contact Support Assembly
Bottom Terminal
Lockwasher
Screw
Pivot Guide
Lockwasher
Hold-On Iron
Screw
Pivot Bracket

OPERATING LEVER KIT (Section E, Fig. 2) 8492377

Operating Lever
Operating Head
Upper Pin
Lower Pin
Washer
Lockwasher
Washer
Screw

COVER KIT (Section F, Fig. 2) 8492378

Cover
Barrier

BASE MOLDING KIT (Section G, Fig. 2) 8492379

Top Terminal Molding
Hold-On Iron
Label
Label

SERVICE DATA (CONT'D)

SWITCH COUPLING KIT (Section H, Fig. 2) 8492380

Main Shaft
Coupling
Bearing
Screw
Bearing
Coupling
Coupling Insert

DRIVE LEVER KIT (Section I, Fig. 2) 8492381

Drive Lever
Link
Plate
Spacer
Screw
Bearing
Screw

CONTACT SPRING CARRIER KIT (Section J, Fig. 2) 8492382

Contact Spring Carrier
Sliding Block
Compression Spring
Spring Seat
Spring

MOTOR CUT-OUT KIT (Section K, Fig. 2) 8492383

Magnet Yoke
Magnet Coil
Magnet Core
Armature
Bracket
Lockwasher
Screw
Screw
Link
Screw

MOTOR CUT-OUT SWITCH KIT (Section L, Fig. 2) 8492384

Limit Switch
Screw
Label

Silicone (RTV) Compound, 5 oz tube 8453256
Locktite Retaining Compound, 10 cc tube 8471182