ELECTRO-MOTIVE

MAINTENANCE INSTRUCTION

M.I. 5424
*Rev. B

POWER CONTACTORS

DESCRIPTION

The data contained in this Maintenance Instruction will apply to contactors 8461331, 8461332, and 8461333 unless specifically identified.

The power contactor, Fig. 1, is a single-pole, normally open device, which connects and interrupts DC current up to 1000 amperes at 1200 volts. It is designed for application in power circuits of diesel electric equipment.

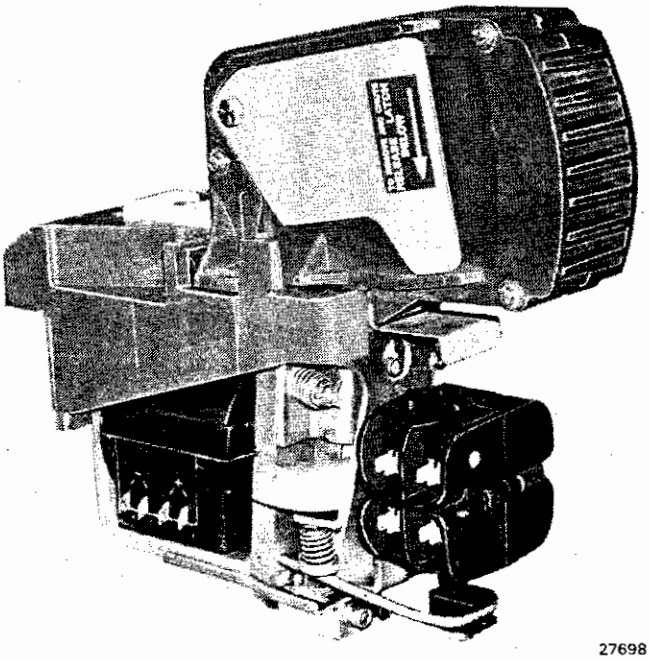

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Fig.1 – Power Contactor

A four circuit interlock switch is enclosed in a dustproof housing. Circuit connections for the interlocks are provided by external terminal tabs. Terminal identification letters are molded into the interlock housing. Power contactors 8461331, 8461332, and 8461333 are the same basic contactor with each having a different interlock assembly.

Arc interruption takes place wholly within the arc chute. The arc is elongated and cooled through arc splitters. The magnetic field required to speed interruption is provided by an intermittent duty shunt blowout coil. The arc chute is designed to operate under normal conditions of rating and environment with the vent located no closer than three inches from an interfering surface.

The contactor has a "Line Current Dropout" feature to prevent the contacts from opening when the current exceeds 1600 ± 400 amperes even though the control coil is de-energized.

The contactor is capable of closing on 1200 amperes at rated voltage. Much higher fault currents may be handled through closed main contacts for short intervals without contact damage.

SAFETY PRECAUTIONS

WARNING

This power contactor was designed for specific application to circuits of diesel-electric equipment where the circuits and devices are enclosed in suitably protective cabinets. Care has been taken in the design of the equipment to provide for safety of operating and service personnel, provided reasonable care is 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.

*This bulletin is revised and supersedes previous issues of this number. Areas of change are indicated by vertical bars in the margins.

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. De-energizing the operating coil is not sufficient to render the equipment safe; the power lines must also be disconnected or otherwise de-energized. If power lines are not de-energized, all parts of the device should be considered to be at the maximum system voltage.

3. IF INSPECTION OF ENERGIZED EQUIPMENT IS NECESSARY, DO NOT TOUCH OR HANDLE ANY PARTS. DO NOT STAND IN FRONT OF THE EQUIPMENT OR AT CLOSE RANGE TO PERFORM VISUAL INSPECTIONS. The discharge of hot gases and particles is always likely when the contactor is operated in an energized circuit.

4. NEVER ATTEMPT TO OPERATE THE POWER CONTACTOR WITHOUT HAVING THE ARC CHUTE PROPERLY IN PLACE.

5. NEVER ATTEMPT TO REMOVE THE ARC CHUTE WHILE THE POWER CONTACTOR IS IN AN ENERGIZED OR CLOSED POSITION. Such action would be extremely dangerous and would likely result in extensive damage.

6. Operating temperatures for the power contactor are high. Some parts of these devices may normally reach temperatures in excess of 93° C (200° F). SERIOUS BURNS CAN RESULT FROM HANDLING THE EQUIPMENT AFTER IT HAS BEEN IN SERVICE AND BEFORE IT HAS BEEN ALLOWED TO COOL.

MAINTENANCE

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

Minimum maintenance is required to keep the power contactor 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 contactor are designed to operate without lubrication. Do NOT oil or grease at any time.

Contacts and arc chutes are normally oxidized and smoked from regular service. Other contactor parts should not show effects of high temperature operation.

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

NOTE

For complete disassembly and assembly procedures for contactor, refer to "Rebuilding Contactor."

Torque values for all fasteners unless otherwise noted.

Screw Size	Torque N·m (in-lbs)
10-32	1.72-2.3 (15-20)
0.250-20	6.2-7.3 (55-65)
0.312-18	9.6-11.3 (85-100)
0.375-16	22.6-25.4 (200-225)

MAIN AND ARC CONTACT TIPS

The contact tips should be free of foreign matter, 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 3.18 mm (0.125") total contact wear.

WARNING

De-energize the system before servicing the contactor.

INSPECTION OF MAIN CONTACT TIPS

1. Pull arc chute latch spring forward and remove arc chute by lifting front end away from main body of contactor, Fig. 2.

2. Inspect the two stationary contact tips and the movable contact tip. Refer to Fig. 3 to determine if contacts are usable or require replacement. If one is eroded beyond wear limits in Fig. 3, replace stationary contact tips and movable contact tip.

INSPECTION OF ARC CONTACT TIPS

1. Modify a new arc chute as shown in Fig. 4 for use during inspection. The opening in the side of the arc chute allows visual inspection of arc

contact tips, and permits measurement of the gap between the main movable contact assembly and the flexible leaf of the movable arc tip assembly.

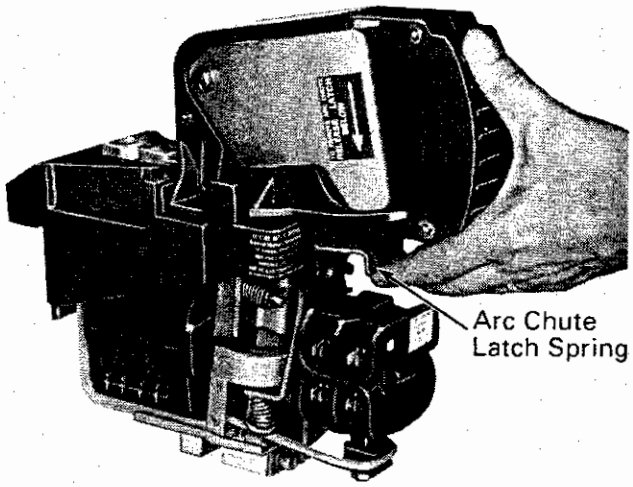

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Fig.2 – Removing Arc Chute

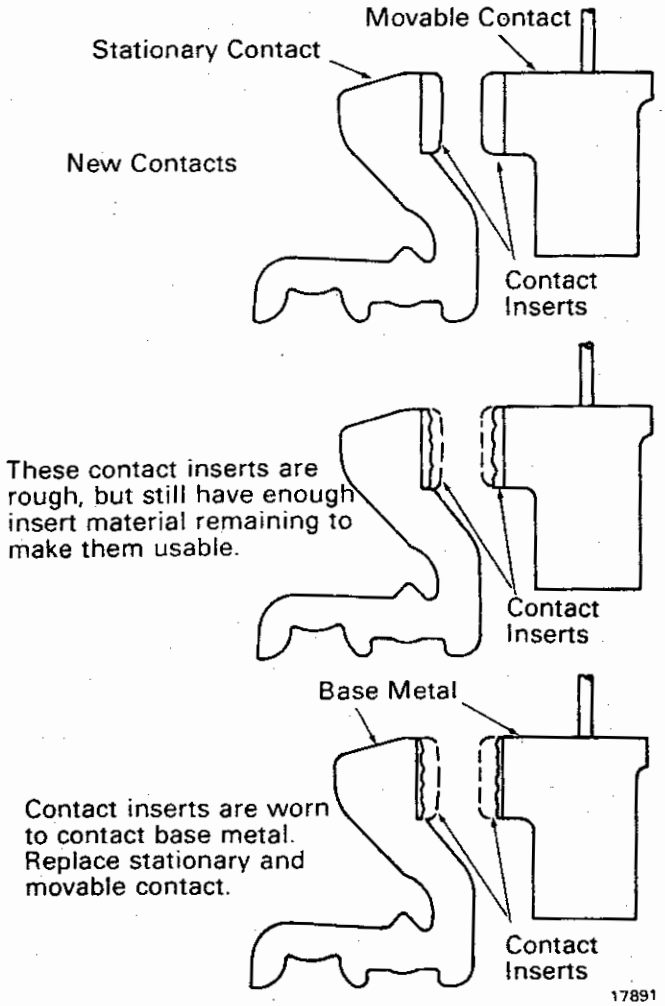

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Fig.3 – Main Contact Wear Limits

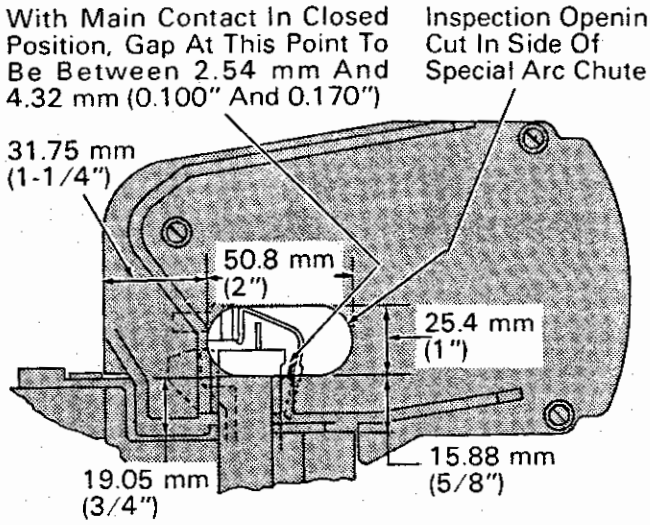

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Fig.4 – Modified Arc Chute For Inspection Purposes

NOTE

The tolerance given for gap measurement is adjusted to the fact that there has been no wear on the stationary arc tip of the modified arc chute used for the inspection.

2. Remove original arc chute from contactor to be inspected and install modified chute.

3. Energize power contact coil with 74 DC to clamp main and arc contact tips closed.

4. Check that arc contact tips make good contact, then measure gap between main movable contact and the flexible leaf of the movable arc contact assembly at the point indicated in Fig. 4.

5. Gap should be between 2.54 mm (0.100") and 4.32 mm (0.170"). A gap less than 2.54 mm (0.100") indicates excessive arc contact tip wear. The movable arc contact assembly, as well as the stationary arc contact assembly in the original chute, should be renewed.

   A gap greater than 4.32 mm (0.170") indicates excessive main contact tip wear or mechanical damage at the movable arc contact assembly.

REMOVAL OF MOVABLE ARC TIP ASSEMBLY

1. Pull arc chute latch spring forward and remove arc chute by lifting front end away from main body of contactor, Fig. 2.

2. Remove screw and lockwasher, Fig. 5, holding the movable arc tip assembly to the movable contact assembly.

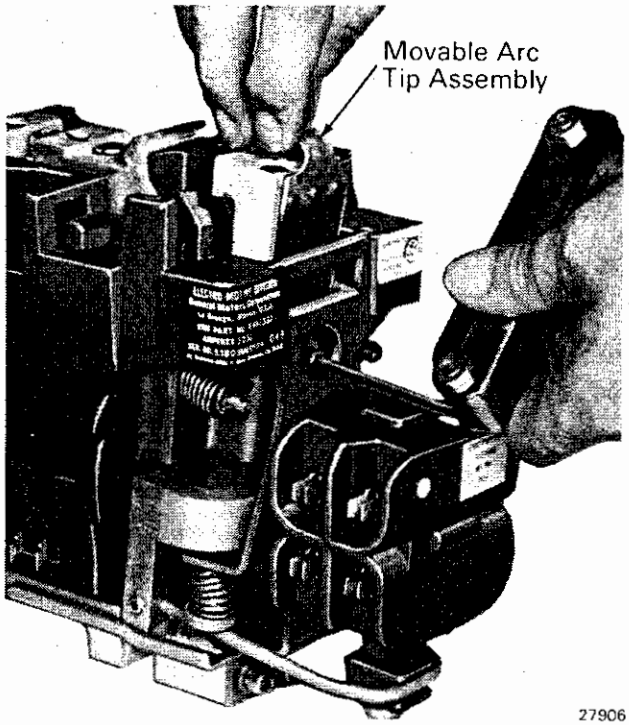


Fig.5 – Removal Of Movable Arc Tip Assembly

3. Remove arc tip assembly from slot between movable contact support and the hold-on magnet bracket by pulling up on the movable arc tip, while moving the arc tip slightly from side to side.

REPLACEMENT OF MOVABLE CONTACT ASSEMBLY

1. Remove two screws and lockwashers, Fig. 6, holding movable contact assembly in place.

   Remove assembly and replace with a new contact assembly. Apply screws and lockwashers, but do not tighten screws at this time.

2. Check that movable contact assembly is properly seated, (centered in the support molding within ± 0.76 mm [± 0.030"]) then torque screws between 6.21 and 7.34 N·m (55 and 65 in.-lbs).

REPLACEMENT OF MOVABLE ARC TIP ASSEMBLY

1. Insert new movable arc tip assembly into slot between movable main contact support and the hold-on magnet bracket.

CAUTION

Arc tip assembly must be inserted BETWEEN the hold-on magnet bracket and the movable contact support, NOT in front of the bracket.

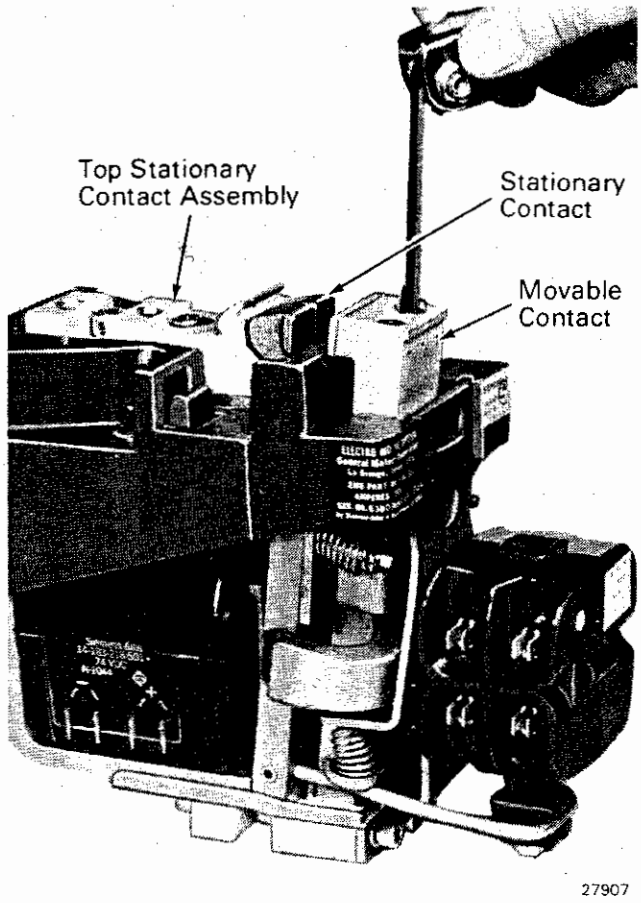


Fig.6 – Removing Movable Contact

2. Align the hole in the movable arc tip assembly and the hole in the movable main contact support with the hole in the hold-on magnet bracket. Insert screw and lockwasher. Torque screw between 1.70 and 2.26 N·m (15 and 20 in.-lbs).

REPLACEMENT OF STATIONARY ARC TIP ASSEMBLY

1. Remove two screws and lockwashers holding the stationary arc tip assembly to the arc chute, Fig. 7.

2. Lift out stationary arc tip assembly.

3. Place new stationary arc tip in proper position and secure with screws and lockwashers. Torque screws between 1.70 and 2.26 N·m (15 and 20 in.-lbs).

REPLACEMENT OF STATIONARY CONTACT ASSEMBLY

1. Remove top stationary contact assembly, stationary contacts, and spacer by removing two screws and lockwashers, Fig. 6.

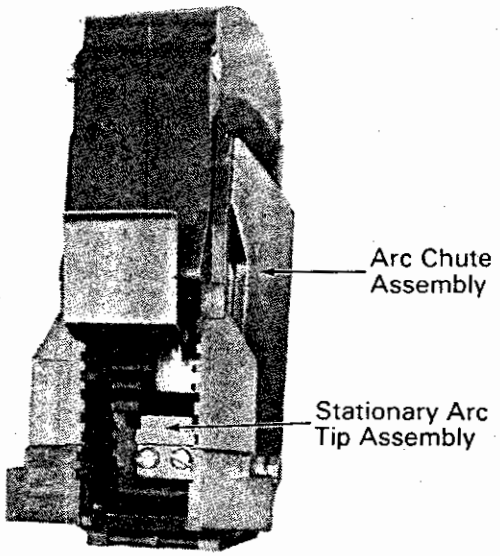


Fig.7 – Stationary Arc Tip Assembly

2. Position spacer on the top terminal molding, with the short leg of the "L" down between the pivot springs and the long leg extending back between the wipe springs, Fig. 8.

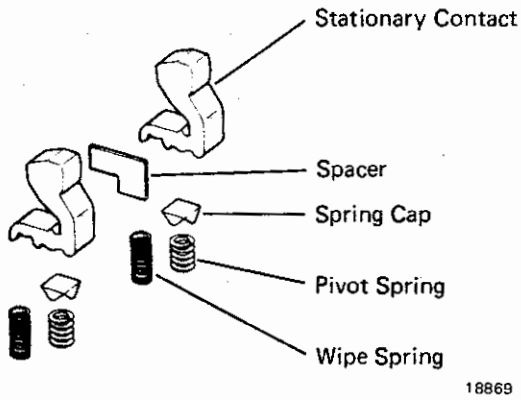


Fig.8 – Stationary Contact Assembly

3. Place new stationary contacts over wipe springs and pivot springs. Spring caps must be firmly seated on pivot springs.

4. Insert pointed nose of the top stationary contact assembly into the cavity in back of the stationary contact, engaging the mating pivots.

5. With pivots engaged and the top stationary contact assembly held back against the stop in the top terminal molding, secure with two screws and lockwashers. Torque screws between 9.60 and 11.30 N·m (85 and 100 in.-lbs).

6. Check for freedom of movement of both stationary contacts. Gap behind contact should be 1.14 mm (0.045") nominal. See Fig. 9.

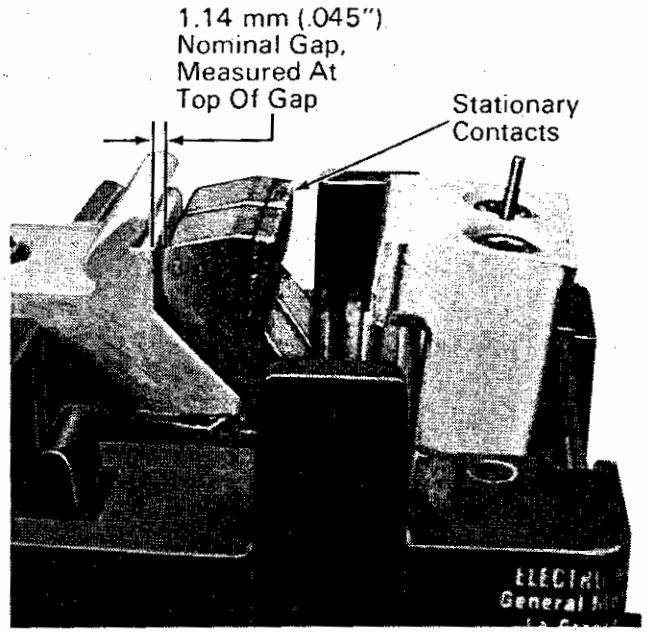


Fig.9 – Stationary Contact Gap

INTERLOCK ASSEMBLY

Power contactors manufactured prior to 1982 were equipped with a type 387 interlock assembly. Type 387 interlock assembly and parts for the type 387 interlock assembly are no longer manufactured. When parts are required or interlock replacement is required, a type 707 interlock assembly should be specified. Refer to Service Data for correct interlock assembly part number.

TYPE 387 INTERLOCK CONTACTS INSPECTION

1. Remove screw (3, Fig. 10), lockwasher, and plain washer from bottom of interlock assembly (1), and remove interlock operator (2).

2. Remove two screws (9) from interlock assembly and carefully remove the left-hand cover exposing interlock contacts. Interlock contacts are no longer usable when stationary contacts have worn or eroded 0.51 mm (.020") or movable contacts have worn or eroded 1 mm (.040") when compared to new contact dimensions. Refer to Fig. 11. If stationary or movable contacts are required for the interlock asembly, type 707 interlock assembly should be specified.

TYPE 707 INTERLOCK CONTACTS INSPECTION

1. Remove two parting screws (2, Fig. 12) from interlock assembly and carefully remove left-hand cover (10).

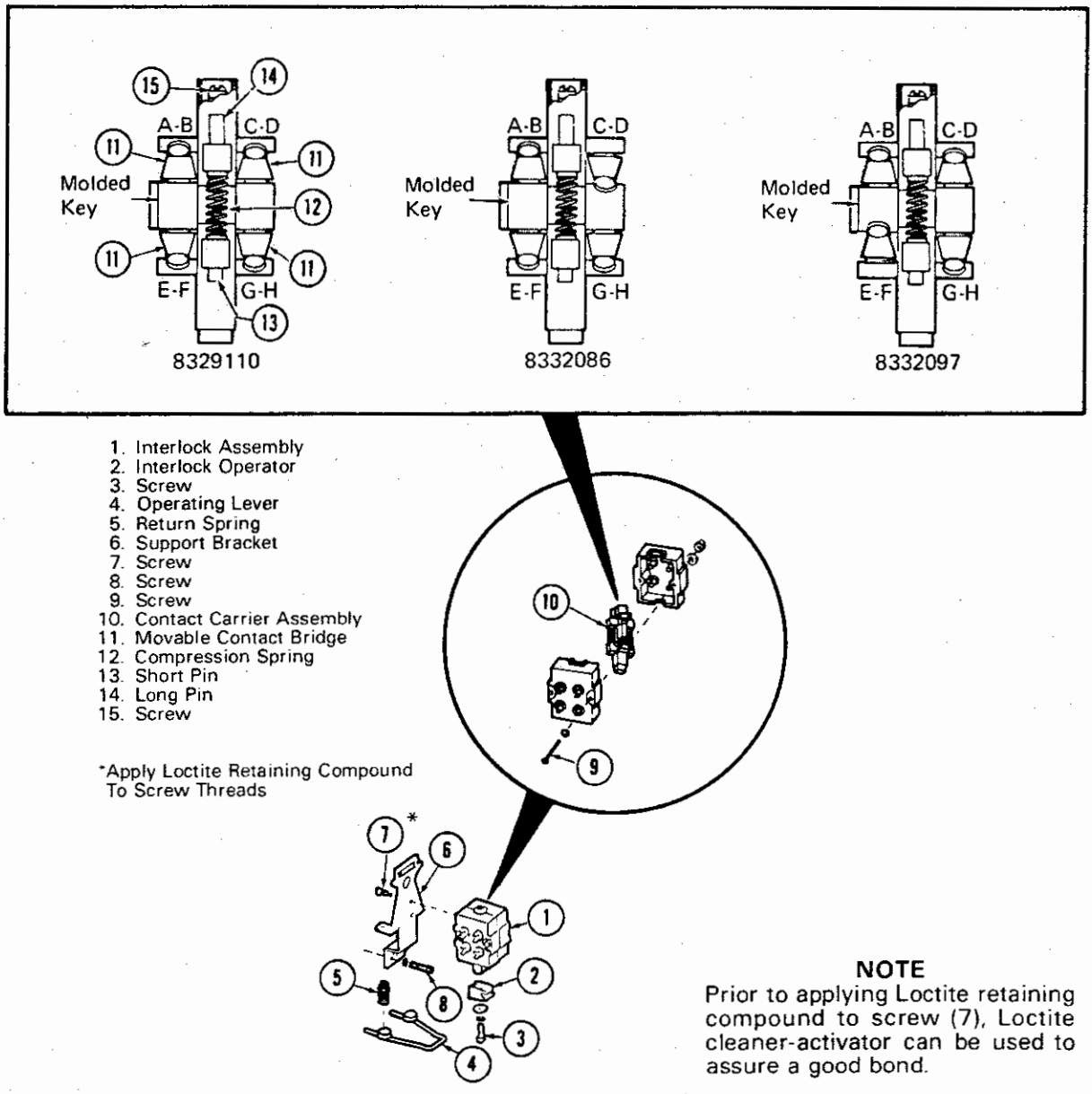


Fig.10 – Type 387 Interlock Assembly Partial Exploded View

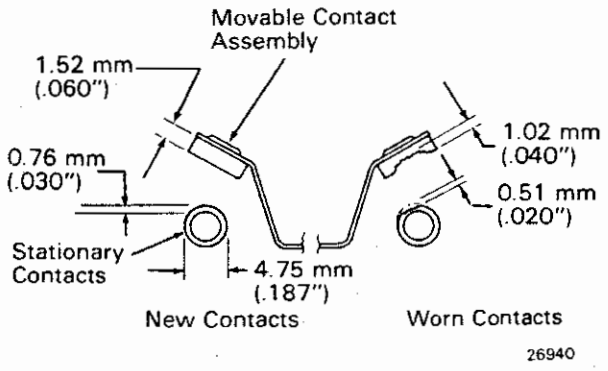


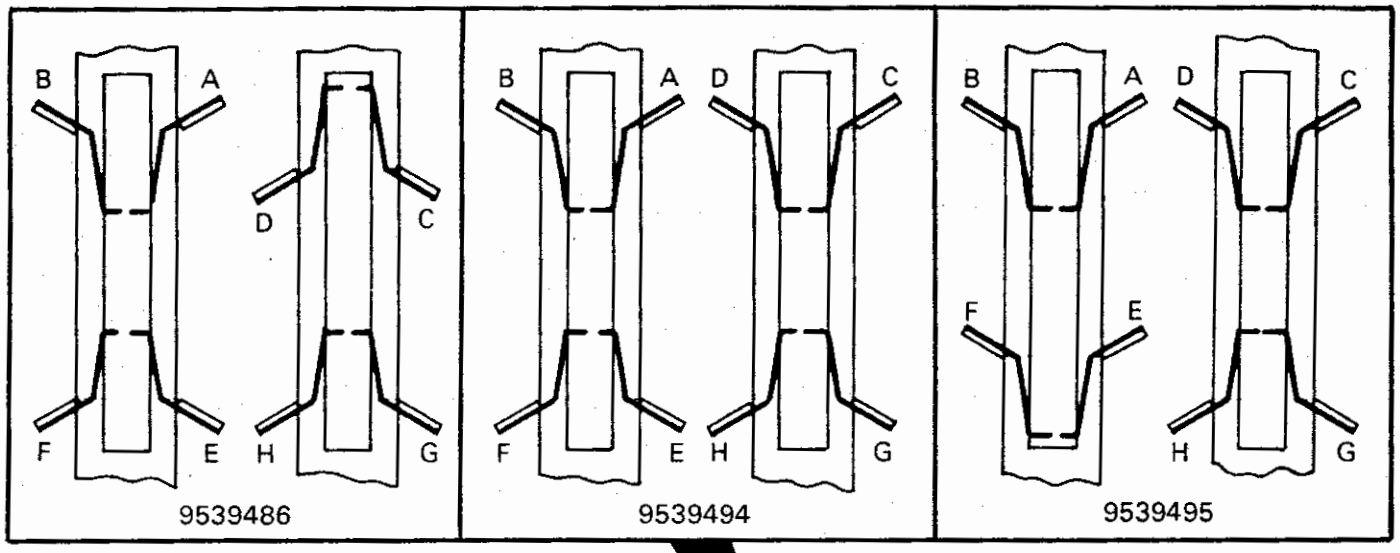
Fig.11 – Interlock Contact Wear Limits

2. Carefully remove contact carrier assembly (11). Inspect stationary contacts in the interlock cover halves and inspect movable contacts in the contact carrier assembly.

Interlock stationary and movable contacts do not require replacement until contact tips have worn or eroded through to base metal. New contact tips are 0.38 mm (.015") thick.

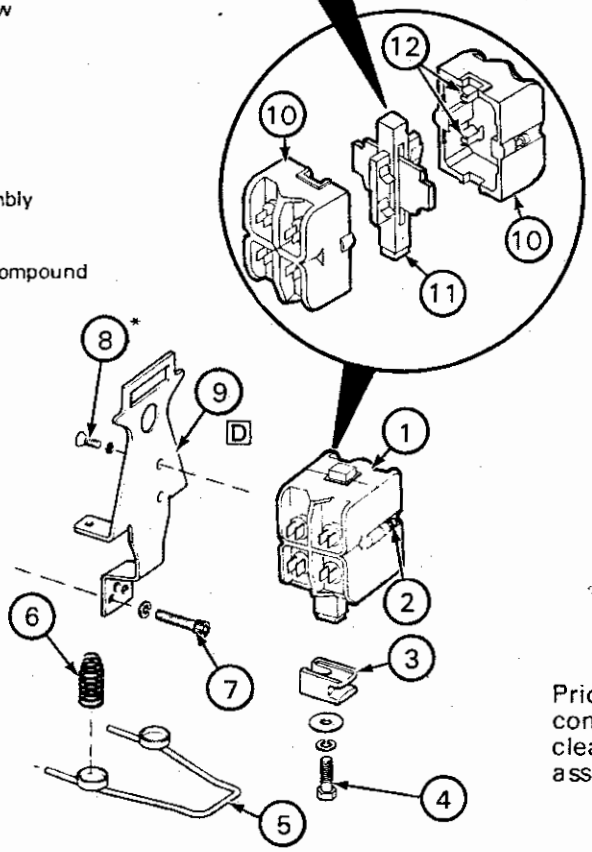
NOTE

If movable contacts in contact carrier are worn beyond specified limits, the movable contacts should be replaced. If the stationary contacts in the interlock cover halves are defective or loose, the interlock assembly should be replaced with a new interlock assembly.



1. Interlock Assembly
2. Interlock Parting Screw
3. Interlock Operator
4. Screw
5. Operating Lever
6. Return Spring
7. Screw
8. Screw
9. Support Bracket
10. Cover Half
11. Contact Carrier Assembly
12. Stationary Contact

*Apply Loctite Retaining Compound To Screw Threads



NOTE
Prior to applying Loctite retaining compound to screw (8), Loctite cleaner-activator can be used to assure a good bond.

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Fig.12 – Type 707 Interlock Assembly Partial Exploded View

REPLACEMENT OF TYPE 707 INTERLOCK CONTACTS

If determined after inspection that interlock movable contacts should be replaced. proceed as follows:

CAUTION
Each movable contact must be positioned properly and not inverted because this could cause malfunction of the contactor. Carefully note the position of each contact before removal.

1. Remove contact carrier, Fig. 13, from interlock assembly cover half.

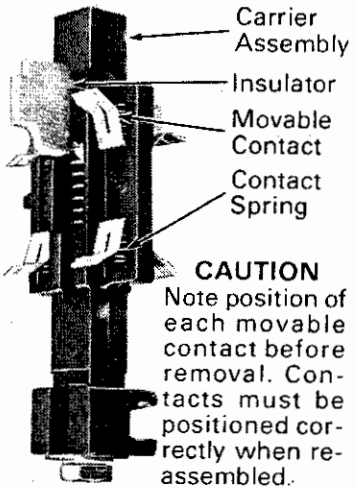


Fig.13 – Interlock Contact Carrier Assembly

2. Hold contact carrier in one hand and tilt forward the movable contact to be removed.

3. Using a screwdriver or similar tool, push down on end of contact spring. Pull out spring while pushing down to free contact spring from its retainer. Remove contact spring.

4. Turn movable contact sideways (rotate 90°) and remove movable contact.

5. To install new movable contact, reverse Steps 2, 3, and 4. Ensure each movable contact is positioned correctly.

CAUTION

When placing contact carrier into interlock cover, ensure that each movable contact tip is mated to each stationary contact. It is possible to place the contact carrier into the interlock cover half so that the movable contact tips will not engage the stationary contacts.

6. When all movable contacts have been replaced with new contacts, very carefully place contact carrier into interlock cover remaining on the contactor. Ensure each movable contact tip is mated to each stationary contact as shown in Fig. 14. Align slot in operator with operator lever.

7. Gently slide insulator up until the insulator fits into notches in the interlock cover half as shown in Fig. 15.

8. Hold the insulator in place and move contact carrier from end to end to ensure movable contacts are positioned correctly.

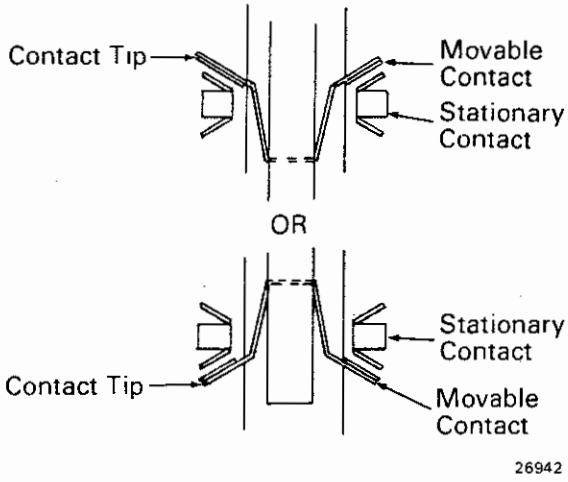


Fig.14 – Interlock Contacts

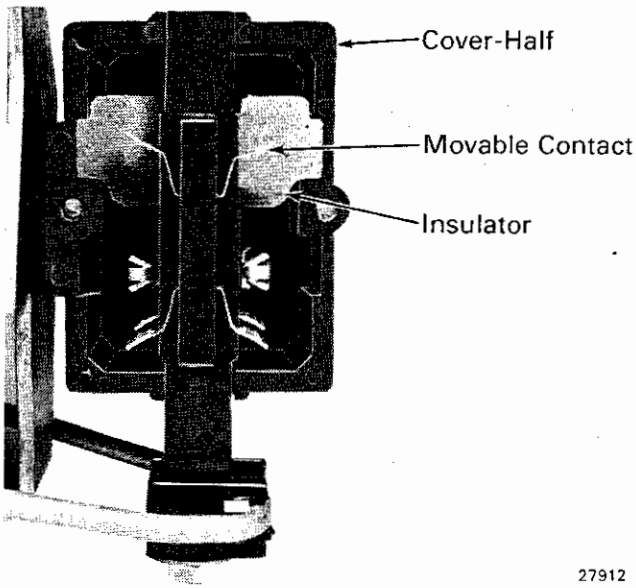


Fig.15 – Contact Carrier Assembled In Interlock Cover Half

9. Apply other cover half to interlock assembly. Ensure the movable contact tips are mated to the stationary contacts. Fasten securely. Move contact carrier from end to end to ensure the movable contacts are positioned correctly.

REPLACEMENT OF TYPE 707 INTERLOCK ASSEMBLY

If inspection determined that interlock assembly should be replaced, proceed as follows:

1. Remove return springs (6, Fig. 12) with a screwdriver.

2. Remove two screws (7) from bottom terminal assembly and swing interlock support bracket (9), with interlock assembly attached, forward until disengaged from top terminal molding.

3. Remove two screws (8) and remove interlock assembly from support bracket.

NOTE

Prior to applying Loctite retaining compound in Step 4, Loctite cleaner-activator can be used to assure a good bond.

4. Attach new interlock assembly to support bracket with screws (8). Apply Loctite Grade A-A retaining compound to screw threads before assembly. Torque screws between 1.70 and 2.26 N·m (15 and 20 in.-lbs).

5. Position top end of interlock support bracket under front end of top terminal molding.

6. Attach interlock support bracket to bottom terminal assembly with two screws and lockwashers. Center bracket in the opening of top terminal molding and tighten screws.

7. Insert both return springs between the cups on operating lever (5) and spring location buttons on return spring bracket. Springs must be fully seated in cups.

8. Attach interlock operator (3) to bottom of contact carrier (11) with screw (4), Belleville washer, and lockwasher. Torque screw between 6.21 and 7.34 N·m (55 and 65 in.-lbs).

9. When interlock is in de-energized position, the top of the interlock contact carrier (11) must be within 0.76 mm (.030") of flush with top of interlock housing. When interlock is in the energized position, the step on the carrier must be within 0.76 mm (.030") of flush with bottom of the interlock housing. If required, bend the operator lever for adjustment.

With the interlock in the energized position, there must be a minimum of 0.79 mm (1/32") clearance between the interlock operating lever (5) and the interlock operator (3). If adjustment is required, loosen setscrews which hold operating lever, move operating lever outward, and tighten setscrews.

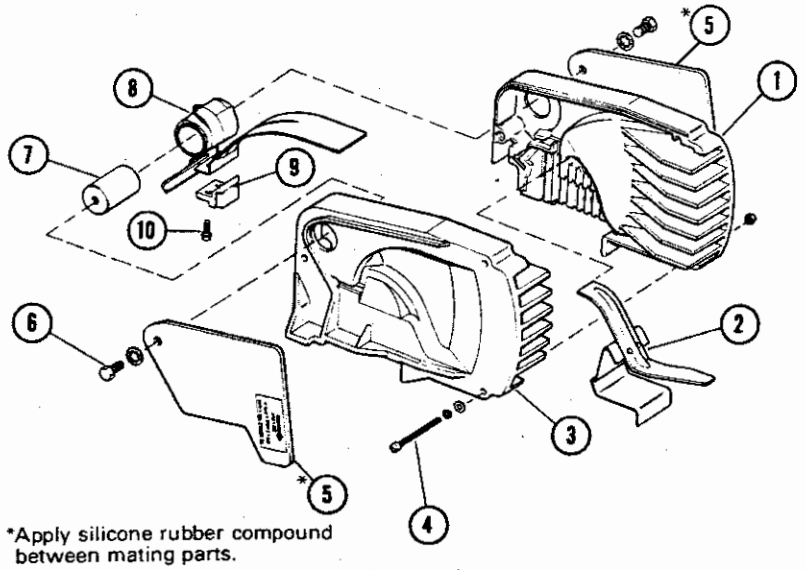
ARC CHUTE

If maintenance of the arc chute is required, proceed as follows:

DISASSEMBLY

1. Remove two screws (10, Fig. 16) and stationary arcing contact (9).

2. Lay arc chute assembly on right side with heads of screws (4) up.



*Apply silicone rubber compound between mating parts.

1. Arc Chute Right-Hand Molding
2. Latch Spring & Arc Runner Assembly
3. Arc Chute Left-Hand Molding
4. Screw
5. Pole Plate
6. Screw
7. Magnet Core
8. Blowout Coil & Arc Runner Assembly
9. Arcing Contact Assembly
10. Screw

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Fig.16 – Arc Chute Assembly

3. Remove screw (6) from left side.

4. Remove three screws (4).

5. Lift out latch spring and arc runner assembly (2).

6. Lift out blowout coil and arc runner assembly (8).

7. Remove screw (6) and magnet core (7) from right-hand arc chute molding (1).

8. Normally the pole plates (5) and arc chute moldings do not have to be separated. If required, pry pole plates loose from arc chute moldings (1 & 3) with a screwdriver.

ASSEMBLY

1. Apply silicone rubber compound between one pole plate (5, Fig. 16) and right-hand arc chute molding (1). Position pole plate on molding.

2. Position magnet core (7) into hole in right-hand arc chute molding (1) and secure with screw (6) and lockwasher. Torque screw between 6.21 and 7.34 N·m (55 and 65 in.-lbs).

3. Mount coil of blowout coil and arc runner assembly (8) on magnet core (7). Insert arc runner and hook into slots of right-hand arc chute molding (1).

4. Insert latch springs and arc runner assembly (2) into slots in right-hand arc chute molding (1).

5. Place left-hand arc chute molding (3) over the above assembly and move about slightly until all runners are nested in slots.

6. Secure the assembly with three screws (4), plain washers, lockwashers, and nuts. The washers are assembled under heads of screws.

7. Apply silicone rubber compound between pole plate (5) and left-hand arc chute molding (3). Position pole plate on molding.

8. Secure left-hand pole plate (5) to magnet core (7) with screw (6) and lockwasher. Torque screws between 6.21 and 7.34 N·m (55 and 65 in.-lbs).

9. Position stationary arcing contact (9) on blowout coil and arc runner assembly (8) and secure with screws (10). Torque screws between 1.70 and 2.26 N·m (15 and 20 in.-lbs).

REBUILDING CONTACTOR

Under ordinary circumstances, replacement of main contacts and interlock contacts is the extent of periodic maintenance needed to ensure reliable operation. However, if the contactor is to be serviced or rebuilt for other reasons, use the following procedure.

DISASSEMBLY

WARNING

Do not disassemble contactor in the cabinet. Disconnect contactor power cables and leads to interlock assembly, and then remove contactor from control cabinet.

Sub-Assemblies (A, B, C, Fig. 17)

1. Pull arc chute latch spring forward and remove arc chute by lifting front end of arc chute away from main body of contactor.

2. Remove return springs (40). Loosen two set screws (23) and remove operating lever (39). Remove two screws (41) and interlock assembly (D).

3. Remove two screws (33) releasing stationary contact assembly (C), movable contact assembly (B), and magnet assembly (A). Remove shim (24) from movable contact assembly (B).

Magnet Assembly (A, Fig. 17)

1. Remove two screws (9), bottom terminal (8), and armature guide (7).

2. Remove screw (6), pole plate (4), magnet coil (2), and spring washer (11).

3. Normally the magnet core (3) and magnet yoke (1) do not have to be separated. If required, pry insulator (10) loose from magnet yoke (1). Remove screw (5) and magnet core (3).

Movable Contact Assembly (B, Fig. 17)

1. Lay the movable contact assembly (B) on a workbench with the face of the armature assembly (20) down.

2. Pinch "X" washers (17) with pliers to free contact springs (18).

3. Lift armature assembly (20) and remove shoulder pins (16).

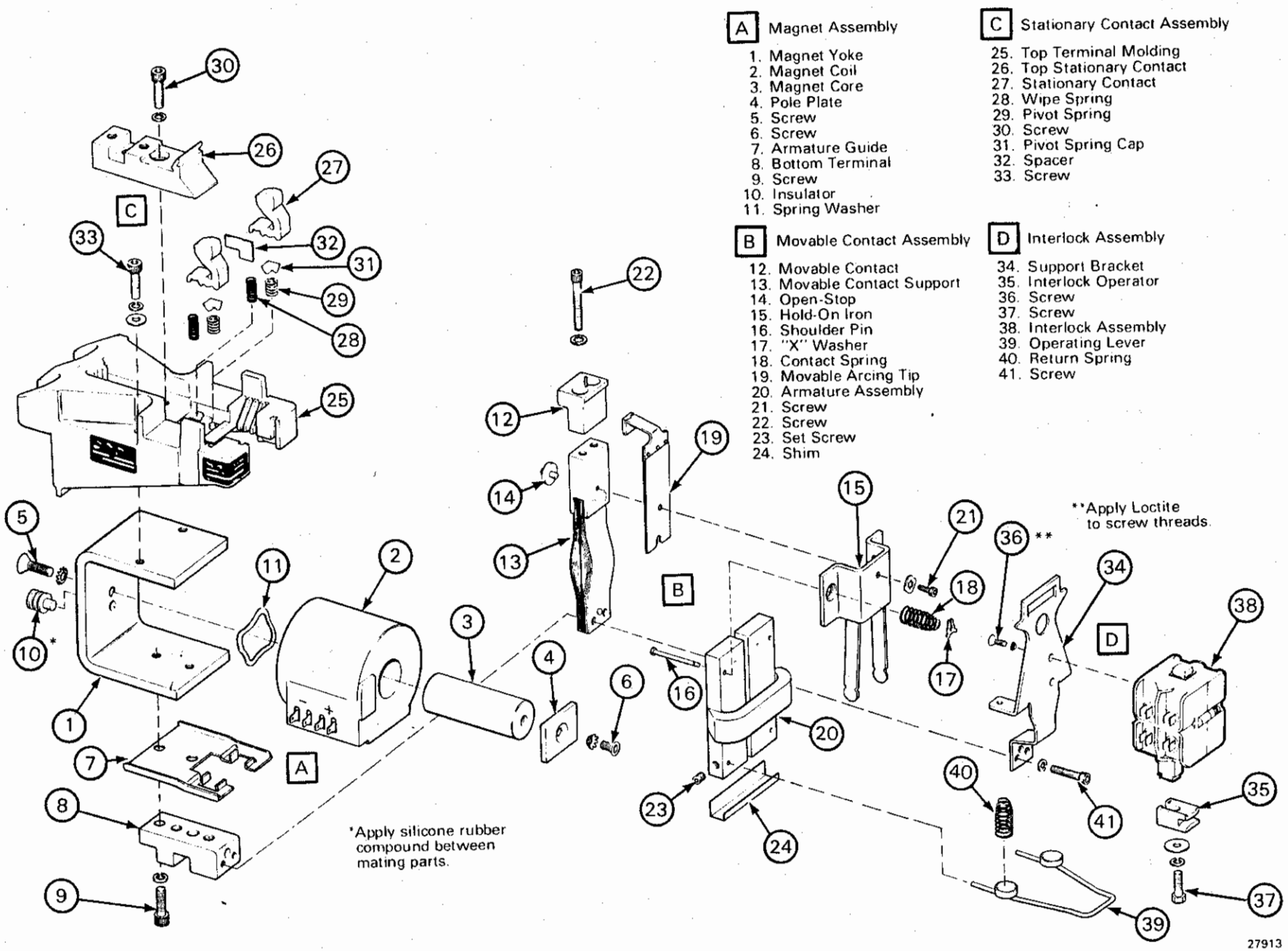


Fig.17 - Contactor Exploded View

4. Slide movable contact assembly (12, 13, 15, & 19) out of armature assembly (20). Let open-stop (14) fall free.

5. Remove screw (21), hold-on iron assembly (15), and movable arcing tip (19) from movable contact assembly (12 & 13).

6. Remove two screws (22) and movable contact (12) from movable contact support assembly (13).

Stationary Contact Support Assembly (C, Fig. 17)

1. Remove two screws (30) and top stationary contact assembly (26).

2. Lift out stationary contact (27) and spacer (32).

3. Remove pivot springs (29) with pivot spring caps (31).

4. Remove wipe springs (28).

BUILDING SUB-ASSEMBLIES

To rebuild the contactor, start by building the major sub-assemblies. Perform the procedures and adjustments as follows:

Magnet Assembly (A, Fig. 17)

1. Attach magnet core (3) to magnet yoke (1) with screw (5) and lockwasher. Torque screw between 9.60 and 11.30 N·m (85 and 100 in.-lbs).

2. Position spring washer (11) and magnet coil (2) on magnet core (3) with flat section of coil toward bottom of yoke.

3. Position pole plate (4) on end of magnet coil (2) with short side against boss on coil end. Secure with screw (6) and lockwasher. Torque screw 7.34 and 7.91 N·m (65 and 70 in.-lbs).

4. Position armature guide (7) and bottom terminal (8) over matching holes in magnet yoke (1) and fasten with two screws (9) and lockwashers. Both parts should be placed as far forward as mounting screws (9) will allow, but later may require repositioning. Torque screws between 9.60 and 11.30 N·m (85 and 100 in.-lbs).

5. If insulator (10) was removed during disassembly, apply silicone rubber compound to the insulator and press it into the magnet yoke (1).

Movable Contact Assembly (B, Fig. 17)

1. Position movable contact (12) over movable contact support assembly (13) and secure with two screws (22) and lockwashers. Torque screws between 6.21 and 7.34 N·m (55 and 65 in.-lbs).

2. Position movable arcing tip (19) and hold-on iron assembly (15) over movable contact assembly (12 & 13) with the holes in line and the boss on pivot assembly in the slot of movable arcing tip. Secure with screw (21) and lockwasher. Torque screw between 1.70 and 2.26 N·m (15 and 20 in.-lbs).

3. Place one end of open-stop (14) into hole in contact support assembly (13) opposite screw (21).

4. Slide movable contact assembly (12, 13, 15, & 19) between yoke and flat part of armature assembly (20). Free end of open-stop (14) is to be positioned in slot in the armature (20).

5. Push two shoulder pins (16) through hole in armature assembly (20) and large holes in hold-on iron assembly (15).

6. Place armature on bench, face down, and position contact springs (18) over shoulder pins (16).

7. Compress contact springs (18) until "X" washers (17) can be slipped into recess in shoulder pins (16). Pinch "X" washers (17) with pliers to lock into recess on each shoulder pin (16).

8. Center each contact spring (18) in the recess on the spring support surface of hold-on iron assembly (15).

Stationary Contact Support Assembly (D, Fig. 17)

1. Ensure that support areas for springs (28 & 29) are free of foreign particles. Place top terminal molding (25) in a horizontal position.

2. Place a wipe spring (28) into both of the tapered (rear) holes in the top terminal molding (25).

3. Place a pivot spring cap (31) on one end of both pivot springs (29). Place the other end of the pivot spring (29) over both of the conical (front) pins in the top terminal molding (25).

4. Position the spacer (32) on the top terminal molding (25) with the short leg of the "L" down between the pivot springs (29) and the long leg extending back between the wipe springs (28).

5. Position both stationary contact assemblies (27) over wipe springs (28) and pivot springs (29). Be certain that the spring caps (31) are firmly seated on the pivot springs (29).

6. Insert the pointed nose of the top stationary contact assembly (26) into the cavity in back of the stationary contact assembly (27) engaging the mating pivots.

7. With the pivots engaged and the stationary contacts held back against the stop in the top terminal molding (25), secure with two screws (30) and lockwashers. Torque screws between 9.60 and 11.30 N·m (85 and 100 in.-lbs).

8. Check for freedom of movement of each stationary contact. Gap behind contact shall be 1.14 mm (0.045") nominal measured at top of gap.

FINAL ASSEMBLY

The following sequence should be observed to complete contactor assembly.

1. Place shim (24, Fig. 17) on bottom of armature (20) on movable contact assembly (B) with the long leg of the shim on the flat face of the armature.

2. Place contact assembly (B) into position in front of magnet assembly (A), so that the armature (20) with shim (24) rests behind two fingers of armature guide (7) with the hold-on iron (15) between four fingers on armature guide (7).

3. Place stationary contact assembly (C) over magnet assembly (A) and contact assembly (B) and secure with two screws (33), plain washers, and lockwashers. Magnet assembly (A) must touch back wall of cavity in top terminal molding (25). Torque screws between 9.60 and 11.30 N·m (85 and 100 in.-lbs).

4. Position top end of interlock support bracket (34) under front end of top terminal molding (25).

5. Attach interlock support bracket (34) and movable contact support (13) to bottom terminal (8) with two screws (41) and lockwashers. Do not tighten screws at this time. Center contact assembly (B) in the opening of top terminal molding (25) and torque screws (41) between 6.21 and 7.34 N·m (55 and 65 in.-lbs).

6. Insert both ends of operating lever assembly (39) into holes at bottom of armature (20) until ends are just flush with back face of armature. Torque set screws (23) between 7.34 and 7.91 N·m (65 and 70 in.-lbs).

7. Insert two return springs (40) between cups on operating lever (39) and spring location buttons on interlock support bracket (34). Springs must be fully seated in cups.

8. When interlock is in de-energized position, the top of the interlock contact carrier must be within 0.76 mm (.030") of flush with top of interlock housing. When interlock is in the energized position, the step on the carrier must be within 0.76 mm (.030") of flush with bottom of the interlock housing. If required, bend the operator lever for adjustment.

   With the interlock in the energized position, there must be a minimum of 0.79 mm (1/32") clearance between the interlock operating lever (39) and the interlock operator (35). If adjustment is required, loosen setscrews (23) in the armature assembly (20), adjust operating lever to obtain clearance, and tighten setscrews.

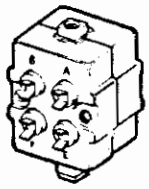
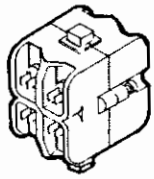
9. Position hook on arc chute assembly in notch of top stationary contact assembly (26). Pull arc chute latch spring forward and swing front of arc chute assembly down to seat on top terminal molding (25). Release latch spring to hold arc chute assembly in position.

SERVICE DATA

SPECIFICATIONS

INTERLOCK CONTACTS

Type 387 interlock assembly is currently replaced by Type 707 assembly. When ordering a replacement interlock assembly, Type 707 interlock assembly part numbers should be used.

Contactor	Type 387 Interlock Assembly	Type 707 Interlock Assembly
		
8461331	8329110	9539494
8461332	8332086	9539486
8461333	8332097	9539495

27914

Movable Contact Travel . . . . . 9.53 mm (.375″)
Lift, Short Wipe – at 2.5 mm (3/32″) deflection . . . . . 113 g (.25 lb)
Lift, Long Wipe – at 6 mm (1/4″) deflection . . . . . 136 g (.30 lb)
Wear Allowance (total)
Type 707 . . . . . 0.51 mm (.020″)
Type 387 . . . . . 1.52 mm (.060″)

Type 387 Interlock Contact Arrangement

8329110
A-B . . . . . Normally Closed
C-D . . . . . Normally Closed
E-F . . . . . Normally Open
G-H . . . . . Normally Open

8332806
A-B . . . . . Normally Closed
C-D . . . . . Normally Open
E-F . . . . . Normally Open
G-H . . . . . Normally Open

8332097
A-B . . . . . Normally Closed
C-D . . . . . Normally Closed
E-F . . . . . Normally Closed
G-H . . . . . Normally Open

INTERLOCK CONTACTS (Cont'd)

Type 707 Interlock Contact Arrangement

9539486	
A-B	Normally Closed
C-D	Normally Open
E-F	Normally Open
G-H	Normally Open
9539494	
A-B	Normally Closed
C-D	Normally Closed
E-F	Normally Open
G-H	Normally Open
9539495	
A-B	Normally Closed
C-D	Normally Closed
E-F	Normally Closed
G-H	Normally Open

MAIN CONTACTS

Contact Rating (based on 80° C [176°F] ambient temperature)	1000 amps
Contact Pressure - New	4.1 to 4.5 kg (9-10 lbs.)
Contact Wear Allowance (each contact)	1.59 mm (1/16")
Contact Minimum Opening - New	11.91 mm (15/32")

MAGNET COIL

Resistance (at 20° C)	125 ohms (± 10%)

OPERATION

Working Voltage (continuous)	74 VDC
Pickup (at 20° C)	48 VDC
Dropout (at 20° C)	5-28 VDC

HI-POT

	60 Hz, 1 Minute
Magnet Coil To Mounting	600 V RMS
Magnet Coil To Main Contacts	2400 V RMS
Main Contacts To Mounting	2400 V RMS
Main Contacts To Interlock Contacts	2400 V RMS
Between Open Main Contacts	2400 V RMS
Interlock Contacts To Mounting	2400 V RMS

MATERIAL LIST

Silicone Rubber Compound (RTV) 5 oz. tube	8453256
Loctite Retaining Compound - 10 cc tube	8471182
Loctite Cleaner-Activator - 6 oz. aerosol can	8352873