



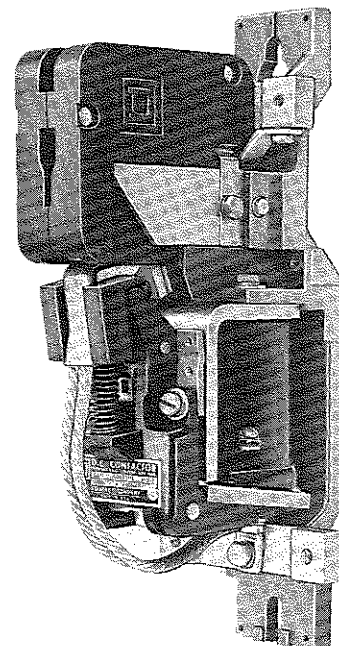
## TYPE HFO - 3, SERIES A, NEMA SIZE 4, 150 AMPERE, DC CONTACTOR SINGLE POLE, NORMALLY CLOSED

### INSTALLATION AND ADJUSTMENT

Mount the contactor vertically on a rigid support. Provide at least 1" clearance above the top of the contactor base and 2½" in front of the contactor for arcing clearance and arc chute removal.

With the contactor power OFF, remove the arc chute (1) and operate the contactor by hand. The contact tips should meet squarely. If they do not, adjust by the procedure described below in step 6 of "Contact Tip Replacement". When released, the contactor should close quickly and completely. If it does not, check for clearance around the core cap (22), the armature (27) and the closing spring (24). Check all electrical connections to see that they are tight and replace the arc chute. No further adjustments are necessary.

**CAUTION:** Do not operate the contactor under load without the arc chute installed in its proper position.



### TROUBLESHOOTING

**PROBLEM:** Contactor will not open when energized.

**SOLUTION:** Check the voltage at the operating coil terminals. An absence of voltage indicates a fault elsewhere in the circuitry. If the coil voltage is normal, disconnect the coil leads and check the coil for continuity. An open or shorted coil must be replaced.

### REPAIR and MAINTENANCE

#### CONTACT TIP REPLACEMENT

To determine when the contact tips should be replaced, the contact follow up must be measured. The contact follow up is the distance "F" measured at the upper edge of the contact arm with the contactor fully closed, as shown on the right. When this distance is reduced to 1/16" or less, the contact tips must be replaced to assure that proper contact pressure is maintained.

Should it be necessary to replace the tips, a 7/16" open end wrench is the only tool needed and the following procedure should be followed:

1. Remove the arc chute (1).
2. Unscrew the hex head bolt (43A) holding the flexible connector and movable contact tip in place.
3. Remove these parts and unscrew the hex head bolt (43B) holding the stationary contact tip in place.
4. Install a new stationary contact tip (42) and replace the bolt (43B)\*
5. Reassemble the new movable contact tip (41), flexible connector (20), and bolt (43A)\* in that order.

6. Operate the contactor by hand to see that the tips meet squarely. Contact tip alignment can be adjusted by loosening the tip retaining bolts and shifting the tips. After the contacts are properly aligned, retighten the bolts securely.
7. Replace the arc chute.

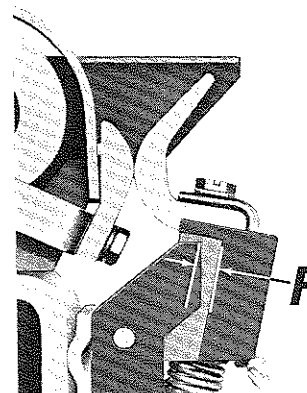
#### COIL REPLACEMENT

To replace the operating coil, a screwdriver, and 7/16" open end wrench are needed and the following procedure should be followed:

1. Remove the arc chute.
2. Remove the coil leads.
- 3. Remove the two hairpin clips (28) and push the contact arm pin (31) out.
4. Remove the contact arm assembly and closing spring (24).
5. Unscrew the 2 bolts (11A) holding the assembled magnet frame (16) and coil in place.
6. Remove the magnet frame and coil from the contactor and unscrew the 4 screws (23) holding the core cap (22) to the magnet core.
7. Remove the core cap and coil.
8. Install the new coil and replace the core cap.
9. Reassemble the magnet frame and coil to the contactor base and replace the 2 bolts (11A) holding it.
- 10. Replace the closing spring (24), the contact arm assembly, the contact arm pin (31) and two hairpin clips (28).
11. Reconnect the coil leads and replace the arc chute.

#### LUBRICATION

The type "H" contactor requires no lubrication. The pivot pins bear in a self-lubricating material.



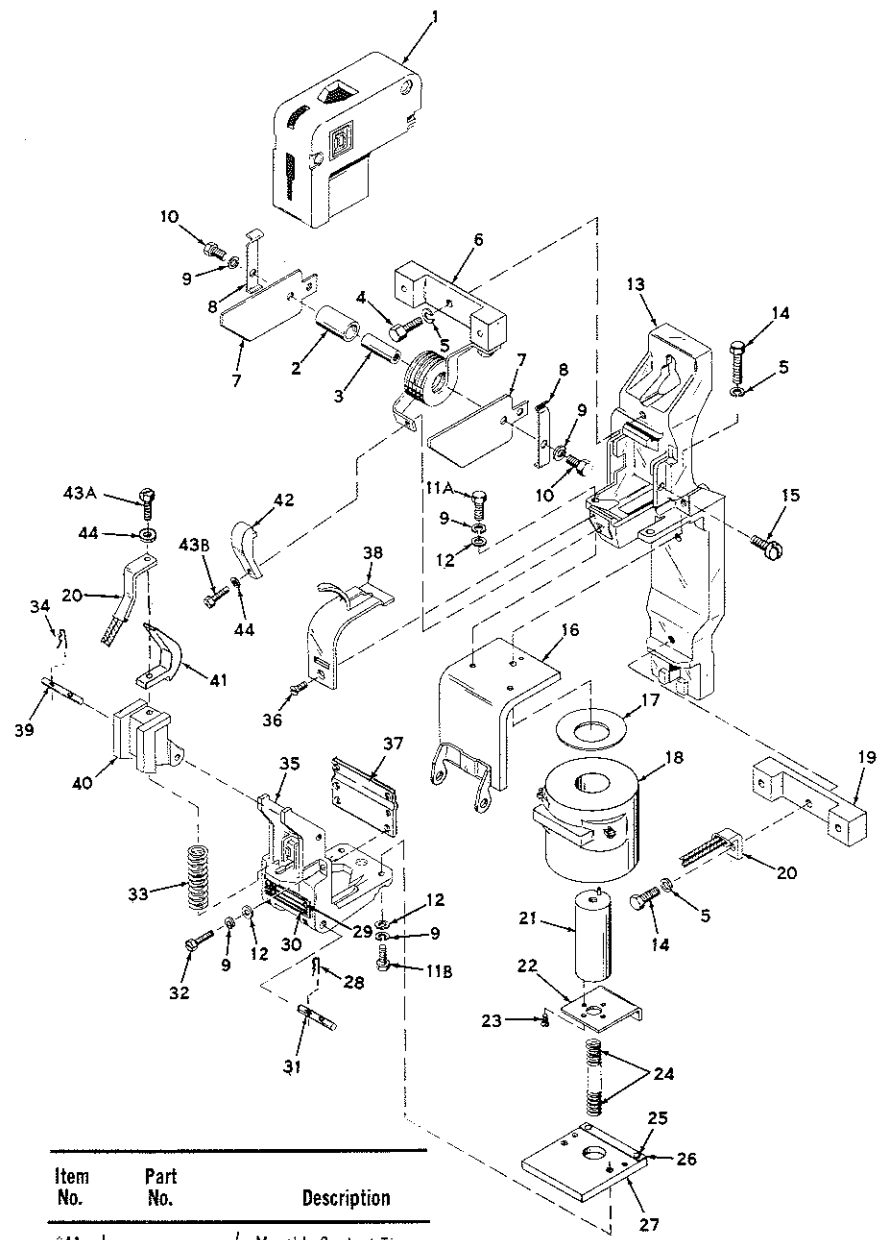
**NOTE:** \* The special non-magnetic bolts and lockwashers supplied with the contact parts kit must be used.

• Minor revision since previous issue.



TYPE HFO-3, SERIES A, NEMA SIZE 4, 150 AMPERE, DC CONTACTOR, S.P., N.C.

Item No.	Part No.	Description
* 1	A51017-035-50	Assembled Arc Chute
2	B50512-052-28	Blowout Core Insulator
3	B50502-776-14	Blowout Core
4	21401-22240	5/16"-18x3/4" Hex H. Steel Cap Screw
5	23701-00220	5/16" Lock Washer, 3 Req'd.
6	A51017-054-50	Blowout Coil and Top Terminal Block Assembly
7	A51017-032-01	Blowout Ear, 2 Req'd.
8	A51017-034-01	Arc Chute Spring, 2 Req'd.
9	23701-00200	1/4" Lock Washer, 8 Req'd.
10	21401-20160	1/4"-20x1/2" Hex H. Steel Cap Screw, 2 Req'd.
11A } 11B }	21408-20240	1/4"-20x3/4" Hex H. Slotted Steel Screw, 4 Req'd.
12	23601-00200	1/4" Plain Washer, 6 Req'd.
13	D51017-028-50	Assembled Contactor Base
14	21401-22320	5/16"-18x1" Hex. H. Steel Cap Screw, 2 Req'd.
*15	21590-16120	#10-24x3/8" Pan Hd. Thr'd. Form Screw
16	A51017-037-50	Assembled Magnet Frame
17	A51017-041-01	Spring Washer
*18	A51017-067-51	Assembled Operating Coil (240V)
	A51017-067-54	Assembled Operating Coil (120V)
19	A51017-029-01	Bottom Terminal Block
20	A51018-050-50	Assembled Connector
21	A51017-070-50	Assembled Coil Core
22	A51017-072-01	Core Cap
23	21201-14120	#8-32x3/8" Flat H. Steel Screw, 4 Req'd.
24	B50502-602-06	Closing Spring
*25	21507-16120	#10-24x3/8" Pan Hd. Screw
26	A51017-071-01	Core Cap Spacer
27	A51017-043-01	Armature
*28	A50502-701-04	Hairpin Clip (Contact Arm Pin), 2 Req'd.
29	21509-12080	#6-32x1/4" Pan H. Type F Tapping Screw, 2 Req'd.
30	A51139-081-04	Nameplate
*31	A51017-061-01	Pin (Contact Arm)
32	21408-20160	1/4"-20x1/2" Hex H. Slotted Steel Screw, 2 Req'd.
33	B50502-602-05	Auxiliary Arm Spring
*34	A50502-701-03	Hairpin Clip (Aux. Arm Pin), 2 Req'd.
35	C51017-044-01	Contact Arm
36	21201-16100	#10-24x5/16" Flat H. Steel Screw
37	A51017-073-01	Stop Plate
38	A51017-033-01	Blowout Guard
*39	A51017-059-01	Pin (Auxiliary Arm)
40	B51017-045-50	Auxiliary Arm



Item No.	Part No.	Description
*41	Class 9998 Type HF-1 Kit	Movable Contact Tip (Copper)
*42		Stationary Contact Tip (Copper)
*43A	Class 9998 Type HF-1 Kit	1/4"-20x3/4" Si.-Br. Hex Cap Screw, 2 Req'd.
*43B		1/4" Si.-Br. Lock Washer 2 Req'd.
*44		1/4" Si.-Br. Lock Washer 2 Req'd.

NOTE: Electrical and Mechanical Interlocks, Pneumatic Timers, and Tie Bars are listed under Class 9999 User Modification Kits. See Service Bulletin 9999-1

\* Essential Parts for General Maintenance.

\* Minor revision since previous issue.