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# TYPE HDO-2, SERIES B, NEMA SIZE 2, 50 AMPERE, DC CONTACTOR DOUBLE POLE, NORMALLY OPEN

# INSTALLATION AND ADJUSTMENT

Mount the contactor vertically on a rigid support. Provide at least .6" clearance above the top of the contactor base and 1.7" in front of the arc chute for arcing clearance and arc chute removal.

With the contactor power OFF, lift straight up on the arc chute (1) and remove it from the contactor. Operate the contactor by hand to see that the contact tips meet squarely. If they do not, adjust by the procedure described below in step 9 of "Contact Tip Replacement". When released, the contactor should open freely. If it does not, check for binding around the contact arm pin (23) or the opening spring (31). Check all electrical connections to see that they are tight. Now 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 close 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 1/32" 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 screwdriver is the only tool needed and the following procedure should be followed:

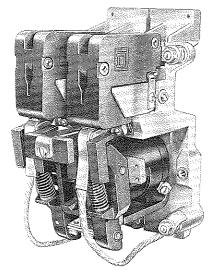
- Lift straight up on the arc chute (1) to remove it from the contactor.
- Unscrew the arc horn assembly (43), and remove the flexible connector and movable contact tip.
- 3. Loosen the two pan head screws (22) and push the contact arm pin (23) out.
- Remove the contact arm assembly and unscrew the screw (41) holding the stationary contact tip in place.
- Install a new stationary contact tip (39), screw (41)\*, and lock washer (40)\*.
- Replace the contact arm assembly making sure that the opening spring (31) is seated properly over the head of screw 29.

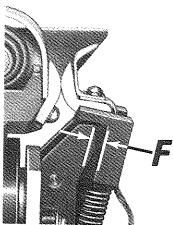
- Replace the contact arm pin (23) and tighten the two pan head screws (22).
- Reassemble the new movable contact tip (42), flexible connector (24), and arc horn (43), in that order.
- Operate the contactor by hand to see that the tips meet squarely. Contact tip alignment can be adjusted by loosening the tip retaining screws and shifting the tips. After the contacts are properly aligned, retighten the screws securely.
- 10. Replace the arc chute.

# COIL REPLACEMENT

To replace the operating coil, a screwdriver is required and the following procedure should be followed:

- 1. Lift straight up on the arc chute (1) and remove it.
- 2. Remove the coil leads.
- Loosen the two pan head screws (22) and push the contact arm pin (23) out.
- Remove the contact arm assembly.
- Unscrew the screw (29) on the top of the magnet core and remove the coil.
- Install the new coil and replace the core cap (26), the core cap spacer (27), lock





washer (28), and screw (29). Make sure the core cap (heavy steel washer) is next to the coil.

- Replace the contact arm assembly, making sure that the opening spring (31) is seated properly over the head of screw 29.
- Replace the contact arm pin (23) and tighten the two pan head screws (22).
- Reconnect the coil leads to the new coil and replace the arc chute.

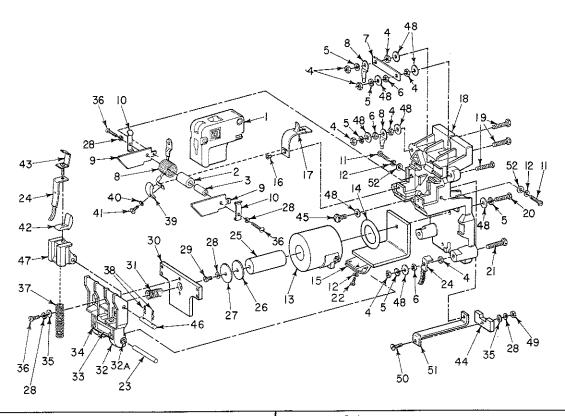
### LUBRICATION

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.



TYPE HDO-2, SERIES B, NEMA SIZE 2, 50 AMPERE, DC CONTACTOR, D.P., N.O.



item No.	Part No.	Description	ltem No.	Part No.	Description
	-451015-035-50-	Assembled Arc Chute, 2 Req'd.	26	-85050Z006:12-	Core Cap
1/2	<b>850512-052-29</b>	Blowout Core Insulator, 2 Req'd.	27	- 850502-006-13.	Core Cap Spacer
1	- <del>950502-776-08 -</del>	Blowout Core, 2 Reg'd.	₹28	23701-00160	#10 Lk. Washer, 8 Reg'd.
4	23003-00200	1/4"-20 Hex. Stl. Jam Nut, 10 Req'd.	29	21507-16120	#10-24 x 3/8" Pan Hd. Stl. Screw
tre- 5	23701-00200	1/4" Lk. Washer, 6 Req'd.	30	- <del>451015:176-01-</del>	Armature
V 6	23005-00202	1/4"-20 Hex. Brass Nut, Silver Dipped, 4 Req'd.	2/31	B50502-602-07	Opening Spring
	A51015=11970	Terminal Tie Bar	32	-C51015-175-50	Contact Arm Assembly
<b>8</b>	A51015-054-50	Assembled Blowout Coil, 2 Req'd.	V 321		Bushing, 2 Req'd.
9 مسا	A51015-032-01	Blowout Ear, 4 Req'd.	33	A51139-175-02	Nameplate
10	- <del>A51015-034-01</del>	Arc Chute, Spring Clip, 4 Req'd.	<i>y</i> 34	21509-12080	#6-32 x 1/4" Pan Hd. Type F Tapping Screw, 2 Reg'd.
1/11	21590-14120	#8-32 x 3/8" Hex. Pan Hd. Tri-Lobe Scr.,	<b>1</b> ∕35	23601-00141	#10 Plain Washer, 3 Reg'd.
` .		2 Req'd.	1/36	21507-16160	#10-24 x ½" Pan Hd. Stl. Screw, 6 Reg'd.
$\sqrt{12}$	23701-00140	#8 Lk. Washer, 2 Req'd.	37	~ 850502-602-09	Auxiliary Arm Spring, 2 Reg'd.
13	A51015-067-51	Assembled Operating Coil (240V)	38	450502-701-03	Hairpin Clip (Aux. Arm Pin), 4 Reg'd.
مسمأ	A51015-067-54	Assembled Operating Coil (120V)	*39	1	Stationary Contact Tip
14	A51017-041-01	Spring Washer	<b>*40</b>	1	#10 Lk. Washer, Silicon Bronze
<b>₩15</b>	A51015-076-50	Assembled Magnet Frame	/ *41	Class 9998	#10-24-1/2" Rd. Hd. Silicon Bronze Screw
16	21201-12080	#6-32 x 1/4" Fl. Hd. Sti. Screw, 2 Req'd.	<sup>#</sup> *42	Type HD-1 Kit	Movable Contact Tip
<b>/17</b>	A51015-033-01	Blowout Guard, 2 Reg'd.	*43	•	Assembled Arc Horn
	_051 <del>015-170-58</del>	Assembled Contactor Base	44	-451015-173-01-	Stop Plate
V19	21401-20320	1/4"-20 x 1" Hex. Hd. Stl. Screw, 3 Reg'd.	✓ 45	A5-2927-026-50	1/4"-20 x 1/2" Pan Hd. Mch. Scr. Assem.
V 20	21401-20280	1/4"-20 x 7/8" Hex. Hd. Stl. Screw	V46	A51015-059-01	Auxiliary Arm Pin, 2 Req'd.
ν 21	21401-20400	1/4"-20 x 11/4" Hex. Hd. Stl. Screw, 2 Req'd.	V47	B51015-145-50	Auxiliary Arm, 2 Reg'd.
v 22	21507-14120	8-32 x 3/8" Pan Head Screws, 2 Req'd.	<b>1</b> ∕48	23601-00200	1/4" Plain Washer, 10 Reg'd.
0		(Incl. in Item 15)	49	23001-00160	#10-24 Hex. Stl. Nut
23	-A51015-102-01	Contact Arm Pin	<b>1</b> ∕50	21507-16240	#10-24 x <sup>3</sup> /4" Pan Hd. Mch. Scr.
√ 24	A51016-050-50	Assembled Connector, 2 Reg'd.	51	-RS1015:172-01	Stop Plate Bracket
	451015-040-50>	Assembled Coil Core	<sub>y</sub> >52	23601-00121	#8 Plain Washer, 2 Req'd.

NOTE: Parts Kits are Sold Only as Complete Kits and are Listed Under Class 9999 of Catalog. User Modification Kits Such as Interlocks, Tie Bars, and Timers are Listed Under Class 9998.

\*Essential Parts for General Maintenance.