Hubbell Industrial Controls, Inc.

Instructions
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SERVICE AND REPAIR PARTS

NEMA SIZE 5, SINGLE POLE, NORMALLY OPEN, P/N 59495 SERIES
NEMA SIZE 5A, SINGLE POLE, NORMALLY OPEN, P/N 59675 SERIES

INSTALLATION AND ADJUSTMENT

Mount the contactor vertically on a rigid support. Refer to Figure 1 for proper clearances above the top of the contactor, dimension A, and in front of the Arc Shield, dimension B, for arcing clearance, and Arc Shield removal. Check nameplate data for correct equipment. Check that the contactor operating coil (27) is the correct voltage. With all power removed, pivot the Arc Shield (11) upwards and operate the contactor by hand. The contact tips (15) should meet SQUARELY. If they do not, align them by the procedure in the Contact Tip Adjustment. Pivot the Arc Shield back to its proper position. CAUTION: DO NOT OPERATE THE CONTACTOR UNDER LOAD UNLESS THE ARC SHIELD IS PIVOTED TO THE FULLY DOWN POSITION

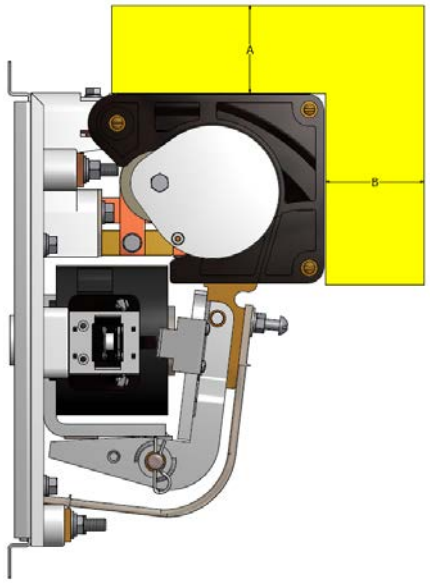


Fig. 1

ELECTRICAL CLEARANCES

Note: Shaded area for arcing clearances to ground, un-insulated enclosure or other control devices.

NEMA SIZES

DIM.	5	5A
A	6”	6 ½”
B	4 3/8”	5”

CONTACTOR TIP ADJUSTMENT

1. With all power removed, pivot the arc shield (11) upward.
2. Check that the movable contact tip (15) is against the ledge located on the movable contact holder (17) (Fig. 2).
3. Make sure that the stationary contact tip (15) is against the ledge on the stationary support. (Fig. 2).
4. The contact tip surfaces must be aligned both vertically and horizontally (Fig. 2).
5. Pivot the Arc Shield back to its proper position.

WARNING: ALL METAL PARTS OF THE CONTACTOR MAY BE AT LINE VOLTAGE. ALL POWER MUST BE DISCONNECTED FROM THE CONTACTOR BEFORE PERFORMING ANY ADJUSTMENT, MAINTENANCE OR TROUBLE-SHOOTING PROCEDURES.

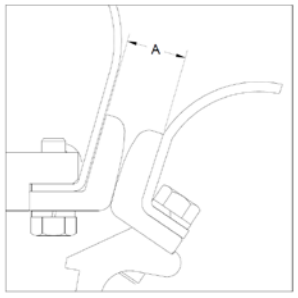
CAUTION: FAILURE TO CONNECT THE OPERATING COIL TO THE PROPER VOLTAGE MAY RESULT IN IMPROPER CONTACTOR OPERATION OR DAMAGE TO THE COIL.

CONTACTOR TIP REPLACEMENT

The contact tips should be replaced when the contacts are worn down to dimensions shown if Figure 2.

1. With all power removed, remove the Arc shield (11).
2. Remove the movable contact tip (15) by removing the Stainless Steel cap screw (39) and lockwasher (33) and arc horn (16) located on contact arm (17).
3. Remove the stationary contact tip by removing the Stainless Steel cap screw (52) and lock-washer (33) located on stationary contact support (12).

Fig. 2



CONTACTOR SIZE		A MATED DIMENSION	
		NEW	REPLACE
5	N.O.	3/4"	3/8”
5A	N.O.	3/4"	3/8”

4. Install the new stationary contact (15) tip using the new stainless steel screw (52) and lockwasher (33) provided.

5. Install the new movable contact tip (15) using the new Stainless Steel Screw (39, lockwasher (33), and arc horn (16) provided
6. Replace the contact spring (20) with the new spring provided.
7. Manually operate the contactor and check the contact tips for alignment. Align the contact tips to meet squarely.
8. Pivot the Arc Shield (11) back to its proper position.

AUXILIARY ELECTRICAL CONTACTS

1. With all power removed, check that auxiliary contact (60) has the proper follow-up travel by manually closing the contactor. With new auxiliary contacts, the correct operating height is as shown in Fig. 3.
2. If adjustment is needed bend the lower portion of the striker (56, 62).

The Auxiliary Electrical Contacts should be replaced when inspection of the contacts shows that they are burned or badly pitted. It is necessary that the entire auxiliary block be replaced as a unit.

1. With all power "OFF", loosen terminal screws and remove terminal leads. NOTE POSITION OF LEADS so they can be replaced properly.
2. Remove Contact Assembly by removing slotted screws (57).
3. Install NEW CONTACT ASSEMBLY as shown in the exploded view.
4. Manually operate the contactor and check the moving contacts for proper follow-up in Fig. 3.
5. Replace terminal leads.

OPERATING COIL REPLACEMENT

1. With all power removed, disconnect the coil leads.
2. Remove the armature bearing pin (22) by removing the hairpins (23).
3. Remove the armature/moving assembly (21)
4. Remove the screw (32) and lockwasher (38) on the front of the magnet core. Remove non-magnetic spacer (25), core cap (24) and coil (27).
5. Install the new coil using the core cap (24), non-magnetic spacer (25), and lockwasher (38) and tighten the screw (32). It is recommended that loctite thread lock be used on the core cap screw and that the screw is tightened to 200 in-lbs. Note that the steel core cap, which is thicker than the non-magnetic spacer, must be installed against the core. (See Exploded View).
6. Replace the armature and armature bearing pin (22) and hair pins (23).
7. Check that contact bearing pin (22) is centered and the hairpins (23) are secured.
8. Reconnect the coil leads.

SHUNT REPLACEMENT

The shunt (19) should be replaced when the flexible braided wires are broken or burned or if the wires are loose in the terminal connectors on either end of the shunt:

1. With all power removed, disconnect the bottom end of the shunt (19) by removing hex head screw (48), lockwasher (38), washer (43) and shunt from lower bus bar (30).
2. Disconnect the top end of the shunt by loosening the nut (41) then removing the screw (40) washer (37), lockwasher (33) and the shunt (19).
3. Install the new shunt. Spin the nut (40) to the bottom of the screw (41) head. Place the top end of the new shunt on the contact holder arm (17) and install by replacing the screw/ nut, lockwasher (33) and flat washer (37) as shown.
4. Check that the bearing pin (18) is centered and tighten the screw (41) very tight (120 in-lbs).
5. Hold the shunt ferrule straight in line with the vertical center line of the holder arm and Tighten the nut (41) to 135 in-lbs.
6. Connect the bottom end of the shunt (19) by replacing the washer (43), lockwasher (38), and hex head screw (48).

CAUTION: SHUNT MUST BE DIRECTLY AGAINST MOVABLE CONTACT HOLDER ARM (17) AT THE TOP END AND DIRECTLY AGAINST THE WIRE TERMINAL (30) AT THE BOTTOM END.

FAILURE TO FOLLOW THE STEPS ABOVE COULD CAUSE PREMATURE WEAR OF THE CONTACT HOLDER ARM IF SCREW (41) IS NOT TIGHT.

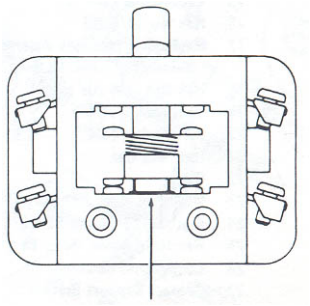
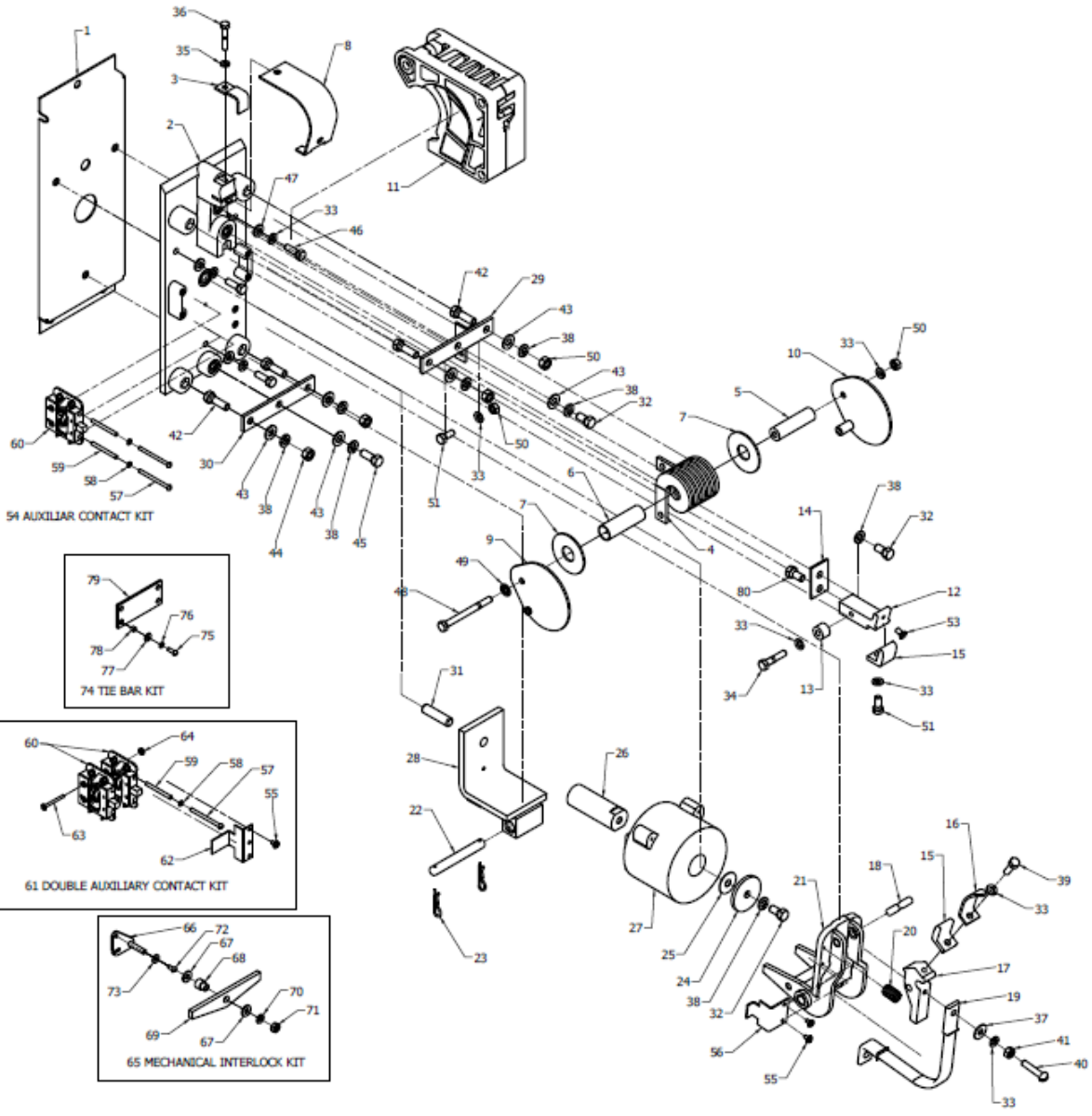


Fig. 3

PROPER OPERATED HEIGHT
the snap ring on plunger is even with bottom edge of cover opening

Item No.	Description	Part No.	Qty. Size 5	Qty. Size 5A
1	Mounting Pan	68038-000	1	1
2	Base	68022-001	1	1
3	Arc Shield Retainer	81279-030	1	1
4	Blowout Coil 250V	18493-000	1	
	Blowout Coil 550	19974-000	1	
	Blowout Coil 250V	41171-001		1
	Blowout Coil 550	18493-000		1
5	DC Blowout Core (Solid)	68870-035	1	
	AC Blowout Core (Slotted)	18599-000		1
6	Blowout Insulating Tube	18601-000	1	1
7	Blowout Insulating Waster	18603-000	2	2
8	Blowout Guard	68030-002	1	1
9	Flux Plate Assembly LH	18061-000	1	1
10	Flux Plate Assembly RH	18062-000	1	1
11	Arc Shield Assembly	59695-501	1	1
12	Stationary Contact Support	58718-002	1	1
13	Spacer – Blowout Coil	18602-000	1	1
14	Support Mounting Bracket	68023-000	1	1
15	Contact Tip (Copper)	18402-000	2	2
	Contact Tip (Silver)	18402-001	2	2
	Contact Tip (AgW Carbide)	18402-004	2	2
16	Arc Transfer Tip	59465-002	1	1
17	Moving Contact Holder	59458-006	1	1
18	Contact Hinge Pin	59462-000	1	1
19	Shunt	68027-001	1	
	Shunt 5A	68027-002		1
20	Contact Spring	67981-030	1	1
21	Armature Assembly	81279-050	1	1
22	Armature Hinge Pin	18049-100	1	1
23	Hair Pin Cotter	57403-005	2	2
24	Core Cap	19657-000	1	1
25	Non Magnetic Spacer	59545-000	1	1
26	Coil Core	58720-001	1	1
27	Operating Coil 275V	67890-001	1	1
	Operating Coil 230/250V	67890-002		
	Operating Coil 115/125V	67890-003		
	Operating Coil 75V	67890-004		
	Operating Coil 57.5V	67890-005		
	Operating Coil 24V	67890-006		
	Operating Coil 36V	67890-007		
	Operating Coil 12V	67890-008		
	Operating Coil 440/460V	67890-009		
	Operating Coil 500/550V	67890-010		
28	Stator Assembly	19661-002	1	1
29	Upper Terminal Assembly	68026-000	1	1
30	Lower Terminal Bus	68024-000	1	1
31	Stud Brass (½-13 x 1.93")	66475-021	1	1
32	Hex Head Screw (3/8-16 x .75")	47246-012	3	3
33	Split Lockwasher (5/16")	47252-039	9	9
34	Hex Head Screw SS (5/16-18 x 1.5")	47779-083	1	1
35	Split Lockwasher (¼")	47252-038	1	1
36	Hex Head Screw (¼-20 x 1.5")	47246-069	1	1
37	Flat Washer (5/16")	47250-514	1	1
38	Split Lockwasher (3/8")	47252-040	8	8
39	Hex Head Screw SS (5/16-18 x 1")	47779-081	1	1
40	Round Head Screw (5/16-18 x 1.5")	47241-218	1	1
41	Hex Nut (5/16-18)	47253-502	1	1
42	Hex Head Screw (3/8-16 x 1.25")	47246-104	4	4
43	Flat Washer (3/8")	47250-020	6	6
44	Hex Nut (3/8-16)	47253-503	4	4
45	Hex Head Screw (3/8-16 x 1")	47246-103	1	1
46	Hex Head Screw (5/16-18 x 1")	47246-081	3	3
47	Flat Washer (5/16")	47250-505	3	3
48	Hex Head Screw (5/16-18 x 3.5")	47246-101	1	1
49	Internal Lockwasher (5/16")	47304-010	1	1
50	Hex Nut (5/16-18)	47253-602	2	2
51	Hex Head Screw (5/16-18 x 0.75")	47246-079	1	1
52	Hex Head Screw SS (5/16-18 x 0.75")	47779-079	1	1
53	Flat Head Screw Brass (¼-20 x 0.5")	47665-108	1	1
54	Auxiliary Contact Assembly Kit (items 55 thru 60)	68011-008	1	1
55	Sems Screw (8-32 x 5/16")	47661-095	2	2
56	Auxiliary Striker	68029-001	1	1
57	Round Head Screw (8-32 x 2 1/16")	47241-261	2	2
58	Lock Washer (No. 8)	47252-006	2	2
59	Screw Insulating Sleeve	73108-000	2	2
60	Auxiliary Contact Block	67976-001	1	1
61	Double Auxiliary Contact Assembly Kit (items 62 thru 64, 55, 57 thru 59 60 (two required))	68011-009	1	1
62	Double Striker	68029-002	1	1
63	Sems Screw (6-32 x 1-1/2")	47661-088	2	2
64	Nut (6-32)	47253-012	2	2
65	Mechanical Interlock Assembly Kit (Consists of items 66 thru 73)	68041-016	1	1
66	Mounting Plate Assembly	59443-001	1	1
67	Flat Washer (1/4")	47250-502	2	2
68	Collar	59447-000	1	1
69	Interlock Bar	68058-103	1	1
70	Lockwasher (1/4")	47252-038	1	1
71	Hex Nut (1/4-20)	47253-601	1	1
72	Round Head Screw (8-32 x 0.375")	47776-063	2	2
73	Flat Washer (#8)	47251-007	1	1
74	Tie Bar Kit (items 75 thru 79)	59400-005	1	1
75	Round Head Screw (8-32 x 0.875")	47241-106	4	4
76	Lockwasher (# 8)	47252-006	4	4
77	Washer (# 8)	47251-016	4	4
78	Spacer	41259-000	4	4
79	Tie bar	41131-002	1	1
80	Low Head SHCS 3/8-16 X .75	47100-505	1	1


54 AUXILIAR CONTACT KIT
74 TIE BAR KIT
61 DOUBLE AUXILIARY CONTACT KIT
65 MECHANICAL INTERLOCK KIT

TROUBLE SHOOTING

TROUBLE	POSSIBLE CAUSE	SOLUTION
Contacts will not operate or operation is sluggish.	1. Improper or defective operating coil.	1. Check coil part number resistance to determine if coil is defective.
	2. Low control circuit voltage.	2. Check that control circuit voltage is a minimum of 80% of rated coil voltage. If it is zero, the problem is elsewhere in the circuit.
	3. Loose connection in control circuit.	3. Check connections and tighten if loose.
	4. Mechanical interference or binding.	4. Check for mechanical interference or bindings: 4a. Check mechanical interlock interference. 4b. Manually close the contact arm; check that the armature hinge pins are not binding. 4c. Manually close the contactor; check that the armature bearings are not binding.
Contacts will not open.	1. Core cap spacer damaged or missing.	1. Inspect core cap spacer.
Contact tips overheating, short contact tip life.	1. Loose connections.	1. Check contact tips and shunt connections and tighten if loose.
	2. Movable or stationary contact tip not properly aligned	2. Align contact tips by the procedure listed in the ADJUSTMENT-Contact Tip Alignment instructions in this Service Bulletin. Check for positive contact pressure from spring (31).
	3. Foreign matter on contact surfaces.	3. Remove foreign matter.
	4. Contact tips worn beyond recommended limits.	4. Check for contact war by the procedure listing in the MAINTENANCE-Contact Tip Replacement instructions in this Service Bulletin.
	5. Contact surfaces severely scored or burned	5. Inspect contact surfaces and dress with a file as required.
	6. Arc shield not properly installed	6. Check that arc shield is pivoted to the fully down position.
	7. Normal load currents below 5% of rated current of contactor.	7. Use a smaller size contactor to improve blowout action.
	8. Excessive current.	8. Check that load currents are within contactor rating.
Operating Coil Overheats.	1. Improper or defective	1. Check coil part number and resistance to determine if coil is defective.
	2. High voltage condition on coil.	2. Check that control circuit voltage does not exceed 110% of rated coil voltage for extended periods.
	3. Loose connection at coil terminals.	3. Check connection and tighten if loose.

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