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SERVICE AND REPAIR PARTS

NEMA SIZE 3, SINGLE POLE, NORMALLY OPEN, P/N 59364 SERIES
NEMA SIZE 4, SINGLE POLE, NORMALLY OPEN, P/N 59345 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 (DIM. A) and in front of the Arc Shield (DIM. B) for arcing clearance. Check that the contactor operating coil (31) is the correct voltage. With all power removed, pivot the arc shield upwards (3) and operate the contactor by hand. The contact tips (8) should meet SQUARELY. If they do not, align them by the procedure described below. Pivot the arc shield back (3) to the full downward position. **CAUTION: DO NOT OPERATE THE CONTACTOR UNDER LOAD UNLESS THE ARC SHIELD IS PIVOTED TO THE FULLY DOWNWARD POSITION**.

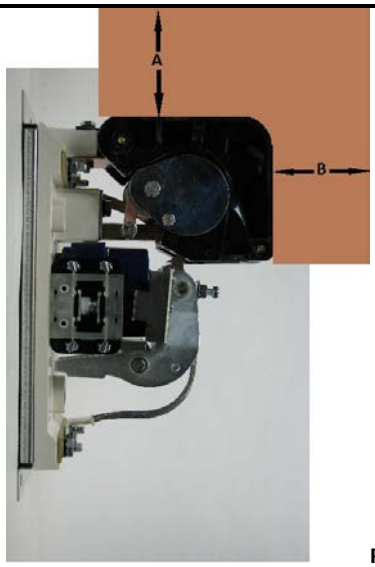


Fig. 1

ELECTRICAL CLEARANCES

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

NEMA SIZES

DIM.	1	2
A	4 ¼"	4 ¼"
B	2 ¾"	2 ¾"

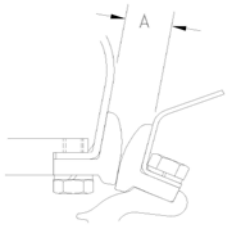
WARNING: ALL METAL PARTS OF THE CONTACTOR MAY BE AT LINE VOLTAGE. ALL POWER MUST BE DISCONNECTED FROM THE CONTACTOR BEFORE PERFORMING ANY ADJUSTMENT, MAINTENANCE OR TROUBLE-SHOOTING PROCEDURES.

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

CONTACTOR TIP ADJUSTMENT

1. With al power removed, pivot the arc shield (3) upwards.
2. Check that the movable (8) contact tip is against the ledge located on the movable contact holder (36) (see Fig. 2).
3. Make sure the stationary contact tip (8) is located on the stationary contact bracket (30). (Fig. 2)
4. The contact tip surfaces must be aligned both vertically and horizontally. (Fig 2.)
5. Pivot the arc shield (3) back to the fully downward position.

Fig. 2



SIZE 3, 4 N.O.

CONTACTOR SIZE		A MATED DIMENSION NEW	A MATED DIMENSION REPLACE
3	N.O.	9/16"	5/16"
4	N.O.	9/16"	5/16"

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 (3).
2. Remove the movable contact tip (8) and arc horn (49) by removing the stainless steel cap screw (9) and lock-washer (72) located on contact holder arm (36).
3. Remove the stationary contact tip (8) by removing the stainless steel cap screw (9) and lock-washer (72) located on stationary contact support (30).
4. Install the new stationary contact tip (8) using the stainless steel screw (9) and lockwasher (72).
5. Install the new movable contact tip (8) and new arc horn (49) using the stainless steel screw (9) and lockwasher (72).
6. Install the new contact spring (47) 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 (3) back to its proper position.

AUXILIARY ELECTRICAL CONTACTS

1. With all power removed, check that auxiliary contact (62) has the proper follow-up. With new auxiliary contacts, the correct operating height is as shown in Fig. 3 when the armature (46) is FULLY Closed.
2. If adjustment is needed bend the lower portion of the strikers (44) (65).

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 (60) by removing slotted screws (60).
3. Install NEW CONTACT ASSEMBLY (60) 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.

COIL REPLACEMENT

1. With all power removed, disconnect the coil leads.
2. Remove the armature bearing pin (45) by loosening the locking nut (73) and backing the locking screw (50) out until the pin (45) may be remove..
3. Remove the armature/moving assembly (46).
4. Remove the screw (35) on the front of the magnet core and remove non-magnetic spacer (34), core cap (33) and coil (31).
5. Install the new coil using the core cap (33), non-magnetic spacer 34) and tighten the screw. It is recommended that a thread locking loctite) be used on the core cap screw and the screw be very tight (100 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/moving assembly (46) and armature bearing pin (45).
7. Spin the locking nut (73) up to the bottom of the locking screw (50) head. Check that contact bearing pin (45) is centered then tighten the locking screw (50), then tighten the locking nut (73).
8. Reconnect the coil leads.

SHUNT REPLACEMENT

The shunt (39) 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 (39) by removing hex head screw (40), lockwasher (6), washer (41) and shunt from lower bus bar (55).
2. Disconnect the top end of the shunt by loosening the nut (38) then removing the screw (37), washer (41), lockwasher (6) and the shunt (39).
3. Install the new shunt. Be certain that the contact pin (48) is oriented inside the holder arm (36) so that the divit feature of the pin is visible at the bottom of the threaded hole in the holder. If the pin is not oriented correctly the pin will fall out in service.
4. Spin the nut (38) to the bottom of the screw (37) head. Place the top end of the new shunt on the contact holder arm (36) and install by replacing the screw/nut, lockwasher (6) and flat washer (41) as shown.
5. Check that the bearing pin (18) is centered and tighten the screw (37) very tight (100 in-lbs).
6. Hold the shunt ferrule straight in line with the vertical center line of the holder arm and tighten the nut (38) to 100 in-lbs.
7. Connect the bottom end of the shunt (39) by replacing the washer (41), lockwasher (6), and hex head screw (40).

CAUTION: SHUNT MUST BE DIRECTLY AGAINST MOVABLE CONTACT HOLDER ARM (36) AT THE TOP END AND DIRECTLY AGAINST THE LOAD TERMINAL (55) 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.

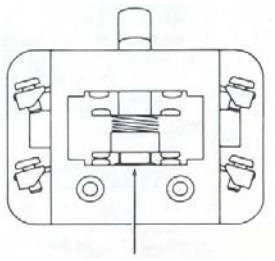


Fig. 3

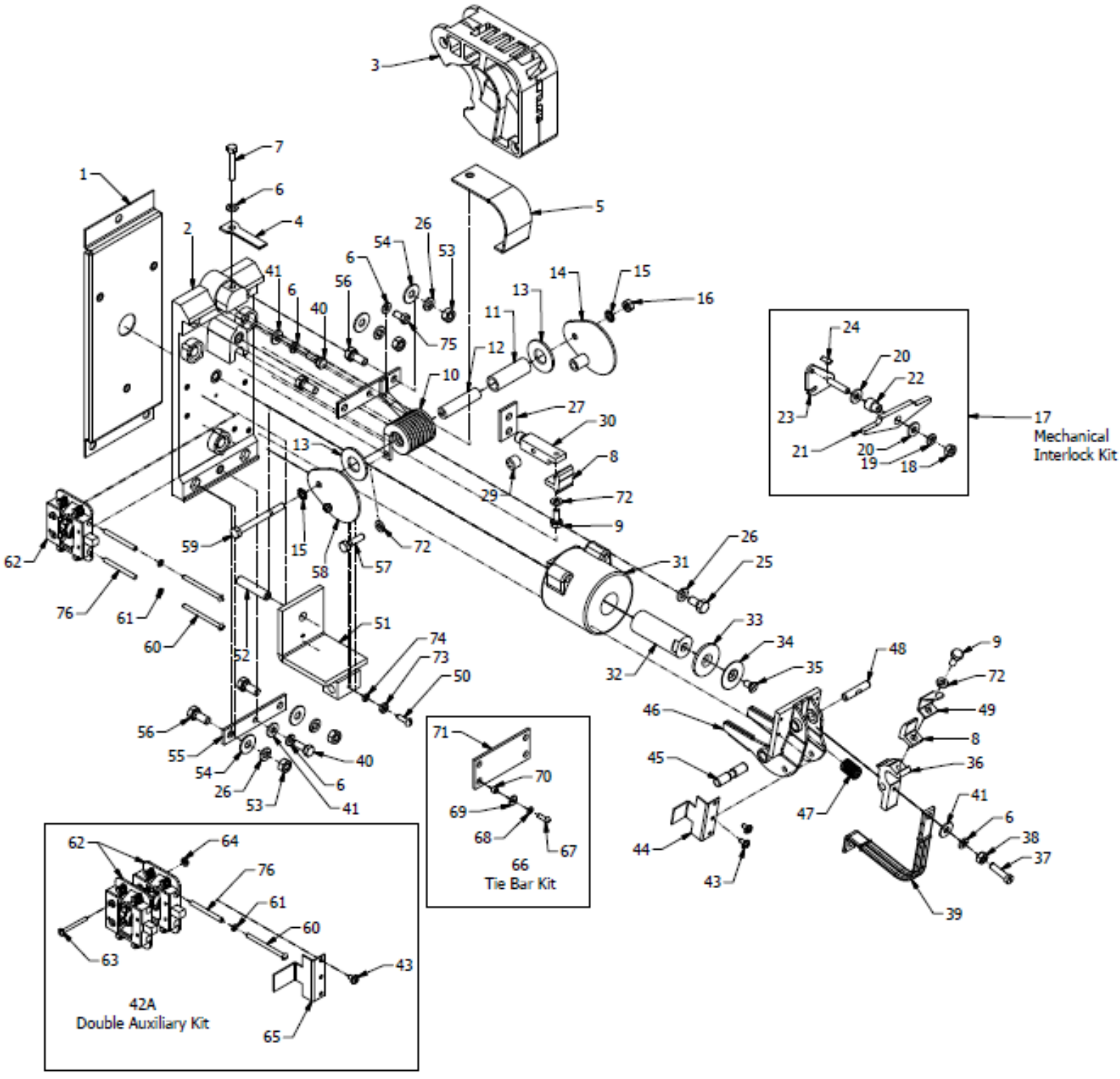
PROPER OPERATED HEIGHT

The snap ring on plunger is even with bottom edge of cover opening.

Item No.	Description	Part No.	Qty. Size 3	Qty. Size 4
1	Mounting Pan	68005-001	1	1
2	Base	67995-002	1	1
* 3	Arc Shield Assembly	59694-501	1	1
4	Arc Shield Retainer	59653-100	1	1
5	Blowout Coil Guard Assembly	68054-002	1	1
6	Lockwasher (1/4”)	47252-038	9	9
7	Hex Head Screw (1/4-20 x 1-1/2”)	47246-069	1	1
* 8	Contact Tip (Standard)	17279-000	2	2
	Contact Tip (Silver)	17279-001	2	2
	Contact Tip (silver tungsten carbide)	17279-003	2	2
9	Hex Head Cap Screw – Stainless (1/4-20 x 5/8”)	47779-063	2	2
10	Blowout Coil Assembly (Standard)	67998-005	1	
	Blowout Coil Assembly (Standard)	67998-006		1
	Blowout Coil Assembly (550 Volts)	67998-007	1	
11	Blowout Coil Assembly (550 Volts)	67998-008		1
	Blowout Coil Core Insulator	17351-000	1	1
12	Blowout Coil Core	66870-034		1
13	Blowout Coil Insulator Washer	16961-000	2	2
14	Flux Plate Assembly (R.H.)	16964-000	1	1
15	Lockwasher (1/4” External Tooth)	47303-008	2	2
16	Hex Nut (1/4-20)	47253-601	1	1
17	Mechanical Interlock Assembly Kit (Consists of items 18 thru 24)	68041-003	1	1
18	Hex Nut (1/4-20)		1	1
19	Lockwasher (1/4”)		1	1
20	Flat Washer (1/4”)		2	2
21	Interlock Bar		1	1
22	Collar		1	1
23	Mounting Plate Assembly		1	1
24	Flat Head Screw (8-32 x 3/8”)		2	2
25	Hex Head Screw (5/16-18 x 1/2”)	47246-078	1	1
26	Lockwasher (5/16”)	47252-039	5	5
27	Contact Support Bracket	67999-000	1	1
28	Fill Head Cap Screw (5/16-18 x 3/4”)	48624-304	1	1
29	Blowout Coil Spacer	16971-001	1	
	Blowout Coil Spacer	16971-000		1
30	Stationary Contact Bracket	58665-002	1	1
* 31	Operating Coil (230/275 Volts)	17359-000	1	1
	Operating Coil (185/216 Volts)	19907-000	1	1
	Operating Coil (108/125Volts)	17487-000	1	1
	Operating Coil (72/75 Volts)	19912-000	1	1
	Operating Coil (57.5 Volts)	17488-000	1	1
	Operating Coil (48 Volts)	19901-000	1	1
	Operating Coil (36 Volts)	19905-000	1	1
	Operating Coil (24 Volts)	19900-000	1	1
	Operating Coil (12 Volts)	17489-000	1	1
	Operating Coil (460/550 Volts)	87649-001	1	1
	Operating Coil (6 Volts)	82358-000	1	1
	Operating Coil (18 Volts)	20000-000	1	1
	Operating Coil (30 Volts)	19913-000	1	1
	Operating Coil (8 Volts)	67892-000	1	1

Item No.	Description	Part No.	Qty. Size 3	Qty. Size 4
32	Stator Core	58664-001	1	1
33	Core Cap	16940-000	1	1
34	Non-Magnetic Spacer – Brass	19683-001	1	1
35	Flat Head Cap Screw – Brass (1/4-2 x 1/2”)	47665-108	1	1
36	Movable Contact Holder	16927-000	1	1
37	Set Screw (1/4-20)	47103-022	1	1
38	Hex Nut (1/4-20)	47253-021	1	1
39	Shunt Assembly	68000-001	1	
	Shunt Assembly	68000-002		1
40	Hex Head Screw (1/4-20 x 3/4”)	47246-064	4	4
41	Flat Washer (1/4”)	47250-502	4	4
42	Auxiliary Contact Assembly Kit (Consists of items 43, 44, 60, 61 and 62)	68040-001	1	1
42A	Double Auxiliary Contact Assembly Kit (Consists of items 43, 60, 61, 62, 63, 64 [two required], and 65)	68040-002	1	1
43	Sems Screw (8-32 x 5/16”)		2	2
44	Auxiliary Striker		1	1
45	Armature Bearing Pin	58843-000	1	1
46	Armature Assembly	17354-000	1	1
47	Contact Spring	16960-000	1	
	Contact Spring	17556-000		1
48	Contact Bearing Pin	16968-000	1	1
*49	Arc Horn	16925-000	1	1
*49A	Arc Horn	68056-000	1	1
50	Hinge Pin Screw (10-24 x 3/8”)	47103-005	1	1
51	Stator Assembly	17356-000	1	1
52	Stud (3/8-16 x 1-5/8”)	66475-014	1	1
53	Hex Nut (5/16-18)	47253-602	4	4
54	Flat Washer (5/16”)	47250-505	4	4
55	Bottom Terminal	67997-002	1	1
56	Hex Head Screw (5/16-18 x 3/4”)	47246-079	4	4
57	Hex Head Screw – Stainless (1/4-20 x 1”)	47779-066	1	1
58	Flux Plate Assembly (L.H.)	16965-000	1	1
59	Hex Head Screw (1/4-20 x 2-3/4”)	47246-094	1	1
60	Screw (8-32 x 2-1/16”)		2	2
61	Lockwasher (No. 8)		2	2
*62	Auxiliary Contact Block	67976-001	1	1
63	Sems Screw (6-32 x 1-1/2”)		2	2
64	Nut (6-32)		2	2
65	Striker, Double		1	1
66	Tie Bar Kit (Consists of items 67 thru 71)	59400-004	1	1
67	Round Head Screw (8-32 x 1/2”)		4	4
68	Lockwasher (No. 8)		4	4
69	Washer (No. 8)		4	4
70	Spacer		4	4
71	Tie Bar		1	1
72	Lockwasher (1/4” S.S.)	47252-238	3	3
73	Lockwasher (#10 split)	47252-065	1	1

* Recommended Parts for Maintenance


17
Mechanical
Interlock Kit
66
Tie Bar Kit
42A
Double Auxiliary Kit

TROUBLE SHOOTING

TROUBLE	POSSIBLE CAUSE	SOLUTION
Contacts will not operate or operation is sluggish.	1. Improper or defective operating coil. 2. Low control circuit voltage. 3. Loose connection in control circuit.	1. Check coil part number resistance to determine if coil is defective. 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. 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. 2. Movable or stationary contact tip not properly aligned 3. Foreign matter on contact surfaces. 4. Contact tips worn beyond recommended limits. 5. Contact surfaces severely scored or burned 6. Arc shield not properly installed 7. Normal load currents below 5% of rated current of contactor. 8. Excessive current.	1. Check contact tips and shunt connections and tighten if loose. 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. Remove foreign matter. 4. Check for contact war by the procedure listing in the MAINTENANCE-Contact Tip Replacement instructions in this Service Bulletin. 5. Inspect contact surfaces and dress with a file as required. 6. Check that arc shield is pivoted to the fully down position. 7. Use a smaller size contactor to improve blowout action. 8. Check that load currents are within contactor rating.
Operating Coil Overheats.	1. Improper or defective 2. High voltage condition on coil. 3. Loose connection at coil terminals.	1. Check coil part number and resistance to determine if coil is defective. 2. Check that control circuit voltage does not exceed 110% of rated coil voltage for extended periods. 3. Check connection and tighten if loose.

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