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Instructions
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SERVICE AND REPAIR PARTS

NEMA SIZE 1, SINGLE POLE, NORMALLY ONEN, P/N 59311/59312/59313 SERIES
NEMA SIZE 2, SINGLE POLE, NORMALLY OPEN, P/N 59321/59322/59323 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, or Arc Shield removal. Check nameplate data for correct equipment. Check that the contactor operating coil (26) is the correct voltage. With a all power removed, pivot the Arc Shield upwards and operate the contactor by hand. The contact tips (21)(33) 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.

CONTACTOR TIP ADJUSTMENT

1. With all power removed, remove the Arc Shield.
2. Check that the square projection on the lower end of the movable contact (33) is seated in the recess in the finger board (32).
3. Make sure that the stationary contact tip is against the stationary contact bracket located on the blowout coil assembly. (Fig. 2).
4. Replace the Arc Shield and pivot back to its proper position.

CONTACT TIP REPLACEMENT

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

1. With all power removed, remove the Arc shield.
2. Remove the movable contact finger (33) by removing the sems screw (35) and brass washer (8). To remove spring (31), push down toward contact and twist to right or left and release.
3. Remove the stationary contact tip by removing the Stainless Steel screw (1) and lockwasher located on stationary contact bracket (20).
4. Install the new stationary contact tip using the Stainless Steel screw and lockwasher.
5. Install new movable finger over spring hook on fingerboard. Replace spring by pushing down and releasing so that hook inside spring engages fingerboard hook. Replace shunt (36), brass washer and sems screw. On size 2 contactors, arc horn (34) is held under shunt by shunt screw (35).
6. Manually operate the contactor and check the contact tips for alignment. Align the contact tips to meet squarely.
7. Replace the Arc Shield and pivot back to its proper position.

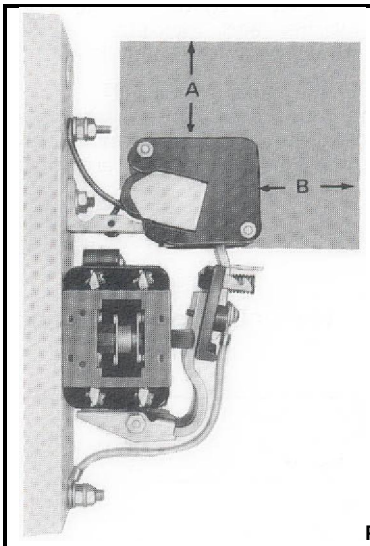


Fig. 1

ELECTRICAL CLEARANCES

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

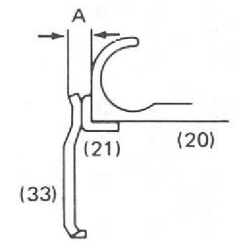
NEMA SIZES

DIM.	1	2
A	2.5”	2.5”
B	.75”	.85”

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.

Fig. 2



SIZE 1, 2 N.O.

CONTACTOR SIZE		A MATED DIMENSION	
		NEW	REPLACE
1	N.O.	3/8”	7/32”
2	N.O.	13/32”	1/4”

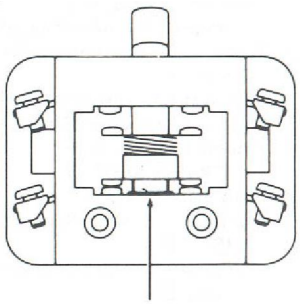
AUXILIARY ELECTRICAL CONTACTS

1. With all power removed, check that auxiliary contact (39) has the proper follow-up. With new auxiliary contacts, the correct operating height is as shown in Fig. 3 when the armature (30) is FULLY CLOSED.

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.

Fig. 3



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

2. Remove fingerboard (32) by removing screws (12) and washers (13).
3. Remove Contact Assembly by removing slotted screws (38).
4. Install NEW CONTACT ASSEMBLY as shown in the exploded view.
5. Replace fingerboard, lockwashers and screws.
6. Manually operate the contactor and check the moving contacts for proper follow-up in Fig. 3.
7. Replace leads on terminals.

COIL REPLACEMENT

1. With all power removed, disconnect the coil leads.
2. Remove the hinge pin locknut (30) and hinge pin (30). The hinge pin is THREADED into the armature side piece.
3. Remove the armature assembly (30).
4. Remove the brass screw (29) on the front of the magnet core and remove non-magnetic spacer (28), core cap (27) and coil (26).
5. Install the new coil using the core cap, non-magnetic spacer and tighten the brass screw. Note that the steel core cap, which is thicker than the non-magnetic phosphor bronze spacer, bust be installed against the coil. (See Exploded View).
6. Replace armature, hinge pin, lock washer and locknut.
7. Reconnect the coil leads.

SHUNT REPLACEMENT

The shunt (36) 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 (26) by removing hex nut (4), washer (3), and shunt.
2. Disconnect the top end of the shunt by removing screw (35), washer (8) and the shunt.
3. Install the new shunt. Connect the top end of the shunt by replacing washer and screw.
4. Connect the bottom end of the shunt by replacing the shunt, nut and washer.

CAUTION: SHUNT MUST BE DIRECTLY AGAINST MOVABLE CONTACT (33) OR ARC HORN (34) AT THE TOP END AND DIRECTLY AGAINST THE WIRE TERMINAL AT THE BOTTOM.

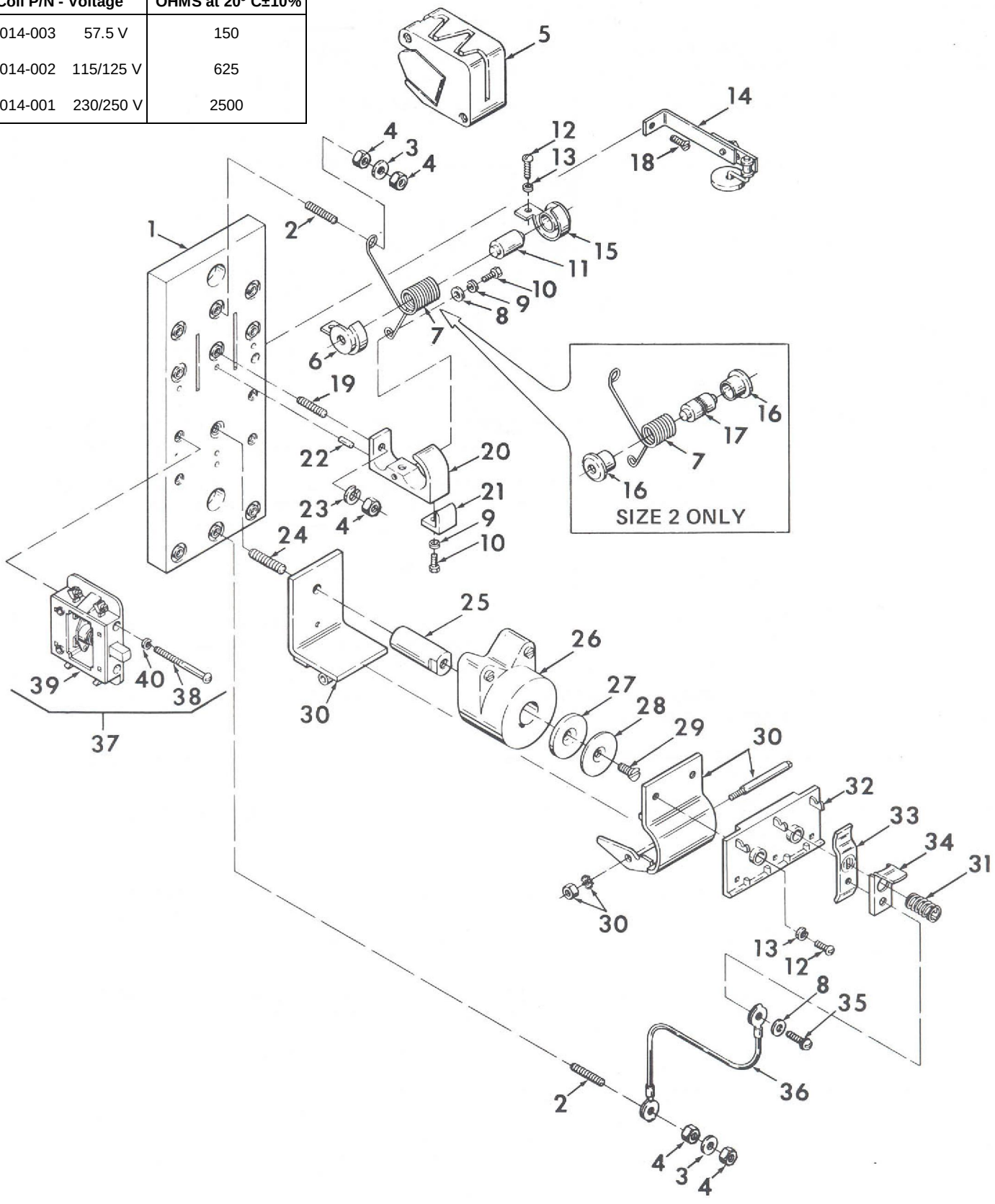
Size 1 and 2
Normally Open Contactor

Item No.	Description	Part No.	Qty. 1 Pole	2 Pole	3 Pole
1	Base (Size 1 & 2)	68013-001	1		
	Base (Size 1 & 2)	68013-002		1	
	Base (Size 1)	68013-003			1
	Base (Size 2)	68035-001			1
2	Stud (1/4-20 x 1-1/8")	66475-015	2	4	6
3	Flat Washer (Brass, 1/4")	48251-010	2	4	6
4	Hex Nut (1/4-20)	47253-021	5	10	15
*5	Arc Shield Assembly (Size 1)	42855-000	1	2	3
	Arc Shield Assembly (Size 2)	42856-000	1	2	3
6	Blowout Coil Support (L.H., Size 1)	42872-000	1	2	3
7	Blowout Coil (5 Amp) Size 1	58726-004	1	2	3
	Blowout Coil (10 Amp) Size 1	58726-003	1	2	3
	Blowout Coil (15 Amp) Size 1	58726-006	1	2	3
	Blowout Coil (25 Amp) Sizes 1 & 2	58726-002	1	2	3
	Blowout Coil (50 Amp) Size 2	58726-001	1	2	3
8	Flat Washer (Brass, No. 10)	47251-008	2	4	6
9	Lockwasher (No. 10)	47252-065	2	4	6
10	Hex Head Screw – Stainless (10-24 x 3/8")	47779-042	2	4	6
11	Blowout Coil Core (Size 1)	42023-000	1	2	3
12	Round Head Screw (8-32 x 5/8") Size 1	47241-104	3	4	5
	Round Head Screw (8-32 x 5/8") Size 2	47241-104	2	2	2
13	Lockwasher (No. 8) Size 1	47252-064	3	4	5
	Lockwasher (No. 8) Size 2	47252-064	2	2	2
14	Mechanical Interlock Assembly Kit (Includes Item 18)	68040-001	1		
	Mechanical Interlock Assembly Kit (Includes Item 18)	68040-002		1	1
15	Blowout Coil Support (R.H., Size 1)	42871-000	1	2	3
16	Blowout Coil Insulator (Size 2)	42014-000	2	4	6
17	Blowout Coil Core (Size 2)	42024-000	1	2	3
18	Round Head Sems (10-24 x 3/8")		1	1	1
19	Stud (1/4-20 x 7/8")	66475-016	1	2	3
20	Stationary Contact Support (Size 1)	58661-001	1	2	3
	Stationary Contact Support (Size 2)	58661-002	1	2	3

Item No.	Description	Part No.	Qty. 1 Pole	2 Pole	3 Pole
* 21	Stationary Contact Tip (Standard, Size 1)	2315-000	1	2	3
	Stationary Contact Tip (Standard, Size 2)	2317-000	1	2	3
	Stationary Contact Tip (Silver, Size 2)	2315-001	1	2	3
	Stationary Contact Tip (Silver, Size 2)	2317-001	1	2	3
22	Groove Pin	57404-001	1	2	3
23	Lockwasher (1/4")	47252-038	1	2	3
24	Stud (5/16-18 x 1-1/4")	66475-017	1	1	1
25	Core	58660-001	1	1	1
*26	Coil (57.5 Volts)	68014-003	1	1	1
	Coil (115/125 Volts)	68014-002	1	1	1
	Coil (230/250 Volts)	68014-001	1	1	1
27	Core Cap	18048-000	1	1	1
28	Non-Magnetic Spacer	19683-001	1	1	1
29	Flat Head Screw (Brass, 1/4-20 x 1/2")	47665-108	1	1	1
	Armature-Stator-Hinge Pin Assembly	58675-001	1	1	1
* 31	Finger Spring (Size 1)	4657-000	1	2	3
	Finger Spring (Size 2)	8838-000	1	2	3
32	Finger Board	42005-000	1	1	1
* 33	Movable Finger (Standard, Size 1)	5721-000	1	2	3
	Movable Finger (Standard, Size 2)	5722-000	1	2	3
	Movable Finger (Silver, Size 1)	5721-000	1	2	3
	Movable Finger (Silver, Size 2)	5722-001	1	2	3
34	Arc Horn (Size 2 Only)	42029-000	1	2	3
35	Sems Screw (10-32 x 3/8")	47800-128	1	2	3
36	Finger Shunt (Size 1)	4870-001	1	2	3
	Finger Shunt (Size 2)	4873-000	1	2	3
37	Auxiliary Contact Assembly Kit (Consists of items 38, 39, and 40)	68040-003	as req'd		
38	Screw (8-32 x 2-1/16")		2 per auxiliary		
*39	Auxiliary Contact Block	67976-001	as req'd		
40	Lockwasher (No. 8)		2 per auxiliary		

* Recommended Parts for Maintenance

COIL CHART		
Coil P/N - Voltage		OHMS at 20º C±10%
68014-003	57.5 V	150
68014-002	115/125 V	625
68014-001	230/250 V	2500



TROUBLE SHOOTING

TROUBLE	POSSIBLE CAUSE	SOLUTION
Contacts will no 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	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.
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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