

NEMA SIZE 4 DOUBLE POLE L LINE-ARC CONTACTOR

FOLIO 3

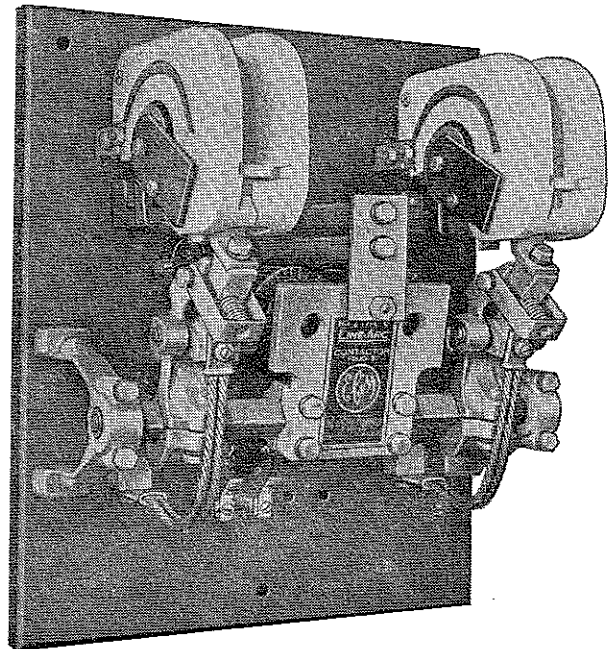
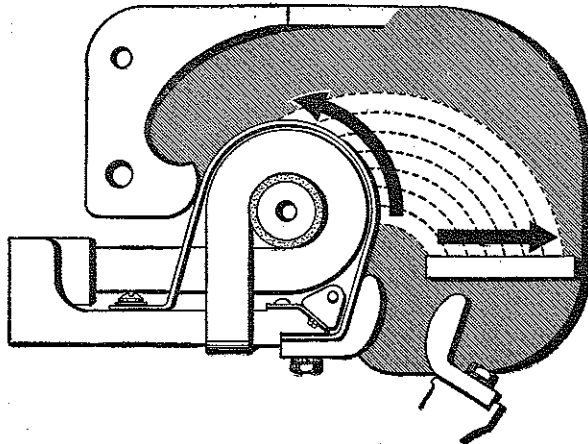
FOR DC OPERATION

INSTRUCTIONS

TYPE L LINE-ARC CONTACTORS are general purpose, direct current magnetic contactors.

Contactor Size		Continuous Rating Amperes	Crane and Mill Rating Amperes	Rupturing Capacity Amperes
NEMA	EC&M			
No. 4	No. 2	150	200	1500

LINE-ARC: These contactors derive their name from the manner in which they handle the arc. The Line-Arc principle of controlling the arc is simple . . . and automatic. There is nothing to adjust or wear out. At the instant the contacts start to separate, the arc is automatically transferred from the contacts to the arcing plate and circular guard over the blowout coil. The arc, as it travels along the arcing plate and circular guard, is stretched out in a line centered between the arc shields. Hence—cool contacts and the name Line-Arc.



CAUTION — Before operating the contactor under load, be sure that the arc shields are lowered in their proper positions.

INSTALLATION: Mount the contactors vertically on rigid supports with at least 3" clearance above and in front of the arc shields to provide the proper distance for arcing clearance and also for removal of the arc shields. The life of the contactor will be considerably prolonged by installing it in a clean, dry place, preferably in a cabinet and as free as possible from external vibration or shock.

MAGNET AIR GAP: To insure quick release of the magnet arm, a non-magnetic spacer .0159" thick is placed between magnet cores and the core caps. See that the magnet faces are free from oil or sticky foreign material.

BEARINGS: Type L contactors are equipped with Nitralloy pins and Oilite bearings. These bearings are self-lubricating and require no lubrication in the field.

OPERATING COILS: These contactors will operate satisfactorily on 80% of normal control voltage when the coils are hot and will hold in on 20% of normal voltage. The coils will stand 110% of normal voltage continuously.

Contactors for 115 and 230 volt service are supplied with half-voltage coils. Contactors for 550 volt service are supplied with two 115 volt coils and suitable resistor mounted on the back of the base.

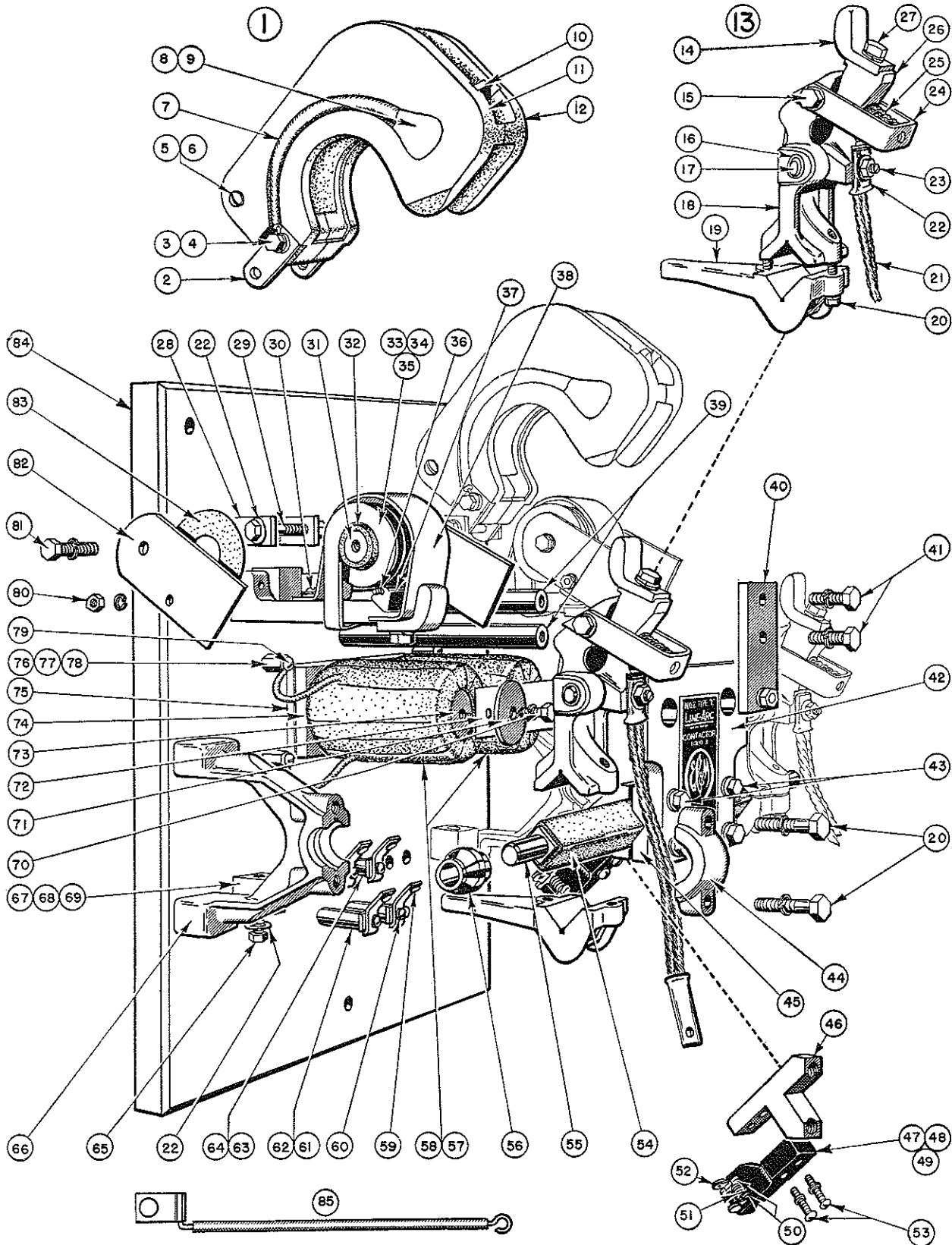
To remove the operating coil, remove control circuit arm if provided, then remove the magnet arm stop-plate. The magnet arm may then be lowered to remove the operating coil.

ELECTRICAL INTERLOCKS: These consist of stationary contacts mounted on the base and a moving contact attached to the bottom of the magnet arm clamp. The moving contact should provide 1/8" follow-up when the magnet arm reaches its limit of travel, either completely closed or completely opened. The rating of these electrical interlocks is as follows:

	Max. Inrush	Cont. Amps.	Rupturing Capacity Amps. Inductive			
			115 V.	250 V.	440 V.	550 V.
A.C.	30	15	10	10	5	5
D.C.	30	15	2.5	1.0	.4	.4

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NOTE: Indented items are component parts
of item immediately preceding.

Item No.	List No.	Description	Item No.	List No.	Description
1	LT-2024-A	Assembled Arc Shield _____	45	L-1211	Clamp, 2 req'd. _____
2	LT-1049	Arc Shield Hinge, 2 req'd. _____	46	L-1206	Magnet Arm Clamp, 2 req'd. _____
3		1/4"-20x2 1/4" H.I. Cap Screw, Nut & Shakeproof Lk. Washer _____	47	EL-1-A	Control Circuit Arm, Complete, for Open or Closed Control Circuit _____
4	ZO-1150	Cup Washer, 2 req'd. _____	48	EL-2-A	Control Circuit Arm, Complete, for Open and Closed Control Circuit _____
5	FP-23A36	Binding Screw _____	49	EL-47	Control Circuit Arm, only _____
6	FP-23A13	Binding Nut _____	50	EL-87	Spring Retainer, 2 req'd. _____
7	LT-1081	Arc Plate Connector, 2 req'd. _____	51	EL-49	Spring _____
8		8-32x3/4" F.I. Mch. Screw, (not shown) 2 req'd. _____	52	EL-84-A	Contact Bridge, 1 req'd. for Item 47, 2 req'd. for Item 48 _____
9	ZO-1121	Cup Washer, (not shown) 2 req'd. _____	53		10-24x1" R.L. Mch. Screw & Lk. Washer, 2 req'd. _____
10	LT-2032	Arc Plate _____	54	LT-2615	Shaft Insulator, 2 req'd. for Double Pole only. _____
11	LT-2035	Arc Shield, left hand _____	55	L-2208-A	Shaft, Complete with Insulator Item 54, Double Pole only _____
12	LT-2036	Arc Shield, right hand _____	56	LT-1121	Oilite Bearing, 2 req'd. _____
13	L-2203-G	Assembled Contact Arm, Complete _____	57	LT-2118-AE	Coil, 230 Volt Double Pole only, 2 req'd. (115 V Coils in series) _____
14	A50005-006-02	Contact Tip _____	58	LT-2117-AE	Coil, 115 Volt Double Pole only, 2 req'd. (57.5 V Coils in series) _____
15		1/4"-20x1/2" H.I. Cap Screw & Lk. Washer, 2 req'd. _____	59	EL-6-A	Contact, 2 req'd. for Item 47, 4 for Item 48. _____
16	FP-24B12	Oilite Bearing, 2 req'd. per Contact Arm _____	60		10-24x1/2" R.L. Mch. Screw & Lk. Washer _____
17	LT-2038	Auxiliary Arm Pin _____	61	EL-21	Stud, for 1"-1 1/4" Base (list number stamped on Stud) _____
18	L-2204-A	Contact Arm, complete with Bearing, Item 16 _____	62	EL-22	Stud, for 1 1/2"-2" Base (list number stamped on Stud) _____
19	LT-2123	Contact Arm Clamp _____	63	EL-11	Stud, for 1"-1 1/4" Base (list number stamped on Stud) _____
20		5/16"-18x1 1/4" H.I. Cap Screw & Lk. Washer, 2 req'd. _____	64	EL-12	Stud, for 1 1/2"-2" Base (list number stamped on Stud) _____
21	LT-2114-A	Connector _____	65		1/4"-20x3/4" H.I. Cap Screw, 2 req'd. _____
22	B50502-004-01	Spring Washer _____	66	LT-2115	Bearing Bracket, 2 req'd. _____
23	LT-1443	Set Screw & 1/4" H.I. Nut _____	67	LT-2044-A	Main Terminal Stud, for 1" Base _____
24	L-1021	Contact Spring Bracket _____	68	LT-2045-A	Main Terminal Stud, for 1 1/4"-1 1/2" Base _____
25	L-2027	Contact Spring _____	69	LT-2646-A	Main Terminal Stud, for 2" Base _____
26	LT-2028-A	Auxiliary Arm _____	70		1/4"-20x3/4" Bronze Hex. Mch. Cap Screw & Lk. Washer, 2 req'd. _____
27		5/16"-18x3/4" H.I. Cap Screw & Lk. Washer _____	71	L-1026	Core Cap, 2 req'd. _____
28	LT-2050	Arc Shield Clip _____	72	L-3029	Non-magnetic Spacer _____
29		1/4"-20x2 1/2" H.I. Cap Screw & 2 Nuts _____	73	L-3015-A	Core, 2 req'd. _____
30		5/16"-18x3/4" R.I. Mch. Screw, Pl. Lk. Washer & Std. Washer _____	74	L-3018-A	Core Plate _____
31	LT-2039	Blowout Core _____	75	L-2212	Spacer _____
32	LT-2074	Insulator, for Blowout Core _____	76	LTZ-1809	Coil Terminal Stud, for 1" Base _____
33	LT-2656-A B	Blowout Coil & Contact Bracket, for 1" Base _____	77	LTZ-1810	Coil Terminal Stud, for 1 1/4"-1 1/2" Base _____
34	LT-2657-A B	Blowout Coil & Contact Bracket, for 1 1/4"-1 1/2" Base _____	78	LTZ-1811	Coil Terminal Stud, for 2" Base _____
35	LT-2658-A B	Blowout Coil & Contact Bracket, for 2" Base _____	79		10-24x3/8" R.I. Mch. Screw & Lk. Washer _____
36	LT-2072	Stud, for Blowout Ear Spacer _____	80		10-24 H.I. Nut & Lk. Washer, for Blowout Ear Spacer Stud, 2 req'd. _____
37	LT-2064	Blowout Ear Spacer _____	81		1/4"-20x1/2" H.I. Cap Screw & Lk. Washer for Blowout Core _____
38	LT-2265-A	Blowout Guard _____	82	LT-1052	Blowout Ear, 2 req'd. _____
39	L-2219	Stop Bar, 2 req'd. _____	83	LT-1075	Insulator, for Blowout Ear, 2 req'd. _____
40	L-1214-A	Stop Plate (Includes Spl. Cap Screw LTZ-1304, 5/16" H. I. Jam Nut & Lk. Washer) _____	84		Base, specify thickness and number of Poles. _____
41		5/16"-18x3/4" H.I. Cap Screw & Lk. Washer, 2 req'd. _____	85	LT-2128A	Blowout Connector _____
42	L-2210	Armature Plate _____			
43		5/16"-18x1 1/2" H.I. Cap Screw & Lk. Washer, 4 req'd. _____			
44	LT-1125	Bearing Bracket Clamp, 2 req'd. _____			

† Essential Parts for General Maintenance

⊙ These are new parts used on Folio 3 Contactors only and are not interchangeable with parts of previous design contactors. All other parts are interchangeable.

● Minor revisions since previous issue

▲ When ordering coils, specify voltage and number of poles

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MECHANICAL INTERLOCKS: These are horizontal bakelite bars, pivoted at the center. They are carefully ground at the factory to suit the contactors with which they are used. They must prevent the contacts of both contactors touching simultaneously but not interfere with the complete closure and seal of either contactor alone. **CAUTION** — The interlock should maintain one set of contacts open at least $\frac{3}{8}$ " when the other contacts just touch.

MAIN CONTACTS: These are made of pure copper by a special forging process to give high Brinell hardness throughout their entire thickness. These contacts close with a slight rolling action, there is no wiping action. Contactors are adjusted at the factory to give simultaneous closing of the contacts.

The stationary and moving contacts may wear unequally, depending upon polarity, it may not be necessary to change both contact tips when replacement is necessary. The best operation is obtained with positive connected to the stationary contacts and negative to the moving contacts. Wiring diagrams are so arranged by the Square D Company.

MAIN CONTACT OPENING: In the table at right is shown the correct dimension for contact opening. Contact follow-up is necessary so that the contact pressure will be maintained as the contacts wear. The follow-up is the amount of opening between the moving contact auxiliary arm and its stop shown at "B" in the sketch below, WITH THE CONTACTOR FULLY CLOSED. Follow-up decreases with contact wear. When dimension "B" is reduced to $\frac{1}{32}$ ", the contact tips must be replaced.

MAIN CONTACT PRESSURE: Type L contactors are designed with contact pressures as given in the table below. A slight arcing or spitting of the contacts when closing may be an indication that the contact tips or springs should be replaced.

To check spring pressures, a spring balance may be used with a tape on the hook passing around the contact tip at its point of contact and pulled at right angles to the auxiliary contact arm, as shown in the sketch below. Contact pressure is correct if the balance scale shows a pull as given in the following table with the arm just leaving its stop at "B".

OPENING WHEN NEW	
Opening at "B" with Contactor fully closed.....	220"
CONTACT PRESSURE IN POUNDS	
Surfaces at "B" just breaking (new or old)	3.0-3.5
Sealed, Contactor fully closed (when new)	5.0-5.5

