



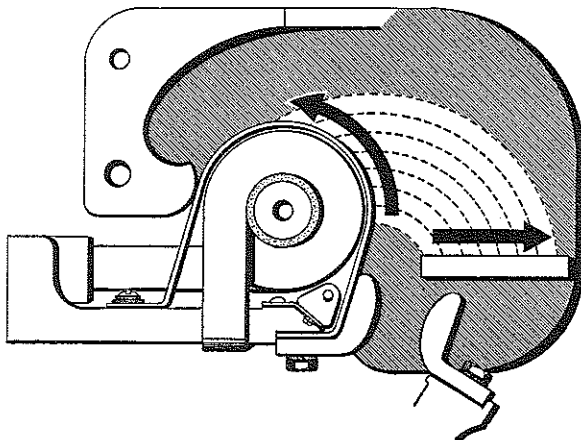
NEMA No. 5 SINGLE POLE L LINE-ARC CONTACTOR FRONT CONNECTED FOLIO 3A FOR DC OPERATION

INSTRUCTIONS

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

Contactor Size NEMA	Continuous Rating Amperes	Crane and Mill Rating Amperes	Rupturing Capacity Amperes
No. 5	300	400	3000

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.



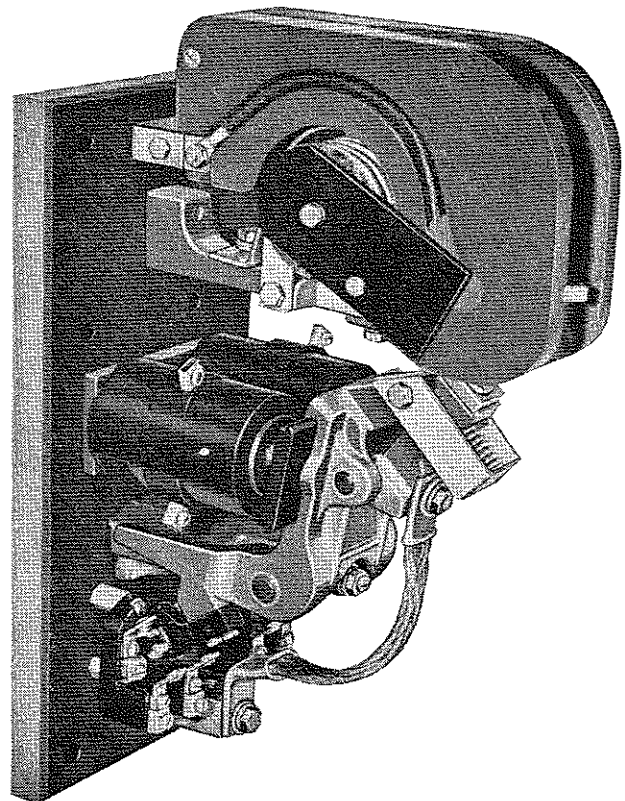
CAUTION—Before operating the contactor under load, be sure that the arc shield is lowered in its proper position.

INSTALLATION: Mount the contactors vertically on rigid supports with at least 3 1/4" 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 the 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.



This contactor has a horseshoe type magnetic circuit using two duplicate magnet coils connected in series.

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

To remove the operating coils, first back out the magnet arm pin set-screw and remove the magnet arm pin. The magnet arm may then be lowered to remove the operating coils.

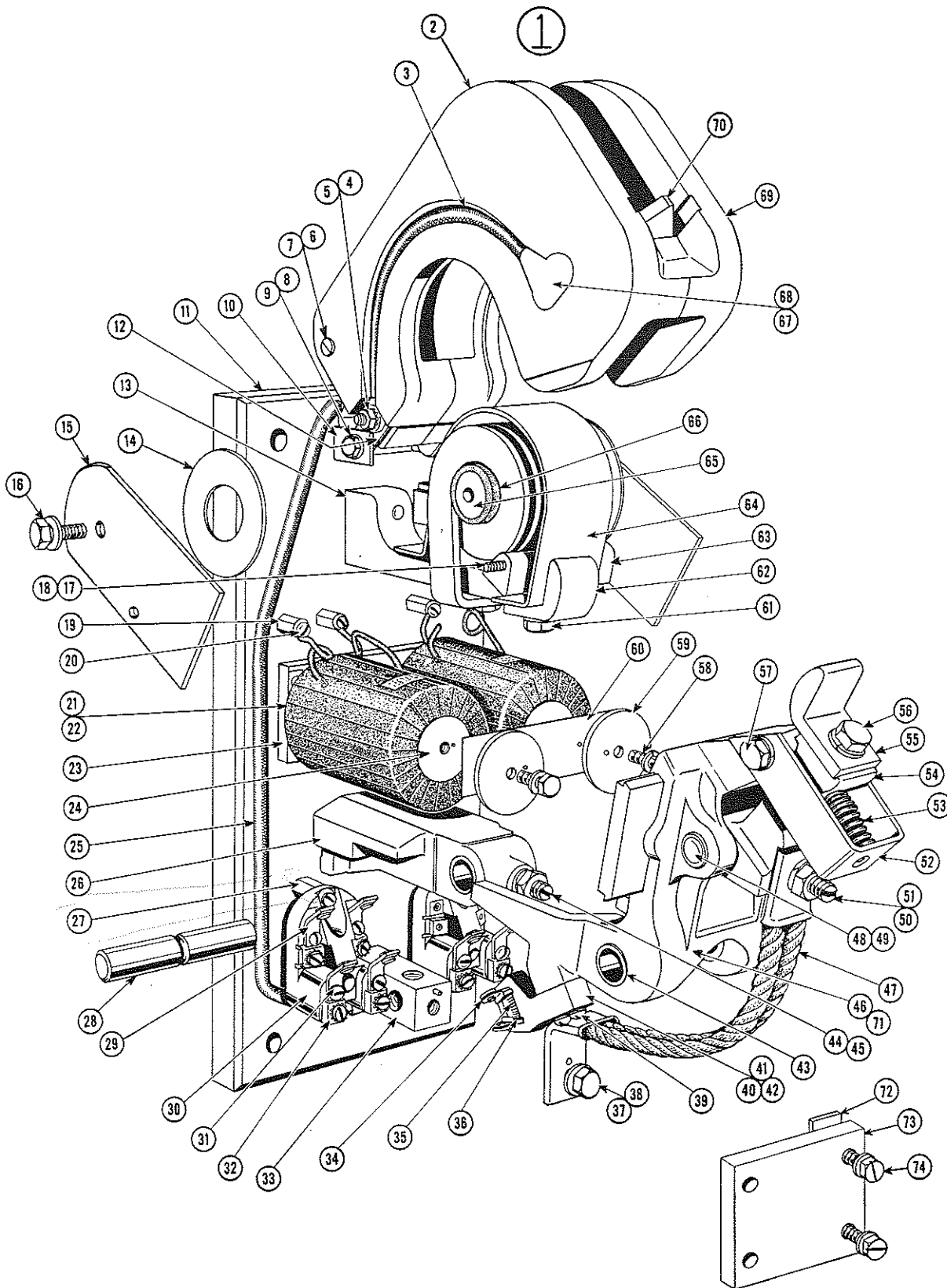
ELECTRICAL INTERLOCKS: These consist of stationary contacts mounted on the base and a moving contact attached to the bottom of the magnet arm. The moving contact should provide 1/8" follow-up when the magnet arm reaches its limit of travel, either completely closed or completely opened. The rating of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

(Continued on Page 4)



NEMA No. 5 SINGLE POLE L LINE-ARC CONTACTOR, FOLIO 3A





NEMA No. 5 SINGLE POLE LINE-ARC CONTACTOR, FOLIO 3A

Item No.	List No.	Description	Item No.	List No.	Description
✓ 1	LT-3024-A	Assembled Arc Shield.....	37		3/8"-1 6x3/4" Hex. Stl. Cap Screw and Lk. Washer
2	LT-3035	Arc Shield, Left Hand <i>NOT FOR SALE</i>	38		3/8" S.A.E. Washer.....
3	LT-3081	Arc Plate Connector, 2 req'd. <i>NOT FOR SALE</i>	39		10-24x3/8" R. Stl. Machine Screw and Lk. Washer.....
4		1/4"-20x2 1/2" H.I. Cap Screw, Nut and Shake-proof Lk. Washer.....	40	EL-1-A 51075-022-50	Control Circuit Arm, Complete, For Open or Closed Control Circuit.....
5	ZO-1150	Cup Washer.....	41	EL-2-A	Control Circuit Arm, Complete, For Open and Closed Control Circuit.....
6	20410-1450	Binding Nut <i>Not for Sale</i>	42	EL-4Z	Control Circuit Arm, Only.....
7	22999-1440	Binding Screw <i>Not for Sale</i>	43	29005-40260	Bearing, 2 req'd., Pressed Into Arm.....
8		1/4"-20x2 3/4" H.I. Cap Screw and H.I. Nut.....	44	LT-3394	Set Screw.....
9	85-0302-004-01	Spring Washer, 2 req'd.....	45		3/8"-16 H.I. Jam Nut and Lk. Washer.....
✓ 10	LT-3050	Arc Shield Clip.....	✓ 46	L-3013-A	Assembled Magnet Arm, Complete With Bearings Item 43 and 49.....
11		Base, Advise Thickness and Number of Poles.....	47	L-3714-A	Assembled Connector.....
✓ 12	LT-1049	Arc Shield Hinge, 2 req'd.....	48	LT-2037	Auxiliary Arm Pin.....
✓ 13	L-3730-A	Assembled Blowout Coil and Contact Bracket.....	49	29005-32220	Bearing, 2 req'd., Pressed Into Arm.....
✓ 14	LT-3075	Insulator for Blowout Ear, 2 req'd.....	50	LT-3395	Set Screw.....
✓ 15	LT-3052	Blowout Ear, 2 req'd.....	51		3/8"-16 H.I. Jam Nut, Std. I. Washer and Lk. Washer.....
16		1/4"-20x1/2" H.I. Cap Screw and Lk. Washer, 2 req'd.....	✓ 52	L-3021	Spring Bracket.....
17	LT-3072	Stud For Blowout Ear Spacer.....	✓ 53	L-3027	Contact Spring.....
18		10-24 H.I. Nut and Lk. Washer (not shown).....	✓ 54	LT-3028-A	Assembled Auxiliary Arm.....
19	L-1721	Coil Terminal Stud, 4 req'd.....	✓ 55	A50005-010-01	Contact Tip.....
20		10-24x3/8" R. Stl. Machine Screw.....	56		3/8"-16x3/8" H.I. Cap Screw and Lk. Washer.....
✓ † 21	L-2117-AE	Coil, 115 Volt, 2 req'd., (57.5 V Coils in series)	57		3/16"-18x1/2" H.I. Cap Screw and Lk. Washer.....
✓ † 22	L-2116-AE	Coil, 230 Volt, 2 req'd., (115 V Coils in series)	58		1/4"-20x3/4" Everdur Hex. Machine Bolt and Lk. Washer.....
23	L-3018-A	Assembled Core Plate.....	✓ 59	L-1026	Core Cap, 2 req'd.....
24	L-3015-A	Assembled Core, 2 req'd.....	60	L-3029	Non-Magnetic Spacer.....
* 25	L-3705-A	Blowout Connector.....	61		3/8"-16x3/8" H.I. Cap Screw and Lk. Washer.....
✓ 26	LT-3029-A	Magnet Arm Bracket.....	✓ 62	A50005-010-01	Contact Tip.....
27	EL-111	Mounting Stud.....	✓ 63	LT-3064	Blowout Ear Spacer.....
✓ 28	LT-3037	Magnet Arm Pin.....	✓ 64	LT-3265-A	Blowout Guard.....
✓ † 29	EL-109-A	Assembled Contact.....	✓ 65	LT-3039	Blowout Core.....
30	EL-100-A	Contact Block.....	✓ 66	LT-3074	Insulator For Blowout Core.....
31		10-32x3/8" R. Stl. Machine Screw and Lk. Washer.....	67	ZO-1150	Cup Washer, 2 req'd. (not shown)
32	EP-28H1-10	Terminal.....	68		10-24x1" F.I. Machine Screw, 2 req'd. (not shown)
33	L-3712-A	Terminal Block Assembly.....	69	LT-3036	Arc Shield, Right Hand <i>NOT FOR SALE</i>
✓ † 34	EL-84-A 51075-023-50	Contact Bridge, 1 req'd. for Item 40, 2 req'd. for Item 41.....	70	LT-3032	Arc Plate <i>NOT FOR SALE</i>
✓ † 35	EL-49	Spring <i>30502-602-38</i>			
✓ 36	EL-87	Spring Retainers <i>51075-040-01</i>			

MECHANICALLY-TIED CONTACTORS

Two or more single pole contactors, mounted on a single base, may be mechanically tied to operate as a multiple-pole contactor.

For this type contactor, the following parts are used.

Item No.	List No.	Description
11		Base, Advise Thickness and Number of Poles.....
† 21		Operating Coil, Advise Voltage and Number of Poles.....
71	L-3083-A	Assembled Magnet Arm.....
✓ 72	L-3034	Tie Bar Spacer, As Required.....
73	L-3036	Tie Bar.....
74		1/4"-20x3/4" Hex. Stl. Slotted Head Machine Screw, Blk. Burr and Lk. Washer, 4 req'd.....

† Essential Parts for General Maintenance

● Minor revision since previous issue.

* Early production of contactors had blowout connector mounted on front of base as illustrated. Current production has blowout connector mounted on rear of base.



NEMA No. 5 SINGLE POLE L LINE-ARC CONTACTOR, FOLIO 3A

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.

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 contact. Wiring diagrams are so arranged by the Square D Company.

CONTACT-WEAR ALLOWANCE: In the table at right is shown the correct dimension for auxiliary arm 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" reaches $\frac{1}{32}$ ", 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 spring 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".

OPENINGS WHEN NEW	
Opening at "B" with Contactor fully closed.....	.300"
CONTACT PRESSURE IN POUNDS	
Surfaces at "B" just breaking (new or old).....	5.5-6.5
Sealed, Contactor fully closed (when new).....	10-11

