INSTALLATION • DESCRIPTION • MAINTENANCE

INSTRUCTIONS

TYPE NRL LATCHED-IN CONTACTORS
CLASS 15-825
Size 3—2, 3, 4 and 5 poles A-C
Size 4—2, 3, 4 and 5 poles A-C

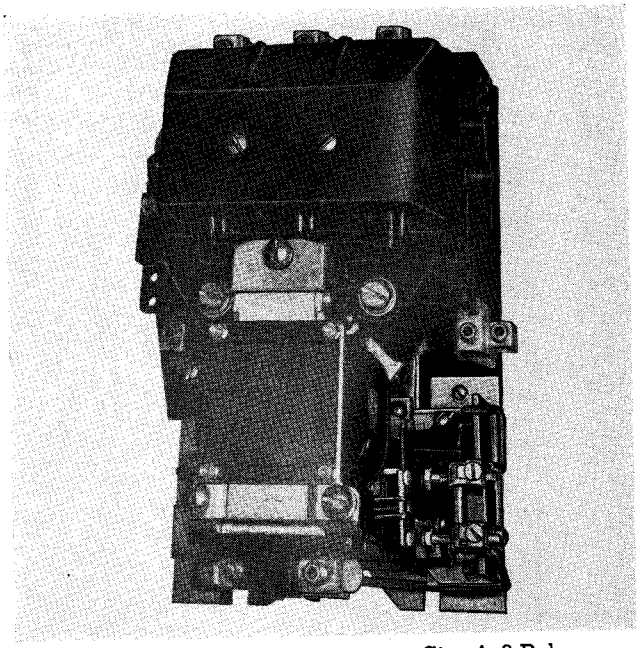

FIG. 1. Type NRL Contactor, Size 4, 3 Pole Shown in Latched Position

TYPE NRL CONTACTORS comprise Type NR A-C contactors with an added mechanical latch-in and shunt trip device. Their ratings are shown in Table 1.

DESCRIPTION

The contactor and its associated latch mechanism are of unit construction with all parts mounted on a common base plate. The mounting dimensions are the same as the standard NR A-C contactor. The contactor and latch may be A-C or D-C operated. The contactor is closed and latched by energizing the main operating coil. The main operating coil is continuously rated on A-C voltage and momentarily rated on D-C voltage. It is normally de-energized by a pair of contacts actuated by and forming a part of the latch mechanism.

The latch shunt trip coil is momentarily rated and is normally de-energized by a N.O. L-60 electrical interlock operated by the contactor.

The contactor and latch assembly employ armatures with knife edge bearings for long life and low maintenance. A kickout spring insures the proper opening of the contactor.

The contacts are of the double break type and are faced with a special silver alloy for long life and optimum conducting and rupturing performance. The arc box employes the Deion Grid principle of arc interruption.

The contactor is rated for a maximum of 600 volts.

The operating coils will perform from 85 to 110% of their rated voltage on A-C and from 80% to 110% rated volts on D-C.

Electrical Interlocks. As many as four L-60 electrical interlocks may be obtained for mounting on the contactor. One of these N.O. L-60 interlocks

Table 1. Rating

SIZE NO.	NO. OF POLES	8-HOUR* AMPERE RATINGS A-C AND D-C		MAXIMUM HORSEPOWER RATINGS					
				Volts—Single Phase			Volts—Polyphase		
		Open	Enclosed	115	230	440-600	110	208-220	440-600
3	2	100	90	7½	15	25	..	..	...
3	3	100	90	7½	15	25	15	30	50
3	4	100	90	...	..	..	15	30	50
3	5	100	90	...	..	..	15	30	50
4	2	150	135	..	..	..	..	..	...
4	3	150	135	...	..	..	25	50	100
4	4	150	135	...	..	..	25	50	100
4	5	150	135	...	..	..	25	50	100

* Interruption rating is 10 times 8 hour rating for A-C and for D-C provided that on D-C interruption a pole is used on either side of the line or two poles in series on one line.

is required for operation of the latch mechanism. Order by style number as follows:

S# 1490 455 for 1st and 2nd Electrical Interlock.
S# 1490 456 for 3rd and 4th Electrical Interlock.

Both interlocks provide normally open or normally closed operation. Mounting hardware and instructions are included.

Mechanical Interlocks. The M-28 mechanical interlock is obtainable for vertically interlocking a pair of latched in contactors to prevent accidental closing of either if the other is already closed. This interlock may be mounted only on the left hand side of the contactor.

Other Accessories. A total of 3 N.O. MW overload relays may be added to the contactor. The left hand relay mounts in a normal manner on the NR base plate. The right hand relay must be mounted on an auxiliary plate which extends out from the base and passes under the latch mechanism. This addition adds 2¾" to the overall width of the contactor. The third overload relay mounts on an auxiliary mounting plate fastened to the bottom magnet bracket.

INSTALLATION & MAINTENANCE

The contactor is assembled with the latch mechanism at the factory. All adjustments are made to insure satisfactory operation. If, however, it is necessary to remove the latch in the field for any reason; the following precautions should be taken upon reassembling the latch to the contactor:

(a) The latch arm should be free in its slot and should not bind on the latch armature.

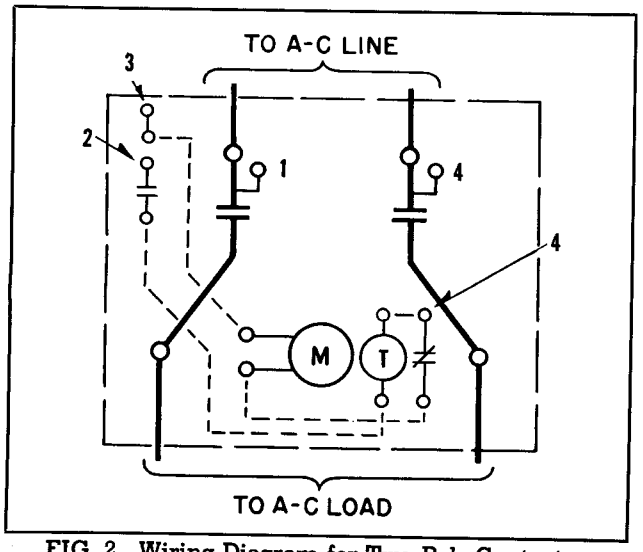

FIG. 2. Wiring Diagram for Two-Pole Contactor (Front View)

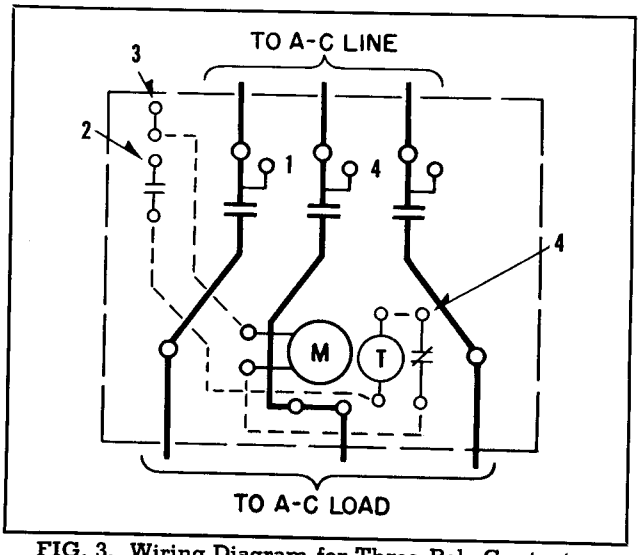

FIG. 3. Wiring Diagram for Three-Pole Contactor (Front View)

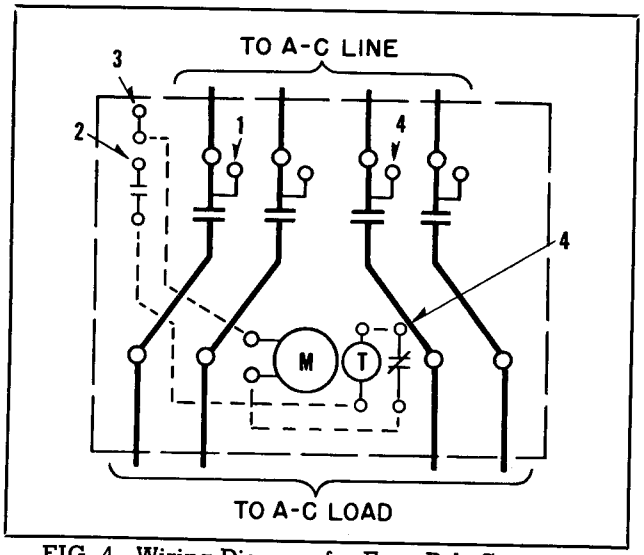

FIG. 4. Wiring Diagram for Four-Pole Contactor (Front View)

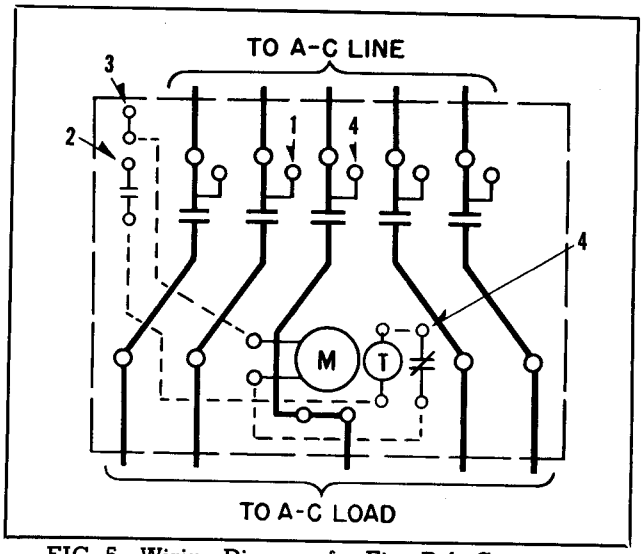

FIG. 5. Wiring Diagram for Five-Pole Contactor (Front View)

Customer Control Wiring is shown by the dashed lines.

(b) Proper clearance of approximately 1/64 inch should be established between the latch plate and the NR Armature Ear.

(c) Drop-back of the NR armature in a closed or "latched in" position should be approximately 1/16" to 3/32". If this is allowed to increase beyond 3/32" dropback there will be a decrease in contact pressure with a consequent decrease in contact performance.

(d) The latch trip coil must be in series with the L-60 interlock. The main NR coil, if intermittently, rated, must be in series with the break contact on the latch mechanism.

General. The arc box is essential to the proper operation of the contactor and must be in place and securely fastened. Grids should be kept in place and free from any foreign material. The knife edge bearings are hardened steel and require no maintenance. No oils or greases should be used on any part of the contactor. Before operating check all terminal bolts for tightness. Be sure cross bar bolts are tight. Do not file or dress any current carrying parts lest the protective plating be removed. Surface discoloration of these parts is not harmful.

Operating Coils. Operating coils are easily removed for replacement. To remove the main coil first disconnect the wiring. Remove the three bolts on the magnet top. Lift the magnet and coil from the frame. Remove coil from magnet. Check replacement coil for proper identification. Replace coil with terminals at the top and left. Reassemble magnet and coil to frame. Tighten all screws as tight as possible. To remove the latch trip coil remove the wiring to the coil and interlock. Remove the two mounting screws in the frame. Remove latch from contactor and loosen the armature keeper. Remove core bolt at back of frame. Core and coil will slide out of frame. Remove coil from core. Check replacement coil and reassemble latch.

Contacts. Oil or other lubricants should not be used on the contacts. Do not dress the contacts unless unusually severe pitting occurs. The contact surfaces are of silver and discoloration is not harmful.

Replace main contacts when the silver faces become reduced to about 1/32" in thickness.

Table 2
LATCH TRIP COILS

VOLTS	FREQUENCY	SERIAL NUMBER
110	60	1754 385
110	50	
220	60	
220	50	1754 386
110	25	
440	60	
380	50	1754 387
220	25	
550	60	1754 388
440	50	
600	60	
550	50	1754 389
500	50	
440	25	1754 390
550	25	1754 391

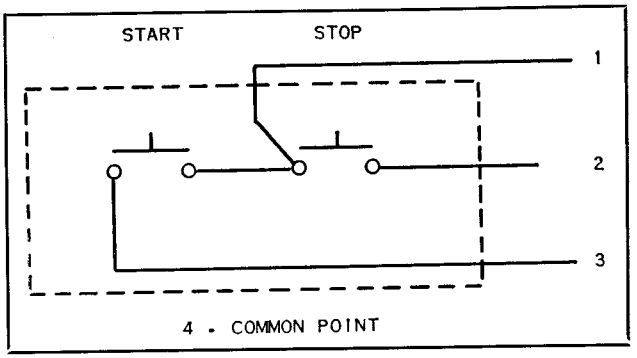

FIG. 6. Push Button Arrangement

PRINCIPAL RENEWAL PARTS

NAME OF PART	STYLE NUMBER	
	Size 3	Size 4
Main Coil (style number marked on coil)	....	....
Trip Coil (style number marked on coil)	....	....
Arc Box 3 Pole	1490 468	1490 468
Arc Box 2 Pole	1490 469	1490 469
Arc Box 4 Pole	1600 430	1600 429
Arc Box 5 Pole	1600 429	1490 426
Moving Contact	1490 414	1490 425†
Stationary Contact	1490 415	1490 425†
Contact Spring	1490 419	1490 424
Latch Mechanism	1754 856	1754 856

†Parts are stamped with a number "4"

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