

Instructions for Type GPD Sizes 7&8 A-C Contactors 2 or 3 Pole, Front or Rear Connected



I. L. 15-825-9

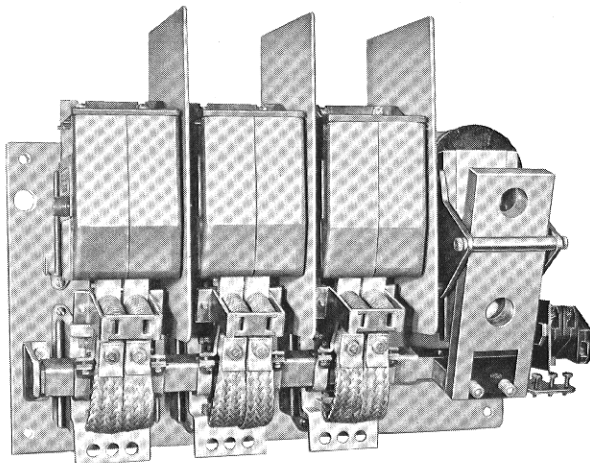


Fig. 1 Type GPD-730 Front-Connected A-C Contactor with two normally-open and one normally-closed Type L-63 Electrical Interlocks.

The Type GPD Sizes 7 and 8 Contactors are unit assembled A-C contactors with all parts mounted on a steel base. The unit is suitable for mounting on either steel or insulating panels. The contactors are available in 2 or 3-pole, front or rear-connected assemblies, with or without arc quenchers. All parts are front removable.

The type designations are as follows:

	2 POLES	3 POLES
Size 7	GPD 720	GPD 730
Size 8	GPD 820	GPD 830

The contactors are supplied with D-C operating magnets only.

The Type GPD contactors are insulated for a maximum of 600 volts. The operating coils are designed for continuous duty and will operate the contactors at 80% to 110% of rated coil voltage.

DESCRIPTION

The insulated shaft which mounts the magnet armature and moving contact assemblies is supported in needle bearings. Stainless steel compression springs in each moving contact assembly ensure adequate contact force

TABLE 1
Ratings

CHARACTERISTICS	SIZE 7		SIZE 8	
	Open	Enclosed	Open	Enclosed
Voltage, Maximum	600	600	600	600
8-Hour Rating, Amperes	900	810	1350	1215
1-Hour Rating, Amperes	1200	1080	1800	1620

while providing resilience to allow for contact wear and possible misalignment.

Each stationary contact assembly is mounted on an individual molded insulator. Both the moving and stationary contacts are faced with a silver alloy, whose surfaces are kept clean by a rolling and wiping action as the contacts seal.

A De-ion grid type of arc quencher surrounds each pair of contacts to produce rapid and confined arc interruption. The shunt for each pole is made from flexible, braided copper cable and is secured at its fixed end directly to the load terminal connector.

The D-C magnet frame parts are made of high-grade steel. A beryllium copper shim on the top pole face provides a permanent air gap to ensure positive dropout when the coil is de-energized.

ELECTRICAL INTERLOCKS

The Type GPD Size 7 and Size 8 contactors will accommodate a total of three Type L-63 electrical interlocks. The interlocks may be converted from normally-open to normally-closed circuit action or vice versa without additional parts as illustrated in Instruction Leaflet I.L. 15829-4.

MECHANICAL INTERLOCKS

The Type M42 mechanical interlock is used when a pair of GPD contactors must be

mechanically protected against the closing of one when the other is already closed. The two contactors may be exactly alike or may be mixed as to size (5, 6, 7 or 8) or number of poles. They must be mounted one below the other, however.

The Type M42 mechanical interlock consists of an operating lever, a tie rod, a lower operating lever and an operating pin secured to the top of the armature of the lower contactor.

With the upper contactor open and the lower contactor closed, adjust the tie rod so that the lower operating lever clears the operating pin by 1/16-inch. Tighten the tie rod lock nuts. Then make sure, by alternate manual closing of first one contactor, then the other, that interlocking action is taking place correctly.

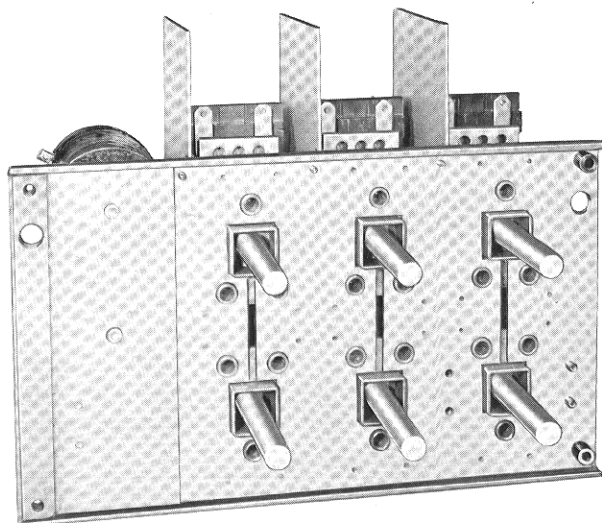


Fig. 2 Rear-Connected Type GPD-730 Contactor
Rear View showing 1-inch-14 thread
Connecting Studs.

INSTALLATION AND MAINTENANCE OF ARC QUENCHERS

The arc quenchers must be in place when the contactor interrupts a circuit.

Each arc quencher is held in place by two screws located at the top. Two pins projecting from the stationary contact sup-

port engage notches in the lower rear sides of the arc quencher and serve to position it. A notch molded in the arc quencher cap engages the support plate to hold the arc box in position while the two screws are being assembled.

The legs of the arc quencher gridplates are protected from the arc by ceramic barriers, which must be in place at all times.

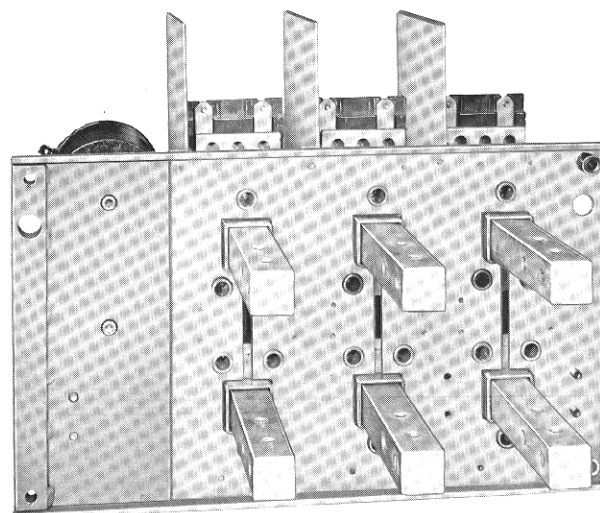


Fig. 3 Rear-Connected Type GPD-830 Contactor
Rear View showing Square Connecting Studs.

OPERATING COILS

When installing new coils, check the identification labels to make sure that the coil style number and voltage rating are correct for the application. Connect them in series as shown in Fig. 4.

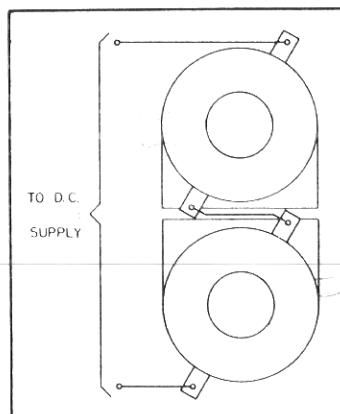


Fig. 4 Coil Connection.

The coils have been designed to operate at high temperatures, and are insulated to meet such service. The operator should not be alarmed to find the coils hot to the touch.

Table 2 gives a listing of the more commonly used coils:

TABLE 2
Operating Coils for Sizes 7 & 8 Contactors
2 or 3 Poles

LINE VOLTS	REMARKS	COIL VOLTS DC	COIL STYLE USE 2 IN SERIES
115 D-C		57.5	438C805G01
230 D-C		115	438C805G02
250 D-C		125	438C805G03
110/115 A-C	USE RECTIFIER	40	438C805G07
220/230 A-C	USE RECTIFIER	80	438C805G08
440 A-C	USE RECTIFIER	160	438C805G09
550 A-C	USE RECTIFIER	200	438C805G10

To remove and replace the operating coils, proceed as follows:

1. Remove the coil leads.
2. Remove the bolts securing the shunts to the moving contacts.
3. Remove the pole face and stop bracket assembly by removing the two pole-face mounting bolts. This permits the armature to rotate out of the way so that the coils may be readily removed.
4. Remove the old coils and replace with new coils.
5. Remount the pole faces, making sure that the beryllium copper shim is assembled to the front surface of the top pole face.
6. Make sure there is clearance (up to 1/32-inch) between the armature and the lower pole face. The armature must strike the top pole face shim only.
7. Connect the coils in series as shown in Fig. 4.

CONTACT FORCES

Contact forces with new contacts should be as follows:

	SIZE 7	SIZE 8
Initial Force	8 to 11 lbs.	5 to 8 lbs.
Final Force	15 to 19 lbs.	13 to 16 lbs.

Measure the contact force at the top of the moving contact inlay and in a line perpendicular to the moving contact. The contactors employ multiple contacts in parallel for each pole. The forces given above are for each contact.

To measure the final force, exert a measured pull with the contactor closed until the contacts just start to separate.

To measure the initial force, exert a measured pull with the contactor open until the shank of the moving contact just leaves its stop.

Contact replacement is necessary when the contact overtravel has been reduced to 5/64-inch. This is represented by a gap of 1/16-inch measured at point X, Fig. 5.

Contact removal is achieved by the following procedure:

1. Remove arc quenchers.
2. Remove phase barriers.
3. Remove shunt bolts from moving contact.
4. Remove bearing pin.
5. Remove moving contact and contact spring by lifting moving contact out in a vertical direction.
6. Remove stationary contacts.

To install new contacts, reverse the procedure--making sure the spacer is placed properly between the two moving contacts.

CONTACT ADJUSTMENT

Make sure that the contacts touch simultaneously within $1/32$ -inch. Sufficient adjustment can generally be obtained by a se-

lective tightening of the two bolts securing the shaft clamp to the moving contact bracket (Fig. 5)--tightening one more than the other to produce a slight rotation of the assembly on the shaft.

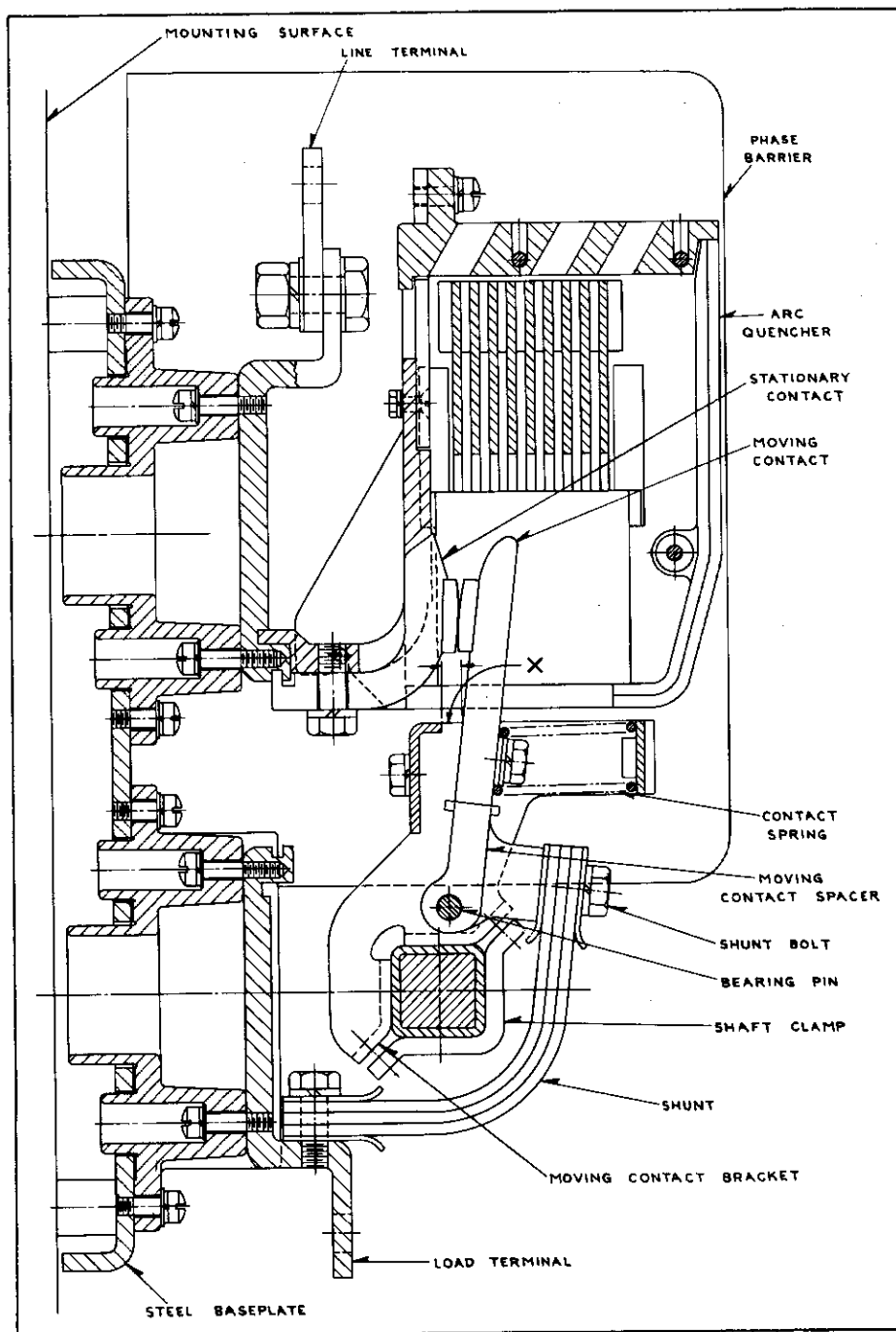


Fig. 5 Sectional View through one pole, showing method of overtravel measurement. The pole shown is that of a front-connected GPD 730 Contactor.