

RELAYS

111 (PART OF 163), 121, 122, 125, 149, 162, 178 AND 179 TYPES

REQUIREMENTS

(CONDENSED SECTION FOR 040-219-701)

1. REQUIREMENTS (Also See Section 020-012-711)

1.01 *Armature Stud Clearance:* Fig. 1 (A) — Not touch springs in any position.

1.02 *Traveling Spring Position:* Fig. 1 (B) — Not rub on rubber stops.

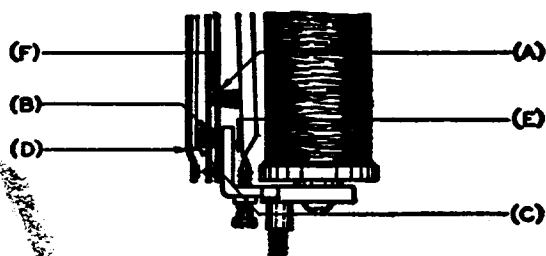


Fig. 1 — 162-type Relay — Top View

1.03 *Stop Spring Position:* Fig. 1 (C) — Rest on the rubber stops.

1.04 *Flexible Front Contact Spring Position:* Fig. 1 (D) — Rest against stop spring, at least at end nearest contact. Relay unoperated.

1.05 *Armature Alignment:* Max 0.005-inch clearance between either stop pin and pole piece. Relay electrically operated.

1.06 *Armature Travel:* Fig. 1 (E) — Unless otherwise specified in Table 2 or on circuit requirement table armature travel shall be as in Table 1 — 92-type gauge.

TABLE 1

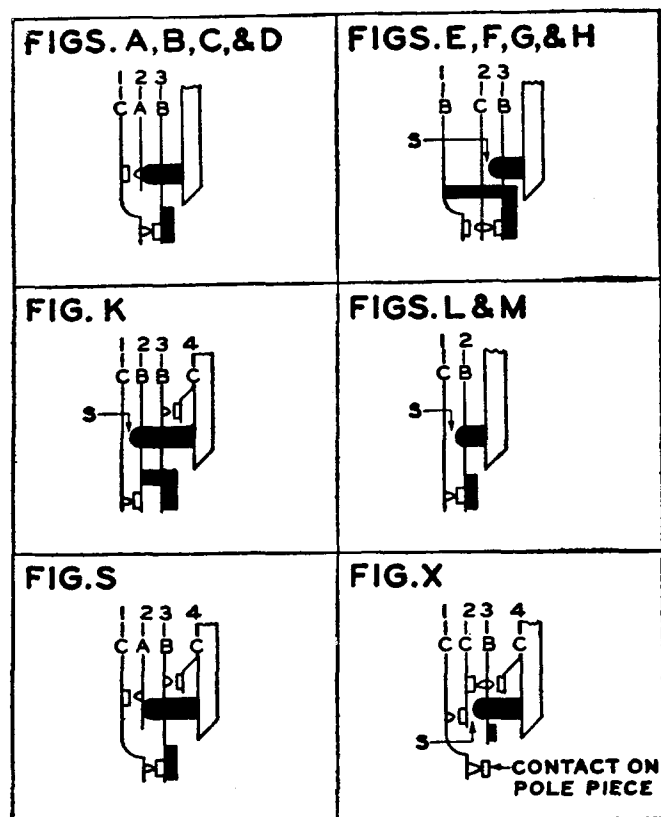
FIGURES	ARMATURE TRAVEL		
	TEST	READJUST	
		MIN (INCHES)	MAX (INCHES)
A, B, C, D, S, and X	No Reqt	0.025	0.030
E, F, G, H, and K	No Reqt	0.020	0.025
L and M	No Reqt	0.015	0.020

TABLE 2

For the following relays the armature travel (test and readjust) shall be:

RELAY	ARMATURE TRAVEL	
	MIN (INCHES)	MAX (INCHES)
149BD	0.015	0.030
162A	0.020	0.050
162Y	0.020	0.040
162AP	0.020	0.040
178AC	0.025	0.045
178AK	0.020	0.030
178AL	0.015	0.030
178AS	0.020	0.035
178BC	0.020	0.045
178CA	0.020	0.030
178CN	0.020	0.040
178DA	0.020	0.030
178DC	0.020	0.035
178DG	0.020	0.035
178DN	0.020	0.045
178EB	0.020	0.045
178EH	—	0.025
178EL	0.020	0.030

1.07 **Contact Pressure** as indicated in the figures below.



A = Tension to hold armature against adjusting screw.
Gauge by feel.

B = Tension to rest firmly against rubber stop.
Applies with relay operated except to spring 1 of Fig. E, F, G, and H when relay is unoperated.
Gauge by feel.

C = Tension to insure a reliable contact. (Re-adjust only.) Spring 1 of Fig. A, B, C, D, S, and X shall have greatest tension possible against back contact and still meet electrical requirements.

S = Stud Gap

Exception: For 111A, B, C, E, F, and G relays, spring 2 of each combination shall rest firmly against rubber stop — Tension of spring 1 — Min 30 grams — No. 70D gauge.

1.08 **Stud Gap:** Fig. 1 (F)

- At points indicated in Fig. A to X inclusive. Waived on 149W relay.
- Where springs have a tension of 25 grams or more, requirement is met if the contacts do not break when a 0.003-inch gauge (test) or a 0.005-inch gauge (readj) is inserted between spring and armature stud. No. 74D gauge.

1.09 **Contact Separation:** 0.005 inch — No. 74D gauge.

Exception: For 149W relay (Fig. X) springs 2 and 3 — 0.006 inch. Other contacts — min 0.006 inch, max 0.010 inch. No. 74D gauge.

1.10 **Contact Follow:** Approximately 0.005 inch.

1.11 **Spring Sequence:** Meet requirements on circuit requirement table.