RELAYS

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

(Reference Section for B460.014)

1. REQUIREMENTS

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.

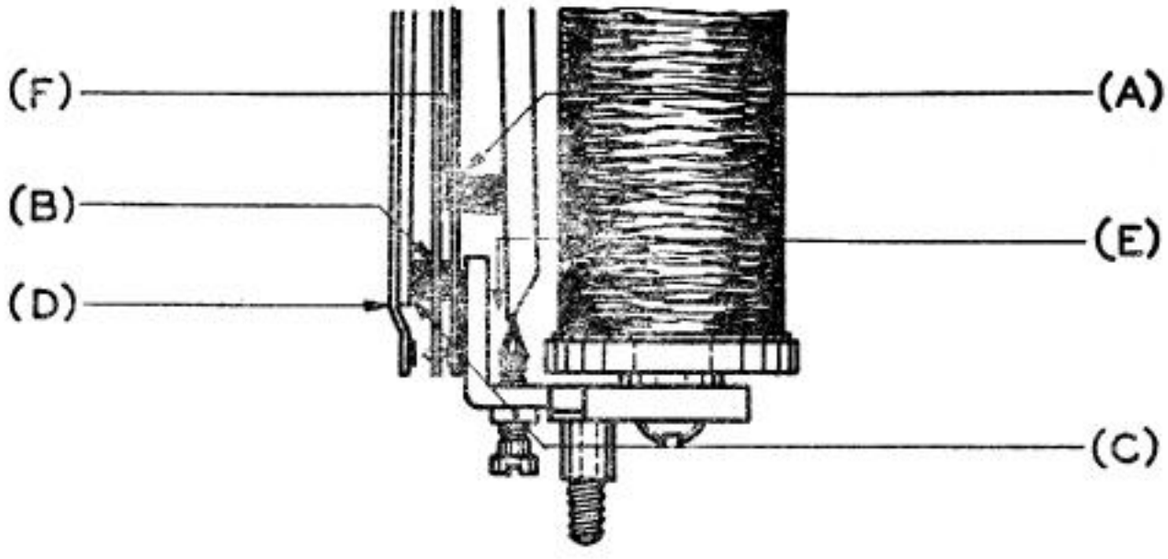


Fig. 1—162-type Relay—Top View ←

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

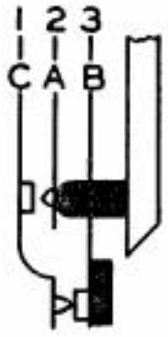
TABLE 2

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	
178EL	0.020	0.030	

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

FIGS. A, B, C, & D



FIGS. E, F, G, & H

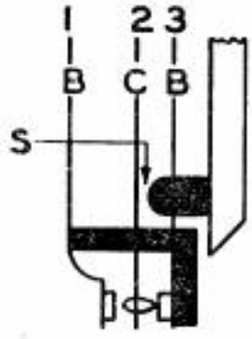
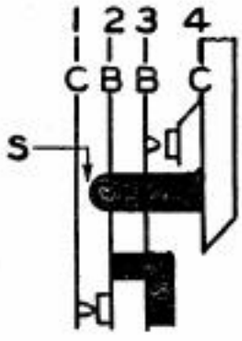


FIG. K



FIGS. L & M

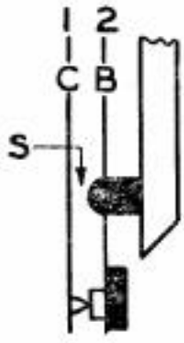


FIG. S

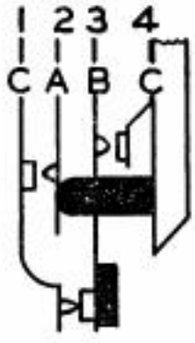
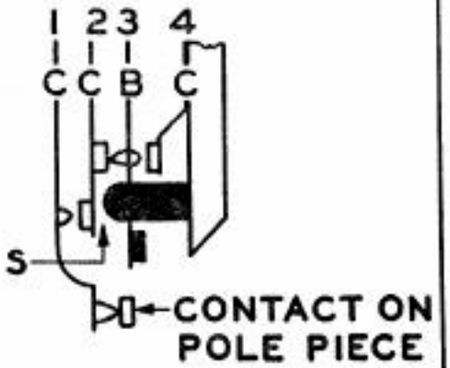


FIG. X



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 Figs. E, F, G, and H when relay is unoperated.
Gauge by feel.

C = Tension to insure a reliable contact. (Readjust only.) Spring 1 of Figs. 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)

(a) At points indicated in Figs. A to X inclusive. Waived on 149W relay.

(b) 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.