

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.

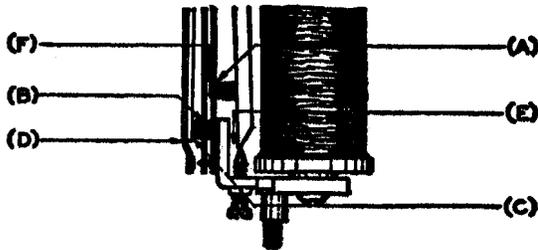


Fig. 1 — 162-type Relay — Top View

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.

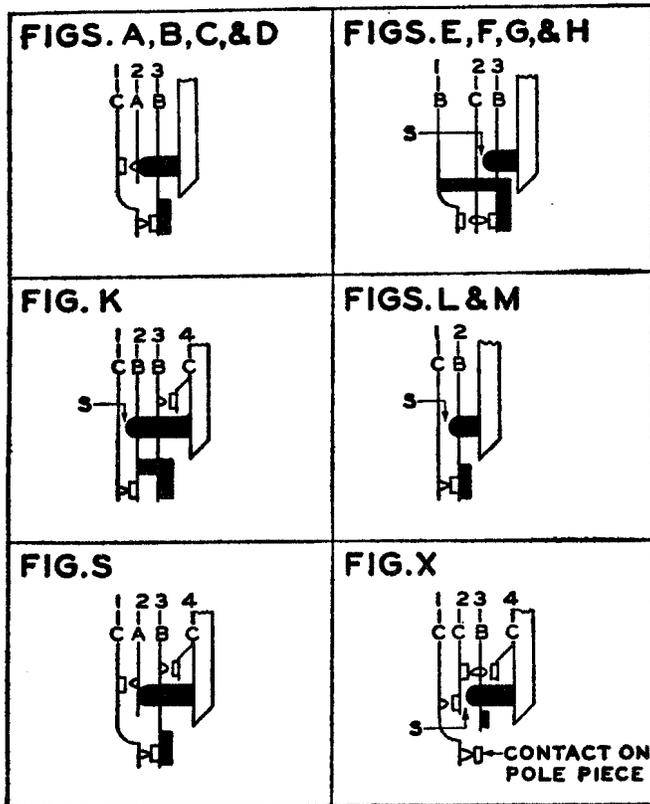
1.05 *Armature Alignment:* Max 0.005-inch clearance between either stop pin and pole piece. Relay electrically operated.

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)

(a) At points indicated in Fig. 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.