RELAYS
271, 282, AND 310 TYPES
REQUIREMENTS
(CONDENSED SECTION FOR 040-260-701)

1. REQUIREMENTS (also see Section 020-012-711)

1.01 ***Spring Tang Position:*** Tang overlaps spoolhead, clears spoolhead when spring is moved.

1.02 ***Armature Stud Clearance:*** Fig. A(1) — Armature clears stud.

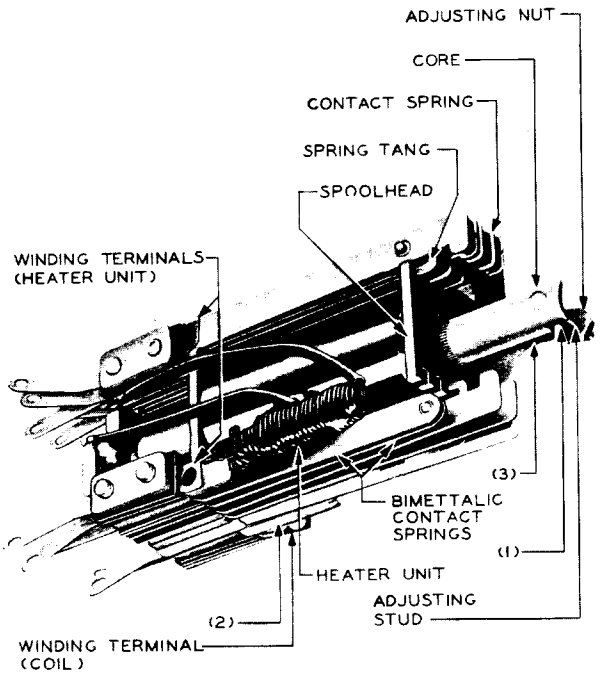


Fig. A – 282-Type Relay

1.03 ***Armature Position:*** Fig. A(2) — Both armature legs bear against hinge bracket with relay operated and after relay releases.

1.04 ***Armature Travel:*** Fig. A(3) — Meet requirements on circuit requirement table. Tolerance +0.003. 131A gauge.

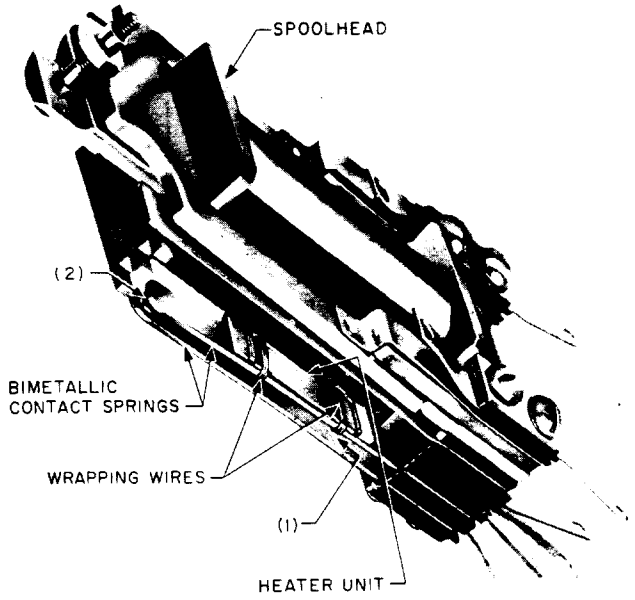


Fig. B – 310-Type Relay

1.05 ***Spring Tension***

(a) As indicated in Fig. No. column in circuit requirement table. For figures specified in Fig. No. Column, see page 3. 70D or 70H gauge.

(b) "A" in figures on page 3 means no definite tension.

(c) Normally open E spring — no tension requirement. Normally closed E spring adjacent to thermal unit winding tensioned

against opposing E spring meets following requirements.

Relays Manufactured Prior to Second Quarter of 1955

271 TYPE		282 TYPE	
Test	No reqt	Test	Min 20 Max 27
Readj	Min 25 Max 30	Readj	Min 21 Max 26

70D or 70H gauge.

Relays Manufactured During Second Quarter of 1955 and Subsequently

271 TYPE		282 TYPE	
Test	Min 20 Max 27	Test	Min 20 Max 27
Readj	Min 21 Max 26	Readj	Min 21 Max 26

70D or 70H gauge.

(d) ***Buffer Springs:*** Spring designated X' associated with second designation F means that these springs are tensioned against spoolhead with 20 grams, maximum 125 grams (readjust 25, maximum 125). 70H or 70J gauge.

1.06 ***Buffer Spring Position***

(a) ***In Use — Readjust Only:*** Relay electrically energized against 0.013-inch gauge. Perceptible stud gap at stud which operates buffer spring. 131A gauge.

(b) Relay electrically energized against 0.004-inch gauge (readjust 0.006 inch); no stud gap at stud which operates buffer spring. 131A gauge.

(c) ***Not in Use:*** Relay electrically operated; stud gap at stud which operates buffer spring.

1.07 ***Armature Back Tension:*** "A" springs tensioned against armature. Hold armature against adjusting nut with

RELAY	TEST	READJ
271- and 282-type	Min 18 grams	22 grams
→310-type	Min 5 grams	9 grams

70H or 70J gauge.

1.08 ***Spring Stud Clearance:*** Studs shall clear springs through which they pass.

1.09 ***Bimetallic Contact Spring Clearance***

(a) ***271- and 282-Type Relays:*** Clearance between thermal unit winding and adjacent bimetallic spring.

Relays Manufactured Prior to Second Quarter of 1955

271 TYPE	282 TYPE
Min 0.040 inch	Min 0.062 inch

Relays Manufactured During Second Quarter of 1955 and Subsequently

271 TYPE	282 TYPE
Min 0.062 inch	Min 0.062 inch

(b) ***310-Type Relay:*** Fig. B(1) — Clearance between heater unit wrapping wires and adjacent bimetallic spring minimum 0.032 inch.

(c) Clearance between edge of bimetallic spring and spoolhead minimum 0.016 inch.

1.10 ***Stud Gap*** (see figures on page 3)

(a) Stud gap designated T — 0.006 inch — slight clearance with 133A gauge in place — relay normal.

(b) Stud gap designated S — slight clearance — relay normal.

→1.11 ***Contact Make*** (U-, UA-, and Y-type relay portions)

(a) Both contacts on bifurcated spring make with associated contacts in normal (break contacts) and operated (make contacts) positions.

(b) With relay energized against 131A gauge, make contacts meet conditions covered below.

	CONTACTS NOT MAKE (inches)		AT LEAST ONE PAIR OF CONTACTS MAKE (inches)
Test	0.018	Test	0.008
Readj	0.015	Readj	0.010

(c) ***Readjust Only*** (applies only after cleaning, build-up removal, or spring readjustment): Normally open contacts — both contacts close with relay energized against 0.004 inch — 131A gauge. Normally closed contacts — both contacts break approximately simultaneously.

1.12 ***Contact Separation*** (except normally closed bimetallic springs): Fig. B(2) — 0.005 inch — 131A gauge.

1.13 ***Contact Sequence:*** Break-make contacts — normally closed contacts break before normally open contacts make.

FIG. 1

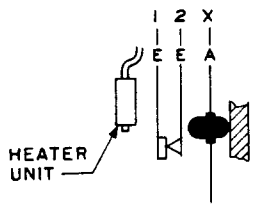


FIG. 2

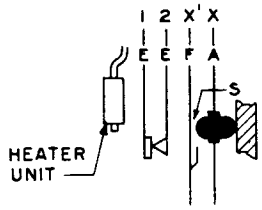


FIG. 3

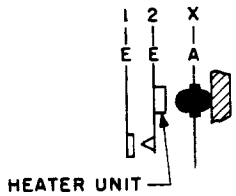


FIG. 132

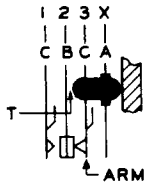


FIG. 144

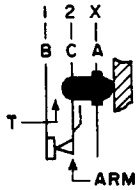
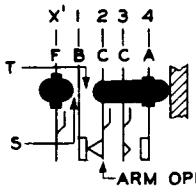


FIG. 188



All Springs Except E Springs, in Spring Combinations Shown Above, Tensioned Toward Armature

SPRING	MIN TENSION IN GRAMS TEST	READJ	H CONT PRESSURE
A =	—	—	See Reqt 1.05(b)
B =	18	20	
C =	25	30	
E =	—	—	See Reqt 1.05(c)
F =	—	—	See Reqt 1.05(d)

T — Stud Gap — See Reqt 1.10(a)
S — Stud Gap — See Reqt 1.10(b)
Ψ — Spoolhead Springs
X — Balancing Spring
X'— Buffer Spring