

RELAYS
U, Y, AND UA TYPES
REQUIREMENTS
(CONDENSED SECTION FOR 040-518-701 AND 040-522-701)

1. GENERAL

- 1.01** This section covers U-, Y-, and UA-type relay requirements.
- 1.02** This section is reissued to bring it into agreement with the latest issues of Sections 040-518-701 and 040-522-701.
- 1.03** Reference shall be made to Section 020-010-711, covering general requirements and definitions, for additional information necessary for the proper application of the requirements listed herein.

2. REQUIREMENTS

- 2.01 *Spring Tang Position:*** Tang overlaps spoolhead; clears spoolhead when spring is moved.
- 2.02 *Adjusting Stud Clearance:*** Fig. 1, (A)—Armature clears stud.
- 2.03 *Armature Position:*** Fig. 1, (B)—Both armature legs bear against hinge bracket with relay operated and after relay releases. U and UA types only may be met with relay electrically energized against 0.005-inch gauge if armature is not equipped with stop discs (66D gauge).
- 2.04 *Armature Travel:*** Fig. 1, (C)—Meet requirements on circuit requirements table. Tolerance +0.003 inch (131A gauge).
- 2.05 *Spring Tension***

- (a) As indicated in Contact Press. and Fig. No. columns on circuit requirements table. For figures specified in Fig. No. column, refer to Fig. 101 through 350. An explanation of letters

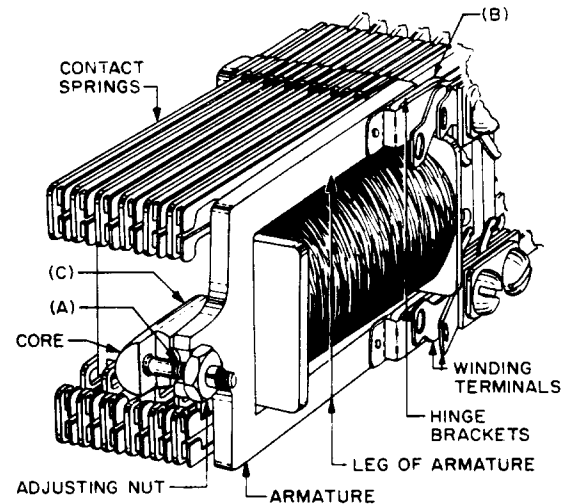


FIG. A - RELAY HAVING ADJUSTING STUD

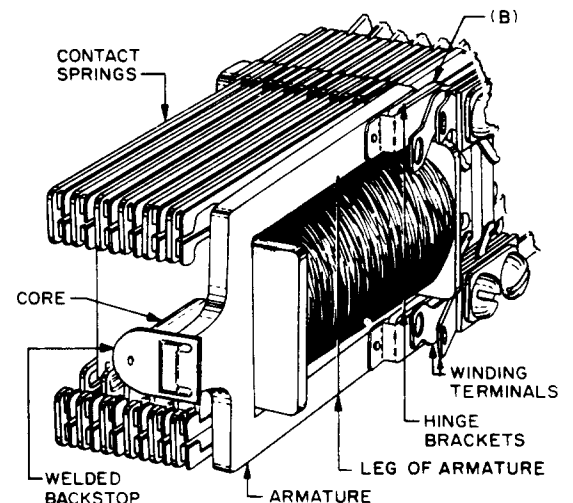


FIG. B - RELAY HAVING WELDED BACKSTOP

Fig. 1—U-Type Relays

NOTICE

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in each figure follows Fig. 350 (70H or ♦70J♦ gauge).

(b) "A" in Fig. 101 through 350 means no definite tension.

(c) **Buffer Springs:** Spring designated X associated with second designation F means that these springs are tensioned against spoolhead with 20 grams, maximum 100 grams (readjust 25, maximum 100) (70H or ♦70J♦ gauge).

2.06 Position of X' Buffer Spring Designated F—Used

(a) **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) **X' Buffer Spring Designated F—Not Used:** Relay electrically operated; stud gap at stud which operates buffer spring.

2.07 Armature Back Tension: A springs tensioned against armature. Hold armature against backstop of **U and Y types** with 18 grams (readjust 22); **UA type** with 5 grams (readjust 9) (70H or ♦70J♦ gauge).

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

2.09 Stud Gap: (See Fig. 101 through 350.)

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

(b) Stud gaps designated S, slight clearance, relay normal.

(c) Stud gaps designated R, slight clearance as P contacts make.

2.10 Contact Make

(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 the following conditions:

CONTACTS	CONTACTS NOT MAKE		AT LEAST ONE PAIR OF CONTACTS MAKE	
	(Inches)		(Inches)	
All except J, K, M, and U	<i>Test</i>	0.018	<i>Test</i>	0.008
	<i>Readj</i>	0.015	<i>Readj</i>	0.010
K	No Reqt		<i>Test</i>	0.013
			<i>Readj</i>	0.015
J and U	No Reqt		No Reqt	
M	No Reqt		<i>Test</i>	0.008
			<i>Readj</i>	0.010

(c) **Readjust Only:** (Applies only after cleaning, buildup 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.

2.11 Contact Separation: 0.005-inch. Exception contacts designated U 0.010 inch (134A gauge).

2.12 Contact Sequence: Break-make or break-make-make contacts. Normally closed contacts break before normally open contacts make.

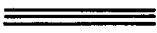
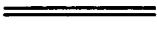
2.13 Attachable Separators—D-178259 (0.005 Inch), D-178260 (0.010 Inch), and D-178261 (0.015 Inch) (U-Type Relay)

(a) Used when relay fails to release properly due to worn or missing stop discs or discs pounding into core.

(b) Flap free in armature gap, not wrinkled or snagged.

(c) Thickness of attachable separator [see (d)] same as original height of stop discs.

(d) **Identification of Stop Disc Height**

ORIGINAL STOP DISC HEIGHT	ARMATURE MARKING SUBSEQUENT TO 1936	ARMATURE MARKING PRIOR TO 1936
(Inches)	(Punch Marks)	(Groove Marks)
0.005	None	 (3)
0.010	• • (2)	 (2)
0.015	• (1)	 (1)

2.14 Magnetic Separators—D-167911 (Y-Type Relay)

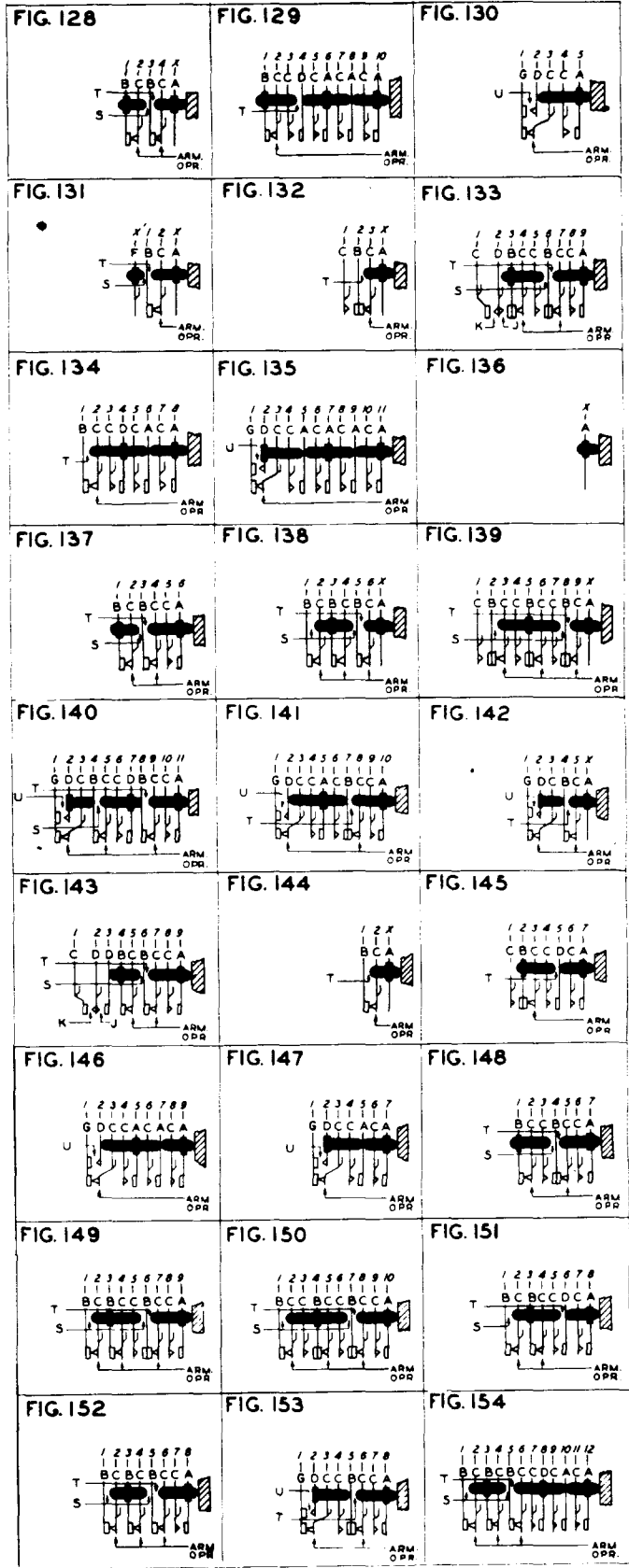
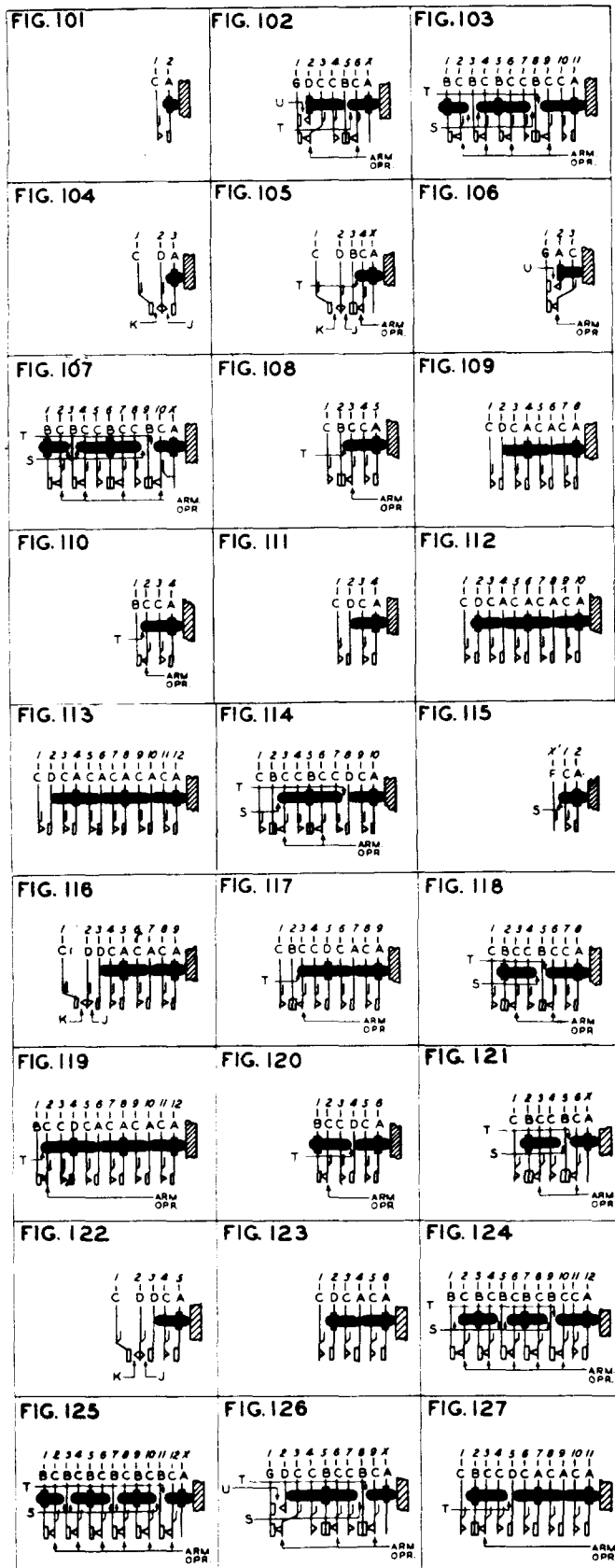
- (a) Used when excessive spring tensions are necessary to meet release requirement.
- (b) Rest flat and snugly against pole face of core. No clearance between core and separator at front end of core.

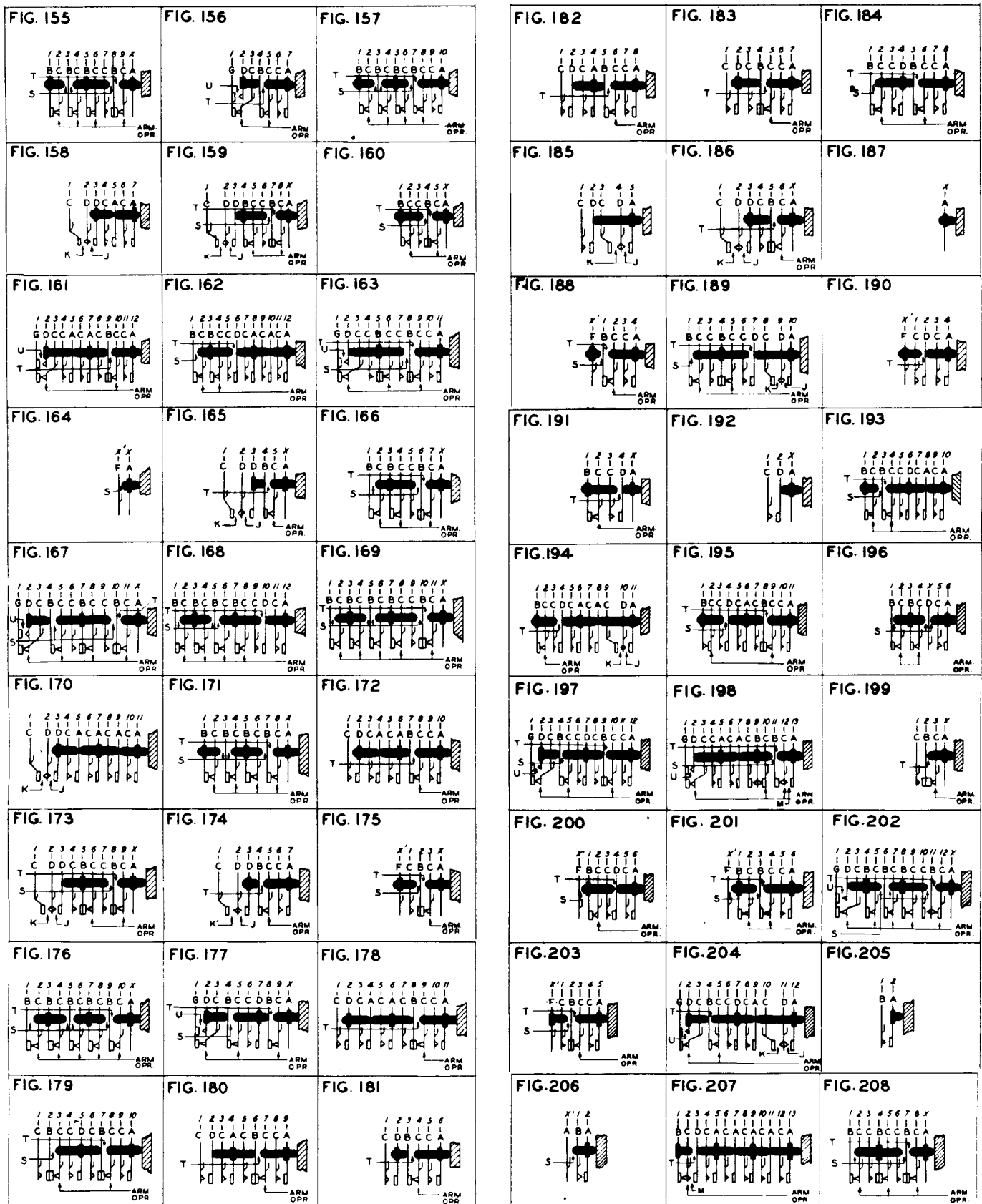
2.15 Armature Stop Assemblies—D-180479 (0.005 Inch), D-180480 (0.010 Inch) (UA-Type Relay):

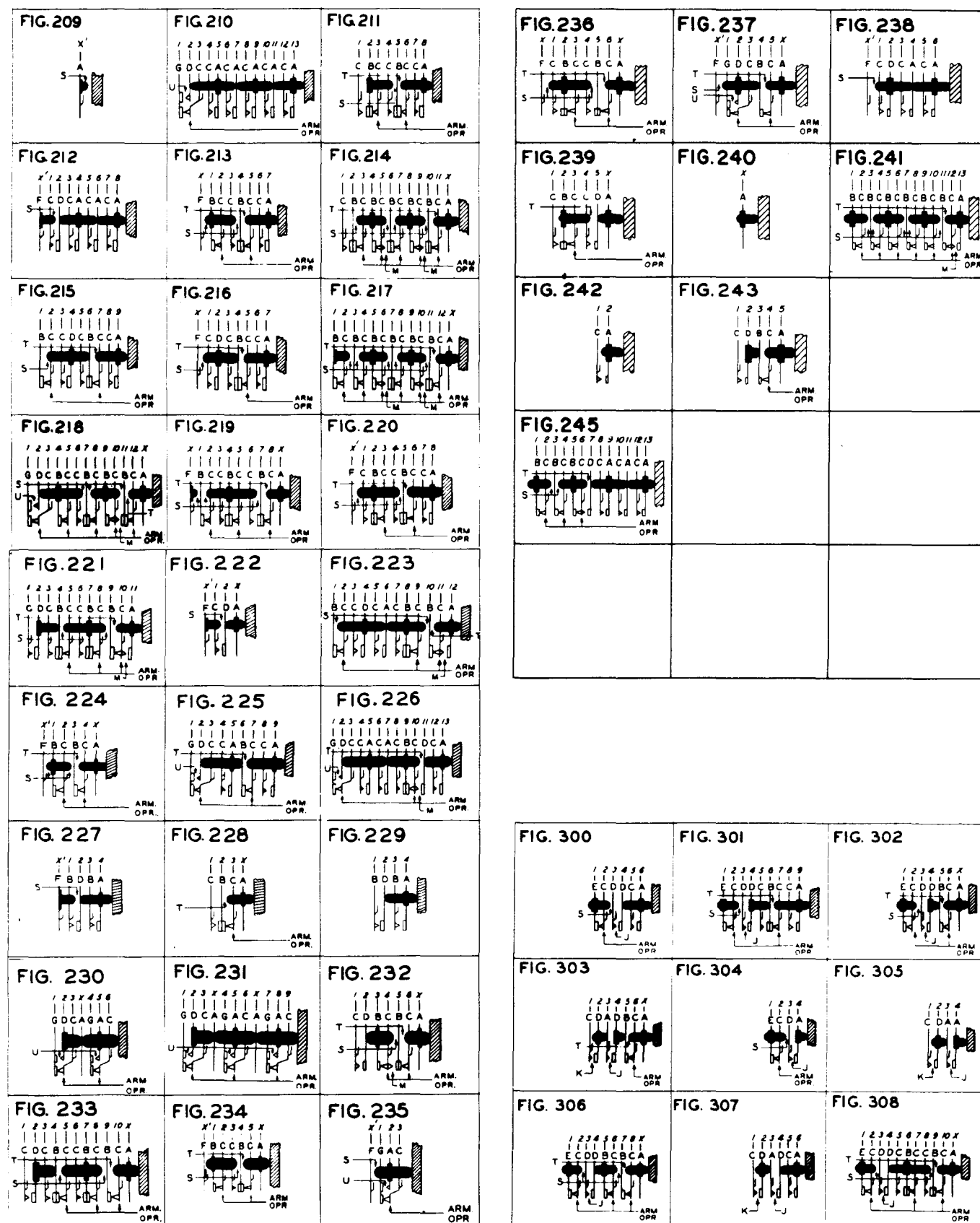
The armature stop assembly shall be positioned on a UA-type relay so that it rests between the core and the armature with both tabs wrapped around the core. The plastic stop will be held in place by the metal retaining clip.

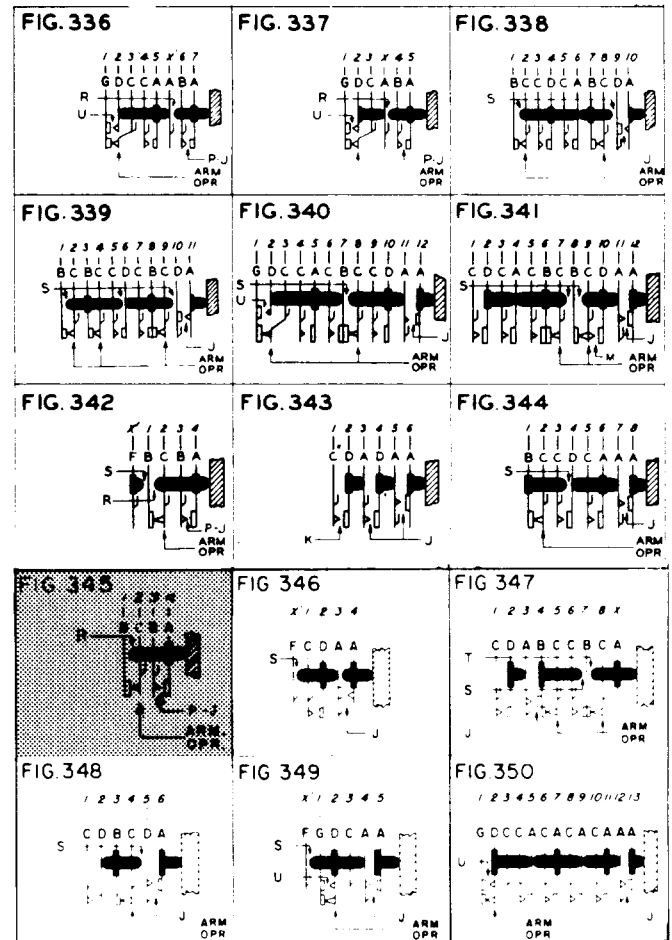
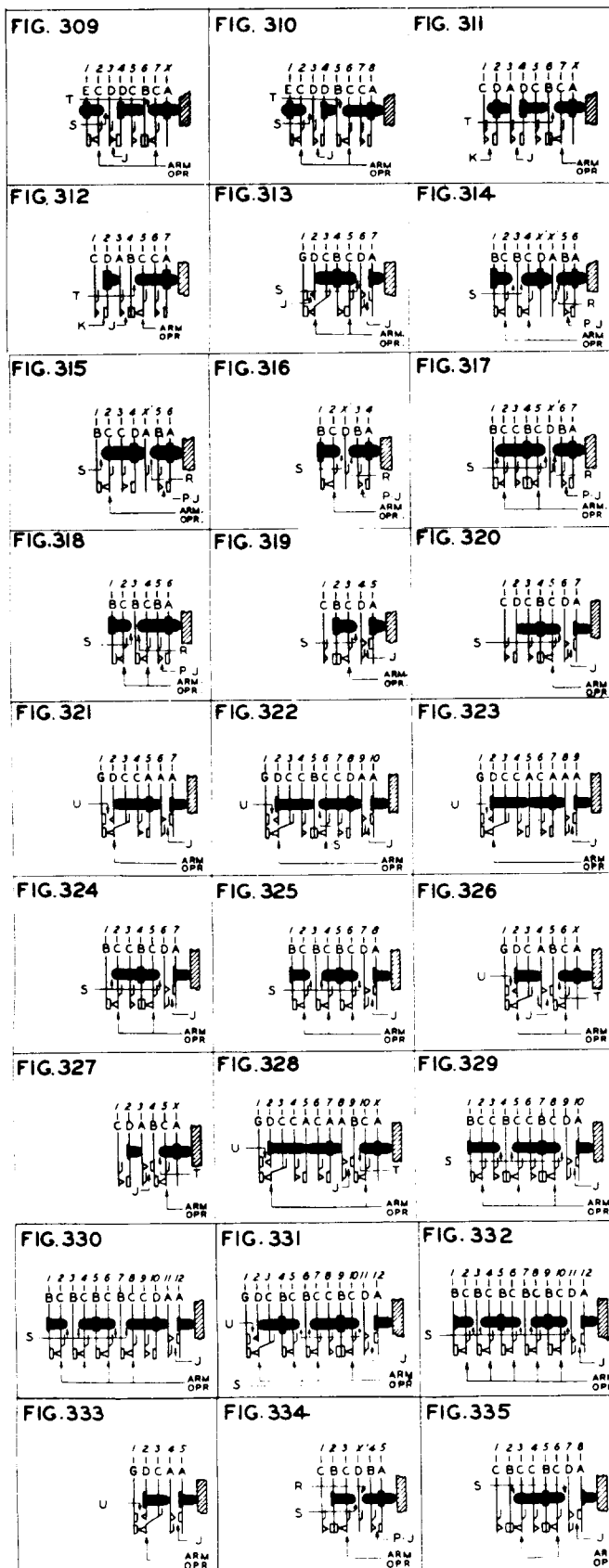
2.16 Spring Stud Caps—P-10F548 (0.006 Inch), P-10F137 (0.009 Inch), and P-10F138 (0.012 Inch) (Mounted on Stud Adjacent to Armature)

- (a) May be used when relay fails to meet stud gap, contact make, separation, or sequence requirements.
- (b) Selection of caps dependent on wear of spring studs and contacts.









ALL SPRINGS TENSIONED TOWARD ARMATURE
MIN TENSION IN GRAMS – H CONT PRESSURE

	TEST	READJ	
A =	—	—	See Reqt 2.05(b) and 2.07.
B =	18	20	
C =	25	30	
D =	5	6	
E =	28	30	
F =	—	—	See Reqt 2.05(c).
G =	35	40	
J, K, M, and U —	See Reqt 2.10(b)		
T — Stud Gap —	See Reqt 2.09(a)		
S — Stud Gap —	See Reqt 2.09(b)		
P and R — Stud Gap —	See Reqt 2.09(c)		
X —	Balancing springs		
X' —	Buffer springs		