# RELAYS

## 206, 227, 231 AND 239 TYPES

**(Reference Section for B460.023)**

## 1. REQUIREMENTS

1.01 **Cover Clearance:** Cover shall not touch adjacent apparatus.

1.02 **Cover Cap:** The outer end of 239 type relay cover plate shall be approximately 1/16″ above a line as shown in Fig. 101.

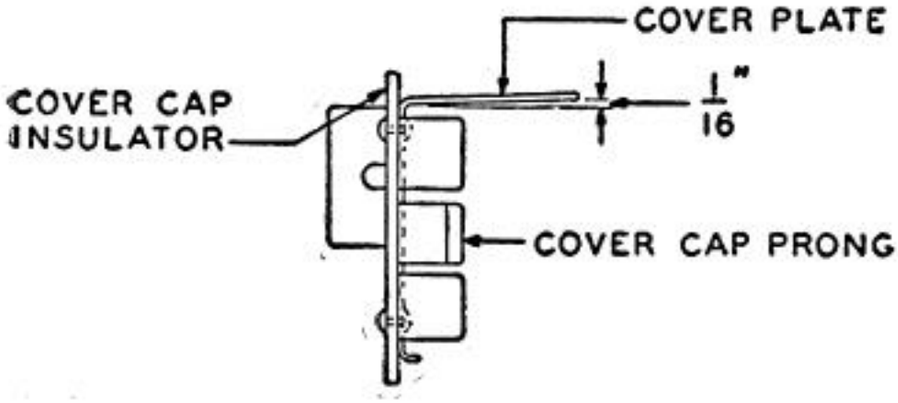


**Fig. 101—Cover Cap—239 Type Relay**

1.03 **Flexible Contact Spring Alignment**

(a) **Flexible Contact Springs Riveted to Armature**—102(A): Springs tips shall be approximately flat, shall bear upon each other at the top and bottom edges and shall make at least a line contact for at least 25% of the 3/16″ width.

(b) **Flexible Contact Springs Welded to Armature:** Springs shall bear upon each other on at least one point and shall not have more than a .002″ gap at any point across the front edges.

1.04 **Biasing Spring Position**—Fig. 103 (A): Straight portion of biasing spring shall rest approximately flat against armature. Satisfactory if top end rests on armature and clearance, if any, at bottom edge of armature is max. .020". Coil portion of spring shall clear armature and soldering lug.

1.05 **Armature and Spool Clearance:** Armature shall clear inside of spool.

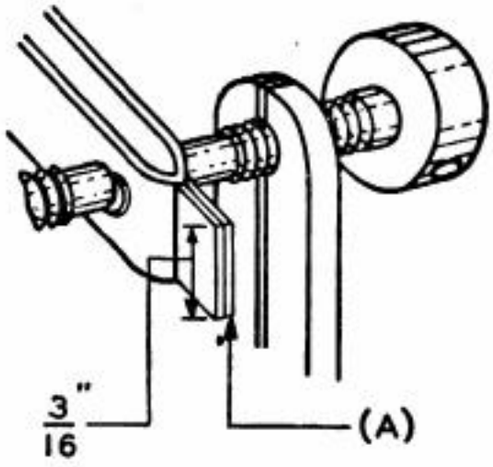


**Fig. 102—Flexible Contact Spring Alignment**

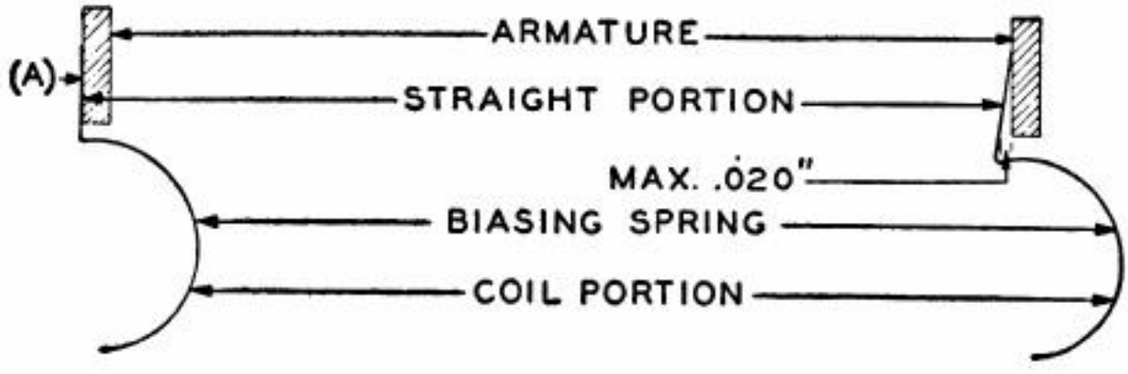


**Fig. 103—Allowable Variation in Biasing Spring Position**

1.06 **Contact Travel**—Fig. 104 (A): Min. .004", max. .006". Check travel on each contact screw. A difference indicates buildup on contact on side of armature having smaller travel. Remove buildup. 74D gauge.

1.07 **Contact Make**—(Chatterless armatures): Relay electrically operated on soak current and a .0015" gauge inserted between the pole piece screw and associated armature

stop pin on the side to which the armature is operated, contacts shall make. 92R gauge.

1.08 **Magnetic Balance:** (Applies only to relays with solid armatures).

(a) **231 and 239 Type and 206FA to 206GY Inc.:** After operating on soak current armature shall stick to each contact with min. 1 gram—max. 3 grams pressure. If no soak is specified or relay is permanently bridged by condenser use test operate current and waive minimum pressure requirement. 70F gauge.

(b) **206A to 206CY Relays Inc.:** As covered in (a) except min. sticking pressure 5 grams—max. 7 grams.

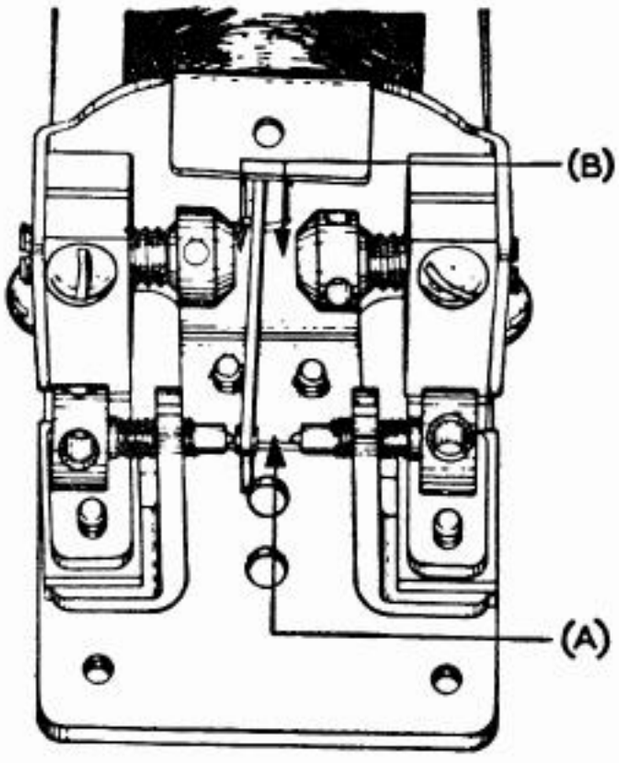


**Fig. 104—231 Type Relay**

1.09 **Magnetic Air-Gap**—Fig. 104 (B)

(a) **Relays Equipped with Chatterless Armatures:**

| Type of Relay | Magnetic Air-Gap |
|---|---|
| 206 | Max. .010″ |
| 231 | Max. .018″ |
| 239 | Max. .018″ |

92A or 92D gauge and check between armature and either pole piece with armature against opposite pole piece.

(b) **227 Type Relays Equipped with Solid Armature:** Max. .010″. 92A gauge.

1.10 **Electrical Requirements:** Meet requirements with cover and cap in place. Requirement may be waived on chatterless armatures.

Bell Telephone Laboratories, Inc.