

RELAYS
BF-, BG-, BJ- and BL-TYPES
(MINIATURE WIRE-SPRING TYPES)
PIECE-PART DATA AND REPLACEMENT PROCEDURES

1. GENERAL

1.01 This section covers the information necessary for ordering parts to be used in the maintenance of BF-, BG-, BJ-, and BL-type relays. It also covers approved procedures for replacing these parts.

1.02 This section is reissued to revise Tables A and B and add two new notes after each table.

1.03 Part 2 of this section covers the piece-part numbers and the corresponding names of the parts (Tables A and B) which it is practicable to replace in the field in the maintenance of these relays. No attempt should be made to replace parts not designated. Part 2 also contains explanatory figures showing different parts.

1.04 Part 3 of this section covers the approved procedures for the replacement of the parts listed in Part 2.

1.05 Before making any replacements on the apparatus covered herein, remove the circuit from service in accordance with approved procedures.

2. PIECE-PART DATA

2.01 Fig. 1 and 2 show the various piece-parts in their proper relation to other parts of the relay. The piece-part numbers of the various parts are given together with the names of the parts as listed by the Western Electric Company Merchandise Department. When these names differ from those in general use in the field, the latter names in some cases are shown in parentheses).

2.02 When ordering parts for replacement purposes, give both the piece-part number and the name of the part, for example, P-11F785 Card.

Do not refer to the BSP number or to any

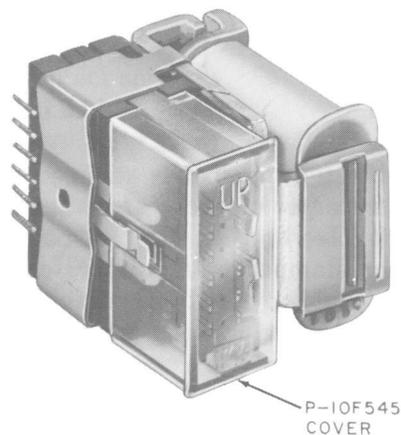


Fig. 1—6-Position Relay—General View

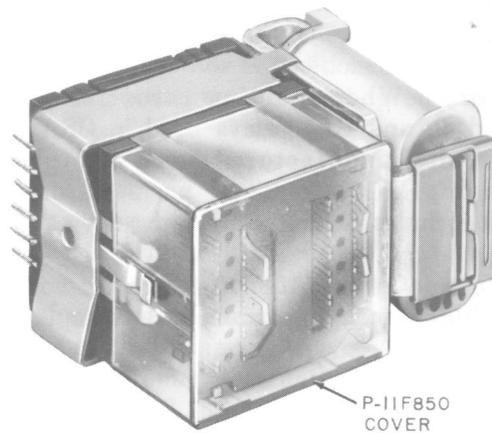


Fig. 2—12-Position Relay—General View

information shown in parentheses following the piece-part number.

TABLE A

| *CARD IDENTIFICATION NUMBER (6-POSITION RELAY) | CARD PIECE-PART NUMBER |
|---|------------------------|
| 0 | P-11F785 Card |
| 1 | P-11F786 Card |
| 2 | P-11F787 Card |
| 3 | P-11F788 Card |
| →4 | P-11F789 Card← |
| 5 | P-11F790 Card |
| 8 | P-11F793 Card |

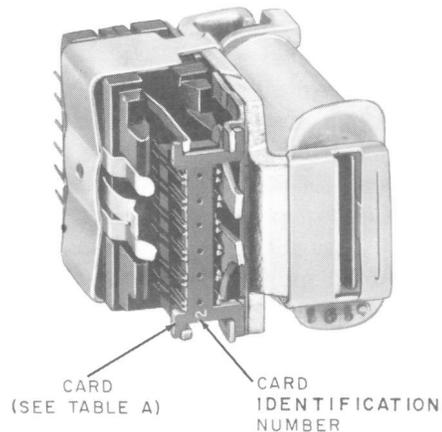


Fig. 3—6-Position Relay—Cover Removed

*The identification number is stamped and located in the lower center of each card when the card is properly mounted on the relay, as shown in Fig. 3. The number stamped on the upper center of the card is the molding cavity identification number and is used for manufacturing purposes only. Order the replacement card by the piece-part number corresponding to the identification number on the card to be replaced.

◆**Note:** These cards are for relays with welded contacts (rectangular movable contacts). Some relays will be found with precious alloy contacts (round movable contacts). For card replacement contact E of M, Columbus or Omaha.

Note: When ordering cards for BF-7, -8, and -9, and BJ-4 relays used in OSAE trunk circuits manufactured prior to April 1970 specify D-180498 kit of parts (cards). This kit includes cards for all four relays.◆

Note: Cover P-10F545 for relays covered in Table A may be ordered as a replacement piece-part.

TABLE B

| *CARD IDENTIFICATION NUMBER (12-POSITION RELAY) | CARD PIECE-PART NUMBER |
|--|------------------------|
| 0 | P-11F888 Card |
| 1 | P-11F889 Card |
| 2 | P-11F890 Card |
| 3 | P-11F891 Card |
| →4 | P-11F892 Card← |
| →5 | P-11F893 Card← |

*The identification number is stamped and located in the lower left-hand corner of each card when the card is properly mounted on the relay, as shown in Fig. 4. The number stamped on the upper left-hand corner of the card is the molding cavity identification number and is used for manufacturing purposes only. Order the replacement card by the piece-part number corresponding to the identification number on the card to be replaced.

◆**Note:** These cards are for relays with welded contacts (rectangular movable contacts). Some relays will be found with precious alloy contacts (round movable contacts). For card replacement contact E of M, Columbus or Omaha.

Note: When ordering cards for BF-7, -8, and -9, and BJ-4 relays used in OSAE trunk

circuits manufactured prior to April 1970, specify D-180498 kit of parts (cards). This kit includes cards for all four relays.

Note: Cover P-11F850 for relays covered in Table B may be ordered as a replacement piece-part.

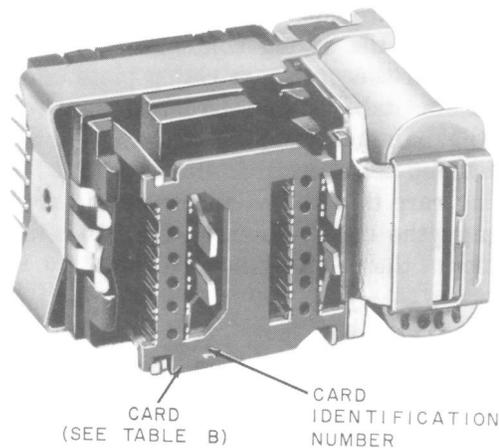


Fig. 4—12-Position Relay—Cover Removed

3. REPLACEMENT PROCEDURES

3.01 *List of Tools and Materials:*

| CODE OR SPEC NO. TOOLS | DESCRIPTION |
|------------------------------|--|
| 749A | Balancing spring holder (for use on 6-position relay) |
| 749B | Balancing spring holder (for use on 12-position relay) |
| 750A | Insulator (2 reqd) |
| KS-8511 | Tweezers |
| KS-19916 L1 | Magnifier |

3.02 After making any replacement of parts of a BF-, BG-, BJ-, or BL-type relay, the part or parts replaced shall meet the readjust requirements involved as specified in Section 040-507-701. Other

parts whose adjustments may have been directly disturbed by the replacing operations shall be checked to the readjust requirements, and an overall operation check shall be made of the relay before restoring the circuit to service.

3.03 *Cover:* When mounting a cover, proceed as follows: Position the cover so the middle clamp of the cover spring is above the cover and the two adjacent clamps are under the cover. Move the cover toward the rear of the relay until the cover is against its stops and the two side tabs are inside the legs of the pileup clamp. Make sure the cover does not interfere with the actuating card or contact springs.

3.04 *Actuating Card* (6-position relays):

(1) To facilitate removing or mounting the actuating card, use the KS-8511 tweezers and KS-19916 magnifier.

(2) Before removing the actuating card it is necessary to provide protection against damage for the twin make contacts during card replacement and, in the case of frame mounted relays, to provide electrical insulation between the fixed and twin make contacts. To do this, use the 750A insulator as follows: Position the edge of the insulator against the contacts of the twin make springs and carefully lift the springs from the actuating card. Slide the insulator between the card and spring contacts until the insulator is positioned against the front molded section on the fixed springs as shown in Fig. 5.

(3) To remove the actuating card, use the 749A spring holder as follows (refer to Fig. 6). Place the hooks of the 749A tool on the legs of the balancing spring directly behind the two projections on each leg. Press the 749A tool against the balancing spring legs to disengage the legs from the actuating card. Increase the pressure until the heels of the 749A tool can be positioned against the armature as shown in Fig. 6. Slide the hooks of the 749A tool along the spring legs until the handle of the tool is against the armature. Carefully disengage the card from the armature clamp plate and remove the card from the relay.

(4) To mount an actuating card, first make sure the 750A insulator and 749A spring holder

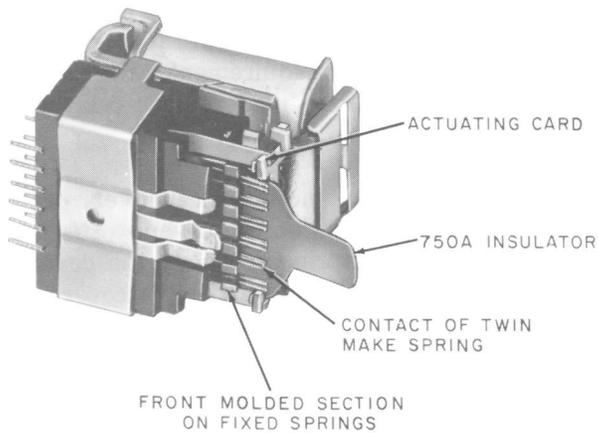


Fig. 5—Positioning 750A Insulator Under Contacts of Twin Make Springs

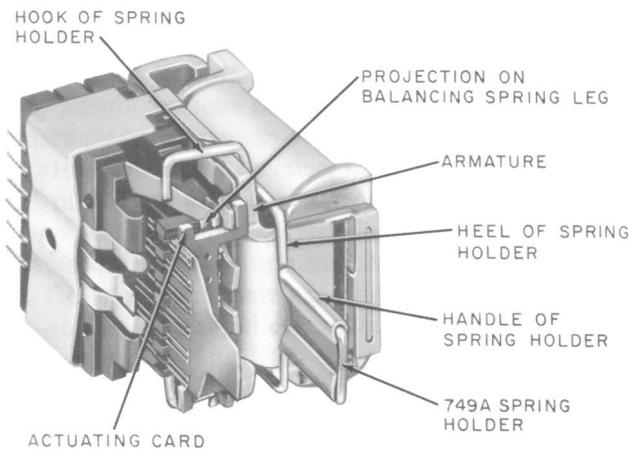


Fig. 6—Positioning 749A Spring Holder for Removal of Actuating Card

are positioned as covered in (2) and (3), respectively. Then, hold the card with the number designation positioned in accordance with Fig. 3 or 4 and insert the card between the insulator and twin break springs as follows: Using the edge of the card associated with the twin make springs, press the card against the insulator, adjacent to the twin make contacts. This will increase the gap between the insulator and twin break springs and provide space for inserting the card. Carefully place the card in position, taking care to avoid damage to the spring contacts. Make sure the notches of the armature clamp plate engage the associated tabs on the card and the projections on the balancing spring are aligned with the associated tabs on card. Remove the 749A tool taking care that the balancing spring projections engage the card. Remove the 750A insulator. Remount the contact cover on the relay.

3.05 Actuating Card (12-position Relay): Use two 750A insulators (one for each row of make contacts) and a 749B balancing spring holder instead of the 749A holder and proceed as covered in 3.04 (1), (2), (3), and (4).