

PIECE-PART DATA AND REPLACEMENT PROCEDURES

U-, UA-, AND 271-TYPE RELAYS

1. GENERAL

1.01 This section covers the information necessary for ordering parts to be used in the maintenance of U-, UA-, and 271-type relays. It also covers approved procedures for replacing these parts.

1.02 The section is reissued to include the 271-type relay, to revise the piece-part data, and to add replacement procedures for armature plates. Detailed reasons for reissue will be found at the end of the section.

1.03 Part 2 of this section covers the piece-part numbers and the corresponding names of the parts which it is practical to replace in the field in the maintenance of the relays. No attempt should be made to replace parts not designated. Part 2 also contains explanatory figures showing these different parts. This information is called Piece-part Data.

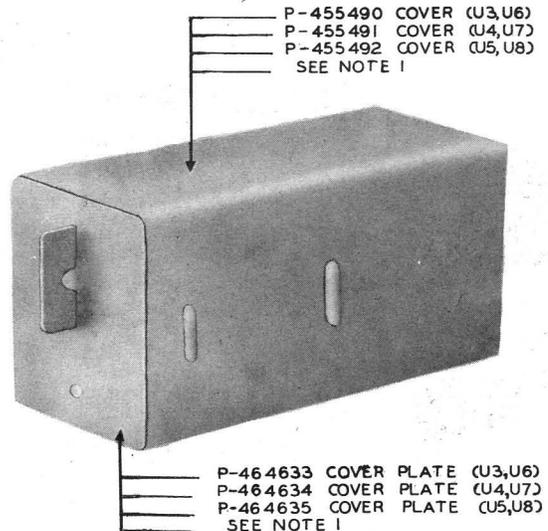
1.04 Part 3 of this section covers the approved procedures for the replacement of the parts covered in Part 2. This information is called Replacement Procedures.

1.05 Before making any replacement on the apparatus covered herein, remove the circuit from service.

2. PIECE-PART DATA

2.01 The figures included in this part 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-466091 Nut." Do not refer to the BSP number or to any information shown in parentheses following the piece-part number.



NOTE 1: USED WITH COVER GUIDE STAMPED AS DESIGNATED IN PARENTHESES

Fig. 1 - Cover and Cover Plate

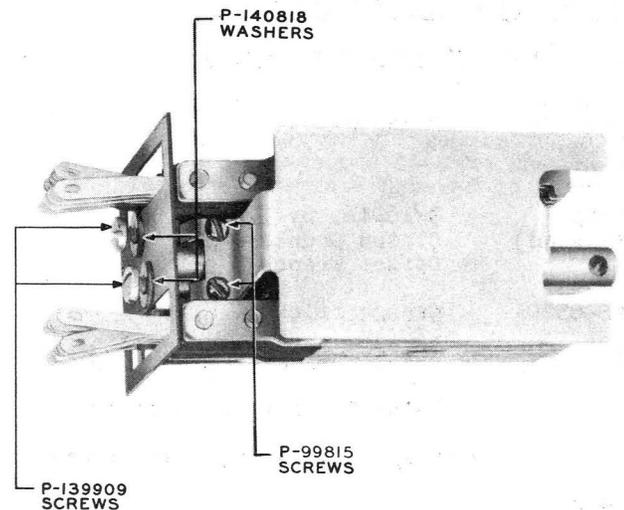
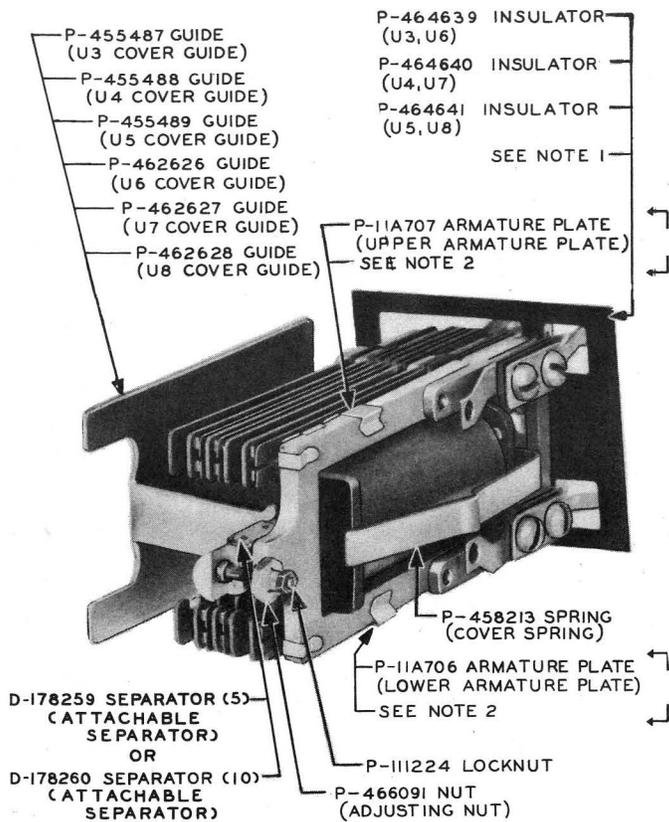


Fig. 2 - U-type Relay - Side View



NOTE 1: USED WITH COVER GUIDE STAMPED AS DESIGNATED.

NOTE 2: USED ON U-TYPE RELAY ONLY.

Fig. 3 - U-type Relay - General View

### 3. REPLACEMENT PROCEDURES

#### 3.01 List of Tools and Gauges

Code or Spec No.	Description
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#### Tools

474A (2 reqd)	3/16-in. by 1/4-in. Closed Double-end Offset Wrench
→ KS-6320	Orange Stick
-	3-in. Cabinet Screwdriver
-	4-in. Regular Screwdriver
-	6-1/2 in. P-long-nose Pliers

#### Gauges

131A	Thickness Gauge Nest
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3.02 No replacement procedures are specified for screws or other parts where the replacement consists of a simple operation.

3.03 After making any replacement of parts of a U-, UA-, or 271-type relay, the part or parts replaced shall meet the readjust requirements involved as specified in Section A461.011 covering the U- and UA-type relay and Section B460.051 covering the 271-type relay. Other parts whose adjustments may have been directly disturbed by the replacing operations shall be checked to the readjust requirements and an over-all operation check shall be made of the relay before restoring the circuit to service.

3.04 Cover Spring, Cover Guide, and Insulator: To replace a cover spring, cover guide, or insulator, remove the relay from the mounting plate as follows. Unsolder and tag the leads. Remove the mounting screws with the 4-inch regular screwdriver and remove the relay. If the insulator is to be replaced, remove it and substitute the new insulator. If the cover spring or cover guide is to be replaced, remove the associated mounting screws using the 3-inch cabinet screwdriver. Remove the spring or guide, as required, and substitute the new parts. Position the mounting end of the cover spring under the winding terminals at the rear of the relay core, and while holding the spring in place, mount the cover guide over the core at the opposite side of the relay. Insert and securely tighten the associated mounting screws. Check that the cover spring clears the winding terminals. Remount the relay securely on the mounting plate. Connect and solder the leads to the proper terminals.

#### 3.05 Attachable Separator

(1) Where an attachable separator has previously been used, and is to be replaced, use a 3-inch cabinet screwdriver to remove the separator from the core. Note the thickness of the separator that was removed. Where the metal clip of the separator is marked 5, replace it with the D-178259 separator (0.005 inch, designated 5 on the clip) and when it is marked either 10 or 15, replace it with the D-178260 separator (0.010 inch, designated 10 on the clip). Mount a new separator as covered in (2) and (3).

(2) Insert the 0.004-inch blade of the No. 131A gauge into the armature gap, as shown in Fig. 4, to guide the flap of the attachable separator into position. This is done to prevent the flap of the separator snagging on the stop discs. Hold the cardboard strip of separators in the left hand with the flap of the first

separator toward the core of the relay and the free edge of the flap downward. Straighten the right-hand end of the strip. Using the index finger of the left hand, slide the separator approximately  $1/8$  inch over the end of the strip and insert the free edge of the flap between the gauge and the core. Take care that the flap is entirely behind the adjusting stud and that the front and rear corners of the flap enter the armature gap at the same time. Slide the flap into position, and while holding the separator in place with the index finger of the left hand as shown in Fig. 4, withdraw the strip. Turn the metal clip in a counterclockwise direction until the ears are in a vertical position. Snap the metal clip over the core so that the ears rest against the step on the later type of core or against the front end of the earlier type of core and then remove the gauge.

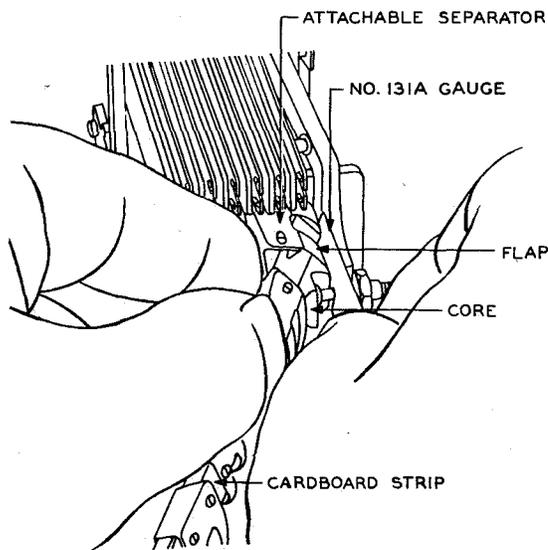


Fig. 4 - Method of Applying Attachable Separator on Core

(3) With the separator in place, make sure that the edges of the window of the flap do not touch the stop discs and that there are no wrinkles or snags in the flap. If there are wrinkles or snags, remove the separator as covered in (1) and replace it.

**3.06 Adjusting Nut and Locknut:** To replace the locknut, if provided, remove it with the No. 474A wrench. Substitute the new locknut and tighten it to meet the requirement covered in Section A461.011. To

replace the adjusting nut, remove the locknut, if provided, and then the adjusting nut, using the No. 474A wrench. Substitute the new adjusting nut and tighten it to meet the requirement specified in Section A461.011, covering the U- and UA-type relay and Section B460.051 covering the 271-type relay. Mount the locknut, if provided, and tighten it to meet the requirement covered in Section A461.011.

### 3.07 Armature Plate

(1) To remove an armature plate proceed as follows. Using the KS-6320 orange stick, push the front clip of the armature plate so that the vertical portion of the plate projects slightly beyond the armature. Grasp this portion of the plate with the P-long-nose pliers and pull the plate forward off the armature. Mount a new armature plate as covered in (2) and (3).

(2) Insert the KS-6320 orange stick between the armature leg and the adjacent spring until the tip of the orange stick rests against the spring stud. Move the spring away from the armature to provide stud clearance for mounting the armature plate. Holding the armature plate with the disc toward the relay springs, place the rear clip of the plate over the leg of the armature. Slide the plate toward the rear of the relay until the front clip fits snugly against the front edge of the armature leg. Withdraw the orange stick and check that the end of the spring stud rests against the armature plate within the circumference of the disc on the plate. Also check that the positioning tab and rear clip of the plate rest against the inner edge of the armature leg as shown in Fig. 3. If necessary, properly position the plate on the armature leg with the orange stick.

(3) After mounting the armature plate, check the relay to all requirements covering the springs and also to the electrical requirements covered in Section A461.011.

### REASONS FOR REISSUE

1. To include reference to the 271-type relay.
2. To revise piece-part information.
3. To add a procedure for replacing armature plates (3.07).