218B RELAYS

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 218B relays. It also covers approved procedures for replacing these parts.

1.02 This section is reissued to revise Fig. 2 with two new piece-parts and to revise the List of Tools.

1.03 Part 2 of this section covers the piece-part numbers and the corresponding names of the parts which it is practicable to replace in the field in the maintenance of these relays. Part 2 also contains explanatory figures showing the different parts.

1.04 Part 3 of this section covers tools and general information incident to the replacement of the parts covered in Part 2.

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. Where 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 the piece-part number as well as the name of the piece-part number as well as the name of the part. Example: P-290156 - Contact Spring and Stop. Do not refer to the BSP number or any information shown in parentheses following the piece-part number.

3. REPLACEMENT PROCEDURES

3.01 ***List of Tools***

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
45B	5/16-in. Hex. socket wrench
340	Adjusting key
474A	3/16-in. and 1/4-in. closed double-end offset wrench
AT-7860	◗B Long-nose pliers
AT-7850	5-inch B diagonal pliers
—	4-inch E screwdriver
—	3-inch C screwdriver◖

3.02 At the time of making a replacement of parts, clean the relay in accordance with Section 069-306-801. After making any replacement of parts of the relay, the part or parts replaced shall meet the readjust requirements involved as specified in Section 040-233-701. Other parts, whose adjustments have been disturbed by the replacement procedure, shall be checked to the test requirements and an over-all operation check shall be made of the relay before restoring it to service.

3.03 No replacement procedures are specified for screws and other parts where the replacement procedure consists of a simple operation.

3.04 ***Terminals:*** Unsolder the lead from the terminal to be replaced, and cut off the terminal close to the terminal clamping nut with the diagonal pliers. Using the 474A wrench, remove the nut from the terminal while holding the opposite end of the terminal with the ◗B◖ long-nose pliers. Withdraw the terminal from the terminal block. Place a washer on the new terminal and place the terminal in position in the terminal block. Fasten the new terminal securely in place by placing a second washer over the threaded portion of the terminal and tighten the terminal clamping nuts securely. Resolder the lead to the terminal.

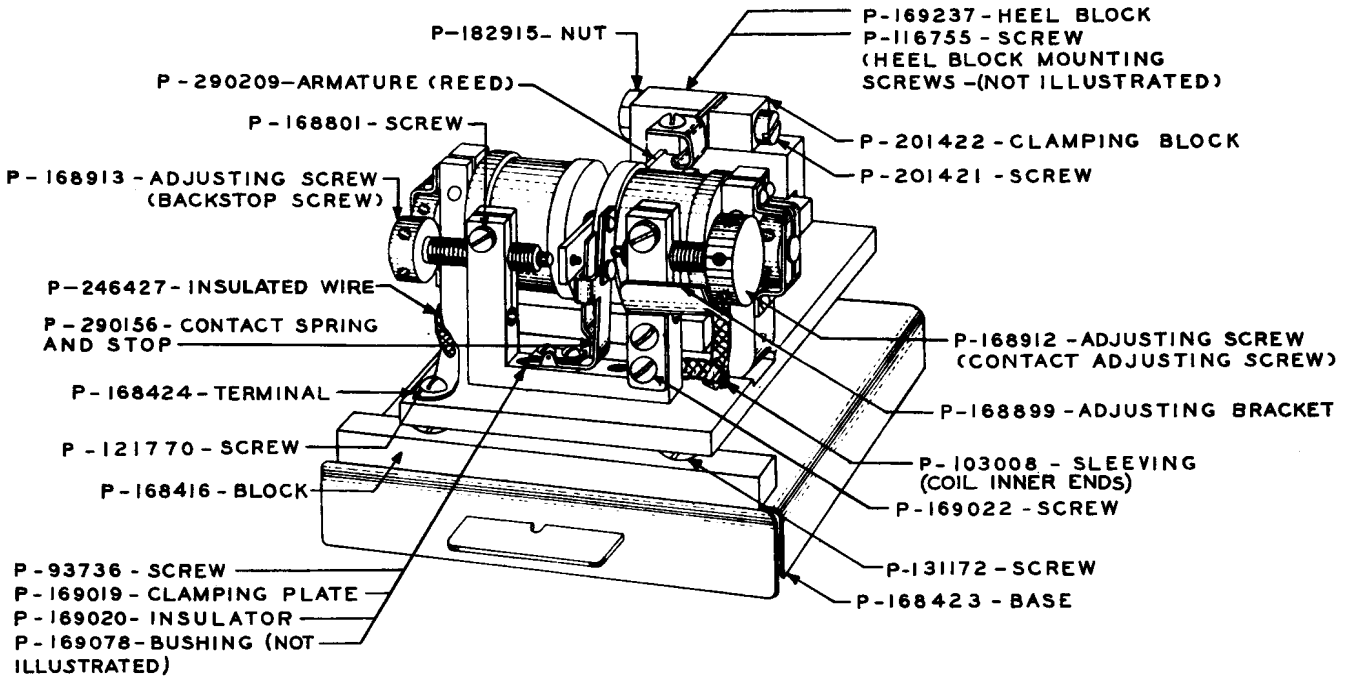
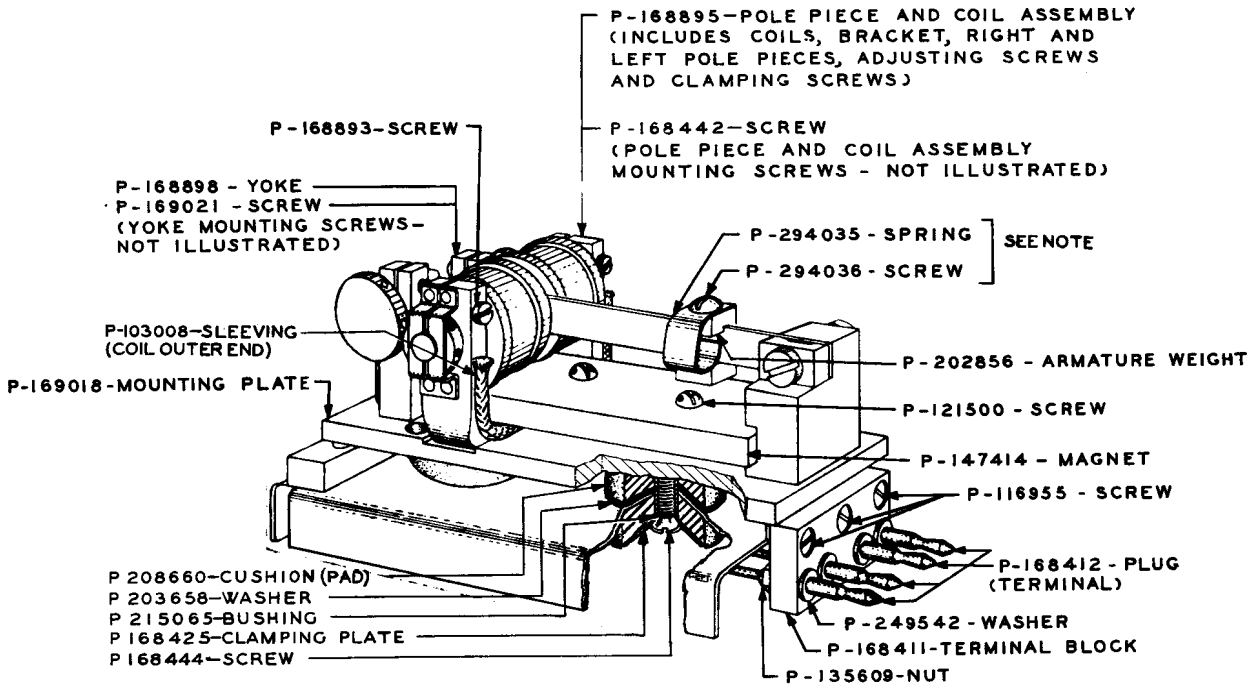


Fig. 1—218B Relay—Front View



NOTE: ON RELAYS NOT EQUIPPED WITH A SPRING AND WHICH REQUIRE REPLACEMENT OF THE SET SCREW, ORDER BOTH SCREW P 294036, AND SPRING P 294035.

Fig. 2—218B Relay—Side View

3.05 ***Terminal Block:*** To replace the terminal block it will usually be necessary to replace all the terminals at the same time. Unsolder the leads to the terminals taking care to mark or record the position of the leads to facilitate their correct replacement, and remove the terminal block mounting screws using the 3-inch ▶C◀ screwdriver. Mount the new terminals in the new terminal block as described in 3.04. Mount the terminal block on the relay and tighten the mounting screws securely. Resolder the leads to the proper terminals.

3.06 ***Sponge Rubber Pads and Associated Parts:*** When necessary to replace a sponge rubber pad, it is recommended that all four pads be replaced at the same time in order to insure uniform cushioning of the relay. Remove the mounting screws from the underside of the relay base with the 3-inch ▶C◀ screwdriver. Remove the pad clamping plates and pads from the underside of the base. Lift the relay from the base and remove the pads which lie between the relay structure and the base. Take care in this operation to avoid placing strain on the contact and winding leads which are connected to the terminals on the terminal block. Substitute the new parts and check that the relay structure is parallel to the base and held approximately 1/8 inch above it. If necessary, one or more rubber washers may be placed between the upper sponge rubber pads and the base to properly position the relay. Remount the relay on the base and tighten the mounting screws securely.

3.07 ***Armature (Reed):*** To replace the armature, remove the locknut on the armature clamping screw in the heel block with the 45B wrench and remove the armature clamping screw with the 4-inch ▶E◀ screwdriver. Remove the clamping block and the armature weight, carefully noting the position of the clamping block. Substitute the new armature and reassemble in the reverse order as previously indicated. Take care the contacts are properly aligned and that the clamping screw and locknut are tightened securely.

3.08 ***Contact Spring and Stop:*** Loosen the contact adjusting and backstop clamping screws with the 3-inch ▶C◀ screwdriver and remove the contact and backstop adjusting screws with the 340 adjusting key or the fingers. Remove the armature from the relay as outlined in 3.07. Unsolder the lead from the terminal lug at the bottom of the contact spring and stop. Remove the contact spring and stop clamping screws with the 3-inch ▶C◀ screwdriver, carefully noting the position of insulators, bushings, and clamping plate. Remove the contact spring and stop from the relay. Substitute the new contact spring and stop and replace the insulators and bushings with new ones. Remount the insulators, bushings, and clamping plate in their proper positions and tighten the clamping screw securely. Resolder the lead to the terminal lug and remount the armature. Remount the contact and backstop adjusting screws and tighten the clamping screws securely.

3.09 ***Heel Block:*** Remove the armature from the relay as covered in 3.07. Using the 3-inch ▶C◀ screwdriver, loosen the magnet mounting screws, taking care to observe the precautions of 3.10, and remove the screws and associated parts which attach the base to the relay. Lift the relay from the base taking care to avoid placing a strain on the leads connecting the terminals to the contacts and windings. Remove the heel block mounting screws with the 3-inch ▶C◀ screwdriver. Substitute the new heel block, taking care that the magnet is properly centered in the slot. Insert and tighten the heel block mounting screws securely. Remount the base and associated parts as covered in 3.06 and tighten the magnet mounting screws securely. Reassemble the armature and clamping block as outlined in 3.07.

3.10 ***Magnet***

(a) ***Precautions To Be Observed for the Magnet***

(1) Never remove the magnet unless it is absolutely necessary.

(2) Keep the magnet free from the influence of stray magnetic fields.

(3) Do not subject the magnet to mechanical shock.

(4) Do not permit the magnet to come into contact with magnetic bodies other than the relay structure.

(5) In replacing the magnet, always be certain the magnet is so oriented that the spot-marked end faces the contact end of the relay.

(b) ***Replacement of Magnet:*** To replace the magnet, remove the heel block as outlined in 3.09. Remove the magnet mounting screws with the 3-inch ▶C◀ screwdriver. Remove the magnet from the relay. Substitute the new magnet and insert the magnet mounting screws loosely. Remount the heel block as covered in 3.09 and tighten the magnet mounting screws securely.

3.11 ***Pole Piece and Coil Assembly:*** When necessary to replace any part of this assembly, the entire assembly should be replaced as a unit. Unsolder the leads to the coils from the terminals and carefully note the position of the leads to facilitate their correct replacement. Remove the heel block and magnet as outlined in 3.09 and 3.10. Remove the pole piece and coil assembly mounting screws with the 3-inch ▶C◀ screwdriver. Remove the sleeving from the leads to the coils which were removed from the relay, or cut off pieces of new sleeving approximately the same length. The outer ends of the coils are the leads nearest the heads of the pole-piece clamping screws, and should be soldered together prior to assembly of the unit on the relay. Thread and compress the shortest of the three pieces of sleeving on to one of the outer ends of one coil until the end of this lead appears through the sleeving, taking care not to exert any undue tension on the lead. Solder the outer ends of each coil together, taking care to provide a sufficient length of spliced leads to pass under the magnet. Cut off any excess wire and extend the compressed portion of sleeving over the splice and both outer ends. Thread the remaining two coil leads through the new sleeving and mount the entire unit on the relay mounting plate. Securely tighten the mounting screws. Pass the sleeved leads through the vacant hole in the relay mounting plate and position the spliced lead so that it lies along and parallel to the bottom crosspiece of the pole pieces. Pass the leads through the vacant hole in the base near the rear of the relay base to the proper terminal. Solder the leads to the proper terminals and cut off any excess wire. Reassemble the magnet and heel block and remount the relay on the base taking care that all mounting and clamping screws are securely tightened.

3.12 ***Yoke:*** Using the 3-inch ▶C◀ screwdriver, remove the adjusting bracket mounting screws and the adjusting bracket. Remove the adjusting screw clamping screws with the 3-inch ▶C◀ screwdriver and remove the adjusting screws with the 340 adjusting key or with the fingers. Remove the contact spring and stop as covered in 3.08. Remove the relay from the base and associated parts as outlined in 3.06. Remove the yoke mounting screws and the yoke. Substitute the new part and tighten the mounting screws securely. Reassemble the relay on the base and remount the contact spring and stop assembly, the adjusting screws, the adjusting screw clamping screws, the adjusting bracket, and the adjusting bracket mounting screws. Take care all mounting and clamping screws are securely tightened.