

**BELLS AND SIGNALS**  
**SOLENOID TYPE**  
**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 KS-5595, KS-6918, KS-6919, KS-6920, KS-6921, KS-7228, and KS-7752 solenoid-type bells and KS-5594 solenoid-type signals. It also covers the approved procedures for replacing these parts.

**1.02** This section is reissued to include replacement parts and procedures for the KS-5595, L1, L2, L3, and L4 bells; to revise a replacement part for the KS-5594, L5, L9, and L10 signals; and to revise the piece-part data and replacement procedures for the KS-5594, L6, L7, and L8 signals. 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 practicable to replace in the field in the maintenance of the above apparatus. No attempt should be made to replace parts not designated. Part 2 also contains explanatory figures showing the 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.

**2. PIECE-PART DATA**

**2.01** The figures included in this part show the replaceable parts in their proper relation to the other parts of the apparatus.

**2.02** When ordering parts for replacement purposes, give the part number, the name of the part, and the KS number. For example, PA-30910 Vibrator Assembly, for the KS-5595, L10 bell. Do not refer to the BSP number or to any information shown in parentheses following the piece-part number.

**2.03** Information enclosed by parentheses ( ) is not ordering information. This information may be references to notes, parts referred to in other portions of the section and not considered replaceable, or part names in general use in the field if these names differ from those assigned by the manufacturer.

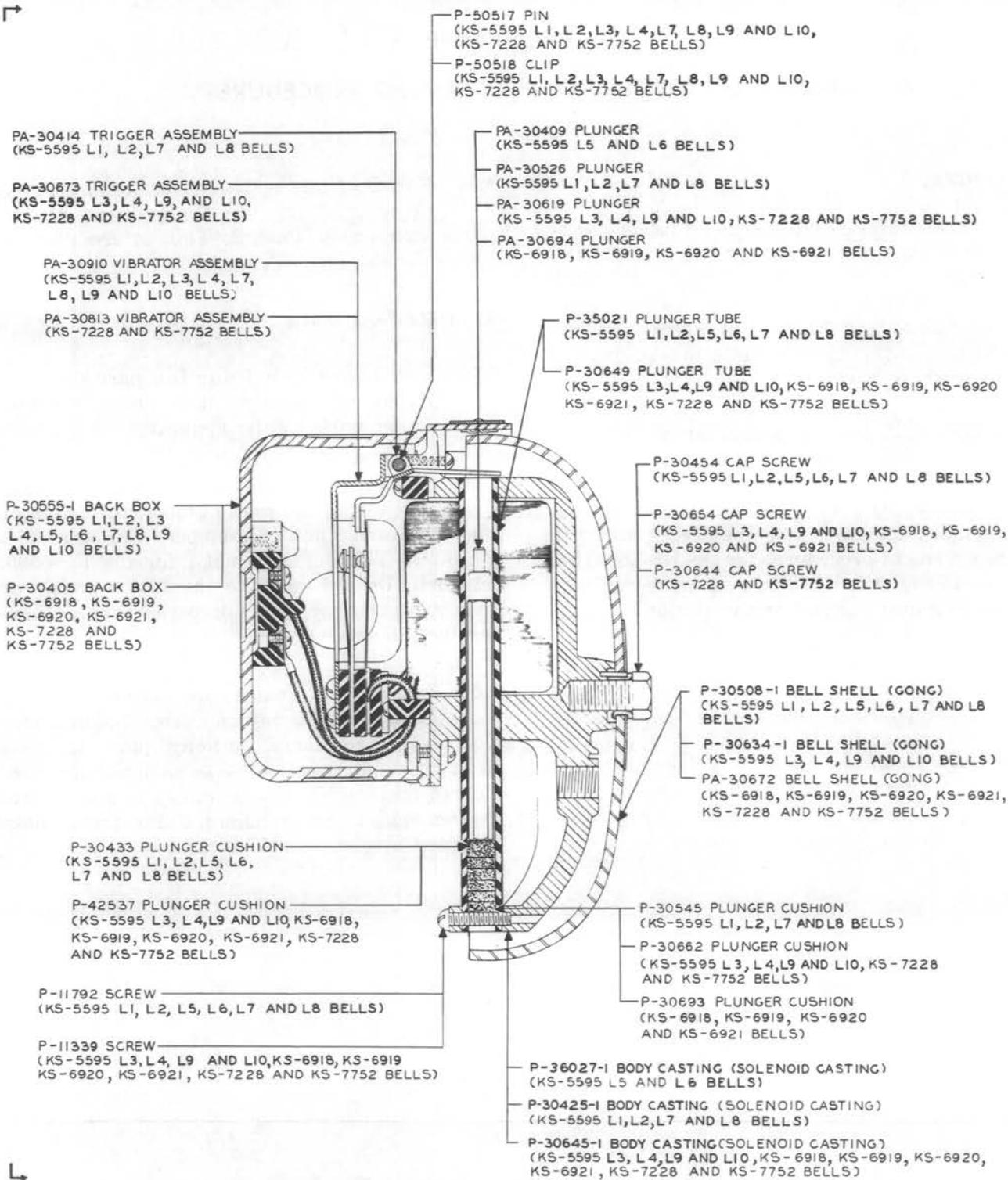


Fig. 1 - KS-5595, L1 Through L10, KS-6918, KS-6919, KS-6920, KS-6921, KS-7228, and KS-7752 Bells

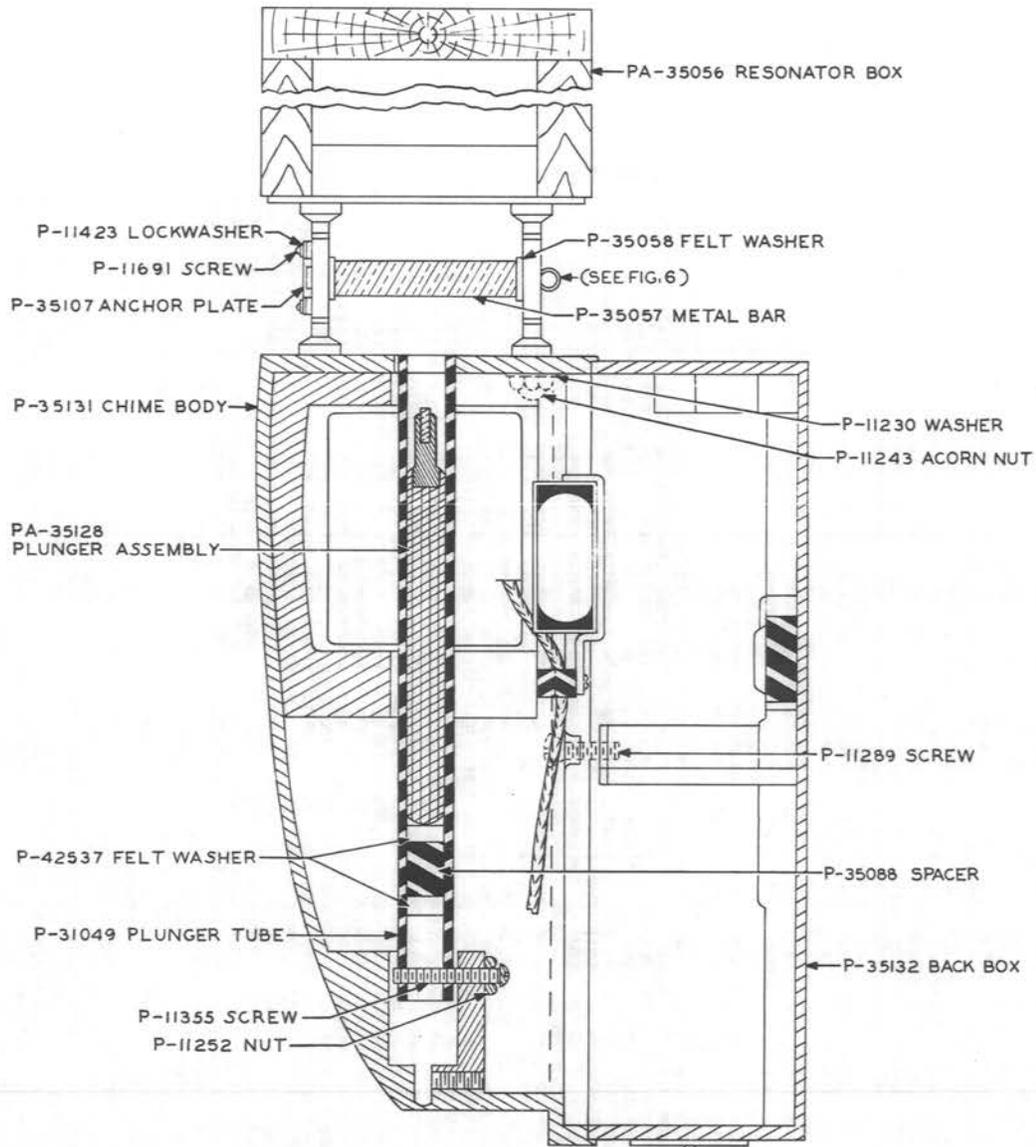


Fig. 2 - KS-5594, L1 and L2 Signals

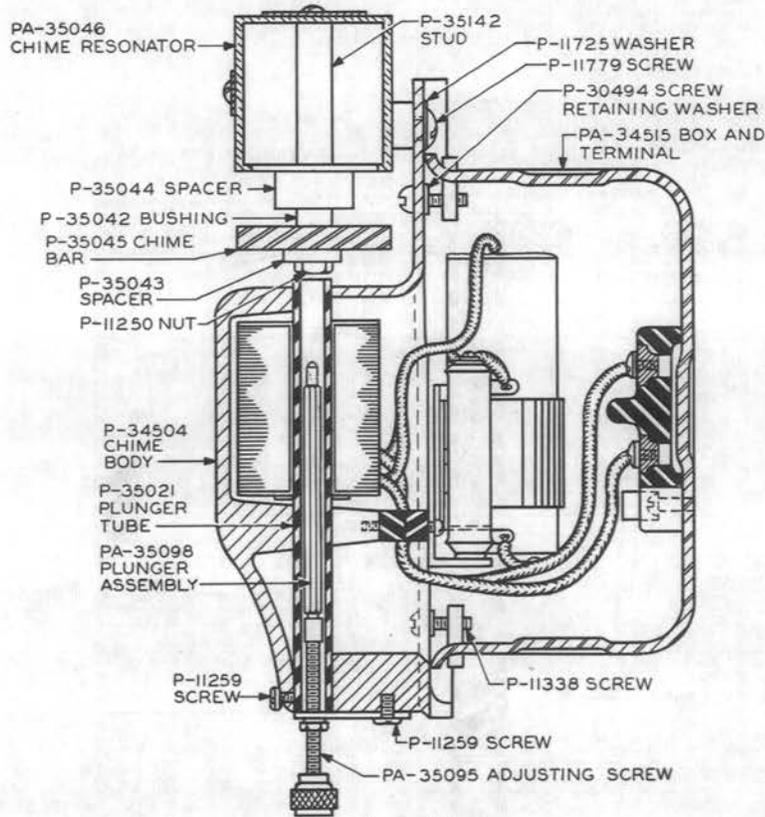


Fig. 3 - KS-5594, L3 and L4 Signals

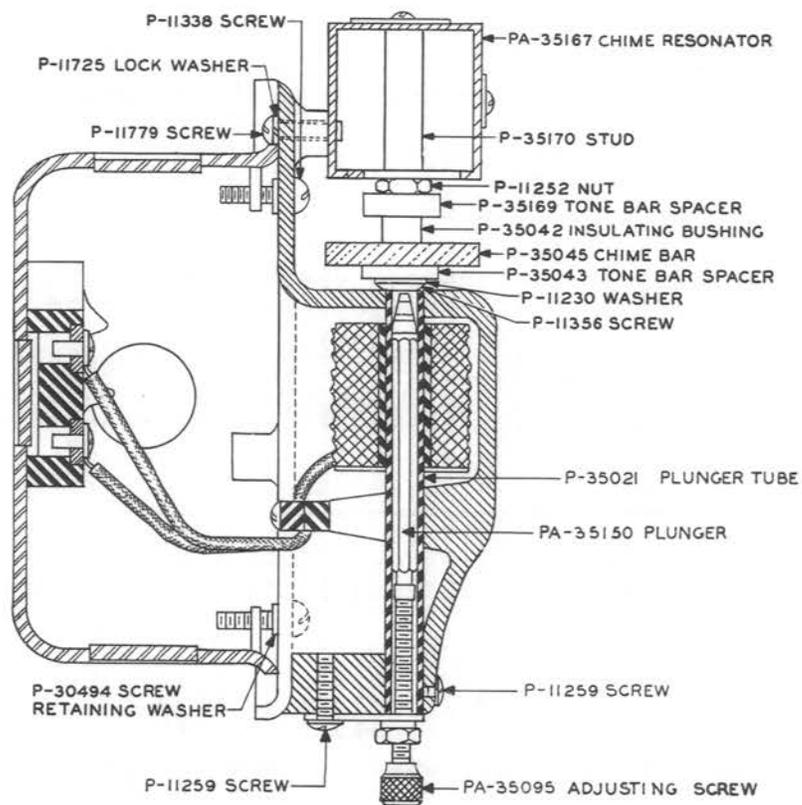


Fig. 4 - KS-5594, L5, L9, and L10 Signals

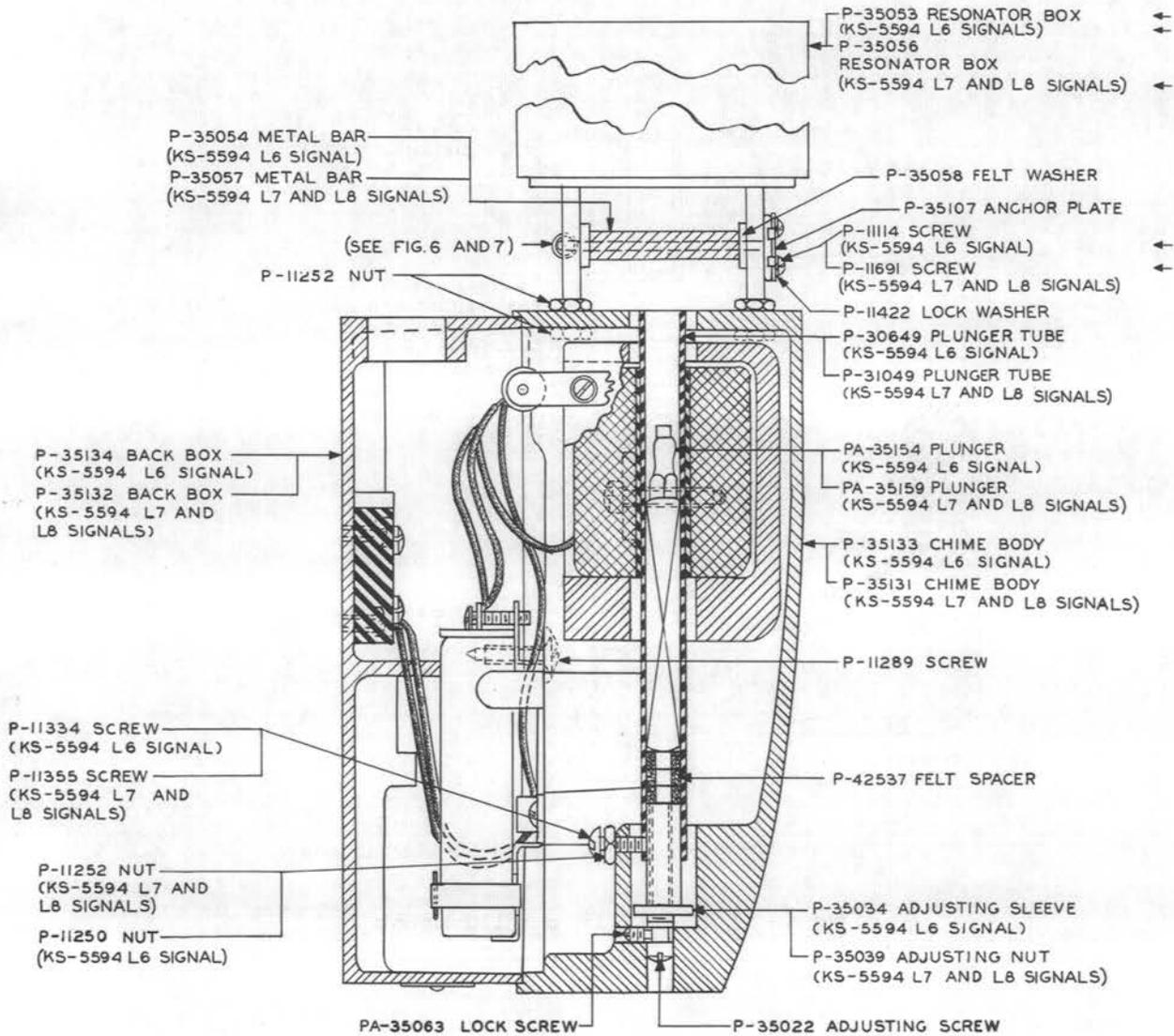


Fig. 5 - KS-5594, L6, L7, and L8 Signals

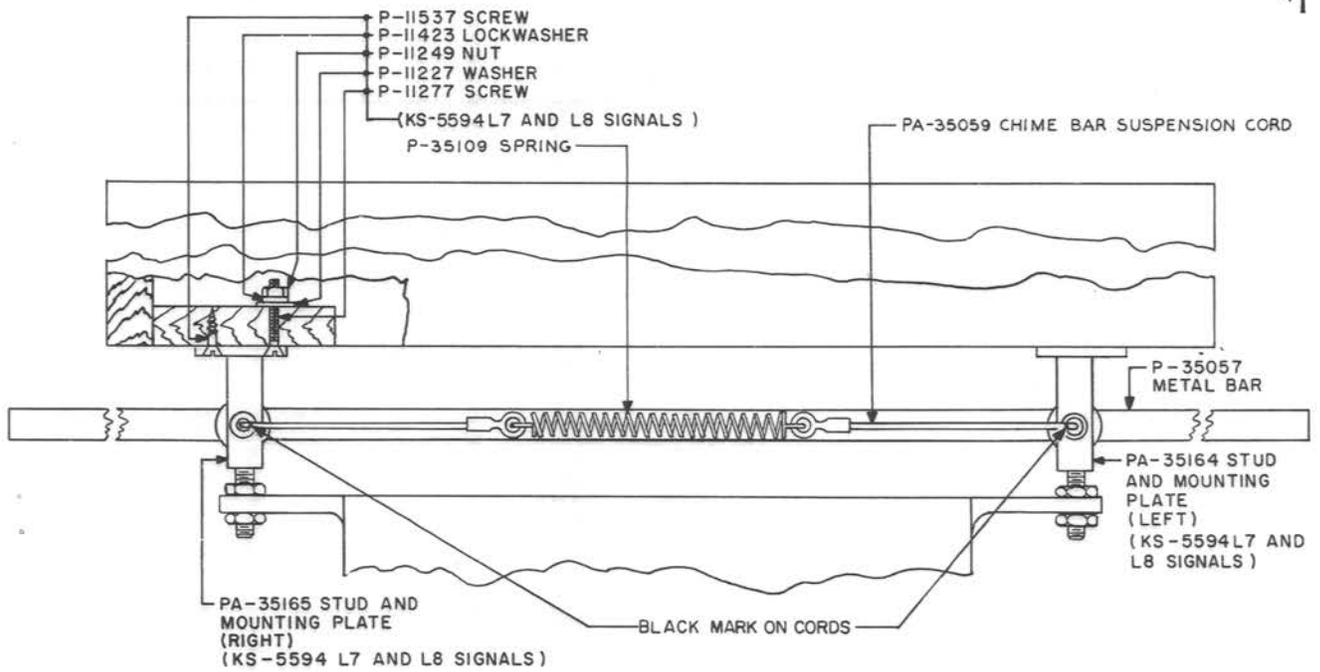


Fig. 6 - KS-5594, L1, L2, L7, and L8 Signals - Bar Harp

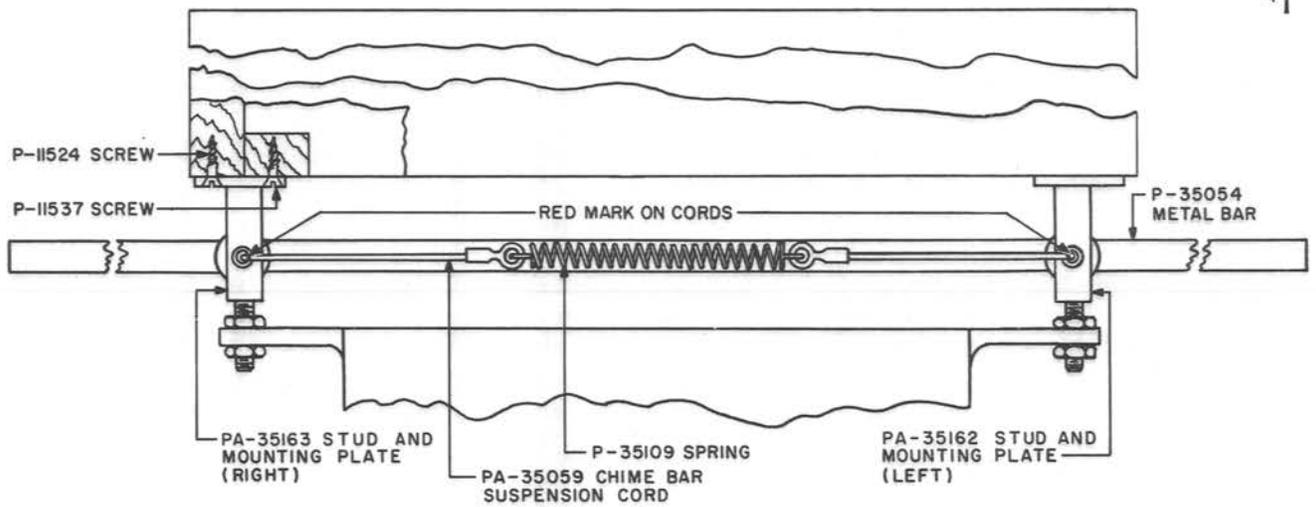


Fig. 7 - KS-5594, L6 Signal - Bar Harp

## 3. REPLACEMENT PROCEDURES

## 3.01 List of Tools and Gauges

CODE OR SPEC NO.	DESCRIPTION
<b>TOOLS</b>	
236	9/16-inch Open Single-end Offset Wrench
→ 372	5/16-inch Open Single-end Offset Wrench
417A	1/4- and 3/8-inch Open Double-end Flat Wrench
KS-6320	Orange Stick
KS-8097	5/8- and 7/16-inch 12-point Box Wrench
→ —	Long-nose Pliers
→ —	3-inch C Screwdriver
→ —	4-inch E Screwdriver
<b>GAUGES</b>	
→ R-8550	6-inch Steel Scale

**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 bell or signal, the part or parts replaced shall meet the readjust requirements involved as specified in Section 028-102-701. Other parts whose adjustment 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 bell or signal before restoring the circuit to service.

**KS-5595 L1 Through L10, KS-6918, KS-6919, KS-6920, KS-6921, KS-7228, and KS-7752 Bells (Fig. 1)**

**3.04 Gong:** To replace a gong, remove the gong mounting screw using the No. 417A, No. 236, or KS-8097 wrench. Remove the gong. Substitute a new gong and securely mount it in place.

**3.05 Plunger, Plunger Tube, and Plunger**

**Cushions:** To replace any of these parts, remove the gong as covered in 3.04. Remove the solenoid casting mounting screws using the 4-inch E screwdriver and remove the casting. While holding the casting, loosen the electrical connecting clamping screws at the terminal block using the 4-inch E screwdriver. Remove the wires. Remove the plunger tube mounting screw using the 4-inch E screwdriver. While holding the casting in an upright position, remove the plunger tube from the casting. Remove the plunger and plunger cushions from the tube. Make the necessary replacement of parts. Reassemble the parts in the plunger tube. Insert the plunger tube through the holes in the casting and through the magnet coil and insulating washer, taking care that the washer has not shifted out of position when inserting the tube in the upper hole in the casting. Align the holes in the tube with the holes in the bottom portion of the casting and insert and securely tighten the mounting screw. Reassemble the parts that were removed in the reverse order of removal.

**3.06 Trigger Assembly and Vibrator Assembly:**

To replace the trigger assembly or vibrator assembly, remove the solenoid casting as covered in 3.05. Remove the bearing pin clips and bearing pin using the long-nose pliers. Remove the trigger assembly. If it requires replacement, replace it. If it does not, proceed as follows to replace the vibrator assembly. Remove the capacitor bracket mounting screws using the 3-inch C screwdriver. Remove the bracket. Unsolder and tag the wires connected to the spring terminals. Remove the vibrator assembly by removing the mounting screws using the 3-inch C screwdriver, taking care not to lose the lock washers under the screws. Substitute a new vibrator, insert the lock washers, and securely tighten the mounting screws. Connect the wires to the proper terminals. Remount the other parts that were removed in the reverse order of removal.

**KS-5594, L1 and L2 Signals (Fig. 2)**

**3.07 Plunger:** To replace the plunger, remove the bar harp mounting nuts using the No. 417A wrench and remove the bar harp. Re-

move the plunger by turning the signal upside down. Place the signal in an upright position and insert a new plunger. Reassemble the bar harp.

**3.08 *Plunger Tube and Spacers:*** To replace any of these parts, remove the back box mounting screws using the 4-inch E screwdriver. While holding the back box, loosen the connection clamping screws with the 3-inch C screwdriver and remove the wires from under the screws. Remove the bar harp mounting nuts using the No. 417A wrench and remove the bar harp. Remove the plunger tube mounting screw using the 3-inch C screwdriver. Remove the plunger tube through the top of the chime body. Remove the plunger. Make the necessary replacement of parts. Reassemble the plunger in the plunger tube. Insert the plunger tube through the hole in the chime body and the coil. Align the hole in the tube with the hole in the chime body. Insert and securely tighten the screw and locknut. Reassemble the parts that were removed in the reverse order of removal.

**3.09 *Bar Harp*** (Fig. 6)

(a) ***Extension Spring and Suspension Cord:***

To replace an extension spring and suspension cord, remove the screws holding the anchor plates using the 3-inch C screwdriver. Untie the knot in the cords and remove the cords and spring. Hook the loop of a new spring to the terminals on the new cords. Insert the ends of the cords through the holes in the rear studs, washers, and bar. Pull the cords so that the black spots on the cords are at the entrance of the holes in the studs. Tie the cords with a double knot against the front studs. Reassemble the anchor plates and lock washers and securely tighten the screws.

(b) ***Felt Washers:*** To replace the felt washers, remove the spring and cords as covered in (a). Insert the new washers between the studs and bar. Remount the cords and spring as covered in (a).

**Signals With External Tone Control — KS-5594, L3 and L4 Signals (Fig. 3) and KS-5594, L5, L9, and L10 Signals (Fig. 4)**

**3.10 *Adjusting Screw and Plunger:*** To replace either of these parts, remove the adjusting plate mounting screw using the 3-inch C

screwdriver. Remove the adjusting screw. Remove the plunger. Make the necessary substitution of parts and insert the plunger in the tube with the plunger cushion uppermost. Remount the adjusting screw securely in position.

**3.11 *Plunger Tube:*** To replace the plunger tube, remove the adjusting screw as covered in 3.10 and remove the plunger. Remove the plunger tube mounting screw using the 3-inch C screwdriver and remove the plunger tube. In some cases, it may be necessary to pry the tube out of the casting. To do this, insert the end of the KS-6320 orange stick into the mounting hole on the inside of the tube and apply a downward pressure. This should move the tube far enough to permit the tube to be withdrawn with the fingers. Substitute a new plunger tube being careful to line up the holes in the tube with the one in the casting. Insert and securely tighten the mounting screw and remount the parts that were removed in the reverse order of removal. In removing and replacing the plunger tube, the signal should be held in an upright position in order to facilitate removing and inserting the tube through the magnet coil.

**Signals With Internal Tone Control — KS-5594, L6, L7, and L8 Signals (Fig. 5)**

**3.12 *Plunger:*** To replace the plunger, remove the back box mounting screws using the 4-inch E screwdriver and remove the back box. While holding the back box, loosen the electrical connection clamping screws at the terminal block using the 4-inch E screwdriver. Remove the wires. Remove the nuts from the underside of the chime body using the No. 417A wrench and remove the resonator box. Remove the plunger by turning the chime body upside down. Substitute a new plunger. Reassemble the parts that were removed in the reverse order of removal.

**3.13 *Plunger Tube and Spacers:*** To replace any of these parts, remove the parts as covered in 3.12. Remove the screw and locknut on the inside of the chime body using the 4-inch E screwdriver. While holding the signal in an upright position, push the tube up through the top. Make the necessary replacement of

parts. Reassemble the plunger in the tube. Insert the plunger tube through the hole in the chime body and the magnet coil. Align the hole in the tube with the hole in the bottom of the chime body. Insert and securely tighten the screw and locknut. Reassemble the parts that were removed in the reverse order of removal.

**3.14 Adjusting Screw and Adjusting Nut:** To replace any of these parts, remove the parts as covered in 3.12 and 3.13. Remove the locking screw using the 3-inch C screwdriver. Remove the adjusting screw using the 3-inch C screwdriver. Make the necessary substitution of parts. Insert the lockscrew so that the end of the screw enters the groove in the adjusting screw. Reassemble the parts that were removed in the reverse order of removal.

**3.15 Bar Harp (Fig. 6 and 7)**

(a) **Extension Spring and Suspension Cord:**

To replace an extension spring and suspension cord, remove the screws holding the anchor plates using the 3-inch C screwdriver. Untie the knot in the cords and remove the cords and spring. Hook the loop of a new spring to the terminals on the new cords. Insert the ends of the cords through the holes in the rear studs, washers, and bar. Pull the cord so that the spots on the cord, of the appropriate color as indicated in Fig. 6 or 7, are at the entrance of the holes in the studs. Tie the cords with a double knot against the front studs. Reassemble the anchor plates and lockwashers and securely tighten the screws.

(b) **Felt Washers:** To replace the felt washers, remove the spring and cords as covered in (a). Insert the new washers between the studs and bar. Remount the cords and spring as covered in (a).

(c) **Stud and Mounting Plate and Metal Bar:**

Remove the nuts from the underside of the chime body using the No. 417A wrench

and remove the bar harp. Remove the nuts from the studs. Remove the spring and cords as covered in (a). Remove the mounting plate screws from the resonator box of the KS-5594, L6 signal with the 4-inch E screwdriver, or remove the mounting plate screws, nuts, and washers from the resonator box of the KS-5594, L7 or L8 signal with the 4-inch E screwdriver and the No. 372 wrench, as applicable. Make the necessary substitution of parts. Reassemble the parts that were removed in the reverse order and proceed as follows. With the current through the coil the clearance between the tip of the plunger and the bottom surface of the metal bar shall be 1/16 inch minimum and 1/8 inch maximum. Use the R-8550 scale and adjust the bar harp mounting screws with the No. 417A wrench as required.

#### REASONS FOR REISSUE

1. To add a paragraph defining the information enclosed in parentheses (2.03).
2. To add piece-part data for KS-5595, L1, L2, L3, and L4 bells (Fig. 1).
3. To revise piece-part data for KS-5594, L5, L6, L7, L8, L9, and L10 signals (Fig. 4, 5, and 6).
4. To add Fig. 7.
5. To revise the list of tools and gauges. (3.01).
6. To revise the procedure for replacing the extension spring and suspension cord [3.15(a)].
7. To add the procedure for replacing the stud and mounting plate and metal bar on the bar harp of the KS-5594, L6, L7, and L8 signals [3.15(c)].