SIGNALS
42-TYPE
AND
ASSOCIATED SIGNAL MOUNTINGS
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 42 type signals and 75, 76, 77, 78, 79, 82, 83 and 105 signal mountings. It also covers approved procedures for replacing these parts.

1.02 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 this 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".

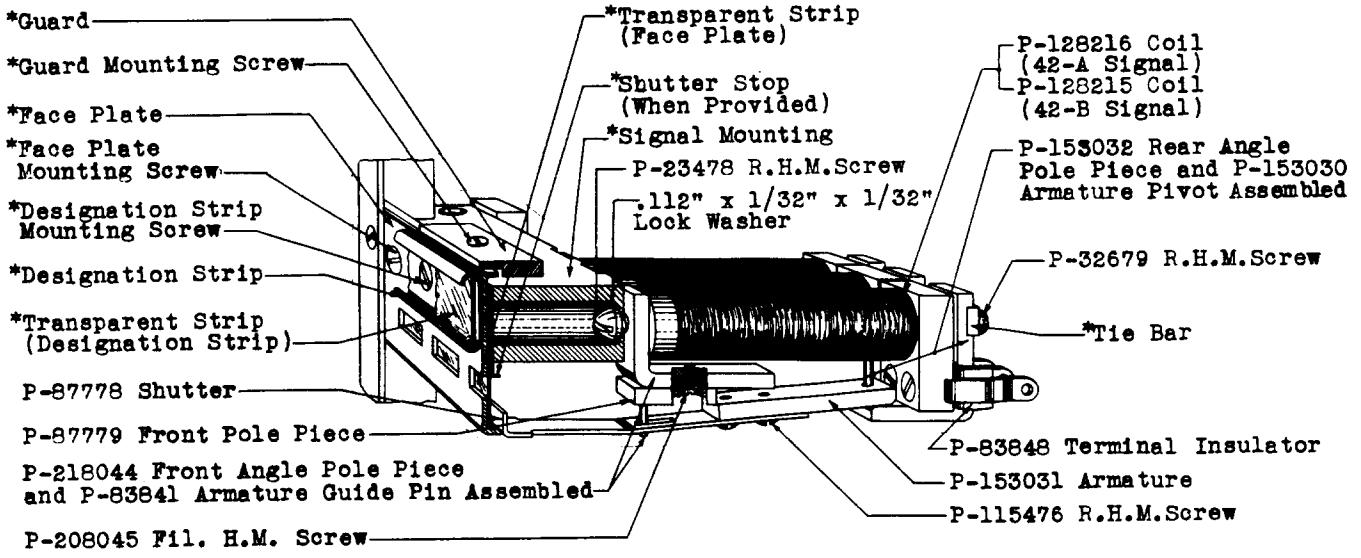
1.03 Part 3 of this section covers the approved procedures for the replacement of the parts covered in Part 2. This information is called "Replacement Procedures".

2. PIECE PART DATA

2.01 The figures included in this part show the various piece parts in their proper relation to other parts of the signal and signal mounting and the piece part numbers of the various parts together with their corresponding names.

2.02 The notes underneath the figures should be read carefully as in some cases they contain information which is essential to correct ordering of parts.

2.03 When ordering piece parts for replacement purposes both the number and name of the piece part should be given. For example: "P-87778 - Shutter".



*Note - Where designations are not prefixed by piece part numbers, the numbers for these designations are given on the table on page 2.

Fig. 1 - 42 Type Signal

2.04 The following is a list of numbers and corresponding names of piece parts which are not common to all signal mountings.

Signal Mounting	Guard	Guard Mounting Screw (F.H.M.S.)	Tie Bar	Designation Strip	Designation Strip Mounting Screws (F.H.M.S.)	Transparent Strip (Designation Strip)	Face Plate	Face Plate Mounting Screws (F.H.M.S.)	Transparent Strip (Face Plate)	Shutter Stop
75	-	-	P-88741	✓✓P-88743	✓✓P-83868	P-88742	P-88745 Right P-88744 Left	P-84628	P-166560	-
76	-	-	P-88061	✓P-86691	✓P-84628	P-86693	P-141286	P-84628	P-166561	-
77	-	-	P-88061	✓✓P-86564 ✓*P-87702	✓✓P-83868 ✓*P-84628	P-84360	P-141286	P-84628	P-166561	-
78	-	-	P-89118	✓✓P-89117 ✓*P-121465	✓✓P-83868 ✓*P-84628	P-83437	P-153119	P-84628	P-166562	†D-120639
79	-	-	P-87790	✓✓P-83847 ✓*P-86968	✓✓P-83868 ✓*P-84628	P-84360	P-141287	P-84628	P-166563	†D-120614
82	-	-	P-109859	✓P-109862	✓✓P-111071	P-48397	P-109858	P-115432	P-166564	-
83	-	-	P-111070	✓P-109862	✓✓P-111071	P-48397	P-111069	P-115432	P-166565	-
105	P-147860	P-116255	P-87790	✓✓P-83847 ✓*P-86968	✓✓P-83868 ✓*P-84628	P-84360	P-141287	P-84628	P-166563	†D-120614

* The asterisk indicates the part furnished with the complete signal mounting unless otherwise specified.

† To be ordered only where signal mounting is equipped with shutter stop.

✓ Indicates parts finished with dull black or rubber japan finish.

✓✓Indicates parts finished with bright nickel silver finish.

3. REPLACEMENT PROCEDURES

3.001 List of Tools and Materials

Code No.	Description
Tools	
KS-6854	Screw-driver - 3-1/2"
-	Bell System Regular Screw-driver - 4" per A.T.&T.Co. drawing 46-X-34
-	Bell System Cabinet Screw-driver - 3-1/2" per A.T.&T. Co. drawing 46-X-40
-	Bell System P-Long Nose Pliers - 6-1/2" per A.T.&T.Co. drawing 46-X-56
Materials	
-	Toothpicks, Hardwood, Flat at One End and Pointed at the Other

3.002 After making any replacement of parts, check the signals and where necessary, readjust them to meet the requirements specified in the section covering requirements and adjusting procedures for this apparatus.

3.01 Transparent Strip (Designation Strip) Designation Strip Face Plate Transparent Strip (Face Plate) Shutter Stop

M-1 Transparent Strip (Designation Strip) To replace a transparent strip mounted in the designation strip, slide the strip out through the end of the designation strip. Insert the end of the new part under the rolled edges of the designation strip and slide it into place.

M-2 Designation Strip To replace a designation strip, remove the transparent strip (designation strip) as outlined above. Then remove the designation card and remove the designation strip mounting screws with the KS-6854 screw-driver. Substitute the new part and replace and tighten the mounting screws securely. Then insert the transparent strip and designation card under the rolled edges of the designation strip and slide them into place.

M-3 Face Plate, Transparent Strip (Face Plate) and Shutter Stop To replace a face plate, transparent strip (face plate) mounted on the rear of the face plate or the shutter stop, remove the stile-case mounting screws with the KS-6854 screw-driver and remove the stile-casing.

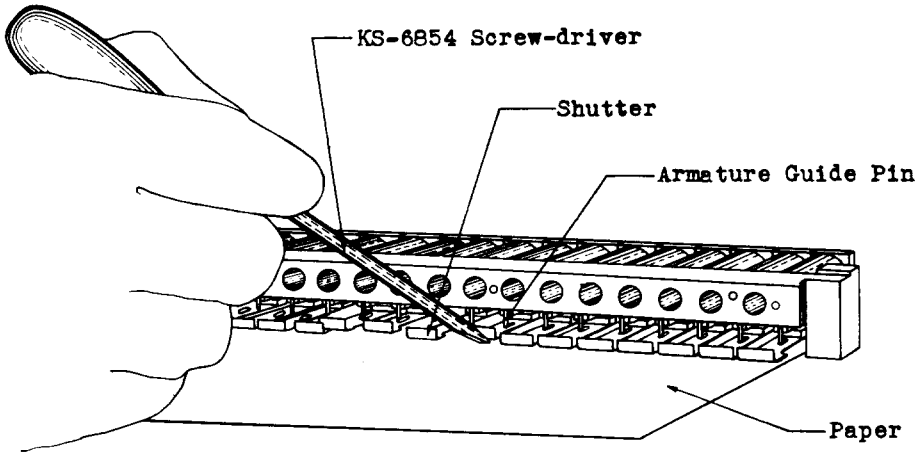


Fig. 2 - Method of Checking Location of Shutters

3.01 (Continued)

Remove the transparent strip (designation strip), designation card and the designation strip as outlined above. Then remove the face plate mounting screws with the KS-6854 screw-driver and remove the face plate. When the face plate is removed, the transparent strip mounted behind the face plate will be dislodged from its position and if the signal is equipped with a shutter stop, the stop will also be dislodged. Replace defective parts and then reassemble the shutter stop, transparent strip and face plate as follows.

M-4 Check the adjustment of the signals as outlined in the section covering requirements and adjusting procedures for this apparatus. After the signals are satisfactorily adjusted, check the location of the shutters to determine whether they are on the armature guide pin or whether they have dropped off in making the adjustments. To do this proceed as follows: Place the blade of the KS-6854 screw-driver under the lower surface of each shutter and raise each shutter on its armature guide pin as shown in Fig. 2. If the shutter can be moved vertically it is an indication that it is in line with the pin, if not, move the shutter laterally until it can be raised vertically. Then assemble the transparent strip in place on the face plate.

M-5 Place the face plate in position so that the shutters rest on the bottom flange of the face plate. Then, if the signal mounting is not equipped with a shutter stop, replace and tighten the face plate mounting screws securely.

M-6 If the signal mounting is equipped with a shutter stop, turn the face plate down so that the inside is uppermost and the flange at the bottom is beneath the shutters. Then insert a piece of paper over the lips of the shutters beneath the signal mounting. The paper should be nine inches by approximately six inches. Place the shutter stop in position on the mounting with the flange beneath the bottom surface of the mounting but above the paper. Hold it in place by bending the paper upward over the front of the signals. With the paper held in this position, tip the face plate upward into place as shown in Fig. 3 taking care not to disengage the shutters when performing this operation. Then pull the paper from beneath the face plate. Secure the face plate, transparent strip, and shutter stop in place with the face plate mounting screws. A toothpick may be used to align the holes in the parts with the holes in the mounting strip.

M-7 With the mounting screws in place but not tightened, tap the strip so that the shutter stop drops down to rest on the face plate mounting screws.

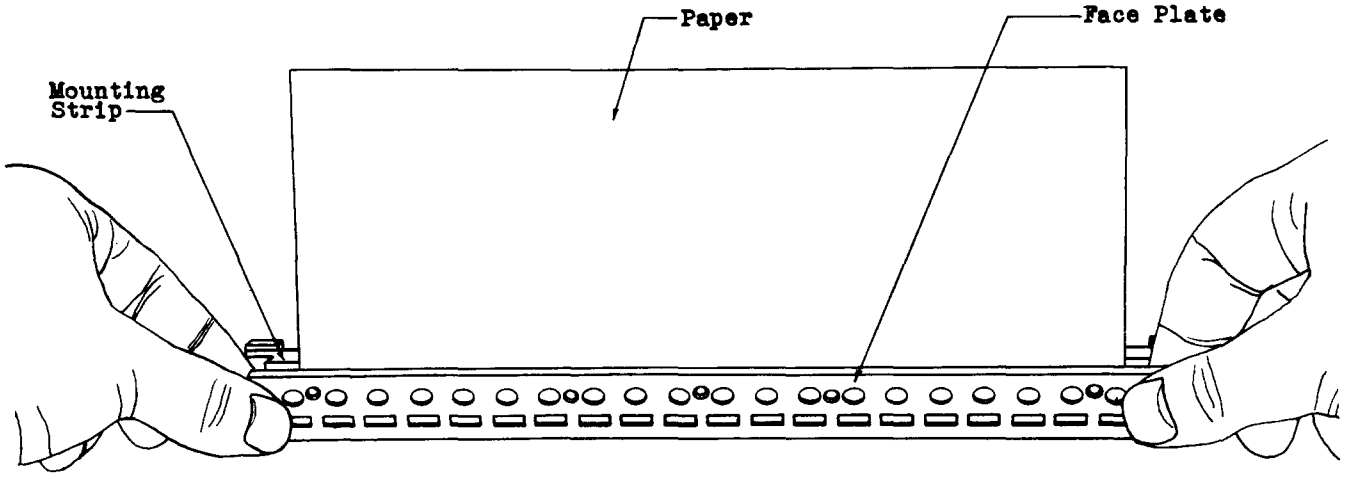


Fig. 3 - Method of Assembling Face Plate on Mounting Strip

3.01 (Continued)

This is important since it is necessary for proper operation of the signal that the shutter stop be in its maximum downward position. The shutter stop should extend below the top of the shutter windows approximately an equal amount at both ends of the strip. Securely tighten the face plate mounting screws and replace the designation card, designation strip and stile casing.

3.02 Shutter
Tie Bar
Rear Angle Pole Piece and Armature Pivot
Terminal Insulator
Armature
Coil
Front Pole Piece
Front Angle Pole Piece and Armature Guide Pin
Mounting Screws
Front Lock Washer

M-1 General In order to make any of the following replacements remove the designation strip as outlined in procedure 3.01 and remove the signal strip from the switchboard as follows. Loosen the strip mounting screws with the 4" regular screw-driver and turn the mounting lug so that the strip may be removed from the rear of the board. Remove and invert the signal strip while the replacements are being made. Take care in doing this not to break or damage any soldered connections. After all replacements have been made proceed as follows.

M-2 Make sure that all the shutters are on their associated shutter pins. Then place the shutter stop in position on the mounting strip. Assemble the transparent strip in the face plate. Place the face plate and transparent strip over the shutter stop, if used, and secure them in place with the face plate mounting screws.

M-3 With the strip reassembled reverse the strip so that it may be replaced in the switchboard in its former position. Take care in doing this not to break any wires or soldered connections. Turn the mounting lugs and securely tighten the mounting screws with the 4" regular screw-driver.

M-4 After mounting the strip, loosen the face plate mounting screws and make sure that the shutter stop is located in its extreme downward position as outlined in procedures 3.01, M-7.

M-5 Shutter To replace a shutter, remove the shutter mounting screws with the KS-6854 screw-driver and remove the shutter. Substitute the new part with the pin in the front angle pole piece extending through the slot in the shutter and replace the shutter mounting screws. Do not tighten the screws until the shutter is satisfactorily aligned as covered in the section covering requirements and adjusting procedures for 42 type signals. After the signal is satisfactorily adjusted, tighten the shutter mounting screws securely.

M-6 Tie Bar To replace a tie bar, remove the rear angle pole piece mounting screws with the 3-1/2" cabinet screw-driver and remove the tie bar. Substitute the new part and replace and tighten the mounting screws securely.

M-7 Rear Angle Pole Piece Armature Pivot and Terminal Insulator To replace a rear angle pole piece and armature pivot or a terminal insulator, remove the rear angle pole piece mounting screws and tie bar with the 3-1/2" cabinet screw-driver and loosen all the other mounting screws in the group of signals associated with the defective part. Then draw the pole piece upward from its place on the terminal insulator. If the terminal insulator remains on the pole piece after the pole piece has been removed, remove it and place it in position between the terminals. If either the rear angle pole piece or armature pivot is defective, replace them as an assembly. Then place the new part in position on the signal between the sides of the terminal insulator, taking care that the armature pivot is inserted in the pivot hole in the armature. If the terminal insulator is defective, remove the pole piece as outlined above and remove the insulator. Substitute the new part and reassemble as outlined above. Then replace the mounting screws that were removed and tighten all those that were loosened.

M-8 Armature To replace an armature remove the rear angle pole piece as outlined above. Then remove the shutter and shutter mounting screws as outlined above. Substitute the new part in place and replace the parts. Then replace and securely tighten all the mounting screws.

M-9 Coil To replace a coil, remove the rear angle pole piece and armature as outlined above. Then loosen the front signal mounting screw with the KS-6854 screw-driver and remove the coil. Substitute the new part in place against the front angle pole piece. If the front angle pole piece has dropped off the signal mounting, remount it in place before mounting the coil. Then tighten the front angle pole piece securely. Take care in replacing the coil that it is not twisted. Replace the parts outlined above.

3.02 (Continued)

M-10 Front Pole Piece, Front Angle Pole Piece and Armature Guide Pin To replace the front pole piece or the front angle pole piece and armature guide pin, remove the coil as outlined above. If the front pole piece is defective, remove the front pole piece mounting screw with the KS-6854 screw-driver and remove the pole piece. Mount the new part in place on the front angle pole piece with the pin in the slot. Then replace and tighten the pole piece mounting screw. Then reassemble the signal as outlined above. If either the front angle pole piece or armature guide pin is defective, replace them as an assembly. To do this, remove the front pole piece as outlined above and remove the front angle pole piece and armature guide pin as an assembly. Substitute the new assembly and mount the front pole piece on the front angle pole piece with the guide pin through the slot in the front pole piece. Then replace and tighten the pole piece mounting screw securely. Then reassemble the signal as outlined above.

M-11 Front and Rear Signal Mounting Screws and Front Lock Washer To replace a rear signal mounting screw, remove the screw from the tie bar with the 3-1/2" cabinet screw-driver. Substitute the new part and securely tighten the screw. To replace the front signal mounting screw or lock washer remove the mounting screw with the KS-6854 screw-driver and remove the washer. Note which is the defective part and make the necessary replacement. Then reassemble the parts in the signal mounting and tighten them securely in place.

3.03 Guard

M-1 Guard If a guard is defective, remove the signal strip from the rear of the board as outlined in procedure 3.02, M-1. Remove the guard mounting screws with the 3-1/2" cabinet screw-driver and remove the guard. Substitute the new part and replace and tighten the mounting screws securely. Then replace the signal strip in the switchboard as outlined in procedure 3.02, M-3.

3.04 Signal Mounting

M-1 Signal Mounting If a signal mounting is defective, unsolder the wires on the signals and replace the entire assembly. Then resolder the wires on the new signal strip making sure that the wires are soldered to their respective terminals.