

REPLACEMENT PARTS AND PROCEDURES  
FOR  
TRANSFER SWITCHES AND CONTROL RELAYS ELECTRICALLY OPERATED

1. GENERAL

1.01 This section covers the information necessary for ordering parts to be used in the maintenance of the electrically operated transfer switches and control relays per KS-5264, KS-5350 and KS-5451, respectively. It also covers the approved procedures for replacing these parts.

1.02 Part 2 of this section is called "Replacement Parts" and covers the various parts which may be replaced in the field in the maintenance of this equipment. Aside from screws, nuts, bolts and other small parts which can be obtained locally the parts not designated herein are of a character which should ordinarily not be replaced by the regular maintenance forces. Part 2 also contains explanatory figures showing the different parts.

1.03 Part 3 of this section covers the approved procedures for the replacement of the parts listed under Part 2. This

information is called "Replacement Procedures".

2. REPLACEMENT PARTS

2.01 The figures included in this part show the various replacement parts in their proper relation to other parts of the apparatus with their corresponding names.

2.02 When ordering replacement parts give the name of the part as shown in the figures of this section and also the complete nameplate data of the switches or relays including the serial, KS and list numbers; e.g., 1 - contact spring assembly for the 10 amp., 125 volt a-c. electrically operated transfer switch per KS-5264-L-12.

2.03 Miscellaneous parts such as screws, nuts, washers, cotter pins, etc. which are not named in the illustrations and which cannot be obtained locally should be ordered by referring to the associated part; e.g. 1 - magnet core screw for the 10 amp., 125 volt a-c. electrically operated transfer switch per KS-5264-L-12.

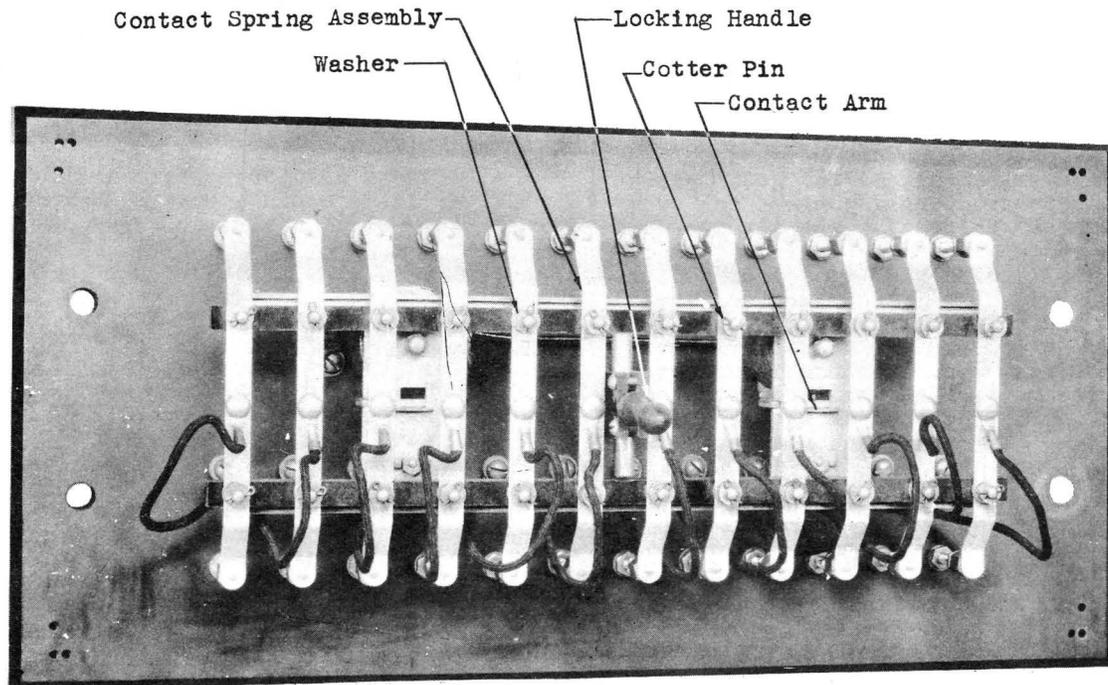


FIG. 1 - TRANSFER SWITCH - KS-5264

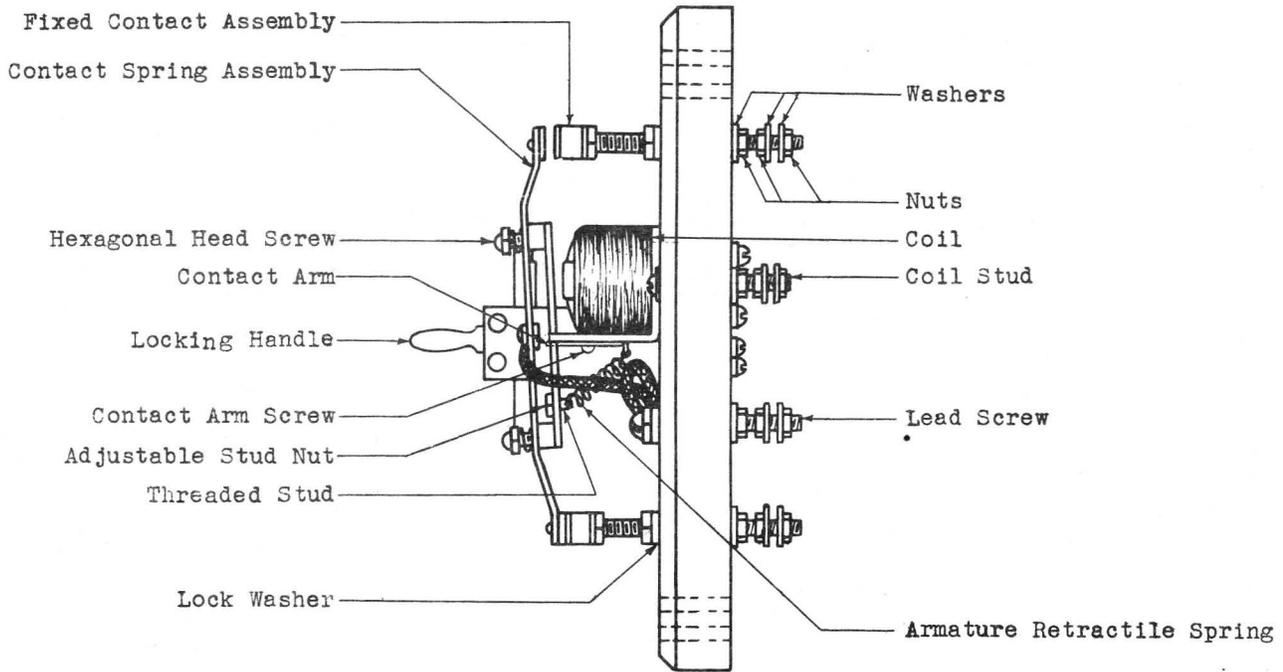


FIG. 2 - END VIEW - TRANSFER SWITCHES - KS-5264

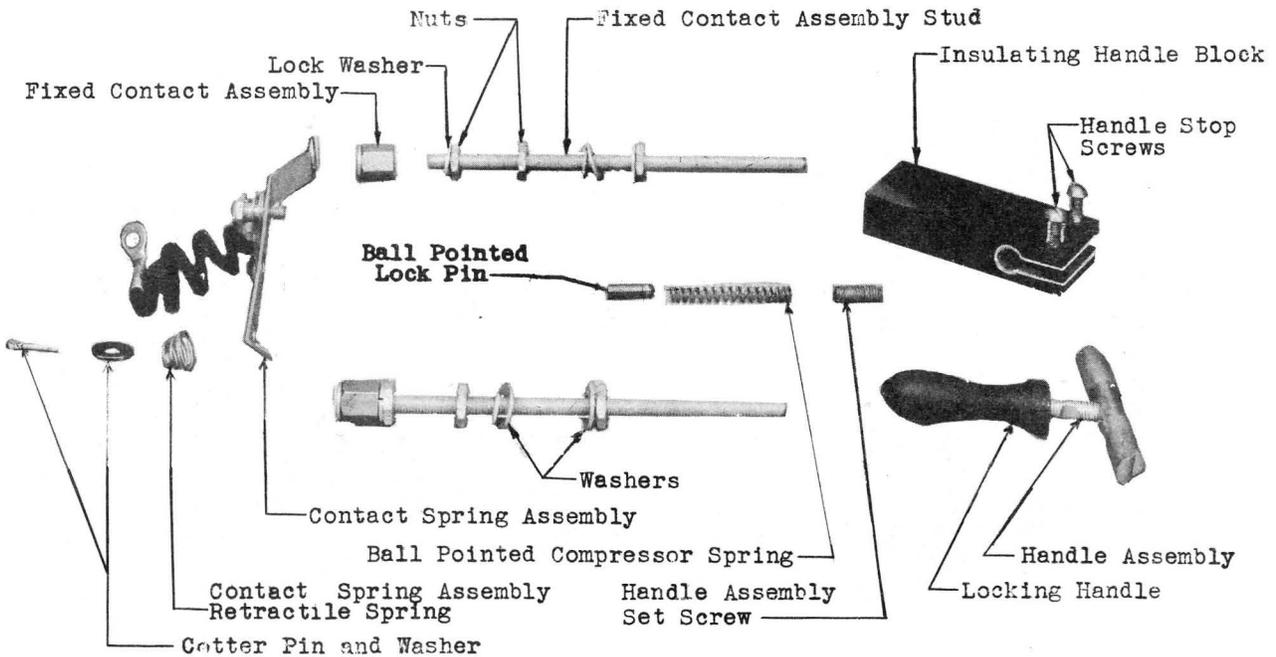


FIG. 3 - CONTACTS AND MECHANICAL LOCK DETAILS - KS-5264

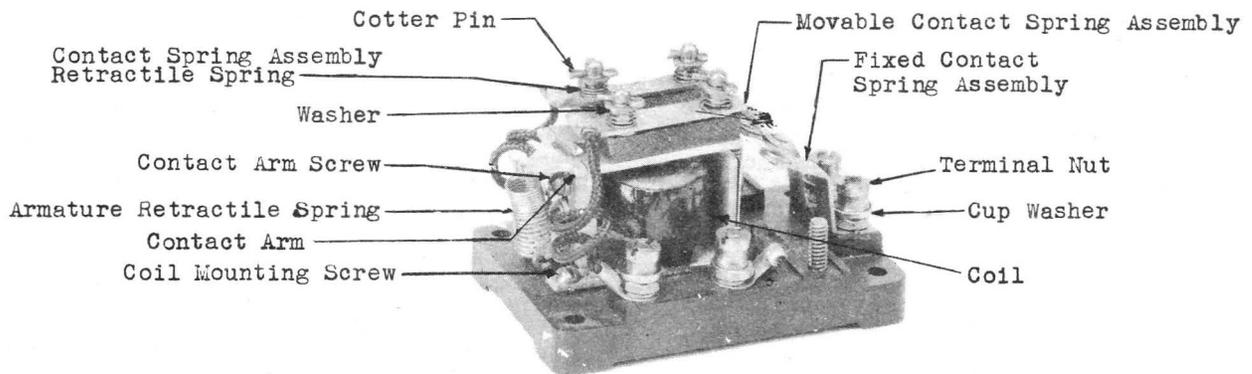


FIG. 4 - CONTROL RELAY - KS-5451

### 3. REPLACEMENT PROCEDURES

#### 3.001 List of Tools

##### Tools

Pliers, P-Long Nose 6-1/2 inch A.T.&T.  
Co. Std. Dwg. 46-X-56  
Screw-driver, 3-1/2 inch Cabinet  
Style, per A.T.&T. Co. Std. Dwg.  
46-X-40  
Wrench, Open End, Special No. 63 Tool  
(two required)

3.002 Before making any replacements be sure that service will be maintained by means of temporary wiring or in some other suitable manner.

3.003 After making any replacement of parts the apparatus should be checked and where necessary readjusted in accordance with the section covering the apparatus requirements and adjusting procedures for this equipment.

3.004 No replacement procedures are specified for screws or other small parts when the procedure consists of a simple single operation.

#### 3.01 Retractable Spring (See Figs. 2 & 4)

(1) To replace an armature retractile spring on the KS-5264 or KS-5350 switch or relay, remove the adjustable stud nut. This will free the threaded stud, then unhook the old spring. Hook one end of the new spring into the eye of the threaded stud and the other end to the hook on the contact arm. Replace the adjustable stud nut.

(2) To replace an armature retractile spring on the KS-5451 relay, merely unhook the old spring. Hook one end of the new spring into the eye of the contact arm and the other end to the hook on the armature.

#### 3.02 Contact Arm (See Figs. 2 & 4)

(1) To replace a contact arm on the KS-5264 or KS-5350 switch or relay, remove the armature retractile spring as outlined in Procedure 3.01 (1). With a screw-driver remove the contact arm screw. Install the new contact arm by following the reverse procedure.

(2) To replace a contact arm on the KS-5451 relay, remove the armature retractile spring as outlined in procedure 3.01 (2). With a screw-driver remove the contact arm screws. Install the new contact arm by following the reverse procedure.

#### 3.03 Contact Spring Assembly Retractable Spring (See Figs. 3 & 4) Hexagonal Head Screw Cotter Pin and Washer

(1) To replace a contact spring assembly retractile spring or hexagonal head screw, (or cotter pin and washer), remove the hexagonal head screw, (or cotter pin and washer) which secures the contact spring assembly in place with a No. 63 tool (or long nose pliers). Replace the hexagonal head screw, (or cotter pin and washer), or contact spring assembly retractile spring in the reverse order and make sure that the washer is replaced in the same position on the cross-bar so that the contact spring assembly does not bind.

#### 3.04 Contact Spring Lead (See Figs. 3 & 4) Moving Contact Moving Contact Spring

(1) To replace a contact spring lead, moving contact or contact spring on the KS-5264 switch, bridge the contacts with a jumper, and remove the lead from the fixed contact assembly stud on the opposite throw. Remove the contact spring lead from its lead screw. Remove

## 3.04 (Continued)

the hexagonal head screws, (or cotter pins and washers) and contact spring assembly retractile springs as outlined in Procedure 3.03. Replace the spring assembly complete consisting of the contact spring, contact spring lead and moving contacts. Reassemble the contact spring assembly in the reverse order.

(2) To replace a contact spring lead, moving contact or contact spring on the KS-5451 relay, mark and remove all leads from the relay. Remove the contact spring lead from its lead screw. Remove the cotter pins and washer and contact spring retractile springs as outlined in Procedure 3.03. Replace the spring assembly complete consisting of the contact spring, contact spring lead and moving contact. Reassemble the contact spring assembly in the reverse order.

3.05 Fixed Contact (See Figs. 3 & 4)  
Fixed Contact Spring

(1) To replace the fixed contact on the KS-5264 or KS-5350 switch or relay, bridge the contacts which will be open with a jumper. Use a No. 63 tool to turn the fixed contact assembly in a counter-clockwise direction and another No. 63 tool to hold the nut under the fixed contact assembly during this procedure. Install the new fixed contact assembly in the reverse order.

(2) To replace the fixed contact or contact spring on the KS-5451 relay, mark and remove all leads from the relay. Replace the fixed contact assembly consisting of the contact spring and fixed contact. Reassemble the contact spring assembly in the reverse order.

## 3.06 Coils (See Figs. 2 &amp; 4)

(1) To replace a coil on the transfer switches per KS-5264 remove the contact arm as outlined in Procedure 3.02. See that the mechanical lock is in the neutral position. The entire contact spring assembly may now be laid aside. Mark and disconnect the coil excitation leads from the coil studs in back of the panel of the coil to be replaced.

Note The right hand coil stud on the left hand coil facing the front of the transfer switches is common to both coils.

With a screw-driver remove the lead screw. Insert a screw-driver in the hole in back of the panel and loosen the magnet core screw that secures the coil to its base.

Replace with a new coil and reassemble the switches in the reverse order.

(2) To replace a coil on the control relays per KS-5350, mark and remove all the leads from the control relay studs and remove the control relay from the panel. Remove the heavy glass cover, then remove the contact arm as outlined in Procedure 3.02 (1). This will enable the entire spring assembly to be removed. With a No. 63 tool remove the acorn nut on the coil studs. With a screw-driver dig out the sealing compound which covers the magnet core screw and coil mounting screws which secure the coil to its coil mounting. Then loosen the magnet core screw. Replace with a new coil and reassemble the coil in the reverse order.

(3) To replace a coil on the control relay per KS-5451, mark and remove all the leads from the control relay studs. Remove the contact arm as outlined in Procedure 3.02 (2). This will enable the entire spring assembly to be removed. Remove the coil leads from their studs. With a screw-driver remove the three screws which secures the coil assembly to the relay base. Then remove the screw which secures the coil to its mounting. Lift out the center core from the coil. Insert the core on a new coil and remount in the reverse order.

Mechanical Lock3.07 Locking HandleHandle AssemblyHandle Assembly Set ScrewInsulating Handle BlockBall Pointed Compressor SpringBall Pointed Lock Pin

(1) To replace a locking handle twist in a counter-clockwise direction. Replace by turning in a clockwise direction.

(2) To replace a handle assembly set screw, ball pointed compressor spring or ball pointed lock pin, remove the screws that secure the mechanical lock to the switch base from the rear of the panel and lift off the mechanical lock complete. Replace any damaged or worn parts and reassemble the switch in the reverse order.

(3) To replace a handle assembly or an insulating handle block remove the mechanical lock as outlined in (2). With a screw-driver remove the two screws that act as a stop for the mechanical lock and remove the handle assembly. Replace with a new or reconditioned handle assembly or insulating handle block and reassemble in the reverse order.

APPROVED:

Bell Telephone Laboratories, Inc. AEP 12-23-31  
Dept. of Development and Research RLY 1-20-32