

TYPE 120B SINGLE-SLOT COIN TELEPHONE SET  
SHOP PROCEDURE

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## 1. GENERAL

This document provides the shop procedure for the Type 120B Single-Slot Coin Telephone Set.

1.02 The shop procedure contains disassembly, assembly, adjustment, and refinishing procedures. In addition, replacement parts information is provided for each assembly. Descriptive and installation information is provided in Section 476-201-101.

1.03 This document is reissued to provide the latest information for the Type 120B Single-Slot Coin Telephone Set. Remove the previous issue from the binder or microfiche file and replace it with this issue.

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## 2. REPLACEMENT PARTS

2.01 The component parts of the telephone equipped with either a rotary dial or a Touch Calling Unit (TCU) are listed by each figure's corresponding item number as indicated in Table 1. The list of parts provides the necessary codes for identifying and ordering each item.

## 3. PRELIMINARY DISASSEMBLY

3.01 The telephone's two major assemblies, the upper and lower housings, are electrically connected and mechanically linked. Perform the following steps to separate the upper housing from the lower housing:

- (a) Insert the key into the upper housing lock and turn it one-fourth turn counterclockwise to unlock.
- (b) Insert the T-wrench (HD-580044-A) into the upper right-side opening and turn it one-eighth turn clockwise.  
Lift out the upper housing and at the same time reach around and disconnect the connector plug from the lower housing (Figure 1).

## 4. UPPER HOUSING DISASSEMBLY

### Handset

4.01 Perform the following steps to remove the handset assembly (Figure 2, item 4) from the upper housing assembly (Figure 2, item 1):

- (a) Remove the four handset cord spade leads from the terminal board.
- (b) To free the handset cord from the upper housing, unscrew and remove the cord clamp (manufactured prior to 1981—Figure 3a, item 27) or the armored cord bracket (manufactured after 1980—Figure 3b, item 27).
- (c) Disassembly of the Type L-9080 handset is described in Section 473-802-300.

### Handset Caps

4.02 The handset caps on the L-9080 handset manufactured after January, 1979, are permanently glued into position. Any attempt to repair or salvage the receiver and transmitter units will cause damage to the handsets and may require the destruction of the handset shell and caps. The receiver and transmitter units can be salvaged by using the handset cap tool (SML No. S-578855).

### Fingerwheel

4.03 To remove the metal fingerwheel, the escutcheon assembly must first be removed. Use the standard escutcheon tool or a small pocket screwdriver, and perform the following steps to remove the escutcheon assembly:

- (a) Insert the tip while holding the tool parallel to the fingerwheel, between the escutcheon ring and the acetate disc that covers the number card. Pass the tool tip under the edge of the ring at a point even with the 5/JKL hole (Figure 5).
- (b) Do not scratch the acetate disc. Press the top of the tool downward slightly and move it counterclockwise toward the 6/MNO hole to engage the tab of the escutcheon lock.
- (c) Move the tool toward the 7/PRS hole to force the escutcheon lock counterclockwise to free the tab of the escutcheon ring.
- (d) Lift the tip of the tool when it reaches the 7/PRS hole and raise the entire escutcheon assembly out of the depression in the center of the fingerwheel.

4.04 Perform the following steps to remove the metal fingerwheel:

- (a) Using a screwdriver with a wide, thin blade, remove the screw and the escutcheon lock.
- (b) Lift the fingerwheel off the hub of the shaft.

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4.05 Refer to Figure 6 and perform the following steps to further disassemble the metal escutcheon assembly.

- (a) Hold the assembly with the fingers of both hands with the rear side up. Press on the clamping plate with the thumbs adjacent to the semicircular indentations on its edge.
- (b) Turn the plate counterclockwise until the indentations clear the ridges formed in the edge of the escutcheon ring. At this time, the locking tongue clears the channel for it to engage.
- (c) Push against the acetate disc to force the disc, number card, and clamping plate out of the escutcheon ring, and slide these parts out from under the locking lug.

Hookswitch Dial Assembly

4.06 Refer to Figure 3 and remove the hookswitch dial assembly (item 20) from the upper housing assembly by removing its four mounting screws (item 33). In the rotary dial version, the dial fingerwheel must first be removed.

4.07 The hookswitch dial assembly (Figures 7a, 7b, and 7c) consists of the following subassemblies:

- (a) The interface cable assembly (item 56).
- (b) The hookswitch pile-up assembly (item 45).
- (c) The terminal board assembly (item 40).
- (d) The hookswitch lever and cam assembly (items 53 and 54).
- (e) The rotary dial or TCU assemblies (items 49 and 50).

Interface Cable Assembly

4.08 Refer to Figures 7a, 7b, or 7c and perform the following steps to remove the interface cable assembly (item 56) from the hookswitch dial assembly:

- (a) Remove the interface cable assembly spade leads from the terminal board assembly (item 40).
- (b) Remove the cord clamp (item 57) and lift out the interface cable assembly.

Hookswitch Pile-Up Assembly

4.09 Refer to Figures 7a, 7b, or 7c and perform the following steps to remove the hookswitch pile-up assembly (item 45) from the hookswitch dial assembly:

- (a) Remove the four hookswitch pile-up assembly spade leads from the terminal board assembly (item 40).
- (b) Loosen the two mounting screws and lift the hookswitch pile-up assembly from the housing (item 42).

Hookswitch Lever and Cam Assembly

4.10 The hookswitch lever and cam assembly (Figure 7, items 53 and 54) should not be removed unless absolutely necessary because its reassembly is difficult. Refer to Figure

7 and perform the following steps to remove the hookswitch cam assembly from the hookswitch dial assembly:

- (a) Remove the E-ring (item 44) from either end of the cam shaft.
- (b) Slowly withdraw the shaft from the housing (item 42) being careful not to lose the spring (item 39) located inside the hookswitch cam.

NOTE: To clean the hookswitch lever and cam assembly, wipe with a cloth and then lubricate the rubbing surfaces with graphite.

Rotary Dial or Touch Calling Unit

4.11 Refer to Figure 7 and perform the following steps to remove the rotary dial or TCU from the hookswitch dial housing (item 42):

- (a) Remove the leads from the terminal board.
- (b) Remove the four flat head screws and lift out the rotary dial assembly (item 49) or the TCU assembly (item 50) and TCU cover (item 43).
- (c) On the rotary dial assembly, loosen the finger-stop screw and remove the finger-stop and coverplate.
- (d) Remove the two screws and separate the rotary dial adapter plate from the rotary dial.

NOTE: The Inductor Capacitor TCU is superseded by the Type 20D TCU equipped with Integrated Circuit (IC). Additionally, a surfaceplate adapter and two brackets are modified to mount the Type 20D TCU into the hookswitch dial housing.

Metal Pushbutton Touch Calling Unit

4.12 For disassembly of the metal pushbutton TCU, refer to Section 997-306-500. A plastic insulator sheet (mylar insulator) has been added on the LCTCU between the metal pushbuttons and the metal TCU base (Figure 8).

Terminal Board Assembly

4.13 To remove the terminal board assembly (Figure 7, item 40), designated as TB2, from the hookswitch dial assembly, remove the mounting screw (item 47) and lift the terminal board out.

Coin Release Lever Assembly

4.14 Refer to Figure 3 and perform the following steps to remove the coin release lever assembly (item 19) from the upper housing assembly.

- (a) Remove the coin release lever assembly screw from inside the upper housing.
- (b) Remove the coin release roller assembly (item 26), coil spring (item 35) from inside the upper housing, and the coin release lever from outside the housing.

#### Lock Assembly

4.15 The upper housing lock assembly is located on the side of the upper housing. Perform the following steps to remove the lock:

- (a) Loosen the threaded collar from inside the upper housing by pushing in the collar notches with a screwdriver.
- (b) Unlock the lock and rotate one-eighth turn counterclockwise as seen from outside the housing.
- (c) Pull the lock assembly out from the outside of the upper housing while removing the threaded collar from the inside.

#### Latch Assembly

4.16 Refer to Figure 3 and perform the following steps to remove the latch assembly (item 21) from the upper housing assembly.

- (a) Remove the two screws (item 32) and shoulder screw (item 29).
- (b) Remove the latch assembly.

#### Handset Hook

4.17 Remove the handset hook (Figure 3, item 24), from the upper housing assembly by removing the four mounting screws from inside the upper housing and the handset hook from outside the housing.

#### Faceplate

4.18 Perform the following steps to remove the faceplate (Figure 2, item 9):

- (a) Remove the TCU or rotary dial adapter plate (Figure 2, item 14 or 15) by removing the four nuts from inside the upper housing. The mounting nuts for the metal pushbutton TCU are self-threading hex nuts for use on zinc material posts; the hex nuts are identical to the nuts used on the faceplate (Figure 9).
- (b) Remove the 16 nuts (Figure 3, item 18) from inside the upper housing and the faceplate from the front of the housing.

### 5. LOWER HOUSING DISASSEMBLY

#### Vault Door

5.01 Perform the following steps to remove the cash vault door (Figure 2, item 3) from the lower housing:

- (a) Insert the key into the left-side lower housing lock. Turn counterclockwise one-fourth turn to unlock.
- (b) Insert the T-wrench into the middle-opening of the cash vault door and turn clockwise one-eighth turn to release the latching mechanism.
- (c) Pull the T-wrench up to lift and remove the door.

#### Lock Assembly

5.02 Perform the following steps to remove the lower housing lock from the lower housing:

- (a) Using the lock mounting tool (HD-500005-A), loosen the six captive lock screws from the lock assembly through the inside of the cash vault compartment.
- (b) Remove the lock assembly from inside the lower housing (Figure 10).

#### Reject Chute

5.03 Refer to Figure 10 and perform the following steps to remove the reject chute (item 70) from the lower housing:

- (a) Loosen the captive screw in the upper tab of the reject chute.
- (b) Pull the top of the reject chute up and lift out.

#### Anti-Stuffing Device

5.04 Perform the following steps to remove the anti-stuffing device (Figure 2, item 16) from the lower housing:

- (a) Remove the locking screw (Figure 10, item 69).
- (b) Tilt the top of the device forward and lift it up and out.

#### Rejector Mounting Plate Assembly

5.05 Refer to Figure 10 and perform the following steps to remove the rejector mounting plate assembly (item 63) from the lower housing:

- (a) Loosen the captive screw at the top of the assembly.
- (b) Slide the assembly to the right and forward to lift out.

#### Coin Relay-Hopper, Coin-Chute and Trigger-Switch Assembly

5.06 The coin relay-hopper-and-trigger-switch assembly consists of two subassemblies, the coin relay-hopper chute assembly (Figure 10, item 64) and the coin-chute and-trigger-switch pile-up assembly (Figure 11, item 78, 79). Refer to Figure 10 and perform the following steps to remove the coin relay-hopper-and-trigger-switch assembly from the lower housing:

- (a) Disconnect the two plugs from the chassis assembly (Figure 10, item 67).
- (b) Remove the two screws from the inside top of the cash vault compartment.
- (c) Loosen the screw in the elongated slot on the outside top of the cash vault compartment.
- (d) Reach into the inside of the cash vault compartment and slide the rail (item 66) up to release the assembly and lift the assembly out.
- (e) To remove the coin relay from this assembly, remove

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- (f) the three mounting screws on the coin relay.  
To remove the trigger switch assembly, remove the single mounting screw and lift the trigger switch assembly up and out.

NOTE: The protector plate kit (HH-880119-1) is available for protection of the coin relay armature against vandalism. The kit includes one hardened steel protector plate (HD-780155-A), two screws (HD-765640-PT04), and installation procedures.

Chassis Assembly

5.07 To remove the chassis assembly (Figure 10, item 67), loosen the chassis mounting nut (Figure 12, item 89) and lift the assembly out.

5.08 The chassis assembly consists of the following sub-assemblies:

- (a) The ringer assembly.
- (b) The transmission printed circuit board assembly.
- (c) Choke coil assembly.
- (d) The chassis card assembly.

Ringer Assembly

5.09 Refer to Figure 12 and perform the following steps to remove the ringer assembly (item 84) from the chassis assembly:

- (a) Disconnect the ringer leads from the capacitor assembly (item 91).
- (b) Remove the ringer mounting screw (item 87) and the ringer assembly from the chassis frame (item 82).

Transmission Card Assembly

5.10 Refer to Figure 12 and perform the following steps to remove the transmission card assembly (item 85) from the chassis assembly:

- (a) Remove all spade leads from the assembly.
- (b) Remove the mounting screws (item 88) and the transmission card assembly from the chassis frame (item 82).

Choke Coil Assembly

5.11 To remove the choke coil assembly (Figure 12, item 94), perform the following:

- (a) Disconnect the two connections to the chassis card.
- (b) Drill out the eyelets and remove the coil.

Chassis Card Assembly

5.12 Refer to Figure 12 and perform the following steps to remove the chassis card assembly (item 83) from the chassis frame (item 82):

- (a) Loosen the guide mounting screw (item 93).
- (b) Unsnap the card standoffs (item 92) using narrow nosed pliers.
- (c) Lift the card and connector guide off of the chassis frame (Figure 13).
- (d) Remove and separate the connector guide (items 96 and 97).

Line Terminal Strip and Connector Assembly

5.13 Perform the following steps to remove the line wire plug and terminal strip assembly designated as TB1 from the lower housing (refer to Figure 14).

- (a) Remove the two mounting screws and the ground screw and lift the assembly out.
- (b) Remove the spade leads of connector J4.

**6. ASSEMBLY OF LOWER HOUSING**

6.01 Clean the lower housing shell thoroughly before assembly.

Line Terminal Strip and Connector Assembly

6.02 Refer to Figures 10 and 14 and perform the following steps to mount the line wire plug and terminal strip assembly (item 68):

- (a) Place the assembly over its mounting holes in the lower housing and fasten with two screws (item 71).
- (b) Tighten one of the ground screws into the telephone housing with a POZ-I-DRIV® screwdriver. This screw connects the telephone ground directly to the housing so that no additional ground wire strap assembly is required.

Coin Relay-Hopper, Coin-Chute and Trigger-Switch Assembly

6.03 Refer to Figure 10 and perform the following steps to mount the coin relay-hopper-and-trigger-switch assembly:

- (a) Place the assembly over the cash vault compartment and slide the rail (item 66) down to lock the assembly. Ensure that the locking tab behind the coin chute is properly engaged in the telephone housing.
- (b) Secure the assembly with two screws at the inside top of the cash vault compartment.
- (c) Tighten the screw in the elongated slot on the outside top of the cash vault compartment.
- (d) If the coin-chute-and-trigger-switch assembly was removed separately, refer to Figure 15 and perform the following steps:

1. Place the coin chute and trigger switch assembly on top of the coin hopper. Ensure that the locking tab behind the coin chute properly engages its slot in the lower housing.

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2. Tighten the captive screw on the coin hopper to secure the coin chute to the coin hopper.

#### Anti-Stuffing Device

6.04 Perform the following steps to install the anti-stuffing device (Figure 2, item 16):

- (a) Tilt the top of the anti-stuffing device toward the lower housing and push into its opening.
- (b) Ensure that the anti-stuffing device is flush with the front of the housing.
- (c) Install the locking screw (Figure 10, item 69).

#### Chassis Assembly

6.05 Perform the following steps to assemble the chassis assembly (Figure 12, item 85) prior to mounting it to the lower housing (Figure 10):

- (a) Mount the choke coil with two eyelets.
- (b) Refer to Figure 12 and mount the transmission card (item 85) to the chassis frame with its mounting screws (item 88).
- (c) Refer to Figure 12 and mount the ringer assembly (item 84) to the chassis frame with its mounting screw (item 87).
- (d) Snap the two halves of the connector guide together. Slide the connector guide onto the chassis card.
- (e) Refer to Figure 16 and snap the chassis card assembly (Figure 12, item 83) onto the standoffs in the chassis frame. Ensure that the guide bushing (Figure 12, item 98) is in place.
- (g) Push the connector guide assembly up against the connector on the chassis card and tighten the mounting screw.
- (h) Connect the choke coil, transmission card, and ringer leads according to the wiring diagram in Figure 17.

#### Mounting the Chassis

6.06 Refer to Figure 10 and perform the following steps to mount the chassis assembly (item 67) to the lower housing:

- (a) Hook the top tab of the chassis frame onto the lower housing.
- (b) Tighten the captive screw located at the bottom of the chassis assembly.
- (c) Connect plug J4 to chassis assembly socket P4 as shown in Figure 17.

#### Rejector Mounting Plate Assembly

6.07 Refer to Figure 10 and perform the following steps to mount the rejector coin-chute-mounting-plate assembly (item 63):

- (a) Place the tab at the bottom of the assembly into the tapered recess at the top of the coin-chute-and-trigger-switch assembly.

- (b) Position the upper mounting hole over the lower housing captive screw.
- (c) Tighten the captive screw.

#### Reject Chute

6.08 Refer to Figure 10 and perform the following steps to assemble the reject chute (item 70):

- (a) Tilt the bottom of the reject chute down and place the chute into the opening in the floor of the lower housing.
- (b) Ensure that the locking tabs of the reject chute engage with the coin relay-hopper as the chute is pushed into place.
- (c) Tighten the captive screw in the upper tab of the reject chute to engage the rejector mounting-plate assembly (item 63).

#### Vault Door

6.09 Perform the following steps to replace the cash vault door (Figure 2, item 3):

- (a) Insert the T-wrench into the door and turn it clockwise to move the locking bars to the unlocked position.
- (b) Using the T-wrench to hold the door with the locking arm toward the same side as the vault lock, insert the door into the vault opening.
- (c) Turn the T-wrench counterclockwise to engage the locking bars and seat the locking arm in the vault lock.
- (d) Lock the vault lock and remove the lower housing key and the T-wrench.

## 7. ASSEMBLY OF UPPER HOUSING

7.01 Clean the upper housing shell before assembly.

#### Faceplate and Adapter Plate

7.02 Refer to Figure 2 and perform the following steps to install the faceplate (item 9):

- (a) Place the faceplate over the front of the upper housing and secure it in place with 16 nuts inside the upper housing.

**CAUTION:** Do not overtighten the self-threading nuts, they can be easily stripped.

- (b) Attach the rotary dial or TCU adapter plate (item 14 or 15) with its four nuts from the inside of the upper housing. The mounting nuts on the rotary dial plate are standard thread. The nuts on the metal push-button TCU are self-threading hex nuts.

**CAUTION:** Do not overtighten the TCU nuts; they can be easily stripped (Figure 9).

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Handset Hook

7.03 Position and mount the handset hook (Figure 3, item 24) to the upper housing with four mounting screws.

Latch Assembly

7.04 Position and mount the latch assembly (Figure 3, item 21) with two screws (item 32) and a shoulder screw (item 29).

Lock Assembly

7.05 Perform the following steps to install the lock assembly:

- (a) Insert the key into the lock and turn it one-eighth turn counterclockwise.
- (b) Using the key insert the lock through the housing opening from the outside. At the same time on the inside place the threaded collar over the lock bolt and cam.
- (c) With a screwdriver push in the notches around the perimeter of the threaded collar and rotate to a snug position.
- (d) Loosen the lock bolt mounting screw, position the lock bolt for free operation, and retighten.

Coin Release Lever Assembly

7.06 Refer to Figure 3 and perform the following steps to install the coin-release lever assembly (item 19):

- (a) Insert the shaft of the assembly into the upper housing from the outside.
- (b) Place the roller assembly (item 26) on the shaft from the inside of the upper housing and secure it with the screw and washer.
- (c) Attach the coil spring (item 35) between the roller assembly and bracket.

Terminal Board Assembly

7.07 Refer to Figure 7 and mount the terminal board assembly (item 40) on the back of the rotary dial and hookswitch housing (item 42) with the mounting screw (item 47).

Metal Pushbutton Touch Calling Unit

7.08 Assembly of the metal pushbutton TCU is similar to the procedures in Section 997-306-500. The only differences from the plastic pushbutton version are the metal pushbuttons and a plastic insulator sheet for the customer's protection (Figure 8). Place the insulator sheet between the metal base of the TCU and the bottom of the metal pushbutton. This paragraph applies only to LCTCU.

Rotary Dial or Touch Calling Unit

7.09 Refer to Figure 7 and perform the following steps to

assemble the rotary dial or TCU into the hookswitch dial housing (item 42):

- (a) On the rotary dial assembly, install the finger-stop and cover plate with the finger-stop screw.
- (b) Install the rotary dial adapter plate (Figure 2, item 15) onto the rotary dial with two screws.
- (c) Place the rotary dial assembly (item 49) or the TCU assembly (item 50) and TCU cover (item 43) into the hookswitch dial housing. Route the wires through the slot provided to the side of the hookswitch dial housing.
- (d) Install the four flathead screws (item 46).
- (e) Connect the rotary dial or TCU leads to terminal board TB2 (Figure 18).

Metal Hookswitch Lever and Cam Assembly

7.10 To install the metal hookswitch lever and cam assembly, perform the following steps:

- (a) Snap the metal lever and plastic cam together (Figure 19).
- (b) Place the shaft through the shaft opening in the cam, slightly extending across the metal lever.
- (c) Assemble the washer over the shaft to rest against the plastic cam hub (Figure 20).
- (d) Assemble the return spring over the shaft with the bent leg resting against the top edge of the lever (Figure 20).
- (e) Wind up the straight leg of the spring approximately one-half turn and position it in the hollow portion of the metal lever while sliding the shaft through the bearing hole of the metal lever (Figure 20).
- (f) With the shaft flush with the outside edge of the metal lever, place the lever assembly, tilted, into the dial housing. In doing so, catch the bent leg of the return spring on the ledge of the housing and wind up the return spring one-fourth turn further (Figures 7 and 21).
- (g) Push the shaft through the right hookswitch housing bearing hole until the left end of the shaft is flush with the left end of the plastic cam.
- (h) Prop the left side of the lever assembly shaft even with the left hookswitch housing bearing hole, and push the shaft back to the left to a centered position.
- (i) Place an E-ring on each end of the shaft (Figure 22).

Hookswitch Pile-Up Assembly

7.11 Refer to Figure 7 and mount the hookswitch pile-up assembly (item 45) to the rotary dial and hookswitch housing (item 42) with the two mounting screws. The hookswitch adjustment is described in part 10.

7.12 Connect the hookswitch pile-up assembly leads to the terminal board assembly (Figure 7, item 40) as follows:

- (a) RED-WHT lead to terminal 3.
- (b) YEL lead to terminal 4.

- (c) SL lead to terminal B.  
PINK lead to terminal 11.

#### Interface Cable Assembly

7.13 Refer to Figure 7 and perform the following steps to mount the interface cable assembly (item 56) to the rotary dial and hookswitch housing (item 42):

- (a) Place the cable through the cord clamp (Figure 3, item 27).
- (b) Fasten the cord clamp to the housing with the clamp screws (Figure 3, item 31).
- (c) Connect the interface cable leads to terminal board (TB2) as shown in Figure 14.

#### Hookswitch Dial Housing Assembly

7.14 Refer to Figure 3 and mount the hookswitch dial housing assembly (item 20) to the upper housing with the four mounting screws (item 33).

#### Number Card

7.15 To install the number card, refer to Figure 6 and proceed as follows:

- (a) Wipe the acetate disc to remove dirt and finger marks. Replacements should be made for a scratched or discolored disc.
- (b) Hold the escutcheon ring with its rear side up and insert the edge of the acetate disc under the locking lug of the ring at the point where the edge of the disc has a long indentation. Lay the narrow indentation or slot in the opposite edge of the ring disc over the channel formed inside the edge of the ring.
- (c) With a blunt-ended object, such as an eraser end of a pencil, snap the disc over the two ridges formed in the edge of the ring so the disc seats.
- (d) Insert the number card in the same manner. Its edge has two semicircular indentations which allow it to clear the ridges in the ring.
- (e) Insert the clamping plate with its concave side up, and push down its edge with a thumb to flatten it.
- (f) Once flat, turn the plate clockwise until its edges are caught beneath the ridges in the wall of the escutcheon ring, and its locking tongue is seated in the channel formed inside the wall.

#### Metal Fingerwheel

7.16 To install the metal fingerwheel on the dial shaft, refer to Figure 23 and proceed as follows:

- (a) Position the center hole of the fingerwheel over the shaft hub, aligning the fingerholes with the designations on the number plate.
- (b) Lay the escutcheon lock over the hub so that it sits between the two detents located at the 5/JKL and 7/PRS positions.

- (c) Insert the screw into the hole in the hub and drive it part way.
- (d) Center the circular portion of the escutcheon lock so that it rides free of the lip on the under surface of the screw head.
- (e) Tighten the screw.

7.17 To install the escutcheon assembly on the metal fingerwheel, proceed as follows:

- (a) Move the escutcheon lock counterclockwise until it strikes the detent.
- (b) Insert the tab on the escutcheon ring into the slot in the wall of the depression in the fingerwheel at a point just above the finger stop.
- (c) Press the opposite edge of the escutcheon ring into the depression and insert a blade, such as a small screwdriver blade or dial escutcheon tool H26917, between the ring and the acetate disc.
- (d) Keep the blade parallel with the fingerwheel (do not scratch the disc). Insert the tip of the blade under the edge of the ring at a point even with the 7/PRS hole.
- (e) Press the top of the blade downward slightly and move it clockwise toward the 6/MNO hole. It should engage the tab of the escutcheon lock. Further movement of the tool toward the 5/JKL hole will force the escutcheon lock clockwise so that it holds down the tab of the escutcheon ring.

#### Handset

7.18 Assembly of the handset is described in Section 473-802-300. The two additional procedures required for the Type 120B coin telephone are as follows.

- (a) Provide strain relief to the cable within the armored cord by using a knot or tie wrap as shown in Figure 24. This prevents the spade-ended leads from being pulled out of their receiver terminals.
- (b) Glue the handset caps by applying adhesive (Kirker Chemical No. 77 Acrylic Clear, or equivalent) to the threads of the handset shell and tighten.

7.19 Perform the following steps to install the handset assembly into the upper housing assembly:

- (a) Place the handset cord into its upper housing hole and secure the cord with the cord clamp (Figure 3, item 27).
- (b) Connect the handset cord spade leads to terminal board TB2 as follows:
  - (1) YEL lead to terminal 4.
  - (2) RED lead to terminal 6.
  - (3) BLK lead to terminal B.
  - (4) GRN lead to terminal 15.

### **8. FINAL ASSEMBLY AND TESTING**

8.01 Perform the following steps to attach the upper housing to the lower housing (Figure 1):

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- (a) Ensure that the upper housing locking bars are in a locked position and that the lock is unlocked.
- (b) Insert the T-wrench into the upper housing and unlock it by turning the handle one-eighth turn.
- (c) Slide the upper housing onto the lower housing and, at the same time, insert upper-to-lower-housing connector J1 into pin socket P1 on the chassis.
- (d) Engage the locking bars by turning the T-wrench one-eighth turn counterclockwise.
- (e) Lock the upper housing lock by turning the key one-fourth turn clockwise.

8.02 Test the Type 120B coin telephone for coin and electrical operation according to the tests described in this section and in Section 108-860-100.

8.03 Electrical access terminals are provided through the vault area for testing with the upper housing assembled (Figure 25).

8.04 The upper housing may be removed during testing and set on the workbench beside the lower housing. The interface connector cable from the upper housing has sufficient length to reach the chassis in the lower housing (Figure 26). A six-foot patch cord, part No. HD-540154-A, is available for testing purposes, if desired.

8.05 The Type 61A test set must be modified before it can be used to test the telephone.

## 9. REJECTOR MECHANISM MAINTENANCE

### Types of Rejectors

9.01 The coin telephone manufactured after 1981 is equipped with a universal rejector mechanism manufactured by Coin Acceptors, Incorporated. (See NOTE)

NOTE: Prior to 1981 both the Canadian and American version rejector mechanisms were manufactured by Coin Acceptors, Incorporated or National Rejector Industries. Refer to Figures 27 and 28. Both of the units are similar in construction, operation, and adjustment. After 1980 the Universal version (similar to prior Canadian versions) is manufactured by Coin Acceptors, Inc. In early 1985 an improved anti-stuffing device was added to the Universal version. Refer to Figure 29b.

### Maintenance Options

9.02 The maintenance of rejectors is best suited for the repair shop. It is required when maintenance at the instrument location has not yielded satisfactory results. The telephone company may choose to contact the appropriate manufacturer for sales and service. Table 2 lists the sales and service centers for Coin Acceptors, Incorporated.

NOTE: Only American coinage rejectors are no

longer placed in the telephone by the manufacturer. They were discontinued at 1981. Presently the Universal coinage version is placed in the telephone by the manufacturer. Prior to 1981 this version was named the Canadian coinage version.

### Equipment

9.03 The equipment required to perform the maintenance of rejectors is as follows:

(a) For United States coinage rejectors manufactured prior to 1981, use the following:

- (1) Two containers of boiling water of sufficient size to accept a rejector.
- (2) One bottle of liquid dishwashing detergent.
- (3) One toothbrush or one small scrub brush.
- (4) A source for filtered (no oil) compressed air (optional).
- (5) Matches, round toothpicks, or pipe cleaners.
- (6) One 2H pencil.
- (7) One medium-sized screwdriver.
- (8) One test stand (Vendor Part No. 116979).
- (9) Genuine United States pennies (10), nickels (20), dimes (20), and quarters (20), varying in thickness from new to moderately worn.
- (10) One brass washer (HH-880011-1) the size of United States nickel (optional).
- (11) One zinc washer the size of a United States dime (HH-880011-2) and one the size of a quarter (HH-880011-3) (optional).
- (12) Five brass slugs the size of a United States nickel (HH-880010-1) (Optional).
- (13) Five zinc slugs the size of a United States dime (HH-880010-3) and five the size of a quarter (HH-880010-5) (optional).
- (14) Five copper slugs the size of a United States dime (HH-880010-2) and five the size of a quarter (HH-880010-4) (optional).
- (15) The kit containing these washers and slugs can be ordered as HH-920002-A.

(b) For Canadian coinage rejectors (Universal coinage rejectors) manufactured currently and those manufactured prior to 1981 everything in 9.03 (a) (1) through (11) applies for maintenance of this rejector. In addition, the following coins varying in thickness from new to moderately worn can be used.

- (1) Ten genuine Canadian pennies.
- (2) Twenty genuine Canadian nickels (use both round and twelve-sided coins).
- (3) Twenty genuine dimes.
- (4) Twenty genuine quarters (use both silver and magnetic).

### Cleaning

9.04 Place the rejector assembly in one of the containers of boiling water and allow it to soak for 10 minutes. Then

perform the following steps to clean and lubricate the mechanism:

Take the rejector from the water and remove all foreign material, using liquid dishwashing detergent and a toothbrush or scrub brush. Care must be taken to avoid damage to smaller rejector parts during this operation.

- (b) Rinse thoroughly in the second container of boiling water.
- (c) Air dry thoroughly. Filtered, compressed (nonoil) air may be used to speed up the drying process.
- (d) Remove all cradles and clean the cradle bushings and pins with toothpicks, matches, or pipe cleaners.
- (e) Rub a 2H pencil lead against the cradle pins for lubrication and then replace the cradles.
- (f) Lubricate the coin release linkage only with a non-migrating grease LUBRIPLATE® 105 lubricant may be used for this purpose.
- (g) Check to see if the nickel bounce tester screws are tight.

#### Test Procedure

9.05 This rejector mechanism should be thoroughly tested prior to reinstallation in the field. Two tests, a minimum and a maximum, are being recommended for this purpose. All checks are to be performed with the rejector mounted securely in a test stand and within 1 degree of vertical. When performing the checks, a coin, washer, or slug should clear unit before the following coin, washer, or slug is substituted. If the unit does not perform satisfactorily, refer to paragraphs 9.14 through 9.17.

#### Test Stand Mounting

9.06 To mount the rejector into the test stand, part No. 116979, proceed as follows:

- (a) Remove the rejector mounting plate.
- (b) Remove the lead-in-chute and the scavenger linkage.
- (c) Mount studs (National Rejectors Industries (NRI), part No. 9118-001, or Coin Acceptors, Incorporated, part No. 900556) at the top and bottom tapped holes on both the front and rear of the rejector. Do not attempt to use the mounting screws for the lead-in-chute and/or mounting plate (Figure 29) because excessive side play may result.
- (d) Mount the unit in the test stand.
- (e) The test stand must be as close to vertical as possible.

#### Minimum Test, United States Coinage Rejectors (MFR Prior to 1981)

9.07 Ten different genuine United States pennies should all be rejected. Different genuine United States nickels, dimes, and quarters should be accepted either 5 out of 5 times, at least 9 out of 10 times, or at least 17 out of 20 times.

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#### Minimum Test, Universal Coinage Rejectors (MFR currently; prior to 1981, manufactured as Canadian Coin Rejectors)

9.08 Ten different genuine Canadian and ten different genuine United States pennies should all be rejected. Different genuine Canadian and United States nickels, dimes, and quarters should be accepted either 5 out of 5 times, at least 8 out of 10 times, or at least 15 out of 20 times.

#### Maximum Test, United States Coinage Rejectors (MFR Prior to 1981)

9.09 The unit should pass the test described in paragraph 9.07. Then, the nickel-, dime-, and quarter-sized washers should stop at washer retaining wires at least one out of two times. The nickel-sized brass slugs should be rejected at least one out of five times. The dime- and quarter-sized copper slugs should be rejected at least one out of five times. The dime- and quarter-sized zinc slugs should be rejected at least four out of five times.

#### Maximum Test, Universal Coinage Rejectors (MFR currently, prior to 1981, manufactured as Canadian Coinage Rejectors)

9.10 The unit should pass the test described in paragraph 9.08. Then the nickel-, dime-, and quarter-sized washers should stop at the washer retainer wires at least one out of two times.

9.11 Do not clean rejectors with organic solvents unless it is determined that they do not react with any of the plastics used in the rejector. The two most common plastics used in rejectors are acetate and phenylene oxide. Phenylene oxide will soften or dissolve in many halogenated and aromatic hydrocarbons.

9.12 Except for the coin release linkage, do not lubricate any part of the rejector with oil or grease. Oil and grease can cause rejector failure.

9.13 Do not blend any cradles or washer catches. They are manufactured or adjusted to extremely tight tolerances and tampering with them frequently does more harm than good.

#### Adjustment

NOTE: Only adjust rejector models installed before 1981 (Figure 30). Do not adjust rejectors for the HD-500018-CP series. These must be sent back to manufacturer for adjustment.

9.14 The maintenance in this section can only be done at the repair shop by skilled personnel. It is required when thorough cleaning and proper lubrication have not yielded satisfactory results.

9.15 The equipment required to perform the maintenance in the following paragraphs is as follows:

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- (a) For United States coinage rejectors manufactured prior to 1981, use the following:
- (1) One test stand (Vendor part No. 116979).
  - (2) The genuine United States coins and the washers and slugs described in paragraph 9.03(a).
  - (3) One medium-sized screwdriver.
  - (4) One 2H pencil.
  - (5) Pipe cleaners, matches, or toothpicks.

- (b) For Universal coinage rejectors: (MFR currently; prior to 1981, manufactured as Canadian Coinage Rejectors)

Items described in paragraph 9.03(a) (1) through (11) with the addition of the genuine Canadian coins described in paragraph 9.03(b).

- (c) The following gauges are required for adjusting the United States rejectors.
- (1) One 0.088-inch-thick quarter gauge (HH-880009-7).
  - (2) One 0.078-inch-thick dime gauge (HH-880009-4).
  - (3) One 0.099-inch-thick nickel gauge (HH-880009-1).
  - (4) One 0.726-inch-diameter dime gauge (HH-880009-6).
  - (5) One 0.708-inch-diameter dime gauge (HH-880009-5).

9.16 Perform the following adjustment procedure for United States coinage mechanisms (MFR prior to 1981):

- (a) Mount unit securely in test stand, which should ensure that unit is vertical within 1 degree.
- (b) Using one new coin and one moderately worn coin, test to see that all cradles are working properly (i.e., passing good coins). If a cradle is not working properly, remove it and examine the cradle pin and bushing for defects. If burrs or pieces of foreign matter are found, remove them, lubricate the cradle pin by scraping a 2H pencil lead against it, and replace the cradle. If the cradle bushing or pin is damaged, the cradle or the rejector will need to be replaced.

**CAUTION:** Do not attempt to adjust the arms of the cradle as this may cause damage.

- (c) Using the nickel-, dime-, and quarter-sized washers, check to see if all washer catches are working properly (i.e., stopping washers). If this is not the case, some minor bending may be attempted. The barbed end should scan the center of the coin, the washer catcher weight and barb angle combination can be adjusted to stop washers and pass good coins. As the washer catcher wire is formed very sharply, at some points it is easy to break and great care must be taken not to overstress it.
- (d) Using new United States nickels, dimes, and quarters,

check to see that they pass their respective thickness gauges. If one of these checks fails, return the rejector unit, less lead-in-chute and mounting plate, to appropriate manufacturer for proper thickness adjustment.

- (e) Check to see that the nickel bounce tester screws are tight.
- (f) Check the dime and quarter deflectors and separators by submitting the zinc and copper slugs. Zinc slugs should be rejected at least four out of five times and copper slugs at least one out of five times. If a unit fails to meet these requirements, readjust the deflector and/or separator in the following manner:

- (1) The quarter deflector is adjusted by loosening the deflector mounting screw and moving the deflector to the right until a genuine quarter is rejected; then the deflector is moved a small amount at a time to the left until the genuine coin acceptance level of paragraph 9.07 is satisfied. At this point, most slugs traveling through the quarter path faster than a quarter will be rejected.

- (2) The quarter separator is adjusted by loosening the separator mounting screw and moving the separator to the left until a genuine quarter is rejected; then, the separator is moved a small amount at a time to the right until the genuine coin acceptance level of paragraph 9.07 is satisfied. At this point, most slugs traveling through the quarter path slower than a quarter will be rejected.

- (3) The dime separator and deflector are adjusted in the same manner as the quarter separator and deflector.

- (g) Check to see that United States version rejectors properly scavenge Canadian coinage before the take-up spring on the scavenging linkage, P50609, begins to expand. If this is not the case, replace the take-up spring with an HD-110031-A spring.

**NOTE:** Although tests are inherent in the adjustment procedure, it is probably worthwhile to run the unit through the maximum test as specified in paragraph 9.09.

9.17 Perform the following adjustment procedure for the Universal coinage mechanisms: (Universal coinage mechanisms are currently manufactured. Prior to 1981, these were manufactured as Canadian Coinage Rejectors).

- (a) Perform the steps in paragraph 9.16(a) through (e).
- (b) Perform the maximum test outlines in paragraph 9.10.

**NOTE:** The deflectors and separators of the Universal (Canadian) coinage mechanisms serve the same function as those in the United States coinage mechanism. The Universal (Canadian) mechanism does, however, require a larger genuine coin tradeoff when optimiz-

ing slug protection. This is due to the requirement that it handles a wide variety of coinage, United States as well as Canadian. The separators and deflectors are preset at the factory to give good genuine coin acceptance with a high percentage of slug rejection.

#### Special Slug Problems

9.18 Maintenance can only be done at the repair shop by skilled personnel. It is required when a rash of one particular type of slug is being encountered in a particular area.

9.19 The following equipment is required to perform the maintenance in the following paragraphs:

- (a) One test stand.
- (b) One medium-sized screwdriver.
- (c) Samples of the problem slug.
- (d) Genuine coins of the variety that the problem slug is simulating.

9.20 Perform the following procedure:

- (a) Mount the unit securely in the test stand, which should ensure that the unit is vertical within 1 degree.
- (b) Using the procedures from paragraph 9.16, adjust the rejector so that the slug is turned out. This means that a greater percentage of genuine coins for that denomination will be rejected. No rejector is designed to reject all slugs and accept all genuine coins. They are factory adjusted to compromise between the two extremes.

#### Special Rejector Unit Adjustment

9.21 Rejectors are factory adjusted to accept 95 percent of genuine coins and reject most slugs. To increase the acceptance rate of the rejector to 100 percent, perform the following steps, as shown in Figure 30:

NOTE: Only adjust rejector models installed before 1981 (Figure 30). Do not adjust rejectors for the HD-500018-CP series. These must be sent back to manufacturer for adjustment.

- (a) Loosen the 10 cents deflector mounting screw.
- (b) Move the deflector to the left and adjust the deflector face to that it is flush with the 10 cents magnet bracket cutout corner.
- (c) Loosen the separator mounting screw and move the separator to the right as shown so that the separator's edge is midway between the last two adjustment reference marks.
- (d) Test the unit for 10 cents acceptance.

#### Dial and Touch Calling Unit Adjustments

9.22 For dial adjustment, refer to the 997-300 subdivision

of GTE Practices. For Touch Calling unit adjustments, refer to the 997-306 subdivision of GTE Practices.

### 10. HOOKSWITCH ADJUSTMENT

10.01 Perform the following procedure to adjust the hookswitch of the coin telephones. Unless otherwise specified, all spring follow and clearance values are gauge visual requirements.

10.02 Bar contacts shall be positioned so that at any point the full width of a contact within the length of a contact will project on the mating spring during the spring travel.

10.03 Twin contacts of a spring combination shall make or break within 0.002 inch of each other.

#### Hookswitch Lever Assembly

10.04 The hookswitch lever shall not bind at any point during its total travel. In the talk position the restoring spring will cause the hookswitch lever to rest firmly against its stop.

10.05 With the hookswitch and dial housing assembly mounted in the upper housing assembly, the weight of the associated handset shall cause the hookswitch lever to actuate the spring pileup completely, and the handset shall rest in the hookswitch cradle.

#### Hookswitch Springs

10.06 For purposes of identification, break springs are closed with the hookswitch in the ring position and make springs are closed with the hookswitch in the talk position.

10.07 With the hookswitch in the talk position, the formed lever spring shall rest against the inner radius of the actuator cam. With the hookswitch in the ring position, the formed lever spring shall rest against the outer radius of the actuator cam.

10.08 In the talk position, the buffer spring must touch the formed lever spring. Both make and break springs shall have a minimum 0.015-inch follow. When traversing from the ring to the talk position, the make springs shall make before the break springs break.

10.09 In either the ring or talk position, there shall be a minimum 0.025-inch separation between springs not intended to make contact. Contact gap in the ring and talk positions shall be 0.015-inch minimum for make and break contact, respectively.

### 11. TRIGGER SWITCH ADJUSTMENT

#### Requirements

11.01 The actuating triggers, when rotated on their support bracket, shall be free of binds and have a slight lateral movement not to exceed 0.060 inch as gauged by the eye and feel.

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11.02 With the contacts in the nonoperated position, there shall be a minimum 0.020-inch contact separation.

11.03 The form of the back spring shall reset on the flat of the stop terminal bracket with a minimum of 2 grams tension and a maximum of 4 grams tension when measured at a point near the tip of the spring.

11.04 There shall be a minimum of 0.015-inch follow in the formed back spring after the contacts have been made (gauged visually).

11.05 The actuator spring shall rest against the trigger cam with a minimum of 1 gram tension, and a maximum of 3 grams tension.

11.06 Gauging of contacts is accomplished by bending the stop terminal bracket.

Coin Test Requirements

11.07 When running each test, the coin-chute trigger shall operate and fully restore upon submission of the designated coins.

11.08 Dynamic test No. 1 is to be run in conjunction with the coin-rejector and coin-relay hopper assemblies. In this test, only the dime chute is tested. The dime used is a silver dime with serrations weighing 2 grams. Such a dime can be created by drilling four evenly spaced holes, 0.120 inch in diameter, around the perimeter of a Canadian silver dime. Use a Universal rejector for this test, except at final assembly where this is determined by the type of telephone. Any properly adjusted standard coin-relay-hopper assembly can be used. When performing the test, the coin-relay coin trigger should be in the restored position (unoperated). Due to the probable intermittent nature of a failure, the coin should be submitted three times without failure before the unit is passed. This test is recommended for units at the final telephone assembly stage and, if practical, at preceding stages of manufacture.

11.09 Dynamic test No. 2 is run in conjunction with the coin-relay-hopper assembly. It is recommended at sub-assembly stages if dynamic test No. 1 is not practical. In this test, only the dime chute is tested. The dime to be used is a standard American sandwich dime which weighs 2.2 grams. Any standard coin-relay-hopper assembly, properly adjusted, can be used. When performing the test, the coin-relay coin trigger should be in the restored position (unoperated). Due to the probable intermittent nature of a failure, the coin should be submitted three times without failure before the unit is passed. When performing the test, hold the coin so that its bottom edge is even with the top edge of the coin chute when dropping.

11.10 A static test on the coin chute alone can be run in place of dynamic tests No. 1 and No. 2 if they are not practical. In this test, only the dime chute is tested. The coin to be used is a standard American penny weighing 3 grams.

In this test, the coin chute is held tilted sideways 90 degrees, the penny is slid into the dime chute, then the chute is slowly rotated to its normal position. The penny should slide through. This test need only be run once per unit.

**12. COIN HOPPER AND RELAY ADJUSTMENT**

12.01 All requirements shall be met with the unit or its components held in the normal operating position unless otherwise specified.

Manual Operation

12.02 When operating the relay manually, the selector card should first be tilted by pressing downward on one of the ears before closing the armature to avoid jamming the tip of the selector card against the guide pin.

12.03 Where armature operation is called for, the armature may be operated manually unless otherwise specified. Force should be applied only at the concave area behind the embossment (residual) with play at the rocker arm pivots taken up toward the core. When the armature is fully closed, there should be firm contact between the embossment (residual) and the center leg of the core only.

Coin Trigger

12.04 The trigger (Figure 31) should be free of binds on the bearing pin and have a side play of a minimum percentage to a maximum 0.030 inch, as gauged by eye and feel.

12.05 With the trigger in the tripped position (Figure 32), the trigger shall restore when the armature is moved slowly to a point 0.010-inch minimum from its closed position, as measured between the armature embossment (residual) and the center leg of the core.

12.06 The trigger shall be operated by a maximum force of 8 grams.

Spring Pileup

12.07 Refer to Figures 32, 33, and 34 for spring numbers mentioned in the following paragraphs.

12.08 The contact alignment shall be such that the full width of each contact will make approximately within the center point of its mating contact.

12.09 The contact spring adjustments shall be in accordance with the values in the tables in Figures 32, 33, and 34. Spring No. 5 should not be adjusted until all other springs have been properly adjusted, and then only when absolutely necessary.

NOTE: Due to manufacturing tolerances, a slight bow in spring No. 5 is permissible provided all other adjustment requirements can be met.

12.10 The switching sequence shall be such that springs No. 2 and No. 3 close before the switch card touches spring No. 4 as the armature is moved toward its fully closed position (shown in transition between positions of Figures 32 and 31 in that order).

12.11 Spring No. 4 shall rest against its associated stop when the relay is in its unoperated position (Figure 33).

#### Coin Doors

12.12 With a load of seven test slugs, part No. P-11772-D3 (quarter, 0.083 inch thick by 0.961 inch in diameter), the coin door must release before contact springs 2 and 3 close as the armature is operated. The unit shall meet this requirement for both doors.

12.13 The coin door is to open completely when the armature is in the closed position (Figure 34). Failure to meet this requirement necessitates adjustment of the rocker arm tab and/or door latches.

12.14 Each coin door is to latch closed when the armature is released slowly from the closed armature position to the upoperated position (shown as transition between positions of Figures 34 and 33 in that order). Failure to meet this requirement requires a changing of the door latch spring.

12.15 Door latches should have side play of a minimum of 0.010 inch to a maximum of 0.030 inch as gauged visually.

#### Armature

12.16 The armature shall be free from binds when manually operated and shall have perceptible side play, as gauged by eye and feel.

12.17 A minimum clearance of 0.003 inch shall exist between the armature and side legs of the core in the closed position, as measured from the top of the core to a point 1 inch down the core leg. A minimum clearance of 0.001 inch shall exist from a point 1 inch from the core leg to the top of the wear plate.

#### Electrical Operation Requirements

12.18 The electrical operation requirements of the Type 120B telephone are as follows:

- (a) All electrical operating requirements shall be met with the unit mounted in an assembled coin telephone or its equivalent.

**CAUTION:** The armature should not be manually held nor be allowed to remain in the closed position while current is passing through the 1,000-ohm resistor for a period greater than 1 second because of possible damage to the resistor.

- (o) To perform the electrical tests, apply the voltage potential to terminals associated with springs 3 and 5 (wire lead colors white and green, respectively).

- (c) All electrical operating requirements shall be met with the unit connected to a constant current power source limited to 60 Vdc unless otherwise specified.

12.19 The unit shall not operate when connected to a dc source supplying a current of 0.039-ampere minimum, and when seven test slugs, part No. P-11772-D3 (quarter size, 0.083-inch thick by 0.961 inch in diameter) are deposited one at a time (at the approximate rate of one slug every 0.3 second) into the coin hopper while current is passing through the coil, and after the unit has been operated in the same direction by 120 Vac (soak condition). The unit shall meet this requirement for both polarities.

12.20 The unit shall collect separately a deposit of one test slug, part No. P-11772-D10 (dime size, 0.043 inch thick by 0.685 inch in diameter with square edges) and a deposit of seven test slugs, part No. P-11772-D3 (quarter size, 0.083-inch thick by 0.961 inch in diameter) when connected to a dc source (white lead positive, green lead negative) supplying 0.048-ampere maximum for a duration of 0.200-second maximum after the unit has been operated in the reverse direction by 120 Vdc (soak condition). The unit shall similarly refund the deposits when battery polarity is reversed.

12.21 The relay shall operate fully and release, as determined by the opening of contact springs 4 and 5, and 0.600 ±0.050 second after a direct current of 0.052 ampere is applied for 0.200-second minimum.

**NOTE:** Adjust the timing screw as required by applying Locktite 271 (or equivalent) to the screw threads to prevent backing out.

12.22 The unit shall collect separately a deposit of one test slug, part No. P-11772-10 (dime, 0.043 inch thick by 0.685 inch in diameter with square edges), and a deposit of seven test slugs, part No. P-11772-13, when connected to a dc source (terminal 3 positive, 4 negative) supplying 0.048-ampere maximum for a duration of 200 ms maximum after the unit has been operated in the reverse direction by 120 Vdc (soak condition). The unit shall similarly refund the deposits when battery polarity is reversed.

12.23 The unit shall fully operate and release, as determined by the opening of contact springs 4 and 5, 0.600 ±0.050 second after a direct current of 0.052 ampere is applied for 0.200 second minimum.

### **13. MULTIFUNCTION CIRCUIT CARD**

13.01 The multifunction circuit card or chassis card is a printed wiring card containing the subcircuits described in the following paragraphs. Refer to Figure 35 for schematic diagrams of these subcircuits in both the TCU (Figure 35a) and rotary dial (Figure 35b) versions of the coin telephone.

#### Loop-Current Detector

13.02 The loop-current detector circuit senses the telephone

loop current of either normal or reverse polarity, and provides a logic 1 output if loop current is present. This signal is provided to various control circuits. Also, filtering is provided to prevent loop current indications which could result from 60 Hz signals being induced into the loop.

#### Loop-Current-Polarity Detector

13.03 The loop-current-polarity-detector circuit consists of 200-ms delayers and a flip-flop. The delayers provide the flip-flop with immunity from the momentary polarity reversals that often occur across the telephone. After polarity reversals have proved to be steady (i.e., over 200 ms in duration), the flip-flop will change state. This signal is then used by other circuits that provide transmitter and Touch Calling control when the telephone is strapped for semipostpay service.

#### Reset Pulse Generator

13.04 The reset-pulse-generator circuit measures loop current interruptions and sends a reset pulse to the totalizer and to MR-, RR-, and BR-relay-operate circuits when certain conditions are met. Flip-Flop IC4-A and IC4-C comprise an on hook/off hook memory flip-flop. Flip-flop IC12 is a binary counter driven by a crystal-controlled oscillator. If the telephone is off hook and a loop current interruption greater than 174 ms occurs, as timed by the counter, the flip-flop goes to the on-hook state. When the telephone next goes off hook and loop current is detected, after 29 ms have elapsed as timed by the counter, the flip-flop will go to the off-hook state. This change of state will trigger the 10-ms pulse generator (IC3-B, IC2-B).

#### Receiver Amplifier

13.05 The receiver amplifier prevents voice transmission through the receiver and prevents coin tone signals from reaching the receiver. The amplifier is off when the telephone is on hook, which in this state requires zero supply current.

13.06 The transformers T1 and T2 provide impedance matching and dc isolation. Integrated circuit IC16 is a micropower programmable operational amplifier which is biased to operate with the output at one-half the supply voltage (VDD). Filter section R3 to C3 provides frequency compensation and thus yields the proper receive frequency response.

#### Coin Tone Generator

13.07 The coin-tone-generator circuit converts coin tone square waves from the totalizer integrated circuit into dual, or single sine waves, and impresses this voltage across telephone terminals L1 and L2. These sine waves are used to signal coin deposits to the CO.

13.08 The square waves are first limited in voltage to 0.813 volts peak-to-peak by Metal-Oxide Semiconductor (MOS) Field Effect Transistors (FET's) IC11-A and IC11-B

which have a drain supply voltage of 0.813 Vdc, as determined by reference diode IC15 and operational amplifier IC14-C. These square waves are then transformed by three-pole low-pass filter (IC14-A,B) and associated passive components, into low-distortion sine waves. Integrated circuit IC14-D and transistor Q5 form a current-source line driver which develops the required tonal voltage. Transistor Q6 provides power to the filter only during coin deposits and is controlled by the totalizer integrated circuit.

13.09 For offices providing Automated Coin Toll Service (ACTS), a dual frequency tone is required. To obtain this option, move pivot wire T from terminal 1 to terminal 2. When this option is not required, the T strap should remain on terminal 1.

#### Under Initial Rate Override

13.10 The under-initial-rate-override circuit allows disposal of coinage deposits of less than initial rate value.

13.11 Normally, ground current is blocked by 68-volt zener diodes CR16 and CR17, if the initial rate has not been achieved. Under these conditions, the 68-volt zener diodes oppose coin-relay-operate voltages applied at the CO. However, this circuit senses application of coin battery voltage and responds by sending a signal to have relay RR contacts latched closed, which shunts the 68-volt zener diodes. Consequently, the coin relay winding receives full operating voltage.

13.12 Optical isolator IC17 isolates telephone line current from the supply voltage. Resistors R62 and R63, and capacitor C24 comprise a filter that prevents spurious responses to line impulses.

13.13 Some older prepay offices do not provide collect or refund battery unless coin ground is detected. Since coins that do not satisfy the initial rate requirement remain in the hopper, an option is provided where coin ground appears immediately after a single coin is deposited.

**CAUTION:** Do not use the immediate coin ground option for emergency calling, because it will provide for nickel calls.

13.14 To enable this option, move pivot wire W from terminal X to terminal V. It is still not possible to complete a call with deposits less than the initial rate, because the rotary dial or TCU will still be inoperative until the initial rate is reached. For the newer types of offices where coin battery is applied automatically upon disconnect, whether coin ground is present or not, placing lead W in position V is not recommended. Lead W should be left in position X to prevent hookswitch dialing with deposits less than the initial rate.

#### Power Supply Circuitry

13.15 The power supply circuitry (Figure 35) shunts a small current around the telephone transmission network to

develop the supply voltage needed for operation of the telephone electronics.

13.16 Loop current flows through the network which is connected in series with silicon diodes CR8, CR10 and CR11. The polarity-correcting diode bridge, CR2, CR3, CR4, CR5, is parallel to the network-diode combination. The configuration ensures a minimum supply voltage of 2.5 Vdc. The 5-henry inductor isolates the supply filter capacitor from the audio signals on the telephone line.

13.17 Zener diodes R7, CR9, and CR28 provide transient and overvoltage protection for other devices. Resistor R1 and diodes CR1 and CR6 provide a trickle of current to the telephone electronics when on-hook.

#### Relay Functions

13.18 Relays BR, RR, MR, and SR control the rotary dial, TCU, ground current, ground noise isolation, and transmitter muting.

13.19 Relay BR contacts either shunt the rotary dial or are in series with the Touch Calling oscillator and operate to allow dialing when an initial rate coinage total has been reached. This relay also controls the transmitter in semi-postpay service.

13.20 Relay RR contacts establish a ground current when the initial rate is achieved. The contacts also provide a path for stuck coin testing after a coin-relay operation.

13.21 Relay MR contacts provide muting of the carbon transmitter during coin tone generation.

13.22 Relay SR senses loop current and opens the ground current path when strapped by strap Q. This feature can be used only for emergency calling service, which does not have simplex coin battery. (Simplexing is tying tip and ring together in the office and then applying one side of the coin battery to this tied pair, and the other side of the coin battery to earth ground.) Since simplexing causes current to flow in the L1 side of line at the telephone, the SR relay coil, if strapped in, would open the SR relay contact and prevent normal coin-relay operation.

13.23 To obtain the ground isolation option, move pivot wire Q from terminal N to terminal E. When this option is not required, strap Q should remain on terminal N.

13.24 Relays RR, BR, and MR are dual-winding, single-contact, latching devices that operate over a voltage range of 2.5 to 10 volts. A pulse of 10 ms duration is applied to either the set or reset winding by the logic circuitry at the proper time to achieve the required telephone control. Relay SR has single, normally closed contacts and is non-latching.

#### Totalizer

13.25 The totalizing function is performed by large-scale

integrated circuit (IC13). This device has three inputs that monitor the coin-trigger-switch voltage and, consequently, sense coin deposits. Also, five other inputs sense the position of the five binary, initial-rate selector switches, which can select, in five-cent increments, up to \$1.55. The actual initial rate is set by the binary combination of the 5-, 10-, 20-, 40-, and 80-cent switch sections. Having reset to a zero total at the onset of a call, the totalizer totals coin deposits and compares the most recent total to the selected initial rate. When the initial rate is achieved, a logic 1 is provided on lead BR of IC13 (pin 2). This signal controls relays BR and RR and provides the calling party with full telephone service.

13.26 The totalizer integrated circuit is driven by a crystal controlled oscillator (Y1, C14, C15, R44, and an amplifier built into IC13). This device, utilizing the accuracy of the crystal-controlled oscillator, provides coin tones in square wave form to the coin-tone generator (paragraph 14.07). These tones are generated as burst; the burst count equates to coin denomination in terms of one burst per five cents of deposited coin value. For a dime or quarter deposit, the silent interval between burst is equal in duration to the burst duration. Also, during coin-tone generation, integrated circuit, IC13, provides a logic 1 on output M (pin 16). This signal disables the receiver and mutes the carbon transmitter.

13.27 To prevent registration of noise impulses on the trigger switch wires as coins are deposited, filters are provided on each trigger-switch input (C16 - R47, C17 - R48, C18 - R49).

#### Multiposition Connectors

13.28 Multiposition connectors on the chassis card are provided to give modes of service other than that provided as standard from the factory and to provide versatility in interfacing with CO's.

13.29 The connector positions as provided from the factory are as follows (Figure 36 and Table 3):

- (a) Prepay service. Connectors J5 and J6 are located on either row of terminals PR or PT (the P standing for prepay). Both J5 and J6 must be on the same row.
- (b) Rotary dial or Touch Calling service. Connectors J5 and J6 are located on the row of terminals PR, ER, or SR, the R standing for rotary and PT, ET, or ST, the T standing for Touch Calling.
- (c) Single coin tone. Connector T is located on pin 1.
- (d) Ground continuity upon reaching initial rate. Connector W is located on pin X.
- (e) Ground isolation. Connector Q is located on pin N.

13.30 For operation that is different than that provided from the factory, refer to paragraph 14.13 for proper application information. The connector positions are as follows:

- (a) Rotary dial emergency prepay service. Connector: J5 and J6 are moved to rows of pin terminals ER.

- (b) Touch Calling emergency prepay service. Connectors J5 and J6 are moved to rows of pin terminals ET.
- (c) Rotary dial semipostpay service. Connectors J5 and J6 are moved to rows of pin terminals SR.
- (d) Touch Calling semipostpay service. Connectors J5 and J6 are moved to rows of pin terminals ST.
- (e) Dual coin tones. Connector T is moved from terminal 1 to terminal 2.
- (f) Ground isolation. Connector Q is moved to terminal E.
- (g) To provide ground continuity upon the first coin deposited, move connector W from terminal X to terminal V. Requirements for this change to resolve certain CO interface problems are somewhat rare.

NOTE: If moving a connector, grasp it firmly with the fingers and pull it straight off. Do not pull the wires. If replacing a connector, push straight in.

13.31 A Dual In-Line Package (DIP) switch, SW, equipped with five separate switches, is provided on the card for initial rate selection (Figure 37). The switch furthest to the right equates to 5 cents, the switch to its immediate left equates to 10 cents, the next switch left equates to 20 cents, etc. The sum of the switches set to position ON equals the base rate selected with capability up to \$1.55.

13.32 On units shipped from the factory, only the second lever from the right is set to position ON, which equates to a 10-cent initial rate.

#### 14. MULTIFUNCTION CIRCUIT CARD TROUBLE-SHOOTING

14.01 When performing fault troubleshooting or defective component replacement, it is important to take the conformal coating into account. This coating covers all component leads as well as card metallic traces. To effectively trace signals throughout the assembly, sharp-pointed test probes should be used to ensure piercing of the coating material.

14.02 The first step in troubleshooting the chassis assembly is to remove it from the coin telephone. Place the chassis assembly on the bench top near the upper and lower housing assemblies in a position that allows clear visibility of the circuit components and test posts. Reconnect the upper-housing, coin relay, and coin trigger switch to the corresponding card connectors. Connect the card line wire connector to a coin telephone test box. Refer to Figure 38 for a schematic diagram of a coin telephone test box. The test box may be constructed locally with instructions obtained from GTE CSC. This test box may also be used to functionally test a fully assembled Type 120B coin telephone.

14.03 The following troubleshooting procedures are intended as a guide to familiarize the repair technician with the basic electrical structure of the coin telephone. This guide lists several potentially effective components, which could cause the indicated problems, but a skilled technician can quickly locate the particular defective component.

Since numerous component replacement repairs can cause excessive ionic contamination, precise defective-component identification is essential. Additional confidence in proper fault location can be gained by comparing signals of the unit under repair to those of a unit known to be good. Refer to Figure 39 for identification and layout of components in the chassis card assembly.

#### Off-Hook Supply Voltage

14.04 With the chassis assembly connected as described in paragraph 6.05, take the handset off-hook and monitor the supply voltage from the test post marked VDD, located in the center area of the card. On long loops, the supply voltage should be between 2.5 Vdc and 8 Vdc. On short loops, the supply voltage should be between 8 Vdc and 10 Vdc. These levels apply to normal and reverse polarity. Refer to Table 4 for probable causes if these levels are not met.

#### On-Hook Supply Voltage

14.05 Place the handset in its cradle and monitor the supply voltage (VDD) from the test post at the center of the card. Three or 4 minutes after placing the handset in its cradle, the level should settle to a steady value. (The loop selector switch position is not important.) The final voltage should be greater than 2.5 Vdc for normal and reverse polarity. Refer to Table 5 for probable causes of low voltage readings.

#### Crystal-Controlled Oscillator

14.06 A malfunctioning oscillator may cause symptoms that appear like problems in other areas. For this reason, the circuit should be checked early in the troubleshooting process. The oscillator voltage, as measured with a 10-megohm, frequency-compensated oscilloscope probe, should swing from below 30 percent of VDD to above 70 percent VDD on each oscillator cycle. Make this measurement at pin 11 of integrated circuit IC13; ensure that good contact is made through the conformal coating. If the desired result is not obtained, refer to Table 6.

#### Coin Tones

14.07 The test box has a voltage monitor point, which is equivalent to a CO pick-off point. Voice signals, DTMF tones, and coin tones can be monitored at this point. A high-impedance device, of at least 100 kilohms, must be used to prevent loading.

14.08 With the telephone off-hook, deposit a nickel, dime, and quarter. Monitor the tones at the test box. (Strap T should be in position 2 if dual-frequency tones are to be observed.) If the proper tones are not heard, refer to Table 7.

#### Receiver Amplifier

14.09 With the telephone off-hook, speak into the mouthpiece and listen for sidetone in the receiver. If sidetone is not present, refer to Table 8.

#### Totalizer Functions

14.10 Using a high-impedance device, monitor the signal at

test post BR. Upon taking the handset off-hook, the voltage at post BR should be near zero volts (logic 0). With the initial-rate selector switches set to some nonzero value, deposit the initial-rate coinage. The voltage on post BR should rise to equal VDD (logic 1). Operation of the hook-switch for more than 174 ms should reset post BR to logic 0. If these results are not obtained, refer to Table 9.

#### Initial Rate Override

14.11 With the telephone off-hook, reset the totalizer by momentarily depressing the hookswitch. Deposit a single coin that is less than the selected initial rate. Apply a coin disposal voltage momentarily by depressing the proper push-button on the test box. The coin should be collected or refunded according to the proper switch on the test box. If the coin is not collected or refunded, refer to Table 10.

#### Relay Functions

14.12 Momentarily depress the hookswitch to reset the totalizer. If the telephone is strapped for prepay service, the rotary dial/TCU must be disabled. For rotary dial telephones, a steady emission of light from the loop current Light-Emitting Diode (LED), while the fingerwheel is returning to normal, indicates a disabled condition and a flashing LED indicates an enabled state. The state of the TCU can be easily verified by listening to the receiver and depressing the keys. After the initial rate has been deposited, the rotary dial/TCU should be enabled.

14.13 With emergency dialing and prepay service, the ground current should be zero before the initial-rate deposit and a few milliamperes after the initial-rate deposit (strap Q to post N). The ground current LED gives a visible indication of the presence of ground current. Refer to Table 11, if relay functions are not as stated.

NOTE: Both option connectors should be checked for defective connections or incorrect positions before attempting to find other faults.

## 15. MULTIFUNCTION CIRCUIT CARD REPAIR

#### Preliminary Considerations

15.01 The multifunction circuit card of the Type 120B coin telephone uses low-current, high-resistance circuitry. This circuitry, if not protected, may malfunction if exposed to ionic contaminants such as fingerprints, solderflux residue, or long-term accumulation of airborne substances. However, in the manufacture of the Type 120B coin telephone, the card is cleaned to a very low level of ionic contamination and is then conformably coated to protect against further exposure to sources of contamination.

15.02 Proper cleaning and coating of such an assembly requires meticulous process control. Consequently, no repairs that would disturb this conformal coating or soldering should be attempted unless the appropriate coating removal, post-

solder cleaning, and coating replacement procedures are followed meticulously. Cards that are improperly cleaned and protected during repair will, in general, lead to unreliable coin telephone performance.

15.03 Once a defective component has been located, removal and replacement can be performed. However, this is the most critical aspect of the repair process. First, the coating material in the repair area must be removed, then the defective component removed. Next, the repair area must be thoroughly cleaned. Then, the replacement component is inserted and its leads soldered. Again, the repair area must be thoroughly cleaned. Next, reapply conformal coating material to the repair area. The appearance of a properly repaired assembly should closely resemble the appearance of the assembly before repair. The following paragraphs describe the procedure for accomplishment of the above-mentioned repair steps.

15.04 The following tools and materials are required for repair of the multifunction circuit card:

- (a) Alpha Metals No. 1003 solvent.
- (b) Humiseal Division of Columbia Chase Corporation, No. 1B31 coating material and associated thinner.
- (c) Five-cubic-centimeter disposable syringe for coating material.
- (d) One-inch brush with bristles trimmed to 3/4 inch in length.
- (e) Ultraviolet lamp.
- (f) Zahn No. 4 cup viscometer.

#### Removing the Coating from the Repair Area

15.05 Dip the brush into the solvent and apply the solvent to the repair area. Both sides of the card constitute the repair area. Hold the card so that the solvent will drain to the nearest edge of the card. Do not allow the solvent to run freely into areas of the card not related to the repair. One quart of solvent is required for each repair to ensure adequate dilution of coating material and contaminants that accumulate in the solvent container.

15.06 Reload the brush and apply brushing action, as necessary, to remove the coating material completely. Verify complete removal by inspecting the repair area under ultraviolet light. The coating material contains a fluorescent tracer that glows when exposed to ultraviolet light. When all coating material is removed, the area will appear relatively dark. The contrast between coated and noncoated areas can be enhanced by using a darkened location for the inspection site.

#### Component Removal and Cleaning

15.07 Remove the component found to be defective by using standard techniques. When the defective component is removed, solder flux and coating material from beneath the component may become evident. This area must be brushed again with the solvent to remove any traces of coating

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material (repeat the procedures in paragraphs 15.05 and 15.06). The area must be completely clean. Any deviation from the procedures (e.g., using the same container of solvent for more than one repair) may leave an area that appears clean but has an unacceptable level of ionic contamination.

NOTE: Any visible residues are unacceptable.

Component Replacement and Cleaning

15.08 Install the replacement component and solder the leads using only mildly activated rosin solder. With the new component installed, there will be solder flux and fingerprints on the repair area, which must be cleaned using the solvent and brush for a third time. When the repair area has been cleaned, it will be ready for reapplication of the coating material.

Application of Coating to Repair Area

15.09 Using the viscometer, monitor the viscosity of the coating material while carefully adding small quantities of thinner until a reading of 14 seconds is achieved. Gentle but thorough stirring should be done after each addition of thinner since this material is slow to mix. When the desired viscometer reading is achieved, fill the syringe with the coating material. Position the assembly 45 degrees from horizontal, and illuminate the card with ultraviolet light. Carefully discharge the coating material from the syringe onto the repair area. Provide a uniform layer of coating material throughout the repair area. Allow the material to run under component leads and to overlap the old coating. Allow 10 minutes for the material to dry on the first side, then turn the assembly over and apply the coating material to the second side. Allow 10 minutes for the coating to dry. Place the assembly in ventilated storage for 16 hours at room temperature to allow the coating material to cure. After the curing, the repair is complete.

WARNING: The vapors of the coating material, thinner, and solvent are toxic and flammable. Compliance with OSHA regulations is required when using these materials.

15.10 The repair procedure described above will provide satisfactory results if followed completely and if only one or two repairs are required per card. If several repairs are required or if deviations from the procedures are taken, the ionic contamination of the assembly may produce unreliable telephone performance. Contamination-related malfunctions are difficult to localize and trouble reports cannot be substantiated on the test bench.

15.11 When contamination has occurred, the entire card can be stripped of its conformal coating, cleaned to an ultra-low contamination level, and recoated in accordance with the original manufacturing process. This recycling process

requires special equipment and rigid process control.

**16. LUBRICATION**

16.01 The following lubricants are used in maintaining the Type 120B coin telephone:

- (a) LUBRIPLATE® No. 107. This is the most frequently used lubricant and is the one to be used unless otherwise specified.
- (b) Medeco poxylube. This spray lubricant is used for lock tumblers.
- (c) Spindle oil. This is used for the torsion bar bearings.
- (d) Graphite. This is used on the coin rejector.

Upper Housing Assembly

16.02 The following upper housing assemblies should be lubricated as required:

- (a) Latch assembly. Lubricate the contact area between the latch and the spring, the slot in the latch, and the latch shaft.
- (b) Coin release lever assembly. Lubricate the coin release lever shaft.
- (c) Locking bar mounting plates. Lubricate the bearing portion of each of the three studs and the six domed bearing points on each locking bar mounting plate and the cutout for the lock bolt of the upper housing lock.
- (d) Locking bars. Lubricate the slots in the end of the torsion bar and the tops of the locking hooks. Force a small amount of spindle oil into the holes in the torsion bar mounting brackets.

16.03 For information on lubrication of the rotary dial, refer to Section 997-300-500.

16.04 In normal production, the upper housing lock does not require lubrication. Grease and oil inside the lock tend to gather dirt and cause the lock to malfunction. If the lock tumblers require lubrication in the field, the use of Medeco poxylube is recommended.

Lower Housing Assembly

16.05 Lubricate the three points on both sides of the housing where the locking bars engage the strike plates. Also lubricate the shaft on the lead-in chute, the four bearing pins on the linkage, and the two slots in the linkage bars of the rejector assembly. Do not use grease or oil on the rejector assembly itself. Grease and oil gather dirt, which is detrimental to operation of the rejector assembly. During production, the rejector mechanism will not require lubrication. Under certain circumstances, however, lubrication may be helpful in the field. Use graphite or a lead pencil only

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16.06 Lubricate the following parts of the vault door assembly:

- (a) The four slots in the door.
- (b) The four slots in the mounting plate.
- (c) The four guides in the bearing plate.
- (d) The cam-plate and bearing-plate surface.
- (e) The bearing surfaces of the locking bar pins.
- (f) The four cutouts in the cam plates.
- (g) The vault door shaft.

- faceplate numbered HD-780022-B (matte chrome)
- adapter plate numbered HD-780033-A (matte chrome)
- adapter plate numbered HD-780021-A (brown)
- adapter plate numbered HD-780021-B (gray)

## 17. REFINISHING

17.01 The method that is used to refinish the telephone depends upon the degree of damage to the existing finish. If the finish has a few scratches or is slightly nicked, the finish can be retouched. If, however, the finish is badly scratched or marred, the entire exterior of the telephone should be refinished. The following paragraphs describe methods for retouching and complete refinishing.

### Retouching

17.02 Small nicks and scratches may be touched up by applying an air-dry touch-up lacquer with an artist's brush ensuring that the nicks and scratches are filled in completely. One such retouching lacquer can be obtained from John L. Armitage and Company, 245 Thomas Street, Newark, New Jersey. The order numbers for the lacquers are as follows:

- (a) VL-15191 (black).
- (b) VL-16346 (beige).

### Refinishing Without Stripping Old Paint

17.03 The following material and equipment are necessary for powder refinishing of a coin telephone:

- (a) Beige 100 percent polyester powder manufactured by Napki Corporation, GTE CSC file No. F7/34.
- (b) Black 100 percent polyester powder manufactured by Napko Corporation, GTE CSC file No. F-71341-U1.
- (c) Paint booth with desiccant cylinder for drying powder.
- (d) Electrostatic spray gun.
- (e) Vibratory sieve.
- (f) Baking oven.
- (g) Fixtures.

17.04 Use the following refinishing procedures:

- (a) Remove the subassemblies and other components from the housing.

NOTE: It may be more economical to mask (rather than remove) the following:

- faceplate numbered HD-780022-A (bright chrome)

- (b) Sand the marred surface by using 80 grit and then 120 grit sandpaper until the marred area blends with the painted surface. Parts must be free of dust, fingerprints, and oil.
- (c) Spray parts in the spray booth and ground properly. Spray a light coat of powder (approximately 1 mil) over the entire parts' surfaces. Make certain marred areas are fully covered.
- (d) Bake parts at 425°F for 20 minutes.

### Complete Stripping and Finishing

17.05 Use the following materials for a complete stripping and refinishing of the housings:

- (a) Paint stripper (Surfon or Oakite stripper).

NOTE: Several other commercial strippers also work well.

- (a) Beige powder.
- (b) Black powder.
- (c) Strip tank.
- (d) Spray booth with desiccant cylinder.
- (e) Electrostatic spray glue.
- (f) Vibratory sieve.
- (g) Baking oven.
- (h) Fixtures.

17.06 Use the following procedures to strip and refinish the housings:

- (a) Remove the subassemblies and other components from the housings.
- (b) Submerge the housings in a paint stripper until all of the old paint is loose.
- (c) Rinse in clear hot water.
- (d) Pickle the parts in 30 percent muriatic acid to remove rust and old phosphate coating.
- (e) Rinse thoroughly to remove acid.
- (f) Ensure that parts have been thoroughly dried in an oven and that all moisture has been removed.
- (g) Place the parts to be painted in the proper fixtures.
- (h) Spray powder to a thickness of 2 or 3 mils.
- (i) Bake at 425°F for 20 minutes.
- (j) Allow parts to cool to room temperature before handling.

## 18. OPTIONAL EQUIPMENT

WECo Soundbooster™ Handset

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**18.01** The WEC<sub>o</sub> Soundbooster<sup>TM</sup> handset is available from WEC<sub>o</sub> for modification to the Type 120B telephone. The handset is equipped with a self-restoring volume control amplifier for use by the hard-of-hearing.

**18.02** To install the handset into the Type 120B telephone, proceed as follows:

- (a) Remove the existing handset connected to the telephone (refer to Paragraph 4.01).
- (b) Place the handset cord into its upper housing hole and secure the cord with the cord clamp (Figure 3, item 27).
- (c) Connect the handset cord spade leads as follows:

**Rotary Dial**

- (1) Black to transmission network 6.
- (2) Red to transmission network 15.
- (3) Green to receiver terminal 5.
- (4) Yellow to receiver terminal 4.

**Touch Calling Unit**

- (1) Black transmission network 6.
- (2) Red to transmission network 15.
- (3) Green to receiver terminal B.
- (4) Yellow to receiver terminal 4.

TABLE 1. REPLACEMENT PART LIST

FIGURE NO.	ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
			ROT	T/C		
2	(1-17) TYPE 120B SINGLE SLOT COIN TELEPHONE SET					
2	1	UPPER HOUSING ASSEMBLY	X		HD-480050-AM (BLACK)	1
			X		HD-480050-BM (BEIGE)	1
			X		HD-480050-SM (CHROME)	1
				X	HD-480051-AM (BLACK)	1
				X	HD-480051-BM (BEIGE)	1
				X	HD-480051-SM (CHROME)	1
2	2	LOWER HOUSING ASSEMBLY	X	X	HD-480052-CPAM (BLACK)	1
			X	X	HD-480052-CPBM (BEIGE)	1
			X	X	HD-480052-CPSM (CHROME)	1
2	3	VAULT DOOR	X	X	HD-490005-C (BLACK)	1
			X	X	HD-490005-D (BEIGE)	1
			X	X	HD-490005-B (CHROME)	1
2	4	HANDSET ASSEMBLY	X	X	L-9080-CA (BLACK)	1
			X	X	L-9080-CB (BEIGE)	1
2	5	UPPER DIRECTION CARD	X	X	HD-530007-A (Prepay or Emergency Prepay)	1
			X	X	HD-530008-A (Semi-Postpay)	1
2	6	UPPER DIRECTION CARD WINDOW (Small)	X	X	HD-530000-A	1
2	7	LOWER DIRECTION CARD	X	X	HD-530005-A	1
2	8	LOWER DIRECTION CARD WINDOW (Large)	X	X	HD-530001-A	1

TABLE 1. REPLACEMENT PART LIST (Continued).

FIGURE NO.	ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
			ROT	T/C		
2	9	FACEPLATE	X	X	HD-780022-B (CHROME)	1
2	10	NUMBER CARD		X	D-530400-A	1
2	11	NUMBER CARD COVER		X	D-530394-A	1
2	12	METAL FINGERWHEEL KIT (Includes next six items) (Not Shown)	X		H-888450-1	1
2	12	CHROME FINGERWHEEL	X		D-780649-C	1
2	12	ESCUTCHEON RING	X		D-65112-K	1
2	12	ESCUTCHEON LOCK	X		D-5886-A	1
2	12	DIAL CARD CLIP PLATE	X		D-78541-A	1
2	12	CELLULOID COVER	X		D-53176-A	1
2	12	SCREW	X		D-76312-A	1
2	13	DIAL SCREW (NOT SHOWN) .125-40 x .312 FHCR	X		HD-764004-D	1
2	14 15	ADAPTER PLATE	X		HD-780021-A (BROWN)	1
			X		HD-780021-B (GRAY)	1
				X	HD-781033-A (CHROME)	1
2	16	ANTI-STUFFING DEVICE AND DOOR ASSEMBLY	X	X	HD-480011-B	1
2	17	VAULT SHIELD	X	X	HD-180001-A	1
3a	(18-37b) UPPER HOUSING ASSEMBLY ROTARY DIAL (HD-480050) (MANUFACTURED PRIOR TO 1981)					
3a	18	NUT, HEX, SELF THREADING	X	X	HD-770009-A	12/16
3a	19	COIN RELEASE LEVER ASSEMBLY	X	X	HD-320000-B	1
3a	20	HOOKSWITCH DIAL ASSEMBLY	X		HD-500003-E	1
3a	20	HOOKSWITCH DIAL ASSEMBLY		X	HD-500003-F	1
3a	21	LATCH ASSEMBLY (Not Shown)	X	X	HD-580003-A	1

TABLE 1. REPLACEMENT PART LIST (Continued).

FIGURE NO.	ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
			ROT	T/C		
3a	22	LOCKING BAR	X	X	HD-580012-A	2
3a	23	WASHER	X	X	HD-170013-A	6
3a	24	HOOK, HANDSET	X	X	HD-620000-A	1
3a	25	RETAINING RING	X	X	HD-650013-A	1
3a	26	COIN RELEASE ROLLER ASSEMBLY	X	X	HD-650007-A	1
3a	27	CORD CLAMP	X	X	HD-731124-A	1
3a	28	BUSHING FOR COIN RELEASE	X	X	HD-750001-A	1
3a	29	SCREW FOR LOCKING BAR .250"-28	X	X	HD-760000-A	3
3a	30	SCREW, SLOTTED HEX SIMS 6-40 x .250"	X	X	HD-764015-A	1
3a	31	SCREW, .190"-24 x .250", PSHSM	X	X	D-762050-A	2
3a	32	SCREW, .190"-24 x .312", PSHSM	X	X	D-762050-B	4
3a	33	SCREW, .190"-24 x .437", PSHSM	X	X	D-762050-E	4
3a	34	NUT, .250"-28 UNF-2B	X	X	HD-770021-A	6
3a	35	SPRING, COIN RELEASE LEVER	X	X	HD-110018-A	1
3a	36	LOCK WASHER INTERNAL TOOTH	X	X	HD-17366-A	1
3a	37a	THREAD LOCKING COMPOUND (Not Shown)	X	X	F-70101-A7	1
3a	37b	ROTARY ADAPTER PLATE NUT	X	X	D-7701-A	1
3b	(18-37b) UPPER HOUSING ASSEMBLY TOUCH CALLING UNIT (HD-480051) (MANUFACTURED AFTER 1980)					
3b	18	NUT, HEX, SELF THREADING	X	X	HD-770009-A	12/16
3b	19	COIN RELEASE LEVER ASSEMBLY	X	X	HD-320000-B	1
3b	20	HOOKSWITCH DIAL ASSEMBLY	X		HD-500003-E	1
3b	20	HOOKSWITCH DIAL ASSEMBLY		X	HD-500003-F	1
3b	21	LATCH ASSEMBLY (Not Shown)	X	X	HD-580003-A	1
3b	22	LOCKING BAR	X	X	HD-580012-A	2
3b	23	WASHER	X	X	HD-170013-A	6
3b	24	HOOK, HANDSET	X	X	HD-620000-A	1

TABLE 1. REPLACEMENT PART LIST (Continued).

FIGURE NO.	ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
			ROT	T/C		
3b	25	RETAINING RING	X	X	HD-650013-A	1
3b	26	COIN RELEASE ROLLER ASSEMBLY	X	X	HD-650007-A	1
3b	27	ARMORED CORD BRACKET	X	X	HD-731134-A	1
3b	28	BUSHING FOR COIN RELEASE	X	X	HD-750001-A	1
3b	29	SCREW FOR LOCKING BAR .250"-28	X	X	HD-760000-A	3
3b	30	SCREW, SLOTTED HEX SEMS 6-40 x .250"	X	X	HD-764015-A	1
3b	31	SCREW, .190"-24 x .250", PSHSM (Not Shown)	X	X	D-762050-A	2
3b	32	SCREW, .190"-24 x .312", PSHSM	X	X	D-762050-B	4
3b	33	SCREW, .190"-24 x .437", PSHSM	X	X	D-762050-E	4
3b	34	NUT, .250"-28 UNF-2B	X	X	HD-770021-A	6
3b	35	SPRING, COIN RELEASE LEVER	X	X	HD-110018-A	1
3b	36	LOCK WASHER, INTERNAL TOOTH	X	X	HD-17366-A	1
3b	37a	THREAD LOCKING COMPOUND (Not Shown)	X	X	F-70101-A7	AR
3b	37b	ROTARY ADAPTER PLATE NUT	X	X	D-7701-A	4
7a	(38-59) HOOKSWITCH DIAL ASSEMBLY ROTARY DIAL (HD-500003-C) OR -D(TCU) MANUFACTURED PRIOR TO 1981.					
7a	38	SUPPORT SPACER	X	X	P-11984	2
7a	39	CAM SPRING	X	X	HD-110004-B	1
7a	40	TERMINAL BOARD ASSEMBLY	X	X	HB-1054-A REPLACES HD-150004A	1
7a	41	SHAFT, HOOKSWITCH	X	X	HD-460004-A	1
7a	42	DIAL, HOOKSWITCH HOUSING	X	X	HD-480014-A	1
7a	43	TCU COVER		X	HD-480007-A	1
7a	44	E-RING	X	X	D-65511-C	2
7a	45	HOOKSWITCH PILE-UP ASSEMBLY	X	X	HD-735006-A	1

TABLE 1. REPLACEMENT PART LIST (Continued).

FIGURE NO.	ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
			ROT	T/C		
7a	46	SCREW, .112-40 x .250 FHIMS	X	X	D-762004-C	4
7a	47	SCREW, .138-32 x 3/16 PSHSMS	X	X	D-762047-B	1
7a	48	SCREW, .138-40 x 3/16 PSHSMS	X	X	D-762048-B	2
7a	49	ROTARY DIAL ASSEMBLY	X		H-840104-A	1
7a	50	T/C UNIT ASSEMBLY W/PLASTIC BUTTONS		X	HD-840107-A	1
7a	51 52	ONE CONDUCTOR CORD ASSEMBLY	X	X	D-543069-EC (BLUE)	1
			X		D-543069-ED (SLATE)	1
			X		D-543069-EE (PINK)	1
			X		D-543069-CF (BROWN)	1
7a	53	METAL HOOKSWITCH LEVER	X	X	HD-320001-A	1
7a	54	HOOKSWITCH CAM	X	X	HD-830008-A	1
7a	55	WASHER	X	X	D-17592-A	1
7a	56	INTERFACE CABLE ASSEMBLY	X	X	HD-540140-A	1
7a	57	CORD CLAMP	X	X	D-731449-C	1
7a	58	WASHER	X	X	D-17345-A	1
7a	59	SCREW, .112-40 UNC-2A	X	X	D-762044-E	1
7b	(38-59) HOOKSWITCH DIAL ASSEMBLY ROTARY DIAL (HD-500003-E) OR -F(TCU) MANUFACTURED BETWEEN 1980 AND DEC. 1984					
7b	38	NOT APPLICABLE	—	—		—
7b	39	CAM SPRING	X	X	HD-110004-B	1
7b	40	TERMINAL BOARD ASSEMBLY	X	X	HB-1054-A REPLACES HD-150004A	1
7b	41	SHAFT, HOOKSWITCH	X	X	HD-460004-A	1
7b	42	DIAL, HOOKSWITCH HOUSING	X	X	HD-780153-A	1
7b	43	TCU COVER		X	HD-490007-A	1
7b	44	E-RING	X	X	D-65511-C	2
7b	45	HOOKSWITCH PILE-UP ASSEMBLY	X	X	HD-735006-A	1
7b	46	SCREW, .112-40 x .250 FHIMS	X	X	HD-765400-FP06	4
7b	47	SCREW, .138-32 x 3/16 PSHSMS	X	X	HD-765600-PP04	1

TABLE 1. REPLACEMENT PART LIST (Continued).

FIGURE NO.	ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
			ROT	T/C		
7b	48	SCREW, .138-40 x 3/16 PSHSMS	X	X	HD-765640-PM03	2
7b	49	ROTARY DIAL ASSEMBLY	X		HD-840104-A	1
7b	50	T/C UNIT ASSEMBLY W/METAL BUTTONS		X	HD-840138-B	1
7b	51	ONE CONDUCTOR CORD ASSEMBLY (BLUE)	X	X	D-543069-EC (BLUE)	1
7b	52	ONE CONDUCTOR CORD ASSEMBLY (SLATE)	X		D-543069-ED (SLATE)	1
7b	53	METAL HOOKSWITCH LEVER	X	X	HD-320001-A	1
7b	54	HOOKSWITCH CAM	X	X	HD-830008-A	1
7b	55	WASHER	X	X	D-17592-A	1
7b	56	INTERFACE CABLE ASSEMBLY	X	X	HD-540140-A	1
7b	57	CORD CLAMP	X	X	D-731449-C	1
7b	58	NOT APPLICABLE	-	-	-	-
7b	59	NOT APPLICABLE	-	-	-	-
7c	(38-59)	HOOKSWITCH DIAL ASSEMBLY ROTARY DIAL (HD-500003-E) OR -F(TCU) MANUFACTURED AFTER 1984				
7c	38	NOT APPLICABLE	-	-	-	-
7c	39	CAM SPRING	X	X	HD-110004-B	1
7c	40	TERMINAL BOARD ASSEMBLY	X	X	HB-1054-A	1
7c	41	SHAFT, HOOKSWITCH	X	X	HD-460004-A	1
7c	42	DIAL, HOOKSWITCH HOUSING	X	X	HD-780153-A	1
7c	43	TCU COVER		X	HD-490007-A	1
7c	44	E-RING	X	X	D-65511-C	2
7c	45	HOOKSWITCH PILE-UP ASSEMBLY	X	X	HD-735006-A	1
7c	46	SCREW, .112-40 x .250 FHMS	X	X	HD-765400-FP06	4
7c	47	SCREW, .138-32 x 3/16 PSHSMS	X	X	HD-765600-PP04	1
7c	48	SCREW, .138-40 x 3/16 PSHSMS	X	X	HD-765640-PM03	2
7c	49	ROTARY DIAL ASSEMBLY	X		HD-840104-A	1
7c	50	T/C UNIT ASSEMBLY W/METAL BUTTONS		X	HD-840138-B	1
7c	51	ONE CONDUCTOR CORD ASSEMBLY (BLUE)	X	X	D-543069-EC	1
7c	52	ONE CONDUCTOR CORD ASSEMBLY (SLATE)	X		D-543069-ED	1
7c	53	METAL HOOKSWITCH LEVER	X	X	HD-320001-A	1
7c	54	HOOKSWITCH CAM	X	X	HD-830008-A	1
7c	55	WASHER	X	X	D-17592-A	1
7c	56	INTERFACE CABLE ASSEMBLY	X	X	HD-540140-A	1
7c	57	CORD CLAMP	X	X	D-731449-C	1
7c	58	NOT APPLICABLE	-	-	-	-
7c	59	NOT APPLICABLE	-	-	-	-

TABLE 1. REPLACEMENT PART LIST (Continued).

FIGURE NO.	ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
			ROT	T/C		
10	(60-72) LOWER HOUSING ASSEMBLY (HD-480052)					
10	60	SCREW, HEX HEAD, .164" - 36 x .187"	X	X	HD-760036-A	2
10	61	SCREW, .125" - 40 x .187", PSHSM	X	X	D-760046-B	1
10	62	SCREW, 5/8" THREAD ROLLING, POZ-1-DRIVE®	X	X	HD-765640-PT10	1
10	63	REJECTOR MOUNTING PLATE ASSEMBLY	X	X	HD-500018-A	1
10	63	REJECTOR MOUNTING PLATE ASSEMBLY	X	X	HD-500018-C	1
10	63	PLASTIC REJECTOR MOUNTING PLATE ASSEMBLY	X	X	HD-500018-CP	1
10	64	COIN CHUTE AND HOPPER RELAY ASSEMBLY	X	X	HD-550002-C	1
10	65	GROMMET	X	X	HD-670000-A	1
10	66	RAIL ASSEMBLY	X	X	HD-731020-B	1
10	67	FINAL CHASSIS ASSEMBLY	X	X	HD-731095-A	1
10	68	LINE WIRE PLUG AND TERMINAL STRIP ASSEMBLY	X	X	HD-540171-A	1
10	69	MOUNTING SCREW FOR ANTI-STUFFING DEVICE	X	X	HD-760001-A	1
10	70	REJECT CHUTE ASSEMBLY	X	X	HD-780032-B	1
10	71	SCREW, 1/2" THREAD ROLLING, POZ-1-DRIVE®	X	X	HD-765640-PT08	1
10	72	REJECTOR MOUNTING NUT	X	X	HD-770025-A	1
11	(73-80) COIN CHUTE AND TRIGGER-SWITCH PILE-UP ASSEMBLY (HD-780034-B)					
11	73	SCREW, MACHINE, PAN HEAD .112 - 40 x .187 LG.	X	X	HD-765400-PP06	2
11	74	TRIGGER RETURN SPRING	X	X	HD-110007-A	3
11	75	TRIGGER	X	X	HD-160007-A	3
11	76	SPRING SUPPORT ROD	X	X	HD-410000-A	1
11	77	CLEAR COVER (NOT SHOWN)	X	X	HD-490012-B	1
11	78	TRIGGER SWITCH PILE-UP ASSEMBLY	X	X	HD-735005-A	1
11	79	COIN CHUTE ASSEMBLY	X	X	HD-780193-A	1
11	80	CAPTIVE SCREW, .164 - 32 x .375	X	X	D-760823-A	1

TABLE 1. REPLACEMENT PART LIST (Continued).

FIGURE NO.	ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
			ROT	T/C		
12	(81-98) CHASSIS ASSEMBLY, HD-731095-AR					
12	81	NOT APPLICABLE	-	-	-	-
12	82	CHASSIS FRAME	X	X	HD-731096-A	1
12	83	CARD ASSEMBLY	X	X	HB-1018-A	1
12	84	RINGER, TYPE 48	X	X	HD-560010-ASA	1
12	85	TRANSMISSION CARD ASSEMBLY	X	X	HB-1053-A	1
12	86	SUPPORT BRACKET	X	X	P-11984-A	1
12	87	SCREW, RINGER MOUNTING	X	X	HD-765832-PT12	1
12	88	SCREW, TRANSMISSION CARD MOUNTING	X	X	HD-765640-PT07	2
12	89	NUT, CHASSIS MOUNTING	X	X	HD-770026-A	1
12	90	NUT, E-RING MOUNTING	X	X	HD-650005-G	1
12	91	CAPACITOR ASSEMBLY .33 $\mu$ F	X	X	HD-680037-A	1
12	92	STAND OFF (CARD SUPPORT)	X	X	HD-190008-B	5
12	93	SCREW, GUIDE MOUNTING	X	X	HD-765632-PT13	1
12	94	5-HENRY CHOKE ASSEMBLY	X	X	HD-280028-A	1
12	95	EYELET (SE-65)	X	X	HD-560000-G	2
12	96	CONNECTOR GUIDE	X	X	HD-200001-A	1
12	97	CONNECTOR GUIDE	X	X	HD-200002-A	1
12	98	GUIDE BUSHING	X	X	HD-750016-A	1
29a	(1-5) COIN REJECTOR AND PLATE ASSEMBLY, MANUFACTURED PRIOR TO 1985.					
29a	1	REJECTOR ASSY, (U.S. COINAGE) (NO LONGER AVAILABLE)	X	X	-	-
29a	2	LEAD-IN CHUTE ASSEMBLY (NO LONGER AVAILABLE)	X	X	-	-
29a	3	SCREW, .164-32 x 3/16" PSHSM	X	X	D-761056-A	1
29a	4	MOUNTING PLATE	X	X	HD-780135-A	1
29a	5	MOUNTING SCREW	X	X	HD-764017-A	1
29b	(1-5) COIN REJECTOR AND PLATE ASSEMBLY, HD-500018-CP, MANUFACTURED AFTER 1984.					
29b	1	REJECTOR ASSY.	X	X	HD-500010-CP	1
29b	2	LEAD-IN CHUTE ASSEMBLY	X	X	HD-780216-AR	1
29b	3	SCREW, .164-32 x 3/16" PSHSM	X	X	D-761056-A	1
29b	4	MOUNTING PLATE	X	X	HD-780135-A	1
29b	5	MOUNTING SCREW	X	X	HD-764017-A	1

TABLE 1. REPLACEMENT PART LIST (Continued).

FIGURE NO.	ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
			ROT	T/C		
31	(1-7)	COIN RELAY AND HOPPER ASSEMBLY, HD-550000-CR.				
31	1	COVER (Not Shown)	X	X	HD-490011-A	1
31	2	COIN RELAY ASSEMBLY	X	X	HD-550001-BR	1
31	3	HOPPER ASSEMBLY	X	X	HD-780044-CR	1
31	4	LATCH RETURN SPRING	X	X	HD-110037-A	1
31	5	RELAY MOUNTING SCREW	X	X	D-762051-C	2
31	6	PUSH NUT	X	X	HD-770023-A	1
31	7	SEMI POST PAY LOCK-UP SCREW (Not Shown)	X	X	D-762044-A	1

DESCRIPTION	PAGE	REPLACEMENT PART NUMBER	QUANTITY
MISCELLANEOUS INVENTORY			
T-WRENCH	4	HD-580044-A	1
HANDSET CAP TOOL	5	SML-S-578855	1
LOCK MOUNTING TOOL	9	HD-500005-A	1
DIAL ESCUTCHEON TOOL	17	H-26917	1
SIX FOOT PATCH CORD	18	HD-540154-A	1
REJECTOR TEST STAND	19	116979 (Vendor Part No.)	1
REJECTOR TEST KIT	19	HH-920002-A	1
PROTECTOR PLATE KIT	10	HH-880119-1	1
- PROTECTOR PLATE, STEEL	10	HD-780155-A	1
- SCREW	10	HD-765640-PT04	2
- INSTALLATION PROCEDURES	10	-	1

TABLE 2. SALES AND SERVICE CENTERS

<p><b>COIN ACCEPTORS, INC'</b> 300 HUNTER AVENUE ST. LOUIS, MO 63124-2013 800-325-2646</p>	<p><b>COIN ACCEPTORS, CANADA</b> 868 PROGRESS AVE. SCARBOROUGH (TORONTO), ONTARIO M1H 2X7 416-438-6314</p>	
<p><b>ARIZONA</b> Coin Acceptors, Inc. 1911 E. McDowell Road Phoenix, Arizona 85006 Phone No. (602)—253-1088</p>	<p><b>MICHIGAN</b> Coin Acceptors, Inc. 10631 Dix Avenue Dearborn, Michigan 48120 Phone No. (313)—843-1600</p>	<p><b>WASHINGTON</b> Coin Acceptors, Inc. 881 Industry Dr. Seattle, WA 98188 Phone No. (206)—575-1999</p>
<p><b>CALIFORNIA</b> Coin Acceptors, Inc. 3340 Montgomery Drive Santa Clara, California 95054 Phone No. (408)—727-7056</p>	<p><b>MINNESOTA</b> Coin Acceptors, Inc. 7261 West Commerce Circle Fridley (Minneapolis), Minn. 55432 Phone No. (612)—571-7753</p>	<p><b>CANADA</b> Coin Acceptors, Canada 2851 Simpson Rd. Unit F Richmond, British Columbia V6X 2R2 Phone No. (604)—278-2141</p>
<p>Coin Acceptors, Inc. 12825 S. Broadway Los Angeles, California 90061 Phone No. (213)—538-1970</p>	<p><b>MISSOURI</b> Coin Acceptors, Inc. 5006 Daggett Ave. St. Louis, Missouri 63110 Phone No. (314)—531-7662</p>	<p>Coin Acceptors, Canada 2710 Rue Halpern St. Laurent (Montreal), Quebec H4S 1R6 Phone No. (514)—337-1961</p>
<p><b>COLORADO</b> Coin Acceptors, Inc. 6527 N. Washington Denver, Colorado 80229 Phone No. (303)—289-6767</p>	<p><b>NEW YORK</b> Coin Acceptors, Inc. 45 B Elm Pl. Amityville, New York 11701 Phone No. (516)—789-1020</p>	<p>Coin Acceptors, Canada 868 Progress Ave. Scarborough (Toronto), Ontario M1H 2X7 Phone No. (416)—438-6314</p>
<p><b>FLORIDA</b> Coin Acceptors, Inc. 1117A S. 21st Ave. Hollywood (Miami), Florida 33020 Phone No. (305)—922-8086</p>	<p><b>NORTH CAROLINA</b> Coin Acceptors, Inc. 1921 I-85 South Charlotte Corporate Center Charlotte, N.C. 28208 Phone No. (704)—394-0123</p>	<p>Coin Acceptors, Canada 1145 Bellamy, Unit 11 Scarborough (Toronto), Ontario M1H 1H5 Phone No. (416)—438-2422</p>
<p>Coin Acceptors, Inc. 3103 E. Seventh Ave. Tampa, Florida 33605 Phone No. (813)—248-5706</p>	<p><b>OHIO</b> Coin Acceptors, Inc. 4768-D Dues Drive Cincinnati, Ohio 45246 Phone No. (513)—874-4460</p>	<p>Coin Acceptors, Canada 570 First Street, A West Owen Sound, Ontario N4K 5Z5 Phone No. (416)—438-6314</p>
<p><b>GEORGIA</b> Coin Acceptors, Inc. 4215 Wendell Drive S.W. Suite 110 Atlanta, Georgia 30336 Phone No. (404)—691-2777</p>	<p><b>PENNSYLVANIA</b> Coin Acceptors, Inc. 3345 Evergreen Road Pittsburgh, Pennsylvania 15237 Phone No. (412)—366-6100</p>	<p>Coin Acceptors, Canada 896 Erin Street Winnipeg, Manitoba R3G 2W5 Phone No. (204)—786-3086</p>
<p><b>ILLINOIS</b> Coin Acceptors of Chicago 862 Eagle Drive Bensenville, Illinois 60106 Phone No. (312)—860-2650</p>	<p>Coin Acceptors, Inc. 515 Horsham Rd. (RT 463) Building "C", Suite 101 Horsham, Pennsylvania 19044 Phone No. (215)—674-3240/3241</p>	<p>Coin Acceptors, Canada P.O. Box 541 Shediac, New Brunswick E0A 3G0 Phone No. (506)—532-2779</p>
<p><b>LOUISIANA</b> Coin Acceptors, Inc. 306 Hord Ave. Harahan (New Orleans), La. 70123 Phone No. (504)—734-0280</p>	<p><b>TENNESSEE</b> Coin Acceptors, Inc. 905-5 East Brooks Road Memphis, Tennessee 38116 Phone No. (901)—398-3157</p>	<p><b>MEXICO, CENTRAL AND SOUTH AMERICA, CARIBBEAN, AFRICA AND MIDDLE EAST</b></p>
<p><b>MARYLAND</b> Coin Acceptors, Inc. 8124 Philadelphia Rd. Baltimore, Maryland 21237 Phone No. (303)—866-6440/6441</p>	<p><b>TEXAS</b> Coin Acceptors, Inc. 2936 Reward Lane Dallas, Texas 75220 Phone No. (214)—358-5605</p>	<p>Coin Systems International, Inc. P.O. Box 253 Hazelwood, MO 63042 Phone No. (314)—895-3177</p>
<p><b>MASSACHUSETTS</b> Coin Acceptors, Inc. 54 Sun Street Waltham (Boston), Mass. 02154 Phone No. (617)—894-4525</p>	<p>Coin Acceptors, Inc. 2001 Karbach St., Unit A Houston, Texas 77092 Phone No. (713)—683-6558</p>	<p><b>AUSTRALIA</b> Coin Acceptors, Inc. 3 Tamboy Ave. Carlingford, N.S.W. 2118 Phone No. (02)—871-8513</p>
		<p><b>EUROPE</b> Nalo Coin GMBH &amp; Co. KG Coinco Europe Alter Teichweg 11-13 2000 Hamburg 76 West Germany</p>

TABLE 3. SERVICE STRAPPING AND CONNECTIONS

TYPE OF SERVICE OR OPTION	FROM	TO
Normal Prepay, Rotary Dial	J5	Pins PR of array A
	J6	Pins PR of array B
Normal Prepay, TCU	J5	Pins PT of array A
	J6	Pins PT of array B
Emergency Prepay, Rotary Dial	J5	Pins ER of array A
	J6	Pins ER of array B
Emergency Prepay, TCU	J5	Pins ET of array A
	J6	Pins ET of array B
Semipostpay, Rotary Dial	J5	Pins SR of array A
	J6	Pins SR of array B
Semipostpay, TCU	J5	Pins ST of array A
	J6	Pins ST of array B
Ground at Initial Rate	W	Pin X
Ground at First Coin	W	Pin V
Single Tone	T	Pin 1
Dual Tones	T	Pin 2
Ground Isolation (Note 1)	Q	Pin E
No Ground Isolation (Note 2)	Q	Pin N

**NOTES:**

1. To be used only for emergency prepay with nonsimplex coin battery.
2. To be used for emergency prepay with simplex coin battery, all normal prepay, and all semipostpay.

TABLE 4. OFF-HOOK SUPPLY VOLTAGE TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE
VDD Too High	Wires connecting the SCN (WA-1148-A) loose, broken, or space lug crimp ineffective.
VDD Too Low	5-henry inductor leads broken or disconnected. Open CR2, CR3, CR4, CR5 diode(s).

TABLE 5. ON-HOOK SUPPLY VOLTAGE TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE
VDD too low on normal polarity only.	Leaky CR2, CR5 diode(s).
VDD too low on reverse polarity only.	Leaky CR3, CR4 diode(s).
VDD too low on both loop polarities.	(a) Leaky capacitor CR2; leaky diodes CR7, CR9, CR28; or open resistor R1. (b) Defective CMOS integrated circuit. (c) Excessive card contamination as a result of inadequate cleaning during an earlier repair.

TABLE 6. CRYSTAL-CONTROLLED OSCILLATOR TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE
Inadequate oscillator voltage swing, or only a dc level present.	(a) Defective IC13 or crystal Y1. (b) Contamination from earlier repair work.

TABLE 7. COIN TONE TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE
One tone missing.	(a) Strap T defective. (b) IC11 defective. (c) IC13 defective.
No tones on some coin denominations.	Trigger-switch connector defective. IC13 defective.
No tones on all coin denominations.	Trigger-switch connector defective. IC13, IC14, IC11, Q5, or Q6 defective.
Distorted tone or amplitude wrong (strap T in position 1. On short loop the level should be $-7.9 \text{ dBV} \pm 2.25 \text{ dBV}$ ).	(a) IC14 or IC5 defective. (b) R21 or Q5 defective.
Coin tones audible in the receiver during coin deposits.	IC16, IC13, IC3 defective.

TABLE 8. RECEIVER AMPLIFIER TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE
No sidetone. (No voice signal at CO).	IC3, IC13, relay MR, Q9, IC4, IC7, IC8, or lead to the transmission network are defective.
No sidetone. (Voice signal present at CO monitor point).	IC3, IC4, IC9, IC13, IC16, or transmission network connections defective.

TABLE 9. TOTALIZER FUNCTION TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE
BR post remains at a logic 1 after hookswitch operation.	Q1, Q2, Q3, Q4, IC1, IC2, IC3, IC4, IC5, IC6, IC12, or IC13 defective.
BR post remains at a logic 0 after an initial-rate deposit.	Coin-trigger-switch connector, initial-rate selector, or IC13 defective.

TABLE 10. INITIAL-RATE OVERRIDE TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE
No coin disposal. (Ground current is established when initial rate is achieved with Q strap to post N.)	(a) CR16 or CR17 open. (b) CR13, 14, 15, 16 open. (c) CR18, 19, 20 defective. (d) IC17, IC18, IC2, IC6, IC7 defective.

TABLE 11. RELAY FUNCTION TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE
Ground current present after an initial-rate deposit when the unit is strapped for emergency calling.	(a) Strap Q defective or connected to post N. (b) Defective Series Relay (SR).
No ground current rotary dial, or TCU operation after an initial-rate deposit (strap Q to post N).	(a) IC6, 7, 8, 9, 13 defective. (b) Option connectors defective.
No ground current after an initial-rate deposit (strap Q to post N).	Q11, RR relay defective.
No TCU or rotary dial operation after initial-rate deposit (ground current present with strap Q to post N).	(a) Q7, Q8, or relay BR defective. (b) Option connectors defective.
TCU or rotary dial always operative when strapped for prepay.	IC6, 8, 9 or relay BR or Q8 defective.

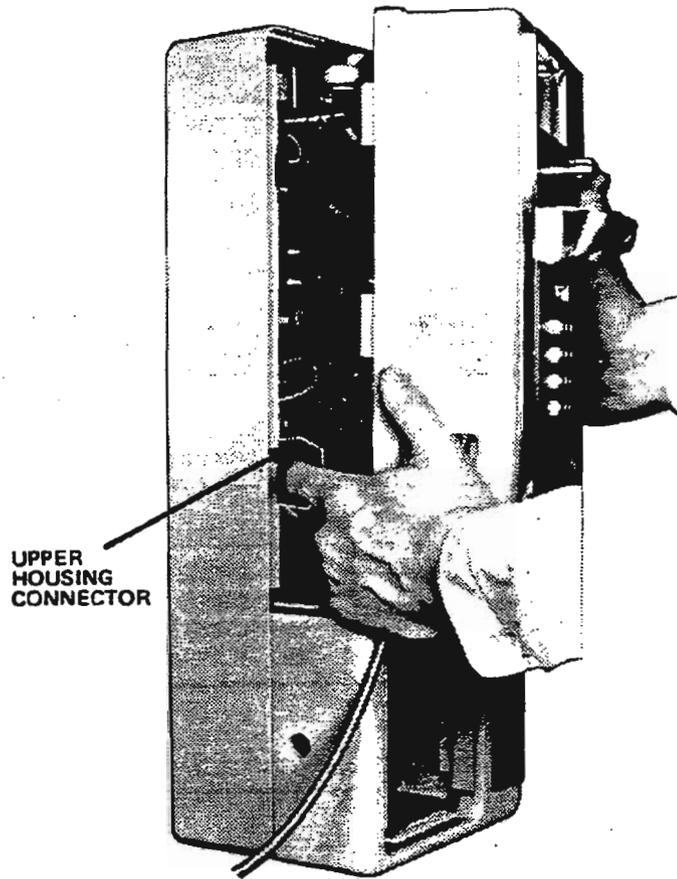
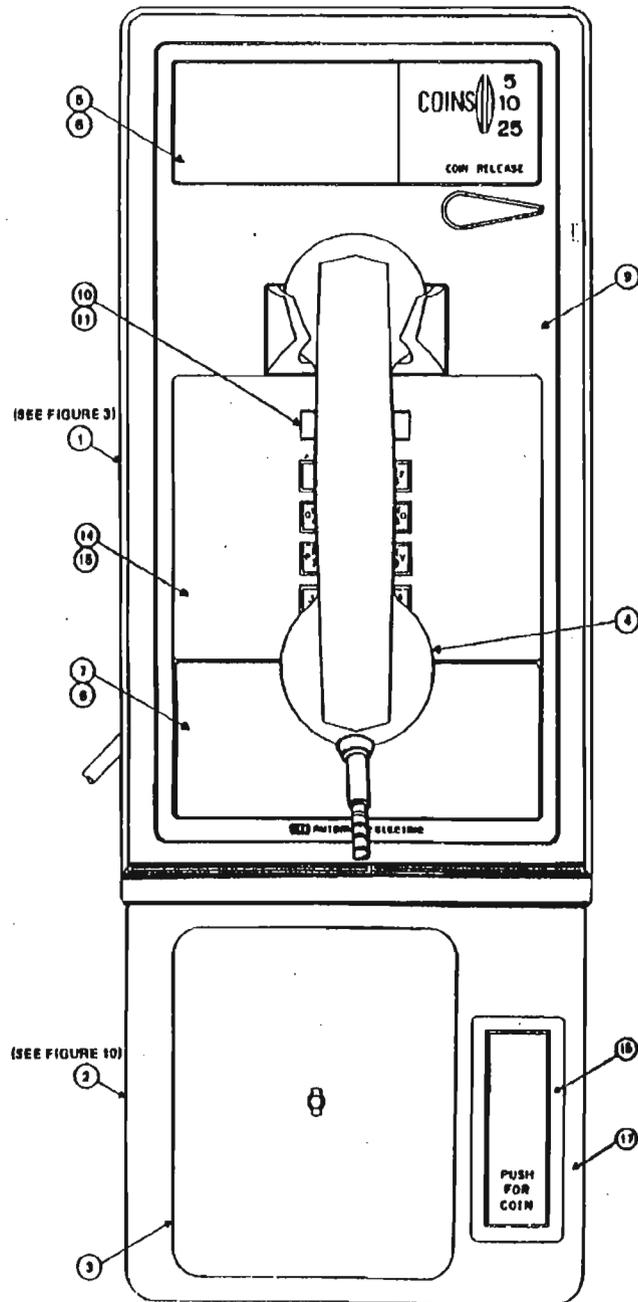
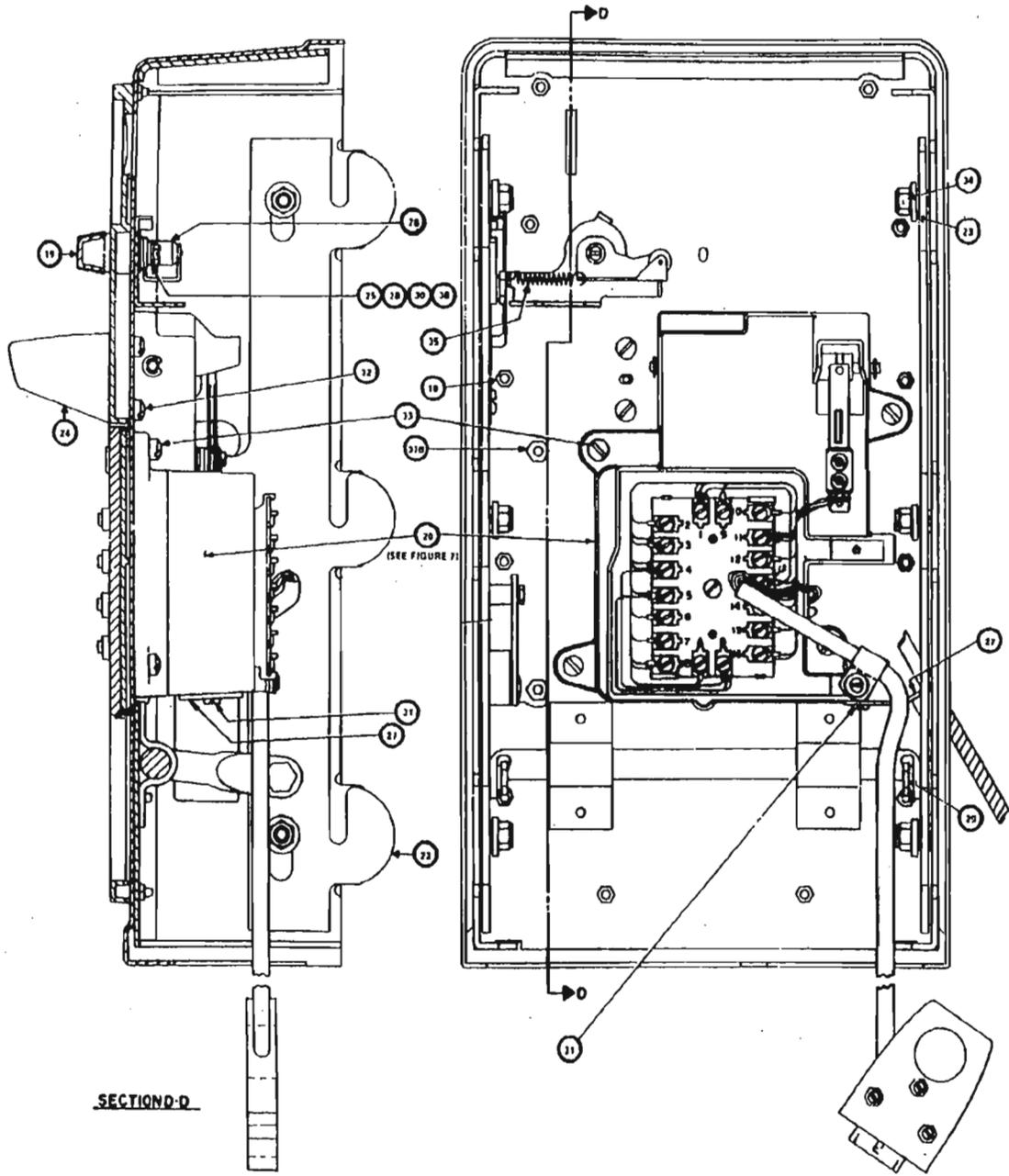


Figure 1. Upper Housing Removed.



ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
		ROT	T/C		
1	UPPER HOUSING ASSEMBLY	X		HD-480050-AM (BLACK)	1
		X		HD-480050-BM (BEIGE)	1
		X		HD-480050-SM (CHROME)	1
			X	HD-480051-AM (BLACK)	1
			X	HD-480051-BM (BEIGE)	1
			X	HD-480051-SM (CHROME)	1
2	LOWER HOUSING ASSEMBLY	X	X	HD-480052-CPAM (BLACK)	1
		X	X	HD-480052-CPBM (BEIGE)	1
		X	X	HD-480052-CPSM (CHROME)	1
3	VAULT DOOR	X	X	HD-480005-C (BLACK)	1
		X	X	HD-490005-D (BEIGE)	1
		X	X	HD-480005-B (CHROME)	1
4	HANDSET ASSEMBLY	X	X	L-9080-CA (BLACK)	1
		X	X	L-9080-CB (BEIGE)	1
5	UPPER DIRECTION CARD	X	X	HD-530007-A (Prepay or Emergency Prepay)	1
		X	X	HD-530008-A (Semi-Postpay)	1
6	UPPER DIRECTION CARD WINDOW (Small)	X	X	HD-530000-A	1
7	LOWER DIRECTION CARD	X	X	HD-530005-A	1
8	LOWER DIRECTION CARD WINDOW (Large)	X	X	HD-530001-A	1
9	FACEPLATE	X	X	HD-780022-B (CHROME)	1
10	NUMBER CARD		X	D-530400-A	1
11	NUMBER CARD COVER		X	D-530394-A	1
12	METAL FINGERWHEEL KIT (Includes next six items) (Not Shown)	X		H-888450-1	1
12	CHROME FINGERWHEEL	X		D-780649-C	1
12	ESCUTCHEON RING	X		D-65112-K	1
12	ESCUTCHEON LOCK	X		D-6886-A	1
12	DIAL CARD CLIP PLATE	X		D-78541-A	1
12	CELLULOID COVER	X		D-53178-A	1
12	SCREW	X		D-78312-A	1
13	DIAL SCREW (NOT SHOWN) .125-40 x .312 FHCR	X		HD-784004-D	1
14	ADAPTER PLATE	X		HD-780021-A (BROWN)	1
		X		HD-780021-B (GRAY)	1
			X	HD-781033-A (CHROME)	1
16	ANTI-STUFFING DEVICE AND DOOR ASSEMBLY	X	X	HD-480011-B	1
17	VAULT SHIELD	X	X	HD-180001-A	1

Figure 2. Type 120B Single-Slot Coin Telephone Set.

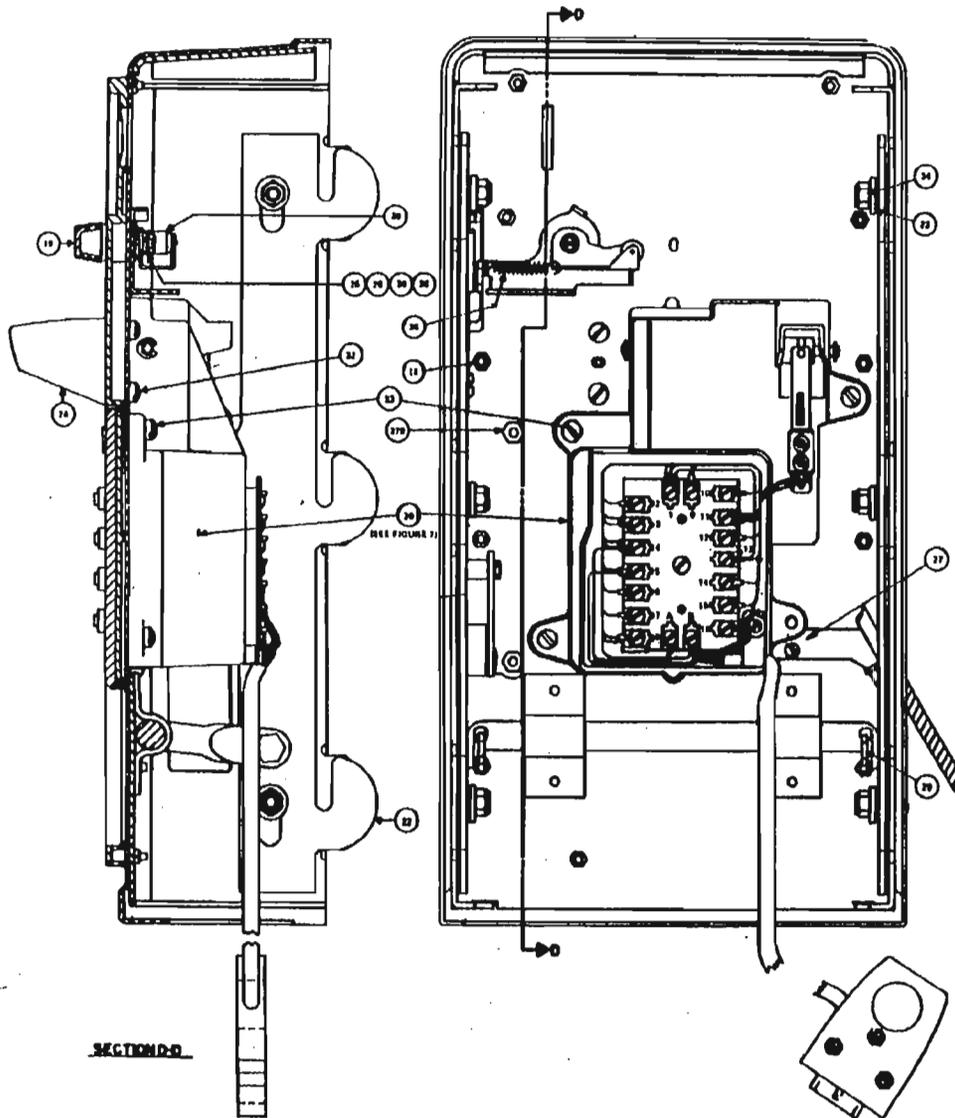


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ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
		ROT	T/C		
18	NUT, HEX, SELF THREADING	X	X	HD-77009-A	12/18
19	COIN RELEASE LEVER ASSEMBLY	X	X	HD-32000-B	1
20	HOOKSWITCH DIAL ASSEMBLY	X		HD-50003-E	1
20	HOOKSWITCH DIAL ASSEMBLY		X	HD-50003-F	1
21	LATCH ASSEMBLY (Not Shown)	X	X	HD-58003-A	1
22	LOCKING BAR	X	X	HD-58002-A	2
23	WASHER	X	X	HD-17003-A	6
24	HOOK, HANDSET	X	X	HD-62000-A	1
25	RETAINING RING	X	X	HD-65003-A	1
26	COIN RELEASE ROLLER ASSEMBLY	X	X	HD-65007-A	1
27	CORD CLAMP	X	X	HD-73112-A	1
28	BUSHING FOR COIN RELEASE	X	X	HD-75001-A	1
29	SCREW FOR LOCKING BAR .250" x .28	X	X	HD-76000-A	3
30	SCREW, SLOTTED HEX SIMS 6-40 x .250"	X	X	HD-764015-A	1
31	SCREW, .190" x .24 x .260", PSHSM	X	X	D-762050-A	2
32	SCREW, .190" x .24 x .312", PSHSM	X	X	D-762050-B	4
33	SCREW, .190" x .24 x .437", PSHSM	X	X	D-762050-E	4
34	NUT, .250" x .28 UNF-28	X	X	HD-770021-A	6
35	SPRING, COIN RELEASE LEVER	X	X	HD-110018-A	1
36	LOCK WASHER INTERNAL TOOTH	X	X	HD-17366-A	1
37a	THREAD LOCKING COMPOUND (Not Shown)	X	X	F-70101-A7	1
37b	ROTARY ADAPTER PLATE NUT	X	X	D-7701-A	1

Figure 3a. Manufactured prior to 1981.

Figure 3. Upper Housing Assembly Rotary Dial (HD-480050) or TCU (HD-480051).



ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANT.
		ROT	T/C		
18	NUT, HEX, SELF THREADING	X	X	HD-770009 A	12/16
19	COIN RELEASE LEVER ASSEMBLY	X	X	HD-320000 B	1
20	HOOKEWITCH DIAL ASSEMBLY	X		HD-500003 E	1
20	HOOKEWITCH DIAL ASSEMBLY		X	HD-500003 F	1
21	LATCH ASSEMBLY (Not Shown)	X	X	HD-580003 A	1
22	LOCKING BAR	X	X	HD-580012 A	2
23	WASHER	X	X	HD-170013 A	8
24	HOOK, HANDSET	X	X	HD-620000 A	1
25	RETAINING RING	X	X	HD-850013 A	1
26	COIN RELEASE ROLLER ASSEMBLY	X	X	HD-850007 A	1
27	ARMORED CORD BRACKET	X	X	HD-731134 A	1
28	BUSHING FOR COIN RELEASE	X	X	HD-750001 A	1
29	SCREW FOR LOCKING BAR .250"-.28	X	X	HD-760000 A	3
30	SCREW, SLOTTED HEX SEMS 8-40 x .250"	X	X	HD-784015 A	1
31	SCREW, .190"-.24 x .250", PSHSM (Not Shown)	X	X	D-762050 A	2
32	SCREW, .190"-.24 x .312", PSHSM	X	X	D-762050 B	4
33	SCREW, .190"-.24 x .437", PSHSM	X	X	D-762050 E	4
34	NUT, .250"-.28 UNF-28	X	X	HD-770021 A	6
35	SPRING, COIN RELEASE LEVER	X	X	HD-110018 A	1
36	LOCK WASHER, INTERNAL TOOTH	X	X	HD-17368 A	1
37a	THREAD LOCKING COMPOUND (Not Shown)	X	X	F-70101-A7	AR
37b	ROTARY ADAPTER PLATE NUT	X	X	D-7701 A	4

Figure 3b. Manufactured after 1980.

Figure 3. Upper Housing Assembly Rotary Dial (HD-480050) or TCU (HD-480051).

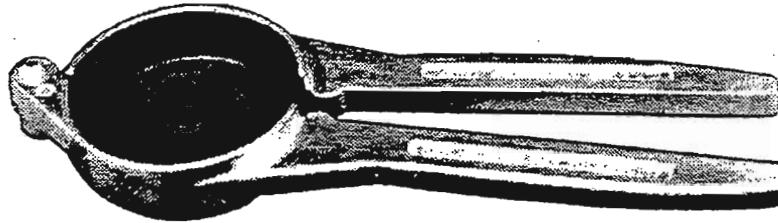


Figure 4. Handset Cap Tool.

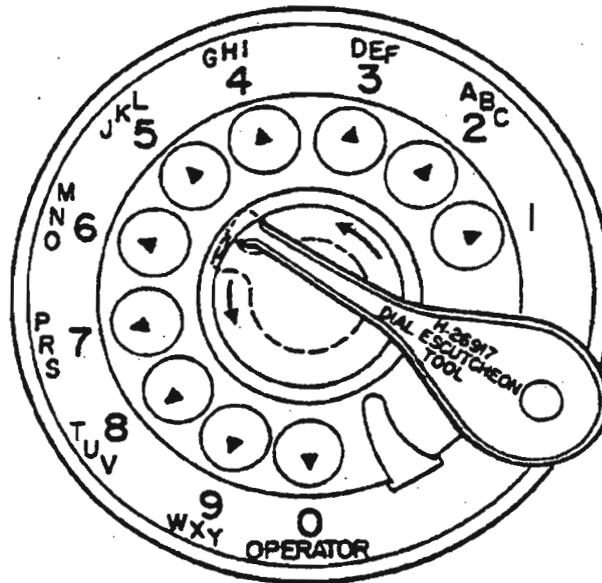


Figure 5. Fingerwheel Escutcheon Removal.

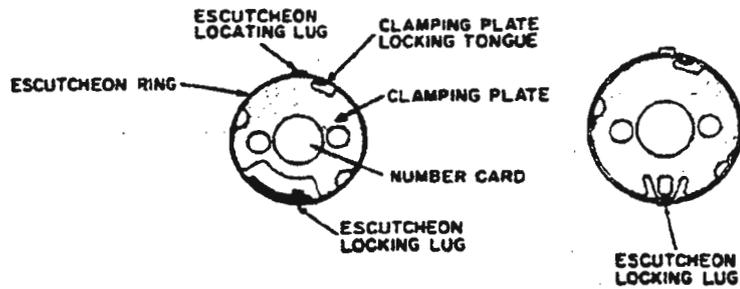


Figure 6. Metal Escutcheon Assembly.

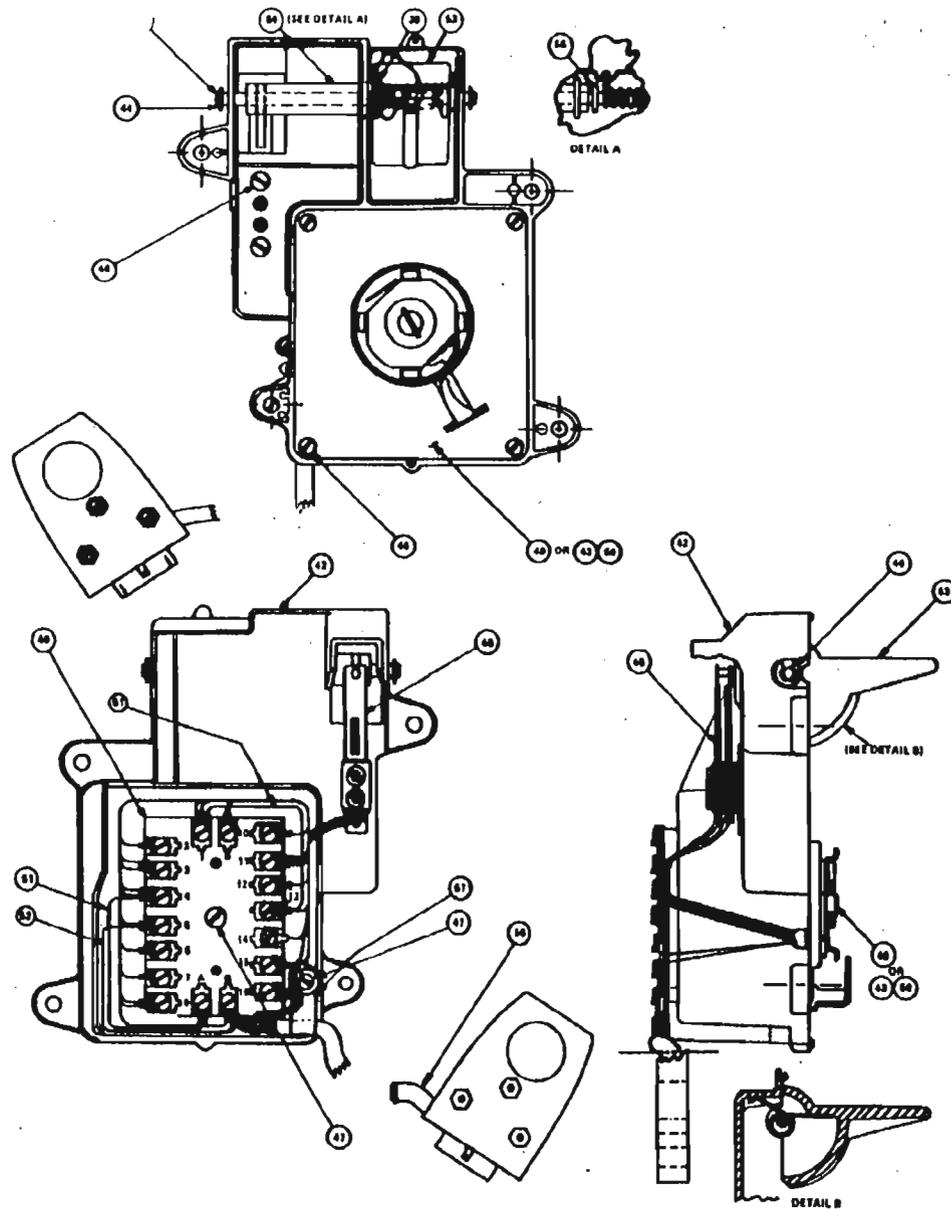
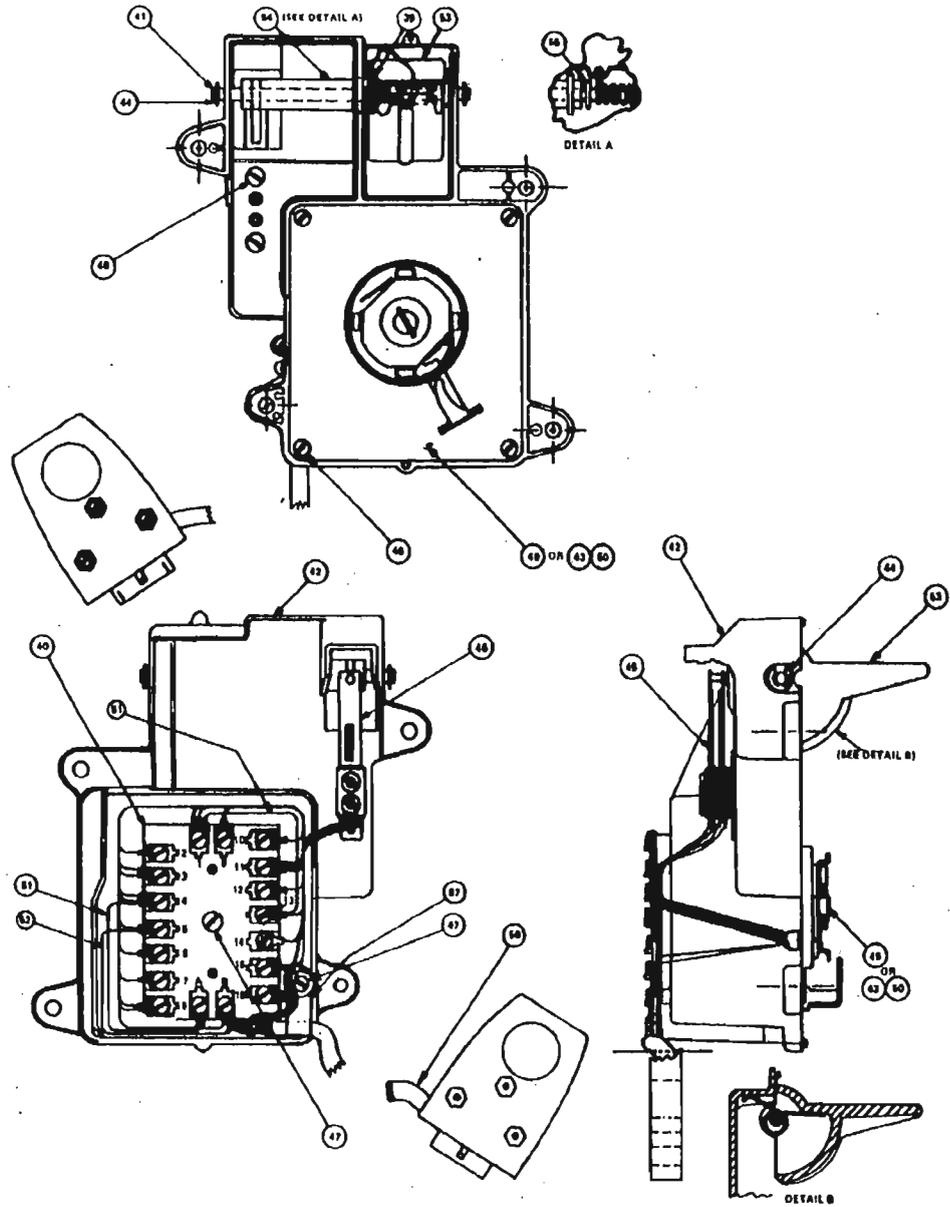


Figure 7a. Manufactured prior to 1981.

Figure 7. Hookswitch Dial Assembly Rotary Dial (HD-500003-C) OR -D(TCU).

ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANT.
		ROT	T/C		
38	SUPPORT SPACER	X	X	P-11984	2
39	CAM SPRING	X	X	HD-110004-B	1
40	TERMINAL BOARD ASSEMBLY	X	X	HB-1054-A REPLACES HD-150004A	1
41	SHAFT, HOOKSWITCH	X	X	HD-460004-A	1
42	DIAL, HOOKSWITCH HOUSING	X	X	HD-480014-A	1
43	TCU COVER		X	HD-480007-A	1
44	E-RING	X	X	D-65511-C	2
45	HOOKSWITCH PILE-UP ASSEMBLY	X	X	HD-735006-A	1
46	SCREW, .112-40 x .250 FHMS	X	X	D-782004-C	4
47	SCREW, .138-32 x 3/16 PSHSMS	X	X	D-782047-B	1
48	SCREW, .138-40 x 3/16 PSHSMS	X	X	D-782048-B	2
49	ROTARY DIAL ASSEMBLY	X		H-840104-A	1
50	T/C UNIT ASSEMBLY W/PLASTIC BUTTONS		X	HD-840107-A	1
51	ONE CONDUCTOR CORD ASSEMBLY	X	X	D-543069-EC (BLUE)	1
52		X		D-543069-ED (SLATE)	1
		X		D-543069-EE (PINK)	1
		X		D-543069-CF (BROWN)	1
53	METAL HOOKSWITCH LEVER	X	X	HD-320001-A	1
54	HOOKSWITCH CAM	X	X	HD-830008-A	1
55	WASHER	X	X	D-17592-A	1
56	INTERFACE CABLE ASSEMBLY	X	X	HD-540140-A	1
57	CORD CLAMP	X	X	D-731449-C	1
58	WASHER	X	X	D-17345-A	1
59	SCREW, .112-40 UNC-2A	X	X	D-782044-E	1

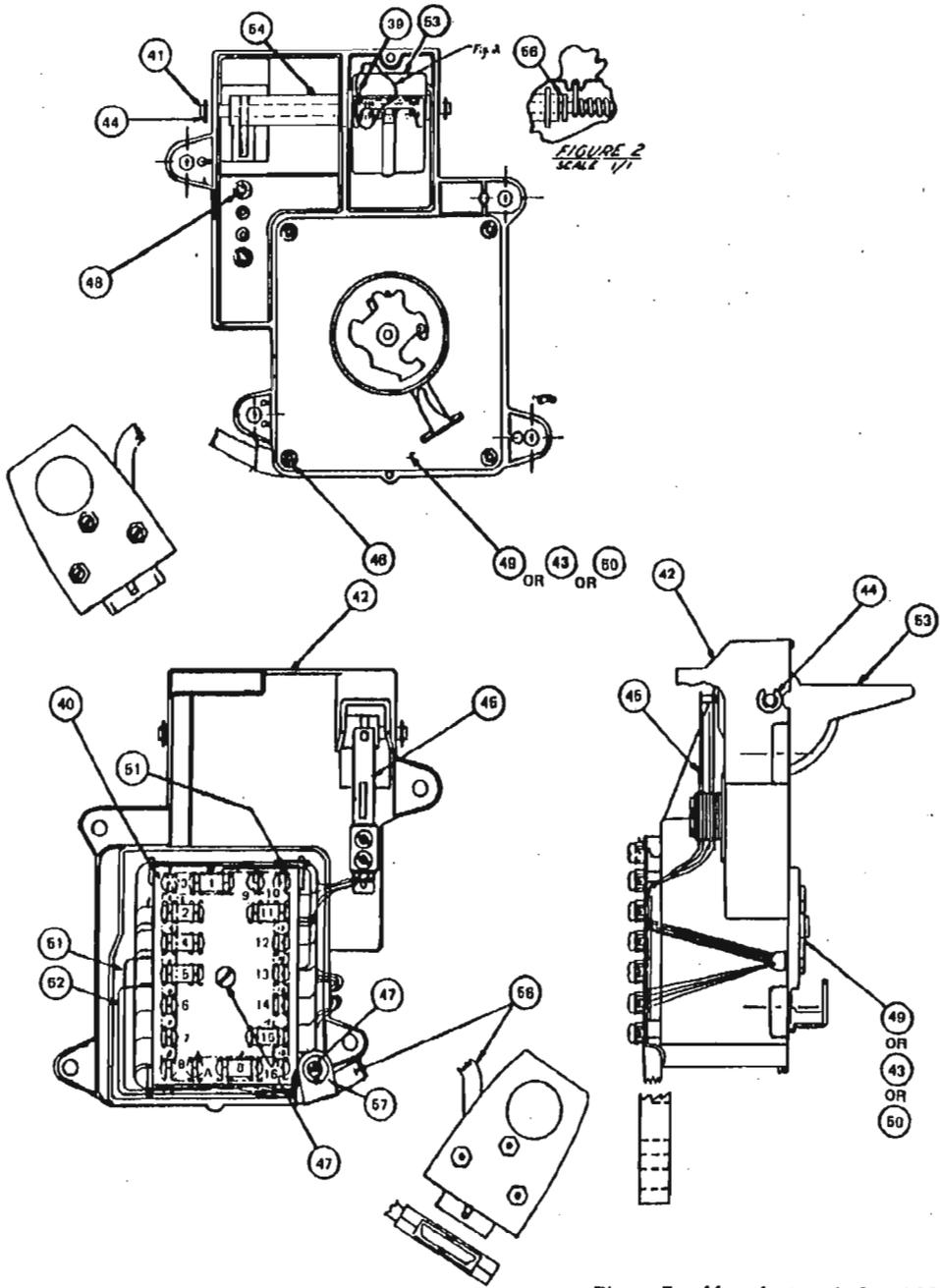


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ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
		ROT	T/C		
38	NOT APPLICABLE	—	—	—	
39	CAM SPRING	X	X	HD-110004-B	1
40	TERMINAL BOARD ASSEMBLY	X	X	HB-1054-A REPLACES HD-150004A	1
41	SHAFT, HOOKSWITCH	X	X	HD-460004-A	1
42	DIAL, HOOKSWITCH HOUSING	X	X	HD-480014-A	1
43	TCU COVER	X	X	HD-480007-A	1
44	E-RING	X	X	D-65511-C	2
45	HOOKSWITCH PILE-UP ASSEMBLY	X	X	HD-735008-A	1
46	SCREW, .112-40 x .250 FHIMS	X	X	D-782004-C	4
47	SCREW, .138-32 x 3/16 PSHSMS	X	X	D-762047-B	1
48	SCREW, .138-40 x 3/16 PSHSMS	X	X	D-782048-B	2
49	ROTARY DIAL ASSEMBLY	X		H-840104-A	1
50	T/C UNIT ASSEMBLY W/PLASTIC BUTTONS		X	HD-840107-A	1
51	ONE CONDUCTOR CORD ASSEMBLY	X	X	D-543069-EC (BLUE)	1
52	ONE CONDUCTOR CORD ASSEMBLY	X		D-543069-ED (SLATE)	1
53	METAL HOOKSWITCH LEVER	X	X	HD-320001-A	1
54	HOOKSWITCH CAM	X	X	HD-830008-A	1
55	WASHER	X	X	D-17592-A	1
56	INTERFACE CABLE ASSEMBLY	X	X	HD-540140-A	1
57	CORD CLAMP	X	X	D-731449-C	1
58	NOT APPLICABLE	—	—	—	
59	NOT APPLICABLE	—	—	—	

Figure 7b. Manufactured Between 1980 and December 1984.

Figure 7. Hookswitch Dial Assembly F Dial (HD-500003-E) or -F(TCU).



ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
		ROT	T/C		
38	NOT APPLICABLE	-	-	-	
39	CAM SPRING	X	X	HD-110004-B	1
40	TERMINAL BOARD ASSEMBLY	X	X	HB-1054-A REPLACES HD-150004A	1
41	SHAFT, HOOKSWITCH	X	X	HD-460004-A	1
42	DIAL, HOOKSWITCH HOUSING	X	X	HD-480014-A	1
43	TCU COVER		X	HD-480007-A	1
44	E-RING	X	X	D-65511-C	2
45	HOOKSWITCH PILE-UP ASSEMBLY	X	X	HD-735006-A	1
46	SCREW, .112-40 x .250 FHMS	X	X	D-767004-C	4
47	SCREW, .138-32 x 3/16 PSHSMS	X	X	D-767047-B	1
48	SCREW, .138-40 x 3/16 PSHSMS	X	X	D-767048-B	2
49	ROTARY DIAL ASSEMBLY	X		H-840104-A	1
50	T/C UNIT ASSEMBLY W/PLASTIC BUTTONS		X	HD-840107-A	1
51	ONE CONDUCTOR CORD ASSEMBLY	X	X	D-543069-EC (BLUE)	1
52	ONE CONDUCTOR CORD ASSEMBLY	X		D-543069-ED (SLATE)	1
53	METAL HOOKSWITCH LEVER	X	X	HD-320001-A	1
54	HOOKSWITCH CAM	X	X	HD-830008-A	1
55	WASHER	X	X	D-17592-A	1
56	INTERFACE CABLE ASSEMBLY	X	X	HD-540140-A	1
57	CORD CLAMP	X	X	D-731448-C	1
58	NOT APPLICABLE	-	-	-	
59	NOT APPLICABLE	-	-	-	

Figure 7c. Manufactured after 1984.

Figure 7. Hookswitch Dial Assembly Rotary Dial (HD-500003-E) or -F(TCU).

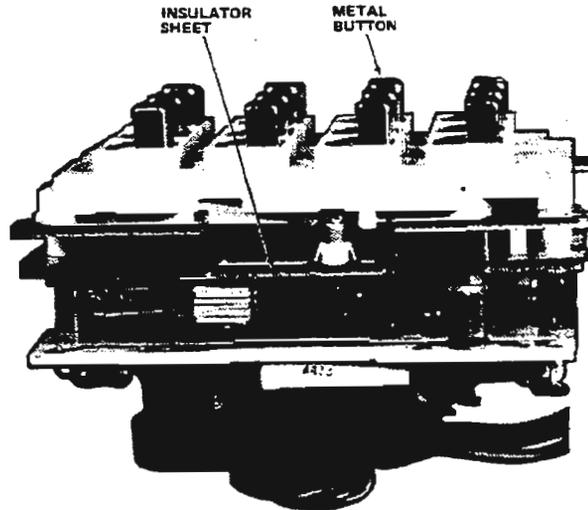


Figure 8. Metal Pushbutton LCTCU, HD-840107-C.

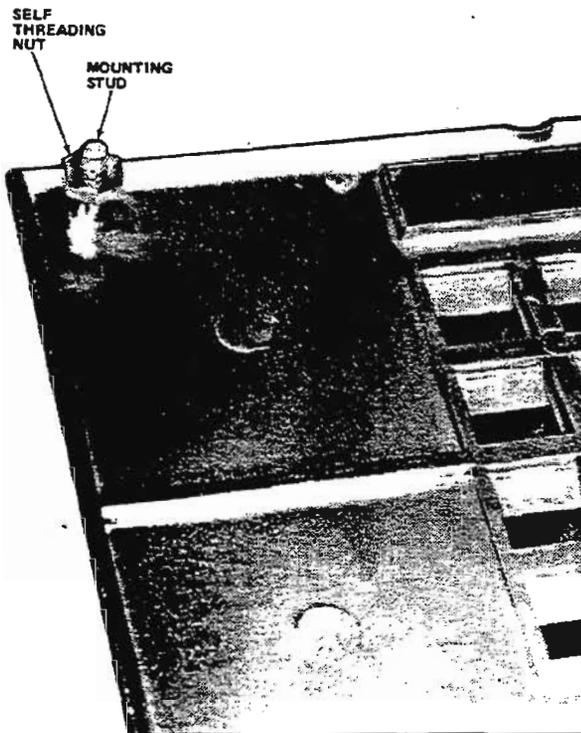
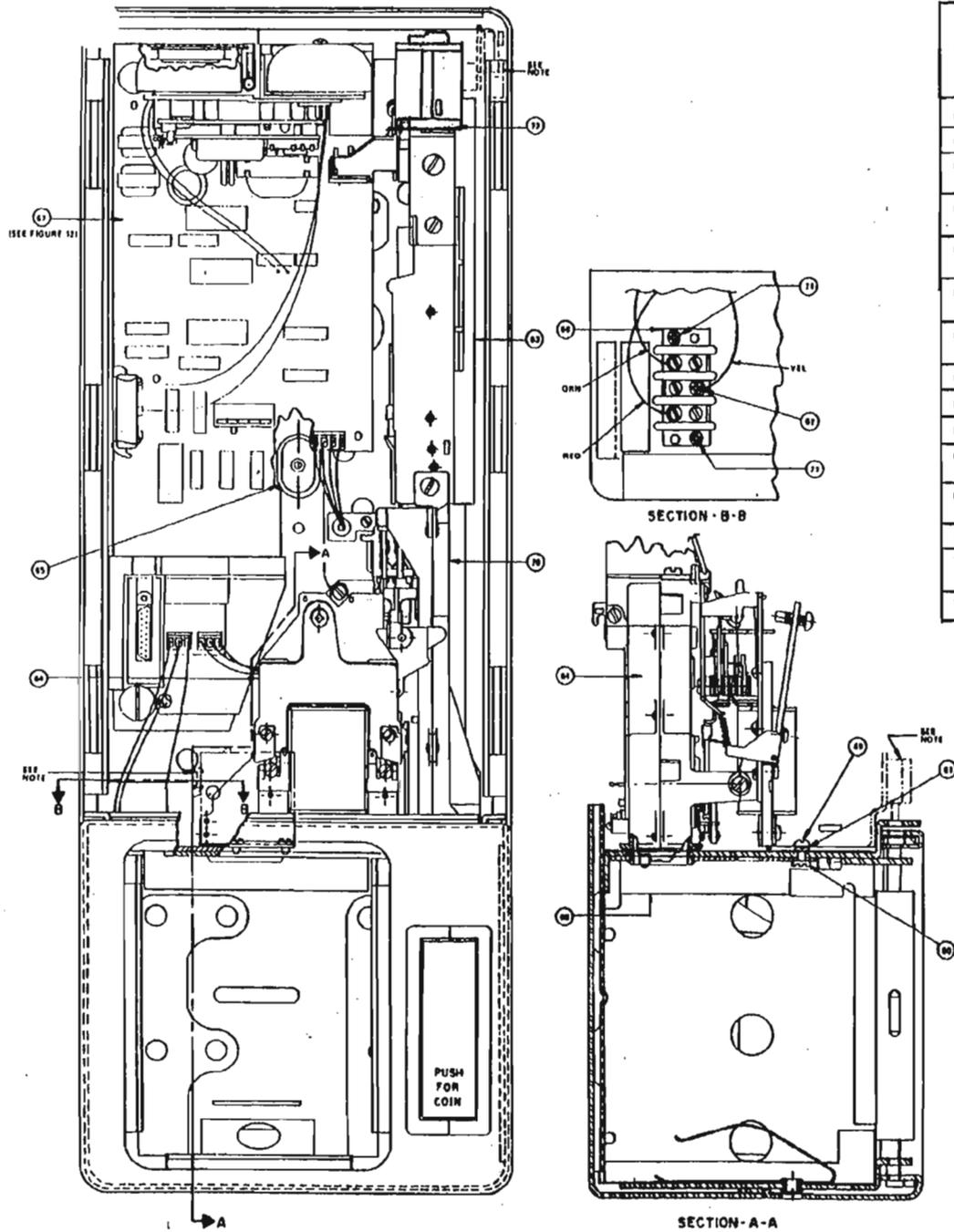


Figure 9. Touch Calling Adapter Plate.



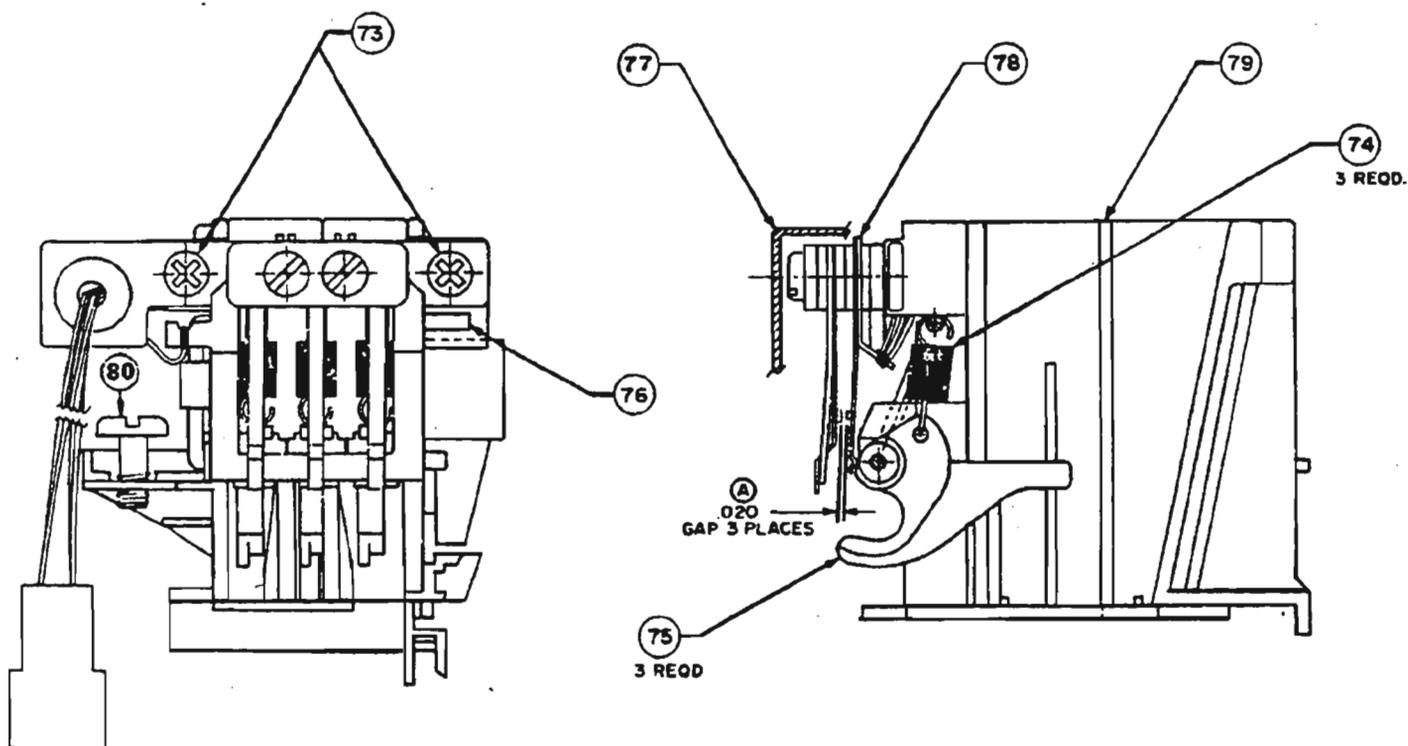
ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
		ROT	T/C		
60	SCREW, HEX HEAD, .164" - 36 x .187"	X	X	HD-760038-A	2
61	SCREW, .125" - 40 x .187", PSHSM	X	X	D-760040-B	1
62	SCREW, 5/8" THREAD ROLLING, POZ-I-DRIVE®	X	X	HD-765640-PT10	1
63	REJECTOR MOUNTING PLATE ASSEMBLY	X	X	HD-500018-A	1
63	REJECTOR MOUNTING PLATE ASSEMBLY	X	X	HD-500018-C	1
63	PLASTIC REJECTOR MOUNTING PLATE ASSEMBLY	X	X	HD-500018-CP	1
64	COIN CHUTE AND HOPPER RELAY ASSEMBLY	X	X	HD-550002-C	1
65	GROMMET	X	X	HD-670000-A	1
66	RAIL ASSEMBLY	X	X	HD-731020-B	1
67	FINAL CHASSIS ASSEMBLY	X	X	HD-731095-A	1
68	LINE WIRE PLUG AND TERMINAL STRIP ASSEMBLY	X	X	HD-540171-A	1
69	MOUNTING SCREW FOR ANTI-STUFFING DEVICE	X	X	HD-760001-A	1
70	REJECT CHUTE ASSEMBLY	X	X	HD-780032-B	1
71	SCREW, 1/2" THREAD ROLLING, POZ-I-DRIVE®	X	X	HD-765640-PT08	1
72	REJECTOR MOUNTING NUT	X	X	HD-770025-A	1

® REGISTERED TRADEMARK OF PHILLIPS SCREW COMPANY

Figure 10. Lower Housing Assembly, HD-480052.

SECTION 997-260-810  
 ISSUE 3

ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
		ROT	T/C		
73	SCREW, MACHINE, PAN HEAD .112 -40 x .187 LG.	X	X	HD-765400-PP06	2
74	TRIGGER RETURN SPRING	X	X	HD-110007-A	3
75	TRIGGER	X	X	HD-160007-A	3
76	SPRING SUPPORT ROD	X	X	HD-410000-A	1
77	CLEAR COVER (NOT SHOWN)	X	X	HD-490012-B	1
78	TRIGGER SWITCH PILE-UP ASSEMBLY	X	X	HD-735005-A	1
79	COIN CHUTE ASSEMBLY	X	X	HD-780193-A	1
80	CAPTIVE SCREW, .164 -32 x .375	X	X	D-760823-A	1



ABOVE VIEW SHOWN WITH PART OF RIGHT SIDE OF  
 COIN CHUTE ASSY (ITEM 79) REMOVED.

Figure 11. Coin Chute and Trigger-Switch Pile-Up Assembly, HD-780034-B.

Figure 12a. Transmission Card After 1984, (Spanish Terminals).

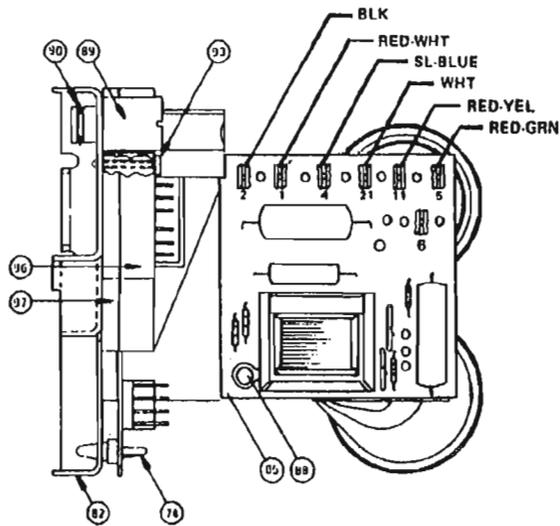
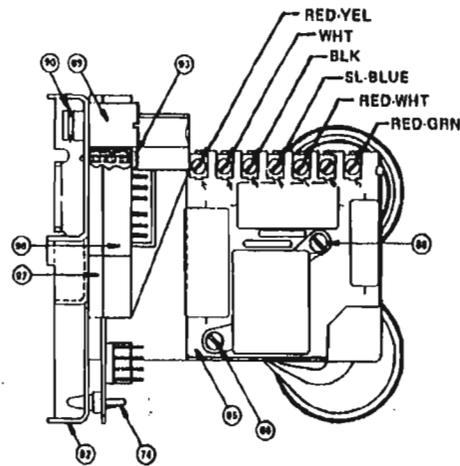


Figure 12b. Transmission Card Prior to 1985 (Screw Terminals).



ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
		FCI	T/C		
81	UNLISTED	-	-	-	-
82	CHASSIS FRAME	X	X	HD-731086-A	1
83	CARD ASSEMBLY	X	X	HB-1018-A	1
84	RINGER, TYPE 48	X	X	HD-560010-ASA	1
85	TRANSMISSION CARD ASSEMBLY	X	X	HB-1053-A	1
86	SUPPORT BRACKET	X	X	P-11884-A	1
87	SCREW, RINGER MOUNTING	X	X	HD-765832-PT12	1
88	SCREW, TRANSMISSION CARD MOUNTING	X	X	HD-765640-PT07	2
89	NUT, CHASSIS MOUNTING	X	X	HD-770078-A	1
90	NUT, E-RING MOUNTING	X	X	HD-850005-G	1
91	CAPACITOR ASSEMBLY .33 μF	X	X	HD-680037-A	1
92	STAND OFF (CARD SUPPORT)	X	X	HD-190008-B	5
93	SCREW, GUIDE MOUNTING	X	X	HD-765632-PT13	1
94	5-HENRY CHOKE ASSEMBLY	X	X	HD-280028-A	1
95	EYELET (SE-85)	X	X	HD-560000-G	2
96	CONNECTOR GUIDE	X	X	HD-200001-A	1
97	CONNECTOR GUIDE	X	X	HD-200002-A	1
98	GUIDE BUSHING	X	X	HD-750016-A	1

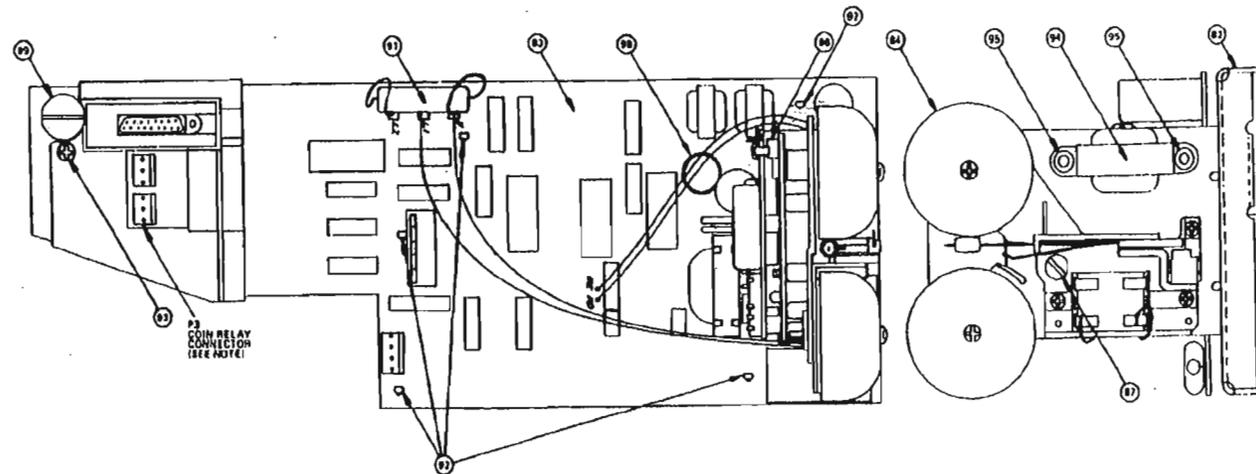


Figure 12. Chassis Assembly.

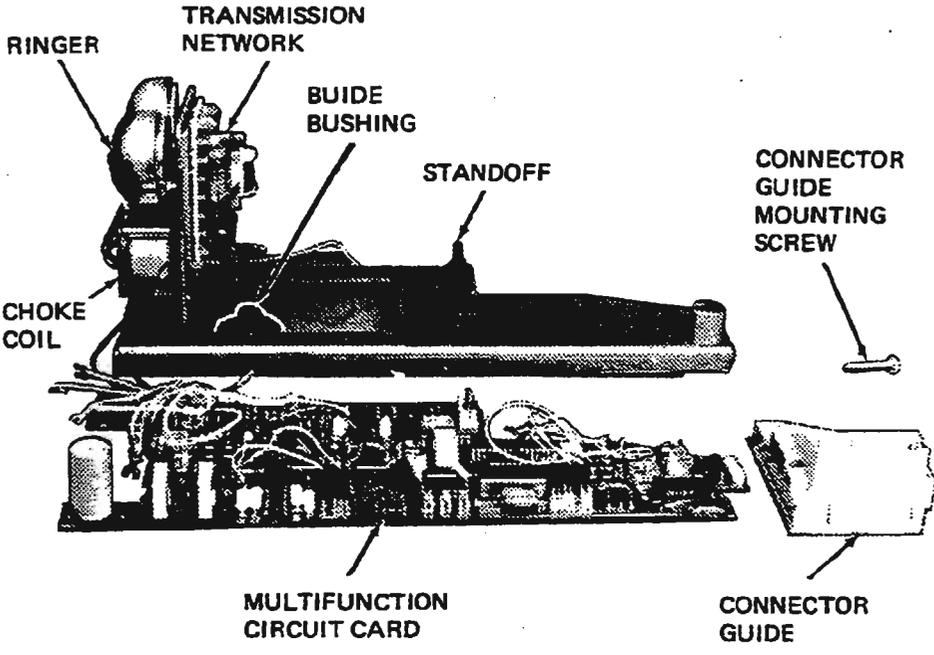


Figure 13. Chassis Assembly.

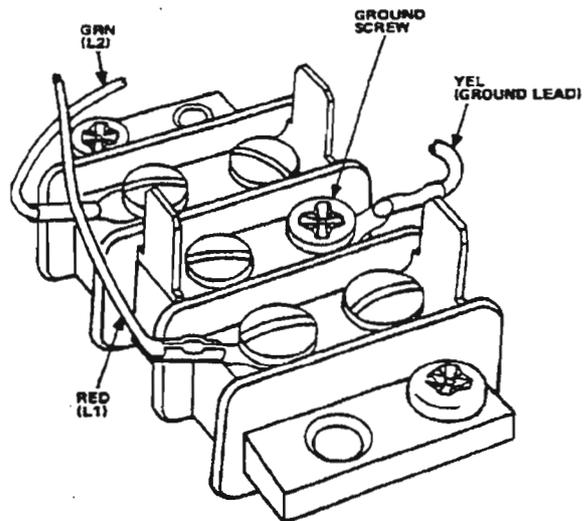


Figure 14. Terminal Strip.

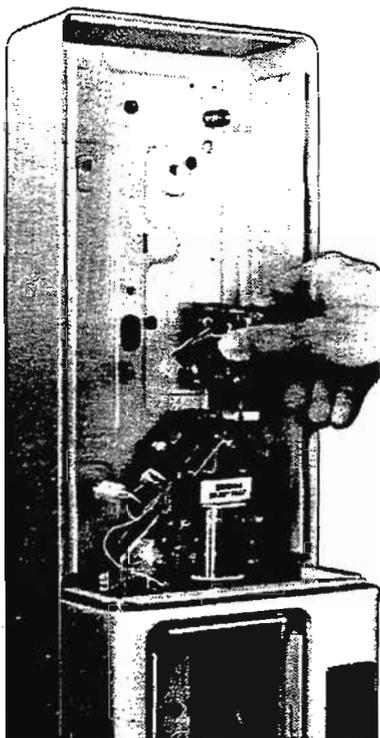


Figure 15. Coin-Chute Trigger-Switch Installation.

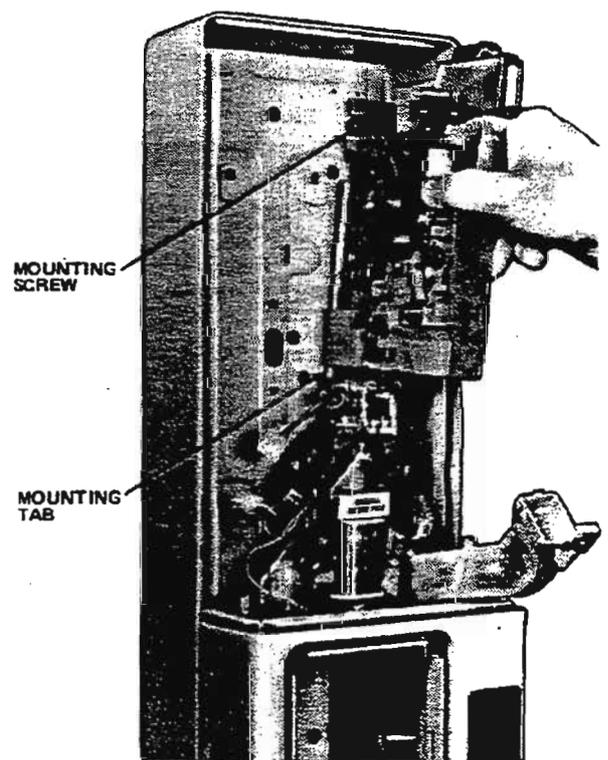
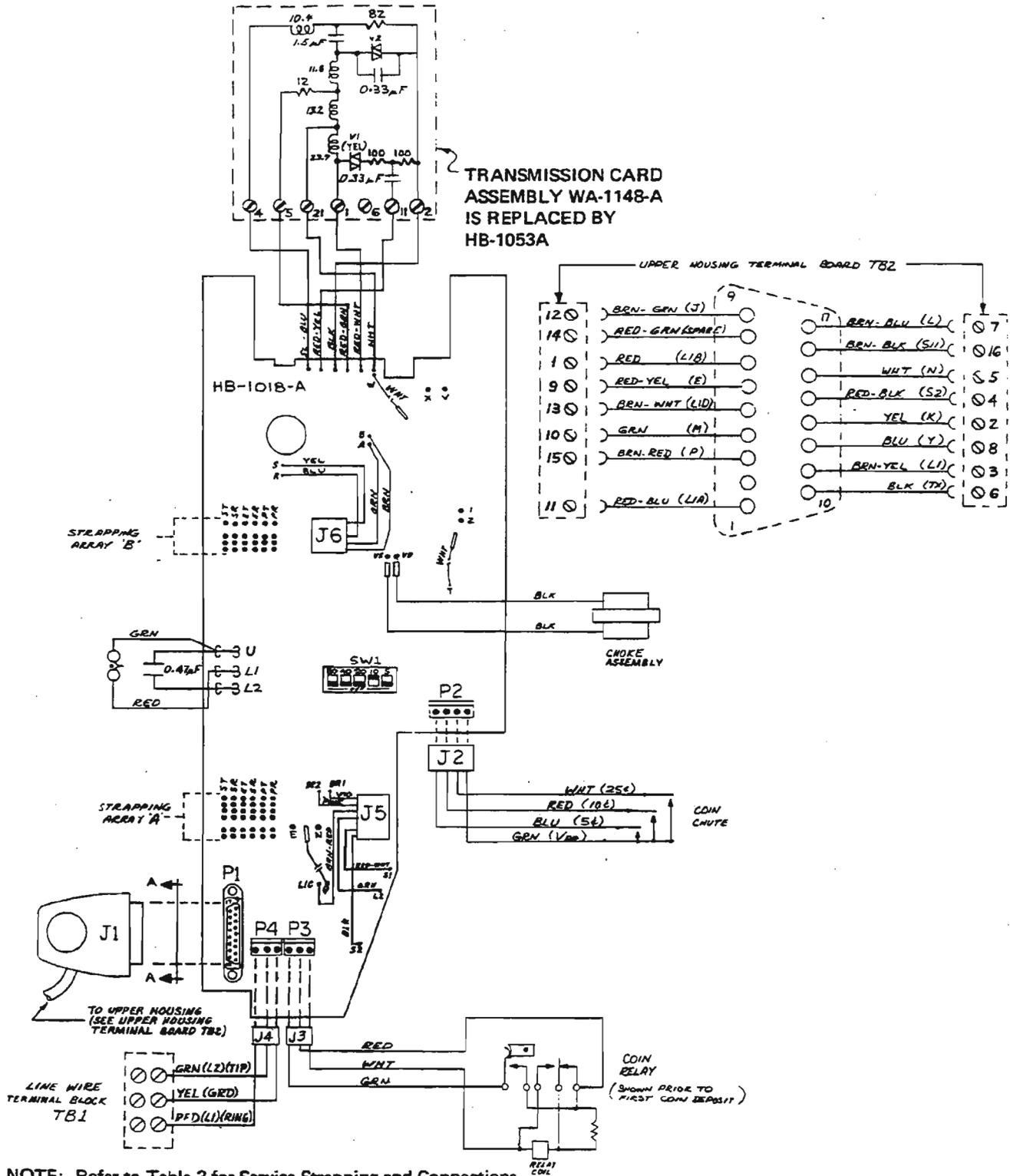
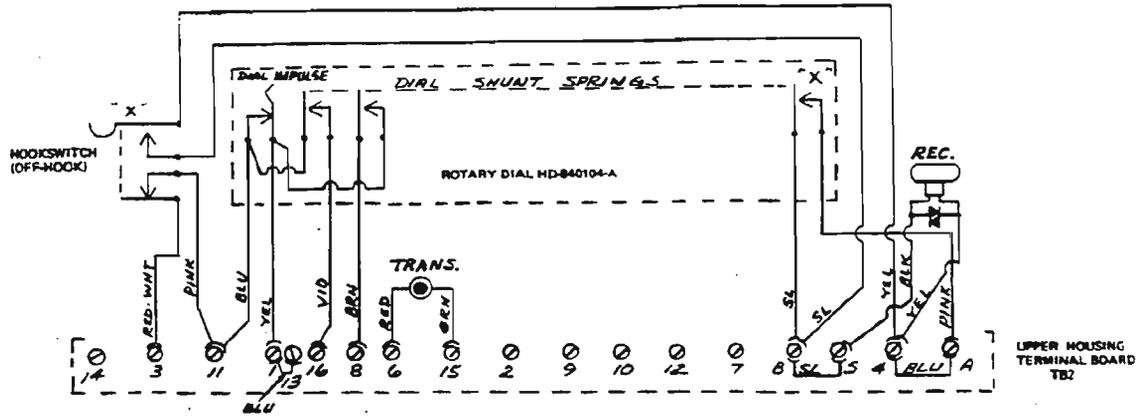


Figure 16. Rejector Mounting Plate Installation.



NOTE: Refer to Table 3 for Service Strapping and Connections.

Figure 17. Wiring Diagram of Lower Housing.



NOTE: Refer to Table 3 for Service Strapping and Connections.

Figure 18a. Rotary Dial.

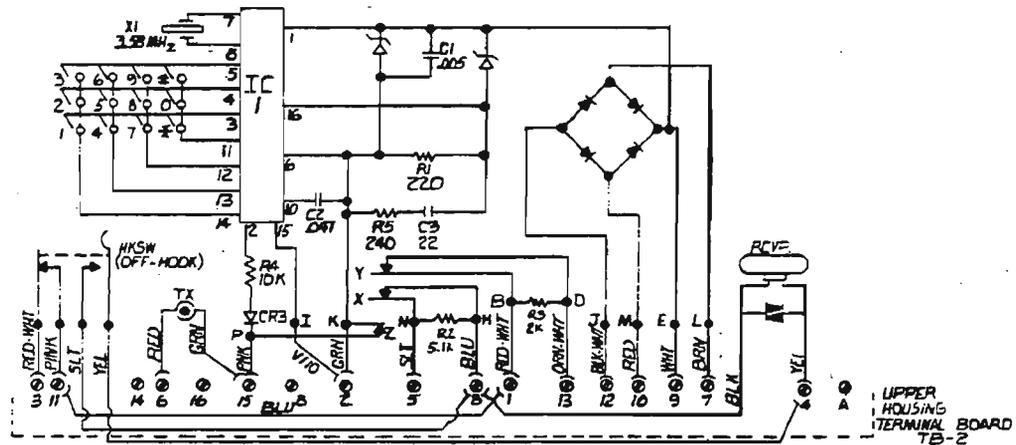
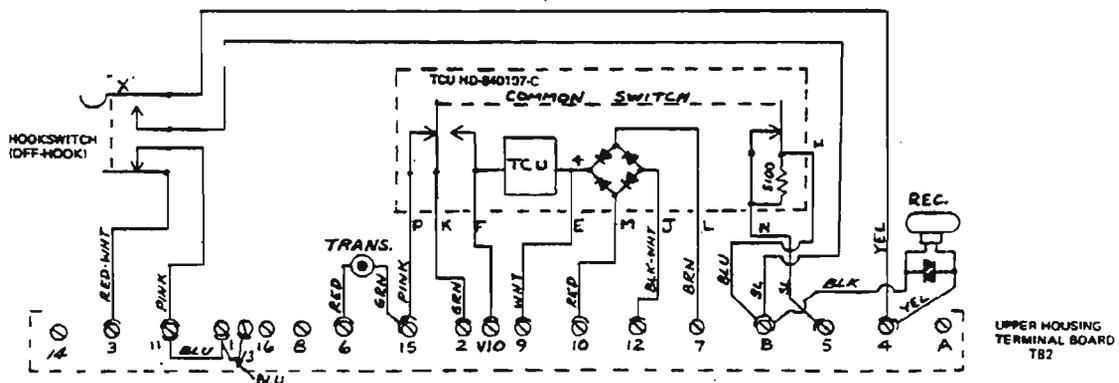


Figure 18b. ICTCU.



NOTE: Refer to Table 3 for Service Strapping and Connections.

Figure 18c. LCTCU.

Figure 18. Wiring Diagram of Upper Housing.

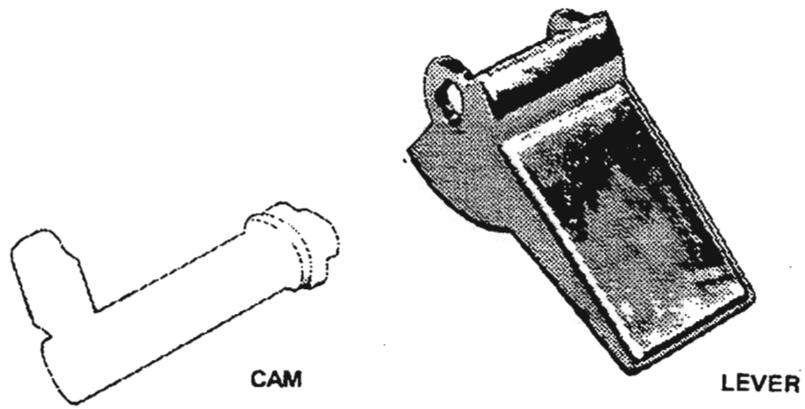


Figure 19. Hookswitch Lever and Cam.

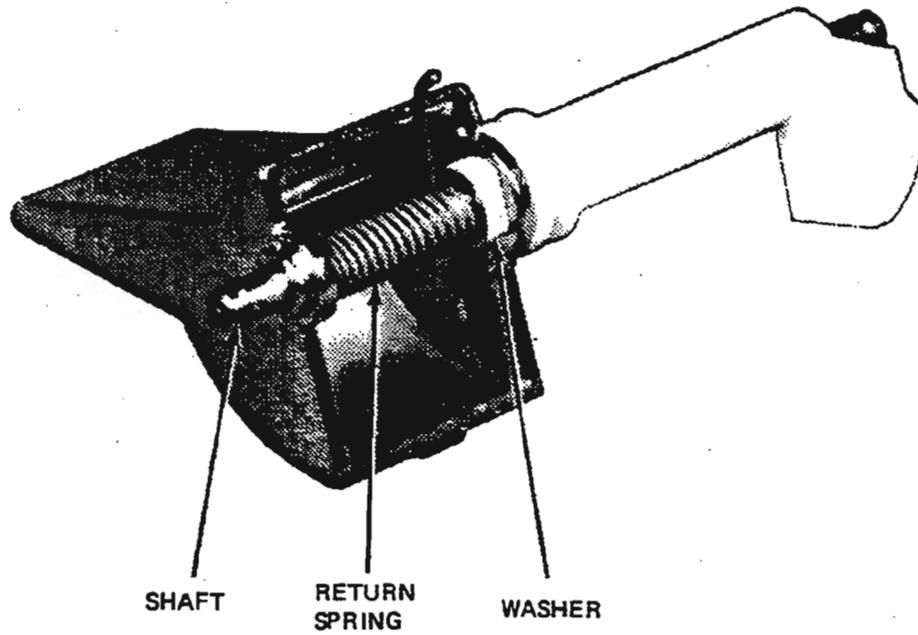


Figure 20. Hookswitch Lever and Cam with Spring and Washer.

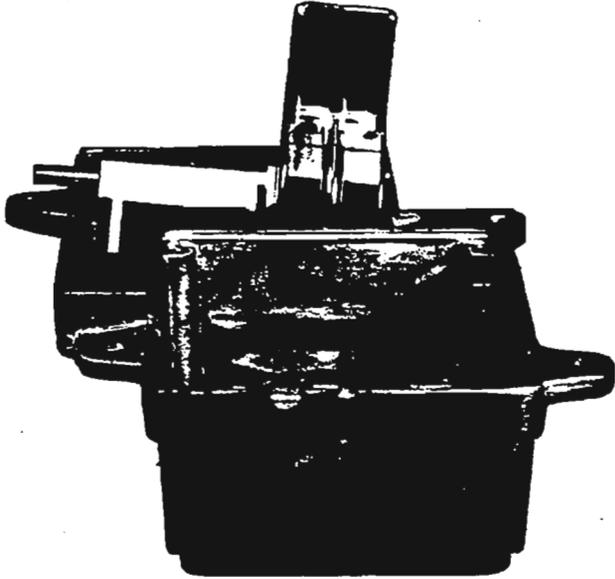


Figure 21. Hookswitch Lever and Cam Being Placed Into Hookswitch Housing.

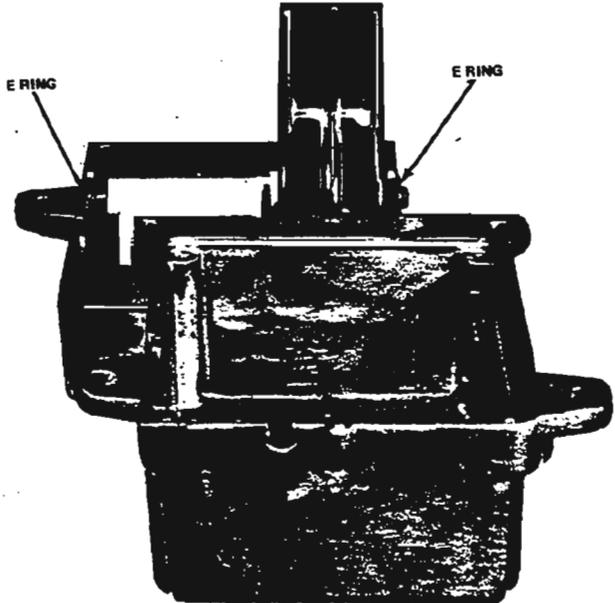


Figure 22. Hookswitch Lever and Cam Assembled.

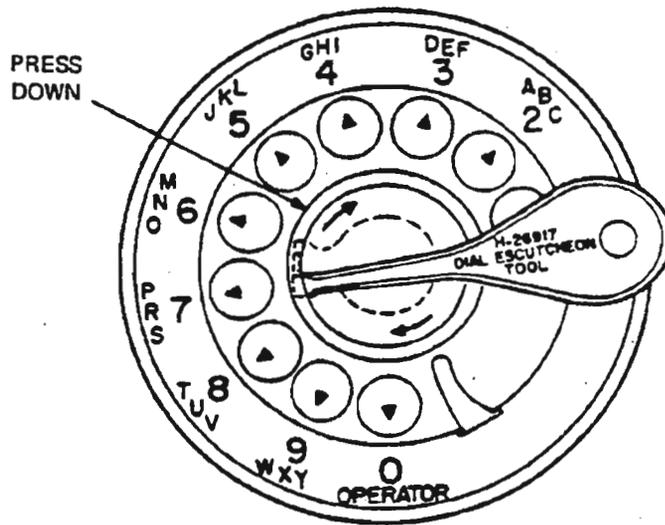


Figure 23. Fingerwheel Escutcheon Assembly.

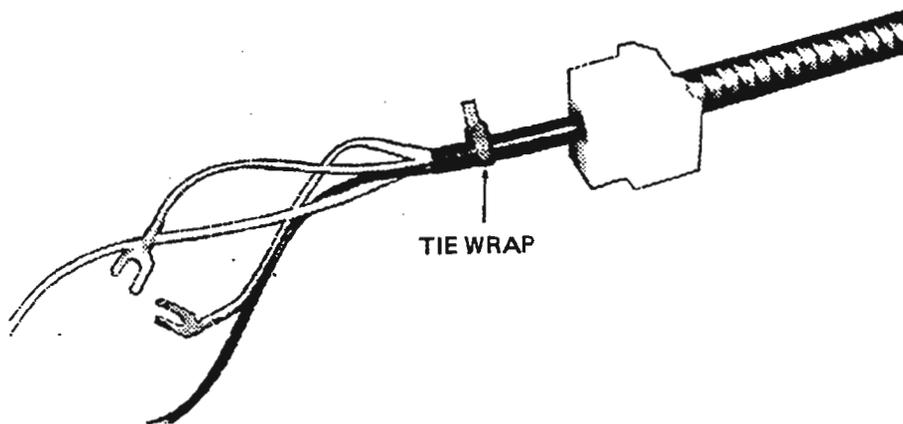


Figure 24. Strain Relief for Armored Cord.

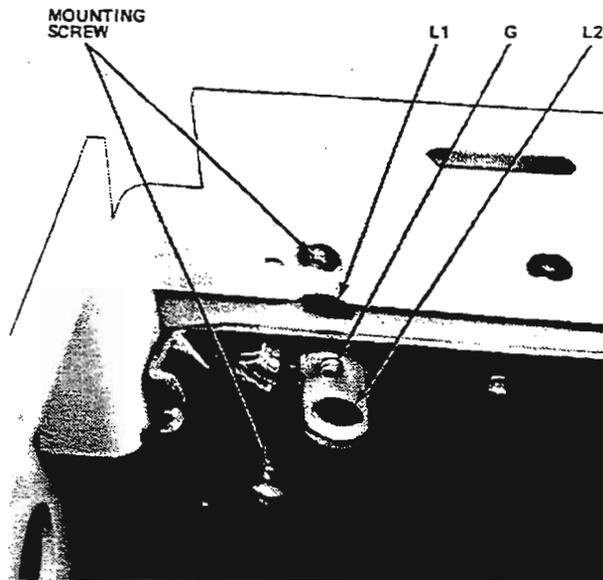


Figure 25. Testing Access.

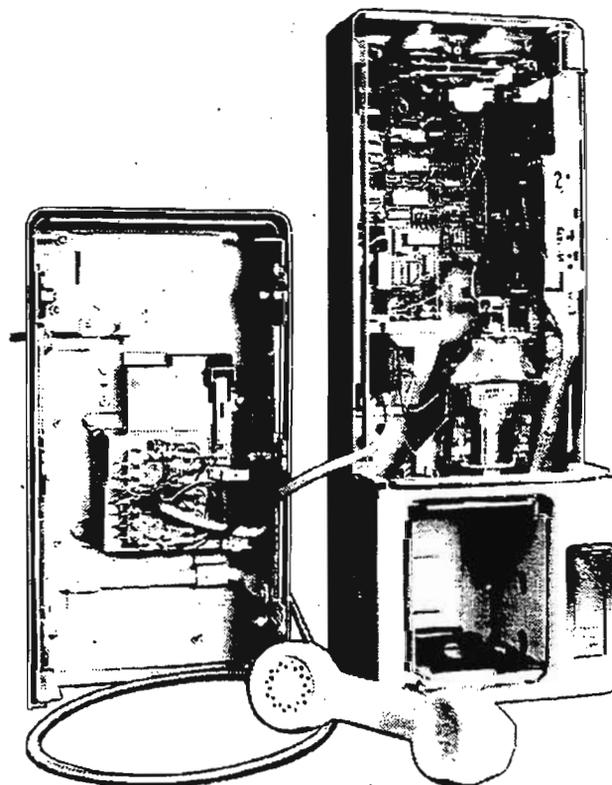


Figure 26. Upper to Lower Housing Interface Connector.

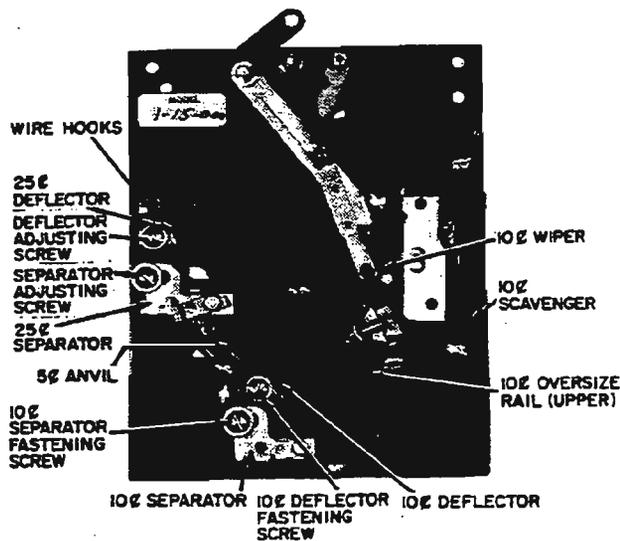
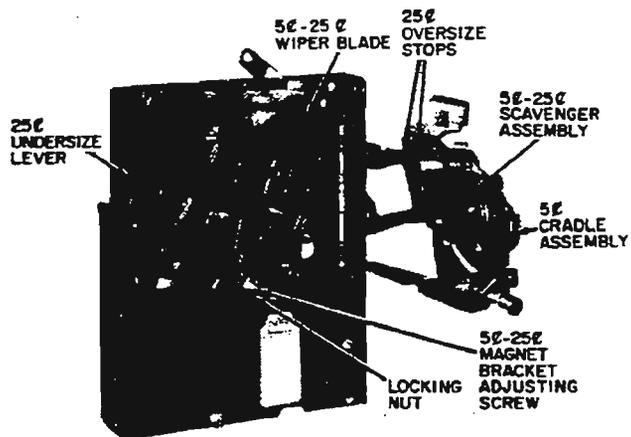


Figure 27. Acceptor/Rejector Mechanism, National Rejectors Industries, Inc.,  
Manufactured prior to 1981 (HD-500013-A).

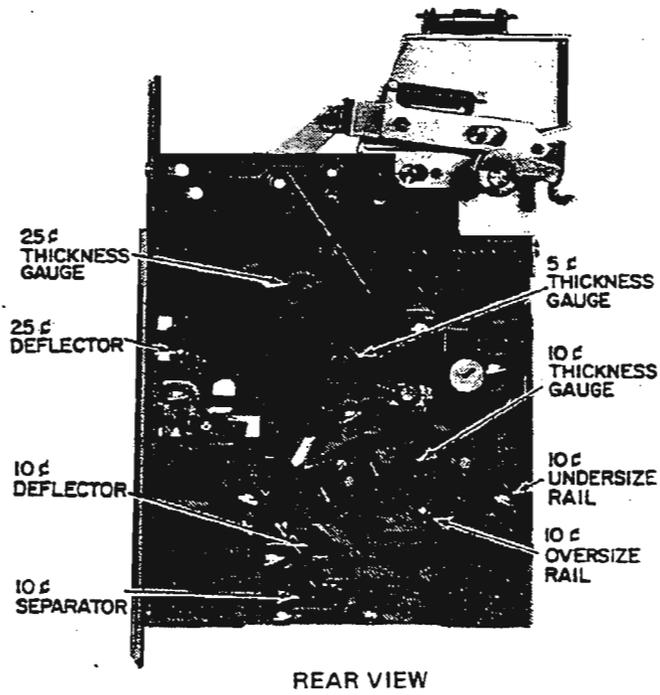


Figure 28a. Manufactured Prior to 1985.

Figure 28. Universal Coin Acceptor/Rejector Mechanism,  
Coin Acceptors, Incorporated

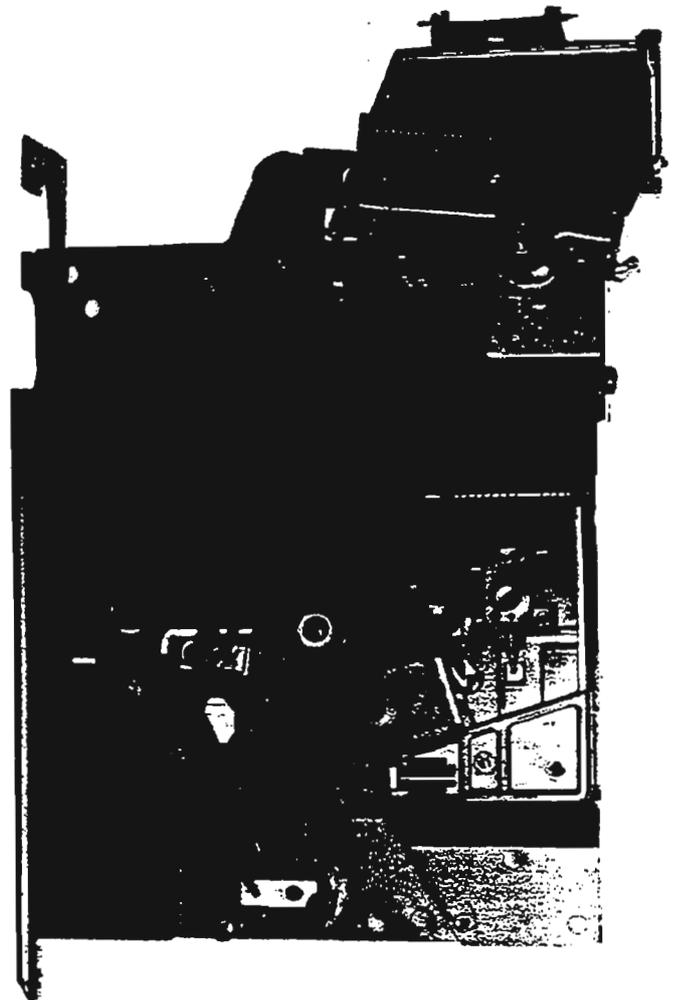
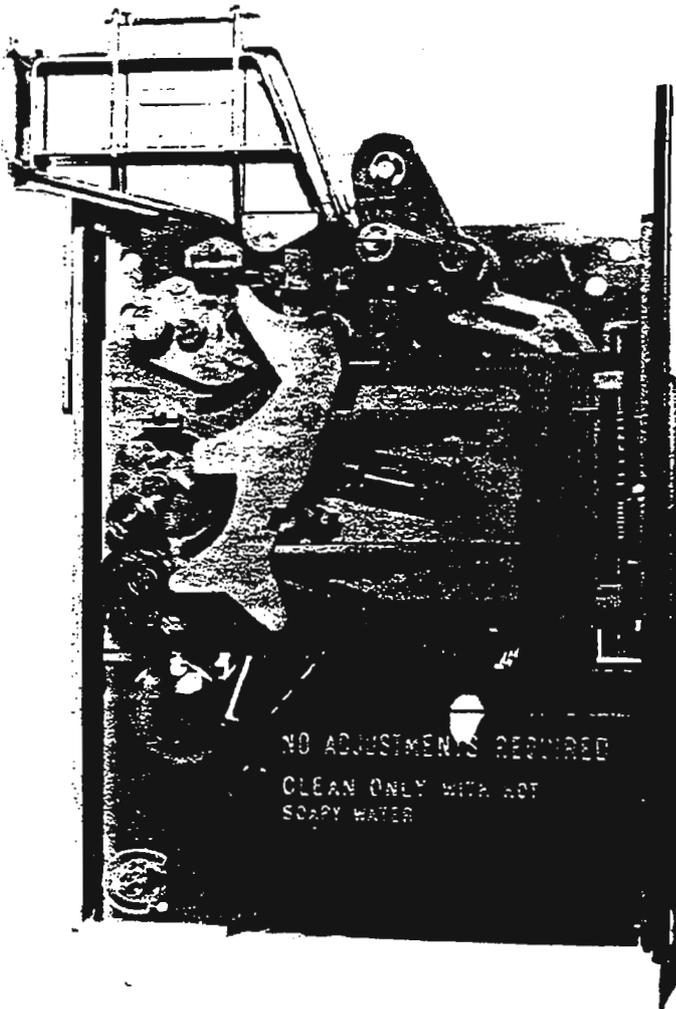
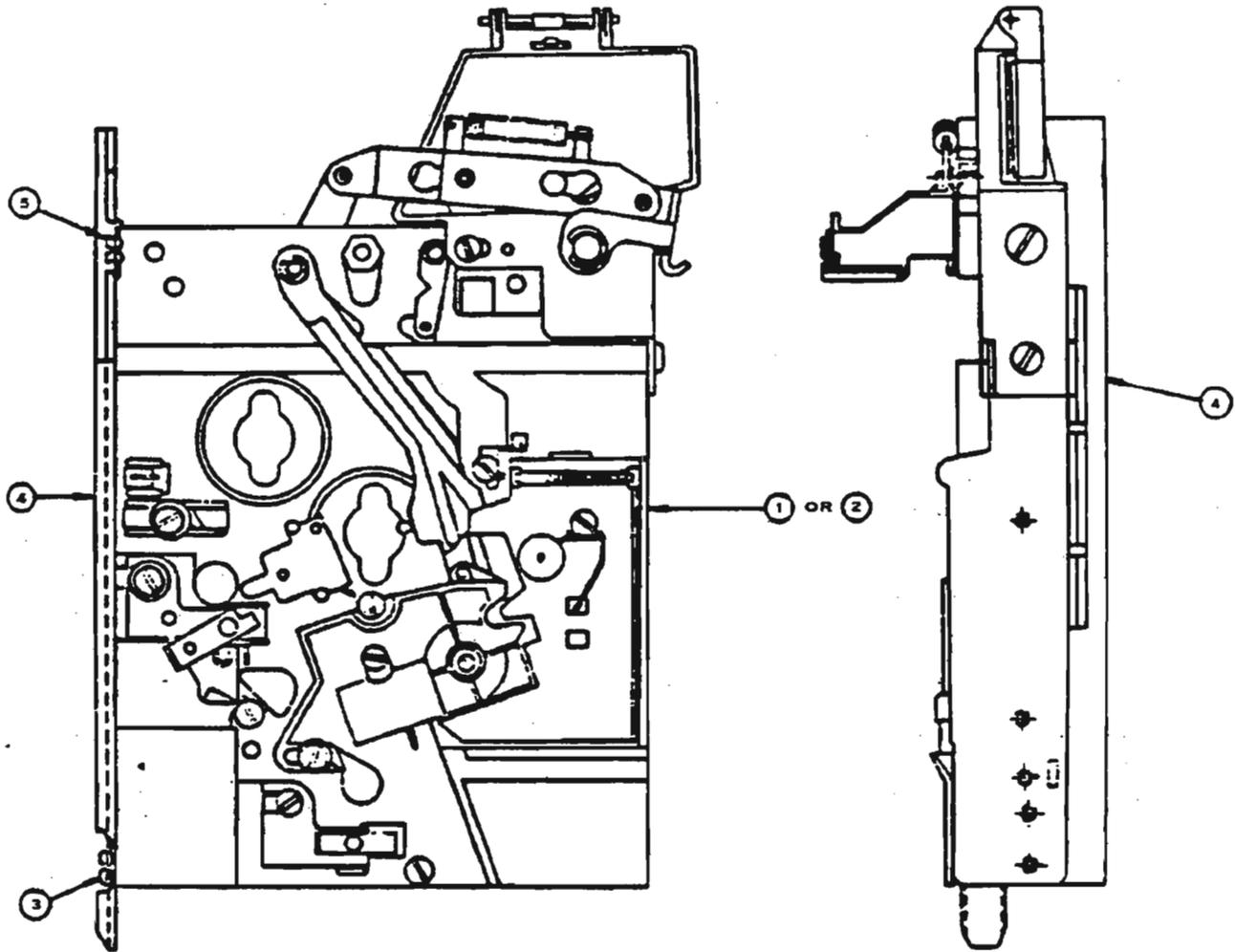


Figure 28b. Manufactured after 1984. (No adjustments necessary.)

Figure 28. Universal Coin Acceptor/Rejector Mechanism,  
Coin Acceptors, Incorporated



ITEM NO.	DESCRIPTION	REPLACEMENT PART NUMBER	QTY
1	REJECTOR ASSY, (U.S. COINAGE) (NO LONGER AVAILABLE)	-	-
2	LEAD-IN CHUTE ASSEMBLY (NO LONGER AVAILABLE)	-	-
3	SCREW, .164-32 x 3/16" PSHSM	D-761056-A	1
4	MOUNTING PLATE	HD-780135-A	1
5	MOUNTING SCREW	HD-764017-A	1

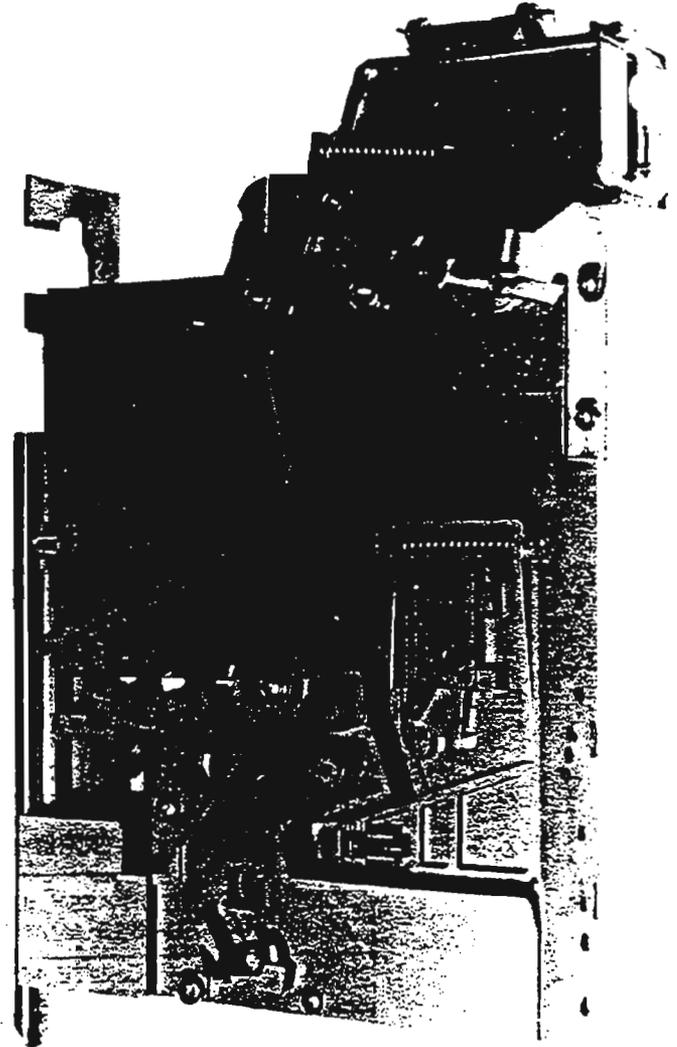
Figure 29a. Manufactured prior to 1985.

Figure 29. Coin Rejector and Plate Assembly

ITEM NO.	DESCRIPTION	REPLACEMENT PART NUMBER	QTY
1	REJECTOR ASSY., UNIVERSAL	HD-500010-CP	1
2	LEAD-IN CHUTE ASSEMBLY	HD-780216-AR	1
3	SCREW, .164-32 x 3/16" PSHSM	D-761056-A	1
4	MOUNTING PLATE	HD-780135-A	1
5	MOUNTING SCREW	HD-764017-A	1



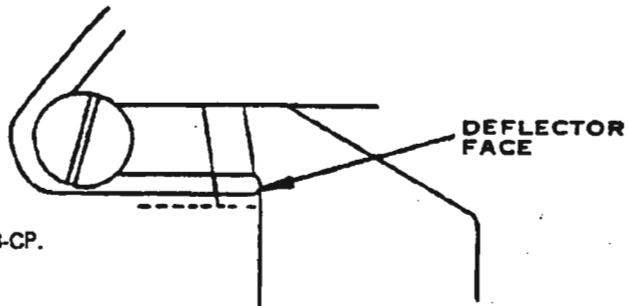
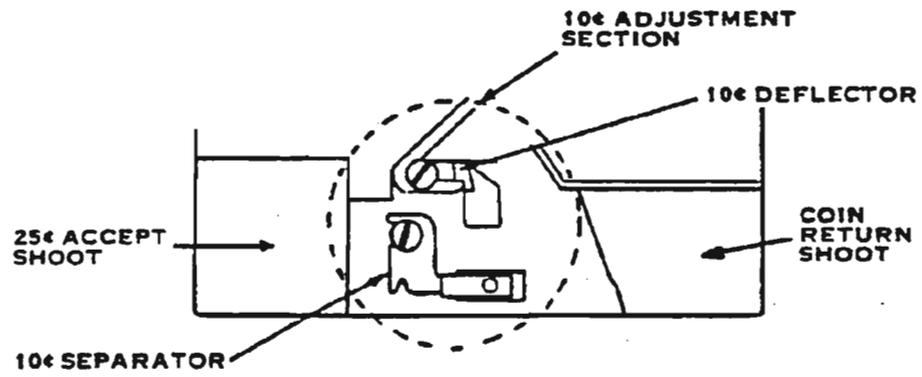
SIDE VIEW



REAR VIEW

Figure 29b. Manufactured after 1984.

Figure 29. Coin Rejector and Plate Assembly (HD-500018-CP).



NOTE: Do not adjust Model HD-500018-CP.  
Send back to manufacturer.

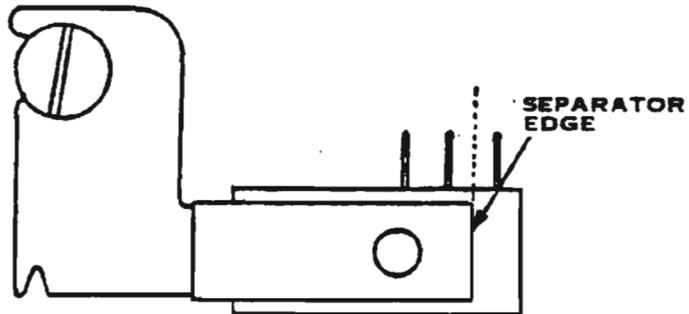
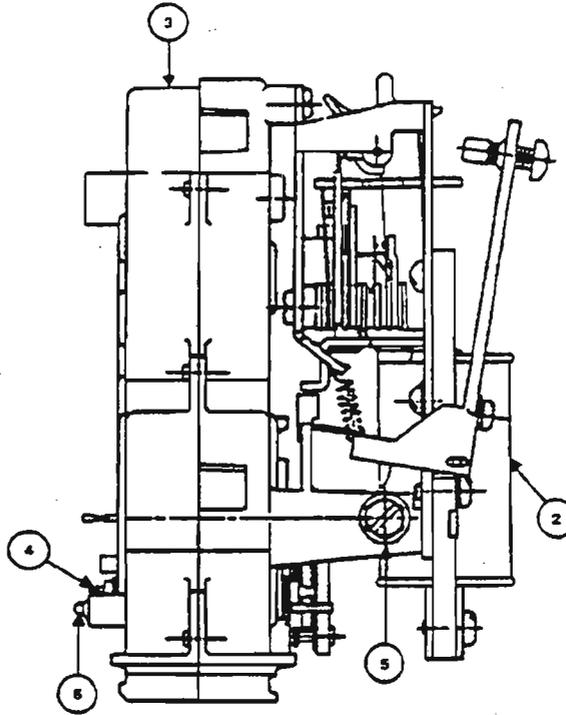
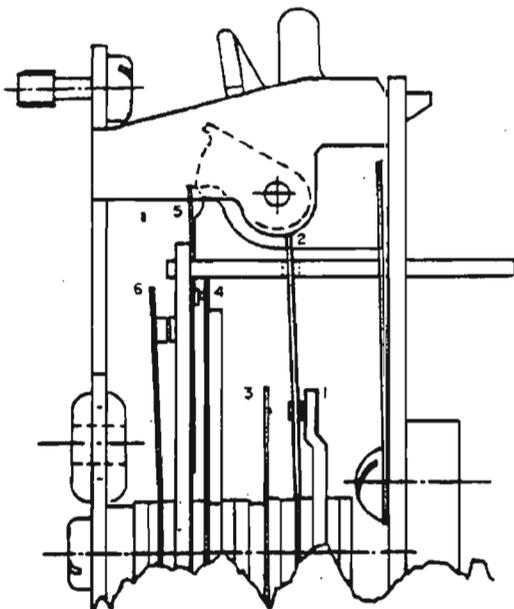


Figure 30. Rejector Adjustment. (Only applies to rejectors manufactured prior to 1981).



ITEM NO.	DESCRIPTION	EQUIPPED		REPLACEMENT PART NUMBER	QUANTITY
		ROT	T/C		
1	COVER (Not Shown)	X	X	HD-490011-A	1
2	COIN RELAY ASSEMBLY	X	X	HD-550001-BR	1
3	HOPPER ASSEMBLY	X	X	HD-780044-CR	1
4	LATCH RETURN SPRING	X	X	HD-110037-A	1
5	RELAY MOUNTING SCREW	X	X	D-762051-C	2
6	PUSH NUT	X	X	HD-770023-A	1
7	SEMI POST PAY LOCK-UP SCREW (Not Shown)	X	X	D-762044-A	1

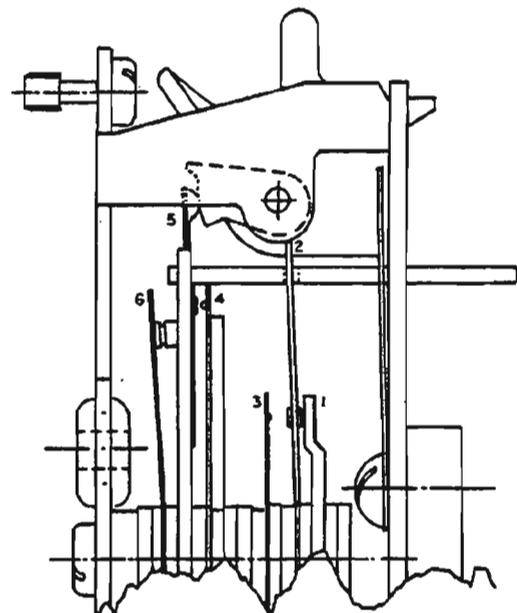
Figure 31. Coin Relay and Hopper Assembly, HD-550000-CR.



CONTACT SPRINGS	CONTACT SEPARATION (IN'S)	MIN. CONT. PRESSURE (GRAMS)
1 & 2	0	8*
2 & 3	.010-.014	-
4 & 5	0	BELOW 6 EMBOSS

\* EACH BIFURCATION

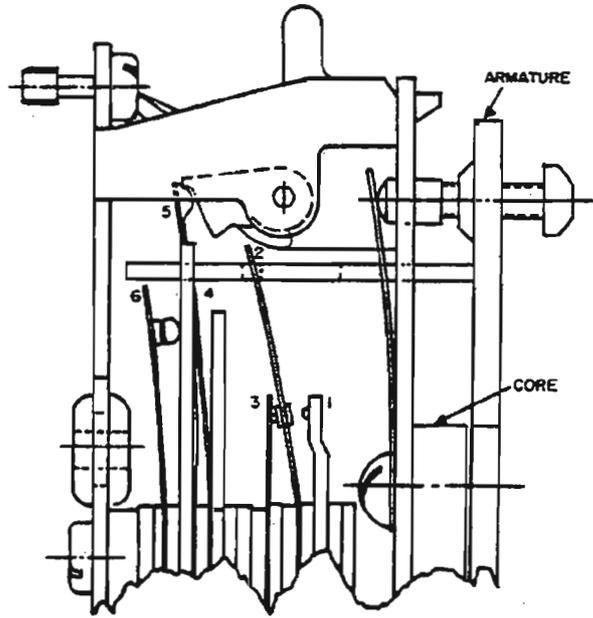
Figure 32. Coin Relay with Trigger Tripped.



CONTACT SPRINGS	CONTACT SEPARATION (IN'S)	MIN. CONT. PRESSURE (GRAMS)
1 & 2	0	8*
2 & 3	.010-.014	-
4 & 5	.020 MIN.	-

\* EACH BIFURCATION

Figure 33. Coin Relay in Unoperated Position.

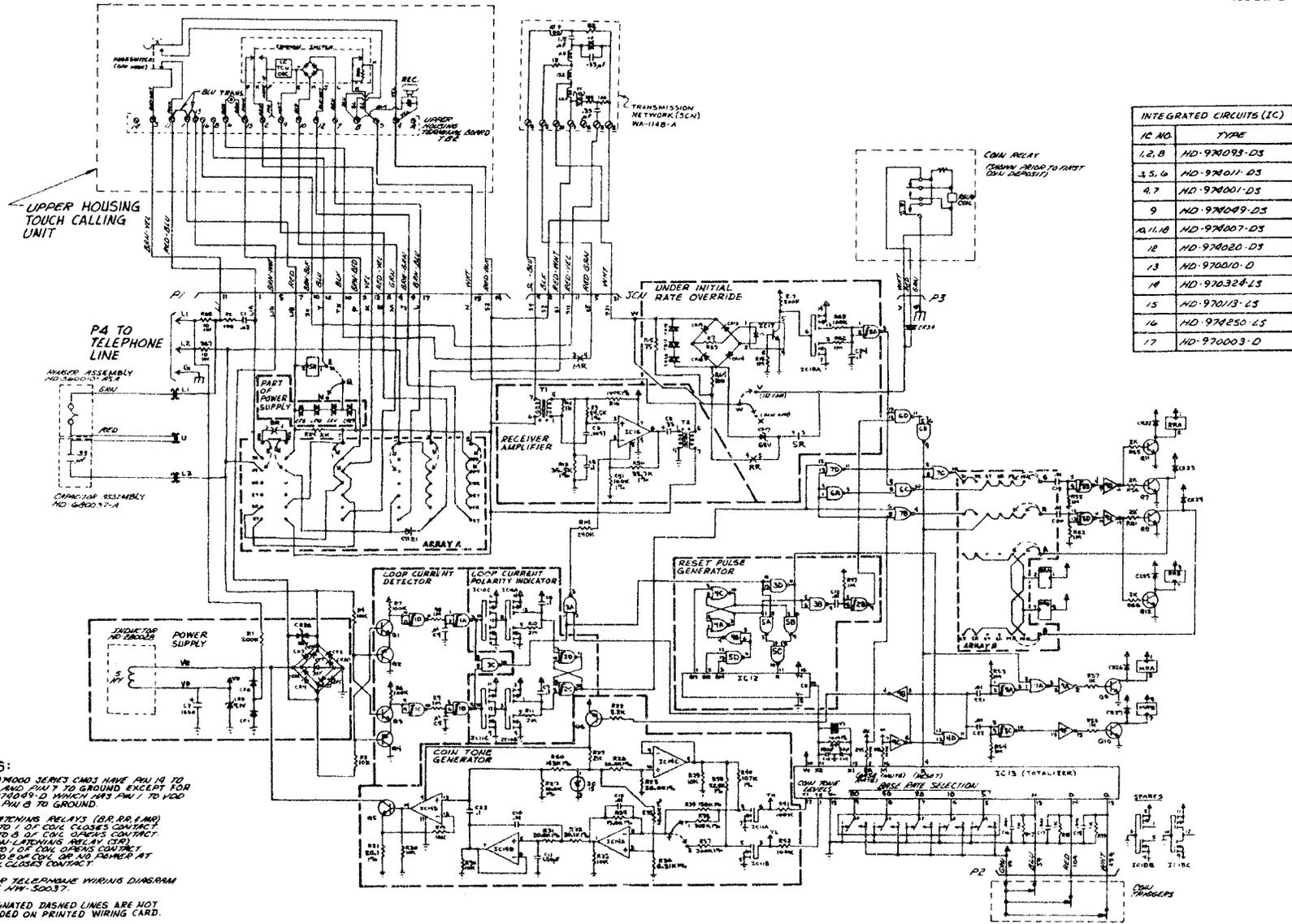


CONTACT SPRINGS	CONTACT SEPARATION (IN'S)	MIN.CONT. PRESSURE (GRAMS)
1 & 2	0.010 MIN.	-
2 & 3	0	-
4 & 5	0	-

\* EACH BIFURCATION

Figure 34. Coin Relay with Armature in Closed Position.



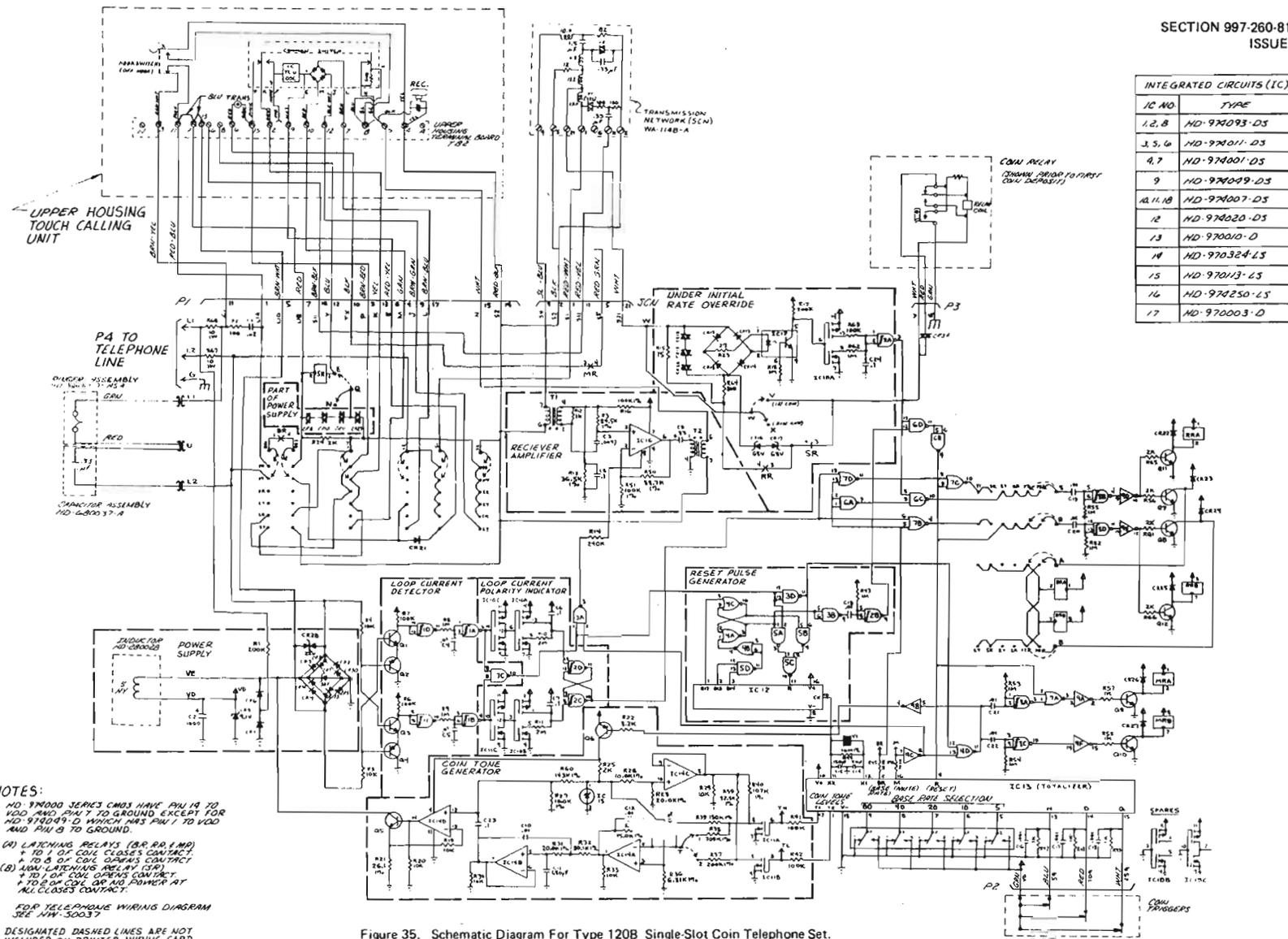


- NOTES:**
1. HD-974000 SERIES CMDS HAVE PIN 10 TO VDD AND PIN 1 TO GROUND EXCEPT FOR HD-974049-D WHICH HAS PIN 1 TO VDD AND PIN 3 TO GROUND.
  2. (A) LATCHING RELAYS (BR, RD, LMD) 1 TO 1 OF COIN CLOSURES CONTACT TO B OF COIN CLOSURES CONTACT.  
(B) LATCHING RELAY (SD) 1 TO 1 OF COIN CLOSURES CONTACT 4 TO 2 OF COIN CLOSURES CONTACT AT ALL CLOSURES CONTACT.
  3. FOR TELEPHONE WIRING DIAGRAM SEE NH-30037.
  4. DESIGNATED DASHED LINES ARE NOT INCLUDED ON PRINTED WIRING CARD.

Figure 35. Schematic Diagram for Type 120B Single-Slot Coin Telephone

Figure 35a. Touch Calling Unit.

(Legibility limited by small size and gray half-tone overlay on original. 7/6/2015 S. Kerman)



NOTES:

1. ND-970000 SERIES CMOS HAVE PIN 19 TO VDD AND PIN 7 TO GROUND EXCEPT FOR ND-974049-D WHICH HAS PIN 7 TO VDD AND PIN 9 TO GROUND.
2. (A) LATCHING RELAYS (OR RA, RMD) + TO 1 OF COIN CLOSURE CONTACT + TO 2 OF COIN OPEN CONTACT (B) NON-LATCHING RELAY (OR) + TO 1 OF COIN CLOSURE CONTACT + TO 2 OF COIN OR NO POWER AT ALL CLOSURE CONTACT
3. FDP TELEPHONE WIRING DIAGRAM SEE NW-50037
4. DESIGNATED DASHED LINES ARE NOT INCLUDED ON PRINTED WIRING CARD.

Figure 35. Schematic Diagram For Type 120B Single-Slot Coin Telephone Set.

Figure 35a. Touch Calling Unit.

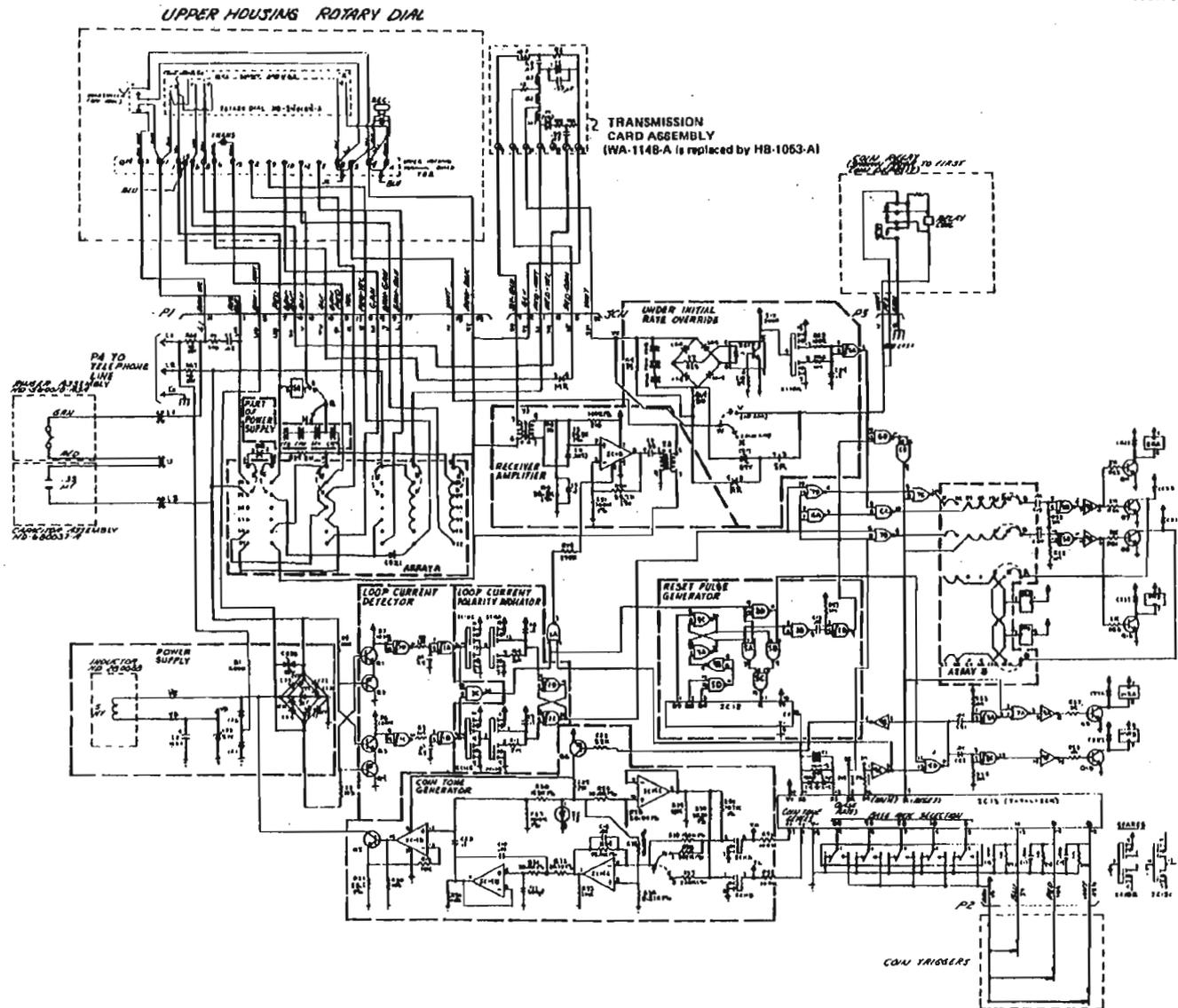


Figure 35b. Rotary Dial.  
Figure 35. Schematic Diagram for Type  
120B Single Slot Coin  
Telephone (Continued).

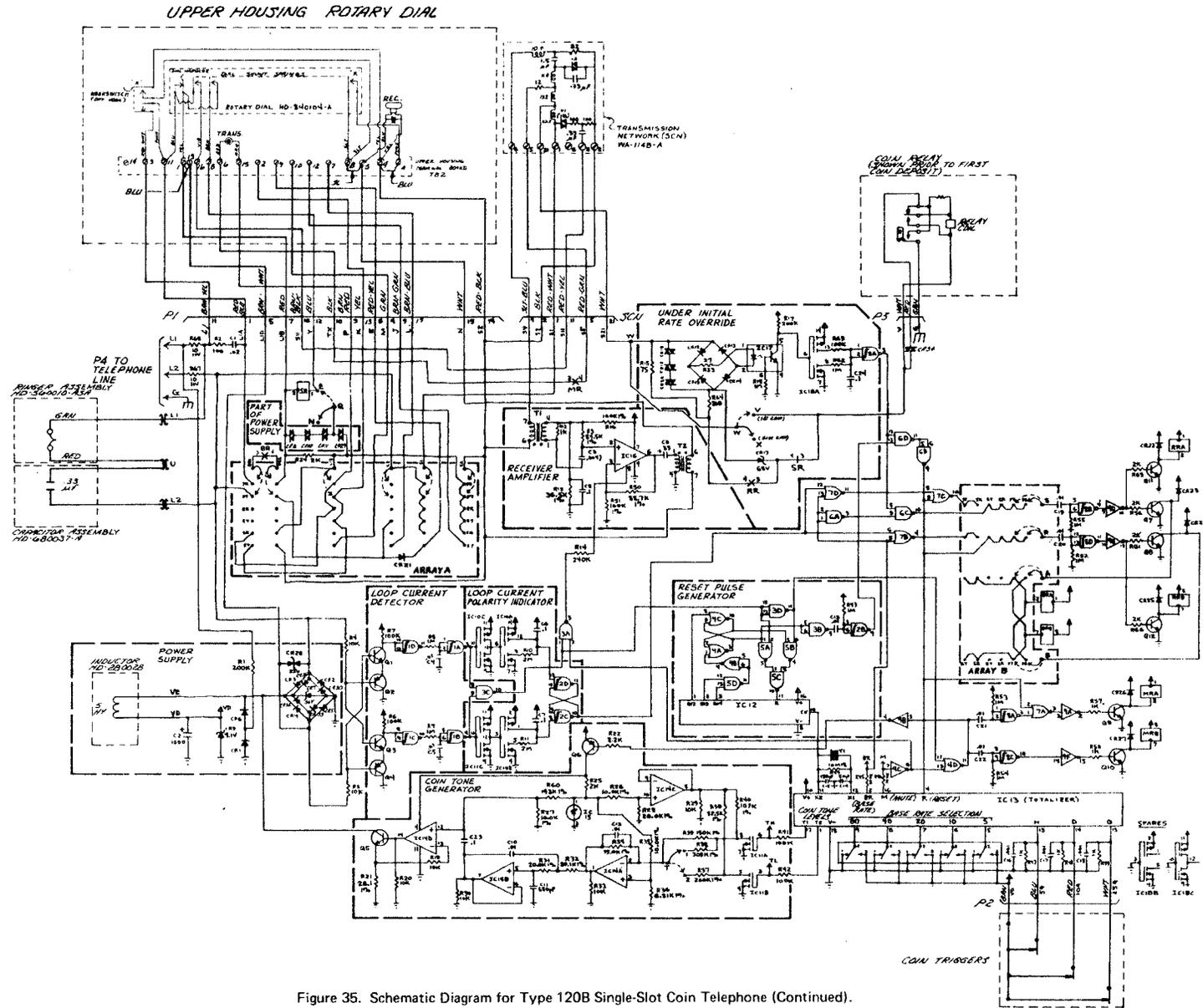


Figure 35. Schematic Diagram for Type 120B Single-Slot Coin Telephone (Continued).

Figure 35b. Rotary Dial.

(Legibility limited by small size and gray half-tone overlay on original. 7/6/2015 S. Kerman)

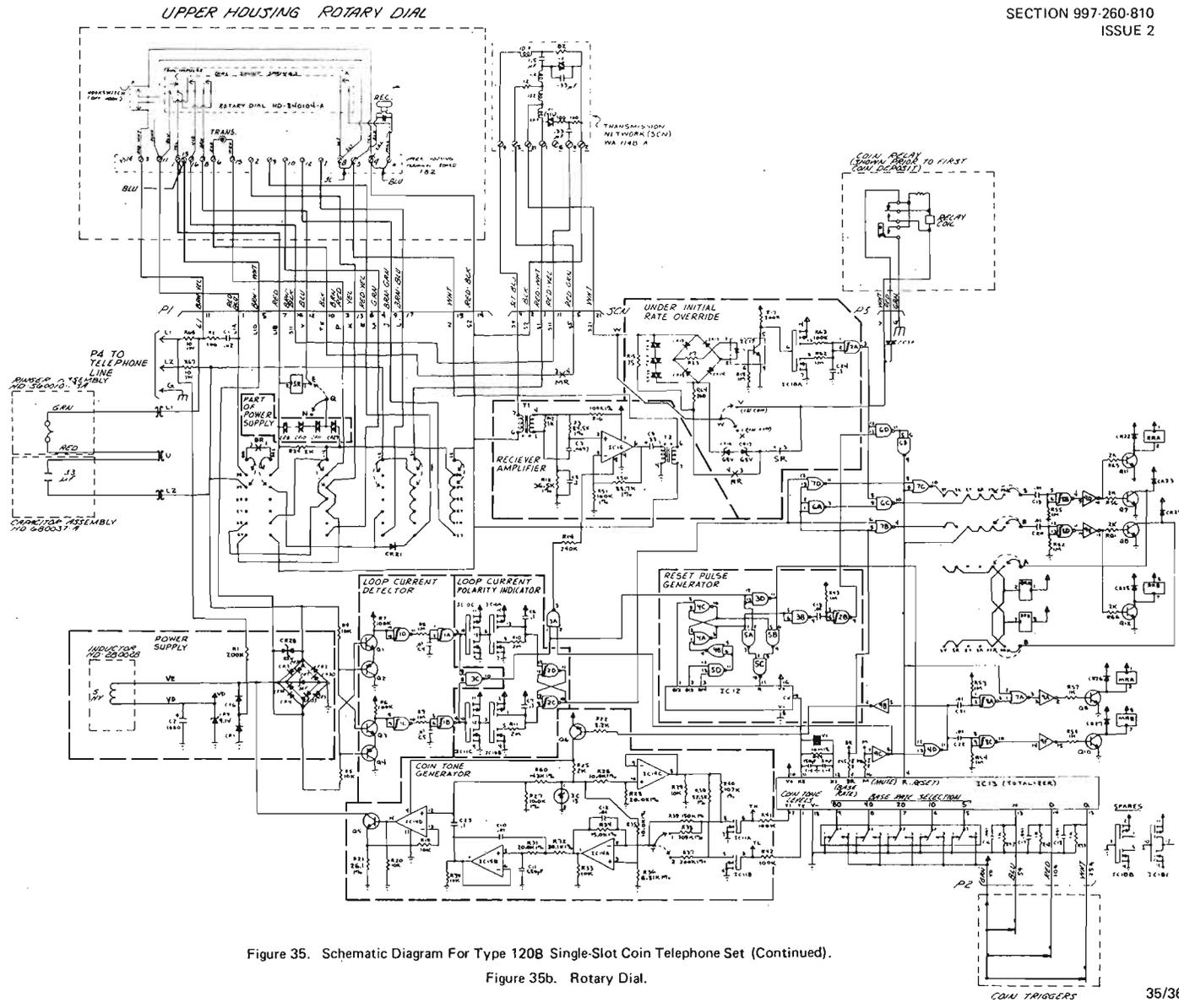


Figure 35. Schematic Diagram For Type 120B Single-Slot Coin Telephone Set (Continued).

Figure 35b. Rotary Dial.

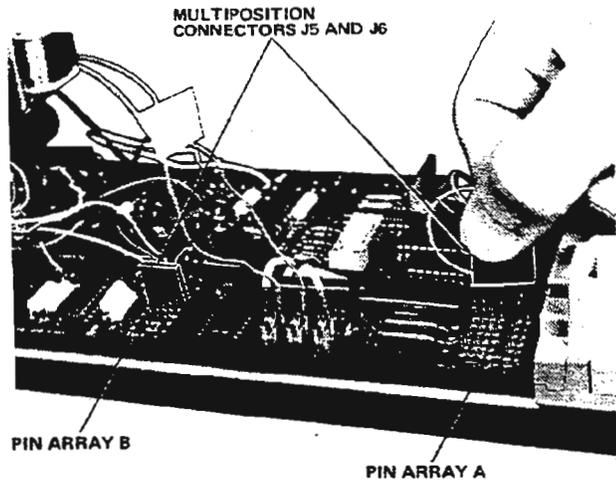


Figure 36. Service Selection.



Figure 37. Initial Rate Selection.

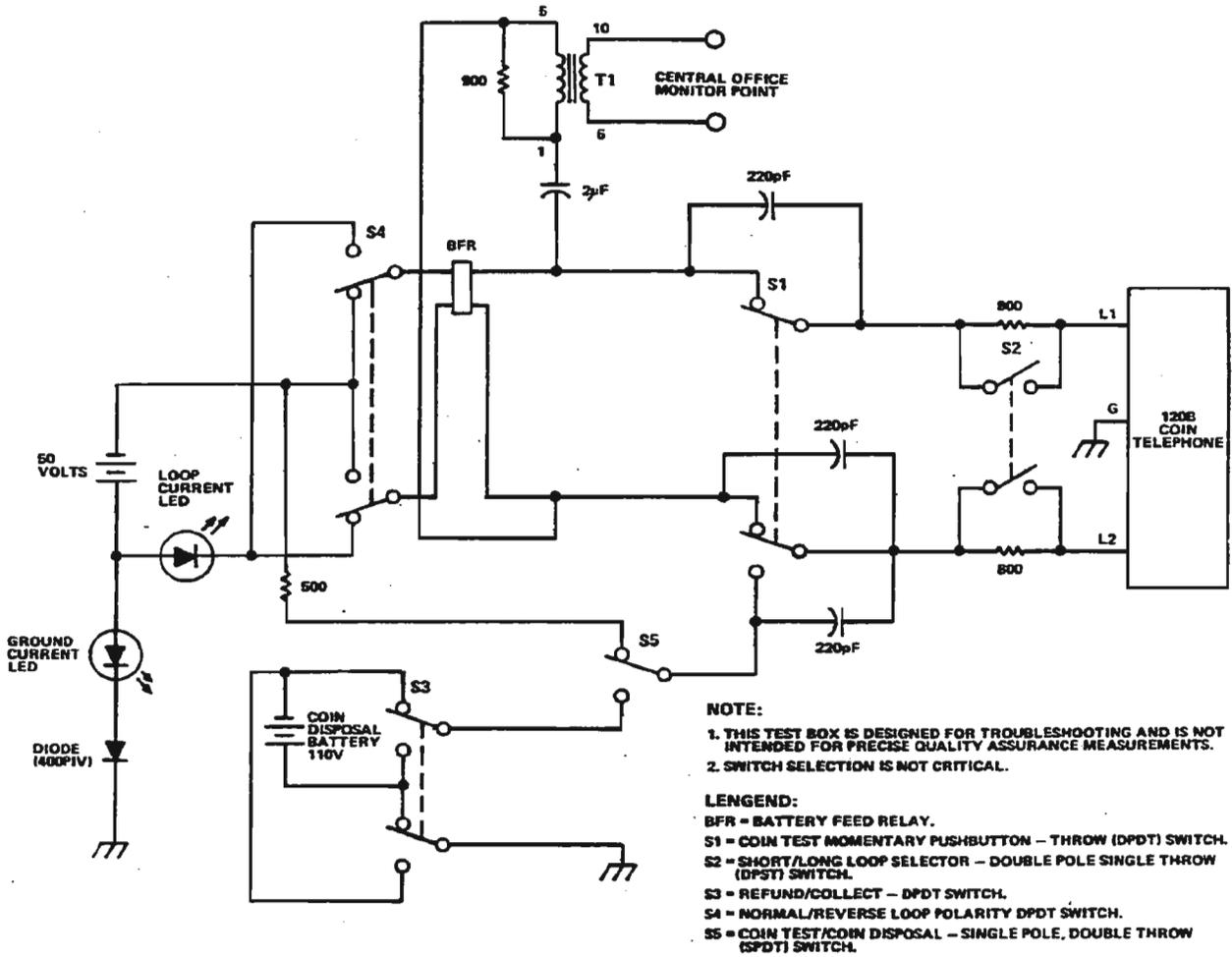


Figure 38. Coin Telephone Test Box.



