REFERENCE
COIN COLLECTORS
(SUBSCRIBER SET REQUIRED)

Fig. 1—Handset Type Coin Collector for Manual Service

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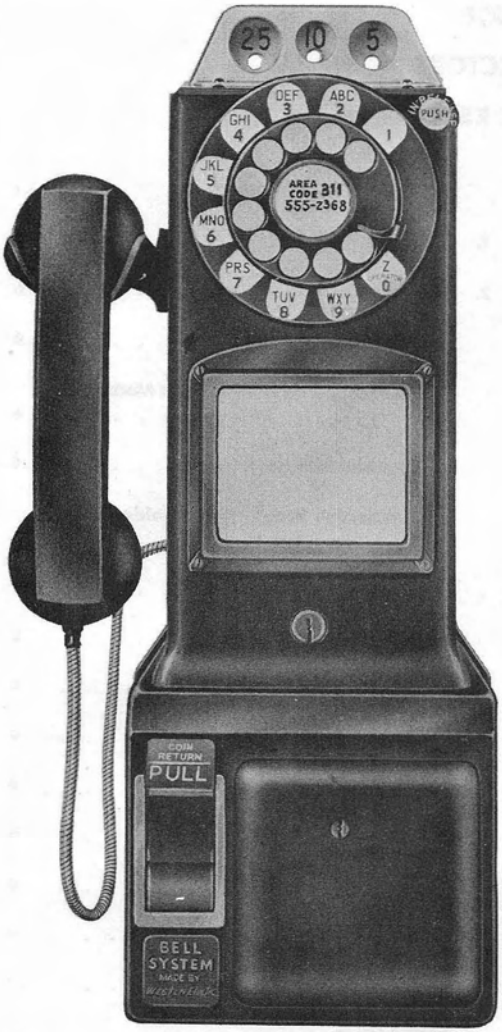

Fig. 2—Handset Type Coin Collector for Rotary Dial Service

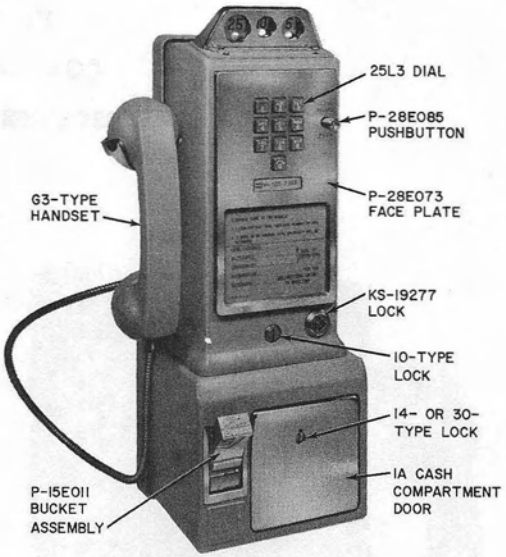

Fig. 3—1234G Coin Collector

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Coin Signal Test 58

7. MODIFICATION—TO ADD D-180120 KIT OF PARTS (RINGER ASSEMBLY) TO BACKPLATE ASSEMBLY 58

1. GENERAL

1.01 This section is reissued to:

- Show G3R handset MD, replaced by G3AE handset
- Add 900054727 hex nuts for mounting 8-type card holder
- Include list of mounting locations for these coin collectors, 4.07 and 4.08
- Revise Fig. 14 and 24
- Add information on new coin trap spring

1.02 Coin collectors (Fig. 1, 2, and 3) except 235G, 236G, and 1235G, require a subscriber set to provide talking and ringing circuits.

1.03 The coin collector consists of a cast iron or aluminum backplate assembly (Fig. 4), a steel upper housing Fig. 5, and a steel lower housing (Fig. 6). Component parts are assembled on the backplate assembly and lower housing and either in or on the upper housing. Circuit connections between removable upper housing and backplate assembly are made with spur-type contacts on upper housing and contact springs on backplate assembly.

1.04 All multislot coin collectors have been MD.

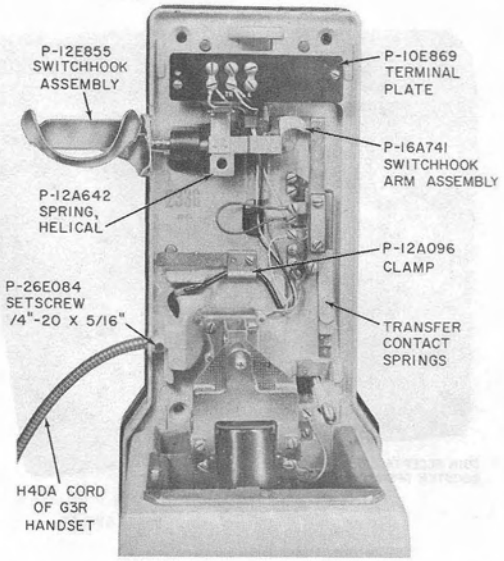


Fig. 4—Typical Backplate Assembly

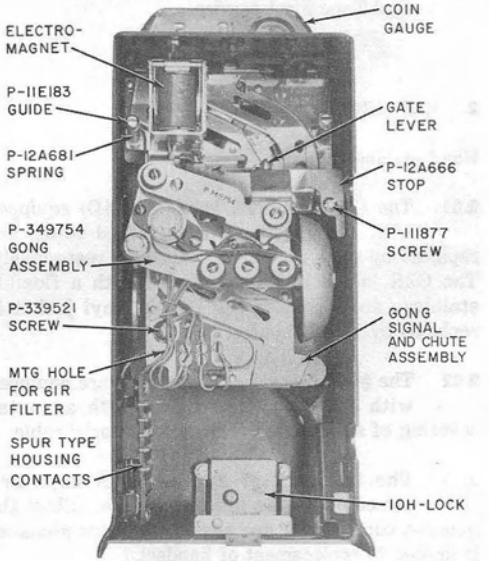


Fig. 5—Typical Upper Housing, Rear View

Fig. 6—Typical Lower Housing, Less Coin Receptacle Door

1.05 This section does not include information on Dial Tone First service.

2. IDENTIFICATION

Handsets and Cords

2.01 The G1G and F1K handsets (MD) equipped with neoprene-jacketed armored cords, are replaced by ▶G3AE and F1L handsets, respectively. The G3R handset (MD) equipped with a flexible stainless steel hose over a black vinyl jacket is replaced by G3AE handset.◀

2.02 The ▶G3AE◀ and F1L handsets are equipped with a PVC jacketed cord with an outer covering of stainless steel flexible armored cable.

2.03 The transmitter and receiver caps are cemented to the handset handle. Since the handset components are sealed, field maintenance is limited to replacement of handset.

2.04 The ▶G3AE◀ and F1L handsets are for use on all coin collectors to give additional handset protection against vandalism.

2.05 The ▶G3AE◀ handset is available in color. The F1L handset is available in black only.

2.06 All new coin collectors and all 200-type reissued coin collectors are equipped with the ▶G3AE◀ handset.

Coin Gauge and Washer Reject Mechanism

2.07 The coin gauge is riveted to the upper housing and is not replaceable in the field. When provided, the washer rejector and associated coin-release pushbutton mechanism are also riveted or permanently attached to the upper housing and are an integral part of the assembly.

Dial and Adapter

2.08 All reconditioned dial coin collectors are equipped with a 6-type rotary dial. The assembly of a 6-type dial is shown in Fig. 7. The apparatus and parts associated with a 5-type dial are not interchangeable with those used with a 6-type dial.

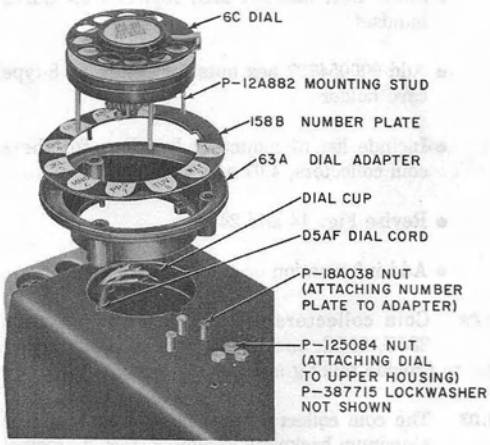


Fig. 7—Assembly of 6-Type Dial

2.09 The 63A adapter incorporates a coin deflector feature to prevent dropped coins from lodging behind the dial.

2.10 Replacement of dials and associated equipment is covered in Part 6 of this section.

Apparatus Blank, Card Holder, and Coin Gauge Guard

2.11 The 50-type apparatus blank covers the dial cup on manual coin collectors (Fig. 8).

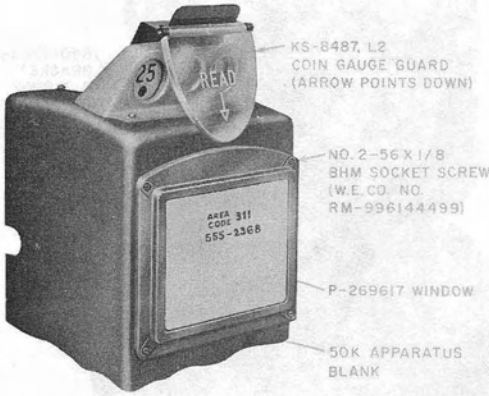


Fig. 8—Manual Type Coin Collector Equipped With Coin Gauge Guard

2.12 The chrome-plated 50K-44 apparatus blank replaces the 50L and 50K-3, -51, and -60 apparatus blanks.

2.13 The 8-type card holder mounts on top of the housing behind the coin gauge (Fig. 9). Three P-81J700 slotless machine screws, three ♦900054727♦ hex nuts, and three P-423631 lockwashers hold the card holder in place.

2.14 The 8B-44 card holder is chrome plated and replaces the 8C, 8B-3, -51, and -60 card holders and may be used on all coin collectors described in this section.

2.15 Postpay coin collectors without coin-release pushbutton mechanisms may be equipped with a KS-8487, List 1 coin gauge guard (Fig. 9) or a KS-8487, List 2 coin gauge guard (Fig. 8). Coin gauge guards are designed to alert the customer to read the instructions before depositing coins. The device consists of a mounting bracket and a transparent hinged guard with the word READ and a vertical red arrow. The guard must be raised before depositing coins.

Fig. 9—Dial Type Coin Collector Equipped with Coin Gauge Guard

Coin Chute Assembly

2.16 Coin chute assemblies or gong signal and chute assemblies are mounted inside the upper housing. Assemblies associated with the washer reject feature use two P-11E183 guides, two P-12A681 restoring springs, and one P-339521 screw (Fig. 5). Older coin collectors use two P-12A680 screws instead of guides. Coin chutes not associated with washer reject mechanisms are mounted with three P-339521 screws.

2.17 Coin collectors using gong signal and chute assemblies equipped with a P-349754 gong assembly have the 452-type capacitor associated with an electromagnet. It mounts on the upper housing underneath the coin return chute with a P-347181 clip (Fig. 10).

2.18 Coin chute assemblies without a P-349754 gong assembly are used on coin collectors with gongs mounted on the sides of the upper housing or on a swing type bracket.

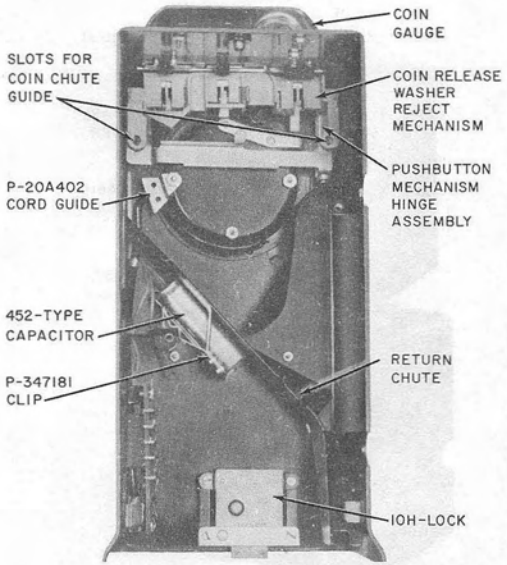


Fig. 10—Upper Housing, Coin Chute Assembly Removed

2.19 A 61R radio-frequency suppression filter is not considered a part of the chute assembly. The filter, when used, mounts on the rear of the coin chute at the lower left corner. A mounting hole (Fig. 5) is provided. Dial postpay coin collectors are normally equipped with 61R filters and are identified by a red dot located on the back of the coin gauge.

2.20 An 840148175 gong signal and chute assembly (Fig. 11) is available to provide increased fraud resistance. It is compatible with all 196-, 197-, and 200-type multislot coin collectors except the 1234G TOUCH-TONE® coin collector.

Cash Compartment

2.21 The self-locking coin receptacle and 1A cash compartment door, equipped with lock for the cash compartment, are controlled according to arrangements with the Commercial Department.

2.22 The self-locking receptacle consists of a 1B coin receptacle equipped with a 1C, 1D, or 1E coin receptacle cover. Use of the coin receptacle

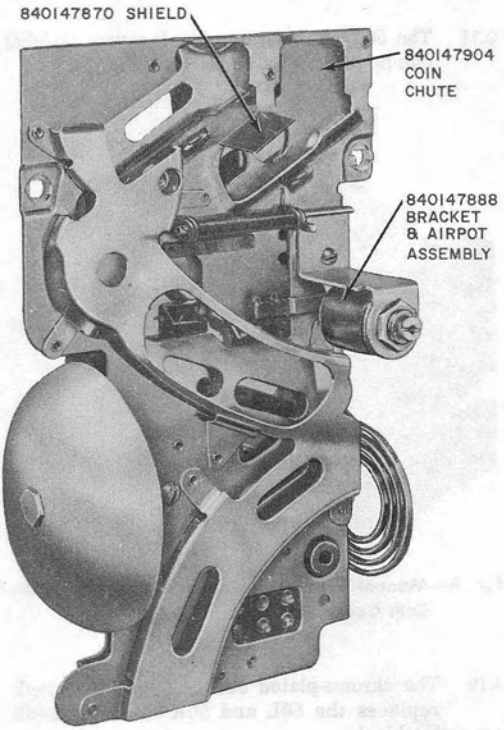


Fig. 11—▶840148175 Fraud-Resistant Gong Signal and Chute Assembly◀

requires a 1A or 1B coin receptacle rail on the mechanism base in the cash compartment (Fig. 6).

2.23 The P-12E598 coin receptacle booster spring (Fig. 6) reduces the clearance between the coin receptacle cover and the rail. This prevents collected coins from falling out of their normal path on to the coin receptacle cover.

Return Chute

2.24 The lower part of the coin return chute is located in the lower housing to the left of the cash compartment (Fig. 6).

2.25 When a pull bucket is provided, it acts as a receptacle for returned coins.

2.26 The pull bucket, in both closed and open positions, prevents access to the return chute.

2.27 Later models of coin collectors have P-15E011 chrome-plated pull bucket assemblies.

2.28 For additional information on pull bucket assemblies, refer to Part 6 of this section.

Backplate Assembly

2.29 Parts mounted on the backplate are illustrated in Fig. 4.

2.30 All 200 series coin collectors have cast aluminum backplates. Lower numbered codes have cast iron backplates.

2.31 The 1A backplate is used on coin collectors arranged for security studs, bolt fasteners, and stud fasteners at locations where additional mounting security is needed.

Note: Coin collectors equipped with a 1A backplate cannot be used on 139A backboards and 19-type shelves.

2.32 The 234G and 1234G coin collectors are furnished with a 1A backplate and are ***always*** installed with security studs, bolts, or stud fasteners, and a KS-19277 lock assembly. See Part 6 of this section for additional information on the KS-19277 lock assembly.

Switchhook Assembly

2.33 Later models of coin collectors have 2-piece, chrome-plates P-12E855 switchhook assemblies (Fig. 12).

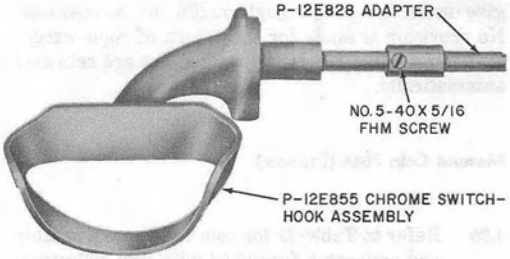


Fig 12—Two-Piece Switchhook Assembly

2.34 Coin collectors converted from transmitter-receiver type to handset type use P-10C139 switchhook assemblies which require a P-10C136 auxiliary spring.

Mechanism Unit Assembly

2.35 The mechanism unit assembly mounts on top of the lower housing assembly. Four types shown are:

- Manual postpay, no coin relay (Fig. 13)
- Dial postpay, no coin relay (Fig. 14)
- Manual or dial coin first 2-coil coin relay (Fig. 15)
- Manual or dial coin first single-coil coin relay (Fig. 16).

Coin Relays

2.36 Most 230-, 233-, and 234-type coin collectors are equipped with a P-13E961 coin relay (Fig. 16) which replaces the P-10E786 coin relay now rated MD. The relays are interchangeable, but most of the components are not.

2.37 The single coil relay has a P-10E783 cover.

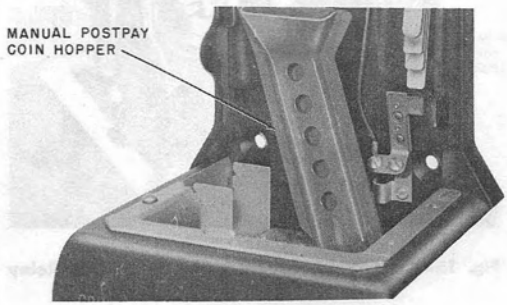


Fig. 13—200C Manual Postpay Mechanism Unit

Hopper Assemblies

2.38 The hopper is assembled to the coin relay in prepay coin collectors. Refer to Part 6 of this section for additional information on coin hoppers in both postpay and coin first service.

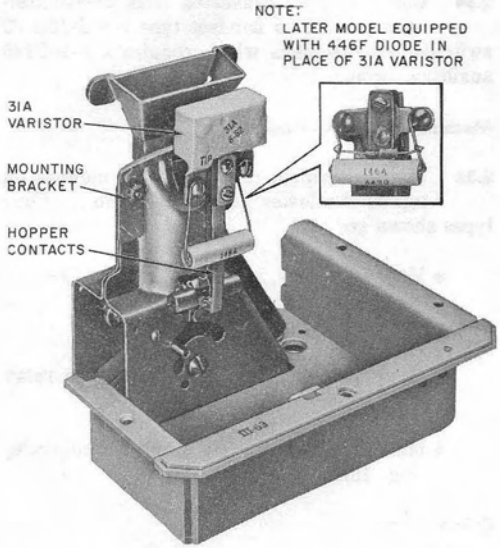


Fig. 14—212G Dial Postpay (CDO) Mechanism Unit

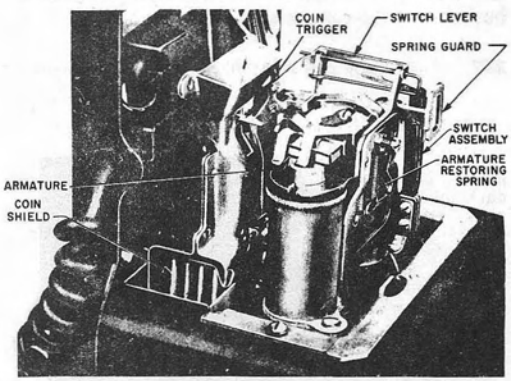


Fig. 15—Coin First Mechanism Unit, 2-Coil Coin Relay

3. SELECTION

CATEGORIES

Manual Postpay

3.01 The 200C-3 is the only current model of manual postpay coin collector available.

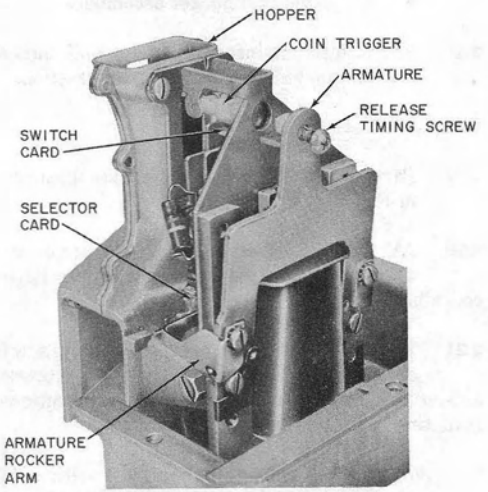


Fig. 16—P-10E683 Mechanism Unit With P-13E961 Coin Relay

3.02 Refer to Table A for apparatus furnished with coin collector.

3.03 Refer to Table B for apparatus available but not furnished.

3.04 Refer to Table C for features of the coin collector.

3.05 In a manual postpay coin collector, coins are deposited at the request of the operator and fall directly into the cash box. Coins deposited give distinctive gong signals audible to the operator. No provision is made for the return of coins except that those deposited in the wrong slot are returned automatically.

Manual Coin First (Prepay)

3.06 Refer to Table D for coin collectors available and apparatus furnished with coin collectors.

3.07 Refer to Table B for apparatus available but not furnished.

3.08 Refer to Table E for features of the coin collector.

3.09 Manual coin first coin collectors are designed for 10-cent operation but may be converted to 5-cent operation by means of a P-339098 cutover clip.

Dial Postpay

3.10 The 212G-3 is the only dial postpay coin collector available.

3.11 Refer to Table F for apparatus furnished with this coin collector.

3.12 Refer to Table B for apparatus available but not furnished.

3.13 Refer to Table G for features of the coin collector.

3.14 The station or operator can be dialed without depositing a coin. Coin deposits give distinctive gong signals audible to the operator.

3.15 Coins deposited cannot be refunded; coins deposited in wrong slots are returned automatically. A nickel deposited while handset is on-hook will also be returned.

3.16 Dial postpay coin collectors are designed for 10-cent operation but may be converted to 5-cent operation by means of a P-339098 cutover clip.

Dial Coin First (Prepay)

3.17 Refer to Table H for coin collectors available and apparatus furnished with coin collectors.

3.18 Refer to Table B for apparatus available but not furnished.

3.19 Refer to Table I for features of the coin collector.

3.20 Dial coin first coin collectors are designed for 10-cent operation but may be converted to 5-cent operation by means of a P-339098 cutover clip.

CODES

3.21 Code numbers signify types of coin collectors as follows:

Note: No definite plan or arrangement can be applied to lower numbered codes or the relationship between old and converted code numbers; however, third digit characters in the 190 series coin collector code numbers have the following significance:

Third Digit—Service and Special Features

1—Coin first

2—Manual postpay

3—Dial postpay (CDO)

5—Coin first equipped with pull bucket

6—Coin first equipped with washer reject

7—Coin first equipped with pull bucket and washer reject

8—Dial postpay equipped with washer reject (CDO)

3.22 The characters in the 200 series coin collector code numbers have the following significance:

First Digit—Telephone Circuit

2—425B network type telephone circuit

Second Digit—Features

0—Manual postpay, 5-cent coin chute

1—10-cent dial postpay (CDO)

2—10-cent coin first, 4-spring dial shorting coin relay

3—10-cent coin first, slow-release single-coil dial shorting coin relay. Coin collector has corrosion-resistant finish.

Third Digit—Features

0—Basic collector

2—Washer reject

3—Pull bucket and washer reject

4—Pull bucket, washer reject, and added security features.

3.23 The characters of the 1234G (TOUCH-TONE®) coin collector have the following significance:

1—10-button TOUCH-TONE dial

2—425B network type telephone circuit

3—10-cent coin first, slow-release single-coil dial shorting coin relay. Coin collector has corrosion-resistant finish.

4—Pull bucket, washer reject, and added security features

3.24 Code letters signify types of service, coins, and features as follows:

First Letter—Service and Coin Features

C—Manual, U.S. coins

D—Manual, U.S. and Canadian coins

*E—Dial, U.S. coins (A-type number plate)

*F—Dial, U.S. and Canadian coins (A-type number plate)

G—Dial, U.S. Coins (B-type number plate)

H—Dial, U.S. and Canadian coins (B-type number plate)

*L—Local battery talking, common battery signaling (obsolete)

*These coin collectors are obsolete.

Second, or Second and Third Letters—Features Added by Conversion

N—Uses a network

R—Spring cord (stamped on carton only)

S—4-spring dial shorting coin relay

T—Slow-release, single-coil dial shorting coin relay.

COLOR

3.25 Multislot coin collectors are available in black (-3), moss green (-51), and light beige (-60).

3.26 The last two digits in a part number signify the color of the apparatus.

4. INSTALLATION

LOCATION

Note: The location of a coin collector should be specified by the service order or an accompanying work sheet. If a location is not specified, obtain instructions from the customer before proceeding.

4.01 Consider the following:

- Visibility, accessbility, and possible accident hazards in selecting locations.

4.02 Avoid locations over or adjacent to counters, showcases, or other property which could be accidentally damaged by falling handsets.

Mounting Surfaces

4.03 Consult a supervisor before locating coin stations on finishes that would be expensive to repair if the set is removed.

4.04 Have customer or building owner drill mounting and wire entrance holes through glazed tile, marble, or similar surfaces.

Inductive Effects

4.05 Locate set and associated wiring at least 6 inches from neon fixtures, transformers, or other interference-causing equipment. Refer to Division 500, section entitled: Inductive Noise, for complete information on inductive noise effects of coin collectors.

Security of Coin Station

4.06 Avoid locations where:

- Coin station can be dislodged by hard use.

TABLE A

MANUAL POSTPAY COIN COLLECTOR APPARATUS FURNISHED

COIN COLLECTOR	HANDSET	UPPER HOUSING ASSEMBLY	LOWER HOUSING ASSEMBLY	BACKPLATE ASSEMBLY	GONG SIGNAL AND CHUTE ASSEMBLY	COIN CHUTE ONLY
200C-3	G3AE	P-81B803	P-81A603	P-81A103	P-338889	P-338883

TABLE A (Cont)

COIN COLLECTOR	SUBSCRIBER SET	APPARATUS BLANK	SWITCH HOOK ASSEMBLY	COIN HOPPER AND BASE ASSEMBLY	COIN RECEPTACLE RAIL	UPPER HOUSING LOCK
200C-3	685A	50K-44	P-12E855	P-10E219	1B	10-Type

- Fasteners cannot be placed in solid backing.
- Coin station can be pried loose (on round columns, door or window facings, uneven surfaces, etc.).

4.07 All coin collectors except 235- and 1235-type can be mounted in/on the following:

- 178A-3 backboard
- 10- and 11-type booths
- KS-14611 outdoor booth
- KS-16797 universal booth
- KS-19206 curved door booth
- KS-19267 coin telephone shelf
- KS-19340 wood booth
- KS-19425 indoor-outdoor booth
- KS-19426 walk-up, drive-up mounting
- KS-19580 outdoor booth
- KS-19945 shelf
- KS-20194 wedge shelf
- KS-20255 telephone kiosk.
- KS-20842 mounting

4.08 The 235- and 1235-type coin collectors can be mounted in/on the following:

- KS-19206 curved door booth
- KS-19340 wood booth
- KS-19426 walk-up, drive-up mounting

TABLE B

ALL COIN COLLECTORS
APPARATUS AVAILABLE BUT NOT FURNISHED

COIN COLLECTOR	COIN COLLECTOR DOOR	COIN RECEPTACLE	COIN RECEPTACLE COVER	CASH COMPART-MENT ALARM SWITCH	CASH COMPART-MENT LOCK	UPPER HOUSING ALARM SWITCH
All Manual Postpay	1A-44	1B	1D or 1E	P-372083 or 257A	14-Type or 30-Type	227A
All Dial Postpay						
All Manual Coin First						
All Dial Coin First						

TABLE B (Cont)

COIN COLLECTOR	CARD-HOLDER	APPARATUS BLANK	SUPPRESSION FILTER
All Manual Postpay	8B-44	Furnished (See Table A)	Not Required
All Dial Postpay		50K-44	61R (Usually Furnished)
All Manual Coin First			Not Required
All Dial Coin First			61R

TABLE C

MANUAL POSTPAY COIN COLLECTOR FEATURES

COIN COLLECTOR	COMB SWHK AND TRFR ASSEMBLY	TWO 654 TRANSMITTERS
200C-3	•	•

* 1234G does not require on apparatus blank. It is equipped with a P-28E073 faceplate.

♦ TABLE D ♦

MANUAL COIN FIRST COIN COLLECTORS APPARATUS FURNISHED

COIN COLLECTOR	HANDSET	UPPER HOUSING ASSEMBLY	LOWER HOUSING ASSEMBLY	BACKPLATE ASSEMBLY	GONG SIGNAL AND CHUTE ASSEMBLY
174CT	F2	BA-220497C	Information Not Available	Information Not Available	P-339528
176CT					
191CT	F1L	BA-220499C			P-340222
191DT		BA-20499D			P-340223
191CNT	G3AE	P-81C003			P-340222
191DNT		P-81C103			P-340223
195CT	F1L	BA-220449C			P-340222
195DT		BA-220449D			P-340223
195CNT	G3AE	P-81C003			P-340222
195DNT		P-81C103			P-340223
196CT	F1L	BA-220501C			P-20A125*
196DT		BA-220501D			P-20A126*
196CNT	G3AE	P-81B203			P-20A125*
196DNT		P-81B303			P-20A126*
197CT	F1L	BA-220501C			P-20A125*
197DT		BA-220501D			P-20A126*
197CNT	G3AE	P-81B203			P-20A125*
197DNT		P-81B303			P-20A126*
220CT		P-81C003	P-81A703	P-81A303	P-340222
220DT		P-81C103			P-340223
223CT		P-81B203	P-81B003		P-20A125*
223DT		P-81B303			P-20A126*

*An 840148175 gong signal and chute assembly is available to provide increased fraud resistance.

TABLE D (Cont)

COIN COLLECTOR	COIN CHUTE ONLY	SUBSCRIBER SET	SWITCH HOOK ASSEMBLY	COIN RELAY AND HOPPER ASSEMBLY	COIN RECEPTACLE RAIL	UPPER HOUSING LOCK
174CT	P-339526	634 or 684 Type	Information Not Available	P-11E964	1B	10-Type
176CT						
191CT		687A				
191DT	P-339527					
191CNT	P-339526	685A or 685B				
191DNT	P-339527					
195CT	P-339526	687A				
195DT	P-339527					
195CNT	P-339526	685A or 685B				
195DNT	P-339527					
196CT	P-20A119 †	687A				
196DT	P-20A120 †					
196CNT	P-20A119 †	685A or 685B				
196DNT	P-20A120 †					
197CT	P-20A119 †	687A				
197DT	P-20A120 †					
197CNT	P-20A119 †	685A or 685B				
197DNT	P-20A120 †					
220CT	P-339526		P-12E855			
220DT	P-339527					
223CT	P-20A119 †					10-Type Plus KS-19277
223DT	P-20A120 †					

†An 840147904 fraud-resistant coin chute is used with an 840148175 gong signal and chute assembly.

TABLE E

MANUAL COIN FIRST COIN COLLECTORS

FEATURES

COIN COLLECTOR	COMB SWHK AND TRFR ASSEMBLY	WOOD TERM STRIP	452A OR 452 B CAPACITOR	452B CAPACITOR	IND COIL AND CAPACITOR	TWO 654 TRANSMITTERS	PULL BUCKET	WASHER REJECT
174CT		•	•					
176CT								
191CT					•			
191DT								
191CNT								
191DNT								
195CT					•			
195DT							•	
195CNT								
195DNT								
196CT	•			•	•	•		
196DT								
196CNT								
196DNT								
197CT					•			•
197DT							•	
197CNT								
197DNT								
220CT								
220DT								
223CT							•	•
223DT								

TABLE F
DIAL POSTPAY COIN COLLECTOR
APPARATUS FURNISHED

COIN COLLECTOR	HANDSET	DIAL	DIAL ADAPTER	NUMBER PLATE	UPPER HOUSING ASSEMBLY
212G-3	G3AE	6C	63A	158B	P-81B603

TABLE F (Cont)

COIN COLLECTOR	LOWER HOUSING ASSEMBLY	BACKPLATE ASSEMBLY	SUBSCRIBER SET	COIN RECEPTACLE	UPPER HOUSING LOCK
212G-3	P-81A803	P-81A203	685A	1B	10 Type or 27 Type

TABLE G
DIAL POSTPAY COIN COLLECTOR FEATURES

COIN COLLECTOR	COMB SWHK AND TRFR ASSEMBLY	WASHER REJECT
210G-3 212G-3	•	•

- KS-19442 deluxe glass booth
- KS-20194 wedge shelf
- A wall that will allow the phone to be recessed.
- KS-20630 booth

WIRING

4.09 Select and place wire in accordance with section covering wiring. Wire coin station with triple station wire to provide an individual ground conductor for each station.

Note: The ground connector must be the same as for signaling ground.

4.10 Conceal wiring near coin station. If this is not practical, use approved molding or woven conduit to conceal wiring.

4.11 Locate connecting block, protector or other terminating apparatus where they will be inaccessible to the public. If necessary, locate protector outside building.

4.12 Location requirements for associated subscriber sets are specified in the appropriate booth sections.

BACKBOARDS

4.13 Refer to Division 506, section entitled; Coin Telephone Stations, Backboards, for complete installation procedures.

Mount all coin stations on an approved backboard.

4.14 Backboard and coin station must be securely mounted with the required fasteners, mounting screws, security studs, and associated fasteners.

Note: If the coin station is wall mounted (not in a booth) the mounting surface must be plane to avoid warping the backplate and causing misalignment between upper and lower housing.

♦ TABLE H ♦

DIAL COIN FIRST COIN COLLECTORS APPARATUS FURNISHED

COIN COLLECTOR	HANDSET	DIAL		DIAL ADAPTER	NUMBER PLATE	UPPER HOUSING ASSEMBLY
		TRANS ZONE 2	TRANS ZONE 5			
174GT	F2	5 Type or 6 Type		Information Not Available	147B-3	BA-220497G
176GT						
191GT	F1L				158B-3	BA-220499G
191HT						BA-220499H
191GNT	G3AE	6 Type	6 Type			P-81C203
191HNT						P-81C303
195GT	F1L	5 Type or 6 Type				BA-220499C
195HT						BA-220499H
195GNT	G3AE		6 Type			P-81C203
195HNT						P-81C303
196GT	F1L					BA-220501G
196HT						BA-220501H
196GNT	G3AE	6 Type	6 Type			P-81B403
196HNT						P-81B503
197GT	F1L	5 Type or 6 Type				BA-220501G
197HT						BA-220501H
197GNT	G3AE	6 Type	6 Type			P-81B403
197HNT						BA-220501H
220GT	G1BR-3	5 Type or 6 Type		63A-3		P-81C203
220HT						P-81C303
223GT	G1BR*	6 Type		63A*	158B*	P-81B400*
223HT						P-81B500*
230G-3	G3AE	5 Type or 6 Type		63A-3	158B-3	P-81C203
233G-3		6 Type				P-81B403
234G-3						P-81R203
1234G*	G3AE*	25L3	25L3	—	—	P-840200*

* Color designated by last two digits; 03-black, 51-moss green, 60-light beige.

TABLE H (Cont)

COIN COLLECTOR	GONG SIGNAL AND CHUTE ASSEMBLY	COIN CHUTE ONLY	SUBSCRIBER SET	COIN RELAY AND HOPPER ASSEMBLY	COIN RECEPTACLE RAIL	UPPER HOUSING LOCK
174GT 176GT	P-339528	P-339526	634 Type or 684 Type	P-11E964	1B	10-Type
191GT	P-230222		687A			
191HT	P-340223	P-339527				
191GNT	P-220222	P-339526	685A or 685B			
191HNT	P-220223	P-339527				
195GT	P-340222	P-339526	687A			
195HT	P-340223	P-339527				
195GNT	P-340222	P-339526	685A or 685B			
195HNT	P-340223	P-339527				
196GT	P-20A125 †	P-20A119 †	687A			
196HT	P-20A126 †	P-20A120 †				
196GNT	P-20A125 †	P-20A119 †	685A or 685B			
196HNT	P-20A126 †	P-20A120 †				
197GT	P-20A125 †	P-20A119 †	687A			
197HT	P-20A126 †	P-20A120 †				
197GNT	P-20A125 †	P-20A119 †				
197HNT	P-20A126 †	P-20A120 †				
220GT	P-340222	P-339526	685A or 685B			10-Type Plus KS-19277
220HT	P-340223	P-339527				
223GT	P-20A125 †	P-20A119 †				10-Type
223HT	P-20A126 †	P-20A120 †				10-Type Plus KS-19277
230G-3	P-340222	P-339526				
233G-3 234G-3	P-20A125 †	P-20A119 †				
1234G*	P-20A125	P-20A119	685A			

*Color designated by last two digits; 03-black, 51-moss green, 60-light beige.

†An 840148175 fraud-resistant gong signal and chute assembly is available for use in lieu of the P-20A125 and P-20A126 except in the 1234G TOUCH-TONE coin collector. If this assembly is used, the coin chute part number is 840147904.

TABLE I

DIAL COIN FIRST COIN COLLECTORS

FEATURES

COIN COLLECTOR	COMB SWHK AND TRFR ASSEMBLY	WOOD TERM STRIP	452 A OR 452 B CAPACITOR	452 B CAPACITOR	IND COIL AND CAPACITOR	TWO 654 TRANSMITTERS	PULL BUCKET	WASHER REJECT
174GT		•	•					
176GT								
191GT					•			
191HT								
191GNT								
191HNT								
195GT					•			
195HT							•	
195GNT								
195HNT								
196GT	•			•	•	•		
196HT								
196GNT								
196HNT								
197GT					•			
197HT							•	
197GNT								
197HNT								
220GT								
220HT								
223GT							•	•
223HT								
230G-3								
233G							•	•
1234G								

MOUNTING

Remove handset from switchhook before removing or replacing upper housing to avoid damage to the gate operating arm. Do not reassemble upper housing on coin first coin collectors without placing a P-10E783 cover over the coin relay.

4.15 Fig. 17 shows the suggested mounting height and clearance for all coin stations. Stations may be mounted at other heights to meet local conditions providing this does not create service or maintenance problems.

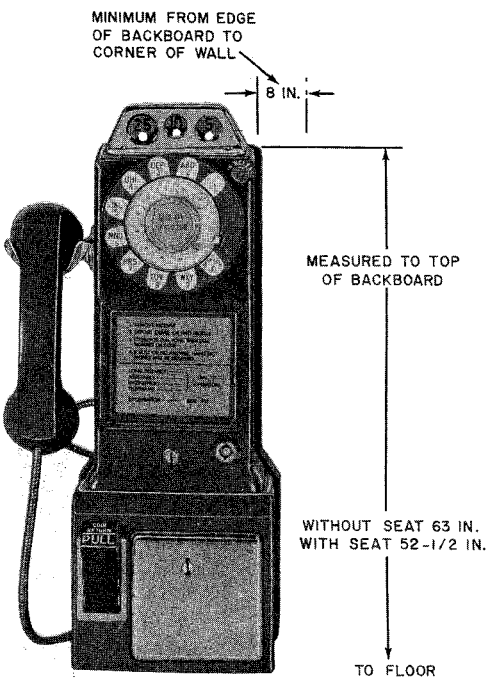


Fig. 17—Suggested Mounting Height and Clearance

4.16 To mount coin station:

(1) Place required number of screw fasteners in upper and lower mounting holes.

Note: If coin compartment is not open, the lower fasteners will be added later by the public telephone representative.

(2) Bring wires through opening in backplate.

(3) Avoid bowing backplate by partially tightening each screw fastener alternately.

4.17 Ground housing assembly, as follows:

(a) ***Coin first open type installation:***

- Connect JKT lead or GS insulated wire as shown in Fig. 18.
- Dress wire so that it will not interfere with moving parts of coin mechanism or coin relay shield.

(b) ***Indoor wooden booths:***

- A 14-gauge insulated ground wire (P-12C414 ground wire assembly) is provided. (Fig. 19)
- Connect ground wire from outside grounded BX armored power cable to ventilator or blower and to housing ground screw on coin station.

(c) ***Metal booths:***

- Grounding is provided through mounting screws.

(d) ***19- and 20-type shelves:***

- See (a)

4.18 To ground upper housing to backplate: Place U-shaped spring clip on left edge of upper housing so it will make contact with housing contact spring (Fig. 20).

COMPONENTS

Alarm Switches and Security Devices

4.19 The local telephone company shall regulate the installation of these devices. Refer to Division 506, section entitled: Service, Security Devices for additional information.

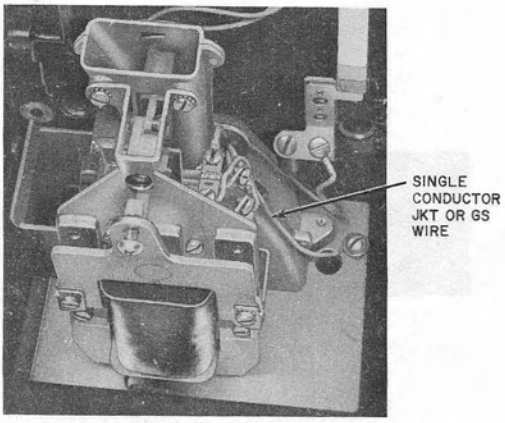


Fig. 18—Method of Grounding Coin Collector Housing Assembly, Open Type Installation

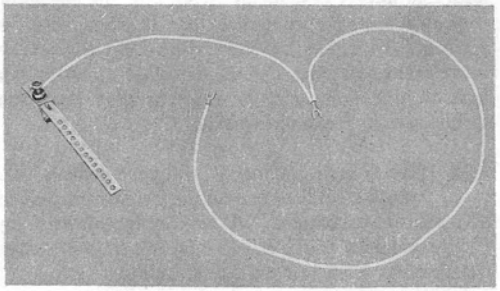


Fig. 19—P-12C414 Ground Wire Assembly

Apparatus Blank, Card Holder, and Coin Gauge Guard

4.20 Refer to 2.11 through 2.15.

Out-of-Service Notices

4.21 If a coin station is not ready for service when installation work is completed, place KS-7991 sign (Fig. 21 and 22) or E-4914 Form (Fig. 23) on coin gauge so that customers will not deposit coins.

4.22 A book of E-4914 Forms is included in the packing container of each new coin collector.

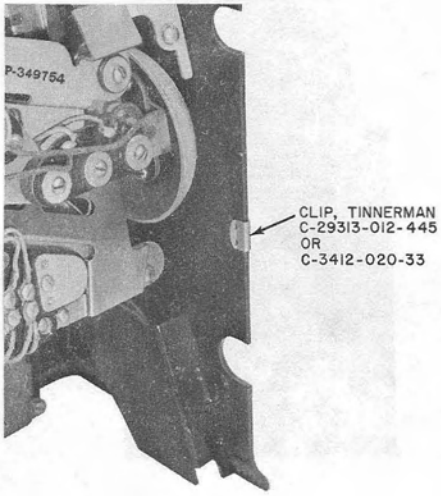


Fig. 20—Method of Grounding Upper Housing to Backplate

When coin station is placed in service, leave book of E-4914 Forms with agent and give instructions for use when coin station is out of service.

4.23 The KS-7991 sign must be ordered separately and is mounted by means of a No. 8-32 by 3/4 inch RH machine screw and a self retained speed nut, Tinnerman C-6724-832-373 (Fig. 21 and 22).

Relay Cover

On 230-, 233-, 234-, and 1234-type coin collectors place P-10E783 plastic dust cover over coin relay before assembling upper housing on backplate.

5. METHOD OF OPERATION

TELEPHONE CIRCUIT

5.01 The talking circuit is the same as the one used in conventional telephones, except for the addition of two signal transmitters and an electromagnet in series in the primary circuit, as shown in Fig. 24.

Fig. 21—KS-7991 Sign in Place Over Coin Gauge

Fig. 22—Rear View of KS-7991 Sign

5.02 Coin signal tones are picked up by the two signal transmitters and carried over the voice path to the local or toll operator, indicating the denomination and number of coins deposited. The two transmitters are in parallel with a 22-ohm resistor. This arrangement controls the volume level and protects the transmitters against excessive current.

5.03 The electromagnet is a part of the coin chute and is used in conjunction with 10-cent operation. A capacitor is connected in parallel with the electromagnet winding to minimize its effect on transmission. Network-type circuits equipped with dial have a resistor in series with the capacitor to protect the off-normal dial contacts from excessive arcing. In areas of low-frequency inductive interference, it may be necessary to substitute a unit of higher capacity in order to keep the noise pickup within acceptable limits.

Fig. 23—Form E-4914

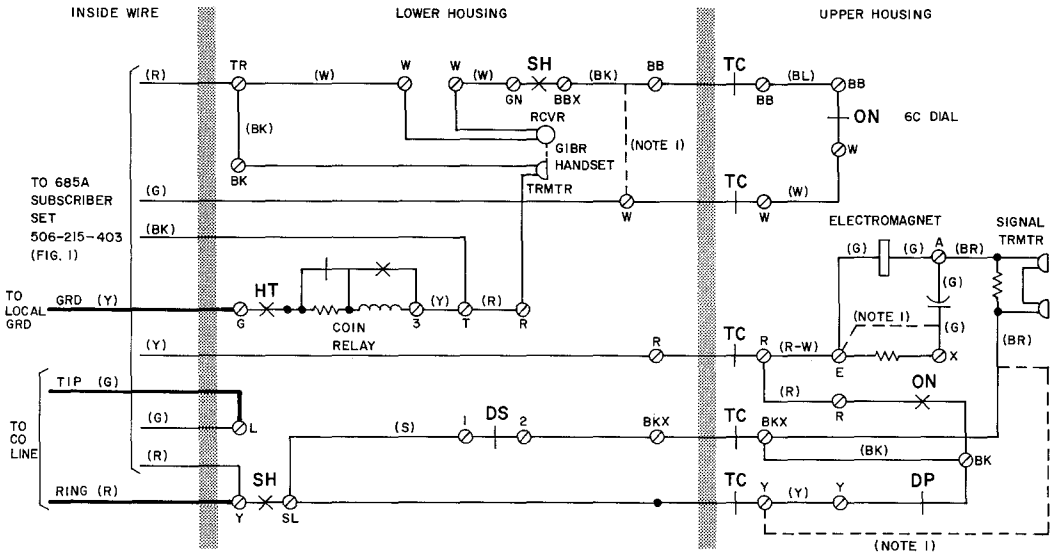
5.04 The G-type handset is equipped with a 44A varistor bridged across the receiver to reduce acoustic disturbances. A set equipped with an F-type handset has a 37A varistor bridged across the receiver terminals on the backplate.

COIN HANDLING FEATURES, UPPER HOUSING

5.05 Coin-handling features of the upper housing consist of a coin gauge, washer-reject and coin-release pushbutton mechanism (when provided), and coin-chute assembly (see Fig. 5 and 10). These units control the coins and, if accepted, direct them to the coin hopper of the mechanism unit on the lower housing. From the coin hopper, they reach the coin receptacle or return chute. Rejected coins fall directly into the return chute.

Coin Gauge

5.06 The coin gauge is positioned on top of the upper housing and provides nickel, dime, and quarter openings for the deposit of coins. The respective openings are dimensioned to receive



NOTES:
1. DOTTED LINES SHOW SETS WITH MANUAL CONNECTIONS [191, 195, 196, 197 (CNT AND DNT)] DIAL IS REPLACED WITH 50C APPARATUS BLANK.
2. WHEN A 6IR FILTER IS REQUIRED FOR RADIO FREQUENCY SUPPRESSION, MOVE (Y) DIAL LEAD FROM Y UPPER HOUSING CONTACT SPRING TO FILTER BRACKET TERM., CONNECT (Y) FILTER LEAD TO FILTER BRACKET TERM., CONNECT (BK) FILTER LEAD TO BK UPPER HOUSING CONTACT, AND CONNECT (R) FILTER LEAD TO Y UPPER HOUSING CONTACT.
3. WHEN COIN COLLECTOR IS INSTALLED IN A KS-14611, LIST 2 BOQTH OR A KS-16705 MOUNTING, THE TIP AND RING LINE TERMINATIONS ARE CONNECTED DIRECTLY TO THE SUBSCRIBER SET.

DP - DIAL PULSE CONTACTS
HT - HOPPER TRIGGER CONTACTS
SH - SWITCHHOOK CONTACTS
ON - OFF NORMAL CONTACTS
TC - TRANSFER CONTACTS
DS - DIAL SHORTING CONTACTS

Fig. 24—Coin First Network-Type Coin Collector Circuit

United States and Canadian coins and guide them to their proper channel in the coin chute.

Washer Reject and Coin Release Pushbutton Mechanism

5.07 The washer reject mechanism (Fig. 10) functions to prevent washers from entering the coin chute. Washers are detected and ejected by star wheels associated with each channel. The bottom spoke of the star wheel is moved downward by the deposited coin. The second spoke moves against the side of the coin near its center, deflecting it into the coin chute. Washers having open centers will not be deflected and will drop into the return chute.

5.08 The operation of the coin release pushbutton moves the upper part of the coin chute away from the washer reject mechanism. This will release washers or coins wedged at this location and allow them to drop into the return chute. This movement of the coin chute also opens the gate associated with the nickel channel, releasing coins held at that location (see 5.14).

Gong Signal and Chute Assembly

5.09 Several different types of gong signal and chute assemblies are provided. They differ according to service and associated equipment. Four services are provided: manual postpay, manual coin first, dial postpay (CDO), and dial coin first. Each service may be arranged for the use of United States coins only or for United States and Canadian coins. The difference here is in the size of the reject openings in the quarter channel. Coin chutes used with washer reject and pushbutton mechanisms are not interchangeable with those used without such equipment.

5.10 Generally, the gong signal and chute assembly (Fig. 25) consists of a coin chute, including electromagnet, and a gong assembly with signal transmitters.

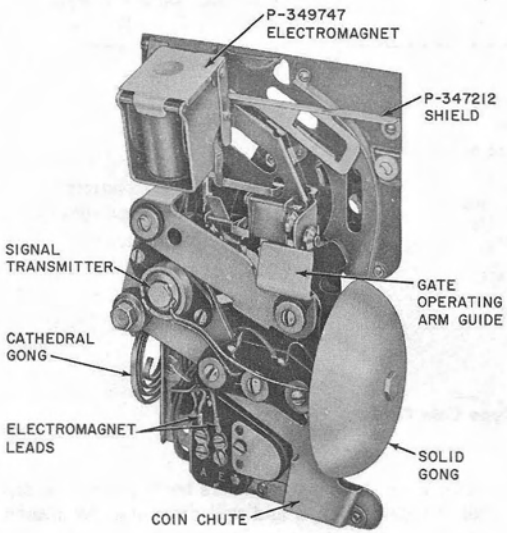


Fig. 25—Coin First Gong Signal and Chute Assembly

Coin Chute

5.11 The coin chute (Fig. 26) is made of stainless steel and provides nickel, dime, and quarter channels leading to the coin hopper of the mechanism unit. Nickels are routed to strike a solid gong once. Dimes are routed to strike the same solid gong twice. Quarters are routed to strike a cathedral gong once.

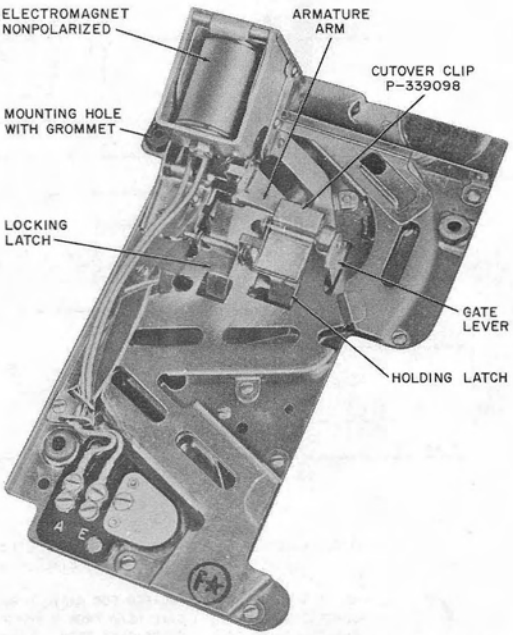


Fig. 26—Coin First Coin Chute Assembly Equipped With P-339098 Cutover Clip For 5-Cent Service

5.12 Control and reject features are provided in the channels. Each channel rejects coins or discs which are below the minimum dimensions allowed for worn coinage. Such coins or discs leave the coin chute before reaching the gongs and fall into the return chute.

5.13 Ten-cent operation requires a minimum deposit of two nickels or one dime to initiate a coin first call, or to complete a dial postpay nonfree call. To provide for this service, the nickel channel is equipped with a holding latch which is controlled by a locking latch. The first nickel deposited is stopped and held by the holding latch. The second nickel deposited is deflected by the first nickel into the locking latch. The locking latch is operated by this coin, releasing the first nickel at the holding latch. The two coins pass

on down the channel in succession, each striking the solid gong and dropping into the coin hopper.

5.14 A hinged gate is provided in the rear wall of the nickel channel opposite the holding and locking latches (Fig. 27). Pennies which may reach the holding latch will be ejected through an opening in the gate. A single nickel deposited and held by the holding latch will be released by the gate and fall into the return chute when the handset or receiver is hung up. The gate is controlled by an operating arm on the switchhook. The gate is open when the switchhook is down and closed when the switchhook is up. Nickles deposited when the switchhook is down will pass through the open gate and into return chute. The gate is also opened by the coin-release pushbutton mechanism.

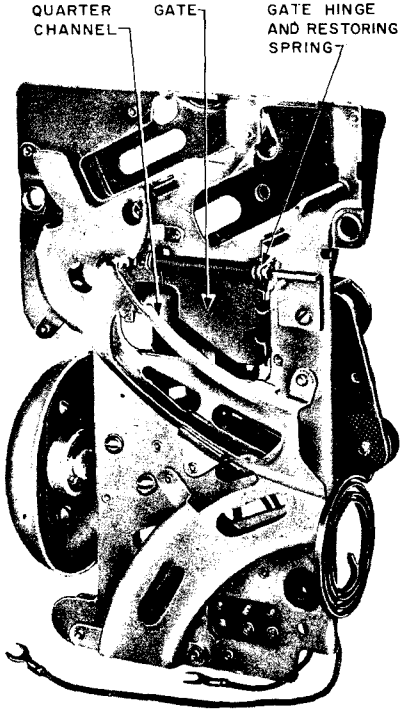


Fig. 27—Coin First Gong Signal and Chute Assembly, Rear View

5.15 When the gate is open, it protrudes into the quarter channel. A quarter deposited when the switchhook is down will be stopped and held by the open gate until the switchhook is raised. When released by the gate closing, the quarter will continue down its channel, strike the gong, and reach the coin hopper.

5.16 The position of the switchhook has no effect on the dime channel. Dimes will follow their channel into the coin hopper at all times.

Electromagnet

5.17 The purpose of the electromagnet is to arrange for single nickel deposits to meet requirements of toll and overtime charges. This is accomplished by routing nickels around the holding latch after the central office loop is established.

5.18 Nonpolarized electromagnets are used for coin first service and polarized for postpay service. Both types are energized by the central office battery in series with the loop and telephone set primary circuit. An arm on the electromagnet armature is moved into the nickel channel by the operation of the armature. With this armature arm in the channel, nickels bypass the holding latch. This allows single nickel deposits to continue on down the channel, strike the gong, and drop into the coin hopper.

5.19 The nonpolarized electromagnet used in coin first service moves the arm into the nickel channel regardless of which direction current is flowing. The electromagnet operates on out calls when dial tone is received or the local operator answers. The electromagnet also operates on in calls, as from an operator completing delayed calls.

5.20 The polarized electromagnet used in dial postpay service moves its arm into the nickel channel only when the current flow is in a certain direction. The electromagnet is connected in the circuit so that the current received for dialing moves the arm into the channel. At the time a nonfree call from the coin telephone is answered by the called party, the current flow is reversed to the coin station. This reversed flow of current moves the arm out of the nickel channel, which then requires that two nickels or a dime be deposited to complete the call. On calls to or from an operator, the current flow is not reversed, and

the arm is positioned in the nickel channel. This allows single nickel deposits.

Gong Assembly

5.21 The gong assembly is mounted on the coin chute, as shown in Fig. 25. It consists of a supporting bracket on which are mounted the two gongs and their associated signal transmitters. The solid gong for nickel and dime signals and one signal transmitter are mounted on a metal plate. The cathedral gong for quarter signals and the second signal transmitter are mounted on a bracket. The two units are insulated against vibration from each other and from the coin chute by use of rubber grommets at all mounting points. The support bracket also provides a guide to protect the switchhook gate-operating arm from damage when the upper housing is assembled on the backplate.

5.22 The signal transmitters are associated with handset-type coin collectors. In the construction originally employed, the gong assembly was supported on hinge lugs in the top of the upper housing to allow the assembly to be swung out for maintenance purposes. The first of this type employed only one signal transmitter. A second signal transmitter was added later to improve the coin signals. Transmitter- and receiver-type coin collectors have the gongs mounted on the sides of the upper housing, and the coin signal is picked up by the talking transmitter. When converted to handset types, these collectors are equipped with a signal transmitter inside the solid gong.

MECHANISM UNIT

5.23 The mechanism unit consists of a steel base and coin hopper on which are mounted coin-operated and coin-control equipment as required for the particular service involved. The mechanism base is mounted on top of the lower housing, where the base also serves as a cover for the coin receptacle compartment.

MANUAL POSTPAY SERVICE

5.24 In manual postpay service, coins are deposited only after the operator has completed the connection to the called party. Refund of deposits is not required. The coin hopper serves simply as a guide to direct coins from the coin chute into the coin receptacle. The later-type coin hopper has clean-out holes to aid in removing stuck coins (see Fig. 13).

5.25 The central office line circuit for manual postpay service furnishes battery on the ring side and ground on the tip side of the line, the same as for flat-rate individual lines. This requires only a completion of the loop through the telephone primary circuit to operate the line circuit and signal the local operator (loop start).

MANUAL OR DIAL COIN FIRST (PREPAY) SERVICE

5.26 In coin first service a deposit is required before dial tone is received or the local operator answers. Deposits are refunded if the call is not completed. The coin-relay assembly has a coin trigger which extends into the coin hopper above the coin trap (see Fig. 15 and 16). The first coin entering the hopper forces the trigger down to a tripped position. Tripping of the coin trigger operates contacts on the coin-relay switch assembly, preparing the telephone circuit for out calls.

5.27 The central office line circuit used with dial coin first service supplies battery on the ring side of the line and has the tip side of the line open. A coin or coins must be deposited to place a ground at the station to operate the line-circuit equipment (ground start). The ground is placed on the tip side and is connected to the battery on the ring side through the primary circuit when the switchhook is up. The line circuit operates and prepares the line for dialing over the tip and ring conductors as indicated by dial tone.

5.28 Manual offices supply battery on the tip side of the line with the ring side open. With the trigger tripped, the ground on the tip side will signal the operator even though the handset or receiver is not off-hook. The central office cord circuit supplies talking battery over the tip and ring conductors.

Coin-Relay Switch Assembly

5.29 The coin-relay switch assembly consists of two pairs of spring contacts (see Fig. 23). One pair, which is normally open, closes when the trigger is tripped by a deposited coin and connects ground through the coin-relay winding to the tip side of the line. The connection to the tip side of the line is made through the center tap connection

of the network or induction coil. This balances the talking circuit to ground and prevents excessive inductive noise interference.

5.30 The second pair of spring contacts is normally closed and is opened when the trigger is tripped. The contacts are wired in parallel with the pulsing contacts of the dial. With the coin-relay contacts closed, the dial-pulsing contacts are shorted. The coin trigger must be tripped and the shorting contacts opened before dialing can be accomplished.

5.31 Earlier-type coin relays were equipped with ground contact springs only (2-spring relay). Dial shorting was first accomplished by adding one normally made contact to the assembly (3-spring relay).

5.32 The single-coil, slow-release, coin-relay switch assembly, in addition to ground and dial-shorting contacts, has a 3-spring break-make combination which functions to short-circuit either a resistor or the relay coil as shown in Fig. 28 and as covered in 5.41.

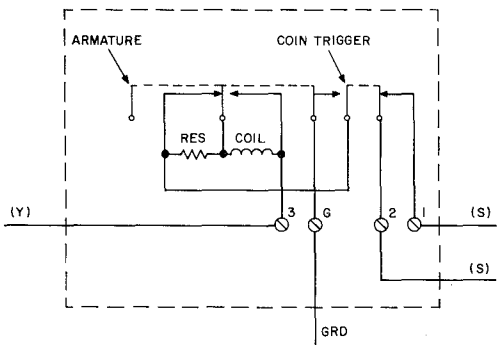


Fig. 28—Single-Coil, Slow-Release Coin Relay

Coin Hopper

5.33 For coin first service, the hopper is equipped with a coin trap which stops and holds all coins that enter the coin hopper. The coin trap is held in its horizontal position or released in relation to the position of a coin vane. The coin vane is under the control of the coin relay which is mounted on the mechanism base, Fig. 15, or on the coin hopper, (Fig. 16).

Coin Relay

5.34 The coin relay is operated to its collect or refund position through the tip ground. Positive coin-collect battery or negative coin-return battery (nominally 116 or 125 volts) is applied to the line, as required, under the control of central office equipment or the operator. To clear coins from the hopper, the relay must remain operated for approximately 1/2 second, otherwise the coins may become wedged in the hopper. The tip ground also provides a signal to other central office equipment, showing that coins have been deposited. Coins may be disposed of while the customer is on the line.

5.35 The operation and subsequent release of the coin relay restores the coin trigger and switch-assembly contacts to their normal position.

Two-Coil Coin Relay

Two-coil coin relays are obsolete and cannot be used with Dial Tone First service; consequently, it is recommended that all 2-coil coin relay coin collectors be replaced with single-coil coin collectors or coin telephone sets.

5.36 The 2-coil coin relay (Fig. 15) is a polarized relay. Its direction of operation depends on the direction of the current flow through its windings. Positive current pulls the armature down on the right side and operates the coin vane to the left or collect position. Negative current pulls the armature down on the left side and operates the coin vain to the right or refund position. Moving the coin vane from under the coin trap allows the weight of the held coin or coins to swing the coin trap downward. The coins drop into the coin receptacle or the return chute according to the position of the coin vane.

Single-Coil, Slow-Release Coin Relay

5.37 The single-coil coin relay (Fig. 16) consists of a nonpolarized armature and relay coil designed for fast operation and slow release. Collect and refund operation of the coin vane is controlled by a polarized selector card located at the back of the relay assembly as shown in Fig. 29. The

selector card is made of nylon and has a small permanent magnet embedded along its upper edge.

5.38 The selector card is tilted slightly to one side or the other according to the polarity of the current applied to the relay. This is accomplished by two pole-piece extensions, one extension being positioned above each end of the permanent magnet. While in the tilted position, the selector card is moved downward by the operation of the relay armature. This movement guides a cam coupled to the coin vane to the right or to the left according to the direction in which the selector card is tilted.

5.39 With the selector card tilted down on the right side, the coin vane is moved to the right or refund position. With the left side of the selector card tilted down, the coin vane is moved to the left or collect position.

5.40 The coin trap is also mechanically opened by the downward stroke of the selector card and restored on the release stroke. This expedites coin disposal and avoids coins, lodging in the trap. With the coin vane and the coin trap both under the control of the selector card, their movements are synchronized and friction and scoring between these two moving parts are eliminated. The slow-release feature of the relay ensures time for complete disposal of coin deposits even on short coin-battery pulses.

5.41 The slow-release feature is obtained by short-circuiting the coin-relay winding near the end of the operate stroke (Fig. 28). During the holding period the 1000-ohm resistor is substituted for the short-circuited relay coil. This protects the coin battery resistance lamps in the central office from a current surge and protects the coin-relay ground contacts from excessive arcing when they open while coin battery is still applied to the line. To prevent reoperation of the relay, the ground contacts are opened on the release stroke before the short circuit is removed from the relay coil.

5.42 With either-type relay, the ground circuit remains closed at the station until the release stroke to ensure proper operation of coin pilot

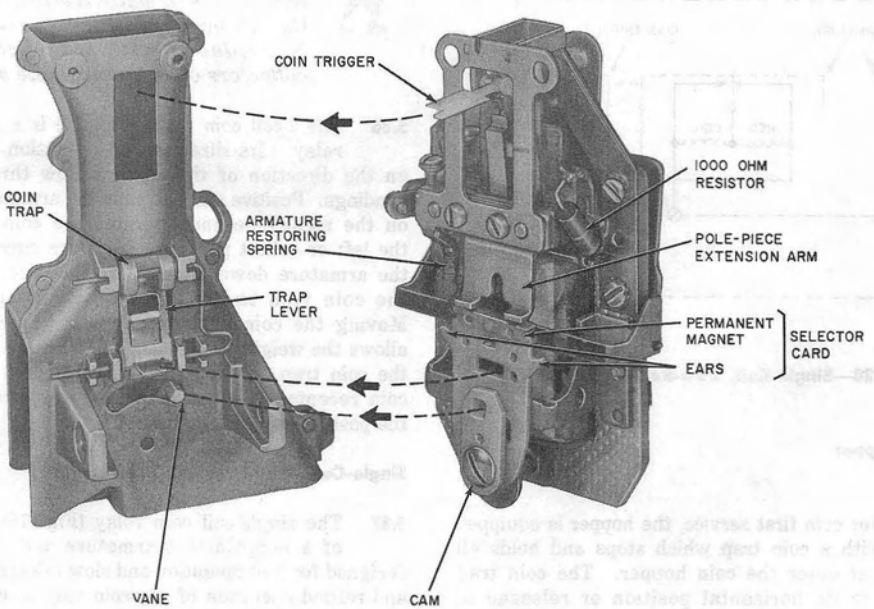


Fig. 29—Coin Hopper and Rear View of Coin Relay

lamps at manual or toll switchboards. On the 2-coil relay the station ground circuit remains closed, and the coin pilot lamp is lighted as long as the collect or refund key is held operated. Due to the self-restoring feature of the single-coil relay; however, the station ground remains closed only during the operate and slow-release holding period. This limits the maximum time the coin pilot lamp will remain lighted but ensures at least 1/4-second appearance, which is considered adequate.

5.43 The selector card and vane cam are designed so that they center mutually at the end of the release stroke. When the relay is operated manually, the selector card must first be tilted by pressing downward on one of the ears located on either side of the selector card before the armature is closed. This avoids jamming the engaging surfaces of the selector card and the cam. Force applied downward to the ear on the right side of the selector card will operate the relay mechanism in the return direction. Force applied downward on the left side will operate it in the collect direction.

Coin Shield

5.44 The coin shield shown in Fig. 15 functions to prevent unauthorized access to the coin hopper. The coin shield is required on all coin first coin collectors which do not have pull-bucket return chutes.

DIAL POSTPAY SERVICE (CDO)

5.45 In dial postpay service, dial tone is received, the called number is dialed, and the called party answers before a deposit is required. Refund of deposits is not necessary. Dial postpay service has central office equipment which, when the called party answers on nonfree calls, automatically splits the connection and sends a deposit-coin tone to the calling party. Deposit-coin tone is a low tone to inform the calling party that the called party has answered and that the required coins should be deposited. During the time the connection is split, the battery supply to the coin station is reversed in direction. This current reversal switches the coin collector for the 10-cent initial coin deposit. The first coin, passing through the coin hopper, opens a pair of contacts on the spring assembly, which places a 4450-ohm resistor momentarily in the circuit. The increased loop resistance will cause the central office equipment to remove the split connection and to switch the circuit for conversation.

5.46 The central office line circuit for dial postpay service furnishes battery on the ring side and ground on the tip side of the line. This requires only a completion of the loop through the primary circuit to operate the line circuit and prepare the line for dialing as indicated by dial tone (loop start).

5.47 For dial postpay service, the coin hopper is equipped with a coin trap and a coin vane. The coin vane is positioned permanently to the left, allowing all coins to drop into the coin receptacle. With the coin vane locked in the collect position, a coin shield is not required. A coin-trap counterweight holds the coin trap in a horizontal position unless it is forced downward by a passing coin (see Fig. 14).

5.48 A contact-spring assembly is mounted on the coin hopper. The assembly consists of a pair of normally closed contacts which are opened by linkage to the movement of the coin trap. This results in the contacts being opened momentarily as each coin drops through the coin hopper and forces the coin trap downward. The contacts are wired in series with the primary circuit of the telephone.

5.49 A 63CH (4450-ohm) resistor mounted on the mechanism base is wired in multiple with the contact springs in the primary circuit. The resistor is shunted out of the circuit when the contacts are closed and is effective in the circuit when the contacts are opened.

5.50 A 31A varistor or 446F diode which is mounted on the contact-spring assembly bracket is also bridged across the resistor and the contacts. The varistor or diode is poled so as to be in opposition (open) to the reverse current flow on the line. Under this reverse current condition, the varistor or diode will not shunt out the resistor when the contacts are opened. Normal direction current will flow through the varistor or diode, shunting the resistor, as when coins are deposited with an operator on the line. This reduces objectionable clicks.

6. MAINTENANCE

COIN FIRST (SINGLE-COIL COIN RELAY)

6.01 When trouble cannot be cleared:

(a) Notify testdesk.

(b) Place out-of-service tag over coin gauge.

6.02 When service is restored, remove tag.

A. Tools, Gauges, Cords, and Materials

6.03 Tools, gauges, cords, and materials which may be required in addition to those normally carried are described in Division 506, section entitled: Coin Telephone Stations Tools, Gauges, Materials.

B. Cleaning

Remove handset from switchhook before removing or replacing upper housing to avoid damage to the gate operating arm. Do not reassemble upper housing without replacing coin relay dust cover.

General Cleaning

Check operation of coin station following cleaning operations which may affect the mechanism.

6.04 To remove loose dirt or dust:

(a) Use cleaning paper, KS-2423 cleaning cloth or a No. 6 sash brush

6.05 To remove sticky deposits:

(a) Use cloth or brush moistened with water.

(b) Wipe dry.

6.06 To remove gummy deposits:

(a) Use cloth or brush moistened with KS-7860 petroleum spirits.

KS-7860 petroleum spirits is flammable. Use safety precautions when handling.

(b) Wipe dry.

Coin Gauge

6.07 To clean dirty or sticky coin gauge openings use moistened pipe cleaner.

Coin Chute

6.08 DO NOT CLEAN COIN CHUTE.

(a) Check for dirt at bottom of coin chute.

(b) Replace if dirty or corroded.

(c) Upper mounting screws or bayonet guides and springs may be cleaned with a KS-2423 cloth and KS-7860 petroleum spirits.

Do not lubricate nylon bushings, lower mounting screw, and rubber grommets.

(d) Replace if electromagnet armature, latch spring, or gate spring show signs of rust.

(e) Coin chute should be changed rather than replacing upper housing unless other conditions warrant replacing the housing.

Coin Return

6.09 If coin return is badly corroded, replace instrument.

6.10 To clean coin return see 6.04 through 6.06.

Housing Contacts

6.11 Clean contacts with No. 320 or ***finer*** aluminum oxide cloth.

6.12 Wipe off with KS-16601, List 1 paper or KS-2423 cleaning cloth.

Locks

6.13 Use a 528A tool to remove foreign material from upper housing and security locks.

Washer Reject and Coin Release Mechanism

6.14 Remove upper housing and coin chute (see 6.30).

6.15 If mechanism is damaged, replace upper housing.

6.16 To clean:

(a) Remove dust from reject mechanism with a dry KS-14164 brush.

(b) Clean star wheels and pushbutton with KS-7860 petroleum spirits applied with a KS-14164 brush.

(c) Wipe dry.

6.17 If star wheels still do not move freely, replace upper housing. ***Do not lubricate.***

Do not attempt to reposition or bend star wheels or castings.

6.18 Lubricate shaft of coin release pushbutton with No. 2B or softer lead pencil.

6.19 Reassemble mechanism, see 6.32.

Coin Relay

6.20 Remove foreign magnetic particles which have accumulated on selector card magnet and pole piece extensions as follows:

(1) Fold a piece of rubber tape over the end of an orange stick.

(2) Depress selector card; then, hold armature operated.

(3) Press rubber tape against pole piece extension arms and magnets in selector card so that foreign particles adhere to tape.

C. Upper Housing

Dial Replacement

6.21 Replace 4- or 5-type dial with 5-type dial.

Note: Replacement of a 4- or 5-type dial with a 6-type dial involves added replacement of dial adapter, number plate, dial cord, and possible modification of upper housing; therefore, upper housing should be replaced rather than replacing a 4- or 5-type dial with a 6-type dial.

(a) To mount 5-type dial on upper housing, insert two 641A tools in dial mounting holes as guide pins.

6.22 Replace 6-type dial with 6-type dial.

(a) Assemble mounting studs to dial before mounting dial.

Coin Deflectors

6.23 The 63A dial adapter used with the 6-type dial incorporates a coin deflector to prevent dropped coins from lodging behind the dial.

6.24 A P-14A544 coin deflector is used with the 5-type dial and the 56A dial adapter. P-14A544 coin deflector replaces earlier P-16A805 coin deflector. See Fig. 30 and 31 for installation.

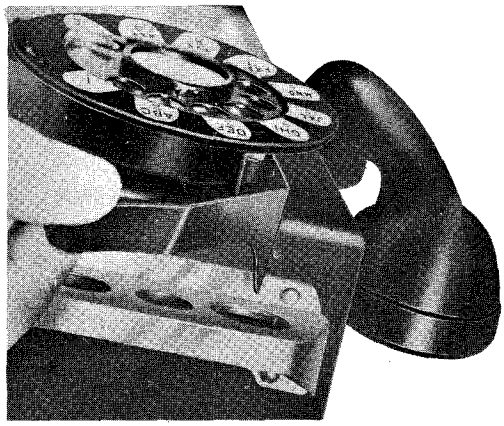


Fig. 30—Method for Installing P-14A544 Coin Deflector

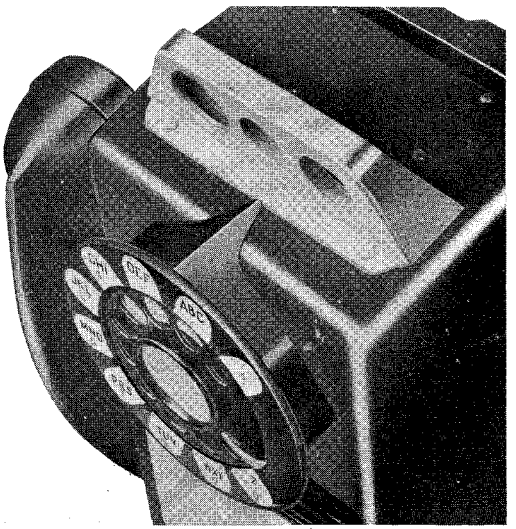


Fig. 31—P-14A544 Coin Deflector in Place

Stuck Coins

6.25 To remove coins or slugs stuck in coin gauge:

(a) Use fingers or an orange stick, do not use a screwdriver or other metal object.

(b) Loosen or remove coin chute if necessary (6.30).

6.26 Replace upper housing if coin gauge is mutilated or distorted.

6.27 To remove coins or slugs stuck in coin chute use orange stick or other nonmetallic tool. Remove coin chute, if necessary. See 6.30.

6.28 Replace coin chute if coin channels are bent or damaged.

6.29 Remove slugs, foreign coins, or washers stuck in coin reject opening. Check reject opening with a standard coin before chute is reassembled in upper housing.

Coin Chute Replacement

6.30 To remove coin chute from upper housing:

(1) Disconnect attached leads.

(2) Loosen filter, if present and leave filter hanging loose.

(3) If gong signal assembly is mounted on swing type bracket:

- Remove mounting screws and swing out of way.

(4) Remove mounting screw.

(5) Remove bayonet guides by pushing them toward coin chute and rotating one-fourth turn in either direction.

(6) Lift coin chute from upper housing.

6.31 If existing coin chute is equipped with gong signal assembly, capacitor, or resistor, and the replacement chute is not so equipped, remove items and place on new chute.

Note: End of gate operating arm guide on capacitor mounting bracket should clear gate lever (Fig. 32).

6.32 To reassemble coin chute in upper housing, reverse removal procedure.

Caution: Bayonet guides not securely fastened may fly out when coin release pushbutton is depressed.

Coin Chute Alignment

6.33 Check chute alignment with upper housing removed from lower housing and in a vertical position.

(a) Deposit nickel in 5-cent slot of coin gauge. Coin shall pass freely from gauge into chute. Coin should stop at first latch.

(b) Deposit second nickel. Locking latch should release, allowing coins to continue through channel.

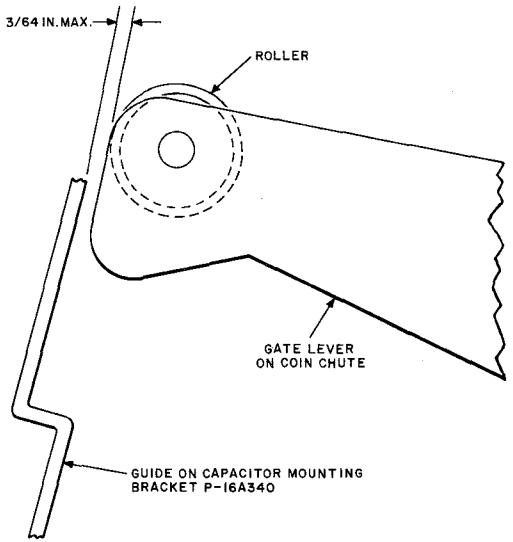


Fig. 32—Clearance Between Guide and Gate Operating Arm

(c) Deposit dime and quarter in 10-and 25-cent slots of coin gauge, respectively. Coins shall pass freely through chute.

(d) Deposit nickel in 25-cent slot of coin gauge: Coin shall pass freely from gauge into chute and pass through coin return channel.

6.34 If coins do not enter chute freely, check that chute is properly positioned on mounting flanges, and that mounting screw and bayonet guides are secure.

- Do not use washers to align chute.
- Do not attempt to straighten distorted chutes.

6.35 If checks described fail, try another chute. If coin still fails to enter chute freely, replace upper housing.

Coin Signals

6.36 Make certain coins strike signal gongs at time coin chute alignment tests are made.

Final judgment of coin signal tones shall be determined by the operator.

6.37 Coin signals shall be as follows:

(a) When a nickel or quarter passes through the coin chute, the associated gong should emit one clear signal.

(b) When a dime passes through the chute, the gong should emit two clear signals.

(c) If signal is poor:

- Check for interference caused by improperly dressed wires.
- Check that gongs are the proper type and fastened securely.
- Check for broken coin signal transmitter wires.

6.38 Signal gongs

- Oval gongs should be mounted so that punch mark is within 1/8-inch of the center plane of the gong and at right angles to face of gong mounting bracket.
- Round gongs may be rotated to any position.
- Make sure quarter does not override quarter gong.

6.39 Replace coin chute, if satisfactory signals cannot be obtained.

Coin Release Mechanism

6.40 Coin chute shall rest against both flanges of frame assembly, not against pushbutton mechanism.

6.41 When pushbutton is fully depressed top of the coin chute should move approximately 1/4-inch. Gradual release of pushbutton should allow coin chute to return freely to its normal position.

If cardholder mounting screw interferes with electromagnet cover, clip off end of screw.

6.42 Pushbutton should not bind at any point over its entire length of travel.

6.43 Replace upper housing if pushbutton does not meet requirements in 6.42.

Cord Interference

6.44 Cords or wiring should not interfere with passage of coins through coin chute or with any moving parts.

Security Lock

6.45 Upper housing may be equipped with KS-19277 lock assembly. When upper housing is removed, apply KS-19094 antiseize compound to threads of bolt or stud fastener. Refer to Division 506, section entitled: Service, Security Devices for additional information on KS-19277 lock assembly.

50K Apparatus Blank

6.46 All 50K apparatus blanks that do not meet company standards shall be replaced with 50K-4 (chrome) apparatus blank (Fig. 8).

6.47 To replace 50K apparatus blank:

(1) Remove upper housing.

(2) Remove three No. 4-36 by 9/32 RHM screws.

(3) Install new apparatus blank using reverse procedure.

6.48 Replace damaged or missing screws and plastic windows per Fig. 33.

8B Card Holder

6.49 All 8B card holders that do not meet company standards shall be replaced with 8B-44 (chrome) card holders (Fig. 9).

6.50 To replace 8B card holder:

(1) Remove upper housing.

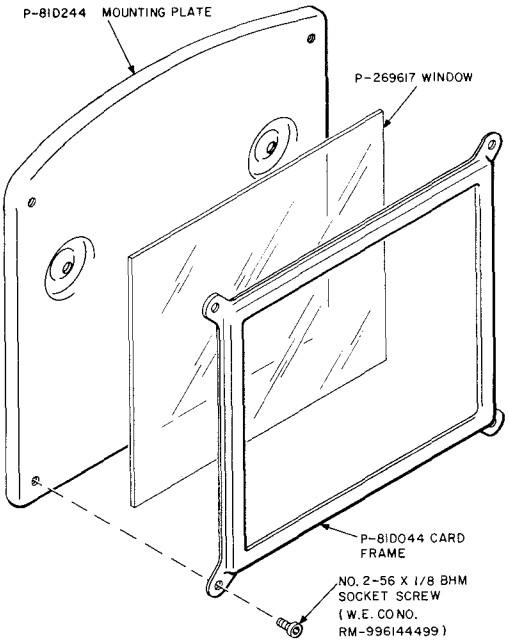


Fig. 33—50K-44 Apparatus Blank

(2) Remove three No. 4 hex nuts.

(3) Install new 8B card holder using reverse procedure.

6.51 Replace damaged or missing screws and plastic windows. Slot head frame screws shall be replaced with No. 2-56 by 1/8 BHM socket screws (Fig. 34).

D. Lower Housing and Backplate Assembly

Handsets

6.52 Refer to Fig. 35 for routing and securing handset cord in 235- and 1235-tye coin collectors.

6.53 Refer to Division 506, section entitled: Service, Security Devices, for routing and securing handset cord in all other type coin collectors.

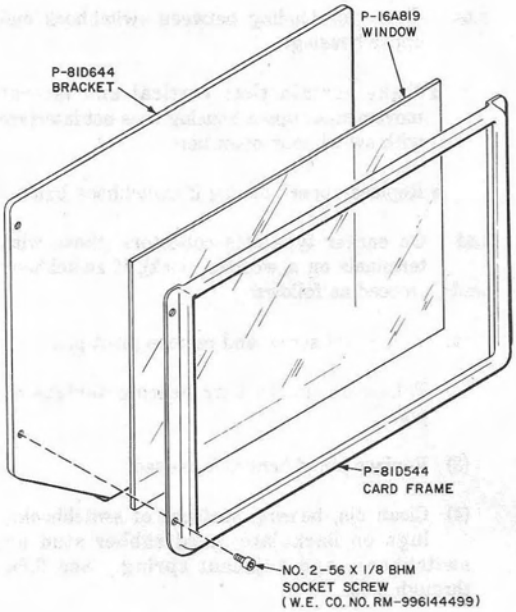


Fig. 34—8B-44 Card Holder

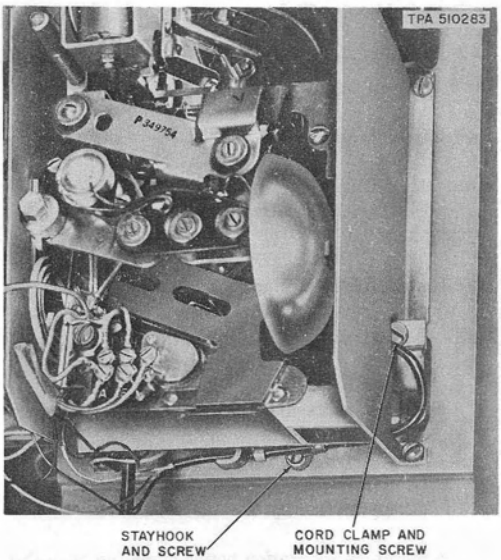


Fig. 35—Location of Armored Cord Mounting Hardware in 235- and 1235-Type Coin Collector

Antifraud Transmitter Unit

6.54 The T2 and T3 transmitter units (Fig. 36) have a protective grid to prevent fraudulent operation of the coin collector. The T3 (Fig. 37) unit has screw terminals for use with spade tip conductors.

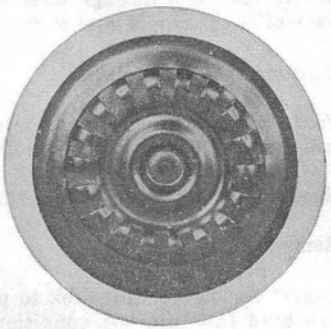


Fig. 36—T2 and T3 Transmitter Units, Front View

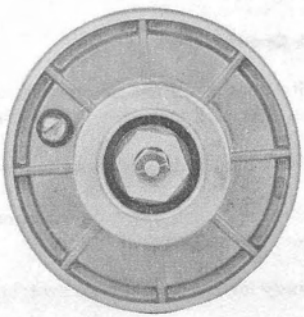


Fig. 37—T3 Transmitter Unit, Rear View

Defective Capacitor

6.55 Replace 195C capacitor if filling compound is leaking or container is collapsed.

37A Varistor

6.56 If varistor is used, ensure that it is properly connected.

6.57 Replace varistor if insulating finish on lead-out terminal is cracked or chipped.

Full Coin Receptacle

6.58 To clear coin paths blocked by full coin receptacle:

- Insert 139B tool through leveling hole in base of mechanism to level coins.

6.59 To determine coin level:

(1) With tool touching coins, move sliding indicator as far downward as possible.

(2) Read scale at top of sliding indicator.

(3) Remove tool

6.60 Report findings to test desk to prevent a repeated full coin box condition before collection.

6.61 If service cannot be cleared, place out-of-service sign or tag (Fig. 21, 22, and 23).

Switchhook Operation

6.62 Switchhook shall not be cracked, broken, or bent, and shall move freely. Test as follows:

(1) ***Slowly*** lift handset from switchhook:

- Switchhook shall move upward and come to a positive stop against backplate.

(2) ***Slowly*** lower handset onto switchhook:

- Switchhook shall move downward and come to a positive stop against backplate.
- If failure occurs, check operation of gate on coin chute.
- See 6.69 through 6.72 for gate operating arm adjustments.

6.63 Replace switchhook if failure is due to over travel caused by worn switchhook stops.

6.64 Check for binding between switchhook and upper housing:

- Make certain that vertical and lateral movement of upper housing does not interfere with switchhook operation.
- Replace upper housing if switchhook binds.

6.65 On earlier type coin collectors (those with terminals on a wooden block), if switchhook binds, proceed as follows:

(1) Loosen set screw and remove pivot pin.

(2) Take care not to burr bearing surface of pin.

(3) Replace pin if bent or corroded.

(4) Clean pin, bearing surfaces of switchhooks, lugs on backplate, hard rubber stud on switchhook, and adjacent spring. See 6.04 through 6.06.

(5) Lubricate with 2B or softer lead pencil.

(6) Reassemble switchhook. Pivot pin shall be within 1/64- to 1/32-inch from end of hole in switchhook. Tighten switchhook.

(7) Replace coin collector, if above operations do not clear trouble.

Switchhook Replacement

6.66 Refer to Division 506, section entitled: Service, Security Devices, for switchhook replacement.

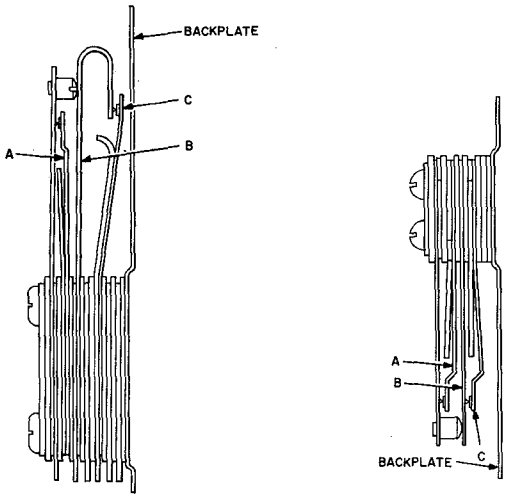
Switchhook Contact Springs

6.67 Adjust contact follow and separation as follows:

- All contacts shall have perceptible follow (approximately 1/64-inch).
- Contact pairs of twin contacts shall make at approximately the same time.
- Minimum separation between mating point-disc type and bar type contacts shall be 0.025 and 0.016 inch, respectively.

- Clearance between noncontacting springs and between spring and backplate is shown in Fig. 38.

Use 265C tool to burnish contacts.



NOTE:
MIN. 1/32 IN. CLEARANCE BETWEEN SPRINGS A AND B, AND BETWEEN SPRING C AND BACKPLATE. JUDGE VISUALLY.

Fig. 38—Spring Clearance

6.68 Spring pile-up shall be tight and contacts shall be aligned so that contact point falls within circumference of opposing contact disc, or a contact bar falls within length of opposing contact bar.

- If switchhook spring pile-up is loose on earlier model coin collectors (having terminals on a wooden block), tighten spring pile-up; if contacts do not line up, loosen spring pile-up, realign contacts and retighten.

- On coin collectors having terminals in the spring pile-up, replace coin collectors if spring pile-up is loose or contacts do not line up.

Gate Operating Arm Adjustment

6.69 With upper housing in place and handset off-hook check as follows:

(1) Deposit a single nickel which should be stopped by holding latch.

(2) Lower switch hook slowly to release nickel.

- There should be perceptible switch hook travel before and after nickel is released by holding latch.

6.70 If requirement in 6.69 is not met, check operating arm using 178A or 178B gauge (Fig. 39).

- With switchhook in down position, bottom surface of curved end of arm shall be between the two arcs and lines A and B.

- With switchhook in up position, bottom surface of curved end of arm shall be between the two arcs and lines C and D.

6.71 To adjust position of gate operating arm:

- Bend lugs on each side of support bracket with 466A tool.

- On early type, adjust spring arm only.

6.72 Replace switchhook if requirements cannot be met by adjustment.

Coin Relay and Hopper Tests

Note: No modification or adjustment of coin relay or hopper other than those specified herein shall be made.

Ground Contact Springs

6.73 Remove P-10E783 dust cover from coin relay.

6.74 In coin first switching systems, connect hand test set across line terminals and trip coin trigger. Dial tone should be heard. If not:

(1) Verify presence of central office battery and station ground.

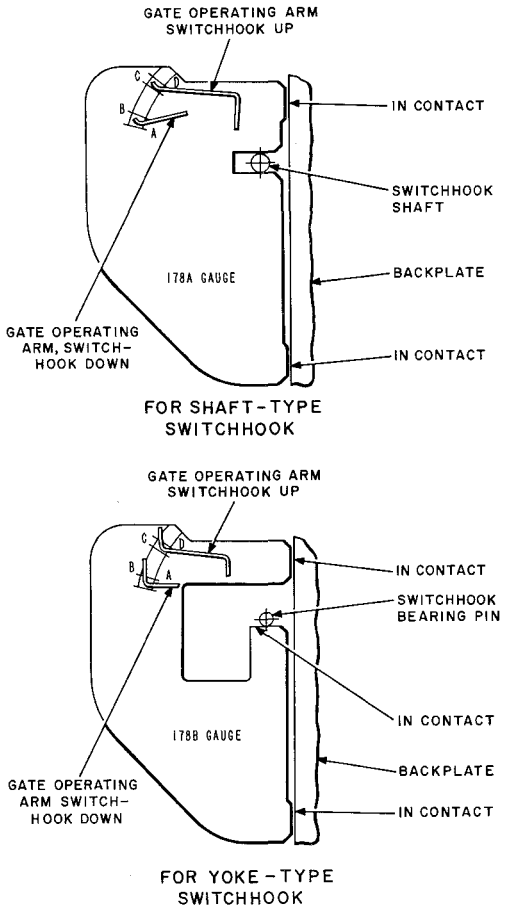


Fig. 39—Use of 178-Type Gauge

(2) If contacts make firmly, but test open, burnish with 265C tool.

(3) If dial tone is still not heard, replace relay.

6.75 Lubricate surface between trigger and contact spring with 2B or softer lead pencil (Fig. 40).

6.76 An open resistor will result in no coin pilot light at testboard. Verify as follows:

(1) Connect hand test set across line terminals with coin trigger not tripped.

(2) Close relay armature to its full extent of travel. Dial tone should be heard.

(3) If dial tone is not heard, replace relay.

Caution: Tilt selector card by pressing downward on one of the ears before manually operating the coin relay. This avoids jamming selector card and cam engaging surfaces.

Dial Shorting Springs

6.77 With coin trigger unoperated, contacts shall be made and have perceptible follow.

6.78 With coin trigger tripped, contacts should be open.

6.79 Contacts shall shunt dial pulsing contacts when coin trigger is unoperated. Check as follows:

(1) Provide ground on line by inserting paper clip or equivalent between ground terminal and spring pile-up of No. 4 spring (Fig. 41).

Note: Make sure paper clip does not touch the spring contact portion of No. 4 spring. Avoid making contact with No. 3 terminal.

(2) Place upper housing on coin collector and listen for dial tone.

(3) When dial tone is heard, dial any digit except "0" 02 "1". Dial tone should not be broken.

(4) Remove upper housing.

(5) Remove paper clip.

(6) If dial tone is broken, burnish contacts with 265C tool, check housing transfer spring contacts, and wiring for continuity, and repeat test.

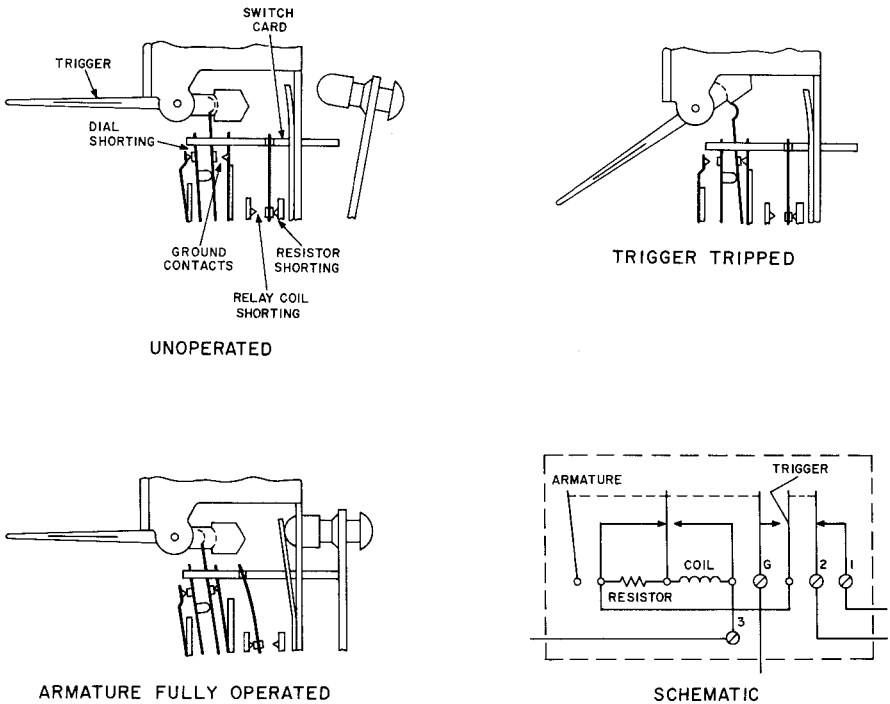


Fig. 40—Contact Spring Assembly

6.80 Replace dust cover.

Trap and Vane Release Test

Note: Disconnect ground from coin relay while making this test at manual stations.

6.81 Test as follows:

(1) Manually close coin relay armature to its full extent of travel.

(2) Insert KS-14995, L3 tool into hopper to operate trap to the limit of its travel (Fig. 42).

(3) Release armature.

(4) Slowly withdraw tool.

(5) Armature, trap, and vane should return to nonoperated position and trap should be locked.

(6) Make test three times in both collect and refund positions, pressing left side of selector card ear for collect and right side for refund.

(7) If mechanism fails to restore properly, check mounting for binding.

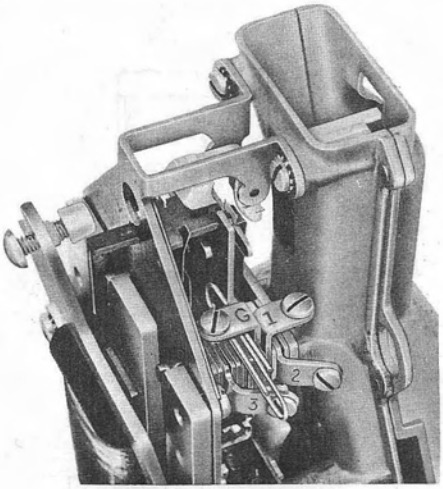


Fig. 41—Method of Strapping Ground Around Ground Contacts on Coin Relay

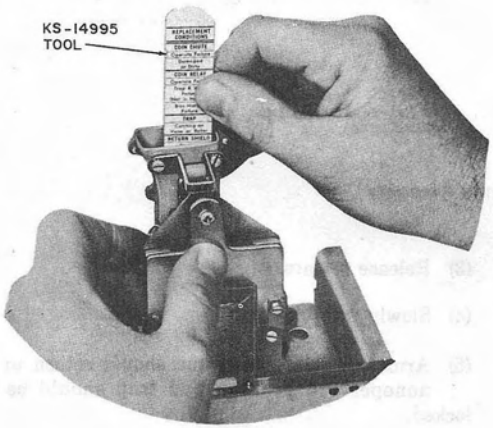


Fig. 42—Trap and Vane Release Test (Single Coin Relay)

6.82 If mechanism still fails, remove coin relay from hopper as covered in 6.84 and proceed as follows:

(a) Check vane for binding:

(1) Hold vane tilted slightly to the right.

(2) Vane shall drop to right when released.

(3) Hold vane tilted slightly to the left.

(4) Vane shall drop to left when released.

(5) If vane binds, replace coin collector or replace vane as outlined in Section 506-100-110.

(b) Check operating, restoring, and locking of coin trap.

(1) Depress trap-lever tab slowly with finger.

(2) Coin trap shall fall freely and come to a positive stop.

(3) Release trap lever slowly.

(4) Coin trap shall restore and lock.

(5) If trap-lever spring is missing or lacks sufficient tension, replace or retension spring. See 6.88.

(6) Replace defective coin trap, trap lever, or pin as required. See 6.89.

6.83 Remount relay and repeat test.

(a) If mechanism fails, replace relay.

(b) If mechanism still fails, replace coin collector.

Replacing Coin Relay

6.84 To remove coin relay from hopper:

(1) Remove wiring and four mounting screws.

(2) Slide relay forward to clear trap and vane and lift upward.

6.85 To replace relay on hopper:

(1) Move vane to left.

(2) With trigger tripped, place relay on hopper.

(3) Slide relay back until trigger enters opening hopper and trap-lever tab enters slot in selector card (Fig. 29).

(4) Close armature manually by pressing downward on ear on left side of selector card.

(5) Slide relay back, vane stem should enter hole in cam and mounting screw holes should line up.

(6) Replace mounting screws.

(7) Trigger should have some end play and armature, trap, and vane should operate and release without binding.

(8) If trigger binds, loosen upper mounting screws.

(9) If trigger is free with upper mounting screws loose, retighten screws evenly.

(10) Replace relay if trigger still binds.

Coin Trap and Associated Parts

6.86 Check coin trap spring tension as follows:

(1) Manually operate the coin relay armature to its fully closed extent of travel.

(2) Allow relay to slowly return to its nonoperate position.

(3) Insert KS-14995, List 3 tool into hopper (Fig. 42). Apply firm downward pressure with tool on coin trap in hopper throat; but ***DO NOT FORCE*** down enough to bend or break parts.

(4) If this firm ***but not excessive*** downward force does not cause the trap lever spring to release the trap, the existing spring is operating adequately. If the trap is released by this action, a new 840157333 wire spring should be installed.

6.87 After removing coin relay (6.84) install 840157333 trap spring (Fig. 44) as follows:

Note: A weakened or broken phosphor bronze spring can remain in the hopper assembly after the new wire type spring is installed.

(1) Move trap pin to the right so that left end of pin is flush with hopper guide.

(2) Holding notched left leg of new spring at an angle away from hopper, slide the right notched leg of the spring under trap pin.

(3) Swing loose end of spring across face of trap lever and position notch of left leg in alignment with end of trap pin.

(4) Push trap pin to the left over and through the left leg notch of the new spring, until the trap pin detents.

(5) Install coin relay (6.85).

6.88 To remove trap-lever and coin trap:

(1) Remove coin relay from hopper (6.84).

(2) Move vane to right.

(3) Remove trap pin (Fig. 43) by sliding vertical portion over boss on front of hopper.

(4) Turn coin trap sideways and remove through opening.

6.89 To replace coin trap and trap-lever:

(1) Partially insert trap pin into hole in hopper (Fig. 44) and place trap-lever on trap pin.

(2) Insert coin trap in hopper and engage pin in trap (Fig. 44).

Always install a wire type trap lever spring (6.87) when installing or replacing a coin trap.

(3) Push trap pin into position.

(4) Check operation per Table E.

(5) Replace relay on hopper per (6.85).

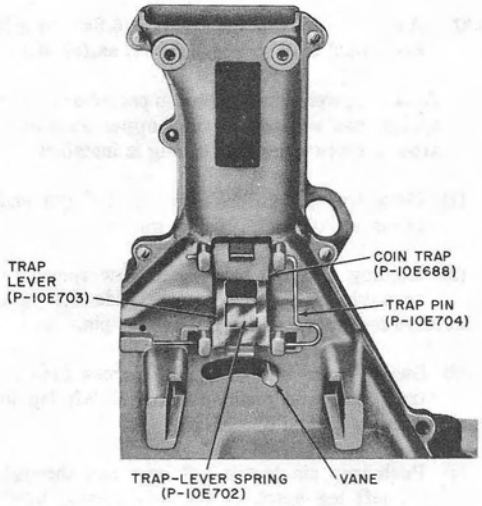


Fig. 43—Trap-Lever Spring and Trap-Lever Assembly

Grounding Coin Collector Housing

6.90 Check that grounding clip, (Tinnerman C-29313-012-445 or C-3412-020-38) is in place on upper housing.

6.91 Backplate assembly should be grounded as covered in Part 4.

Existing indoor booths which are not equipped with the No. 14 insulated ground wire assembly shall be grounded the same way as open-type installations.

Pull Buckets

Damaged pull buckets, broken or weak springs and defective shafts may be replaced in the field. Cash compartment must be unlocked and coin receptacle removed to allow access to split end of pull bucket shaft. Cash compartment need not be opened when replacing a plastic pull bucket. See 6.99.

Removal and Installation of Metal Pull Bucket

6.92 To remove:

(1) Use diagonal pliers to pry up tabs on split end of pull bucket retaining shaft (Fig. 45).

(2) Compress tabs with pliers to line up with shaft.

(3) Drive shaft from housing using hammer and drive punch.

(4) Swing pull bucket to open position and pull forward until ends of springs are exposed.

(5) Use TP-75503 spring hook to disconnect springs from coin chute crossbar.

(6) Disconnect springs from pull bucket crossbar.

6.93 To install:

(1) Use TP-75503 spring hook to assemble two new springs on pull bucket crossbar (Fig. 46).

(2) Hold pull bucket with coin recess upward, supporting springs with fingers so springs extend slightly into chute opening (Fig. 47).

(3) Use TP-75503 spring hook to engage springs on crossbar in coin chute (Fig. 48).

(4) Insert and hold pull bucket in normal position.

(5) Use orange stick or equivalent to line up holes in pull bucket and housing.

(6) Insert P-27E462 stainless steel shaft in housing and force fit using hammer and drive punch (Fig. 49).

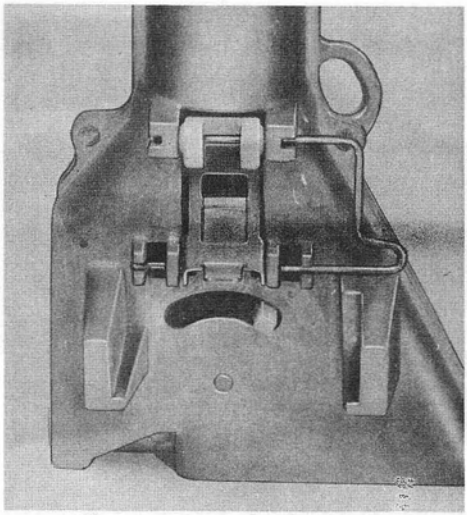
6.94 If pull bucket fails to operate properly, replace coin collector.

Removal of Plastic Pull Bucket

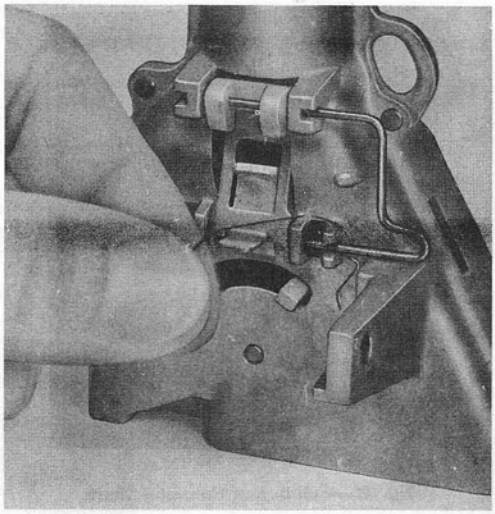
6.95 Replace damaged or inoperative plastic pull buckets with metal pull buckets.

6.96 To facilitate replacement of pull bucket without removing coin receptacle, proceed as follows:

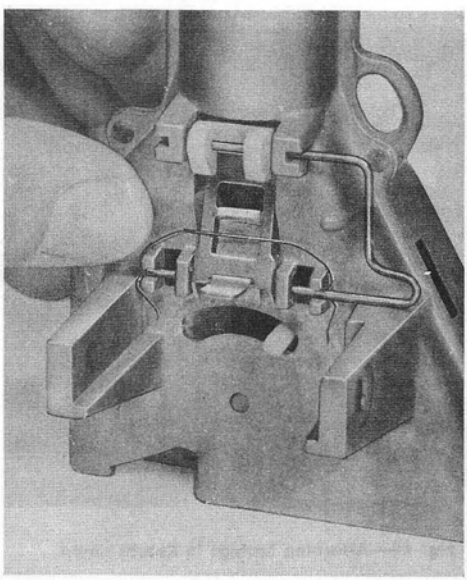
(1) Use hammer and cold chisel to break away lower part of plastic pull bucket which encloses the shaft.



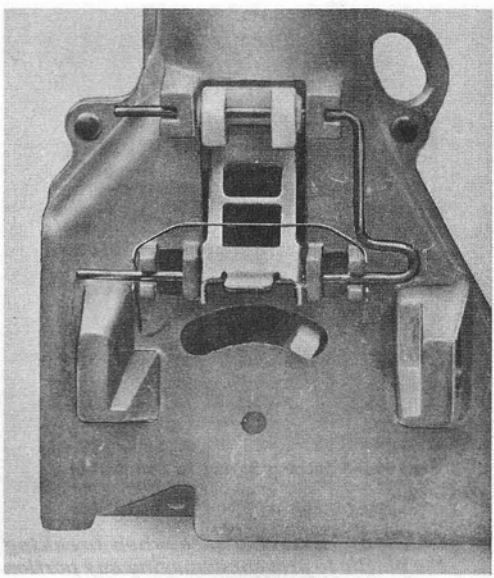
STEP 1



STEP 2



STEP 3



STEP 4

Fig. 44—Installing 840157333 Trap Level Spring

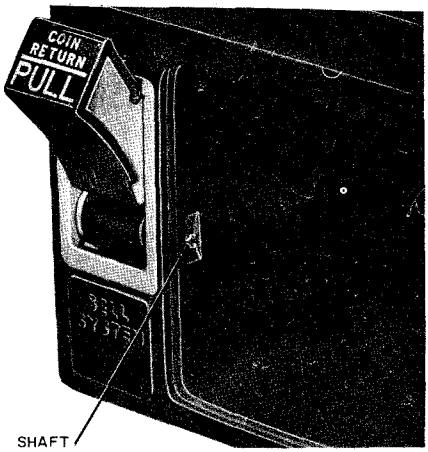


Fig. 45—Pull Bucket Retaining Shaft

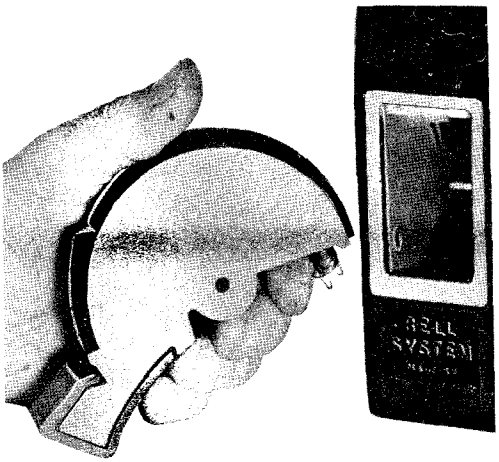


Fig. 47—Inserting Pull Bucket in Return Chute

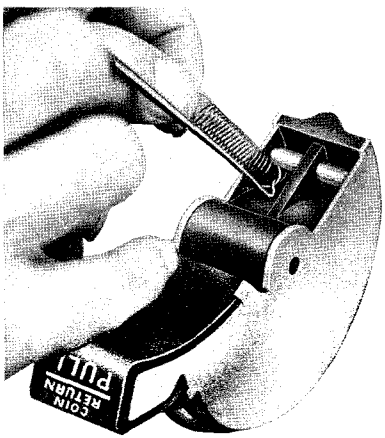


Fig. 46—Attaching Spring to Pull Bucket

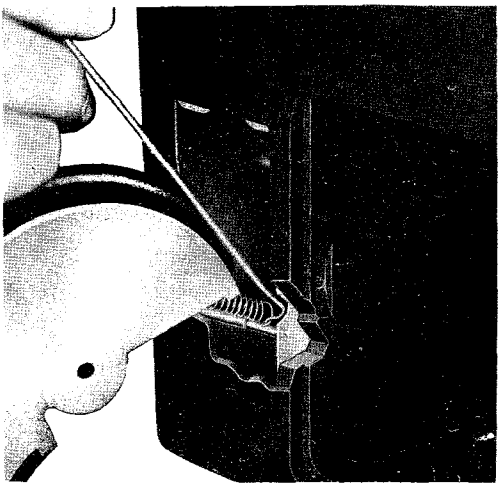


Fig. 48—Attaching Springs in Return Chute

Caution: Exercise care when breaking the plastic to prevent damaging any portion of the lower housing.

(2) Grip shaft with a pair of diagonal pliers and apply pressure horizontally to the left to remove shaft from the housing.

6.97 Install new pull bucket as outlined in 6.93.

E. Final Tests

Vertical Play

6.98 Vertical play of upper housing should not exceed 1/32-inch.

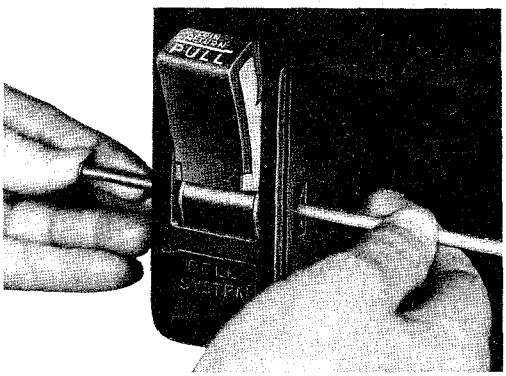


Fig. 49—Inserting Shaft in Housing

6.99 If vertical play is in excess of 1/32-inch, one or two P-12A745 spacer plates may be added as required.

- Spacer plate is 0.032 inch thick, with a turned edge, which gives it an effective thickness of 0.055 inch if positioned upward.

- Spacer plates may be used with turned edge up or down depending on the thickness required.

6.100 Spacer plates are mounted on top of upper housing and secured by the two rear card holder mounting screws.

- Card holder, if present, is positioned on top of spacer plates.

Noise or Cutout

6.101 With upper housing locked in place and talking battery on line, there shall be no noise or cutouts in the talking circuit resulting from moving the upper housing up and down, from side to side, and forward and backward.

6.102 If talking circuit is noisy or cutouts occur, proceed as follows:

- Clean housing contact springs.

- Use a 466A tool to adjust housing contact and equalizing springs to have approximately 1/4-inch follow (Fig. 50).

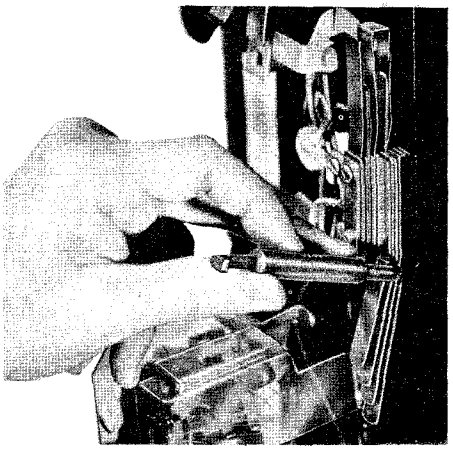


Fig. 50—Adjustment of Housing Contact Springs

6.103 If noise or cutout is caused by shaking cord or handset, replace handset.

F. Range Data and Coin Relay Operate Values

6.104 Refer to Table J for Dial Long Line requirements.

6.105 Refer to Table K for loop ranges.

6.106 Refer to Table L for old and new operate values.

Newly repaired coin relays will differ in operate values from earlier relays (Fig. 51 and 52). These relays will be marked with an asterisk (*) adjacent to the part No.

COIN FIRST (TWO-COIL COIN RELAY)

Caution: Remove receiver or handset from switchhook before removing or reassembling upper housing from or to backplate of coin collector equipped for

TABLE J

REQUIREMENTS FOR DIAL LONG LINE CIRCUITS ON COIN LINES
(FOR LIMITATIONS OTHER THAN COIN CONTROL)
(ASSUMES 300-OHM STATION SET RESISTANCE)

TYPE OF CENTRAL OFFICE	REQUIREMENTS
Step-by-Step	DLL CKT Required on Loops Over 1050 ohms
Panel	DLL CKT Required on Loops Over 885 ohms
No. 1 Crossbar	DLL CKT Required on Loops Over 1200 ohms
No. 5 Crossbar	DLL CKT Required on Loops Over 1300 ohms
No. 1 ESS	DLL CKT Required on Loops Over 1300 ohms
No. 2 ESS	DLL CKT Required on Loops Over 1300 ohms

TABLE K

MAXIMUM ALLOWABLE LOOP RANGES FOR CENTRAL OFFICE
COIN SUPPLY VOLTAGES — COLLECT AND RETURN ONLY
(MAXIMUM GROUND RESISTANCE 50 OHMS;
MAXIMUM DC EARTH POTENTIAL ±3 VOLTS)

TYPE OF CENTRAL OFFICE	MINIMUM COIN VOLTAGE	LOOP RANGE WITH 48 MA. OP. RELAY	LOOP RANGE WITH 41 MA. OP. RELAY
SXS, Panel, No. 1 XBar	100 volts (100-120V)	1500 ohms	2200 ohms
SXS, Panel, No. 1 XBar	115 volts (115-120V)	2100 ohms	3000 ohms
No. 5 XBar, No. 1 ESS, No. 2 ESS	125 volts (125-135V)	2500 ohms	3400 ohms

Note: Loop Range = Conductor Loop Resistance (excluding coin telephone set resistance).

TABLE L

MULTISLOT COIN COLLECTORS OPERATE VALUES OF COIN RELAYS

MARKING ON RELAY	OPERATING TIME	OPERATE CURRENT	NON-OPERATE CURRENT	REMARKS
P-10E786 P-13E961	625 ±75 millisec (Note 1)	48 milliamps	40 milliamps	Coil of restoral spring has a diameter of approximately 5/32-inch (Fig. 51)
P-10E786* P-13E961*	450 ±50 millisec (Note 2)	41 milliamps	30 milliamps	Coil of restoral spring has a diameter of approximately 9/32-inch (Fig. 52)

Notes:

1 — The timing interval of 625 milliseconds may be compared with the time it takes for a rotary dial to return to normal after dialing digit 6.

2 — The timing interval of 450 milliseconds may be compared with the time it takes for a rotary dial to return to normal after dialing digit 4.

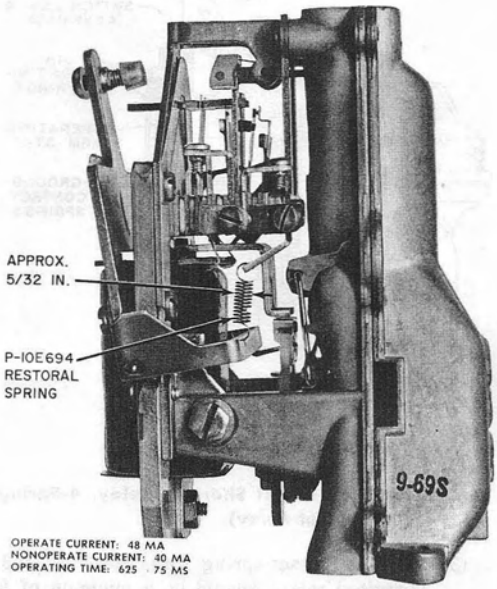


Fig. 51—Coin Relay Showing Old Operative Values

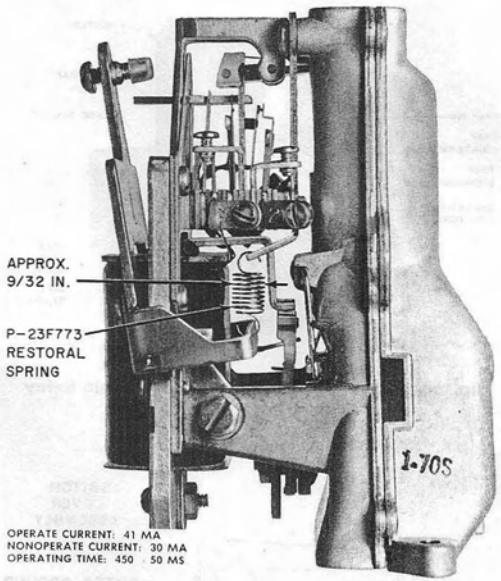


Fig. 52—Coin Relay Showing New Operating Values

10-cent operation. This reduces possibility of damage to gate operating arm.

G. Coin Relay and Hopper Tests

6.107 Refer to Fig. 53 and 54 for component parts.

6.108 Refer to Fig. 55 and 56 for spring arrangements.

Ground Contact Springs, P-145749 and D-96590 Relays

6.109 Check ground contact spring force for the P-145749 (2-spring) relay and D-96590 (3-spring) relay as follows:

(1) With ground lead connected to coin collector, place required gram slot of 147A gauge (Fig. 57) on horizontal portion of switch lever (Fig. 58).

(2) Connect hand test set across line terminals of coin collector, and trip coin trigger. Dial

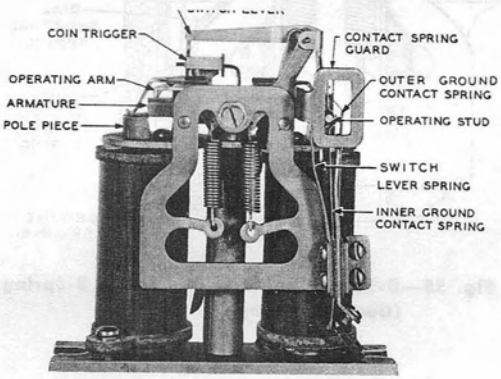


Fig. 53—P-145749, Two-Coil Coin Relay

tone will be heard in dial areas, or operator will answer in manual areas. If not, proceed as follows:

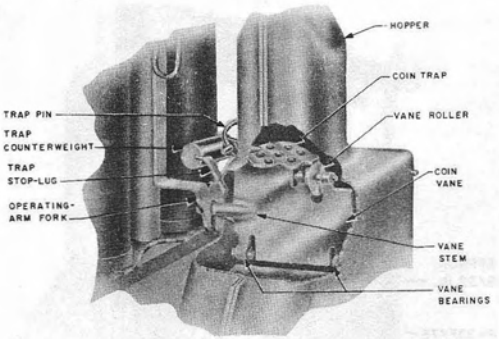


Fig. 54—Hopper and Rear of Two-Coil Coin Relay

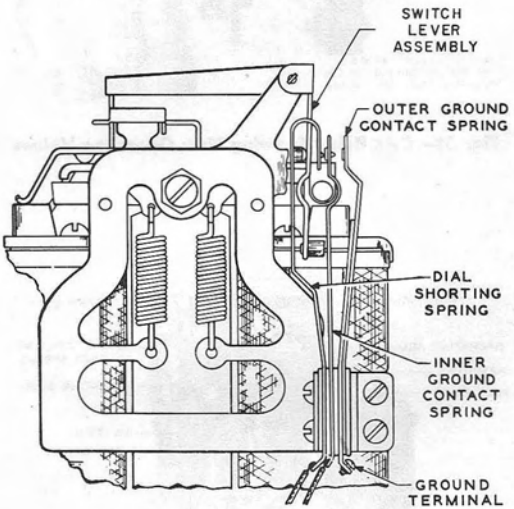


Fig. 55—D-96590 Dial Shorting Relay, 3-Spring (Guard Cut Away)

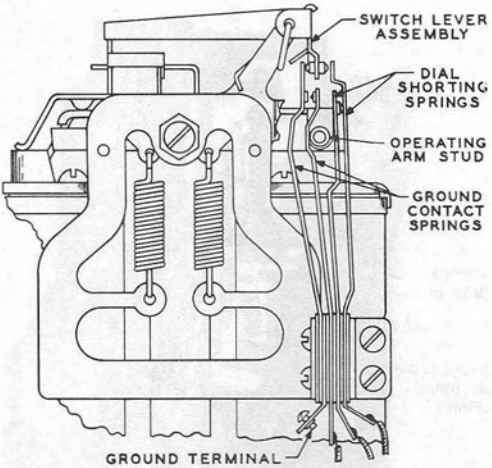


Fig. 56—P-10C117 Dial Shorting Relay, 4-Spring (Guard Cut Away)

(3) Ground contact-spring force for P-145749 (2-spring) relays should be a minimun of 5 grams measured with the 147A gauge as shown in Fig. 58.

(4) Ground contact-spring force for D-96590 (3-spring) relays should be a minimum of 3 grams measured with 147A gauge 3-gram slot. Contact requirements are as follows:

(a) If contacts are open, force is less than minimum required. Replace relay or coin collector having a single coil relay.

(b) If contacts touch but test open, burnish contacts with 265C tool.

(c) If dial tone is not heard after burnishing contacts, short-circuit ground contact springs.

(d) If dial tone is heard when contact springs are shorted, replace relay or-coin collector having a single coil relay.

(e) If dial tone is not heard when contact springs are shorted, test for open relay coil or trouble in station ground or line circuit.

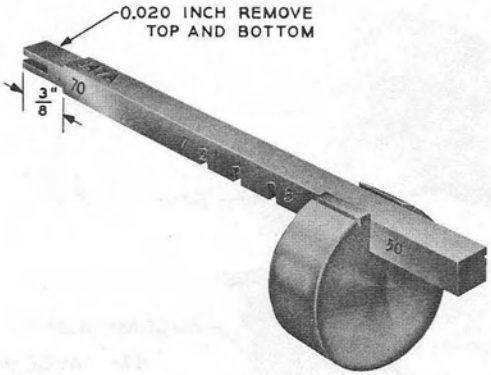


Fig. 57—147A Gauge

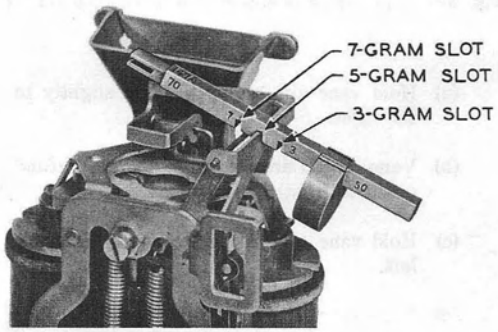


Fig. 58—Gauge for Ground Contact Spring Force

Ground Contact Springs, P-10C117 Relay

6.110 Check ground contact-spring force for the P-10C117 (4-spring) relay as follows:

(1) Ground contacts shall have perceptible follow. Observe while raising switch lever slowly by hand from its tripped position.

Note: Do not use 147A gauge for checking ground contact-spring force on this relay.

(2) Connect hand test set across line terminals of coin collector, and trip coin trigger. Dial tone will be heard in dial areas, or operator will answer in manual areas. If not, proceed as follows:

(a) If contacts have perceptible follow but test open, burnish contacts with 265C tool.

(b) After burnishing contacts, if dial tone is not heard, short-circuit ground contact springs.

(c) If dial tone is heard when contact springs are shorted, replace relay.

(d) If dial tone is not heard when contact springs are shorted, test for open relay coil or trouble in station ground or line circuit.

Dial Shorting Contact Springs

6.111 With coin trigger and operating arm in normal unoperated positions, dial shorting contact springs (Fig. 55 and 56) should have perceptible follow. With coin trigger tripped, they should be open; judge visually.

6.112 Dial shorting contacts should shunt dial pulsing contacts when coin trigger is in normal position. With ground lead connected, check as follows:

(1) Provide ground on line by strapping around ground contact springs:

- On D-96590 (3-spring) relays, strap ground terminal to **tip** side of line.
- On P-10C117 (4-spring) relays, strap ground terminal to **right** coil terminal.

(2) Make sure that coin trigger is **not** tripped.

(3) Place upper housing on coin collector and wait for dial tone.

(4) When dial tone is heard, dial any digit except "0" or "1". Dial tone should not be broken.

(5) If dial tone is not broken, **remove strap** and proceed with remaining tests.

(6) If dial tone is broken, dial shorting contacts are not shunting dial. Clean contacts and recheck follow of dial shorting springs. Check wiring and transfer spring contacts for continuity.

Trap and Vane Release Test

Note: At manual stations, disconnect ground from coin relay while making this test.

6.113 Trap, vane, and relay should restore fully to their unoperated positions against a torque of 70 gram-inches applied to relay operating arm with a 147A gauge (Fig. 59). Test as follows:

(1) Remove shield from relay.

(2) Apply slot 70 of 147A gauge to right rear horizontal portion of relay operating arm. Make sure that enclosed end of slot is against edge of operating arm and that weight on gauge is positioned up, as shown in Fig. 59.

(3) Press down on 147A gauge to operate relay and vane to limits of their travel.

(4) Insert KS-14995, List 3 trap and vane test tool into throat of hopper to operate trap to the limit of its travel. Hold in place as shown in Fig. 59.

(5) Release pressure on 147A gauge.

(6) Slowly withdraw KS-14995 tool. Take at least 5 seconds.

(7) Be sure that vane and relay return to their unoperated positions.

(8) Make test three times with gauge on right (collect) side and three times on left (refund) side.

6.114 If mechanism fails, remove relay and proceed as follows:

(1) If hopper is equipped with a brass coin vane, replace coin collector; otherwise, check vane for binding on its bearing as follows:

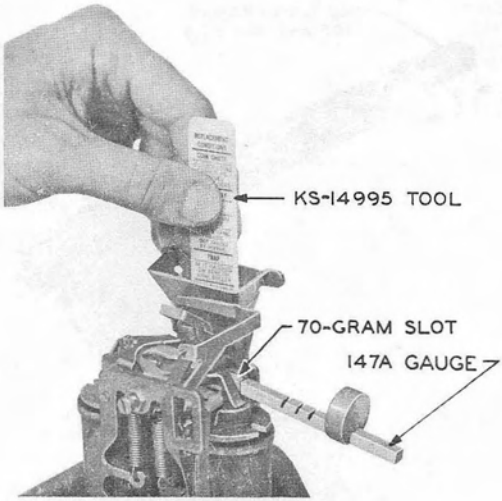


Fig. 59—Trap and Vane Release Test (Two-Coil Relay)

(a) Hold vane almost vertical but slightly to the right.

(b) Vane should drop to fully operated refund position (right) when released.

(c) Hold vane almost vertical but slightly to left.

(d) Vane should drop to fully operated collect position (left) when released.

(e) If vane binds on its bearings, replace coin collector.

(2) Check vane for binding on hopper as follows:

(a) Holding vane stem as far forward as possible, move vane over its full travel in each direction three times. Make sure that it does not scrape on front of hopper.

(b) Push vane to rear of hopper and move vane over its full travel in each direction. Make sure that it does not scrape on back of hopper. Do not push hard enough to distort hopper.

(c) If vane binds on hopper, replace coin collector.

(3) Check trap for catching on vane or on vane roller as follows:

(a) Hold vane in fully operated collect position (to the left) using left hand.

(b) With the right hand, lift trap counterweight to its fully operated position.

(c) Move vane slowly until it engages trap.

(d) Continue moving vane toward vertical position while gently restraining trap. Vane should move smoothly to vertical position.

(e) Repeat test on refund side (to the right), reversing use of hands. If trap catches on vane or vane roller, replace trap as covered in 6.123 and repeat test. If replacement trap still catches, replace coin collector.

(4) Check clearance between trap and vane roller as follows:

(a) With trap in unoperated position, place a finger lightly on counterweight.

(b) Move vane to vertical position. If vane rubs on trap, adjust trap stop lug so that trap will just clear vane (Fig. 54).

(c) With vane in vertical position, lift trap counterweight. Trap should not move more than a few degrees before touching vane roller. Adjust by bending stop lug (Fig. 54).

(5) Check operating arm fork and vane stem for roughness. Clean and lubricate as covered in 6.117. Also check operating stud. If stud is rough or roller type, replace relay.

(6) Remount coin relay as covered in 6.118 and repeat trap and vane release test. If mechanism fails, replace relay.

Bias Margin Test

Note: Make bias margin test only if relay fails to operate or operates in wrong direction.

6.115 Relay should operate against torque of a 146A gauge attached to armature in both collect and refund directions when appropriate central office coin battery is applied. Test as follows:

(1) To test in collect direction, place a 146A gauge on left side of armature (see Fig. 60).

(2) Connect hand test set across line terminals.

(3) Trip coin trigger (see 6.116).

(4) Obtain collect current by any available local arrangement. Relay should operate to collect (lifting gauge) and trigger should restore. Make test three times (see 6.116).

(5) To test in refund direction, place 146A gauge on right side of armature.

(6) Trip coin trigger.

(7) Obtain refund current. Relay should operate to refund (lifting gauge) and trigger should restore. Make test three times.

(8) If relay fails to operate in the correct direction or if trigger fails to restore, check for and remove magnetic particles or replace relay.

Note: Make sure that line and ground are satisfactory and that coin battery is being applied.

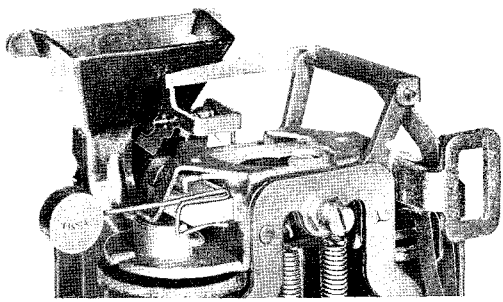


Fig. 60—Bias Margin Test

6.116 When coin trigger is tripped, ground contact springs should close and remain closed without break while armature is moved from its normal to its fully operated position. It is immaterial at what point on return stroke contacts open.

Cleaning Coin Relay

6.117 If relay has been removed for any reason, proceed as follows:

(1) Clean and lubricate fork and vane stem as follows:

(a) Surfaces of fork slot should be smooth. If bearing surfaces of fork are so rough that they cannot readily be made smooth, replace relay; otherwise, smooth rough spots using No. 320 or finer abrasive cloth folded as shown in Fig. 61.

(b) Clean with KS-2423 cleaning cloth moistened with KS-7860 petroleum spirits.

THINK ***KS-7860 petroleum spirits is flammable. Use safety precautions when handling.***

(c) Apply graphite from grade 2B or softer lead pencil to bearing surfaces of fork slot. Rub lead on these surfaces to deposit as continuous a coating as possible.

(2) Remove magnetic particles from adjacent surfaces of armature, pole pieces, and top of magnet with rubber tape or equivalent. To remove particles:

(a) Place a piece of rubber tape about 1 inch long on top of pole piece on left side of relay with at least 1/4-inch extending into airgap under armature. Press down on armature until it squeezes rubber tape. Discard tape with embedded magnetic particles.

(b) Repeat operation on right side with a new piece of rubber tape.

(c) Use tape folded over orange stick to remove particles from top of magnet.

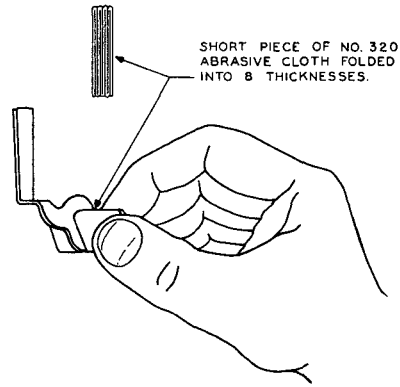


Fig. 61—Polishing of Fork Slot

Replacing Coin Relay

6.118 When mounting relay, center it so that with operating arm in its normal vertical position, fork slot engages vane stem and holds coin vane in a vertical position. Full thickness of coin vane is visible in the center hole of coin trap (Fig. 62). If relay cannot be centered, replace relay. If replacing relay cannot be centered, replace coin collector.

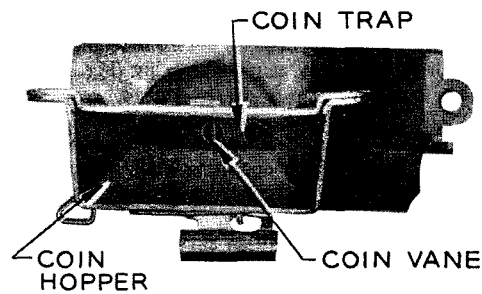


Fig. 62—Position of Vane When Relay is Centered

6.119 Coin trigger should not touch upper end of slot in hopper or bind on sides of slot at any point of travel.

6.120 Place relay as close as possible to hopper. There should be at least 1-1/16 inch clearance between fork and hopper, between vane stem and relay, and between trap counterweight and relay.

Replacing Coin Trap

6.121 Relay must be removed to replace coin trap.

6.122 Coin traps in later style hoppers may be replaced through front of hopper without removing coin shield.

6.123 To replace coin trap in ***earlier*** style hoppers:

(1) Remove coin return shield, if present, by inserting blade of a cabinet screwdriver in loop of pin. Twist screwdriver sufficiently to release end of pin from hole in hopper. Slowly pull shield and pin out together.

(2) Move vane to the right.

(3) Fasten a piece of string or wire to trap counterweight.

(4) Remove trap pin by lifting right end of loop and sliding pin to the left.

(5) Push trap into hopper and allow it to drop into coin return.

(6) Fasten string or wire to new trap and pull trap up to slot in front of hopper.

(7) Position new trap with bearing lugs uppermost and assemble trap pin.

(8) Recheck clearance between trap and vane roller.

Replacing Coin Shield

Note: Coin shield is not required on coin collector equipped with pull bucket return chute.

6.124 If coins stick due to damaged or distorted coin shield, or if a bent shield pin causes shield to stick, remove shield pin and shield. Replace as follows:

(1) Place P-247411 pin through tubular bearing at top of P-296792 shield. Curved-in portion on bottom of shield is toward hopper when loop of pin is to be the front (see Fig. 63).

(2) Hold loop of pin with long nose pliers or fingers and place coin shield pin in hole in rear of hopper.

(3) Hold shield in place with fingers and secure end of loop in front hole of hopper with long nose pliers.

(4) Adjust loop so that pin does not come out when play is taken up in either direction.

(5) Check operation of shield.

H. Coin Relay Shield

6.125 The coin relay must be protected by a shield. The P-16A336 shield replaces the P-349486 (MD) and KS-7994 (MD) shields and should be used for all replacements.

6.126 On coin collectors equipped with a D-95365 contact device, use P-16A336 shield. this differs from the P-349486 shield in that the lower left corner is cut away so as not to interfere with contact device.

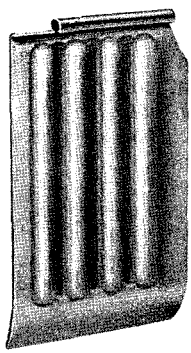


Fig. 63—P-296792 Coin Shield

I. Final Tests

Coin Chute Operation and Refund Test

6.127 To ensure that coin chute and coin return paths are clear and that station and coin relay are operating satisfactorily, make final test as follows:

(1) Place coin relay shield on coin relay.

(2) With upper housing locked in place and handset off-hook, deposit nickel. Nickel shall be held at holding latch. Lower switchhook slowly. Coin shall drop into coin return. Make test five times.

(3) If coin collector is equipped with washer reject and coin release mechanism, test with handset off-hook. Deposit nickel. Nickel shall be held at holding latch. Operate pushbutton slowly. Nickel shall be released by gate and drop into coin return. Make test five times.

(4) With handset off-hook, deposit nickel. Nickel shall be held at holding latch. Deposit second nickel. Second nickel shall release first nickel and permit both coins to pass through coin chute, strike gong, and trip trigger as they drop into hopper. Dial tone shall be heard at dial stations, or operator shall answer at manual stations. Deposit third nickel. Third nickel shall pass through coin chute, strike gong, and reach trap in coin hopper.

(5) At dial stations, when dial tone is heard, dial any digit except "0" or "1" to break dial tone; then hang up handset. Coins shall drop into coin return on hang-up. At manual stations, when operator answers, request that coins be returned.

(6) With handset on-hook, deposit dime. Dime shall pass through coin chute, strike gong twice, and trip trigger. Dial tone or manual operator shall be heard after handset is removed from switchhook.

(7) With handset off-hook, deposit dime. Dime shall pass through coin chute, strike gong twice, and trip trigger bringing in dial tone or manual operator.

(8) With handset on-hook, deposit quarter. quarter shall be stopped by the open gate. Remove handset from switchhook. Gate will close and quarter will release and strike gong. Dial tone or manual operator should be heard.

(9) With handset off-hook, deposit quarter. Quarter shall pass through coin chute, strike gong, and trip trigger bringing in dial tone or manual operator.

(10) If cutover clip is used for 5-cent operation, initial nickel deposited shall not be held at holding latch. All other tests are the same as those described (see Fig. 26).

Coin Signal Test

6.128 Notify operator that tests for coin signals are about to be made and that coins are to be returned after deposit. Deposit nickel, dime, and quarter. If operator does not identify signals correctly, inspect for trouble at station. Correct as specified under coin chute alignment in the section on general maintenance of coin collectors.

Extended Range

6.129 Coin collectors used with a subscriber set which extends the coin relay range should meet all maintenance requirements listed. Check operation and adjustment of the *S36* relay housed in the subscriber set as covered in the section on subscriber set maintenance. If relay is defective, replace subscriber set with new subscriber set or replace coin collector with a single slot coin telephone set.

POSTPAY

Caution: Remove receiver or handset from switchhook before removing or reassembling upper housing from or to backplate of coin collector equipped for 10-cent operation. This reduces possibility of damage to gate operating arm.

J. Dial Postpay Coin Collectors (CDO)

6.130 If a coin is found stuck between trap and hopper, release coin and proceed with tests and adjustments. If repeated trouble due to stuck coins are experienced, coin collector shall be replaced.

Mechanism Unit Assembly

6.131 Trap shall restore freely to normal position when released slowly from fully open position. If it does not, coin collector shall be replaced.

6.132 With trap in normal position, hopper contacts shall be made.

6.133 With trap fully operated position, hopper contacts shall be open.

6.134 The *31A* varistor ▶or *446F* diode◀ and *146A* resistor are mounted as shown in Fig. 14.

6.135 The contact spring terminal, to which the 31A varistor terminal marked TIP (+) is connected, is always wired so as to be on tip side of line. ▶Pole 446F diode as shown in Fig. 14.◀

Hopper Contact Operation

6.136 With upper housing removed and with handset or receiver off-hook, connect hand test set across line in series with hopper contacts as follows:

- At common battery stations connect hand test set between hopper contact spring terminal which is connected to Y housing contact spring and terminal R on transfer spring pile-up or on wood terminal strip.

- At local battery stations connect hand test set between hopper contact spring terminal which is connected to Y housing contact spring, and terminal BK (or BKX when used) on transfer spring pile-up or on wood terminal strip.

6.137 Dial a local number (not a free call line). If steady deposit coin tone is heard, proceed as in 6.138. If deposit coin tone is heard only momentarily, followed by a short delay and then regular dial tone, check that hopper contacts are properly closed.

- If contacts touch but do not make, burnish with 265C tool.

- If contacts do not touch, replace coin collector.

If no fault is found in hopper contact circuit, trouble may be in central office equipment.

> ***Note:*** If hopper contacts are open with trap in its normal position, central office equipment will disconnect on calls to nonfree call lines, after which dial tone will be received.

6.138 When steady deposit coin tone is heard, operate trap manually to complete connection. If connection is not completed, check for the following:

- Reversed or defective 31A varistor ▶or 446F diode.◀

- Line reversed.

- Open resistor (*63CH* or *146A*).

If no fault is found at station, trouble may be in line or central office equipment.

> ***Note:*** Completion of circuit by manual operation of trap may require several attempts because of critical adjustment of central office equipment. Trap must be fully operated and quickly released. If trap is not fully operated, circuit may not cut through. If trap is not released quickly, central office equipment may disconnect, necessitating redialing.

Varistor and Diode Effectiveness

6.139 In operating trap manually on a local call (6.138), a click will be heard in receiver. If click is as loud on a call to operator as it is on a local call, *31A* varistor ▶or *446F* diode◀ is defective and should be replaced.

Coin Chute Operation and Refund Tests

6.140 Position electromagnet arm so that end is out of 5-cent channel (see Fig. 64). Insert 529A tool in top of coin hopper to retain test coins.

6.141 With upper housing locked in place and with receiver or handset on-hook deposit a nickel. Coin shall drop into coin return. Test shall be made five times and nickel shall return each time.

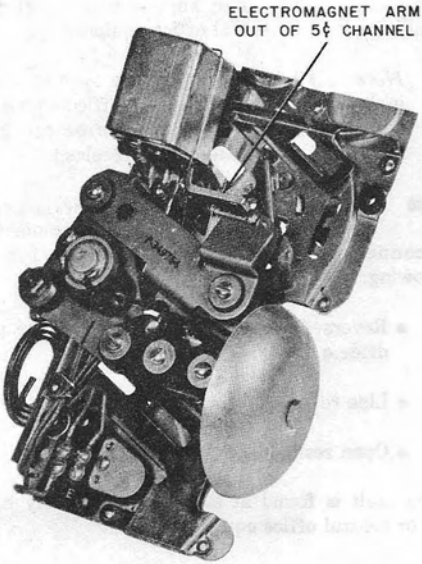


Fig. 64—Dial Postpay Gong Signal and Chute Assembly

6.142 With receiver or handset off-hook dial operator. When operator answers, deposit a nickel. Coin shall pass through chute, striking gong, and shall reach 529A tool in hopper.

- If test is met, electromagnet and line wires are connected correctly.
- If nickel falls into coin return, check switch hook operation and gate operating arm adjustment.
- If nickel does not pass through chute as indicated by not striking gong, deposit another nickel. If both coins pass through chute and strike gong, it indicates that first nickel stopped in chute at first latch. Check operation and wiring of electromagnet in accordance with connection diagram in appropriate section. If nickel still fails to reach 529A tool, replace coin chute and repeat tests.

Note: When dial tone is received, electromagnet arm is positioned in 5-cent channel. On calls to or through an operator, electromagnet arm remains in 5-cent channel. This allows a single nickel to pass through coin chute.

6.143 If test in 6.142 is met, request operator to call back as in a delayed call. Answer call and repeat test with a nickel. Have operator make this test over local and toll connectors if both are available. If test in 6.142 is met but test over local and toll connectors is not met, trouble may be in line or central office equipment.

Coin Signal Test

6.144 Use a 529A tool. Call and inform the operator that you are about to test coin signals. Deposit a nickel, dime, and quarter. If operator does not identify signals correctly, inspect for trouble at station and correct as specified in 6.33 through 6.35.

K. Manual Postpay Coin Collectors

Coin Hopper

6.145 The coin hopper in these coin collectors is a simple channel to guide coins from coin chute to coin receptacle. The only coins returned in this service are improper deposits. If sticking of coins occurs in coin hoppers not provided with clear-out holes, coin collector shall be replaced.

Coin Signal Test

6.146 Make test as in 6.144.

7. MODIFICATION—TO ADD D-180120 KIT OF PARTS (RINGER ASSEMBLY) TO BACKPLATE ASSEMBLY

7.01 This modification can be performed on the following coin collectors:

191GNT	196 HNT
191 HNT	197 GNT
195 GNT	197 HNT
195 HNT	233G
196 GNT	233H
	234G

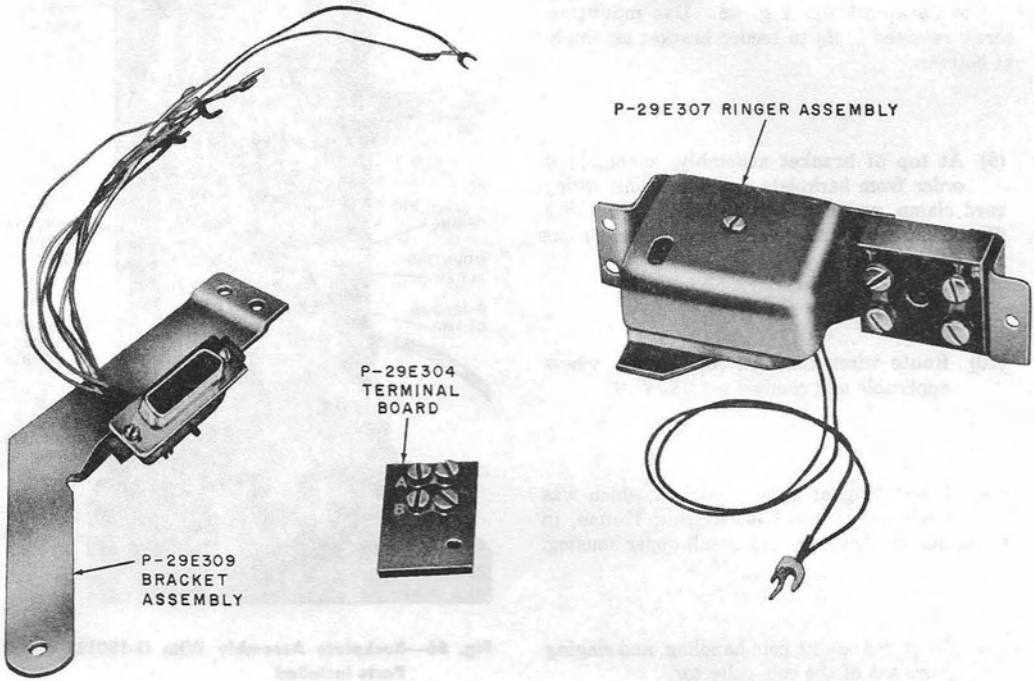


Fig. 65—D-180120 Kit For Modification of Backplate Assembly

Only the backplate assembly is to be modified in the field. The upper housings will be modified in the distributing houses with D-180121 kit to add network to upper housing. The modified upper housings will be identified by a red star after the code number.

7.02 The D-180120 kit to be installed in the field consists of P-29E307 ringer assembly, P-29E309 bracket assembly, and P-29E304 terminal board (Fig. 65).

7.03 Install kit as follows:

(1) Disconnect wires per Table M.

(2) Remove subscriber set.

(3) Disconnect (BK) wire from between BBX of switchhook and BB of transfer contacts.

(4) Remove and discard terminal plate assembly at top of backplate assembly. Retain hardware.

(5) Install P-29E307 ringer assembly (Fig. 65) in same position as terminal plate assembly was located using the retained hardware (Fig. 66).

(6) Remove and discard BKX transfer spring at right of coin relay. Retain mounting screw.

(7) Remove and retain equalizing spring, cord clamp, and associated fastener.

(8) Install P-29E309 bracket assembly (Fig. 65) to backplate per Fig. 66. Use mounting screw retained in (5) to secure bracket assembly at bottom.

(9) At top of bracket assembly, assemble in order from backplate out, equalizing spring, cord clamp, and P-29E304 terminal board (Fig. 65). Secure with hardware retained in (6) (see Fig. 66).

(10) Route wires through cord guides where applicable and connect per Table N.

(11) Insert plug of upper housing, which was modified in the Distributing House, in connector on backplate and install upper housing.

(12) Check continuity, coin handling, and ringing operation of the coin collector.

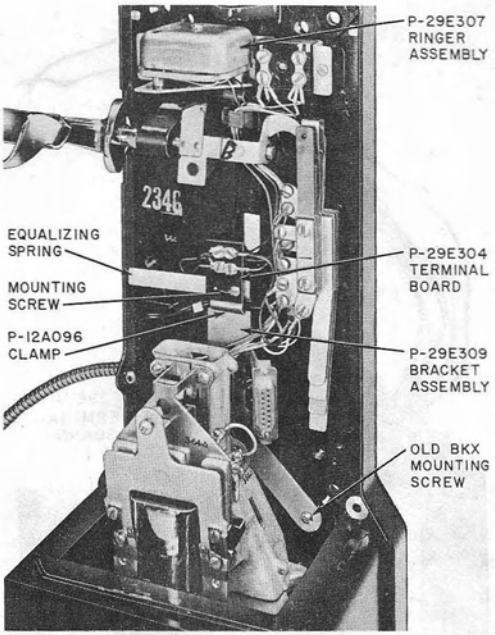


Fig. 66—Backplate Assembly With D-180120 Kit of Parts Installed

TABLE M
DISCONNECTED WIRES
(D-180120 KIT)

WIRE COLOR	DISCONNECT FROM	OTHER END CONNECTED TO
G	L on term. block	Tip
G		Subset
R	Y on switchhook	Ring
R		Subset
Y	G on coin relay	Ground
R	TR on term. block	Subset
BK		
W		Handset
G	W on transfer contacts	Subset
Y	R on transfer contacts	
R	T on term. block	Handset
BK		Subset
Y (685A, Subset only)		3 of Coin relay
Y (685B, Subset only)	3 on coin relay	Subset

TABLE N
CONNECTED WIRES
(D-180120 KIT)

WIRE COLOR	CONNECT TO	OTHER END CONNECTED TO
W	TR on term. block	Handset
BK		
W		Connector
R	T on term. block	Handset
Y*		3 of Coin relay
R		Connector
Y	SL on switchhook	Connector
G	BXX on switchhook	
V-S (MD) or BK	2 on coin relay	
V-BR (MD) or BL	R on switchhook	
O		
R	B on term. board	Ringer
V		Connector
BK	A on term. board	Ringer
G	R on switchhook	Tip
R	Y on switchhook	Ring
Y	G on coin relay	Ground
BK	A on term. board†	Y on Switchhook†

* If a 685B subset was disconnected per Table J, (Y) wire will not exist. Use a (Y) strap.

† Use BK strap disconnected in 9.03 (3).