

ADVANCE PRINTING

COIN MAINTENANCE CHECK

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1. GENERAL

1.01 This booklet is reissued to:

- Delete all information on multislot sets. Coverage on multislot sets is in Issue 2 of this booklet.
- Add information on 1E-type (post-pay) sets
- Add information on KS-21250 portable test set
- Delete the multicolor functional schematics. They will be included in the Coin Crafts Manual.

1.02 It is intended that this booklet be used as an on-the-job reference for performing routines and clearing trouble in coin-first, dial-tone first, and post-pay single slot coin stations. For detailed maintenance procedures see section referenced for the particular work operation.

1.03 If a lock failure is encountered and access to inside of set cannot be obtained, notify the security department per local regulations.

1.04 *Coin First Service:* When a coin telephone set is in an idle state, the central office (CO) line circuit furnishes battery on the ring side of the line with the tip side open. When the handset is off-hook

and the correct initial rate is deposited, a coin ground causes the CO line circuit to operate over the ring side of the line (ground start). Operation of the line circuit connects ground to the tip and prepares the line for dialing over tip and ring. When the call is terminated and the handset is on-hook, collect (+) or return (-) battery is applied to the line at the CO, which causes the current to flow through the coin relay. The coin relay operates to collect or refund the deposit.

1.05 *Dial Tone First Service:* In the standby condition, the CO line has a negative battery on ring with tip grounded. Dial Tone First (DTF) system operation is on loop start basis, ground test for initial rate, and polarity reversal for subsequent deposits. When the handset is lifted, the CO originating equipment is connected to provide dial tone before coins are deposited. After a sufficient number of digits are received by the CO to determine if the call should be charge or noncharge, the CO makes a ground test for initial rate deposit by detection of a coin ground at the station. Local calls are then connected in the normal manner if the initial rate deposit is satisfied. Operator calls and preselected numbers do not require initial deposit.

1.06 *Dial Postpay Service:* The system provides negative battery to the ring side of the line with tip grounded. Dial tone is received and the party dialed before coin deposit. Upon called party answer and following initial rate deposit, the CO switches the circuit for conversation.

1.07 *Manual Postpay Service:* The system provides negative battery to the ring side of the line with tip grounded. The operator is alerted when handset is lifted. Coin deposits are requested by the operator after connection to called party has been made.

1.08 *Automatic Nickel Local Overtime Service (CF or DTF):* The CO option for automatic detection of overtime deposits on local calls requires a coin ground test similar to that used for initial rate deposits test in DTF coin service. For DTF service, the overtime coin ground test is modified to use a polarity opposite that used for the initial rate ground test.

1.09 *Telephone Circuit:* The talking circuit is generally the same as that used in conventional telephone sets.

NOTICE

Not for use or disclosure outside the
 Bell System except under written agreement

1.10 When trouble cannot be cleared, report it to the testdesk and place an out-of-service sticker over the coin slot. Stickers shall be removed when service is restored.

2. TOOLS, GAUGES, CORDS, AND MATERIAL

2.01 Refer to Section 506-100-103 for special items required to perform operations set forth in this booklet.

3. COIN FIRST AND DIAL TONE FIRST SERVICE

EIGHT-STEP COIN STATION ROUTINE

3.01 The eight-step routine is designed as a reference check list to insure high quality coin service by reducing repeated reports. The following recommended guide lines are in keeping with this objective.

When to Perform the Complete Eight-Step Routine

- Upon installation of a coin telephone set.
- On repeated reports for which trouble cannot be found by the usual maintenance procedures.
- On repeated reports of Coins Don't Return and No Dial Tone — Coins Don't Return.

When to Perform Specific Steps of the Routine

- Steps 1, 2, 3, 7, and 8 are required as part of each repair visit for all trouble reports.
- Step 5 is required to update the measurement records on the test center line card and on repeated Coins Don't Return reports.
- In systems having coin station test line circuit equipment, the "Coin Test Line" procedure can be performed in lieu of Steps 2, 4, and 5 in the Eight-Step coin station routine. For complete information, refer to Section 506-100-130.
- The KS-21250 portable test set may be used to check certain features of the coin telephone set when a CO line is not available. The portable test set can also be used for coin relay timing when the coin test line circuit is not available.

3.02 If the eight-step routine does not stop repeated reports, refer the situation to local supervision for further investigation.

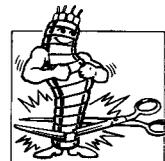
3.03 Sets must be mounted on a vertical surface. A tilt greater than 1½ degrees in any direction may cause a malfunction of the telephone. See Section 506-410-400.

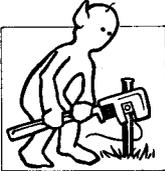


3.04 The eight-step coin station routine is as follows:

Step 1. Inspection Before Removing Cover Unit Assembly or Opening Door

<i>Inspect</i>	<i>BSP Reference</i>
(a) Rotary dial operation:	
• Operates smoothly without binding, slipping, or skipping	501-162-100
• Fingerwheel not cracked.	
(b) TOUCH-TONE dial operation:	
• Broken or mutilated buttons	501-164-115 501-165-115
• Buttons sticking or binding	
• Illegible button markings.	
(c) Handset:	
• Cracked caps or handle.	506-410-400
(d) Armored cord:	506-101-400
• Secure at handset and instrument	
• Armor intact.	
(e) Cover or door:	
• Appearance and alignment	506-410-400
(f) Number cards	
• Present and legible	
• Correct telephone number	
(g) Customer instruction cards	
• Securely in place	506-410-400
• Correct information/mode	
• Not mutilated	
(h) CF/DTF: information plate (when provided)	506-410-400
• Proper mode.	
(i) Coin return:	
• Not blocked	
• Door swings freely	
(j) Coin release lever and entrance stop:	
• Not broken	
• Operates freely	



<i>Inspect</i>	<i>BSP Reference</i>
(k) Inspect inside and ground wire for:	
<ul style="list-style-type: none"> • Continuity and tight connections at ground clamp and terminal 	
	
<ul style="list-style-type: none"> • Proper routing and support 	460-200-211
<ul style="list-style-type: none"> • Proper gauge (ground wire.) 	506-410-400
(l) Inspect station protector for	
<ul style="list-style-type: none"> • Proper type • Operated blocks or fuses • Ground wire caution tag (E-3013B). 	460-100-201

<i>Inspect</i>	<i>Table A Step Nos.</i>
(2) Deposit additional coins to initial rate	
<ul style="list-style-type: none"> • Check for dial tone 	8
(3) Dial any digit but "0" or "1"	
<ul style="list-style-type: none"> • Dial tone breaks. Coins should not return 	9
(4) Check handset cord for noise or cut-out	
(5) Go on hook	
<ul style="list-style-type: none"> • Coins should return 	10
(d) Go off-hook and deposit initial rate	
<ul style="list-style-type: none"> • Dial tone should be heard 	11
(e) Dial any digit but "0" or "1"	
<ul style="list-style-type: none"> • Dial tone breaks 	12
(f) Hang up handset	
<ul style="list-style-type: none"> • Coin should return 	13

Step 2. Operation Tests Before Removing Cover or Opening Door

A. Coin First (CF)

Note: Refer to Trouble Analysis Table A when any operation test fails. Test preparation numbers 1, 2, and 3 in Step Number Column of Table A shall precede any action in the table. Steps should be performed in sequence. Possible-Cause assumes that preceding tests have been met.

<i>Inspect</i>	<i>Table A Step Nos.</i>
<ul style="list-style-type: none"> • Coins required: quarter, dime, nickels, penny • BSP Reference: Section 506-410-400 	
(a) With handset on-hook:	
(1) Deposit penny	
(2) Operate coin release	
<ul style="list-style-type: none"> • Penny should return 	4
(b) With handset on-hook:	
(1) Deposit quarter	
<ul style="list-style-type: none"> • Quarter should return 	5
<i>Note:</i> If coin is not refunded repeat test with second coin before assuming failure. This note applies for initial installation or totalizer change out.	
(2) Repeat, using a nickel	
<ul style="list-style-type: none"> • Coin should return 	6
(c) With handset off-hook:	
(1) Deposit nickel	
<ul style="list-style-type: none"> • Dial tone should not be heard 	7

B. Dial Tone First (DTF)

Note: Refer to Trouble Analysis Table B when any operation test fails. Test preparation numbers 1, 2, and 3 in the Step column of Table B shall precede any action in the table. Steps should be performed in sequence. Possible Cause assumes that preceding tests have been met.

<ul style="list-style-type: none"> • Coins required: quarters, dimes, and nickels • BSP Reference: Section 506-410-400 	
	<i>Table B Step Nos.</i>
<i>Inspect</i>	
(a) With handset off-hook	
<ul style="list-style-type: none"> • Dial tone should be heard 	4
(1) Deposit quarter	
<ul style="list-style-type: none"> • Quarter should not return 	5
(2) Depress switchhook	
<ul style="list-style-type: none"> • Quarter should return 	6
(b) With handset off-hook	
(1) Deposit nickel and dial a number that requires initial deposit	
<ul style="list-style-type: none"> • Dial tone should break and "insufficient deposit" recorded announcement should be heard 	7

<i>Inspect</i>	<i>Table B Step Nos.</i>
(2) Go on-hook • Nickel should return	8
(3) Go off-hook, deposit initial rate, and dial a number that requires initial deposit	9
<i>Note: Ensure that called number will not be answered.</i>	
• Ringing tone will be heard in handset	9
(4) Go on-hook • Coins should return	10
(5) In the on-hook condition, deposit penny and operate coin release • Penny should return	11

Step 3. Inspection and Operational Tests After Removing Cover or Opening Door

Note: Remove cover unit assembly (1-type set) and hang it on a KS-20950, List 1 cover parking tool. If a parking tool is not available invert hand-set on switchhook, place cover unit assembly on a firm level surface and connect P11C cord between P1 of cover and J1 of chassis. On panel sets, use P11C cord.



*BSP
Reference*

(a) Inspection:

- (1) Station and coin relay wiring for tight connections.

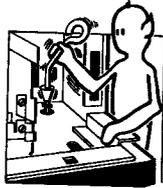


- (2) Coin chute for foreign matter and dirt.

- Make certain chute locking lever and spring are properly engaged



506-410-400

<i>Inspect</i>	<i>Table A Step Nos.</i>
• Make certain station wiring is properly dressed and not binding against totalizer cover or pinched behind chute causing coin chute to be out of alignment.	
(3) Level of coins using 139B tool, except panel phone.	
(4) For evidence of tampering or fraudulent use.	
	
(b) Coin First Operational Test (Dial Shorting)	
(1) Remove coin relay dust cover. Lift handset and operate hopper trigger by hand	
• Dial tone should be heard.	14
(2) Dial any digit but "0" or "1"	
• Dial tone remains after dialing	15
(3) Deposit nickel	
• Dial tone remains after deposit	16
(4) Hang up handset	
• Coin relay operates and returns nickel	17

Step 4. Coin Relay and Hopper Operation

<i>Inspect</i>	<i>BSP Reference</i>
(a) Remove chute-totalizer and coin relay dust cover.	506-410-400
(b) Check relay contact card for proper contact alignment.	
(c) Magnets and polepiece extension	
• Remove foreign magnetic particles and dirt.	
	

Inspect

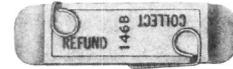
BSP
Reference

Fig. 1 — 146B Bias Margin Gauge

(d) Perform trap and vane release test

- (1) Press down on left ear of selector card and manually operate coin relay armature to its fullest extent of travel.
 - Coin vane should move to collect position.
- (2) With armature fully operated, insert KS-14995, L3 tool in hopper to operate trap to the limit of its travel.
- (3) Release armature and slowly withdraw tool.
 - Trap and vane should return to and lock in normal position.
- (4) Press down on right ear of selector card and manually operate coin relay armature to its fullest extent of travel.



- (5) Repeat Steps (2) and (3).
- (e) Replace damaged vane per Section 506-410-400.
- (f) Install chute-totalizer.
- (g) Perform coin relay timing test.
 - Use Coin Test Line circuit, if available
 - Use KS-21250 portable test set as second choice

(h) Coin relay bias margin test: 506-410-400

- (1) Call testdesk and request a bias margin test of the coin relay (use CO test circuit where available)

Note: Do not operate coin relay armature without first depressing selector card.

- (2) Slip 146B bias margin gauge (Fig. 1) over left pole piece extension arm from left side of coin relay per Fig. 2
- (3) Request deskman to collect (or refund) according to the gauge marking
 - Verify proper operation

Table A
This Section

Inspect

BSP
Reference

- (4) Reverse the ends of the gauge on the same pole piece extension arm and request deskman to refund (or collect) according to gauge marking
 - Verify proper operation
- (5) Replace relay if either test fails

Note: Make certain coin relay cover is in place before replacing upper housing.



Step 5. Tests to be Performed with Testdesk

Note: The following tests should be performed on installations when investigating repeated trouble reports or to update the line card record in test center.

- (a) Test absence of foreign potential.
- (b) Measure loop and ground resistance.
 - Connections for loop and ground measurements for a typical single slot station are shown in Fig. 3 and 4, respectively.

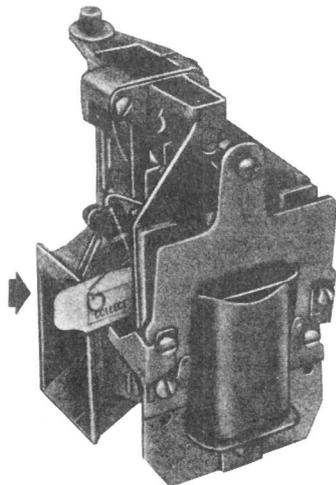


Note: The difference between the ground measurement reading and one-half the loop measurement noted is considered to be the ground resistance. It should be less than 50 ohms.

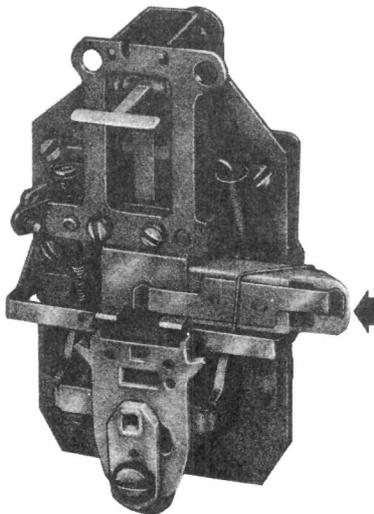
(c) Coin relay current flow test.

Note: See Fig 5 and 6 for Coin First and Fig. 7 for Dial Tone First coin relay current flow test.

- (1) Preparation by type of station.
 - (a) 1A/1C-type coin telephone sets.
 - Remove cover unit assembly and connect it to housing with P11C cord or use KS-20950 parking tool.
 - (b) 2A/2C-type coin telephone sets.
 - Open and connect door to housing assembly with P11C cord.
- (2) With handset off-hook deposit initial rate.
- (3) Request a current flow test of the coin relay.



SIDE VIEW



BACK VIEW

Note: Craftsperson must block coin relay unoperated while test desk adjusts current.

- Observe relay operation.
- If either operate or nonoperate test fails, replace coin relay.

Note: See Table C and Fig. 10 and 11 for the operate and nonoperate values of the relays.

Note: Coin lines equipped with long line circuits may appear to work satisfactorily even though the tip and ring are reversed. Check for 48V on ring and ground on tip.

(4) Test measurements and date should be recorded on the line card or equivalent.

(d) Totalizer current flow test

Note: See Fig. 8 and 9.

- (1) Call testdesk and request a totalizer current flow test. Ensure that coin relay hopper trigger is not operated.
- (2) After test desk operator adjusts current level, deposit initial rate.
 - Totalizer operates and steps back to home position.
- (3) If totalizer does not meet current flow test, replace.

Step 6. Inspection of Wiring

Inspect

BSP

Reference

506-410-400

- (a) If protector is inside set, ensure that 14 AWG wire is connected between TB2-G on coin chassis and protector ground.
- (b) Tag location of station ground inside set
 - Include telephone line number plus loop and ground resistance measurements.
- (c) Remove P11C test cord or parking tool, connect P1 to J1 and install cover unit assembly (1-type) or close door (2-type).

Step 7. Final Tests and Inspection After Replacing Cover Unit Assembly or Closing Door

A. Coin First

- (a) Perform operation tests shown in Step 2.

Table A
Step Nos.

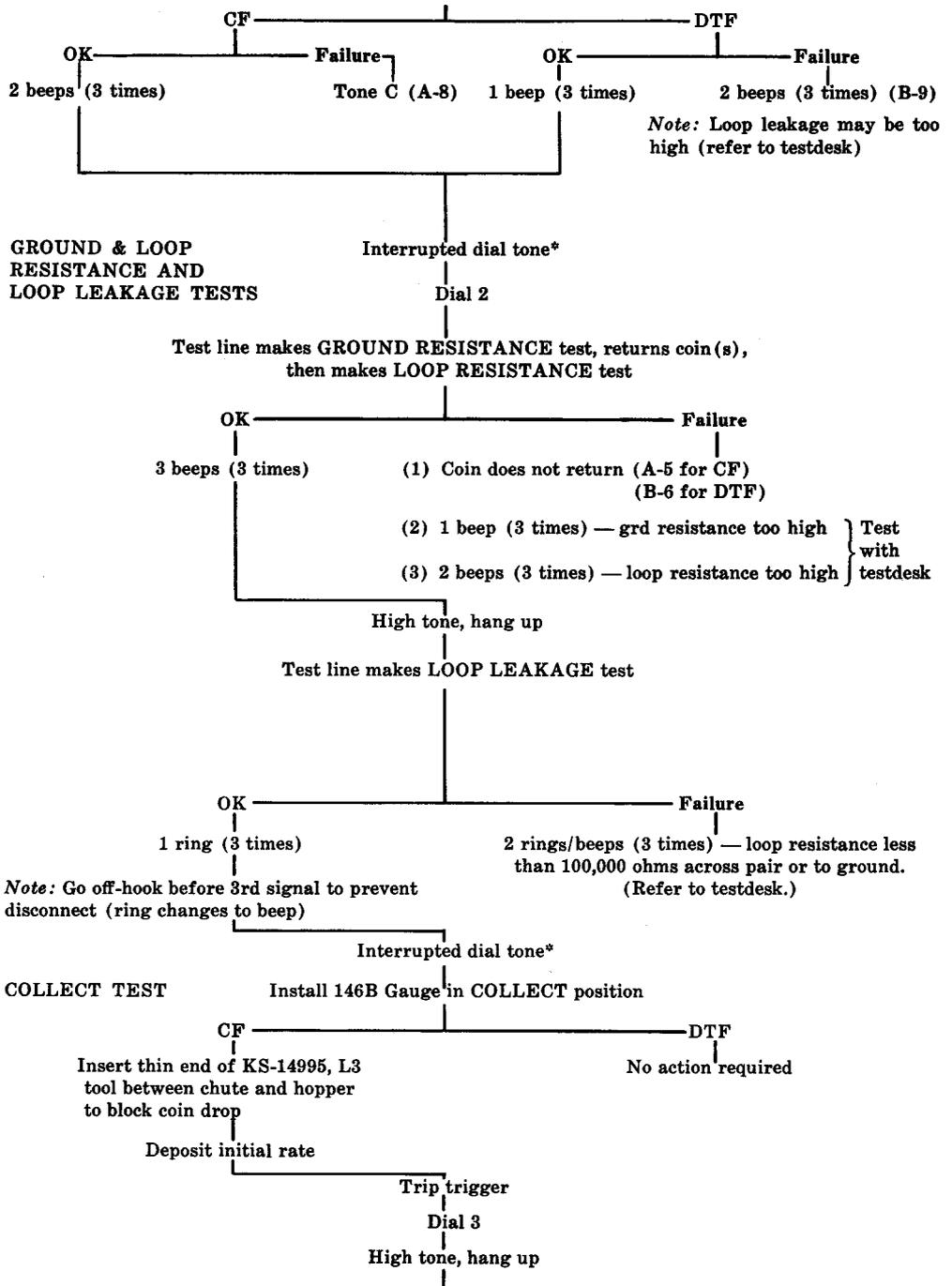
Inspect

- (b) Lift handset, deposit initial rate and call operator

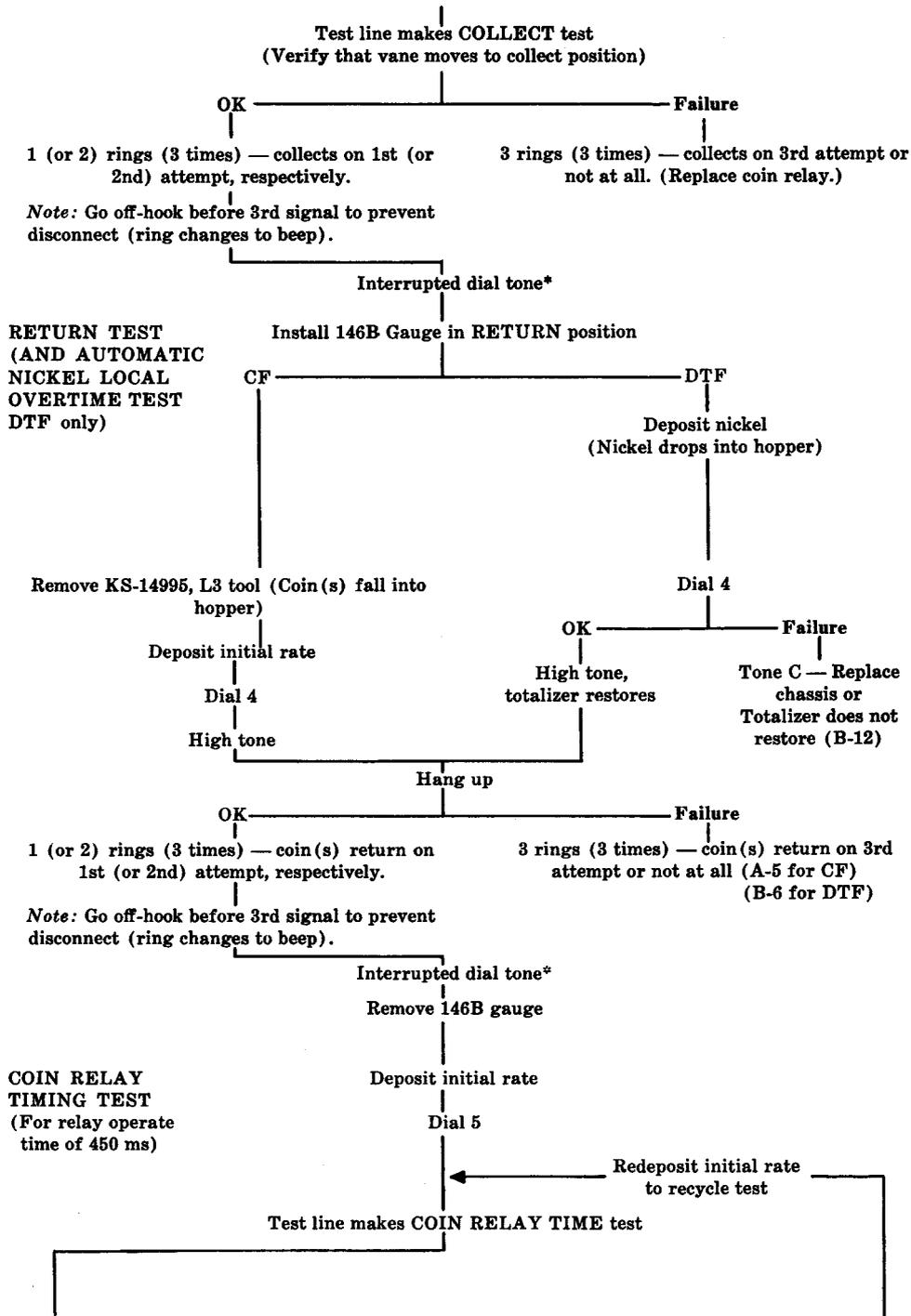
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Note: If deposit not automatically refunded when operator answers, request coins be returned.

Fig. 2 — Bias Margin Gauge in Position for Collect Test



*Tones time out in 60 sec.



*Tones time out in 60 sec.

SIGNAL	Temperature of Coin Relay			
	Below 20°	20°-60°	60°-100°	Above 100°
4 Beeps	Refer Adjust Chart	Too Slow — Refer to Adjust Chart		
3 Beeps				
Steady Tone			OK	
2 Beeps				
1 Beep	Too Fast — Refer to Adjust Chart			

Temperature	Adjusting Procedure
Above 100°	Adjust to steady tone and turn armature screw clockwise until first indication of 2 beeps is acquired
60° to 100°	Adjust to 3 beeps and turn armature screw clockwise until first indication of steady tone is acquired
20° to 60°	Adjust to 4 beeps and turn armature screw clockwise until first indication of 3 beeps is acquired
Below 20°	Adjust to 3 beeps and turn armature screw counterclockwise until first indication of 4 beeps is acquired — then turn screw counterclockwise an additional 1/4 turn

Go on hook momentarily
 Interrupted dial tone heard*
 Hang up. Test line disconnects

*Tones time out in 60 sec.

KS-21250 PORTABLE COIN TELEPHONE TEST SET

WARNING: Hazardous voltages on leads when test buttons operated.

Note: The timing circuit in this test is designed to time a 425 ms relay.

3.10 The KS-21250 portable test set may be used to check certain features of the coin telephone set when a central office line is not available.

3.11 Perform following pretest set-up.

- (a) On 1-type sets, remove cover unit assembly and hang it on a KS-20950 parking tool or connect a P11C patch cord between P1 and J1.
- (b) On 2-type sets, open door and faceplate assembly and connect a P11C patch cord between P1 and J1.
- (c) Disconnect C.O. tip and ring from set.
- (d) Connect the test set to TB1 terminals in telephone set; Red to R, Green to T, and Yellow to G.

3.12 Perform the following tests.

(a) *Operation Tests*

Note 1: In these tests only the "possible cause" and "remedial action" entries apply in the referenced tables and steps.

Note 2: When test set is "on" it supplies battery to the telephone set and sidetone is available except when either button is depressed.

DTF MODE — TEST SET ON

Test	Table	Step
(1) Handset on hook. Deposit quarter. • Totalizer steps back. • Beep tones heard in test set.	B	4
(2) Refund money using REFUND/TIME button.	B	6

Test	Table	Step
(3) Handset off-hook. Deposit nickel less than initial rate. • Totalizer does <i>NOT</i> step back. • No beep tone(s) heard.	B	12
(4) Operate dial. • Clicks/TT signals heard in test set. • Sidetone present in handset.	B	7
(5) Go on-hook. • Totalizer steps back. • Beep tone(s) heard.	B	8
(6) Refund coin(s).		
(7) Go off hook. Reverse Red and Green test set leads. Deposit nickel. • Totalizer steps back. • Beep tone heard.	B	12
(8) Refund nickel.		

CF MODE — TEST SET ON

Test	Table	Step
(1) Handset on-hook. Deposit quarter. • Totalizer steps back. • Beep tones heard in test set.	A	5
(2) Refund coin using REFUND/TIME button.	A	5
(3) Handset off-hook, Test set OFF. Deposit nickel less than initial rate. Turn test set on. • Totalizer does <i>NOT</i> step back. • No beep tone(s) heard.	A	7
(4) Go on-hook. • Totalizer steps back. • Beep tone(s) heard in test set.	A	6
(5) Go off-hook; operate dial. • Clicks/TT signals are <i>NOT</i> heard.	A	6

Test	Table	Step
• Sidetone present in handset.		
(6) Refund coin(s) using REFUND/TIME button.		
(7) Test set OFF. Deposit initial rate. Turn test set on. • Totalizer steps back. • Beep tones heard in test set.	A	8
(8) Operate dial. • Clicks/TT signals heard. • Sidetone present in handset.	A	9
(9) Refund coin(s) using REFUND/TIME button.		

(b) *Timing Test* — Coin relay

Remove coin chute assembly. Connect test set Red to No. 3 on coin relay. Yellow to G relay terminal. Black to top lead of relay resistor.

- (1) Deposit coin (or trip hopper trigger).
- (2) Press and hold REFUND/TIME button. Relay operates. Timing light(s) can be read.

Timing Light Indications		Action	
Fast	Slow	Relay	Relay Armature Screw
ON	ON	OK	OK but see*
OFF	ON	Slow	Turn clockwise — see note
ON	OFF	Fast	Turn counterclockwise

Note: Adjust armature screw ¼ turn each time. Retest, readjust, retest until OK. When collect button is used to operate relay, the timing lights remain off.

*When the RELAY is below 20°F, check and adjust until both SLOW and FAST lights are on, then turn relay screw counterclockwise and repeat until relay tests SLOW after last ¼ turn.

- (3) Release and lift return chute assembly out. Trip HT and operate COLLECT button. Observe in hopper that coin vane moves to collect position.
- (4) Reassemble disconnected components.

(c) *Coin Relay Operate Margin Check* — With a working central office line connected to coin telephone set:

- (1) Connect Yellow lead of test set to 3 on coin relay and Black lead of test set to top of relay resistor, lift handset. (Test Set Off)
- (2) Deposit initial rate.
- (3) Dial any digit but "0". Hang up. Relay should operate to refund position despite added shunt load built into the test set. If coin relay fails to operate, have test deskman assist in determining loop and ground resistance measurements.

3.13 Return coin telephone set to normal operation.

3.14 When finished with test set, turn it "OFF".

3.15 Replacement batteries for the KS-21250 test set are:

Quantity	Type
2	KS-14369 — 48 volt
10	KS-14368 — 1.5 volt or 1.5 volt Alkaline for operation below 0° F (Eveready No. E91 or RAY-O-VAC No. 815)

CONNECTIONS

3.16 1A-, 2A-, 1C-, and 2C-Type Coin Telephone Sets Connecting Diagram Index:

- Fig. 12 — 1A1 or 2A1 Coin Telephone Set — Connections
- Fig. 13 — 1A2 or 2A2 Coin Telephone Set W/35T3A Dial — Connections
- Fig. 14 — 1A2 or 2A2 Coin Telephone Set W/70A Dial — Connections
- Fig. 15 — 1C1 or 2C1 Coin Telephone Set — CF Connections
- Fig. 16 — 1C1 or 2C1 Coin Telephone Set — DTF Connections
- Fig. 17 — 1C2 or 2C2 Coin Telephone Set W/35T3A Dial — CF Connections
- Fig. 18 — 1C2 or 2C2 Coin Telephone Set W/70A Dial — CF Connections
- Fig. 19 — 1C2 or 2C2 Coin Telephone Set W/35T3A Dial — DTF Connections
- Fig. 20 — 1C2 or 2C2 Coin Telephone Set W/70A Dial — DTF Connections

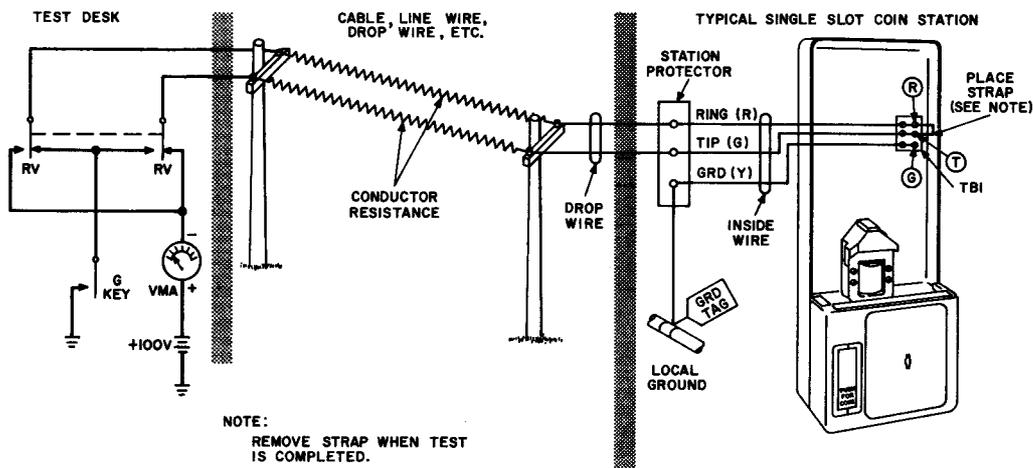


Fig. 3 — Loop Resistance Measurement

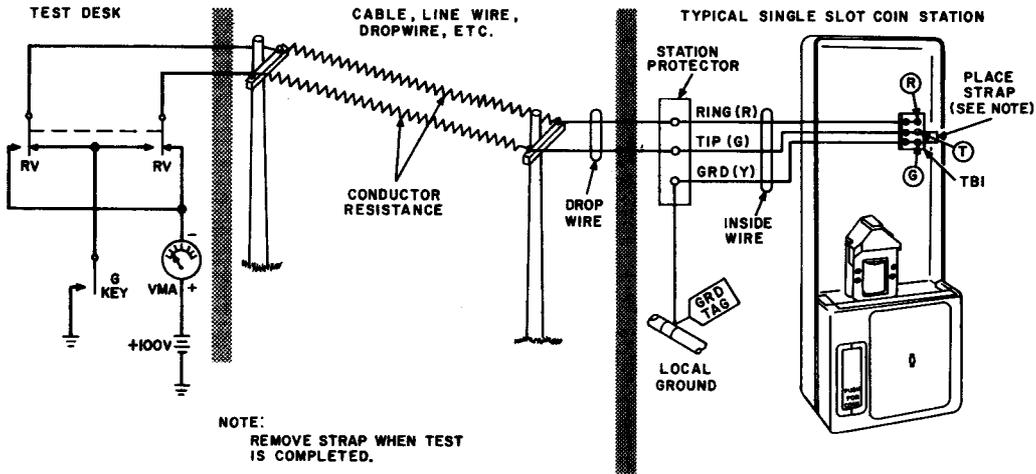


Fig. 4 - Ground Resistance Measurement

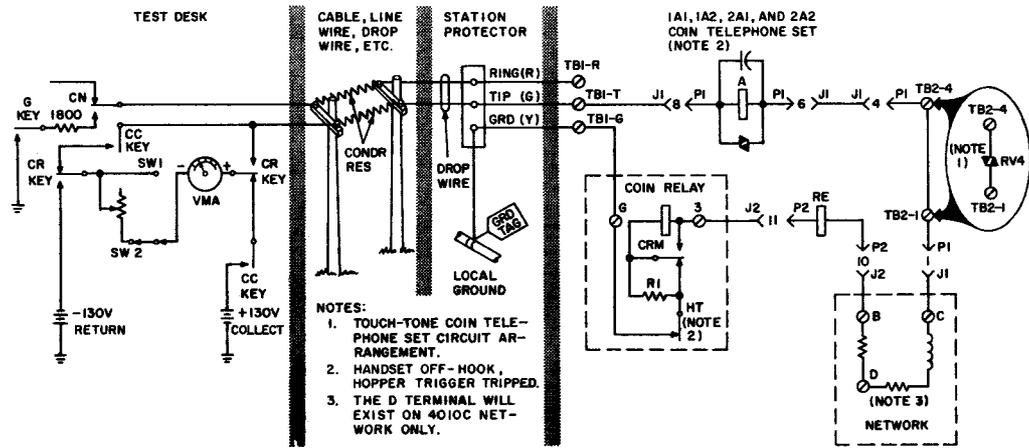


Fig. 5 - Coin Relay Current Flow Test - 1A/2A-Type

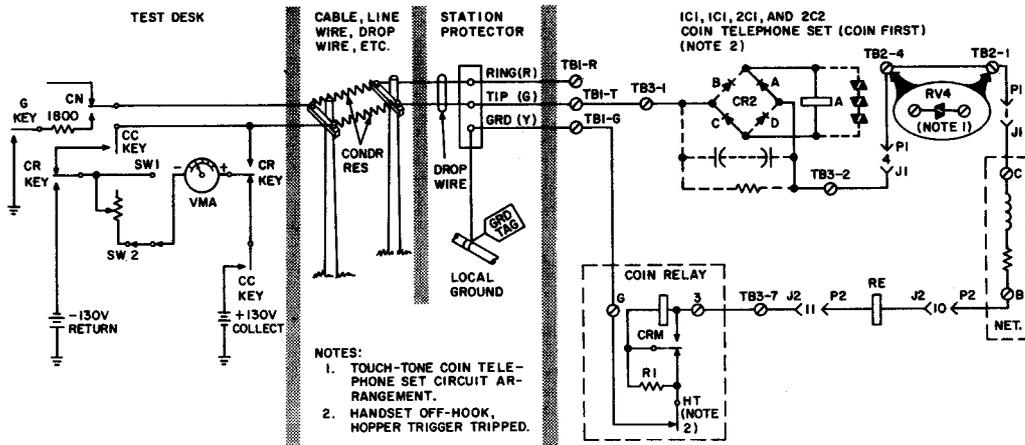


Fig. 6 - Coin Relay Current Flow Test - 1C/2C-Type (Coin First)

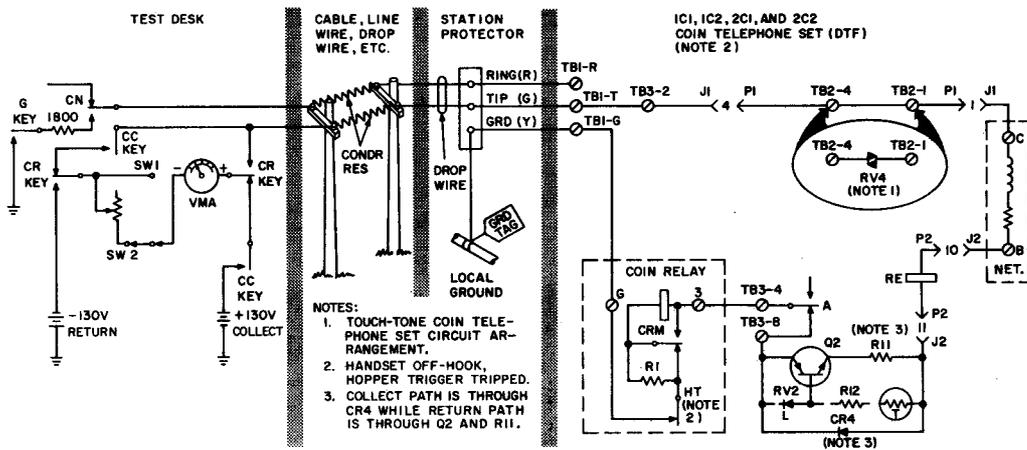


Fig. 7 - Coin Relay Current Flow Test - 1C/2C-Type (Dial Tone First)

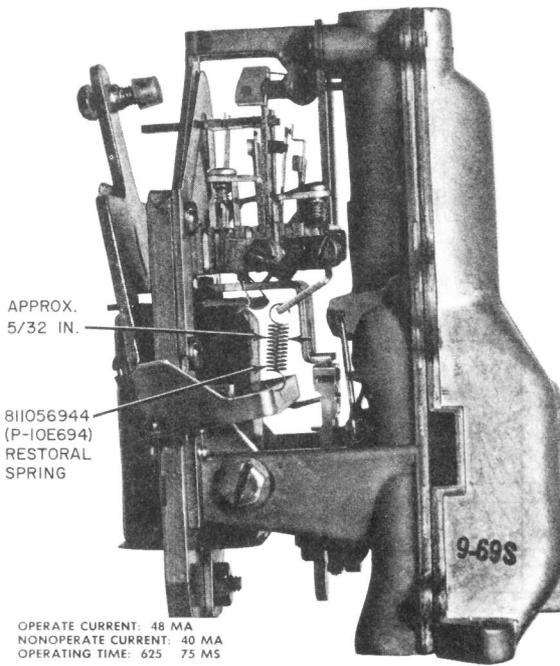


Fig. 10 — Coin Relay Showing Old Operating Values

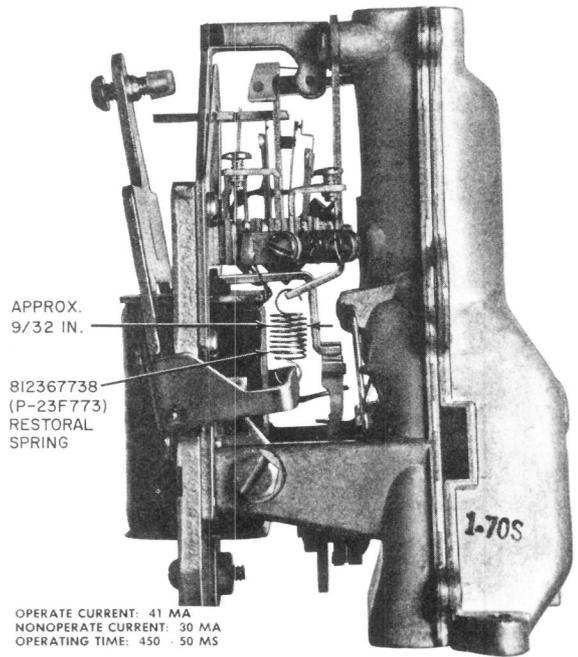


Fig. 11 — Coin Relay Showing Later Operating Values

TABLE A
TROUBLE ANALYSIS — 1A/1C- AND 2A/2C-TYPE SETS
COIN FIRST

Step	Action	Verification	Failure	Possible Cause	Remedial Action
Preparation For All Tests Except Trap and Vane Release					
1	Invert handset on switchhook (1-type only) to prevent cord from pushing handset off switchhook when cover is set down				
2	For a 1-type set: Remove cover unit assembly and hang it on a KS-20950, List 1 cover parking tool. If parking				

TABLE A (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
2 (Cont)	tool is not available, or cannot be used with the station, disconnect P1, place cover unit assembly on a firm level surface, and connect a P11C cord between P1 and J1 of coin chassis.				
3	For a 2-type set: Open door and faceplate assembly and connect a P11C cord between P1 and J1.				
Totalizer and Coin Relay Operation (On-Hook)					
4	Deposit penny and operate coin release mechanism	Coin is returned	Coin does not return	Blocked coin chute	Clear
				Defective coin release mechanism	Replace defective linkage
5	Deposit quarter in chute	Coin relay refunds coin	Coin does not return or coin is collected	Blocked coin chute	Clear
				Tip and ring reversed or coin trunk trouble	Reconnect or refer to testdesk
				P1 and P2 reversed	Reconnect properly
				Totalizer in DTF mode (1C/2C set only)	Switch to CF mode
				TB3 not wired correctly (1C/2C set only)	Wire correctly
				Traffic overload	Wait for refund pulse
				Coin jam in hopper	Clear jam
				Full coin receptacle	Level coins and notify coin collection department
				Coin relay HT contacts not making	Clean contacts or replace coin relay
				Switchhook transfer contacts SH1 (NC) or SH3 (NC) not making	Clean contacts or replace dial and housing assembly
				Switchhook contacts SH2 and SH4 not breaking	Adjust contacts or replace dial and housing assembly
				Defective totalizer	Replace defective apparatus
				Defective A relay	
Defective handset					
Defective dial (TOUCH-TONE only)					

TABLE A (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
5 (Cont)				Defective wiring in dial housing or chassis assembly	
				Defective coin relay	
				Coin relay improperly wired	
6	Deposit nickel	Nickel returned	Nickel does not return	Switchhook transfer contacts SH1 (NC) or SH3 (NC) not making	Clean contacts or replace dial and housing assembly
				TB2 not wired correctly	Wire correctly
				Defective wiring in dial housing or chassis assembly	Replace defective apparatus
				Traffic overload	Wait for refund pulse
Totalizer Operation (Off-Hook)					
7	Go off hook and deposit nickel in coin chute	No dial tone	Dial tone heard	T1 contacts remain latched after refund	Replace totalizer
				Switchhook transfer contacts SH3 (NC) not breaking (rotary dial sets only)	Replace dial and housing assembly
				Defective chassis or chassis wiring	Replace chassis
				Defective wiring in dial and housing assembly	Replace dial and housing assembly
8	Deposit additional coins up to initial rate	Dial tone is heard	No dial tone. Reduced level or intermittent dial tone	Traffic overload	Wait for dial tone
				Defective handset	Replace handset
				Switchhook contacts SH3 (NO) or SH2 and SH4 (NO) not making	Clean contacts or replace dial and housing assembly
				Switchhook transfer contacts SH1 (NO) not making	
				Totalizer set for more than initial rate	Reset totalizer rate
				T1 contacts (NO) not making	Replace totalizer
				F contacts (NC) not making	
Defective wiring in dial and housing assembly	Replace dial and housing assembly				

TABLE A (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
8 (Cont)				Defective dial	Replace defective apparatus
				Defective chassis	
				Defective totalizer	
			Continuous stream of beep tones	Totalizer transfer contacts T2 (NC) not making (totalizer steps continuously)	Replace totalizer
9	Dial any digit but "0" or "1"	Dial tone breaks	Cannot break dial tone	Totalizer contacts T1 not latching	Replace totalizer
				Defective dial	
				Defective handset (TOUCH-TONE only)	
		Coins not returned	Coins returned	Defective dial	Replace dial
10	Go on hook	Coins returned	Coins not returned	Traffic overload	Wait for refund pulse
				Coin trunk trouble	Refer to testdesk
11	Go off hook and deposit initial rate	Dial tone heard	No dial tone	Defective totalizer	Replace totalizer
				Traffic overload	Wait for dial tone
12	Dial any digit but "0" or "1"	Dial tone breaks	Cannot break dial tone	Defective totalizer	Replace totalizer
13	Go on hook	Coins returned	Coins not returned	Traffic overload	Wait for refund pulse
				Coin trunk trouble	Refer to testdesk
Dial Shorting Test					
14	Remove coin relay dust cover. Lift handset and operate hopper trigger by hand	Dial tone heard	No dial tone	Traffic overload	Wait for dial tone
15	Dial any digit but "0" or "1"	Dial tone remains after dialing	Dial tone breaks	Totalizer transfer contacts T1 (NC) not making	Replace totalizer
				Defective chassis	Replace chassis
16	Deposit nickel	Dial tone remains after deposit	Line drops off coin returned	Defective chassis	Replace chassis
				Defective A relay (1A/2A only)	Replace A relay
17	Hang up handset	Nickel returns	Nickel does not return	Traffic overload	Wait for coin return pulse
				Defective coin trunk	Refer to testdesk
Trap And Vane Release Test					
18	Remove chute — totalizer from set				
19	Remove coin relay dust cover				

TABLE A (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
	<i>Caution: Tilt selector card by pressing down on one of the ears before manually operating the coin relay. This avoids jamming selector card and cam engaging surfaces.</i>				
20	Press down on left ear of selector card and manually operate coin relay armature to its full extent of travel	Coin vane moves to collect (left) position; coin trap moves downward			
21	With armature fully operated, insert KS-14995, L3 tool into hopper to operate trap to the limit of its travel				
22	Release armature and slowly withdraw tool	Armature, trap, and vane should return to nonoperated position and trap should lock	Armature, trap, or vane does not return to its normal position	Relay could be binding	Loosen mounting screws and re-align relay; tighten screws
			Vane does not restore properly	Vane binds	Replace relay
				Vane broken	Remove coin relay from hopper and free vane
			Trap does not operate, restore, or lock properly	Trap broken	Replace vane per Section 506-100-110
			Trap spring bent or broken	Replace defective apparatus	
			Trap lever broken		
			Trap pin bent or broken		
23	Press down on right ear of selector card and manually operate coin relay armature to its full extent of travel	Coin vane moves to refund (right) position. Coin trap moves downward			
24	With armature fully operated, insert KS-14995, L3 tool into hopper to operate trap to the limit of its travel				
25	Release armature and slowly withdraw tool	Same as 22	Same as 22	Same as 22	Same as 22
26	Install dust cover				
27	Install chute — totalizer				
Coin Relay Bias Margin Test					
28	Remove coin relay dust cover				

TABLE A (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
29	Go off hook, deposit initial rate, call testdesk and request bias margin test. (Use central office test circuit where available)				
30	Slip 146B bias margin gauge over left polepiece extension arm from left side of coin relay				
31	Request deskman to apply central office collect (or return) voltage as indicated in the lower left corner of gauge	Relay operates to collect (or return) coins as indicated in lower left corner of gauge	Relay does not operate properly	Defective coin relay	Replace coin relay
32	Reverse the 146B bias margin gauge by turning it around on the same polepiece extension arm				
33	Request deskman to apply central office collect (or return) voltage as indicated on the left corner of gauge	Relay operates to collect (or return) coins as indicated in lower corner of gauge	Relay does not operate properly	Defective coin relay	Replace coin relay
34	Remove 146B gauge				
35	Go on hook				
36	Install dust cover				
Returning Set To Normal Operation					
37	Call operator. Deposit nickel, dime, and quarter	Coins identified by operator	Improper coin tones	Defective totalizer Defective chassis	Replace totalizer Replace chassis
38	Listen for coin tones in handset as coins are deposited	No coin tones heard in handset	Coin tones heard in handset	Defective chassis	Replace chassis
39	Request operator to return coins	Coins returned	Coins not returned	Nonstation trouble	Repeat request, and if failure reoccurs refer to testdesk
40	Request operator to call. Go on hook. Wait for incoming ring.	Ringer operates at maximum volume	No ringback or low volume	Defective ringer or leads	Replace ringer
				Ringer out of adjustment	Adjust

TABLE A (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
40 (Cont)				Open ringer capacitor in network	Replace chassis
				Improper line assignment	Verify and correct
41	Call the dial test number and verify all TOUCH-TONE frequencies (if applicable)				

TABLE B
TROUBLE ANALYSIS — 1C- AND 2C-TYPE SETS
DIAL TONE FIRST

Step	Action	Verification	Failure	Possible Cause	Remedial Action
Preparation for All Tests Except Trap and Vane Release					
1	Invert handset on switchhook (1-type only) to prevent armored cord from pushing handset off hook when cover is set down				
2	For 1-type set: Remove cover unit assembly and hang it on a KS-20950, List 1 cover parking tool. If parking tool is not available, or cannot be used at the station, disconnect P1, place cover unit assembly on a firm level surface and connect a P11C cord between plug P1 and jack J1 of the coin chassis.				
3	For 2-type set: Open door and faceplate assembly. Connect a P11C cord between P1 and J1.				

TABLE B (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
Dial Tone Test					
4	Go off hook	Dial tone received	No dial tone	Defective handset	Replace handset
				Traffic overload	Wait
				Switchhook contacts SH1 (NO), or SH2 and SH4 (NO), not making	Clean contacts or replace dial and housing assembly
				P1 and P2 reversed	Reconnect properly
				Totalizer in CF mode	Switch to DTF mode
				TB2 not wired correctly	Wire correctly
				TB3 not wired correctly	Wire correctly
				Defective totalizer	Replace totalizer
Defective wiring in chassis, or dial and housing assembly	Replace defective apparatus				
Nonstation trouble	Refer to testdesk				
Totalizer and Coin Relay Operation					
5	Deposit quarter	Quarter does not return	Quarter falls in return bucket	TB3 not wired correctly	Wire correctly
				Chute path blocked	Clear
				Defective totalizer	Replace defective apparatus
Defective chassis					
6	Depress switchhook	Quarter returned	Quarter does not return	Switchhook contacts SH2 (NO) and SH4 (NO) not breaking	Replace dial and housing assembly
				Defective coin trunk	Refer to testdesk
				Defective totalizer	Replace defective apparatus
				Defective chassis	
Defective coin relay					
7	Deposit nickel, dial a number that requires initial deposit	Dial tone breaks	Dial tone does break	Defective dial	Replace dial
				Tip, ring or grd reversed	Wire correctly
		Recording states that insufficient deposit was made	Recording not heard	Defective chassis	Replace chassis
				Initial rate set for 5 cents	Reset totalizer rate
				TB3 not wired correctly	Wire correctly
Totalizer contacts T1 making for nickel deposit	Reset totalizer rate or replace totalizer				
8	Depress switchhook	Coin returned	Coin not returned	Switchhook contacts SH2 (NO) or SH4 (NO) not breaking	Replace dial and housing assembly
				Defective coin trunk	Refer to testdesk

TABLE B (Cont)

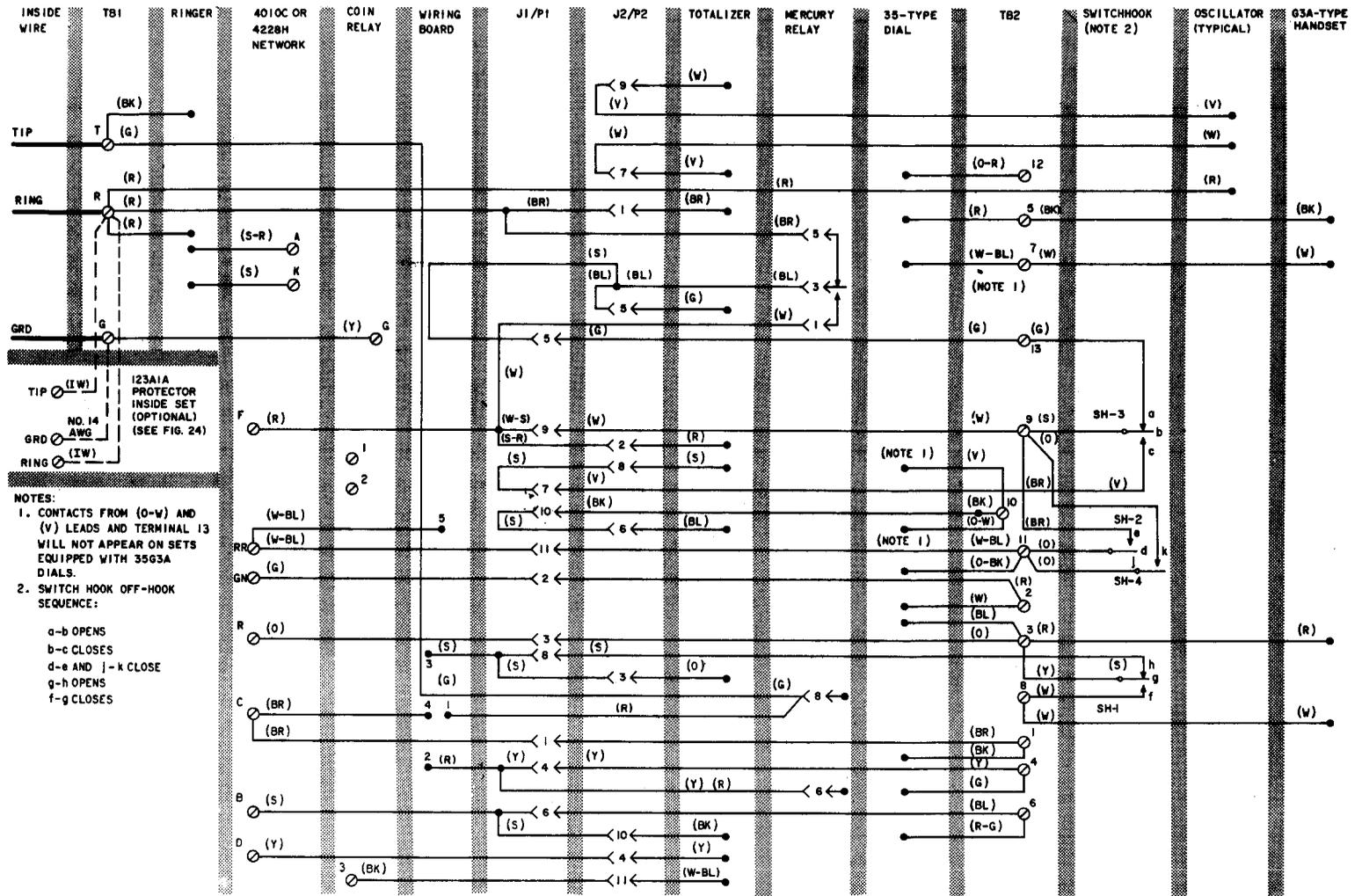
Step	Action	Verification	Failure	Possible Cause	Remedial Action
8 (Cont)				Defective totalizer	Replace defective apparatus
				Defective chassis	
				Defective coin relay	
9	Deposit initial rate, dial a number that requires a deposit <i>Note:</i> Ensure that called number will not be answered.	Ringing tone heard in handset	Insufficient deposit recording heard	Initial rate set for more than the deposit	Reset totalizer
				Defective T1 or F contacts in totalizer	Replace totalizer
				Defective chassis	Replace chassis
				Switchhook SH3 (NO) not making	Clean contacts or replace dial housing
				TB3 not wired correctly	Wire correctly
10	Go on hook	Coins returned	Coins not returned	Defective coin trunk	Refer to testdesk
11	Deposit penny and operate coin release lever	Penny returned	Coin does not return	Defective coin chute	Clear
				Defective coin release mechanism	Replace defective linkage
Trap and Vane Release Test <i>Note:</i> Refer to Table A.					
Coin Relay Bias Margin Test <i>Note:</i> Refer to Table A.					
Returning Set To Normal Operation					
12	Call operator. Deposit nickel, dime, and quarter	Coins identified by operator	Improper coin tone signals	Defective totalizer	Replace totalizer
				Defective chassis	Replace chassis
13	Listen for coin tones in handset as coins are deposited.	No coin tones heard in handset	Coin tones heard in handset	Defective chassis	Replace chassis
14	Request operator to return coins	Coin returned	Coins not returned	Nonstation trouble	Repeat request, and if failure reoccurs refer to testdesk
15	Request operator to ring back (hang up)	Ringer operates at maximum volume	No ringback or low volume.	Defective ringer or leads	Replace ringer
				Ringer out of adjustment	Adjust
				Open ringer capacitor in network	Replace chassis
16	Call the dial test number and verify all TOUCH-TONE frequencies (if applicable)				

TABLE C
OPERATE VALUES OF COIN RELAYS

Marking On Relay	Operating Time	Operate Current	Non-Operate Current
P-15E687	625 ± 75 milliseconds (Notes 2 and 3)	48 milliamps	40 milliamps
1A*	450 ± 50 milliseconds	41 milliamps	30 milliamps
1A (Note 1)			

Notes:

1. Coin relays marked 1A without the asterisk symbol have bifurcated rather than solid contact springs.
2. 625 ms relay should be retimed to 450 ± 50 ms. Use coin test line circuit or KS-21250 test set.
3. On repeated visits indicating coin relay troubles, and local ground requirements have been met, it is recommended that 48 ma operate relays be replaced with 41 ma operate relays.



NOTES:
 1. CONTACTS FROM (O-W) AND (V) LEADS AND TERMINAL 13 WILL NOT APPEAR ON SETS EQUIPPED WITH 35G3A DIALS.
 2. SWITCH HOOK OFF-HOOK SEQUENCE:
 a-b OPENS
 b-c CLOSES
 d-e AND j-k CLOSE
 g-h OPENS
 f-g CLOSES

Fig. 13—1A2 or 2A2 Coin Telephone Set W/35T3A Dial—Connections

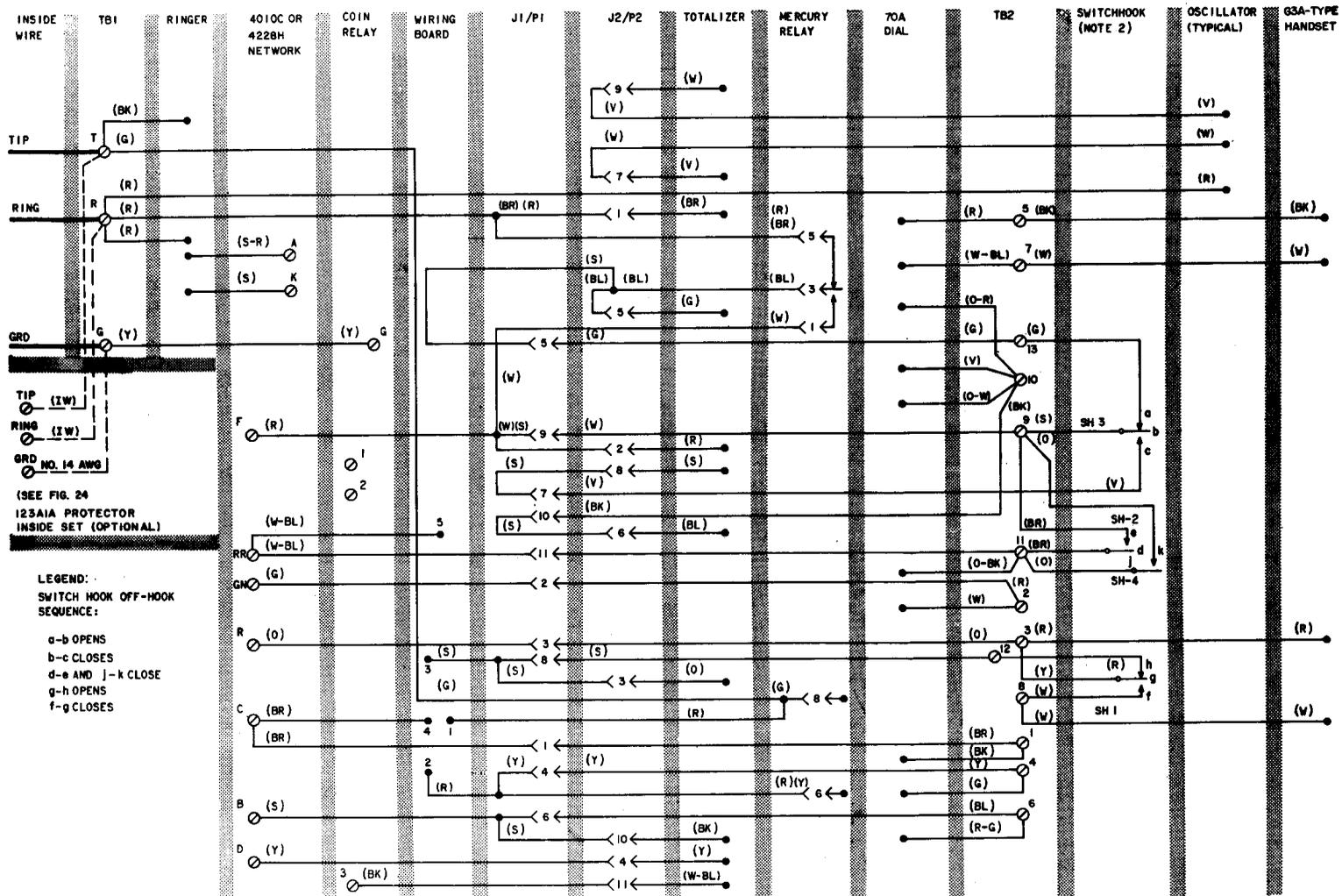


Fig. 14—1A2 or 2A2 Coin Telephone Set W/70A Dial—Connections

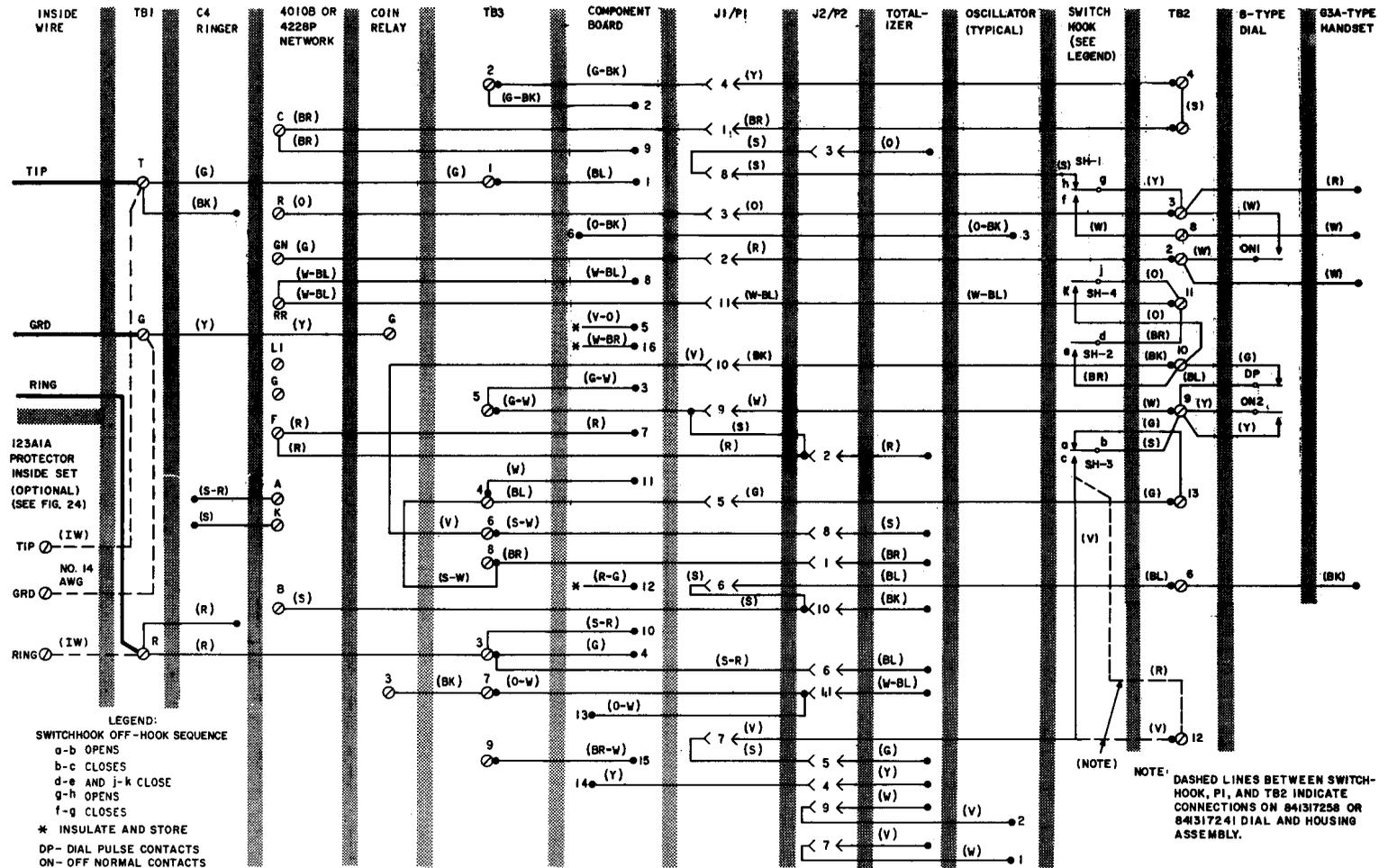


Fig. 15—1C1 or 2C1 Coin Telephone Set—CF Connections

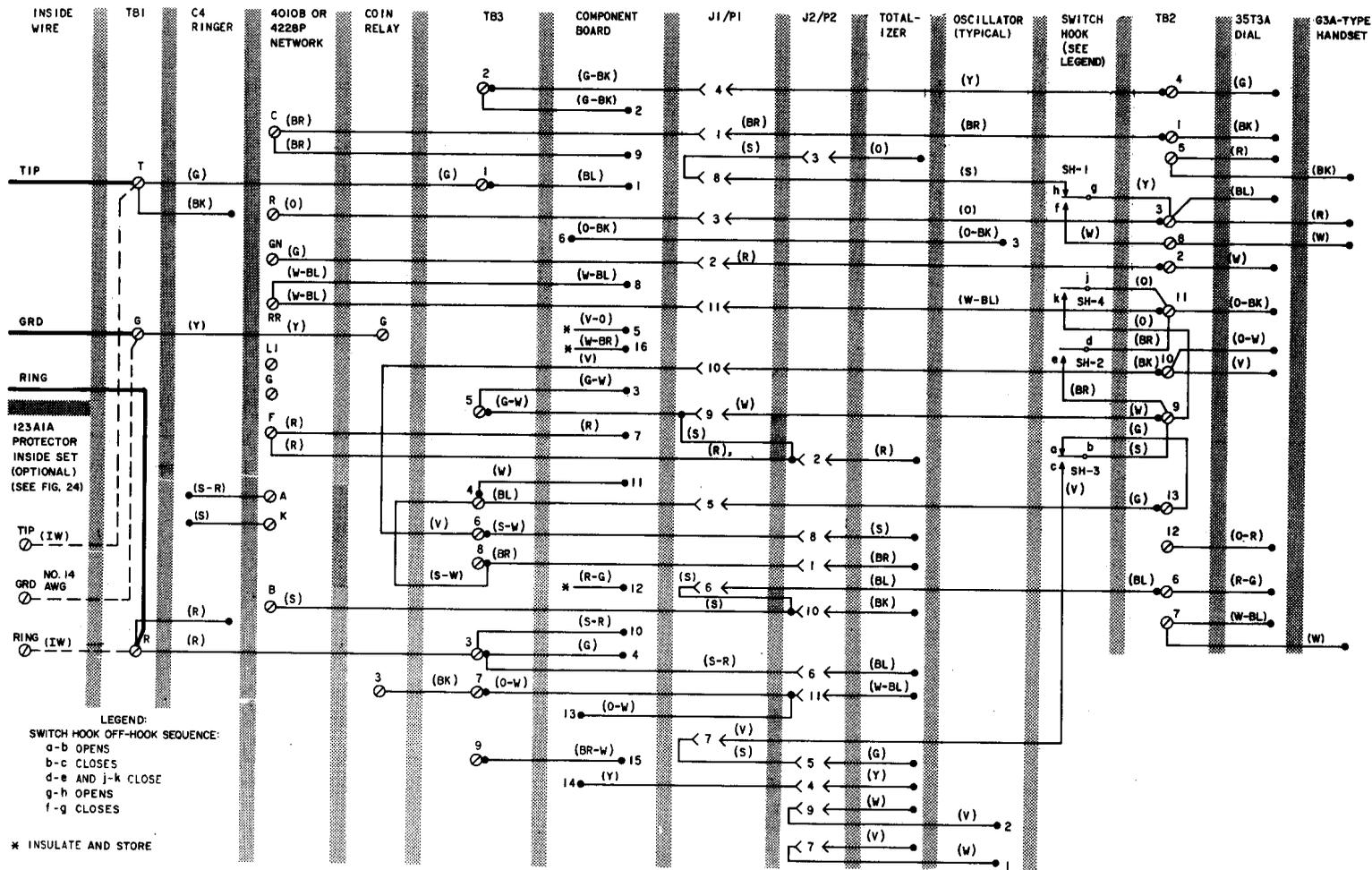


Fig. 17—1C2 or 2C2 Coin Telephone Set W/35T3A Dial—CF Connections

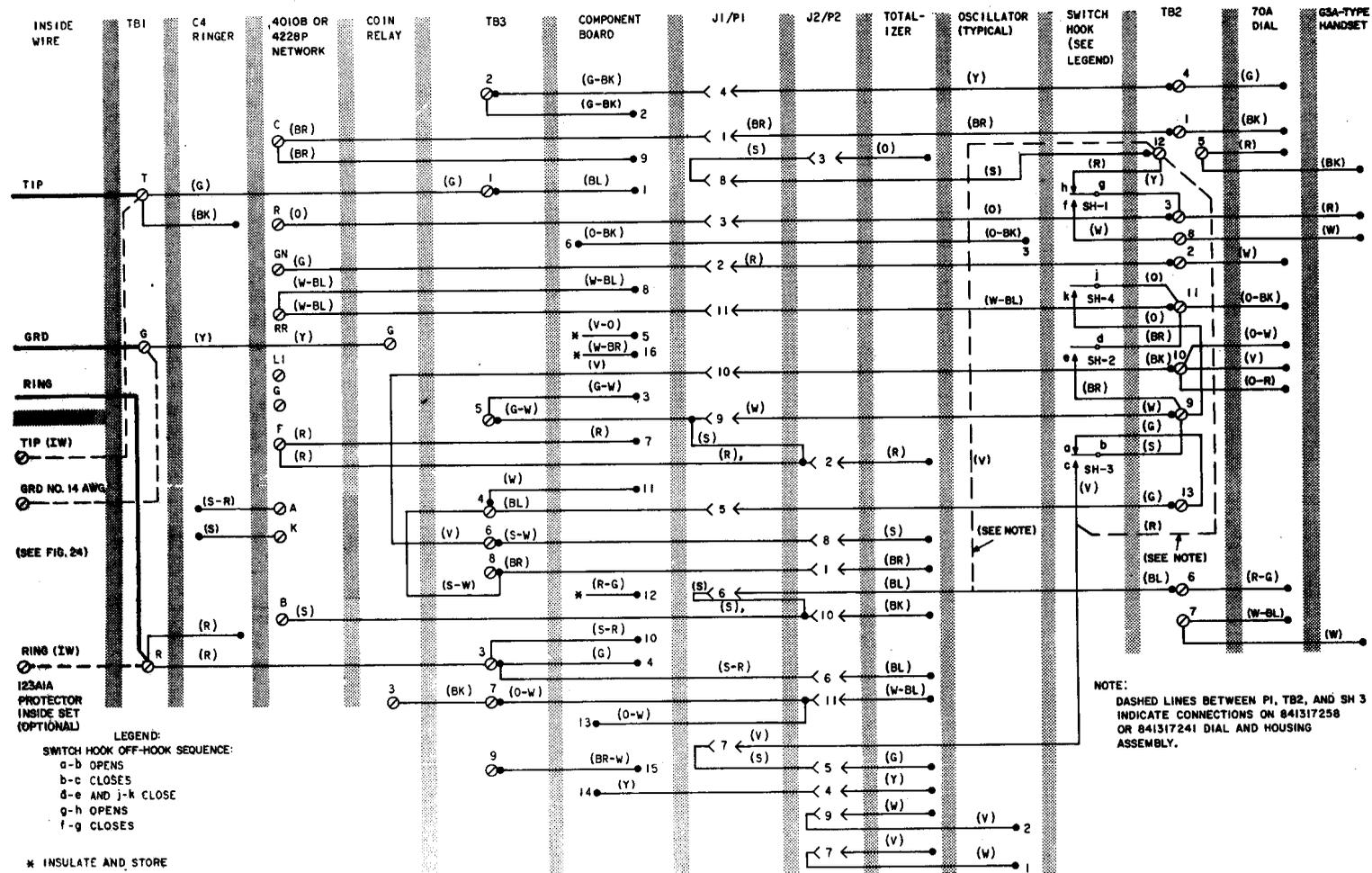


Fig. 18—1C2 or 2C2 Coin Telephone Set W/70A Dial—CF Connections

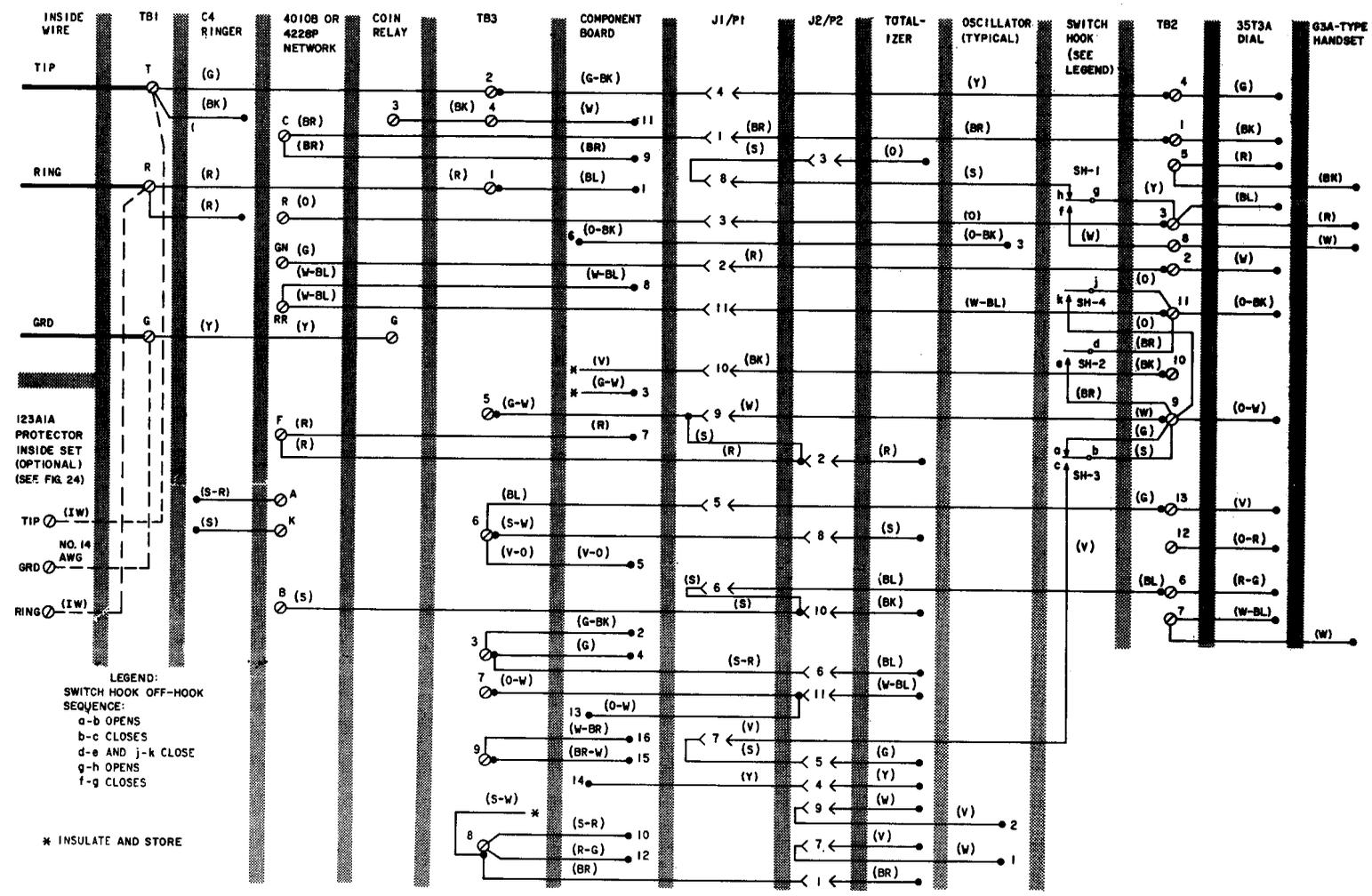


Fig. 19—1C2 or 2C2 Coin Telephone Set W/35T3ADial—DTF Connections

4. POST PAY SERVICE

SIX-STEP COIN STATION ROUTINE

When to Perform the Complete Six-Step Routine

- Upon installation of a Post-Pay coin telephone set.
- On repeated reports for which trouble cannot be found by the usual maintenance procedures.

When to Perform Specific Steps of the Routine

- Steps 1, 2, 3, and 6 are required as part of each repair visit for all trouble reports.
- Step 4 is required to update the measurement records on the test center line card.
- The KS-21250 portable test set may be used to check certain features of the coin telephone set when a central office line is not available.

4.01 If the six-step routine does not stop repeated reports, refer the situation to local supervision for further investigation.

4.02 Sets must be mounted on a vertical surface.

A tilt greater than 1½ degrees in any direction may cause malfunction of the telephone. See Section 506-410-400.

4.03 The six-step coin station routine is as follows:

Step 1. Inspection Before Removing Cover

*Inspect**BSP**Reference*

- (a) Dial operation (1E1 only).
- Operates smoothly without binding, slipping, or skipping
 - Cracked fingerwheel.

501-162-100

- (b) Handset
- Cracked caps or handle.
 - Loose parts

506-410-400

- (c) Armored cord.
- Secure at handset and instrument
 - Armor intact.

506-101-400



- (d) Cover unit assembly.
- Appearance and alignment

506-410-400

*Inspect**BSP
Reference*

- (e) Number cards.
- Present and legible
 - Correct telephone number.
- (f) Customer instruction cards.
- Securely in place
 - Correct information
 - Not mutilated.
- (g) Information plate.
- Legible.
- (h) Coin return.
- Not blocked
 - Door swings freely.
- (i) Coin release lever and entrance stop.
- Not broken
 - Operates freely.
- (j) Inside and ground wire for:
- Continuity and tight connections
 - Proper routing and support
 - Proper gauge ground wire
- (k) Station protector for:
- Proper type
 - Operated blocks or fuses
 - Ground wire caution tag (E-3013B)

Step 2. Operation Tests

Note 1: When testing a 1E1 set, refer to Trouble Analysis Table D when any operation test fails. Test preparation numbers 1, 2, and 3 in Step column of Table D shall precede any action in the table. Steps should be performed in sequence. Possible cause assumes that preceding tests have been met.

Note 2: When testing a 1E3 set, refer to Trouble Analysis Table E when any operation test fails. Test preparation numbers 1, 2, and 3 in Step column of Table E shall precede any action in the table. Steps should be performed in sequence. Possible cause assumes that preceding tests have been met.

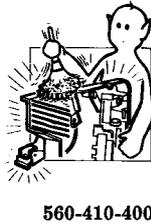
Note 3: Remove cover unit assembly and hang it on KS-20950 parking tool. If parking tool is not available, invert handset on switchhook and connect a P11C patch cord between P1 and J1.



- Inspect*
- Coins required: quarter, dime, nickel
 - Station wiring for loose connections



- Coin chute for foreign matter and dirt
- Ensure that chute locking lever and spring are properly engaged
 - Ensure that station wiring is properly dressed and not binding against totalizer cover or pinched behind chute causing coin chute to be out of alignment.
 - Check level of coins using 139B tool.
 - Check for evidence of tampering or fraudulent use.



A. 1E1 Set

- | | <i>Table D
Step Nos.</i> |
|--|------------------------------|
| (e) Insert KS-14995, List 3 tool | 3 |
| (f) With handset off-hook | 4 |
| • Dial tone heard | |
| (1) Dial operator | |
| • Dial tone breaks | 5 |
| • Operator answers | |
| (2) With operator on line, deposit nickel, dime, and quarter | |
| • Operator correctly identifies coins | |
| • Coin tones should not be heard in handset | 7 |
| • Check handset cord for noise or cut out | 9 |
| (3) Request operator to call back. Go on hook | 10 |
| • Ringer operates at maximum volume | |
| (4) Release operator and go on-hook | |
| (5) Retrieve coins | 8 |

- | | |
|--|----|
| (g) With handset off-hook | |
| (1) Insert KS-14995, List 3 tool | 3 |
| (2) Dial a local charge number | 13 |
| • Audible ringing heard | |
| • CO switches to deposit coin tone when called party answers | |
| (3) Deposit 5 cents less than initial rate | 14 |
| • Deposit coin tone remains | |
| (4) Deposit additional coins up to initial rate | 15 |
| • Deposit coin tone stops | |
| • Talk path is established | |
| (5) Hang up | 17 |
| • Totalizer restores | |
| (6) Retrieve coins | 16 |

B. 1E3 Set

- | | <i>Table E
Step Nos.</i> |
|---|------------------------------|
| (h) Insert KS-14995, List 3 tool | 3 |
| (i) Go off-hook | 4 |
| • Operator answers | |
| (j) With operator on line | |
| (1) Deposit nickel, dime and quarter | 5 |
| • Operator correctly identifies coins | |
| • Coin tones should not be heard in handset | 6 |
| • Check handset cord for noise or cut out | |
| (2) Request operator to call back. Go on hook | |
| • Ringer operates at maximum volume | |
| (3) Release operator and go on hook | |
| (4) Retrieve coins | 7 |

Step 3. Test to be Performed With Testdesk

Note: The following tests should be performed on installations when investigating repeated trouble reports or to update the line card record in test center.

- Test for absence of foreign potential.
- Measure loop resistance
 - Connections for loop measurements for a typical single slot station are shown in Fig. 3.
- Totalizer current flow tests
 - See Fig. 21 for totalizer current flow test



Table E
Step Nos.

- (1) Preparation
 - Invert handset
 - Remove cover unit assembly and connect it to housing with P11C cord or use a KS-20950 parking tool
 - Insert KS-14995, List 3 tool
- (2) With handset off-hook
 - Call test desk
 - Have test desk make a current flow test of totalizer
 - After test desk operator adjusts current level deposit initial rate and verify totalizer operation.
 - Retrieve coin (s)
- (3) If totalizer doesn't meet current-flow test, replace totalizer.
- (4) Test measurements and date should be recorded on line card or equivalent

Step 4. Inspection of Wiring

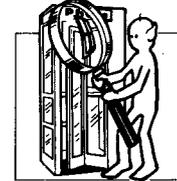
<i>Inspect</i>	<i>BSP Reference</i>
(a) Inspect protector for: <ul style="list-style-type: none"> • Proper type • Operated blocks or fuses • Ground wire caution tag (E-3013B) • 14 AWG between TB2-G and protector ground if protector is inside set 	460-100-201
<i>Note:</i> Tag the location of station ground inside set. Include telephone line number plus loop resistance measurements.	506-410-100
(b) Remove P11C test cord or parking tool	
(c) Connect P1 to J1 and install cover unit assembly	

Step 5. Final Test and Inspection After Replacing Cover Unit Assembly

- (a) Go off-hook and call operator
- (b) Request operator to call back. Go on hook.
 - Verify correct number assignment
 - Observe ringer volume
- (c) Check coin release lever operation.
 - Operates and restores freely
 - Entrance stop does not rub or bind front cover.

Step 6. Visual Inspection of Associated Items

<i>Inspect</i>	<i>BSP Reference</i>
Inspect condition of: <ul style="list-style-type: none"> • Booth, shelf, or mounting (properly anchored and grounded) • Glass • Door operation • Light fixtures • Light control unit • Blower (if present) • Directories (if provided) • Signs 	508-100-100 508-820-100 508-825-100 508-810-202 and 508-810-205
• General area for safety of public access and appearance	



KS-21250 PORTABLE COIN TELEPHONE TEST SET

WARNING: Hazardous voltages on leads when test buttons operated.

4.04 Perform following pretest set-up:

- (a) Remove cover unit assembly and hang it on a KS-20950 parking tool or connect a P11C patch cord between P1 and J1.
- (b) Disconnect tip and ring from set.
- (c) Connect the test set to TB1 terminals in telephone set; Green to R, Red to T, and Yellow to G.
- (d) Insert KS-14995, List 3 tool between coin chute and hopper to prevent loss of deposited coins.

4.05 Perform following tests:

Note: In these tests, only the "possible cause" and "remedial action" entries apply in the referenced tables and steps.

<i>Test</i>	<i>Table</i>	<i>Step</i>
(1) Handset off-hook. Test set ON. <ul style="list-style-type: none"> • Sidetone present in handset 	D	4
(2) Rotate and release dial <ul style="list-style-type: none"> • Clicks heard 		
(3) Deposit nickel <ul style="list-style-type: none"> • Totalizer does not step back • No beep tones heard 	D	14
(4) Hang-up <ul style="list-style-type: none"> • Totalizer steps back • Beep tone heard 	D	17

<i>Test</i>	<i>Table Step</i>	<i>Test</i>	<i>Table Step</i>
(5) Handset off-hook — Deposit initial rate. Use dime (s) if possible.	D 15	(7) Deposit quarter	D 6
<ul style="list-style-type: none"> • Totalizer does not step back • In a 1E1 set equipped with a 51A hopper a click is heard in test set speaker • If set is equipped with a 50A hopper, operate coin trap by hand and a click is heard in test set speaker 		4.06 Return coin station and test set to normal as follows:	
(6) Reverse Red and Green leads of test set	D 17	(a) Retrieve coins.	D 16
<ul style="list-style-type: none"> • Totalizer steps back • Beep tones heard in speaker. 		(b) Disconnect test set and turn it off.	
		(c) Reconnect C.O. tip and ring to coin set.	
		(d) Remove P11C patch cord on parking tool.	
		(e) Install cover unit assembly.	
		4.07 For replacement batteries for the KS-21250 test set, see 3.15.	

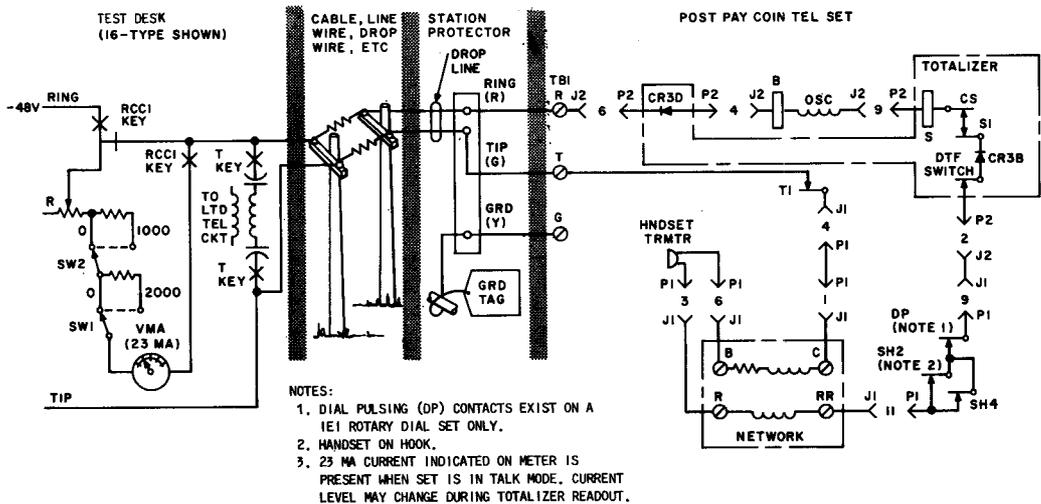


Fig. 21 — Totalizer Current Flow Test (Post Pay)

**TABLE D
TROUBLE ANALYSIS — 1E1 SET
DIAL POST PAY**

Step	Action	Verification	Failure	Possible Cause	Remedial Action
Preparation For All Tests					
1	Invert handset on switchhook to prevent armored cord from pushing handset off switchhook when cover is set				
2	Remove cover unit assembly and hang it on a KS-20950, List 1 cover parking tool. If parking tool is not available or cannot be used at the station, disconnect P1, place cover unit assembly on a firm level surface and connect a P11C cord between P1 and J1 of the coin chassis				
3	If set has a 51A hopper, a KS-14995, List 3 tool can be inserted between coin chute and hopper to prevent loss of deposited coins. If set has a 50A hopper, test cannot be performed without losing coins.				
Dial Tone Tests					
4	Go off hook	Dial tone heard	No dial tone	Defective handset.	Replace handset.
				Traffic overload.	Wait and repeat test.
				Switchhook contacts SH1 (NO), or SH2 & SH4 (NO), not making	Clean contacts or replace dial and housing assembly.
				P1 and P2 reversed	Reconnect properly.
				Totalizer in CF mode	Switch to DTF mode
				TB2 not wired correctly.	Wire correctly.
				Defective totalizer.	Replace totalizer.

TABLE D (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
4 (Cont)				Defective wiring in chassis, or dial and housing assembly.	Replace defective apparatus.
				Nonstation trouble.	Refer to testdesk.
5	Dial operator.	Dial tone breaks.	Dial tone does not break.	Defective dial.	Replace defective apparatus.
				Defective chassis.	
				TB2 not wired correctly.	Verify wiring.
				Nonstation troubles.	Refer to testdesk and correct trouble.
		Operator answers.	Transmission path not established.	Defective handset.	Replace handset.
Totalizer Operation					
6	With operator on line, deposit nickel, dime, and quarter.	Operator correctly identifies signal tones.	Operator cannot identify signals properly.	Defective totalizer.	Replace defective apparatus.
				Defective chassis.	
				Defective 840708895 hopper delay circuit assembly (51A hopper only)	Replace defective apparatus
				Defective 446F diode. (50A hopper only)	
Ring and tip reversed.	Correct				
7	Listen for coin tones in handset as coins are deposited.	Tones should not be heard.	Tones are heard.	Defective chassis.	Replace chassis.
8	If KS-14995, L3 tool was installed, disengage chute locking spring; <i>slowly pull top of chute forward while holding KS-14995, L3 tool.</i> Lift chute and tool out of set and retrieve coins.				
9	Check for noise or cutout in handset cord	Noise should not be heard.	Noise is heard.	Defective handset.	Replace handset.
10	Give operator number of station under test, request operator to call back, go on hook	Ringer operates at maximum volume.	No ring or rings at low volume.	Improper line assignment.	Verify and correct.
				Defective ringer.	Replace ringer or chassis.
				Ringer out of adjustment.	Adjust.
				Open capacitor in network.	Replace chassis.
11	Repeat step 3, deposit initial rate, and	Identification properly made.	Identification cannot be made	Nonstation trouble.	Refer to testdesk.

TABLE D (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
11 (Cont)	request operator to identify coin signal				
12	Repeat step 8. Go on hook				
13	Go off hook, get dial tone, and dial a local charge number (this should be prearranged).	Dial tone received, station number dialed, audible ringing heard, called party answers, switches to deposit coin tone	No dial tone	Traffic overload.	Wait and repeat test.
			Audible ringing not heard		
			Deposit coin tone not heard.	Nonstation troubles.	Refer to testdesk.
14	Refer to step 3 and deposit 5 cents less than initial rate	Deposit coin tone remains.	Deposit coin tone stops.	Initial rate set for 5 cents.	Reset totalizer.
				Wrong code totalizer or defective totalizer.	Replace totalizer.
			Totalizer reads out.	Defective chassis.	Replace chassis.
15	Deposit additional coins up to initial rate.	Deposit coin tone stops. Talk path is established.	Deposit coin tone does not stop.	Initial rate set for more than the deposit.	Reset totalizer.
				Defective hopper.	Replace defective apparatus.
				Defective totalizer.	
				Nonstation troubles.	Refer to testdesk.
16	If KS-14995, L3 tool was installed, disengage chute locking spring; slowly pull top of chute forward while holding KS-14995, L3 tool. Lift chute and tool out of set and retrieve coins.				
17	Hang up.	Totalizer restores.	Totalizer does not restore.	Defective dial and housing assembly.	Replace defective apparatus.
				Defective chassis.	
18	Return set to normal operation.				

TABLE E
TROUBLE ANALYSIS — 1E3 SET
MANUAL POST PAY

Step	Action	Verification	Failure	Possible Cause	Remedial Action
Preparation For All Tests					
1	Invert handset on switchhook. <i>Note: Prevents armored cord from pushing handset off switchhook when cover is set down.</i>				
2	Remove cover unit assembly and hang it on a KS-20950, L1 cover parking tool. If parking tool is not available or cannot be used at the station, disconnect P1, place cover unit assembly on a firm level surface and connect a P11C cord between P1 and J1 of the coin chassis				
3	Insert KS-14995, L3 tool between coin chute and hopper to prevent loss of deposited coins				
Dial Tone Tests					
4	Go off hook	Operator answers	Operator does not answer	Defective handset.	Replace defective apparatus.
				Defective chassis.	
				Defective switchhook.	Verify and correct.
				TB2 not wired correctly.	
Nonstation troubles.	Refer to testdesk.				
Totalizer Operation					
5	With operator on line, deposit nickel, dime, and quarter.	Operator identifies proper coin tone signals	Operator cannot properly identify coin signals	Defective totalizer.	Replace defective apparatus.
				Defective chassis.	
				Ring and tip reversed.	Correct.
				Totalizer mode switch in CF position.	Reposition switch to DTF.
6	Listen for coin tones in handset as coins are deposited.	Tones should not be heard.	Tones are heard.	Defective chassis.	Replace chassis.
7	Disengage chute locking				

TABLE E (Cont)

Step	Action	Verification	Failure	Possible Cause	Remedial Action
7 (Cont)	spring; <i>slowly pull top of chute forward while holding KS-14995, L3 tool.</i> Lift chute and tool out of set and retrieve coins.				
8	Check for noise of cutout in handset cord.	Noise should not be heard.	Noise is heard.	Defective handset.	Replace handset.
9	Repeat step 3				
10	Request operator to call back.	Ringer operates at maximum volume.	No ringing or rings at low volume.	Improper line assignment.	Verify and correct.
				Defective ringer.	Replace ringer or chassis.
				Ringer out of adjustment.	Adjust.
				Open capacitor in network.	Replace chassis.
11	With operator on line deposit a coin and request operator to identify coin signal.	Identification properly made.	Identification cannot be made.	Nonstation trouble.	Refer to testdesk.
12	Thank operator and hang up.				
13	Disengage chute locking spring; <i>slowly pull top of chute forward while holding KS-14995, L3 tool.</i> Lift chute and tool out of set and retrieve coins.				
14	Return set to normal operation.				

CONNECTIONS:

4.08 1E1 and 1E3 Coin Telephone Sets Connecting
Diagram Index:

- Fig. 22 — 1E1 Coin Telephone Set — Connections
- Fig. 23 — 1E3 Coin Telephone Set — Connections

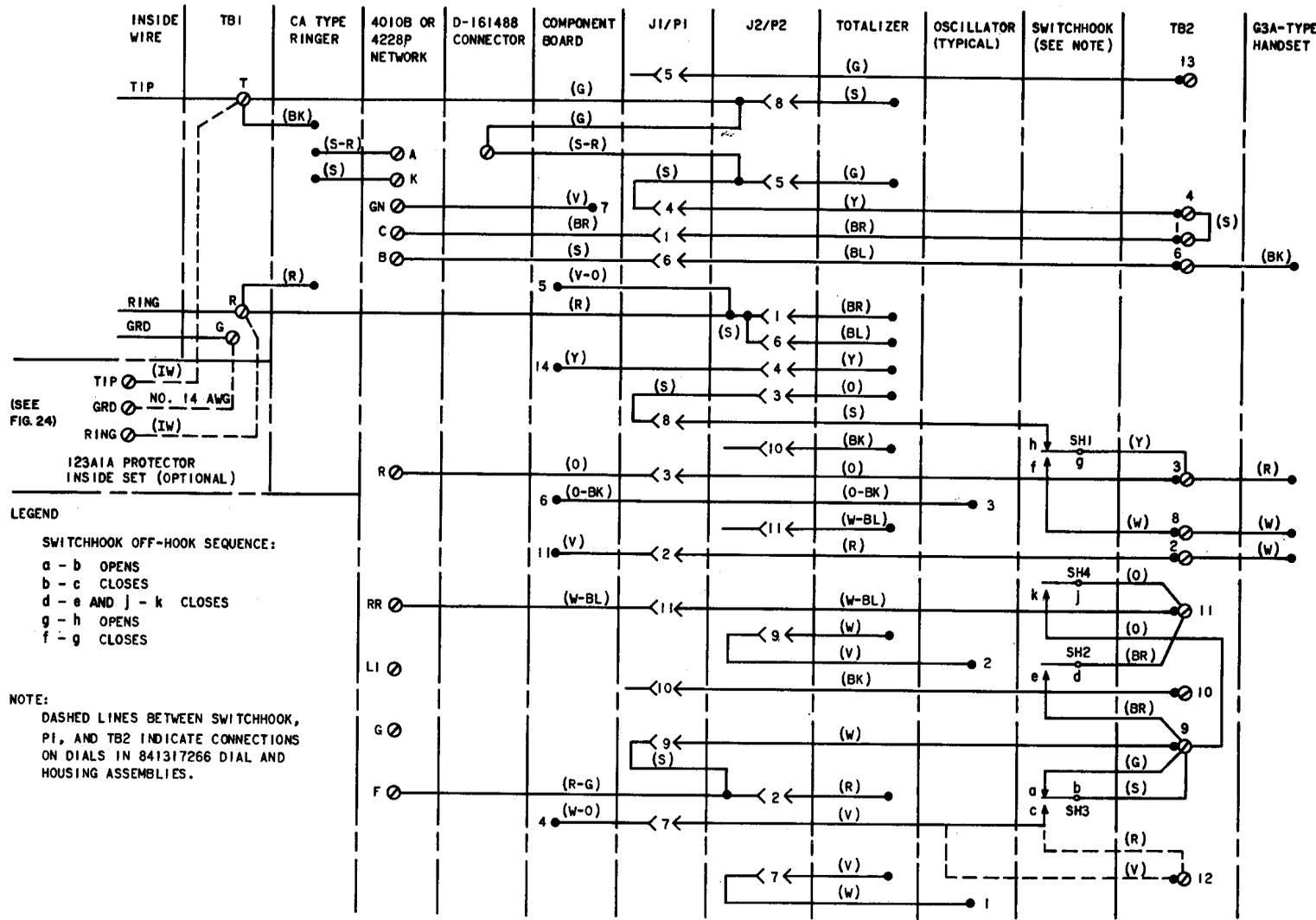


Fig. 23—1E3 Coin Telephone Set—Connections