

COMMON SYSTEMS
 TELEPHONE KEY AND LAMP CIRCUIT (SD-95404-01)
 FOR KEY CABINET NO. 20 AND 21

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1. GENERAL INFORMATION

1.1 Description: The tests described in this section will test the incoming, outgoing and hold call features of SD-95404-01.

1.2 The following circuits are associated with SD-95404-01 and connected to the circuit at the distributing frames.

- (A) SD-95405-01
- (B) SD-95406-01
- (C) SD-95409-01
- (D) SD-95615-01
- (E) SD-95617-01
- (F) SD-95731-01
- (G) SD-95732-01

1.3 Sequence of Tests: It is recommended that the sequence of tests be performed as directed by this section.

2. RECORDS AND REQUIREMENTS

2.1 Records: Forms SD-4-1313 and SD-4-1315 are required for recording the results of these tests. For further information on records consult Section 6B, Handbook 3.

3. TEST EQUIPMENT

3.1 Test Sets

<u>Art</u>	<u>Option</u>	<u>Code</u>	<u>Description</u>
T-1	Z	117C-3	Hangup Type Handset
T-1	W	117A-3	Hangup Type Handset
T-1		52S(or Equivalent)	Operator Telephone Set
1		ITE-4442	Volt Ohmmeter

T- These test sets are telephone company operating or maintenance equipment and should be already installed at the No. 20 or 21 Key Cabinets.

4. FUSING

4.1 Using a Volt Ohmmeter, check fuse posts for absence of battery and ground.

4.2 Using fuses of the correct type as specified by circuit drawings and fuse panel designations, install the fuses one at a time, checking that each fuse is associated with the correct equipment and is free from crosses with the other unfused posts on the fuse panel.

5. OPERATIONAL TESTS

5.1 Paragraph 5 covers the operational tests to be applied to Telephone Key and Lamp Circuit SD-95404-01 and associated circuits. Paragraph 6 (troubleshooting data) is intended to aid the tester in troubleshooting the circuit.

5.2 Outgoing Calls

5.21 At the first No. 20 or 21 Key Cabinet plug in the operator's telephone set or lift the handset.

5.22 Operate the trunk key to the (TALK) position.

5.23 Now depending on the type of trunk or tie line termination, one of the following steps is performed to signal the called party:

(A) Operate the ringing key.

(B) Dial the called party.

(C) In cases where the key and lamp circuit is connected to an automatic tie line neither the ringing key nor the dial is required for originating outward calls. The ground which the trunk or talk key applies to lead "K" is sufficient to signal the called party.

5.24 Called Station Answers

5.241 When the called party answers, perform the following steps:

- (A) Check transmission.
- (B) Instruct the called party to hold on while you operate the trunk key to the (HOLD) position.
- (C) Operate the trunk key to the (HOLD) position for a few seconds then return the trunk key to the (TALK) position and check transmission.

5.3 Incoming Calls

5.31 For incoming calls perform the following:

- (A) Instruct the called party to hang up and originate a call.
- (B) Operate your trunk key to (NORMAL) and hang up.

5.32 Called Party Originates A Call

5.321 When the called party originates a call the (L) lamp will either flash or light steadily as specified by the incoming trunk circuit.

5.322 Lift handset or plug in the operator's telephone set.

5.323 Operate the trunk key to the (TALK) position, lamp (L) extinguishes or lights steadily as a busy indication.

5.324 Instruct the calling party to hold while you momentarily operate the (HOLD) key.

5.325 Momentarily operate the (HOLD) key, then restore the trunk key to the (NORMAL) position.

5.326 Operate the trunk key to the (TALK) position and verify that the connection held.

5.327 Perform steps 5.2 and 5.3 for each trunk key.

5.328 Perform all of Paragraph 5 for each No. 20 or 21 Cabinet.

6. TROUBLESHOOTING GUIDE

6.1 The troubleshooting guide is intended to aid the tester in analyzing this circuit and its associated trunks.

6.2 Outgoing Calls

6.21 When an outgoing call is originated from the No. 20 or 21 Cabinet the following happens:

- (A) The handset is lifted off hook or the operator's telephone is plugged into the phone jacks.
- (B) Relay (TC) operates.
- (C) The T1 and R1 leads are connected through the (A) induction and (A) repeat coil to the handset or telephone jacks.
- (D) Ground is placed on lead K.
- (E) The trunk key is operated to the (TALK) position.
- (F) If the associated trunk is the ringdown type, operate the ringing key to signal the called party.
- (G) If the associated trunk has dialing features the (DA) and (DB) relays operate when the dial is pulled off normal. After the dial has sent it, pulse and restore to normal relays (DA) and (DB) release.

6.3 Incoming Calls

6.31 Incoming Calls for the associated tie lines or trunks will cause the (L) lamp to flash or light steadily depending upon the trunk or tie line concerned.

6.32 When the incoming call is answered the following happens.

- (A) The handset is lifted or the operator's telephone set is plugged in.
- (B) Relay (TC) operates connecting a ground to the (K) lead.
- (C) The (T1) and (R1) leads are connected to the handset or telephone set through the (A) repeat and (A) indication coils.
- (D) When the trunk key is operated to the (TALK) position the following happens:
 - (1) The trunk lamp extinguishes or lights steadily as a busy indication.
 - (2) If ringing was applied it is tripped through the outer side of the (A) repeat coil.

6.4 Holding Calls (Outgoing)

6.41 To hold an outgoing call while another connection is made, the trunk key is operated to the (HOLD) position. This disconnects the telephone circuit and substitutes a holding bridge.

6.5 Holding Calls (Incoming)

6.51 To hold an incoming call the (H) key is momentarily operated and the trunk key is restored to normal. When the (H) key is operated the associated trunk relays are operated to indicate a busy condition.

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