

PANEL SYSTEMS
LOCAL TEST DESK NO. 12A, 12B OR 12C
OR A.E. CO. NO. 12 TYPE TEST DESK
TEST TRUNK CIRCUIT
FOR USE WITH TEST TRUNKS
OF NO. 14 DESK TYPE

CHANGES

B. CHANGES IN APPARATUS

B.1 Superseded	Superseded By
"X" Option (SP) 239GB Relay	"ZA" Option 280AW Relay

C. CHANGES IN CIRCUIT REQUIREMENTS
OTHER THAN THOSE APPLYING TO ADDED
OR REMOVED APPARATUS

C.1 The after soak of the (SP)X read
-38.

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Optional designations are assigned
and shown at the (SP)X relay.
Added to the options used table and the
Circuit Note 111.

D.2 The use of the 239GB relay is
rated manufacture discontinued and
is superseded by the 280AW relay to
provide a polarized relay that has im-
proved adjustment stability.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3330-CEM-AJB-AK

CD-50032-01
Issue 2-2
Appendix A-2
Doc. Issue 12-0

STANDARD DESCRIPTION
STANDARD DESCRIPTION

LOCAL TEST CASE NO. 125 OR 126
ON A.S. NO. 12 TEST CASE
TEST CASE CIRCUIT
FOR USE WITH TEST TUBING
ON NO. 12 TEST CASE

II. DESCRIPTION OF CIRCUIT CHANGES

U.1. Optional designations are assigned
and shown as the (S/I) relay
added to the options used cable and the
circuit Note III.

U.2. The use of the (S/I) relay is
rated manufacture discontinued and
is superseded by the (S/I) relay to
provide a polarized relay that has the
ground adjustment capability.

All other features, no change.

CHANGES

B. CHANGES IN OPERATION

B.1. Improved
S/I relay
S/I relay
S/I relay

C. CHANGES TO CIRCUIT REQUIREMENTS
OTHER THAN THOSE APPLIED TO NO. 12
ON REMOVED APPARATUS

C.1. The alarm clock of the (S/I) relay
-38-

WILL TELEPHONE LABORATORIES, INC.

REV. 1110-100-410-41

CIRCUIT DESCRIPTION
SYSTEMS DEVELOPMENT DEPARTMENT

CD-20635-01
Issue 5-A
Appendix 3-B
Dwg. Iss. 11-B

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CHANGES

**C. CHANGES IN CIRCUIT REQUIREMENTS OTHER
THAN THOSE APPLYING TO ADDED OR REMOVED
APPARATUS**

C.1 Add Test Note 2 for (L) B1071 relay
as follows: "EQUIP WITH PAPER
ARMATURE STOP PER D93568" in order to
facilitate adjusting of the relay.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3330-FJS-WIS-LA

K 6211 (A) NADK

Printed in U. S. A.

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1 Page

CO-80338-01
1968-7-1
Appendix 5-1
Doc. 100. 11-8

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LOCAL TEST DESK NO. 12A, 12B OR 12C
OR A.E.CO NO. 12 TYPE TEST DESK
TEST TRUNK CIRCUIT
FOR USE WITH TEST TRUNK CIRCUITS
OF NO. 14 DESK TYPE

CHANGES

C. CHANGES IN CIRCUIT REQUIREMENTS
OTHER THAN THOSE APPLYING TO ADDED
OR REMOVED APPARATUS

C.1 Soak requirements for the B587
(L) relay were 16 MA, and for the
B1071 (L) relay were 120 MA.

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 The rated was changed from
"SPECIAL" to "A&M" only for 12B
test desk, special for 12A, 12C and
A.E. Co. No. 12 test desk.

D.2 Test Note 1 was added.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3330-GTA-FJS

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PANEL SYSTEMS
LOCAL TEST DESK NO. 12-A, 12-B OR 12-C
OR A. E. CO. NO. 12 TYPE TEST DESK
TEST TRUNK CIRCUIT
FOR USE WITH TEST TRUNKS
OF THE NO. 14 DESK TYPE

CHANGES

B. CHANGES IN APPARATUS

B.1 Added

R473 Relay (SL) Optional

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 G apparatus and wiring is added to provide for use of this circuit in an A. E. Co. 12 type test desk as a test trunk to switchboard.

D.2 Circuit note 117 is added to cover this option.

All other headings, No change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3330 PRG-WLF

LOCAL TEST DECK NO. 12-A, 12-B OR 12-C
OR A. E. GO. NO. 12 TYPE TEST DECK
TEST TUBE DIRECTION
FOR USE WITH TEST TUBE
ON THE NO. 12 DECK TYPE

1. DESCRIPTION OF CIRCUIT CHANGES
D.I. 8 apparatus and wiring is added to
provide for use of this circuit in
an A. E. GO. 12 type test deck as a
test tube for wellhead.
D.I. 8 circuit note 17 is added to cover
this system.
All other headings, no change.

CHANGES
1. CHANGES IN APPARATUS
D.I. 8 added
D.I. 8 (N) optional

WILL WELSHOME LABORATORIES, INC.

DEPT. 2000 PM-112

PANEL SYSTEMS
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TEST TRUNK CIRCUIT
FOR USE WITH TEST TRUNKS
OF THE NO. 14 DESK TYPE

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

- D.1 "N or Q" option has been changed to "H or Q" option and Notes 111 and 116 changed accordingly to eliminate duplicate designation of options.

All other headings under "Changes", no change.

1. PURPOSE OF CIRCUIT

- 1.1 This circuit is used at the test desk to form part of a testing path between the test desk and a subscriber's line or line at the toll switchboard or trunk.

2. WORKING LIMITS

- 2.1 (L) Relay B587.
2.11 Max. Ext. Ckt. Res. 1500 ohms.
2.12 Min. Line Ins. Res. 10000 ohms (Sub. Line).
2.13 Min. Trk. Ins. Res. 60000 ohms (Trk. Loop)
2.2 (L) Relay B1071
2.21 Max. Ext. Ckt. Res. 2250 ohms.
2.22 Min. Line Ins. Res. 10000 ohms (Sub. Line)
2.23 Min. Trk. Ins. Res. 60000 ohms (Trk. Loop)
2.3 (S) Relay
2.31 Max. Ext. Ckt. Res. with Max. earth potential of ± 15 volts - 795 ohms.
2.32 Max. Ext. Ckt. Res. without earth potential - 2625 ohms.
2.33 Min. Ins. Res. 60000 ohms.
2.4 (SL) Relay
2.41 Max. Ext. Ckt. Res. - 230 ohms.
2.5 (SP) Relay
2.51 Max. Ext. Ckt. Res. to +110V. coin battery - 6400 ohms.

3. FUNCTIONS

- 3.1 To indicate by means of flashing red and white lamps when a call is incoming to the desk.
3.2 To give a busy signal at all the positions to which this circuit is multiplied by means of a steady red lamp when the circuit is busy at any position.
3.3 To permit the removal of the test cord from the jack of this circuit without disconnection, regardless of test cord conditions.
3.4 To give a flashing white lamp signal when the test cord is out of the jack while a test connection is being maintained and the bridge is connected across the trunk ("A" wiring).
3.5 To cause a disconnect signal to be displayed at the switchboard (except 9C swbd.) when the disconnect key is operated or to cause disconnection to take place automatically in the case of panel connections.
3.6 To cause an associated test trunk ringing circuit to either ring or prepare to receive ringing (depending on the type of test trunk ringing circuit) when the (Ring) key is operated.
3.7 To maintain busy signals at the desk until disconnection has been completed at the far end and the plug of the test cord is removed from the jack at the desk.
3.8 To permit the test man to originate a second call upon disconnection without removing the plug of the test cord from the jack ("B" wiring).
3.9 To cause disconnection only when the plug of the test cord is removed from the jack ("B" wiring omitted).

4. CONNECTING CIRCUITS

- 4.01 Test trunk Ringing Circuit
SD-21332-01, SD-12617-03,
SD-12608-01, SD-31326-01, SD-31327-01-02.

- 4.02 Test Trunk Relay Circuit
SD-90507-01.
- 4.03 Test Trunk at Manual or Toll
Switchboard; or Panel "A" Switch-
board SD-13784-01, SD-15033-01,
SD-12635-01.
- 4.04 Test Trunk First Selector Circuit
SD-21642-01.
- 4.05 Test Trunk from District or Of-
fice Multiple SD-21341-01.
- 4.06 Auxiliary Signal Circuit
ES-31335-01, ES-239559, ES-13901-01.
- 4.07 Test Cord and Sleeve Relay Ckt.
ES-11446-01.
- 4.08 Test Trunk at O.G.T. Board or
Trouble Desk SD-21614-01.
- 4.09 Compensating Network Circuits
SD-90054-01.
- 4.10 Primary and Secondary Test Circuit
ES-359550, ES-14058-01, ES-20563-01.
- 4.11 Test Trunk at Plugging Up Circuit
Panel SD-90589-01.
- 4.12 Test Trunk at Sender Make Busy
Frame SD-21698-01.
- 4.13 Test Cord - A.E.Co. 29400.

DESCRIPTION OF OPERATION

5. OUTGOING CALL

When the plug of the test cord is inserted in the jack of this circuit, (CO) relay operates. The (CO) relay operated, operates the (COL) relay, prevents the (L) relay from being connected to the trunk and puts the battery supply to the outgoing sleeve "S" under control of relay (SL), "X" or "Z" wiring and apparatus. The (COL) relay operated closes a circuit for steadily lighting the (BY) lamps at all the multiple positions, prepares an operating path for the (L) relay if the plug of the cord is removed from the jack without disconnecting, and prevents false operation of the auxiliary signal circuit by disconnecting the ground from the contact of the (SL) relay. The closure of the test cord sleeve to the sleeve of the jack will operate relay (SL) which when operated recloses the circuit from battery thru resistance (A) to the outgoing sleeve. Relay (SP) "X" apparatus, is a polarized relay, so connected that it does not operate to negative battery supplied by the test cord sleeve.

When the sleeve in the connecting circuit is closed by inserting the plug of the test trunk in the jack at the switchboard in the case of test trunks

to the switchboard or by the movement of the switches off normal in case of panel, the (S) relay operates. The (S) relay operated, operates the (SL) relay. The (SL) relay operated, locks over its secondary winding and provides a holding path for the (COL) relay.

6. DIALING

When the (Dial) key is operated in the associated test cord circuit, positive battery is connected to the sleeve of the test cord, causing relay (SP), "X" apparatus, to operate. The dial key operated also throws a bridge thru dial contacts across the tip and ring of the test cord. Relay (SP) operated, connects battery thru resistances (B) and (C) to the outgoing sleeve. This low battery on the outgoing sleeve in conjunction with the bridge across the tip and ring, prepares the test switches for dialing. Relay (SP) remains operated until the dial key in the cord is restored to normal which again connects negative battery to the sleeve causing the (SP) relay to release.

7. DISCONNECTION

Where this circuit is associated with test trunks other than the test trunk first selector circuit, "B" wiring is omitted and the operation of the (DISC) key is effective only when the plug is removed from the jack. The (D) relay operates through the normal contacts of the (CO) relay, which released when the plug was removed from the jack. The (D) relay operated, locks to ground through the contacts of the (SL) relay. This method of disconnection is necessary in order to prevent the reoperation of the various relays in the associated test trunk circuit. The (D) relay operated, (Q option) causes an increased current to flow over the "S" lead operating a marginal relay in the other end of the test trunk. When the other end of the test trunk has returned to normal, the (S) relay releases, releasing the (SL) relay. The (SL) relay released, releases the (D) and (COL) relays. Where this test trunk is associated with the test trunk first selector circuit, "B" wiring is used. This permits the circuit to disconnect regardless of whether the plug is in or out of the jack, under control of the disconnecting key. When this circuit is connected to a test trunk at a 9C swbd., (H) option is furnished and the sleeve is opened when the (D) relay operates, preventing the locking up of the (S), (SL) and (D) relays in this circuit.

8. REMOVAL OF TEST CORD PLUG WITHOUT DISCONNECTION

If the plug of the test cord is removed from the jack after a connection is completed the (CO) relay releases but

the (COL) relay remains operated. The (COL) relay operated and the (CO) relay released connects the (L) relay to the ring of the line and ground to the tip when "A" wiring is used. If the ring side of the trunk is grounded, or a bridge is connected across the trunk, either by a subscriber removing the receiver from the switchhook, or an outside man bridging a handset across the trunk or by a trouble condition on the trunk the (L) relay will operate. The (L) relay operated, closes a circuit to the auxiliary signal circuit and connects the (SUP) lamp at the positions to the "F" lead to the interrupter or flashing circuit causing the lamps to flash as a supervisory signal. The insertion of the plug of the test cord in the jack re-operates the (CO) relay and disconnects the (L) relay from the trunk, releasing it. The (L) relay released, opens the leads to the auxiliary signal and to the interrupter or flashing circuit.

8.1 Should the Plug of the test cord be removed from its associated jack during the time the (S) relay is normal, relays (COL) and (SL) will remain operated to ground at the contacts of relay (SL). In order to restore the circuit to normal under this condition, the disconnect key should be operated.

9. INCOMING CALL

On an incoming call the closure of the sleeve at the other end of the test trunk, operates the (S) relay. The (S) relay operated, operates the (SL) relay. (SL) relay operated starts the auxiliary signal circuit functioning and connects the (BY) and (SUP) lamps at the positions to the interrupter or flashing circuit as a signal. When the plug of the test cord is inserted in the jack the (SL), "X" or "Z" wiring and apparatus, (CO) and (COL) relays operate and the sleeve is connected under control of

relay (SL). The (COL) relay operated opens the lead to the auxiliary signal circuit, changes the (BY) lamps from flashing to steady signal, extinguishes the (SUP) lamps and provides a locking circuit for the (SL) relay.

10. "A" WIRING

In order to prevent moving selectors off normal or giving false signals when this circuit is used with toll switchboards or with the outgoing trunk test board or trouble desk, "A" wiring is omitted. This prevents battery from relay (L) and ground from relay (SL) from being connected to the tip and ring of this circuit:

11. OPERATION WITH TEST TRUNK RINGING CIRCUIT

When it is desired to associate a test trunk ringing circuit with this circuit to provide for remote control of ringing "M" wiring and apparatus are furnished. With this equipment, when it is desired to ring, the (RING) key is operated which in turn operates the (RS) relay. This relay operated connects positive battery thru lamp (R) and resistance (M) to the outgoing sleeve. This positive battery operates relay (S) and passes over the sleeve to the winding of a polarized relay, in the test trunking ringing circuit, to ground. The polarized relay in the ringing circuit will operate and (depending on the type of ringing circuit) either apply ringing to the line or prepare the circuit to repeat ringing signals sent out by the operation of ringing keys in the test desk primary or secondary ringing circuit.

The operation of relay (RS) opens the circuit between the outgoing sleeve and the (D) relay which prevents the tester from disconnecting with the (RING) key operated.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3330-VMM-WLF

