

CIRCUIT DESCRIPTION
SWITCHING SYSTEMS DEVELOPMENT DEPARTMENT

CD-20634-01
Issue 4-D
Appendix 2-B
Dwg. Issue 9-B

PANEL SYSTEMS
LOCAL TEST DESK NO. 12B
TELEPHONE CIRCUIT
ARRANGED FOR LOUD SPEAKER TRUNK CIRCUIT
AND FOR USE OF DIAL WITH TEST CIRCUITS

CHANGES

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

was inadvertently changed to E502. The
correct code is reinstated.

C.1 On issue 8-D the E 598 Code for
the "D" Option of the (LS1) relay

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3440-CMD-DWO-X2

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CIRCUIT DESCRIPTION
SWITCHING SYSTEMS DEVELOPMENT DEPARTMENT

CD-20634-01
Issue 4-D
Appendix 1-D
Dwg. Issue 8-D

PANEL SYSTEMS
LOCAL TEST DESK NO. 12B
TELEPHONE CIRCUIT
ARRANGED FOR LOUDSPEAKER TRUNK CIRCUIT
AND FOR USE OF DIAL WITH TEST CIRCUITS

CHANGES

B. CHANGES IN APPARATUS

B.1 Superseded

716D Receiver)
289A Plug) Fig. A
L2P Cord)

149BL Relay (TP1)
E502 Relay (LS1) - "E" Option

Superseded By

723A Receiver)
15A Headband) Fig. A
289B Plug)
L2K Cord)
149CE Relay (TP1)
E1262 Relay (LS1) - "E" Option

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 In Figure 1, "ZM" option is added and "ZL" option is designated. "ZL" option was formerly part of Figure 1 and not designated.

D.2 In Figure A the headset combination consisting of the 723A receiver, 15A headband, 289B plug and a L2K cord was formerly a headset combination consisting of the 716D receiver, 289A plug and a L2P cord.

D.3 Notes 108 and 115 are rated "Mfr. Disc." and replaced by Note 123 which is added.

D.4 References to "ZL" and "ZM" options, and relays 149BL, 149CE, E502, and E1262 are added in Note 116.

D.5 References to "ZL" and "ZM" options are added in the Options Used table.

All other headings, no change.

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DEPT. 3420-AEG-EJJ-Q2

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PANEL SYSTEMS
LOCAL TEST DESK NO. 12B
TELEPHONE CIRCUIT
ARRANGED FOR LOUDSPEAKER TRUNK CIRCUIT
AND FOR USE OF DIAL WITH TEST CIRCUITS

CHANGES

A. CHANGED AND ADDED FUNCTIONS

A.1 A feature has been added to permit the Electronic Voltmeter Test Circuit to function when the telephone set is inserted into the telephone jacks.

B. CHANGES IN APPARATUS

Added

(A) H66 relay option "ZK"

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 The (LA) H66 relay option "ZK" Fig. 1 has been added to provide for operation of the Electronic Voltmeter Test Circuit when Fig. C is furnished and the telephone set is inserted into the telephone jacks.

D.2 Option "Z1" has been adopted to provide for operation of the Electronic Voltmeter Test Circuit when Fig. D is furnished and the telephone set is inserted into the telephone jacks.

D.3 Circuit note 122 has been added.

D.4 Options "Z1", "ZJ" and "ZK" have been added in the options used table.

All other headings under "Changes", no change.

1. PURPOSE OF CIRCUIT

1.1 This circuit has been designed for interconnection between the test desk and all incoming and outgoing trunks, primary and secondary test cords, call and monitoring circuits.

2. WORKING LIMITS

2.1 The B75 relay functions over a maximum external resistance of 58 ohms.

3. FUNCTIONS

3.01 Talking over incoming and outgoing trunks, tie lines and test lines.

3.02 Provides for minimizing clicks when the test man originates or answers calls.

3.03 Arranged for monitoring.

3.04 Arranged to operate with loud speaker trunk circuits.

3.05 Arranged for ringing over ring-down trunks.

3.06 Arranged for dialing over trunks or thru the primary or secondary test cord.

3.07 Arranged to trip machine ringing.

3.08 Arranged for dialing on crossbar subscriber lines.

3.09 Provides means to permit the electronic voltmeter test circuit to function when the telephone set is inserted into the telephone jacks.

4. CONNECTING CIRCUITS

4.1 Primary or secondary test cord ES-20563-01.

4.2 Call circuit ES-359345.

4.3 Loud speaker terminal circuits ES-358035.

4.4 Key circuit for tie lines or talking trunks ES-20271-01.

4.5 Test line to M.D.F. or I.D.F. for detecting intermittent trouble ES-20163-01.

4.6 Dial tester key circuit SD-20153-01.

4.7 Plant service observing circuit SD-90544-01.

4.8 Electronic Voltmeter Test Circuit SD-95596-01

DESCRIPTION OF OPERATION

5. INCOMING CALLS

On an incoming call not requiring common battery supervision, no relays are operated and no change is effected in this circuit as the trunks are connected to the "T-1" and "R-1" leads. On an incoming call from a trunk requiring

common battery supervision or a bridge, the (TP) relay operates which operates the (TP1) relay which in turn operates the (TP2) relay which releases the (TP1) relay and closes thru the circuit for the operation of the (T) relay. The operation of the (T) relay cuts off the "ring trip bridge" and closes thru the tip and ring for talking.

6. MONITORING

To monitor on the test lines to the main distributing frame or on the primary or secondary test cord circuits, the monitoring key on one of these circuits is operated which puts a ground over the "S" lead to operate the (M) relay. The operation of the (M) relay connects the telephone receiver across one winding of the high impedance monitoring coil. This high impedance monitoring coil will not trip machine ringing and will not appreciably decrease the transmission loss.

7. DIALING OVER TALKING TRUNKS

To originate a call to the line switch or line finder in a machine switching office, the trunk key is thrown and the dial moved off-normal. Moving the dial off-normal operates the (D) relay which shunts out the (TP) relay and the "C" retardation coil. After the last digit has been dialed the (T), (TP), (TP1) and (TP2) relays operate, closing through the talking circuit.

8. DIALING THRU PRIMARY OR SECONDARY TEST CIRCUIT

When the dial key of either the primary or secondary test circuit is operated, a ground is connected to the "F" lead causing the (DT) and (DT1) relays to operate in parallel. The (DT) relay operated (a) connects a capacity resistance bridge across the pulsing contacts of the dial, (b) transfers the pulsing contacts of the dial from the equipment used for the trunk calls to the "E" and "G" leads to the primary and secondary test circuit, (c) maintains the continuity of the "R" lead to the trunk circuits by means of the top and bottom continuity springs, (d) connects the (S) relay and its shunt resistance (E) in the pulsing path. The (DT1) relay operated maintains a ground on the armature of the (TP) relay and "S" lead to the trunk keys and opens the lead from the off-normal contact of the dial to relay (D). The (S) relay operates when the tip and ring are closed thru and causes the supervisory lamp in the primary or secondary test circuit to be shunted. The extinguishing of the lamp indicates that the circuit is ready to receive dial pulses. The (S) relay releases when a busy terminal is encountered and causes

the supervisory lamp in the test circuit to light as a busy indication. The dialing takes place thru the primary or secondary test cord, the test trunk and the test trunk first selector. Test trunk senders must be associated with the test trunk first selector.

9. DIALING ON SUBSCRIBERS LINE CIRCUIT

When "T" wiring is furnished and (T), and (DSL) keys of the primary test circuit are operated, the dial and (TP), (TP1), (TP2), (D) and (T) relays are used and function as follows:

The (TP) relay and (C) retard coil, are bridged across to the "T" and "R" leads of the talking trunk keys by the operation of a relay in the test circuit and the dial is removed from the "T" and "R" leads to the talking trunk keys and connected through the primary test circuit to the subscriber line circuit. The (TP1) relay will operate from ground through the dial contact when the dial is normal, and through operated contacts of a relay of test ckt. The (TP2) relay follows the operation of (TP1) relay, in turn releasing (TP1) relay. When the (TP2) relay operated, it looked to the operating ground. With the (TP2) relay operated and locked and the (TP1) relay released the (T) relay will operate, connecting the induction coil and receiver circuit to the subscriber line. The dial may be used for dialing on a subscriber line. When the dial is off normal the (D) relay operates and the (T) and (TP2) relays release. This chain operation is repeated for each digit dialed.

10. RINGING

A ringing key is provided so that the testman may make calls over ringdown trunks and tie lines.

11. TRANSMITTER CUT-OUT

The operation of the SEC. C.O. key short-circuits one winding and opens the other of the 63 induction coil and bridges the telephone receiver directly across the line. Therefore noises picked up by the transmitter will not be induced into the receiver.

12. ORIGINATING OR ANSWERING A CALL OVER THE LOUD SPEAKER

The operation of the loud speaker trunk key operates a relay in the loud speaker trunk which operates the (LS) relay. This opens the receiver circuit to the 63 induction coil, closes the receiver across leads 12 and 13 and operates the (LS) relay. The (LS1) relay connects the transmitter across leads 14

and 15 and opens the primary side of the 63 induction coil. Either a suspended or chest type transmitter or both may be provided.

13. TRANSFER KEY

If during light load periods, it is desired to transfer the incoming call to the "light load position" the transfer key is operated. This bridges the telephone straps of both positions together and connects them to the light load position telephone circuit.

14. PBX DIAL CIRCUIT

When "Y" wiring is furnished the circuit is arranged to associate the dial with a circuit for testing PBX dial trunks and tie trunks.

15. THE VARISTOR

The resistance of the varistor becomes less as the voltage across its terminals is increased. This characteristic of the varistor, when placed in multiple with the receiver, reduces the volume of tones to the receiver to a greater extent when the volume is loud than when the volume is normal. In this

way the intensity of clicks and loud volume are reduced without appreciably affecting the volume of normal transmission.

16. PLANT SERVICE OBSERVING

Where plant service observing is required, Fig. D is furnished. This arrangement permits monitoring only when a telephone set is inserted in the position jacks which causes relay (TR) to operate. Relay (TR) operated removes ground from lead "TR" as an indication that this circuit is in use.

17. OPERATION OF ELECTRONIC VOLTMETER

17.1 When option "ZK" Fig. 1 is provided and the operator's telephone set is inserted into the telephone jacks, the (A) relay operates. The (A) relay operated closes ground to the "PO" lead and permits the electronic voltmeter test circuit to function.

17.2 When option "Z1" Fig. D is provided and the operator's telephone set is inserted into the telephone jacks ground is connected to the "PO" lead and permits the electronic voltmeter test circuit to function.

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Dept. 5730-GWW-EJJ

