

CIRCUIT DESCRIPTION  
BELL TELEPHONE LABORATORIES, INC.,  
SYSTEMS DEVELOPMENT DEPT., NEW YORK  
PRINTED IN U.S.A.

CD-20389-01  
Issue 2-D App. 1-D  
September 14, 1931  
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PANEL SYSTEM  
LOCAL TEST DESK NO. 12-B  
TEST LINE TO "A" SWITCHBOARD

CHANGES

A. CHANGED AND ADDED FUNCTIONS

A.1 None.

B. CHANGES IN APPARATUS

B.1	<u>Superseded</u>	<u>Superseded By</u>	<u>Added</u>
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238 Type Jack

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

C.1 None.

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 The rating of this circuit has been changed from "Standard" to "A & M Only".

D.2 The 238 type jack has been added to the circuit.

D.3 The 160 type interrupter has been added to the circuit.

DEVELOPMENT

1. PURPOSE OF CIRCUIT

1.1 No change.

2. WORKING LIMITS

2.1 No change.

OPERATION

3. FUNCTIONS

3.1 No change.

4. CONNECTING CIRCUITS

4.1 No change.

DETAILED DESCRIPTION

No change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 332-C

EBS) FC  
WHM)

PANEL SYSTEM  
LOCAL TEST DESK NO. 12-B  
TEST LINE TO "A" SWITCHBOARD

CHANGES

A. CHANGED AND ADDED FUNCTIONS

A.1 None.

B. CHANGES IN APPARATUS

B.1	<u>Superseded</u>	<u>Superseded By</u>
	E31 (D) Relay	R788 Relay

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

- C.1 Prior to issue 2-D the title of the requirements table was: "Local Test Desk No. 12-B Test Line to "MSA" Swbd".
- C.2 Under Mech. Req. BSMP-FIG. has been changed to BSP-FIG.
- C.3 An asterisk is shown opposite the (D) E31 relay and reference made to test note 3.

D. DESCRIPTION OF CIRCUIT CHANGES

- D.1 The ground connecting to the armature of the (D) relay is shown as optional wiring and designated "A" wiring. Battery shown as optional is added and designated "B" wiring. Reference is made to note 105 which is added.
- D.2 Note 104 is added and reference made to it at the (D) relay.
- D.3 The connecting information has been changed from "MSA Swbd." to "A Swbd.".
- D.4 Prior to issue 3-D the title of this circuit was:-

PANEL SYSTEM  
LOCAL TEST DESK NO. 12-B  
TEST LINE TO M.S. "A" SWBD.

## DEVELOPMENT

### 1. PURPOSE OF CIRCUIT

- 1.1 This circuit is designed to provide means of testing lines that can be reached thru circuits that terminate at the sender monitoring position of the "A" switchboard. It is used in conjunction with the testing equipment of the local test desk, and is terminated at the switchboard where it is connected to a switchboard cord and lamp.

### 2. WORKING LIMITS

The working limits for this circuit are as follows:

- 2.1 Rated External Sleeve Resistance for the (CO) relay 113 ohms.
- 2.2 Rated External Sleeve Resistance for the (SL) relay 37 ohms.
- 2.3 (L) Relay:
  - 2.31 Maximum external circuit loop 1860 ohms.
  - 2.32 Minimum leak resistance 10000 ohms.

## OPERATION

### 3. PRINCIPAL FUNCTIONS

- 3.01 Provides a flashing red lamp at the desk to indicate that the cord at the switchboard has been connected to a circuit but the circuit not seized at the local test desk.
- 3.02 Provides an audible signal under condition 3.01.
- 3.03 Provides steadily lighted red lamp to indicate that the circuit is in use at the local test desk.
- 3.04 Provides flashing white lamp when the cord at the switchboard is connected to a line having a receiver off the hook condition when the circuit is not connected at the local test desk.
- 3.05 Provides an audible signal under condition 3.04.
- 3.06 Is arranged to prevent flashing of the cord light when test cords are changed at the test desk.

- 3.07 Is arranged to give a disconnect signal to the "A" switchboard.
- 3.08 Arranged to lock in the disconnect signal until disconnection at the "A" switchboard has taken place.
- 3.09 Is arranged to give steady red signal at the desk until disconnection has taken place at both the desk and the "A" switchboard.
- 3.10 Provides a means of testing lines thru circuits terminating at the sender monitor position of the "A" switchboard.

#### 4. CONNECTING CIRCUITS

- 4.1 Test cord at an "A" switchboard.
- 4.2 Various test cords at the local test desk.
- 4.3 Auxiliary signal circuit of the local test desk.

#### 5. DETAILED DESCRIPTION

##### 5.1 CONNECTION AT "A" SWITCHBOARD

This circuit is ordered up over a call circuit between the "A" board and the local test desk. When the plug of the test cord associated with this circuit is inserted in a jack at the "A" board the (SL) relay operates. The (SL) relay operated connects interrupter battery to the red lamps associated with this circuit at the various positions of the local test desk causing them to flash as a signal that this circuit is connected at the "A" board. The (SL) relay operated also prepares a holding path for the (H) relay and causes the audible signal circuit to function.

##### 5.2 TEST CORD IN JACK AT TEST DESK

When the plug of a cord is inserted in the jack of this circuit at the local test desk the (CO) relay operates. The (CO) relay operated removes the (L) relay from the ring and ground from the tip and operates the (H) relay. The (H) relay operated opens the circuit from the interrupter to the red lamp and connects steady battery to the lamps causing the signal to change from a flashing red lamp to steady red lamp. The (H) relay operated also locks under control of the (SL) relay.

##### 5.3 CHANGING TEST CORDS

When a test cord is removed from the jack at the local

test desk for the purpose of changing cords the (CO) relay releases but the (H) relay is locked to the contact of the (SL) relay preventing the steady red lamp signal from changing to a flashing signal.

#### 5.4 RECEIVER OFF HOOK - PLUG OUT AT DESK

When the plug of the test cord at the "A" board is inserted in a jack of a line on which the receiver is off the hook the (L) relay operates thru the subscriber's loop to ground on the tip of this circuit provided the circuit has not been seized at the local test desk. The (L) relay operated causes the audible signal to function and connects interrupted battery to the white lamps at the local test desk causing them to flash.

#### 5.5 DISCONNECT KEY OPERATED

When the disconnect key associated with the circuit is operated the (D) relay operates and locks under control of the (CO) and (SL) relays. The (D) relay operated connects ground if "A" wiring is used and battery if "B" wiring is used to the (L) lead to the "A" switchboard causing a lamp to light as a disconnect signal.

#### 5.6 PLUG OUT AT TEST DESK

When the plug of the cord is removed from the jack of this circuit at the test desk the (CO) relay releases.

#### 5.7 PLUG OUT AT "A" SWITCHBOARD

When the plug of the test cord is removed from the jack at the "A" switchboard the (SL) relay releases in turn releasing the (H) and (D) relays. The (H) relay released extinguishes the steady red signal at the local test desk.

#### 5.8 PLUG IN AT LOCAL DESK OUT AT "A" SWITCHBOARD

When the plug of the test cord is inserted in the jack of this circuit at the local test desk before the "A" operator has inserted the plug of the cord in the jack at the "A" switchboard the (CO) relay operates and in turn operates the (H) relay. The (H) relay operated causes the red lamps at the local desk to light steadily.

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