16602

PANEL SYSTEM
MISCELLANEOUS CIRCUIT
FOR INTERMEDIATE DISTRIBUTING FRAME

CHANGES

B. CHANGES IN APPARATUS

	Superseded	Superseded By
B.1	9 - 221 type jacks	9 - 223 type jacks

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Use of the 221 type jack is rated "Mfr. Disc.". It is superseded by the 223 type jack.

D.2 The title and rating are changed to make the circuit available for use in ground cut-off relay office.

D.3 "Replacing ES-20460-01 and ES-20461-01" is added.

All other headings under changes, No Change.

1. PURPOSE OF CIRCUIT

1.1 To provide test battery, miscellaneous jacks and miscellaneous test apparatus for the intermediate distributing frame.

2. WORKING LIMITS

2.1 None.

3. FUNCTIONS

3.1 To provide battery and ground for testing purposes.

3.2 To provide a frame line for talking between frames and to the "A" switchboard or sender make busy frame.

3.3 To provide means for making check tests of message register leads.

3.4 To provide miscellaneous jacks as specified on the drawing.

4. CONNECTING CIRCUITS

4.1 Local frame line circuit.

4.2 Miscellaneous circuit for line message register rack.

DESCRIPTION OF OPERATION

5. TEST BATTERY AND GROUND TERMINALS (FIGS. 1 AND 2)

Connecting blocks are furnished to supply battery and ground for testing purposes. A 2000 ohm resistance is connected in the battery lead to prevent operation of a line message register if the battery terminal is connected to a message register terminal.

6. BATTERY FEED JACK (FIG. 3)

Ground and 48 volt battery are connected to jack (BAT) in which the plug of a test set cord may be inserted.

7. FRAME LINE BETWEEN FRAMES (FIG. 4)

Communication may be established with the "A" switchboard by inserting the plug of an "A" board cord in the "A" board jack and plugging an operator telephone set into the (TEL) jacks. Communication may be established with the sender make busy frame by operating the (TALK) key at the sender make busy frame and plugging an operator telephone set into the (TEL) jacks. Connection between two or more frames may be made by plugging operator telephone sets into the (TEL) jacks at the frames. Talking battery is supplied through the connecting circuit. No signaling is provided.

8. TEST CIRCUIT FOR CHECKING MESSAGE REGISTER CROSS CONNECTIONS (FIGS. 5, 6, 7, 8, 9 AND 16)

8.1 These figures provide means for checking the message register cross-connections on the intermediate distributing frame, for checking the leads between the I.D.F. and message register rack and, in conjunction with the message register test set, for checking the register leads between the I.D.F. and line finder frames.

8.2 Individual Message Rate Lines in Offices Having All Lines Connected to Message Registers

When making a test of I.D.F. cross-connections of register leads in offices having all lines connected to registers, the plug of a patching cord (Fig.) is inserted in jack (BUZ 2) and the clip end of the cord is attached, at the

H.I.D.F., to the register lead to be tested. The plug of the other patching cord is inserted in jack (BUZ 1) and the clip end of this cord is connected to the V.I.D.F. terminal of the register lead. If the register is properly cross-connected and free from ground, a relay will operate, operating buzzer (MR) and a buzzer at the line message register rack. The line register connected to the tested lead is in multiple with the relay but does not receive enough current to operate. If the register cross-connections of two lines are transposed, if the register lead is open, or if the cross-connection is open, the relay and buzzer (MR) will not operate.

8.22 Lead Between I.D.F. and Register Rack

When a buzzer and a (BUZ 2) jack are provided at the line message register rack, tests of the register leads between the intermediate distributing frame and the register rack are made as follows: Insert the plug of a patching cord in jack (BUZ 2) at the register rack and attach the clip end of the cord to the terminal of the register associated with the lead to be tested. Insert the plug of the other patching cord in jack (BUZ 1) at the V.I.D.F. and connect the clip end of the cord to the I.D.F. terminal associated with the register lead. The operation of the circuit is similar to that described in paragraph 8.21. This test includes the cross-connection.

8.23 Lead Between I.D.F. and Line Finder Frame

The register leads between the intermediate distributing frame and the line finder frame are tested as follows: Insert the plug of a patching cord in jack (BUZ 2) and attach the clip end of the cord to the H.I.D.F. terminal of the register lead to be tested. Patch the message register test set to the battery and ground supply jack at the line finder frame in the usual manner. Insert, in jack (T1) of the set, the plug of a patching cord associated with the test set and connect the clip end of the cord to the register lead terminal of the terminal strip on the line finder frame or, when required, connect the clip to the relay spring on which the lead terminates. Operate key (BUZ) in the test set to connect the sleeve of jack (T1) to the winding of relay (L1). This relay has one end of its winding connected to battery, is the same resistance as resistance (C) shown in Fig. 9 and is used in place of jack (BUZ 1) on this test. The operation of the circuit is similar to that described in paragraph 8.21 except as follows: When patching has been complet and key (BUZ) is operated, the buzzer operates and rel (L1) operates, lighting lamp (SUB-BUZ) in the test se With the test set connected and the patching cord re from the register lead terminal at the I.D.F., relay

should remain operated and lamp (SUB-BUZ) should remain lighted, indicating a closed circuit from the line finder frame thru the register to ground. To check that the path terminates at the proper register, jack (BUZ 2) at the register rack is patched to the terminal of the register and the battery from relay (L1) should operate the buzzer.

8.3 Individual Message Rate Lines in Offices Not Having All Lines Cross Connected to Message Registers

8.31 I.D.F. Cross Connections

In this case the lead from the register cabinet terminates on the V.I.D.F. and is cross-connected to the H.I.D.F. where it is cross-connected to other V.I.D.F. terminals. On the H.I.D.F., two terminals are used, connected together, and a separate test, similar to that described in paragraph 8.21, can be made of the two cross-connections. Since jack (BUZ 2) is multipled to the V.I.D.F., in offices not having all lines equipped with registers, a test can be made of both cross-connections from the vertical side by patching jack (BUZ 2) to the terminal to which the lead from the register is connected and patching jack (BUZ 1) to the terminal to which the lead from the line finder frame is connected. This test includes the strap or switchboard cable conductor on the horizontal side of the frame.

8.32 Lead Between I.D.F. and Register Rack

When a buzzer and a multiple of jack (BUZ 2) are provided at the register rack, the test of the register leads between the I.D.F. and register rack is similar to that described in paragraph 8.22 except that the test does not include the cross-connection.

8.4 Lead Between I.D.F. and Line Finder Frame

Test of the register leads between the I.D.F. and the line finder frame is similar to that described in paragraph 8.23.

8.5 Two-Party Message Rate Lines

In offices having two-party message rate lines, tests between the various points of the register leads are similar to those described in paragraph 8.23.

9. P.B.X. LINE MAKE BUSY (FIGS. 10, 11 AND 12)

These figures provide means at the I.D.F. for temporarily making a P.B.X. line busy by inserting the plug in the (PBX MB) jack and connecting the cord tip to the sleeve terminal of the PBX line. The cut-off relay will be held operated.

10. TEST LINE FOR DETECTING INTERMITTENT TROUBLE (FIGS. 13 AND 14) (A & M ONLY)

To test a subscriber's line, the clip end of a patching cord is attached to the "H" lead at the subscriber's (L) relay and the associated plug is inserted in test jack (N) or (P) at the line finder frame. The 205 or 234 plug of Fig. 13 is attached to the line terminals at the I.D.F. and the associated 47 plug is inserted in jack (SL). The 206 plug of a main frame test cord splits the line, bridging the winding of the (L) relay across the line side and making it possible to observe or to test the line toward the subscriber's set or test toward the central office. Under these conditions, a ground or short-circuit in the subscriber's line circuit will bring in an alarm at the local test desk.

11. TEST LINE FOR TESTING MESSAGE REGISTERS (FIG. 15)

Jacks (T) and (T1) provide means for patching the message register test set, located at the line message register rack, to the subscriber's line terminals on the I.D.F. The plug of the test set patching cord (T) is inserted in jacks (T) and (T1), the plug nearer the notched portion of the shell being connected to jack (T), and the plug end of the cord is connected to the V.I.D.F. terminals of the line to be tested. Corresponding jacks at the line message register rack are patched to the message register test set and tests are made with the test set.

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