Installation Engineering Handbook 59
Western Electric Company, Incorporated
Columbus Works

Section 114

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OUTPULSER CONNECTOR

CONTENTS

1. GENERAL INFORMATION

1.1 This section describes tests to be made on the Outpulser Connector Circuit per SD-95890-01.

1.2 These tests consist of preference tests of the trunk circuits and trunk subgroups as well as preference tests of the outpulsers.

1.3 Also included in this section are tests of the outpulser multiple between connector units, and tests of the trunk and subgroup number indications at the Trouble Ticketer miscellaneous unit.

2. RECORDS AND REQUIREMENTS

2.1 Records:

2.11 Forms SD-4-1313 and SD-4-1315 are required for recording the results of these tests. ←

2.2 Requirements:

2.21 Tests of this section agree with performance requirements contained in BSP's 814-200-180, 815-015-180 and 816-200-180. ←

3. TEST EQUIPMENT

3.1 Test Sets

Amt.	Code	Description	With
1	R-1824	Pencil Lamp	★
1	ITE-4511	Transistorized Whistler	
2	R-9572	Test Receivers	★
5	KS-16887	Wedge	★
As Reqd	ITE-8507	Alligator Clip	

3.2 Cords

Amt.	ITE	Lgth	Cdrs	One End	Other End	With ITE
1	9547	12'	1	ITE-2455	ITE-2455	★
1	9548	9"	1	ITE-2455	ITE-2455	★

★ Crossbar, Panel or SXS Test Accessory Set.

4. TRUNK PREFERENCE

4.1 TP- Relay Preference

4.11 Block normal relays ST, ON, ON1, TAL and STM1 in each outpulser.

4.12 Connect two R-9572 test receivers to -48 volt battery.

4.13 Apply battery through one test receiver to the L (lower) winding terminal of relay TP00 of the first trunk subgroup. Relay TP00 should operate.

4.14 Apply battery through the second test receiver to the L winding terminal of relay TP01. Relay TP01 should operate.

4.15 Momentarily remove and then reapply battery to the winding of relay TP00. Observe that relay TP00 releases and does not reoperate and also observe that relay TP01 remains operated.

4.16 Apply tests of Paragraphs 4.13 to 4.15 successively to each overlapping pair of TP-- relays in the trunk subgroup, that is, TP00 and TP01, TP01 and TP02 to TP12 and TP13 as equipped. Check that in each case when the lower numbered TP-- relay is released, that the higher numbered TP-- relay remains operated, and that application of battery to the winding of the lower numbered TP-- relay does not cause the higher numbered TP-- relay to release, also the lower numbered TP-- relay does not reoperate. ←

4.17 Apply tests per Paragraphs 4.13 to 4.16 to all trunk subgroups.

4.2 LV, PS Relay Preference (#1 Crossbar and Panel)

4.21 Apply battery through a test receiver to the L (lower) winding terminal of relay LV of the first trunk subgroup. Observe that relay LV operates.

4.22 Using a second test receiver, connect battery to the L winding terminal of relay PS. Observe that relay PS operates and relay LV remains operated.

4.23 Remove and reapply battery through the test receiver to relay LV. Observe that relay LV releases and does not reoperate. Relay PS remains operated. ←

4.24 Remove battery from LV relay winding and apply to relay TP00 L winding terminal. Observe that relay TP00 operates.

4.25 Remove and reapply battery to the L winding of relay PS. Observe that relay PS releases and does not re-operate and that relay TP00 remains operated.

4.26 Release relay TP00.

4.3 LV Relay Preference (Step-by-Step)

4.31 Apply battery through a test receiver to the L (lower) winding terminal of relay LV of the first trunk subgroup. Observe that relay LV operates.

4.32 Using a second test receiver, connect battery to the L winding terminal of relay TP00. Observe that relay TP00 operates and relay LV remains operated.

4.33 Remove and reapply battery to the LV relay. Observe that relay LV releases and does not reoperate. Also observe that relay TP00 remains operated.

4.34 Release relay TP00.

4.4 TKL Lead

4.401 Using an R-1824, Portable Pencil Lamp, connect one of the ITE-2455 plugs equipped with an alligator clip to -48V battery.

4.402 Connect the other 2455 plug to the #1 stationery contact of the highest numbered TP-- relay of the subgroup.

4,403 Observe that the lamp is extinguished.

4.404 Connect one end of an ITE-9547 cord to ground. Connect the other end of this cord to the #1 stationery contact of relay TP00. Observe that the pencil lamp lights.

4.405 Manually operate and release relay TP00. Observe that while relay TP00 is operated, that the pencil lamp is extinguished.

4.406 Manually operate relay TP01. The pencil lamp is extinguished. Momentarily operate relay TP00. Observe that the pencil lamp remains extinguished while relay TP01 is held operated.

4.407 Release relay TP01. The pencil lamp again lights.

4.408 Manually operate relay TP02. The lamp is extinguished. Momentarily operate relay TP01. Observe that the pencil lamp remains extinguished while relay TP02 is operated.

4.409 Repeat test in this manner for the remaining TP-- relays except the last equipped TP-- relay.

4.410 Prior to the test of the last equipped TP-- relay, remove ground from the #1 stationery contact of relay TP00.

4.411 Manually operate the last equipped TP-- relay. Observe that the pencil lamp lights through the winding of the last TP-- relay.

4 412 Remove connections and repeat test on the remaining trunk subgroups

4.413 Release relay ST in each outpulser.

5. OUTPULSER PREFERENCE

NOTE 1: The Outpulser preference is individual to the particular installation, and must be determined prior to performing the following tests.

NOTE 2: On additions to existing ANI equipment only, outpulser preference tests may be made from the Outpulser Identifier Trunk Test (OITT) in accordance with Paragraph 6.

5.1 OP-- Relay Operation

5.101 Block operated the TP00 relay of the first subgroup.

5.102 Verify that the preferred OP-- relay operates and that relay OB-- associated with the preferred outpulser operates in each subgroup connector except the first trunk subgroup connector.

5.103 Release relay TP00 in the first trunk subgroup, and block operated the TP00 relay of the second trunk subgroup.

5.104 Observe that the preferred OP-- relay operates and that relay OB-- associated with the preferred outpulser operates in each subgroup connector except the second subgroup connector.

5.105 Repeat the preceding tests using each trunk subgroup in turn, and observe that the proper OP-- and OB-- relays operate. Also observe that the OB-- relay remains normal in the subgroup connector in which the TP00 relay is operated.

5.106 Continue tests in this manner for the remainder of the trunk subgroups.

5.107 At the trouble ticketer frame, insert make busy plugs into the OPMB-jacks associated with all but the first outpulser.

5.108 Observe that the OB-- relays associated with the busy outpulsers are operated at all trunk connector units.

5.109 Manually operate and release, one at a time, the TP00 relay of each trunk subgroup.

5.110 Observe that as each TP00 relay is operated, the OP-- relay associated with the idle outpulser operates on the connector unit.

5.111 Remove the make busy plug from the OPMB jack associated with the second outpulser and insert it into the OPMB- jack associated with the first outpulser.

5.112 Repeat Paragraphs 5.108 through 5.110 and observe the proper results.

5.113 Repeat this test for the remaining outpulsers. Upon completion of test, remove the make busy plugs from the OPMB- jacks.

5.2 OB-- Relay Locking Circuit

5.201 In the first Trunk subgroup of the Outpulser Connector, determine by the A-B cross-connections and Note 401 of SD-95890-01 the first preferred Outpulser.

5.202 Insulate contact 6B and block operated all OBOO relays in the subgroup except the OBOO relay associated with the first preferred Outpulser. Insulate contact 8B and 8M of this relay.

5.203 Insulate contact 1M of BYO- relays associated with every Outpulser except the first preferred.

5.204 In the first Trunk subgroup of the Trunk Preference Circuit, connect ground with an ITE-9548 cord to 4M of relay TPOO.

5.205 Using an R-9572 Test Receiver verify ground is present at contact 8B and resistance battery is present at contact 8 of each OBOO relay in the first Trunk subgroup of the Connector.

5.206 Remove the block from one of the OBOO relays not associated with the first preferred Outpulser. Verify it releases.

5.207 Remove the blocks from the other OBOO relays and verify that they remain locked operated.

5.208 Force the release of one of the OBOO relays and operate the OBOO relay released in Paragraph 5.206 above. Verify it locks operated.

5.209 Remove the ground from 4M of relay TPOO. Remove the insulation from the BYO- relays and from 6B of the OBOO relays. Remove the insulation from 8B and 8M of OBOO relay associated with the first preferred Outpulser.

5.210 Apply ground to 8 of this OBOO relay and verify it locks when operated. Remove the ground from 8 of the OBOO relay.

5.211 Repeat test for every Trunk subgroup of the Outpulser Connector. Determine the BY-- relay and contact to be insulated by Note 105 of SD-95890-01.

5.3 CH- Relay Release

NOTE: The CH1 and CH2 relays of the outpulsers are normally operated when the outpulsers are idle. This test checks the proper operation and release of these relays.

5.31 Operate momentarily, and one at a time, the OP-- relays associated with the first outpulser.

5.32 Observe at the first outpulser that the CH1 and CH2 relays release momentarily as each OP-- relay is operated momentarily.

5.33 Repeat this test for the remaining outpulsers.

5.4 OBT Lead

5.41 Block normal relay BTR at OITT frame. In each trunk subgroup connector block operated the OB— relay associated with the first outpulser.

5.42 Verify that ground is present on terminal 13 of the first outpulser W terminal strip. Operate relay OT in the outpulser. Verify that relay OB operates in the OITT frame.

5.43 Verify that ground is momentarily removed from terminal 13 as each OB-- relay is momentarily released.

5.44 Release all OB-- relays upon completion of test.

5.45 Repeat the preceding test for each outpulser. Remove block from OITT frame BTR relay.

5.5 Outpulser Multiple

5.501 At the outpulser frame, connect the ITE-4511 whistler to ground and allow about one minute to warm up. Block normal relay ST and block operated relays CH1 and CH2.

5.502 Touch the whistler test lead to terminal 15 of the first outpulser 'B' terminal strip. A tone should be heard.

5.503 Adjust the volume control of the ITE-4511 for sufficient volume.

5.504 At the first trunk subgroup appearance, block operated the OP-- relay associated with the first outpulser.

5.505 Verify that when ground is placed on stationery contact 12 of the OP-- relay that the tone is silenced.

5.506 Remove ground from stationery contact 12 and place on break contact 12. Verify that the tone is again heard.

5.507 Repeat this procedure for the following leads between the outpulser and the first trunk subgroup connector:

Outpulser Terminal Strip 'B'	Lead	OP-- Relay Contact
15	T	12
16	R	11
★17	SP	3
18	AB	9
19	TPT	10

★ Network to ground on lead.

5.508 Upon completion of this test on the first trunk subgroup, momentarily place ground on contact 2 and then contact 7 (first trk. subgroup only) of the OP-- relay.

5.509 Verify at the outpulser that relay RC momentarily operates.

5.510 Release relay OP-- of the first trunk subgroup.

5.511 Repeat Paragraphs 5.404 through 5.409 on the remaining trunk subgroups associated with the first outpulser.

5.512 Upon completion of test of the last trunk subgroup, repeat the preceding tests on the remaining outpulsers.

5.513 Remove all blocks from the outpulsers.

6. OUTPULSER PREFERENCE (Additions Only)

NOTE 1: The Outpulser preference is individual to the particular installation, and must be determined prior to performing the following tests.

NOTE 2: These tests must be performed during periods of light traffic.

NOTE 3: The purpose of these tests is to determine if the outpulser preference chain is correct and if each subgroup has access to all outpulsers.

6.1 At the Outpulser Identifier Trunk Test Frame (OITT), select a trunk in subgroup 00 to be tested.

6.2 With the selected trunk under test, observe OITT progress lamps in accordance with job information and Table R of Drawing T-95890-09.

6.21 Verify that the first choice outpulser is selected.

6.3 After the first choice outpulser in Subgroup 00 has serviced a test call, make it busy at the Outpulser Make Busy Jack at the Trouble Ticketer.

6.4 Start a second test call in Subgroup 00.

6.41 Verify that this test call is serviced by the second choice outpulser.

6.5 After the second choice outpulser in Subgroup 00 has serviced a test call, make it busy at the Outpulser Make Busy Jack at the Trouble Ticketer.

6.6 Make additional test calls in a similar manner for all outpulsers to which Subgroup 00 should have access.

6.61 Verify that each test call is serviced by the proper choice outpulser.

6 7 Select a trunk in each of the remaining subgroups and repeat the tests of Paragraphs 6.1 through 6.6

7. SUBGROUP AND TRUNK NUMBER

7.1 At the miscellaneous circuit for the Trouble Ticketer (SD-95823-01) block operated relays C10, C11 and C12. Block operated the OB- relays of the connector circuits associated with this trunk subgroup.

7.2 At the first trunk subgroup connector, block operated relay TKN. Observe that lamps SGUO and SGTO light at the miscellaneous circuit for the Trouble Ticketer.

7.3 Operate and release relay TP00 of the first trunk subgroup. Observe that lamp TK00 lights at the miscellaneous circuit for the Trouble Ticketer.

7.4 Release relay TKN at the first trunk subgroup connector. Momentarily release relay LTN of Trouble Ticketer Miscellaneous Circuit and observe that lamps TK00, SGUO and SGTO are extinguished.

7.5 Repeat test in this manner and observe that as each TP-- relay is operated momentarily, that the associated TK-- lamp lights at the miscellaneous circuit for the Trouble Ticketer as shown below. Momentarily release relay LTN of the Trouble Ticketer miscellaneous circuit to extinguish lamp after each test.

TP-- Relay	TK-- Lamp
TP00	TK00
TP01	TK01
TP02	TK02
TP03	TK03
TP04	TK04
TP05	TK05
TP06	TK06
TP07	TK08
TP09	TK09
TP10	TK10
TP11	TK11
TP12	TK12
TP13	TK13

7.6 Block operated the TKN relay of the second trunk subgroup. Lamps SGTO and SGU1 light at the Trouble Ticketer Miscellaneous Circuit.

7.7 Repeat operation and release of the TP-- relays of the second trunk subgroup and observe the lamp indications listed in Paragraph 7.5.

7.8 Continue test in this manner for all trunk subgroups, and observe that the proper SGU-, SGT- and TK-- lamps light for each trunk subgroup.

7.9 Upon completion of test, remove blocks from the Trouble Ticketer miscellaneous circuit relays C10, C11 and C12.

➔ Arrowed lines indicate new or changed information.

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Reason for Reissue:
To make revisions in Paragraph 7.