AUTOMATIC NUMBER IDENTIFICATION
OUTPULSER-IDENTIFIER TEST CIRCUIT
MISCELLANEOUS TESTS
NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of making miscellaneous tests of the outpulser-identifier test circuit SD-95815-01 in No. 1 crossbar offices.

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 The tests covered are:

A. Cancel Time-Out Release: This test checks the cancel time-out release feature of the test circuit.

B. Line-busy Release: This test checks the line-busy release feature of the test circuit.

C. Outpulser Busy. This test checks the ability to prevent seizure, by the test circuit, of an outpulser busy on a service call.

D. Loop Resistance Verification: This test checks the resistance of the simulated customer loop and the simulated tandem or toll office loop.

E. Test Network Resistance Verification: This test checks the resistance in the test network.

F. Line-busy Test Resistance Verification: This test checks the resistance of the line-busy feature.

G. Capacitance Verification: This test checks the capacitance in the test network.

H. Outpulsing Trouble Registration: This test checks the operation of relays used to detect outpulsing registration troubles.

I. Outpulser Release: This test checks the ability to force the release of an outpulser.

1.04 Where panel ground cutoff offices are served in combination with panel battery cutoff offices or No. 1 crossbar offices, or both, office records should be consulted to determine the identifier group and office number assigned to each office served for Test B.

1.05 If the requirements for Test G are not met, the oscillator circuit, SD-95827-01, associated with the test circuit should be tested and adjusted per Section 216-908-501 to eliminate the possibility that the failure was due to an incorrect ac input from the oscillator.

1.06 Tests A, C, and H require actions at the trouble ticketer and the outpulser frames.

1.07 Test E requires actions and verifications at the identifier frames.

1.08 *Lettered Steps:* A letter a, b, c, etc, added to a step number in Part 4 of this section, indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

2.01 The apparatus required for each test is shown in Table A. The details of each item are covered in the paragraph indicated by the number in parentheses.

2.02 Testing cord, No. 893 cord, 6 feet long, equipped with two No. 360A tools (No. 1W13B cord) one KS-6278 connector clip, and one No. 364 tool (for connecting the lower terminal of the vacuum tube voltmeter to ground).

2.03 Test Receiver, No. 716C or equivalent receiver, attached to a W2AB cord, equipped with two No. 360A tools (No. 2W21A cord), a No. 411A (test pick) tool, and a KS-6278 connecting clip (for use in checking for presence of ground and for applying battery or ground).

2.04 KS-14510, List 1 volt-ohm-milliammeter and one pair of list 2 test leads equipped with KS-14530 connectors and test prods.

2.05 Testing cord, No. 893 cord, 6 feet long, equipped with two No. 360A tools (No. 1W13B cord) and two KS-6278 connector clips (for connecting ohmmeter test prod to ground).

2.06 Hewlett-Packard vacuum tube voltmeter, model 400D.

2.07 No. 298 tool consisting of a test pick equipped with a connecting cord terminated with a No. 35 cord tip (for connecting the upper terminal of the vacuum tube voltmeter to the test point).

2.08 Blocking and insulating tools, as required. Use tools and apply, as covered in Section 069-020-801.

TABLE A

APPARATUS	TESTS									
	A	B	C	D	E	F	G	H	I	J
No. 329A (make busy) Plug	1	—	1	—	—	—	—	1	—	—
Cord (2.02)	—	—	—	—	—	—	1	—	—	—
Test Receiver (2.03)	—	1	—	—	—	—	—	—	—	—
Volt-ohm-milliammeter (2.04)	—	—	—	1	1	1	—	—	—	1
Cord (2.05)	—	—	—	—	1	—	—	—	—	—
Vacuum Tube Voltmeter (2.06)	—	—	—	—	—	—	1	—	—	—
Tool (2.07)	—	—	—	—	—	—	1	—	—	—
Tool (2.08)	√	√	√	—	—	—	—	√	√	—

√As required

3. PREPARATION

STEP	ACTION	VERIFICATION
All Tests		
1	Restore all lever-type keys to normal.	All lamps extinguished.

4. METHOD

STEP	ACTION	VERIFICATION
	A. Cancel Time-out Release	
2	At trouble ticketer frame — Make busy any outpulser.	
3a	If more than one identifier group is served — At test circuit — Operate corresponding IG- key.	
4	At outpulser — Block nonoperated STM1, TAL relays of outpulser.	
5	Block operated ST relay.	
6	At test circuit — Operate OIT, ICA, SVN keys.	
7	Operate ST key.	CTOR lamp lighted.
8	Restore ST key.	CTOR lamp extinguished.
9	Restore ICA key.	
10	Operate CTO key.	
11	Operate ST key.	CTOR lamp lighted.
12	Restore ST key.	CTOR lamp extinguished.
13	Restore CTO key.	
14	At outpulser — Remove blocking tool from ST relay, then from STM1, TAL relays.	
15	At trouble ticketer frame — Remove make-busy from outpulser.	
16a	If more than one identifier group is served — At test circuit — Restore IG- key.	

STEP	ACTION	VERIFICATION
17	Repeat Steps 2 through 16a as required for other outpulsers.	
18	At test circuit — Restore all lever-type keys.	
	B. Line-busy Release	
2	Check for presence of ground at 8B, 12B BYA relay.	
3	Block operated BYA relay.	
4	Check for absence of ground at 8B, 12B BYA relay.	
5	Remove blocking tool from BYA relay.	
6	Operate SVN key.	
7a	If only No. 1 crossbar or panel battery cutoff offices, or both, or step-by-step offices are served — Connect ground to 1 OFO relay momentarily, using test receiver.	LBY lamp lighted, momentarily.
8b	If only panel ground cutoff offices are served — Connect —48 volt battery to 1 OFO relay momentarily, using test receiver.	LBY lamp lighted, momentarily.
9c	If panel ground cutoff offices are served in combination with panel battery cutoff offices or No. 1 crossbar offices, or both — Block operated OFO relay, and, if provided, IGCO relay.	
10d	If office associated with OFO relay is panel ground cutoff — Connect —48 volt battery to 1 OFO relay momentarily, using test receiver.	LBY lamp lighted, momentarily.
11e	If office associated with OFO relay is No. 1 crossbar or panel battery cutoff — Connect ground to 1 OFO relay momentarily, using test receiver.	LBY lamp lighted, momentarily.
12c	If panel ground cutoff offices are served in combination with panel battery cutoff offices or No. 1 crossbar offices, or both — Remove blocking tool from OFO relay.	

STEP	ACTION	VERIFICATION
13c	Block operated next OF- relay.	
14c	Repeat steps 10d through 12c for OF- relay blocked operated.	
15c	Remove blocking tool from IGCO relay (if provided).	
16f	If additional identifier groups are served — Block operated next IGC- relay, OFO relay.	
17f	Repeat Steps 12d through 16f.	
18	Restore SVN key.	

C. Outpulser Busy

2	At trouble ticketer frame — Make busy first available outpulser.	
3	At outpulser — Block nonoperated STM1, TAL relays.	
4	Block operated ST relay.	
5	At test circuit — Operate OIT, OFFO, THOO, HOO, TOO, UOO, keys, OP- key corresponding to outpulser, IG- key, if provided, for corresponding identifier group.	
6	Operate ST key.	OIT, BTR, OTL lamps lighted.
7	Restore ST key.	RL lamp lighted momentarily. OIT, BTR, OTL lamps extinguished.
8	At outpulser — Remove blocking tool from ST relay, then from STM1, TAL relays.	
9	At trouble ticketer frame — Remove make-busy from outpulser.	
10	At test circuit — Restore all lever-type keys.	
11	Repeat Steps 2 through 10 for other outpulsers.	

STEP	ACTION	VERIFICATION
	D. Loop Resistance Verification	
2	Remove C fuse.	
3	Operate OIT key.	
4	Connect ohmmeter across 3900-ohm portion of TGD resistor.	Read 3500 to 4500 ohms.
5	Connect ohmmeter across TGD relay.	Read 2000 to 3000 ohms.
6	Connect ohmmeter across TP1 resistor.	Read 1400 to 1600 ohms.
7a	Where panel party test is required — Connect ohmmeter across TP2 resistor.	Read 5000 to 6000 ohms.
8a	Connect ohmmeter across TP3 resistor.	Read 1900 to 2500 ohms.
9	Connect ohmmeter across A resistor.	Read 400 to 500 ohms.
10	Connect ohmmeter across A relay.	Read 800 to 1100 ohms.
11	Connect ohmmeter to ground, L winding terminal of A relay.	Read 9000 to 12000 ohms.
12	Disconnect ohmmeter.	
13	Restore OIT key.	
14	Replace C fuse.	
	E. Test Network Resistance Verification	
2	Operate TT key.	
3	Connect ohmmeter to 4B TT key and ground.	Read 90 to 120 ohms.
4	Connect ohmmeter across OP resistor.	Read 2500 to 3000 ohms.
5	Connect ohmmeter across OT1 resistor.	Read 19 to 25 ohms.
6	Connect ohmmeter across OR resistor.	Read 19 to 25 ohms.
7	Connect ohmmeter across 6400-ohm portion of PNT resistor.	Read 6000 to 7000 ohms.
8	Connect ohmmeter across 6400-ohm portion of DNT resistor.	Read 6000 to 7000 ohms.
9	Insulate 3B NP relay.	
10	Connect ohmmeter across 6400-ohm portion of SNT resistor.	Read 6000 to 7000 ohms.

STEP	ACTION	VERIFICATION
11	Remove insulation from 3B NP relay.	
12	Connect ohmmeter across SO resistor.	Read 50 to 90 ohms.
13	Connect ohmmeter across OT resistor.	Read 70 to 100 ohms.
14	Disconnect ohmmeter .	
15	Restore TT key.	
16	At O identifier frame in identifier group O — Connect one lead of ohmmeter to frame ground using testing cord.	
17	Connect other ohmmeter lead to ungrounded side of LO resistor.	Read 10 to 18 ohms.
18	Repeat Step 16 for L1-9, KO-9, LSO, LPY, KSO, KPY resistors.	Read 10 to 18 ohms in each case.
19	Connect ungrounded ohmmeter lead to mid-point of NO resistor.	Read 90 to 120 ohms.
20	Repeat Step 19 for N1-9, PO-9, NSO, NPY, PSO, PPY resistors.	Read 90 to 120 ohms in each case.
21	Disconnect ohmmeter.	
22a	If subsequent identifier groups are provided — Repeat Steps 16 through 21 for other identifier groups.	

F. Line Busy Test Resistance Verification

2	Remove B fuse.	
3	Connect ohmmeter across BYT relay.	Read 6000 to 12000 ohms.
4	Connect ohmmeter across BT1 resistor.	Read 600 to 1200 ohms.
5	Connect ohmmeter across BT2 resistor.	Read 8000 to 12000 ohms.
6	Disconnect ohmmeter.	
7	Replace B fuse.	

STEP	ACTION	VERIFICATION
	G. Capacitance Verification	
2	Operate ADR key.	
3	Connect lower terminal of vacuum tube voltmeter to ground by means of testing cord.	
4	Connect upper terminal of vacuum tube voltmeter to ungrounded side of OT resistor by means of No. 298 tool.	Read 1.5 to 1.9 volts.
5	Disconnect vacuum tube voltmeter.	
6	Restore ADR key.	
	H. Outpulsing Trouble Registration	
2	At trouble ticketer frame — Make busy first available outpulser. Block operated STS relay.	
3	At outpulser — Block operated STS relay.	
4	At test circuit — Operate OIT, OFFO, THOO, HOO, TOO, UOO, CTT keys, OP- key corresponding to outpulser, IG- key, if provided, for corresponding identifier group.	
5	Operate ST key.	I7, 10, A7, 10, B7, 10, C7, 10, TH7, 10, H7, 10, T7, 10, U7, 10, ST7, 10, RL, TM1 lamps lighted.
6	Restore ST key.	All lamps extinguished.
7	At outpulser — Remove blocking tool from STS relay.	
8	Block nonoperated STS relay.	
9	At test circuit — Operate UO1 key.	
10	Operate ST key.	ST0, ST1, RL. TM1 lamps lighted.
11	Restore ST key.	All lamps extinguished.
12	Operate UO6 key.	
13	Operate ST key.	ST2, ST4, RL, TM1 lamps lighted.

STEP	ACTION	VERIFICATION
14	Restore ST key.	All lamps extinguished.
15	Restore all lever-type keys.	
16	At outpulser — Remove blocking tool from STS relay.	
17	At trouble ticketer frame — Remove make-busy from outpulser. Remove blocking tool from STS relay.	

I. Outpulser Release

2	Operate OIT, OFFO, THOO, HOO, UOO, ICA, ID-, OP- keys, IGO key, if provided.	
3	Operate ST key.	OTCI, OP- lamps lighted.
4	Operate manually CTOR relay momentarily.	CTOR lamp lighted, all other lamps extinguished.
5	Restore ST key.	CTOR lamp extinguished.
6	Operate ST key.	OTCI, OP- lamps lighted.
7	Block operated BYA relay.	RL, LBY lamps lighted, OTCI lamp extinguished.
8	Remove blocking tool from BYA relay.	LBY lamp extinguished.
9	Restore ST key.	All lamps extinguished.
10	Operate ST key.	OTCI, OP- lamps lighted.
11	Operate CA key.	All lamps extinguished.
12	Restore ST key.	
13	Restore all lever-type keys.	
14	Repeat Steps 2 through 13 for all other outpulsers.	