

AUTOMATIC NUMBER IDENTIFICATION OUTPUTPULSER CIRCUITS

MISCELLANEOUS TESTS

NO. 1 AND 350A STEP-BY-STEP, 355A COMMUNITY DIAL OFFICES, PANEL, AND NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing outputpulsers circuit, SD-95811-01, in No. 1 and 350A step-by-step, 355A community dial offices, panel, and No. 1 crossbar offices, using miscellaneous test equipment.

1.02 The tests covered are:

A. Outputpulsers Make-Busy Test: This test checks that a busy indication is given to the outputpulsers connector when the outputpulsers is busy in service or when a fuse is operated.

B. All Outputpulsers Busy Alarm: This test checks that a lamp is lighted and the minor alarm is sounded if all outputpulsers are busy for a continuous period of 41 to 60 seconds.

C. Work Timer — ETM1 Relay Test: This test checks the two work timing intervals provided for timing various functions of the outputpulsers circuit.

D. Party Test and Abandoned Call Timing — ETM2 Relay Test: This test checks the time delay allowed for party test and abandoned call check. *TPI relay for panel office*

E. Over-All Timing — TAL1 Relay Test: This test checks the over-all timing interval effective from seizure to release of the outputpulsers.

F. Trouble Ticketer Timing — ETT Relay Test: This test checks the timing interval allowed for seizure of the trouble ticketer and completion of its functions.

G. Digit Pulsing — Pulse Generator Test: This test checks that pulsing requirements for digit pulsing are met.

H. KP Signal Pulsing — Pulse Generator Test: This test checks that pulsing requirements for KP signal pulsing are met.

I. Outputpulsers Preference Chain — Transfer and Alarm Features: This test checks the transfer and alarm features associated with the preference chain through which outputpulsers bidding for an identifier are served in sequence. The regular and emergency preference chains are tested.

J. Outputpulsers Preference Chain — Preference Control: This test checks the ability of the outputpulsers preference chain to advance the preference to the next higher numbered outputpulsers when the outputpulsers used on the preceding call has released its OP-relay. The regular and emergency preference chains are tested.

K. Trunk Information — Overregistration Check: This test checks the ability of the outputpulsers to make a 1 out of 2 or 2 out of 4 check of the trunk information relays and to sound a minor alarm and call in the trouble ticketer when an overregistration occurs.

L. Over-All Timing Feature: This test checks that the over-all timing feature is operative and that it is activated under the following conditions: seizure of the outputpulsers and false operation of one of the relays for which it provides a standing ground test.

1.03 Tests A, B, K, and L require actions and verifications at the trouble ticketer frame.

1.04 During the performance of Tests I and J, all outputpulsers in the preference chain may be denied access to an identifier.

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1.05 Lettered Steps: A letter a, b, c, etc, added to a step number in Part 3 or 4 of this section, indicates an action which may or may not be required, depending on local conditions. The conditions 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.

1.06 Local instructions should be followed with reference to recording and reporting any register operations caused by performing these tests.

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 Blocking and insulating tools, as required. Use tools and apply, as covered in Section A502.031.

2.03 Test receiver, No. 716C receiver or equivalent, 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 the presence of ground and for applying ground).

2.04 Test set for timing tests, J24753A (SD-96362-01) with one W2W cord, 6 feet long, equipped with two No. 310 plugs (No. 3P15A cord); and one W3M cord, 6 feet long, equipped with one No. 310 plug, one No. 360A tool, one No. 360B tool, one No. 360C tool (No. 3W4A cord), one KS-6278 connecting clip and two No. 624A (connector for wire-spring relay terminal) tools.

2.05 Pulse checking test set, J94723 (SD-96362-01) with one W2W cord, 6 feet long, equipped with one No. 310 plug, one No. 360B tool, and one No. 360C tool (2W17A cord), two No. 639A (connector for fixed contact of wire-spring relay) tools, and two No. 651D (relay contact cover for test connection) tools; and one W3M cord, 6 feet long, equipped with one No. 310 plug, one No. 360A tool, one No. 360B tool, and one No. 360C tool (3W4A cord), and two No. 364 tools or two No. 365 tools (for use when battery and ground supply does not terminate at a jack) or one P3K cord equipped with 2 No. 310 plugs (for use when battery and ground supply terminates at a jack).

TABLE A

APPARATUS	TESTS											
	A	B	C	D	E	F	G	H	I	J	K	L
Misc Ckt — Trouble Ticketer Frame — SD-95823-01	1	1	1	1	1	1	1	1	—	1	1	1
Misc Ckt — Outpulser Frame — SD-95820-01	1	—	—	—	—	—	—	—	—	—	—	—
Outpulser Connector Ckt — SD-95890-01	1	—	—	—	—	—	—	—	1	1	—	—
Tool (2.02)	√	√	√	√	√	√	√	√	√	√	√	√
No. 329A (make busy) Plug	—	—	1	1	1	1	1	1	—	1	2	2
Test Receiver (2.03)	1	—	—	—	—	—	—	—	—	1	—	—
Test Set (2.04)	—	—	1	1	1	1	—	—	—	—	—	—
Test Set (2.05)	—	—	—	—	—	—	1	1	—	—	—	—
KS-3008 Stop Watch or equivalent	—	1	—	—	—	—	—	—	—	—	—	1

√ As required

3. PREPARATION

STEP	ACTION	VERIFICATION
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Tests C Through H and J Through L

- | | | |
|---|--|--|
| 1 | At trouble ticketer frame —
Insert make-busy plug in OP-B jack of out-
pulsers under test. | |
|---|--|--|

4. METHOD

STEP	ACTION	VERIFICATION
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A. Outpulser Make-Busy Test

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|------|--|--|
| 1 ✓ | At outpulser frame —
Operate momentarily FA relay manually. | AOPB relay in associated outpulser
operated.
Fuse alarm sounded. <i>use blown
fuse.</i> |
| 2 ✓ | Operate AR key momentarily. | AOPB relay in Step 1 released.
Fuse alarm silenced. |
| 3 ✓ | Repeat Steps 1, 2 for all outpulsers. | |
| 4 ✓ | Block nonoperated STM1, TAL relays. | |
| 5 ✓ | Block operated RL relay. | Ground present at fixed contact 6 of MB
relay. |
| 6 ✓ | Remove blocking tool from RL relay. | Ground absent from fixed contact 6 of MB
relay. |
| 7 ✓ | Block operated ST relay. | Ground present at fixed contact 6 of MB
relay. |
| 8 ✓ | Remove blocking tool from ST relay. | Ground absent from fixed contact 6 of MB
relay. |
| 9 ✓ | Remove blocking tool from TAL relay. | |
| 10 ✓ | Block nonoperated TAL1 relay. | |
| 11 ✓ | Operate ON relay manually. | AOPB relay in associated outpulser
operated.
Ground present at fixed contact 6 of MB
relay. |
| 12 ✓ | Operate momentarily RL relay manually. | ON, AOPB relays released.
Ground absent from fixed contact 6 of MB
relay. |

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STEP	ACTION	VERIFICATION
13 ✓	Remove blocking tools from STM1, TAL1 relays.	
14 ✓	Repeat Steps 4 through 13 for all out-pulsers.	

B. All Outpulsers Busy Alarm

1	At outpulser frame — Block operated AOPB relays in all out-pulsers.	At trouble ticketer frame — AOB lamp lighted when last AOPB relay operated. After 40 to 60 seconds, AOBA lamp lighted, minor alarm sounded.
2	Remove blocking tool from AOPB relay in one outpulser.	AOB lamp extinguished. <i>Note:</i> AOB lamp will light if outpulser is serving a call.
3	At trouble ticketer frame — Operate AR key momentarily.	AOBA lamp extinguished. Minor alarm silenced.
4	Reinsert blocking tool in AOPB relay of Step 2.	AOB lamp lighted.
5	Repeat Steps 2, 4 for all outpulsers.	
6	At outpulser frame — Remove blocking tools from all AOPB relays.	AOB lamp extinguished.

C. Work Timer — ETM1 Relay Test

2	Make timing tests of ETM1 relay timer using test set for timing test, timing requirements table.	Timing requirements are met. <i>see 95811-01-F5</i>
3	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	

D. Party Test and Abandoned Call Timing — ETM2 Relay Test

2	Make timing tests of ETM2 relay timer using test set for timing test, timing requirements table.	Timing requirements are met.
3	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	

*NO TPI relay in
OP only in panel
or SXS office
XBar marker makes TR test*

STEP	ACTION	VERIFICATION
✓ E. Over-All Timing — TAL1 Reay Test		
2	Make timing tests of TAL1 relay timer using test set for timing test, timing requirements table.	Timing requirements are met.
3	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	
✓ F. Trouble Ticketer Timing — ETT Relay Test		
2	Make timing tests of ETT relay timer using test set for timing test, timing requirements table.	Timing requirements are met.
3	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	
✓ G. Digit Pulsing — Pulse Generator Test		
2	Make per cent break, pulse per second tests using Section A204.461, timing requirements table for PGI relay. <i>- see SD 95811-01-F5</i>	Timing requirements are met.
3	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	
✓ H. KP Signal Pulsing — Pulse Generator Test		
2	Make per cent break, pulse per second tests using Section A204.461, timing requirements table for PGI relay. <i>see SD 95811-01-F5</i>	Timing requirements are met.
3	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	
✓ I. Outpulser Preference Chain — Transfer and Alarm Features		
1	At outpulser frame — Block operated TR relay.	
2	Insulate break contact 8 of OP- relay of last outpulser in preference chain momentarily.	CH lamp lighted. Minor alarm sounded.
3	Operate AR key momentarily.	CH lamp extinguished. Minor alarm silenced.
4	Insulate break contact 12 of OP- relay of first outpulser in preference chain momentarily.	CH lamp lighted. Minor alarm sounded.

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STEP	ACTION	VERIFICATION
5	Remove blocking tool from TR relay.	TR relay remains operated.
6	Operate AR key momentarily.	CH lamp extinguished. Minor alarm silenced. TR relay released.
7	Block nonoperated TR relay.	
8	Operate TR key.	
9	Insulate break contact 8 of E- relay of last outpulser in preference chain momentarily.	CH lamp lighted. Minor alarm sounded.
10	Operate AR key momentarily.	CH lamp extinguished. Minor alarm silenced.
11	Insulate break contact 12 of E- relay of first outpulser in preference chain momentarily.	CH lamp lighted. Minor alarm sounded.
12	Operate AR key momentarily.	CH lamp extinguished. Minor alarm silenced.
13	Remove blocking tool from TR relay.	TR relay operated.
14	Restore TR key.	TR relay released.
15	When all outpulsers in preference chain are idle — Insulate break contact 8 of any OP- relay momentarily.	CH lamp lighted. TR relay operated. Minor alarm sounded.
16	Operate AR key momentarily.	CH lamp extinguished. TR relay released. Minor alarm silenced.
17	Operate TR key.	TR relay operated.
18	When all outpulsers in preference chain are idle — Insulate break contact 8 of any E- relay momentarily.	CH lamp lighted. TR relay released. Minor alarm sounded.
19	Operate AR key momentarily.	CH lamp extinguished. TR relay operated. Minor alarm silenced.

STEP	ACTION	VERIFICATION
20	Restore TR key.	TR relay released.
J. Outpulser Preference Chain — Preference Control		
2	At outpulser frame — Block nonoperated STM1, TAL relays for outpulser under test.	
3	Block operated L1, PK, ST relays.	OP-, OC (A, B, C, D, E) relays operated. Ground absent from contacts 8B, 12B of OP- relay.
4	Block operated IRL relay.	OP-, OC (A, B, C, D, E) relays released.
5	Operate TR key.	
6	Remove blocking tool from IRL relay.	E-, OC (A, B, C, D, E) relays operated. Ground absent from contacts 8B, 12B of E- relay.
7	Remove blocking tools from L1, PK, ST relays.	E-, OC (A, B, C, D, E) relays released.
8	Remove blocking tools from STM1, TAL relays.	
9	Restore TR key.	
10	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	
11	Repeat Steps 1 through 10 for each out- pulser in preference chain.	
K. Trunk Information Overregistration Check		
2	At trouble ticketer frame — Insert make-busy plug in TTBOB- jack associated with outpulser under test.	
3	At outpulser frame — Block operated RP relay.	
4	Operate momentarily TP relay manually.	TTST relay operated momentarily. Minor alarm sounded.
5	At trouble ticketer frame — Operate AR key momentarily.	Minor alarm silenced.
6	At outpulser frame — Remove blocking tool from RP relay.	

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STEP	ACTION	VERIFICATION
7	Insulate make contact 4 of TTST relay.	
8a	In No. 1 crossbar or step-by-step office — Block operated I1 relay.	
9a	Operate momentarily I2 relay manually.	TTST relay momentarily operated.
10b	In panel or step-by-step office where 2-party lines are equipped — Block operated one I- relay; operate mo- mentarily additional I- relay manually as indicated for each test listed in Table B.	TTST relay momentarily operated for each test of Table B.

TABLE B

TEST	BLOCK OPERATED	MOMENTARILY MANUALLY OPERATE
1	I1	I3
2	I1	I4
3*	I2	I3
4*	I2	I4
5	I3	I4

*Omit Tests 3 and 4 in panel office.

11	Remove blocking tool from I- relay.	
12	Remove insulating tool from TTST relay.	
13	At trouble ticketer frame — Remove make-busy plug from TTBOP-, OP-B jacks.	
14	Repeat Steps 1 through 13 for all outpulsers.	

L. Over-All Timing Feature

2	At trouble ticketer frame — Insert make-busy plug in TTBOP- jack associated with outpulser under test.	
3	At outpulser frame — Release momentarily CH1 relay manually.	TAL relay operated momentarily.

STEP	ACTION	VERIFICATION
4	Release momentarily CH2 relay manually.	TAL relay operated momentarily.
5	Operate momentarily AIB relay manually.	TAL relay operated momentarily.
6	Operate momentarily CTT relay manually.	TAL relay operated momentarily.
7a	If operation with permanent signal trunks is provided — Operate momentarily PSK relay manually.	TAL relay operated momentarily.
8	Block nonoperated STM1 relay.	
9	Operate manually ON relay.	After 7 to 11 seconds — TA lamp lighted. Major alarm sounded.
10	Operate AR key momentarily.	TA lamp extinguished. Major alarm silenced.
11	Operate momentarily RL relay manually.	ON relay released.
12	Remove blocking tool from STM1 relay.	
13	At trouble ticketer frame — Remove make-busy plugs from TTBOP-, OP-B jacks.	