

**AUTOMATIC NUMBER IDENTIFICATION OUTPUTSER
CONNECTOR CIRCUIT
TESTS
NO. 1 CROSSBAR OFFICES**

1. GENERAL

1.01 This section describes a method of testing outputser connectors in offices arranged for Automatic Number Identification (ANI).

1.02 This section is reissued to bring it in conformity with other material in the Plant Series. In this process marginal arrows have been omitted.

1.03 The tests covered are:

A. Trunk Preference and Lockout Feature — TP-- Relay Chain: This test checks the order of preference of the TP-- relays within a trunk subgroup, and verifies the ST leads from the trunks of that subgroup.

B. Outputser Preference and Lockout Feature — OP-- and OB-- Relay Chains: This test checks that the selection of outputser in each connector is made in the order of preference. It also checks that all trunk subgroups have access to any outputser, and that only one trunk at a time is connected to that outputser. Where only one outputser is furnished, this test checks that all trunk subgroups have access to the outputser, and that only one trunk at a time is connected to the outputser.

C. Work Lead Verification and Preference: This test checks that the TP-- and OP-- relays connect the work leads from a trunk to an outputser in the order of preference in the trunk subgroup and in the connectors.

D. Trunk Number Feature: This test checks that each trunk in a subgroup can be identified when requested by the outputser.

E. Outputser Busy: This test checks that when an outputser is busy the BY-- and BO-- relays associated with that outputser will function to prevent any trunk from connecting to that outputser.

F. Lock-In of Nonpreferred Outputser — More Than One Outputser Provided: This test checks that a nonpreferred outputser serving a call will remain locked in and not permit the call to transfer to a more preferred outputser.

G. TP-- Relay Locking Feature: This test checks that the TP-- relay being served is locked to the outputser assigned.

H. OB-- Relay Operate and Nonoperate Features: This test checks that the OB-- relay lock path and battery shunt operate properly.

1.04 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 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.

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1.05 Local instructions should be followed for recording and reporting any register operations caused by performing these tests.

with two 360A tools (2W21A cord), one KS-6278 connecting clip, and one 411A (test pick) tool (to apply battery or ground).

2. APPARATUS

All Tests

2.01 322A (make-busy) plugs, as required.

Tests A and C

2.02 Test receiver, 716B receiver (low resistance attached to a W2AB cord equipped

Tests A Through D and F Through H

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

3. PREPARATION

STEP	ACTION	VERIFICATION
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Tests A Through D and F Through H

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| 1 | At outgoing trunk testboard —
Insert make-busy plug into MB jack of each trunk in subgroup under test. | |
| 2a | If permanent signal identification is provided —
Do not insert PS cord in any PS- jack while first trunk subgroup is under test. | |
| 3b | When testing first trunk subgroup only —
Do not perform line verifications. | |

Tests A Through D, F, and G

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| 4 | At output connector relay rack unit —
Block nonoperated all OP-- relays in connector serving subgroup under test. Where only one output is provided, block non-operated OP-- relay. | |
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4. METHOD

STEP	ACTION	VERIFICATION
A. Trunk Preference and Lockout Feature — TP-- Relay Chain		
5	Start with zero trunk of trunk subgroup under test and proceed as follows.	
6	At trunk frame — Momentarily apply battery with test receiver to terminal strip punchings 24, terminal strip B.	At trunk frame — TP-- relay associated with trunk operates momentarily.
7	Repeat Step 6 for second, third, etc., trunks of subgroup under test until all trunks have been checked.	Verify that each trunk operates proper TP-- relay.
8	Block operated highest numbered TP-- relay.	
9	Apply battery with test receiver to make contact 1 of TP00 relay of trunk subgroup under test.	TP00 relay does not operate.
10	Remove blocking tool from highest numbered TP-- relay.	TP00 relay operates.
11	Remove battery from TP00 relay. <i>Note:</i> If Test B is to be made after Test A, it will save time to initiate Test B now because make-busy plugs for trunks of this subgroup are already inserted. Start Test B at Step 5.	
12	At outputer connector relay rack unit — Remove blocking tools from all OP-- relays of trunk subgroup under test.	
13	At trunk frames or outgoing trunk test frames — Remove plugs.	
14	Repeat Steps 1 through 13, as required, for each trunk subgroup in outputer connector.	
B. Outputer Preference and Lockout Feature — OP-- and OB-- Relay Chains		
5	At trouble ticketer frame — Insert make-busy plug into OP-B jack of first preferred outputer in connector under test. Where only one outputer is provided, insert make-busy plug into OP-B jack in connector under test.	At outputer connector relay rack unit — BY-- and all OB-- relays associated with outputer made busy operate.

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STEP	ACTION	VERIFICATION
6	At outputer connector relay rack unit — In connector under test — Block nonoperated OB-- relay of first preferred outputer. Where only one outputer is provided, block nonoperated OB-- relay in connector under test.	
7	At trunk frame — Block operated any TP-- relay in trunk subgroup made busy.	
8	At outputer made busy — Block nonoperated TTST and TAL relays.	
9	At outputer connector relay rack unit — Remove blocking tool from OP-- relay associated with first preferred outputer in connector under test. Where one outputer is provided, remove blocking tool from OP-- relay in connector under test.	OP-- relay of first preferred outputer operates. Where one outputer is provided, OP-- relay operates. At outputer made busy — CH1 and CH2 relays release. ST relay operates.
10	Block nonoperated OP-- relay associated with first preferred outputer in connector under test. Where only one outputer is provided, block nonoperated OP-- relay.	CH1 relay operates. ST relay releases.
11	Remove blocking tool from OB-- relay associated with first preferred outputer in connector under test. Where only one outputer is provided, remove blocking tool from OB-- relay.	OB-- relay operates.
12c	When more than one outputer is provided — Block operated OB-- relay associated with first preferred outputer in connector under test.	
13	At outputer made busy — Operate RL relay momentarily.	
14	Remove blocking tools from TTST and TAL relays.	
15	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	BY-- and OB-- relays release.
16c	When more than one outputer is furnished — Insert make-busy plug into OP-B jack of next preferred outputer in connector under test.	At outputer connector relay rack unit — BY-- and OB-- relays associated with outputer made busy operate.
17c	At outputer made busy — Block nonoperated TTST and TAL relays.	

STEP	ACTION	VERIFICATION
18c	At outputpulser connector relay rack unit — In connector under test — Block nonoperated OB-- relay of next preferred outputpulser.	
19c	Remove blocking tool from OP-- relay associated with next preferred outputpulser in connector under test.	OP-- relay of next preferred outputpulser operates. At outputpulser made busy — CH1 and CH2 relays release. ST relay operates.
20c	Block nonoperated OP-- relay from which blocking tool was just removed.	CH1 relay operates. ST relay releases.
21c	Remove blocking tool from OB-- relay associated with next preferred outputpulser in connector under test.	OB-- relay operates.
22c	Block operated OB-- relay from which blocking tool was just removed.	
23c	At outputpulser made busy — Operate RL relay momentarily.	
24c	Remove blocking tools from TTST and TAL relays.	
25c	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	BY-- and OB-- relays release.
26c	Repeat Steps 16c through 25c for each remaining outputpulser in order of preference in connector. <i>Note:</i> If Test A is being performed concurrently and other trunk subgroups are to be tested, return to Step 13 of Test A when last preferred outputpulser has been tested in connector under test or when single outputpulser has been tested, if only one is provided.	
27	At trunk frame — Remove blocking tool from TP-- relay.	
28	At outputpulser connector relay rack unit — Remove blocking tools from all OB-- and OP-- relays.	
29	At trunk frames or outgoing trunk test frames — Remove plugs.	
30	Repeat Steps 1 through 29, as required, for each trunk subgroup and connector.	

STEP	ACTION	VERIFICATION
C. Work Lead Verification and Preference		
5	At trunk frame — Block operated highest numbered TP-- relay in trunk subgroup under test.	
6	At trouble ticketer frame — Insert make-busy plug into OP-B jack of first preferred outpulser in connector serving trunk subgroup under test. Where only one outpulser is provided, insert make-busy plug into OP-B jack of outpulser in connector serving trunk subgroup under test.	At outpulser connector relay rack unit — BY-- and OB-- relays associated with outpulser made busy operate.
7	At outpulser made busy — Block nonoperated TTST and TAL relays.	
8	At outpulser connector relay rack unit — Remove blocking tool from OP-- relay of first preferred outpulser. Where only one outpulser is provided, remove blocking tool from OP-- relay.	
9	Block operated OP-- relay from which blocking tool was just removed.	At outpulser frame — CH1 relay releases. ST relay operates.
10	At outpulser made busy — Block operated TKC1 relay.	
11	Block nonoperated PK relay.	
12	At trunk frame — Apply ground with test receiver momentarily to make contact 12 of TP-- relay.	At outpulser frame — I2 relay operates momentarily.
13	Apply ground momentarily to make contact 11 of same TP-- relay.	I1 relay operates momentarily.
14	At outpulser made busy — Block operated IK relay.	SPL relay operates.
15	Block nonoperated SPL1 relay.	
16	At trunk frame — Insulate momentarily make contact 3 of same TP-- relay.	SPL relay releases momentarily.
17	At outpulser made busy — Remove blocking tools from TKC1, SPL1, IK, PK and PIK relays.	

STEP	ACTION	VERIFICATION
18	At outputpulser connector relay rack unit — Remove blocking tool from OP-- relay of first preferred outputpulser.	
19	Block nonoperated OP-- relay from which blocking tool was just removed.	
20	At outputpulser made busy — Operate RL relay momentarily.	
21	Remove blocking tools from TTST and TAL relays.	
22	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	At outputpulser connector — BY-- and OB-- relays release.
23c	If more than one outputpulser is furnished — Insert make-busy plug into OP-B jack of next preferred outputpulser.	BY-- and OB-- relays associated with outputpulser made busy operate.
24c	At outputpulser connector relay rack unit — Remove blocking tool from OP-- relay of next preferred outputpulser.	
25c	Block operated OP-- relay from which blocking tool was just removed.	
26c	Repeat Steps 7 and 10 through 17.	Same as Steps 7 and 10 through 17.
27c	At outputpulser connector relay rack unit — Remove blocking tool from OP-- relay of next preferred outputpulser.	
28c	Repeat Steps 19 through 22.	
29c	Repeat Steps 23c through 28c for each outputpulser.	
30	Remove all blocking tools from OP-- and TP-- relays.	
31	At trunk frames or outgoing trunk test frames — Remove plugs.	
32	Repeat Steps 1 through 31, as required, for each trunk subgroup and its connector.	

D. Trunk Number Feature

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| 5 | At trouble ticketer frame —
Insert make-busy plug into OP-B jack of any outputpulser. |
| 6 | At outputpulser made busy —
Block nonoperated TTST and TAL relays. |

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STEP	ACTION	VERIFICATION
7	Block operated TTC1 relay.	
8	At outputer connector relay rack unit — Remove blocking tool from OP-- relay of outputer made busy.	
9	Block operated OP-- relay from which blocking tool was just removed.	TKN relay in trunk subgroup under test operates.
10	At trunk frame — Block operated TKN relay.	
11	At trouble ticketer frame — Block operated CITN relay of trouble tick- eter miscellaneous circuit.	
12	Operate TKL key.	At trouble ticketer frame — SGT- and SGU- lamps light for trunk sub- group under test.
13	At trunk frame — Operate momentarily TP00 relay of trunk subgroup under test.	At trouble ticketer frame — TK00 lamp lights.
14	At trouble ticketer frame — Restore TKL key.	All lamps extinguished.
15	Operate TKL key.	SGT- and SGU- lamps light.
16	At trunk frame — Operate momentarily next TP-- relay in trunk subgroup under test.	TKO- lamp corresponding to trunk number lights.
17	At trouble ticketer frame — Restore TKL key.	All lamps extinguished.
18	Repeat Steps 15, 16, and 17 for each TP-- relay in trunk subgroup under test.	
19	Remove blocking tool from TTC1 relay.	
20	Remove blocking tools from TKN relay and OP-- relay blocked operated.	
21	At outputer connector relay rack unit — Block nonoperated OP-- relay from which blocking tool was removed.	
22	At outputer made busy — Operate RL relay momentarily.	
23	Remove blocking tools from TTST and TAL relays.	
24	Remove blocking tool from CITN relay.	
25	Remove make-busy plug from OP-B jack.	
26c	If more than one outputer is furnished — Insert make-busy plug into OP-B jack of next outputer.	

STEP	ACTION	VERIFICATION
27c	Repeat Steps 6 through 26c for each remaining outpulser in trunk subgroup under test.	
28c	Remove make-busy plug from OP-B jack.	
29	At trunk frames or outgoing trunk test frames — Remove plugs.	
30	Repeat Steps 1 through 29, as required, for each remaining trunk subgroup.	

E. Outpulser Busy

1	At trouble ticketer frame — Insert make-busy plug into OPOB jack.	At outpulser connector relay rack unit — BY-- and all OB-- relays associated with outpulser 0 operate. None of OP-- relays associated with outpulser 0 operate to indicate connection to any trunk requesting outpulser.
2	Remove make-busy plug.	BY-- and OB-- relays release.
3	Insert make-busy plug into OP-B jack for next outpulser.	BY-- and all OB-- relays associated with next outpulser operate. None of OP-- relays associated with outpulser made busy operate to indicate connection to any trunk requesting outpulser.
4	Remove make-busy plug.	BY-- and OB-- relays release.
5	Repeat Steps 3 and 4 for each remaining outpulser.	

F. Lock-In of Nonpreferred Outpulser — More Than One Outpulser Provided

5	At trunk frame — Block operated any TP-- relay in trunk subgroup under test.	
6	At outpulser connector relay rack unit — Operate manually each OB-- relay in connector under test except OB-- relay serving first outpulser.	All normally operated OB-- relays lock.
7	Operate momentarily OB-- relay serving first outpulser.	All OB-- relays release.
8	Operate each nonoperated OB-- relay momentarily except OB-- relay serving next outpulser.	All operated OB-- relays lock.
9	Operate OB-- relay momentarily for outpulser being checked.	All OB-- relays release.
10	Repeat Steps 8 and 9 for each remaining outpulser.	

STEP	ACTION	VERIFICATION
11	Remove blocking tools from all OP-- and TP-- relays of trunk subgroup under test.	
12	At trunk frames or outgoing trunk test frames — Remove plugs.	
13	Repeat Steps 1 through 12, as required, for each trunk subgroup.	
G. TP-- Relay Locking Feature		
5	At trouble ticketer frame — Insert make-busy plug into OP-B jack of first outpulser.	
6	At outpulser made busy — Block nonoperated TTST, TAL, and RL relays.	
7	At outpulser connector relay rack unit — Remove blocking tool from OP-- relay of outpulser made busy in connector of trunk subgroup under test.	
8	Block operated all OB-- relays in connector under test except OB-- relay of outpulser made busy.	
9	Block nonoperated OB-- relay of outpulser made busy.	
10	At trunk frame — Block operated highest numbered TP-- relay in trunk subgroup under test.	OP-- relay operates for outpulser made busy.
11	Remove blocking tool from TP-- relay.	TP-- and OP-- relays remain operated.
12	Operate momentarily next lower numbered TP-- relay in trunk subgroup under test.	Highest numbered TP-- relay releases. Next lower numbered TP-- relay remains operated.
13	Operate each preceding TP-- relay momentarily in turn until TP00 relay operates.	Higher numbered TP-- relay releases. Next lower numbered TP-- relay remains operated.
14	Release TP00 relay.	OP-- relay releases.
15	At outpulser connector relay rack unit — Block nonoperated OP-- relay of outpulser made busy in connector under test.	
16	Remove blocking tools from OB-- relays.	
17	At outpulser made busy — Remove blocking tools from TTST, TAL, and RL relays.	

STEP	ACTION	VERIFICATION
18	At trouble ticketer frame — Remove make-busy plug from OP-B jack.	
19c	If more than one outpulser is furnished — Insert make-busy plug into OP-B jack for next outpulser.	
20c	Repeat Steps 6 through 19c for each outpulser.	
21c	Remove make-busy plug from OP-B jack.	
22	At outpulser connector relay rack unit — Remove blocking tools from OP-- relays.	
23	At trunk frames or outgoing trunk test frames — Remove plugs.	
24	Repeat Steps 1 through 23, as required, for each trunk subgroup.	

H. OB-- Relay Operate and Nonoperate Features

4	At trouble ticketer frame — Insert make-busy plug into OPOB jack of first outpulser.	At outpulser connector frame — BY-- and OB-- relays operate.
5	At outpulser made busy — Block nonoperated TTST and TAL relays.	
6	Block operated ST relay.	
7	At outpulser connector relay rack unit — Operate momentarily OP-- relay of outpulser made busy in connector serving trunk subgroup under test.	Associated OB-- relay releases momentarily.
8	At outpulser made busy — Operate RL relay momentarily.	
9	Remove blocking tools from ST, TTST, and TAL relays.	
10	At trouble ticketer frame — Remove make-busy plug from OPOB jack.	
11c	If more than one outpulser is furnished — Insert make-busy plug into OP-B jack of next outpulser.	BY-- and OB-- relays operate.
12c	Repeat Steps 5 through 11c for each outpulser.	
13c	Remove make-busy plug from OP-B jack of last outpulser.	
14	At trunk frames or outgoing trunk test frames — Remove plugs.	
15	Repeat Steps 1 through 14, as required, for each trunk subgroup.	

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