

**OUTPUTPULSER CONNECTOR CIRCUIT  
TESTS  
PANEL OFFICES  
ARRANGED FOR ANI-TYPE B**

<b>1. GENERAL</b>	<b>PAGE</b>
<p><b>1.01</b> This section describes a method of testing outputpulsers in offices arranged for automatic number identification (ANI-type B).</p>	
<p><b>1.02</b> This section is reissued to revise Tests B and C to change the operation and release of CH2 relay. This section does not affect the Equipment Test List.</p>	
<p><b>1.03</b> The tests covered are:</p>	
<b>PAGE</b>	
<p><b>A. Trunk Preference and Lockout Feature—TP- Relay Chain:</b> 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. . . . .</p>	2
<p><b>B. Outputpulsers Preference and Lockout Feature—OP- and OB- Relay Chains:</b> This test checks that the selection of outputpulsers in each connector is made in the order of preference. It also checks that all trunk subgroups have access to any outputpulsers, and that only one trunk at a time is connected to that outputpulsers. Where only one outputpulsers is furnished, this test checks that all trunk subgroups have access to the outputpulsers, and that only one trunk at a time is connected to the outputpulsers. . . . .</p>	3
<p><b>C. Work Lead Verification and Preference:</b> This test checks that the TP- and OP- relays connect the work leads from a trunk to an outputpulsers in the order of preference in the trunk subgroup and in the connectors. . . . .</p>	5
<p><b>D. Trunk Number Feature:</b> This test checks that each trunk in a subgroup can be identified when requested by the outputpulsers. . . . .</p>	8
<p><b>E. Outputpulsers Busy:</b> This test checks that when an outputpulsers is busy the BY- and BO- relays associated with that outputpulsers will function to prevent any trunk from connecting to that outputpulsers. . . . .</p>	9
<p><b>F. Lock-In of Nonpreferred Outputpulsers—More Than One Outputpulsers Provided:</b> This test checks that a nonpreferred outputpulsers serving a call will remain locked in and not permit the call to transfer to a more preferred outputpulsers. . . . .</p>	10
<p><b>G. TP- Relay Locking Feature:</b> This test checks that the TP- relay being served is locked to the outputpulsers assigned. . . . .</p>	10
<p><b>H. OB- Relay Operate and Nonoperate Features:</b> This test checks that the OB- relay lock path and battery shunt operate properly. . . . .</p>	12
<p><b>1.04 Lettered Steps:</b> A letter a, b, c, etc., added to a step number in Parts 3 and 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.</p>	

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

**2. APPARATUS**

**All Tests**

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

**3. PREPARATION**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
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**Tests A Through D and F Through H**

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

**Tests A Through D, F, and G**

- |   |  |  |
|---|--|--|
| 4 | At output connector circuit—<br>Block nonoperated all OP- relays in connector serving subgroup under test. Where only one output connector is provided, block nonoperated OP- relay. |  |
|---|--|--|

**4. METHOD**

<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
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**A. Trunk Preference and Lockout Feature—TP-- Relay Chain**

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|---|--|--|
| 5 | Start with zero trunk of trunk subgroup under test and proceed as follows.                     |  |
| 6 | At trunk frame—<br>Momentarily apply battery to terminal strip punchings 23, terminal strip B. | At output connector circuit—<br>TP-- relay associated with trunk operated momentarily. |

**Tests A and C**

**2.02** Testing cord, 893 cord, 6 feet long equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and one 411A (test pick) tool (to apply battery or ground).

**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.

STEP	ACTION	VERIFICATION
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	At outputpulser connector circuit— Block operated highest numbered TP-- relay.	
9	Apply battery to 1M of TP00 relay of trunk subgroup under test.	TP00 relay does not operate.
10	Remove blocking tool from highest numbered TP-- relay.	TP00 relay operated.
11	Remove battery from TP00 relay.	
	<b>Note:</b> 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	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 outputpulser connector.	
<b>B. Outputpulser Preference and Lockout Feature—OP-- and OB-- Relay Chains</b>		
5	At trouble ticketer frame— Insert make-busy plug into OP-B jack of first preferred outputpulser in connector under test. Where only one outputpulser is provided, insert make-busy plug into OP-B jack in connector under test.	At outputpulser connector circuit— BY-- and all OB-- relays associated with outputpulser made busy operated.
6	At outputpulser connector circuit— In connector under test— Block nonoperated OB-- relay of first preferred outputpulser. Where only one outputpulser is provided, block nonoperated OB-- relay in connector under test.	
7	Block operated any TP-- relay associated with trunk subgroup made busy.	

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STEP	ACTION	VERIFICATION
8	At outpulser made busy— Block nonoperated TTST and TAL relays.	
9	At outpulser connector circuit— Remove blocking tool from OP-- relay associated with first preferred outpulser in connector under test. Where one outpulser is provided, remove blocking tool from OP-- relay in connector under test.	OP-- relay of first preferred outpulser operated. Where one outpulser is provided, OP-- relay operated. At outpulser made busy— CH1 and CH2 relays released. ST relay operated.
10	Block nonoperated OP-- relay associated with first preferred outpulser in connector under test. Where only one outpulser is provided, block nonoperated OP-- relay.	◆CH1 relay operated.◆ ST relay released.
11	Remove blocking tool from OB-- relay associated with first preferred outpulser in connector under test. Where only one outpulser is provided, remove blocking tool from OB-- relay.	OB-- relay operated.
12c	When more than one outpulser is provided— Block operated OB-- relay associated with first preferred outpulser in connector under test.	
13	At outpulser made busy— Momentarily operate RL relay.	◆CH2 relay operated.◆
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 outpulser is furnished— Insert make-busy plug into OP-B jack of next preferred outpulser in connector under test.	At outpulser connector circuit— BY-- and OB-- relays associated with outpulser made busy operated.
17c	At outpulser made busy— Block nonoperated TTST and TAL relays.	
18c	At outpulser connector circuit— In connector under test— Block nonoperated OB-- relay of next preferred outpulser.	
19c	Remove blocking tool from OP-- relay associated with next preferred outpulser in connector under test.	OP-- relay of next preferred outpulser operates. At outpulser made busy— CH1 and CH2 relays release. ST relay operated.

STEP	ACTION	VERIFICATION
20c	Block nonoperated OP-- relay from which blocking tool was just removed.	◆CH1 relay operated.◆ ST relay released.
21c	Remove blocking tool from OB-- relay associated with next preferred outpulser in connector under test.	OB-- relay operated.
22c	Block operated OB-- relay from which blocking tool was just removed.	
23c	At outpulser made busy— Momentarily operate RL relay.	◆CH2 relay operated.◆
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 released.
26c	Repeat Steps 16c through 25c for each remaining outpulser 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	
27	At outpulser connector circuit— Remove blocking tool from TP-- relay.	
28	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.	
<b>C. Work Lead Verification and Preference</b>		
5	At outpulser connector circuit— 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 circuit— BY-- and OB-- relays associated with outpulser made busy operate.

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STEP	ACTION	VERIFICATION
7	At outputser made busy— Block nonoperated TTST and TAL relays.	
8	Block operated TKC1 relay.	
9	Block nonoperated PK relay.	
10c	If special toll or operator assistance trunks to TSP are provided— Block operated ON1 relay.	DWA relay operates.
11d	If automatic intercept feature is provided— Block nonoperated INT relay.	
12e	If party test feature is provided— Block nonoperated PIK relay.	
13	At outputser connector circuit— Remove blocking tool from OP- relay of the preferred outputser.	
14	Block operated OP- relay from which blocking tool was removed.	At outputser made busy. CH1, CH2 relays release. ST relay operated. If I3 relay is provided— I3 relay operates. If automatic intercept feature is provided— TST relay operated.
15	At outputser connector circuit— Momentarily connect ground to 12M of TP- relay.	At outputser made busy— I2 relay momentarily operated.
16	Momentarily connect ground to 11M of TP- relay.	I1 relay momentarily operated.
17	At outputser made busy— Block nonoperated SPL1 relay.	
18	Momentarily operate IK relay.	SPL relay momentarily operates.
19	Remove blocking tool from SPL1 relay.	
20f	If party test feature and or special toll or operator assistance trunks to TSP are provided— At outputser connector circuit— Momentarily connect ground to 10M of TP- relay.	At outputser made busy— I4 relay momentarily operated.
21d	If automatic intercept feature is provided— At outputser made busy— Remove blocking tool from INT relay.	INT relay operated. I3 relay releases.

STEP	ACTION	VERIFICATION
22d	At outputpulser connector circuit— Momentarily connect ground to 12M of TP-- relay.	At outputpulser made busy— INTB relay operated.
23d	Momentarily connect ground to 11M of TP-- relay.	INTA relay operates.
24d	Momentarily connect ground to 10M of TP-- relay.	INTC relay operated.
25g	If automatic intercept feature is not provided— Momentarily connect ground to 2M of TP-- relay.	TST relay momentarily operated.
26	At outputpulser connector circuit— Remove blocking tool from OP-- relay of first preferred outputpulser.	At outputpulser made busy— ◆CH1 relay operated.◆ ST relay releases. If I3 relay is provided— I3 relay releases. If automatic intercept feature is provided— TST relay releases.
27	Block nonoperated OP-- relay from which blocking tool was removed.	
28e	If party test feature is provided— At outputpulser made busy— Remove blocking tool from PIK relay.	
29c	If special toll or operator assistance trunks to TSP are provided— Remove blocking tool from ON1 relay.	DWA relay releases.
30	Remove blocking tools from TKC1, PK relays.	
31	Momentarily operate RL relay.	◆CH2 relay operated.◆
32	Remove blocking tools from TTST and TAL relays.	
33	At trouble ticketer frame— Remove make-busy plug from OP-B jack.	At outputpulser connector circuit— BY-- and OB-- relays release.
34h	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 operated.
35h	Repeat Steps 7 through 34.	
36	At outputpulser connector circuit— Remove all blocking tools from OP-- and TP-- relays.	

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STEP	ACTION	VERIFICATION
37	At trunk frames or outgoing trunk test frames— Remove plugs.	
38	Repeat Steps 1 through 37, as required, for each trunk subgroup and its connector.	
<b>D. Trunk Number Feature</b>		
5	At trouble ticketer frame— Insert make-busy plug into OP-B jack of any outpulser.	
6	At outpulser made busy— Block nonoperated TTST and TAL relays.	
7	Block operated TTC1 relay.	
8	At outpulser connector circuit— Remove blocking tool from OP-- relay of outpulser made busy.	
9	Block operated OP- relay from which blocking tool was just removed.	TKN relay in trunk subgroup under test operated.
10	At trunk frame— Block operated TKN relay.	
11	At trouble ticketer frame— Block operated CITN relay of trouble ticketer miscellaneous circuit.	
12	Operate TKL key.	At trouble ticketer frame— SGT- and SGU- lamps light for trunk subgroup under test.
13	At outpulser connector circuit— Operate momentarily TP00 relay of trunk subgroup under test.	At trouble ticketer frame— TK00 lamp lighted.
14	At trouble ticketer frame— Restore TKL key.	All lamps extinguished.
15	Operate TKL key.	SGT- and SGU- lamps lighted.
16	At outpulser connector circuit— Momentarily operate 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.

STEP	ACTION	VERIFICATION
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 outputpulser connector circuit— Block nonoperated OP-- relay from which blocking tool was removed.	
22	At outputpulser made busy— Momentarily operate RL relay.	
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 outputpulser is furnished— Insert make-busy plug into OP-B jack of next outputpulser.	
27c	Repeat Steps 6 through 26c for each remaining outputpulser 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. Outputpulser Busy

1	At trouble ticketer frame— Insert make-busy plug into OPOB jack	At outputpulser connector circuit— BY-- and all OB-- relay associated with outputpulser 0 operate. None of OP-- relays associated with outputpulser 0 operate to indicate connection to any trunk requesting outputpulser.
2	Remove make-busy plug.	BY-- and OB-- relays release.
3	Insert make-busy plug into OP-B jack for next outputpulser.	BY-- and all OB-- relays associated with next outputpulser operate. None of OP-- relays associated with outputpulser

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
		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 outpulser connector circuit— Block operated any TP-- relay in trunk subgroup under test.	
6	Operate manually each OB-- relay in connector under test except OB-- relay serving first outpulser.	All manually operated OB-- relays lock.
7	Momentarily operate OB-- relay serving first outpulser.	All OB-- relays release.
8	Operate manually each OB-- relay in connector under test except OB-- relay serving next outpulser.	All manually operated OB-- relays lock.
9	Momentarily operate OB-- relay for outpulser being checked.	All OB-- relays release.
10	Repeat Steps 8 and 9 for each remaining outpulser.	
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.	

STEP	ACTION	VERIFICATION
7	At outputpulser connector circuit— Remove blocking tool from OP-- relay of outputpulser made busy in connector of trunk subgroup under test.	
8	Block operated all OB-- relays in connector under test except OB-- relay of outputpulser made busy.	
9	Block nonoperated OB-- relay of outputpulser made busy.	
10	Block operated highest numbered TP-- relay in trunk subgroup under test.	OP-- relay operates for outputpulser made busy.
11	Remove blocking tool from TP-- relay.	TP-- and OP-- relays remain operated.
12	Momentarily operate next lower numbered TP-- relay in trunk subgroup under test.	Highest numbered TP-- relay releases. Next lower numbered TP-- relay remains operated.
13	Momentarily operate each preceding TP-- relay 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	Block nonoperated OP-- relay of outputpulser made busy in connector under test.	
16	Remove blocking tools from OB-- relays.	
17	At outputpulser made busy— Remove blocking tools from TTST, TAL, and RL relays.	
18	At trouble ticketer frame— Remove make-busy plug from OP-B jack.	
19c	If more than one outputpulser is furnished— Insert make-busy plug into OP-B jack for next outputpulser.	
20c	Repeat Steps 6 through 19c for each outputpulser.	
21c	Remove make-busy plug from OP-B jack.	
22	At outputpulser connector circuit— Remove blocking tools from OP-- relays.	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
23	At trunk frames or outgoing trunk test frames— Remove plugs.	
24	Repeat Steps 1 through 23, as required, for each trunk subgroup.	
<b>H. OB-- Relay Operate and Nonoperate Features</b>		
4	At trouble ticketer frame— Insert make-busy plug into OPOB jack of first outputer.	At outputer connector circuit— BY-- and OB-- relays operated.
5	At outputer made busy— Block nonoperated TTST and TAL relays.	
6	Block operated ST relay.	
7	At outputer connector circuit— Momentarily operate OP-- relay of outputer made busy in connector serving trunk subgroup under test.	Associated OB-- relay momentarily releases.
8	At outputer made busy— Momentarily operate RL relay.	
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 outputer is furnished— Insert make-busy plug into OP-B jack of next outputer.	BY-- and OB-- relays operated.
12c	Repeat Steps 5 through 11c for each outputer.	
13c	Remove make-busy plug from OP-B jack of last outputer.	
14	At trunk frames or outgoing trunk test frames— Remove plugs.	
15	Repeat Steps 1 through 14, as required, for each trunk subgroup.	