

LINE LINK CIRCUITS
TESTS USING OFFICE TEST FRAME
NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing line link circuits in No. 5 crossbar offices by using the office test frame (OTF).

1.02 The tests covered are:

A. Junctor Switch Make-Busy Feature and Line Link Availability: This test checks that a make-busy plug inserted into a JS- jack makes the correspondingly numbered junctor switch busy. It also checks that all line links are available for setting up a connection.

B. False Ground or Crosses on Adjacent Sleeve Leads — Line Switch End of Line Link: This test checks for a false ground or for a cross between adjacent sleeve (LL-) leads.

C. False Ground or Crosses on Adjacent Sleeve Leads — Junctor Switch End of Line Link: This test checks for a false ground or for a cross between adjacent sleeve (LB-) leads.

D. Crosses on Junctor Sleeve Leads: This test checks for a cross between two or more junctor sleeve leads.

E. Junctor Availability: This test checks that all the equipped juncctors are available for setting up the connection.

1.03 Test A is made in part with all junctor switches made busy.

1.04 Tests A through E are made having as many as 5, 6, 7, 8, or 9 junctor switches busy.

1.05 During Test A the failure to match register will score. The reporting of this register operation should be in accordance with local instructions.

2. APPARATUS

All Tests

2.01 349A make-busy plugs, as required.

Tests A, B, C, and E

2.02 32A test set.

2.03 Patching cord, P3K cord, 6 feet long, equipped with two 310 plugs (3P15A cord).

2.04 Patching cord, P3U cord, 7 feet long, equipped with one 310 plug and one 351A plug (3P27B cord).

Test B

2.05 Five testing cords, 893 cord, 3 feet long equipped with two 360A Tools (1W13A Cord), one 624B (Terminal Connector) Tool and one KS-6278 connecting clip.

Tests C and D

2.06 351C make-busy plugs, as required.

Tests D and E

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

Test E

2.08 322A make-busy plug.

2.09 Patching cords, as required, P3D cord, 6 feet long, equipped with two 309 plugs (3P3A Cord).

STEP	ACTION	VERIFICATION
Tests A, B, and E		
5	At line link frame — Patch P3U cord from SP jack to line link appearance selected in 3.01 for horizontal group 0.	
Test E		
6	At jack lamp and key circuit — Insert make-busy plug in M-D-MB jack of dial tone marker 0.	
7	At OTF — Operate MKR2 key.	
8	Select a particular originating register for test as follows: At jack, lamp and key circuit — (a) Patch P3D cord from OR jack of MB2 jack field to ORMB of originating register to be selected. (b) Patch P3D cord from 0 through 9 jacks of MB1 jack field to ORMB jacks of originating registers on same trunk link frame of selected originating register. (c) At OTF — Operate FS- key associated with trunk link frame of selected originating register.	

4. METHOD

STEP	ACTION	VERIFICATION
A. Junctor Switch Make-Busy Feature and Line Link Availability		
6	At line link frame — Insert make-busy plugs into JS0 through JS4 jacks and wait until all hold magnets on junctor half of the associated switches are released.	
7	Remove make-busy plug from JS0 jack.	
8	Operate white key on 32A test set momentarily.	At line link frame — Dial tone connection established using channel 0.
9	Operate red key on 32A test set momentarily.	Dial tone connection releases.
10	Replace make-busy plug in JS0 jack.	

STEP	ACTION	VERIFICATION
11	Repeat Steps 7, 8, 9, and 10 using jacks JS1 through JS4 for testing their respective junctor switches.	Dial tone connection established using channels 1 through 4.
12	Remove make-busy plugs from JS0 through JS4 jacks.	
13	Insert make-busy plugs into JS5 through JS9 jacks and wait until all hold magnets on junctor half of the associated switches are released.	
14	Insert make-busy plugs into JS0 through JS4 jacks.	
15	Remove make-busy plug from JS5 jack and repeat Steps 8 and 9.	Dial tone connection established using channel 5.
16	Replace make-busy plug in JS5 jack.	
17	Repeat Steps 15 and 16 using jacks JS6 through JS9 for testing their respective junctor switches.	Dial tone connection established using channels 6 through 9.
	Caution: Perform Steps 18 and 19 as quickly as possible since the line link is excluded from service.	
18	With all JS0 through JS9 make-busy plugs inserted, operate white key on 32A test set momentarily.	No dial tone connection established.
19	Operate red key on 32A test set momentarily.	
20	Remove make-busy plugs from JS5 through JS9 jacks.	
21	Move the P3U cord to an idle line link vertical in horizontal group 1.	
22	Repeat Steps 7 through 20 to test links associated with horizontal group 1.	Dial tone connection established using channels 0 through 9 for horizontal group 1.
23	Repeat Steps 21 and 22 for horizontal groups 2 through 9 for testing their respective linkage.	Dial tone connection established using channels 0 through 9 for their respective horizontal groups 2 through 9.
24	Remove all make-busy plugs from JS0 through JS9 jacks.	
25	Remove patch cord from SP jack and line vertical.	
26	Remove 32A test set from RC jack.	
27	At jack, lamp and key circuit — Remove patch cord from SP and OTL jacks.	

STEP	ACTION	VERIFICATION
	B. False Ground or Crosses on Adjacent Sleeve Leads — Line Switch End of Line Link	
6	At line link frame — Insert make-busy plugs into JS0, JS2, JS4, JS6, JS8 jacks.	
7	Wait until all hold magnets release on juncture switches 0, 2, 4, 6, and 8.	
8	Using 893 cord, connect ground to 00, 02, 04, 11, and 13 punchings of A (LLC-A2) terminal strip.	
9	Remove make-busy plugs from all JS- jacks.	
10	Insert make-busy plug into JS1 jack and wait for all hold magnets to release on juncture switch 1.	
11	Remove make-busy plug from JS1 jack.	
12	Operate white key on 32A test set momen- tarily.	At line link frame — Dial tone connection established on chan- nel 1.
13	Operate red key on 32A test set momen- tarily.	Dial tone connection releases.
14	Repeat Step 10 using JS3 jack.	
15	Insert make-busy plug into JS1 jack.	
16	Repeat Steps 11, 12, and 13 for testing juncture switch 3.	Dial tone connection established on chan- nel 3.
17	Repeat Steps 10 through 13 until JS5, JS7, JS9 switches are tested.	Dial tone connections are established using channels 5, 7, and 9.
18	Remove all make-busy plugs from JS- jacks.	
19	Move P3U cord to an idle line link vertical in horizontal group 1.	
20	Repeat Steps 10 through 19 until all hori- zontal groups 2 through 9 have been tested.	
21	Remove test connections from A (LLC-A2) terminal strip.	
22	Remove patch cord from SP jack and line vertical.	
23	Remove 32A test set from RC jack.	
24	At jack, lamp and key circuit — Remove patch cord from SP and OTL jacks.	

STEP	ACTION	VERIFICATION
C. False Ground or Crosses on Adjacent Sleeve Leads — Juncture Switch End of Line Link		
6	At line link frame — Insert make-busy plugs into JS0 through JS4 jacks and wait until all hold magnets on junctor switches 0 through 4 release.	
7	Manually operate LJ0 select magnet of junctor switch 0 and insert a 351C plug into sleeve holding jack of J0 junctor hold magnet. <i>Caution: It should be noted that a make-busy plug inserted into a JS- jack does not make busy the line switch half of the switch. When manually operating the select magnets, inspect the line switch part to insure that double crosspoints are not engaged if a service call is completed at this time.</i>	At line link frame — J0 junctor hold magnet operated and associated crosspoints closed.
8	Repeat Step 7 for LJ2, LJ4, LJ6, LJ8, select magnets of junctor switch 0, except each time insert a 351C plug into associated sleeve holding jack for junctor hold magnets 1, 2, 3, and 4.	J1 through J4 junctor hold magnets operated with their respective crosspoints closed.
9	Repeat Steps 7 and 8 for junctor switches 1, 2, 3, and 4.	
10	Patch P3U cord from SP jack to an idle line link vertical in horizontal group 1.	
11	Remove make-busy plug from JS0 jack.	
12	Operate white key on 32A test set momentarily.	Dial tone connection established in channel 0.
13	Operate red key on 32A test set momentarily.	Dial tone connection released.
14	Replace make-busy plug into JS0 jack.	
15	Repeat Steps 11 through 14, removing make-busy plugs in turn from JS1 through JS4 and testing their respective junctor switches.	Dial tone connection established using channels 1 through 4.
16	Repeat Steps 10 through 15 for horizontal groups 3, 5, 7, 9.	
17	Remove make-busy plugs from all sleeve holding jacks.	
18	Remove make-busy plugs from JS0 through JS4 jacks.	

STEP	ACTION	VERIFICATION
19	Repeat Steps 6 through 9 for junctor switches 5 through 9.	
20	Insert make-busy plugs into JS0 through JS4.	
21	Remove make-busy plug from JS5 jack.	
22	Operate white key on 32A test set momentarily.	Dial tone connection established using channel 5.
23	Operate red key on 32A test set momentarily.	Dial tone connection released.
24	Insert make-busy plug into JS5 jack.	
25	Repeat Steps 15 and 16 removing make-busy plugs in turn from JS6 through JS9 and testing their respective junctor switches.	Dial tone connections established using channels 6 through 9.
26	Remove make-busy plugs from all sleeve holding jacks.	
27	Remove make-busy plugs from all JS-jacks.	
28	Remove patch cord from SP jack and line vertical.	
29	Remove 32A test set from RC jack.	
30	At jack, lamp and key circuit — Remove patch cord from SP and OTL jacks.	

D. Crosses on Junctor Sleeve Leads

1	At line link frame — Insert make-busy plugs into JS0 through JS4 jacks and wait until all hold magnets release on their respective junctor switches.	
2	Block nonoperated the J0 junctor hold magnet on switch 4.	
3	Insert 351C plug into sleeve holding jack of J0 junctor hold magnet.	At line link frame — No junctor hold magnet operates. Note: A service call may operate a hold magnet at the time this step is performed. If this occurs, remove the make-busy plug and repeat Step 3.
4	Remove make-busy plug from sleeve holding jack.	
5	Remove blocking tool from hold magnet.	
6	Repeat Steps 2 through 5 on J1 through J9 hold magnets for junctor switch 4.	Same as Step 3.
7	Remove make-busy plug from JS4.	

STEP	ACTION	VERIFICATION
8	Repeat Steps 2 through 7 on junctor switches 3, 2, 1, 0.	Same as Step 3.
9	Repeat Steps 1 through 8 on junctor switches 5 through 9.	Same as Step 3.
E. Junctor Availability		
9	At dial tone marker 0 — Block nonoperated SQA relay.	
10	Manually operate relay JSQ0.	
11	Block nonoperated JSQ1.	
12	At line link frame — Insert make-busy plugs into JS0 through JS4 jacks and wait until all hold magnets release on their associated junctor switches.	
13	Remove make-busy plug from JS0 jack.	
14	Operate white key on 32A test set momentarily.	At line link frame — Note that dial tone connection is established using junctor switch 0 and proper vertical is used for junctor subgroup 0 (3.02).
15	Operate red key on 32A test set momentarily.	Dial tone connection releases.
16	Insert make-busy plug into JS0 jack.	
17	Repeat Steps 13 through 16 using JS1 through JS4 jacks.	Proper junctor switches 1 through 4 used on dial tone connection and correct vertical for junctor subgroup 0 is used (3.02).
18	Repeat Steps 12 through 17 using JS5 through JS9 jacks.	Proper junctor switches 5 through 9 used on dial tone connection and correct vertical for junctor subgroup 0 is used (3.02).
19	Remove make-busy plugs from all JS-jacks.	
20	Repeat Step 8 to select originating register located on a different trunk link frame.	
21	Repeat Steps 12 through 20 for each trunk link frame.	

For Line Link Junctor Verticals Other Than Junctor Subgroup 0

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|----|---|
| 22 | Refer to Table B and determine junctor subgroup number from line link vertical number of junctor switch. |
| 23 | Refer to Table A to determine the JSQ and STP- relays required for selection of the junctor subgroup determined in Step 22. |

STEP**ACTION****VERIFICATION**

- 24 Repeat Steps 9, 10, and 11 to block non-operated the proper JSQ- relays. When STP2 is required, block operated STP2 relay.
- 25 Repeat Steps 12 through 24 selecting channels between line link frame and selected trunk link frames.
- 26 Remove patch cord from SP jack and line vertical.
- 27 Remove 32A test set from RC jack.
- 28 At marker —
Remove blocking tools from SQA, JSQ- and STP2 relays.
- 29 At jack, lamp and key circuit —
Remove patch cord from SP and OTL jacks.
- 30 Remove make-busy plug from M-D-MB jack.

