CAMA POSITION LINK CIRCUIT SD-26047-01

TESTS

NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing the CAMA position link circuit SD-26047-01 in No. 5 crossbar offices when associated with switchboards both locally and remotely located using loop supervision, and with switchboards remotely located, using E and M lead supervision.

1.02 The reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes. This reissue does not affect Equipment Test Lists.

(a) To add to paragraph 1.05 that these tests shall be performed during periods of light load.

(b) To make minor changes as required.

1.03 The tests covered are:

1.04 When CAMA switchboards are locally located, Tests A, D, G, and H may operate traffic registers associated with PC-PD lead. Test I will operate traffic registers associated with PC_ lead. Local instructions should be followed for recording and reporting these operations.

1.05 Tests A, B, C, and L require that all CAMA senders in subgroup A be made busy. Tests D, E, F, and M require that all CAMA senders in subgroup B be made busy. ⧫These tests shall be performed during periods of light traffic.⧫

1.06 ***Lettered Steps:*** 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.

1.07 The manner of selecting some circuits and test conditions at the master test frame (MTF) and its associated circuits varies depending on the apparatus options furnished with these circuits. Therefore, where variable means of selection are provided, precise instructions for the selection of circuits and test conditions are not given. Precise instructions for the use of these variable means are given in Section 218-106-301.

1.08 The location statement, At MTF—, is used to refer to all apparatus located on the four basic bays of the MTF.

1.09 On Issue 76D of SD-25800-01, a group of 18 "class of test" lamps was replaced by a single "start test" lamp designated STT. Since the designation given to the lamp is not specific, the lamp will not be called out in the section, as well as the 18 discontinued lamps, such as DT, ORIG, ITDO, ITNP, OGT, etc.

2. APPARATUS

Tests A Through F, L, M

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

2.02 165C (dummy) plug or equivalent.

Tests A Through F, H, I, J, L, M

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

Tests A, B, D, E, L, M

2.04 Three testing cords, 893 cord, 6 feet long, each equipped with two 360A tools (1W13B cord) and two 639A tools (for establishing test connections between fixed contacts of wire-spring-type relays).

2.05 Three 651A tools (used to guide and hold the 639A tool to the fixed contact of a wire-spring-type relay).

Tests C, F, G, H, I

2.06 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two 624A (terminal connector) tools (for establishing

test connections between winding terminals of wire-spring-type relays).

Tests G, H, I

2.07 Test circuit for register and CAMA sender circuits, SD-25988-01.

2.08 Test set circuit for register and CAMA sender circuits (test set), SD-25676-01.

2.09 Master test control circuit, SD-25800-01.

2.10 Testing cord assembly, 20-conductor cord, 6 feet long, equipped with one KS-14460, L3 plug and one KS-14461, L3 plug (W20C cord) (for connecting IRT jack of test set to IRT jack of test circuit for register and CAMA sender circuits.

2.11 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and one 624A terminal connector (for connecting ground to relay winding terminal).

Test I

2.12 67C test set or equivalent, equipped with one KS-6278 connecting clip and one 419A tool (for checking presence of order tone or ground).

Test K

2.13 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two KS-6278 connecting clips (for connecting ground to A and B resistors).

Tests L, M

2.14 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and one 639A tool (for connecting ground to fixed contacts of wire-spring-type relays).

2.15 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one 639A tool, and one 624B tool (for establishing test connections between fixed contacts of wire-spring-type relays and terminal strip terminals).

2.16 Four 651C tools (use to guide and hold the 639A tool to the fixed contact of a wire-spring-type relay).

3. PREPARATION

STEP	ACTION	VERIFICATION
	Note: Refer to paragraphs 1.06, 1.07, 1.08 and 1.09.	
	Tests A Through F	
1	At CAMA calls-waiting signal circuit— Insert dummy plug into jack A.	
2	Block operated WH relay.	
	Tests A, C, D, F	
3	At position link frame— Block nonoperated all TM relays.	

STEP	ACTION	VERIFICATION
Tests A, B, C, L		
4	At MTF— Insert make-busy plugs into SMB_ jacks of all CAMA senders in subgroup A.	
Tests A B, C		
5	At position link frame— When all SP relays of subgroup A are released— Block operated GA relay.	
Tests A, B		
	Note: Before proceeding, verify that operators have occupied positions in numerical sequence. For example, for one operator, position 0; two operators, positions 0, 1, etc.	
6	Connect 2F of PPB relay of last occupied position to 2F of PPB relay of last position.	
7	Connect 11F of PPB relay of last occupied position to 11F of PPB relay of last position.	
8	Block nonoperated PPB relays of unoccupied positions.	
9a	If CAMA switchboards are locally located— Block operated P relays of unoccupied positions.	
10b	If CAMA switchboards are remotely located— Block operated P1 relays of unoccupied positions.	
Tests D, E, F, M		
11	At MTF— Insert make-busy plugs into SMB_ jacks of all CAMA senders in subgroup B.	
Tests D, E, F		
12	At position link frame— When all SP relays of subgroup B are released— Block operated GB relay.	
Tests D, E		
	Note: Before proceeding, verify that operators have occupied positions in numerical sequence. For example, for one operator, position 0; two operators, positions 0, 1, etc.	

STEP	ACTION	VERIFICATION
13	Connect 2F of PPA relay of last occupied position to 2F of PPA relay of last position.	
14	Connect 11F of PPA relay of last occupied position to 11F of PPA relay of last position.	
15	Block nonoperated PPA relays of unoccupied positions.	
16a	If CAMA switchboards are locally located— Block operated P relays of unoccupied positions.	
17b	If CAMA switchboards are remotely located— Block operated P1 relays of unoccupied positions.	
Tests G, H, I		
18	At MTF— Restore all keys and switches.	
19	Momentarily operate RL key.	All lamps extinguished.
20	Patch IRT jack of test set circuit for register and CAMA sender circuits to IRT jack of test set.	
21	Select completing marker.	
22	Select A through K digits as required for a called number.	
23	Operate ST1, TLK keys.	
24	Select INC class of call with LT translator indication.	
25	Select CAMS class of test.	
26	Select trunk number for any CAMA trunk.	
27	Operate ORC_ key for originating rate.	
28	Select recorder.	
29	Select CAMA sender.	
30	Set MF switch to MAX L.	
31	At test set— Set L switch to OFF.	

STEP	ACTION	VERIFICATION
Test L		
	Note: This test shall only be performed during periods of light load.	
32	Connect 3F of AM relay to 6F of PPB relay for last position in sender subgroup B.	
33	Connect 5F of AM relay to terminal 26 of terminal strip C on position unit 0.	
34	Insulate 9M of BM relay.	
35	Connect 9F of BM relay to 8F of PO relay for first position in sender subgroup B.	
Test M		
	Note: This test shall only be performed during periods of light load.	
36	Connect 10F of BM relay to 6F of PPA relay for last position in sender subgroup A.	
37	Connect 8F of BM relay to terminal 16 of terminal strip C on position unit 0.	
38	Insulate 4M of AM relay.	
39	Connect 4F of AM relay to 5F of PO relay for first position in sender subgroup A.	

4. METHOD

STEP	ACTION	VERIFICATION
A. Position Availability—Call From CAMA Sender in Subgroup A		
	Note: ▶Refer to paragraph 1.05.◀	
11	At CAMA sender frame— Starting with most preferred sender in subgroup A and proceeding, in succession, to the least preferred sender— Connect ground to upper winding terminal of PLST relay.	At position link frame— All SP relays of sender subgroup A operated.
	Note: The order of preference for SP relays in subgroup A is as follows: SP00 to SP04, SP20 to SP24, SP10 to SP14, SP30 to SP34.	

STEP	ACTION	VERIFICATION
12	Notify chief CAMA operator that the positions will receive indications of what appear to be a series of abandoned calls.	
13	At position link frame— Remove blocking tool from GA relay.	SP relays release in order of preference. After all SP relays have released— All SP relays operated and cycle is repeated. PPA relays momentarily operated, in sequence, from lower to higher numbered positions. After last PPA relay has momentarily operated— First PPA relay momentarily operated and cycle is repeated.
14	Block operated GA relay.	
15	At CAMA sender frame— Remove test connection from PLST relay.	At position link frame— All SP relays of sender subgroup A released.
16	Remove test connections from PPB relays.	
17	Remove blocking tools from TM, P or P1, PPB, GA relays.	
18	At CAMA calls-waiting signal circuit— Remove dummy plug from jack A.	
19	Remove blocking tool from WH relay.	
20	At MTF— Remove make-busy plugs from SMB_ jacks.	

B. Position Timing—Call From CAMA Sender in Subgroup A

Note: ◗Refer to paragraph 1.05◖

11	Block operated first SP relay in subgroup A.	After 1 second interval— AL lamps lighted in sequence of position preference.
12	Remove blocking tool from SP relay.	
13	Momentarily operate AR key.	All AL lamps extinguished.
14	Repeat Steps 11, 12, 13 for all other SP relays in subgroup A.	
15	Remove test connections from PPB relays.	
16	Remove blocking tools from P or P1, PPB, GA relays.	

STEP	ACTION	VERIFICATION
17	At CAMA calls-waiting signal circuit— Remove dummy plug from jack A.	
18	Remove blocking tool from WH relay.	
19	At MTF— Remove make-busy plugs from SMB_ jacks.	

C. CAMA Sender Subgroup Preference—Call to Even-Numbered Position

Note: ◗Refer to paragraph 1.05.◖

6	At CAMA sender frame— In most preferred sender in subgroup A— Connect ground to upper winding terminal of PLST relay.	At position link frame— SP00 relay operated.
7	After verifying that an even-numbered position is occupied— Connect upper winding terminal of PSA relay to upper winding terminal of PSB relay in selected position.	When a service call is served by selected position as indicated by simultaneous operation of PSA, PSB relays— Hold magnet for selected position on link switch 1 or 3 operated during operator holding time. Hold magnet for the selected position on link switch 0 not operated.
8	Remove test connections from PSA, PSB relays.	
9	Repeat Step 7 for all other even-numbered positions.	
10	At CAMA sender frame— Remove test connection from PLST relay.	
11	At position link frame— Remove blocking tools from TM, GA relays.	
12	At CAMA calls-waiting signal circuit— Remove dummy plug from jack A.	
13	Remove blocking tool from WH relay.	
14	At MTF— Remove make-busy plugs from SMB_ jacks.	

STEP	ACTION	VERIFICATION
D.	**Position Availability—Call From CAMA Sender in Subgroup B**	
	Note: ▶Refer to paragraph 1.05.◀	
18	At CAMA sender frame— Starting with most preferred sender in subgroup B and proceeding, in sequence to the least preferred sender— Connect ground to upper winding terminal of PLST relay. ***Note:*** The order of preference of SP relays in subgroup B is as follows: SP05 to SP09, SP25 to SP29, SP15 to SP19, SP35 to SP39.	At position link frame— All SP relays of sender subgroup B operated.
19	Notify chief CAMA operator that the positions will receive indications of what appear to be a series of abandoned calls.	
20	At position link frame— Remove blocking tool from GB relay.	SP relays released in order of preference. After all SP relays have released— All SP relays operated and cycle is repeated. PPB relays momentarily operated in sequence from lower to higher numbered positions. After last PPB relay has momentarily operated— First PPB relay momentarily operated and cycle is repeated.
21	Block operated GB relay.	
22	At CAMA sender frame— Remove test connections from PLST relay.	At position link frame— All SP relays of sender subgroup B released.
23	Remove test connections from PPA relays.	
24	Remove blocking tools from TM, P or P1, PPA, GB relays.	
25	At CAMA calls-waiting signal circuit— Remove dummy plug from jack A.	
26	Remove blocking tool from WH relay.	
27	At MTF— Remove make-busy plugs from SMB_ jacks.	

STEP	ACTION	VERIFICATION
E. Position Timing—Call From CAMA Sender in Subgroup B		
	Note: ◗Refer to paragraph 1.05.◖	
18	Block operated first SP relay in subgroup B.	After 1 second interval— AL lamps lighted in sequence of position preference.
19	Remove blocking tool from SP relay.	
20	Momentarily operate AR key.	All AL lamps extinguished.
21	Repeat Steps 18, 19, 20 for all other SP relays in subgroup B.	
22	Remove blocking tools from P or P1, PPA, GB relays.	
23	Remove test connections from PPA relays.	
24	At CAMA calls-waiting signal circuit— Remove dummy plug from jack A.	
25	Remove blocking tool from WH relay.	
26	At MTF— Remove make-busy plugs from SMB_ jacks.	
F. CAMA Sender Subgroup Preference—Call to Odd-Numbered Position		
	Note: ◗Refer to paragraph 1.05.◖	
13	At CAMA sender frame— In most preferred sender in subgroup B— Connect ground to upper winding terminal of PLST relay.	At position link frame— SP05 relay operated.
14	After verifying that an odd-numbered position is occupied— Connect upper winding terminal of PSA relay to upper winding terminal of PSB relay in selected position.	When a service call is served by selected position as indicated by simultaneous operation of relays PSA, PSB— Hold magnet for the selected position on link switch 0 or 2 operated during operator holding time. Hold magnet for selected position on link switch 1 not operated.
15	Remove test connections from PSA, PSB relays.	

STEP	ACTION	VERIFICATION
16	Repeat Steps 14, 15 for all other odd-numbered positions.	
17	At CAMA sender frame— Remove test connection from PLST relay.	
18	At position link frame— Remove blocking tools from TM relays.	
19	Remove blocking tool from GB relay.	
20	At CAMA calls-waiting signal circuit— Remove dummy plug from jack A.	
21	Remove blocking tool from WH relay.	
22	At MTF— Remove make-busy plugs from SMB_ jacks.	
G. Position Reorder		
32	At MTF— Select CAMA position 0.	
33	Momentarily operate ST key.	CAMA, POSC lamps lighted. High tone heard. At test set— P lamp lighted.
34	Simultaneously operate two digit keys.	If CAMA switchboards are locally located— P lamp flashes at reorder rate. If CAMA switchboards are remotely located— IAOF lamp lighted.
35	At MTF— Momentarily operate RL key.	All lamps extinguished. High tone silenced.
36	Repeat Steps 32 through 35 for all other positions.	
37	Restore all keys and switches not required in next test.	
H. Position Disconnect		
32	At MTF— Select CAMA position 0.	
33	Momentarily operate ST key.	CAMA, POSC lamps lighted. High tone heard. At test set— P lamp lighted.

STEP	ACTION	VERIFICATION
34	Momentarily operate STT key.	P lamp extinguished.
35	At MTF— Momentarily operate RL key.	All lamps extinguished. High tone silenced.
36	Repeat Steps 32 through 35 for all other positions.	
37a	If CAMA switchboards are locally located— At position link frame— After verifying that a position under test is unoccupied— Block operated ST1 relay.	PD relay operated.
38a	Remove blocking tool from ST1 relay.	PD relay released.
39a	Block operated SWA relay.	PD relay operated. Major alarm sounds.
40a	Remove blocking tool from SWA relay.	PD relay released.
41a	Momentarily operate AR key.	Major alarm silenced.
42a	Repeat Steps 37a through 41a for all other positions.	
43b	If CAMA switchboards are remotely located— At position link frame— After verifying that a position under test is unoccupied— Block operated ST1 relay.	TMA, TM relays operated. In 1 to 2 seconds— PD1 relay operated. Major alarm sounds.
44b	Remove blocking tool from ST1 relay.	TMA, TM, PD1 relays released.
45b	Momentarily operate AR key.	Major alarm silenced.
46b	Repeat Steps 43b, 44b, 45b for all other positions.	
47	At MTF— Restore all keys and switches not required in next test.	

I. Position Order Tone

32	At MTF— Insulate 3B of TBC relay.	
33	Connect test set to 4B of TBC relay and ground.	

STEP	ACTION	VERIFICATION
34	Insert make-busy plug into SMB_ jack of CAMA sender selected for test.	
35	Select CAMA position 0.	
36	Momentarily operate ST key.	Double order tone heard in test set.
37	Momentarily operate RL key.	Double order tone silenced.
38	Repeat Steps 35, 36, 37 for all other positions.	
39	At CAMA sender frame— In sender selected for test— Connect upper winding terminal of AIF relay to upper winding terminal of PST relay.	
40	At MTF— Select CAMA position 0.	
41	Momentarily operate ST key.	Single order tone heard in test set.
42	Momentarily operate RL key.	Single order tone silenced.
43	Repeat Steps 40, 41, 42 for all other positions.	
44	Remove test connection and insulator from TBC relay.	
45	At CAMA sender frame— Remove test connections from AIF, PST relays.	
46	At MTF— Remove plug from SMB_ jack.	
47	Restore all keys and switches.	

J. Position Busy

1	At position link frame— After verifying that position 0 is unoccupied— In unit for position 0— Block nonoperated PO relay.	
2a	If CAMA switchboards are locally located— Block operated P relay.	PO relay energized.
3a	Block operated PD relay.	PO relay ***not*** energized.
4a	Remove blocking tool from PD relay.	PO relay energized.

STEP	ACTION	VERIFICATION
5b	If CAMA switchboards are remotely located— Block operated P1 relay.	PO relay energized.
6	Block operated TU relay.	PO relay ***not*** energized.
7	Remove blocking tool from TU relay.	PO relay energized.
8	Block operated ON relay.	PO relay ***not*** energized.
9	Remove blocking tool from ON relay.	PO relay energized.
10	Block nonoperated TM relay.	
11	Block operated ST1 relay.	PO relay ***not*** energized.
12	Remove blocking tools from ST1 relay, then TM relay.	PO relay energized.
13	Block nonoperated SWB relay.	
14	Block operated SWA relay.	PO relay ***not*** energized.
15	Remove blocking tools from SWA relay, then SWB relay.	PO relay energized.
16	Set MB switch to MB.	PO relay ***not*** energized. MB lamp lighted.
17	Restore MB switch to N.	PO relay energized. MB lamp extinguished.
18	Remove blocking tools from P or P1 relay, then PO relay.	
19	Repeat Steps 1 through 18 for positions 1 through 9, as required.	

K. Timing Chain Alarms

1	At position link frame— Connect ground to center terminal of resistor A.	TA relay momentarily released. TA lamp lighted. Minor alarm sounds.
2	Remove ground from resistor A.	
3	Momentarily operate AR key.	TA relay remained operated. TA lamp extinguished. Minor alarm silenced.
4	Connect ground to center terminal of resistor B.	TB relay momentarily released. TB lamp lighted. Minor alarm sounds.

STEP	ACTION	VERIFICATION
5	Remove ground from resistor B.	
6	Momentarily operate AR key.	TB relay remained operated. TB lamp extinguished. Minor alarm silenced.

L. Alternate Subgroup Preference Subgroup A (Option K Only)

Note: ◗Refer to paragraph 1.05.◖

36	After verifying that an even numbered position is unoccupied— Block operated PPB, PPA, and ST1 relays.	
37	Block nonoperated NB relay.	
38	Block operated SP00 relay.	BM relay operated.
39	Block nonoperated GA relay.	
40	Block operated NB relay.	BM relay does not release.
41	Block operated GA relay.	BM relay released.
42	Remove blocking tool from NB relay.	NB relay does not release.
43	Block nonoperated GA relay.	NB relay released and BM relay operated.
44	Block nonoperated NB relay.	
45	Block operated GA relay.	
46	Remove blocking tools from PPB, PPA and ST1 relays.	BM relay does not release.
47	Block operated NB relay.	BM relay released.
48	Remove blocking tools from GA, SP00, and NB relays.	
49	Repeat Steps 36, 37, 38, 46, and 48 for all other even-numbered positions.	
50	Repeat steps 36, 37, 38, 46, and 48 for all other SP relays associated with sender subgroup A.	
51	Block operated BM relay.	
52	Insulate 10B of GB relay.	

STEP	ACTION	VERIFICATION
53	Block nonoperated GA relay.	
54	Block nonoperated all PPA relays.	
55	Block operated AM relay.	
56	Insulate 10M of PO relay associated with an unoccupied position.	
57	Block operated same PO relay.	
58	Momentarily connect 10F of GB relay to 6F of PPA relay for last position in sender subgroup A.	NA relay momentarily operated.
59	Block nonoperated BM relay.	NA relay operated.
60	Remove insulation from 10B of GB relay.	
61	Remove blocking tools from all PPA relays, BM, PO, AM, and GA relays.	NA relay released.
62	Remove insulation from 10M of PO relay.	
63	Block operated GA relay.	
64	Block nonoperated NB and BM relays.	
65	Block operated SP00 relay.	Ground present at 8M of all PSA relays.
66	Block operated BM relay.	Ground absent from 8M of all PSA relays.
67	Block operated NB relay.	Ground present at 8M of all PSA relays.
68	Remove blocking tools from BM, NB, GA, and SP00 relays.	
69	After verifying that an odd numbered position is unoccupied— Block operated PPB, PPA, and ST1 relays.	
70	Momentarily connect ground to 8F of SWA relay.	PO relay momentarily operated.
71	Remove blocking tools from PPB, PPA and ST1 relays.	
72	Repeat Steps 68, 69, and 70 for all other odd numbered positions.	
73	Remove test connections from AM, GB, and NB relays.	

STEP	ACTION	VERIFICATION
74	Remove insulator from BM relay.	
75	At MTF— Remove make-busy plugs from SMB jacks.	

M. Alternate Subgroup Preference Subgroup B (Option K Only)

Note: ◗Refer to paragraph 1.05.◖

40	After verifying that an odd numbered position is unoccupied— Block operated PPB, PPA, and ST1 relays.	
41	Block nonoperated NA relay.	
42	Block operated SP05 relay.	AM relay operated.
43	Block nonoperated GB relay.	
44	Block operated NA relay.	AM relay does not release.
45	Block operated GB relay.	AM relay released.
46	Remove blocking tool from NA relay.	NA relay does not release.
47	Block nonoperated GB relay.	NA relay released and AM relay operated.
48	Block nonoperated NA relay.	
49	Block operated GB relay.	
50	Remove blocking tools from PPB, PPA, and ST1 relays.	AM relay does not release.
51	Block operated NA relay.	AM relay released.
52	Remove blocking tool from GB, relay.	
53	Remove blocking tool from SP05 and NA relays.	
54	Repeat Steps 40, 41, 42, 50, and 53 for all other odd numbered positions.	
55	Repeat Steps 40, 41, 42, 50, and 53 for all other SP relays associated with sender subgroup B.	
56	Block operated AM relay.	
57	Insulate 3B of GA relay.	

STEP	ACTION	VERIFICATION
58	Block nonoperated GB relay.	
59	Block nonoperated all PPB relays.	
60	Block operated BM relay.	
61	Insulate 2M of PO relay associated with an occupied position.	
62	Block operated same PO relay.	
63	Momentarily connect 3F of GA relay to 6F of PPB relay for last position in sender subgroup B.	NB relay momentarily operated.
64	Block nonoperated AM relay.	NB relay operated.
65	Remove insulations from 3B of GA relay.	
66	Remove blocking tools from all PPB relays, BM, PO, GB, and AM relays.	NB relay released.
67	Remove insulation from 2M of PO relay.	
68	Block operated GB relay.	
69	Block nonoperated NA and AM relays.	
70	Block operated SP05 relay.	Ground present at 8M of all PSB relays.
71	Block operated AM relay.	Ground absent from 8M of all PSB relays.
72	Block operated NA relay.	Ground present at 8M of all PSB relays.
73	Remove blocking tools from AM, NA, GB, and SP05 relays.	
74	After verifying that an even numbered position is unoccupied— Block operated PPB, PPA, and ST1 relays.	
75	Momentarily connect ground to 8F of SWA relay.	PO relay momentarily operated.
76	Remove blocking tools from PPB, PPA, and ST1 relays.	
77	Repeat Steps 73, 74, and 75 for all other even numbered positions.	
78	Remove test connections from BM, GA, and NA relays.	

STEP	ACTION	VERIFICATION
79	Remove insulators from BM relay.	
80	At MTF— Remove make-busy plugs from SMB jacks.	