ORIGINATING MARKER

TESTS USING ORIGINATING TROUBLE INDICATOR

NO. 1 CROSSBAR OFFICES

1. GENERAL

PAGE

1.01 This section describes a method of testing originating marker circuits using the originating trouble indicator.

1.02 The reasons for reissuing this section are listed below:

(a) Add Step 1a in Part 3, PREPARATION.

(b) Correct the jack designation referred to in Test J.

(c) Revise all tests to include steps for cancelling printout in offices equipped with automatic trouble analysis.

This reissue does not affect the Equipment Test List.

1.03 The tests covered are:

1.04 In describing these tests, only one operation of the ST key (or 32A test set) to start the test call and one operation of the RL key to release the test call is mentioned for each test. However, it may be desirable to start and release test calls a great many times in order to observe different relays, etc, on each test call rather than to block enough relays to observe the same operation on one test call. By the same token it should be assumed that, if a particular test or all tests are to be applied to all markers, the DT (decoder test) key should be changed for each marker respectively and the test repeated.

1.05 Since the tests outlined in this section tend to delay service, precautions should be taken to avoid adversely affecting service.

1.06 Codes such as calls over distant office trunks, etc, appearing in the "A" switchboard multiple, that do not require the marker stage may also be tested. These codes function similarly to a call requiring the marker stage up to actual closure of ground to lead RL which in service is a signal to the sender to release the marker connector. However, on a test call a record of all conditions in the marker is made before releasing it.

1.07 *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.

1.08 To control tests of a marker while watching the operation of that marker or the operation of an office or district frame, plug the 32A test set into the F jack of the frame to be observed. Momentary operation of the white button, which corresponds to the ST key of the trouble indicator, causes the start of the call. Momentary operation of the red button, which corresponds to the RL key of the trouble indicator, causes the release of the information recorded in the trouble indicator and restores the circuits to normal.

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

1.10 The performance of the following tests requires action or verification at the locations indicated below, in addition to the action or verification at the originating trouble indicator:

Test A—action at the district link frame ▶and marker frame◀

Test B, C, and D—action at the outgoing trunk test frame

Test E—action at the district link and office link frame, ▶verification at district link frame.◀

Test F—action at the office link frame

Test G—action ▶and verification◀ at the originating marker frame

Test H—action and verification at originating marker, originating marker connector frame, ▶and sender make-busy frame.

Tests I and M—action at the originating marker frame.◀

2. APPARATUS

2.01 The apparatus required for each test is shown in Table A. The details of each item are covered in the paragraphs indicated by the numbers in parentheses.

2.02 Originating trouble indicator, SD-25018-01.

2.03 KS-3008 stopwatch or equivalent.

2.04 716C receiver attached to a W2AB cord equipped with two 360A tools (2W21A cord), one KS-6278 connecting clip, and one 411A (test pick) tool.

2.05 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and a 419A (test connector) tool.

2.06 351C (vertical unit make-busy) plug.

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

3. PREPARATION

▶ALL TESTS

STEP	ACTION	VERIFICATION
1a	If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Insert MB plug into CATA jack.	CATA lamp lighted.◀

Tests A Through I, M, O, P, Q, R

STEP	ACTION	VERIFICATION
2	At trouble indicator— Restore all operated keys.	

| STEP | ACTION | VERIFICATION |

TABLE A

APPARATUS	TESTS																	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Trouble indicator (2.02)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
32A test set					1		1	1										
Stopwatch (2.03)								1										
Headset (2.04)								1										
Cord (2.05)						1		1										
351C plug (2.06)					✔													
322A (make-busy) plugs	1	✔	✔	✔	✔	1	1	1	1		1	✔	1	1	1	1	1	1
349A (make-busy) plug					✔													
329A (make-busy) plugs	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Tool (2.07)	✔					✔	✔	✔					✔					

✔ As required.

3   Insert make-busy plug into DB_ jack of marker to be tested.

Note: When the GSE key is furnished and it is desired to make a rapid test of group start and group end of trunk groups, it will not be necessary to remove the marker from service. However, when testing ANI trunk groups arranged for 2-party service which require relays to be blocked, the marker must be removed from service.

4   Operate DT key corresponding to marker to be tested.

5   Operate LP key.

6b   If provided, and test calls are made using an extended area code—
Operate EA key.

STEP	ACTION	VERIFICATION

4. METHOD

STEP	ACTION	VERIFICATION

A. Simulation of a Normal Service Call

7   Set up required test call by operating proper keys A⌐, B⌐, C⌐, CS⌐, and F⌐, also ZCT_ (if required).

8c   If access code digit "zero" is required— Operate CC7 key.

9d   If access code digit "one" is required— Operate CC8 key.

10e   If marker is wired for access code screening and access code zero or one is not required— Operate CC0 key.

11f   If marker is wired for access code screening and call from a KP sender is to be simulated— Operate CC9 key.

12g   If office is arranged for 1-1 dialing and a test is to be made of a code in the extended area— Operate EA key.

13   Momentarily operate ST key.

Proper MB, MS, and CC_ lamps lighted.
Correct district frame, office frame selected.
Proper charge conditions set up.
EC lamp lighted.
EA lamp lights if EA key operated.

14   Momentarily operate RL key.   Indication released.

15   Repeat Steps 7 through 14 sufficient times to check the marker with each district and office frame, all classes of service, all charge conditions and various ground supply groups.

16h   If Steps 18 through 33 are not to be performed— Remove make-busy plug from DB_ jack.

17i   ▶If Steps 18 through 35a are not to be performed— Remove make busy plug from CATA jack.   CATA lamp extinguished.◀

STEP	ACTION	VERIFICATION

Tests of Mercury Slave Relays—Partial or Full Marker Speedup Features Provided

18	◆At marker under test—◀ Insulate 1M contact of TKE relay.	
19	◆At OTI—◀ Repeat Steps 7 through 14 to check that marker completes call using slave relay.	
20	◆At marker under test—◀ Insulate the following relay contacts sequentially and repeat Steps 7 through 14 each time: 5, 6T of ST1, 5, 6B of ST1, and 5, 6T of AK.	
21	◆At district link frame— Insulate 0 contact of MCB_ relay.	
22	At marker under test— Short-circuit 5, 6B contacts of ST5 relay. Repeat Steps 7 through 14.◀	
23	Remove insulators and short circuit placed in Steps 18, 20, 21, and 22.	

Test of A, B, and C Links—Full Marker Speedup Features Provided

24	◆At marker under test◀ Insulate 12M of HMT1 relay.	
25	◆At OTI—◀ Repeat Steps 7 through 13.	BBK and CBK lamps lighted. ABK lamp dark.
26	Momentarily operate RL key.	Indication released.
27	◆At marker under test—◀ Remove insulator from 12M and insulate 11M of HMT1 relay.	
28	◆At OTI—◀ Repeat Steps 7 through 13.	ABK and CBK lamps lighted. BBK lamp dark.
29	Momentarily operate RL key.	Indication released.
30	◆At marker under test—◀ Remove insulator from 11M and insulate 10M of HMT1 relay.	
31	◆At OTI—◀ Repeat Steps 7 through 13.	ABK and BBK lamps lighted. CBK lamp dark.

STEP	ACTION	VERIFICATION
32	Momentarily operate RL key.	Indication released.
33	◆At marker under test—◀ Remove insulator from HMT1 relay.	
34	◆At OTI—◀ Remove make-busy plug from DB_ jack.	
35a	◆If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

B. Busy Test of Outgoing Trunks in One Subgroup

7	Operate keys A_, B_, C_, and CS_ also ZCT_ (if required) for codes of trunk groups that will check all 40 S1 leads. *Note:* Trunk groups that have a common subgroup or an alternate route should be selected to avoid interfering with service. The test should be performed during a period of least traffic in order to gain access to each trunk.	
8	Operate even district F_ key.	
9	Momentarily operate ST key.	K lamp of first trunk in group lighted.
10	Momentarily operate RL key.	Indication released.
11	At OGT— Make trunk selected busy.	
12	At OTI— Momentarily operate ST key.	K lamp of next trunk in group lighted.
13	Momentarily operate RL key.	Indication released.
14	At OGT— Make trunk selected busy.	
15	Repeat Steps 12 through 14 until all 40 S1 leads have been tested.	
16	Remove trunk make-busy plugs.	
17	At OTI— Operate odd district F_ key.	
18	Momentarily operate ST key.	K lamp of last trunk in group lighted.

STEP	ACTION	VERIFICATION
19	Repeat Steps 10 through 16.	Trunks selected in succession from end of group.

TG Relays—Wiring Check

Note: Trunk test relay chain arrangement reading from left to right and then from top line to second, etc.

20 Select trunk groups one at a time with group starts as indicated by even relays in columns 1 and 3 of chart and group ends as indicated by columns 2 and 4.

1	2	3	4
EL0	OL0	ER1	OR1
EL2	OL2	ER3	OR3
EL4	OL4	ER5	OR5
EL6	OL6	ER7	OR7
EL8	OL8	ER9	OR9
ER0	OR0	EL1	OL1
ER2	OR2	EL3	OL3
ER4	OR4	EL5	OL5
ER6	OR6	EL7	OL7
ER8	OR8	EL9	OL9

STEP	ACTION	VERIFICATION
21	Operate even district F_ key.	
22	Momentarily operate ST key.	K lamp of first trunk in group lighted.
23	Momentarily operate RL key.	Indication released.
24	Operate odd district F_ key.	
25	Momentarily operate ST key.	K lamp of last trunk in group lighted.
26	Momentarily operate RL key.	Indication released.
27	Repeat Steps 20 through 26 until all group starts and all group ends have been checked.	
28	Set up code for a group of trunks in ground supply 3 with no alternate route.	
29	Operate AR key.	
30	Momentarily operate ST key.	K lamp of first trunk in group lighted.
31	Momentarily operate RL key.	Indication released.

STEP	ACTION	VERIFICATION
32	Operate even district F_ key.	
33	Momentarily operate ST key.	K lamp of last trunk in group lighted.
34	Momentarily operate RL key.	Indication released.
35	Release AR key.	
36	Remove make-busy plug from DB_ jack.	
37a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished◀

C. Trunk Subgroup Selection

Four or More Subgroups of Trunks in a Trunk Group

7	Operate keys A_, B_, C_, CS_, and F_, also ZCT_ (if required) for a code with trunks in four or more subgroups.	
8	Send calls through until trunk in last subgroup of first original route relay is selected.	
9	Momentarily operate ST key.	Trunk selected in subgroup 0.
10	Momentarily operate RL key.	Indication released.
11	Repeat Steps 9 and 10 until trunk in each subgroup of first original route relay has been selected.	Subgroups selected in order.

Three Subgroups of Trunks in a Trunk Group

12	Set up code with trunks in three subgroups.	
13	Send calls through until trunk in odd subgroup is selected.	
14	Momentarily operate ST key.	Trunk selected in even subgroup.
15	Momentarily operate RL key.	Indication released.
16	Repeat Steps 14 and 15.	Trunk selected in odd subgroup.
17	▶At OGT—◀ Make all trunks busy in even and odd subgroups.	

STEP	ACTION	VERIFICATION
18	◆At OTI—◀ Momentarily operate ST key.	Trunk selected in ground supply 2 or 4 dependent on whether busy subgroups are in ground supply 1 or 3.
19	Momentarily operate RL key.	Indication released.
20	◆At OGT—◀ Remove trunk make-busy plugs.	

Two Subgroups of Trunks in a Trunk Group

STEP	ACTION	VERIFICATION
21	◆At OTI—◀ Set up code with trunks in two subgroups.	
22	Send calls through until trunk in odd subgroup is selected.	
23	Momentarily operate ST key.	Trunk selected in even subgroup.
24	Momentarily operate RL key.	Indication released.
25	Momentarily operate ST key.	Trunk selected in odd subgroup.
26	Momentarily operate RL key.	Indication released.
27	◆At OGT—◀ Make all trunks busy in even subgroup.	
28	◆At OTI—◀ Momentarily operate ST key.	Trunk selected in odd subgroup.
29	Momentarily operate RL key.	Indication released.
30	◆At OGT—◀ Remove make-busy plugs in even subgroup.	
31	◆At OTI— Remove make-busy plug from DB_ jack.	
32a	If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

D. Ground Supply Advance

STEP	ACTION	VERIFICATION
7	Operate keys A_, B_, C_, CS_, and F_, also ZCT_ (if required) for (a) a code with trunks in three or more subgroups in original route and in alternate route or (b) a code with trunks in three or more subgroups in original route and one subgroup in alternate route or	

STEP	ACTION	VERIFICATION
	(c) a code with trunks in three or more subgroups in original route and none in alternate.	
	Note: These arrangements are examples of trunks in all ground supplies. Other arrangements may be used that will give a similar result of progressing through all ground supplies.	
8c	If testing code with original trunks in ground supply 1 and 2— Momentarily operate ST key.	Trunk selected in ground supply 1.
9c	Momentarily operate RL key.	Indication released.
10c	◆At OGT—◆ Make all trunks busy in ground supply 1.	
11c	◆At OTI—◆ Momentarily operate ST key.	Trunk selected in ground supply 2.
12c	Momentarily operate RL key.	Indication released.
13c	◆At OGT—◆ Make all trunks busy in ground supply 2.	
14d	◆At OTI—◆ If testing code with original or alternate trunks in ground supply 3— Momentarily operate ST key.	Trunk selected in ground supply 3.
15d	Momentarily operate RL key.	Indication released.
16d	◆At OGT—◆ Make all trunks busy in ground supply 3.	
17e	◆At OTI—◆ If testing code with original or alternate trunks in ground supply 4— Momentarily operate ST key.	
18e	Momentarily operate RL key.	Indication released.
	Note: The remaining steps of the test should be performed rapidly as the trunk group will not be available for traffic.	
19e	◆At OGT—◆ Make all trunks busy in ground supply 4.	
20	◆At OTI—◆ Momentarily operate ST key.	Trunk selected in ground supply 5.

STEP	ACTION	VERIFICATION
21	Momentarily operate RL key.	Indication released.
22	♦At OGT—◀ Make all overflow trunks busy in ground supply 5.	
23	♦At OTI—◀ Momentarily operate ST key.	If markers are wired to give TRL signal to sender on the first and second trial ATB and normal release on third trial ATB— TRL and TB5 lamps lighted. If markers are wired to give RO signal to sender on first and second trial ATB and TRL signal on third trial ATB— RO and TB5 lamps lighted.
24	Momentarily operate RL key.	Indication released.
25	♦At OGT—◀ Remove make-busy plugs.	
26	♦At OTI— Remove make-busy plug from DB_ jack.	
27a	If office is equipped for ATA and a printout is not to be used for this test— At the trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

E. Channel Test

Note: The preferred channel is dependent upon the cross connections made at the IN, A, R, and OT punchings. The following tests are based on the use of initial installation cross connections, IN to 1, 2 to 3, A to 4, R to 5, 6 to 7, and OT to 8. If these cross connections have been changed, the preferred channel is the one associated with the IN punching on a regular call and with the R punching on an alternate route call.

Ten Office Frames or More

7	Operate keys A_, B_, C_, and CS_, also ZCT_ (if required) for the code of a nonsplit trunk group.	
8	Operate F_ key for particular district frame.	

STEP	ACTION	VERIFICATION
9	At odd office frame on which trunk group appears— Insert MB plug into OMB jack.	
10	At particular district frame— Make district frame busy.	
11	Plug 32A test set into F jack.	
12	Momentarily operate ST key.	Lowest channel seized.
13	Momentarily operate RL key.	Channel released.
14	Make busy channel previously seized.	
15	Momentarily operate ST key.	Next channel in chain seized.
16	Momentarily operate RL key.	Channel released.
17	Repeat Steps 14 through 16 until all channels have been checked.	
18	Make busy all district secondary switches on the made busy district frame.	
19	Momentarily operate ST key.	At trouble indicator— CRL lamp lighted. If call was marker first or second trial call— TRL lamp lighted.
20	Momentarily operate RL key.	Indication released.
21	Remove all channel and switch make-busy plugs.	

Less Than Ten Office Frames

STEP	ACTION	VERIFICATION
22	Repeat Steps 7 through 11.	
23	Send calls through until marker is in position to check junctors in test choice A.	
24	Make busy highest numbered nine district secondary switches.	
25	Momentarily operate ST key.	Lowest channel on switch 0 seized.
26	Momentarily operate RL key.	Channel released.
27	Make busy channel previously seized.	

STEP	ACTION	VERIFICATION
28	Repeat Steps 25 through 27 until all channels on switch 0 have been checked.	
29	Remove channel make-busy plugs.	
30	Transfer make-busy plug from lowest nontested switch to switch previously tested.	
31	Repeat Steps 25 through 30 until all channels on all switches have been checked.	
32	Make tenth district secondary switch busy.	
33	Momentarily operate ST key.	At trouble indicator— CRL lamp lighted. If call was marker first or second trial call— TRL lamp lighted.
34	Momentarily operate RL key.	Indication released.
35	Remove channel and switch make-busy plugs.	

Channel Preference—Alternate Route Call

STEP	ACTION	VERIFICATION
36	Transfer make-busy plug from odd office frame to even office frame.	
37	At trouble indicator— Operate AR key.	
38	At district frame— Momentarily operate ST key.	Lowest channel from district secondary switch 5 seized.
39	Momentarily operate RL key.	Channel released.
40	Make busy channel seized in Step 38.	
41	Momentarily operate ST key.	Next channel in chain from district secondary switch 5 seized.
42	Momentarily operate RL key.	Channel released.
43	Remove channel and office frame make-busy plugs.	

Trunks Idle on Other Office Frame—All Channels Busy on One Office Frame

STEP	ACTION	VERIFICATION
44	Make busy all but one secondary switch on district frame.	

STEP	ACTION	VERIFICATION
45	Make busy all channels from idle district secondary switch to even office frame.	
46	At district frame— Momentarily operate ST key.	Channel selected to odd office frame.
47	Momentarily operate RL key.	Channel released.
48	Remove make-busy plugs from channels.	
49	Make busy all channels from idle district secondary switch to odd office frame.	
50	At OGT— Make busy first trunk from even office frame.	
51	At district frame— Momentarily operate ST key.	Channel selected to even office frame.
52	Momentarily operate RL key.	Channel released.
53	Remove make-busy plugs from channels and trunks.	

Trunks Busy on One Office Frame—All Channels Busy on Other Office Frame

STEP	ACTION	VERIFICATION
54	At OGT— Make busy all trunks of trunk group from odd office frame.	
55	At district frame— Make busy all channels from idle district secondary switch to even office frame.	
56	Momentarily operate ST key.	At trouble indicator— CRL lamp lighted. If call was marker first or second trial call— TRL lamp lighted.
57	Momentarily operate RL key.	Indication released.
58	Remove make-busy plugs from channels and trunks.	
59	At OGT— Make busy all trunks of trunk group from even office frame.	
60	At district frame— Make busy all channels from idle district secondary switch to odd office frame.	

STEP	ACTION	VERIFICATION
61	Momentarily operate ST key.	At trouble indicator— CRL lamp lighted. If call was marker first or second trial call— TRL lamp lighted.
62	Momentarily operate RL key.	Indication released.
63	Remove all make-busy plugs and 32A test set.	
64	◗At OGT— Remove make-busy plugs.	
65	At OTI— Remove make-busy plug from DB_ jack.	
66a	If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◗

F. Failure of Marker to Connect to Office Link

STEP	ACTION	VERIFICATION
7	Operate keys A_, B_, C_, CS_, and F_, also ZCT_ (if required) for a code with a single split trunk group and no alternate route.	
8	At even office frame— Insulate spring 5 of MCA relay.	
9	At OTI— Momentarily operate ST key.	SPO lamp lighted. Call blocks.
10	Momentarily operate RL key.	Indication released.
11	At even office frame— Remove insulator.	
12	At odd office frame— Insulate spring 5 of MCA relay.	
13	At OTI— Momentarily operate ST key.	SPE lamp lighted. SPO lamp extinguished. Call blocks.
14	Momentarily operate RL key.	Indication released.
15	Operate AR key.	
16	Momentarily operate ST key.	SPE and SPO lamps lighted. Call completed to even office frame.

STEP	ACTION	VERIFICATION
17	Momentarily operate RL key.	Indication released.
18	At odd office frame— Remove insulator.	
19	At even office frame— Insulate spring 5 of MCA relay.	
20	At OTI— Momentarily operate ST key.	SPE and SPO lamps lighted. Call completed to odd office frame.
21	Momentarily operate RL key.	Indication released.
22	Release AR key.	
23	At even office frame— Remove insulator.	
24	Short-circuit springs 3 and 4 of MCA relay.	
25	At OTI— Momentarily operate ST key.	SPE and NSE lamps lighted. Call blocks.
26	Momentarily operate RL key.	Indication released.
27	At odd office frame— Change short circuit to springs 3 and 4 of MCA relay.	
28	At OTI— Momentarily operate ST key.	SPO and NSO lamps lighted. Call blocks.
29	Momentarily operate RL key.	Indication released.
30	At odd office frame— Change short circuit to spring 8 and 9 of MCA relay.	
31	At OTI— Momentarily operate ST key.	XSS lamp lighted. Call blocks.
32	Momentarily operate RL key.	Indication released.
33	At odd office frame— Remove short circuit.	
34	▶At OTI—◀ Remove make-busy plug from DB_ jack.	
35a	▶If office is equipped for ATA and a printout is not to be used for this test—	CATA lamp extinguished.◀

STEP	ACTION	VERIFICATION
	At trouble indicator— Remove make-busy plug from CATA jack.	

G. Double Connection Test

STEP	ACTION	VERIFICATION
7	Set up test call by operating proper keys A_, B_, C_, CS_, and F_, also ZCT_ (if required).	
8	At marker frame— Plug 32A test set into F jack.	
9	Block OCB, TMW, TM8, and TM8A relays nonoperated.	
10c	If partial marker speedup features are provided— Short-circuit contacts 3 and 5 of BK' relay (mercury slave).	

Double Connection on Office Secondary Switch

STEP	ACTION	VERIFICATION
11	Block BK relay nonoperated.	
12	Momentarily operate ST key.	CK relay operated.
13	Connect direct ground to 4B of S relay.	
14	Remove blocking tool from BK relay.	BK and A relays operated. C relay not operated.
15	Momentarily operate RL key.	Marker released.
16	Remove ground from 4B of S relay.	

Double Connection on District Primary Switch

STEP	ACTION	VERIFICATION
17	Block BK relay nonoperated.	
18	Momentarily operate ST key.	CK relay operated.
19	Connect direct ground to 4B of SL relay.	
20	Remove blocking tool from BK relay.	BK and C relays operated. A relay not operated.
21	Momentarily operate RL key.	Marker released.
22	Remove ground from 4B of SL relay.	

Double Connection on District Link Secondary or Office Link Primary Switches

STEP	ACTION	VERIFICATION
23	Block BK relay nonoperated.	

STEP	ACTION	VERIFICATION
24	Momentarily operate ST key.	CK, AC, and AC1 relays operated.
25	Connect direct ground to 2T of AC relay.	
26	Remove blocking tool from BK relay.	BK, S and SL relays operated. AC and AC1 relays released. B relay not operated.
27	Momentarily operate RL key.	Marker released.
28c	If partial marker speedup features provided— Remove short circuit from contacts of BK′ relay.	
29	Remove all blocking tools and 32A test set.	
30	At OTI— Remove make-busy plug from DB_ jack.	
31a	◗If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◖

H. Time Measure Features

STEP	ACTION	VERIFICATION
7	Set up test call by operating proper keys A_, B_, C_, CS_, and F_ also ZCT_ (if required).	
8	Release operated A_ key.	
9	Momentarily operate ST key.	Trouble indicator seized in 0.5 to 1.6 seconds.
10	Momentarily operate RL key.	Indication released.
11	Reoperate A_ key and one extra A_ key.	
12	Momentarily operate ST key.	Trouble indicator seized in 0.5 to 1.6 seconds.
13	Momentarily operate RL key.	Indication released.
14	Release extra A_ key.	
15	Operate a second F_ key.	
16	Momentarily operate ST key.	Trouble indicator seized in 0.5 to 1.6 seconds.
17	Momentarily operate RL key.	Indication released.
18	Release extra F_ key.	
19	Release C_ key.	

STEP	ACTION	VERIFICATION
20	Momentarily operate ST key.	Trouble indicator seized in 3.7 to 4.7 seconds.
21	Momentarily operate RL key.	Indication released.
22	Reoperate C_ key.	
23	At marker frame— Plug 32A test set into F jack.	
24	Block SR relay nonoperated.	
25c	If full marker speedup features are provided— Block CHT relay nonoperated.	
26	Momentarily operate ST key.	Trouble indicator seized in 1.6 to 2.6 seconds.
27	Momentarily operate RL key.	Indication released.
28	Remove blocking tool from SR relay.	
29d	If partial or no marker speedup features are provided— Repeat Steps 24, 26, 27, and 28, blocking and unblocking BK relay instead of SR relay.	
30	Block BK, RL, and TR relays, nonoperated.	
31	Momentarily operate ST key.	Trouble indicator seized in 2.6 to 3.6 seconds. DT, TRL, and MB lamp lighted. At marker frame— TA lamp lighted. Major alarm sounds. DL relay releases and reoperates in 3.7 seconds. *Note:* Steps 32 and 33 must be performed quickly while the DL relay is reoperated for it will again release on a second time-out.
32	Remove blocking tool from TR relay.	When DL relay reoperated (Step 31)— TR relay operated.
33	When TR relay operates— Immediately remove blocking tool from RL relay.	
34	Momentarily operate RL key.	Marker released.
35	Operate AR key.	TA lamp extinguished. Major alarm silenced.
36	Block TM4 relay nonoperated.	

STEP	ACTION	VERIFICATION
37	Momentarily operate ST key.	In 12 to 19 seconds— TA lamp lighted. Major alarm sounds.
38	Momentarily operate RL key.	Marker released.
39	Momentarily operate AR key.	TA lamp extinguished. Major alarm silenced.
40	Remove blocking tools from BK and TM4 relays.	
41	Block TR relay nonoperated.	
42	Momentarily operate one at a time XDF1, XRL, XX1, and XX2 relays.	DL relay momentarily operated at each operation.
43	Remove blocking tool from TR relay.	
44	Block DL relay nonoperated— Block SDT relay operated.	In 12 to 19 seconds— TM9 and TM10 relays operated. TA lamp lighted. Major alarm sounds. At trouble indicator— DT and MB lamps lighted.
45	Insulate 1T and 2T of TM10 relay.	Major alarm silenced.
46	Block TM9 relay operated.	With test receiver— Check that 1T and 2T and 1B and 2B of TM9 relay are not short-circuited.
47	Remove blocking tool from TM9 relay.	
48	Block TR relay nonoperated— Block XRL relay operated.	
49	Remove blocking tool from SDT relay.	TM8 and TM10 relays remain operated.
50	Block XX1 relay operated.	
51	Remove blocking tool from XRL relay.	TM8 and TM10 relays remain operated.
52	Block XX2 relay operated.	
53	Remove blocking tool from XX1 relay.	TM8 and TM10 relays remain operated.
54	Block TR relay operated.	
55	Remove blocking tool from XX2 relay.	TM8 and TM10 relays remain operated.
56	Remove blocking tool from TR relay.	TM8 relay released.

STEP	ACTION	VERIFICATION
57	Remove blocking tool from DL relay.	
58	Momentarily operate AR key.	TM10 relay released.
59	Remove insulator from TM10 relay.	
60	Momentarily operate RL key.	Marker released.
61	Block DK relay operated.	In 12 to 19 seconds— TA lamp lighted. Major alarm sounds.
62	Remove blocking tool from DK relay.	
63	Momentarily operate AR key.	TA lamp extinguished. Major alarm silenced.
64	▶At OTI—◀ Make marker busy at CB jack of each marker connector.	
65	Remove plug from DB_ jack.	
66	▶At marker frame—◀ Momentarily release DA1 relay.	TMS1 relay operated. At trouble indicator— DB lamp lighted.
67	Momentarily release DA2 relay.	TMS1 relay operated.
68	Momentarily operate ST1 relay.	
69	▶At sender make-busy frame—◀ Make busy first marker connector at GB jack.	
70	At marker connector— Operate DMA relay.	At marker frame— TMS1 relay operated.
71	While DMA relay is operated— At marker frame— Manually operate TM8 relay.	TM8 relay locks as long as DMA relay is operated.
72	▶At sender make-busy frame—◀ Remove plug from GB jack.	
73	Repeat Steps 69 through 72 on each remaining marker connector.	
74c	If full marker speedup features are provided— Remove blocking tool from CHT relay.	
75	Remove all make-busy plugs and 32A test set.	

STEP	ACTION	VERIFICATION
76a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

I.   Miscellaneous Features

Message Register Lead Check

STEP	ACTION	VERIFICATION
7	Set up test call by operating proper keys A_, B_, C_, CS_, and F_, also ZCT_ (if required).	
8	Momentarily operate ST key.	Call completed. MR lamp lighted.
9	Momentarily operate RL key.	Indication released.
10	Operate MR key.	
11	Momentarily operate ST key.	Marker times out. MR lamp not lighted.
12	Momentarily operate RL key.	Indication released.
13	Release MR key.	
14c	If MR1 and MR2 keys are provided— Operate MR1 key.	
15c	Momentarily operate ST key.	Marker times out. MR1 lamp lighted.
16c	Momentarily operate RL key.	Indication released.
17c	Release MR1 key.	
18c	Operate MR2 key.	
19c	Momentarily operate ST key.	Call completed. MR1 lamp lighted.
20c	Momentarily operate RL key.	Indication released.
21c	Release MR2 key.	
22	Remove make-busy plug from DB_ jack.	
23a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

STEP	ACTION	VERIFICATION

Trouble Ground Cross on DK and DK1 Leads

24	Set up test call by operating proper keys A_, B_, C_, CS_, and F_, also ZCT_ (if furnished).	
25	▶At marker—◀ Connect direct ground to 2T of RL relay.	
26	▶At OTI—◀ Momentarily operate ST key.	XDK lamp lighted.
27	Momentarily operate RL key.	Indication released.
28	▶At marker—◀ Transfer ground to 6B of ST5 relay.	
29	▶At OTI—◀ Momentarily operate ST key.	XDK lamp lighted.
30	Momentarily operate RL key.	Indication released.
31	▶At marker—◀ Remove ground.	
32	▶At OTI—◀ Remove make-busy plug from DB_ jack.	
33a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

Automatic Message Accounting Check for a Charge Indication

34	Set up test call by operating proper keys A_, B_, C_, CS_, and F_.	
35	Operate IND-M key and proper IND_ key.	
36	Momentarily operate ST key.	Two MI_ lamps lighted corresponding to IND_ key operated. EC lamp lighted.
37	Momentarily operate RL key.	Indication released.
38	Remove make-busy plug from DB_ jack.	
39a	▶If office is equipped for ATA and a printout is not to be used for this test—	CATA lamp extinguished.◀

STEP	ACTION	VERIFICATION
	At trouble indicator— Remove make-busy plug from CATA jack.	

Automatic Message Accounting Check for a No Charge Indication

STEP	ACTION	VERIFICATION
40	Set up test call by operating proper keys A_, B_, C_, CS_, and F_.	
41d	If charge for directory assistance calls feature is provided— Operate NCT key.	
42e	If charge for directory assistance calls is not provided— Operate (0) index key.	
43	Momentarily operate ST key.	MIN lamp lighted. EC lamp lighted.
44	Momentarily operate RL key.	MIN lamp extinguished. EC lamp extinguished.
45	Remove make-busy plug from DB_ jack.	
46a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

Toll Diversion Feature

STEP	ACTION	VERIFICATION
47	Set up test call using a code requiring the toll diversion feature by operating proper keys A_, B_, C_, CS_, and F_, also ZCT_, (if required).	
48	Momentarily operate ST key.	TDVK lamp lighted. EC lamp lighted.
49	Momentarily operate RL key.	Indication released.
50	Remove make-busy plug from DB_ jack.	
51a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

STEP	ACTION	VERIFICATION

J. Bridged Markers Test—Comparison of Route Relay Cross-Connections for a Particular Route

> *Note:* This test should be performed only on route relays whose respective group start and group end cross connections are the same in the markers to be tested. The cross connections may be verified by performing Test M. Group start or group end cross connections that differ between markers could cause several K_ relays to operate (over the common K_ leads connecting to the trouble indicator) in the markers used in the comparison test. This could result in an operated "T" fuse in one or more of the markers involved.

2b If routes are associated with trunk subgroups—
Markers involved in test must be synchronized in regard to office frame and trunk level selection. To maintain synchronism, markers involved should be made busy for duration of test.

3 At trouble indicator—
Restore all operated keys.

4 Operate LP key.

5 Insert 329A plugs into BM_ jacks of markers to be tested.

> *Note:* A maximum of four markers in the same marker group may be used in the comparison test.

6 Operate proper keys A_, B_, C_, CS_, and F_, also ZCT_ (if required) for route to be tested.

> *Note:* The route tested must be treated the same in all markers.

7 Momentarily operate ST key.

At trouble indicator—
DR_ lamp lighted for each marker seized.
BM_ lamp momentarily lighted.
Interpretation of lamp display should agree with route relay cross-connection information as shown on office records.
Disregard lighted XDC lamp (and XSL lamp if lighted).

STEP	ACTION	VERIFICATION

Note: When error indications are displayed, the following table may be used as a guide. The actual lamps depend on options in use in the markers.

ERROR INDICATION LAMP		IMPROPER CROSS CONNECTIONS
XX1	All OB_, OG_, SO, SD, SD1.	OB OG
XT	All CR_, CL_, and SG_, SSO, TW and 7DG, SK2, SK3.	CR SG CL
	All OB_, OG_, SO, SD SD1, etc or none.	SP
	Two or more TL_.	TL
	Two or more ST_.	ST
	Two or more transmission check relay lamps.	R
	On route advance or alt. route same as RC.	RA
	Can be all or some of the above error indications.	RC

STEP	ACTION	VERIFICATION
8	Momentarily operate RL key.	Indication released.
9c	If an error indication was displayed— Repeat Steps 6 and 7, removing one marker per test, until proper indication is displayed.	
10c	Momentarily operate RL key.	Indication released.
11	Remove 329A plugs from BM_ jacks.	
12b	If routes are associated with trunk subgroups— Restore to service markers made busy for test.	
13a	◖If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◗

STEP	ACTION	VERIFICATION

K. Automatic Number Identification

2	At originating trouble indicator frame— Insert 322A plug into DB_ jack of marker to be tested.	
3	Set up test call using code requiring automatic number identification (ANI) feature by operating proper A_, B_, C_, CS_, and F_ keys.	
4	Operate DT_ key associated with marker made busy.	

Ring Party Call

| 5 | Momentarily operate ST key. | ANI, TK1, S1K, and EC lamps lighted. *Note:* ANI lamp lighted only when option KH is provided. |
| 6 | Momentarily operate RL key. | Indication released. |

Tip Party Call

7	Operate TP key.	
8	Momentarily operate ST key.	ANI, PTK, TK1, S1K, and EC lamps lighted.
9	Momentarily operate RL key.	Indication released.
10	Release DT_ and TP keys.	
11	Remove 322A plug from DB_ jack.	
12a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

L. Announcement Trunk Feature

2	At originating trouble indicator frame— Set up test call using proper keys A_, B_, C_, CS_, and F_, also ZCT_ (if required).	
3	Insert 322A plugs into DB_ jacks of all even-numbered markers.	
4	Operate ANE key to MAN position.	At originating trouble indicator frame— AM and ANE lamps lighted.
5	Operate OF key.	

STEP	ACTION	VERIFICATION
6	Operate DT_ key associated with one of even-numbered markers made busy.	
7	Momentarily operate ST key.	AN and EC lamps lighted. Proper OF_, TL_, and K_ lamps lighted indicating announcement trunk selected.
8	Momentarily operate RL key.	Indication released.
9	Restore DT_ key.	
10	Repeat Steps 6 through 9 for each of remaining even-numbered markers.	
11	Restore ANE key.	
12	Momentarily operate AMR key.	AM and ANE lamps extinguished.
13	Remove 322A plugs from DB_ jacks of even-numbered markers.	
14	Insert 322A plugs into DB_ jacks of all odd-numbered markers.	
15	Operate ANO key to MAN position.	AM and ANO lamps lighted.
16	Operate DT_ key associated with one of odd-numbered markers made busy.	
17	Momentarily operate ST key.	AN and EC lamps lighted. Proper OF_, TL_, and K_ lamps lighted indicating announcement trunk selected.
18	Momentarily operate RL key.	Indication released.
19	Restore DT_ key.	
20	Repeat Steps 16 through 19 for each of remaining odd-numbered markers.	
21	Restore ANO key.	
22	Momentarily operate AMR key.	AM and ANO lamps extinguished.
23	Restore OF key.	
24	Remove 322A plugs from DB_ jacks of odd-numbered markers.	
25a	▶If office is equipped for ATA and a printout is not to be used for this test—	CATA lamp extinguished.◀

STEP	ACTION	VERIFICATION
	At trouble indicator— Remove make-busy plug from CATA jack.	

M. Group Start and Group End Leads

Single Trunk Group—Original and Alternate Route

STEP	ACTION	VERIFICATION
7	Set up test call by operating proper keys A_, B_, C_, and CS_, also ZCT_ (if required).	
8	Operate odd district F_ key.	
9c	If GSE key is not provided— At marker frame— Block STX relay nonoperated.	
10d	If GSE key is provided— At OTI— Operate GSE key.	
11e	If ANI trunk groups arranged for 2-party service are being tested— At marker frame— Block operated BE and BO relays.	
12	At OTI— Momentarily operate ST key.	If GSE key is not provided— K lamp lighted for group end. If GSE key is provided— K lamps lighted for both group start and group end.
13	Momentarily operate RL key.	Indication released.
14c	If GSE key is not provided— Operate even district F_ key.	
15	Momentarily operate ST key.	K lamp lighted for group start.
16	Momentarily operate RL key.	Indication released.
	Note: When an office is equipped for multialternate routing and the first alternate is in ground supply 2, this group shall be tested in the same manner as the common (or last) original subgroup of three subgroups or more.	
17	Operate AR key.	
18	Momentarily operate ST key.	K lamp lighted for group end.
17	Momentarily operate RL key.	Indication released.

STEP	ACTION	VERIFICATION
20	Operate odd district F_ key.	
21	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group start. If GSE key provided— K lamps lighted for both group start and group end.
22	Momentarily operate RL key.	Indication released.
23	Release AR key.	
24c	If GSE key is not provided— At marker frame— Remove blocking tool from STX relay.	
25d	If GSE key is provided— At OTI— Release GSE key.	
26e	If ANI trunk groups arranged for 2-party service are being tested— At marker frame— Remove blocking tools from BE and BO relays.	
27	At OTI— Remove make-busy plug from DB_ jack.	
28a	◗If office is equipped for ATA and a printout is not to be used on this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◖

Two Subgroups in Trunk Group—Original and Alternate Route

STEP	ACTION	VERIFICATION
29	Set up test call by operating proper keys A_, B_, C_, and CS_, also ZCT_ (if required).	
30	Operate odd district F_ key.	
31c	If GSE key is not provided— At marker frame— Block STX relay nonoperated.	
32d	If GSE key is provided— Operate GSE key.	
33e	If ANI trunk groups arranged for 2-party service are being tested— At marker frame— Block operated BE and BO relays.	

STEP	ACTION	VERIFICATION
34	At OTI— Send calls through until trunk is selected in odd subgroup.	
35	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group end of even subgroup. If GSE key provided— K lamps lighted for both group start and group end of even subgroup.
36	Momentarily operate RL key.	Indication released.
37	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group end of odd subgroup. If GSE key provided— K lamps lighted for both group start and group end of odd subgroup.
38	Momentarily operate RL key.	Indication released.
39c	If GSE key is not provided— Operate even district F_ key.	
40c	Momentarily operate ST key.	K lamp lighted for group start of even subgroup.
41c	Momentarily operate RL key.	Indication released.
42c	Momentarily operate ST key.	K lamp lighted for group start of odd subgroup.
43c	Operate RL key.	Indication released.
44	Operate AR key.	
45	Send calls through until trunk is selected in odd subgroup of alternate route.	
46c	If GSE key is not provided— Operate odd district F_ key.	
47	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group start of even subgroup of alternate route. If GSE key provided— K lamps lighted for both group start and group end of even subgroup of alternate route.
48	Momentarily operate RL key.	Indication released.
49	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group start of odd subgroup

STEP	ACTION	VERIFICATION
		of alternate route. If GSE key provided— K lamps lighted for both group start and group end of odd subgroup of alternate route.
50	Momentarily operate RL key.	Indication released.
51c	If GSE key not provided— Operate even district F_ key.	
52c	Operate ST key.	K lamp lighted for group end of even subgroup of alternate route.
53c	Momentarily operate RL key.	Indication released.
54c	Momentarily operate ST key.	K lamp lighted for group end of odd subgroup of alternate route.
55c	Momentarily operate RL key.	Indication released.
56	Release AR key.	
57c	If GSE key not provided— At marker frame— Remove blocking tool from STX relay.	
58d	If GSE key provided— Release GSE key.	
59e	If ANI trunk groups arranged for 2-party service are being tested— At marker frame— Remove blocking tools from BE and BO relays.	
60	At OTI— Remove make-busy plug from DB_ jack.	
61a	♦If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.♦

Three Subgroups in Trunk Group—Original and Alternate Route

STEP	ACTION	VERIFICATION
62	Set up call by operating proper keys A_, B_, C_, and CS_, also ZCT_ (if required).	
63	Operate odd district F_ key.	

STEP	ACTION	VERIFICATION
64c	If GSE key not provided— At marker frame— Block STX relay nonoperated.	
65d	If GSE key provided— Operate GSE key.	
66e	If ANI trunk groups arranged for 2-party service are being tested— At marker frame— Block operated BE and BO relays.	
67	Send calls through until trunk is selected in subgroup 1.	
68	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group end of subgroup 0. If GSE key provided— K lamps lighted for both group start and group end of subgroup 0.
69	Momentarily operate RL key.	Indication released.
70	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group end of subgroup 1. If GSE key provided— K lamps lighted for both group start and group end of subgroup 1.
71	Momentarily operate RL key.	Indication released.
72c	If GSE key not provided— Operate even district F_ key.	
73c	Momentarily operate ST key.	K lamp lighted for group start of subgroup 0.
74c	Momentarily operate RL key.	Indication released.
75c	Momentarily operate ST key.	K lamp lighted for group start of subgroup 1.
76c	Momentarily operate RL key.	Indication released.
77f	If GS1 and GS3 keys not provided— At marker frame— Block G1 relay operated.	
78g	If GS1 and GS3 keys are provided— Operate GS1 key.	

STEP	ACTION	VERIFICATION
79c	If GSE key not provided— Momentarily operate ST key.	K lamp lighted for group start of subgroup 2.
80c	Momentarily operate RL key.	Indication released.
81c	Operate odd district F_ key.	
82	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group end of subgroup 2. If GSE key is provided— K lamps lighted for both group start and group end of subgroup 2.
83	Momentarily operate RL key.	Indication released.
84f	If GS1 and GS3 keys not provided— At marker frame— Remove blocking tool from G1 relay.	
85g	If GS1 and GS3 keys are provided— Release GS1 key.	
86	At OTI— Operate AR key.	
87	Send calls through until trunk is selected in subgroup 1 of alternate route.	
88c	If GSE key not provided— Operate odd district F_ key.	
89	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group start of subgroup 0 of alternate route. If GSE key provided— K lamps lighted for both group start and group end of subgroup 0 of alternate route.
90	Momentarily operate RL key.	Indication released.
91	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group start of subgroup 1 of alternate route. If GSE key provided— K lamps lighted for both group start and group end of subgroup 1 of alternate route.
92	Momentarily operate RL key.	Indication released.
93c	If GSE key not provided— Operate even district F_ key.	

STEP	ACTION	VERIFICATION
94c	Momentarily operate ST key.	K lamp lighted for group end of subgroup 0 of alternate route.
95c	Momentarily operate RL key.	Indication released.
96c	Momentarily operate ST key.	K lamp lighted for group end of subgroup 1 of alternate route.
97c	Momentarily operate RL key.	Indication released.
98f	If GS1 and GS3 keys not provided— At marker frame— Block G3 relay operated.	
99g	If GS1 and GS3 keys are provided— Operate GS3 key.	
100c	If GSE key not provided— Momentarily operate ST key.	K lamp lighted for group end of subgroup 2 of alternate route.
101c	Momentarily operate RL key.	Indication released.
102c	Momentarily operate odd district F_ key.	
103	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group start of subgroup 2 of alternate route. If GSE key provided— K lamps lighted for both group start and group end of subgroup 2 of alternate route.
104	Momentarily operate RL key.	Indication released.
105f	If GS1 and GS3 keys not provided— At marker frame— Remove blocking tool from G3 relay.	
106g	If GS1 and GS3 keys provided— Release GS3 key.	
107c	If GSE key not provided— At marker frame— Remove blocking tool from STX relay.	
108d	If GSE key provided— Release GSE key.	
109e	If ANI trunk groups arranged for 2-party service are being tested— At marker frame— Remove blocking tools from BE and BO relays.	

STEP	ACTION	VERIFICATION
110	At OTI— Release AR key.	
111	Remove make-busy plug from DB_ jack.	
112a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

Four or More Subgroups in Trunk Group—Original and Alternate Route

STEP	ACTION	VERIFICATION
113	Set up test call by operating proper keys A_, B_, C_, CS_, also ZCT_ (if required).	
114	Operate odd district F_ key.	
115c	If GSE key not provided— At marker frame— Block STX relay nonoperated.	
116d	If GSE key provided— Operate GSE key.	
117e	If ANI trunk groups arranged for 2-party service are being tested— At marker frame— Block operated BE and BO relays.	
118	Send calls through until trunk is selected in the last subgroup of ground supply 1.	
119	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group end of first subgroup. If GSE key provided— K lamps lighted for both group start and group end of first subgroup.
120	Momentarily operate RL key.	Indication released.
121	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group end of next subgroup. If GSE key provided— K lamps lighted for both group start and group end of next subgroup.
122	Momentarily operate RL key.	Indication released.
123	Repeat Steps 121 and 122 until group ends or group starts and group ends of all subgroups in ground supply 1 have been checked.	

STEP	ACTION	VERIFICATION
124c	If GSE key not provided— Operate even district F_ key.	
125c	Momentarily operate ST key.	K lamp lighted for group start of first subgroup.
126c	Momentarily operate RL key.	Indication released.
127c	Momentarily operate ST key.	K lamp lighted for group start of next subgroup.
128c	Momentarily operate RL key.	Indication released.
129c	Repeat Steps 127c and 128c until group starts of all subgroups in ground supply 1 have been checked.	
130f	If GS1 and GS3 keys not provided— At marker frame— Block G1 relay operated.	
131g	If GS1 and GS3 keys are provided— Operate GS1 key.	
132c	If GSE key not provided— Momentarily operate ST key.	K lamp lighted for group start of subgroup in ground supply 2.
133c	Momentarily operate RL key.	Indication released.
134c	Operate odd district F_ key.	
135	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group end of subgroup in ground supply 2. If GSE key provided— K lamps lighted for both group start and group end of subgroup in ground supply 2.
136	Momentarily operate RL key.	Indication released.
137f	If GS1 and GS3 keys not provided— At marker frame— Remove blocking tool from G1 relay.	
138g	If GS1 and GS3 keys provided— Release GS1 key.	
139	Operate AR key.	
140c	If GSE key not provided— Operate odd district F_ key.	

STEP	ACTION	VERIFICATION
141	Send calls through until trunk is selected in last subgroup of alternate route in ground supply 3.	
142	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group start of first subgroup of alternate route. If GSE key provided— K lamps lighted for both group start and group end of first subgroup of alternate route.
143	Momentarily operate RL key.	Indication released.
144	Momentarily operate ST key.	If GSE key not provided— K lamp lighted for group start of next subgroup of alternate route. If GSE key provided— K lamps lighted for both group start and group end of next subgroup of alternate route.
145	Momentarily operate RL key.	Indication released.
146	Repeat Steps 144 and 145 until group starts or group starts and group ends of all subgroups of alternate route in ground supply 3 have been checked.	
147c	If GSE key not provided— Operate even district F_ key.	
148c	Momentarily operate ST key.	K lamp lighted for group end of first subgroup of alternate route.
149c	Momentarily operate RL key.	Indication released.
150c	Momentarily operate ST key.	K lamp lighted for group end of next subgroup of alternate route.
151c	Momentarily operate RL key.	Indication released.
152c	Repeat Steps 150c and 151c until group ends of all subgroups of alternate route in ground supply 3 have been checked.	
153f	If GS1 and GS3 keys not provided— At marker frame— Block G3 relay operated.	
154g	If GS1 and GS3 keys provided— Operate GS3 key.	

STEP	ACTION	VERIFICATION
155c	If GSE key not provided— Momentarily operate ST key.	K lamp lighted for group end of alternate route subgroup in ground supply 4.
156c	Momentarily operate RL key.	Indication released.
157c	Operate odd district F_ key.	
158	Momentarily operate ST key.	If GSE key is not provided— K lamp lighted for group start of alternate route subgroup in ground supply 4. If GSE key is provided— K lamps lighted for both group start and group end of alternate route subgroup in ground supply 4.
159	Momentarily operate RL key.	Indication released.
160f	If GS1 and GS3 keys not provided— At marker frame— Remove blocking tool from G3 relay.	
161g	If GS1 and GS3 keys are provided— Release GS3 key.	
162c	If GSE key not provided— At marker frame— Remove blocking tool from STX relay.	
163d	If GSE key provided— Release GSE key.	
164e	If ANI trunk groups arranged for 2-party service are being tested— At marker frame— Remove blocking tools from BE and BO relays.	
165	At OTI— Release AR key.	
166	Remove make-busy plug from DB_ jack.	
167a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

N. Sender Recycle and Code Compression

2	Insert 322A plug into DB_ jack of marker to be tested.	

STEP	ACTION	VERIFICATION
3	Operate DT key associated with marker made busy.	
4	Set up test call using proper A_, B_, C_, CS_, and F_ keys.	
5	Momentarily operate ST key.	LA and EC lamps lighted. Lamp display indicates translation for code in local area.
6	Momentarily operate RL key.	Indication released.
7	Operate EA key.	
8	Operate CCO key.	
9	Momentarily operate ST key.	CC4, CC7, and EC lamps lighted. Lamp display indicates translation for code in local area. EA lamp lighted.
10	Momentarily operate RL key.	Indication released.
11	Restore CCO key.	
12	Operate CC_ key associated with an adjacent numbering plan area.	
13b	If access code digit one is required— Operate PD1 key.	
14	Momentarily operate ST key.	Proper CC_ and EC lamps lighted. Lamp display indicates translation for code in particular adjacent numbering plan area. EA lamp lighted.
15	Momentarily operate RL key.	Indication released.
16	Restore CC_ key.	
17	Repeat Steps 2 through 16 for each compressed code. *Note:* Unused compressed codes will give vacant code or other routing, as required.	
18	Restore EA key.	
19	Remove make-busy plug from DB_ jack.	
20a	▶If office is equipped for ATA and a printout is not to be used for this test—	CATA lamp extinguished.◀

STEP	ACTION	VERIFICATION
	At trouble indicator— Remove make-busy plug from CATA jack.	

O. Trouble Reroute Calls From Subscriber Sender SD-27810-01

STEP	ACTION	VERIFICATION
7	Operate keys CS⌐, F⌐, also ZCT_ (if required).	
8	Operate OF-1 key.	
9	Momentarily operate ST key.	Proper lamps lighted indicating call completed to overflow or announcement route including A digit lamps A2 and A4.
10	Momentarily operate RL key.	Indication released.
11c	If identification of calling lines causing 2-out-of-5 sender failure feature is provided— Operate PD1 key.	
12c	Momentarily operate ST key.	Proper lamps lighted indicating call completed to the modified ANI outgoing trunk including A digit lamps A2 and A4.
13c	Momentarily operate RL key.	Indication released.
14	Remove make-busy plug from DB_ jack of marker tested.	
15a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀

P. Overflow Route—Code 01 Dialed When Access Code 01 is Not Furnished

STEP	ACTION	VERIFICATION
7	Operate PS key.	
8	Operate proper CS⌐, F_ keys.	
9	Momentarily operate ST key.	Proper OF⌐, TL⌐, K_ lamps lighted indicating overflow trunk selected.
10	Momentarily operate RL key.	Indication released.
11	Remove make-busy plug from DB_ jack of marker tested.	
12a	▶If office is equipped for ATA and a printout is not to be used for this test—	CATA lamp extinguished.◀

STEP	ACTION	VERIFICATION
	At trouble indicator— Remove make-busy plug from CATA jack.	

Q. Dial Tone First Reroute to Coin Announcement

STEP	ACTION	VERIFICATION
7	Operate DTF key.	
8	Operate keys, CS_, F_, also ZCT_, (if required) using a code which requires an initial coin deposit for completion from a dial tone first coin station.	
9	Momentarily operate ST key.	Proper lamps lighted including A digit lamps A2, A4, and A5 indicating call completed to coin announcement trunk.
10	Momentarily operate RL key.	Indication released.
11	Remove make-busy plug from DB_ jack of marker tested.	
12a	◆If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◆

R. Dynamic Overload Control

STEP	ACTION	VERIFICATION
7	Operate keys A_, B_, and CS_, also ZCT_ (if required) for code with original or alternate route to tandem office when such route is under control of dynamic overload control circuit. Operate keys GS1, AR, or GS3 as required to effect proper routing to tandem office.	
8	Set RTF and RT switches according to RTCA_ relay associated with route. Consult office records to determine settings.	RTCA_ lamp lighted.
9	Momentarily operate ST key.	Lamp display indicates routing to overflow or announcement as required.
10	Momentarily operate RL key.	Indication released.
11	Repeat Steps 7 through 10 for all routes connected to dynamic overload control.	
12	Restore RTF and RT switches to normal.	RTCA_ lamp extinguished.
13	Remove make-busy plug from DB_ jack.	

STEP	ACTION	VERIFICATION
14a	▶If office is equipped for ATA and a printout is not to be used for this test— At trouble indicator— Remove make-busy plug from CATA jack.	CATA lamp extinguished.◀