NUMBER GROUP CIRCUITS

TESTS USING OFFICE TEST FRAME SD-27633-01 (J23260)

NO. 5 CROSSBAR OFFICES

1. GENERAL

PAGE

1.01 This issue affects Equipment Test Lists.

1.02 The tests covered are:

PAGE

1.03 All connecting leads between the marker and the number group, except those covered herein are tested by the marker during the normal progress of a service call. By using the MTF, calls that simulate all types of number group translations may be put through the marker and the results checked on the test frame lamps and the trouble recorder cards. No tests are provided for checking the leads that are checked by the marker.

1.04 All tests covered in this section should be made during periods of light traffic.

Caution: Tests C, D, and E deny incoming service to line under test.

1.05 Whenever it is necessary to take a number group frame out of service, the traffic department should be advised in accordance with local instructions.

1.06 For Tests C, D, and E an assistant is required at number group frame associated with the tens block of hunting group under test.

1.07 For Tests C and D an assistant is required at the line link frame associated with the tens block of hunting group under test.

1.08 *Lettered Steps:* A letter a, b, c, etc, added to a step number in Part 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.

2. APPARATUS

All Tests

2.01 Office test frame SD-27633-01 (J23260).

2.02 Trouble indicator and connector circuit SD-27634-01.

Tests C, D, E

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

Tests C, D, G

2.04 351A make-busy plug.

2.05 459C make-busy plug for line link frames equipped with small crossbar switches.

Test E

2.06 32A test set.

Test F

2.07 322A make-busy plug.

2.08 Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two 419A (test connector) tools.

3. PREPARATION

Test A

3.01 Select from office records a large terminal hunting group and all associated numbers and line locations. Determine which number groups correspond to the designations A through H in the PBX allotter.

Test B

3.02 Select from office records a hunting group that consists of lines in two or more tens blocks. Determine which are first, second etc.

Test C

3.03 Select from office records the following information for a non-allotted block select hunting group:

  (a) Number of lines in terminal hunting group

  (b) The first, intermediate, and last tens block

  (c) The TBT_ relay for each tens block.

Test D

3.04 Select from office records the following information for an allotted hunting group:

  (a) Number of lines in the hunting group

  (b) The number groups that correspond to designations A through H in the PBX allotter

  (c) The first, intermediate, and last tens blocks of the group, if a number group contains more than one tens block, associated with the hunting group

  (d) The ABT_ or TBT_ relay for each tens block in each number group

  (e) The B_ relays and auxiliary line circuits associated with each ABT_ and TBT_ relay.

Test E

3.05 Select from office records number groups that correspond to designations A through H in the PBX allotter for the allotted hunting group under test. Also, determine which ABT_ and TBT_ relays are associated with the hunting group in each number group. If the hunting group is distributed over 3, 5, 6, or 7 number groups, determine the NNG terminal cross-connections in the PBX allotter.

Test F

3.06 Select from office records the following information:

(a) A tens block associated with more than one terminal hunting group

(b) Two numbers, one each in separate hunting group within the selected tens block

3. PREPARATION (Cont)

(c) The terminals on the marker translator and route relay frame corresponding to the units digits of the selected two numbers.

Test G

3.07 Select from office records a 2 line number in number group under test.

STEP	ACTION	VERIFICATION

All Tests

1 At OTF—
Restore all keys and switches not required for next test.

2 Set L-L switch to 0.

3 Set PS switch to 15/65.

4 Operate OTL, 7D keys.

5 Set CST, CSU switches for noncoin class of service.

6 Operate MKR_ key for marker used in test.

All Tests Except F

7 Operate CB key.

A. Sleeve Lead Check

8 Set A through G DIAL switches to select intraoffice code and lowest number in hunting group.

9 Operate PBX1 key.

10 Operate ST key.

At TIC—
FUT_, VGT_, HGT_, VFT_ lamps lighted for line location of lowest number in hunting group.
At OTF—
S0 to S9 lamps lighted for all equipped lines in tens block containing selected number.

Note 1: If the line under test is service-busy, hunting will advance to the first available idle

STEP	ACTION	VERIFICATION
		number. The line location for the selected number will be displayed at the TIC.
		Note 2: The S_ lamps will not light if the line is busy or the sleeve cross-connection is missing.
11	Restore ST, PBX1 keys.	S_ lamps extinguished.
12	At TIC— Momentarily operate RLS key.	All lamps extinguished.
13	At OTF— Operate PBX2 key.	
14	Operate S_ key corresponding to first equipped line in selected hunting group.	
15	Operate ST key.	At TIC— FUT_, VGT_, HGT_, VFT_ lamps lighted for first line in selected hunting group.
16	At OTF— Restore ST, S_ keys.	
17	At TIC— Momentarily operate RLS key.	All lamps extinguished.
18	Repeat Steps 14 through 17 for next higher numbered, equipped line in selected hunting group.	
19	Restore all keys and switches not required for next test.	

B. Tens Block Advance—Terminal Hunting—Block Hunt Numbers

STEP	ACTION	VERIFICATION
8	Set A through G DIAL switches to select intraoffice code and last line in first tens block.	
9	Operate PBX2 key.	
10	Operate S_ key corresponding to units digit of first line in second tens block.	
11	Operate ST key.	At TIC— FUT_, VGT_, HGT_, VFT_ lamps lighted for number corresponding to first line in second tens block.

STEP	ACTION	VERIFICATION
12	Momentarily operate RLS key.	All lamps extinguished.
13	At OTF— Restore ST key.	
14a	If hunting group selected contains lines in more than 2 tens blocks— Set D through G DIAL switches to last line of next higher numbered tens block in hunting group.	
15a	Repeat Steps 10 through 14a until all tens blocks in hunting group have been tested.	
16	Restore all keys and switches not required for next test.	

C. Tens Block Advance—Terminal Hunting Block Select Numbers—Nonallotted Hunting Groups.

STEP	ACTION	VERIFICATION
8a	If lines in second tens block of hunting group are associated with B_ relays in TBT_ relay chain— At relay rack frame for sleeve-busy relay unit of number group associated with directory number of hunting group— Block operated all B_ relays of second tens block of hunting group.	At number group frame— TBT_ relay operated for second tens block.
9a	At relay rack frame for sleeve-busy relay unit— Remove and replace blocking tool from lowest numbered B_ relay.	If line is idle— B_ relay momentarily released. At number group frame— TBT_ relay momentarily released.
10a	Repeat Step 9a for each remaining B_ relay in tens block.	
11a	Remove blocking tools from all B_ relays.	If any line in second tens block is busy— Associated B_ relay remains operated.
12a	At line link frame associated with directory number of hunting group— When hold magnet associated with directory number is released— Request assistant to momentarily insert make-busy plug into line vertical unit jack.	At relay rack frame for sleeve-busy relay unit— Corresponding B_ relay momentarily operated.
13a	Repeat Step 12a to test each remaining line in second tens block. In repeating, substitute line under test for directory number.	

STEP	ACTION	VERIFICATION
14b	If lines in second tens block of hunting group are associated with auxiliary lines which are arranged for a subgroup-busy indication over the TBT_ relay chain— At relay rack frame for auxiliary line unit associated with directory number of hunting group— Block operated all SR_ or S_ relays of second tens block of hunting group.	At number group frame— TBT_ relay operated for second tens block.
15b	At relay rack frame for auxiliary line unit— Remove and replace blocking tool from lowest numbered SR_ or S_ relay.	If line is idle— SR_ or S_ relay released. At number group frame— TBT_ relay momentarily released.
16b	Repeat Step 15b for each remaining SR_ or S_ relay in tens block.	
17b	Remove blocking tools from all SR_ or S_ relays.	If any line in second tens block is busy— Associated SR_ or S_ relay remains operated.
18b	Repeat Steps 15b through 17b using S2 relay instead of SR_ or S_ relay.	
19c	If there is more than one tens block in hunting group in a number group— Repeat Steps 8a through 18b for each remaining tens block in hunting group.	

PBX Block Selection Hunting

STEP	ACTION	VERIFICATION
20	Set A through G DIAL switches to direct call to directory number of hunting group.	
21	Operate PBX2 key.	
22	Operate S_ key corresponding to a units digit in second tens block in hunting group.	
22	When TBT_ relay of second tens block is released— At OTF— Operate ST key.	At TIC— FTT_, FUT_, VGT_, HGT_, VFT_ lamps lighted indicating line location in second tens block as determined by selected units digit.
23	Momentarily operate RLS key.	All lamps extinguished.
23	At OTF— Restore ST key.	
24	Operate S_ key for units digit in next higher numbered ten block of hunting group.	

STEP	ACTION	VERIFICATION
25	At number group frame— Request assistant to block operated all TBT_ relays of tens block previously tested. *Caution: Blocking operated TBT_ relays denies terminating traffic to all lines within the associated tens block. Therefore, block operated TBT_ relays for as short a time as possible.*	
26	When TBT_ relay of tens block associated with Step 24 is released— At OTF— Operate ST key.	At TIC— FTT_, FUT_, VGT_, HGT_, VFT_ lamps lighted indicating line location in second tens block as determined by selected units digit.
27	At number group frame— Request assistant to remove blocking tools from all TBT_ relays.	If all lines in tens block are busy— TBT_ relay remains operated.
28	At OTF— Restore ST key.	
29	At TIC— Momentarily operate RLS key.	All lamps extinguished.
30	Repeat Steps 24 through 29 for each remaining tens block until each tens block in hunting group has been tested.	
31	Restore all keys and switches not required in next test.	

D. Tens Block Busy Indication and Advance—Allotted Hunting Groups

STEP	ACTION	VERIFICATION
8a	If lines in first tens block of hunting group are associated with B_ relays in ABT_ relay chain— At relay rack frame for sleeve-busy relay unit— Block operated all B_ relays of first tens block of hunting group.	At number group frame— ABT_ relay operated for first tens block.
9a	At relay rack frame for sleeve-busy relay unit— Remove and replace blocking tool from lowest numbered B_ relay.	If line is idle— B_ relay momentarily released. At number group frame— ABT_ relay momentarily released.
10a	Repeat Step 9 for each remaining B_ relay in tens block.	

STEP	ACTION	VERIFICATION
11a	At relay rack frame for sleeve-busy relay unit— Remove blocking tools from all B_ relays.	If any line in first tens block is busy— Associated B_ relay remains operated.
12a	At line link frame associated with directory number of hunting group— When hold magnet associated with directory number is released— Request assistant to momentarily insert make-busy plug into line vertical unit jack.	At relay rack frame for sleeve-busy relay unit— Corresponding B_ relay momentarily operated.
13a	Repeat Steps 11a and 12a to test each remaining line in first tens block. In repeating, substitute line under test for directory number.	
14b	If lines in first tens block of hunting group are associated with auxiliary lines which are arranged for a subgroup-busy indication over ABT_ relay chain— At relay rack frame for auxiliary line unit associated with directory number of hunting group— Block operated all SR_ or S_ relays of first tens block of hunting group.	At number group frame— ABT_ relay operated for first tens block.
15b	At relay rack frame for auxiliary line unit— Remove and replace blocking tool from lowest numbered SR_ or S_ relay.	If line is idle— SR_ or S_ relay released. At number group frame— ABT_ relay momentarily released.
16b	Repeat Step 15b for each remaining SR_ or S_ relay in tens block.	
17b	Remove blocking tools from all SR_ or S_ relays.	If any line in first tens block is busy— Associated SR_ or S_ relay remains operated.
18b	Repeat Steps 15b through 17b using S2 relay instead of SR_ or S_ relay.	
19c	If there is more than one tens block in hunting group in a number group— Repeat Steps 8a through 18b for each remaining tens block in hunting group. When repeating Steps 8a through 18b substitute TBT_ relay for ABT_ relay and tens block under test as first tens block.	
20	Repeat Steps 8a through 19c for each remaining number group in hunting group.	

STEP	ACTION	VERIFICATION

Block Select Hunting Group

STEP	ACTION	VERIFICATION
21	At OTF— Set A through G DIAL switches to direct call to line in the selected allotted group.	
22	Operate NGA, PBX2 keys.	NGA lamp lighted.
23	Operate MCB key to control make-busy.	
24	Set NGT_ switch as required to select a number group associated with the allotted PBX terminal hunting group selected.	
25	Operate S_ key for units digit of line in second tens block of hunting group.	
26	At number group frame— Request assistant to block operated ABT_ relay of first tens block of hunting group.	
27	When TBT_ relay of second tens block is released— At OTF— Operate ST key.	At TIC— FTT_, FUT_, VGT_, HGT_, VFT_ lamps lighted indicating line location in second tens block as determined by selected units digit.
28	Momentarily operate RLS key.	All lamps extinguished.
29	At OTF— Restore ST key.	
30	Operate S_ key for units digit of line in next higher numbered tens block in hunting group.	
31	At number group frame— Request assistant to block operated all TBT_ relays of tens block previously tested. *Caution: **Blocking operated TBT_ relays denies terminating traffic to all lines within the associated tens block. Therefore, block operated TBT_ relays for as short a time as possible.***	
32	When TBT_ relay of tens block associated with Step 31 is released— At OTF— Operate ST key.	At TIC— FTT_, FUT_, VGT_, HGT_, VFT_ lamps lighted indicating line location in next higher numbered tens block in hunting group.
33	At number group frame— Request assistant to remove blocking tools from all ABT_, TBT_ relays.	If any line in first tens block is busy— Associated ABT_ or TBT_ relay remains operated.

STEP	ACTION	VERIFICATION
34	At OTF— Restore ST key.	
35	At TIC— Momentarily operate RLS key.	All lamps extinguished.
36	Repeat Steps 30 through 35 for each remaining tens block until each tens block in hunting group has been tested.	
37	Repeat Steps 24 through 35 for each remaining number group that has more than one tens block.	
38d	If all number groups associated with allotted PBX terminal hunting groups have not been tested in Steps 24 through 28— Select from office records allotted PBX terminal hunting groups having numbers in the untested number groups.	
39	Repeat Steps 21 through 37 for untested number groups selected.	
40	Restore all keys and switches not required in next test.	

E. Number Group Preference—Allotted Hunting Groups

STEP	ACTION	VERIFICATION
8	At OTF— Set A through G DIAL switches to intraoffice code and a line in first number group of hunting group.	
9	Operate PBX2 key.	
10	Operate S_ key for line in second tens block of hunting group.	
11	At number group frame— Request assistant to block operated all ABT_, TBT_ relays associated with hunting group in approximately half of associated number groups. *Caution: Do not block ABT_, TBT_ relays for all number groups associated with hunting group since this would deny terminating traffic to all lines in hunting group.*	

STEP	ACTION	VERIFICATION
12	At PBX allotter frame associated with marker used in test— Insert plug of 32A test set into RC jack.	
13	Momentarily operate white (ST) button of 32A test set.	NGT_ relays momentarily operated corresponding to number groups A through H which have ABT_, TBT_ relays blocked operated. If hunting group is distributed over 3, 5, 6 or 7 number groups— NGT_ relays also momentarily operated in accordance with PBX allotter cross-connections for the NNG terminal.
14	Momentarily operate red (RL) button of 32A test set.	
15	At number group frame— Request assistant to remove blocking tools from ABT_, TBT_ relays.	
16	Repeat Steps 11 through 15 with ABT_, TBT_ relays blocked operated in remaining number groups associated with hunting group.	
17	At PBX allotter frame associated with marker used in test— Remove plug of 32A test set from RC jack.	
18	At OTF— Restore all keys and switches not required in next test.	

F. XSC Relay Check

STEP	ACTION	VERIFICATION
7	At jack, lamp, and key circuit— Insert 322A make-busy plug into M_C_MB jack of marker under test.	
8	At marker— Connect together the terminals for units digit of the selected numbers, using testing cord. *Note:* Terminals are located in U section of terminal strip TP.	
9	At OTF— Set A through G DIAL switches to intraoffice code and lowest number selected.	
10	Operate MCB key to control make-busy.	

STEP	ACTION	VERIFICATION
11	Operate ST key.	At TIC— FUT_, VGT_, HGT_ lamps light for combination of line locations of the two numbers. *Note:* VFT_ and RCT10 lamps will not light.
12	At OTF— Restore ST key.	
13	At TIC— Momentarily operate RLS key.	All lamps extinguished.
14	At marker frame— Remove testing cord.	
15	At jack, lamp, and key circuit— Remove make-busy plug from M_C_MB jack.	
16	At OTF— Restore all keys and switches not required for next test.	

G. Two-Line Number

8	Set A through G DIAL switches to select intraoffice code and first line of 2-line number.	
9	At OTF— Operate ST key.	At TIC— FUT_, VGT_, HGT_, VFT_ lamps lighted for first line of 2-line number.
10	Momentarily operate RLS key.	All lamps extinguished.
11	At OTF— Restore ST key.	
12	At line link frame— Make first line of 2-line number busy.	
13	At OTF— Operate ST key.	At TIC— FUT_, VGT_, HGT_, VFT_ lamps lighted for second line of 2-line number.
14	Momentarily operate RLS key.	All lamps extinguished.
15	At OTF— Restore ST key.	
16	At line link frame— Restore first line of 2-line number.	

STEP	ACTION	VERIFICATION
17	At OTF— Restore all keys and switches not required in next test.	