

**NUMBER GROUP AND CONNECTOR CIRCUIT  
NONWIRE-SPRING-RELAY TYPE**

**TESTS**

**NO. 5 CROSSBAR OFFICES**

**1. GENERAL**

**PAGE**

**1.01** This section is reissued for the following reasons:

- (a) Test J is added to test calling line identification features.
- (b) To revise tests E and H for testing in offices equipped with block select test control.
- (c) To revise the selection of circuits and test conditions at the master test frame (MTF) in accordance with Section 218-106-301
- (d) To make minor changes as required.

Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

**1.02** This issue affects Equipment Test Lists.

**1.03** The tests covered are:

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**A. Marker Preference Chain—Transfer and Alarm Features:** This test checks the ability of the marker preference chain transfer circuit to recognize an open in the chain circuit, to cause the transfer from one marker chain to another, and to sound the minor alarm. . . .

**5**

**B. Frame Make-Busy Number Groups Equipped With Line Numbers or Both Line and Trunk Numbers:** This test checks that calls attempting to complete to line numbers or trunk numbers in a number group which is made busy will receive an overflow signal. . . .

**6**

**C. Sleeve Lead Check:** This test checks the continuity of the assigned sleeve leads through the SC<sub>-</sub> and MCC<sub>-</sub> relays to the markers. . . . .

**7**

**D. Tens Block Advance—Terminal Hunting Block Hunt Numbers:** This test checks the ability of the number group to function with the marker to advance hunting to the next tens block when the lines in the preceding tens block test busy. . . . .

**8**

**E. Tens Block Advance—Terminal Hunting Block Select Numbers—Nonallotted Hunting Groups:** This test checks the ability of the number group to function with the marker to advance hunting to a tens block with idle lines when lines in the first tens block test busy. . . . .

**9**

**F. XSC Relay Check:** This test checks that the XSC relay will operate when two or more SC<sub>-</sub> relays, that are associated with the same tens block, operate at the same time. . . . .

**15**

**G. Frame Make-Busy—Number Groups Equipped with Trunk Numbers Only:** This test checks that calls attempting to complete to a number group which has been made busy and which serves only trunks, will cause the marker to seize the associated alternate number group. . . . .

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**H. Tens Block Busy Indication and Advance—Allotted Hunting Groups:** This test checks the subgroup busy indication for each tens block of allotted

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hunting groups. It also checks the block select feature for each number group of the hunting group. . . . .	20
<b>I. Number Group Preference—Allotted Hunting Groups:</b> This test checks the ability of the number group to function with the marker and PBX allotter to determine which number groups of an allotted hunting group have idle lines. . . . .	22
<b>J. Calling Line Identification Features:</b> This test checks that a trouble card will be perforated and a calling line identification alarm sounded when a terminating call is completed to a number which is cross-connected in the number group for calling line identification.	
<b>1.04</b> All connecting leads between the marker and the number group and connector circuit, 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.	
<b>1.05</b> All tests covered in this section should be made during periods of light traffic.	
<b>Caution:</b> Tests E, H and I deny incoming service to line under test.	
<b>1.06</b> Test B requires that a number group and connector circuit be made busy. Whenever it is necessary to take a number group frame out of service, the traffic department should be advised in accordance with local instructions.	
<b>1.07</b> The locations of required action and verification for each test is shown in Table A.	
<b>1.08 Lettered Steps:</b> 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.

**1.09** The manner of selecting some circuits and test conditions at the 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.

**1.10** The location statement, At MTF\_, is used to refer to all apparatus located on the four basic bays of the MTF.

**2. APPARATUS**

**Tests B Through I**

**2.01** Master test control circuit SD-25800-01.

**Tests A, B, E, H, I**

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

**Tests B, G**

**2.03** 349A (make-busy) plugs.

**Tests E, H**

**2.04** 351C (make-busy) plugs as required.

**2.05** Two 52-type head telephone sets.

**Test F, J**

**2.06** 322A (make-busy) plug.

**Test F**

**2.07** Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two 419A (test connector) tools (for connecting to relay springs).

TABLE A

LOCATION	TESTS									
	A	B	C	D	E	F	G	H	I	J
No. Group Connector	X									
MTF		X	X	X	X	X	X	X	X*	X
No. Group		X			X		X	X	X*	X*
Relay Rack Frame for Sleeve Busy Unit					X					
Line Link Frame					X			X		
Relay Rack Frame for Auxiliary Line Ckt.					X			X		
Marker Frame						X*				X*
PBX Allotter Frame									X	
Called No. Detector Ckt.										X*

\* Action Only

**Test I****2.08** 32A test set.**Test J**

**2.09** Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two KS-6278 connecting clips (for making test connections at number group frame).

**2.10** Testing cord, 893 cord, 3 feet long, equipped with two 360A tools (1W13A cord) and two 624B (terminal connector) tools (for connecting to terminal strips with wire-wrapped-type terminals) or two 419A (test connector) tools (for connecting to terminal strips with solder-type terminals).

**2.11** 639A (relay contact connector) tools and 651-type (contact connector holder) tools as

required (for making test connections to fixed contacts of wire-spring-type relays).

**3. PREPARATION****Test C**

**3.01** Consult office records for numbers of all lines in the terminal hunting group. For an allotted hunting group, also determine which number groups correspond to designations A through H in the PBX allotter.

**Test D**

**3.02** Consult office records for numbers of all lines in the block hunting, terminal hunting group. Also, determine which are the first, intermediate, and last tens blocks of the group.

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**Test E**

**3.03** Consult office records for the following information for each nonallotted block select hunting group under test:

- (a) Number of all lines in the terminal hunting group
- (b) The first, intermediate, and last tens blocks of the group
- (c) The TBT- relay for each tens block.

**Test F**

**3.04** Consult office records for lines for 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
- (c) The terminals on the marker translator and route relay frame corresponding to the units digits of the selected two numbers.

**Test H**

**3.05** Consult office records for the following information for each allotted hunting group under test:

- (a) Number of all 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 I**

**3.06** Consult office records for 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.

**3. PREPARATION (Cont)**

STEP	ACTION	VERIFICATION
<b>All Tests Except A</b>		
1	At MTF— Restore all keys and switches.	All lamps extinguished.
2	Momentarily operate RL key.	
3	Select INC class of test.	
4	Select trunk link frame.	

STEP	ACTION	VERIFICATION
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**Tests C Through F, and H Through J**

- |   |                                       |  |
|---|---------------------------------------|--|
| 5 | Select combined or completing marker. |  |
|---|---------------------------------------|--|

**4. METHOD**

STEP	ACTION	VERIFICATION
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**A. Marker Preference Chain Transfer and Alarm**

**TR Key Provided**

- |   |  |  |
|---|--|--|
| 1 | At connector frame—<br>Restore TR key if operated. | TR <sub>-</sub> relays released.   |
| 2 | Momentarily insulate 6T contact of TR relay.       | CH relay momentarily operated.<br>TR, TR <sub>-</sub> relays operated.<br>Minor alarm sounded.<br>CH lamp lighted. |
| 3 | Momentarily operate AR key.                        | Minor alarm silenced.<br>TR, TR <sub>-</sub> relays released.<br>CH lamp extinguished.                             |
| 4 | Operate TR key.                                    | TR <sub>-</sub> relays operated.   |
| 5 | Momentarily insulate 6T of TR relay.               | TR relay operated.<br>TR <sub>-</sub> relays released.<br>Minor alarm sounded.<br>CH lamp lighted.                 |
| 6 | Momentarily operate AR key.                        | Minor alarm silenced.<br>TR relay released.<br>TR <sub>-</sub> relays operated.<br>CH lamp extinguished.           |
| 7 | Operate TR key if restored in Step 1.              |  |

**MTR Key Provided**

- |     |  |  |
|-----|--|--|
| 8   | At connector frame—<br>Observe TR relay.                     |  |
| 9a  | If TR relay is <i>not</i> operated—<br>Proceed with Step 12. |  |
| 10b | If TR relay is operated—<br>Momentarily operate MTR key.     | CH relay momentarily operated.<br>TR, TR <sub>-</sub> relays released.<br>Minor alarm sounded.<br>CH lamp lighted. |

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STEP	ACTION	VERIFICATION
11b	Restore AR key.	Minor alarm silenced. CH lamp extinguished.
12	Momentarily operate MTR key.	TR, TR <sub>-</sub> relays operated. Minor alarm sounded. CH lamp lighted.
13	Operate AR key.	Minor alarm silenced. CH lamp extinguished.
14c	If TR relay was <i>not</i> operated at start of test— Momentarily operate MTR key.	TR, TR <sub>-</sub> relays released. Minor alarm sounded. CH lamp lighted.
15c	Restore AR key.	Minor alarm silenced. CH lamp extinguished.

**B. Frame Make Busy - Number Groups Equipped with Line Numbers or Both Line Numbers and Trunk Numbers**

5	Select A <sub>-</sub> through D <sub>-</sub> digits for any line number in number group.	
6a	If more than six markers are provided— At number group connector frame— Block nonoperated MB1 relay.	
7	At number group— Insert make-busy plug into NMB jack.	NMB lamp lighted. Major alarm sounded.

***Caution: The plug in the NMB jack removes the number group and connector from service denying service to all numbers in number group.***

8	At MTF— Select marker 0.	
9	Momentarily operate ST key.	OFL lamp lighted.
10	Momentarily operate RL key.	All lamps extinguished.
11	Repeat Steps 8 through 10 for each marker associated with MB0 relay.	
12	At number group— Remove make busy plug from NMB jack.	NMB lamp extinguished. Major alarm silenced.
13a	If more than six markers are provided— Remove make busy tool from MB1 relay.	

STEP	ACTION	VERIFICATION
14a	Block nonoperated MB0 relay.	
15a	Insert make-busy plug into NMB jack.	NMB lamp lighted. Major alarm sounded.
16a	At MTF— Select lowest numbered marker associated with MB1 relay.	
17a	Momentarily operate ST relay.	OFL lamp lighted.
18a	Momentarily operate RL key.	All lamps extinguished.
19a	Repeat Steps 16a through 18a for each marker associated with MB1 relay.	
20a	At number group— Remove blocking tool from MB0 relay.	
21a	Remove make-busy plug from NMB jack.	NMB lamp extinguished. Major alarm silenced.

### C. Sleeve Lead Check

6	Operate REC, PBXH keys.	
7a	If lines are in nonallotted hunting group— Select A_ through D_ digits as required to direct call to lowest number in first tens block.	
8b	If lines are in allotted hunting group— Select A_ through D_ digits as required to direct call to lowest number in tens block other than directory number tens block.	
9	Select incoming trunk class as required for local completion.	
10	Select incoming class of call and translator indication as required for local completion.	
11	Select S_ for line in tens block corresponding to units digit.	
12	Momentarily operate ST key.	LK2, MRL lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating line location associated with sleeve lead under test.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
		<i>Note:</i> If BY or TRL lamps are lighted instead of LK2 lamp, it <i>may</i> indicate that line is busy or sleeve lead is open or falsely grounded.
13	Momentarily operate RL key.	All lamps extinguished.
14	Repeat Steps 11 through 13 selecting S_ for each line in tens block associated with number selected.	
15c	If hunting group has more than one tens block— Repeat Steps 7a or 8b through 14 for each remaining tens block.	
16b	If lines are in allotted hunting group— Operate NGT, NG_ keys for all but selected number group frame.	
17b	Select A_ through D_ digits as required to direct call to directory number of allotted hunting group.	
18b	Select S_ for line in tens block corresponding to directory number units digit.	
19b	Momentarily operate ST key.	LK2, MRL lamps lighted. Trouble recorded taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating line location associated with sleeve lead under test.
20b	Momentarily operate RL key.	All lamps extinguished.
21b	Repeat Steps 18b through 20b selecting S_ for each line in tens block.	
22	Restore all keys and switches.	

**D. Tens Block Advance—Terminal Hunting Block Hunt Numbers**

- 6 Operate EBH, REC keys.
- 7 Select A\_ through D\_ digits as required to direct call to lowest number in first tens block in block hunting group.
- 8 Select S\_ for line in tens block of next tens block of hunting group.

STEP	ACTION	VERIFICATION
9	Select incoming class of call and translator indication as required for local completion.	
10	Select incoming trunk class as required for local completion.	
11	Momentarily operate ST key.	LK2, MRL lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating line location in next tens block as determined from selected S_.
		<i>Note:</i> If perforations on trouble recorder card are for line location in a succeeding tens block instead of next tens block, it may indicate that lines in next tens block and any intermediate tens blocks are busy or that sleeve connections are open or falsely grounded. If all lines corresponding to selected units digit in each succeeding tens block are busy or in trouble, BY lamp instead of LK2 lamp will be lighted.
12	Momentarily operate RL key.	All lamps extinguished.
13	Repeat Steps 7 through 12 for each remaining tens block until each tens block in each hunting group has been selected.	
14	Restore all keys and switches.	

**E. Tens Block Advance—Terminal Hunting Block  
Select Numbers—Nonallotted Hunting Groups**

*All Lines*

6a	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— Insert plug of first telephone set into TEL jack.	
7a	At number group frame— Insert plug of second telephone set into TEL jack.	
8a	At relay rack frame for sleeve-busy relay unit— Block operated all B_ relays of second tens block of hunting group.	At number group frame— TBT_ relay operated for second tens block.

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STEP	ACTION	VERIFICATION
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 relay in tens block.	
11a	At relay rack frame for sleeve busy relay unit— Remove blocking tools from all B_ relays.	At number group frame— TBT relay released. B_ relays released for idle lines.
		<i>Note:</i> B_ relay associated with any busy line will remain operated.
12a	Remove second telephone set from TEL jack.	
13a	At line link frame associated with directory number of hunting group— Insert plug of second telephone set into TEL jack.	
14a	When hold magnet associated with directory number is released— Momentarily insert make-busy plug into line vertical unit jack.	At relay rack frame for sleeve busy relay unit— B_ relay associated with directory number momentarily operated.
15a	Repeat Steps 13a, 14a to test each remaining line in second tens block.	
16a	Remove telephone set from TEL jack.	
17a	At line link frame— Remove telephone jack from TEL jack.	
18b	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 number group frame— Insert plug of first telephone set into TEL jack.	
19b	At relay rack frame for auxiliary line unit associated with directory number of hunting group— Insert plug of second telephone set into TEL set.	
20b	Block operated all SR_ and S_ relays of second tens block of hunting group.	At number group frame— TBT_ relay operated for second tens block.

STEP	ACTION	VERIFICATION
21b	At relay rack from 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 while blocking tool removed. At number group frame— TBT_ relay for second tens block released while blocking tool removed.
22b	Repeat Step 21b for each remaining SR_ or S_ relay in tens block.	
23b	Remove blocking tools from all SR_ or S_ relays.	If any line in second tens block is busy— Associated SR_ or S_ relay released.
24b	Repeat Steps 20b through 23b using S2 relay instead of SR_ or S_ relays.	
25b	Remove telephone sets from TEL jacks.	
26b	At relay rack for auxiliary line circuit— Remove telephone set from TEL jack.	
27c	If there is more than one tens block in hunting group in number group— Repeat Steps 6a through 26b.	

**PBX Block Select Hunting, Test Control Not Provided  
(Number Group Not Equipped with TSC\_, TST\_  
Relays)**

28	At MTF— Operate EBH, REC keys.	
29	Select A_ through D_ digits as required to direct call to directory number of hunting group.	
30	Select S_ for line in tens block of second tens block of hunting group.	
31	Select incoming class of call and translator indication as required for local completion.	
32	Select incoming trunk class as required for local completion.	
33	Momentarily operate ST key.	LK2, MRL lamps lighted. Trouble record taken. FTT_, FVT_, VGT_, HGT_, VFT_ indications perforated indicating line location of line selected in second tens block.

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STEP	ACTION	VERIFICATION
		<i>Note:</i> If BY or TRL lamps are lighted instead of LK2 lamp, it <i>may</i> indicate that called line is busy or sleeve lead is open or falsely grounded.
34	Momentarily operate RL key.	All lamps extinguished.
35	Insert plug of first telephone set into TEL jack.	
36	Operate LOC FR L key.	
37	Select S <sub>1</sub> for line in tens block of next tens block in hunting group.	
38	At number group— Insert plug of second telephone set into TEL jack.	
39	Block operated TBT <sub>1</sub> relay of tens block previously tested.	
	<i>Caution: Blocking operated TBT<sub>1</sub> relays denies terminating traffic to all lines within the associated tens block. Therefore, block operated TBT<sub>1</sub> relays for as short a time as possible.</i>	
40	When TBT <sub>1</sub> relay of tens block associated with Step 37 is released— At MTF— Momentarily operate ST key.	LK2, MRL lamps lighted. Trouble record taken. FTT <sub>1</sub> , FUT <sub>1</sub> , VGT <sub>1</sub> , HGT <sub>1</sub> , VFT <sub>1</sub> designations perforated indicating line location of line in tens block selected in Step 37.  <i>Note:</i> If BY or TRL lamps are lighted instead of LK2 lamp, it <i>may</i> indicate that called line is busy or sleeve lead is open or falsely grounded.
41	Momentarily operate RL key.	All lamps extinguished.
42	Repeat Steps 37, 39 through 41 for each remaining tens block in hunting group.	
43	At number group— Remove blocking tools from all TBT <sub>1</sub> relays.	
44	Remove plug of second telephone set from TEL jack.	

STEP	ACTION	VERIFICATION
45	At MTF— Remove plug of first telephone set from TEL jack.	
46	Restore all keys and switches.	
<b>PBX Block Select Hunting, Test Control Provided (Number Group Equipped with TSC_, TST_ Relays)</b>		
47	At MTF— Operate EBH, NGBS, REC keys.	
48	Set TBT_, TBU_ switches to select second tens block of hunting group.	
49	Select A_ through D_ digits as required to direct call to directory number of hunting group.	
50	Select S_ for line in tens block of second tens block of hunting group.	
51	Select incoming class of call and translator indication as required for local completion.	
52	Select incoming trunk class as required for local completion.	
53	Momentarily operate ST key.	LK2, MRL lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, VFT_ designations perforated indicating line location of line selected in second tens block.
<b>Note:</b> If BY or TRL lamps are lighted instead of LK2 lamp, it <i>may</i> indicate that called line is busy or sleeve lead is open or falsely grounded.		
54	Momentarily operate RL key.	All lamps extinguished.
55	Set TBT_, TBU_ switches to select next tens block in hunting group.	
56	Select S_ for line in tens block of next tens block of hunting group.	
57	Momentarily operate ST key.	LK2, MRL lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating line location of selected line in tens block.

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STEP	ACTION	VERIFICATION
		<i>Note:</i> If BY or TRL lamps are lighted instead of LK2 lamp, it <i>may</i> indicate that line is busy or sleeve lead is open or falsely grounded.
58	Momentarily operate RL key.	All lamps extinguished.
59	Repeat Steps 55 through 58 for each remaining tens block of hunting group.	
60	Restore all keys and switches.	
<b>F. XSC Relay Check</b>		
6	Operate PBXH key.	
7	From office records, select two telephone numbers, one each in separate terminal hunting groups in same tens block.	
8	Select A_ through D_ digits corresponding to lower number selected.	
9	Select S_ for line in tens block corresponding to units digit of lower number selected.	
10	Select incoming class of call and translator indication as required for local completion.	
11	Select incoming trunk class as required for local completion.	
12	Insert make-busy plug into MB_ jack associated with selected marker.	
13	At marker made busy— Connect 1B of SA_ relay associated with selected S_ to 1B of SA_ relay associated with units digit of higher number selected.	
	<i>Note:</i> For U and Y markers, terminals are located on U section of terminal strip AD on the translator and route relay frame. For wire-spring-relay type markers, terminals are located on U section of terminal strip TP on the translator and code treatment frame.	
14	At MTF— Momentarily operate ST key.	TRL lamp lighted. Trouble record taken. FTT_, FUT_, HGT_, VFT_ designations perforated corresponding to some combination of line locations of the two numbers.

STEP	ACTION	VERIFICATION
		VFT_, RCT_ not perforated. If marker is equipped with XSC relay— XSC designation perforated.
15	Momentarily operate RL key.	All lamps extinguished.
16	At marker made busy— Remove test connection from SA_ relays.	
17	At MTF_ Remove make-busy plug from MB_ jack.	
18	Restore all keys and switches not required in next test.	
<b>G. Frame Make Busy-Number Groups Equipped with Trunk Numbers Only</b>		
5	Select marker 0.	
6	Select A_ through C_ digits as required for a toll or office code requiring tandem completion.	
7	Select TOL or TAN incoming class of call and translator indication as required for TOL or TAN route selected.	
8	Operate REC key.	
9	Momentarily operate ST key.	Trouble record taken. NGC-TH indication perforated corresponding to number group number associated with even connector preference.
10	Momentarily operate RL key.	
11	At number group under test— Insert make-busy plug into NMR_ jack associated with even connector preference.	NMB_ lamp lighted. Major alarm sounded.
12	At MTF— Momentarily operate ST key.	Trouble record taken. NGC-TH indication perforated corresponding to number group number associated with odd connector preference.
13	Momentarily operate RL key.	
14	At number group under test— Remove make-busy plug from NMR_ jack.	NMB_ lamp extinguished. Major alarm silenced.
15	At MTF— Operate OCN key.	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
16	Momentarily operate ST key.	Trouble record taken. NGC-TH indication perforated corresponding to number group number associated with odd connector preference.
17	Momentarily operate RL key.	
18	At number group under test— Insert make-busy plug into NMB_ jack of number group for odd connector preference.	NMB_ lamp lighted. Major alarm sounded.
19	At MTF— Momentarily operate ST key.	Trouble record taken. NGC-TH indication perforated corresponding to number group number associated with even connector preferences.
20	Momentarily operate RL key.	
21	At number group under test— Remove make busy plug from NMB_ jack.	NMB_ lamp extinguished. Major alarm silenced.
22	At MTF— Restore OCN key.	
23	Repeat Steps 5 through 22 for each remaining combined or completing marker.	
24	Restore all keys and switches.	

**H. Tens Block Busy Indication and Advance-Allotted Hunting Groups**

**All Lines**

6a	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 of number group associated with directory number of hunting group— Block operated all B_ relays of first tens block.	ABT_ relay operated associated with first tens block.
7a	Momentarily remove blocking tool from lowest numbered B_ relay.	If associated line is idle— ABT_, B_ relays momentarily released while blocking tool removed.
8a	Repeat Step 7a for each remaining B_ relay in tens block.	
9a	Remove blocking tools from B_ relays.	ABT_, B_ relays released.

STEP	ACTION	VERIFICATION
		<i>Note:</i> If a line is busy the associated line will remain operated.
10a	At line link frame associated with directory number— When hold magnet associated with directory number is released— Momentarily insert make-busy plug into line vertical unit.	At number group under test— Corresponding B <sub>-</sub> relay momentarily operated.
11a	Repeat Step 10a for each remaining line in tens block.	
12b	If lines in first tens block of hunting group are associated with auxiliary line circuits and arranged for a subgroup-busy indication over ABT <sub>-</sub> relay chain— At relay rack frame for auxiliary line unit— Insert plug of first telephone set into TEL jack.	
13b	At number group— Insert plug of second telephone set into TEL jack.	
14b	At relay rack frame for auxiliary line circuit frame— Block operated all SR <sub>-</sub> or S <sub>-</sub> relays associated with first tens block of hunting group.	At number group under test— ABT <sub>-</sub> relay operated for first tens block.
15b	At relay rack frame for auxiliary line circuit frame— Momentarily remove blocking tool from lowest numbered SR <sub>-</sub> or S <sub>-</sub> relay.	If line is idle— SR <sub>-</sub> or S <sub>-</sub> relay released. At number group under test— ABT <sub>-</sub> relay released while blocking tool removed.
16b	Repeat Step 14b for each remaining SR <sub>-</sub> or S <sub>-</sub> relay associated with first tens block.	
17b	At relay rack frame for auxiliary line unit— Remove blocking tools from all SR <sub>-</sub> or S <sub>-</sub> relays.	
18	Repeat Steps 6a through 17b for each remaining tens block in hunting group substituting TBT <sub>-</sub> relay for ABT <sub>-</sub> relay in verification.	
19b	If lines in first tens block of hunting group are associated with auxiliary line circuits and arranged for a subgroup-busy indication over ABT <sub>-</sub> relay chain— At relay rack frame for auxiliary line unit—	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
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Remove plug of first telephone set from TEL jack.

20b At number group—  
Remove plug of second telephone set from TEL jack.

21 Repeat Steps 6a through 20b for each number group associated with hunting group.

**Block Select Hunting Group, Test Control Not Provided  
(Number Group Not Equipped With TSC\_, TST\_  
Relays)**

22 At MTF—  
Select A\_ through D\_ digits as required to direct call to directory number of hunting group.

23 Select S\_ for line in tens block of second tens block of hunting group.

24 Select incoming class of call and translator indication as required for local completion.

25 Select incoming trunk class as required for local completion.

26 Operate EBH, NGT, REC keys.

27 Operate (pull-out) NG\_ keys for all except number group under test.

28 Insert plug of first telephone set into TEL jack.

29 Operate LOC FR L key.

30 At number group—  
Insert plug of second telephone set into TEL jack.

31 Block operated ABT\_ relay of first tens block in hunting group.

32 When TBT\_ relay of second tens block is released—  
At MTF—  
Momentarily operate ST key.

LK2, MRL lamps lighted.  
Trouble record taken.  
FTT\_, FUT\_, VGT\_, HGT\_, VFT\_ designations perforated indicating line location associated with line selected in second tens block.

STEP	ACTION	VERIFICATION
		<i>Note:</i> If BY or TRL lamps are lighted instead of LK2 lamp, it <i>may</i> indicate that called line is busy or sleeve lead is open or falsely grounded.
33	Momentarily operate RL key.	All lamps extinguished.
34	Select S <sub>1</sub> for line in tens block of next tens block of hunting group.	
35	At number group under test— Block operated TBT <sub>1</sub> relay of tens block previously tested.	
	<i>Caution: Blocking operated TBT<sub>1</sub> relays denies terminating traffic to all lines within the associated tens block. Therefore, block operated TBT<sub>1</sub> relays for as short a time as possible.</i>	
36	When TBT <sub>1</sub> relay associated with line in tens block selected in Step 34 is released— At MTF— Momentarily operate ST key.	LK2, MRL lamps lighted. Trouble record taken. FTT <sub>1</sub> , FUT <sub>1</sub> , VGT <sub>1</sub> , HGT <sub>1</sub> , VFT <sub>1</sub> designations perforated indicating line location associated with selected line in tens block.
		<i>Note:</i> If BY or TRL lamps are lighted instead of LK2 lamp, it <i>may</i> indicate that called line is busy or sleeve lead is open or falsely grounded.
37	Momentarily operate RL key.	All lamps extinguished.
38	Repeat Steps 34 through 37 for remaining tens blocks in hunting group.	
39	At number group under test— Remove blocking tools from all ABT <sub>1</sub> , TBT <sub>1</sub> relays.	
40	Restore NGT, NG <sub>1</sub> keys.	
41	Repeat Steps 22 through 40 for each number group in hunting group.	
42	Restore all keys and switches.	
<b>Block Select Hunting Group, Test Control Provided (Number Group Equipped with TSC<sub>1</sub>, TST<sub>1</sub> Relays)</b>		
43	At MTF— Operate EBH, NGBS, NGT, REC keys.	

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STEP	ACTION	VERIFICATION
44	Set TBT_, TBU_ switches to select second tens block in hunting group.	
45	Operate (pull-out) NG_ keys for all but selected number group under test.	
46	Select A_ through D_ digits as required to direct call to directory number of hunting group.	
47	Select S_ for line in tens block of second tens block of hunting group.	
48	Select incoming class of call and translator indication as required for local completion.	
49	Select incoming trunk class as required for local completion.	
50	Momentarily operate ST key.	LK2, MRL lamps lighted. Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating line location in second tens block.
		<i>Note:</i> If BY or TRL lamps are lighted instead of LK2 lamp, it <i>may</i> indicate that called line is busy or sleeve lead is open or falsely grounded.
51	Momentarily operate RL key.	All lamps extinguished.
52	Set TBT_, TBU_ switches to select next tens block of hunting group.	
53	Select S_ for line in tens block of next tens block.	
54	Repeat Steps 50, 51.	
55	Repeat Steps 52 through 54 for each remaining tens block in hunting group.	
56	Restore all keys and switches.	
<b>I. Number Group Preference - Allotted Hunting Groups</b>		
6	Select A_ through D_ digits as required to direct call to directory number of hunting group.	

STEP	ACTION	VERIFICATION
7	Select S <sub>1</sub> for line in tens block of second tens block in hunting group.	
8	Select incoming class of call and translator indication as required for local completion	
9	Select incoming trunk class as required for local completion.	
10	At number group frame— Block operated ABT <sub>1</sub> , TBT <sub>1</sub> relays associated with hunting group in approximately half of associated number groups.  <i>Caution: Do not block ABT<sub>1</sub>, TBT<sub>1</sub> relays for all number groups associated with hunting group since this would deny terminating traffic to all lines in hunting group.</i>	
11	At PBX allotter frame associated with marker used in test— Insert plug of 32A test set into RC jack.	
12	Momentarily operate white (ST) button of 32A test set.	NGT-relays momentarily operated corresponding to number groups A through H which have ABT <sub>1</sub> , TBT <sub>1</sub> relays blocked operated. If hunting group is distributed over 3, 5, 6 or 7 number groups— NGT <sub>1</sub> relays also momentarily operated in accordance with PBX allotter cross-connections for the NNG terminal.
13	Momentarily operate red (RL) button.	
14	At MTF— Select next combined or completing marker.	
15	Repeat Steps 11 through 13 and 14 as required for each combined or completing marker.	
16	At number group frame— Remove blocking tools from ABT <sub>1</sub> , TBT <sub>1</sub> relays for all number groups tested.	
17	Repeat Steps 11 through 16 with ABT <sub>1</sub> , TBT <sub>1</sub> relays blocked operated in remaining number groups associated with hunting group.	
18	At PBX allotter frame associated with marker used in test— Remove plug of 32A test set from RC jack.	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
19	At MTF— Restore all keys and switches.	
<b>J. Calling Line Identification Features</b>		
6	Select incoming class of call and translator indication as required for calling line identification.	
7	Select incoming trunk class as required for completion to called line.	
8a	If number associated with number group under test is arranged for calling line identification— Select A_ through E_ digits as required to direct call to number arranged for calling line identification in number group under test.	
9b	If no number associated with number group under test is connected for calling line identification— At number group under test— Remove F_ to RF_ cross-connection jumper from a test number and replace with test jumpers F_ to F1 and RF_ to RF1 or RF2.	
10b	At MTF— Select A_ through E_ digits as required to direct call to number connected for calling line identification.	
11b	At called number detector circuit— Set A_ through K_ switches as required to select number arranged for calling line identification.	
12b	At MTF— Operate EN_ key associated with A_ through K_ switches of called number detector circuit.	
13	Insert make-busy plug into MMB_ jack of marker used in test.	
14c	If wire-spring-relay type marker is used in test— At marker frame— Connect ground to 1F of TRST relay.	
15d	If nonwire-spring-relay type marker is used in test— At marker frame— Connect 9T to 10T of MT13 relay.	

STEP	ACTION	VERIFICATION
16	At MTF— Momentarily operate ST key.	INC, MRL lamps lighted. If office alarms are <i>not</i> transferred to distant office— CLI lamp lighted. Alarm sounded. If office alarms are transferred to distant office— At distant office— Calling line identification alarm received. At MTF— Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating line location of called number.
17	Momentarily operate RL key.	All lamps extinguished except CLI lamp.
18	Momentarily operate TRR-AR key.	If office alarms are transferred to distant office— At distant office— Calling line identification alarm silenced. If office alarms are <i>not</i> transferred to distant office— CLI lamp extinguished. Alarm silenced.
19c	If wire-spring-type marker is used in test— At marker frame— Remove ground from 1F of TRST relay.	
20d	If nonwire-spring-type marker is used in test— At marker frame— Remove test connection from 9T, 10T of MT13 relay.	
21	At MTF— Remove make-busy plug from MMB_ jack of marker used in test.	
22e	If number was connected for calling line identification for this test— At number group under test— Remove test jumpers from F_, F1 or F2, RF_, RF1 or RF2 and replace F_ to RF_ cross connections.	
23e	At MTF— Restore EN_ key.	
24e	At called number detector circuit— Restore A_ through K_ switches set for this test.	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
25	At MTF— Restore all keys and switches.	