OUTGOING SENDER CONNECTOR SD-26057-01, SD-26059-01, OR SD-25587-01
AND OUTGOING SENDER LINK CIRCUIT SD-25734-01 OR SD-27628-01

TESTS

NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing outgoing sender connector and outgoing sender link circuits associated with all of the various types of senders and trunks, LLP, and Automatic Intercept System (AIS) line circuits in No. 5 crossbar offices.

1.02 This section is reissued for the following reasons:

(a) To revise test procedures to include offices arranged with Electronic Translation System (ETS).

(b) To make minor changes as required.

Revision arrows have been used to emphasize the more significant changes. This reissue does not affect Equipment Test Lists.

1.03 The tests covered are:

A. Marker Preference Chain Transfer and Alarm—Nonwire Spring Relay: This test checks that the marker preference chain transfer circuit recognizes an open in the chain circuit, sounds an alarm, and transfers to another marker chain. This test covers marker preference chain circuits associated with nonwire-spring-relay type outgoing sender connectors only. For testing marker preference chain circuits associated with wire-spring-relay type connectors, use Section 218-764-501.

B. Trunk Access to Senders: This test checks that each trunk in a trunk group has access to each sender in the associated sender group.

C. Sender Selection by Markers: This test checks that each combined or completing marker has access to each sender in a sender group.

D. False Continuity—MA Relay: This test checks for false continuity on the GBE or GBO leads between the MA relays of the outgoing sender connector and the even or odd markers, respectively.

E. Intermarker Group Operation—Trunk Number Identification: This test checks that the sender link generates the required trunk number on an intermarker group call.

F. CAMA Incoming Trunk Access to CAMA Senders: This test checks that each CAMA incoming trunk has access to each CAMA sender in the associated CAMA sender group.

G. CAMA Intermarker Group Operation—Trunk Number Identification: This test checks that trunk number information is passed to the called marker group on a CAMA intermarker group call.

H. CAMA Junctor Operation—Trunk Number Identification: This test checks...
I. LLP Line Access to Senders:
This test checks that each line circuit in a line circuit group has access to each sender in the associated sender group.

J. Sender Selection by Markers—LLP Mode:
This test checks that each combined or completing marker has access to each sender in a sender group.

K. Sender Group Busy—LLP:
This test checks that the line link pulsing line circuits will be made busy when the associated sender group is busy.

L. AIS Line Access to Senders:
This test checks that each AIS line circuit in a line circuit group has access to each sender in the associated sender group.

1.04 Tests B through D apply to 2- and 4-wire offices; Tests A and E through L apply to 2-wire offices only.

1.05 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.

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

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

1.08 When the office is arranged for ETS, the distributors and scanner associated with the marker and trunk used in the test call must be in service or in a maintenance-busy condition—not in an out-of-service condition. To change a scanner or distributor from an out-of-service to a maintenance-busy condition, use the procedure given in the following section for the office arrangement.


1.09 When the trunk under test is arranged for ETS, the first completed test call from the MTF will cause the TST bit to be set in the trunk register associated with the selected trunk, enabling trunk scanning to be repeated on the FT lamp at the MTF trunk test circuit. As long as the TST bit is set in the trunk register, scanning will continue to be repeated on the lamp, even on service calls. The TST bit will remain set in the trunk register until (1) a test call is made from the MTF to another trunk, or (2) the command STOP:TRK TST is entered at the maintenance TTY.

1.10 On issue 76D of SD-25800-01 a group of 18 "class of test" lamps was replaced by a single "start test" lamp designated STT. Since the designation given to the lamp is not specific, the lamp will not be called out in the section, as well as the 18 discontinued lamps, DT, ORIG, ITDO, ITNP, OGT, INC, OR, SDR, IR, MISC, IAO, MLV, LT, IMS, PTT, TVT, ATNT, and IMT.

1.11 *When making tests in No. 5 crossbar offices arranged with Electronic Translation System and test verification requires a completing marker trace output (teletype printout or data dump) to determine the data used to process a call, operate the TCPO key at the master test frame (MTF). The data dump received at the maintenance teletypewriters (TTY) may be in a raw form (binary or hexadecimal numbering system), formatted into decimal and written text, or a combination of
both. For additional information on data dumps and formats used, refer to Section 218-799-102.

2. APPARATUS

All Tests

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

Tests A, D, F, G

2.02 322A (make-busy) plugs as required.

Tests A, K

2.03 Blocking and insulating tools as required.

Use tools and apply as covered in Section 069-020-801.

Tests B, C, I, J, L

2.04 32A test set.

3. PREPARATION

STEP ACTION

All Tests

Note: Refer to paragraphs 1.04 through 1.11.

1

At MTF—

Restore all keys and switches.

2

Momentarily operate RL key.

All lamps extinguished.

Tests B, C

3a

If test is to be made in 4-wire office—

Operate 4W key.

4a

Select control digits as required.

5

Select A_ through C_ digits for selection of a trunk group requiring the use of a sender.

Tests B, C, E

6b

If allotted trunk groups are provided—

Operate GPA or GPB key.

Tests D, K

2.05 67C test set or equivalent, equipped with one KS-6278 connecting clip (for checking the presence or absence of battery or ground).

Tests F, G

2.06 Patching cord, one P3F cord, 8 feet long, equipped with one 309 plug and one 310 plug (3P12H cord).

Tests F, G, H

2.07 Trunk test circuit, SD-25918-01.

Test H

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

2.09 Testing cord, 20-conductor cord, 6 feet long, equipped with one KS-13875 plug and one KS-13895 plug (W20C cord) (for patching IRT jack to IRT connector on test set).

VERIFICATION

All lamps extinguished.
SECTION 218-160-501

STEP ACTION VERIFICATION

Tests B, C, E, I, J, L

7 Select class of service and rate treatment as required.

8 Select route advance as required.

9c If ETS provided—
Operate PCS, PTS keys as required.

Tests B, C, F, G

10 Select E_ digit.

Note: Omit D_ digit selection.

Tests B, C, H, I, J, L

11 Select ORIG class of test.

12 Select line location.

13 Select originating class of call.

4. METHOD

STEP ACTION VERIFICATION

A. Marker Preference Chain Transfer and Alarm—Nonwire Spring Relay.

3 Insert make-busy plugs into each SCMB_ jack for each marker of outgoing sender connector.

TR and AR Keys Provided

4 At outgoing sender connector frame—
Note if TR key is normal or operated.

5a If TR key is operated—
Restore TR key.

6 Insulate 3T of MP0 relay.

7 Remove insulator from MP0 relay.

8 Momentarily operate AR key.

TR_ relays released.

CH, aisle pilot lamps lighted.
Minor alarm sounds.
TR, TR_ relays operated.

CH, aisle pilot lamps extinguished.
Minor alarm silenced.
TR, TR_ relays released.
### Step 9
Operate TR key.

### Step 10
Insulate 3T of E0 relay.

### Step 11
Remove insulator from E0 relay.

### Step 12
Momentarily operate AR key.

### Step 13b
If TR key was normal at start of test—
Restore TR key.

### Step 14
At MTF—
Remove make-busy plugs from SCMB_ jacks.

#### MTR and AR Keys Provided

### Step 15
At outgoing sender connector frame—
Note if TR relay is operated or normal.

### Step 16a
If TR relay is operated—
Momentarily operate MTR key.

### Step 17a
Restore AR key.

### Step 18
Momentarily operate MTR key.

### Step 19
Operate AR key.

### Step 20b
If TR relay was normal at start of test—
Momentarily operate MTR key.

### Step 21b
Restore AR key.

### Step 22
At MTF—
Remove make-busy plugs from SCMB_ jacks.

#### B. Trunk Access To Senders

### Step 14
Select marker.
### SECTION 218-160-501

<table>
<thead>
<tr>
<th>STEP</th>
<th>ACTION</th>
<th>VERIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Select trunk from trunk group.</td>
<td>SC_, SCSP_ lamps momentarily lighted corresponding to sender connector and position of sender in connector. Trouble record taken. FG_, TF_, LC_, LV_, FAK or FBK designations perforated corresponding to location of trunk on trunk link frame. FR_, CN_, S_ designations perforated corresponding to location of sender in sender connector.</td>
</tr>
<tr>
<td>16</td>
<td>Select lowest numbered sender in subgroup A of type required by trunk group.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Insert plug of 32A test set into RC jack.</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Operate BAT key.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Momentarily operate ST (white) button of 32A test set.</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Momentarily operate RLS (red) button of 32A test set.</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Repeat Steps 19 and 20 until each trunk in trunk group is tested with all senders in associated sender group.</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Remove plug of 32A test set from RC jack.</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Restore all keys and switches not required in next test.</td>
<td></td>
</tr>
</tbody>
</table>

**C. Sender Selection by Markers**

<table>
<thead>
<tr>
<th>STEP</th>
<th>ACTION</th>
<th>VERIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Select trunk from trunk group.</td>
<td>SC_, SCSP_ lamps momentarily lighted corresponding to sender connector, position of sender in connector, and marker used in test. Trouble record taken. FG_, TF_, LC_, LV_, FAK or FBK designations perforated corresponding to location of trunk</td>
</tr>
<tr>
<td>15</td>
<td>Select marker.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Select lowest numbered sender in subgroup A of type required by trunk group.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Insert plug of 32A test set into RC jack.</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Operate BAT key.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Momentarily operate ST (white) button on 32A test set.</td>
<td></td>
</tr>
<tr>
<td>STEP</td>
<td>ACTION</td>
<td>VERIFICATION</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>--------------</td>
</tr>
<tr>
<td>20</td>
<td>Momentarily operate RLS (red) button of 32A test set.</td>
<td>At sender connector frame—No ground on contacts of relay in connector as follows: Nonwire-spring-type 8, 9 of MA relay. Wire-spring-type 1M of MA2 relay, 12M of MA1 relay.</td>
</tr>
<tr>
<td>21</td>
<td>Repeat Steps 19, 20 for each sender in sender group.</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Repeat Steps 19, 20, 21 for each marker.</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Remove plug of 32A test set from RC jack.</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Restore all keys and switches not required in next test.</td>
<td></td>
</tr>
</tbody>
</table>

D. False Continuity—MA Relay

3 Insert make-busy plugs into each SCMB_ jack for each marker of sender connector under test.  

4 Remove make-busy plugs from SCMB_ jacks.  

E. Intermarker Group Operation—Trunk Number Identification

10 Select IMS class of test.  
11 Select marker.  
12 Select A_ through K_ digits for intermarker group trunk with subscriber-to-trunk routing.  
13 Select originating class of call and translator indication as required for intermarker group trunk group.  
14 Select trunk from intermarker group trunk group.  
15 Momentarily operate ST key.  

CK, DISI, LK2, MRL lamps lighted.  
Trouble record taken in called marker group.  
HT_, TT_, UT_ designations perforated on a
**SECTION 218-160-501**

<table>
<thead>
<tr>
<th>STEP</th>
<th>ACTION</th>
<th>VERIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Momentarily operate RL key.</td>
<td>2-out-of-5 code basis in accordance with trunk number of trunk under test. TI, SRT designations perforated.</td>
</tr>
<tr>
<td>17</td>
<td>Repeat Steps 15, 16, using each trunk in trunk group.</td>
<td>CK, DIS1, LK2, MRL lamps extinguished.</td>
</tr>
<tr>
<td>18</td>
<td>Repeat Steps 15, 16, 17, using each trunk group.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Restore all keys and switches not required in next test.</td>
<td></td>
</tr>
</tbody>
</table>

**F. CAMA Incoming Trunk Access To CAMA Senders**

<table>
<thead>
<tr>
<th>STEP</th>
<th>ACTION</th>
<th>VERIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Insert make-busy plug into OGT-MB jack of CAMA incoming trunk.</td>
<td>DIS1, MRL, CK2 lamps lighted. Trouble record taken.</td>
</tr>
<tr>
<td>12</td>
<td>Patch CAMA TST jack to OGT-T jack of trunk selected in Step 11.</td>
<td>FG, TF, LC, LV, FAK or FBK designations perforated corresponding to location of trunk on trunk link frame.</td>
</tr>
<tr>
<td>13</td>
<td>Select ITNP class of test.</td>
<td>HT, TT, UT designations perforated corresponding to trunk number of selected trunk.</td>
</tr>
<tr>
<td>14</td>
<td>Select CAMA0 or CAMA1 incoming class of call for tandem or toll supervision, respectively.</td>
<td>FR, CN, S designations perforated corresponding to location of sender in sender connector.</td>
</tr>
<tr>
<td>15</td>
<td>Operate ANY POS, KY, TLK keys.</td>
<td>All lamps extinguished.</td>
</tr>
<tr>
<td>16</td>
<td>Select A_ through C_ digits to select required code.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Momentarily operate ST key.</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Momentarily operate RL key.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Remove patching cord from OGT-T and CAMA TST jacks.</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Remove make-busy plug from OGT-MB jack.</td>
<td></td>
</tr>
<tr>
<td>STEP</td>
<td>ACTION</td>
<td>VERIFICATION</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>--------------</td>
</tr>
<tr>
<td>21</td>
<td>Repeat Steps 11 through 20, using each CAMA incoming trunk.</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Restore all keys and switches not required in next test.</td>
<td></td>
</tr>
</tbody>
</table>

### G. CAMA Intermarker Group Operation—Trunk Number Identification

11. Insert make-busy plug into OGT-MB jack of CAMA intermarker group trunk.  
12. Patch CAMA TST jack to OGT-T jack of trunk selected in Step 11.  
13. Select IMT class of test.  
14. Select CAMA0 or CAMA1 class of call with tandem or toll supervision, respectively.  
15. Select trunk link frame.  
16. Select trunk number.  
17. Select marker.  
18. Operate ANY POS, TCB, TLK keys.  
19. Select A\_ through C\_ digits for a route requiring a CAMA intermarker group trunk.  
20. Momentarily operate ST key.  

**Verification**:  
BT, CK2 lamps lighted.  
Trouble record taken.  
FG\_, TF\_, LC\_, LV\_, FAK or FBK designations perforated corresponding to location of trunk on trunk link frame.  
HT\_, TT\_, UT\_ designations perforated corresponding to trunk number of selected trunk.  
FR\_, CN\_, S\_ designations perforated corresponding to location of sender in sender connector.  
All lamps extinguished.  

22. Remove patching cord from OGT-T, CAMA TST jacks.  
23. Remove make-busy plug from OGT-MB jack.  
24. Repeat Steps 11 through 23 using each CAMA intermarker group trunk.
<table>
<thead>
<tr>
<th>STEP</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Restore all keys and switches not required in next test.</td>
</tr>
</tbody>
</table>

**H. CAMA Junctor Operation—Trunk Number Identification**

<table>
<thead>
<tr>
<th>STEP</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Patch IRT jack to IRT connector on test set.</td>
</tr>
<tr>
<td>15</td>
<td>At test set—&lt;br&gt;Set L switch to OFF.</td>
</tr>
<tr>
<td>16</td>
<td>At MTF—&lt;br&gt;Operate SDR, CAM0, TLK keys.</td>
</tr>
<tr>
<td>17</td>
<td>Select CAMA sender.</td>
</tr>
<tr>
<td>18</td>
<td>Select class of service requiring use of CAMA junctor.</td>
</tr>
<tr>
<td>19</td>
<td>Select marker.</td>
</tr>
<tr>
<td>20</td>
<td>Select CAMA position.</td>
</tr>
<tr>
<td>21</td>
<td>Set MF switch to MPT.</td>
</tr>
<tr>
<td>22</td>
<td>Select CAMA junctor.</td>
</tr>
<tr>
<td>23</td>
<td>Select A_ through K_ digits to select called number.</td>
</tr>
<tr>
<td>24</td>
<td>Momentarily operate ST key.</td>
</tr>
<tr>
<td>25</td>
<td>Key calling number.</td>
</tr>
</tbody>
</table>

**VERIFICATION**

- CAMA lamp lighted.
- CK2, POSC lamps lighted.<br>At test set—<br>P lamp lighted.
- P lamp extinguished.<br>At MTF—<br>DIS1, MRL lamps lighted.<br>Trouble record taken.<br>HT_, TT_, UT_ designations perforated on a 2-out-of-5 code basis corresponding to trunk number of selected CAMA junctor.<br>FG_, TF_ designations perforated corresponding to trunk link frame number for "bunched" overflow appearance.<br>TI, SRT, CAMS designations perforated.<br>All lamps extinguished.
STEP | ACTION |
---|---
28 | Remove testing cord from IRT jack and connector. |
29 | Restore all keys and switches not required in next test. |

I. LLP Line Access to Senders

14 | Select A_ through G_ digits for a line route having access to line circuit. |
15 | Select LLP line circuit to be used in test. |
16 | Select marker. |
17 | Select lowest numbered sender in subgroup A or B of type required for line circuit group. |
18 | Operate REC key. |
19c | If ETS provided and CM dump is required—Operate TCP0 key. |

Note: See paragraph 1.11.

20 | Insert plug of 32A test set into RC jack. |
21 | Operate BAT key. |
22 | Momentarily operate ST (white) button of 32A test set. |
23 | Momentarily operate RLS (red) button of 32A test set. |
24 | Repeat Steps 22, 23, using each line circuit in group and all senders in associated sender group. |
25 | Remove plug of 32A test set from RC jack. |
26 | Restore all keys and switches not required in next test. |

SC_, SCSP_ lamps momentarily lighted corresponding to sender connector and position of sender in connector.
Trouble record taken.
FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated corresponding to location of line circuit used in test.
OSG_, SSA/SSB, OS_ designations perforated.
J. Sender Selection by Markers—LLP Mode

14 Select marker.

15 Select A_ through G_ digits for a line route having access to line circuit.

16 Select LLP line circuit to be used in test.

17 Select lowest numbered sender in subgroup A or B of type required for line circuit group.

18 Operate REC key.

19c If ETS provided and CM dump is required—Operate TCP0 key.

Note: See paragraph 1.11.

20 Insert plug of 32A test set into RC jack.

21 Operate BAT key.

22 Momentarily operate ST (white) button of 32A test set.

23 Momentarily operate RLS (red) button of 32A test set.

24 Repeat Steps 22, 23, using each sender in sender group.

25 Repeat Steps 22, 23, 24, using each combined or completing marker.

26 Remove plug of 32A test set from RC jack.

27 Restore all keys and switches not required in next test.

VERIFICATION

SC_, SCSP_, M_ lamps momentarily lighted corresponding to sender connector, position of sender in connector, and marker used in test.

Trouble record taken.

FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated corresponding to location of line circuit used in test.

OSG_, SSA/SSB, OS_ designations perforated.

DR_ designations perforated corresponding to marker used in test.
## K. Sender Group Busy—LLP

3. At outgoing sender link circuit—Insulate 12M of SB_ relay to be tested.

4. Block operated SB_ relay to be tested.

5. Remove insulator from 12M of SB_ relay.

6. At outgoing sender link circuit—Remove blocking tool from SB_ relay.

7. At MTF—Momentarily operate FB-AR key.

8. Repeat Steps 3 through 7 for all outsender link circuit SB_ relays.

## L. AIS Line Access to Senders

14. Select A_ through G_ digits for a blank number marked for intercept.

15. Select LLP line circuit to be used in test.

### TABLE A

<table>
<thead>
<tr>
<th>TERMINAL STRIP (TS)</th>
<th>TERMINAL NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB0</td>
<td>SB1</td>
</tr>
<tr>
<td>B11</td>
<td>B13</td>
</tr>
<tr>
<td>B12</td>
<td>B14</td>
</tr>
<tr>
<td>B22</td>
<td>B24</td>
</tr>
<tr>
<td>B31</td>
<td>B33</td>
</tr>
<tr>
<td>B32</td>
<td>B34</td>
</tr>
<tr>
<td>B41</td>
<td>B43</td>
</tr>
<tr>
<td>B42</td>
<td>B44</td>
</tr>
<tr>
<td>B51</td>
<td>B53</td>
</tr>
<tr>
<td>B52</td>
<td>B54</td>
</tr>
<tr>
<td>STEP</td>
<td>ACTION</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
</tr>
<tr>
<td>16</td>
<td>Select marker.</td>
</tr>
<tr>
<td>17</td>
<td>Operate REC key.</td>
</tr>
<tr>
<td>18c</td>
<td>If ETS provided and CM dump is required—Operate TCP0 key.</td>
</tr>
<tr>
<td>18</td>
<td>Note: See paragraph 1.11.</td>
</tr>
<tr>
<td>19</td>
<td>Select lowest numbered sender in subgroup A or B of type required for line circuit group.</td>
</tr>
<tr>
<td>20</td>
<td>Insert plug of 32A test set into RC jack.</td>
</tr>
<tr>
<td>21</td>
<td>Operate BAT key.</td>
</tr>
<tr>
<td>22</td>
<td>Momentarily operate ST (white) button of 32A test set.</td>
</tr>
<tr>
<td>23</td>
<td>Momentarily operate RLS (red) button of 32A test set.</td>
</tr>
<tr>
<td>24</td>
<td>Repeat Steps 22, 23, using each line circuit in group and each sender in associated sender group.</td>
</tr>
<tr>
<td>25</td>
<td>Remove plug of 32A test set from RC jack.</td>
</tr>
<tr>
<td>26</td>
<td>Restore all keys and switches.</td>
</tr>
</tbody>
</table>