USE OF EXPANDED ROTL BALANCE AND LONG-TERM (BALT) TEST PORT

1. GENERAL

1.01 This section contains general information on the use of an expanded remote office test line (ROTL) balance and long-term test port (BALT). The BALT permits a tester at a central office having one-way incoming trunks that originate in a ROTL office to manually test the trunks for one-way loss and noise (far-to-near) and to make balance measurements and adjustments. This procedure allows the tests to be performed without the assistance of a second tester at the originating office.

1.02 If this section is reissued, the reason for reissue will be in this paragraph.

1.03 Access and control of the ROTL may be exercised by a manual control device. Typical manual position control devices and sections describing operation are listed below.

(a) J94054C/D ROTL Control Unit—Section 103-251-110.

(b) H-310-150 ROTL System Test Set—Section 100-175-101.

(c) Manual Multifrequency (MF) Pad at Office Test Position. (See the section for the type of test desk used in the central office.)

(d) CAROT 2 Remote User Terminal Operating in the Interrogator Mode—TOP 190-102-305. (The interrogator feature and TOP are not available at time of writing of this document.)

1.04 Multifrequency (MF) priming digits associated with the identity of the trunk to be tested must be pulsed to the ROTL to identify the trunk. See Table A for priming digits required to identify trunks associated with each type of ROTL. Required ROTL priming information may be obtained from the CAROT Center which controls the ROTL. The CAROT Center can also provide guidance as to how the information is to be used with the various manual position control devices.

1.05 Figure 1 is a block diagram of the necessary testing connections. Figure 2 is a detailed flowchart of the steps necessary to enable a trunk for BALT testing. Refer to Part 2 for central office system peculiarities.

1.06 Table B lists reference documents relating to ROTL operation. Refer to Division 660 sections for information relating to BALT testing of a particular type of central office.

2. CENTRAL OFFICE SYSTEM PECULIARITIES

A. General

2.01 Certain peculiarities are prevalent when using ROTLs associated with particular types of central office systems to make manual balance tests. The peculiarities are described in the following paragraphs.

B. Expanded Step-By-Step Central Office ROTL

2.02 The BALT port is reached via a directory number different from that used for other ROTL tests.

2.03 After priming the ROTL, the tester has up to 3 minutes to recycle the ROTL if the ROTL fails to seize the trunk under test.

2.04 The ROTL returns 0.5 second of test progress tone (TPT), as a status signal, over the control connection during the time that 1000-Hz tone is being applied by the tester, but does not apply the 10 seconds of 1000 Hz, 0 dBm0 over the trunk under test until the 1000-Hz tone applied by the tester has been completed.

C. Expanded No. 5 Crossbar Central Office ROTL

2.05 The BALT port is reached via a directory number different from that used for other ROTL tests.

2.06 The tester is allowed up to 30 seconds between each MF priming digit. Otherwise,

the MF receiver is removed and 3 seconds of 120-IPM low tone is received. A recycle command initiates a burst of TPT, then new MF receiver access.

D. No. 1 Crossbar or Crossbar Tandem Central Office ROTL

2.07 The BALT port is reached via a directory number different from that used for other ROTL tests.

2.08 The test connection may be held for up to 20 minutes. After 20 minutes, the control connection and the connection to the trunk under test are dropped.

E. No. 1 ESS Central Office ROTL

2.09 The tester is allowed up to 14 seconds to input all MF priming digits. Otherwise, the MF receiver is removed and a recycle command initiates a 120-IPM low-tone signal. A second recycle command initiates a burst of TPT, then new MF receiver access.

2.10 After priming the ROTL, the tester has up to 3 minutes to recycle the ROTL if the ROTL fails to seize the trunk under test.

2.11 The tester can recycle the ROTL within 1 minute after quiet termination is placed on a trunk under test. After 1 minute, the ROTL will not respond to the recycle command. Steady high tone is sent over the control connection for the duration of the quiet termination.

2.12 A number of simultaneous BALT connections can be set up on the No. 1 ESS central office (varying with office capability).

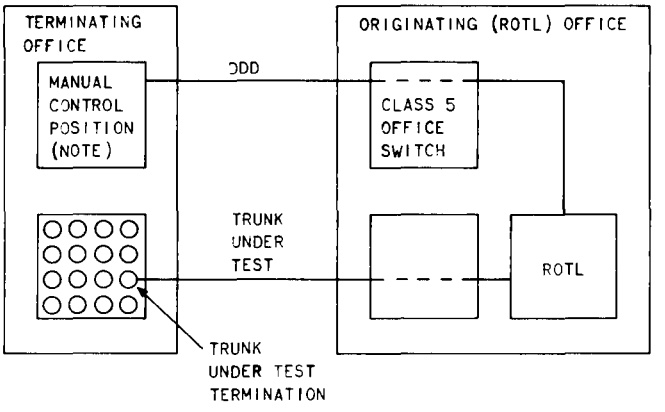
F. No. 2 ESS Central Office ROTL

2.13 The tester is allowed up to 1 minute to input all MF priming digits. Otherwise, the MF receiver is removed and the tester receives a 120-IPM low-tone signal for 3 seconds. A recycle command initiates a burst of TPT, then new MF receiver access.

2.14 After priming the ROTL, the tester has up to 3 minutes to recycle the ROTL if the ROTL fails to seize the trunk under test.

2.15 The tester can recycle the ROTL within 1 minute after quiet termination is placed on a trunk under test. After 1 minute, the ROTL will not respond to the recycle command. Steady high tone is sent over the control connection for the duration of the quiet termination.

2.16 A number of simultaneous BALT connections can be set up on the No. 2 ESS central office (varying with office capability).



NOTE:
CONTROL POSITION MAY BE ANY OF THE FOLLOWING:
(a) J94054C/D ROTL CONTROL UNIT
(b) H310-150 ROTL SYSTEM TEST SET
(c) MANUAL MF PAD AT OFFICE TEST POSITION
(d) CAROT 2 REMOTE USER TERMINAL OPERATING IN THE INTERROGATOR MODE.

Fig. 1—Block Diagram of Balance and Long-Term Testing Set-Up Using Manual Control Position

TABLE A

EXPANDED ROTL PRIMING FORMATS – BALANCE AND LONG-TERM TESTS

<table>
<tr><th rowspan="2">PRIMING DIGIT NO.</th><th colspan="5">ROTL TYPE</th></tr>
<tr><th>EXPANDED 5XB</th><th>EXPANDED SXS</th><th>1XB OR XBT</th><th>NO. 1 ESS</th><th>NO. 2 ESS</th></tr>
<tr><td>1</td><td>K (Keypulse)</td><td>K (Keypulse)</td><td>K (Keypulse)</td><td>K (Keypulse)</td><td>K (Keypulse)</td></tr>
<tr><td>2</td><td rowspan="2">Test code *</td><td rowspan="2">Test code *</td><td rowspan="2">Test code *</td><td rowspan="2">Test code *</td><td rowspan="2">Test code *</td></tr>
<tr><td>3</td></tr>
<tr><td>4</td><td>TYP</td><td rowspan="4">Test connector number</td><td rowspan="2">Switch number</td><td>Trunk mode ‡</td><td>Trunk mode §</td></tr>
<tr><td>5</td><td>TR</td><td rowspan="3">Trunk network number</td><td rowspan="3">Trunk group number</td></tr>
<tr><td>6</td><td>MG</td><td>Select magnet</td></tr>
<tr><td>7</td><td>CTA</td><td rowspan="2">Hold magnet</td></tr>
<tr><td>8</td><td>CU</td><td>Pulsing</td><td rowspan="3">Member number</td></tr>
<tr><td>9</td><td>CRU</td><td rowspan="7">Test line number or directing code to test position †</td><td rowspan="2">Pulsing</td></tr>
<tr><td>10</td><td>CG</td></tr>
<tr><td>11</td><td>RA</td><td rowspan="10">Test line number or directing code to test position †</td><td rowspan="10">Test line number or directing code to test position †</td><td rowspan="10">Test line number or directing code to test position †</td></tr>
<tr><td>12</td><td>TI</td></tr>
<tr><td>13</td><td>TF</td></tr>
<tr><td>14</td><td>TT</td></tr>
<tr><td>15</td><td rowspan="10">Test line number or directing code to test position †</td></tr>
<tr><td>16</td></tr>
<tr><td>17</td></tr>
<tr><td>18</td></tr>
<tr><td>19</td><td>S (Start)</td></tr>
<tr><td>20</td><td></td></tr>
<tr><td>21</td><td></td><td>S (Start)</td><td>S (Start)</td><td>S (Start)</td></tr>
<tr><td>22</td><td></td><td></td><td></td><td></td></tr>
<tr><td>23</td><td></td><td></td><td></td><td></td></tr>
<tr><td>24</td><td></td><td></td><td></td><td></td></tr>
<tr><td>25</td><td>S (Start)</td><td></td><td></td><td></td><td></td></tr>
</table>

* Test code 40 is used unless it is desired to override a maintenance-busy trunk condition. To override maintenance-busy, test code 41 is used.

† The test line number or directing code consists of up to ten digits immediately followed by an S. No blanks are placed between the code and the S.

‡ For local trunks use the digit 0; for tandem trunks use the digit 1 or 2.

§ The digit 0 is used when there is no transformer in the talking path. The digit 1 is used when a transformer is in the talking path.

TABLE B

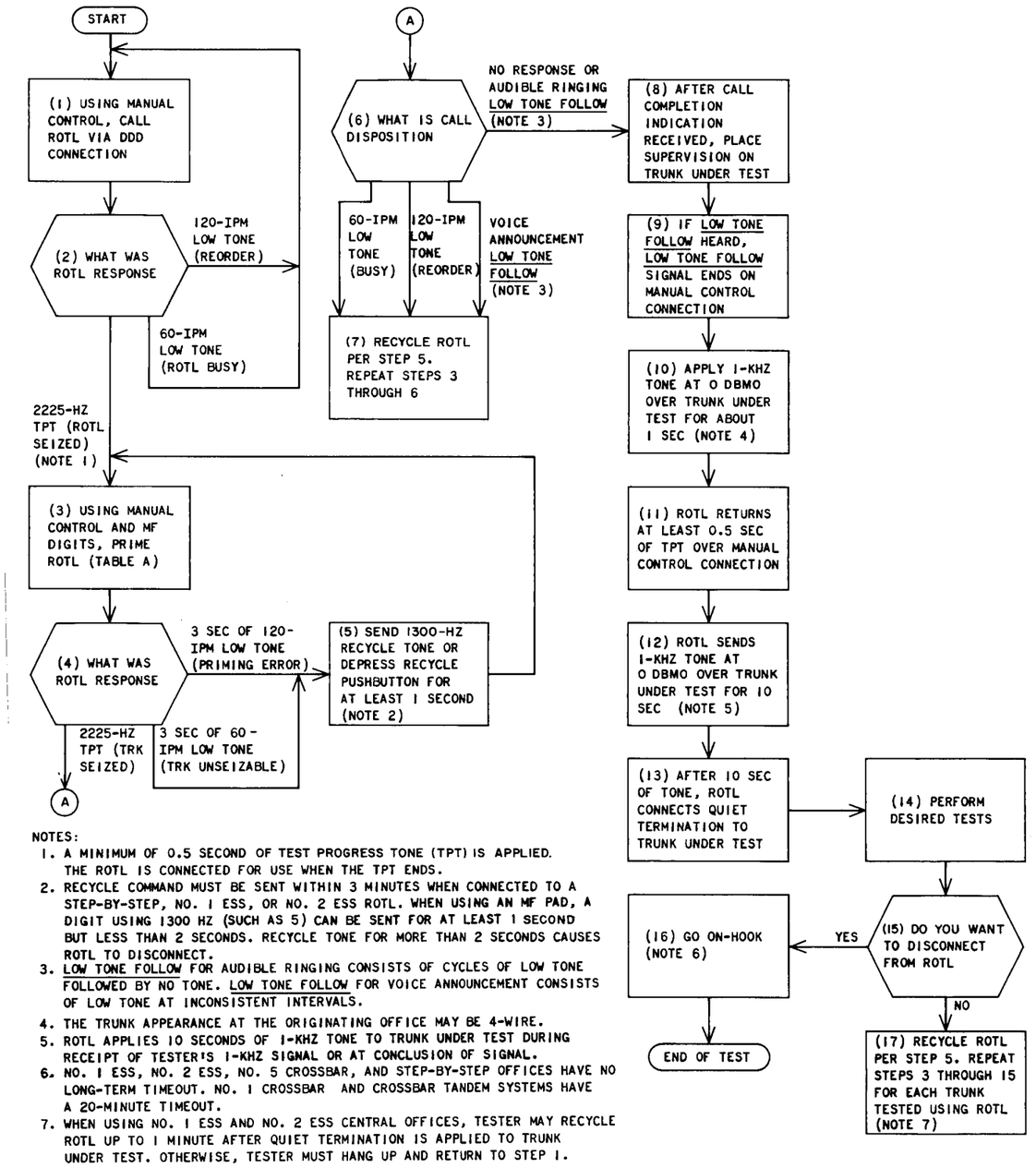
ROTL REFERENCE MATERIALS

ROTL TYPE	REFERENCE	CONTENTS
Expanded SXS	J94036—Section 814-609-151	Equipment Design Requirements
	Section 226-831-100	General Description
	Section 226-831-300	Trouble-Location Procedures
	Section 226-831-700	Build-Out Resistor Assembly Adjustment
	SD-32544-01	Port Circuit
	SD-32545-01	Register Circuit
	SD-32546-01	Sender Circuit
	SD-32547-01	Terminal Balance Circuit
	SD-32548-01	Trunk Access Circuit
	SD-32549-01	Miscellaneous Circuit
Expanded No. 5XB	J23263—Section 819-713-151	Equipment Design Requirements
	Section 218-743-102	General Description
	Section 218-743-302	Trouble-Location Procedures
	Section 218-743-702	Build-Out Resistor Assembly Adjustment
	SD-28035-01	Access Circuit
	SD-28036-01	Register Circuit
	SD-28037-01	Trunk Make-Busy Circuit
No. 1XB and XBT	J28555	No. 1XB and XBT ROTL
	Section 216-780-101	No. 1XB ROTL—General Description
	Section 216-780-301	No. 1XB ROTL—Trouble-Location Procedures
	Section 216-780-701	No. 1XB ROTL—Build-Out Resistor Assembly Adjustment

TABLE B (Cont)

ROTL REFERENCE MATERIALS

ROTL TYPE	REFERENCE	CONTENTS
No. 1XB and XBT (Cont)	Section 220-462-101	XBT ROTL—General Description
	Section 220-462-301	XBT ROTL—Trouble-Location Procedures
	Section 220-462-701	XBT ROTL—Build-Out Resistor Assembly Adjustment
	SD-28067-01	No. 1XB and XBT ROTL Circuit
	SD-25161-01	Incoming Trunk Test Circuit
No. 1 ESS	J1A076A	No. 1 ESS ROTL
	Section 231-133-101	Description
	Section 231-133-301	Procedures
	SD-1A330-01	Frame Circuit
	SD-1A314-01	Applique Circuit
	SD-1A133-01	Master Scanner Applique Circuit
	SD-1A146-01	Signal Distributor Applique Circuit
No. 2 ESS	J2H018	No. 2 ESS ROTL
	Section 232-132-101	Description
	Section 232-132-501	Tests
	SD-2H183-01	ROTL Applique Circuit
	SD-2H184-01	105 Test Line Applique Circuit



NOTES:

1. A MINIMUM OF 0.5 SECOND OF TEST PROGRESS TONE (TPT) IS APPLIED. THE ROTL IS CONNECTED FOR USE WHEN THE TPT ENDS.
2. RECYCLE COMMAND MUST BE SENT WITHIN 3 MINUTES WHEN CONNECTED TO A STEP-BY-STEP, NO. 1 ESS, OR NO. 2 ESS ROTL. WHEN USING AN MF PAD, A DIGIT USING 1300 HZ (SUCH AS 5) CAN BE SENT FOR AT LEAST 1 SECOND BUT LESS THAN 2 SECONDS. RECYCLE TONE FOR MORE THAN 2 SECONDS CAUSES ROTL TO DISCONNECT.
3. LOW TONE FOLLOW FOR AUDIBLE RINGING CONSISTS OF CYCLES OF LOW TONE FOLLOWED BY NO TONE. LOW TONE FOLLOW FOR VOICE ANNOUNCEMENT CONSISTS OF LOW TONE AT INCONSISTENT INTERVALS.
4. THE TRUNK APPEARANCE AT THE ORIGINATING OFFICE MAY BE 4-WIRE.
5. ROTL APPLIES 10 SECONDS OF 1-KHZ TONE TO TRUNK UNDER TEST DURING RECEIPT OF TESTER'S 1-KHZ SIGNAL OR AT CONCLUSION OF SIGNAL.
6. NO. 1 ESS, NO. 2 ESS, NO. 5 CROSSBAR, AND STEP-BY-STEP OFFICES HAVE NO LONG-TERM TIMEOUT. NO. 1 CROSSBAR AND CROSSBAR TANDEM SYSTEMS HAVE A 20-MINUTE TIMEOUT.
7. WHEN USING NO. 1 ESS AND NO. 2 ESS CENTRAL OFFICES, TESTER MAY RECYCLE ROTL UP TO 1 MINUTE AFTER QUIET TERMINATION IS APPLIED TO TRUNK UNDER TEST. OTHERWISE, TESTER MUST HANG UP AND RETURN TO STEP 1.

Fig. 2—Balance and Long-Term Test Flowchart