TRAFFIC SERVICE POSITION SYSTEM NO. 1/REMOTE TRUNKING ARRANGEMENT/POSITION SUBSYSTEM 2 BALANCE REQUIREMENTS

1. GENERAL

1.01 The balance test conditions and measurement requirements for Traffic Service Position System (TSPS) base units and Remote Trunk Arrangemnts (RTAs) are summarized in Tables A through F. Although only 2-wire switching toll offices are shown in the schematics of balance test conditions included in Tables A through F, the balance test conditions and measurement requirements apply to both 2- and 4-wire switching toll offices.

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

1.03 Table A provides the balance measurement requirements on the 1P terminating set, or equivalent, associated with the Position Subsystem No. 2 (PSS No. 2) operator position trunk (or with the PSS No. 1 operator position trunk retrofitted for use when the RTA feature is added to an existing TSPS base unit) on connections through the TSPS base unit switching network involving any of the following types of trunks:

(a) 2-wire toll connecting trunks (TCTs)

(b) 4-wire TCTs when bridging access is provided via the 3-way, 4-wire bridging repeater (SD-99782-01),

(c) Inward trunks

(d) 4-wire delayed call trunks

(e) Base-remote (BR) trunks

(f) 4-wire operator service trunks using TSPS operator service trunk circuit SD-1B278-01

(g) 4-wire incoming centralized automatic message accounting (CAMA) transfer trunks

(h) Trunk link appearance of the service observing trunk using service observing trunk access circuit SD-1B275-01.

1.04 There are no balance measurement requirements on the 1P terminating set, or equivalent, associated with the PSS No. 2 or the retrofitted PSS No. 1 on connections involving any of the following types of trunks:

(a) 4-wire TCTs when bridging access is provided via either the 424V4A or the 424V4B repeater

(b) 2-wire operator service trunks or 4-wire operator service trunks using TSPS operator service trunk circuit SD-1B010-01 is used alone (option Z).

(c) 2-wire incoming CAMA transfer trunks

(d) Service observing trunks when service observing monitoring circuit SD-3B002-01 is used alone (option Z).

1.05 The balance measurement requirements on the 1P terminating set associated with the PSS No. 2 or the retrofitted PSS No. 1 presented in Table A on connections involving 2-wire and 4-wire TCTs and BR trunks also apply to the 1P terminating set associated with the service observing trunk access circuit SD-1B275-01 on connections through the TSPS base unit switching network between the position link appearance of the service observing trunk and 2-wire and 4-wire TCTs and base-remote trunks, respectively.

1.06 Table B provides the balance measurement requirements on the 4-wire terminating sets associated with each of the various types of trunks listed above on connections through the TSPS base unit switching network to the PSS No. 2 or the retrofitted PSS No. 1 operator position trunk or, in the case of 4-wire TCTs and BR trunks, to the position link appearance of the service observing trunk using service observing trunk access circuit SD-1B275-01. The 4-wire terminating set referred to in Table B associated with 4-wire TCTs, 4-wire delayed call trunks, inward trunks, and service observing trunks is, in all cases, the 4-wire terminating set which is part of the 3-way, 4-wire bridging repeater SD-99782-01 used to provide bridging access to these types of trunks. The 4-wire terminating set referred to in Table B associated with the other types of trunks is the 4-wire terminating set which is part of either a 24V4-type repeater or an equivalent metallic facility terminal (MFT) 24-type repeater. These are no balance measurement requirements on the 1J terminating sets associated with 424V4A and 424V4B repeaters when these repeaters are used to provide bridging access to 4-wire TCTs.

1.07 Table C provides the balance measurement requirements on the 4-wire TCT at the TSPS bridging access point on connections through the toll office to intertoll trunks whenever a 4-wire terminating set appears in the transmission path of the 4-wire TCT extending between the TSPS access point and the toll office switch. Such a 4-wire terminating set would always appear when the toll office is a 2-wire switcher (eg, No. 5 crossbar, crossbar tandem, No. 1 ESS), but would most likely not appear when the toll office is a 4-wire switcher (eg, 4A crossbar, No. 4 ESS).

1.08 Table D provides the balance measurement requirements on the 1P terminating set associated the BR trunks on connections through the RTA concentrator involving any of the following types of trunks:

(a) 2-wire TCTs

(b) 4-wire TCTs

(c) Inward trunks.

1.09 Table E provides the balance measurement requirements on the 4-wire terminating sets associated with each of the various types of trunks listed above on connections through the RTA concentrator to the BR trunk. The 4-wire terminating set referred to in Table E associated with 4-wire TCTs and inward trunks is, in all cases, the 4-wire terminating set which is part of the 3-way, 4-wire bridging repeater SD-99782-01 used to provide bridging access to these types of trunks.

1.10 Table F provides the balance measurement requirements on the 4-wire TCT at the RTA bridging access point on connections through the toll office to intertoll trunks whenever a 4-wire terminating set appears in the transmission path of the 4-wire TCT extending between the RTA access point and the toll office switch. Such a 4-wire terminating set would always appear when the toll office is a 2-wire switcher (eg, No. 5 crossbar, crossbar tandem, No. 1 ESS), but would most likely not appear when the toll office is a 4-wire switcher (eg, 4A crossbar, No. 4 ESS).

1.11 Both the echo return loss (ERL) and singing point or singing return loss (SP/SRL) requirements presented in Tables A through F must be met. Measurement results should be recorded and retained for subsequent use by the transmission engineer. The available test equipment and specific methods of performing the measurements are covered in Section 660-463-504. The procedures for establishing test conditions and making adjustments are covered in Section 660-463-500 and 660-463-502. General information on balance in RTAs is covered in Section 660-463-100.

2. APPLICATIONS

2.01 To ensure that an office will meet balance objectives and can be certified by the responsible transmission engineer, the requirements presented in Tables A through F should be applied on a test condition basis. All trunks with a test condition measuring below requirements should be investigated and corrective action taken. Certification of the TSPS or RTA as meeting balance objectives can generally be obtained if the test condition given in this section meet the respective requirements.

2.02 The certification of an RTA as meeting balance objectives is the responsibility of a transmission engineer. The requirements for RTA certification are given in Reference 4. The measurements as recorded by plant maintenance personnel for the various test conditions presented in Tables A through F must be summarized by the transmission engineer to determine if the TSPS and RTA can be certified.

TABLE A
TSPS BASE UNIT BALANCING TEST CONDITIONS AND REQUIREMENTS
CONNECTIONS THROUGH TSPS NETWORK FROM PSS NO. 2 OPERATOR POSITION TRUNK TO VARIOUS TYPES OF TRUNKS

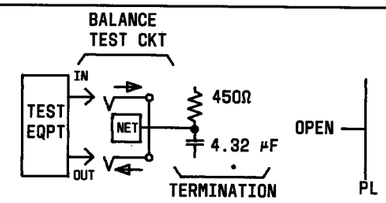
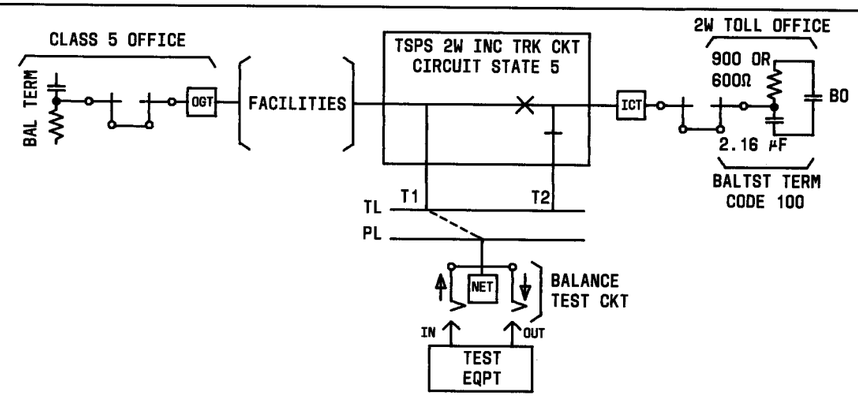
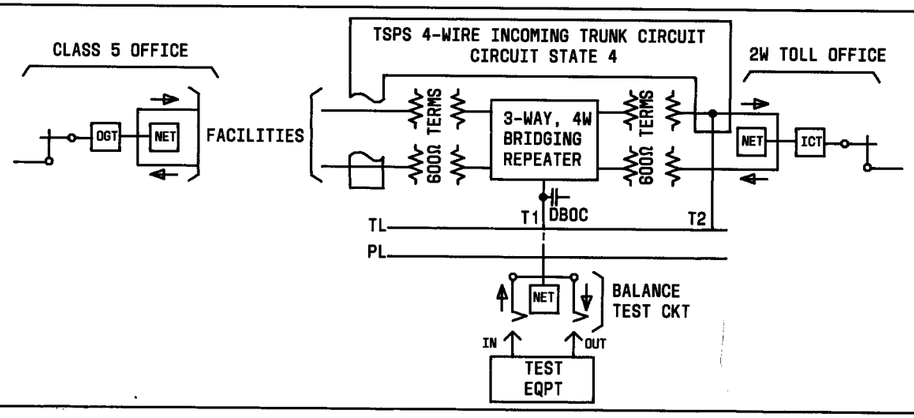
TEST NO.	TYPE OF CONNECTING TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
A.1	CHECK BALANCE TEST CIRCUIT		27	27
A.2	2-WIRE TOLL CONNECTING TRUNK		15	6
B.1	4-WIRE TOLL CONNECTING TRUNK		19	15

TABLE A (CONT.)

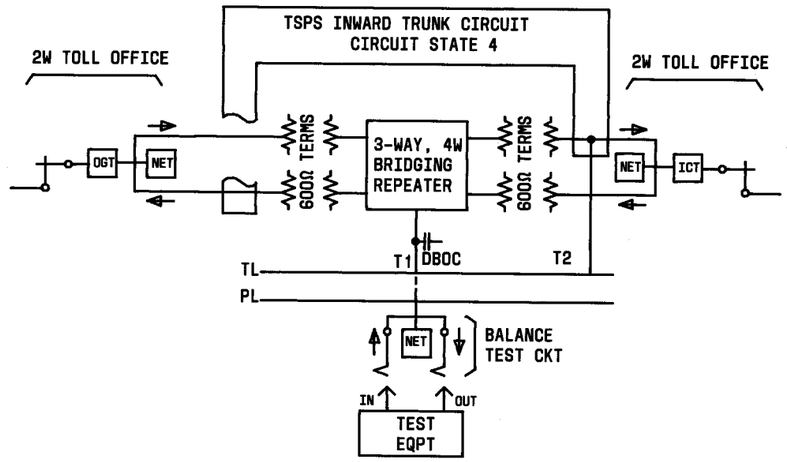
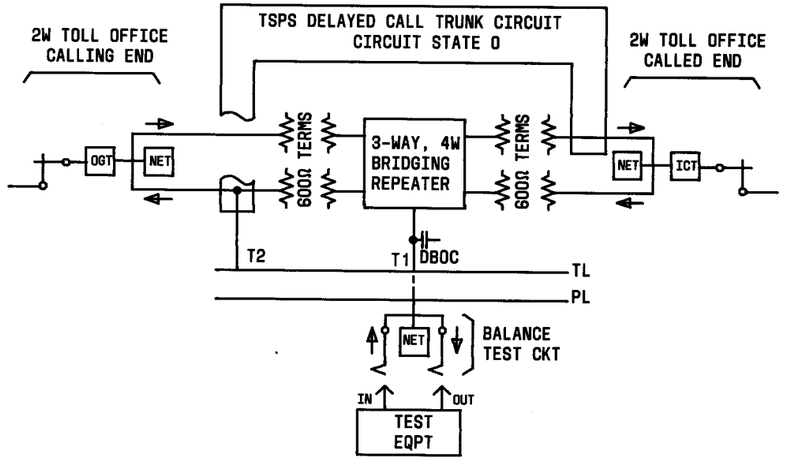
TEST NO.	TYPE OF CONNECTING TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
B.2	INWARD TRUNK		24	19
B.3	4-WIRE DELAYED CALL TRUNK		24	19

TABLE A (CONT.)

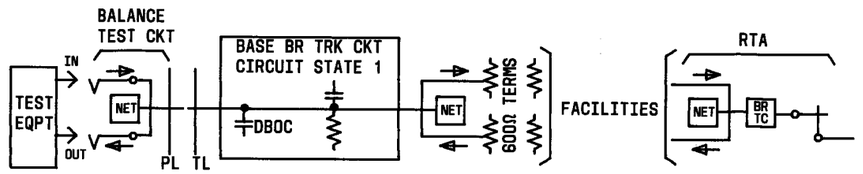
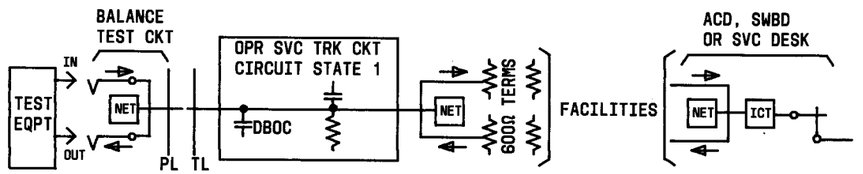
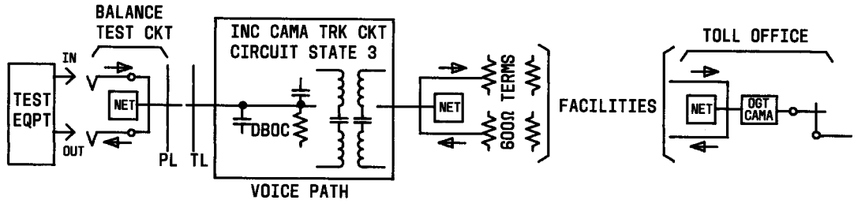
TEST NO.	TYPE OF TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
B.4	BASE-REMOTE TRUNK		24	19
B.5	OPERATOR SERVICE TRUNK		24	19
B.6	INCOMING CAMA TRANSFER TRUNK		21	16

TABLE A (CONT.)

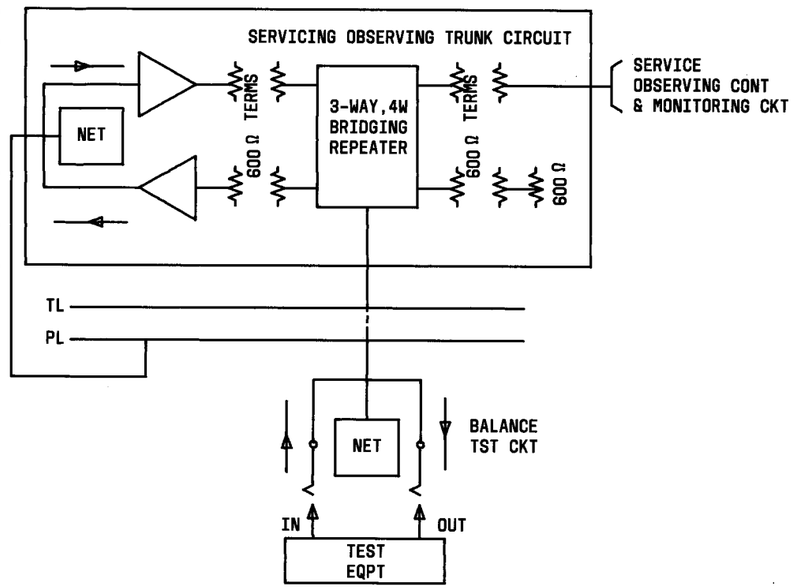
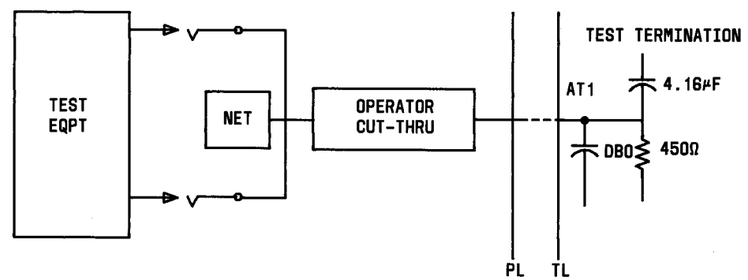
TEST NO.	TYPE OF CONNECTING TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
B7	SERVICE OBSERVING TRUNK		24	19
B8	OPERATOR POSITION TRUNK		24	19

TABLE B
TSPS BASE UNIT BALANCING TEST CONDITIONS AND REQUIREMENTS
CONNECTIONS THROUGH TSPS NETWORK FROM VARIOUS TYPES OF TRUNKS TO PSS NO. 2 OPERATOR POSITION TRUNK

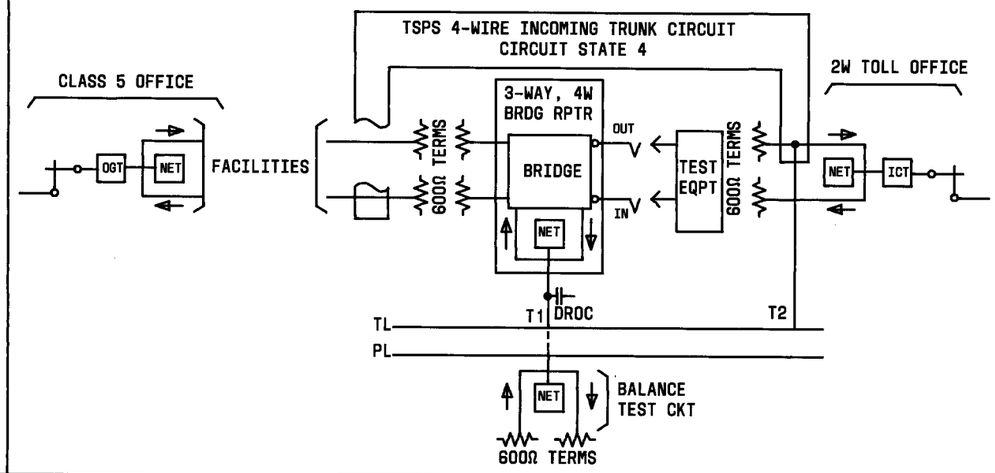
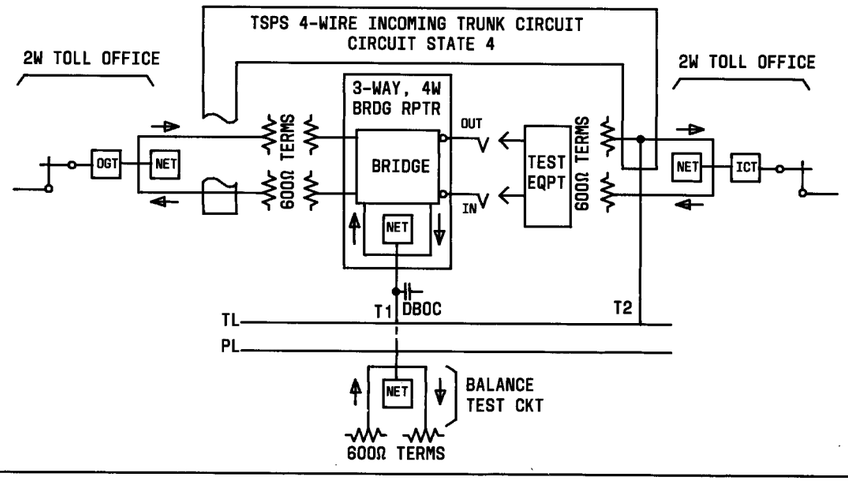
TEST NO.	TYPE OF CONNECTING TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
C.1	4-WIRE TOLL CONNECTING TRUNK		26	19
C.2	INWARD TRUNK		26	19

TABLE B (CONT.)

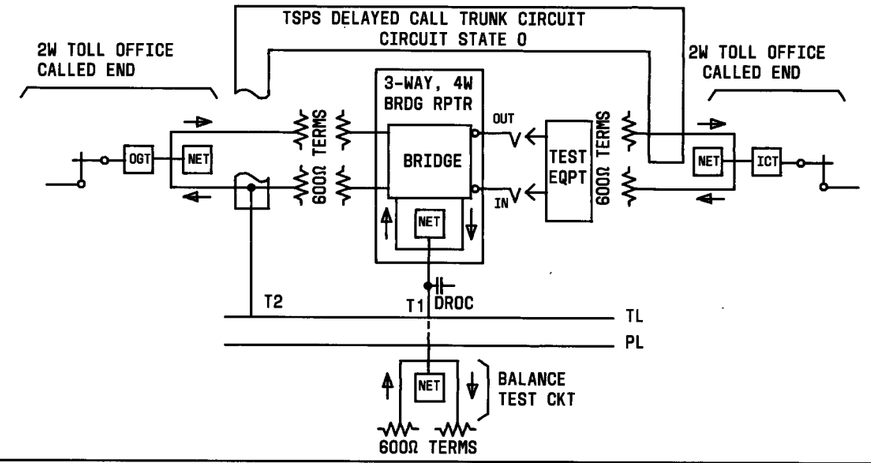
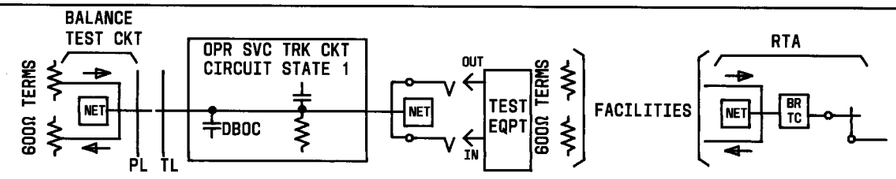
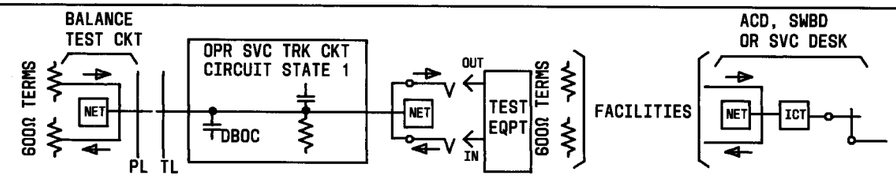
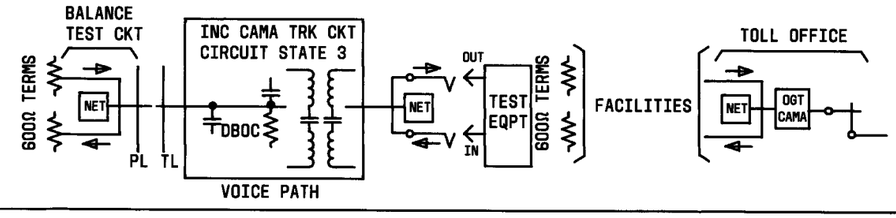
TEST NO.	TYPE OF TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
C.3	4-WIRE DELAYED CALL TRUNK		26	19
C.4	BASE-REMOTE TRUNK		26	19
C.5	OPERATOR SERVICE TRUNK		26	19
C.6	INCOMING CAMA TRANSFER TRUNK		26	19

TABLE B (CONT.)

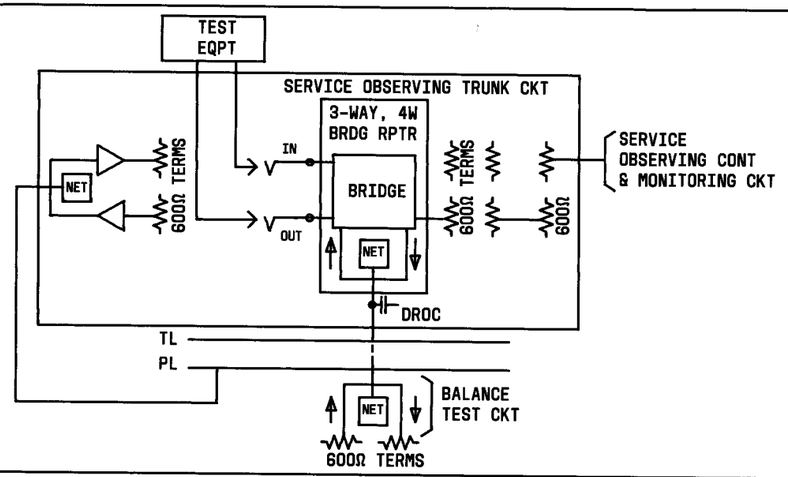
TEST NO.	TYPE OF TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
C.7	SERVICE OBSERVING TRUNK		26	19

TABLE C
TSPS BASE UNIT BALANCING TEST CONDITIONS AND REQUIREMENTS CONNECTIONS THROUGH
2-WIRE TOLL OFFICE SWITCH FROM 4-WIRE TOLL CONNECTING TRUNKS WITH TSPS ACCESS TO INTERTOLL TRUNKS

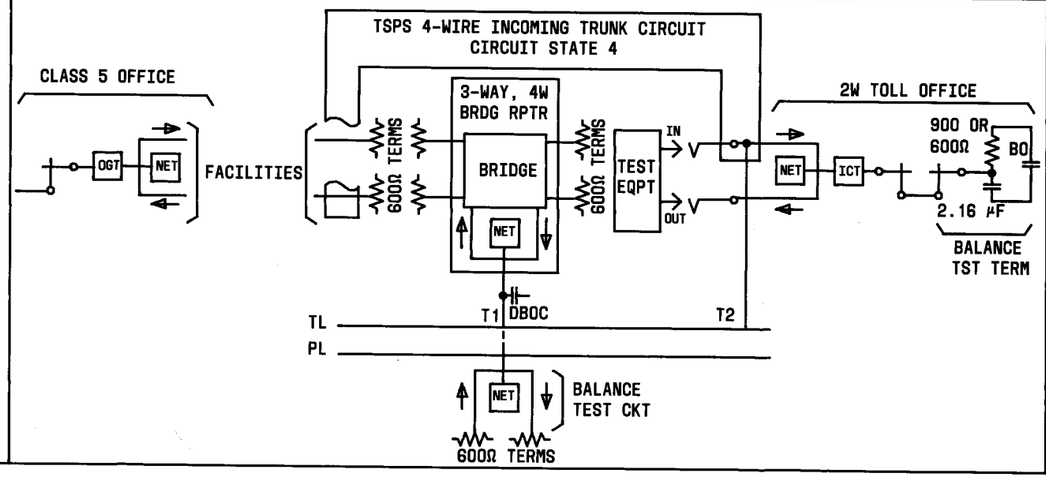
TEST NO.	TYPE OF TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
D.1	4-WIRE TOLL CONNECTING TRUNK		22	15

TABLE B—SHEET 3 OF 3 AND TABLE C

TABLE D
RTA BALANCING TEST CONDITIONS AND REQUIREMENTS
CONNECTIONS THROUGH RTA CONCENTRATOR FROM BASE-REMOTE TRUNK TO VARIOUS TYPES OF TRUNKS

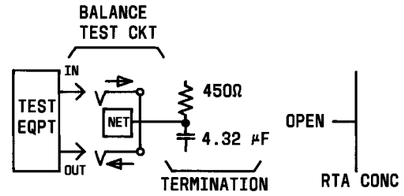
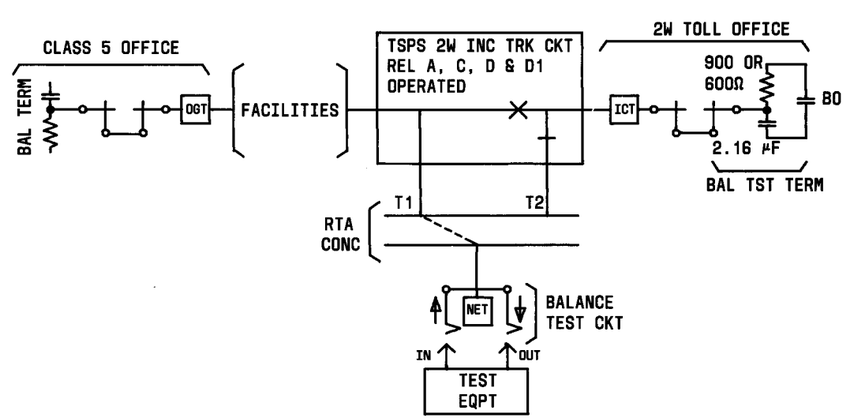
TEST NO.	TYPE OF CONNECTING TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
A.1	CHECK BALANCE TEST CIRCUIT		27	27
A.2	2-WIRE TOLL CONNECTING TRUNK		15	6

TABLE D
RTA BALANCING TEST CONDITIONS AND REQUIREMENTS
CONNECTIONS THROUGH RTA CONCENTRATOR FROM VARIOUS TYPES OF TRUNKS TO BASE-REMOTE TRUNK

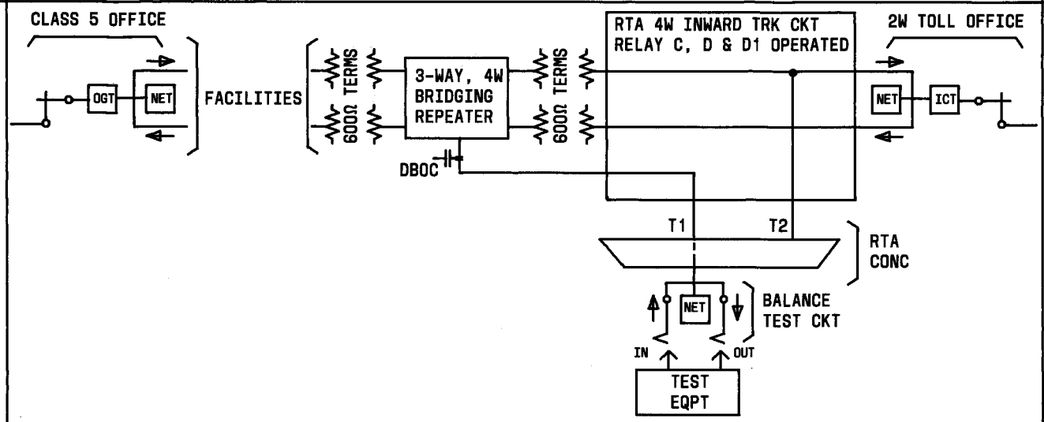
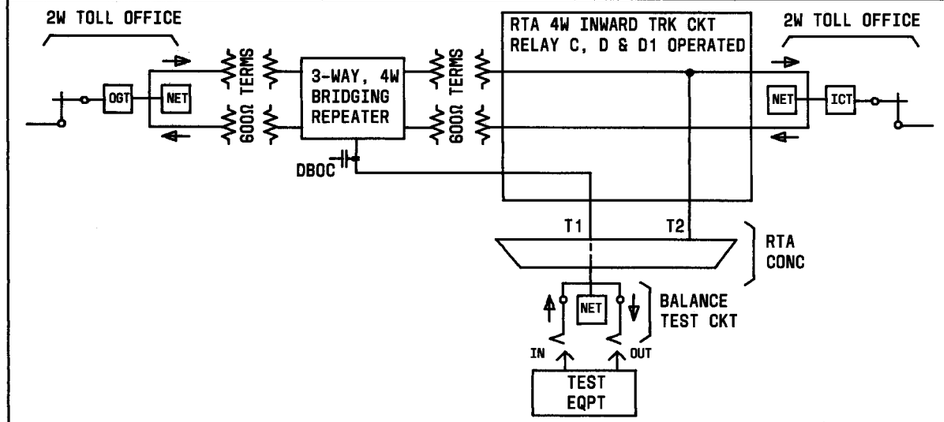
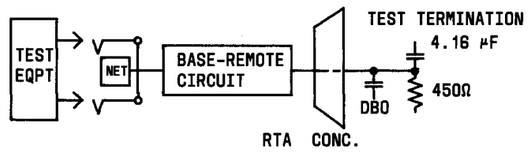
TEST NO.	TYPE OF TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-463-500	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
B.1	4-WIRE TOLL CONNECTING TRUNK		19	15
B.2	INWARD TRUNK		24	19
B.3	BASE REMOTE TRUNK		24	19

TABLE E
BALANCING TEST CONDITIONS AND REQUIREMENTS
CONNECTIONS THROUGH RTA CONCENTRATOR FROM VARIOUS TYPES OF TRUNKS TO BASE-REMOTE TRUNK

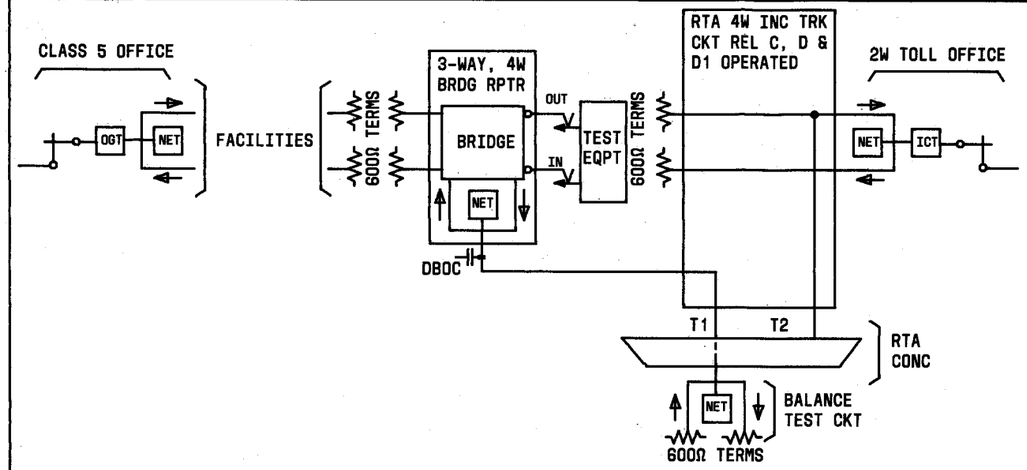
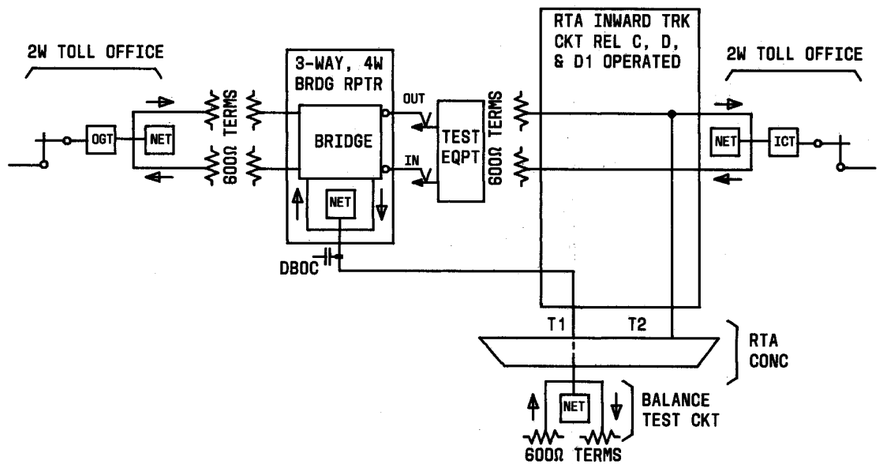
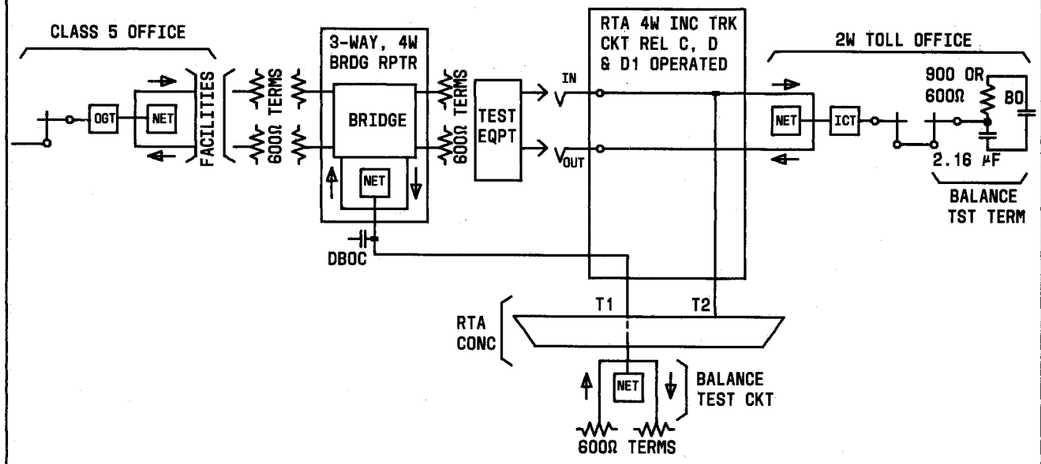
TEST NO.	TYPE OF TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT AND SPECIFIED PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
C.1	4-WIRE TOLL CONNECTING TRUNK		26	19
C.2	INWARD TRUNK		26	19

TABLE F
BALANCING TEST CONDITIONS AND REQUIREMENTS
CONNECTIONS THROUGH 2-WIRE TOLL OFFICE SWITCH FROM 4-WIRE TOLL CONNECTING TRUNKS WITH RTA ACCESS TO TYPED TOLL TRUNKS

TEST NO.	TYPE OF TRUNK	ERL AND SP/SRL TEST CONDITIONS BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-463-504 PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 600-463-502	REQUIREMENTS	
			ERL IN DB	SP/SRL IN DB
D.1	4-WIRE TOLL CONNECTING TRUNK		22	15