STEP-BY-STEP OFFICES

TERMINAL BALANCE REQUIREMENTS

1. GENERAL

1.01 Table A contains terminal balance measurement requirements for the various intertoll terminating connection paths in class 4 and higher step-by-step switching offices. Both the echo return loss (ERL) and singing point or singing return loss (SP/SRL) requirements must be met.

1.02 This section is reissued to change Table A as indicated below:

(a) In Test No. 3 under Balance Test Circuit, "IT TST" should read: IT 1ST

(b) In Test No. 5 under Trunk Measured, "IT BT" should read: IT 1ST

(c) In Test No. 6 second category, "2-Wire Facilities" should read: 4-Wire Facilities

(d) In Test No. 11 under Trunk Measured, "IT AUL" should read: IT AUX.

Arrows normally used to indicate change have been omitted.

1.03 Measurement results are to be recorded on Form E-6005 or E-6006 as shown in Section 660-474-010. The form to be used is dependent on the type of test equipment used in obtaining the measurements. The available test equipment and specific methods for performing the measurements are covered in Section 660-474-504. The procedures for establishing the test conditions and making adjustments are contained in Section 660-474-502. General information on balance testing is covered in Section 660-474-100.

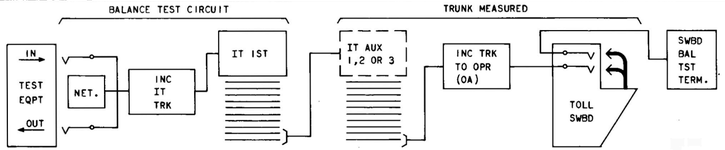
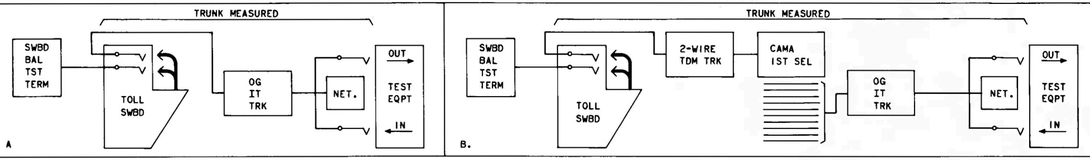
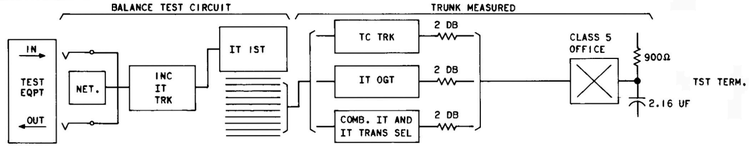
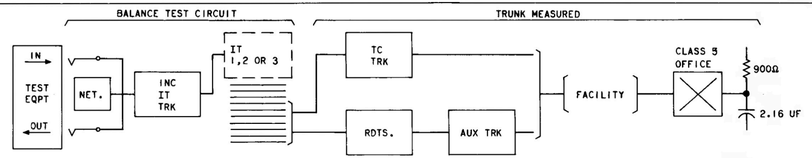
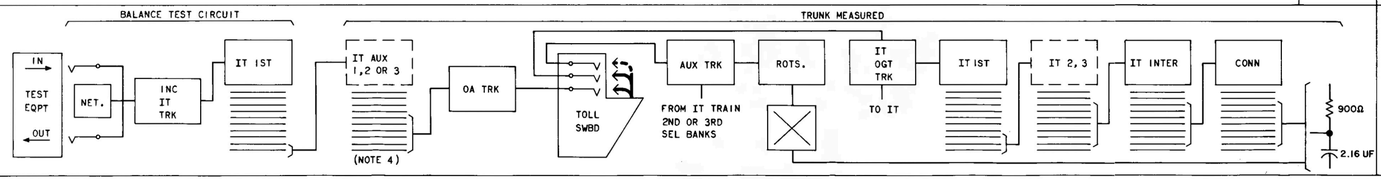
2. APPLICATIONS

2.01 To ensure that an office will meet balance objectives and can be certified by the responsible transmission engineer, the requirements for the terminal balance objectives should be applied on a test condition basis. This means that 50 percent of all measurements for each test condition in Table A must be equal to or greater than the median requirements given in Table A. Similarly, not more than two percent of the measurements for each test condition may be below the minimum requirements. Certification of an office as meeting terminal balance objectives can generally be obtained if the test conditions given in this section (and in Section 660-472-300 for class 3 and higher ranking offices) meet the requirements.

2.02 The certification of an office as meeting terminal balance objectives is the responsibility of the transmission engineer. The requirements for office certification are given in Section 853-500-110 and apply the requirements of this section to specific trunk categories (primary intertoll, secondary intertoll, intrabuilding toll connecting, 2-wire interbuilding toll connecting, and 4-wire interbuilding toll connecting). The measurements as recorded by plant maintenance personnel for the various test conditions must be summarized by the transmission engineer to determine if the office can be certified. Certification is based on trunks rather than measurements; therefore, trunks with more than one mode of operation will not be considered as balanced unless all modes meet requirements. In addition, all 4-wire terminating sets in the toll office end of toll-connecting trunks must meet the requirements shown in Table A.

2.03 All trunks with a test condition measuring below minimum should be investigated and corrective action taken. No trunks should have a test condition that measures equal to or below the turndown limit. The turndown limit indicates severe balance irregularities.

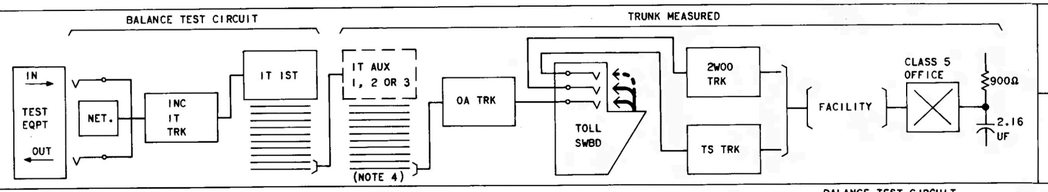
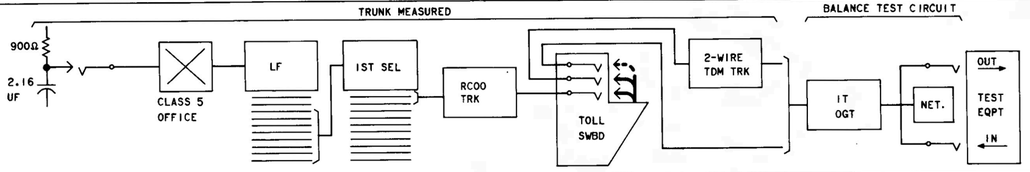
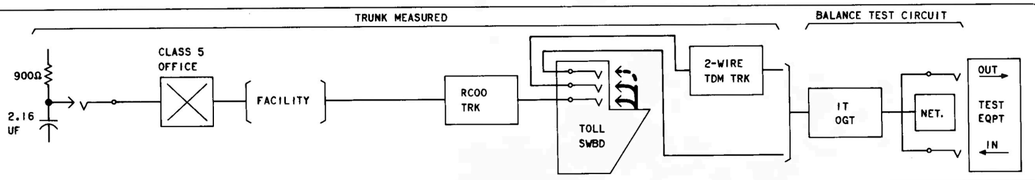
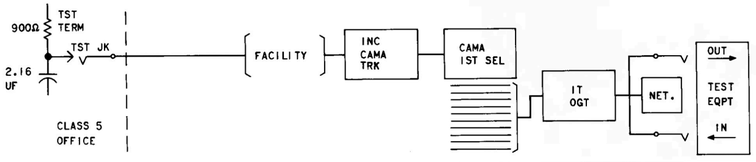
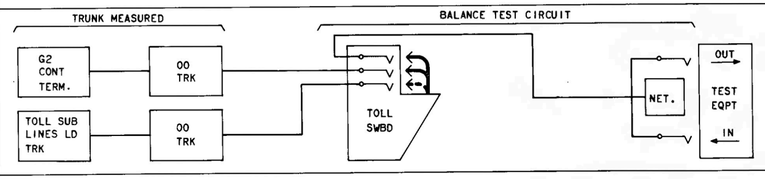
CLASS 4 STEP BY STEP OFFICE TERMINAL BALANCE TEST CONDITIONS AND REQUIREMENTS

TEST NO.	TEST AND CIRCUIT CLASSIFICATION	ERL AND SP/SRL TEST CONDITIONS (BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-474-504. PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-474-502.)	REQUIREMENTS (NOTE 2)					
			ERL IN DB			SP/SRL IN DB		
			MEDIAN	MINIMUM	TURN DOWN	MEDIAN	MINIMUM	TURN DOWN
1	OPERATOR ASSISTANCE (OA) TRUNKS 121, TX, WH ETC		22	16	13	14	8	5
2	A. DIRECT SWITCHBOARD ACCESS TO OUTGOING IT TRUNKS B. 2-WIRE TANDEM TRUNKS TO OUTGOING IT TRUNKS							
3	IT TO TC MACHINE PATHS (CLASS 5 OFFICE IN SAME OR ADJACENT BUILDING)		22	18		14	10	
4	IT TO TC MACHINE PATHS TOLL COMPLETING (TC) 2 WAY OPR OFFICE		2-WIRE FACILITIES, CARRIER WITH 2-WIRE EXTENSION	18	13	10.5	10	6
			4-WIRE FACILITIES (NOTE 1)	22	16		15	11
5	IT TO TC VIA TOLL SWITCHBOARD TO A (CLASS 5 OFFICE IN SAME OR ADJACENT BUILDING)		22	18		14	10	

NOTES:
1. REQUIREMENTS ARE SAME AS FOR 2-WIRE FACILITIES IF TRUNK CONTAINS E-TYPE SIGNALING UNITS WITH BUILT-IN 4WTS AND FIXED NBO CAPACITOR.
2. VALUES GIVEN ARE ACTUAL MEASUREMENTS MINUS TRANSHYBRID LOSS. SEE SECTION 660-474-100 AND -504.
3. MEASUREMENT IS MADE TO VERIFY COMP NET. AND NBO CAPACITOR WIRING. ALL TRUNKS MEASURED SHOULD EQUAL OR EXCEED THE INDICATED REQUIREMENTS.
4. THE SWITCH TRAIN MAY CONTAIN MORE THAN ONE SWITCH.

Table A (Sheet 1 of 3)

CLASS 4 STEP BY STEP OFFICE TERMINAL BALANCE TEST CONDITIONS AND REQUIREMENTS

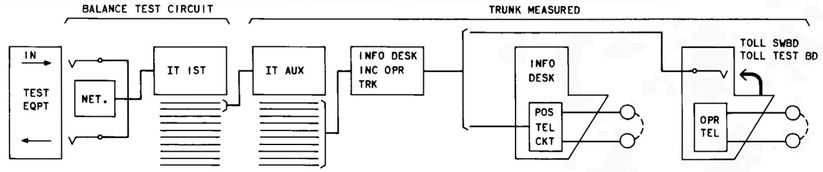
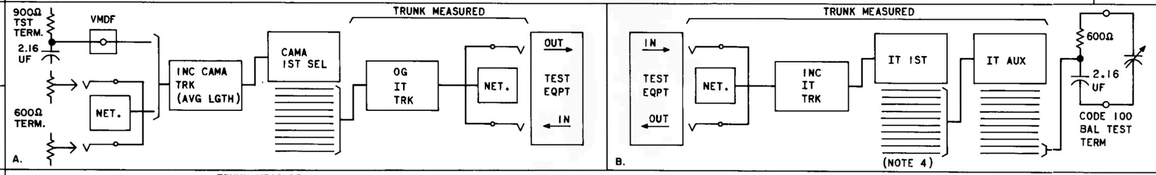
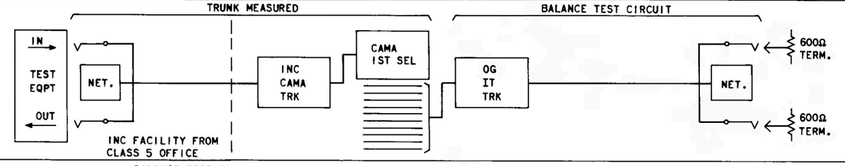
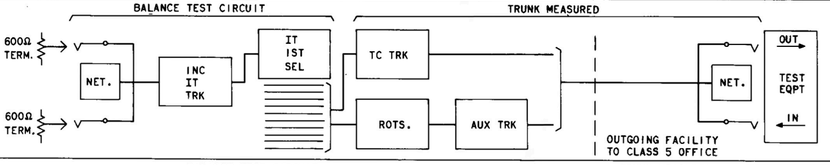
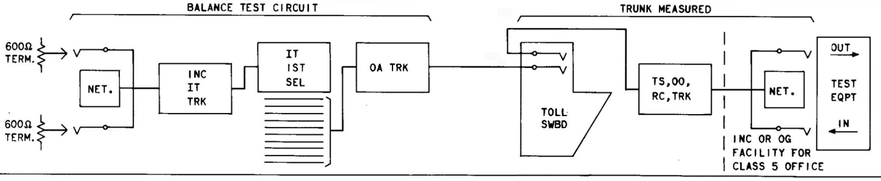
TEST NO.	TEST AND CIRCUIT CLASSIFICATION	ERL AND SP/SRL TEST CONDITIONS (BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-474-504. PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-474-502.)		REQUIREMENTS (NOTE 2)					
				ERL IN DB			SP/SRL IN DB		
				MEDIAN	MINIMUM	TURN DOWN	MEDIAN	MINIMUM	TURN DOWN
6	IT TO TC VIA TOLL SWITCHBOARD TOLL SWITCHING (TS) 2 WAY OPR OFF		2-WIRE FACILITIES, CARRIER WITH 2-WIRE EXTENSION	18	13	10.5	10	6	4
			4-WIRE FACILITIES	22	16		15	11	
7	TC TO IT VIA SWITCHBOARD (CLASS 5 IN SAME OR ADJACENT BUILDING)			22	18		14	10	
8	TC TO IT VIA SWITCHBOARD (RECORDING COMP, OPERATOR OFFICE, COMB. LINE AND RECORDING)		2-WIRE FACILITIES, CARRIER WITH 2-WIRE EXTENSIONS	18	13		10	6	
			4-WIRE FACILITIES (NOTE 1)	22	16		15	11	
9	TC TO IT MACHINE PATH CAMA		2-WIRE FACILITY, CARRIER WITH 2-WIRE EXTENSIONS	18	13		10	6	
			4-WIRE FACILITY (NOTE 1)	22	16		15	11	
			2-WIRE FACILITY IN SAME BUILDING CONTAINING 2 DB PAD	22	18		14	10	
10	MISCELLANEOUS INCOMING OR OUTGOING TC PATHS VIA TOLL SWITCHBOARD MOBILE SERVICE COASTAL HARBOR TOLL SUBSCRIBER LINES, LD, ETC.			15	9	6	10	6	4

NOTES:

1. REQUIREMENTS ARE SAME AS FOR 2-WIRE FACILITIES IF TRUNK CONTAINS E-TYPE SIGNALING UNITS WITH BUILT-IN 4WTS AND FIXED NBO CAPACITOR.
2. VALUES GIVEN ARE ACTUAL MEASUREMENTS MINUS TRANSHYBRID LOSS. SEE SECTION 660-474-100 AND -504.
3. MEASUREMENT IS MADE TO VERIFY COMP NET. AND NBO CAPACITOR WIRING. ALL TRUNKS MEASURED SHOULD EQUAL OR EXCEED THE INDICATED REQUIREMENTS.
4. THE SWITCH TRAIN MAY CONTAIN MORE THAN ONE SWITCH.

Table A (Sheet 2 of 3)

CLASS 4 STEP BY STEP OFFICE TERMINAL BALANCE TEST CONDITIONS AND REQUIREMENTS

TEST NO.	TEST AND CIRCUIT CLASSIFICATION	ERL AND SP/SRL TEST CONDITIONS (BALANCE TEST CIRCUIT AND TEST EQUIPMENT ARE SPECIFIED IN SECTION 660-474-504. PROCEDURES TO OBTAIN TEST CONDITIONS ARE SPECIFIED IN SECTION 660-474-502.)	REQUIREMENTS (NOTE 2)					
			ERL IN DB			SP/SRL IN DB		
			MEDIAN	MINIMUM	TURN DOWN	MEDIAN	MINIMUM	TURN DOWN
11	POSITION TELEPHONE SET TERMINATED IN HEADSET ON TOLL SWBD, TOLL TEST BD, OR INFO DESK		TOLL SWBD TOLL TEST BD	11	7	5	8	4	2
			INFO DESK	15	11	9	12	8	6
12	A. OUTGOING MACHINE PATHS, OUTGOING IT TRUNKS B. INCOMING MACHINE PATHS, INCOMING IT TRUNKS			27	21	18	20	14	11
13	4WTS OF INCOMING TC PATHS FROM CLASS 5 OFFICE CAMA (NOTE 3)			-	14	14	-	6	6
14	4WTS OF OUTGOING TC PATHS TO CLASS 5 OFFICE TOLL COMPLETING (NOTE 3)								
15	4WTS OF INCOMING OR OUTGOING PATHS FOR CLASS 5 OFFICE TOLL SWITCHING 2W OPERATOR OFFICE RECORDING COMPLETING (NOTE 3)								

NOTES:
1. REQUIREMENTS ARE SAME AS FOR 2-WIRE FACILITIES IF TRUNK CONTAINS E-TYPE SIGNALING UNITS WITH BUILT-IN 4WTS AND FIXED NBO CAPACITOR.
2. VALUES GIVEN ARE ACTUAL MEASUREMENTS MINUS TRANSHYBRID LOSS. SEE SECTION 660-474-100 AND -504.
3. MEASUREMENT IS MADE TO VERIFY COMP NET. AND NBO CAPACITOR WIRING. ALL TRUNKS MEASURED SHOULD EQUAL OR EXCEED THE INDICATED REQUIREMENTS.
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Table A (Sheet 3 of 3)