TRUNK TRANSMISSION TESTS
CIRCUITS TERMINATED ON TRUNK LINK FRAME
USING MASTER TEST FRAME
NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes the method of making transmission measurements on outgoing trunks, intraoffice trunks, trunks to switchboards, trunks to automatic call distributor (ACD) office, and trunks to plant or traffic operating desks in No. 5 crossbar offices using the master test control circuit SD-25800-01. This section also describes the method of assisting with transmission measurements on incoming trunks. The transmission measurements include loss, message circuit noise, impulse noise, frequency response, and peak-to-average ratio (P/AR). For the method of making transmission measurements on circuits terminated on line link frames, refer to Section 218-246-502.

1.02 The reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes. Equipment Test Lists are not affected.

(a) To add Electronic Translator System (ETS) feature.

(b) To add paragraphs 1.21, 1.22.

(c) To expand paragraph 1.08.

(d) To rearrange steps in PREPARATION combining the proper tests with associated test equipment.

1.03 The tests covered are:

Note: Tests AF Through AZ reserved.

TERMINATING END PROCEDURES

Note: Tests BF Through BZ Reserved.

1.04 The tests and procedures in this section are identified by a special designation plan. Single test letters A through Z are reserved for tests which require no assistance at the terminating end. Double test letters AA through AZ are reserved for near-end-originated tests that require assistance at the far end. Double test letters BA through BZ are reserved for the assistance required on incoming tests to this office. The second letter of double-lettered tests and procedures identify companion procedures and tests as shown in Table A. The tests and procedures for the far-end offices are given in the trunk transmission sections covering the particular type of far-end office involved.

1.05 Transmission requirements for trunks are given on circuit layout cards, in local trunk records, or in appropriate sections.

TABLE A

NEAR-END TEST	CORRESPONDING FAR-END PROCEDURE
AA	BA
AB	BB
++	++
AZ	BZ

1.06 General information and requirements for trunk transmission can be found in Division 660. (See 660-000-000.)

1.07 In each test, the transmission loss indicated by the transmission measuring set (TMS) meter includes the loss of the connecting circuits used to complete the test connection.

1.08 The transmission loss indicated by the TMS meter is the actual measured loss (AML) in dB of the circuit under test and is made under the same conditions as the expected measured loss (EML) was computed. ▶The AML of the manual transmission test (MTF) may differ from the automatic transmission test (CAROT-ROTL) AML and should be considered if comparing reading.◀

1.09 The results of these tests should be entered on the appropriate form.

1.10 Precautions should be taken when performing these tests so that normal traffic will not be adversely affected.

1.11 For Tests AB and BB, caution should be taken, when using a continuously variable oscillator, not to sweep through 2400 or 2600 Hz on a trunk that uses a single frequency signaling unit.

1.12 Using order wire or DDD network, a talking path can be established between originating and terminating locations as required.

1.13 After the trunk under tests has been connected to a distant 101-type test line, Tests AA through AE can be performed on the same trunk without releasing the trunk from the test line.

1.14 If so directed by the distant originating end, Tests BA through BE can be performed on the trunk under test before releasing it.

1.15 Test C is applicable only to trunks not containing an N, O, or ON carrier.

1.16 SD-REC1, TMS1, TO, TR, TS, LP, TMS2, and REC2 keys on the test termination circuit (TTC) are in the normal position when the white line on each key is vertical.

1.17 ***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.

1.18 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.

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

1.20 A statement between asterisks (*__*) is added after action statements to clarify the readings obtained in the test procedures of Part 4.

1.21 ▶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 supervisory scanning to be repeated on the FT, CS, and S1 lamps at the MTF trunk test circuit. As long as the TST bit is set in the trunk register, supervision will continue to be repeated on the lamps, 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.

1.22 When the office is arranged for LAMA-C or ETS, the distributor and scanners 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 sections for the office arrangement.

218-798-308—Taking LAMA-C Equipment Out-of-Service.

218-799-701—Taking ETS Equipment Out-of-Service.◀

2. APPARATUS

2.01 The apparatus required for each test is listed in Table B. The details of each item are covered in the paragraph indicated by the number in parentheses. The calibration and operating procedure for each test set may be found in the section listed with each test set.

Note: ▶If another type of measuring set is used in lieu of the recommended set, it should be ascertained that its accuracy is as good or better than that recommended. If another type of set is used, reference should be made to the manufacturer's instruction manual for operating and calibrating procedures pertaining to the set.◀

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

2.03 Trunk test circuit, SD-25918-01.

2.04 Jack, lamp, and key circuit, SD-25762-01.

2.05 Test termination circuit (TTC), SD-96540-01.

2.06 Transmission and noise measuring circuit (TNM), SD-95900-01 (Section 103-231-500).

2.07 23A, 23B, 23C, or 23D transmission measuring set (TMS), J94023A or J94023D (Section 103-223-100), J94023B or J94023C (Section 103-223-101) ▶or equivalent.◀

TABLE B

APPARATUS	TESTS														
	A	B	C	D	E	AA	AB	AC	AD	AE	BA	BB	BC	BD	BE
Test Circuit (2.02)	1	1	1	1	1	1	1	1	1	1					
Test Circuit (2.03)	1	1	1	1	1	1	1	1	1	1					
Test Circuit (2.04)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Test Circuit (2.05)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Transmission and Noise Measuring Circuit (2.06)	1	1		1	1	1	1	1			1	1	1		
Transmission Measuring Set (2.07)	1			1	1	1	1				1	1			
Noise Measuring Set (2.08)		1						1					1		
Impulse Counter (2.09)			1						1					1	
Oscillator (2.10)							1		*1			1		*1	
P/AR Meter Generator (2.11)										1					1
P/AR Meter Receiver (2.12)										1					1
Cord (2.13)	2	2	1	2	4	3	3	2	2	1	3	3	2	2	1
Cord (2.14)	1	†1		1	1	1	2	†1	1	1	1	2	†1	*1	1
Cord (2.15)			1						1					1	
Cord (2.16)										1					1
Cord (2.17)		§1						§1					§1		
Cord (2.18)		1						1					1		
Cord (2.19)	1	1	1	1	2	1	1	1	1	1					
Test Receiver (2.20)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

* Required if testing trunks containing N, O, or ON carrier.
† Required when using 3C NMS.
§ Required when using 3A NMS.

2.08 3A or 3C noise measurement set (NMS) ◗or equivalent◖ equipped with C-message weighting (C-MESSAGE) network (Section 103-611-100 or Section 103-611-101).

2.09 6H impulse counter (IC) J94006H equipped with the C-notched weighting filter ◗or equivalent◖ (Section 103-620-101).

2.10 KS-19353 L1, KS-19353 L4, or KS-19260 L1 oscillator ◗or equivalent◖ (Section 103-302-105, 103-302-106, or 103-302-100).

Note: The KS-19353 L1 oscillator should be adjusted to desired output level before using and after each change in frequency.

2.11 P/AR meter generator (P/AR GEN) J94027A or J94027E ◗or equivalent◖ (Section 103-110-110).

2.12 P/AR meter receiver (P/AR RCVR) J94027B ◗or equivalent◖ (Section 103-110-110).

2.13 Patching cord, P3E cord, 3 feet long, equipped with two 310 plugs (3P7B cord).

2.14 Patching cord, P3E cord, 6 feet long, equipped with two 310 plugs (3P7A cord).

2.15 Patching cord, P2B cord, 6 feet long, equipped with two 310 plugs (2P4C cord).

2.16 Patching cord, W2BS cord, 5 feet long, equipped with one 310 plug (2W33A cord).

2.17 Patching cord, P2AE cord, 4 feet long, equipped with one 310 plug and one 289B plug (2P16A cord).

2.18 Patching cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord) and two KS-6278 connecting clips.

2.19 Patching cord, P3F cord, 4 feet long, equipped with one 309 and one 310 plug (3P12A cord).

2.20 716D test receiver, equipped with a 310 plug.

3. PREPARATION

STEP	ACTION	VERIFICATION
	Note 1: All test equipment shall be known to be correctly calibrated.	
	Note 2: Refer to paragraphs 1.18 and 1.19.	
	Tests A Through E, AA Through AE	
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Select completing marker.	
4	Connect test receiver to RCVR jack on TTC.	
5	Select MISC class of test.	
6	Operate FS, TS, KY, TLK keys.	
7	Select trunk under test.	
8	◆Select originating class of call and associated translator indication.◆ ***Note:*** When testing CAMA trunks, extreme care should be taken to ensure that the correct test line code is pulsed forward to avoid false billing of the test call. When making test calls over CAMA trunks with ONI, and in some cases with ANI, the CAMA operator may come in on the connection. When this occurs, pass the number assigned to the MTF to the CAMA operator.	
9	Operate GPA/GPB key as required when trunk is in an allotted trunk group.	

STEP	ACTION	VERIFICATION
10	Select route advance as required for access to trunk under test.	
11a	If trunk under test is being tested in subscriber access mode of operation— Select class of service and rate treatment for access to trunk under test.	
12b	If trunk under test is being tested in tandem access mode of operation— Select TAN subclass of test.	
13c	If trunk under test is being tested in toll access mode of operation— Select TOL subclass of test.	
14d	If trunk under test is being tested in subscriber or tandem access mode of operation— Patch TRK1 jack on TTC to TM1 jack on jack, lamp, and key circuit, using 3-foot long P3E cord.	
15c	If trunk under test is being tested in toll access mode of operation— Patch TRK1 jack on TTC to TRK TST(1) jack on jack, lamp, and key circuit, using 4-foot long P3F cord.	
16e	♦If ETS provided— Operate PCS, PTS keys.♦	
Tests A, B, D, E, and AA Through AC		
17f	If trunk under test terminates in an ACD office— Operate TTC16 key to ON.	
18g	If trunk under test terminates in an ACD office and SF signaling is provided— Operate ACDC key.	
Tests A, D, E, AA, AB		
	Note: See Fig. 1.	
19h	If 23A or 23D TMS is used— At 23A or 23D TMS— Operate function key to MEAS.	
20h	Operate INPUT key to 900 (subscriber or tandem access mode) or 600 (toll access mode).	

STEP	ACTION	VERIFICATION
21h	At MTF— Patch MEAS 310 jack on 23A or 23D TMS to REC1 jack on TTC, using 6-foot long P3E cord.	
22i	If 23B or 23C TMS is used— Patch MEAS 900 jack (subscriber or tandem access mode) or MEAS 600 jack (toll access mode) on TTC to REC1 jack on TTC, using 3-foot long P3E cord.	
23j	If TNM is used (subscriber and tandem access mode only)— Patch RCV or RCVB jack on TTC to REC1 jack on TTC, using 3-foot long P3E cord.	
24	Operate SD-REC1 key (horizontal).	

Tests B, AC

Note: See Fig. 1.

25k	If 3A NMS is used— At 3A NMS— Set FUNCTION switch to NM 900 (subscriber and tandem access mode) or NM 600 (toll access mode).	
26l	If 3C NMS is used— At 3C NMS— Set FUNCTION switch to NM 600/900.	
27m	If 3A or 3C NMS is used— Connect ground to GRD post on NMS, using 893 cord.	
28	Set DBRN switch to 85.	
29	At MTF— Patch IN jack on NMS to REC1 jack on TTC, using P2AE (3A NMS) or 6-foot long P3E (3C NMS) cord.	
30n	If TNM is used (subscriber and tandem access mode only)— Patch RCV or RCVB jack on TTC to REC1 jack on TTC, using 3-foot long P3E cord.	
31	Operate NM/A+40 key if provided.	
32	Operate SD-REC1 key (horizontal).	

STEP	ACTION	VERIFICATION
Tests C, AD		
	Note: See Fig. 1.	
Trunks Not Containing N, O, or ON Carrier		
33	Patch MEAS jack on 6H IC to REC1 jack on TTC, using P2B cord.	
34	At 6H IC— Set DIAL-MEAS switch to MEAS.	
35	Set DBRN dial to the required noise reference level.	
36	At MTF— Operate SD-REC1 key (horizontal).	
Trunks Containing N, O, or ON Carrier		
37	Patch MEAS jack on 6H IC to REC1 jack on TTC, using P2B cord.	
38	At 6H IC— Set DIAL-MEAS switch to MEAS.	
39	Set DBRN switch to 57.	
40o	If using KS-19353 L1 or KS-19353 L4 oscillator— Set FUNCTION switch to 900 (subscriber or tandem access mode) or 600 (toll access mode).	
41	At MTF— Patch SD jack on TTC to OUTPUT 310 jack on oscillator, using 6-foot long P3E cord.	
42p	If using KS-19260 L1 oscillator— Patch SD jack on TTC to OSC 900 jack (subscriber or tandem access mode) or OSC 600 jack (toll access mode) on TTC, using 3-foot long P3E cord.	
43	Operate SD-REC1 key (horizontal).	

4. METHOD

A. One-Way 1004-HZ Loss Measurement to 102-Type Test Line

STEP	ACTION	VERIFICATION
25	Select A_ through K_ digits as required to reach 102-type test line.	

STEP	ACTION	VERIFICATION
26	Momentarily operate ST key.	If trunk under test is being tested in subscriber or tandem access mode of operation and does ***not*** terminate in an ACD office— 1004-Hz tone heard. If trunk under test terminates in an ACD office— Interrupted dial tone heard.
27f	If trunk under test terminates in an ACD office— Restore TTC16 key to OFF.	
28f	Using TOUCH-TONE® dial— Key digit 2.	Interrupted dial tone silenced. 1004-Hz tone heard.
29c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	1004-Hz tone heard.
30	Operate TMS1 key (horizontal).	If trunk test circuit is arranged for loop-around testing— At test receiver— 1004-Hz tone heard.
31k	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	At test receiver— 1004-Hz tone heard.
32	At TMS or TNM— Record TMS or TNM readings. *Far-to-near trunk loss.*	
33k	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Restore TM1 key.	
34	At MTF— Restore TMS1 key (vertical).	
35	Momentarily operate RL key.	If trunk under test is being tested in subscriber or tandem access mode of operation— 1004-Hz tone silenced.
36c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	1004-Hz tone silenced.
37	Restore all keys and switches.	
38	Remove all patch cords used for test.	

STEP	ACTION	VERIFICATION
B.	**Message Circuit Noise Measurement to 100-Type Test Line**	
33	Select A_ through K_ digits as required to reach 100-type test line.	
34	Momentarily operate ST key.	If trunk under test terminates in an ACD office— Interrupted dial tone heard.
35f	If trunk under test terminates in an ACD office— Restore TTC16 key to OFF.	
36f	Using TOUCH-TONE dial— Key digit 0.	Interrupted dial tone silenced.
37c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	
38	Operate TMS1 key (horizontal).	
39o	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	
40m	If 3A or 3C NMS is used— At 3A or 3C NMS— Adjust DBRN switch for a meter indication between +2 and +9.	
41	At NMS or TNM— Record noise measurement and character of noise. ***Note:*** NMS or TNM indicates near-end noise; character of noise is heard in test receiver.	
42o	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Restore TM1 key.	
43	At MTF— Restore TMS1 key (vertical).	
44	Momentarily operate RL key.	
45c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	

STEP	ACTION	VERIFICATION
46	Restore all keys and switches.	
47	Remove all patch cords for test.	

C. Impulse Noise Measurement to 100-Type Test Line

Note: Refer to paragraph 1.15.

44	Select A_ through K_ digits as required to reach 100-type test line.	
45	Momentarily operate ST key.	
46c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	
47	Operate TMS1 key (horizontal).	
48q	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	
49	At 6H IC— Turn MINUTES control to desired time.	
50	Momentarily operate reset lever.	
51	After timing interval (MINUTES control in 0 position)— Record counter reading.	

Note: If distant test line returns repetitive on-hook supervision, monitor connection with 716D receiver, observe 6H IC, and determine number of impulses per minute caused by changes in supervision. Multiply by timing interval in minutes and subtract result from recorded counter reading.

Counter reading, as corrected when required, indicates impulse counts measured at near end.

52q	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Restore TM1 key.	
53	At MTF— Restore TMS1 key (vertical).	

STEP	ACTION	VERIFICATION
54	Momentarily operate RL key.	
55c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	
56	Restore all keys and switches.	
57	Remove all patch cords used for test.	
D. Two-way 1004-Hz Loss Measurement and Noise Check to 104-Type Test Line		
25	Select A_ through K_ digits as required to reach 104-type test line.	
26	Momentarily operate ST key.	If trunk under test is being tested in subscriber or tandem access mode of operation and does ***not*** terminate in an ACD office— 2225-Hz tone heard or OGT-CS lamp lighted. If trunk under test terminates in an ACD office— Interrupted dial tone heard.
27f	If trunk under test terminates in an ACD office— Restore TTC16 key to OFF.	
28f	Using TOUCH-TONE dial— Key digit 4.	Interrupted dial tone silenced. 2225-Hz tone heard.
29c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	2225-Hz tone heard or OGT-CS lamp lighted.
30	Operate TMS1 key (horizontal).	If trunk test circuit is arranged for loop-around testing— At test receiver— 2225-Hz tone heard.
31k	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	At test receiver— 2225-Hz tone heard.
32	When 2225-Hz tone is silenced or OGT-CS lamp is extinguished— Restore SD-REC1 key (vertical) for 3 to 8 seconds, then reoperate (horizontal). ***Note:*** Near-to-far transmission loss measured and stored at distant transmission measuring circuit.	When SD-REC1 key is reoperated (horizontal)— 1004-Hz tone heard for 10-seconds at near-end.

STEP	ACTION	VERIFICATION
33l	If short burst of 2225-Hz tone is heard or OGT-CS lamp is momentarily lighted ***before*** 10-second 1004-Hz tone— Repeat Step 32.	
34	When 1004-Hz tone is heard— At TMS or TNM— Record TMS or TNM reading during 10-second tone. *Far-to-near transmission loss.*	
35m	If short burst of 2225-Hz tone is heard or OGT-CS lamp is momentarily lighted ***after*** 10-second 1004-Hz tone— Add -10 dB to TMS or TNM reading for second 10-second tone.	
36	When second 10-second 1004-Hz tone is heard— Record TMS or TNM reading during second 10-second tone. *Far-to-near plus near-to-far transmission loss.*	
37n	If a far-end noise check is desired— Monitor test call for 5-seconds.	If steady 2225-Hz tone is heard— Far-end noise does ***not*** exceed 41 dBrnc. If interrupted 2225-Hz tone is heard— Far-end noise exceeds 41 dBrnc.
38	Subtract reading recorded in Step 34 from reading recorded in Step 36. *Remainder is near-to-far transmission loss.*	
39k	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Restore TM1 key.	
40	At MTF— Restore TMS1 key (vertical).	
41	Momentarily operate RL key.	
42c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	
43	Restore all keys and switches.	
44	Remove all patch cords used for test.	

STEP	ACTION	VERIFICATION
E. Two-Way 1004-Hz Loss Measurement Using Loop-Around Test Line		
	Note: See Fig. 2(A).	
25	Momentarily operate ST key.	If trunk under test is being tested in subscriber or tandem access mode of operation; ***not*** terminated at switchboard; ***not*** terminated in an ACD office— 1004-Hz tone heard. If trunk under test terminates at switchboard— Call answered. If trunk under test terminates in an ACD office— Interrupted dial tone heard.
26k	If trunk under test terminates at switchboard— Request connection to 1mW test circuit.	1004-Hz tone heard.
27f	If trunk under test terminates in an ACD office— Restore TTC16 key to OFF.	
28f	Using TOUCH-TONE dial— Key digit 2.	Interrupted dial tone silenced. 1004-Hz tone heard.
29c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	1004-Hz tone heard.
30	Operate TMS1 key (horizontal).	At test receiver— 1004-Hz tone heard.
31	At TMS or TNM— Record TMS or TNM reading. *Far-to-near transmission loss*. ***Note:*** ◗The reading of the TMS or TNM should be stable and measure within ±1.0 dB of the expected measured loss (EML). Trunks which deviate more than ±3.7 dB from the EML should be removed from service immediately.◖	
32	At MTF— Restore TMS1 key (vertical).	
33	Momentarily operate RL key.	If trunk under test is being tested in subscriber or tandem access mode of operation— 1004-Hz tone silenced.

STEP	ACTION	VERIFICATION
34c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	1004-Hz tone silenced.
35	Repeat Steps 7 through 34c as required for all trunks in trunk group under test.	

Reference Trunk Seizure

Note: See Fig. 2(B).

36	Remove patch cord from REC1 jack and patch to REC2 jack.	
37	Patch SD jack on TTC to 1000-0-900 jack (subscriber or tandem access mode) or 1000-0-600 jack (toll access mode) on TTC, using 3-foot long P3E cord.	
38l	If reference trunk is being tested in subscriber or tandem access mode of operation— Remove patch cord from TM1 jack and patch to TM2 jack.	
39l	Patch TRK2 jack on TTC to TM1 jack on jack, lamp, and key circuit, using 3-foot long P3E cord.	
40m	If reference trunk is being tested in toll access mode of operation— Patch TRK2 jack on TTC to TRK TST2 jack on jack, lamp, and key circuit, using 4-foot long P3F cord.	
41m	Operate TOL2 key.	
42	Select one trunk to be used as reference trunk. ***Note:*** ▶The reference trunk should be stable and its measured far-to-near loss within ±1.0 dB of the expected measured loss (EML). Trunks which deviate more than ±3.7 dB from the EML should be removed from service immediately and another trunk should be selected and tested.◀	
43	Select reference trunk.	
44	Operate REC2 key (horizontal).	

STEP	ACTION	VERIFICATION
45n	If reference trunk terminates in an ACD office— Operate TTC16 key to ON.	
46	Select A_ through K_ digits as required to reach first appearance of loop-around test line or switchboard appearance of reference trunk.	
47	Momentarily operate ST key.	If reference trunk terminates at switchbaord— Call answered. If reference trunk terminates in an ACD office— Interrupted dial tone heard.
48o	If reference trunk terminates at switchboard— Request connection to first appearance of loop-around test termination.	
49h	If reference trunk terminates in an ACD office— Restore TTC16 key to OFF.	
50n	Using TOUCH-TONE dial— Key digit 6.	Interrupted dial tone silenced.
51m	If reference trunk is being tested in toll access mode of operation— Restore TOL2 key.	
52m	Operate TTB2 key.	
53	Operate TMS2 key (horizontal). ***Note:*** If first appearance of loop-around test termination circuit is also a 102-type test line, TMS or TNM indicates far-to-near transmission loss of reference trunk.	
54	At MTF— Momentarily operate RL key.	
Seizure and Loop-Around Measurement of Trunk to be Tested		
55	Select trunk under test.	
56f	If trunk under test terminates in an ACD office— Operate TTC16 key to ON.	
57	Select A_ through K_ digits as required to reach second appearance of loop-around test	

STEP	ACTION	VERIFICATION
	line or switchboard appearance of trunk under test.	
58	Momentarily operate ST key.	If trunk under test terminates at switchboard— Call answered. If trunk under test terminates in an ACD office— Interrupted dial tone heard.
59o	If trunk under test terminates at switchboard— Request connection to second appearance of loop-around test termination.	
60f	If trunk under test terminates in an ACD office— Restore TTC16 key to OFF.	
61f	Using TOUCH-TONE dial— Key digit 7.	Interrupted dial tone silenced.
62c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	
63	Restore SD-REC1 key (vertical).	
64	Operate TMS1 key (horizontal).	
65	At TMS or TNM— Record loop-around transmission loss. *Near-to-far plus far-to-near transmission loss.*	
66	Subtract reading recorded for reference trunk in Step 31 from reading recorded in Step 65. *Near-to-far transmission loss of trunk under test.*	
67	At MTF— Restore TMS1 key (vertical).	
68	Momentarily operate RL key.	
69c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	
70	Repeat Steps 55 through 69c as required for all trunks in trunk group under test.	
71m	If reference trunk is being tested in toll access mode of operation— Restore TTB2 key.	

STEP	ACTION	VERIFICATION
72	Restore TMS2 key (vertical).	
	Loop-Around Test of Reference Trunk	
73	Select another trunk as a reference trunk. ***Note:*** ▶The reference trunk should be stable and its measured far-to-near loss within ±1.0 dB of the expected measured loss (EML). Trunks which deviate more than ±3.7 dB from the EML should be removed from service immediately and another trunk should be selected and tested.◀	
74	Repeat Steps 43 through 54.	
75	Select trunk used as first reference trunk.	
76	Repeat Steps 56f through 69c as required.	
77	Restore all keys and switches.	
78	Remove all patch cords used for test.	
	ORIGINATING END PROCEDURES	
	AA. One-Way or Two-Way 1004-Hz Loss Measurement to 101-Type Test Line, ACD Offices, Switchboards, or Plant or Traffic Operating Desks	
25	Select A_ through K_ digits as required to reach 101-type test line, switchboard, or plant or traffic operating desk appearance of trunk under test.	
26	Momentarily operate ST key.	If trunk under test does ***not*** terminate in an ACD office— Call answered. If trunk under test terminates in an ACD office— Interrupted dial tone heard.
27f	If trunk under test terminates in an ACD office— Restore TTC16 key to OFF.	
28f	Using TOUCH-TONE dial— Key digit 1.	Interrupted dial tone silenced. Call answered.
29c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	

STEP	ACTION	VERIFICATION
30	Request terminating end to send 0-dBm 1004-Hz tone over trunk for agreed upon interval.	1004-Hz tone heard.
31	Operate TMS1 key (horizontal).	If trunk test circuit is arranged for loop-around testing— At test receiver— 1004-Hz tone heard.
32k	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	At test receiver— 1004-Hz tone heard.
33	At TMS or TNM— Record TMS or TNM reading. *Far-to-near transmission loss.*	
34l	If trunk test circuit is arranged for loop-around testing— After agreed upon interval— At MTF— Restore TMS1 key (vertical).	
35k	If trunk test circuit is ***not*** arranged for loop-around testing— After agreed upon interval— At MTF— Restore TM1 key.	
36m	If near-to-far transmission measurement is ***not*** required— Omit Steps 37 through 43.	
37	Request terminating end to measure near-to-far transmission loss.	
38	Restore SD-REC1 key (vertical).	
39l	If trunk test circuit is arranged for loop-around testing— Operate TMS1 key (horizontal) for agreed upon interval.	
40l	After agreed upon interval— Restore TMS1 key (vertical).	
41k	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key for agreed upon interval.	
42k	After agreed upon interval— Restore TM1 key.	

STEP	ACTION	VERIFICATION
43	Obtain and record near-to-far transmission loss measured at terminating end.	
44	Request terminating end to disconnect.	
45	Momentarily operate RL key.	
46c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	
47	Restore all keys and switches.	
48	Remove all patch cords used for test.	

AB. Two-Way Frequency Response Measurement to 101-Type Test Line, ACD Offices, Switchboards or Plant or Traffic Operating Desks

25k	If KS-19353 L1 or KS-19353 L4 oscillator is used— At oscillator— Set FUNCTION switch to 900 (subscriber or tandem access) or 600 (toll access).	
26k	At MTF— Patch SD jack on TTC to OUTPUT 310 jack on oscillator, using 6-foot long P3E cord.	
27l	If KS-19260 L1 oscillator is used— Patch SD jack on TTC to OSC 900 jack (subscriber or tandem access mode) or OSC 600 jack (toll access mode) on TTC, using 3-foot long P3E cord.	
28	Select A_ through K_ digits as required to reach 101-type test line, switchboard, or plant or traffic operating desk appearance of trunk under test.	
29	Momentarily operate ST key.	If trunk under test does ***not*** terminate in an ACD office— Call answered. If trunk under test terminates in an ACD office— Interrupted dial tone heard.
30f	If trunk under test terminates in an ACD office— Restore TTC16 key to OFF.	

STEP	ACTION	VERIFICATION
31f	Using TOUCH-TONE dial— Key digit 1.	Interrupted dial tone silenced. Call answered.
32c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	
33	Request terminating end to send first required frequency at 0-dBm for agreed upon interval.	Tone heard.
34	Operate TMS1 key (horizontal).	If trunk test circuit is arranged for loop-around testing— At test receiver— Tone heard.
35m	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	At test receiver— Tone heard.
36	At TMS or TNM— Record TMS or TNM reading. *Far-to-near transmission loss.*	
37m	If trunk test circuit is arranged for loop-around testing— After agreed upon interval— At MTF— Restore TMS1 key (vertical).	
38m	If trunk test circuit is ***not*** arranged for loop-around testing— After agreed upon interval— At MTF— Restore TM1 key.	
39	Repeat Steps 33 through 38m for all required frequencies.	
40o	If near-to-far transmission measurement is ***not*** required— Omit Steps 41 through 49.	
41	Restore SD-REC1 key (vertical).	
42	Request terminating end to measure near-to-far transmission loss.	
43	At oscillator— Adjust oscillator to send first required frequency at 0 dBm.	

STEP	ACTION	VERIFICATION
44n	If trunk test circuit is arranged for loop-around testing— At MTF— Operate TMS1 key (horizontal) for agreed upon interval.	
45n	After agreed upon interval— Restore TMS1 key (vertical).	
46m	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Operate TM1 key for agreed upon interval.	
47m	After agreed upon interval— Restore TM1 key.	
48	Obtain and record near-to-far transmission loss measured at terminating end.	
49	Repeat Steps 41 through 48 for all required frequencies. (Refer to paragraph 1.11.)	
50	Request terminating end to disconnect.	
51	Momentarily operate RL key.	
52c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	
53	Restore all keys and switches.	
54	Remove all patch cords used for test.	

AC. Message Circuit Noise Measurements to 101-Type Test Line, ACD Offices, Switchboards, or Plant or Traffic Operating Desks

33	Select A_ through K_ digits as required to reach 101-type test line, switchboard, or plant or traffic operating desk appearance of trunk under test.	
34	Momentarily operate ST key.	If trunk under test does ***not*** terminate in an ACD office— Call answered. If trunk under test terminates in an ACD office— Interrupted dial tone heard.

STEP	ACTION	VERIFICATION
35f	If trunk under test terminates in an ACD office— Restore TTC16 key to OFF.	
36f	Using TOUCH-TONE dial— Key digit 1.	Interrupted dial tone silenced. Call answered.
37c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	
38o	If far-end noise measurement is required— Request terminating end to connect noise measuring equipment.	
39p	If far-end noise is ***not*** required— Request terminating end to provide balance termination.	
40	Operate TMS1 key (horizontal).	
41q	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	
42k	If 3A or 3C NMS is used— At 3A or 3C NMS— Adjust DBRN switch for a meter indication between +2 and +9.	
43	At NMS or TNM— Record noise measurement and character of noise. ***Note:*** NMS and TNM indicates near-end noise; character of noise is heard in test receiver.	
44r	If trunk test circuit is arranged for loop-around testing— After agreed upon interval— At MTF— Restore TMS1 key (vertical).	
45q	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Restore TM1 key.	
46o	If far-end noise measurement is required— Obtain and record noise measurement and character of noise from terminating end.	

STEP	ACTION	VERIFICATION
47	Request terminating end to disconnect.	
48	Momentarily operate RL key.	
49c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	
50	Restore all keys and switches.	
51	Remove all patch cords used for test.	

AD. Impulse Noise Measurement to 101-Type Test Line, Switchboards, or Plant or Traffic Operating Desks

Trunks Not Containing N, O, or ON Carrier

44	Select A_ through K_ digits as required to reach 101-type test line, switchboard, or plant or traffic operating desk appearance of trunk under test.	
45	Momentarily operate ST key.	Call answered.
46c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	
47q	If far-end impulse noise measurement is required— Request terminating end to connect impulse counter.	
48r	If far-end impulse noise is ***not*** required— Request terminating end to provide balance termination.	
49	Operate TMS1 key (horizontal).	
50s	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	
51	At 6H IC— Turn MINUTES control to desired time.	
52	Momentarily operate reset lever.	
53	After timing interval (MINUTES control in 0 position)— Record counter reading.	

STEP	ACTION	VERIFICATION
	Counter reading indicates impulse counts at near-end.	
54s	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Restore TM1 key.	
55	At MTF— Restore TMS1 key (vertical).	
56q	If far-end impulse noise measurement is required— Obtain and record impulse count from terminating end.	
57	Request terminating end to disconnect.	
58	Momentarily operate RL key.	
59c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	
60	Restore all keys and switches.	
61	Remove all patch cords used for test.	
Trunks Containing N, O, or ON Carrier		
62	Select A_ through K_ digits as required to reach 101-type test line, switchboard, or plant or traffic operating desk appearance of trunk under test.	
63	Momentarily operate ST key.	Call answered.
64c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key. Request terminating end to connect oscillator adjusted for 2750 (2800) Hz at -10 dBm.	
65	Operate TMS1 key (horizontal).	
66s	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	
67	At 6H IC— Turn MINUTES control to 15 minutes.	

STEP	ACTION	VERIFICATION
68	Momentarily operate reset level.	
69t	If IC counts continuously— Call distant office using order wire or DDD connection; request terminating end to adjust oscillator above or below 2750 (2800) Hz until IC stops counting continuously. ***Note 1:*** Output of distant oscillator should remain at -10 dBm. ***Note 2:*** If no oscillator setting can be found that will stop the IC from counting continuously, repeat Step 51j with the REF LEV DBRN key and switch of the IC adjusted to the next higher dBrn setting, or with the DBRN dial of 6H IC set 3 dBm higher. Use successively higher settings until an oscillator frequency can be found that causes the IC to stop counting continuously.	
70s	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Restore TM1 key.	
71u	If trunk test circuit is arranged for loop-around testing— At MTF— Restore TMS1 key (vertical).	
72	At 6H IC— Set DBRN dial to required noise reference level.	
73u	If trunk test circuit is arranged for loop-around testing— At MTF— Operate TMS1 key (horizontal).	
74s	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Operate TM1 key.	
75	At 6H IC— Set MINUTES control to required interval.	
76	Momentarily operate reset lever.	
77	After timing interval (MINUTES control in 0 position)—	

STEP	ACTION	VERIFICATION
	Record counter reading. *Counter reading indicates impulse counts at near-end*.	
78s	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Restore TM1 key.	
79u	If trunk test circuit is arranged for loop-around testing— At MTF— Restore TMS1 key (vertical).	
80v	If far-end impulse noise measurement is ***not*** required— Omit Steps 81 through 94.	
81	Request terminating end to disconnect oscillator, to connect 6H IC without filter, and to set impulse counter to measure at 57 dBrn.	
82	At oscillator— Adjust oscillator output for 2750 (2800) Hz at -10 dBm.	
83	At MTF— Restore SD-REC1 key (vertical).	
84u	If trunk test circuit is arranged for loop-around testing— Operate TMS1 key (horizontal).	
85s	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	
86t	If IC counts continuously— At oscillator— Adjust frequency of oscillator slowly above or below 2750 (2800) Hz until notified that IC has stopped counting continuously. Maintain output of oscillator at -10 dBm.	
87s	If trunk test circuit is ***not*** arranged for loop-around testing— At MTF— Restore TM1 key.	
88u	If trunk test circuit is arranged for loop-around testing—	

STEP	ACTION	VERIFICATION
	At MTF— Restore TMS1 key (vertical).	
89	Request terminating end to adjust IC to required reference level and to measure the impulse noise.	
90u	If trunk test circuit is arranged for loop-around testing— Operate TMS1 key (horizontal).	
91u	After required timing interval— Restore TMS1 key (vertical).	
92s	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	
93s	After required timing interval— Restore TM1 key.	
94	Obtain and record impulse noise measurements from terminating end.	
	Note: If other trunks are to be tested, do not change oscillator frequency setting from that used on first trunk tested.	
95	Request terminating end to disconnect.	
96	Momentarily operate RL key.	
97c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	
98	Restore all keys and switches.	
99	Remove all patch cords used for test.	

AE. Two-Way P/AR Measurement to 101-Type Test Line, Switchboards, or Plant or Traffic Operating Desks

	Note: See Fig. 1.	
17	At P/AR RCVR— Set IMPEDANCE switch to 900 (subscriber or tandem access mode) or 600 (toll access mode).	

STEP	ACTION	VERIFICATION
18	At MTF— Patch INPUT binding posts on P/AR RCVR to REC1 jack on TTC, using W2BS cord.	
19f	If 27A P/AR GEN is used— Patch SD jack on TTC to 900 ohm 310 jack (subscriber or tandem access mode) or 600 ohm 310 jack (toll access mode) on 27A P/AR GEN using 6-foot long P3E cord.	
20g	If 27E P/AR GEN is used— At 27E P/AR GEN— Operate OUTPUT switch to 900 (subscriber or tandem access mode) or 600 (toll access mode).	
21g	At MTF— Patch SD jack on TTC to OUTPUT 310 jack on 27E P/AR GEN, using 6-foot long P3E cord.	
22	Operate SD-REC1 key (horizontal).	
23	Select A_ through K_ digits as required to reach 101-type test line, switchboard, or plant or traffic operating desk appearance of trunk under test.	
24	Momentarily operate ST key.	Call answered.
25c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-O key.	
26	Request terminating end to connect P/AR GEN for agreed upon interval.	
27	Operate TMS1 key (horizontal).	
28h	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key.	
29	At P/AR RCVR— Adjust COARSE and FINE RECEIVED LEVEL ADJ controls until RECEIVED LEVEL meter reads REF LEVEL.	
30	Record P/AR RCVR meter reading. *Meter reading is near-end peak-to-average ratio rating.*	

STEP	ACTION	VERIFICATION
31h	If trunk test circuit is ***not*** arranged for loop-around testing— After agreed upon interval— At MTF— Restore TM1 key.	
32i	If trunk test circuit is arranged for loop-around testing— After agreed upon interval— At MTF— Restore TMS1 key (vertical).	
33	Request terminating end to make PAR measurement.	
34	Restore SD-REC1 key (vertical).	
35i	If trunk test circuit is arranged for loop-around testing— Operate TMS1 key (horizontal) for agreed upon intervals.	
36i	After agreed upon interval— Restore TMS1 key (vertical).	
37h	If trunk test circuit is ***not*** arranged for loop-around testing— Operate TM1 key for agreed upon interval.	
38h	After agreed upon interval— Restore TM1 key.	
39	Obtain and record P/AR meter reading taken at terminating end.	
40	Request terminating end to disconnect.	
41	Momentarily operate RL key.	
42c	If trunk under test is being tested in toll access mode of operation— Momentarily operate TTB-R key.	
43	Restore all keys and switches.	
44	Remove all patch cords used for test.	

STEP	ACTION	VERIFICATION

TERMINATING END PROCEDURES

BA. Two-Way 1004-Hz Loss Measurement to 101-Type Test Line

Note: See Fig. 3.

1	When call to 101-type test line is received— At MTF— Operate TRK or TALK key to TALK.	
2	Connect test receiver to RCVR jack on TTC.	
3a	If 23A or 23D TMS is used— At 23A or 23D TMS— Operate function key to MEAS.	
4a	Operate INPUT key to 900 (call received over TM AB-5 or TM A-ABX) or 600 (call received over TM B-ABX).	
5a	At MTF— Patch MEAS 310 jack on 23A or 23D TMS to REC1 jack on TTC, using 6-foot long P3E cord.	
6b	If 23B or 23C TMS is used— Patch MEAS 900 jack (call received over TM AB-5 or TM A-ABX) or MEAS 900 jack (call received over TM B-ABX) to REC1 jack on TTC, using 3-foot long P3E cord.	
7c	If TNM is used (call received over TM AB-5 or TM A-ABX only)— Patch RCV or RCVB jack on TTC to REC1 jack on TTC, using 3-foot long P3E cord.	
8	Patch SD jack on TTC to 1000-0-900 jack (call received over TM AB-5 or TM A-ABX) or 1000-0-600 jack (call received over TM B-ABX) on TTC, using 3-foot long P3E cord.	
9	Operate TMS1 key (horizontal).	
10	When requested by originating end to send 1004-Hz tone at 0 dBm— Patch TRK1 jack on TTC to TM AB-5, TM A-ABX, or TM B-ABX jack on jack, lamp, and key circuit for 101-type test line, using 3-foot long P3E cord for agreed upon interval.	

STEP	ACTION	VERIFICATION
	Note: When plug is inserted into TM_ jack, talking path is opened.	
11	After agreed upon interval— Remove plug from TM_ jack being used for test.	
12	When requested by originating end to measure tone— Reinsert plug into TM_ jack being used for test for agreed upon interval.	
13	Operate SD-REC1 key (horizontal).	At test receiver— 1004-Hz tone heard.
14	At TMS or TNM— Read TMS or TNM meter.	
15	After agreed upon interval— At MTF— Remove plug from TM_ jack being used for test.	
16	Report TMS or TNM meter reading to originating end.	
17	Restore all keys and switches.	
18	Remove all patch cords used for test.	

BB. Two-Way Frequency Response Measurement to 101-Type Test Line

	Note: See Fig. 3.	
1	When call to 101-type test line is received— At MTF— Operate TRK or TALK key to TALK.	
2	Connect test receiver to RCVR jack on TTC.	
3a	If 23A or 23D TMS is used— At 23A or 23D TMS— Operate function key to MEAS.	
4a	Operate INPUT key to 900 (call received over TM AB-5 or TM A-ABX) or 600 (call received over TM B-ABX).	
5a	At MTF— Patch MEAS 310 jack on 23A or 23D TMS to	

STEP	ACTION	VERIFICATION
	REC1 jack on TTC, using 6-foot long P3E cord.	
6b	If 23B or 23C TMS is used— Patch MEAS 900 jack (call received over TM AB-5 or TM A-ABX) or MEAS 900 jack (call received over TM B-ABX) to REC1 jack on TTC, using 3-foot long P3E cord.	
7c	If TNM is used (call received over TM AB-5 or TM A-ABX only)— Patch RCV on RCVB jack on TTC to REC1 jack on TTC, using 3-foot long P3E cord.	
8d	If KS-19353 L1 or KS-19353 L4 oscillator is used— At oscillator— Set Functions switch to 900 (call received over TM AB-5 or TM A-ABX) or 600 (call received over TM B-ABX).	
9d	At MTF— Patch SD jack on TTC to OUTPUT 310 jack on oscillator, using 6-foot long P3E cord.	
10e	If KS-19260 L1 oscillator is used— Patch SD jack on TTC to OSC 900 jack (call received over TM AB-5 or TM A-ABX) or OSC 600 jack (call received over TM B-ABX) on TTC, using 3-foot long P3E cord.	
11	When requested by originating end to send tone— At oscillator— Adjust oscillator to 0-dBm at requested frequency. (Refer to paragraph 1.11.)	
12	Operate TMS1 key.	
13	At MTF— Patch TRK1 jack on TTC to TM AB-5, TM A-ABX, or TM B-ABX jack on jack, lamp, and key circuit for 101-type test line, using 3-foot long P3E cord for agreed upon interval. ***Note:*** When plug is inserted into TM_ jack, talking path is opened.	
14	After agreed upon interval— Remove plug from TM_ jack being used for test.	

STEP	ACTION	VERIFICATION
15	Repeat Steps 11, 12, and 14 for other frequencies requested by originating end.	
16	When requested by originating end to measure tone— Reinsert plug into TM_ jack being used for test for agreed upon interval.	
17	Operate SD-REC1 key (horizontal).	At test receiver— Tone heard.
18	At TMS or TNM— Read TMS or TNM meter.	
19	After agreed upon interval— At MTF— Remove plug from TM_ jack being used for test.	
20	Report TMS or TNM meter reading to originating end.	
21	Repeat Steps 16 through 20 for other frequencies as directed by originating end.	
22	Restore all keys and switches.	
23	Remove all patch cords used for test.	

BC. Message Circuit Noise Measurement to 101-Type Test Line

Note: See Fig. 3.

1	When call to 101-type test line is received— At MTF— Operate TRK or TALK key to TALK.	
2	Connect test receiver to RCVB jack on TTC.	
3a	If 3A NMS is used— At 3A NMS— Set FUNCTION switch to NM 900 (call received over TM AB-5 or TM A-ABX) or NM 600 (call received over TM B-ABX).	
4b	If 3C NMS is used— At 3C NMS— Set FUNCTION switch to NM 600/900.	

STEP	ACTION	VERIFICATION
5c	If 3A or 3C NMS is used— Connect ground to GRD post on NMS, using 893 cord.	
6c	Set DBRN switch to 85.	
7c	At MTF— Patch IN jack on NMS to REC1 jack on TTC, using P2AE (3A NMS) or 6-foot long P3E (3C NMS) cord.	
8d	If TNM is used (call received over TM AB-5 or TM A-ABX only)— Patch RCV or RCVB jack on TTC to REC1 jack on TTC, using 3-foot lamp P3E cord.	
9d	Operate NM/A+40 key if provideed.	
10	Operate TMS1 key (horizontal).	
11	When requested by originating end to measure message circuit noise— Patch TRK1 jack on TTC to TM AB-5, TM A-ABX, or TM B-ABX jack on jack, lamp, and key circuit for 101-type test line, using 3-foot long P3E cord for agreed upon interval. ***Note:*** When plug is inserted into TM_ jack, talking path is opened.	
12	Operate SD-REC1 key (horizontal).	
13c	If 3A or 3C NMS is used— At 3A or 3C NMS— Adjust DBRN switch for a meter indication between +2 and +9.	
14	At NMS or TNM— Read NMS or TNM meter. ***Note:*** NMS or TNM indicates noise at terminating end; character of noise is heard in test receiver.	
15	After agreed upon interval— At MTF— Remove plug from TM_ jack being used for test.	
16	Report NMS or TNM meter reading and character of noise to originating end.	

STEP	ACTION	VERIFICATION
17	Restore all keys and switches.	
18	Remove all patch cords used for tests.	

BD. Impulse Noise Measurement to 101-Type Test Line

Note: See Fig. 3.

1	When call to 101-type test line is received— At MTF— Operate TRK or TALK key to TALK.	
2	Connect test receiver to RCVR jack on TTC.	
3	When requested by originating end to provide balance termination— Operate TR key.	
4	Patch TRK1 jack on TTC to TM AB-5, TM A-ABX, or TM B-ABX jack on jack, lamp, and key circuit for 101-type test line, using 3-foot long P3E cord for agreed upon interval. *Note:* When plug is inserted into TM_ jack, talking path is opened.	
5	After agreed upon interval— Remove plug from TM_ jack being used for test.	
6	Restore TR key.	

Trunks Not Containing, N, O, or ON Carrier

7	When requested by originating end to measure impulse noise— Patch MEAS jack on 6H IC to REC1 jack on TTC, using P2B cord.	
8	At 6H IC— Set DIAL-MEAS switch to MEAS.	
9	Set DBRN dial to the required noise reference level.	
10	At MTF— Operate SD-REC1 key (horizontal).	
11	Operate TMS1 key (horizontal).	

STEP	ACTION	VERIFICATION
12	Reinsert plug into TM_ jack being used for test.	
13	At 6H IC— Turn MINUTES control to desired time.	
14	Momentarily operate reset level.	
15	After timing interval (MINUTES control in 0 position)— At MTF— Remove plug from TM_ jack being used for test.	
16	Report 6H IC counter reading to originating end.	
17	Restore all keys and switches.	
18	Remove all patch cords used for test.	
Trunks Containing N, O, or ON Carrier		
19a	If using KS-19353 L1 or KS-19353 L4 oscillator— At oscillator— Set FUNCTION switch to 900 (call received over TM AB-5 or TM A-ABX) or 600 (call received over TM B-ABX).	
20a	At MTF— Patch SD jack on TTC to OUTPUT 310 jack on oscillator, using 6-foot long P3E cord.	
21b	If KS-19260 L1 oscillator is used— Patch SD jack on TTC to OSC 900 jack (call received over TM AB-5 or TM A-ABX) or OSC 600 jack (call received over TM B-ABX) on TTC, using 3-foot long P3E cord.	
22	Operate TMS1 key (horizontal).	
23	When requested by originating end to send tone— At oscillator— Adjust oscillator for 2750 (2800) Hz at -10 dBm.	
24	At MTF— Patch TRK1 jack on TTC to TM AB-5, TM A-ABX, or TM B-ABX jack on jack, lamp, and key circuit for 101-type test line, using 3-foot long P3E cord for agreed upon interval.	

STEP	ACTION	VERIFICATION
	Note: When plug is inserted in TM_ jack, talking path is opened.	
25	If requested by originating end— At oscillator— Adjust oscillator frequency above or below 2750 (2800) Hz until notified by originating end that impulse counter has stopped counting continuously. Maintain output of oscillator at -10 dBm.	
26	After agreed upon interval— At MTF— Remove plug from TM_ jack being used for test.	
27	When requested by originating end to measure impulse noise— Patch MEAS jack on 6H IC to REC1 jack on TTC, using P2B cord.	
28	At 6H IC— Set DIAL-MEAS switch to MEAS position.	
29	Set DBRN switch to 57.	
	Note: Originating end will connect oscillator adjusted for 2750 (2800) Hz at -10 dBm.	
30	At MTF— Operate SD-REC1 key (horizontal).	
31	At 6H IC— Turn MINUTES control to 15 minutes.	
32	Momentarily operate reset lever.	
33	At MTF— Reinsert plug into TM_ jack being used for test.	
34c	If IC counts continuously— Using order wire or DDD network, call originating end and request oscillator adjustment above or below 2750 (2800) Hz at -10 dBm until IC stops counting continuously.	
	Note: If no oscillator setting can be found which will stop the IC from counting continuously, repeat Step 34c with the DBRN dial of 6H IC set 3 dBrn higher. Use successively higher settings until an oscillator frequency can be	

STEP	ACTION	VERIFICATION
	found which causes the IC to stop counting continuously.	
35	At MTF— Restore TMS1 key (vertical).	
36	At 6H IC— Set DBRN dial to required noise reference level.	
37	At MTF— Operate TMS1 key (horizontal).	
38	At 6H IC— Set MINUTES control to required interval.	
39	Momentarily operate reset lever.	
40	After required timing interval (MINUTES control in 0 position)— At MTF— Remove plug from TM_ jack being used for test.	
41	Report counter reading to originating end.	
42	Restore all keys and switches.	
43	Remove all patch cords used for test.	

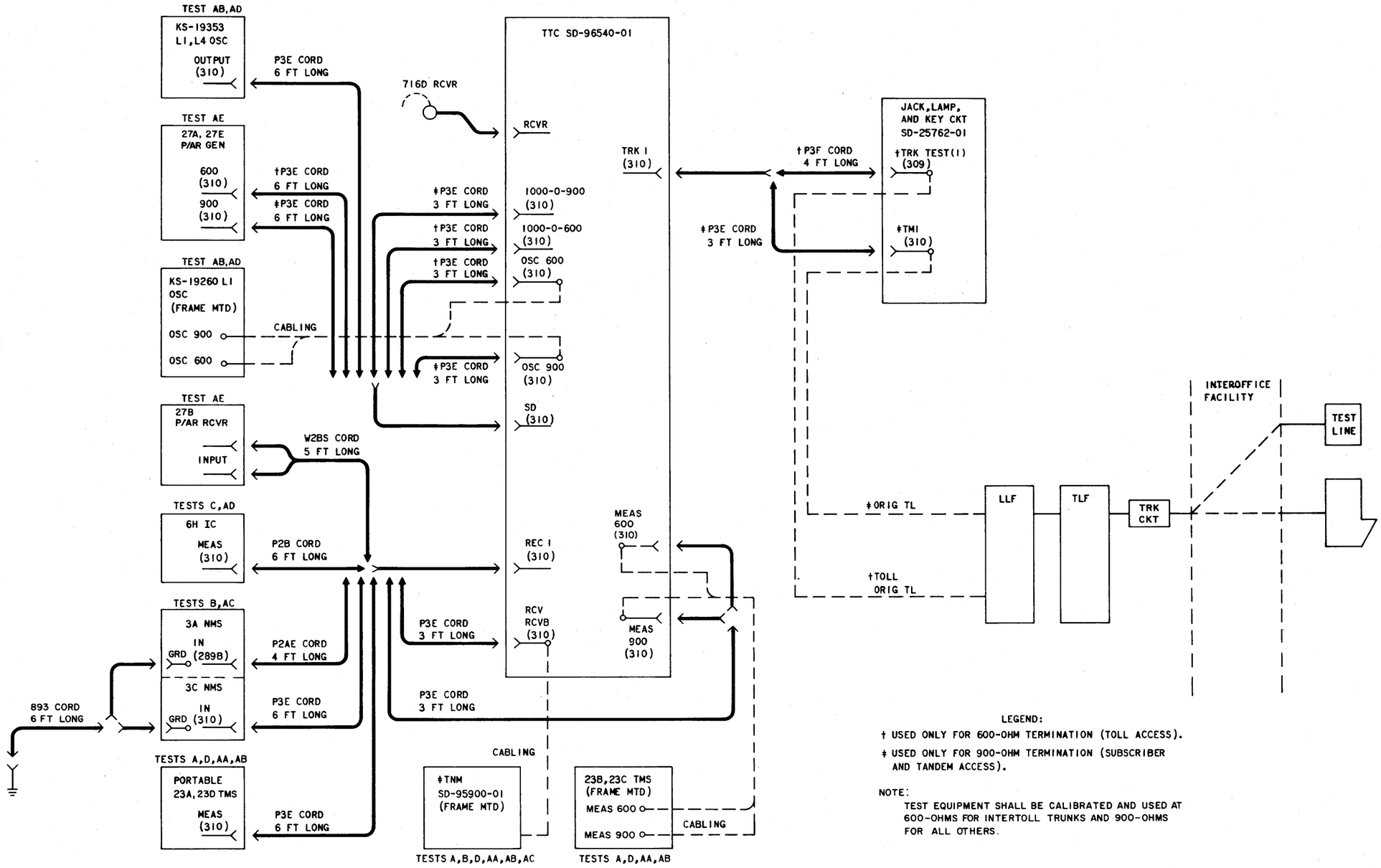
BE. Two-Way P/AR Measurement to 101-Type Test Line

Note: See Fig. 3.

1	When call to 101-type test line is received— At MTF— Operate TRK or TALK key to TALK.	
2	Connect test receiver to RCVR jack on TTC.	
3	At P/AR RCVR— Set IMPEDANCE switch to 900 (call received over TM AB-5 or TM A-ABX) or 600 (call received over TM B-ABX).	
4	At MTF— Patch INPUT binding posts on P/AR RCVR to REC1 jack on TTC, using W2BS cord.	
5a	If 27A P/AR GEN is used— Patch SD jack on TTC to 900 ohm 310 jack	

STEP	ACTION	VERIFICATION
	(call received over TM AB-5 or TM A-ABX) or 600 ohm 310 jack (call received over TM B-ABX) on 27A P/AR GEN, using 6-foot long P3E cord.	
6b	If 27E P/AR GEN is used— At 27E P/AR GEN— Operate OUTPUT switch to 900 (call received over TM AB-5 or TM A-BX) or 600 (call received over TM B-ABX).	
7b	At MTF— Patch SD jack on TTC to OUTPUT 310 jack on 27E P/AR GEN using 6-foot long P3E cord.	
8	Operate TMS1 key.	
9	When requested by originating end to connect P/AR GEN— Patch TRK1 jack on TTC to TM AB-5, TM A-ABX, or TM B-ABX jack on jack, lamp, and key circuit for 101-type test line, using 3-foot long P3E cord for agreed upon interval. ***Note:*** When plug is inserted into TM_ jack, taling path is opened.	
10	After agreed upon interval— Remove plug from TM_ jack being used for test.	
11	When requested by originating end to make PAR measurement— Reinsert plug into TM_ jack being used for test for agreed upon interval.	
12	Operate SD-REC1 key (horizontal).	
13	At P/AR RCVR— Adjust COARSE and FINE RECEIVED LEVEL ADJ controls until RECEIVED LEVEL meter reads REF LEVEL.	
14	Record P/AR RCVR meter reading.	
15	After agreed upon interval— At MTF— Remove plug from TM_ jack being used for test.	
16	Report P/AR RCVR meter reading to originating end.	

STEP	ACTION	VERIFICATION
17	Restore all keys and switches.	
18	Remove all patch cords used for test.	



LEGEND:

† USED ONLY FOR 600-OHM TERMINATION (TOLL ACCESS).

‡ USED ONLY FOR 900-OHM TERMINATION (SUBSCRIBER AND TANDEM ACCESS).

NOTE:

TEST EQUIPMENT SHALL BE CALIBRATED AND USED AT 600-OHMS FOR INTERTOLL TRUNKS AND 900-OHMS FOR ALL OTHERS.

Fig. 1—600- or 900-Ohm Termination—Equipment Diagram for Tests A Through AE Except Test E

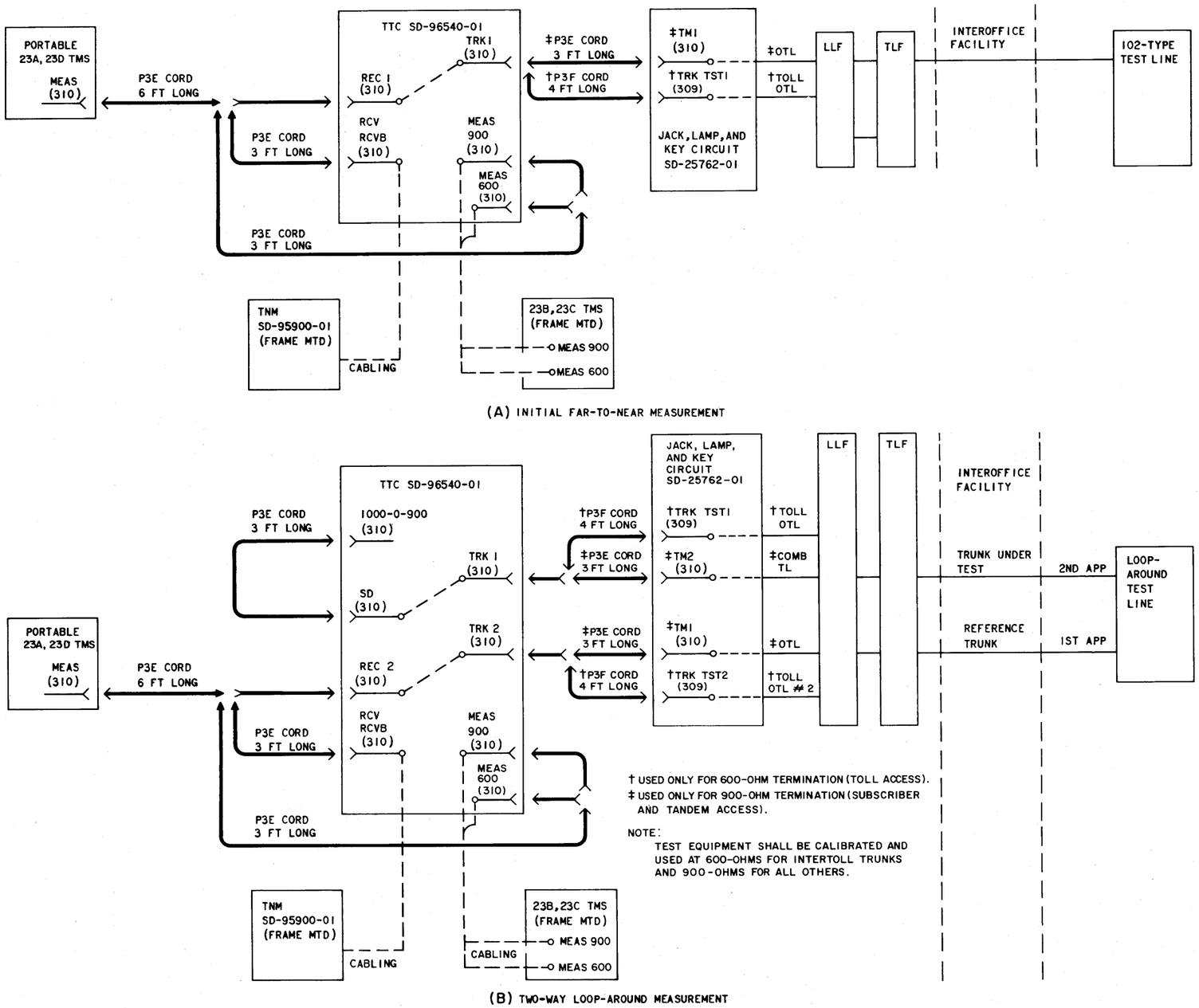
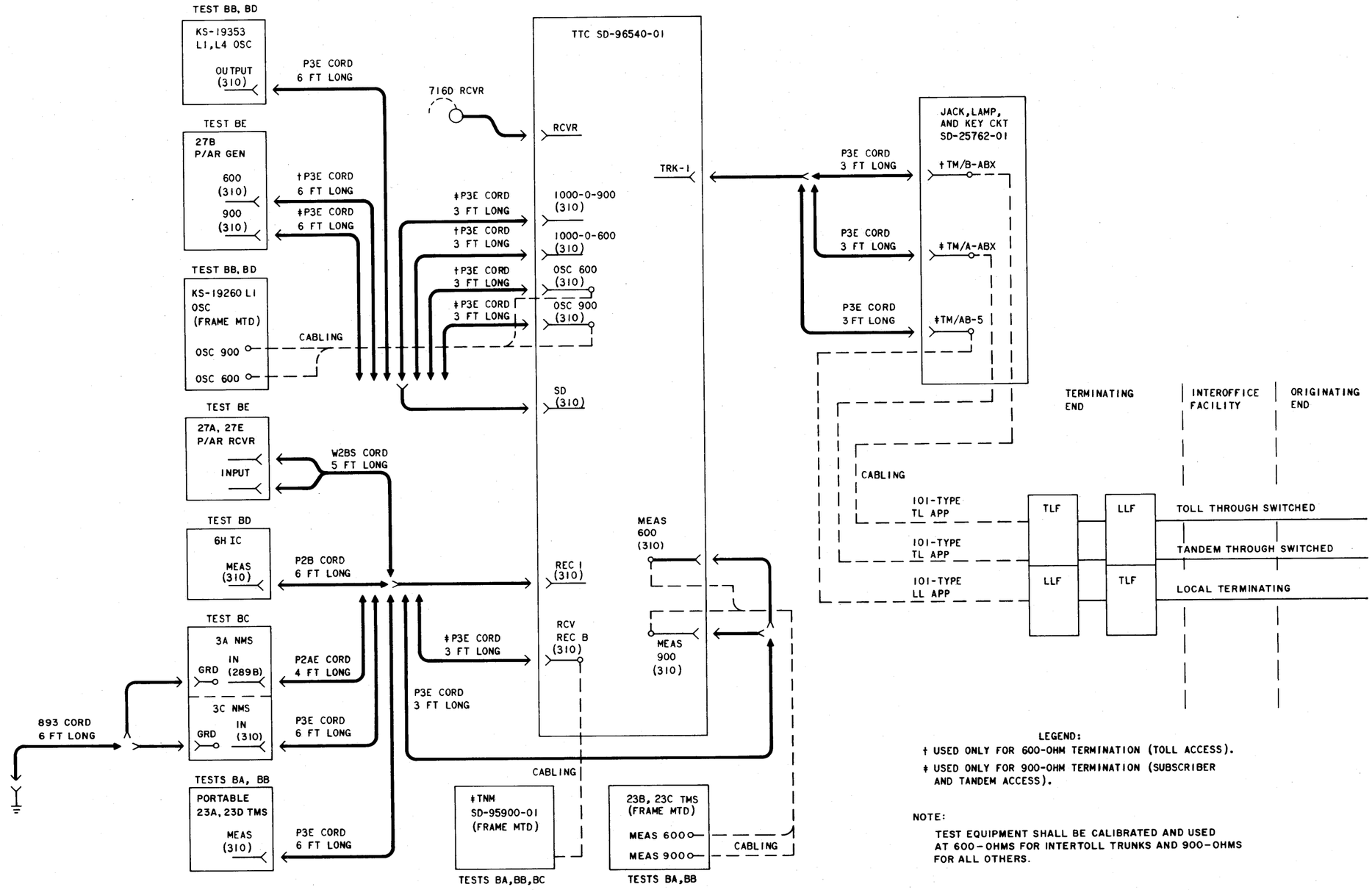


Fig. 2—Loop-Around Test—Equipment Diagram for Test E



LEGEND:

† USED ONLY FOR 600-OHM TERMINATION (TOLL ACCESS).

‡ USED ONLY FOR 900-OHM TERMINATION (SUBSCRIBER AND TANDEM ACCESS).

NOTE:

TEST EQUIPMENT SHALL BE CALIBRATED AND USED AT 600-OHMS FOR INTERTOLL TRUNKS AND 900-OHMS FOR ALL OTHERS.

Fig. 3—600- or 900-Ohm Termination—Equipment Diagram for Tests BA Through BE