CORD SERVICE OBSERVING CIRCUITS NO. 1 AND 3 TOLL SWITCHBOARDS AND NO. 13, 14, AND 15 DSA SWITCHBOARDS TRANSMISSION TESTS NO. 12 AND MODIFIED NO. 7 SERVICE OBSERVING DESKS

1. GENERAL

1.01 This section describes a method of performing transmission tests on cord service observing circuits (SOC's), associated with a No. 12 or modified No. 7 service observing desk, in offices having No. 1- or 3-type toll switchboards; or No. 13-, 14-, or 15-type DSA switchboards.

1.02 This section is reissued to provide test and alignment procedures utilizing the transmission check feature, which has been provided in the isolation circuit. Since this reissue covers a general revision, arrows normally used to indicate changes have been omitted.

1.03 The tests covered are:

A. Overall SO Transmission Path Loss and Noise — Front Cord: This test checks the loss and noise of the overall transmission path associated with the front cord. The test is made from the transmission check circuit in the isolation circuit to the volume indicating meter of the SO desk. The F amplifier in the isolation circuit is adjusted to provide a 0vu indication on the volume indicating meter. The noise of the front path is checked to determine that it does not produce a meter indication of more power than −20 vu. Then the transmission check circuit is allowed to cycle through its loss and noise check modes to determine if the cycling circuit functions properly.

B. Overall SO Transmission Path Loss — Rear Cord: This test checks the loss of the overall transmission path associated with the rear cord. The test is made from the transmission check circuit in the isolation circuit to the C and D jacks of the SO desk. The R amplifier in the isolation circuit is adjusted to provide the correct transmission level at the C and D jacks.

1.04 The volume indicator measuring path of the SO desk position circuit must be adjusted in accordance with Section 210-112-501 before these tests are performed.

1.05 If the 21A transmission measuring set (TMS) is used for performing Test B, it should be checked and adjusted in accordance with Section 103-221-101. If the TTS-4 transmission measuring set (TMS) is used for performing Test B, it should be checked and adjusted in accordance with Section 103-204-100.

1.06 The 1000-cps test tone power at the MW-CHK jack of the isolation circuit should be checked periodically and maintained, using the 22A milliwatt reference meter, in accordance with Sections 103-335-300 and 103-335-500.

1.07 The P and P1 pads in the transmission paths of the SOC should be of the correct value. The method for selecting the correct pad values is given in the information notes on the SD drawing for the SOC under test.

1.08 A talking connection should be established between the switchboard and the SO desk to aid in performing these tests.

1.09 ***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.

2. APPARATUS

All Tests

2.01 Blocking and insulating tools, as required. Apply tools as covered in Section 069-020-801.

Test A

2.02 No. 1020B headset.

Test B

2.03 21A Transmission Measuring Set (TMS), J94021A, or equivalent.

2.04 One testing cord, W2AY cord, 9 feet 6 inches long, equipped with one No. 289B plug and two No. 35 cord tips.

2.05 Two testing cords, No. 893 cord, 3 feet long, equipped with two No. 360 tools (1W13A cord) and two KS-6278 (test connector) tools (for connecting relay springs together).

2.06 One No. 289B plug.

3. PREPARATION

All Tests

STEP	ACTION	VERIFICATION
1	Arrange with traffic department for release of SO desk position provided with volume indicating meter to be used for test and for release of SOC and associated isolation circuit to be tested.	
2	At SO desk position being used for tests— Operate all CO- class exclusion keys except CO CD key.	
3	At all other desk positions — Operate CO CD class exclusion key.	
4	At SO desk cable turning section — Operate OS keys for all circuits of the type being tested.	
5a	If circuit under test is provided with loop reduction feature — Set SW key associated with circuit under test for full group operation (normal position).	
6	At SO desk being used for test — Operate STBY key.	STBY lamp lights.
7	Insert plug of 1020B headset into C and D telephone jacks.	
8	Operate NOISE — ORIG — TERM key to TERM.	

STEP	ACTION	VERIFICATION
9b	If remote control connector circuit is provided — At control cabinet — Set cord and position switches to agree with cord and switchboard position being used for test.	
10	At SO desk cable turning section — Restore OS key for SO circuit under test.	
11	At SO desk position being used for test — Restore STBY key.	STBY lamp extinguished.
12	At switchboard position used for test — Connect front and rear cords to balance test termination jacks in switchboard multiple. ***Note:*** If during the interval between steps 11 and 12 the SOC should be seized by some other patch-cord circuit, momentarily operate and restore the RLS key at the SO desk position being used for test; then proceed to step 12.	TRK, FPU, and RPU lamps light. (TRK lamp may flash.)

4. METHOD

A. Overall SO Transmission Path Loss and Noise — Front Cord

STEP	ACTION	VERIFICATION
13	At isolation circuit associated with SOC under test — Block NCK relay nonoperated.	
14	At SO desk position used for test — Operate CAL-OFF-ON key to CAL.	1000 cps tone heard in headset.
15	At isolation circuit associated with SOC under test — Adjust gain control of amplifier F, if necessary, until volume indicating meter at SO desk indicates 0 vu.	
16	At isolation circuit associated with SOC under test — Remove blocking tool from NCK relay.	At SO desk position used for test — 1000 cps tone no longer heard. Volume indicating meter indication drops.
17	At SO desk position used for test — Operate NOISE-ORIG-TERM key to NOISE.	Volume indicating meter should not read more power than −20 vu.
18c	If requirement of Step 17 is not met — Locate and correct source of noise before SOC or SO desk position is returned to service.	

STEP	ACTION	VERIFICATION
19	Operate NOISE-ORIG-TERM key to TERM.	
20	Operate CAL-OFF-ON key momentarily to OFF, then back to CAL. ***Note:*** This will cause the transmission check circuit to cycle normally through loss and noise checks, since the NCK relay is no longer blocked.	1000 cps tone heard. Volume indicating meter indicates 0 vu for approximately 4 seconds; then meter indication drops and tone is no longer heard.
21	Operate NOISE-ORIG-TERM key to NOISE.	Volume indicating meter should not read more power than −20 vu.
22	Operate CAL-OFF-ON key to OFF.	Volume indicating meter needle returns to resting position.
23d	If no further tests are to be performed — At switchboard position used for test — Remove front and rear cords from balance test termination jacks in switchboard multiple.	At SO desk position used for test — FPU and RPU lamps extinguished.
24d	At SO desk position used for test — Operate RLS key momentarily.	TRK lamp extinguished.
25d	Remove headset plug from C and D telephone jacks.	
26d	Restore all CO- class exclusion keys operated in Step 2.	
27d	At SO desk cable turning section — Restore all OS keys operated in Step 4.	
28a	If circuit under test is provided with loop reduction feature — Restore SW key to position in which is was set prior te Step 5a.	
29d	At all other desk positions — Restore all CO CD class exclusion keys operated in Step 3.	
30b	If remote control connector circuit is provided — At control cabinet — Reset cord and restore selectors to their original positions.	
31d	Notify traffic department that testing is completed.	

STEP	ACTION	VERIFICATION
	B. Overall SO Transmission Path Loss — Rear Cord	
13	At isolation circuit associated with SOC under test — Block NCK relay nonoperated.	
14	Block CAL1 and CAL2 relays operated.	
15	Using 1W13A cords and KS-6278 test connectors, connect contacts 4 and 5 of the CAL1 relay to contacts 8 and 9, respectively, of the CAL 2 relay.	
16	Insulate contacts 9M and 8M of relay CAL 2.	
17	At SO desk position used for test — Remove headset plug from C and D telephone jacks and insert 289B plug.	
18	Using appropriate testing cord, connect input jacks of TMS to 289B plug in C and D telephone jacks. ***Note:*** The testing cord must be connected to the sleeve terminals of the 289B plug in the C and D telephone jacks.	TMS indicates −39.5 ±2 db.
19c	If requirement of Step 18 is not met — At isolation circuit associated with SOC under test — Adjust gain control of amplifier R until TMS indicates −39.5 db.	
20d	If no further tests are to be made — At isolation circuit associated with SOC under test — Remove insulating material from contacts of CAL2 relay.	
21d	Remove 1W13A cords and connectors from CAL1 and CAL2 relays.	
22d	Remove blocking tools from NCK, CAL1, and CAL2 relays.	
23d	At SO desk position used for test — Disconnect TMS from C and D telephone jacks.	
24d	Proceed as in Test A, Steps 23d through 31d.	