TYPE N2 CARRIER TELEPHONE SYSTEM
LINE TERMINATING UNIT
CHECK OF LOCAL CABLING, SPAN PADS, AND SLOPE EQUALIZERS

Span pads are provided at terminals and repeaters to build out the cable loss to the nominal values for the system. The pads are available in 2-db steps from 0 to 30 db. Where no attenuation is required, a 0-db pad must be used to complete the transmission path.

The purpose of this test is to measure the resistance of the local cabling (office and bay carrier pairs) and to make a visual inspection of the slope equalizer and span pad installations.

Note: In certain cases, for coordination with local N1 systems, line build out for N2 systems may be located in a high-frequency cross-connecting and line building-out cabinet. The line build out may be slope networks (J98706L, M, N, or T) and/or span pads (J98703B, List 1 to List 15). In these cases, slope networks will still be required in the group units and 38A pads (0-db loss) will be required in the line terminating unit. The cable terminal or terminal block will be located in the cross-connecting cabinet. When a slope network is installed in a cross-connecting cabinet, the simplex resistance measured is that of two modified noise control units (J98703AN) which are used to bypass repeater power around the slope network. (Until standard arrangements are available, this is done on a nonstandard job basis.)

APPARATUS:

1 — KS-14510, List 1 or List 5 Volt-ohm-milliammeter, or equivalent (20,000 ohms per volt)

4 — W1Y Cords (shorting straps), or equivalent

STEP	PROCEDURE
	(A) Visual Inspections
1	Check that the cable pairs assigned to the carrier system do not have heat coils for cable pair protection and that where they have been removed, permanent straps have been soldered in their place.
2	Remove the transmitting and receiving group units.
3	Check to see that the slope networks and the write-in designations on the front of the group units conform with the circuit layout card for the terminal under test. (See Note). Check to see that the slope networks are fastened into their brackets with the screws provided with the slope networks.
4	Reinsert the group units in the terminal mounting.
5	Remove the line terminating unit from the terminal mounting.

STEP	PROCEDURE
6	Check to see that the transmitting and receiving span pads, AT1 and AT2, respectively, and the write-in designations on the front of this unit conform with the circuit layout card for the terminal under test. Table A provides a list of 38-type span pad codes and attenuation. If a high-frequency cross-connecting and line building-out cabinet is used, see Note.

TABLE A

38-type Span Pads

CODE	LOSS db	CODE	LOSS db
38A	0	38J	16
38B	2	38K	18
38C	4	38L	20
38D	6	38M	22
38E	8	38N	24
38F	10	38P	26
38G	12	38R	28
38H	14	38S	30

(B) Check of Local Cabling (High-frequency Cross-connecting Cabinet Not Used — See Note)

7	With the line terminating unit removed from the terminal mounting, screw all power feed screw options counterclockwise so that none make contact. Connect terminal 4 of S2 to the chassis with a W1Y cord. (See Fig. 1 and 2.)
8	Reinsert the line terminating unit into the terminal mounting.
9	Short the transmitting and receiving cable pair at the cable terminal or terminal block with W1Y cords. To identify the proper cable terminal or terminal block and to obtain the transmitting and receiving cable pair terminal number assignments, refer to the circuit layout card. Strap the transmitting pair to the receiving pair with a W1Y cord. (See Fig. 3.)

STEP	PROCEDURE

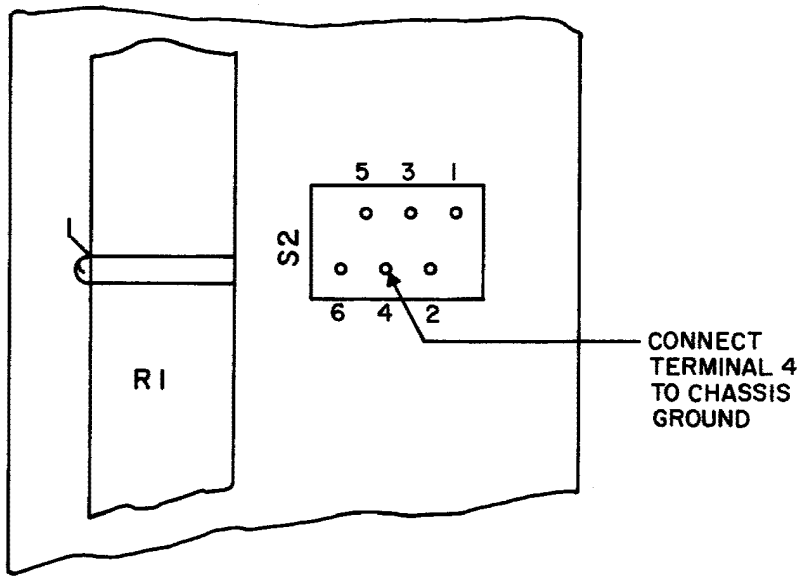

Fig. 2 – Partial View of Wiring Side of Line Terminating Unit Power Section

10 Measure, with the volt-ohmmeter, the resistance from the SX CUR (−) jack on the line terminating unit front plate to chassis ground.

Requirement: The resistance shall be no greater than 6 ohms.

11 Remove the shorting and looping cords from the cable terminal or terminal block.

12 Remove the line terminating unit from the terminal mounting, and remove the ground strap from terminal 4 of S2.

13 Restore the proper power feed screw options, and reinsert the line terminating unit into the terminal mounting.

(C) Check of Local Cabling (High-frequency Cross-connecting Cabinet Used — See Note)

14 Check to see that slope networks and/or span pads installed in the cross-connecting cabinet conform to the circuit layout card for the terminal under test. If slope networks are installed in the cabinet and power is being fed over the cable to a repeater, check to see that the repeater power feed is bypassed around the slope network.

15 With the line terminating unit removed from the terminal mounting, screw all power feed screw options counterclockwise so that none make contact. Connect terminal 4 of S2 to the chassis with a W1Y cord. (See Fig. 1 and 2.)

STEP	PROCEDURE
16	Reinsert the line terminating unit into the terminal mounting.
17	Short the transmitting and receiving cable pair at the cable terminal or terminal block with W1Y cords. To identify the proper cable terminal or terminal block and to obtain the transmitting and receiving cable pair terminal number assignments, refer to the circuit layout card. Strap the transmitting pair to the receiving pair with a W1Y cord. (See Fig. 3.)
18	Measure, with the volt-ohmmeter, the resistance from the SX CUR(−) jack on the line terminating unit front plate to chassis ground. ***Requirement:*** The value of resistance measured should closely approximate the total resistance of the equipment between the line terminating unit and the cable terminal or terminal block. Each slope network installation (with bypassing networks) adds 2.2 ohms to the total loop resistance. When span pads are installed in the cabinet, refer to Table B to obtain the amount to be added to the total loop resistance. Allow up to 6 ohms for office wiring and line terminating unit transformers.

TABLE B

Loop Resistance of J98703B-type Span Pads

J98703B, LIST	ATTEN db	ADD TO LOOP RES ohms	J98703B, LIST	ATTEN db	ADD TO LOOP RES ohms
1	2	7.8	9	18	52.3
2	4	15.4	10	20	55.6
3	6	22.3	11	22	57.6
4	8	29.1	12	24	59.7
5	10	35.2	13	26	61.2
6	12	40.7	14	28	62.6
7	14	45.3	15	30	63.4
8	16	48.7			

19	Remove the shorting and looping cords from the cable terminal or terminal block.
20	Remove the line terminating unit from the terminal mounting, and remove the ground strap from terminal 4 of S2.
21	Restore the proper power feed screw options, and reinsert the line terminating unit into the terminal mounting.

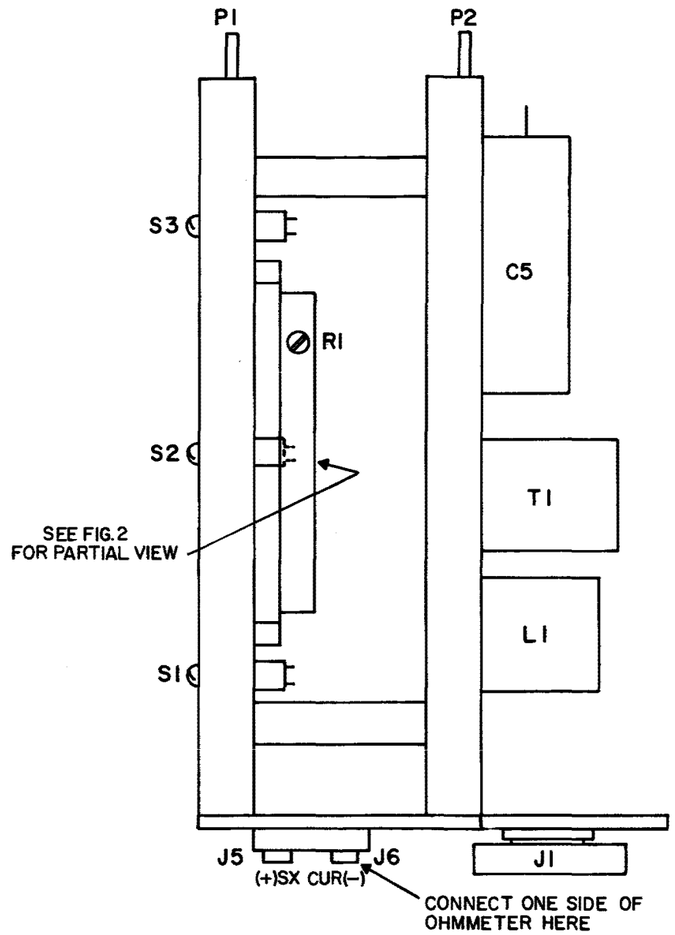

Fig. 1 – Line Terminating Unit — Top View

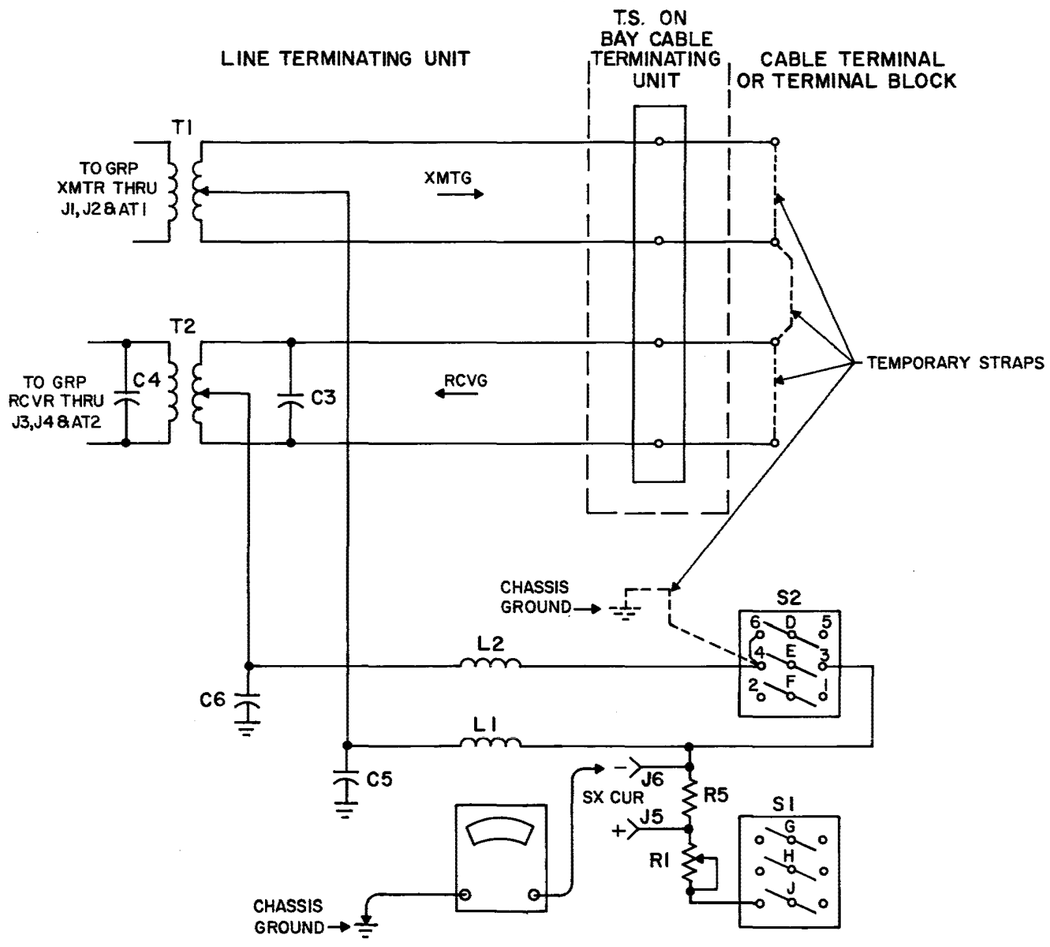

Fig. 3 – Local Cable Path