

**CROSS-OFFICE NOISE—TESTING METHODS**

**TEST EQUIPMENT**

**1. GENERAL**

**1.01** This section describes the test equipment used in cross-office noise testing. All the information such as parts list, circuit schematic, and cord terminations needed to manufacture the test sets is included. Two test sets are required to make the tests.

**1.02** Circuit schematics of the test sets are shown in Fig. 1 through 4.

**1.03** A J94003A noise measuring set and a 1011-type handset, or equivalents, are required to make the tests.

**2. PARTS LIST**

**2.01** The following parts in the quantities shown are required to build two test sets.

**Commercial Items**

- 6 Alligator Clip, Mueller #30 E/W Boots
- 2 Boxes, metal 5" by 4" by 2"
- 8 Feet, rubber, for boxes
- 2 Index assembly-Centralab Pa-300
- 2 Switch section-Centralab Pa-31
- 2 Switch sections-Centralab Pa-49\*
- 2 Resistor, 900 ohm 1% 5 watt
- 2 Lamp, neon, "Industrial Devices Inc" #B-1010A1. (or equivalent 60-90 volt start)
- AR Nuts, bolts, lock washers or rivets for mounting hardware in boxes.
- 22 Feet, 18GA, Rubber Lamp Cord.

\*Progressively shorting clockwise

**QUANTITY DESCRIPTION**  
**Telco Items**

- 2 Inductors, 274L
- 2 Adapters, 115A
- 2 Networks, 186D
- 4 Mounting Jacks, 215B
- 4 Jacks, 223A
- 2 Jacks, 238A
- 2 Jacks, 300A
- 2 Plugs, 289B or equivalent
- 1 Plug, 310 or equivalent

**3. DESCRIPTION OF OPERATION**

**3.01** Each of the test sets is the equivalent of telephone loops of two different lengths—900 ohms and 90 ohms and in both cases, at 900 ohms impedance at 1 kHz. (All three values are nominal.)

**3.02** The DISC position, with or without a handset or meter connected at either end of a test call, presents an OPEN to a line circuit.

**3.03** In the CALL position with a handset connected to the TEL jack, an OFF-HOOK condition in a 900-ohm loop is presented to a line circuit. This is the calling-line end of a test call. The

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TEL jack contacts remove the neon lamp and network to prevent dial pulse distortion.

**3.04** At the called-line end in the CALL position, an ON HOOK condition is presented to a line circuit. The neon lamp is across the line to provide a visual indication of ringing. The 186D network is also across the line to satisfy crossbar and ESS pre-ring line tests. The networks serve no purpose in SXS or panel offices. They may be omitted if the test sets are to be used only in SXS or panel offices.

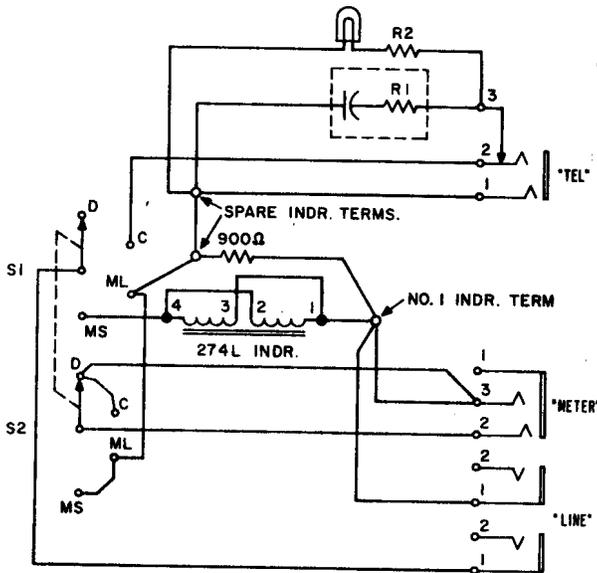
**3.05** In the MEAS-L (Measure noise-Long Loop) position at the calling-line end, the TEL jack is shunted, preventing entrance of room noise through the handset transmitter. The TEL jack also opens the lamp and network circuits while the handset is connected. If the handset is removed, the lamp and network are shunted at the switch. In either case, the lamp and network cannot become part of the terminal impedance. The holding bridge consists of the 900-ohm resistor across which noise

is measured. The test circuit is arranged to connect the meter jack to the line only in the MEASURE positions. This prevents the noise from responding to dial pulsing or ringing voltage in the CALL position and to surges when switching into or out of the DISC position.

**3.06** At the called-line end in the MEAS-L position, the lamp and network are shunted. The 900-ohm resistor is across the line. Noise can be measured at this METER jack if desired.

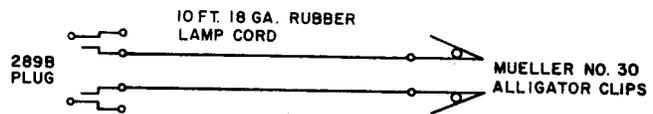
**3.07** In the MEAS-S, (Measure noise-Short loop) position, the 274L inductors are in parallel with the 900-ohm resistors across the line at both ends. All the other conditions described for the MEAS-L position remain the same. The effect of this inductor across the line is an increase in loop current from approximately .040 to 0.165 amperes.

**3.08** This arrangement has been found usable in offices with a 750-ohm nominal loop limit as well as in the more common 1300-ohm offices.

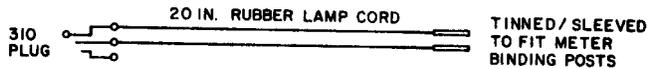


- NOTES:**
1. S1 IS PROGRESSIVELY SHORTING IN CW DIRECTION.
  2. S2 IS NON-SHORTING.
  3. R1 IS PART OF 186D NETWORK.
  4. R2 IS PART OF LAMP PACKAGE.
  5. REMOVE SWITCH STOP-TABS TO PERMIT MOTION THRU THE FIRST FOUR CW POSITIONS.

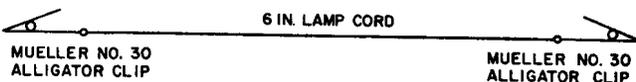
**Fig. 1—Test Set Wiring Diagram**



**Fig. 2—Line-Connecting Cord (Two Required)**



**Fig. 3—Meter-Connecting Cord (One Required)**



**Fig. 4—Looping Cord (One Required)**