

849D NETWORK DESCRIPTION

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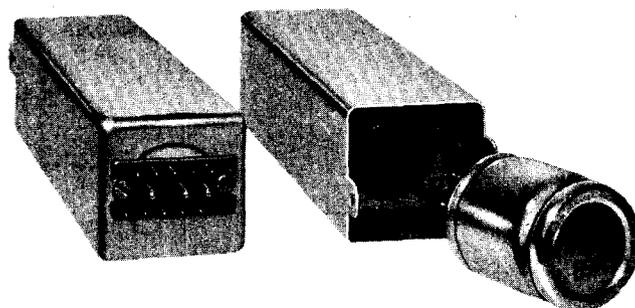


Fig. 1 — 849D Network

1. GENERAL

1.01 This section describes the 849D network, which is designed for use in V4 telephone repeater applications.

1.02 The 849D network is used in place of a 227-type amplifier when gain is not required in transmitting from 600-ohm circuits into long lengths of nonloaded cable, where equalization is required. The 849D network provides transmission level control on the 600-ohm side, impedance mismatching on the nonloaded cable side, and a transformer centertap on the 150-ohm side for simplex signaling.

2. EQUIPMENT DESCRIPTION

2.01 The 849D network is a plug-in unit (see Fig. 1) equipped with a 15-pin connector plug designed to be plugged directly into the mating connector socket of the equipment mounting shelf. The network consists of a 600:150-ohm transformer and a 600-ohm balanced pad (when the required 89-type plug-in resistor is inserted in the pad socket). The network is housed in a metal can approximately 1-3/4 inches wide by 1-3/4 inches high by 7 inches long.

2.02 Recessed in the front of the can is a 6-pin socket for receiving the 89-type plug-in resistor (see Note). An extractor tool, KS-5637, L1 is helpful in removing the 89-type plug-in resistor

from its socket. Tabs are provided on the front of the can to facilitate removing the network from its connector socket by the use of a 602C or 602D tool.

Note: The 89-type resistor is not a part of the network. It must be ordered separately.

3. CIRCUIT DESCRIPTION

3.01 Fig. 2 is a schematic of the 849D network showing typical circuit connections. Transmission signals from a 600-ohm source are applied to terminals 1 and 5. Terminals 2 and 10 or 4 and 8 connect the output to nonloaded cable or to a 150-ohm circuit for matched load operation.

3.02 To use the 849D network for the receiving side of the basic V4 repeater, the cross connections to the input and output side of the mating connector socket must be reversed. If this is not done, the transformer in the network will be inserted between the 600-ohm equipment and the pad and not at the line side of the pad, where it belongs.

NOTE:
RESISTORS a, b, AND c ARE CONTAINED IN THE 89-TYPE PLUG-IN RESISTOR (NOT FURNISHED WITH NETWORK).

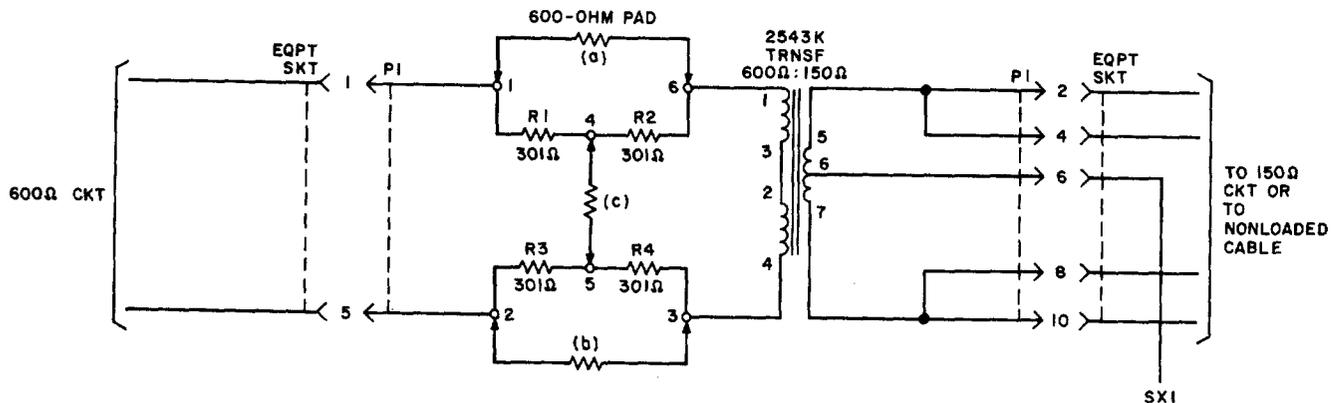


Fig. 2 — 849D Network — Schematic and Typical Circuit Connections

3.03 The 600-ohm balanced pad provides a means of setting the transmission level as desired. The loss is adjustable in 0.25-db steps by selection of the proper 89-type plug-in resistor. The 1-kc power loss of the network and associated 89-type resistor between nominal impedances of 600 and 150 ohms is equal to the 0.5-db loss of the transformer plus the db loss marked on the 89-type resistor.

3.04 The 2543K 600:150-ohm transformer is used to connect 600-ohm repeater circuits to nonloaded cable. The transformer centertap on the 150-ohm side is brought out to network terminal 6 to derive a simplex leg from the cable pair.

3.05 Table A gives the loss-frequency and delay-frequency characteristics of a typical 849D network as measured between nominal impedances.

| FREQUENCY (HZ) | LOSS (DB) RELATIVE TO 1000 HZ | DELAY (MICROSECONDS) |
|----------------|-------------------------------|----------------------|
| 100 | 1.2 | 450 |
| 200 | 0.6 | 150 |
| 300 | 0.4 | 75 |
| 400 | 0.3 | 40 |
| 500 | 0.2 | 30 |
| 700 | 0.1 | 17 |
| 1000 | 0 | 10 |
| 2000 | 0 | 4 |
| 3000 | 0 | 3 |