

837J

IMPEDANCE COMPENSATING NETWORK

DESCRIPTION

1. GENERAL

1.01 This section contains a description of the 837J network. The 837J is an impedance compensator for use on 25-gauge H88 loaded metropolitan area trunk (MAT) cable at locations with terminal balance requirements. A sketch of the 837J network is shown in Fig. 1.

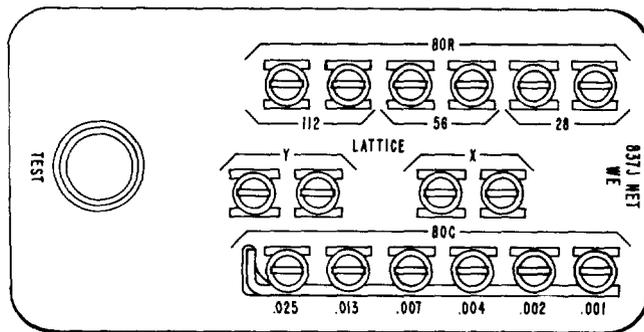


Fig. 1—837J Network

1.02 When this section is reissued, the reason for reissue will be given in this paragraph.

2. EQUIPMENT DESCRIPTION

2.01 The 837J network is enclosed in an aluminum can approximately 1.7 inches wide by 3.3 inches high by 4.3 inches deep. Two threaded studs on one end of the can fasten the assembly to the mounting shelf. Four terminals for wire wrapping the MAT cable-side and switch-side cable pairs are also located on this end of the network.

2.02 Sixteen screw switches for setting the build-out resistance (BOR), build-out capacitance

(BOC), and LATTICE networks are located on the surface of the enclosure opposite the end containing the mounting studs. A 239C test jack is also located on this surface.

3. CIRCUIT DESCRIPTION

3.01 A schematic of the 837J network is shown in Fig. 2. Terminals 1 and 2 connect to the MAT cable facility and terminals 3 and 4 connect to the trunk equipment.

3.02 The 837J network contains all passive electrical components. It is made up of three adjustable networks (BOR, BOC, LATTICE buildout) and a fixed impedance compensating section.

3.03 The BOR and BOC adjustable networks may be set to complement lengths from 0 to 3 kft of H88 loaded MAT cable. The LATTICE section represents a fixed 3-kft length and must be either fully in the circuit (both X screws turned in, both Y screws turned out) or fully out of the circuit (both X screws turned out, both Y screws turned in). End sections of any length from 0 to 6 kft can be made to appear like a full 6-kft loaded section by appropriate settings of these networks.

3.04 The impedance compensating networks (L1, C9, C10, R9, R10, and R11) correct the cable impedance to approximately $900\Omega + 2.15 \mu\text{F}$ after the end-section buildout has been accomplished by the BOR, BOC, and/or LATTICE sections. Low-frequency impedance correction is accomplished by L1, C10, and R10. Medium- and high-frequency corrections are provided by R9, C9, T1, and R11.

3.05 Table A gives typical BOR and BOC values and screw switch settings.

NOTICE

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3.06 The minimum insertion loss of the 837J network is 1.45 dB with the BOR, BOC, and LATTICE networks out of the circuit. The maximum loss with all networks in the circuit is 3.40 dB.

3.07 Additional details relating to the lineup of the 837J network, including prescription settings, are contained in Section 332-206-258.

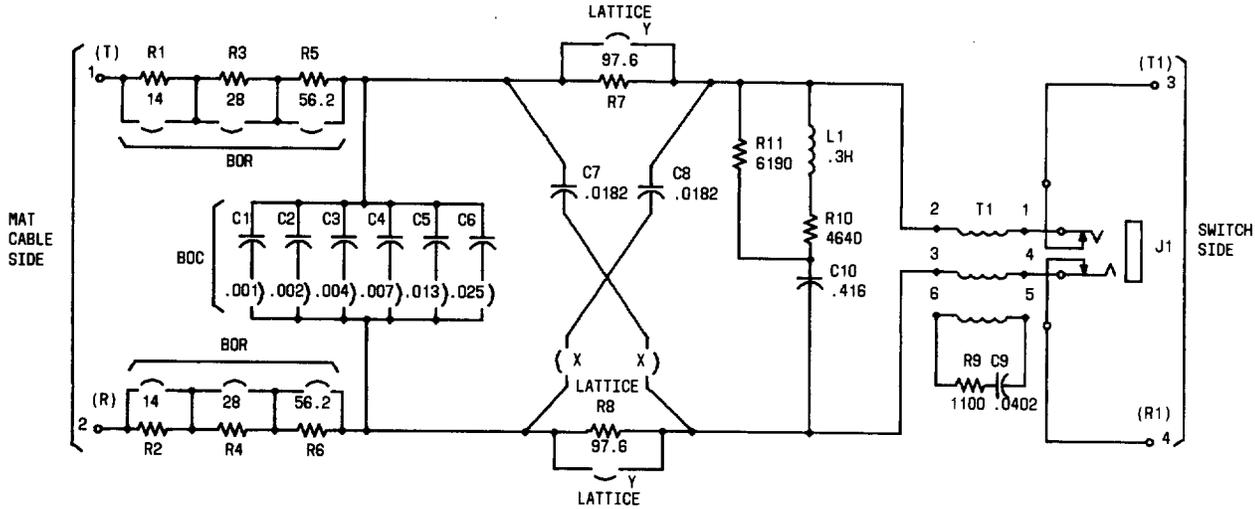


Fig. 2—Schematic of the 837J

TABLE A

BUILD-OUT RESISTANCE AND BUILD-OUT CAPACITANCE SETTINGS

| BOR (OHMS) | TURN DOWN SCREWS | BOC (μF) | *TURN DOWN SCREWS |
|------------|------------------|----------|-------------------|
| 0 | 28, 56, 112 | .001 | .001 |
| 28 | 56, 112 | .002 | .002 |
| 56 | 28, 112 | .004 | .004 |
| 84 | 112 | .007 | .007 |
| 112 | 28, 56 | .013 | .013 |
| 140 | 56 | .025 | .025 |
| 168 | 28 | | |
| 196 | ALL OUT | | |

* More than one screw may be turned down. The total value of BOC is the sum of the individual BOCs selected.