4066D NETWORK

DESCRIPTION

CONTENTS PAGE

1. GENERAL

1.01 This section describes the 4066D network, which is a plug-in apparatus unit designed to improve the hybrid balance in V4 and other telephone repeater applications.

1.02 The 4066D network is an adjustable 2-terminal network. It is normally used in conjunction with a 1-type terminating set to improve the balance of the hybrid when the 2-wire circuit consists of 19-gauge toll cable facilities: either the H88-loaded side circuit or the H50-loaded phantom circuit of quadded 19-gauge cable. The resulting improved hybrid balance produces a high loss in the transmission path from one 4-wire leg to the other and thus reduces the possibility of "singing" or oscillations in the 4-wire loop.

1.03 The 24V4C repeater mounting shelf (J98615BJ) is equipped with a socket for mounting the 4066-type network. The 4066-type network, when plugged into the network socket, is connected through shelf wiring to the balancing network terminals (10, 11) of the 1-type terminating set. Mounting for the 4066-type network is not provided in older 24V4 repeaters. When used with this older equipment, the network is separately mounted, and cross-connected to the repeater as required.

2. EQUIPMENT DESCRIPTION

2.01 The 4066D network (see Fig. 1) consists of an aluminum can containing two printed circuit boards, a 20-pin connector plug, and a plastic faceplate which contains 12 screw-type switches. The network is approximately 1-3/4 inches high by 1-3/4 inches wide by 7 inches long.

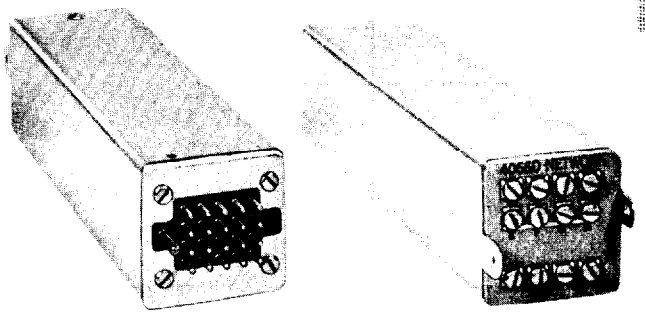

Fig. 1 — 4066D Network

Tabs are provided on the front of the can to facilitate removal of the network from the mounting shelf socket by the use of a 602C or 602D tool.

2.02 The 12 screw-type switches are identified on the faceplate by letters A through M, omitting I. The components and/or circuits with which the switches are associated are shown in Fig. 2.

3. CIRCUIT DESCRIPTION

3.01 Fig. 2 is a schematic of the 4066D network. The circuit consists of resistors, capacitors, and inductors and associated screw-type switches arranged in various series and parallel circuit combinations to provide an adjustable impedance across terminals 10 and 11.

3.02 Adjustment of the network for the various capacitance levels encountered in specific cable facilities is accomplished by opening or closing the appropriate faceplate screw-type switches. Table A lists the screw settings required to obtain the precision impedance balance of the cable facilities involved.

3.03 Fig. 3 and 4 are graphic illustrations of the midsection impedance characteristics of the 4066D network adjusted to simulate the cable facilities shown.

TABLE A

4066D NETWORK —
SCREW SETTINGS FOR BALANCING
19-GAUGE QUADDED CABLE FACILITIES

CABLE TYPE	CABLE CAPACITANCE		SCREW CLOSED (TURNED IN)	BUILDOUT TO HALF-SECTION CAPACITANCE (μF)
	μF/SECTION	μF/MILE		
19-Gauge H88 Side	<0.0680	<0.0598	ACFK	0.022
	0.0680 to 0.0694	0.0598 to 0.0610	ABCFK	—
	0.0694 to 0.0708	0.0610 to 0.0623	ACDFK	—
	>0.0708	>0.0623	ABCDFK	—
19-Gauge H50 Phantom	<0.109	<0.0960	BDEGHJLM	0.037
	0.109 to 0.112	0.0960 to 0.0985	ABDEGHJLM	—
	0.112 to 0.114	0.0985 to 0.1002	BCDEGHJLM	—
	>0.114	>0.1002	ABCDEGHJLM	—

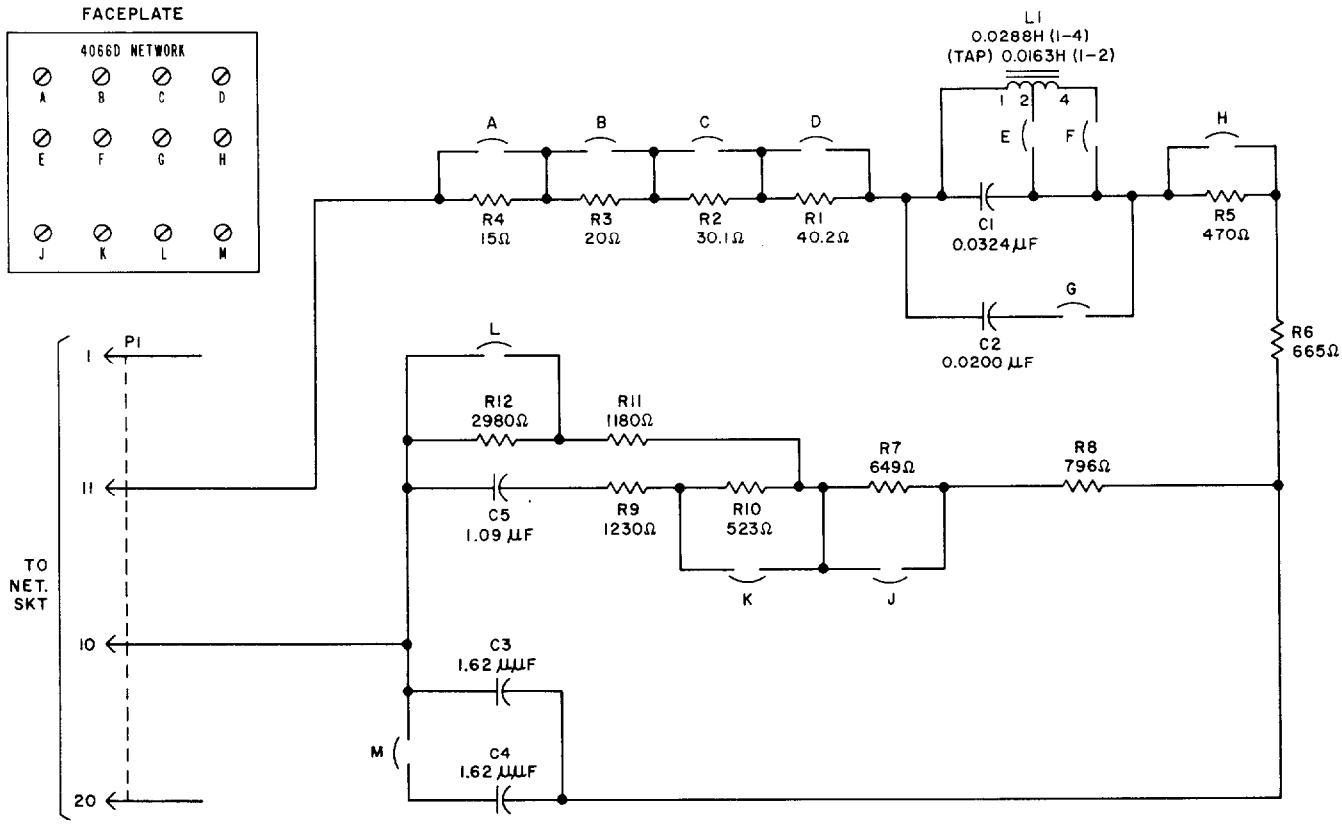

Fig. 2 — 4066D Network — Schematic

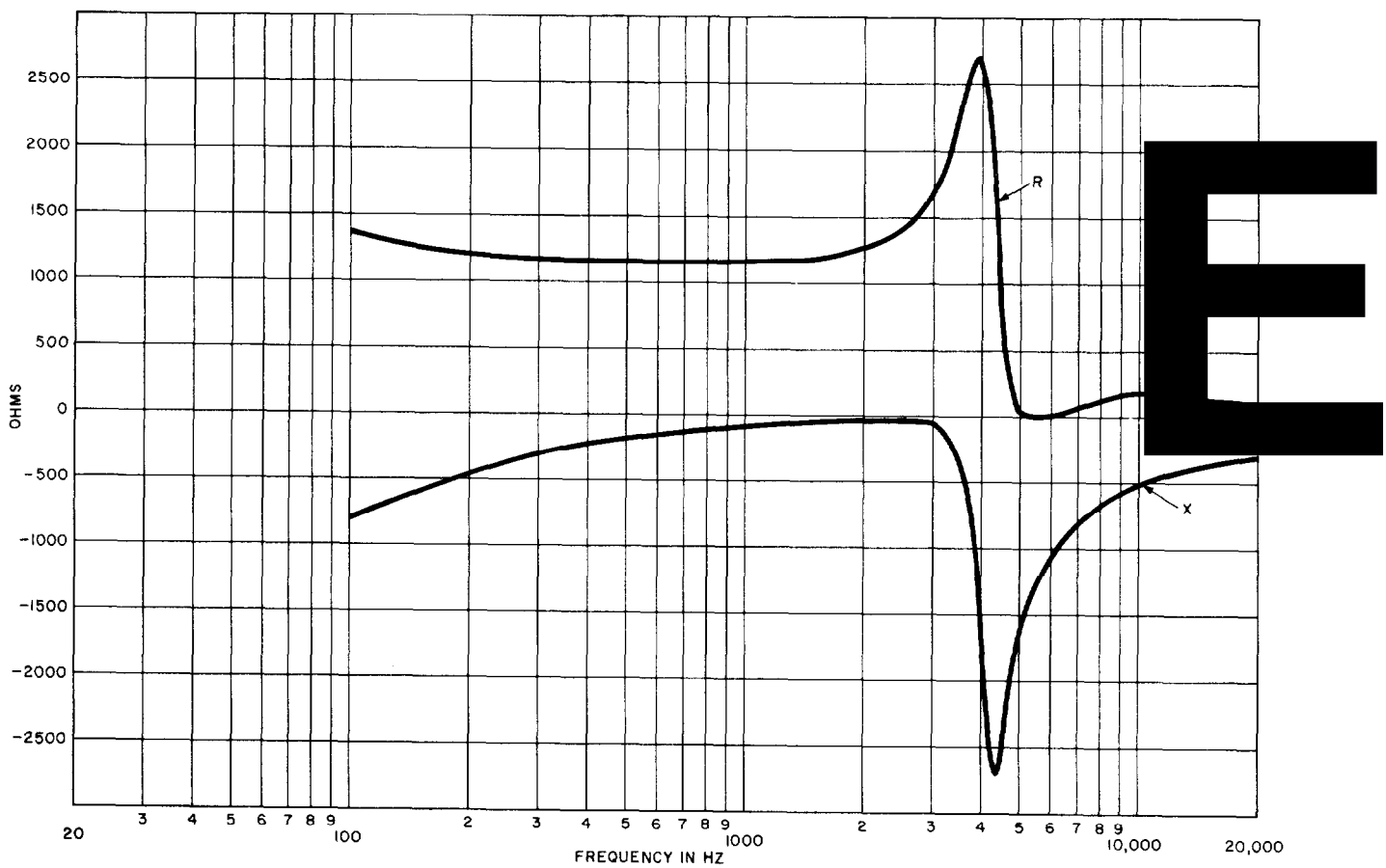

Fig. 3 — 4066D Network — Midsection Impedance — Simulating 19H88-S Cable

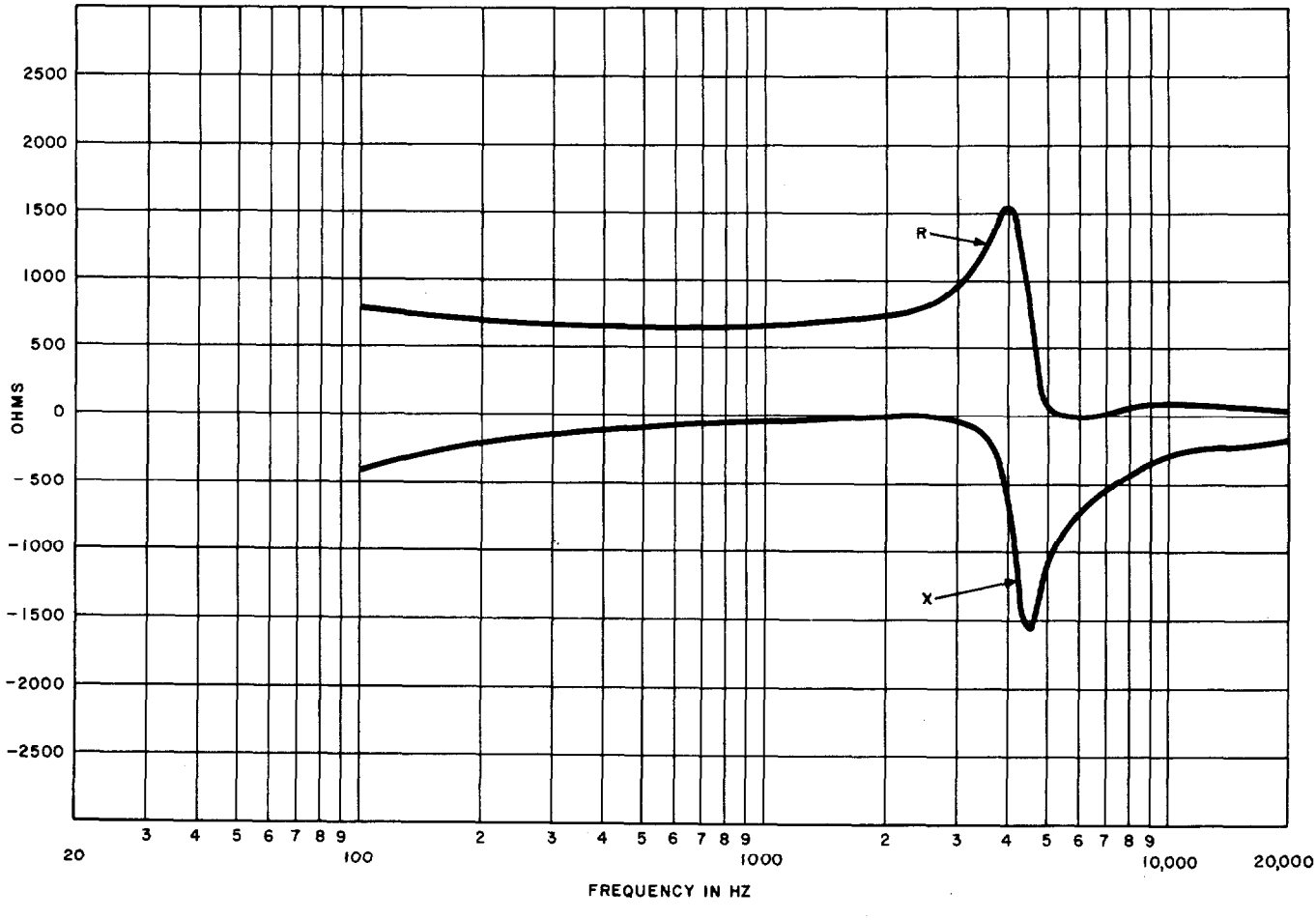

Fig. 4 — 4066D Network — Midsection Impedance — Simulating 19H50-P Cable