

4066F NETWORK

DESCRIPTION

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1. GENERAL

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

1.02 The 4066F 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 nonloaded 24-gauge high-capacitance DSM (0.084 $\mu\text{f}/\text{mi}$) and low-capacitance CSM (0.072 $\mu\text{f}/\text{mi}$) cable facilities. 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. When used with older 24V4 repeater equipment, the 4066-type network is separately mounted, and cross-connected to the repeater as required.

2. EQUIPMENT DESCRIPTION

2.01 The 4066F network (see Fig. 1) consists of an aluminum can containing a printed circuit board, a 20-pin connector plug, and a plastic faceplate which contains four screw-type switches. The network is approximately 1-3/4 inches high by 1-3/4 inches wide by 7 inches long. Tabs are provided on the front of the can to facilitate removal of the network from the mounting shelf socket through the use of a 602C or a 602D tool.

2.02 The four screw-type switches are identified on the faceplate by the letters A, B, C, and D. The circuit location and function of the switches are illustrated in Fig. 2.

3. CIRCUIT DESCRIPTION

3.01 Fig. 2 is a schematic of the 4066F network. The circuit consists of seven resistors, two capacitors, and four screw-type switches arranged to provide an adjustable impedance across terminals 10 and 11.

3.02 Adjustment of the network to provide an impedance match against either high-capacitance or low-capacitance cable 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 each type of cable.

3.03 Fig. 3 and 4 illustrate the impedance characteristics of the 4066F network for 24 CSM — NL cable and 24 DSM — NL cable, respectively.

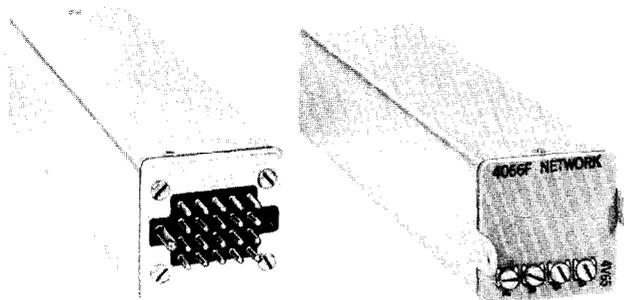


Fig. 1 — 4066F Network

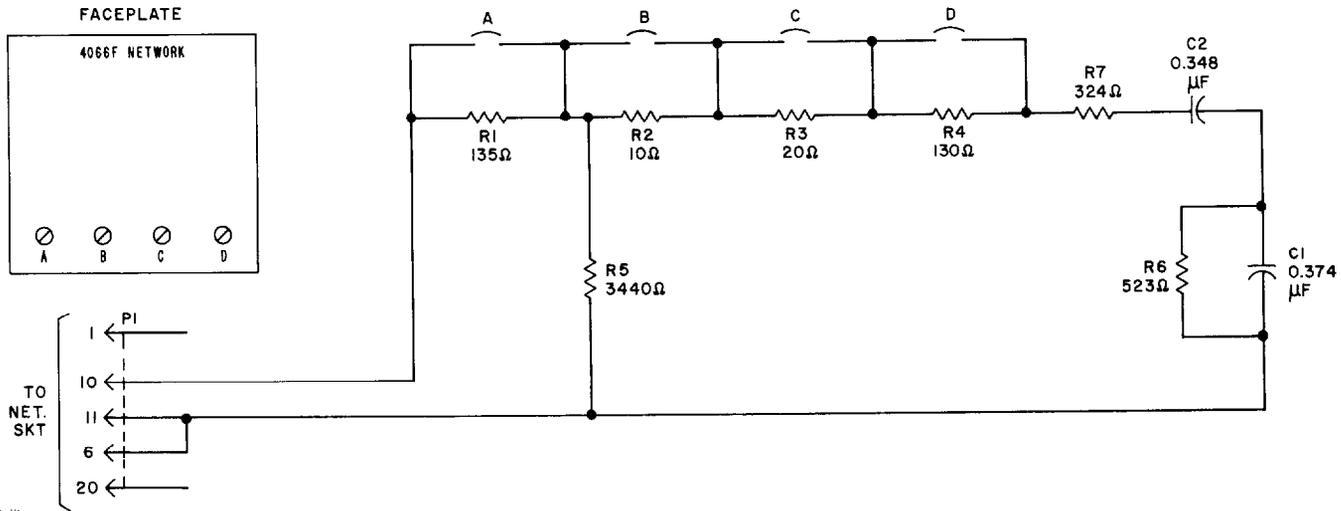


Fig. 2 — 4066F Network — Schematic

TABLE A			
4066F NETWORK —			
SCREW SETTINGS FOR BALANCING			
NONLOADED 24-GAUGE CABLE FACILITIES			
CABLE TYPE	CABLE CAPACITANCE μF/MILE	SCREW CLOSED (TURNED IN)	BUILDOUT TO HALF-SECTION CAPACITANCE (μF)
24 High Cap. N. L.	<0.0756	A	—
	0.0756 to 0.0812	AB	—
	0.0812 to 0.0868	AC	0.0405
	>0.0868	ABC	—
24 Low Cap. N. L.	<0.0654	D	—
	0.0654 to 0.0698	BD	—
	0.0698 to 0.0742	CD	0.0375
	>0.0742	BCD	—

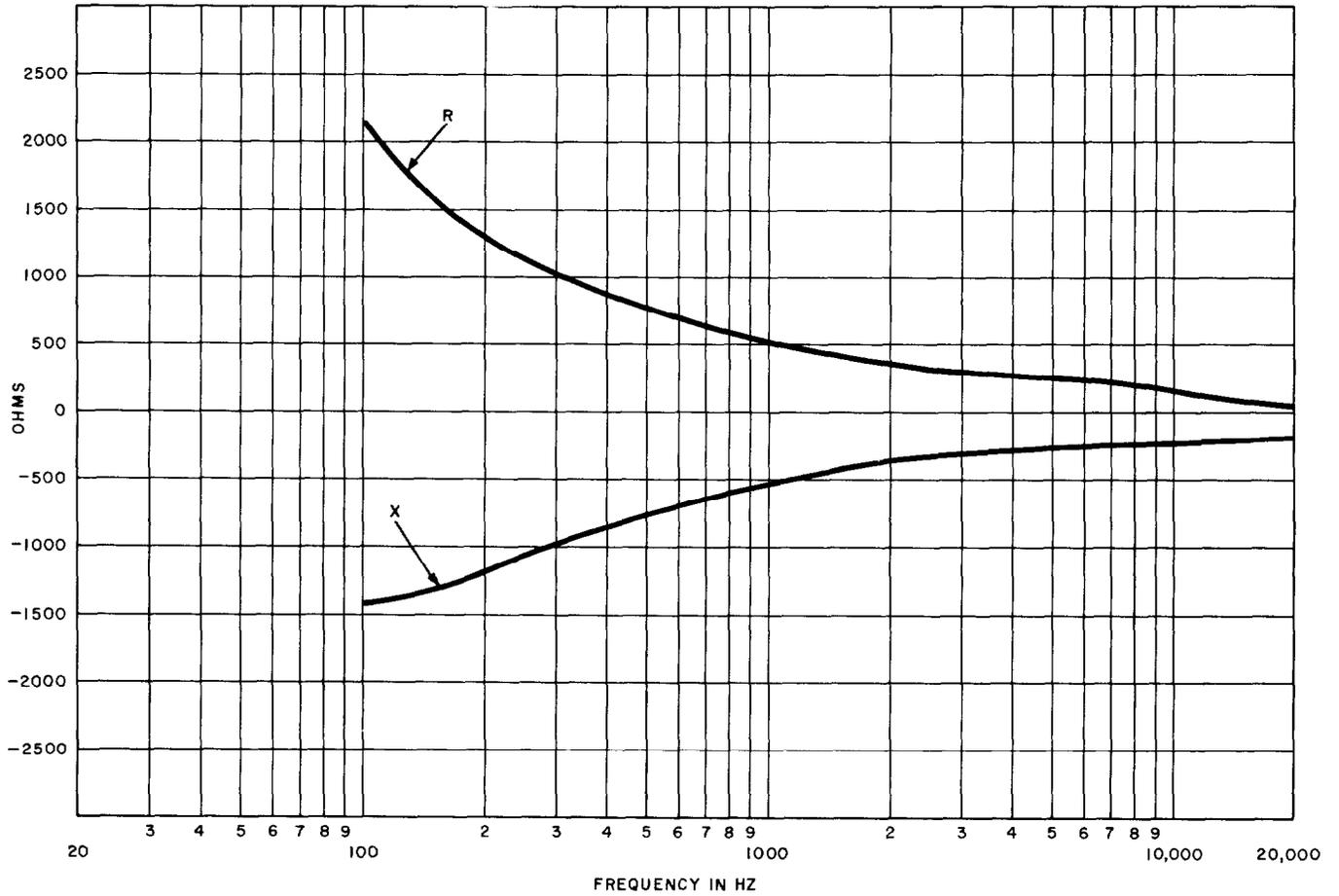


Fig. 3 — 4066F Network — Simulating Impedance of 24 CSM — NL Cable

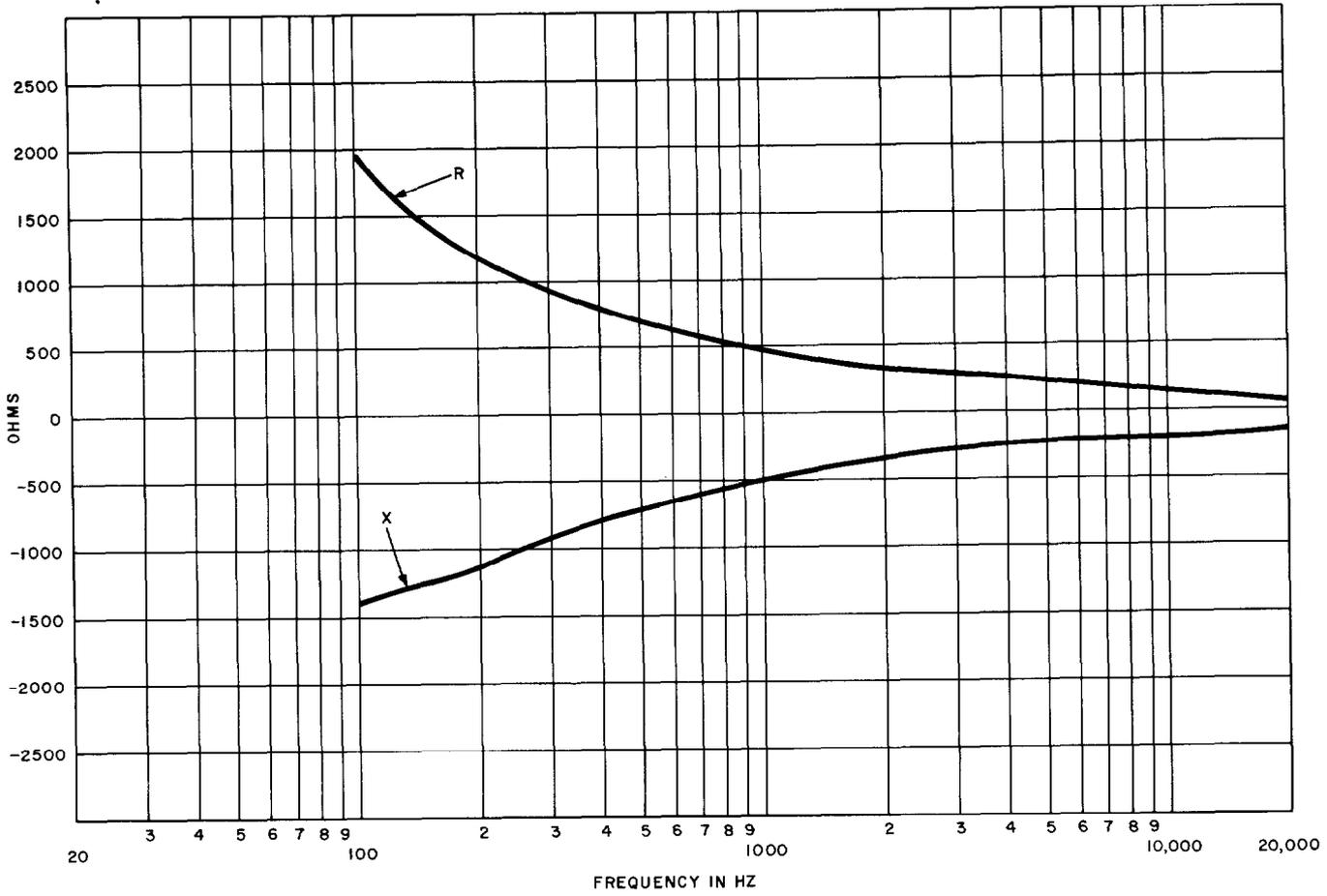


Fig. 4 — 4066F Network — Simulating Impedance of 24 DSM — NL Cable