4066B NETWORK

DESCRIPTION

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1. GENERAL

1.01 This section describes the 4066B network, which is a plug-in apparatus unit designed for use in V4 telephone repeater applications but is usable also in other repeater applications.

1.02 The 4066B network is an adjustable 2-terminal network. It is normally used in conjunction with a 1-type terminating set to provide the balance for the hybrid when the 2-wire circuit consists of 26-gauge high- and low-capacitance (0.079 and 0.069 μf/mi) H88 loaded cable facilities. The resulting 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 4066B 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 by the use of a 602C or 602D tool.

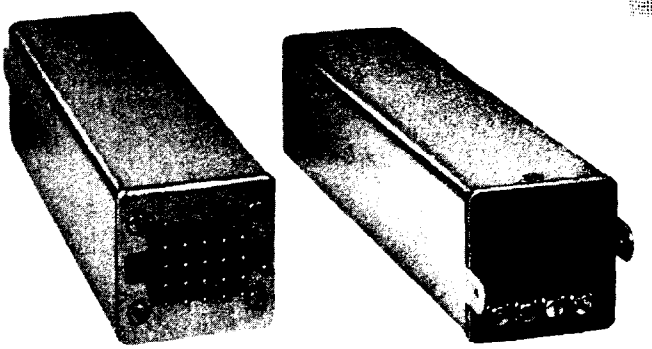

Fig. 1 — 4066B Network

2.02 The four screw-type switches are identified on the faceplate by letters A, B, C, and D. The components and/or circuits with which the switches are associated are shown in Fig. 2.

3. CIRCUIT DESCRIPTION

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

3.02 Adjustment of the network for the various capacitance levels encountered in specific 26-gauge cables 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.

TABLE A

4066B NETWORK —
SCREW SETTINGS FOR BALANCING
26-GAUGE CABLE FACILITIES

CABLE TYPE	CABLE CAPACITANCE		SCREW CLOSED (TURNED IN)	BUILDOUT TO HALF-SECTION CAPACITANCE (μF)
	μF/SECTION	μF/MILE		
26H88 LOW CAP. Use this line for → Nominal Cap. Cables	<0.0745	<0.0656	None	0.022
	0.0745 to 0.0770	0.0656 to 0.0678	A	0.023
	0.0770 to 0.0796	0.0678 to 0.0700	B	0.024
	>0.0796	>0.0700	AB	0.024
26H88 HIGH CAP. Use this line for → Nominal Cap. Cables	<0.0844	<0.0742	CD	0.026
	0.0844 to 0.0879	0.0742 to 0.0773	ACD	0.027
	0.0879 to 0.0916	0.0773 to 0.0806	BCD	0.028
	>0.0916	>0.0806	ABCD	0.028

3.03 Fig. 3 through 8 are graphic illustrations of the return loss and impedance characteristics of the 4066B network. Fig. 3 through 6 illustrate typical return losses of the network against the impedance of 26H88 cable with end sections of several different lengths. The midsection impedance characteristics of the 4066B network are illustrated in Fig. 7 and 8.

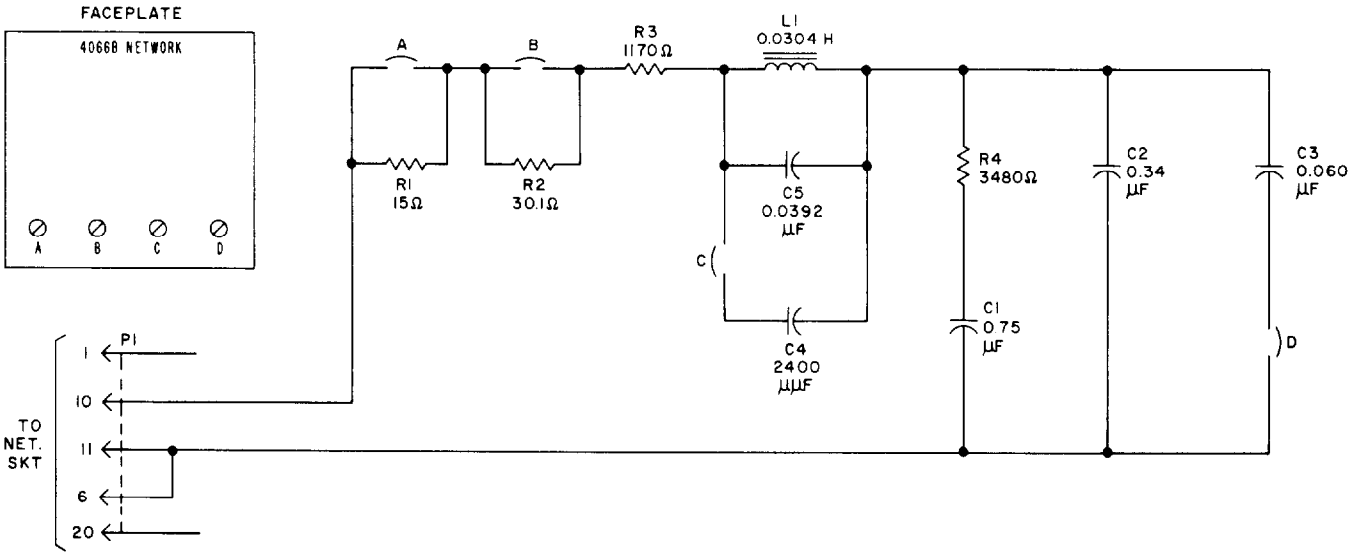

Fig. 2 — 4066B Network — Schematic

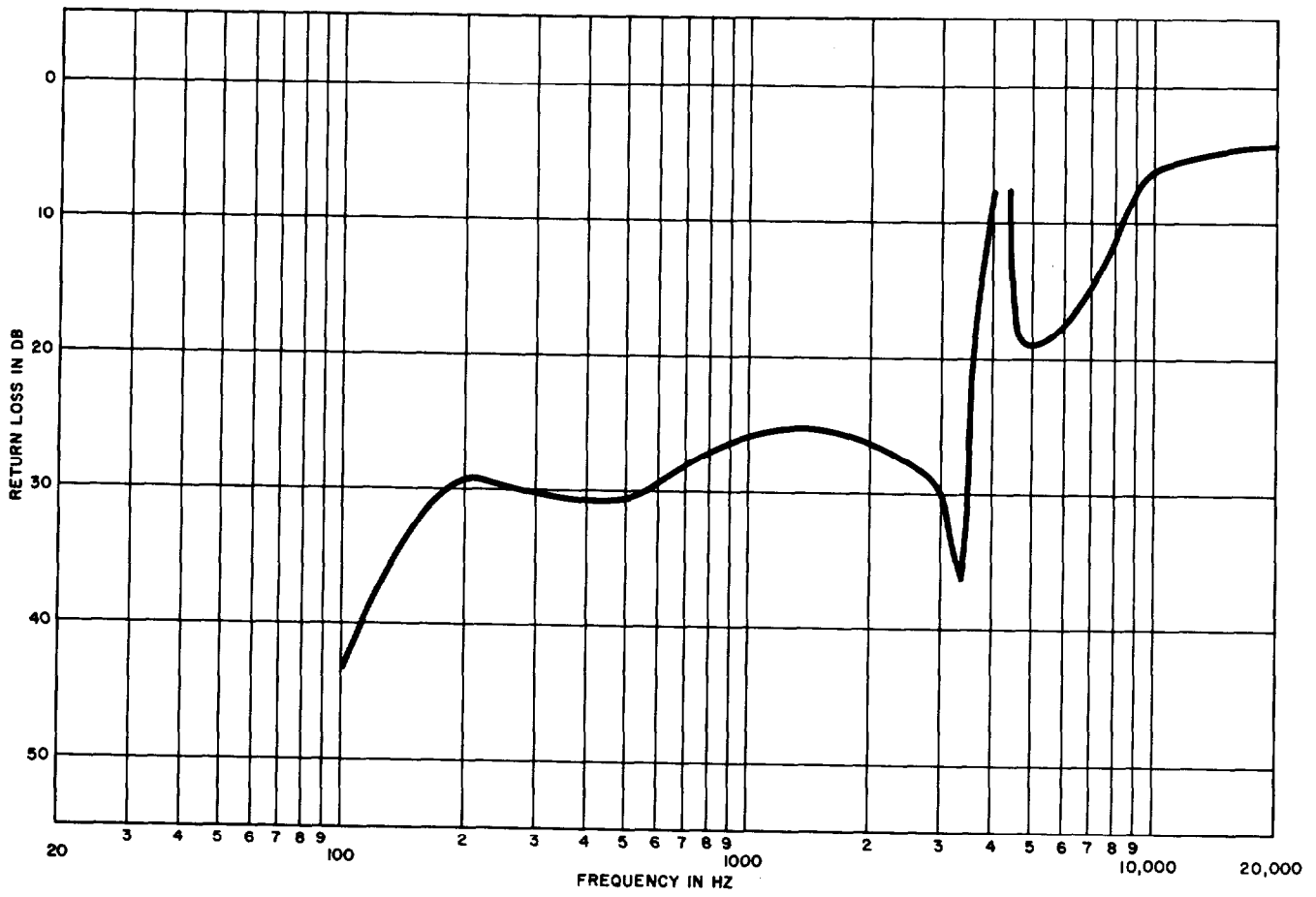

Fig. 3 — 4066B Network — Return Loss vs 26H88 Cable — End Section = 0.25 Loading Section

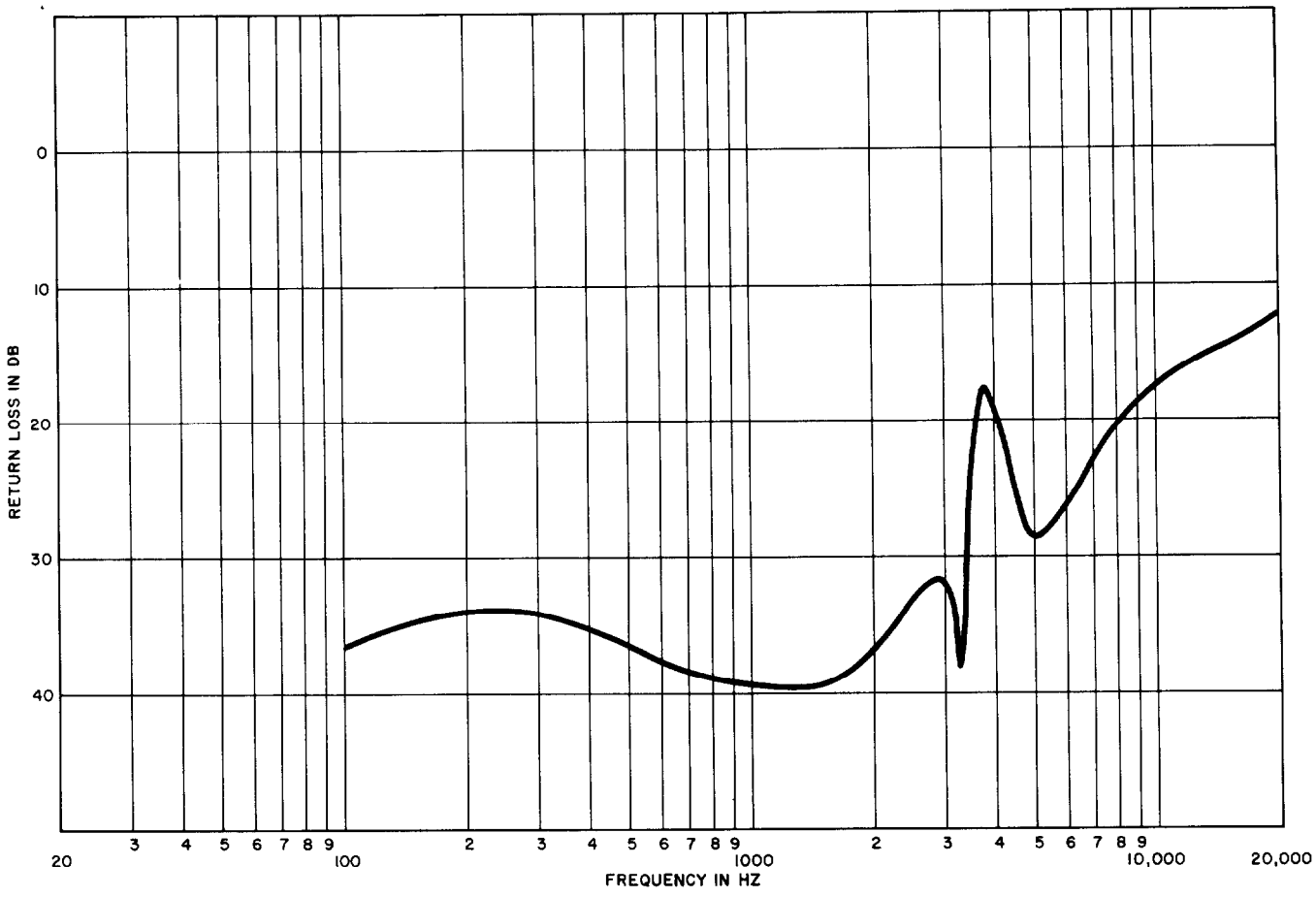

Fig. 4 — 4066B Network — Return Loss vs 26H88 Cable — End Section = 0.50 Loading Section

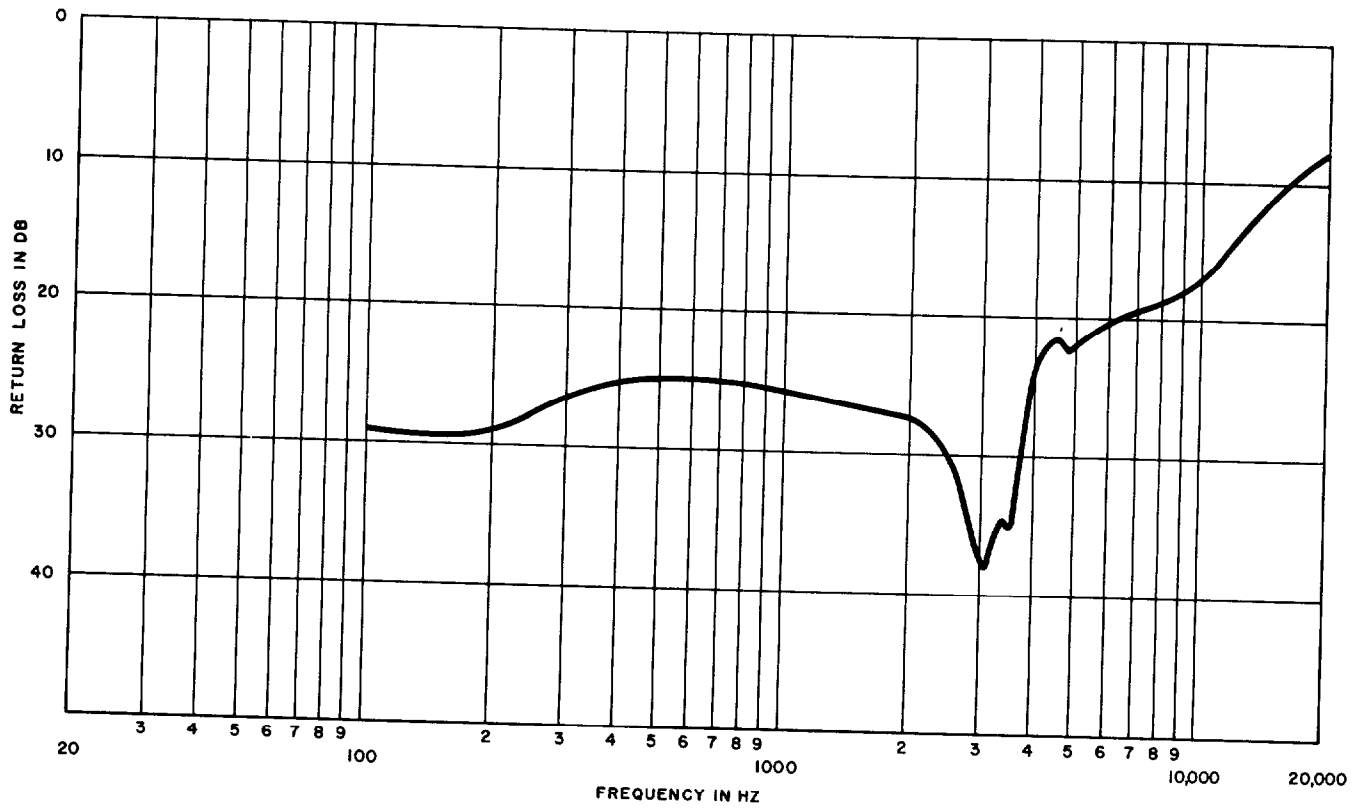

Fig. 5 — 4066B Network — Return Loss vs 26H88 Cable — End Section = 0.75 Loading Section

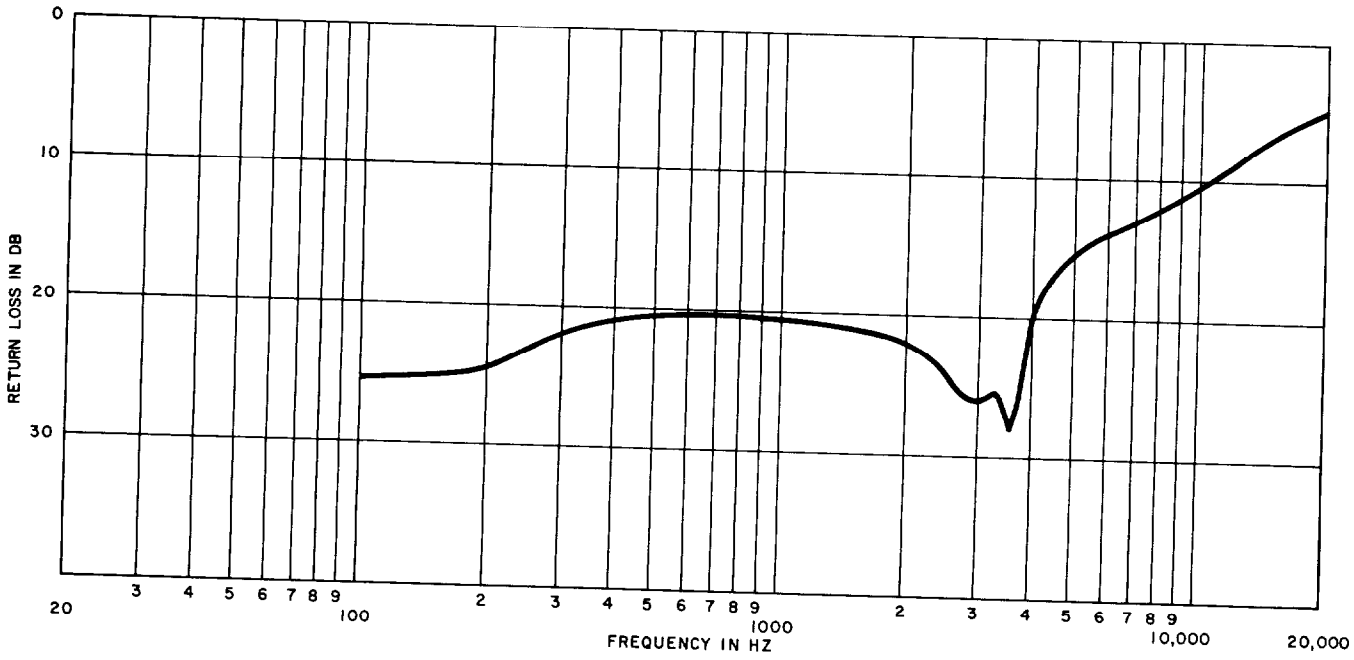

Fig. 6 — 4066B Network — Return Loss vs 26H88 Cable — End Section = 1.0 Loading Section

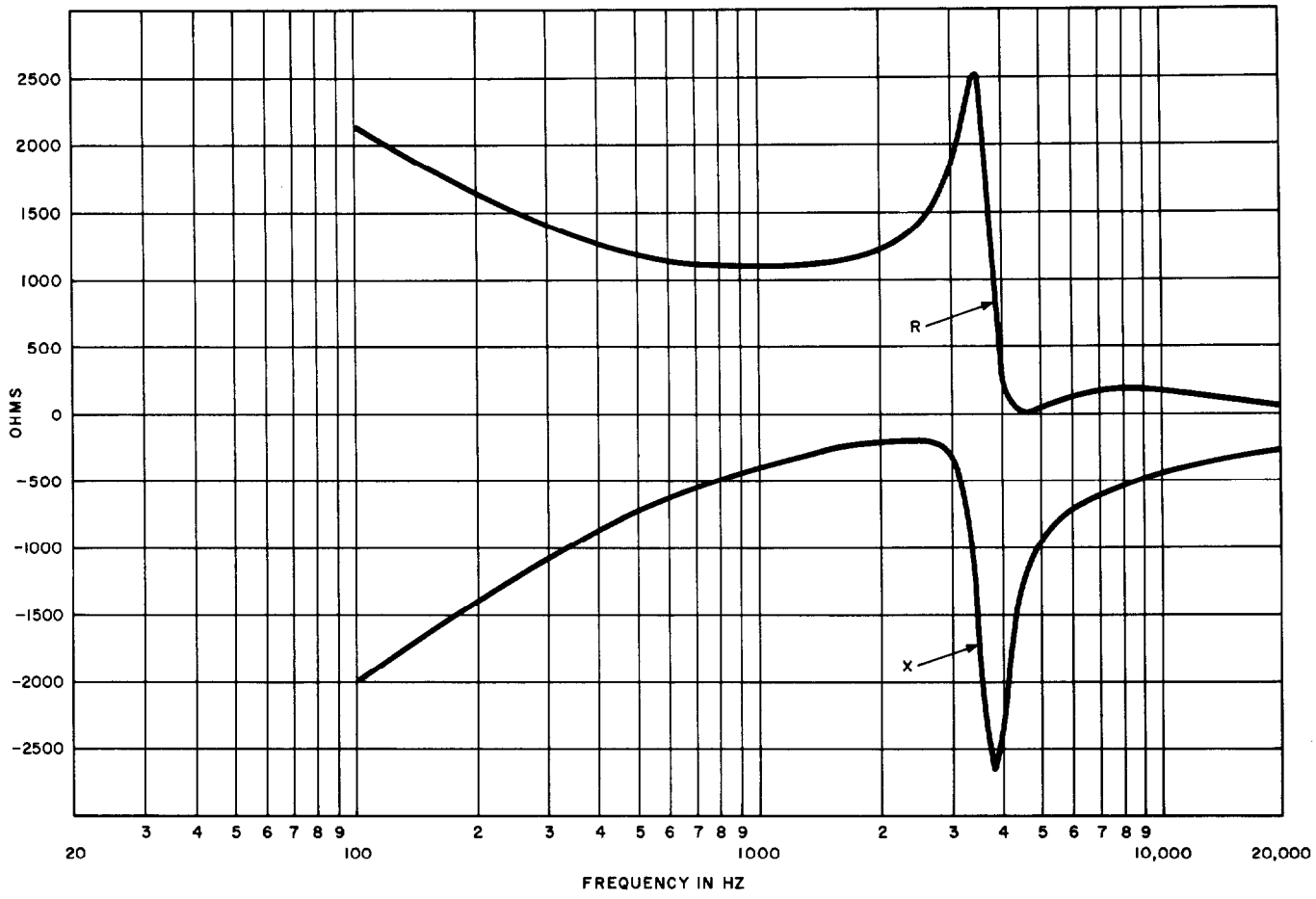

Fig. 7 — 4066B Network — Simulating Midsection Impedance of 26H88 High Capacitance Cable

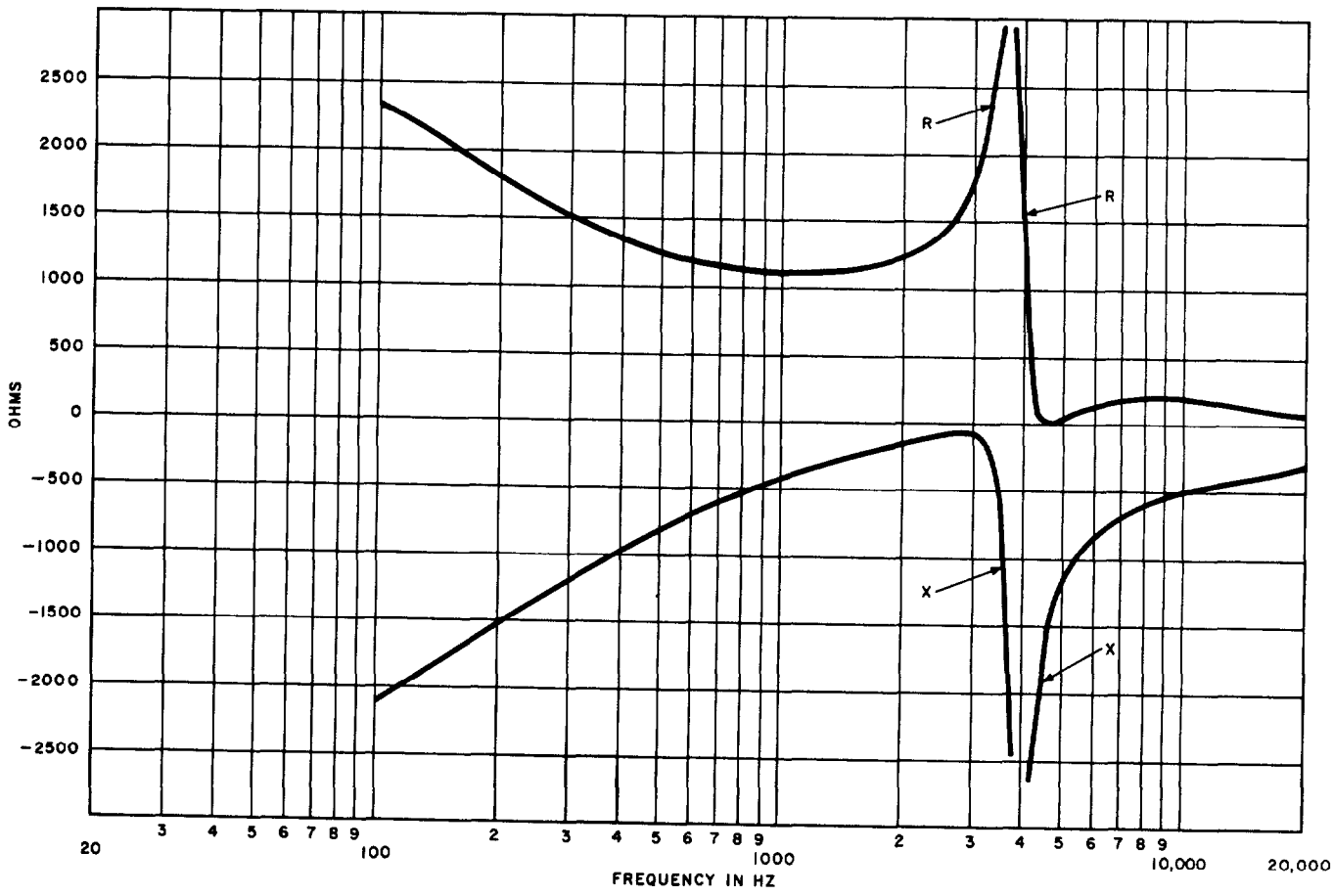

Fig. 8 — 4066B Network — Simulating Midsection Impedance of 26H88 Low Capacitance Cable