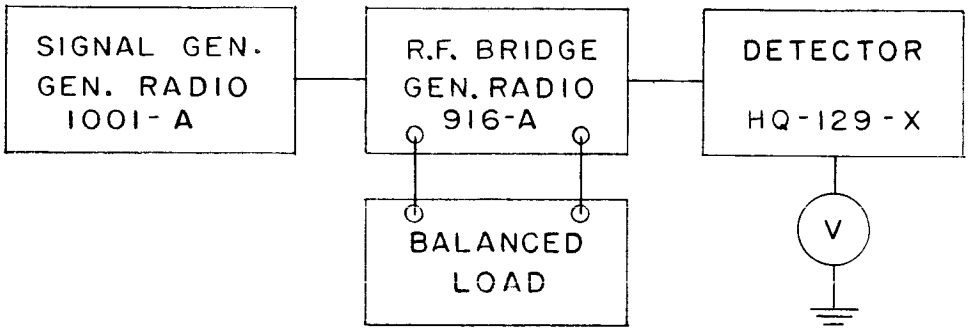
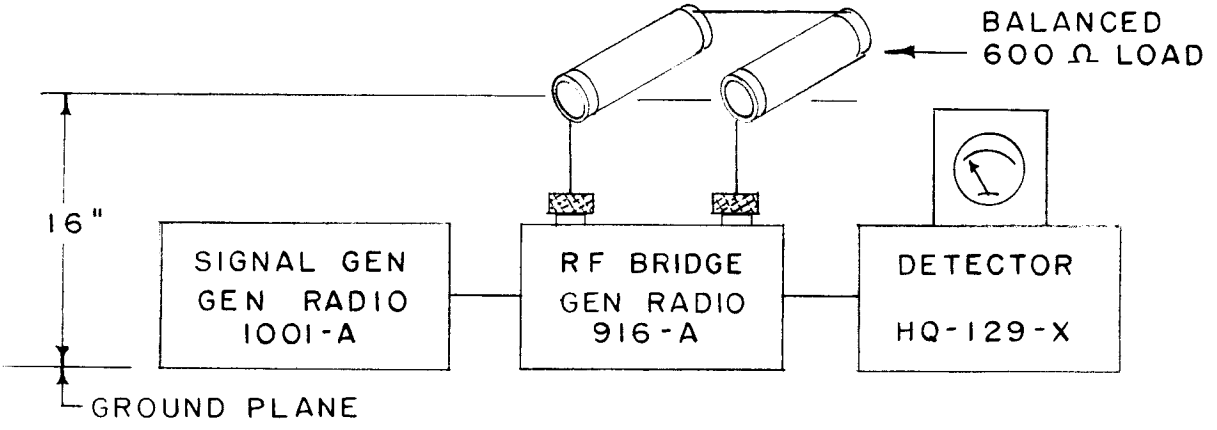
DATE 11/14/55 SH. 1 OF 2 COMPILED BY A.R.B.	TMC SPECIFICATION NO. S-275	
	TITLE: BALANCED IMPEDANCE MEASUREMENTS	JOB
APPROVED CMR	MODEL TER-3500	

BLOCK DIAGRAM



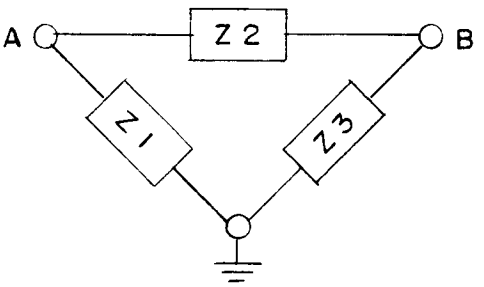
PHYSICAL ARRANGEMENT



METHOD OF MEASUREMENT

The method of measurement is as given in Paragraph 2.76 page 10 of the General Radio Type 916-A Radio Frequency Bridge on Balanced Lines and Antennas.

The load to be measured may be considered a 3 Terminal Network, in which Z2 represents the load being measured and Z1 and Z3 the shunting impedance to ground.



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APPROVED	MODEL TER-3500	

Since Z1 and Z3 are functions of stray paramaters (i.e., ht above ground etc.) only Z2 need be determined.

The load impedance Z2 is determined by the Radio Frequency Measurement of these conditions:

1. Short circuit impedance Z1 by grounding line A at point of measurement and measure Z' from line B to ground.

$$Z' = \frac{Z_2 \quad Z_3}{Z_2 + Z_3}$$

2. Short circuit impedance Z2 by connecting line A to line B at point of measurement and measure impedance Z'' from the junction to ground.

$$Z'' = \frac{Z_1 \quad Z_3}{Z_1 + Z_3}$$

3. Short circuit impedance Z3 by grounding line B at point of measurement, and measure impedance Z''' from line A to ground.

$$Z''' = \frac{Z_1 \quad Z_2}{Z_1 + Z_2}$$

Combining 1,2,3

$$Z_2 = \frac{2}{\frac{1}{Z'} - \frac{1}{Z''} + \frac{1}{Z'''}}$$