

DATE 28-3-56
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TMC SPECIFICATION NO. S-10010

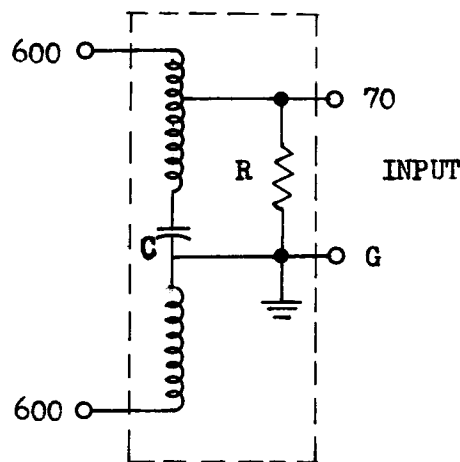
TITLE: ANTENNA COUPLER, MODEL RAC-7A - DESCRIPTION

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The TMC Antenna Coupler Model ^{RAC-7A} has been designed to couple an unbalanced 70 ohm line to a balanced antenna system of 600 ohms, nominal impedance.

The coupler consists essentially of a broad-band auto-transformer of the following configuration.



The resistor R across the 70 ohm input has a value of $10K \pm 20\%$, and since $10K \gg 70$ its shunting effect on the 70 ohm winding is negligible. The purpose of this resistor is to allow a leakage path to ground for static charges which may accumulate on the antenna.

The capacitor C connecting the halves of the transformer is a $.05 \text{ uf} \pm 10\%$ condenser. Its reactance over the frequency range is also negligible, acting as a short circuit to radio frequencies. Its purpose is to isolate the windings for DC current to permit resistance measurements of antenna termination.

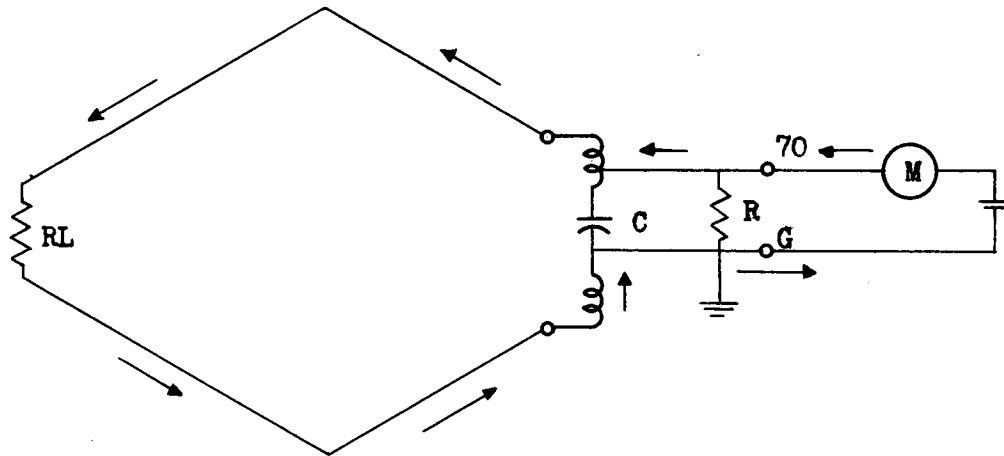
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A simplified diagram is shown above showing capacitor function in DC measurements.

If a DC ohm meter (M & B) is connected to the 70 ohm terminals, the current will be limited by RL (since $R \gg RL$) therefore the ohm meter will record essentially the termination resistance RL, 600 ohms.

DC ohm meter measurements on the RAC-7A with both input and output terminations open-circuited should give the following results:

70-G	10K ± 20%
600-600	" "

A short circuit across the 600 ohm termination should produce a short circuit at the 70 ohm input.