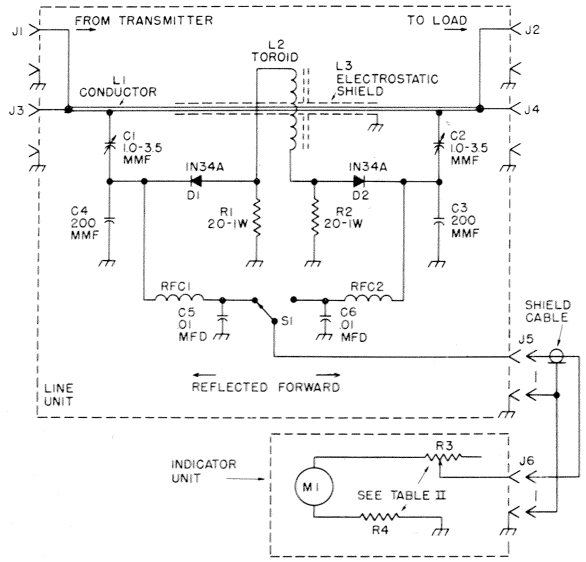

FIG. 1. SCHEMATIC DIAGRAM of the RF wattmeter. Parts with the same function in both sides of the circuit (C_1 and C_2, etc.) should be matched in actual value, as described in the text. This circuit was used in W8DLD's SSB-600 linear amplifier described in the March-April, 1961 issue.

TABLE I — PARTS LIST

C_1, C_2....1.0-3.5 mmf ceramic trimmers (Centralab 820-D, or equivalent).
C_3, C_4....200-mmf 600-volt miniature disc ceramic.
C_5, C_6....01-mfd. 600-volt disc ceramic.
D_1 D_2....general purpose diodes (1N34A, 1N48, etc.).
J_1, J_2, J_5, J_6....midget phono jacks.
J_3, J_4....chassis type coaxial cable jack (SO-239).
L_1.....No. 10 or 12 bare copper wire, 3 inches long, covered with $\frac{3}{16}$-inch O.D. copper tubing 1½ inches long.
L_2.....Approximately 48 turns of No. 22 enameled wire on toroid form; see footnote (3).
L_3.....35 turns, No. 22 enameled wire over L_1; see text for details.
M_1.....0 — 150-microampere DC meter; or, see TABLE II for other meter ranges (G. E. DW-91, 2½ inches; DO-91, 3½ inches, or equivalent).
R_1, R_2....20 ohms, 1 watt composition.
R_3.....linear taper potentiometer; see TABLE II for value.
R_4.....1-watt composition resistor; see TABLE II for value.
RFC_1, RFC_2....1 mh single pi-wound RF choke (Miller No. 72F103AP, or equivalent).
S_1.....single pole, double throw slide switch (H. H. Smith No. 516, or equivalent).

MECHANICAL PARTS NEEDED:
Box, wattmeter — Bud Minibox No. CU-2101A.
Box, meter — Bud sloping meter case No. CMA-2065 or CMA-2066.
Dial plate for R_3 — 0-10 markings, 300 degrees, Mallory No. 380.
8-connection terminal strip — Cinch-Jones No. 56A.

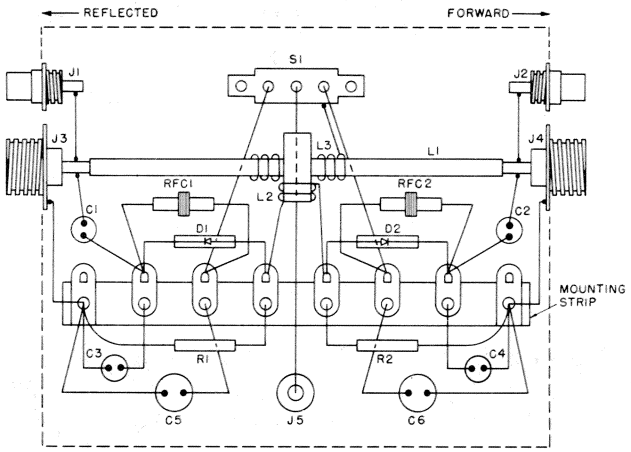

FIG. 2. PARTS LAYOUT for the RF wattmeter. This layout should be followed closely to achieve accurate reflected power readings. NOTE: Either end of the pickup unit may be connected to the transmitter or load, since the circuit is bilateral. The ends have been labelled here for discussion purposes.

LOW-COST RF WATTMETER (continued from page 1)

able. This makes possible physically small fixed larger capacitances for C_3 and C_4 to overcome the problem of stray RF voltage pickup by these capacitors.

It was previously mentioned that this device is really two wattmeters in one case. Obviously this suggests that any time two components with the same value are specified in TABLE I — PARTS LIST they should match each other closely in value. For example, the 20-ohm, 1-watt diode load resistors (R_1 and R_2) may measure from 15 to 30 ohms, but they must both read the same resistance. This also applies to the 200-mmf ceramic capacitors. From 150 to 250 mmf will work fine if the capacitances are matched. Although 1N34A diodes are specified, more important than the type of diode, they should *match* each other in forward and reverse characteristics. This will enable the RF wattmeter to read the same regardless of which direction it is connected in the coaxial line.

The toroid wound current transformer is a problem to shield by any ordinary method, so why not shield the primary of the transformer from its secondary? This is almost quicker done than said! Slip a piece of tubing or put some tape on the center conductor. Wind a tight winding of

[1]"The Monimatch," by L. G. McCoy, W1ICP, **QST**, October, 1956, page 11. Also, "The Monimatch — Mark II," L. G. McCoy, **QST**, February, 1957, page 38.
[2]"An Inside Picture of Directional Wattmeters," by W. B. Bruene, WØTTK, **QST**, April, 1959, page 24.
[3]Part No. 57-1541, **Radio Cores, Inc.**, 9540 South Tulley, Oak Lawn, Ill.
[4]"Not Just a Novelty," — by Davis A. Helton, WØPME, **QST**, January, 1961, pages 21 to 25.