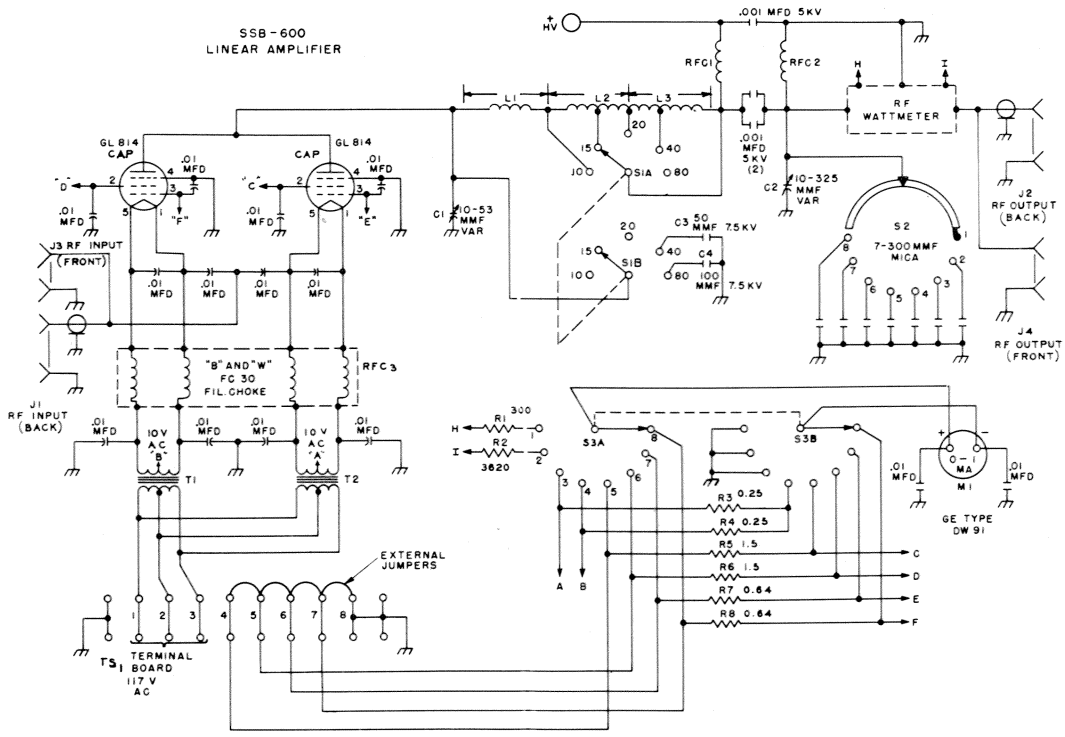

FIG. 1. SCHEMATIC DIAGRAM for the SSB-600 grounded-grid linear amplifier. Note the dual r.f. input (J_1 and J_3) and output (J_2 and J_4) jacks; one set of each is on the front and rear panels. The extra set is handy for picking up samples of the input and output signals for testing. The three 0.001-mfd. 5-KV capacitors in the plate circuit for DC blocking and bypassing are Centralab type 858S-1000 cylindrical ceramic capacitors. If separate metering of currents drawn by each tube is not necessary, a single 10-volt, 7-ampere filament transformer, and B & W FC-15 single filament r.f. choke can be used in place of the components shown. All bypass capacitors are 600-volt working disc ceramics, unless otherwise marked. Use terminals 1 and 2 on TS_1 for 105-volt AC input to the filament transformers.

SSB-600 (continued from page 1)

capability in the low duty-cycle SSB and CW classes of service.

The grounded-grid circuit was selected because it eliminates a tuned input circuit in the linear amplifier. Also, sufficient driving power was available — about 40 to 50 watts — to drive the two GL-814 tubes in a grounded-grid, triode connected circuit, to full output. Driving power is fed directly into each side of each GL-814 filament through 0.01-mfd. disc ceramic capacitors, as shown in the schematic diagram, Fig. 1. A commercially made filament choke isolates r.f. energy from the filament transformers, T_1 and T_2. Cathode input impedance is 100 to 200 ohms, depending on frequency.

The plate circuit is a pi network, with high voltage series fed through an r.f. choke (RFC_1). This permits more inductance to appear in the pi network on 28 megacycles. When parallel feed is used for plate voltage application the distributed capacitance of the r.f. choke and DC blocking capacitor appear as a part of the input capacitance across the pi network, which is very undesirable.

When the output capacitance of the amplifier tubes is added to this input capacitance, it often is impossible to realize a desirable tank circuit "Q" on 28, and sometimes even on 21 megacycles. The need for parasitic chokes in the tube plate leads also is eliminated.

This circuit also has been tested with four tubes connected in parallel without encountering parasitic oscillation. The only precaution was to use four tube plate leads of equal length to the common point of parallel connection.

Bandswitching of the pi-network circuit was achieved with a tap switch (S_{1A}) to short out sections of the inductance (L_1, L_2 and L_3) as required. The input tuning capacitor of the pi network (C_1) has only 50-mmf maximum capacitance, and is used alone for 14, 21 and 28 megacycles. Another section of the bandswitch (S_{1B}) adds a 50-mmf fixed vacuum capacitor (C_3) for 7 megacycles, and a 100-mmf vacuum capacitor (C_4) for 3.5 megacycles. This system permits selecting a tuning capacitor with low minimum capacitance and good ease of tuning for the higher frequencies, and still have sufficient capacitance for good circuit "Q" at 7 and 3.5 megacycles.

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