FIG. 2. SCHEMATIC DIAGRAM of the bandswitching exciter designed and built by K9ODE. The inductive-tuned oscillator circuit is shown at the left. Description of components is given in TABLE I — PARTS LIST, at the right. Capacitances are in micro-microfarads (MMF), or in microfarads (MFD), as marked. All bypass capacitors are disc ceramic or mica, 600 volts working. Resistances are in ohms, ½-watt rating, unless otherwise marked. **CAUTION:** Do not apply 150 volts to terminal 5 before 300 volts are applied to terminal 6.

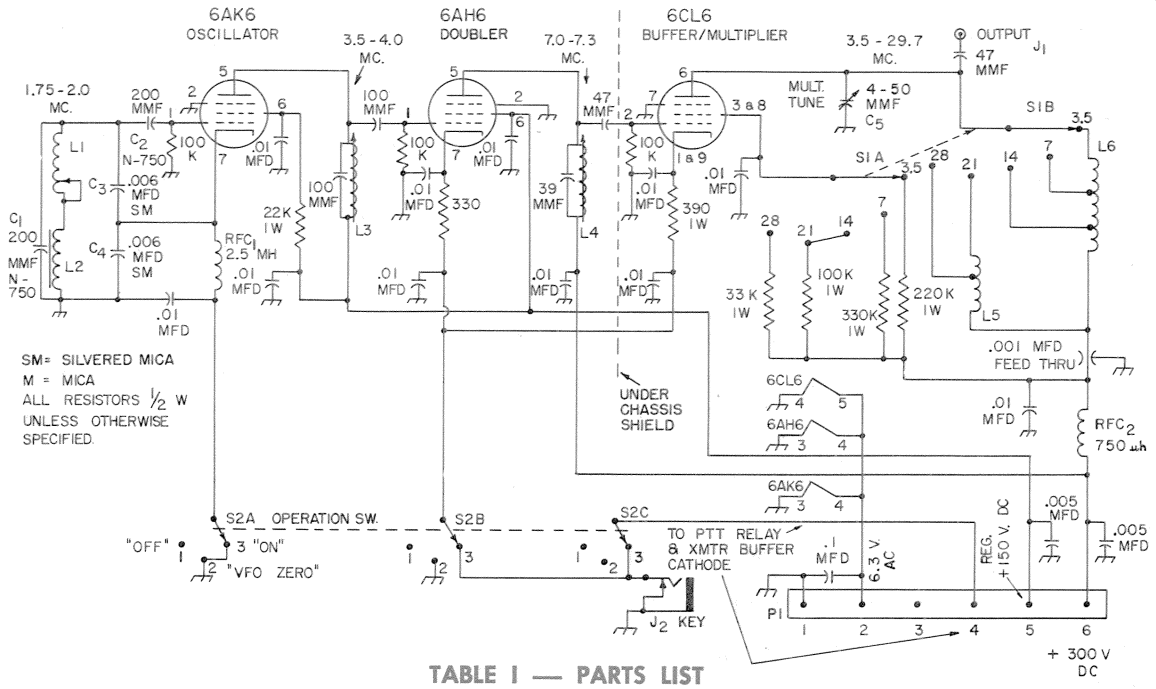

TABLE I — PARTS LIST

C_1, C_2....200-mmf. ceramic temperature compensating capacitor, negative 750 parts per million (Centralab type TCN).

C_3, C_4....0.006-mfd. mica, made from three 0.002-mfd. mica capacitors connected in parallel; see text.

C_5.....4 — 50-mmf variable.

J_1.....chassis type coaxial cable jack.

J_2.....closed circuit type phone jack.

J_3.....6-pin male chassis-type power connector (Jones P-306-AB).

L_1.....One section of Mallory spiral type 6-turn VHF Inductuner.

L_2.....14 turns, No. 22 enameled wire on toroid form cut from Command Set transmitter plate coil tuning slug;[1] see Fig. 3.

L_3.....20-uh. slug-tuned coil (Miller No. 4407, or CTC X2060-5).

L_4.....12-uh. slug-tuned coil (Miller No. 4406, or CTC X2060-4).

L_5.....27-microhenry coil, 58 turns, No. 22 enameled wire ¾ of an inch in diameter, closewound 1 ⅝ inches long, tapped at 22 and 7 turns from bypassed end.

L_6.....0.8 microhenry coil, 11 turns, No. 18 enameled wire ½ inch in diameter, spacewound diameter of wire 1 inch long, tapped at 6 turns from bypassed end.

RFC_1..2.5-millihenry 3-pi RF choke.

RFC_2..750-microhenry 1-pi RF choke.

S_1.....Five-position, two-pole rotary tap switch with ceramic insulation (Centralab type 2002, or equivalent).

S_2.....Three-position, three-pole rotary tap switch (Mallory type 3243J, or equivalent).

[1] "Not Just a Novelty," by Davis A. Helton, **QST**, January, 1961, Pages 21 to 25.

or less tuning range or bandspread for different bands. For mobile applications and others where space is a problem it is possible to cut away all but the first section of the tuner.

THE SCHEMATIC DIAGRAM for the inductive-tuned VFO is shown in Fig. 2. The tube line-up consists of a 6AK6 pentode oscillator with the grid circuit tuning 1.75 — 2.0 megacycles, and plate circuit doubling to 3.5 — 4.0 megacycles. This drives a 6AH6 doubler on 7 megacycles which in turn drives the 6CL6 multiplier. Although drive to the 6CL6 is at 7 megacycles, enough 3.5 megacycle energy sneaks through to permit the 6CL6 to deliver plenty of output on this band. The 6CL6 operates straight through on 7 megacycles and multiplies as required to hit 14, 21, and 28 megacycles. To equalize output one section of the bandswitch is used to select 6CL6 screen resistors of appropriate values. If desired, a potentiometer can be substituted in the screen to permit continuous output control.

Those accustomed to strings of multiplier tubes may raise eyebrows at the sight of a single 6CL6 tripling and quadrupling to provide output on 21 and 28 megacycles. The high transconductance of this tube makes it an extremely efficient multiplier, however, and the circuit, as shown, easily drives a 6L6 buffer on all bands. With voltages and constants shown in the schematic diagram, the 6CL6 operates well within its maximum plate dissipation rating and considerably more output can be obtained by reducing the value of the cathode resistance.

The control circuit switching arrangement permits the oscillator to run continuously. An S2 signal is heard from the oscillator on the 80 meter band and this can be cut off, if necessary, by throwing the control switch to "OFF."

The exciter is keyed in the doubler, multiplier and external buffer cathode circuits. If desired, the keying circuit can be adapted to a differential keying system. The current transmitter driven by this exciter consists of a 6L6 buffer driving four 6146's in DSB and when this mode of operation is used the push-to-talk relay also keys the exciter. For frequency spotting, the control switch activates the exciter stages only.

The fixed inductance used in conjunction with the Inductuner is a home-made toroid wound on a toroid form sliced from a Command transmitter tuning slug as described by W0PME.[1] Dimensions of the core are shown in Fig. 3. Although a conventional coil wound on a ceramic form can be used in place of the toroid, the toroid is strongly recommended because its smaller mass and electrical field contribute to both electrical and mechanical stability.

(continued on page 6)