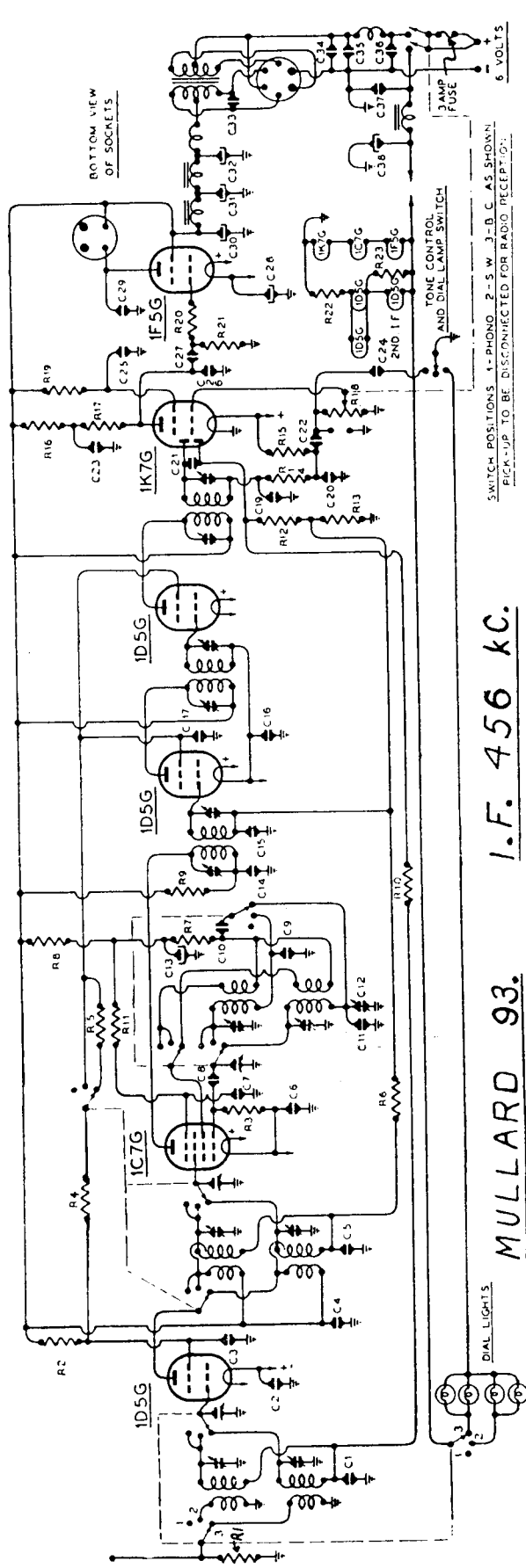


# "Mullard" Vibrator-Powered Dual-Wave Console Model 93



**MULLARD 93. I.F. 456 kc.**

### COMPONENT VALUES.

- RESISTORS.**  
 R1—10,000 ohms, ½ W.; R2—100,000 ohms, ½ W.; R3—50,000 ohms, ½ W.; R4, R5, R17—250,000 ohms, ½ W.; R6, R14—100,000 ohms, ½ W.; R7, R8, R16—10,000 ohms, ½ W.; R9—5,000 ohms, ½ W.; R10—1 megohm, ½ W.; R11—30,000 ohms, ½ W.; R12, R13, R15, R21—500,000 ohms, ½ W.; R18—500,000 ohms, volume control; R19—1 megohm, ½ W.; R20—50,000 ohms, ½ W.; R22—16.5 ohms, w.w.; R23—33 ohms, w.w.
- CONDENSERS.**  
 C1, C2, C5, C6, C14, C15, C16—0.05 mfd., 400 v., paper; C3, C4, C7, C17, C23, C25—0.1 mfd., 400 v., paper; C8, C21, C36—100 S.W. padder; C10—1,000 mmfd., ± 1%, mica; C9—3,900 mmfd., ± 1%, mica; C11—300 mmfd., ± 3%, mica, E.C. padder; C12—3-plate B.C. padder; C13, C30, C31, C32—8 mfd., 500 v., peak, electro; C19, C20, C26—250 mmfd., mica; C22—5,000

## MULLARD "93" 1938 CONSOLE

Uses 10-inch permag. loudspeaker

mmfd., mica; C24, C29, C37—2,000 ohms, mica; C27, C34—0.1 mfd., 400 v., paper; C28—100 mfd., 8 v., peak, electro; C33—0.02 mfd., 1,500 v., test, mica; C35—0.5 mfd., 400 v., paper; C38—500 mfd., 8 v., peak, electro.

### OPERATING VOLTAGES.

All measurements were made with a "1,000 ohms per volt" meter, and voltages are those existing between the socket contact indicated and chassis. Bias for the various valves is obtained from the voltage drops across the series-parallel filament network, and in all cases the voltages indicated are those existing between the negative filament of the particular valve and chassis; it should be noted that these voltages indicate the actual bias applied to all valves except the 1D5G 2nd I.F. Amplifier, whose actual bias is 2 v. because of the fact that its grid is returned to the negative filaments of the 1D5G's, R.F. and 1st I.F. Amplifiers. The receiver was operating under "no signal" conditions, with the wave-change switch in the S.W. position.

**1D5G, R.F. Amplifier:** Plate, 135 V.; screen, 60 V.; negative filament, 2 V. Plate current, 2 mA.

**1C7G, Frequency Converter:** Plate, 130 V.; screen, 50 V.; negative filament, 2 V.; osc. anode grid, 65 V. Plate current, 1.2 mA.

**1D5G, 456 kc., 1st I.F. Amplifier:** Plate, 135 V.; screen, 30 V.; negative filament, 2 V. Plate current, 0.3 mA.

**1D5G, 456 kc., 2nd I.F. Amplifier:** Plate, 135 V.; screen, 30 V.; negative filament, 4 V. Plate current, 0.3 mA.

**1K7G, Detector, A.V.C. Rectifier and A.F. Voltage Amplifier:** Plate, 40 V.; screen, 20 V.; negative filament, zero. Plate current, 0.3 mA.

**1F5G, Output Pentode:** Plate, 130 V.; screen, 135 V.; negative filament, 4 v. Plate current, 8 mA.

Total "B" current drain (no signal), 20 mA.; total "A" battery drain (without pilot lamps), 1 ampere.