RAYCOPHONE "83SB"

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R6—50,000 ohms; **R7**—3,000 ohms; **R10**—500,000 ohms; **R11**—2 megohms; **R12, R14**—100,000 ohms; **R13**—1 megohm.

CONDENSERS

C1, C2, C3, C8—0.05 mfd.; **C4**—550 mmfd., mica, padder shunt; **C5**—padder; **C6**—800 mmfd., mica; **C7**—1 mfd., paper; **C9, C11**—500 mmfd., mica; **C10, C12**—0.01 mfd.

COILS, ETC.

I.F.T.—175 kC., I.F. transformers; **T**—centre-tapped interstage coupling transformer; **S1**—3-pole on-off switch; **S2**—local/distance switch.

OPERATING VOLTAGES

The following measurements were made with a "1,000 ohms per volt" meter, and voltages are those existing between the socket contact indicated and chassis. The receiver was operating under "no signal" conditions, with the local/distance switch in the "down" position, and the volume control turned to its maximum position.

234, R.F. Amplifier: Plate, 157.5 v.; screen, 67.5 v.; grid, —1 v. Plate current, 3 mA.

232, Frequency Mixer: Plate, 157.5 v.; screen, 67.5 v.; grid, —6 v. Plate current, 0.2 mA.

30, Oscillator: Plate, 40 v.; grid, returned to positive filament through 40,000 ohms grid leak. Plate current, 2 mA.

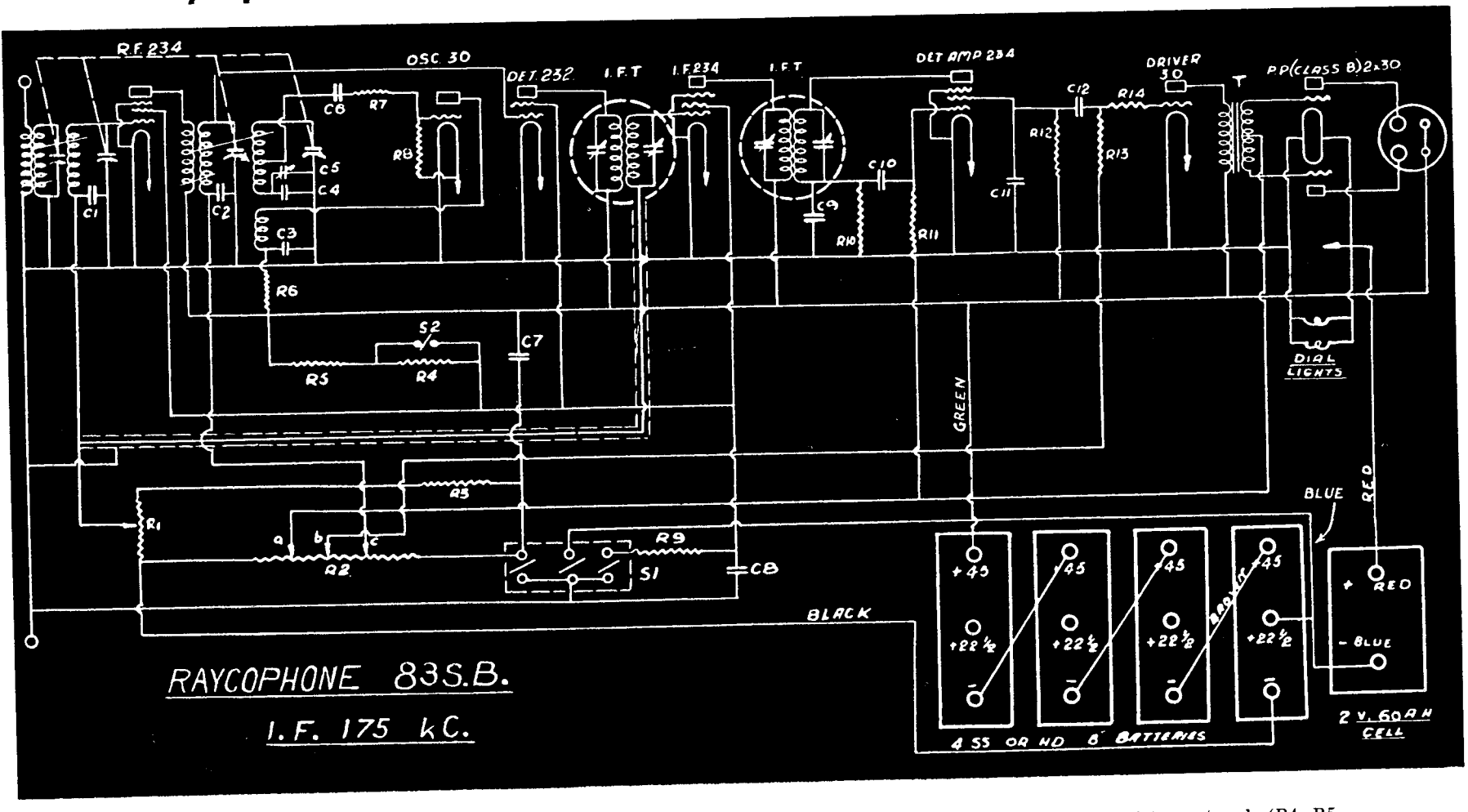
234, 175 kC., I.F. Amplifier: Plate, 157.5 v.; screen, 67.5 v.; grid, —1 v. Plate current, 3 mA.

234, Diode Detector and A.F. Voltage Amplifier: Plate, zero; screen, 60 v.; grid, —15 v.

30, Driver: Plate, 157.5 v.; grid, —10 v. Plate current, 2 mA.

Each 30, Push-Pull "Class B" Output: Plate, 157.5 v.; grid, —15 v. Plate current, 1 mA.

"Raycophone" Battery Operated Broadcast Console Model 83SB



Raycophone model "83SB" is an 8-valve receiver designed for broadcast coverage and operation from battery power supplies. This receiver is of the console type and is fitted with four controls, these being for volume, tuning, battery switching (3-circuit) and sensitivity control (two positions). The loudspeaker is an 8-inch diameter unit of the permanent-magnet type and its transformer presents a plate-to-plate load of 8,000 ohms. This model was marketed during 1933.

Power supply for this receiver is obtained from a 2-volt accumulator ("A") and four series-connected 45 v. dry batteries ("B" and "C"). It should be noted that bias voltages are obtained from the first 22.5 v. section of the high-tension supply—voltage division for this purpose being effected by means of the tapped 1,500 ohms resistor, R2.

Other points to note are that volume control is effected by varying the grid bias of the R.F. and I.F. valves—a 100,000 ohms potentiometer (R1) and a minimum bias limiting resistor (R3) being shunted across the main bias supply for this purpose. Screen voltage for the R.F., mixer and I.F. valves is obtained from a resistor network (R4, R5, R9) shunted between B + and the 22.5 v. tap. Sensitivity control is effected by switching R4 in or out of circuit, and it is suggested that in the interests of battery economy, the receiver be used in its least sensitive position (R4 in) as much as possible.

COMPONENT VALUES.

RESISTORS

R1—100,000 ohms, variable, volume control; **R2**—1,500 ohms, w.w.; **R3**—10,000 ohms; **R4, R8, R9**—40,000 ohms; **R5**—20,000 ohms;

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