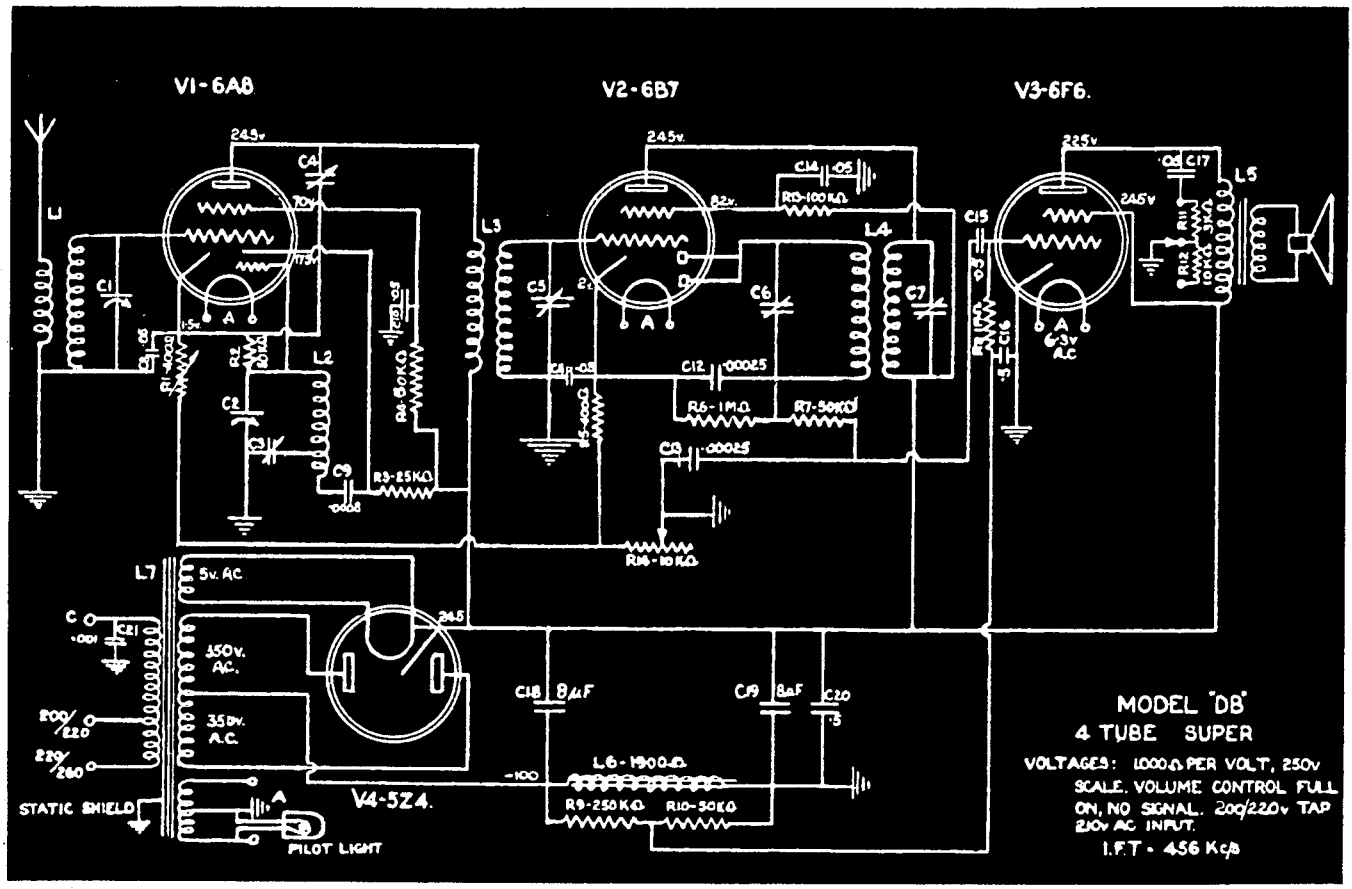
"Astor" A.C. Model 55—Chassis type DB



Astor model "55," chassis type "DB," is a four-valve receiver designed for broadcast coverage and operation from 200-260 volts A.C. mains. This receiver is of the console type and is fitted with three controls—volume, tuning, tone (3 positions)—and an 8 inch, 1,900 ohms field, loudspeaker.

This receiver is an extremely simple arrangement and no trouble should be experienced in locating any faults which may occur. It should be noted, however, that the 6B7 is used as 456 KC., I.F. amplifier and diode detector only—no reflexing or A.V.C. being employed. Another point of interest is found in the provision of a "maximum sensitivity" adjustment in the form of adjustable resistor R1 (400 ohms total) as cathode bias resistor for the converter. This resistor is taken together with the I.F. valve cathode resistor, to one end of the volume control (R14—10,000 ohms), and the arrangement becomes an effective "radio" type volume control with an adjustable "maximum volume" setting. A final feature of interest is found in the use of a voltage divider system (R9—250,000 ohms, and R10—50,000 ohms) across the L.S. field in order to obtain bias for the output valve; the arrangement, in conjunction with C16 (0.5 mfd.), also serves as a very effective hum filter.

When checking up the I.F. system it will be noted that the first I.F.T. primary trimmer (C4) is returned direct to the 6A8 cathode instead of to the high-tension side of the coil; this is quite in order. Finally, the oscillator padder (C3) is a compression-type trimmer with a capacity range of 200/400 mmfd.

"Astor" Selftuna, chassis type EF

(Circuit diagram and commencement of descriptive matter are on page 246)

This is as it should be, and is a point which should be carefully watched as the operation of the "muting" system (and the receiver itself) depends on whether this switch "breaks" as the others "make." The principle behind this system is quite simple. As can be seen, the triode section of the 75 is normally biased by the voltage obtained at the junction of R10 and R11. Under these conditions R17 and C26 act as a hum filter circuit in series with the grid resistor (R7). As the selector switch is rotated, SW.5 completes a circuit between R16 and the most negative end of the bias system, with the result that C26 is charged to a much higher potential than usual and the 75 is biased to cut-off. This effectively "mutes" the receiver and prevents any signal being heard until switch-sections 1 to 4 are brought to rest on a stud. This means that the circuit through SW.5 is opened and the extra charging potential for C26 is removed. However, the capacity of C26 is such that it takes about 30 seconds for the charge to leak away through R17 and the bias to come back to normal. This time-delay prevents signals being heard as the switch is rotated over any stud, but allows the selected station to come in normally a few seconds after the switch is brought to rest.

The remainder of the receiver follows standard practice and, although it is not possible to give any component values, no difficulty should be experienced because of this. However, the following tabulation of operating voltages will provide a useful guide as to the conditions applying. The measurements were made with a "1,000 ohms per volt" meter between chassis and the socket contact indicated.

6A7, Frequency Converter. Plate, 250 v.; screen, 70 v.; cathode, 4 v.; osc. anode grid, 125 v.

6D6, 472.5 KC. I.F. Amplifier. Plate, 250 v.; screen, 70 v.; cathode, 4 v.

75, Detector, A.V.C. Rectifier and Audio Amplifier. Plate, 65 v.; cathode, earthed. Bias is obtained from a tapping slightly over 1 volt negative on a voltage divider system across the L.S. field.

42, Output Pentode. Plate, 235 v.; screen, 250 v.; cathode, earthed. Bias is obtained from a tapping about 17 volts negative on a voltage divider system across the L.S. field.

Voltage Drop across L.S. Field is approx. 80 volts.