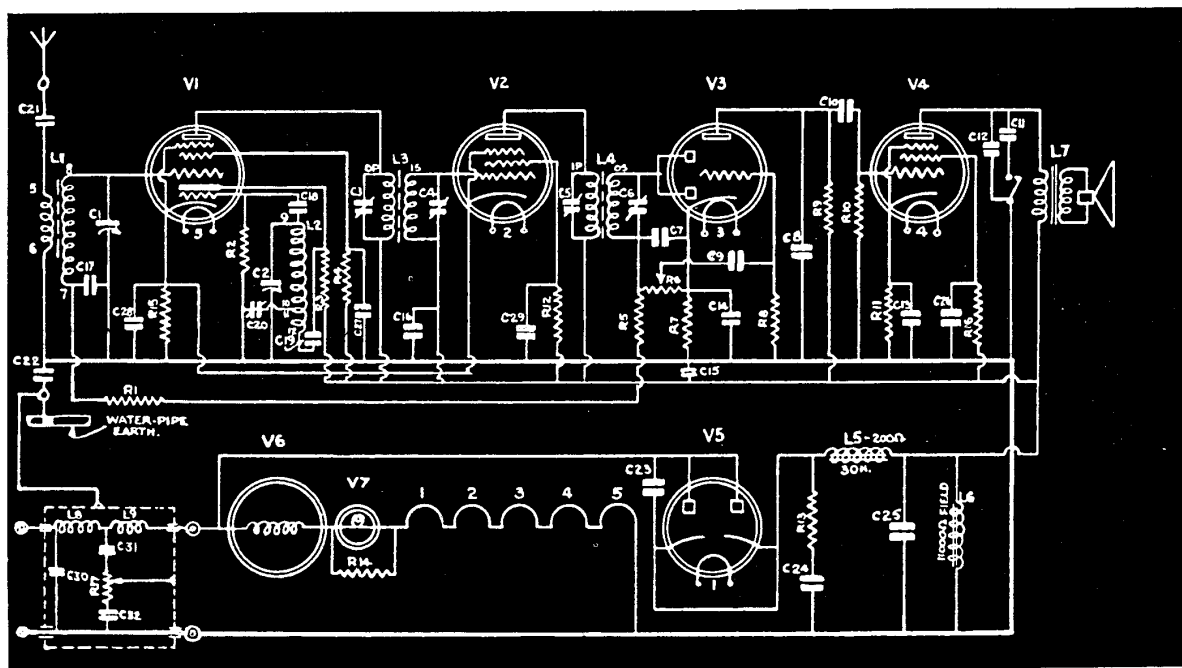


"Astor" A.C./D.C. Models 88, 99—Chassis type DC



Astor model 88 or 99, chassis type "DC," is a five-valve receiver designed for broadcast coverage and operation from A.C. or D.C. mains with any voltage between 190 and 260 volts; regulation for the latter is provided by a Philips type C1 barretter ("V6" on circuit diagram). This receiver is of the console type and is provided with a back in order to protect the user from accidental shock. Three controls—volume, tuning, tone—are fitted to the front panel of this receiver and a fourth is fitted to the side of the cabinet for line filter "tuning." This control (R17) acts as a noise balancer and proves very effective on noisy D.C. mains. As originally released, this receiver was known as model "99," but the model number was later changed to "88"; the circuit arrangement is the same in each case. The loudspeaker used is an 8-inch, 11,000 ohms field, unit in each case.

The design of this receiver is fairly straightforward, but particular attention should be paid to the aerial and earth isolating condensers (C21 and C22) as a short in either of these is likely to result in either a shock to the user or a mains short-circuit, particularly on A.C. supply or D.C. mains of the "positive earth" type. Other points of interest are the use of a "hum filter" condenser (C23) between plate and cathode of the rectifier, and the provision of a "surge protection" resistor (R13) in series with the first filter condenser (C24).

The valves used in this receiver are all of the Philips 200 mA. series, with type numbers and functions as follow:

Component Values

COILS.

L1—DD aerial coil; L2—DD osc. coil; L3—1st I.F.T.; L4—2nd I.F.T.; L5—30 H., 200 ohms, filter choke; L6—11,000 ohms L.S. field; L7—2A5 type L.S. matching transformer; L8—1.3 microhenry R.F. choke; L9—180 microhenry R.F. choke.

CONDENSERS.

C1, C2—sections of 2 gang variable cond.; C3, C4, C5, C6—I.F.T. trimmers; C7—0.00025 mfd. mica; C8—0.0005 mfd. mica; C9—0.02 mfd., 200 v., paper; C10—0.02 mfd., 400 v., paper; C11—0.02 mfd., 1,000 v., paper; C12—0.006 mfd., 400 v., paper; C13—10 mfd., 50 v. W. electro.; C14—0.25 mfd., 200 v., paper; C15—0.5 mfd., 400 v., paper; C16—0.1 mfd., 200 v., paper; C17—0.05 mfd., 200 v., paper; C18—0.0001 mfd. mica; C19—0.001 mfd. mica; C20—250/500 mmfd.

V1—CK1, octode frequency converter; V2—CF2, 472.5 KC. I.F. amplifier; V3—CBC1, detector, A.V.C. rectifier, and A.F. amplifier; V4—CL2, output pentode; and V5—CY2, rectifier. V6 and V7 are the type C1 barretter and a 4.5 v., 0.3 A., dial lamp, respectively. In some of these receivers it may be found that Mullard

padder; C21—0.001 mfd., 1,000 v., mica; C22, C23—0.01 mfd., 1,000 v., mica; C24—16-20 mfd., 500 v., electro.; C25—18-22 mfd., 500 v., electro.; C26—0.25 mfd., 400 v., paper; C27—0.1 mfd., 400 v., paper; C28—0.5 mfd., 200 v., paper; C29—0.25 mfd., 400 v., paper; C30, C31, C32—0.05 mfd., 1,000 v., paper.

RESISTORS.

R1—10,000 ohms, 1/3 W.; R2—50,000 ohms, 1/3 W.; R3—100,000 ohms, 1 W.; R4—60,000 ohms, 1 W.; R5—1 megohm, 1/3 W.; R6—500,000 ohms vol. cont.; R7—1,000 ohms, 1/3 W.; R8—1 megohm, 1/3 W.; R9—50,000 ohms, 1/3 W.; R10—500,000 ohms, 1/3 W.; R11—400 ohms, 1 W.; R12—100,000 ohms, 1 W.; R13—100 ohms, 3 W., wire-wound; R14—50 ohms, 3 W., wire-wound; R15—500 ohms, 1/3 W.; R16—25,000 ohms, 1 W.; R17—6 ohms potentiometer (in line filter).

equivalents of the above Philips' valve types are employed, in which case the valve complement, in the order given previously, is as follows: FC13, VP13A, TD13, Pen. 26, UR2, and B13 barretter. The dial-lamp is the same in each case. The operating voltages for this receiver are in accordance with manufacturers' ratings.

I.F. ALIGNMENT--ASTOR MODELS

The majority of "Astor" receivers produced during, and since, 1936 are fitted with a special dual trimmer assembly for I.F. transformer alignment. This is accessible from the top of the shielding can and adjustment is effected by means of a slotted screw and a hexagonal nut. At first glance, these two controls give the appearance of an adjusting screw fitted with a locking nut, but closer inspection of the assembly will show that each can be rotated independently. The slotted screw controls the primary trimmer, while the secondary trimmer is controlled by the hexagonal nut.