The Radio Gramophone Development Co.'s 702 is available either with or without a Garrard automatic record changer. The circuit is designed for a good radio performance allied with high quality. Behind the large fret of the distinctive and modern cabinet is a pair of dual reproducers.

R.G.D. 702 RADIOGRAM (Contd.)

Pin of purple wander plug 245 volts (junction of R.14 and 6,500 ohm field of smaller speaker).

Voltages at S.G. anodes are given on valve table.

Remember, the second valve from the right (looking from back) is a double diode triode with grid terminal at the top.

Removing the Chassis.—There is no need to remove the control knobs.

Remove the coded L.S. field plugs, the motor plug, the pick-up plugs (green), and the L.S. plugs (black).

Remove two wood screws holding the panel to the front of the cabinet (seen under gramophone motor).

Undo two bolts holding the rear flange of the chassis to strut.

Release two clamps holding the front by slackening the butterfly nuts. Lift chassis out.

When the output valve has been removed the chassis can stand on the mains transformer end.

General Notes.—With the help of the lay-out diagram the circuit can quite easily be followed, and with the exception of R21 and C10, C1 and C2, all the components are accessible. If the meter, tone control or volume control have to be replaced, remove the knobs and the four bolts holding the panel to the chassis (remember the distance pieces when replacing) and the fixing nuts can be undone.

If the switch contacts require cleaning, turn the spindle so that the moving contacts are to the rear, when they can be reached with a piece of cloth wrapped round a screw-driver.

To clean the springs, turn the contacts away from them and slip a thin piece of tape underneath and clean by sliding the tape under the springs, taking care that these are not strained outwards.

When making tests on mains sets employing double diode triodes, touching the grid terminal of that valve should produce an increase of hum in the speaker which, in this case, is more noticeable with the V.C. at maximum.

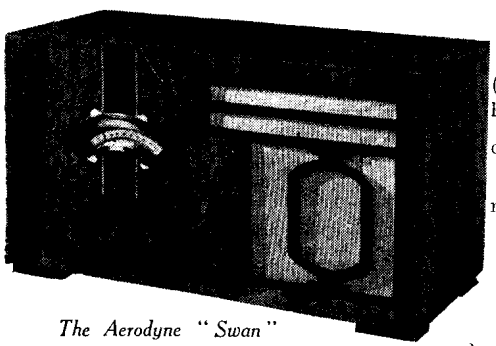
Failure to obtain hum indicates that either the D.D.T. valve or the output valve or their circuits is defective.

Replacing the Chassis.—Have the bolts that hold the back of the chassis ready to hand and after laying the chassis on the supports slip them through the holes.

Replace the two wood screws holding the panel to the front of the cabinet and screw the nuts on to the bolts, remembering to fix the motor earth under one of them.

Replace the L.S. field plugs, the pick-up plugs, the motor plug and the speech coil plugs. The latter are correct when they are in line horizontally.

"SWAN" STRAIGHT MAINS THREE BY AERODYNE RADIO



The Aerodyne "Swan"

Circuit.—The H.F. valve (V1) VP4, a variable-mu H.F. pentode, is preceded by a band-pass aerial circuit and the volume is controlled by the conventional variable resistance in the cathode lead. Coupling to the next valve is by tuned anode.

The detector valve (V2), 354V. is a proper power grid detector, with .0001 mfd condenser (C11), and ¼ megohm leak R7. Reaction is applied to the tuned anode coil and an H.F. filter is included in the anode circuit. Filter-fed transformer coupling includes R8 and C15.

The output valve (V3), a seven-pin pentode, Pen 4 VA, is compensated by a simple condenser, C16, across the output transformer primary.

Full wave rectification is used and the rectifier is of the indirectly heated type, DW3. The L.S. field is used for smoothing in the H.T.+ lead, and the associated condensers are 6 mfd. electrolytics.

Quick Tests.—Voltages from terminals on L.S. transformer :

Right hand (1) (H.T. unsmoothed)	370V.
(2) (V4 anode)	240V.
(3 and 4) (H.T. smoothed)	255V.
S.G. anode, V.C. max.	220V.

Removing Chassis.—Undo knobs (grub screws). Undo two clips holding speaker leads. Remove four screws from underneath. (One is hidden under the felt on the rear support.)

Lift chassis out (leads to L.S. need not be disconnected).

General Notes.—The wiring from the mains transformer is coded :—

Black and yellow—set filaments.
Red and yellow—rectifier filaments.
Red—rectifier anodes.
Pink and green—centre taps (earthed).
Brown—lowest mains tapping.
Green—middle mains tapping.
Blue—highest mains tapping.
Yellow—switch (i.e., mains O.).

VALVE READINGS
V.C. max.

Valve.	Connection.	Volts.	M.A.
V1 VP4 ...	anode ...	220	3.5
	screen ...	105	—
V2 354V ...	anode ...	150	3
V3 Pen.4VA ...	anode ...	240	30
	aux. grid	255	5.
DW3	each anode	340A.C.	—

Cleaning Switch.—Remove two screws holding resistance panel.

Unsolder the following leads :—
R3 to volume control.
R9 to electrolytic condenser C18.
R1 to switch (underneath).

Ease the resistance panel upwards and the switch can be reached.

Replacing Chassis.—Lay chassis loosely in cabinet and manœuvre the rear corner screw into position.

Replace remaining screws.

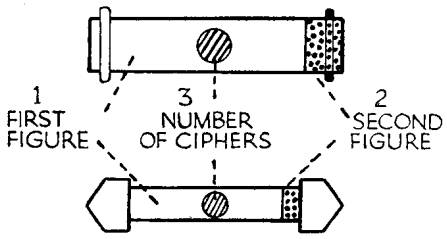
Replace clips holding speaker leads

Replace knobs—noting the correct position of the "Off" on the V.C. knob. In our model the grub screw was opposite the rounded side of the spindle.

See next page for diagrams.

R.M.A. Colour Code for Resistors

Under the colour code for resistances standardised among members of the R.M.A. : The colour on the body of a resistance signifies the first figure of its value, the colour on the end gives the second figure, and the spot in the middle indicates the number of ciphers which follow the first two figures.



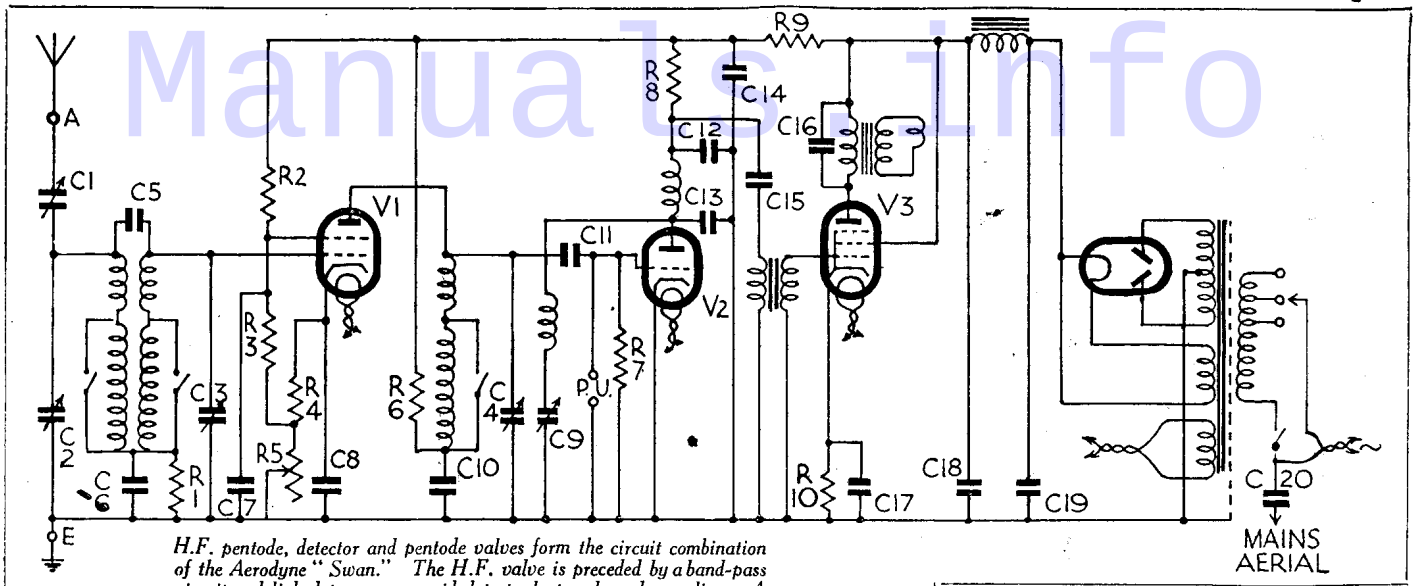
The figures giving the resistance value are read in the order indicated by the numbers.

The absence of a different colour at either the end or "spot," denotes that the figure is the same as that of the body colour.

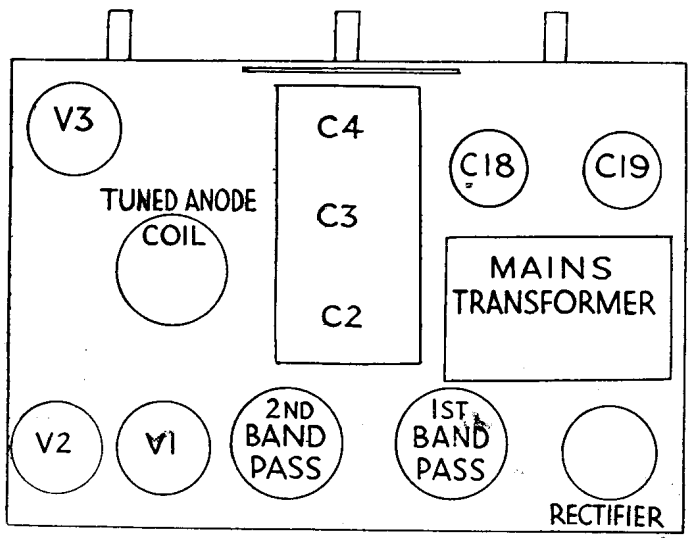
Colour Markings.

Black	0	Green	5
Brown	1	Blue	6
Red	2	Violet	7
Orange	3	Grey	8
Yellow	4	White	9

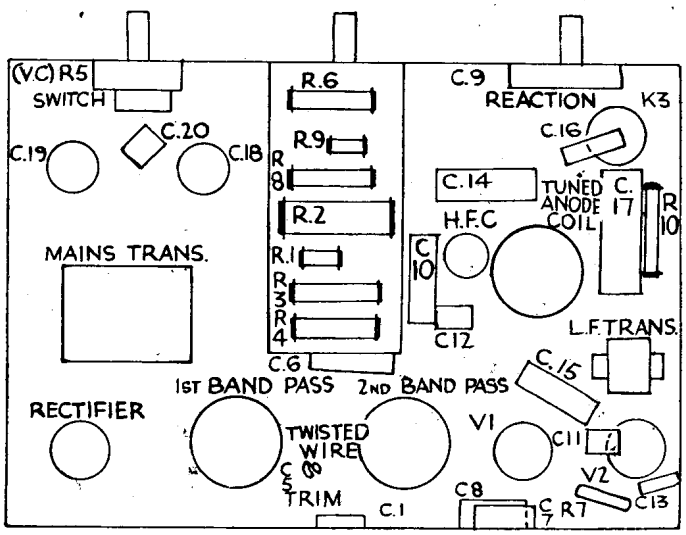
Examples.—Brown body, black end, red spot = 1000 ohms; yellow body, green end, no spot = 450,000 ohms; orange body, grey end, black spot = 38 ohms.



H.F. pentode, detector and pentode valves form the circuit combination of the Aerodyne "Swan." The H.F. valve is preceded by a band-pass circuit and linked to a power-grid detector by tuned anode coupling. A complete H.F. filter is connected in the detector anode circuit and the L.F. transformer is resistance-capacity fed.



Like most three-valve receivers the "Swan" has a simple and logical arrangement of components on the top of the chassis. The mains apparatus is compactly grouped on the right-hand side and three of the four valves are very accessibly placed.



Below the Aerodyne chassis, a resistance panel is mounted above the wave-change switch but there is still room for each resistance to be easily recognised. The L.F. transformer is very diminutive since it is a special nickel-core type for auto or parallel feed.

AERODYNE "SWAN" FOUR (Cont.)

RESISTANCES

R.	Purpose.	Ohms.
1	Across band-pass coupling condenser C6.	1,000
2	Top part of screen ptr. V1 ...	25,000 (2w.)
3	Lower part of screen ptr. V1 ...	20,000
4	Fixed bias resistor V1	500
5	Volume control	8,000
6	V1 anode decoupling	8,000
7	V2 grid leak	.25 meg.
8	Coupling V2 to V3	30,000
9	Decoupling anodes V1 and V2	10,000
10	V3 bias resistor	340

CONDENSERS

C.	Purpose.	Mfd.
1	Aerial series trimmer	.001max.
2, 3 & 4	Ganged tuning condensers ...	.0005 ea.
5	Part of band-pass coupling (twisted wire).	—
6	Part of band-pass coupling ...	.05*
7	V1 screen	.1
8	V1 cathode	.1
9	Reaction	.0003
10	V1 anode decoupling	1.
11	V2 grid	.0001
12	Part of H.F. filter anode V2 ...	.0005
13	Part of H.F. filter anode V2 ...	.0001
14	Decoupling anodes V1 and V2	1.
15	Filter feed to L.F. transformer	.05
16	Pentode compensator	.01
17	V3 cathode	25 el.
18	Electrolytic smoothing ...	6 el.
19	Electrolytic smoothing ...	6 el.

* In our model C6 was .1 mfd.

Philips 634A Five Valve Set

In the article dealing with the Philips 634A in the January Service Engineer Supplement some of the component values were incorrectly given. The correct values are :—C19=13 mmf.; C38=1 mfd.; C41=.04 mfd.; and R4=550 ohms.

On the lay-out diagram of the inside of the chassis, C8 shown at the top should be C3.

The component shown as the second H.F. transformer in the diagram of the upper side of the chassis is actually the second band-pass coil, while the coil shown as the second band-pass coil is the second H.F. transformer.

It is suggested that these details should be corrected in the original article on pages 10 and 11.