

# R.G.D. MODEL 1201 TWELVE-VALVE RADIOGRAM

**Circuit.**—The H.F. valve, VMS4 (V1), is preceded by a tuned secondary aerial transformer. Bias is obtained from the A.V.C. line. Coupling to the next valve is by band-pass circuits.

The first detector valve, VMS4 (V2), is used with a separate oscillator, an MHL4 met. (V3). This uses a tuned anode coil with the reaction coupling in the grid circuit. V2 is biased partly by fixed cathode resistance and partly from the A.V.C. line.

The following coupling is by double band-pass I.F. transformer (frequency 110 kc.). The I.F. valve VMS4 (V4) is biased by A.V.C., and is followed by a single band-pass I.F. coupling.

The second detector, MHD4 (V5), uses one diode anode for L.F. The triode section is used only for amplified A.V.C. purposes, and the A.V.C. diode anode is connected to the A.V.C. line in the normal manner. L.F. coupling from the diode is through the H.F. stopper, R14, to V6 grid.

The first L.F. valve, MH4 (V7), has its grid leak in the form of a volume control. The anode lead contains a tone-correction circuit, consisting of R8 with a tuned choke. Coupling to the following L.F. section is by V6, which is connected to the relay controlled by the current to the muting valve V6.

This valve, MH41 (V6), has a switch, on the same spindle as the tone control, which alters the bias from the A.V.C. line to full 65 volts across R22 and R23.

The second L.F. valve, MH4 (V8), is resistance capacity coupled to the corresponding output valve V10. Paraphrasing is obtained by feeding back from a potentiometer section of V10 grid leak to the grid of V9, which in turn is resistance capacity coupled to the output valve V11. The output is thus in push-pull.

Mains equipment consists of transformer with H.F. by-pass condenser with a full-wave rectifier UU120/350. Smoothing is by choke

and by a speaker field to each chassis with associated smoothing condensers.

The speech coils of the speakers are in series. **Special Notes.**—These sets are individually constructed, and slight modifications may be found. For example, the resistances from R18 to R22 may not have the quoted values, and the connections to the paraphrasing valve V9 may be slightly different in that the condenser C2 may be absent.

There is no need whatever to be afraid of handling or removing the chassis, as the set, though it contains eleven valves (plus rect.), is quite straightforward for servicing.

**Quick Tests.**—Consist of voltage measurements between the L.S. field plugs at the sides of the power pack (lower chassis) and lower chassis. To take these, pull the plugs out slightly to allow the insertion of a prod.

1,000-ohm field, red,	360	volts.
blue,	460	"
6,500-                  purple,	460	"
Grey,	253	"

Note that the 1,000-ohm field serves the paraphrasing and output valves, and that the other serves the other chassis.

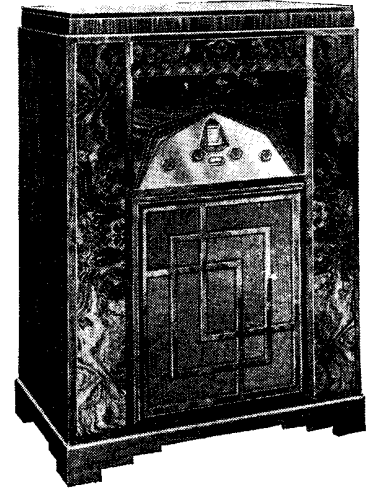
**Removing Top Chassis.**—Remove two screws from the top of the front panel (inside). Undo the butterfly nuts at the front and remove the bolts from the flange at the back.

Pull out the connecting plugs from the lower chassis and lift the top one out.

**Removing Lower Chassis.**—Remove the mains and gram. plugs, remove the four holding bolts, and lift the chassis out.

**General Notes.**—When ganging this set, note that the band-pass H.F. tuner is between V1 and V2, and not in the aerial circuit, and that a double band-pass unit, capacitatively coupled, is between V2 and V4.

The triode section of V5 is used only to control the voltage drop across R17 for the amplified A.V.C., and is biased by the rectified signals through R11.



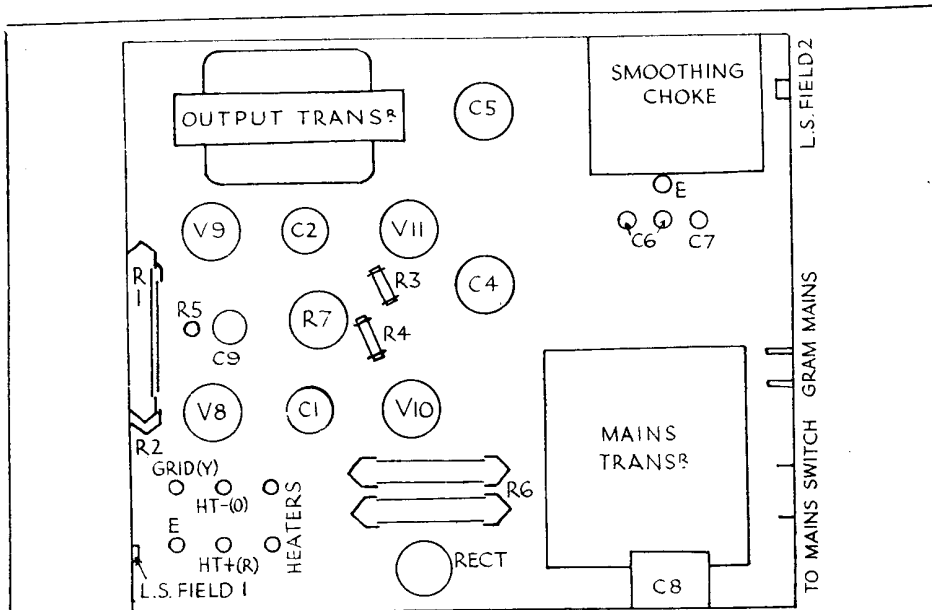
Made by the Radio Gramophone Development Co. Ltd., the model 1201 is a de luxe radiogram utilising a superhet chassis which provides high quality, high volume reproduction.

When the suppressor switch is turned fully anti-clockwise, the suppressor relay is brought into operation. If the volume control is at minimum, the metallic "click" of the relay switch can be heard. This indicates that all the valves up to V6 are operating.

**Replacing Chassis.**—Lay lower chassis on struts and replace the holding bolts and mains and gram. plugs.

Lay upper chassis carefully on the sloping struts, and hold by placing the rear bolts through the flange. Replace the two screws on the panel and fasten the front holding levers.

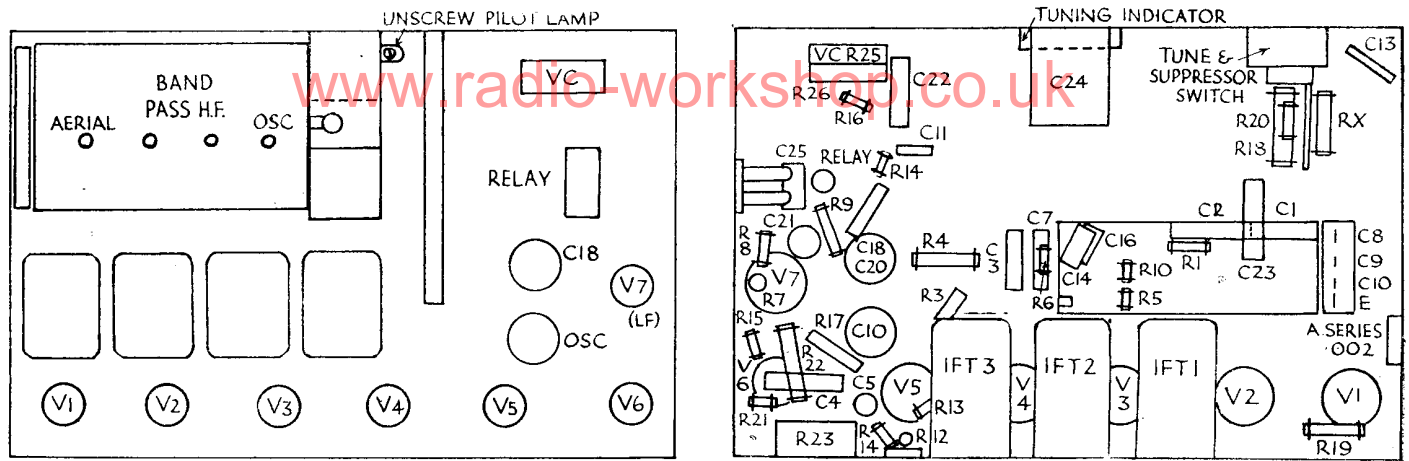
Replace the nuts on the rear bolts, remembering the motor earthing lead underneath the right-hand one. Replace the connecting plugs into their respective sockets. All are colour-coded.



The layout diagram of the lower chassis on which are the mains apparatus, the push-pull output valves and two L.F. valves. For component values refer to the "Power Pack" entries in the condenser and resistance tables.

## CONDENSERS

C.	Purpose.	Mfd.
<b>TOP CHASSIS</b>		
1	Decoupling V1 grid	.1
2	Decoupling V2 grid	.1
3	Decoupling V4 grid	.1
4	L.F. by-pass from V5 grid	.1
5	L.F. by-pass from V5 grid	.1
6	L.F. coupling V7 anode	.1
7	V2 cathode resistance by-pass	.1
8	Decoupling V1 anode	.2
9	Decoupling tuning meter	.2
10	V1, V2, V4 screen by-pass	.2
11	H.F. by-pass	.0001
12	Across diode load	.0001
13	H.F. by-pass from V8 grid lead	.0001
14	Osc. reaction feed	.0001
15	Coupling between bandpass I.F.T's.	.00005
16	Osc. grid reservoir	.001
17	L.W. track on osc.	.0017
18	Decoupling V7 anode	.04
19	H.T. smoothing and decoupling (from ptr.)	4
20	H.T. smoothing	8
21	V7 cathode	50 el.
22	L.F. coupling to V7 grid	.04
23	Series with 1st bandpass tuner	.1
24	V5 cathode by-pass	2
25	Tuning tone correction choke	.004
<b>POWER PACK</b>		
1	L.F. coupling V8 to V10	.1
2	L.F. coupling R7 to V9	.1
3	L.F. coupling V9 to V11	.1
4	H.T. smoothing	8
5	H.T. smoothing	8
6	H.T. smoothing	6
7	H.T. smoothing	4
8	H.F. by-pass from mains	.01
9	Across V10 and V11 bias resistors.	50



Above are diagrams identifying the components on top (left) and underneath (right) the receiver chassis of the R.G.D. model 1201. Slight modifications which may be found are mentioned under "Special Notes."

### R.G.D. MODEL 1201 RADIOGRAM (Cont.)

This page gives the practical details of the receiver chassis and the circuits of both the receiver chassis and the power pack.

#### VALVE READINGS

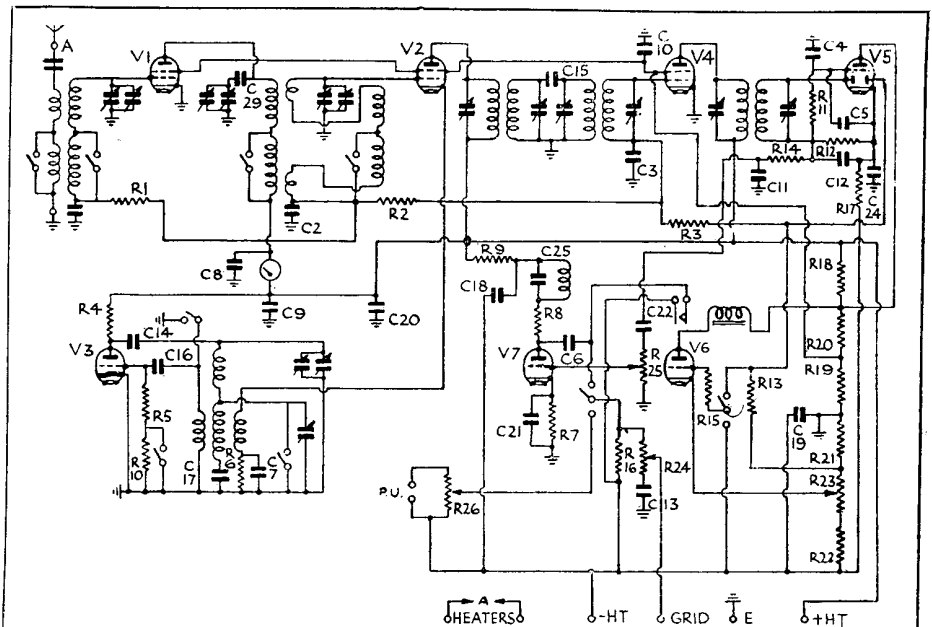
No signal. Voltages taken between electrodes and corresponding chassis.

Valve.	Type.	Electrode.	Volts.	M.a.
1	VMS4(5)	anode	190	4.5
		screen	55	
2	VMS4(5)	anode	200	1
		screen	55	
3	MHL4 met (5)	anode	25*	1.5
4	VMS4	anode	200	6
		screen	55	
5	MHD4	anode	100	
6	MH41	anode	75	2**
7	MH4	anode	100	2
8	MH4	anode	240	4.7
9	MH4	anode	240	4.7
10	PP3/250	anode	340	40
11	PP3/250	anode	340	40

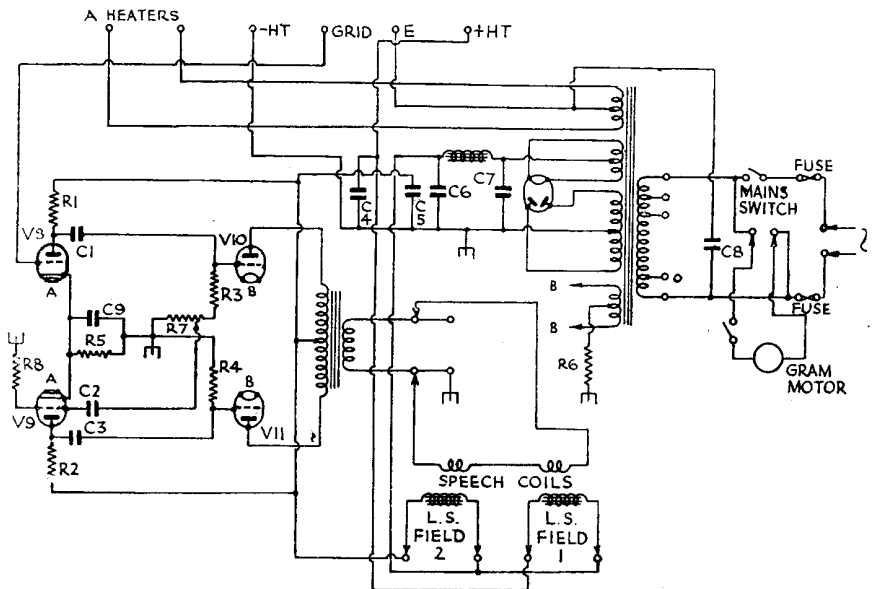
\* Not oscillating, L.W. 45 volt at 1.2 m.a.  
\*\* Switch turned fully anti-clockwise.

#### RESISTANCES

R.	Purpose.	Ohms.
<b>TOP CHASSIS.</b>		
1	Decoupling V1 grid from A.V.C.	100,000
2	Decoupling V1 and V2 grids from A.V.C.	100,000
3	Decoupling V3 grid V2 grids from A.V.C.	100,000
4	V3 anode feed	100,000
5	V3 grid leak on M.W.	2,000
6	V2 cathode bias	2,000
7	V7 cathode bias	1,000
8	Part of tone correction circuit	1,000
9	Voltage dropping to V7 anode	40,000
10	Series with R5 for L.W.	40,000
11	V5 grid bias leak	.5 meg.
12	Diode load	.5 meg.
13	Control bias feed to V6 grid	.5 meg.
14	H.F. stopper to V7	50,000
15	V6 grid leak	2 meg.
16	Load across relay switch	25 meg.
17	Amplified bias control resistance	25,000
18	Part of H.T. ptr.	10,000
19	Part of H.T. ptr.	10,000
20	Part of H.T. ptr.	40,000
21	Part of H.T. ptr.	60
22	Part of H.T. ptr.	2,000
23	Part of H.T. ptr.	500
24	Volume control	.5 meg.
25	Volume control (for radio)	.5 meg.
26	V.C. on gram.	100,000
<b>POWER PACK.</b>		
1	V8 anode coupling	30,000
2	V9 anode coupling	30,000
3	V10 grid leak	100,000
4	V9 grid leak	100,000
5	V8 and V9 cathode bias	500
6	V9 and V10 bias (two 1,000 in parallel).	500
7	Paraphase potentiometer	10,000
8	V9 grid leak	.25 meg.
	L.S. field 1	6,500
	L.S. field 2	1,000



Above is the circuit of the receiver chassis of the model 1201. There are seven valves, the final one being the first L.F. amplifier. Current is obtained from the second chassis.



There are the rectifier, push-pull output triodes and two L.F. valves on the "power pack." V8 is the second L.F. valve and V9 is for paraphasing.