

A.V.C.6 BATTERY SET BY G.E.C.

Circuit.—An H.F. valve, VS24 met. (V1) is preceded by a tuned secondary aerial transformer. Sensitivity can be decreased by a switch which connects a resistance across the aerial input. Bias is obtained from the bias potentiometer and A.V.C., and the grid is properly decoupled. Coupling to the next valve is by tuned secondary H.F. transformer.

The combined first detector-oscillator valve, X21 (V2) is a heptode of which the oscillator section has the tuning in the grid circuit. Bias for the detector section is obtained from same point as V1. Coupling to the I.F. valve is by I.F. transformer (frequency 125).

The I.F. valve, VS24 met. (V3) is also biased from the potentiometer and with a A.V.C. It is followed by another band-pass I.F. transformer, linking it to the second detector, an HD22 (V4), double diode triode.

The diode anode for L.F. is connected to a tapping on the I.F.T.2 secondary, and R4 is an H.F. stopper between it and the load resistance R7.

The L.F. coupling condenser to the triode grid is C17. A resistance-capacity filter couples the triode to the next L.F. valve. The anode circuit is properly decoupled from H.T.

The driver valve, L21 (V5), has a grid-stabilising resistance, and is followed by a typical driver transformer.

The output valve, B21 (V6), is a Class B type, operating with bias. The positive L.T. lead contains an H.F. choke and tone control is provided by means of a condenser in series with a variable resistance R16.

Tone compensation is by a condenser between each anode and earth, and the extra L.S. is condenser fed.

Special Notes.—A special 250-kc. filter is included in the diode circuit (HFC2 and C26) to suppress the second harmonic of the I.F. frequency (i.e., 2×125 kc.).

The tone control is mounted above the speaker, and the sensitivity switch is at the back of the chassis.

Dial and fuse lamps must be 3.5 volt .15 amp. type.

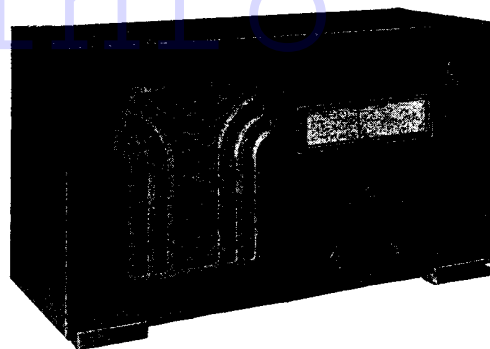
Battery Voltages.—The combined H.T. and G.B. battery is a G.E.C. model Cat. No. L259. The fuse is in the H.T. + 1 lead.

- H.T. + 1, red, 141 volts.
- H.T. + 2, light blue, 58 volts.
- H.T. - and G.B. +, dark blue.
- G.B. -1, yellow, -1.5 volts.
- G.B. -2, orange, -6 volts.
- G.B. -3, brown, -9 volts.

Quick Tests.—First see that L.S. switch at the back is "in." Test L.F. side by P.U. or by observation of clicks produced while taking valve tests.

Removing Chassis.—Remove L.T. battery compartment by undoing the two screws. Pull off the knobs and remove the four holding screws from underneath.

General Notes.—The lead from the second I.F. transformer to the diode passes through the front of the chassis and under-



The General Electric Co.'s A.V.C.6 battery receiver is designed to have a performance comparable with that of a superhet five mains instrument.

neath a screening cover to the diode anode at the other end.

The only components underneath the block condenser are the sensitivity switch and C3 and C16, which project as shown in the lay-out diagram.

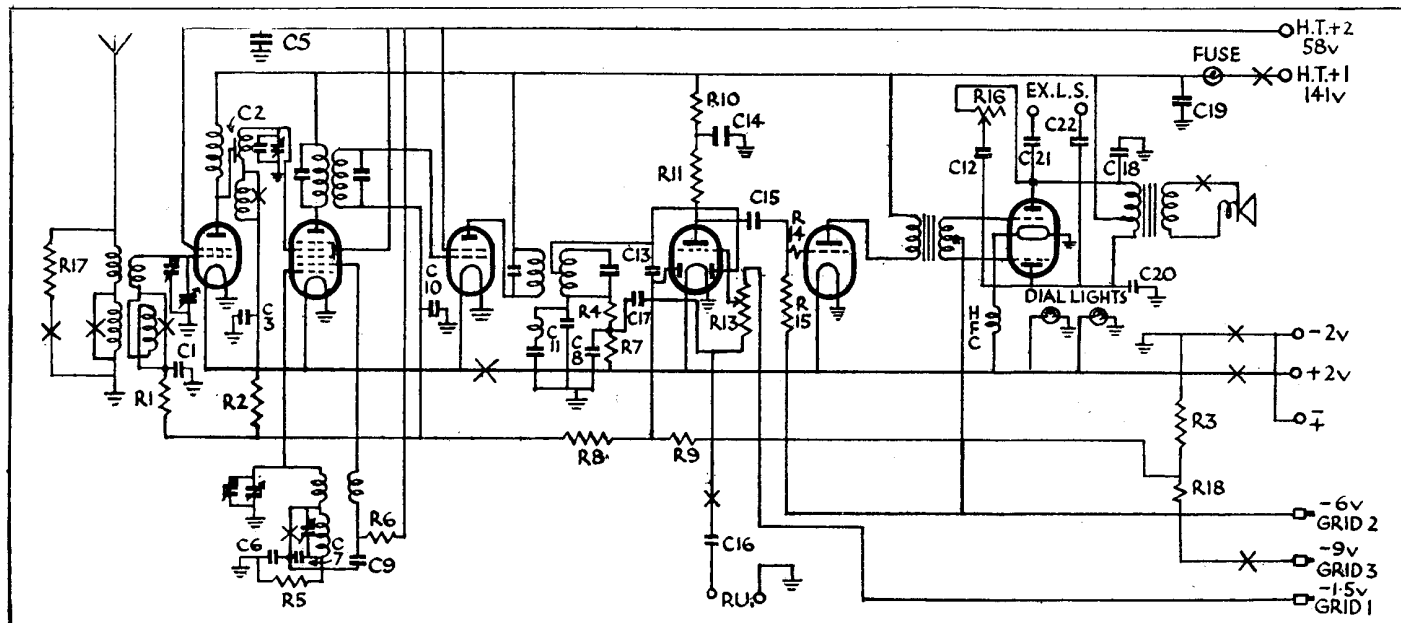
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VALVE READINGS				
No signal. New H.T. battery.				
Valve.	Type.	Electrode.	Volts.	M.A.
1	V.S.24 met.(5)	anode	141	1.6
		screen	58	
2	X.21 (7)	anode	141	1
		screen	58	
3	V.S.24 met.(5)	osc. anode	50	1
		anode	141	
4	H.D.22 (5)	anode	100*	1
		screen	58	
5	L.21 (5)	anode	139	1.9
		screen	58	
6	B.21 (7)	each anode	140	1
		screen	58	

Total H.T. current with no signal, 8 to 9 m.a.
* Approximate.

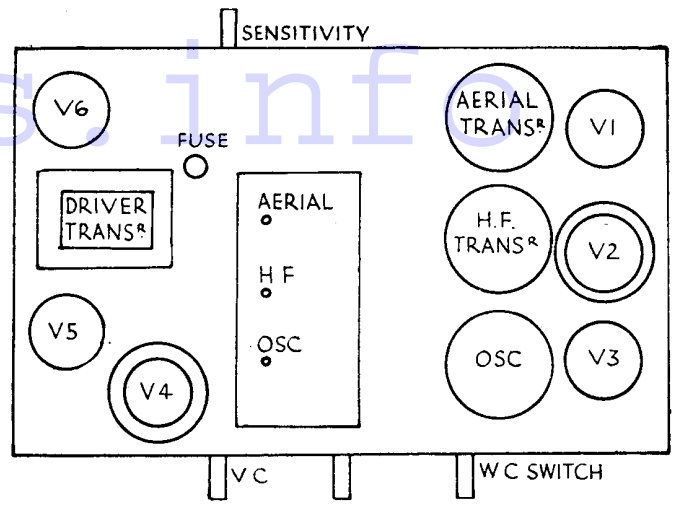
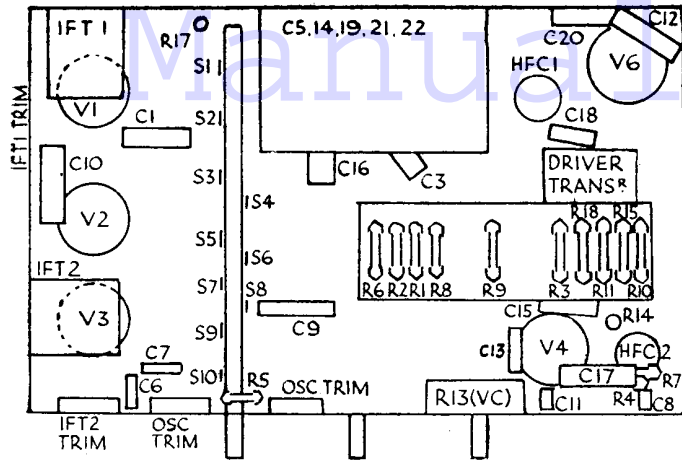
RESISTANCES		
R.	Purpose.	Ohms.
1	Decoupling V1 grid	99,000
2	Decoupling V2 grid	99,000
3	Part of bias ptr.	150
4	H.F. stopper from diode	99,000
5	Decoupling osc. grid	44,000
6	Decoupling osc. anode	9,900
7	Diode load	1 meg.
8	Decoupling A.V.C. line	.5 meg.
9	A.V.C. diode load	.5 meg.
10	V4 anode decoupling	9,900
11	V4 anode L.F. coupling	20,000
12	Across L.W. aerial coil	2,000
13	V.C.	.5 meg.
14	H.F. stopper, V5 grid	.22 meg.
15	V.5 grid leak	.5 meg.
16	Tone control	50,000
17	Sensitivity control of aerial coil	150
18	Part of bias ptr.	750

CONDENSERS		
C.	Purpose.	MC
1	Decoupling V1 grid	.05
3	Decoupling V2 grid	.05
5	Decoupling H.T.2 supply	.25
6	M.W. track, on osc.	.001
7	L.W. track on osc.	.0007
8	H.F. by-pass from diode	.0001
9	Decoupling osc. anode	.001
10	Decoupling V3 grid	.05
11	Part of 250 K.C. filter	.0001
12	Part of V6 tone control circuit	.01
13	H.F. feed to A.V.C. diode anode	.0001
14	Decoupling V4 anode	1
15	V4 to V5 L.F. filter	.01
16	Series with P.U. lead	.25
17	L.F. feed to V4 grid	.02
18	Tone compensating V6 anode	.005
19	Decoupling H.T.1 supply	2
20	Tone compensating, anode V6	.005
21	Feed to Ex. L.S.	.5
27	Feed to extra L.S.	.5



The A.V.C.6 utilises an H.F. amplifier preceding a heptode detector-oscillator. In most models a resistance R12 is connected across the aerial coil during long-wave reception. This resistor is not shown in the circuit but is actually connected across the switch which is in series with R17.

A.V.C.6 BATTERY SET BY G.E.C. (Cont.)



The only components under the block condenser (below the G.E.C. chassis) are the sensitivity switch and C 13 and C 16. Above the chassis, the fuse next the driver transformer is in the H.T.+1 lead and is a 3.5 v .15 amp. type.

The condensers in the block have leads as follows:—

- C5.—Green and white.
- C19.—Red.
- C21 and C22.—Orange on one side, orange and white the other.

- C14.—Red and white.
- Bare wire is E.
- If the block has to be removed, remember to replace the tag under the switch side.
- The connections to the double diode triode are (compared with ordinary mains triode

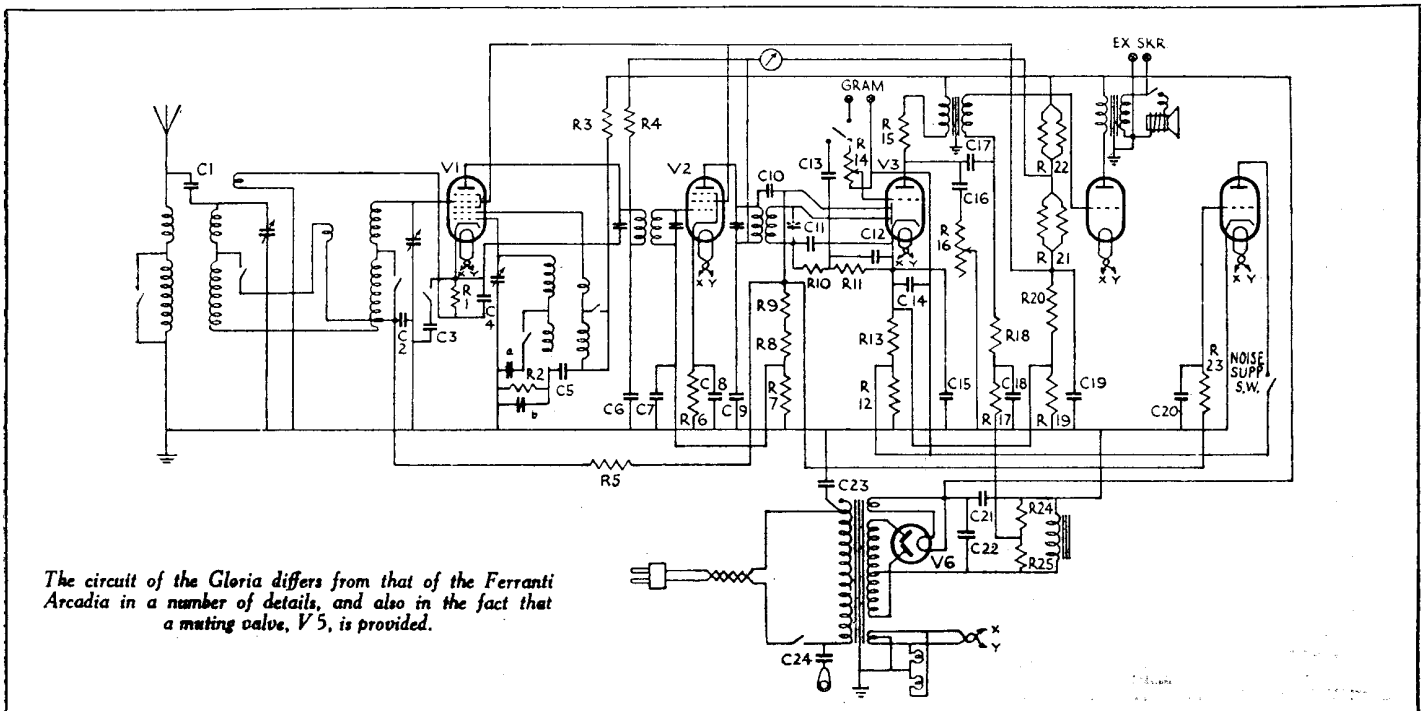
holder): Grid and cathode pins, diode anodes; anode pin, anode; grid at top of bulb. The cathode pin is the A.V.C. diode anode. **Replacing Chassis.**—Lay chassis inside cabinet, replace holding screws and knobs. Replace the L.T. compartment after threading the leads through the aperture.

FERRANTI GLORIA MAINS SUPERHET

Circuit.—The combined detector-oscillator valve, a VHT4 met. (V1), is preceded by a band-pass aerial tuner with second channel suppressor coupling. Bias is partly fixed and partly obtained from the A.V.C. The tuning of the oscillator is in the grid circuit. Visual tuning is provided by a meter movement in the common H.T. lead to V1 and V2. Coupling to the next valve is by band-pass I.F. transformer (frequency 125 kc.). The I.F. valve, VPT4 met. (V2), is also biased by cathode resistance and A.V.C., and is coupled to the next valve by another band-pass I.F. transformer. An H4D (V3), double diode triode valve,

has the A.V.C. anode coupled to the primary of the I.F. transformer and the other anode is connected to the secondary. The full A.V.C. potential is also used for biasing the grid of the muting valve. Bias for the triode section and delay A.V.C. is by cathode resistance R19, which is part of the H.T. potentiometer. Coupling to the output valve, a triode LP4, is by tone-correction transformer with resistance coupling. In the muting valve, MHL4 (V5), grid bias is applied from the A.V.C. diode, and as the carrier wave disappears the grid becomes less negative. The anode, therefore, becomes more positive than the cathode.

The current flowing through R13 then causes an excessive or "muting" bias on the triode section of the H4D. Mains equipment consists of: Transformer, full-wave R4 rectifier, the L.S. field in the negative H.T. lead, with two 8-mfd. electrolytic condensers. Bias for the directly heated output valve is provided by a potentiometer across the L.S. field. **Special Notes.**—The resistances R21 and R22 are each actually two resistances in parallel. Where low readings are obtained on the screens or screens and anodes of V1 (Continued on next page.)



The circuit of the Gloria differs from that of the Ferranti Arcadia in a number of details, and also in the fact that a muting valve, V5, is provided.