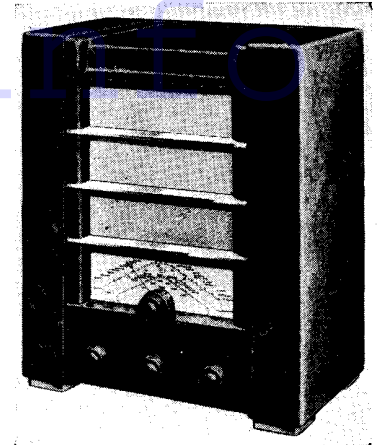


G.E.C. MODEL AC37 "THREE"



The General Electric Co's model AC37 three-valve plus rectifier receiver is a "straight" model housed in this neat moulded cabinet. The incorporation of A.V.C. is an unusual and interesting feature.

CIRCUIT.—Aerial signals are fed to the grid of V1, a screen-grid valve, through an inductively coupled transformer.

Coupling to the next valve, a screen-grid type used as a detector, is by choked tuned grid. Two H.F. coupling chokes are connected in the anode circuit of the H.F. valve and one is shorted out on the long waves.

The simple tuned grid coil of V2 is fed through the coupling condenser C3. Reaction is fed back from the anode of V2 in the usual way.

An original feature is the provision of an A.V.C. voltage for V1 by the tapping between R5 and R15, which together form the grid leak of V2.

The volume control is R1, and operates by varying the bias applied to the cathode of V1 by altering the cathode resistance, and, at the same time, reducing the shunt resistance, provided still by R1, across the aerial coil. Thus as the bias is increased on the cathode of V1, and, consequently, the sensitivity of the valve is lowered, the

value of the aerial coil shunt becomes less and the input to the grid of V1 lowered.

The output of V2 passes through a resistance and capacity stage to V3, the output pentode, and after amplification to the moving coil speaker.

Mains equipment consists of transformer and full-wave rectifier. Smoothing is by choke and electrolytic condensers.

Special Notes.—The dial lights, of which there are two, are each rated at 3.5 volts .3 amp. They are secured to brackets on the speaker baffle by means of the usual spring clips, and are easily removed.

Two sockets on the back of the chassis provide connections for an extension speaker which should be of low resistance as the connections are taken from the secondary of the output transformer.

Attention is drawn to the use of a permanent magnet speaker in this receiver, a choke being used in the H.T. smoothing circuit.

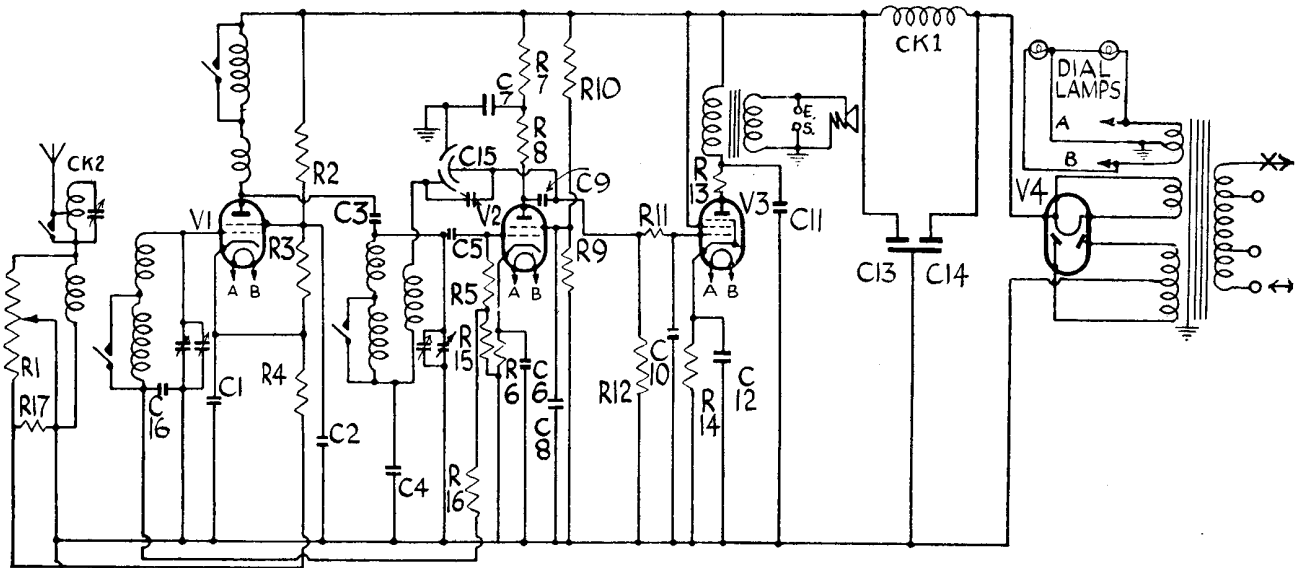
Removing Chassis.—Remove four knobs

VALVE READINGS				
No signal. Volume maximum. 200 volt A.C. mains.				
V.	Type.	Elect. rode.	Volts.	Ma.
1	(All Osram). VMS4B met. (5)	Anode ..	260	4.5
		Screen ..	64	.5
2	VMS4 met. (5)	Anode ..	110	5.1
		Screen ..	40	1.5
3	N41 (7)	Anode ..	235	40
		Screen ..	260	9
4	U12 (4)	Filament	290	—

RESISTANCES		
R.	Purpose.	Ohms.
1	Volume control ..	7,000
2	V1 screen decoupling potr. ..	38,000
3	V1 screen decoupling potr. ..	22,000
4	V1 cathode bias (part) ..	220
5	V2 grid leak (part) ..	2
6	V2 cathode bias ..	99
7	V2 anode decoupling ..	3,300
8	V2 anode load ..	22,000
9	V2 screen decoupling potr. ..	33,000
10	V2 screen decoupling potr. ..	77,000
11	V3 grid stopper ..	55,000
12	V3 grid leak ..	220,000
13	V3 anode stabiliser ..	99
14	V3 cathode bias ..	99
15	V2 grid leak (part) ..	1 meg.
16	V1 A.V.C. decoupling ..	220,000
17	V1 cathode bias (part) ..	6,600

CONDENSERS		
C.	Purpose.	Mfds.
1	V1 cathode bias shunt ..	.25
2	V1 screen decoupling ..	.1
3	H.F. coupling ..	.000011
4	Padding matching C.16 ..	.05
5	V2 grid ..	.00005
6	V2 cathode bias shunt ..	.5
7	V2 anode decoupling (500v.)* ..	3
8	V2 screen decoupling ..	.5
9	L.F. coupling ..	.02
10	H.F. by-pass ..	.0003
11	Pentode compensating ..	.01
12	V3 cathode bias shunt (20v.) ..	35
13	H.F. smoothing (500v.)* ..	7
14	H.F. smoothing (500v.)* ..	7
15	Reaction ..	.00037
16	V1 A.V.C. decoupling ..	.1

* In block.



A Droitwich filter is incorporated in the AC37, and other features to note are the control of aerial input and V1 bias for volume regulation. A.V.C. voltage is obtained from the split grid leak R5-15.

For more information remember

www.savoy-hill.co.uk

from the front of the cabinet. These are secured by spring clips and are removed by a direct forward pull. Take out four bolts from underneath.

Then, when the dial light holders have been taken off their brackets, the chassis can be removed to the extent of the speaker leads, which will be enough for all usual purposes.

Circuit Alignment Notes

Calibration.—Check that the tuning pointer indicates 550 metres on the scale with condenser at a maximum capacity, i.e., vanes fully inter-meshed.

If necessary the pointer may be adjusted after removing the chassis by turning the pointer clip round bodily on the spindle.

Medium Waves.—Set pointer to 214 metres, volume control to maximum, and

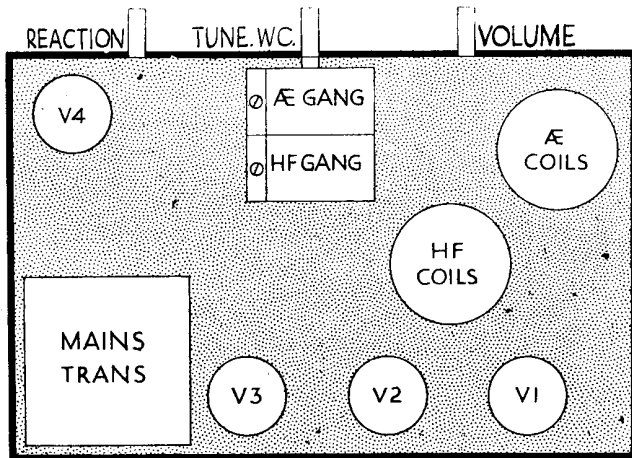
reaction at minimum, i.e., with preset reaction only.

Inject 1,400 kc. signal via a dummy aerial into the aerial and earth sockets, and adjust trimmers on gang condenser for maximum response.

Droitwich Filter Adjustment.—Switch receiver to long waves, position two (red). Inject 200 kc. signal and after adjusting the receiver tuning control for maximum response, adjust filter trimmer on front left-hand side of chassis, T1, for minimum response.

Preset Reaction Adjustment.—Connect set to aerial and earth in normal manner with reaction control at minimum. Turn reaction preset trimmer, T2, until the receiver just oscillates near the bottom end of the medium waveband.

Reduce capacity of trimmer by half a turn and seal, checking for instability over both wavebands.



The "tinted" diagram is a top-of-chassis view of the AC37. A two-gang condenser is employed and gauging is a simple procedure, although filter and reaction adjustments may also be necessary.

G.E.C. AC37 on Test

MODEL AC37.—BC.3730 for 190-250 volts, 40-100 cycles. BC.3730L for 110-130 and 210-230 volts, 40-100 cycles. BC.3731 for 190-250 volts, 25-100 cycles. 8½ gns.

DESCRIPTION.—Two waveband, three-valve, plus rectifier T.R.F. table-type receiver.

FEATURES.—Moulded cabinet. Full-vision name-calibrated dial. Reaction control is particularly smooth and free from overlap, with the result that the set is almost as easy to handle as a superhet.

No pick-up connection. Extra speaker connection on output transformer secondary.

LOADING.—78 watts.

Sensitivity and Selectivity

MEDIUM WAVES (195-550 metres).—Sensitivity and selectivity are very high for a T.R.F. "three." If volume and reaction are carefully used, very few channels are missed. Performance well maintained over waveband.

LONG WAVES (875-2,200 metres).—Excellent performance over whole waveband. Droitwich filter, switched in automatically by wave switch, very effective.

Acoustic Output

Up to standard for valve combination. Crisp and well balanced. Background: Very low.

TRACING NOISE

WHEN a receiver is noisy the first step should be to discover which stage introduces the trouble. This can usually be done by silencing each stage in turn by connecting a large condenser between grid and chassis.

If a set is noisy only during reception, this may be due either to the vibration or because the fault is in a tuned circuit which, of course, would have voltages developed across it only during reception.

When a fault of this kind is traced to a group of condensers and resistances, these should be tested on working load, if possible. On a brief low-load test a faulty part may appear to be satisfactory.

Replacement Condensers

THE range of electrolytic condensers produced for replacement purposes by A. H. Hunt, Ltd., Bendon Valley, Garratt Lane, Wandsworth, London, S.W.18, includes types specially made for the following receivers, all of which are reviewed in this issue of "Service Man's Manual." List numbers and retail prices are:—

G.E.C. model AC37: Block containing Cs 7, 13 and 14, list 2590 (7s. 6d.). Bias tubular, C12, list 2970 (2s.).

Kolster Brandes 590: Block containing Cs 21 and 22, list 2968 (6s. 9d.). Block containing Cs 10 and 19, list 1961 (3s. 9d.).

Marconiphone 382: Block containing Cs 8, 19, 25, 26, list 2973 (10s. 6d.). Bias tubular, C20, list 2972 (2s. 3d.).

Burgoyne AWP: Bias tubular, C21, list 2971 (1s. 3d.).

Scratch Filters for Use with Pick-ups

WHEN needle-scratch is excessive with a radiogram or P.A. equipment top notes can be cut simply by the connection of a condenser across either the pick-up or the speaker. This, however, reduces the strength of a wide range of frequencies and sometimes necessitates the use of more "volume control."

A better arrangement is to connect a .3 henry choke in series with the pick-up

and a .01 condenser across it. For a variable scratch filter the series choke could be .25 henry and the condenser of .005 mfd. with a 50,000 ohms variable resistance in series.

Sometimes when a pick-up is used at a distance from the amplifier absence of high notes becomes the trouble. In this event a step-down transformer at the pick-up end and a step-up at the amplifier should be used.

Right, is the underneath view of the AC37. The parts are fairly well spaced and the small components are suspended in the wiring. The filter and reaction trimmers will be noted.

