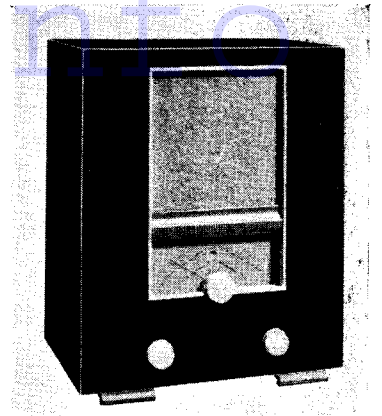


G.E.C. BATTERY S.P. THREE



CIRCUIT.—The aerial input incorporates a variable resistance that varies the input to an H.F. transformer, the secondary of which is tuned and which forms the grid circuit of V1, an H.F. pentode. The variable resistance is the volume control of the receiver.

V1 is coupled to V2, an H.F. pentode, via another H.F. transformer. V2 is the demodulating stage in the receiver. A winding on the H.F. transformer connected to the anode of V2 provides a feedback effect, this reaction being controlled by a preset condenser located at the rear of the chassis.

V2 is resistance capacity coupled to V3, an output pentode, in the anode circuit of which is connected the speaker matching transformer. A fixed condenser is connected across the primary of the speaker transformer to modify the tone.

The circuit includes an auto-bias arrangement. The bias on the valves alters in proportion to the H.T. battery voltage as the battery becomes discharged.

Battery supply for the receiver consists of a 2-volt L.T. accumulator, Genelex Cat. No. B.C.145, and a 120-volt H.T. battery, G.E.C. Black Label, Cat. No. B.B.720.

Chassis Removal.—Remove the back of the receiver by unfastening the two fixing clips. The three control knobs on the front of the cabinet are of the spring fixing type. Unclear the speaker cable from the side of the cabinet.

Turn the cabinet on its side and remove the three fixing bolts observed on the base of the cabinet. Turn the cabinet to its original position when the chassis can be taken out, and is free to the extent of the loudspeaker cable.

The speaker can be removed if desired or alternatively either the leads can be unsoldered or the connections to the

terminals at the rear of the chassis removed.

Special Notes.—Terminals are provided at the rear of the chassis sub-panel for connecting an extra speaker. The speaker should be of the permanent-magnet moving-coil type, and have a speech coil impedance of some 2 to 4 ohms. The speaker need not have its own matching transformer.

Circuit Alignment Notes

Check that the tuning pointer coincides with the zero mark on the wavelength dial with the gang condenser at its minimum capacity. If necessary, the pointer may be adjusted by turning the pointer clip round bodily on the spindle. It should then be resealed in position by a suitable cellulose adhesive such as Durafix or Necol.

Connect a service oscillator to the aerial and earth terminals of the receiver via a dummy aerial or small fixed condenser. Set the volume control to the maximum volume position. Connect an output meter across the primary of the output transformer (on chassis), that is to say, across the tags to which the red and orange wires are connected.

Tune the set and the service oscillator to 214 metres (1,400 kc.) and adjust the trimmers T1 and T2 respectively to give a maximum peak reading on the output meter.

Pre-Set Reaction Adjustment.—Connect an aerial and earth to the set. Set the volume control to the maximum position and tune the receiver to 214 metres. Adjust the pre-set reaction condenser (the red erinoid knob at the back of the chassis) until the receiver just oscillates. Then unscrew by half a turn.

The Battery S.P. Three, a new season's production by G.E.C., is an inexpensive straight receiver using three pentodes. The simple, distinctive cabinet is in brown cellulose with light knobs, escutcheon and lining-in. Price, with batteries, is £6 15s.

VALVE READINGS

No signal. Volume maximum. No reaction. New batteries.

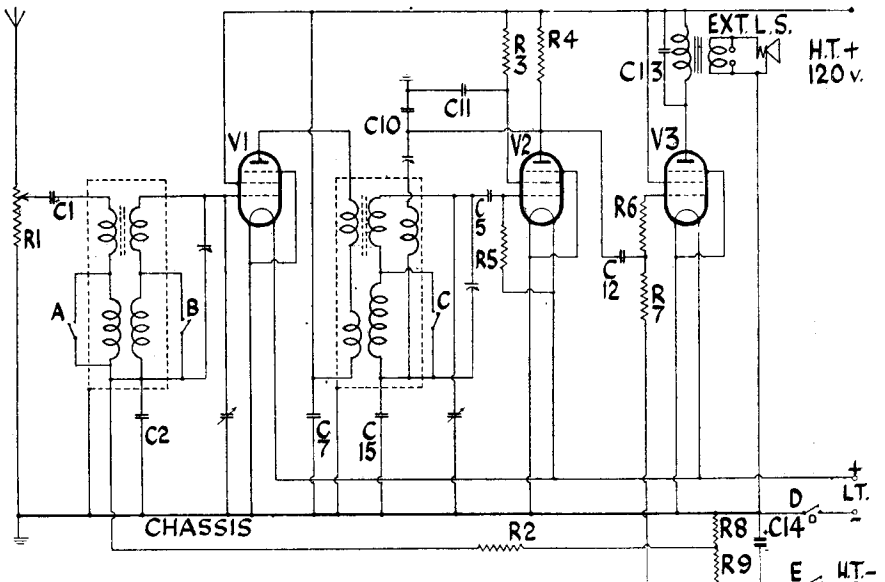
V.	Type.	Electrode.	Volts.	Ma.
1	(Osram valves.) W21 met. (4) ..	Anode ..	117	1.6 Inaccessible.
		Screen ..	117	
2	VP21 met. (7) ..	Anode ..	25	.35
		Screen ..	15	.15
3	P.T.2 (5) ..	Anode ..	114	2
		Screen ..	117	.4

RESISTANCES

R.	Purpose.	Ohms.
1	Volume control and variable aerial shunt ..	10,000
2	V1 bias decoupling ..	99,000
3	V2 screen decoupling ..	440,000
4	V2 anode load ..	99,000
5	V2 grid leak ..	4 meg.
6	V3 grid stopper ..	440,000
7	V3 grid leak ..	660,000
8	Auto-bias potentiometer (part)	200
9	Auto-bias potentiometer (part)	500

CONDENSERS

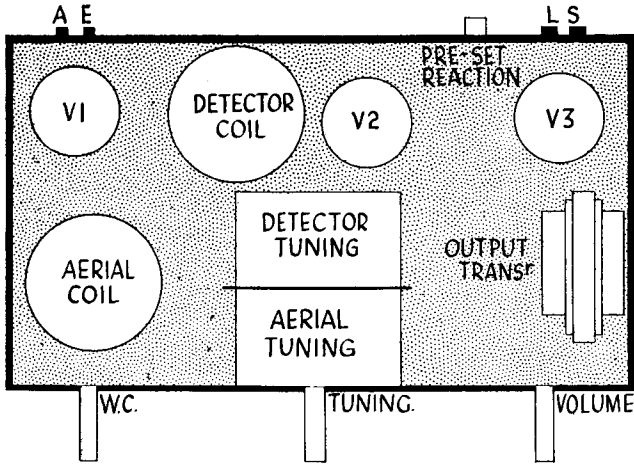
C.	Purpose.	Mfds.
1	Aerial coupling ..	.005
2	V1 bias decoupling ..	.005
5	V2 grid ..	.00005
7	V1 anode decoupling ..	.25
10	H.F. by-pass ..	.0002
11	V2 screen decoupling ..	.25
12	L.F. coupling ..	.02
13	Tone compensator ..	.002
14	Auto-bias shunt ..	35
15	V2 grid tracking ..	.005



Iron-core aerial transformer and H.F. coils are employed in the Battery S.P. Three. The volume control is in the aerial circuit, and a feature is the provision of pre-set reaction.

For more information remember

www.savoy-hill.co.uk



The diagram on the left identifies the valves and other parts on the top of the G.E.C. Battery S.P. Three. The receiver is a simple service proposition.

G.E.C. S.P.3 on Test

MODEL Battery S.P. Three.— Standard model for battery operation, using a G.E.C. 120-volt, type BB720, battery and a Genalex No. BC145 2-volt 45-amp. accumulator. Price £6 15s.

DESCRIPTION.— Two-waveband, three pentode straight set with pre-set reaction. Brown cellulose table cabinet.

FEATURES.— Full-vision scale with wave indicator operated by selection switch. Controls for tuning and volume. Sockets for external speaker.

LOADING.— I.T., 0.43 amp.; H.T., 7.1 ma.

Sensitivity and Selectivity

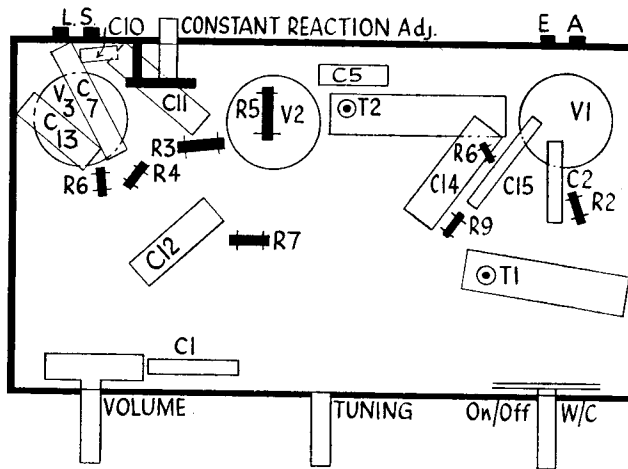
MEDIUM WAVES (200-550 metres).— Very good gain, well maintained over the band. Pre-set reaction constant. Adequate selectivity for most areas. Local stations spread appreciably in "swamp" area.

LONG WAVES (800-2,000 metres).— Similar performance to medium waves. All main stations easily separated if volume control is not advanced too far. Reaction again very constant.

Acoustic Output

Excellent volume for very moderate H.T. loading. Ample for ordinary room. Well balanced tone and good upper and lower note radiation.

Right is the under-chassis layout of the S.P.3. Note the pre-set reaction adjustment. There are only two tuned circuits and the trimmers for the medium-waveband are under the chassis.



A replacement condenser for C14 is available from A. H. Hunt, Ltd., list number 2970; it retails at 1s. 10d.

FERRANTI 1137 SUPERHET

(Continued from page 33.)

by the lower capacity is the correct one. The gang should be rocked.

Medium Waves.— Tune the set and oscillator to 200 metres (1,500 kcs.) and adjust trimmer T2 whilst rocking the gang.

Tune the set and oscillator to 228 metres (1,316 kcs.). Adjust the medium wave aerial trimmer (on gang) for maximum response, simultaneously rocking the gang.

Now tune the set to 500 metres and apply a signal of 500 metres (600 kcs.). Adjust P1 for maximum response, simultaneously rocking the gang.

With the gang condenser at maximum apply a 450 kcs. signal to the set. Adjust the I.F. wavetrap (I.F.W.T.) for minimum.

It is now necessary to repeat the first three operations under this heading.

Long Waves.— Tune the set and oscillator to 1,128 metres (266 kcs.) and adjust T3 for maximum, simultaneously rocking the gang.

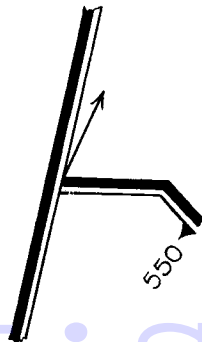
Tune the set and oscillator to 1,818 metres (165 kcs.) and adjust P2 for maximum response. Any alteration to T3 affects the setting of P2.

Now, with the set still switched to the long-wave band, apply a signal of 261 metres. Tune this in on the set (approximate reading 1,200 metres), and adjust I.R. (image rejector trimmer) for minimum output.

(Continued from page 5.)

Tune the oscillator to a frequency of 465 kcs. and adjust the I.F. trimmers IFT1, IFT2, IFT3 and IFT4 for maximum output in the output meter, reducing the input from the oscillator as the circuits come into line to prevent the A.V.C. working.

Signal Circuits.— Leave the output meter connected as before, but connect the



The tuning pointer of the McMichael 137 should be set as in this diagram with the condenser at maximum (see "Signal Circuits.")

leads of the oscillator between the aerial and earth terminals of the receiver.

Feed only sufficient input to obtain a reasonable signal. If too much input is fed the A.V.C. comes into operation and a false reading will be obtained.

Before calibrating the receiver, turn the gang condenser to maximum and set the pointer so that it takes up the position as shown in the diagram.

Short Waves.— This is the first range to be adjusted. Inject a signal of 18 mcs. (approximately 16.5 metres). There is a mark on the wave-length scale half-way between the 16.5 and 17 metre position, to which the pointer of the receiver is to be set while the calibration of the receiver on short waves is being carried out. Adjust the trimmers on the condenser gang T1, T2 and T3 in that order for maximum response on the output meter.

Long Waves.— Calibrate this range before the medium waves, as the adjustment of the long waves affects the M.W. calibration to a certain extent.

Inject a signal of 1,000 metres (300 kcs.) and turn the pointer of the set to the same wave length.

Adjust the long-wave oscillator trimmer T4 until the maximum response is obtained, then adjust BP1 and BP2 respectively for maximum sensitivity.

Medium Waves.— A mark is to be found on the wave-length scale approximately half-way between 210 and 220 metres, opposite the station Radio Lyons. Inject a signal of 1,400 kcs. and adjust the medium-wave oscillator trimmer T5 for maximum response. Then adjust BP2 and BP3 respectively for maximum sensitivity.