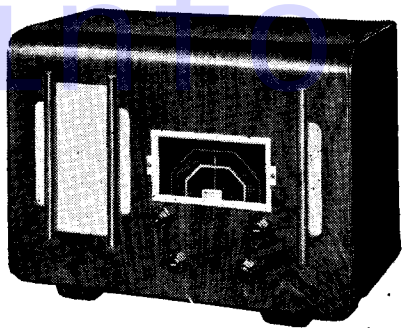
EVER READY 5030 BATTERY FIVE



The Ever Ready 5030 is a five-valve all-wave battery superhet with Class B output. It is listed at £11 15s.

CIRCUIT.—The aerial has two alternative connections, one socket switching a 100,000 ohms resistance in series with the input. The signal then passes via an inductively coupled band-pass filter on medium and long waves. On short waves the input passes via a coupling condenser and a single tuned circuit to the grid of V1, a variable-mu heptode frequency changer.

The signal, converted to a frequency of 455 kcs., passes by an I.F. transformer to V2, a H.F. pentode stage, working as the I.F. amplifier. Coupling between V2 and V3, a double diode triode, is effected by another I.F. transformer.

The demodulating diode of V3 rectifies the signal and the other diode provides a D.C. potential that is fed back in the usual manner to give A.V.C. In the grid circuit of the triode section of V3 a manual volume control is incorporated.

V3 is resistance capacity coupled to V4, a triode valve working as a driver to V5, to which it is coupled by an L.F. transformer. Across the anodes of V5, a twin triode Class B valve, a variable resistance and fixed condenser are connected in series to form a tone control. The output of V5 passes via a push-pull output transformer to the permanent-magnet moving-coil speaker.

Battery power is supplied by an Ever Ready 2-volt celluloid-case accumulator of 30 ah. capacity, type T304, and an Ever Ready combined H.T. and G.B. 136.5 volt battery, type Portable 56.

Chassis Removal.—Remove the back of the cabinet, and also the four control knobs on the front. These are of the spring fixing type. Turn the cabinet on its side and remove the four fixing bolts and washers on the base.

The chassis can then be withdrawn to the extent of the speaker cable, and is available for most, if not all, service requirements.

If desired, the speaker can be removed, or alternatively, the leads to the speaker can be unsoldered. When replacing note that the black lead goes to the earthing tag on one of the speaker fixing bolts.

Special Notes.—There are two sockets at the rear of the chassis for connecting an external speaker. This should be of the permanent-magnet moving-coil type with a speech coil resistance of some 2 or 3 ohms. The speaker need not have its own matching transformer, the speech coil being connected to the external L.S. sockets.

Another pair of sockets enable a pick-up to be used.

It should be noted that the I.F. amplifying valve, V2, is a hexode, but is connected so as to operate as an H.F. pentode.

VALVE READINGS

No signal. Volume maximum. New batteries.

V.	Type.	Electrode.	Volts.	Ma.
1	(Osram.) X22 met. (7) ..	Anode ..	130	.4
		Screen ..	47	1.1
		Osc. anode	51	1.2
2	(Ever Ready.) K50N met. (7) ..	Anode ..	130	2
		Screen ..	30	.5
3	(Ever Ready.) K23B met. (5)	Anode ..	70	.5
4	(Ever Ready.) K30E met. (4)	Anode ..	130	1.4
5	(Ever Ready.) K33B (7) ..	Anode ..	130	1.95
		Anode ..	130	1.9

The battery leads are numbered in the circuit diagram, and the details of connections are :—

(1) Red, 136.5 volts.
(2) Blue, 52.5 volts.
(3) Brown, 4.5 volts positive
(4) L.T. negative.
(5) L.T. positive.
(6) Yellow, 3 volts positive.
(7) Black, H.T. negative

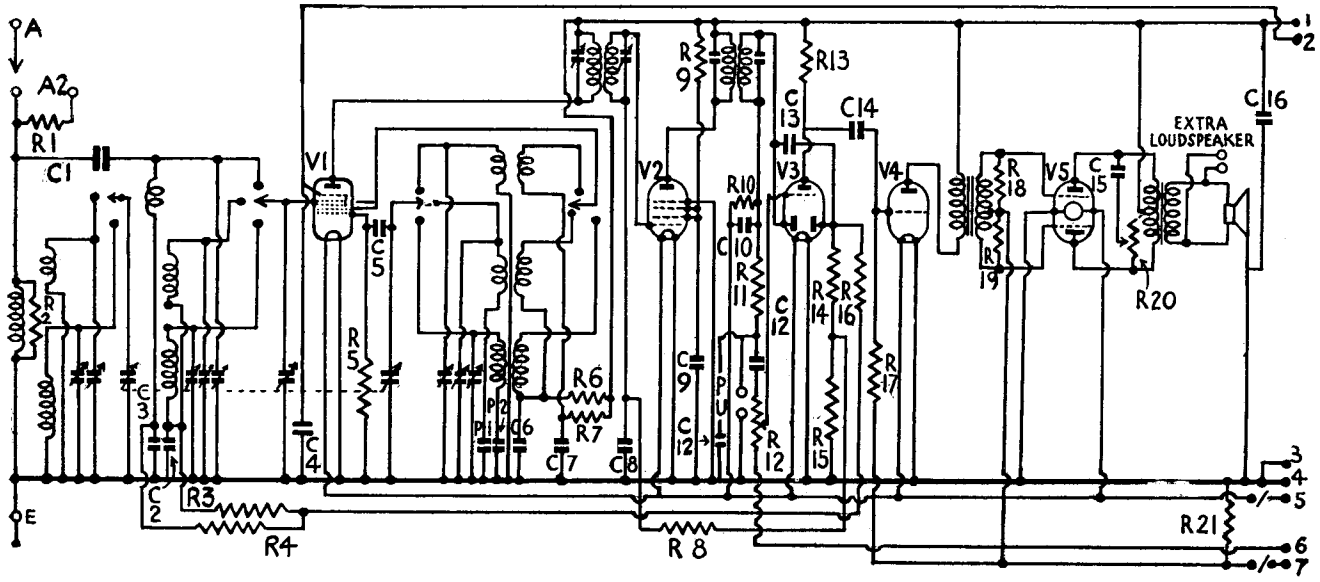
As the grid bias is drawn from the battery, (3) is actually H.T. negative and (6) and (7) are G.B. tappings.

Circuit Alignment Notes

I.F. Circuits.—Connect a service oscillator between the top grid cap of V1 and chassis and an output meter across the primary of the speaker (output transformer). Short circuit the oscillator section of the gang.

Tune the oscillator to 455 kc. and adjust the trimmers of the I.F. transformers, starting with the second transformer, for maximum response. Reduce the input from the oscillator as the circuits come into line to render the A.V.C. inoperative.

Signal Circuits.—Leave the output



A band-pass input circuit is employed in the 5030. The double-diode-triode is followed by a triode "driver" for the Class B output valve.

meter connected as before but connect the oscillator between the aerial and earth terminals. Remove the short circuit from the oscillator section of the gang.

Medium Waves.—Set the padding condenser P1 approximately two-thirds in. Tune set and oscillator to 214 metres (1,400 kc.) and adjust T1, T2 and T3 for maximum response, in that order.

RESISTANCES

R.	Purpose.	Ohms.
1	Series aerial	100,000
2	Aerial shunt	11,000
3	V1 A.V.C. decoupling (part).	100,000
4	V1 A.V.C. decoupling (part).	100,000
5	Oscillator grid leak	100,000
6	V1 oscillator anode decoupling M.W. and L.W.	50,000
7	V1 oscillator anode decoupling S.W.	15,000
8	V2 A.V.C. decoupling	100,000
9	V2 screen decoupling.	100,000
10	Demodulator diode load	510,000
11	H.F. stopper	50,000
12	Volume control	500,000
13	V3 anode load	50,000
14	A.V.C. diode load (part)	500,000
15	A.V.C. diode load (part)	260,000
16	V1, V2, A.V.C. feed	500,000
17	V4 grid leak	500,000
18	Output transformer secondary shunt (part).	11,000
19	Output transformer secondary shunt (part).	11,000
20	Tone control	50,000
21	G.B. battery bleeder	430

Tune the set and oscillator to 500 metres (600 kc.), and adjust P1 for maximum response, simultaneously rocking the gang to ensure optimum results.

Repeat both the above operations until correct calibration and maximum sensitivity are obtained.

Long Waves.—Set the padder P2 approximately one-third in. Tune the set and oscillator to 1,200 metres (250 kc.) and adjust T4, T5 and T6, respectively, for maximum.

Tune the set and oscillator to 1,700 metres (176.5 kc.) and adjust P2 for maximum, simultaneously rocking the gang.

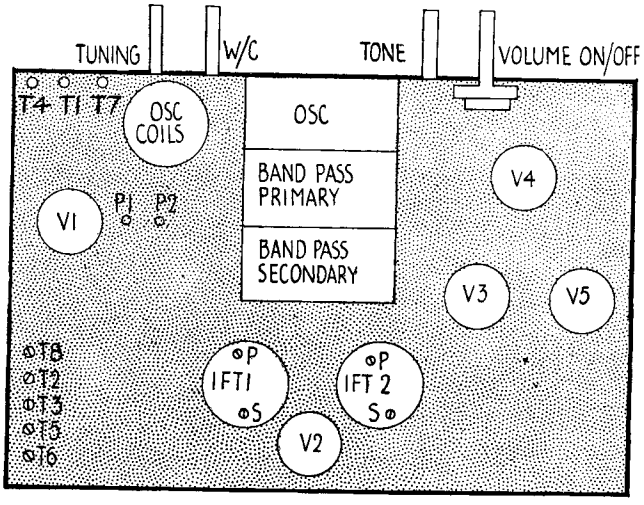
Repeat both the above operations until correct calibration with maximum sensitivity is obtained.

Short Waves.—Screw T7 right in. Tune the set and oscillator to 15 mc. (20 metres) and slowly unscrew T7 until the first peak is obtained. Then adjust T8 for maximum

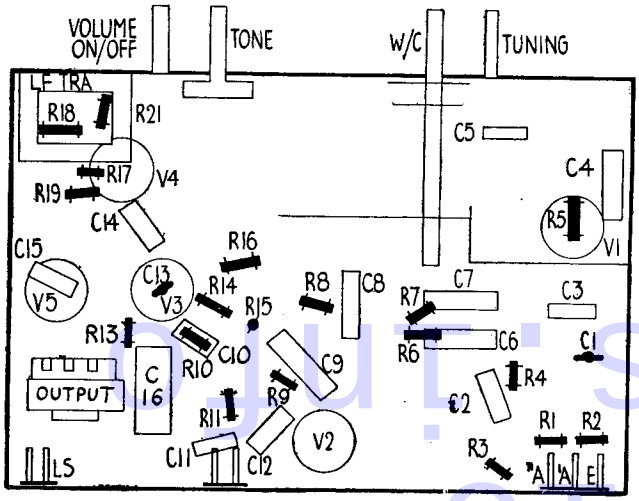
Tune the set and oscillator to 7.5 mc. (40 metres) and adjust the end turn of T4 (see sketch) until maximum response is obtained. Repeat the 15 mc. operation if necessary.

CONDENSERS

C.	Purpose.	Mfds.
1	S.W. aerial coupling	.00001
2	V1 A.V.C. decoupling (part)	.1
3	V1 A.V.C. decoupling (part)	.01
4	V1 screen decoupling.	.1
5	Osc. grid	.0001
6	M.W. and L.W. osc. anode coupling	.1
7	S.W. osc. anode decoupling.	.1
8	V2 A.V.C. decoupling	.1
9	V2 screen decoupling.	.1
10	H.F. by-pass	.0002
11	Pick-up shunt	.0001
12	L.F. coupling	.05
13	A.V.C. diode coupling	.00001
14	L.F. coupling	.05
15	Tone control	.05
16	H.T. reservoir	2



As the top of chassis diagram on the right shows, the trimmers of the Ever Ready 5030 are accessible from above. This considerably facilitates service work on the set.



Underneath the 5030 chassis nearly all the parts are suspended in the wiring. Parts are easily identified if it is remembered all resistors are indicated in solid black and condensers in outline.

Ever Ready 5030

MODEL 5030.—Standard model for battery operation, requiring an Ever Ready 2-volt 30 a.h. celluloid-case accumulator, type T304, and an Ever Ready combined G.B. and H.T. 136.5 battery, type Portable 56. (This is tapped from the negative end in 1.5-volt steps up to 12 volts, and thence at bigger intervals.) Price £11 15s.

DESCRIPTION.—Five-valve, three-wave-band battery superhet table model.

FEATURES.—Full-vision scale with name and wave calibration. Class B output. Controls for tuning, volume, wave selection and tone. Two sockets for aerial connection. Sockets for extension speaker and pick-up.

LOADINGS.—H.T., 12.2 m.a.; L.T., .67 amp.

Selectivity and Sensitivity.

SHORT WAVES (19-50 metres).—Average sensitivity, best at the beginning of the scale. Selectivity up to standard. No drift trouble and tuning very easy.

MEDIUM WAVES (198-580 metres).—Representative gain and selectivity. Local station spread normal, sensitivity highest at the commencement of scale. All main stations easily received.

LONG WAVES (850-1,920 metres).—Similar performance to medium waves. Main stations easily separated, but overlap on Deutschlandsender.

Acoustic Output.

Very good tone for Class B. Well balanced and free from any trace of "Class B tone." Very little colouration on speech and ample volume for ordinary room.

Fitting a Speaker Switch

MANY receivers and radiograms are not fitted with internal speaker silencing switches. On the other hand, they are nearly always fitted with extension speaker sockets.

When an extension speaker is to be used with such a set, a further profitable sale can result from fitting a switch on the set which will cut out the internal speaker but still allow the extension speaker to remain in use.

This switch should be connected in circuit between the secondary of the output transformer and the voice-coil. The wires to the switch should be kept as short as possible and should be of a reasonably heavy gauge.