GEC BC 3440/1/2/4/8

Four-valve, plus rectifier, two waveband superhet. Table and console models incorporate a PU jack, while provision is made on all models for the connection of a high-impedance extra loudspeaker. The internal speaker may be silenced by means of a switch. Made by the General Electric Co., Ltd., Magnet House, Kingsway, London, WC2.

ALL models employ the basic table model chassis around which this review is compiled. Slight modifications are effected to the chassis when it is incorporated in the radiogram.

BC3440 table model for 190–250v, 40–80 cycles.

BC3441 table model for 190–250v, 25–50 cycles.

BC3442 console model for 190–250v, 25–50 cycles.

BC3444 console model for 190–250v, 40–80 cycles.

BC3448 radiogram for 190–250v, 40–60 cycles.

A suffix "L" to the above model number signifies that the voltage range of the instrument is 110–130v, and 210–230v. A suffix "K" indicates that valves V2, V3 and V4 are Catkin types, V4 being 7-pin.

Circuit.—Signals are fed *via* C1 to the aerial coupling coils L1 (MW), L2 (LW), of an inductively coupled bandpass filter. The volume control, R1, is connected between aerial and earth *via* R2, the latter being in the cathode circuit of the variable-mu IF amplifier, V2. Thus, when the slider of the volume control is at the bottom of R1, L1 and L2 have a minimum damping imposed upon them, while R2 is short-circuited so that V2 bias is low, giving maximum sensitivity.

Signals are coupled from L1 and L2 inductively and *via* C2, while the two sections of the bandpass filter are tuned by VC1 and VC2 sections of the triple gang condenser. The bandpass coupling coils are L8 and L9. L10, its associated trimmer, T13, are for neutralising.

V1 is the first detector and oscillator. The cathode circuit incorporates the reaction windings L11 and L12 of the oscillator, and a certain amount of reaction to the grid circuit is obtained through R3 and the winding L5.

The oscillator anode coils are fed with HF from the anode of V1 *via* the trimmer, T2, and the circuits are tuned by the coupled coils L15, L16, which are across the VC3 section of the ganged condenser. R4 and R5 decoupled by C3 form the screen-grid potential divider network for V1.

IF signals are transferred from V1 to V2 by the IF transformer L17-L18. R7 and R8 form the screen-grid potential divider network decoupled by C9, while the cathode circuit is decoupled by C8 and is connected *via* the minimum bias resistance, R9, to the volume control circuit, as previously described.

A second transformer, L19-L20, passes on the signal to the grid of the screen-grid second detector V3. Permanent bias is derived from R12 decoupled by C12; the screen is supplied *via* R11 and R13 decoupled by C11. A pickup may be inserted into the jack which breaks the L20 circuit.

V3 anode incorporates a whistle rejector L21, C13 and T12. R15 is the LF load with coupling condenser C16 and C14 an HF bypass.

Additional voltage dropping and decoupling is effected by R14 and C15. The grid leak R17 and V4 is connected to the bias network R18 and R19, decoupled by C20.

A silencing switch connects the load resistance R21 across L23 when the internal loudspeaker is not required. The extra loudspeaker sockets are coupled to the anode of V4 *via* C18 with C19 comprising a permanent degree of tone correction. Any extra loudspeaker connected to these terminals must be of a high impedance or have a suitable matching transformer. A variable tone control is R20 and C17.

HT supply is derived from the full-wave rectifying valve, V5, with smoothing by means of L25, the loudspeaker field, in the negative lead. C21 is the reservoir and C22 the smoothing condensers.

GANGING

IF Circuits.—Care should be taken to ensure that the metal shield on the end of the chassis is in position before ganging is effected.

Switch receiver to MW and gang condenser to maximum capacity with volume control at maximum. Short circuit VC3 by joining its connecting tag to chassis. Inject a 107kcs signal into the top connection of VC2 and adjust T1, T2, T3 and T4 for maximum output as indicated by an output meter.

As the sensitivity of the receiver increases with the trimming of the circuits, reduce the strength of the input signal.

MW Band.—Check that at each end of the scale the pointer is equidistant from the outer scale fixing rivets. Connect the oscillator output to the aerial and earth sockets *via* a dummy aerial and set the receiver tuning pointer to 214m. Adjust T5 for maximum output. If two different adjustments give a maximum the one made should be that with minimum capacity. Then adjust T6 and T7 for maximum output.

Inject a signal of 600kc and tune the receiver to 500m.

Disconnect VC3 and connect an external variable condenser between the disconnected lead and chassis and adjust the variable condenser for maximun output.

Adjust receiver tuning control to give a maximum output, and then, without disturbing the tuning control, disconnect the external variable condenser and reconnect VC3.

Adjust T8 for maximum output. Correct the setting of T5, which will be slightly affected by the adjustment of T8.

LW Band.—Inject a signal of 300kc and tune the receiver to 1,000m. Disconnect VC3, as described above, and adjust the external variable condenser to give maximum output. Tune the receiver and adjust T9 simultaneously to give a maximum output.

Disconnect external variable condenser, reconnect VC3, and adjust T10 for maximum.

Inject a signal of 165kc and tune receiver to 1,818m. Disconnect VC3 as before and adjust the external variable condenser to give a maximum output. Adjust the receiver tuning control to improve the output if possible.

Disconnect external variable condenser, reconnect VC3 and adjust T11 for maximum output. Correct the setting of T10. which will be slightly affected by the adjustment of T11.

Whistle Suppressor.—Adjustment of T12 is only necessary where there is excessive instability at 1,400m with volume control settings rather below maximum.

To adjust T12 where necessary couple the aerial terminal of the receiver to the anode of V3 by plugging a length of flexible wire into the aerial socket and making about one turn round the anode lead of V3, where this connects to the anode.

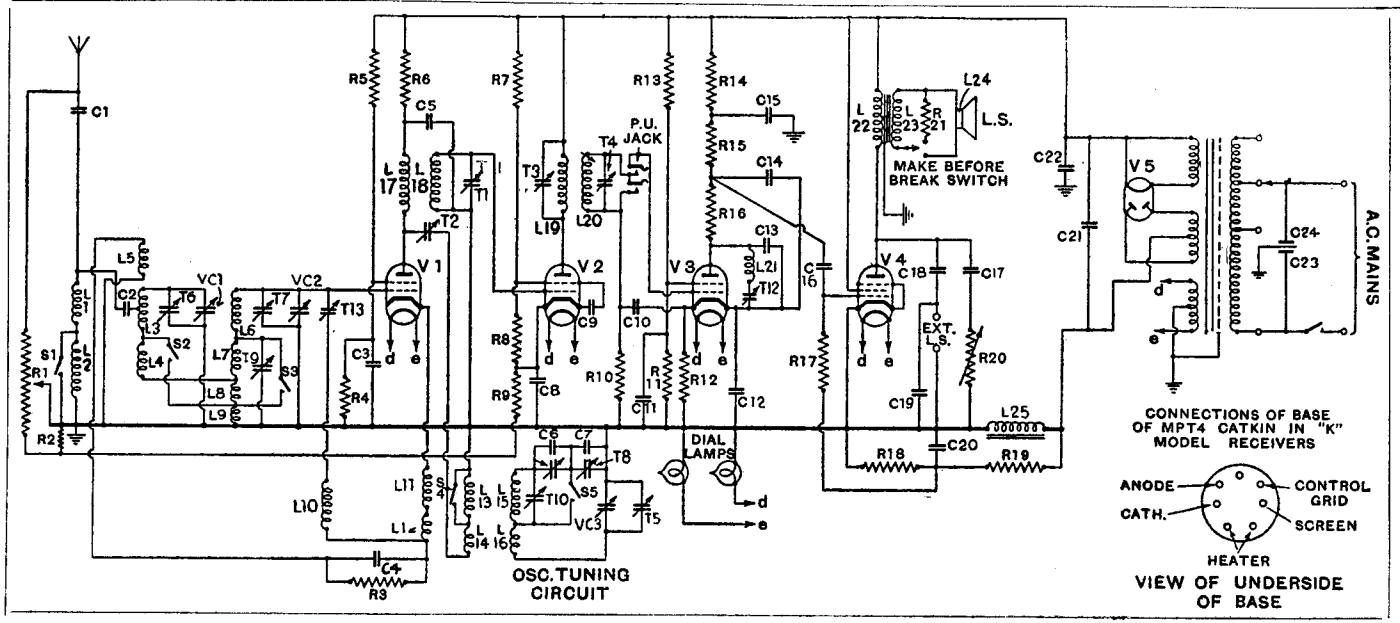
Tune receiver to 1,400m with volume control at maximum and adjust T12 for minimum instability.

NEUTRALISING ADJUSTMENT

If instability occurs between 200m and 250m near maximum settings of the volume control, leave the controls at the point of instability and adjust T13 in a clockwise direction until instability just ceases, but do not turn any further. Adjustment pass this point will seriously affect the sensitivity of the receiver and reganging at 214m should be carried out after T13 has been adjusted.

RADIOGRAM MODIFICATIONS

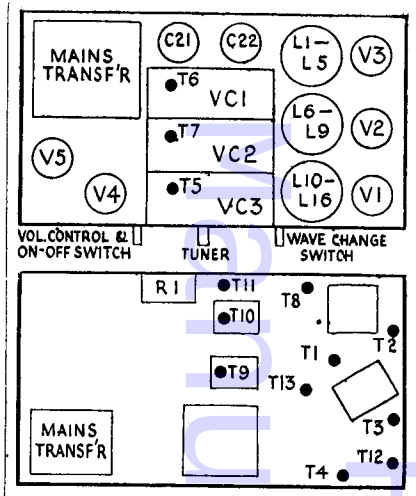
In the Radiogram model BC3448, the pickup circuit incorporates a condenser in series with a separate volume control. The latter is connected across a pair of switch contacts which, when open in the gram position, places the pickup circuit between the bottom of L20 and the top of R10.



WINDINGS

L			Ohms
1	..	..	17
2	..	..	69.5
3	..	..	4.5
4	..	..	30
5	..	..	—
6	..	..	4.5
7	..	..	29
8	..	..	1.3
9	..	..	.3
10	..	..	—
11	..	..	1.4
12	..	..	1.85
13	..	..	15.5
14	..	..	4.5
15	..	..	21.3
16	..	..	3.9
17	..	..	82
18	..	..	82
19	..	..	82
20	..	..	82
21	..	..	38.5
22*	..	..	400
23*	..	..	.55
24	..	..	3.1
25	..	..	1,300

* L22, 300. L23, .35 in models BC 3442/4/8.



VALVE READINGS

V	Type	Electrode	Volts	Mas
1	MS4B	Anode	220	1–1.5
		Screen	80	—
2	VMS4*	Anode	250	7
		Screen	80	—
3	MS4B	Anode	100	.2–.4
		Screen	80	—
4	MPT4	Anode	235	32
	(5 pin)	Screen	250	6
5	U12	Heater	325	50

Pilot lamps, 3.5v, .3 amp, MES. All above valves are clear glass. In "K" models, V2 and V3 are canistered catkins, and V4 a 7-pin catkin.

* Valves marked VMS4 should not be used, as they tend to render the volume control ineffective.

CONDENSERS

C		Mfd	C		Mfd
1	..	.0001	13	..	.0001
2	..	25 mmfd	14	..	.0001
3	..	.1	15	..	.11
4	..	.005	16	..	.01
5	..	.11	17	..	.04
6	1,250/1,350	mmfd	18	..	.25
7	1,350/1,450	mmfd	19	..	.001
8	..	.25	20	..	.3
9	..	.25	21	..	8
10	..	.25	22	..	8
11	..	.25	23	..	.01
12	..	.25	24	..	.01

RESISTANCES

R		Ohms	R		Ohms
1	..	8,000	12	..	8,800
2	..	9,900	13	..	88,000
3	..	2,500	14	..	33,000
4	..	44,000	15	..	200,000
5	..	88,000	16	..	33,000
6	..	20,000	17*	..	420,000
7	..	24,000	18*	..	125,000
8	..	13,000	19	..	420,000
9	..	150	20	..	50,000
10	..	33,000	21	..	8
11	..	55,000	22†	..	5,000

* R17, 220,000 in "K" models. R18, 99,000 in "K" models.
† In radiograms only.