

# EKCO B85

Four-valve, two wave-band battery superhet with band-pass aerial tuning circuits. Sockets are provided for a pickup and high resistance loudspeaker. Marketed by E. K. Cole, Ltd., Service Dept., Southend on Sea.

circuit L5 (MW), L6 (LW) with grid coils L7 and L8. R3 and C4 are the grid leak and condenser.

The intermediate frequency transformer L9, L10 couples the IF signals from V1 to the grid of V2. The grid of this valve can be over-biased when switch contacts S8 are closed, which prevents radio reception during gramophone reproduction.

A second IF transformer L11, L12 passes on the signal from V2 to the triode grid of the double diode triode V3. The triode section operates as a leaky grid detector on radio and a low frequency amplifier on gram. The pickup sockets are connected across a fixed resistance R7, and extra bias for LF amplification is obtained from a tapping on the bias resistance R13.

One diode of V3 is not used and is left disconnected,

### VALVE READINGS

V	Type	Electrode	Volts	Mas
1	TP22 Mazda	Anode	130	.5
		Osc anode	50	.8
		Screen	43	.15
2	VP215 Mazda	Anode	130	.65
		Screen	43	.15
3	L2/DD Mazda	Anode	43	1.8
		Grids (bias)	106.5-129	.2-.6
4	QP240 Mazda	Anodes	130	1.5-2.5
		Screens	106.5-129	.2-.6

Readings taken with a 1,000 o-p-v meter with no aerial or earth connected.

but the second diode is fed from the IF component in V3 anode circuit via C11 and the HF choke L13.

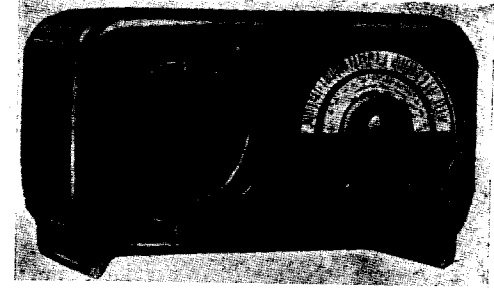
The automatic volume control load is R9, and AVC is applied to V1 and V2 grid circuits via decoupling components R10, C12 and C2.

The LF signals from V3 are resistance capacity coupled by R8 and C13 to the primary of the inter-

Continued overleaf

### RESISTORS

R	Ohms	R	Ohms
1	40	9	250,000
2	500,000	10	250,000
3	30,000	11	100,000
4	2,000	12	15,000
5	250,000	13	1,160
6	15,000	14	250,000
7	500,000	VRI	250,000
8	50,000		

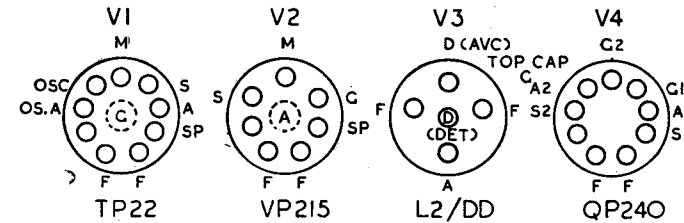


The Ekco B85 is a "console" receiver with superhet circuit and for operation from batteries.

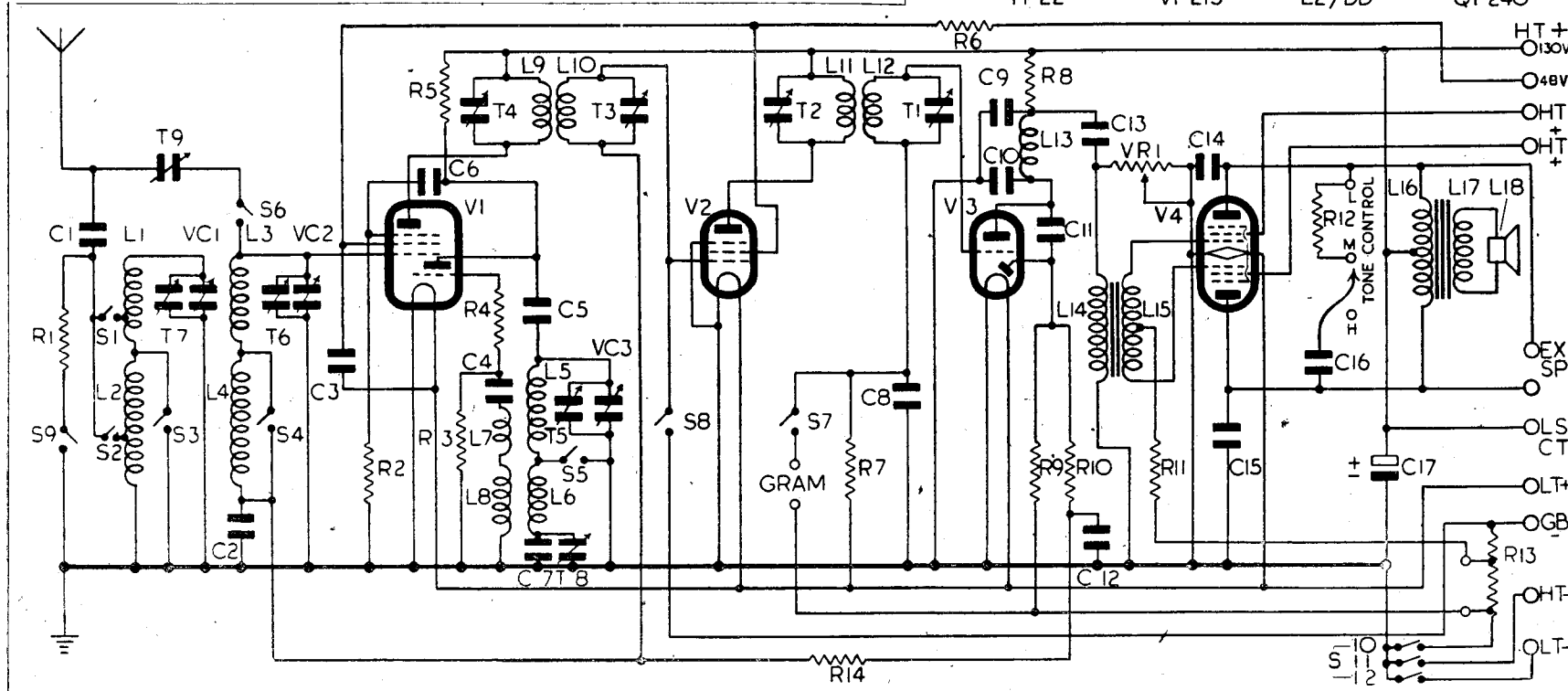
SIGNALS from the aerial are fed via C1 and appropriate switch contacts to tappings on the primary windings L1 (MW) and L2 (LW) of a band-pass filter circuit. A resistance of 40 ohms, R1, may be switched across the primary coils to prevent overloading on powerful local signals.

The secondary coils of the band-pass filter unit are L3 (MW) and L4 (LW), and signals from these are fed to the control grid of the frequency changer V1. An image suppressor trimmer T9 is connected between grid and aerial.

The oscillator section of V1 employs tuned anode



Left, the valve bases as seen with set inverted. S stands for screen grid and SP for suppressor grid. In the circuit an interesting feature is the use of a double-diode triode as a leaky-grid detector.



### CONDENSERS

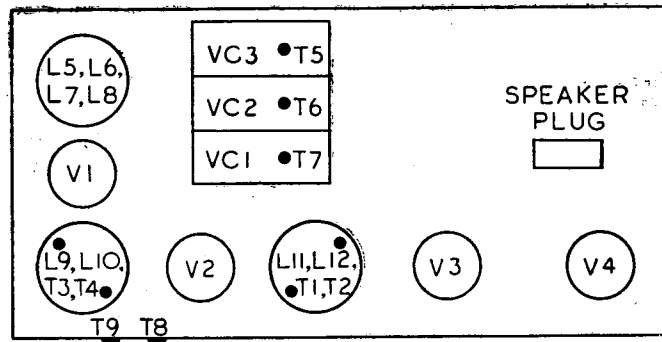
C	Mfd
1	.001
2	.1
3	.1
4	.0005
5	.0005
6	.0005
7	.001
8	.0005
9	.001
10	.0003
11	.0005
12	.004
13	.1
14	.004
15	.004
16	.004
17	4

### WINDINGS

L	Ohms
1	2
2	29
3	2
4	29
5	5
6	8
7	8
8	10
9	95
10	95
11	95
12	95
13	215
14	400
15	4,000
16	.350+380
17	.1
18	1.7

EKCO B 85

Continued



This layout identifies the main features of the chassis and shows the positions of the trimmers.

valve transformer L14, L15. The volume control comprises the variable resistance VRI connected across L14. L15 feeds the two grids of the two pentode sections in the quiescent push-pull output valve V4.

A permanent degree of tone correction is effected by C14 and C15, and a variable tone control is provided by C16, which can be left out of circuit for high tone, connected to R12 for medium tone, or direct to C14 for low tone.

The output transformer L16, L17 couples the anodes of V4 to the permanent magnet moving coil loudspeaker L18. Extra loudspeaker sockets are provided across the primary, L16, so that external loudspeakers must be of the high resistance type or have a suitable matching transformer. The screening grids of V4 are connected to the HT battery sockets of a voltage depending upon the coding of the valve.

**GANGING**

**IF Circuits**—Switch receiver to long wave, and tuning condenser to maximum capacity. Feed a 110 kcs signal into control grid of V1 and adjust T1, T2, T3 and T4 for maximum output.

**MW Band**—Switch receiver to medium wave, and tune condenser to minimum capacity. Inject a signal of 200 m into the A and E sockets, and adjust T5 for maximum output.

Inject a signal of 250 m and tune it in on receiver. Adjust T6 and T7 for maximum output. Check calibration on other wavelengths, and shift scale to give best compromise.

**LW Band**—Switch receiver to long wave, and inject a signal of 1700 m.

Check calibration, and if seriously out, adjust T8 for maximum output while rocking gang condenser.

**Image Suppressor**—Tune in unwanted image, and adjust T9 for minimum output.

**From a Service Engineer's Notebook**

**A** PECULIAR fault came my way a short time ago. A mains set was being tested for bad distortion and it was found that the output valves were correct and that they were receiving their correct voltages. Testing at the grids of the valves which were in push-pull, with the aid of phones, showed that one grid was getting a greater signal than the other.

The secondary of the input transformer was suspected of being faulty, and testing showed it to be perfect on both sides, and the associated circuits of the secondaries were also OK. The primary was then tested and found to be very low in resistance.

Replacing the transformer effected a complete cure. As a matter of interest, the transformer windings were stripped and examined. It was found that the primary winding was in two parts and these were overwound with the two halves of the secondary; one of the primaries was shorted almost between the first and last turns.

**I** NOTICE that at least one manufacturer has incorporated the very useful feature of having rubber grumets in the holes provided in the tops of IF coil cans; these are indeed useful as they prevent the metal blade of either a screwdriver or trimming tool from contacting the metal of the can.

It is surprising how a small thing like this can affect the adjusting of a receiver and quite often reduce the time in so doing.

**M**OST soldering irons are plugged into a socket which has no switch and the usual method of switching off the iron is by pulling out the plug. As a result, the iron is left on most of the time that sets are being repaired and yet is only used for a fraction of the time.

I have often wondered that manufacturers don't fit a push-pull type of switch on the side of the handle for switching off or for reducing the current so that the iron is just kept warm. Irons left on continuously overheat and this results in a shorter life.

**I**N not a few cases transformers are broken by either rectifier or condenser valves being faulty.

I cannot understand why manufacturers could not, (or should it be will not) fit a small fuse in the secondary of the HT winding, or perhaps the primary winding would be better.

We always fit a fuse after the repair is effected and from tests and actual use it seems to offer ideal protection.

F. DAY-LEWIS.

vi—RADIO MARKETING SERVICE ENGINEER

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