

LEKMEK RADIO LABORATORIES

TECHNICAL DATA

Model No. 63B.

(4 Sheets)

Sheet No. 1.

The type 63B Battery Superheterodyne is one of the most efficient Battery Receivers at present on the market; the sensitivity is very high and the tone is excellent, owing to the Class "B" output.

Both "A" and "B" battery consumption are low -- the "A" 2 volts at .7 amps. and the "B" drain from 8 to 12 ma, utilising 135 volts "B" (which includes $22\frac{1}{2}$ volts "C").

The circuit consists of an R.F. stage utilising the type 232 Valve which is transformer coupled to the type 15 Valve which functions as the autodyne first detector and oscillator. The autodyne stage is followed by one stage of Intermediate frequency amplification, using a 232 Valve, which is fed to the second detector. For this a 230 type Valve is used operating as an anode bend detector. This is resistance coupled to the audio driver stage, 230 Valve, which is in turn coupled to a type 19 Valve through a Class "B" audio transformer. The type 19 Valve is a "two in one envelope" valve. With Class "B" output, a battery set is comparable in tone and volume to an electric set, and yet the "B" drain is kept low.

BATTERY SWITCH: The battery switch is designed to break three circuits when changing from the "on" to the "off" position. In the "off" position the grid, filament and plate circuits are opened, which ensures that there will be no drain on the batteries while the set is switched off.

BATTERIES: Three triple duty 45-volt "B" batteries and one 2-volt - 100 a.h. accumulator for the filaments supply are required. The "B" batteries are connected in series and tappings are taken at 22.5V 90V and 135V.

CLASS "B" AUDIO TRANSFORMER: The Class "B" transformer has a step down ratio of 2:1 and is specially designed to suit this circuit. In the event of replacement a similar one should be obtained from our Factory, Type 19 B.T.

SPEAKER: The Permagnetic Speaker supplied with the 63B is an Amplion type 01 - TA14. The input transformer matches the impedance of the type 19 output Valve. The input transformer has three lugs to which the leads from the chassis is soldered; the two blues are connected to the "outers" and the red to the centre tap.

LOCAL DISTANCE SWITCH: The local distance switch is so arranged that in the "local" position it shunts the aerial to earth through a 100 ohms resistor.

GRID BIAS: The grid bias is obtained by using a system of two voltage dividers across a section of the "B" batteries, therefore dispensing with "C" batteries.

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Sheet No. 2.

ALIGNMENT OF GANG AND PADDER: Each chassis is carefully aligned and balanced before leaving the Factory, and the lining should not be interfered with. If, however, someone unauthorised has de-lined the trimmers on the condenser gang, the following simple method should be followed by those who must depend on the regular broadcasting stations for lining. Firstly, unscrew the trimmer as far as possible on the oscillator section (nearest the back) of the gang condenser. Now proceed to line the tuning unit or units of the gang condenser in the usual way, on a station about 250 metres or as low as possible. If trimmers will not peak screw in the trimmer on oscillator gang a very little at a time until you can get the tuning trimmers to peak (the idea is to work with as little trimmer capacity as possible on the oscillator gang.)

The padding condenser is sealed and it is unlikely that anyone will break the seal to interfere with it, but if this has happened tune to a station on the upper end of the band and adjust the padder condenser trimmer for maximum sensitivity. Take care to vary the tuning condenser slightly in either direction concurrently with the padder trimmer adjustment. Lining is now complete. With the volume control turned right up, noise level will usually serve as a means for lining, if no station is available. Under no circumstances should the setting of the coils or intermediate frequency transformers be altered, as these have been very carefully checked and set by the Lekmek Radio Laboratories. If I.F.T.'s have been interfered with, they should preferably be returned to the factory for re-tuning.

The intermediate frequency adopted in the 63B is 186 K.C.

If the set has been working O.K. for a while and stops or partially stops the coils and gang condenser are almost sure to be O.K., and it is reasonably certain to assume that the trouble will be due to valves batteries, resistors, or fixed condensers. A careful check should be made of voltages and plate currents, so as to ascertain if there is any variation from standard.

Attached is a table of voltages and plate currents for 63B. These values may vary slightly with individual Receivers according to condition of batteries and the slight variations in characteristics of individual valves.

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Sheet No. 3.

Valve Function	Valve Type	Plate Volts	Screen Volts	Bias Volts	Fil. Volts	Plate Current
Output	19	112.5V Ea. Plate	-	3V	2V	4 M.A.
Driver	30	112.5V	-	8V	"	2 M.A.
2nd Det.	30	80V	-	8V	"	.2 M.A.
I. F. Amp.	32	112.5V	67.5V	2-20V	"	2.5 M.A.
Det. Osc.	15	112.5V	67.5V	Self Bias	"	.5 M.A.
R. F. Amp.	32	112.5V	67.5V	2-20V	"	2.5 M.A.

All Readings
taken with
1000 ohms.
per volt
meter

And Batteries
at Max. Volt-
age.

B-135V, A-2V
Volume
Control Full
on.

NOTE:

For greater sensitivity four 45V. "B" batteries may be used, which will give a maximum voltage of 180 volts. The increase in plate current consumption will be small and is approximately three or four milliamps. Alterations to the bias values are required in this case, and when ordering from our factory it is necessary to specify if the four batteries are needed, and the chassis will be adjusted accordingly.

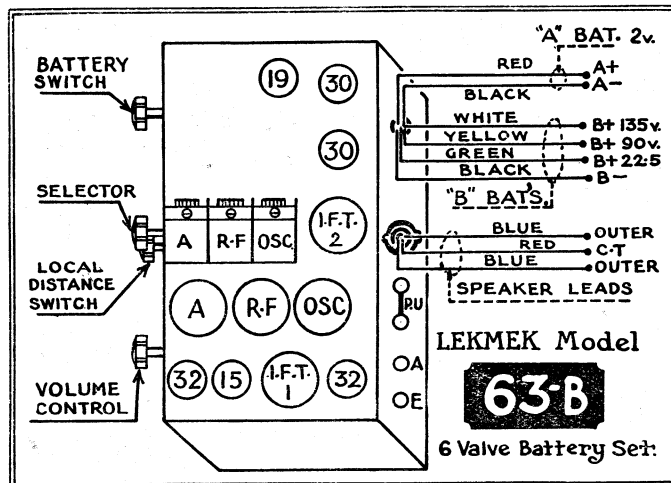
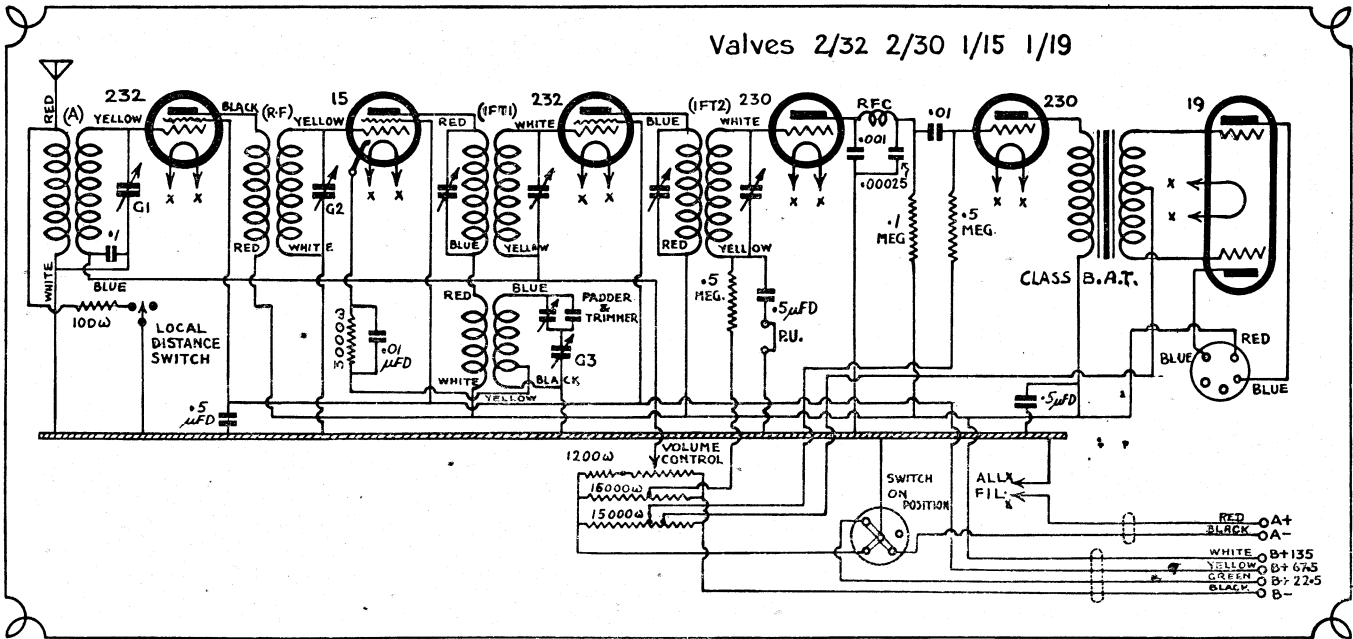
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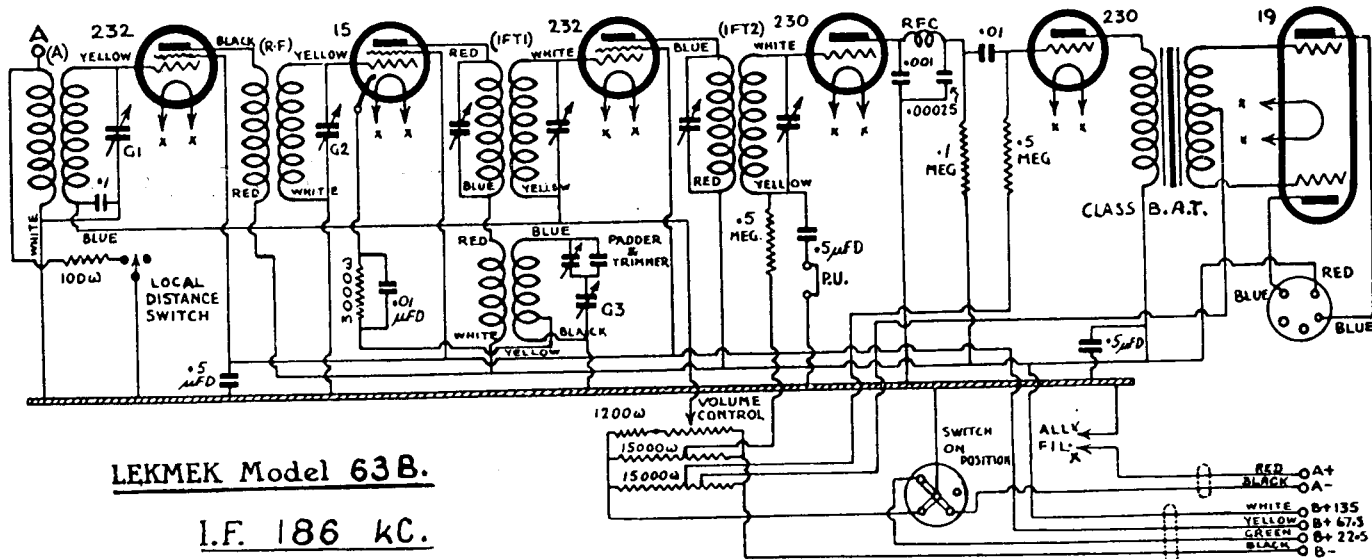
Model No 63.B

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Sheet No. 4



"Lekmek" Battery-Operated Broadcast Console Model 63B



LEKMEK Model 63B.

I.F. 186 KC.

1933 MODEL CONSOLE

Uses Amplion "01/TA14," 8-inch, permag. loudspeaker.

Particularly note use of first 22.5 v. of "B" supply for biasing.

OPERATING VOLTAGES

All measurements were made with a "1,000 ohms per volt" meter, and voltages are those existing between the socket contact indicated and chassis. The volume control was turned to the "full on" position.

32, R.F. Amplifier: Plate, 110 v.; screen, 50 v.; grid, -2 v. Plate current, 2.5 mA.

32, 186 KC. I.F. Amplifier: Plate, 110 v.; screen, 50 v.; grid, -2 v. Plate current, 2.5 mA.

30, "Anode Bend" Detector: Plate, 80 v.; grid, -8 v. Plate current, 0.2 mA.

30, Driver: Plate, 110 v.; grid, -8 v. Plate current, 2 mA.

19, Double-Triode, Class "B", Output: Each plate, 110 v.; grid, -3 v. Current each plate, 2mA. (total, 4 mA.).

"B" battery drain, from 8 to 12 mA.; "A" battery drain, 0.7 amperes at 2 volts.