

# LEKMEK RADIO LABORATORIES

## TECHNICAL DATA

Model N801

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### SERVICE NOTES MODEL 701 ALL WAVE ELECTRIC.

The Model 701 All Wave Receiver is a 7-valve receiver capable of good reception on Broadcast and Short Wave Stations. The Broadcast section will allow good daylight reception in the country. The Short Wave section tunes from 10-100 metres, the inclusion of automatic volume control being particularly helpful when listening to Short Wave Stations as fading and surging is minimised to a large extent.

CIRCUIT. A glance at the circuit diagram will show that the Broadcast signal is transferred from the aerial through a preselector circuit to the grid of the detector-oscillator valve (57). This valve oscillates at a frequency, which when mixed with the incoming signal provides the resultant Intermediate Frequency of 465KC.

The first detector is followed by two stages of intermediate frequency amplification, and is then demodulated by the 2A6 diode detector, i.e. this valve converts the intermediate frequency to an audible frequency. This audio component is then amplified and transferred to the grid of the 2A5 output valve, which further amplifies and feeds it to the Amplion Dynamic Speaker.

A 280 type valve rectifies the alternating high tension voltage for the plate supply of the receiver.

The Short Wave signal is handled in a slightly different manner, the signal being transferred straight to the grid of the 57 valve. A separate valve (56) oscillates at a frequency which, when mixed in the 57 valve, with the incoming signal, provides the intermediate frequency of 465KC, which is then amplified in the same manner as the Broadcast signal.

It will be noticed that when on the Broadcast Band the 57 valve performs both as an oscillator and as a detector, but on the Short Wave Bands as a detector only.

VALVES. The valves required for this receiver are as follows:

2 type 58 Valve/s	1 type 2A6 Valve/s
1 type 57 "	1 type 2A5 "
1 type 56 "	1 type 280 "

The positions of the valves may be seen from the layout diagram (Fig.1).

CONTROLS. See Fig. 1 which clearly shows the position of each control.

Volume & Tone Controls: Both of these controls are smoothly and continuously variable over a wide range.

Station Selector: The dial is calibrated in wave lengths on concentric circles marked A, B, C and D.

A	Wavelengths from 200 to 550 metres.	Broadcast Band
B	" from 45 to 100 "	Short Wave Band
C	" from 20 to 45 "	" "
D	" from 10 to 25 "	" "

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with ample overlap on each band.

The Waveband Selector: When the Waveband Selector is on (A) the receiver tunes between the wavelengths shown on circle (a) (mentioned above). When on (B) it tunes between the wavelengths shown on circle (B) and so on. Once a station is tuned it should be noted on your Log Card by means of the Dial figures 0-100. The appropriate Wave Band symbol A, B, C or D is shown beside each station in the column provided on the Log Card.

Short Wave Vernier: The Short Wave Vernier is for final adjustment after a Short Wave Station has been "tuned in".

### TUNING BROADCAST STATIONS.

Turn the Waveband selector to A (200-550 metres) and then tune in the desired station, by means of the station selector, e.g. 2GB wavelength is 316 metres, and will be found between 300 and 350 metres on the dial (circle A). Make sure that you are right on the station, otherwise the tone will be impaired and noise level high. Adjust the volume and tone controls to your liking. The Short Wave Vernier is inoperative on the Broadcast Band.

### TUNING SHORT WAVE STATIONS.

Firstly turn the Wave Band Selector to the required Short Wave Band B, C or D. Secondly advance the volume control and tune in the desired station with the Station Selector, taking the wavelengths shown on the appropriate dial calibration (B, C or D) as a guide, e.g. Daventry London, on 25.5 metres will be located on the Short Wave Band C, and on dial Calibration Circle "C". The Station Selector and Short Wave Vernier may be used concurrently for best results. The Tone Control will be found useful to reduce the noise level or static.

Note: When tuning on either Band make sure that the Station Selector pointer is exactly on the station (carrier) and not to either side of it. Always adjust volume to desired sound level with the volume control, and under no circumstances detune with the Station Selector.

AERIAL. The aerial to be used is best determined by trial, but good results may be obtained with a 30 ft. aerial, either indoor or outdoor. A long aerial is not advisable when in close proximity to a Broadcasting Station, Aerial and Earth terminals are shown on Fig. 1.

PICK UP. Two Pick-Up terminals are provided (see Fig.1). To operate, connect the two leads from the Pick-Up into these terminals and turn Waveband Selector to extreme left. When not in use the P.U. Terminals should be open circuit, e.g. Pick-Up leads must be disconnected. A switch may be fitted, if desired to leave the Pick-Up permanently connected.

Owing to the rigid construction and care taken in the manufacture of the Model 701 there is little likelihood of trouble. However, due either to damage during transit, or malpractice, the Wave Band Selector may need attention. In the event of a weak signal combined with high noise level, immediately suspect

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the switch. Partial or total cessation of signals on any Wave Band may also be traced to this source. The simplest way to test the Wave Band Switch is to push each contact in turn with a screw driver and noting any difference in reception, after locating the faulty contact in this manner, adjust it so as to make a firm connection.

### VOLTAGE CHART.

Shown below is a chart of all plate, screen and bias voltages, taken on a normal set, with a 1000 ohm per volt meter.

Valve Function	Valve Type	Plate Volts	Screen Volts	Bias Volts	Fil. Volts
Autodyne Osc.	57	250	100	4	2.5
Sep. S.W. Osc.	56	150	---	-	2.5
I.F. Amp.	58	250	100	4 No Sig.	2.5
I.F. Amp.	58	250	100	4 No Sig.	2.5
2nd Det.	2A6	110	100	3	2.5
Output Pentode	2A5	250	250	20	2.5
Rectifier	80	385 ea.Pl.	---	--	5.0

Note: Owing to the use of A.V.C. the bias on the I.F. stages will depend on the strength of the signal.

