

### **Circuit Detail**

In obtaining the very low distortion which characterizes this detector, the output is reduced to the order of 100mv. This, together with a reduction in impedance, is most convenient for feeding through the coupling cable to the amplifier.

The electronic tuning indicator measures the signal voltage at the detector and in addition to permitting accurate tuning, provides an indication of the strength of the received station. As it would be impossible to tune the receiver accurately in the wide range position, due to the long flat top of the selectivity characteristic, the indicator is only operative in the position of maximum selectivity.

The unit takes power from the amplifier via the cable provided.

### **Specification**

<b>Tuning ranges.</b>	Long wave band 800-2000 metres. Medium wave band 190-550 metres.
<b>Output</b>	100mV at 5,000 ohms impedance via screened cable.
<b>Selectivity.</b>	2 position switched to give audio bandwidths of 5 and 12Kcs.
<b>Consumption.</b>	6.3v 1.2A. 330V 20mA max.
<b>Valves.</b>	12AH8, 6BA6/EF93, 6AL5/EB91, DM70, 8v. 0. 2A. 11mm dial lamp.
<b>Front panel.</b>	Die-cast, stove finished silvered fawn, machine engraved.
<b>Knobs.</b>	Aluminium, stoved matt brown.
<b>Dial.</b>	$\frac{3}{8}$ " Perspex, machine engraved and filled white and red. Matt brown background.
<b>Dimensions.</b>	10 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " x 6 $\frac{1}{2}$ ".
<b>Weight.</b>	5 $\frac{1}{2}$ lbs. (2.5 Kgs.)

**Acoustical Manufacturing Co. Ltd.**

HUNTINGDON, HUNTS.

Tel.: Huntingdon 361 & 574

# **The ACOUSTICAL A.M. Tuner**



£21 PLUS P.T. £7-17-6

*Designed for your Quad II*



### Introduction

The present crowded condition of the medium and long wave broadcasting bands has made high quality reception very difficult for those not fortunate enough to be situated close to transmitting stations.

When designing a new A.M. Tuner to match the very high standard of the QUAD II amplifier, the desire for first class performance where reception conditions are ideal was taken into account. In addition, the ability to give excellent results in the less favourable situation experienced by the majority of listeners, was given careful consideration.

The unit described here has successfully met these requirements.

### Description

The A.M. Tuner is of the same style and size as the QUAD II control unit. It is enclosed by a cover which removes to permit mounting through a single hole cutout.

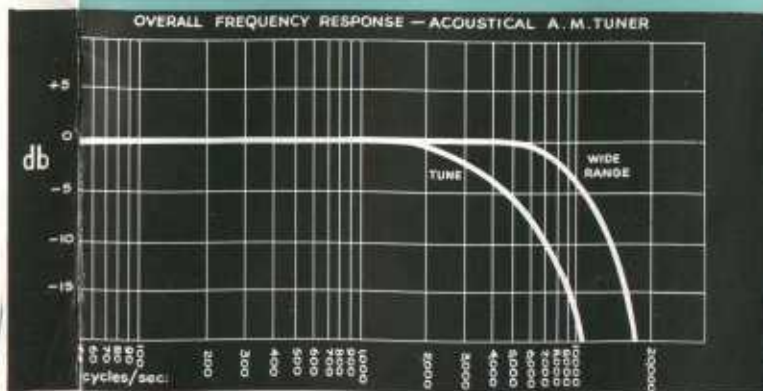


A superheterodyne circuit is used. There are three controls, Tuning, Waveband and Selectivity. The edge-lit dial is calibrated in metres and carries the names of B.B.C. stations. An electronic tuning indicator of the latest type is fitted, to permit accuracy of tuning, an essential in high quality equipment.

The sensitivity of the unit is such that with the switch in the maximum selectivity position, many stations can be received at reduced quality. Reception of the more distant stations is dependent on the aerial employed. For general use a vertical aerial is preferred.

In the wide range position, modulation frequencies up to 12Kcs are accepted. Beyond this, sideband frequencies are attenuated rapidly, but the rate of cut off is not great enough to cause transient distortion due to ringing. The circuit constants are chosen so that the overall selectivity curve does not exhibit the frequently encountered "double humped" appearance which produces distortion at the detector.

Each unit is supplied with leads and plugs for direct connection to a QUAD II amplifier although it may be used with other equipment if desired. Full instructions and service data are included.



### Circuit Detail

A R.F. transformer couples aerial and mixer valve, the secondary being tuned by one section of the condenser. The long wave tuned circuit is damped to ensure adequate bandwidth and an I.F. rejector is included.

A high conversion conductance mixer, using a triode heptode valve, converts the received signal to the I.F. of 470Kcs. The second section of the condenser tunes the oscillator which is tracked by close tolerance fixed condensers.

Between the mixer and I.F. valves are two tuned circuits, not inductively coupled as in the usual transformer, but with bottom capacity coupling. This is so arranged that switching of a Pi network changes the degree of coupling, thereby altering the selectivity characteristic whilst preserving a symmetrical response curve.

The I.F. valve is a high slope variable-mu pentode with negative feedback to prevent grid circuit detuning on strong signals. Between the I.F. valves and detector are two tuned circuits with both inductive and capacitive coupling.

A double diode valve is used as detector and A.G.C. rectifier. The latter rectifies the signal at the anode of the I.F. valve once the small delay voltage is exceeded. The resultant voltage is applied as bias to both mixer and I.F. valves to give A.G.C. Detection is by the remaining diode, which, operated at high level and with an AC/DC ratio approaching unity is designed to accept the very high percentages of modulation common in present practice.