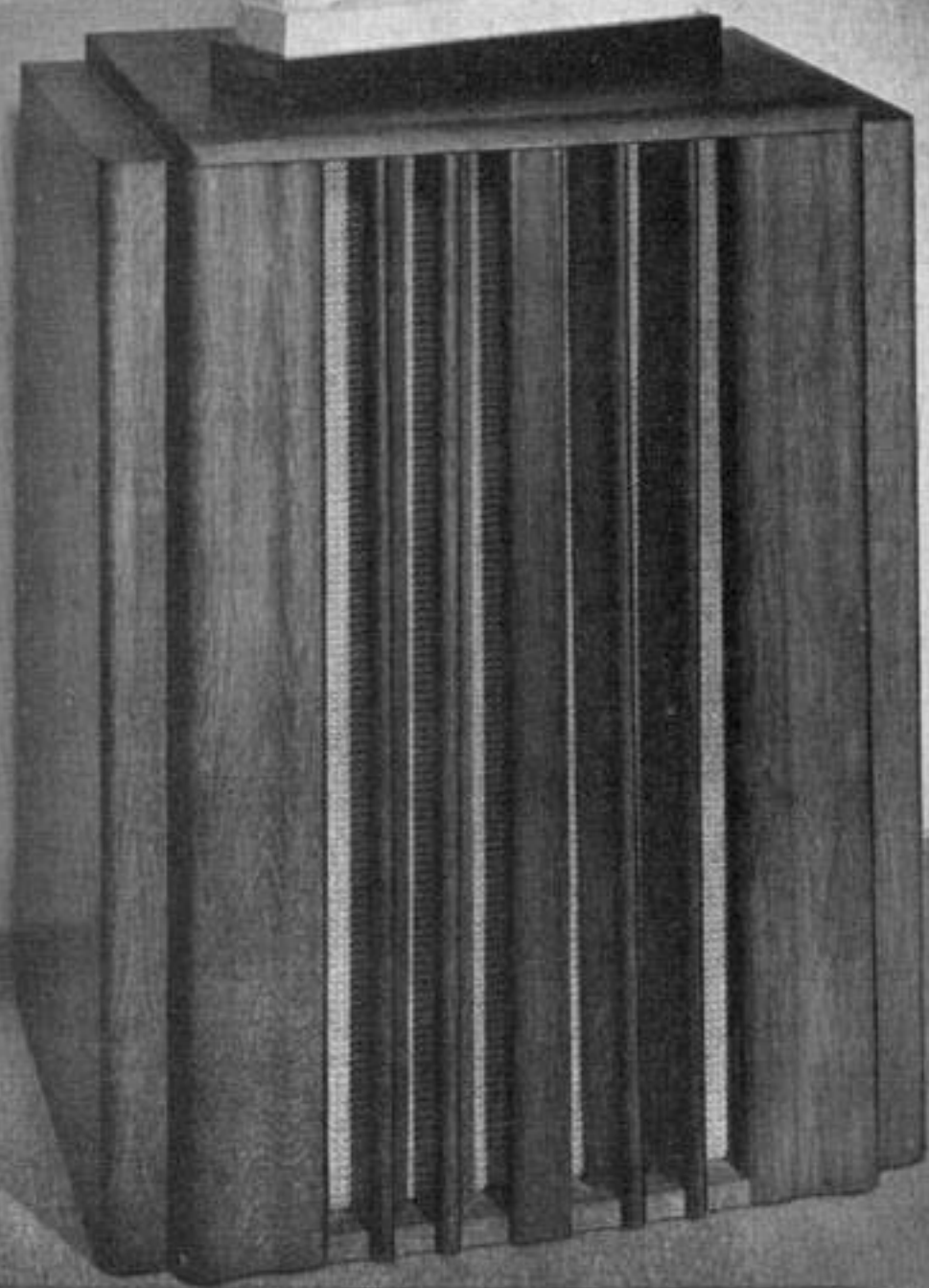




 **ACOUSTICAL**

QUALITY FOR THE HOME

The Concert Labyrinth

The loudspeaker has often been referred to as the weakest link in the chain of true reproduction. One reason for this has been the inability to reproduce the low frequencies in any way approaching true pitch or true harmonic relationship.

Several methods have been devised which eliminate or reduce cabinet resonance but there still remained the problem of extending the response so that the fundamental of bass notes are correctly heard. This has been achieved in the Concert Labyrinth by a new form of loading, consisting of an acoustic network coupled to the back of the driving unit. Cabinet resonance is eliminated by conventional phase shift methods whilst the resonances and anti-resonances of the network are so controlled in phase and amplitude that when combined with the output from the front of the unit, a smooth and extended bass response is obtained.

The aural effect of an extended and true bass response is very considerable and the well defined sense of pitch is particularly refreshing.

The extremely light yet rigid treble cone carries the response to the highest audible harmonics, permitting excellent transients and high frequency output. These high frequencies are well diffused over 120 deg. in a horizontal plane.

The cabinet is of pleasing design, one inch thick, constructed internally with timber and weyroac acoustic board. All external woodwork in oak.

Handling capacity	...	12 watts.
Impedance	...	15 ohms.
Dimensions	...	height 30" width 23" depth 17½"
Weight	...	74 lbs.

IMPORTANT

DUE TO THE HIGH EFFICIENCY OF THE EXTREME TOP REGISTER, THIS LOUDSPEAKER IS ONLY SUITABLE FOR USE WITH SPECIALISED HIGH GRADE AMPLIFIERS. TOTAL HARMONIC DISTORTION SHOULD BE UNDER 1 PER CENT AND IN PARTICULAR, 5th, 7th AND HIGHER ORDER HARMONICS MUST BE ATTENUATED MORE THAN—60 db.

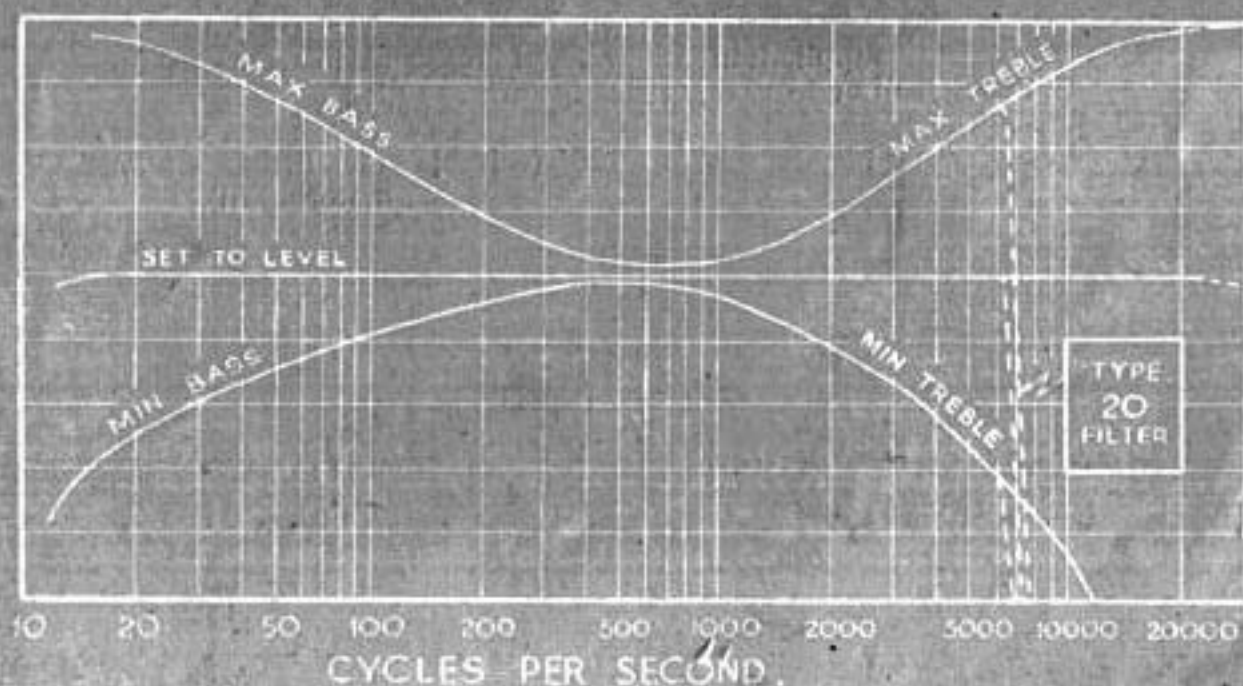


10-12 WATT QUALITY CHASSIS (TYPE QA12 P)

The QA12/P is an amplifier of extreme fidelity for those requiring the finest possible quality of reproduction in the home. It is also supplied for laboratory purposes for precision measurements at all audio frequencies.

For reproduction purposes, the response extends without deviation well beyond the limits of the human ear. Cross modulation - harmonic distortion - background noise, etc., have all been reduced to a level well below the standards accepted as incapable of human detection. The unit incorporates bass and treble controls for boosting or reducing and the slope of these controls is particularly designed for reproducing sound at a lower level than the original in small rooms.

For gramophone reproduction, lightweight high fidelity pickups should be used and the amplifier provides sufficient gain for these pickups with fixed bass compensation fitted in addition to the variable bass boost.



QA12/P CIRCUIT DETAIL

The pre-stage and tone control section utilises two high slope triode stages with independent negative feedback. The input resistance is 1.5 megohm, but the source impedance applied to the input should not exceed 30,000 ohms at high frequencies in order to maintain the specified figures. A switch is fitted to the pre-stage to cut out the tone controls when straight line is required and a third position of the switch introduces a further 20 db gain for laboratory use.

The main chassis consists of a push-pull driver and push-pull output stage. The phase changing is self-compensating to the extent of normal valve variations. The output valves are operated partly as cathode followers of special design and matched to the loudspeaker via a thirteen-section output transformer. Capacitive compensation is incorporated in the circuit and negative feedback is added to a total of 18db. The following figures are pass figures for final test.

Distortion content at 12 watts whole amplifier incl. prestage.	Input impedance: 1.5 megohm
2nd Harmonic: 0.1% - 60db.	Source impedance: Up to 30,000 ohms.
3rd Harmonic: 0.2% - 54db.	Output impedance: 7 & 15 ohms.
High order: 0.05% - 66db.	Output damping factor: 12.
Total: 0.25% - 52db.	Supply voltage: 200-250 A.C. single phase. 40 - 80 c.p.s. (or to specification).
Frequency range:	Supply consumption: 80 watts.
Within 0.3db 20-20,000 c.p.s.	Valves: ECC. 35—EF. 36—EF. 36—KT. 66—KT. 66—5U4G.
Within 2db 15-30,000 c.p.s.	Dimensions: 10½in. x 8½in. x 7in.
Tone controls: To published curves within 1db.	Weight: 16 lbs. complete.
Background: 6db. below 1 microvolt at input.	Finish: Bonderised and grey cellulose.
Sensitivity:	Type No. Amplifier only—QA 12. Amplifier with pre-stage—QA12/P.
Amplifier only: 66db.: 1.3v. for full output.	
Controls in: 100db.: 15mv. for full output.	
Controls out: 120db.: 1.5mv. for full output.	



HIGH QUALITY
TUNER UNIT
(TYPE HR/1)

The HR/1 is a radio tuner unit specifically designed for use with the QA12/P amplifier. It has been developed solely to obtain the maximum possible quality from transmissions in good or reasonably good reception areas. The unit is necessarily unselective, and no attempt has been made to provide reception from long-distance transmissions. Provided, however, that the signals from the desired stations arrive at the aerial free from adjacent channel interference, the reproduction obtained will be limited solely by the quality capabilities of the transmitter itself.

HR/1 CIRCUIT DETAIL

Two R.F. stages are employed and the aerial is coupled to the first grid via a potentiometer, no tuned circuit being used. This method of sensitivity control has been selected in preference to other methods in order to obtain R.F. amplification which is linear and hence free from envelope distortion. For the same reason, no A.V.C. is employed.

The R.F. stages are followed by a detector so arranged by a form of direct coupling that the ratio of DC to AC diode loading is unity, the result being that the detector will accommodate 100% modulated signals without distortion.

A composite type 20 filter follows the detector, switched as follows:—

1st position - UNLIMIT

All audio frequencies are passed to the amplifier and the R.F. tuned circuits are heavily damped for wide range response.

2nd position - 9 Kcs

All audio frequencies above 9 Kcs are suppressed and some damping removed from the tuned circuits.

Response: up to 8 Kcs level
9 Kcs - 20 db.
over 10 Kcs - 50 db.

3rd position - 7 Kcs

As position 2 but audio filter operating at 7 Kcs.

Response: up to 6 Kcs level
7 Kcs - 20 db.
over 8 Kcs - 50 db.

The tuner unit covers the medium and long wave bands and the dial is calibrated in kilocycles and metres. Switching and compensation is incorporated for gramophone input. Since the audio filter section is in operation on gramophone, no other filtering is required. The compensation is normally adjusted for a type C pickup unless otherwise specified.

The tuner unit takes its power supply from the QA12/P amplifier.

Dimensions: $9\frac{1}{2}$ " x 7" x 6"

Valve types: EF. 37—EF. 37—EB. 34.

A mains suppressor condenser is supplied with each unit.

TYPE 20 FILTER

The loudspeaker and amplifier described in this leaflet will reproduce everything from a gramophone record, including needle tracing distortion, cross modulation, and other effects associated with gramophone records. It is therefore essential that such distortions are filtered out for practical listening.

The HR/1 tuner unit incorporates this necessary filtering which is in operation for radio and record reproduction. Should the amplifier and loudspeaker be required without the tuner unit for the reproduction of records only, then a separate filter must be fitted between pickup and amplifier. The type 20 filter is available for this purpose.

The filter modifies the high frequency response to that laid down by leading recording engineers and is designed to obtain the optimum musical reproduction from a commercial record.

The filter may be switched in and out so that advantage may be taken of new and improved recording techniques as these develop.

Source impedance: 20,000 ohms.

Characteristics: 0 — 6,000 c.p.s. level
 7,000 c.p.s. — 20 db
 9,000 c.p.s. — 50 db

The filter is supplied in a mu-metal box and instructions for connecting the filter to various pickups are supplied.

Dimensions: $1\frac{3}{4}$ " x $1\frac{3}{4}$ " x $1\frac{1}{2}$ " (suitable for fitting under motorboard).