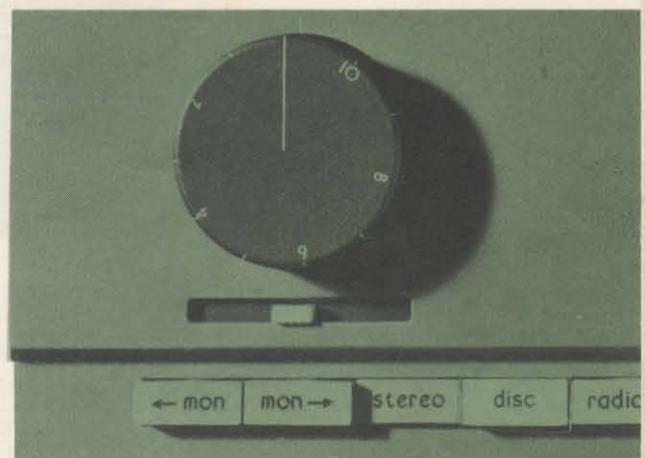
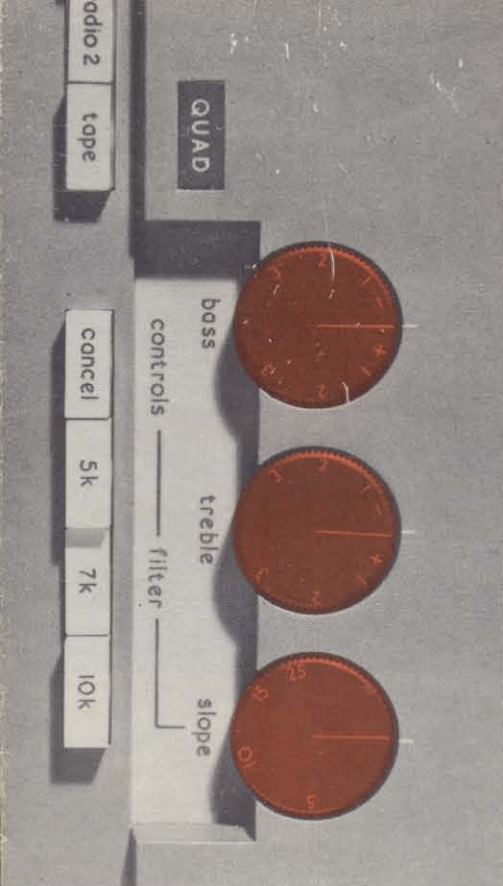




QUAD

for the closest approach to
the original sound

SOUND SYSTEMS

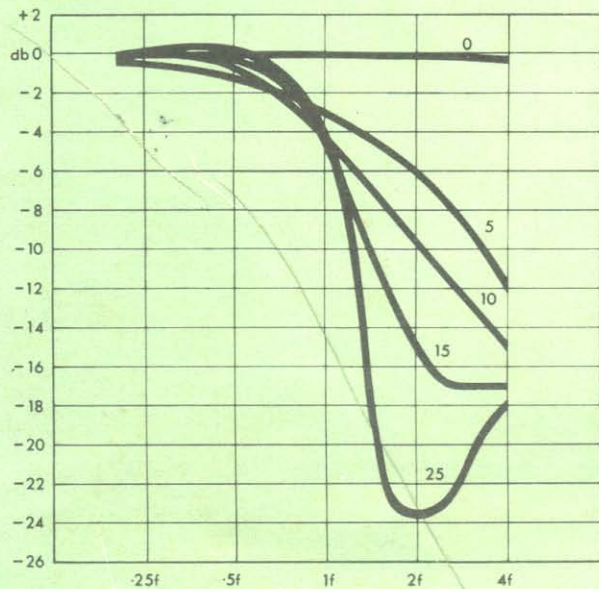
218 High Street,
Bromley, Kent.

01-460 4000

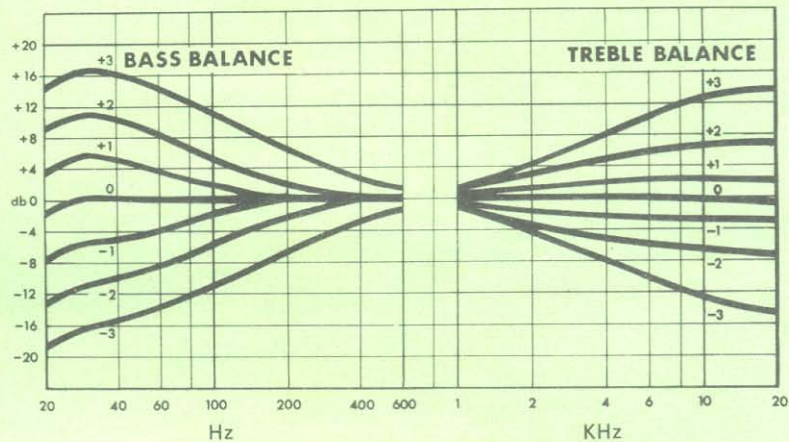
YOUR TAPE AND HI-FI CENTRE.

QUAD 33 CONTROL UNIT - QUAD 303 POWER AMPLIFIER

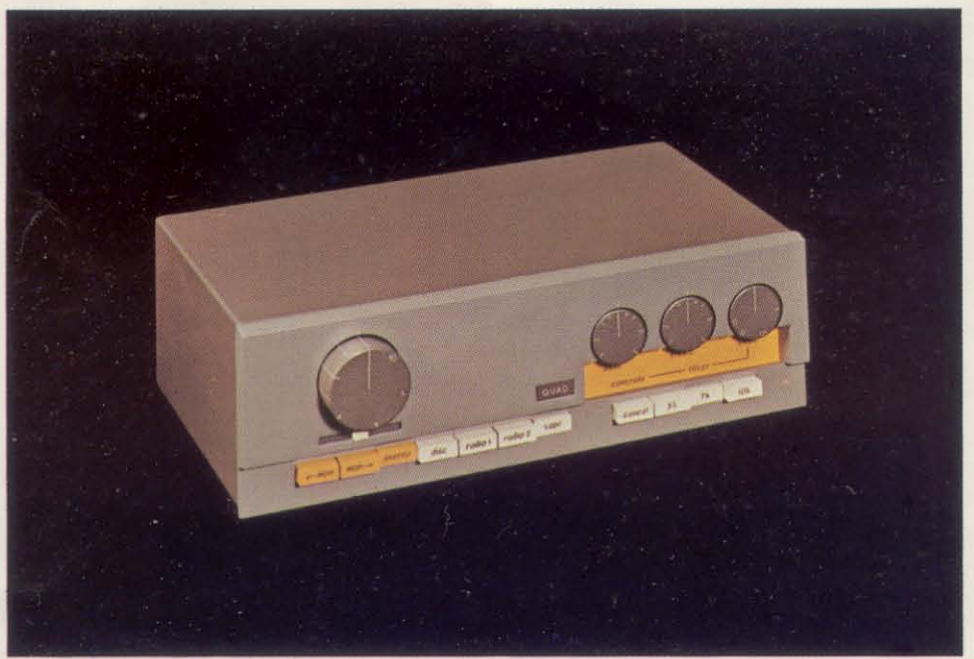
QUAD FM STEREO TUNER - QUAD ELECTROSTATIC LOUDSPEAKER



QUAD 33 : VARIABLE HIGH FREQUENCY FILTER



QUAD 33 : BASS & TREBLE CONTROLS



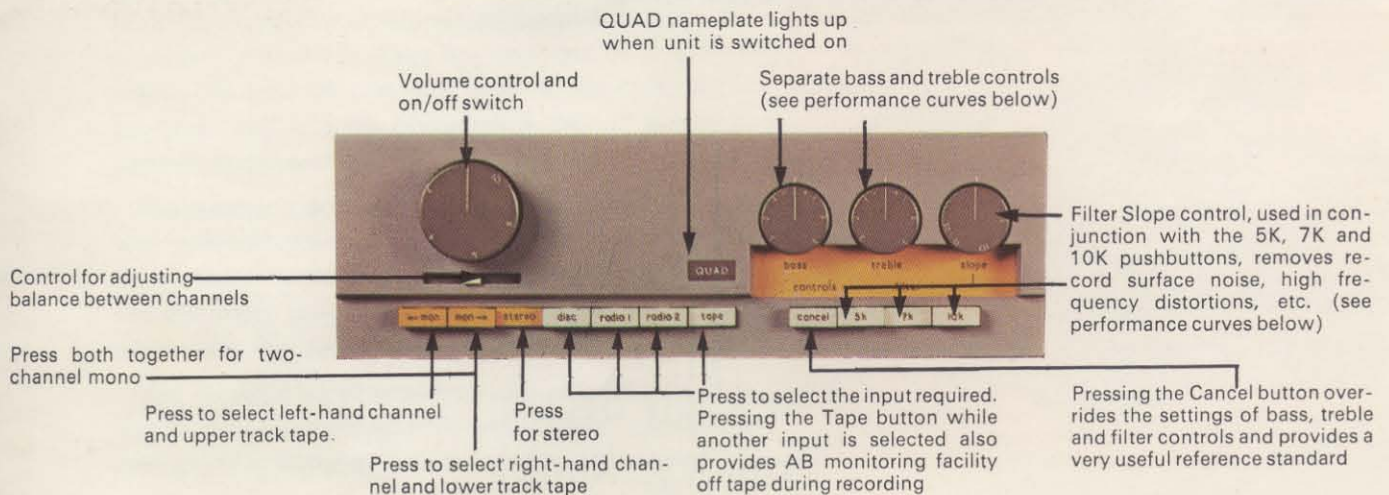
QUAD 33

CONTROL UNIT

The Quad 33 is the control unit of the system. Mounted in a convenient, accessible position, it selects and controls the radio tuners, gramophone pickup and tape recorder connected to it and feeds the loudspeakers via the power amplifier, providing for stereo, or mono on either or both channels, from all inputs, plus monitoring and track selection facilities for tape.

Controls

The controls are comprehensive but simple and are logically grouped to facilitate selection and control of the programme. A fully illustrated instruction manual is supplied with every unit but the purpose of each control will be readily apparent from the illustration.



Filters

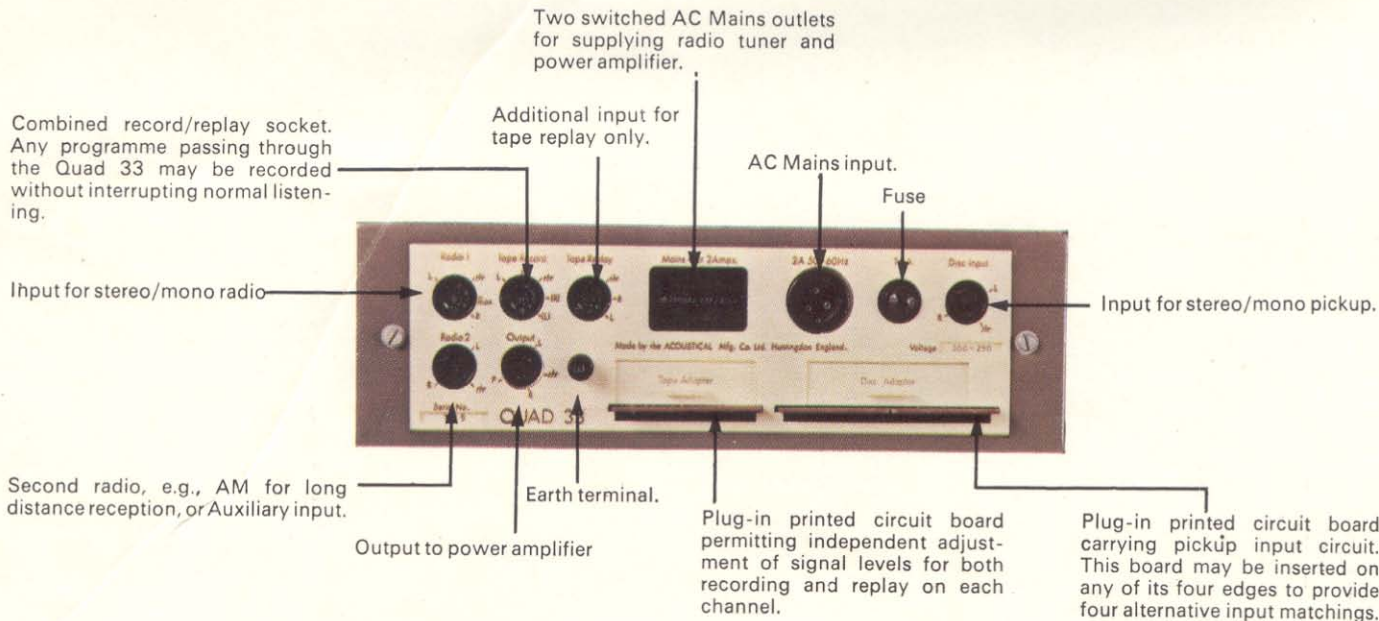
The filter is essential with modern good quality speakers and helpful at any time. It removes surface noise, tracing distortion and similar shortcomings in the upper frequency range of the recording or broadcast, and the two control filter system* achieves this to a very fine degree without intruding unnecessarily into the harmonic range so essential for realistic reproduction.

*a major feature of Quad equipment since 1950.

Another, fixed, built-in filter cuts out (*without affecting the normal low frequency response of the equipment*) unwanted signals at frequencies below 20 Hz, due to mechanical causes in motors and turntable mechanisms.

Bass and Treble

Entirely separate from the filters are the bass and treble controls which provide independent adjustment of tonal balance when required. Their operation is symmetrical and smooth without any unpleasant 'steps' in the response.



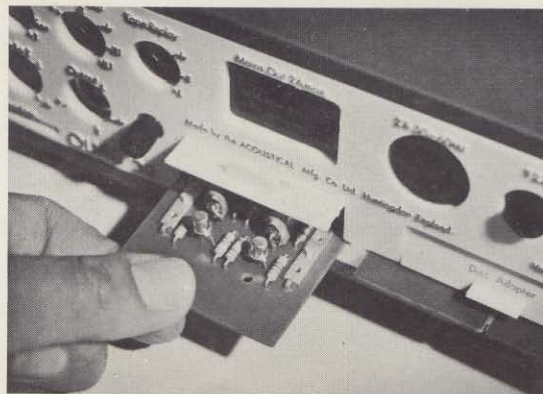
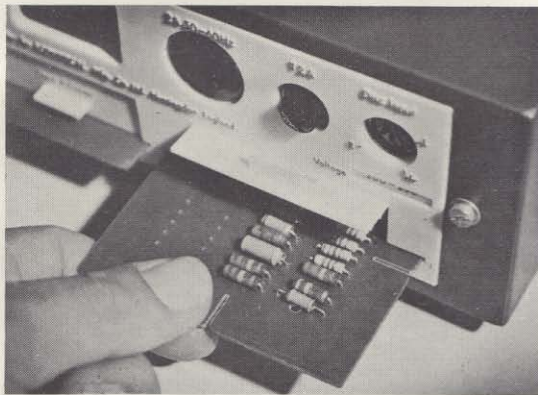
All signal connections comply with the internationally used DIN standards.

Every Pickup correctly matched

To change the pickup matching merely remove the Disc Adaptor and plug it in again with another edge leading : four matching circuits on one board with provision to accommodate any future development in pickup design simply by changing the board. The Quad 33 need never be out of date !

Tape

Any signal passing through the Quad 33 may be recorded without affecting normal reproduction or monitored off the tape (AB monitoring) as desired. The plug-in tape adaptor carries independent pre-set adjustments of signal level for both recording and replay on each channel, to suit the tape recorder in use. Again, since this is a plug-in board, any future or special requirements can be met merely by replacing the board thus adding further to the versatility of the Quad 33.





QUAD FM STEREO TUNER

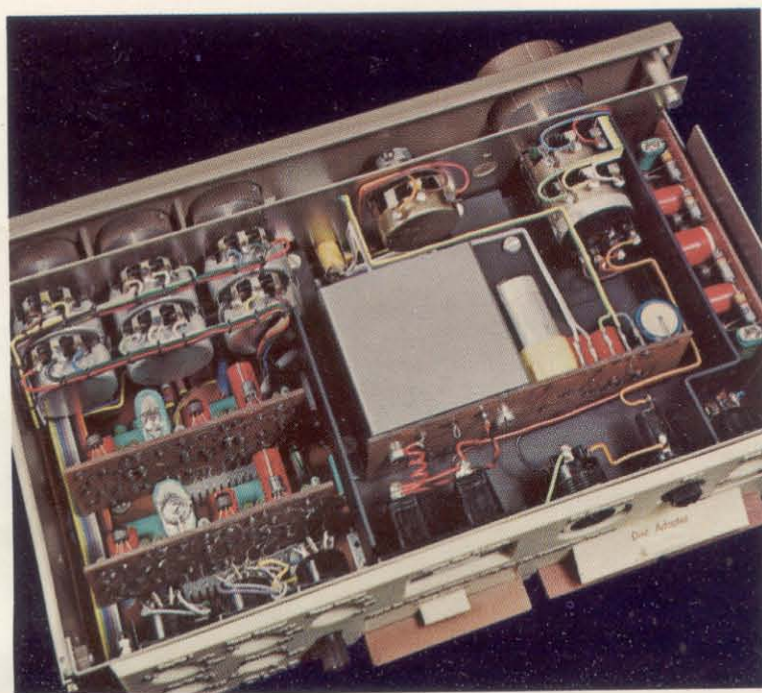
This self-powered tuner provides full facilities for both mono and stereo operation. Switched to stereo the tuner will respond automatically to a stereo broadcast, illuminating the stereo indicator on the front panel, but reverting to properly derived mono operation at all other times. Switching to mono on the Quad 33 over-rides the automatic operation so that in difficult reception conditions, advantage may be taken of the inherently superior signal:noise ratio of mono on weak signals.

Temperature compensation and automatic frequency control ensure drift-free tuning without preventing reception of weak signals adjacent to a strong station.

The unique twin neon tuning indicator gives positive and extremely accurate indication of correct tuning.

SPECIFICATION

TUNING RANGE	87.5-108 mc/s
SENSITIVITY	2 μ V for 30 dB quieting.
DE-EMPHASIS:	50 μ S (European standards) 75 μ S (North American standards)
OUTPUT VOLTAGE:	100 mV (Nominal for 30% modulation) into 100 Kohms each channel (50 K mono)
CROSSTALK:	better than 30 dB at 1 kc/s
SUPPRESSION:	19 kc/s Pilot tone better than 36 dB 38 kc/s Switching tone better than 40 dB
POWER INPUT:	100-130/200-260W 50-60 Hz 25 Watts
WEIGHT:	7 $\frac{1}{2}$ lb. (3.5 Kg.)
DIMENSIONS:	Width 10 $\frac{1}{4}$ " (260 mm) Height 3 $\frac{1}{2}$ " (92 mm) free standing, 3 $\frac{1}{4}$ " (83 mm) panel Depth 8" (200 mm) free standing 7 $\frac{1}{8}$ " (180 mm) behind cabinet panel when mounted (Allow a further 1" (25 mm) for aerial plug on left hand side when viewed from front).

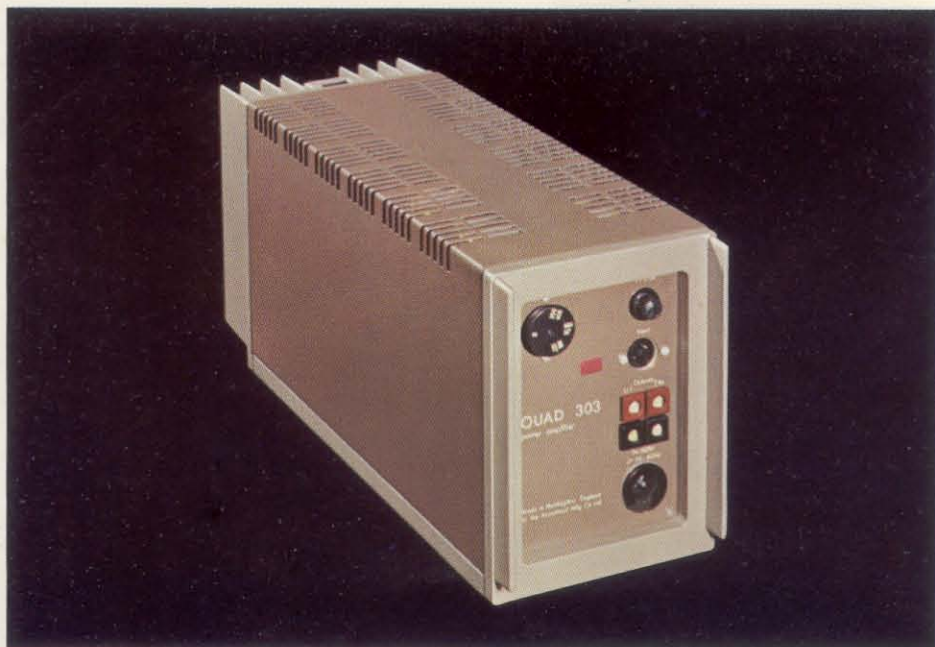


Each circuit is carried on a plug-in board to facilitate access for servicing.

Quad units may be used either free standing or mounted in a variety of ways. There is thus plenty of scope for individual preference in layout design.

The standard Quad system of mounting is used, requiring only a rectangular cut-out for which a template is provided. No screws, brackets or other difficult parts are needed.

All units are fully tropicalised and provide for operation from 100-125 or 200-250V AC mains.



QUAD 303

POWER AMPLIFIER

This unit takes the outputs of the Quad 33 and amplifies them to loudspeaker level. Both channels are housed in one compact unit which, since it has no controls, may be mounted out of sight, in a cabinet or ventilated cupboard, for example, if necessary.

It employs entirely new circuitry ⁽¹⁾ designed for continuous operation which not only provides an outstandingly high quality of reproduction ⁽²⁾ but also protects the output circuit from accidental misuse without elaborate and expensive circuitry. It cannot be upset even when over-driven by an asymmetrical signal or by shorting or disconnecting the speakers.

Like previous Quad power amplifiers it is unconditionally stable and its performance is maintained with inductive, resistive or capacitive loads. See curves below.

SPECIFICATION QUAD 303

The figures and curves refer to measurements on either channel, with or without the other channel operating.

POWER OUTPUT AND DISTORTION:

(with unrestricted bandwidth)

70 Hz <0.03% } Any level up to 28W 16Ω load
700 Hz <0.03% } Any level up to 45W 8Ω load
10 kHz <0.1%

FREQUENCY RESPONSE:

—1dB (ref: 1 kHz) at 30 Hz and 35 kHz into 8Ω
—1dB (ref: 1 kHz) at 20 Hz and 35 kHz into 16Ω

OUTPUT SOURCE IMPEDANCE:

0.3Ω in series with 2000μF and 6μH.

INPUT LEVEL:

0.5V rms for 30 watts into 16Ω

INPUT IMPEDANCE:

22K Ω in parallel with 60 pF

HUM AND NOISE:

—100 dB below full output

INTERCHANNEL CROSSTALK:

30-10,000 Hz better than 60 dB. Input load 1 KΩ.

STABILITY:

unconditionally stable with any load.

POWER INPUT:

100-125 or 200-250V 50-60 Hz.
40-200 watts depending on signal level.

WEIGHT:

18 lb. (8.2 Kg)

DIMENSIONS:

Width 4½" (120 mm)
Height 6¼" (159 mm)
Depth 12¾" (324 mm) (plus
1¼" (38mm) for connectors)

OTHER APPLICATIONS:

The amplifier may be used for any purposes into load impedances greater than 8 Ω.

Below 8Ω applications should be restricted to music and speech reproduction or intermittent sine-wave duty.

⁽¹⁾ This unique circuit employs symmetrical triples in the output stages, greatly reducing distortion, rendering the quiescent current independent of output transistor temperature and making it possible to maintain control of the output current easily and effectively. Since the voltage is also controlled the output transistors are completely safeguarded and must always operate within their ratings with the obvious advantage of greatly improved reliability under all conditions. Note, too, the generous heat sink for temperature stability.

⁽²⁾ With the class B operation required for transistor amplifiers the distortion is subjectively more objectionable than with the class A operation of valve amplifiers. For this reason the distortion content from a transistor amplifier must be appreciably lower for the quality of reproduction to be as acceptable. In the Quad 303 it is ten times lower than in the best of valve amplifiers and about a hundred times better than in most other transistor amplifiers.

NOTE:

Quad electrostatic loudspeakers prior to serial number 16800 must be modified for use with the Quad 303 amplifier.

SPECIFICATION QUAD 33

DISTORTION: All controls level, 0.5V rms output, with any input : 0.02%
Any control settings and any level within overload ratings : <0.1% } 30-10,000Hz
RESIDUAL NOISE: 0-30 phon weighting : <—90dB
15-7kHz band-width controls level or cancel
FREQUENCY RESPONSE: Any input, any output : ±0.5dB 30-20,000Hz
RIAA or flat as appropriate

tone controls ±1dB of curves shown below
FILTERS: To curves shown below at 5kHz, 7kHz and 10kHz ±5%.
INTERCHANNEL BALANCE: Within 1dB with volume control varied from maximum to —45dB
BALANCE CONTROL RANGE: 9dB either way
CROSSTALK: Dependent on input source impedances. Replay/record typically better than 70dB } 30-10,000 Hz
Interchannel typically better than 40dB

INPUTS (all voltages rms)		Recommended Source Impedance 1.	Load Impedance 2.	Input Level for 0.5V Main Output 3.	Maximum Input 4.	Signal to noise referred to level in Col. 3. 0-30 phon weighting.
RADIO		20K Ω or less	100K Ω	100mV	2V	> 85dB
TAPE REPLAY	H	any	40K Ω	1V	10V	> 85dB
	M	any	40K Ω	400mV	4V	> 85dB
	L	any	40K Ω	100mV	1V	> 85dB
DISC	M1	Low Output Magnetic 0.5-2mV/Cm/Sec.	68K Ω	2mV at 1kHz	40mV at 1kHz	70dB
	M2	High Output Magnetic 1.5-6mV/Cm/Sec.	68K Ω	5.6mV at 1kHz	120mV at 1kHz	80dB
	C1	Ceramic 450-800pF 25-80mV/Cm/Sec.	Special	100mV at 1kHz	1.2V at 1kHz	—
	S	FOR SPECIAL REQUIREMENTS				

OUTPUTS (all voltages rms)		Level	Source Impedance	Recommended Load Impedance	Maximum Cable Lengths—Using 20pF/ft Screened Lead.
TO POWER AMPLIFIER		0.5V	1K Ω	10K Ω or over	100 feet
TO TAPE RECORDER	H	100mV *	200 Ω	25K Ω or over	150 feet
	M	20mV *	800 Ω	any	any
	L	3.7mV *	180 Ω	any	any
		* 30% programme modulation			

WEIGHT: 6½ lb. (3 Kg)
 DIMENSIONS:
 Wth., 10¼" (260 mm)
 Ht., 3⅝" (92 mm) free
 standing, 3¼" (83 mm)
 panel. Dth., 6½" (165
 mm) free standing 5½"
 (140 mm) behind
 cabinet panel when
 mounted (Allow 2½"
 (64 mm) beyond rear
 panel for connectors)
 POWER INPUT: 100-
 130/200-260V 50-60
 Hz 1.5 Watts.

IT IS NOT ALWAYS...

appreciated that radio broadcasts and recordings on both tape and disc are capable of very much more realistic reproduction than is often encountered.*

Only a small minority of people can attend live concerts of the highest professional standards. Listening to your own choice of music, in the comfort of your own home, when convenient, and with a quality of reproduction closely approaching that of the live concert hall, are obvious advantages. It is not surprising, therefore, that over the past 20 years, Quad has become well established as a major feature of so many homes. Quad units are designed to provide these advantages fully but unobtrusively; both installation and operation have been made extremely simple, and the styling continues the traditional Quad ability to look at home in a wide range of domestic (and professional) settings. The quality of performance and engineering is, of course, to the highest possible standard and the circuits incorporate several significant advances over current practice.

**Owners of Quad units are aware of this and of the part Quad has played in establishing and maintaining these standards since the beginning of the high fidelity era.*

Points to remember:

- (a) good equipment is expensive
- (b) the reverse is not necessarily true
- (c) the overall quality of reproduction obtainable is limited by the poorest item in the chain. Aim therefore at top quality throughout but if cost precludes this initially, choose an amplifier which will make it worthwhile improving the other items as and when circumstances permit, so that eventually you have an installation which will give you the finest quality and therefore maximum enjoyment. It is significant that having become used to a better quality the ear will never again tolerate a worse.



£55

**QUAD
303**



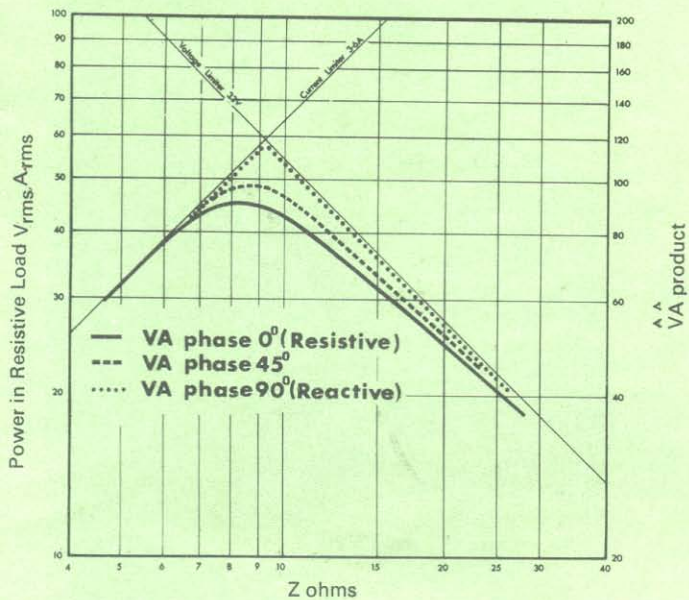
£43

QUAD 33

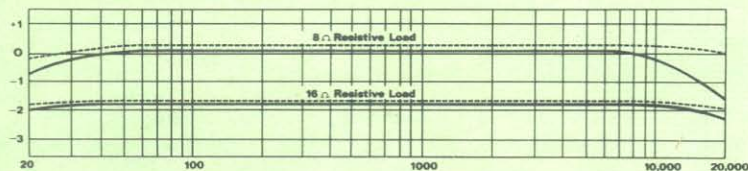


£51

QUAD FM



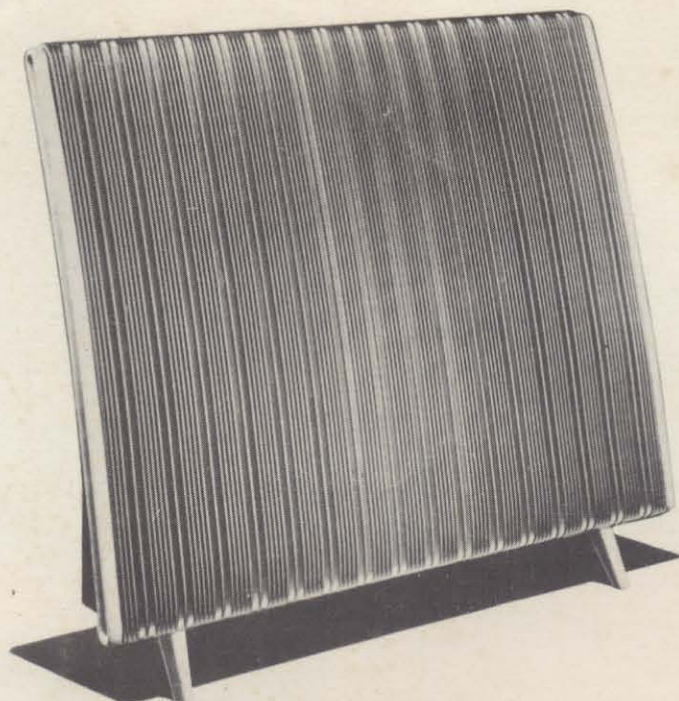
QUAD 303 : POWER OUTPUT



- Less than 1% D_{tot} at any frequency
 - Less than 0.1% D_{tot} at any frequency
- Odb = 45 Watts

QUAD 303 : POWER-FREQUENCY CURVE

£66



QUAD ELECTROSTATIC LOUDSPEAKER

Using closely coupled moving elements some two hundred times lighter than the diaphragms of moving coil loudspeakers and being entirely free of cabinet resonances and colouration, this loudspeaker overcomes the usual major problems of loudspeaker design and provides remarkably natural reproduction of sound. As there is no known method of expressing the performance of a loudspeaker which conveys any real idea of its performance the only real test is to listen to the music it reproduces and a good comparative demonstration is strongly recommended.

The speaker is enclosed within expanded metal grilles with polished wood end frames and feet and is suitable for use under normal domestic living conditions throughout the world. It is designed for use in rooms of up to 5000 cubic feet per speaker.

It is essential for both performance and reliability that this loudspeaker be used only with a QUAD amplifier or one specially designed for this type of loudspeaker.

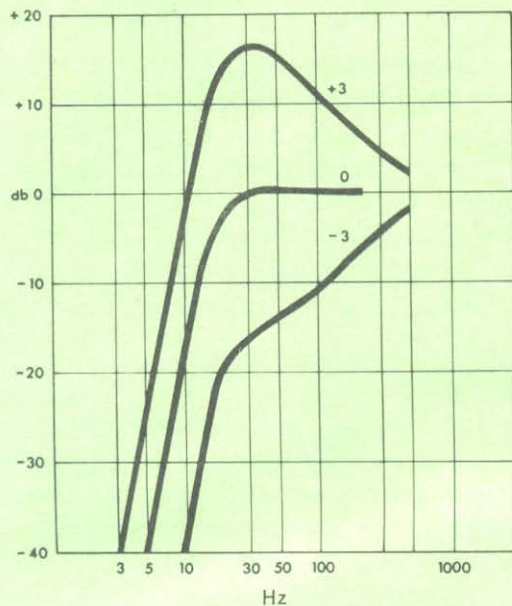
SPECIFICATION

MAXIMUM OUTPUT:	6" on axis in free space 93dB referred to 0.0002 dynes/cm ² in frequency range 50c/s-10 Kc/s 100 dB referred to 0.0002 dynes/cm ² in range 70 c/s-7 Kc/s
BANDWIDTH:	45 c/s-18 Kc/s. Rate of attenuation asymptotic to 18 dB/8ve
DISPERSION:	Approximately 70° Horizontal, 15° Vertical
IMPEDANCE:	30-15 ohm in range 40 c/s-8 Kc/s falling above 8 Kc/s
AC VOLTAGE RANGE:	100-120, 200-250 volts 50-60 c/s
FRONT GRILLE:	Expanded aluminium, anodised bronze
WEIGHT:	Net 40 lbs. (18 Kg.)
DIMENSIONS:	Height 31" Depth 10½" Width 34½"

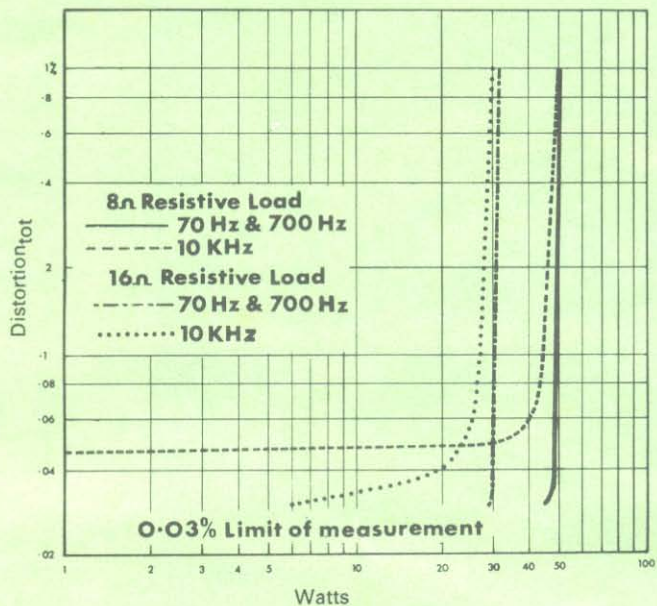
THE ACOUSTICAL MANUFACTURING COMPANY LTD
Huntingdon, England - Telephone Huntingdon (0480) 2561/2

Manufacturers reserve the right to alter specifications without notice

Leaflet designed and produced by P. A. May Ltd. Printed in England by the WLP Printing Group London and Southend



QUAD 33: FIXED LOW FREQUENCY FILTER
(at limits of bass control settings)



QUAD 303: DISTORTION