QUAD

for the closest approach
to the original sound

Quad products are designed and manufactured by a team of about 140 people in a factory in Huntingdon, a small town in Cambridgeshire. Each Quad product incorporates the benefits of nearly half a century of experience in the design and manufacture of sound reproduction equipment.

The story of Quad started in 1936 when Peter Walker decided to set up his own business manufacturing amplifiers under the name of The Acoustical Manufacturing Company.

Early days, as in so many small companies, were composed of enthusiasm, hard work and very little reward. However, the experience was invaluable and when in the late forties people started to take an interest in improving the quality of domestic music reproduction, Acoustical was already producing high quality amplifiers and loudspeakers. The Corner Ribbon loudspeaker with a horn loaded ribbon tweeter reproduced an octave or so which other loudspeakers did not reach and was followed a couple of years later, in 1951, by the Acoustical Q.U.A.D. amplifier, successor to the QAP/12, which although designed for public address use (Quality Amplifier Professional 12 watts) was already finding favour amongst early audio enthusiasts. It did not take music listeners long to realise the virtues of Acoustical's products and to appreciate that the acronym Quad, derived from Quality Unit Amplifier Domestic, was much easier to pronounce and remember than Acoustical. The Acoustical Q.U.A.D. amplifier established the format for domestic high fidelity equipment consisting of a pre-amplifier with the controls necessary for the selection of programme and separate power amplifier. The Quad II which followed added two important features, pickup input matching and filters.

The reputation of Quad is founded on the Quad II amplifier and Quad electrostatic loudspeaker introduced in the fifties. As well as establishing the fame and fortune of Quad, these products also had a profound effect upon the

development of the audio industry. It is rare to meet an audio engineer who has not used them as reference standards against which to compare his own efforts. The principles behind the design of these early Quad products; rigorous scientific analysis and the rejection of commonplace solutions in favour of innovative ideas leading to significant improvements in the reproduction of sound; have been applied to the design of every Quad product since.

The benefits of these design principles are obvious. The Quad II remained in production for eighteen years until with the development of output triples we were able to produce a transistor amplifier, the Quad 303, with superior performance. The Quad electrostatic loudspeaker remained as a reference standard for twenty-five years ousted only by the introduction of the Quad ESL-63.

Succeeding Quad products have made their contribution to the stature of the Quad reputation, collecting on the way an array of awards and prizes, including a Queen's Award for Technological Achievement, the only one ever awarded to an audio equipment manufacturer, and a throng of satisfied music listeners the world over.

Although designed for music reproduction in the home, Quad products are used in recording and broadcasting studios where and whenever quality is the first requirement.

The present range of Quad products described in this brochure are very much in the Quad tradition, a tradition of innovation, quality of manufacture, practical ergonomics, exceptional performance and customer satisfaction.

With the end of the first half century in sight Quad is setting its sights on the next fifty years determined to maintain its position as standard setter for the industry.

Quad, in any language, for the closest approach to the original sound.

The Quad ESL-63 affectionately known as Fred (full range electrostatic doublet) has taken on the role fulfilled so successfully by its predecessor as reference standard for the industry and the loudspeaker to which serious music listeners aspire.

Because they are expensive and not widely distributed a great deal of mystery still surrounds the electrostatic loudspeaker.

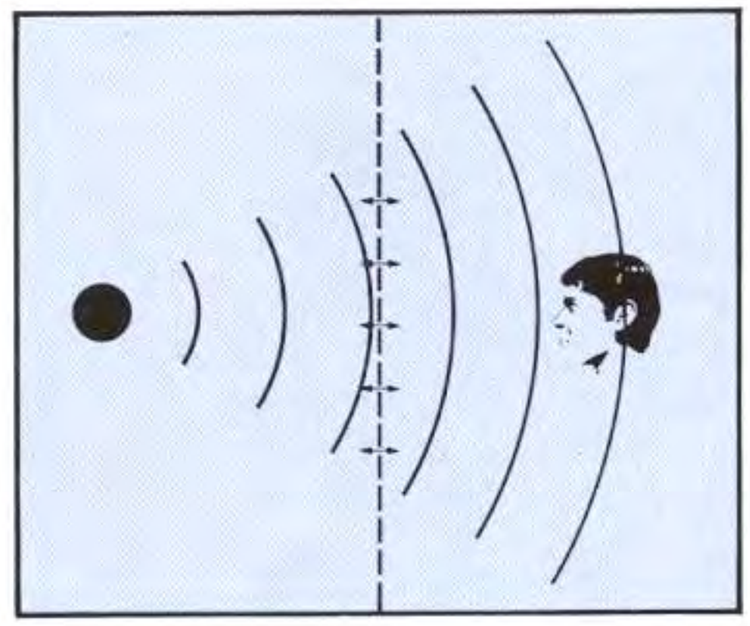
The idea of a relatively large light membrane acting directly upon the air and driven over its entire surface in a controlled manner is intuitively very attractive and has attracted loudspeaker engineers from the beginning.

An electrostatic loudspeaker consists of light thin membrane on which is placed a charge, suspended between two acoustically transparent, (i.e. with holes), electrodes. When a signal is fed to the electrodes a field is generated between them and the charged diaphragm compelled to move by an electrostatic force. Reversing the polarity of the signal on the electrodes causes the diaphragm to move in the opposite direction and thus sound pressure is generated.

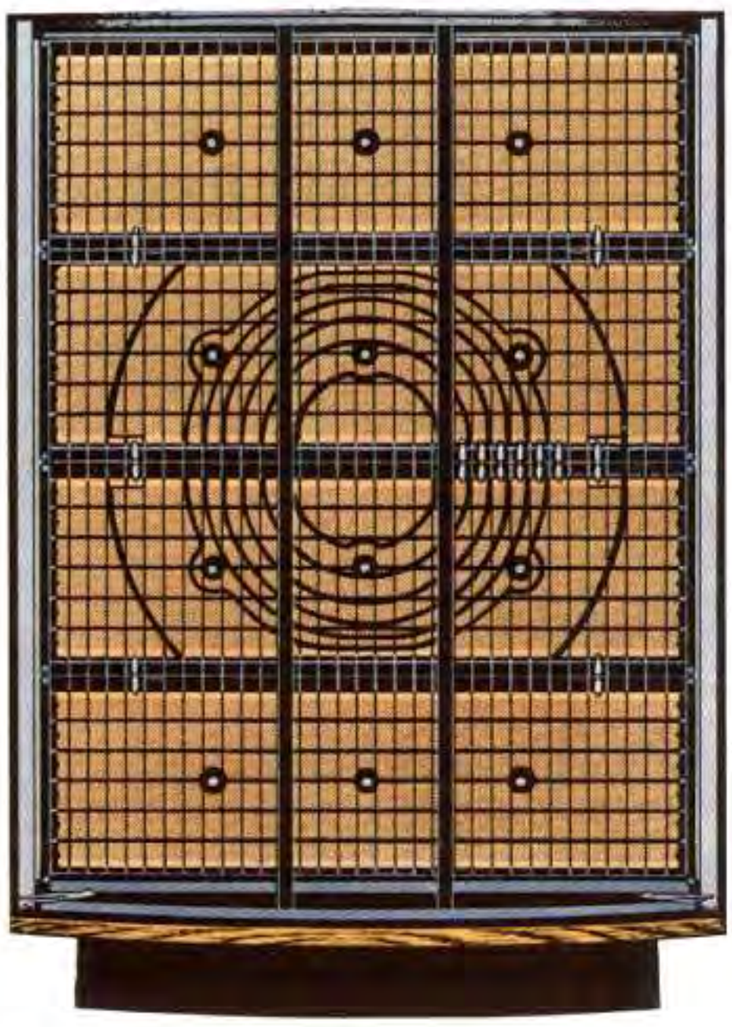
The electrostatic loudspeaker has several inherent advantages. Since the diaphragm is driven over its whole surface it does not need to be stiff and can be made extremely light and thus have negligible stored energy. Because of the good impedance match with the air it is not necessary to load the loudspeaker into a box and the problems associated with cabinet resonance disappear. Designing and manufacturing electrostatic loudspeakers is by no means easy but the potential is there for a higher degree of performance than with conventional loudspeakers.

An ideal loudspeaker would consist of a single point source reproducing all frequencies. The Quad ESL-63 uses the electrostatic principle to achieve just this.

Imagine a theoretically ideal point source loudspeaker radiating sound pressure waves and a plane in the air a short distance from the source at right angles to the direction of propagation. Were we able to make the air at the plane



THE **QUAD** ESL-63.



visible we should see concentric waves radiating out from the centre, as if we had just thrown a stone into a still pool.

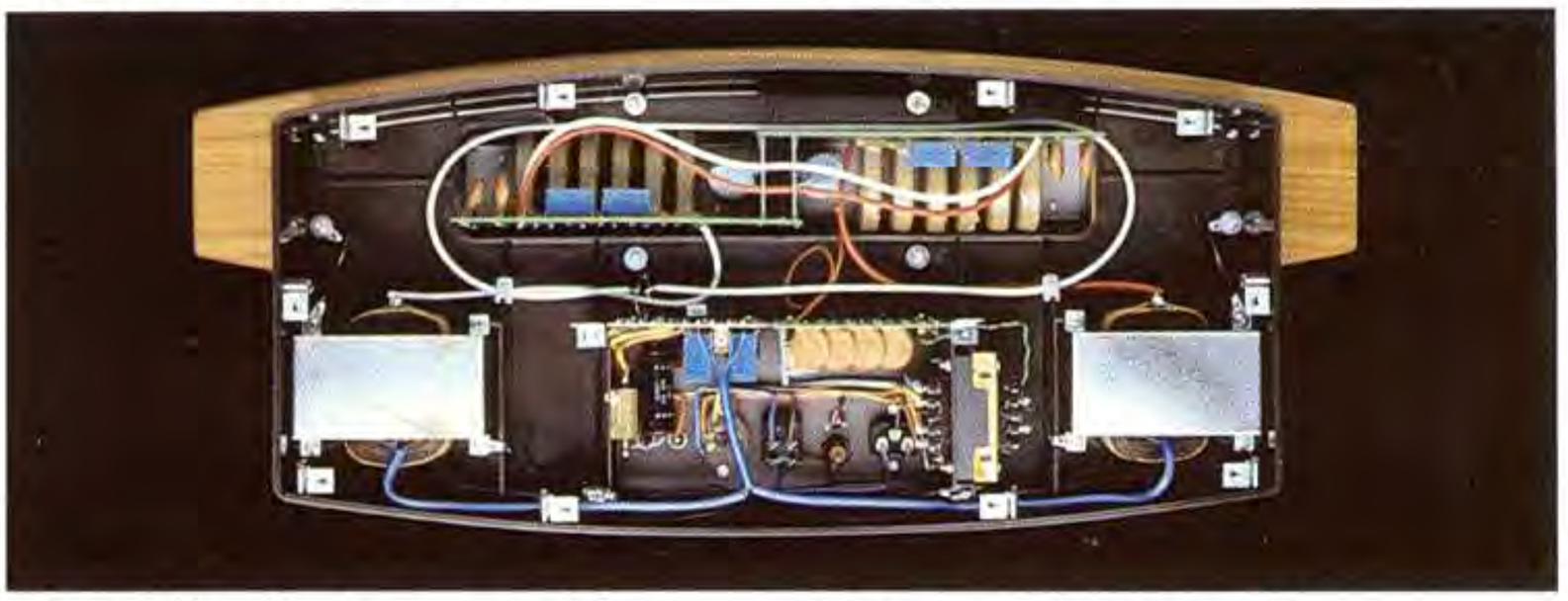
If we replace the plane with a very light membrane, induce it to reproduce the air particle motion already observed and suppress the original source, the results to a listener on the far side are absolutely indistinguishable from those of the ideal source.

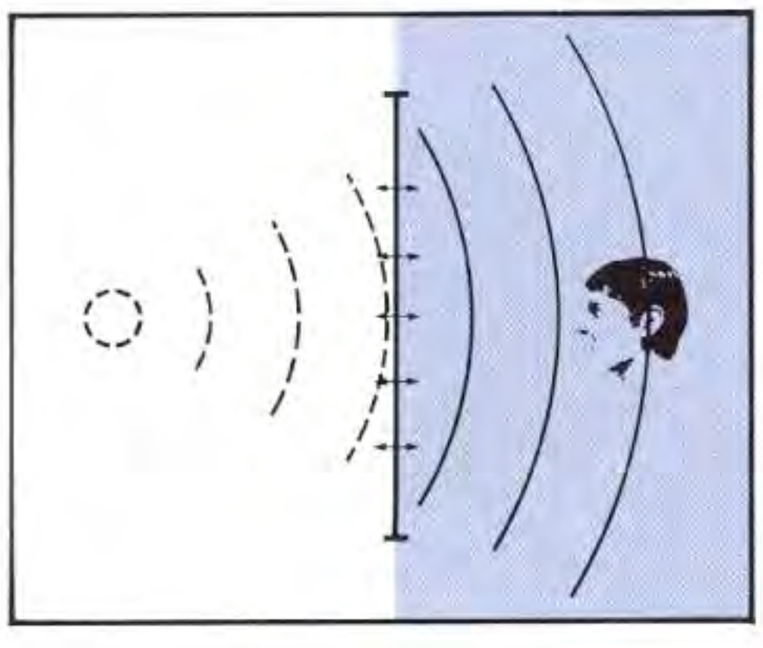
The Quad ESL-63 does exactly this.

It consists of a diaphragm suspended between two sets of concentric annular electrodes. Signal is fed to the electrodes via sequential delay lines and the diaphragm motion produces a sound pressure pattern which is an exact replica of that from an ideal source placed some 30 cms behind the plane of the diaphragm. The ESL-63 is a totally homogeneous sound source, phase true and very aperiodic with a frequency response both on and off axis quite free from the irregularities which are inevitable with any multiway loudspeaker system.

The designer has complete control over the directivity of the loudspeaker and by increasing the directivity index smoothly with increasing frequency, optimum stereo performance is achieved.

The Quad ESL-63 is a dipole which has significant benefits in terms of room placement and stereo perception. With a sound dispersion pattern which resembles a figure of eight, a dipole radiates no energy in the plane of its diaphragm and does not excite room modes whose axes lie in this plane.





The nett result is a loudspeaker of unsurpassed accuracy which given the right programme material will produce a more realistic and satisfactory illusion of a live musical performance than has previously been possible.

Development of the Quad ESL-63 has taken many years. Much of the time has been spent in investigating and experimenting with new materials and production techniques, the result of which has been that variations due to manufacturing tolerances have been virtually eliminated, sample variation being held to within less than $\pm$ ½dB and stability of the materials used is such that the performance will be maintained for the loudspeaker's useful life without the need for regular maintenance.

The loudspeaker is fitted with two protection circuits, one which limits the maximum input voltage fed to the loudspeaker and the other which detects fault conditions and instantaneously shorts the signal being fed to the loudspeaker. It is impossible to damage the loudspeaker elements, but the input voltage limiter has limited thermal capacity and persistent overdrive will overheat it.

Programme material

A small note of caution. We believe that these loudspeakers give a more realistic picture of an acoustic event than has ever been possible before, but the excellence of the Quad ESL-63 will only be revealed if the very best source material is used. Conversely they are very revealing of faults in recording techniques and perhaps it is as well that customers for these loudspeakers include recording and broadcasting companies.

Quad, the thinking man's music system.

The invention and development of the gramophone and wireless have surely added more to the richness of our lives than any other of man's recent discoveries. Music at the touch of a button. Enough to make an Esterhazy weep.

For the serious music listener a Quad music system offers a degree of emotional and intellectual satisfaction exceeded only by listening to the real thing. Few are fortunate enough to have unrestricted access to live performances by first class orchestras so that a music system provides a very positive contribution to the enjoyment of music. The enormous wealth of recorded material lets us become familiar with definitive performances of the more popular repertoire and gives access to works which for one reason or another appear seldom in the repertoire of modern orchestras.

A Quad music system consists of pre-amplifier, power amplifier, radio tuner and loudspeakers, to which are added turntable, compact disc player and tape machines according to the listener's choice. The Quad system is designed to reproduce the signal fed into it as accurately as possible, nothing added, nothing taken away.

The performance of a Quad music system is readily apparent to anybody prepared to listen, but appreciation of the real value of an investment in Quad grows steadily with the passing of time.

Quad has established a pre-eminence in domestic music reproduction which makes ownership of a Quad system the aspiration of those who listen to music seriously. The Quad philosophy is simply stated. For the closest approach to the original sound is the guiding principle of the design of every Quad product, design which is based on sound engineering. In an industry where product design seems to be determined solely by ephemeral fashion Quad products set an example of what can be achieved by correct attention to fundamentals, engineering and ergonomics.

For people with a serious interest in music, to whom ownership of equipment is a means to an end rather than an end in itself, Quad represents the ideal solution to which there is no better testimonial than the hundreds of thousands of satisfied Quad owners.

Choosing a music system is fraught with difficulty. There is no substitute for a good demonstration by a competent retailer. Good retailers are scarce, which explains why you will not find Quad in most shops selling purported hi-fi.

Remember that we at Quad share your interest so do not hesitate to ask us* for help or advice.

*Quad has a distributor in most countries who will provide this service.

THE **QUAD** 44

There are two Quad pre-amplifiers, the 34 and 44 which share many features in common, and differ only in the extent of facilities offered. They represent the result of more than thirty years experience in the design and use of pre-amplifiers. The refinements in circuit design and ergonomics enables the listener to obtain maximum musical enjoyment from the widest possible range of programme material.

The pre-amplifier selects the desired programme input, providing optimum matching for the programme source, amplifies the signal up to amplifier level and permits the listener to adjust and apply tonal correction.

The Quad 34 and 44 are normally used in conjunction with one or other of the Quad power amplifiers, but can also be used with power amplifiers of other makes.

Optimum performance from disc depends upon accurate RIAA de-emphasis and correct matching of both load and sensitivity. Quad pre-amplifiers have a range of plug-in modules which provide correct matching for any pickup cartridge, any output level.

It is widely believed that music should be reproduced through a system with a flat frequency response. While this may be "hi-fi," it is seldom likely to reproduce the closest approach to the original sound. It is only necessary to play a good recording on first class equipment in two different rooms to realise just how much variation there can be.

While a small number of records can be found which produce excellent results in any one room without tonal correction, this is clearly unsatisfactory if one wishes to choose records on musical rather than technical merit. Quad has developed a system of tone controls and filters which used intelligently enable the listener to achieve optimum results from a wide range of recorded and broadcast programme material.

The Quad 44 Filter controls.

The Quad 34 Filter controls.

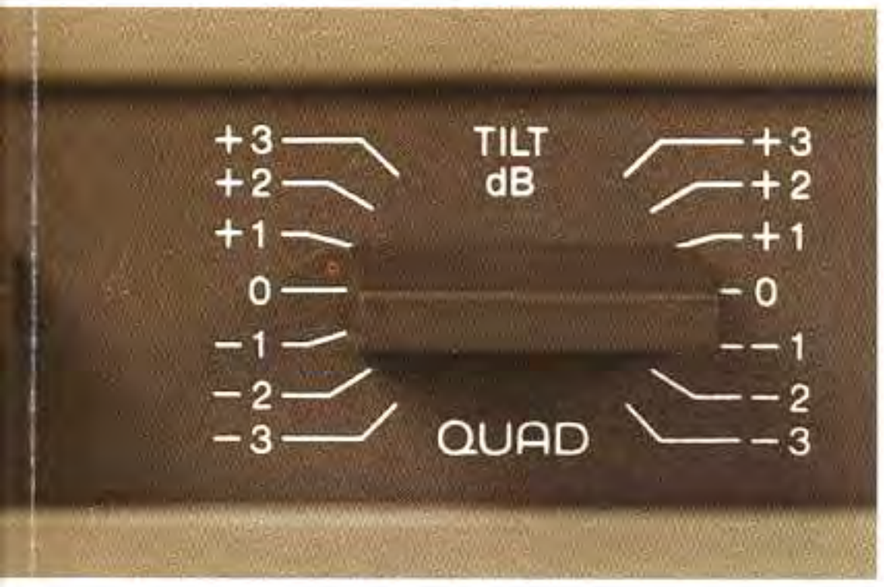
The Quad filters cope with tracing distortion. Even with modern stylus shapes, the tracing distortion from a gramophone record doubles for every half octave increase in frequency, rising to as high as 50% at high frequencies and modulation levels. The filter characteristics are carefully tailored to remove the unwanted distortion while leaving the musical information. More of the music and less of the "hi-fi."

The tilt and bass controls cope with problems of the listening

THE **QUAD** 34

room and speaker placement.

The tilt control operates exactly as its name implies and produces a very gradual change in balance across the musical spectrum without changing the overall subjective level. When set for +1—1 there will be a gradual



fall of 2dB from bass to treble with a maximum rate of change in the centre of not more than ½dB per octave. This absence of sudden change means that there will be no 'colouration' added to the sound. The sound will remain entirely natural but with a slight added warmth. Such a setting will be used if the recording and/or the listening room are slightly analytical or overbright. Conversely, if both the recording environment and the listening room are rather lush sounding, the —1+1 (or even —2+2) would be used to restore detail. In using this control the extreme bass and extreme treble should not unduly influence judgement because they are separately adjustable.

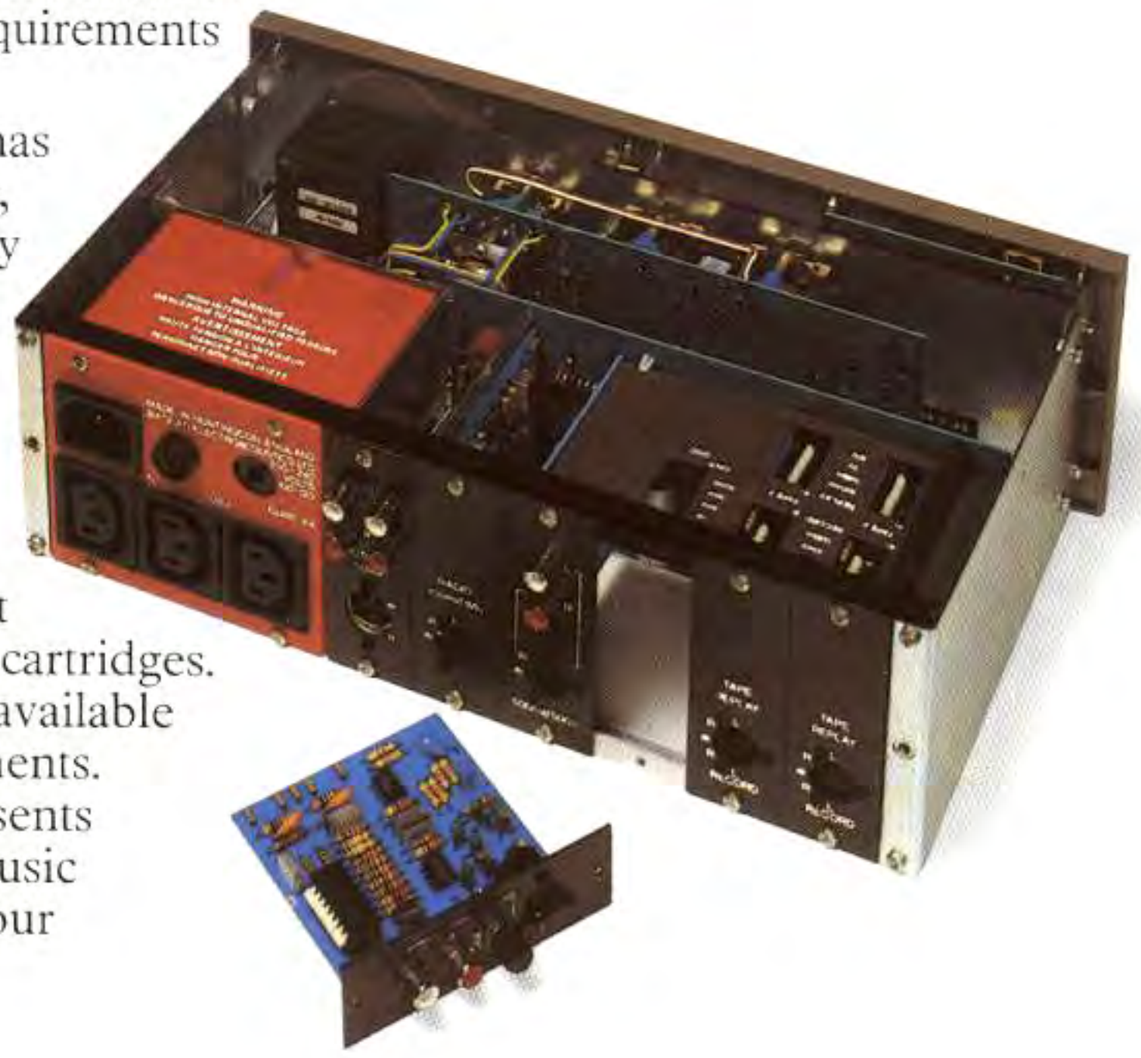
The bass control serves two purposes. In the lift position it acts as a smooth progressive boost for use with small loudspeakers of necessarily limited bass response, and the profile of the bass lift response provides optimum equalisation. In the step mode the control acts as a step filter which removes the characteristic 'honk' caused by the excitation of the room's eigontones when the loudspeakers have to be placed in or near a corner.

The difference between the Quad 44 and 34 are confined to the input facilities offered and choice between them should be governed by the requirements of the system.

The Quad 34 has four inputs, for disc, radio tuner, auxiliary and tape. The disc input is supplied with two modules, one for moving magnet pickup cartridges and the other for low output moving coil pickup cartridges. Other modules are available for special requirements. The Quad 34 represents the solution for a music system with up to four programme sources.

The Quad 44 has five inputs, all modular, so that they can be changed at will. The Quad 44 is supplied with Disc, Radio, Auxiliary and two tape inputs. Additional modules are supplied by the dealer. Thus any combination of five programme sources can be accommodated and any future requirement of the system is met simply by changing a module.

The Quad 44 is thus ideal for systems which incorporate more than one turntable or tape recorder. Tape copying and dubbing facilities are extremely simple to operate.



THE **QUAD** FM4

FM radio transmissions are capable of providing the very highest quality programme material. It is sad that this potential is seldom realized, but none the less FM radio remains an essential source of programme for any serious music listener. The Quad FM4 provides access to the listeners choice at the touch of a button, with a level of performance limited only by the quality of the incoming signal.

The FM4, as one might expect from Quad is deceptively simple and original. Good ergonomics and advanced electronics are combined to produce a tuner with exceptional audio performance and ease of handling.

The Quad FM4 is designed as an adjunct to a high quality music system. As such emphasis in design is placed upon obtaining audio performance from a reasonable input signal rather than the ultimate in selectivity. Performance of the FM4 is such that given adequate signal strength, it makes no audible contribution to the incoming programme, and provides absolutely faithful reproduction of the original transmission.

The only controls on the FM4 are an on/off switch, tuning knob and eight pushbuttons which are used to store and recall stations in the tuner's memory. The tuned frequency is shown in figures and an ingenious bar graph display provides simultaneous information of signal strength and centre tuning. A specially developed dedicated microprocessor makes all decisions about muting and AFC and also controls the tuner's memory in which are stored the preset stations.

Operating the Quad FM4 is simplicity itself. Once programmed it is only necessary to press one of the seven preset buttons for the wanted station to be tuned in perfectly.

Programming stations into the tuner's memory is very straightforward. The desired frequency is located by rotating the tuning knob, which will have conspicuous advantages for anybody who has tried to find a station using pushbuttons to track up and down. The bar graph confirms that the station is correctly tuned and being received with sufficient signal strength to give acceptable signal to noise.

Pressing the appropriate preset station button and the manual tune button simultaneously stores the station in the tuner's memory. And that's all there is to it. AFC and muting is taken care of automatically. Stereo over-ride, required if the signal is very weak, is achieved by switching the Quad 44 or 34 to MON and adjusting the balance control for minimum noise.

Stations will remain stored in the tuner's memory almost indefinitely provided that the tuner is used once in a while, and for up to five years even if it is disconnected from the mains.

When switched on the tuner remembers the station last used and automatically reverts to it.

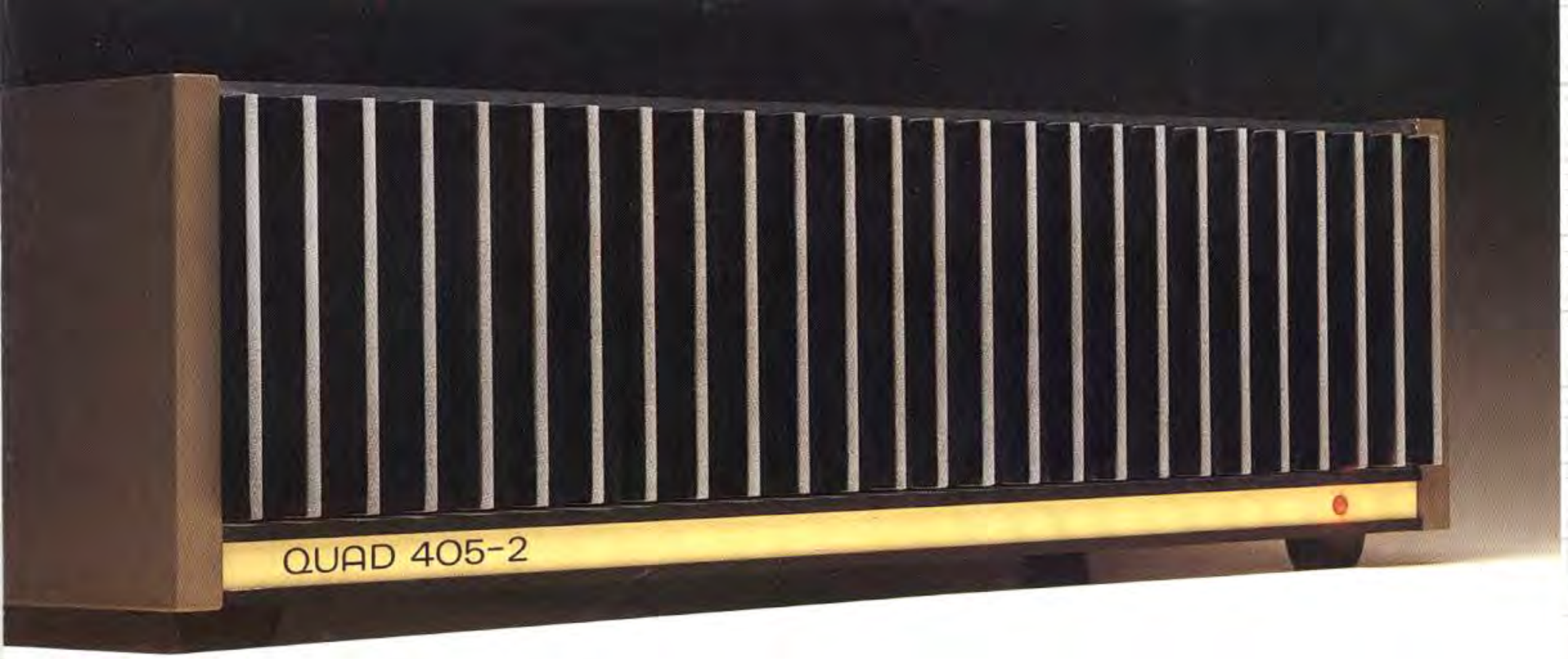
THE **QUAD** 303

The outstanding performance of the Quad 303 is largely due to the unique circuit developed by Quad.

The circuit employs symmetrical triples, greatly reducing distortion and rendering the quiescent current independent of output transistor temperature.

This development enables the designers to reduce distortion to any desired degree without sacrificing stability, and to maintain this excellence under all dynamic conditions.

To put this in perspective, the lowest theoretical distortion present



THE **QUAD** 405–2

on the very best tape and disc will still be some hundred times greater than that of the Quad 303.

The use of triples, permits simple and effective control of the output current and since the voltage is also controlled, the output transistors are completely protected and must always operate within their ratings with the obvious advantages of greatly improved reliability under all conditions, without the use of elaborate and expensive circuitry.

The amplifier cannot be upset even when overdriven by an asymmetrical signal or by shorting or disconnecting the loudspeakers.

The amplifier won a Council of Industrial Design Award in 1969.

The Quad 405-2

More than 60,000 Quad 405 current dumping amplifiers are in use around the world providing the "closest approach to the original sound" in the homes of serious music listeners, in recording and broadcasting studios and for sound reinforcement where quality is of prime importance.

Current dumping is a Quad invention, and describes the first successful application of feed-forward error correction to audio power amplifiers. A current dumping amplifier consists of a high power heavy duty amplifier, and a low power very high quality amplifier. The low power amplifier is arranged so that it constantly monitors input and output. It detects any difference and feeds forward the necessary correction to the output of the main amplifier. Quality is solely dependent upon the performance of the low powered high quality amplifier together with four passive components. When correctly designed all distortion in the output stage is reduced to zero.

With this technique it is possible to produce an amplifier of very high performance without using carefully matched relatively fragile output devices. There are no crossover biasing problems, no alignment or adjustment is required to obtain optimum performance and nothing can go out of alignment during life. In the event of component failure, replacement can be effected and performance restored without realignment.

"Current Dumping" was originally presented as a paper to the AES 50th Convention. Since then a number of technical articles and papers have appeared which confirm the inherent advantages of current dumping over conventional class B techniques.

Reliability of the Quad 405-2 is assured by an elegant Quad designed protection circuit which overcomes the problems associated with conventional 'load line' protection circuits. The load sensitive time dependent circuit effectively places no limitation on the amplifier when playing music programme through loudspeakers but provides full protection for the amplifier should anything go wrong. The Quad 405-2 also incorporates speaker protection circuitry which prevents damage to the loud-speaker in the unlikely event of component failure in the amplifier.

The Quad 405 has won both a Design Council Award 1976 and The Queen's Award for Technological Achievement 1978.

THE **QUAD** 44 CONTROL UNIT

Distortion: Worst case, any input, 0.05%.

Residual Noise: 'A' weighting. Volume control set minimum −104dB.

Frequency Response: Any input except Disc. Any output +0dB-1dB Disc ± 0.5dB RIAA both at 30-20kHz.

Tilt and Bass: See curves.

Filters: See curves.

Interchannel Balance: ± 0.5dB with volume control varied from maximum to −72dB.

AC Input: 100-130V or 200-250V 50-60Hz.

Weight: 4kg.

Dimensions: 321mm wide, 103mm high, 207mm deep.

Note: Figures refer to 5v output for convenience. All voltages quoted are rms.

Inputs

Source	Input Sensitivity for full Output at 1kHz	Maximum Input at 1kHz	Load Impedance	Signal to Noise 'A' weighted Input loaded
Disc	1mV	>35mV	47k	63dB
	3mV	>100mV	or	72dB
	10mV	>300mV	47k//180pF	82dB
Radio	100mV	5V	1M	86dB
Auxiliary	500mV	25V	500k	82dB
Tape Replay	100mV	5V	39k	
	300mV	15V	121k	
	0dBm (775mV)	40V	94k	86dB
	3V	100V	85k	
	10V	100V	82k	

Outputs

To	Output Level	Source Impedance		
		LowZ	Or 33k	
Tape Recorder	3mV	32Ω	"	"
	10mV	100Ω	"	"
	100mV	1k	"	"
	0dBm (775mV)	1k	"	"
Power Amplifier	0.5V	1k		
	1.6V	3k2		
	5V	75Ω		

THE **QUAD** 34 CONTROL UNIT

Distortion: Worst case, any input 0.05%.

Residual Noise: 'A' weighting. Volume control set minimum −105dB.

Frequency Response: Any input except Disc. Any output ±0.3dB. Disc RIAA ±0.5dB.

Tilt and Bass: See curves

Filters: See curves

Interchannel Balance: ±0.5dB with volume control varied from maximum to −60dB.

AC Input: 100-130V or 200-250V 50-60Hz.

Weight: 3.2kg.

Dimensions: 321mm wide, 64mm high, 207mm deep.

All voltages quoted are rms.

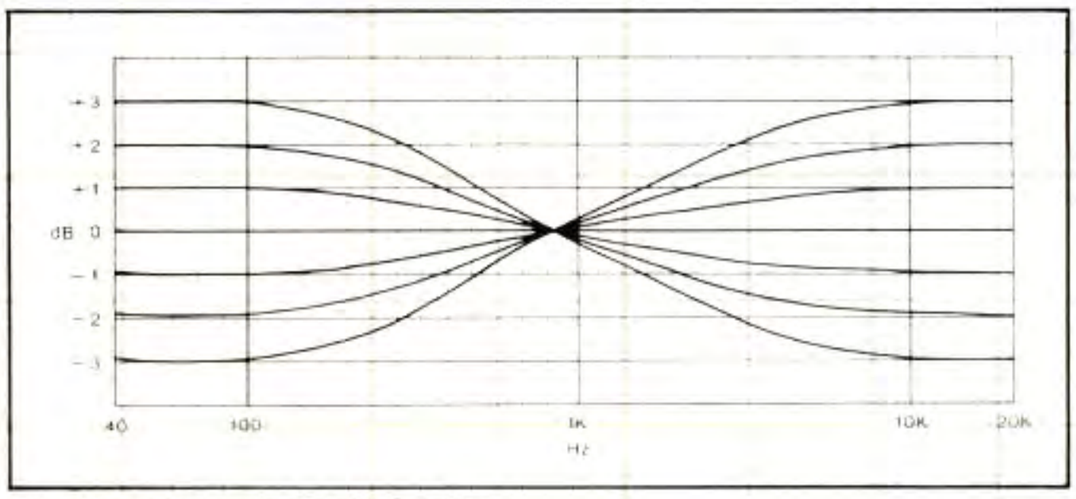
Inputs

Source	Input Sensitivity for full Output at 1kHz	Maximum Input at 1kHz	Load Impedance	Signal to Noise 'A' weighted Input loaded
Disc	3mV*	150mV	47k//220pF*	75dB
	200μV*	10mV	100Ω//22nF	72dB
Radio	100mV	5V	100kΩ	88dB
Auxiliary	500mV*	25V	49kΩ	87dB
Tape Replay	300mV*	15V	57kΩ	87dB

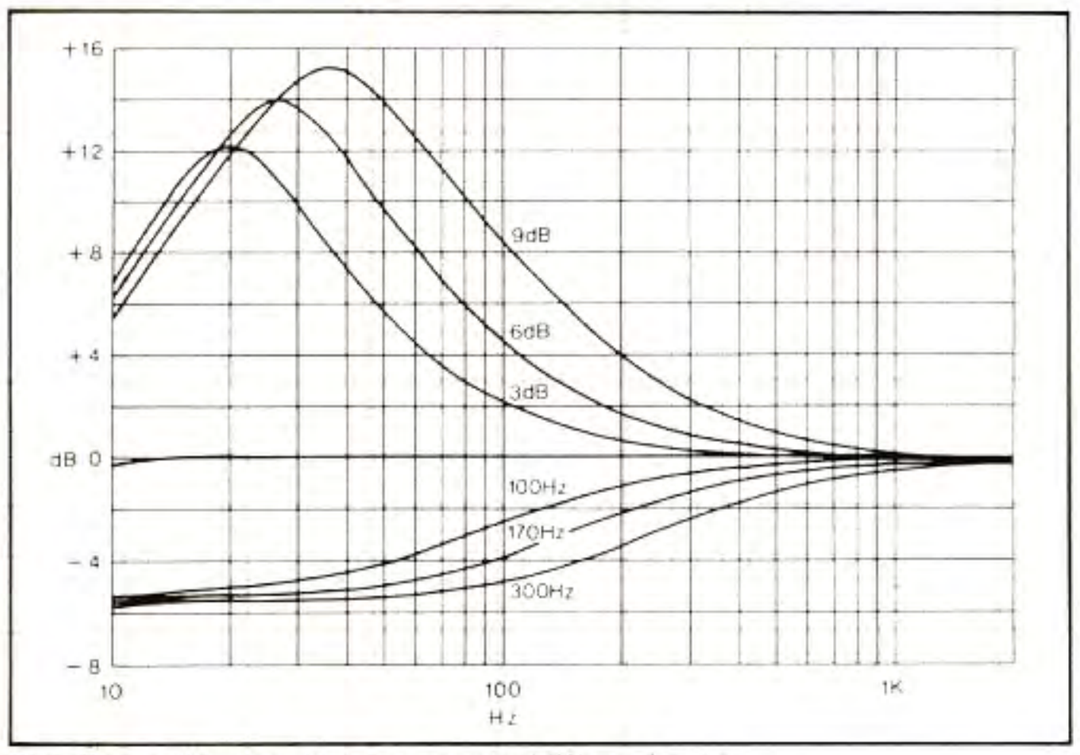
Outputs

To	Output Level	Source Impedance
Tape Recorder	100mV*	2.2kΩ
Power Amplifier	0.5V	830Ω

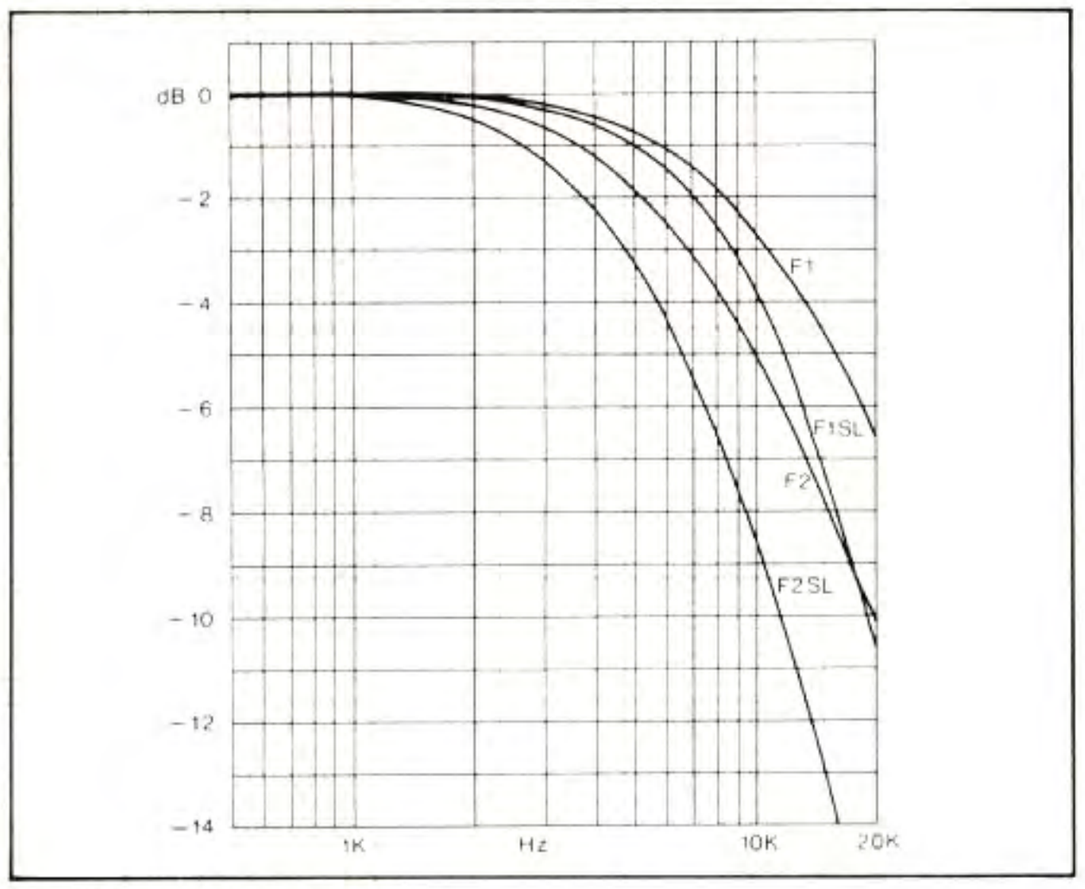
*Others available



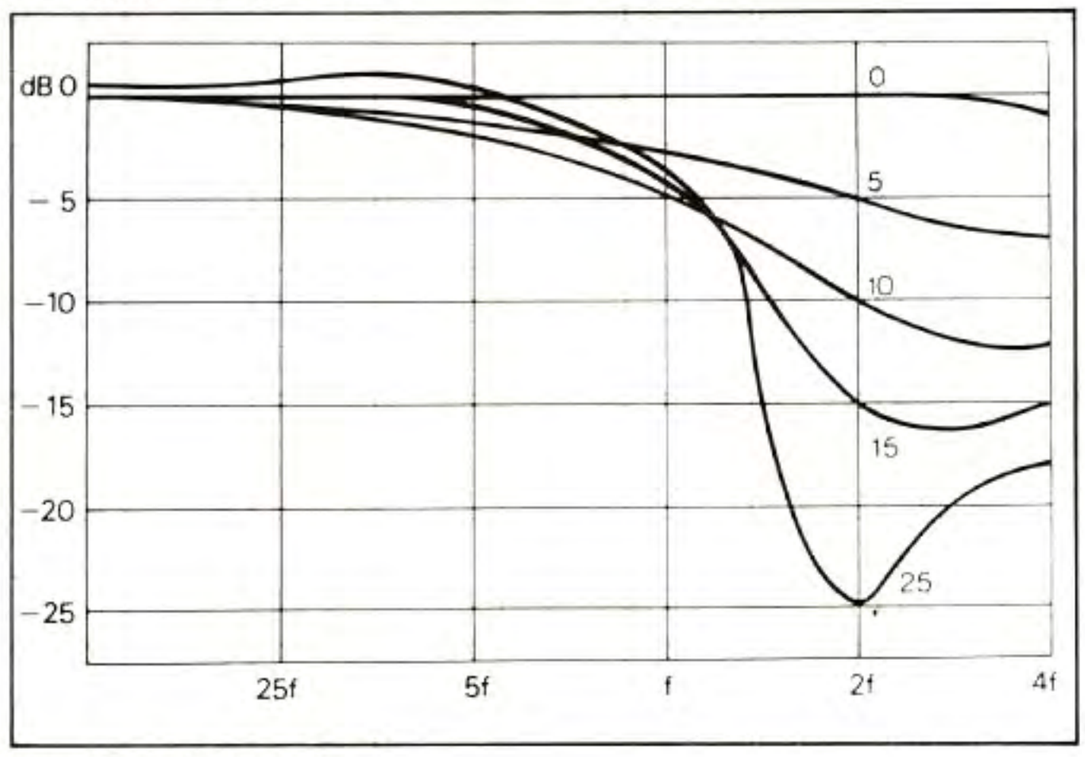
The Quad 34 and 44 tilt control.



The Quad 34 and 44 bass control lift and step.



The Quad 34 filter control.



The Quad 44 filter slope.

THE **QUAD** 405–2

Measurements apply to either channel, with or without the other channel operating.

Power Output: The amplifier is intended for use with loudspeakers of 4-16Ω nominal impedance.
Power and distortion for various frequencies.
Continuous sine wave into 8Ω resistive load.
100Hz any level up to 100 watts <0.01% Dtot
1kHz any level up to 100 watts <0.01% Dtot
10kHz any level up to 100 watts <0.05% Dtot
For any other impedances and frequencies see graphs.

Output Internal Impedance and Offset:
3.3μH in series with 0.03Ω Offset 7mV max.

Frequency Response: Ref. 1kHz Low frequency –1dB at 20Hz. Filter attenuation as curve. High frequency –0.5dB 20kHz –3dB 50kHz.

Signal Input Level: 0.5V rms± 0.5dB for 100 watts into 8Ω. Amplifier loads the input by 20kΩ in parallel with 220pF.

Signal Input Slew Rate Limit: 0.1V/μS. Provided the rate of change of input voltages does not exceed this figure which is about ten times the maximum slew rate on a gramophone record and the amplifier is not driven into clipping, then the total of all distortions appearing in the audio range (20Hz-20kHz) due to transient or repetitive waveforms with frequency components inside or outside the audio range will be at least 80dB below full rated power. If the major portion of the input energy is wanted signal then –80dB (0.01%) represents the maximum possible distortion on programme.

Signal Input Overload: Instantaneous recovery up to +20dB overload.

Crosstalk: (Input loaded by 1kΩ) 80dB at 100Hz
70dB at 1kHz
60dB at 10kHz.

Hum and Noise: 'A' weighted –96dB ref full power
Unweighted –93dB ref full power (15.7kHz measurement bandwidth).

Protection: The Quad 405-2 is suitable for use under the most arduous music conditions and is electrically protected by current limiters; 8.5 amperes peak current into any load reducing to 3.1 amperes steady state into a short circuit. Shorting both outputs simultaneously for an extended period will result in overheating and eventual breakdown.

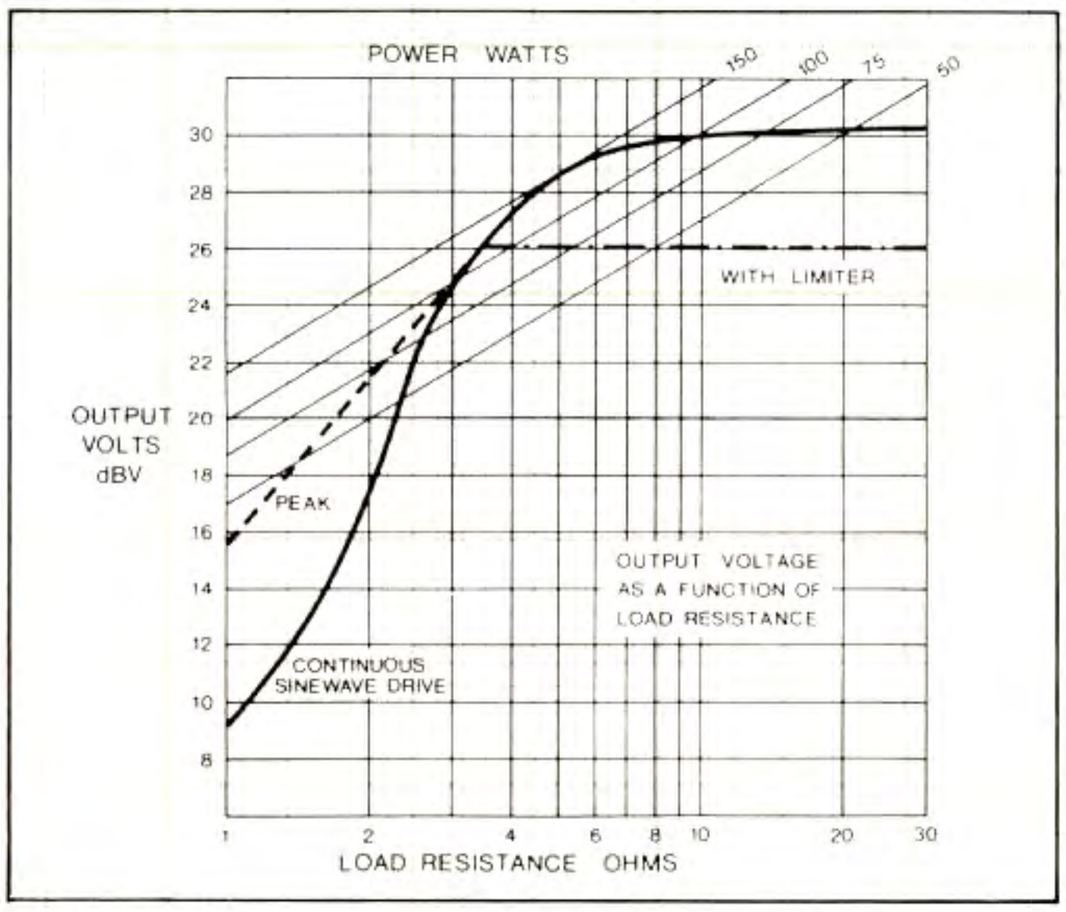
Stability: Unconditionally stable with any load and any signal.

AC Input: 110-120-130V, 220-230-240V 50-60Hz, 30-350 watts depending on signal level.

Weight: 9Kg (20lbs).

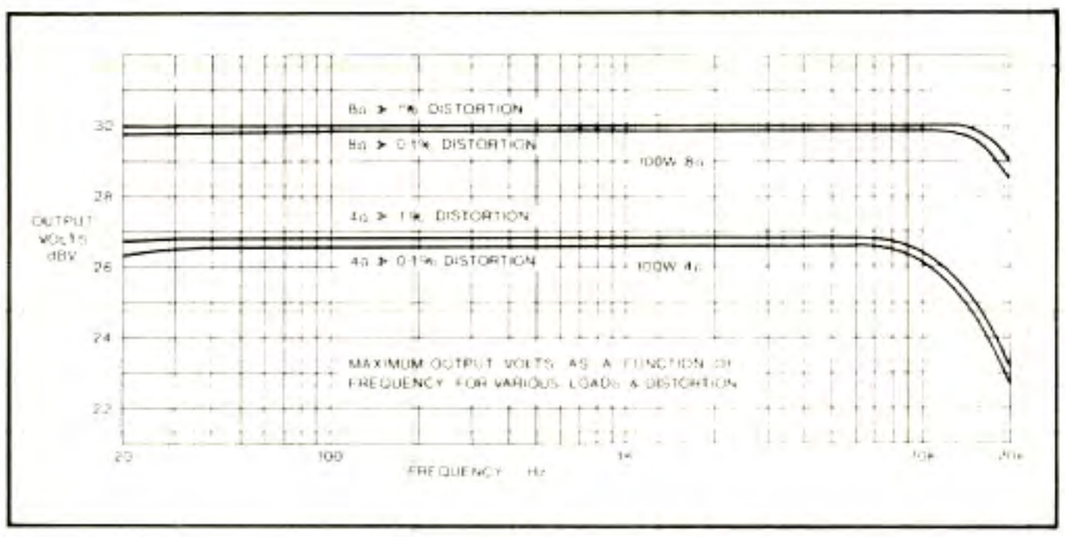
Dimensions: 340.5mm wide, 115mm high, 195mm deep, allow an extra 38mm for plug and socket.

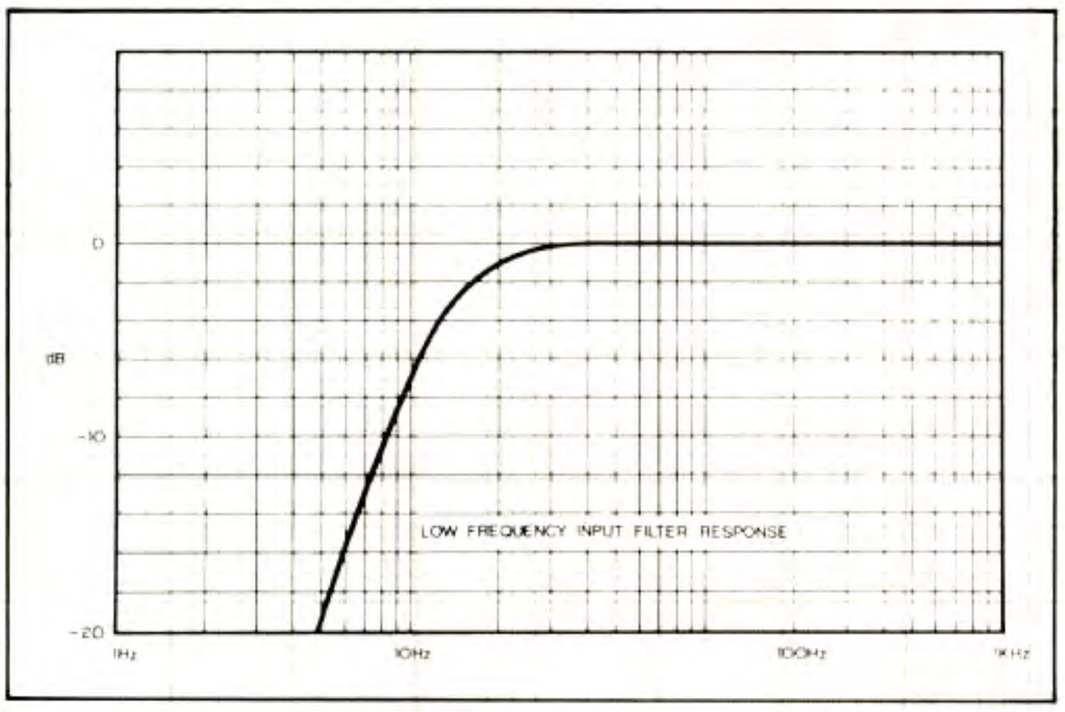
THE **QUAD** 405–2 (Cont.)



Notes:

1. The curves show maximum short term and long term power output into resistive loads. Performance into reactive loads depends upon the impedance and phase angle of the load and the immediate past history of the signal. In practice with loudspeaker loads and music programme, power output approximates to the peak power curve.
2. With the additional power limiter inserted the maximum output voltage is limited to 20V ± 10% (50 watts 8Ω), all other performance figures unchanged.





THE **QUAD** 303

Measurements apply to either channel, with or without the other channel operating.

Power output: The amplifier is intended for use with loudspeakers of 4-16Ω nominal impedance.
Power output and distortion for various frequencies.
Continuous sine wave into 8Ω resistive load.
100Hz any level up to 45 watts<0.03% Dtot
1kHz any level up to 45 watts<0.03% Dtot
10kHz any level up to 45 watts<0.1% Dtot
For other impedances and frequencies see graphs.
Note: In addition to the performance into a resistive load, the amplifier will maintain full voltage within the same distortion rating irrespective of the phase angle of the load.

Output internal impedance: 0.3Ω in series with 2000μF and 6μH.

Frequency response: Ref. 1kHz. –1dB at 30Hz and 35kHz into 8Ω.

Signal input level: 0.5V rms ±0.5dB for 45 watts into 8Ω. Amplifier loads the input by 22kΩ in parallel with 60pF.

Signal input overload: Instantaneous recovery up to +20dB overload.

Crosstalk: (input loaded by 1kΩ). 30Hz–10kHz >60dB.

Hum and noise: (Input loaded by 1kΩ). 'A' weighted – 100dB ref full power. Unweighted (15.7kHz measurement bandwidth) – 95dB ref full power.

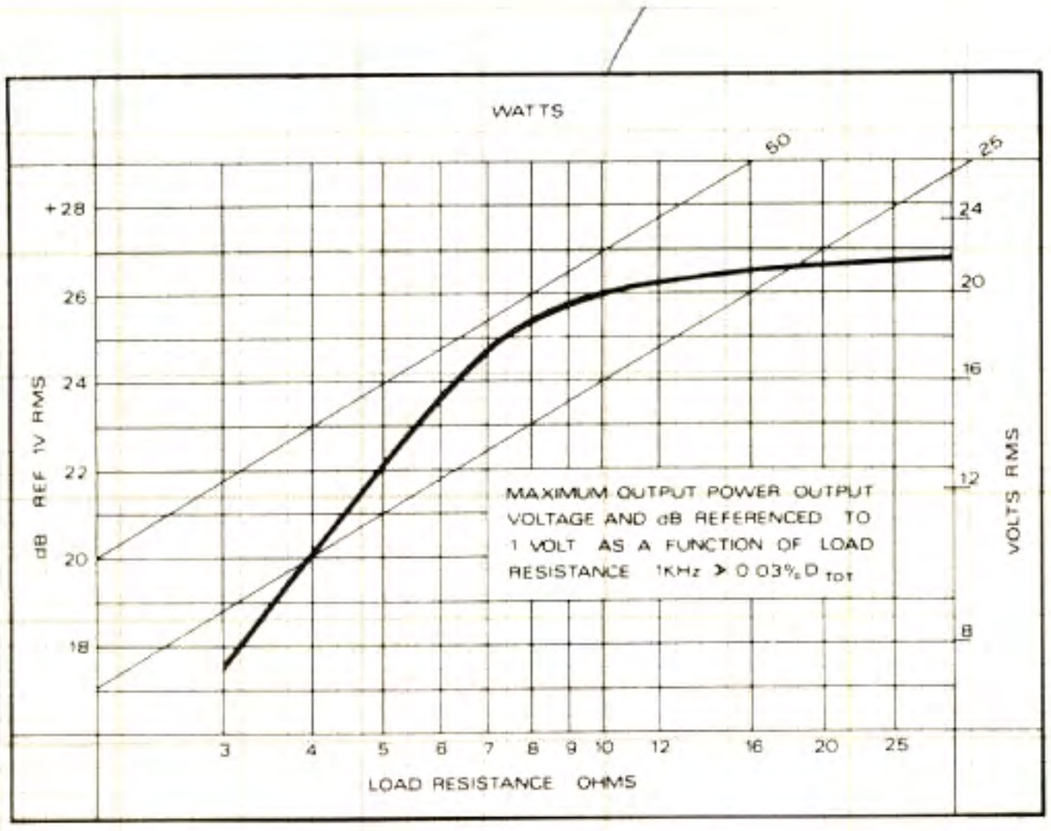
Protection: This amplifier is suitable for use under the most arduous music conditions with speakers of impedances between 4 and 25Ω and for high level sine wave duty with loads of 8Ω or greater.

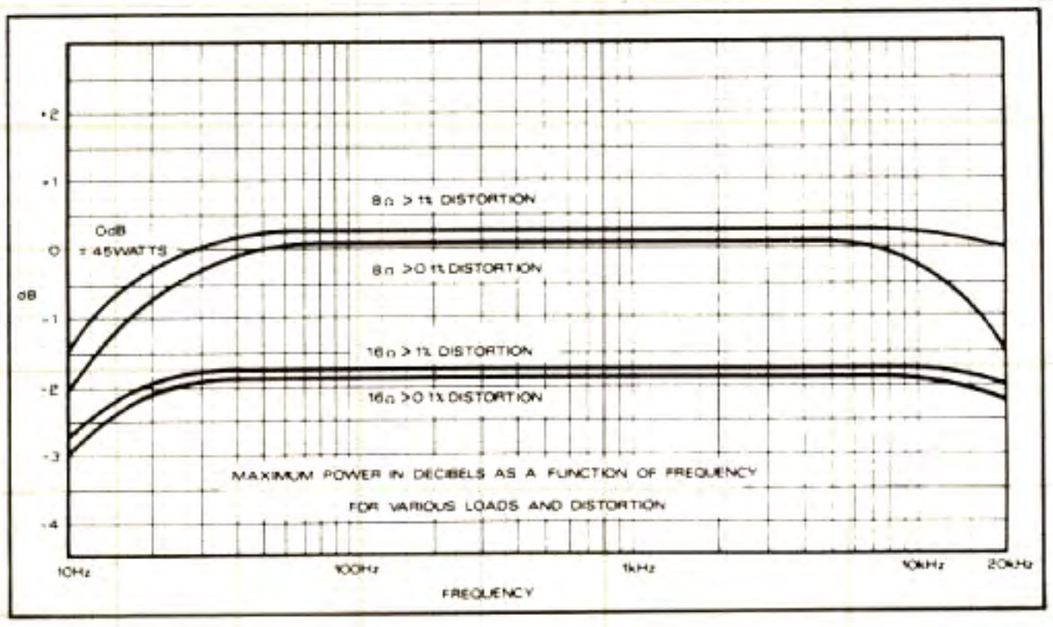
Stability: Unconditionally stable with any load.

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

Weight: 8.2kg.

Dimensions: 120mm wide, 159mm high, 324mm deep, (plus 38mm for connectors).





THE **QUAD** ESL-63.

Impedance: 8Ω nominal

Sensitivity: 1.5μ bars per volt referred to 1M. (i.e. 86dB/2.83V rms).

Maximum Input: Continuous input voltage 10V rms
Programme peak for undistorted output 40V̂
Permitted peak input 55V̂.

Maximum Output: 2 N/m² at 2m on Axis

Directivity Index: 125Hz 5dB, 500Hz 6.4dB, 2kHz 7.2dB, 8kHz 10.6dB

Axis Band limits:(Low level) −6dB at 35Hz 3rd order −6dB>20kHz.

AC Input: 240/200V 120/100V 50-60Hz 5VA

Weight: Nett 18.7 kgs. Gross 23 kgs.

Dimensions: 66cm wide, 92.5cm high, 27cm deep, including 15cm base

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THE **QUAD** FM4 TUNER

Frequency range: 88-108MHz

Sensitivity: 30dB quieting Mono 1μV (1.2dBf)
50dB quieting Mono 2.7μV (10dBf)
Stereo 25μV (29dBf)

Full Limiting: <1μV (<1.2dBf)

Signal/Noise: Input signal 1kHz at 1mV. 'A' weighted
Mono 76dB
Stereo 70dB

Distortion Input signal: 1kHz±75kHz
Mono 0.15%
Stereo 0.15%
±25kHz
Mono 0.05%
Stereo 0.10%

Selectivity: 53dB

Capture Ratio: 1.5dB

IF Rejection: 100dB

AM Suppression: 60dB

Image Rejection: 80dB

Pilot Tone Suppression: 60dB

Crosstalk at 1kHz: 40dB

Frequency Response – 20-15kHz: +0 −1dB

Output Level 30% Modulation: 100mV

Source Impedance: 100Ω

Recommended Load Impedance: >20kΩ

Aerial Input: 75Ω unbalanced

De-emphasis: 50μSec or 75μSec

AC Input: 100-125V or 200-250V. 50-60Hz 6VA.

Weight: 3Kg.

Dimensions: 321mm wide, 64mm high, 207mm deep.

All details and specifications are correct at time of going to press, but we reserve the right to alter specifications without notice.

Quad Electroacoustics Ltd.,
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QUAD
for the closest approach
to the original sound

Designed and Produced by Cushion Kilminster Skudder Ltd., London SW15 1SU.
Furniture and accessories from Heal & Son Ltd., 196 Tottenham Court Road, London W.1.

QUAD is a registered trade mark.