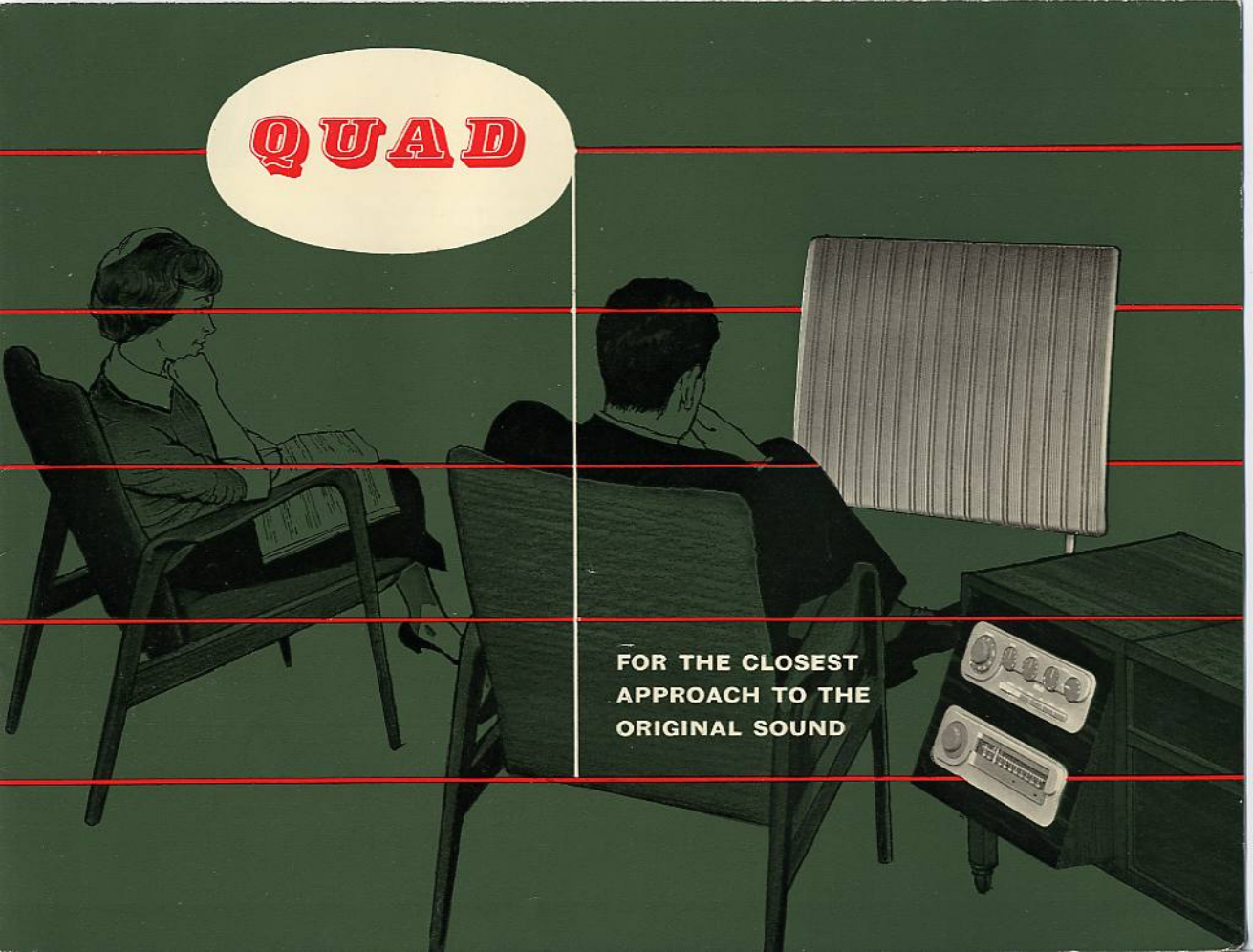
QUAD



FOR THE CLOSEST
APPROACH TO THE
ORIGINAL SOUND

QUAD EQUIPMENT

This leaflet describes in general terms the Quad range of units, designed to provide the highest standards of reproduction of recorded or broadcast music attainable with modern techniques. You are invited to write for booklets describing each unit in greater detail.

QUAD 22

Pre-amplifier/control unit providing full facilities for both mono and stereo operation.

QUAD II

Power amplifier, 15 watts output.

QUAD AM II

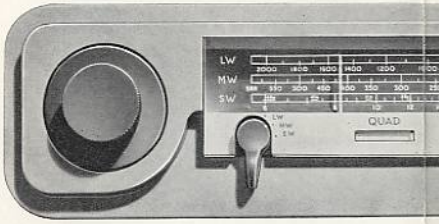
Radio tuner for long, medium and short wavebands.

QUAD FM

Radio tuner for VHF/FM reception.

QUAD LOUDSPEAKER

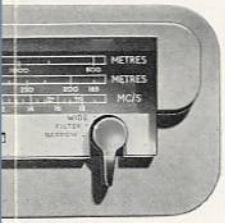
Full range electrostatic loudspeaker.



AM II TUNER

TUNING RANGE:	AM II/European Long wave: 2070-800 metres Medium wave: 588-185 metres Short wave: 5·8-18·5 mc/s AM II/Overseas Medium wave: 510-1620 kc/s Short wave: 1: 2·2-6·6 mc/s Short wave: 2: 5·8-18·5 mc/s
OUTPUT LEVEL	100mV (Nominal for 30% modulation)
OUTPUT RESISTANCE:	15,000 ohms
FILTER REJECTION FREQUENCY:	AM II/European: 9 kc/s AM II/Overseas: 10 kc/s
POWER REQUIREMENT:	HT 35 mA at 330V LT 1·2 A at 6·3V
POWER AND SIGNAL CABLE LENGTHS:	40" (1m.)
VALVE COMPLEMENT:	EF 89, ECH 81, EBF 89, EM 84

QUAD TUNERS



Quad tuners are designed primarily for use with Quad amplifiers and are similar in size, appearance, and method of mounting to the Quad 22 control unit.

They draw their power supplies from the outlets on the control unit and are controlled by the Quad 22 pushbuttons. The L.T. supply, however, is not switched and the tuners are therefore always ready for use whenever the amplifier is on. Connecting leads are fitted ready to plug into the control unit.

Both tuners are designed to provide the highest quality of reproduction inherent in their respective programme transmissions and must, of course, be chosen to suit the broadcasts to be received. Local reception conditions will usually determine the most suitable type of aerial and the local dealer specialising in this field will be in the best position to advise on this point.

The AM II Tuner is made in two models covering different wavebands to suit requirements in different parts of the world and both AM and FM tuners are suitable for use under all climatic conditions.

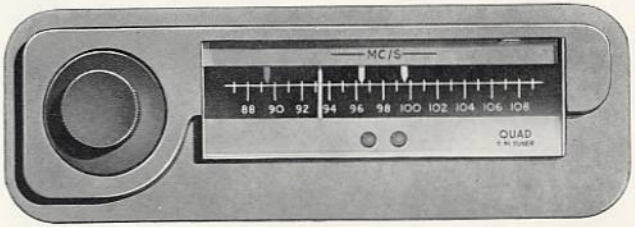
The tuning scale is of $\frac{3}{8}$" Perspex machine engraved and silk screened, filled white and red and finished gold on a matt brown background. Accurate and positive tuning indicators are fitted to both models.

Dimensions: $10\frac{1}{2}$" × $3\frac{1}{2}$" × 6". Weight: 6 lb. (2.7 Kg.).

For other comment see:—
QUAD AM II TUNER. Hi Fi News, October, 1960; Gramophone, October, 1960; Records and Recording, November, 1960.
QUAD FM TUNER. Wireless World, September, 1955; Record Review, February, 1956; Gramophone, September, 1960; Hi Fi News, February, 1961.

FM TUNER

TUNING RANGE	87·5-108 mc/s
SENSITIVITY	3 μV for 20 dB quieting.
OUTPUT	100 mV at 100,000 ohms impedance (to be terminated by 100,000 ohms across amplifier input).
CONSUMPTION	6·3v 1·85A; 330v 27 mA.
VALVES	6BH6; 12AT7/ECC81; 6BJ6; 6BH6; 6AU6; 6AL5/EB91; 12AX7/ECC83; neons Hivac CC11L; lamp 6·5v 0·3A.



QUAD 22 CONTROL UNIT

The Quad 22 control unit provides full facilities for either mono or stereo operation. Used with one power amplifier the Quad 22 provides full mono facilities; used with two power amplifiers it provides for both mono and stereo; both channels may also be used for mono when required, by pressing the "2 MON" pushbuttons.

Three easily distinguished types of control are used for the three main functions of selecting programme, adjusting volume and modifying signal as to tone, range, etc. The Control unit is compact, easily mounted (or may be used free standing if preferred) and combines simplicity and rigidity with a "clean" finish.

The six pushbuttons perform 19 different functions, all clearly marked. Two provide for selection of stereo or mono, or two channel mono, and also switch the second amplifier on or off as required. The other four select the programme source in either stereo or mono from radio, microphone, disc (with 4 different equalisation characteristics) or tape.

Sockets are provided for permanent connection of all radio tuners, pickups, tape recorders, etc., used with the unit.

Plug-in adaptor units enable any pickup to be matched accurately and a chart is provided showing the pushbutton combination required to provide correct equalisation for different makes of record, old and new. Tape recordings (mono or stereo) may be made without affecting normal listening to the programme being recorded, and replayed either via the tape recorder pre-amplifier or direct from the head with compensation for any characteristic. A comprehensive booklet supplied with the unit gives full instructions for installation and operation as well as parts lists, photographs for component identification, circuit diagrams, mounting templates, etc.

For other comment see:—
Gramophone, April 1959; Records and Recording, April 1959; Hi Fi News, April 1960; High Fidelity, October 1960; Design, December 1960.

SPECIFICATION

FREQUENCY RESPONSE
Bass and treble controls: ±1.5dB of curves shown.
Filter frequencies: 5 Kc/s, 7 Kc/s, 10 Kc/s.
Filter slope: See curves.

CANCEL POSITION
Radio and Tape inputs: 20-20,000 c/s ±0.5dB
Microphone: 20-20,000 c/s ±2dB

Gramophone: Maintained over 20-20,000 c/s within ±1dB of the following characteristics:

3180μS	318μS	75μS
3180μS	318μS	100μS
3180μS	450μS	50μS
—	450μS	25μS

INPUT SENSITIVITY
Radio and Tape: 70mVrms. Load impedance 100,000 ohms. Microphone: 1.5mVrms. Load impedance 100,000 ohms. Pickup: Depending upon adaptor unit. Basic sensitivity prior to compensation 400μVrms.

DISTORTION
(1.4 Vrms output): All controls level: Any input: 0.02%. Least favourable arrangement of controls: less than 0.1%.

NOISE
Total hum and noise: Better than —70dB. Noise: —80dB or where applicable, the equivalent noise of the pickup load impedance at the input.

OUTPUT
Control unit to power amplifier: 1.4 Vrms. Tape outputs: Peak signal approx. 0.25 Vrms. Maximum loading: 500,000 ohms and 200 pF.

INTERCHANNEL
Cross talk: Better than 40dB 20-20,000 c/s. Gain stability: With any volume setting and tone controls level: Less than 1dB between channels. With any volume setting and tone controls varied: Less than 2dB between channels. Balance control: Provides up to 9dB unbalance either way.

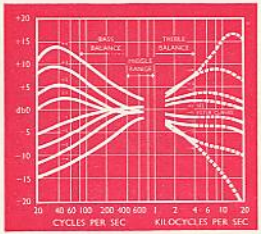
POWER SUPPLY
The unit takes its power from the power amplifier as follows: 330 V 4mA plus current taken by tuner units; 6.3 V 1.1 A plus current taken by tuner units.
Maximum power available from tuner sockets: 330 V 35 mA each tuner. Rad 1 (Yellow) and Rad 2: 6.3 V 3 A total. Rad 1 (Blue): 6.3 V 3 A. The heater supply is C.T. to chassis.

VALVES
2× EF86 (Z.729 or 6267). 2× ECC83 (12AX7).

DIMENSIONS
$10\frac{1}{2}$"×$3\frac{1}{2}$"×6".

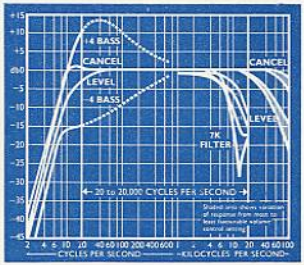
WEIGHT
$6\frac{3}{4}$ lbs. (3.1 Kg.).

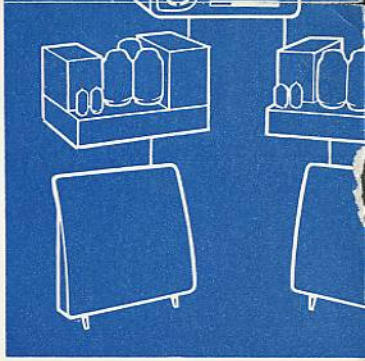
MECHANICAL
Front panel: Die cast, stove finished silver fawn. Knobs: Matt brown. Chassis: Steel, Cadmium plated. Cover: Steel, stoved steel grey. The complete unit is suitable for use in all climatic conditions.



These curves show the slopes of response provided by the bass and treble controls and the manner in which the filter may be adjusted to provide the widest possible frequency range consistent with minimum distortion in each programme.

The filter curves show the performance in the 7K position. In the 10K or 5K position these curves are displaced one half octave up or down respectively. The cancel position provides a useful reference standard for comparison purposes.





QUAD II POWER AMPLIFIER

The QUAD II power amplifier contains no controls and may therefore be mounted inside the cabinet, leaving only the control unit panel (and that of the radio tuner if fitted) visible on the outside. Stability, and hence performance, are entirely independent of signal or load conditions and the amplifier is therefore suitable for use with any loud-speaker arrangement.

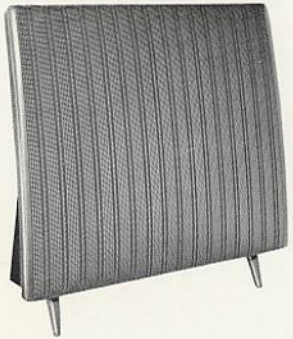
The performance specification is fully maintained with random replacements from normal valve stocks without the need for matching or alignment of any kind, and the output stage uses the now traditional QUAD cathode coupled arrangement combining low distortion with an efficiency which is reflected in the compact size of the equipment.

WEIGHT: 18¼ lbs. (8.3 Kg.). DIMENSIONS: 13″ × 4¾″ × 6½″.

MECHANICAL: All windings are impregnated and housed in compound filled casings. All metalwork fully rust-proof processed and stoved steel grey. Metalwork, rust-proofing, finishing, transformer winding, tropicalisation, assembly and tests are all carried out under the constant supervision of our approved inspection section. The amplifier is suitable for use under all climatic conditions.

POWER OUPUT	15 watts throughout the range 20-20,000 c/s
INPUT	Sensitivity: 1·4 Vrms for 15 watts output
FREQUENCY RESPONSE	Within 0·2 dB 20-20,000 c/s Within 0·5 dB 10-50,000 c/s
DISTORTION (measured at 12 watts output)	Total third and higher order: less than 0·1% at 700 c/s. Higher order alone: less than 0·03% at 700 c/s
BACKGROUND	80 dB referred to 15 watts
OUTPUT IMPEDANCE	Effective output resistance: 1Ω for 15Ω output
POWER SUPPLIES	Input: 200-250vAC single phase (or 95-125vAC) 40-80 c/s 90 watts consumption (excluding control unit, tuners, etc.) Valves: 2 x EF.86 (Z.729 or 6267), 2 x KT.66 (6883 or 6L6G matched), 1 x GZ.32 (5U4G or 5V4G)

QUAD ELECTROSTATIC LOUDSPEAKER



The Quad Electrostatic Loudspeaker is the world's first wide-range electrostatic loudspeaker.

Utilising closely coupled moving elements some two hundred times lighter than diaphragms of moving coil loudspeakers, the air is enabled to follow the electrical impulses with far greater precision than was previously possible.

The loudspeaker is extremely analytical and much of the recent improvement in gramophone records can be directly attributed to its use for studio monitoring and quality control. It is designed for use in rooms of up to 5,000 cubic feet.

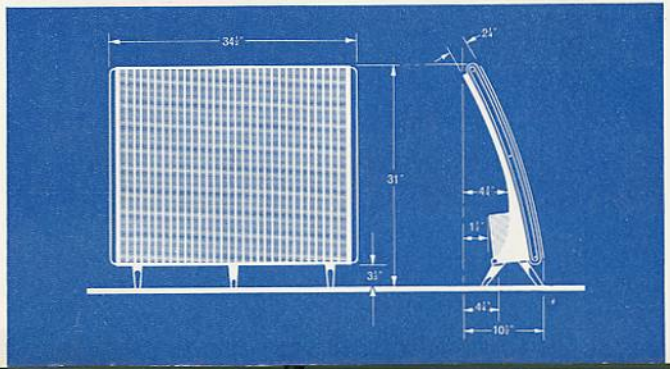
For the listener "it represents, by a wide margin, the closest approach to truly natural reproduction of sound in the home that we have yet heard". (American High Fidelity magazine H.H. Lab. report November 1960.)

The speaker is completely 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 essential that this loudspeaker is used only with a Quad amplifier or with amplifiers meeting specific requirements laid down in our detailed booklet.

For other comment see:—
Record News, April, 1956; High Fidelity, June, 1956; Radio Och Television, November, 1956; Hi Fi News, November, 1957; Saturday Review, November, 1957; Revue du Son, January, 1958; Record Review, July, 1958; High Fidelity, July, 1959; Toute la Radio, October, 1959; Evolution Electronique, December, 1959; High Fidelity, November, 1960; Elektrowirkschaft, December, 1960.

MAXIMUM OUTPUT	6' on axis in free space 93 dB referred to 0·0002 dynes/cm² in frequency range 50 c/s-10 Kc/s 100 dB referred to 0·0002 dynes/cm² 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.)



QUAD FOR THE CLOSEST APPROACH TO THE ORIGINAL SOUND

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