

B&W electronics

Model 70 Monitor Loudspeaker



*A significant advance
towards the ultimate
in sound reproduction*

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Archiiv Michael Otto
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Model 70 Monitor Loudspeaker

It has always been B&W policy to explore new aspects of loudspeaker design, working towards the single aim of producing an above average speaker. Our original P2 and subsequent DM3 & DM1 monitors have both enjoyed world acclaim among informed, critical, home and professional listeners.

After a long and detailed review of the P2 monitor in 'The Gramophone' Mr John Gilbert said it was **'approaching the ideal everyone was seeking – perfection'**. Now we can offer the Model 70 as an addition to our range, firmly believing this system takes you a stage nearer this ultimate perfection in recreating original sound under home or studio conditions. The degree of realism with Model 70, together with freedom from all kinds of distortion and colouration, has never been achieved by other systems.

Distinguished music critic John Freestone summarised the situation by saying of the Model 70 *'... I was really astounded ... a major step forward, and in my opinion a complete breakthrough in speaker design. It's not a question of improvement, for the new models don't sound like loudspeakers at all. They sound like the real thing.'*

The Model 70 also excels in styling, with a choice of two cabinets: the more traditional look of the Standard, or the Continental - a revolutionary style for the 80's.

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Standard



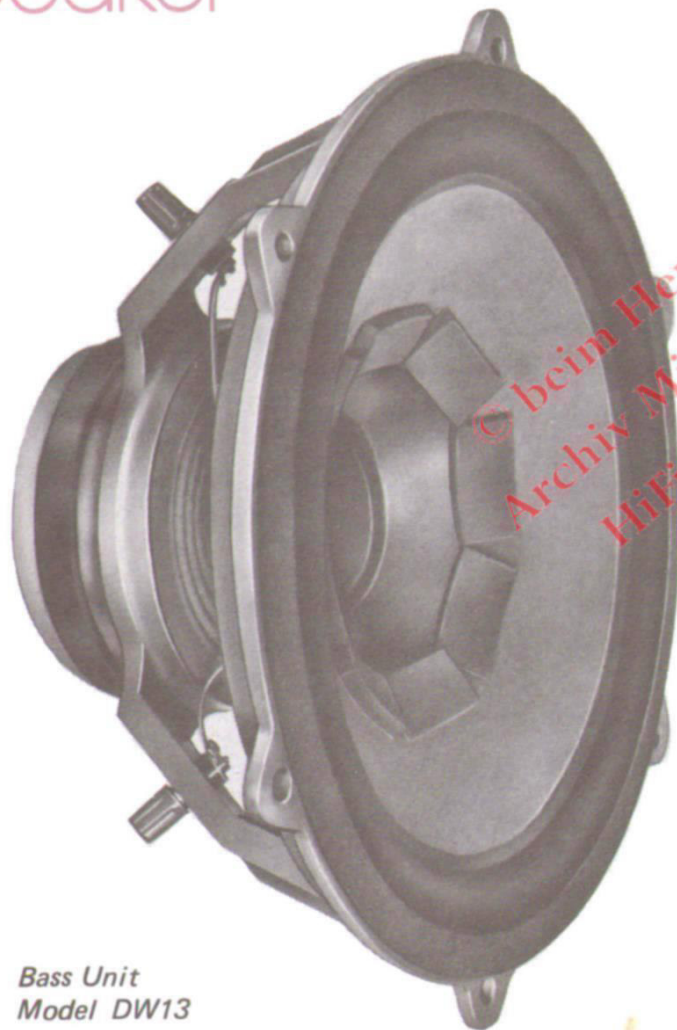
Continental

General

In contemplating the design and manufacture of Model 70, these guide lines were formulated:

- 1** New thinking on the acoustical distribution pattern especially within the vitally important mid-frequency region of 400 Hz to 5 kHz, aiming towards exploring the advantages of a distribution pattern approximating to spherical.
- 2** A mid-frequency unit capable of handling input powers in the region of 35 watts RMS with distortion factors to the order of 0.5% or lower.
- 3** A really low distortion bass radiator capable of truly complementing aspects 1 and 2 above, without occupying an unduly large enclosure volume.
- 4** Exploration of the listening advantages by increasing reverberant to direct sound.
- 5** All units be designed and built within our factory to ensure maximum quality control and retention of the exclusive original design.
- 6** Styling and general appearance to be acceptable in the world market, resulting in the Standard and Continental versions - each available in various finishes.

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*Bass Unit
Model DW13*

Bass unit

Bass frequencies are handled by a unit with a nominal 12 in (30,5cm) piston diameter, chosen as being reasonably consistent with the enclosure volume to build a system with a resonance below 40 Hz, and a free air resonance in the region of 18-22 Hz.

The cone assembly consists of a laminated structure providing the stiffness required to avoid break-up, and is additionally braced and mass adjusted by small rectangular sections of synthetic rubber fixed at critical positions on the front face of the cone.

The massive magnet assembly ensures excellent damping and handling of transients without hangover.

Bass chamber

This is an infinite baffle type, with complex internal absorbents making it almost aperiodic. Considerable attention has been paid to both finish and construction, the enclosure is acoustically inert, being built of 24mm 650 density chipboard and heavily braced.

Electrostatic mid & HF unit

This is an eleven module doublet electrostatic unit * covering all frequencies above 400 Hz. It's unique polar distribution pattern both improves stereo stability and increases the ratio of reverberant to direct sound. The pattern is virtually circular in a vertical plane through mid-band frequencies, providing a very wide, uniform arc

in a frontal direction with a strong rear radiating pattern which can be controlled to vary the reverberation for ambient listening conditions and personal judgement.

● In terms of distortion new standards have been set - although Model 70 is conservatively rated at 25 watts RMS, 50 watts music power, distortion figures of less than 0.5% are being obtained from production samples with 35 watts RMS input.

The high power handling of this mid-frequency unit confirms research findings that it is within the mid-frequency band (say 500 Hz to 5kHz) that maximum power handling is required. The 701 electrostatic unit carries frequencies above 400 Hz in a single concept, reducing intermodulation distortion and Doppler effect. This can be quickly established by reproducing choral music with strong organ accompaniment. The full moving-air effect of the organ is realised without in any way distracting from the fresh and spacious effect of the choir.

* Patent applied for



Electrostatic unit (Front) Model 701

A prime design point of the 701 is that it is free standing. This makes it possible to easily remove the unit should service ever be required, avoiding transportation of a large, heavy system.

Power supply, Electrostatic matching, crossover & filter unit

As with all other aspects of the Model 70, this unit is designed and constructed to the highest standards.

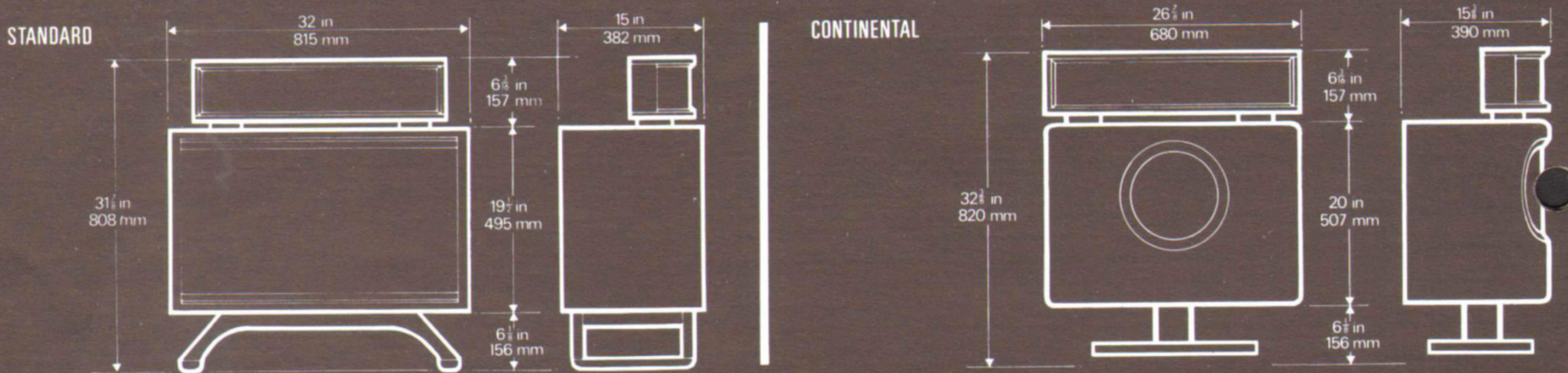
All capacitors are paper, polyester or ceramic (not electrolytic), and all prime components – for example the vitally important electrostatic matching – are encased in steel.

All series inductors give minimum distortion, and are made from ferrite with minimum DC resistance to ensure full amplifier damping being applied to the loudspeaker.

Mains voltage adjustment is provided between 110 and 240 volts AC operation, with suitable steps for international operation.

Being built on a modular basis allows easy removal for packaging and service.





GENERAL SPECIFICATION

Units

As described

Frequency response

Better than plus or minus 4db 50 Hz to 15 kHz
 Plus or minus 5db 40 Hz to 20 kHz

Axial response

90° arc horizontal within ± 2db of an axis response
 at all frequencies up to 15 kHz

Distortion

Total with input of 25 watts RMS (8 ohms).

B & K 4113 1/2in. Quad 33 B & K Line and Mic. Amps

Crossover frequency

Nominally 400 Hz

Acoustic load

Bass unit: infinite
 Electrostatic unit: free standing with removable
 pad to control rear radiation pattern.

Impedance

Nominally 8 ohm, but rising throughout mid,
 frequencies to some 20 ohms falling at 20kHz
 to approximately 4 ohms.

Power handling

25 watts RMS throughout entire frequency range.

System resonance

40 Hz ± 1%
 (System 'Q' below unity in the order of 0.9)

Finish

Standard: teak and walnut
 Continental: white and walnut

Dimensions

As shown.

Net weight

Standard: 1121b (50,8 kgs)
 Continental: 801b (36,3 kgs)

*The manufacturers reserve the right to amend
 or modify this specification without notice.*

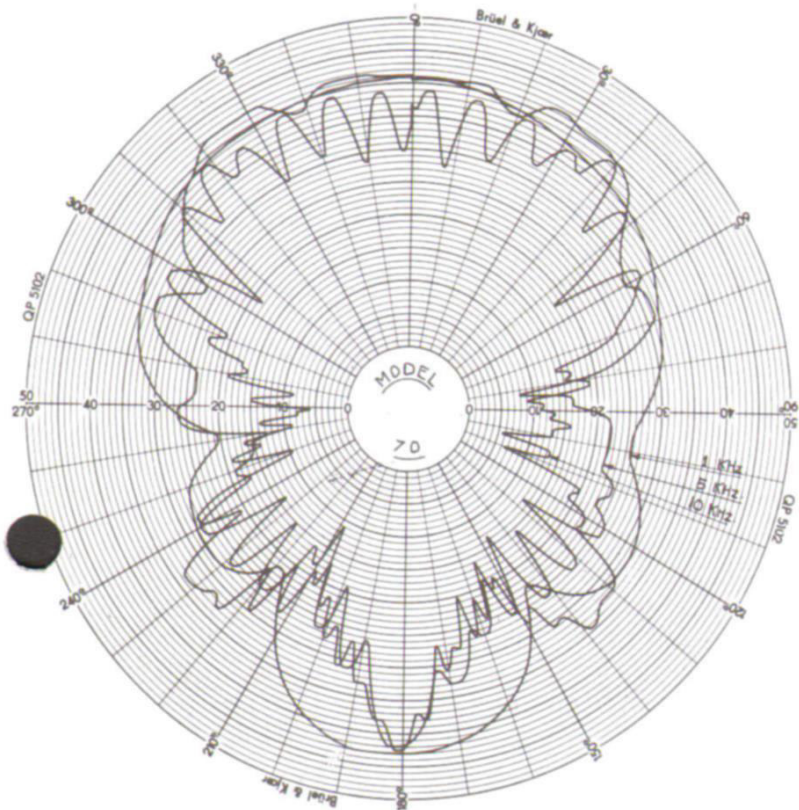
30 Hz	40 Hz	50 Hz	60 Hz	100 Hz	200 Hz	
12%	10%	8%	2.5%	1.5%	1.4%	
300 Hz	400 Hz	500 Hz	500 Hz	1 kHz	3 kHz	5 kHz
1.4%	0.5%	0.3%	1.0%	1.1%	0.3%	0.8%

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Polar diagram

General polar diagram of production Model 70 showing 1 kHz, 5 kHz and 10 kHz polar response.

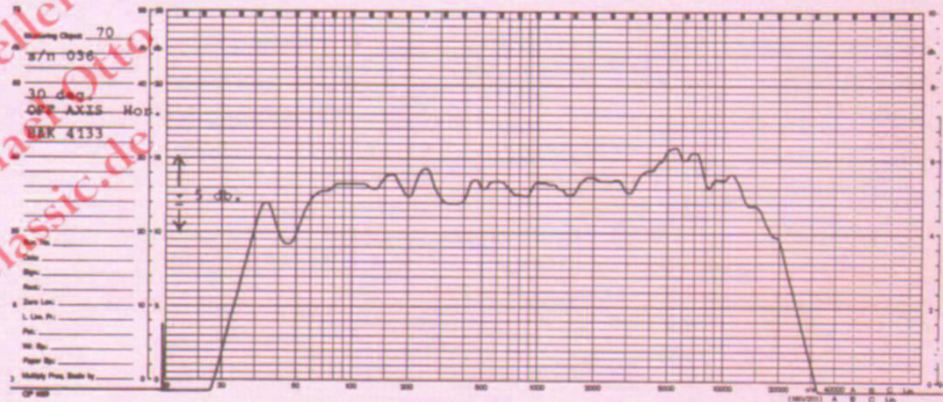


Response curves

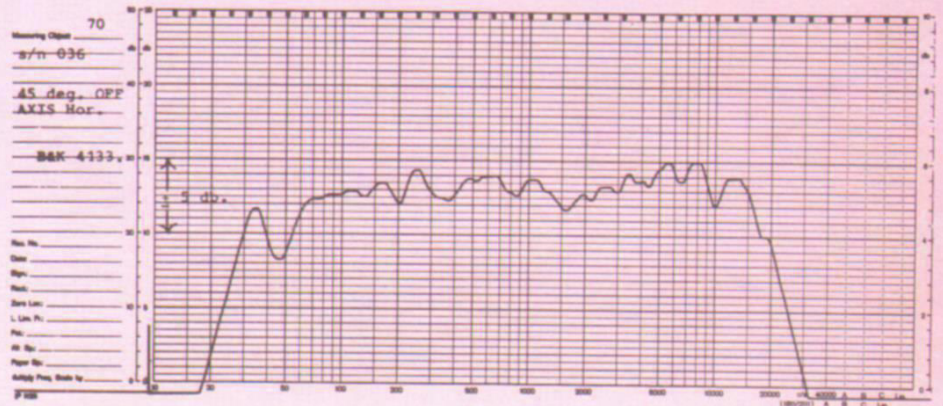
On axis.



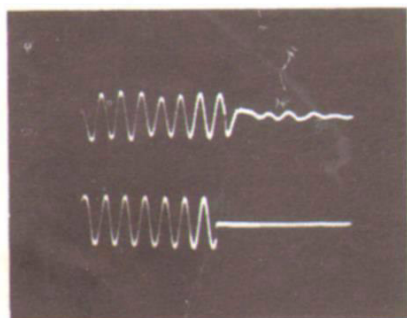
30° off axis horizontal plane



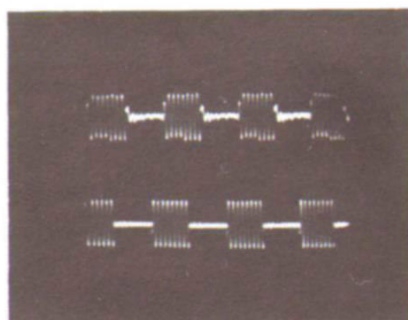
45° off axis horizontal plane



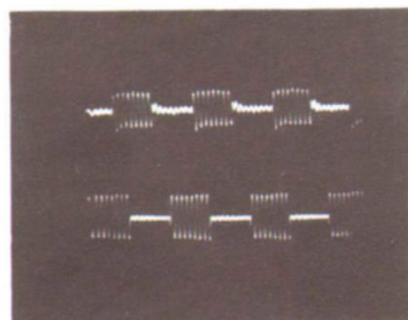
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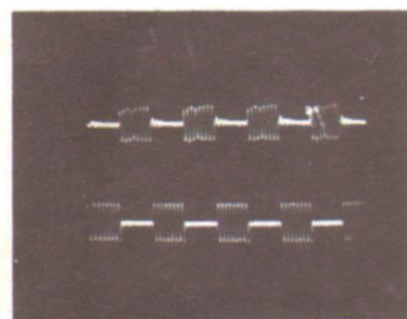
300 Hz



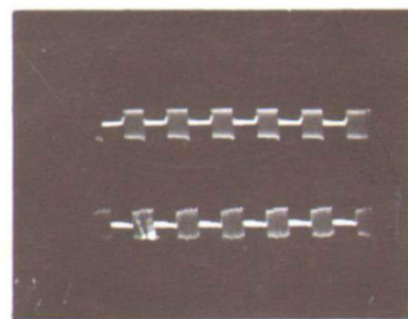
2kHz



4kHz



6kHz



10kHz



15kHz

Tone burst oscillograms

These oscillograms were recorded in the B&W anechoic chamber using the Bruel & Kjoer 1/2in. 4133 calibration microphone.

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