John **Bowers**

Silver Signature

User Manual

B&W founder John Bowers built the first P2 loudspeaker a quarter of a century ago because the systems then available didn't satisfy his need to hear the music he loved reproduced correctly.

Introduction


John Bowers by Snowdon

When B&W was formed, it was clear from the start that innovation and respect for detail would become by-words within the Company and in consequence, the Industry.

In establishing the strong research and development teams at Steyning, John Bowers left a legacy which has ensured that these ideals have never faded.

The Silver Signature is the culmination of all that we have learned, over 25 years, about the art and science of sound reproduction.

It represents a no-compromise philosophy channelled into producing a compact loudspeaker capable of extracting the maximum information from the most subtle of today's recordings, and at the same time adding none of its own.

The name Silver Signature does not only bear witness to the age of the company, but also to the discovery that the performance of a loudspeaker may be enhanced through the replacement of all the conducting elements, typically copper, brass, gold plate and iron/nickel in resistors, by pure silver. An extraordinary task, when the chain includes component leads, terminals, choke windings, voice coils and connecting leads. But then, this is no ordinary loudspeaker.

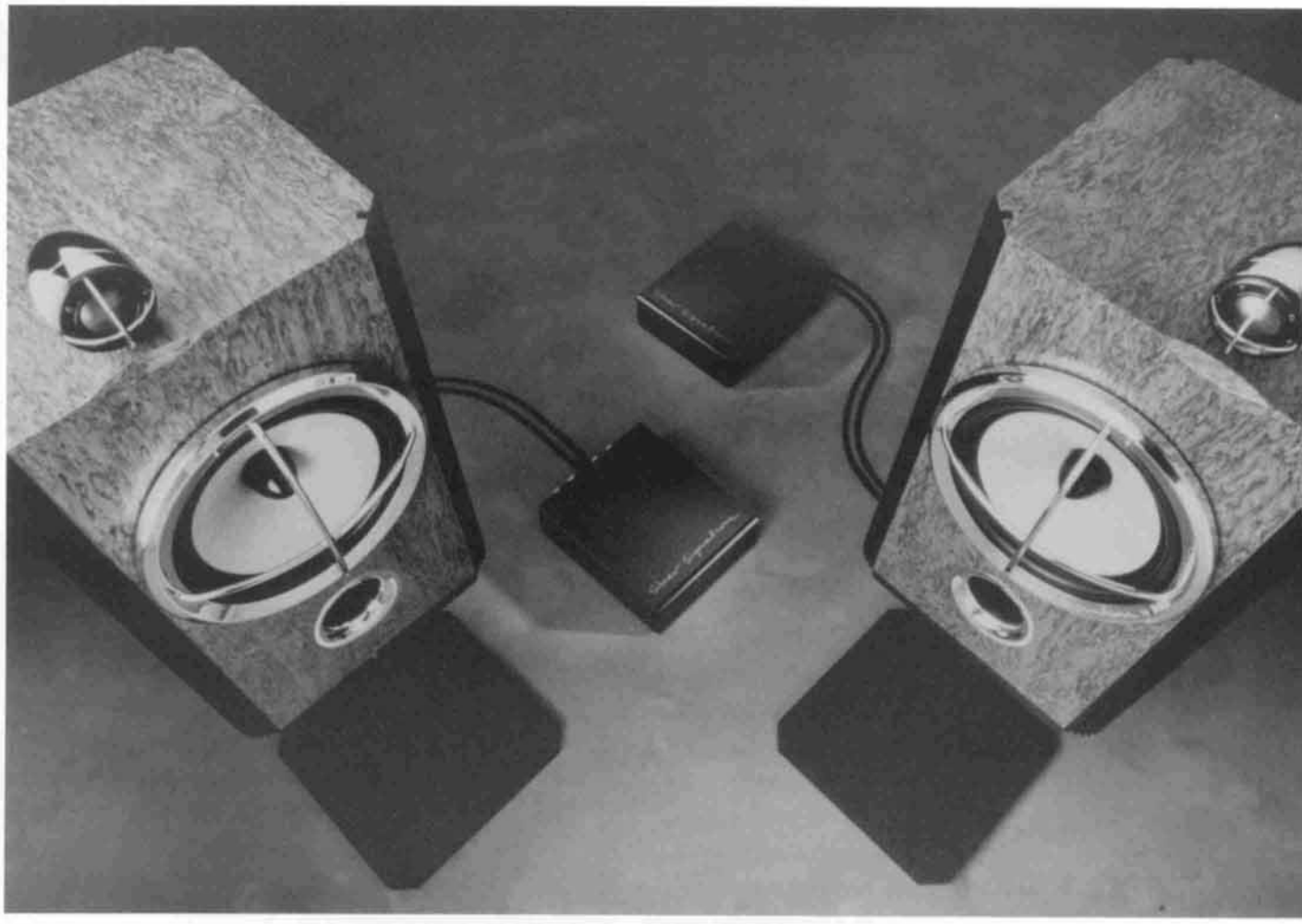
At 16 litres the Silver Signature is a small, two-way system, specifically aimed at stand mounting. Indeed, the stand supplied, crafted from Welsh slate, has been an essential link in the reproduction chain from the outset. The mass, stiffness and inherent damping of the slate from this pre-Cambrian deposit have proved ideal in providing the basic stable, inert platform from which to build the design.

The bass-mid frequencies are handled by a newly designed Kevlar cone driver mounted in a Matrix enclosure. This driver features a 30mm (1¼in) pure silver voice coil bonded using high temperature resins, onto a Kapton former. Driven by a generous magnet system, it is coupled to a critically curved Kevlar cone, and terminated by a rigid, phase-compensating centre cap.

The high-frequency unit sits off-centre, above the enclosure, in a semi-free-space environment. The bare magnet system is unencumbered by housings, grilles or, thanks to an efficient isolation mounting, by vibrations from the cabinet beneath. It also sports a pure silver coil which is cooled and damped by magnetic fluid.

The minimal dimensions of this tweeter force any diffraction effects outside its passband, and ensure a very flat response and an even polar distribution.

The units are wired with silver cable, directly to four rear mounted terminals, which in turn, have solid silver cores. In this way, the system can be easily upgraded later from a passive to an active crossover.



The Silver Signature crossover is physically isolated from the drive units in its own cabinet. Experience has shown that a passive filter network functions best when closely coupled to the amplifier, and that the length of lead from crossover to speakers is less critical. Consequently, the crossover comes with a fixed, short lead for connection to your amplifier, and a separate longer lead to connect the crossover output terminals to the speaker inputs. The chokes are wound with silver wire on high performance laminated cores, and the capacitors are high quality polypropylene types, custom manufactured with silver leads. Where resistors appear in critical positions within the circuit, these are non-inductively wound with silver wire.

From the amplifier to the drive units, the high and low-frequency sections are totally isolated. The hard wired crossover components are critically arranged on a larger than usual board to minimise interactions, and thus enable the greatest benefit to be derived from bi-wiring or bi-amping.

The low-frequency response has been tailored to complement the natural bass lift present in most living rooms. In this way, phenomena such as excessive bass and poor low-frequency transients, have been minimised.

In purchasing the Silver Signature, you have joined a select group, privileged to experience the unique sound of a system destined to become a landmark in the world of hi-fi.

Unpacking

Each loudspeaker carton contains:

a) One Silver Signature loudspeaker

b) One Crossover box

c) One 3m silver cable

d) One calibration certificate

e) A copy of this user manual (in one carton only)

Each stand carton contains:

a) One Slate stand

b) Four steel spikes with lock nuts

c) Three M4 fixing bolts & washers

d) Three self-adhesive rings

Unpacking, Installation, Electrical Connection and Aftercare

Installation

Having unpacked the speakers, crossovers and stands, refer to **Fig.1** and fit the spikes into the threaded inserts on the underside of the stands. Using hand pressure only, push firmly down on the corners of the stand base (not the top plate) and roughly adjust the spikes to eliminate rocking and achieve a level attitude.

Remove each of the self-adhesive rings from the backing paper and place them over the three holes in the top plate of the stand. Locate the speaker on the stand and fit the three M4 bolts and washers through the underside of the top plate and into the threaded inserts in the cabinet.

Check that the bolts have passed through the washers on the top of the stand, then align the speaker with the top plate before firmly tightening the bolts.

A small but even gap should be present between the stand and the cabinet.

In the normal seating position, adjust the front and rear spikes so that the top of the cabinet is just visible.

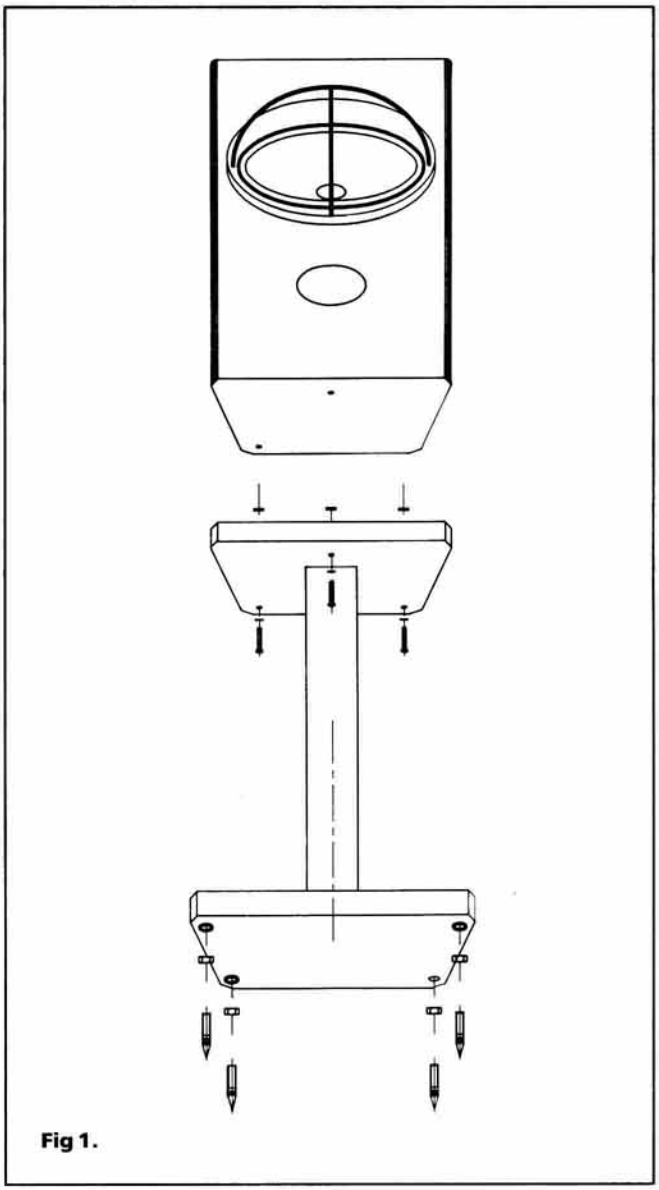


Fig 1.

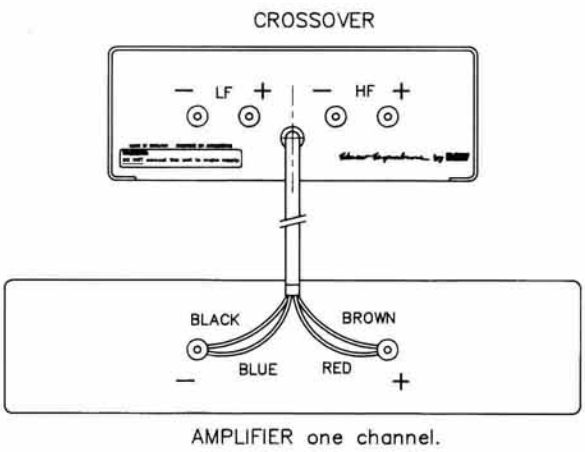


Fig 2a. bi-wiring option

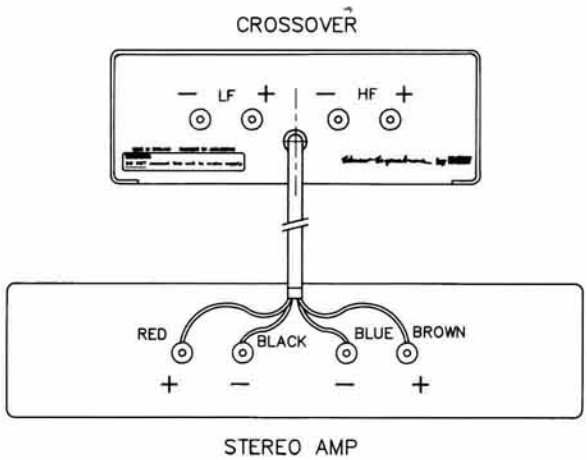


Fig 2b. bi-amplification option

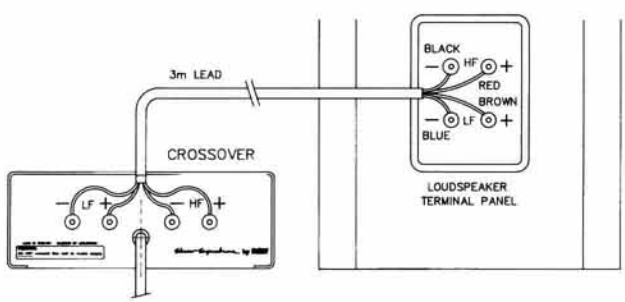


Fig 3.

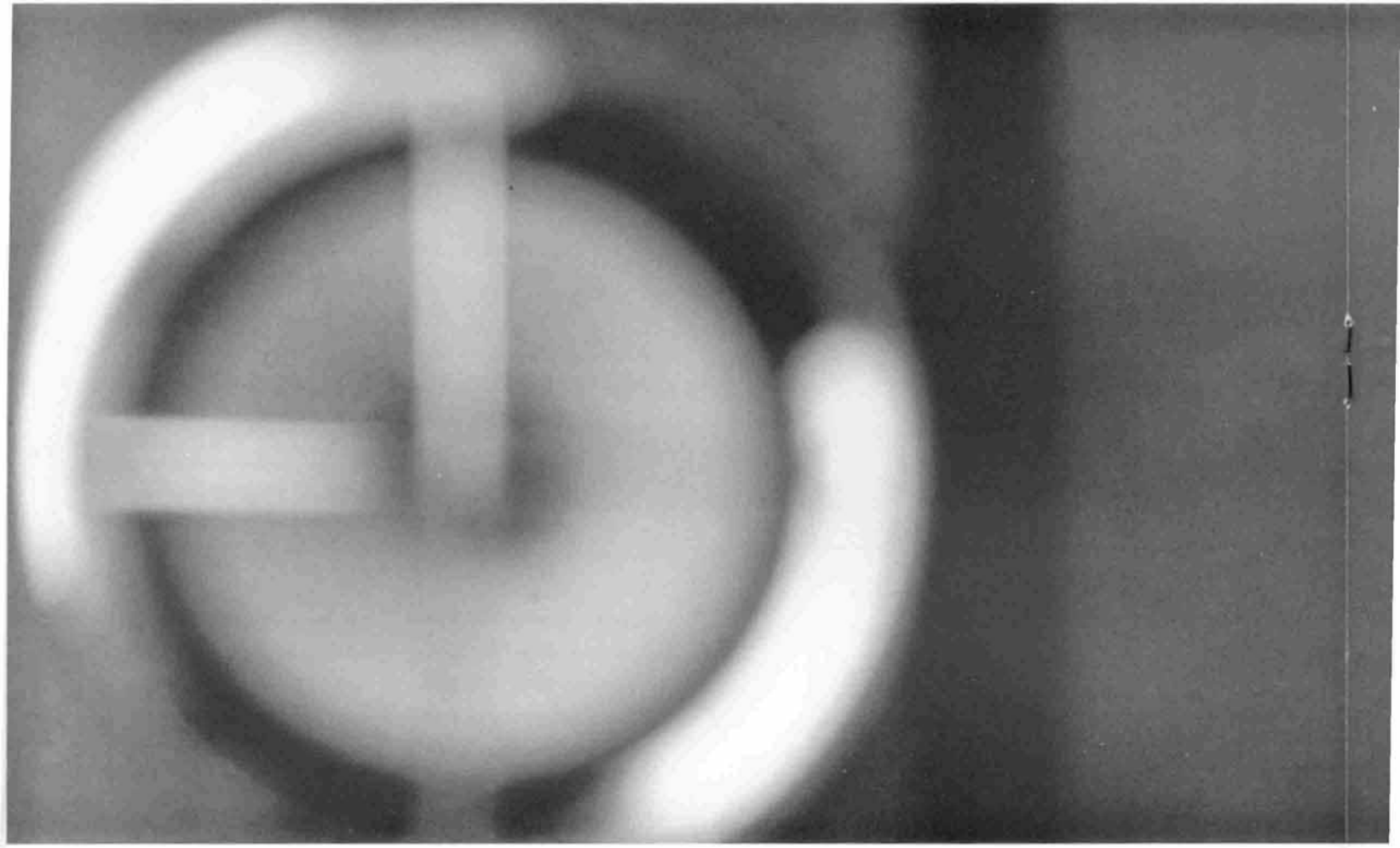
Electrical connection

The crossover boxes may normally be positioned above or beside your amplifier(s). However, in the unlikely event that the amplifier has a steel casing, we recommend that the crossover be situated at the side and preferably as far away as possible.

The system has been designed for bi-wiring or bi-amplification. **Figs. 2a & 2b** show these two options. For bi-wiring, the fixed cable from the crossover box should be connected, with the red and brown leads to the red (+) terminals, and the black and blue leads to the black (–) terminals. For bi-amplification the red and black leads should go to the red (+) and black (–) terminals of one amplifier, and the brown and blue leads to the red (+) and black (–) terminals of the second amplifier. It is important that all amplifiers have closely matched gains. Referring to **Fig.3,** the crossovers are connected to the speakers via the 3m silver leads supplied (additional 3m or 5m length cables can be purchased from your B&W distributor). On both the crossover and speaker, the four individual conductors should be clamped firmly into the terminals with the red and black wires to the HF+ and HF-terminals respectively, and the brown and blue wires to the LF+ and LF– terminals.

Aftercare

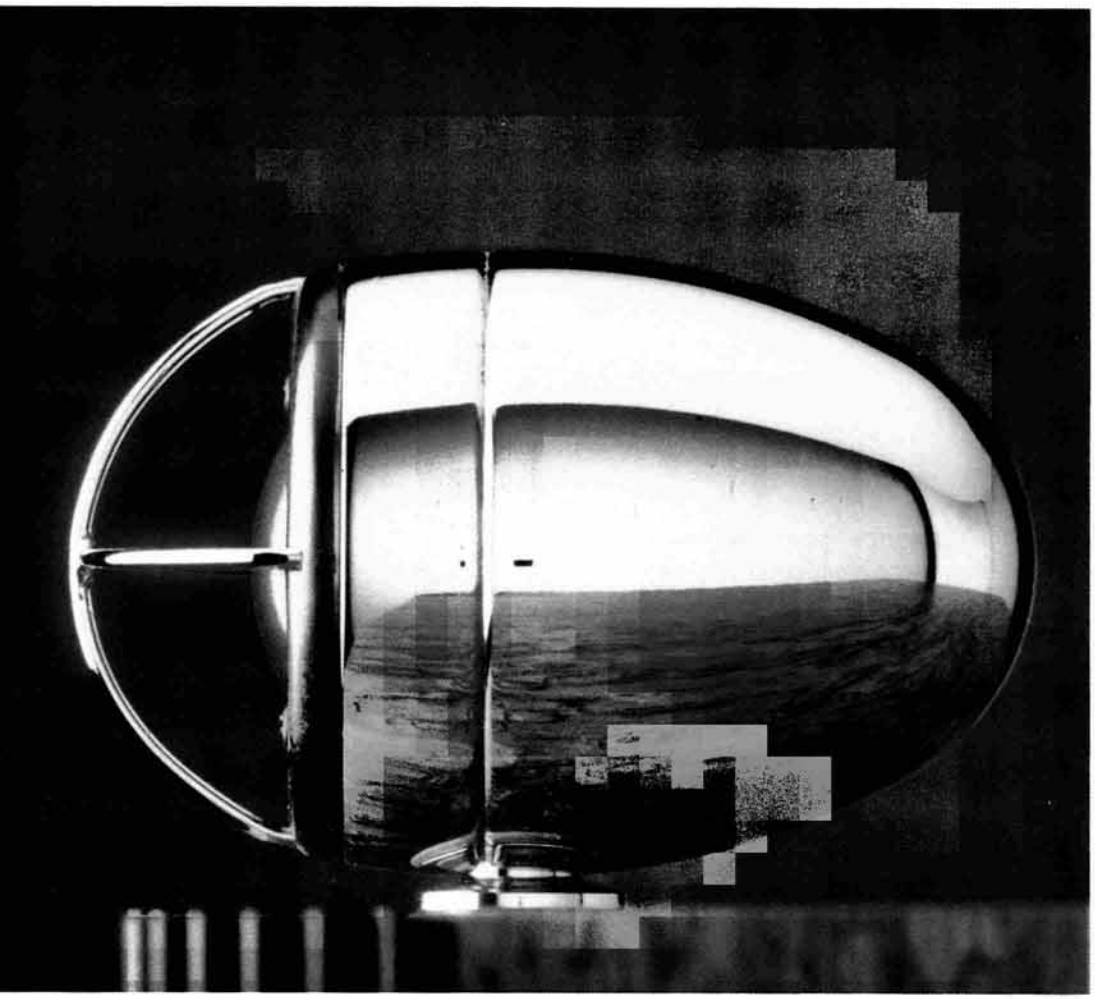
The cabinet should be treated as any normal piece of furniture. If you use an aerosol cleaner, spray onto a soft cloth and keep it away from the front of the drive units. Please avoid touching the drive units, especially the HF driver, as damage could result.

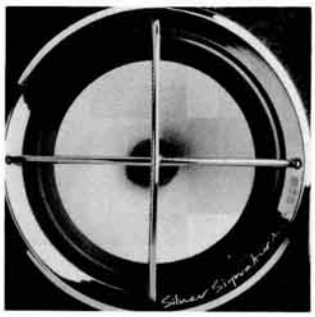


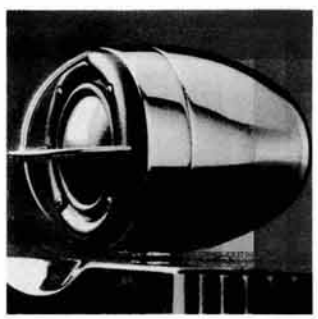
The power amplifier

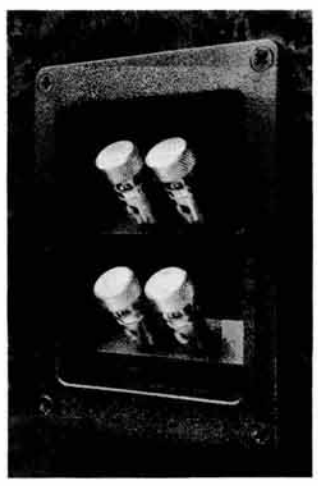
The recommended limits of power output for the driving amplifier are given in the specification. However, in giving these limits it should also be stated that amplifier power output requirement is an almost impossible figure for the loudspeaker manufacturer to specify. It will depend entirely upon the type of music

reproduced, size of listening room and sound level required. It is always better to have an amplifier with high power output, as this allows the proper reproduction of transients; whereas if the amplifier









output is too low, clipping can occur during high peak level transients. Apart from causing audible distortion, clipping results in a relative increase in the power fed to the high-frequency unit, with the possibility of thermal damage.

The control unit

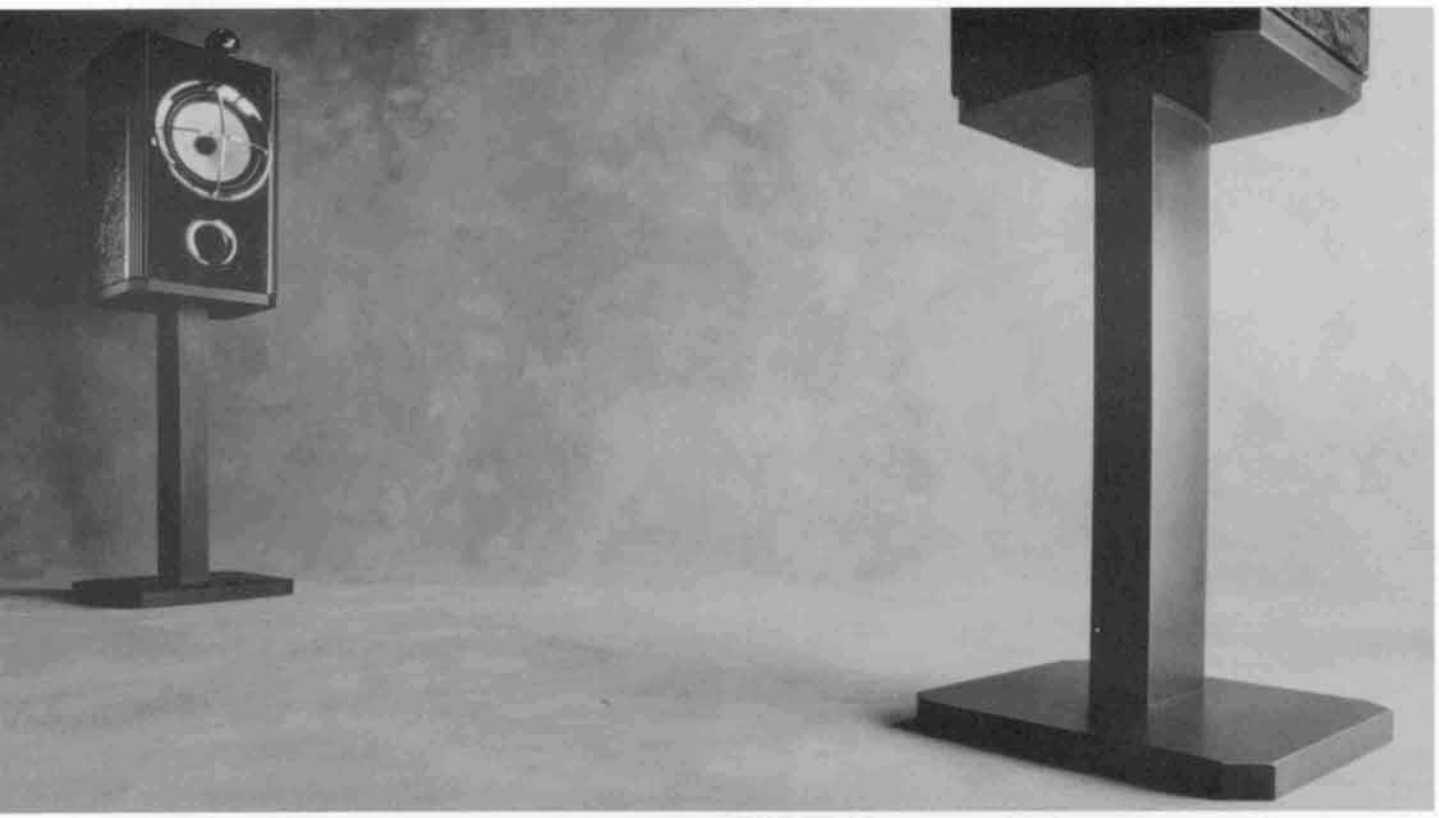
The control unit — although it deals with small voltages rather than large currents as in the case of the power amplifier — is an equally critical part of your listening chain.

Choose with care, in the knowledge that the ultimate test for audio components is critical listening.

At B&W's research department there are many different combinations of control units, amplifiers and source components such as analogue/CD players, tuners, etc. It is our experience that each unit (to say nothing of the interconnecting cable) is a variable, and the total listening chain is a combination of variables which should be carefully listened to before making a final choice.

CD player, analogue turntable and tuner

The comments in the previous paragraph apply equally to these items of equipment. CD players have now been on the market for some years and considerable advances have been made. In its present state of development the CD player, when coupled with the best recordings made on this medium, can provide the most exceptional source material, totally worthy of the finest equipment with which it is associated.



The degree of accuracy with which the original musical performance can be reproduced in your own home depends on a number of factors, including the quality of the original recording, the equipment used for reproduction and the acoustic properties of your listening room.

The Listening Room and Positioning your Loudspeakers

Regardless of other links in the chain, the listening room will to a greater or lesser degree imprint its character on the reproduced sound you hear. In simple proof of this statement, notice how the sound of the human voice changes according to environment.

Choice of listening room

Few people are fortunate enough to have a choice of listening rooms, but for those to whom this is possible (or anyone choosing a new home) the following may be helpful guidelines.

a) Any room with different dimensions for ceiling height, length and width will sound more even in response than rooms where all the dimensions are similar.

b) Solid walls are preferable and will show better reproduction of low frequency transients than some modern constructions where the inner walls are of plasterboard and slightly flexible.

c) Other than in houses with solid or concrete floor structures, a ground floor room is preferable to an upper floor.

Changing listening room acoustics

Small changes in the furnishing of a room can change its acoustic properties quite significantly. If you already have pictures on the wall, remove these experimentally and at once you will notice a considerable change in the sound from your loudspeakers! We are not suggesting that you should leave the room bare of pictures — quite the reverse, because pictures break up the otherwise plain wall surfaces and generally give fewer discrete high-frequency resonances or flutter echoes. Curtains are another element which can change the sound of your listening room in the mid/upper frequencies. Heavier curtains give more sound absorption of these frequencies and a softer, less reverberant quality to the upper octaves. Conversely, if your room sounds too dead, thinner curtains will give more life or sparkle in these frequency regions. So far as sound in the low frequencies is concerned, this is largely controlled by the dimensions and construction of the room. However, large items of furniture do change room behaviour at low frequencies, and their placement may be worth experimenting with.

Placement of your loudspeakers

It was once said that correct placement of a cheap pair of loudspeakers could produce better sound than incorrect placement of a much more expensive product. Whilst this is somewhat of an exaggeration, it is still true that changing the position of your loudspeakers will have a greater influence on the sound than any other variable under your control.

The spacing between your loudspeakers will depend on the size of your listening room and the distance of your seating from the loudspeakers. As a general rule they should not be closer than 1.5m (5ft) and the space between them should not exceed the distance of your seating for listening. Placement of the two loudspeakers and the listener on the points of an equilateral triangle is not a bad rule to follow.

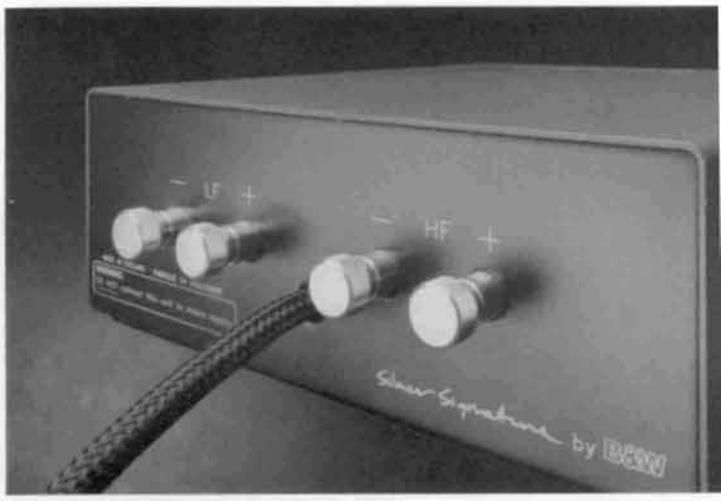
The position of the loudspeakers in relation to the walls of the listening room can have a noticeable effect on reproduction — especially at low frequencies. Generally, bass will increase relative to the middle and high frequencies as the loudspeakers are moved nearer the walls.

Placement hard against a wall, or worse still in the corner, may give rise to too much bass, with a boomy quality. In general, spacing from the walls of between 0.5m (2½ft) and 1.5m (5ft) is recommended, but it is well worth experimenting until you have the most acceptable sound. It is usually worth endeavouring to make the spacing between the two nearest walls uneven. As an example, the ratio of 0.5m (2½ft) to 1.5m (5ft) for the two walls can give excellent results.

We have been discussing the proximity of loudspeakers to the wall in the context of lower frequencies, but it is also worth mentioning that stereo information in a front-back plane would also improve if the rear wall is at least 0.5m (2½ft) from the back of the loudspeaker.

The choice as to which of the four walls to place your loudspeakers near will largely depend on your arrangement of furniture. But again, the option of the longer, as opposed to the shorter wall is well worth trying.

A final word about symmetry. For the best balance of stereo information the boundary conditions relative to each of the two loudspeakers should be as acoustically similar as is possible.




Silver Signature

Specification

Frequency Response	(– 3dB) 35Hz to 22kHz typical, including listening room correction. (± 1.5dB) 100Hz to 15kHz on axis at 1m 0.33 oct.
Channel matching	Typically ± 0.25dB.
Sensitivity	88dB per watt at 1m.
Impedance	8Ω (minimum 5.6Ω).
Maximum power	120w per channel peak programme.
Maximum level	110dB (1m) short term.
Location	On Signature stands, floor coupled.
Cables	Silver Signature bi-wire 3m, 5m to order.
Crossover	Passive: 24dB/octave, time compensated acoustic 4th order. Silver wire inductors, custom-made polypropylene capacitors with silver leads.
Crossover 2	An electronic crossover for use in converting the Silver Signature to an active system is in process of development.
Bass/mid drive unit	170mm die cast frame, 6 point fixing. Critically curved woven Kevlar diaphragm, high power silver wire voice coil on Kapton former, low loss surround, phase-correcting bullet dust cap.
High-frequency unit	Free space mounted bullet, offset, anti-diffraction geometry, 26mm (1in) alloy pistonic dome, high temperature silver voice coil, silver wiring. Ferro fluid-cooled.
Enclosure	Full Matrix multi-dimensional volume reinforced, exceptionally low structural resonance.
Loading	Bass reflex; quasi-Butterworth alignment for optimum room matching.
Size	Height: 450mm (17¾in) Width: 254mm (10in) Depth: 245mm (9⅝in)
Stand	55cm high.
Cabinet finish	Birds Eye Maple Grey Bobinga Root

Listening Suggestions

Given high quality source material, Silver Signature loudspeakers are capable of reproducing music to a very high standard, but they will ruthlessly expose the faults in poor recordings. B&W have produced a range of special compact disc recordings that will enable you to appreciate your system in full. They are available from your dealer or direct from B&W Loudspeakers Ltd.

BW001
The Academy of Ancient Music: Christopher Hogwood.

BW002
Live at the Montreux Jazz Festival.

BW003
The EMI Abbey Road Classical Collection.

BW004
Live at the B&W Montreux Musical Festival 1989 Vol. 1

BW005
Live at the B&W Montreux Musical Festival 1989 Vol. 2

BW006
Live at the B&W Montreux Music Festival 1989 Vol. 3

BW007
The Opus 3 Collection

BW008
Live at the B&W Montreux Musical Festival 1990 Vol. 1 – Hugo Viggiano 'Songs of the Unspoken'

BW009
Rolf Schimmelmann 'Sumi'

BW010
A Tribute to John Bowers. A collection of his favourite musical pieces.

BW011
Mozart Masters. Extracts from his greatest works.