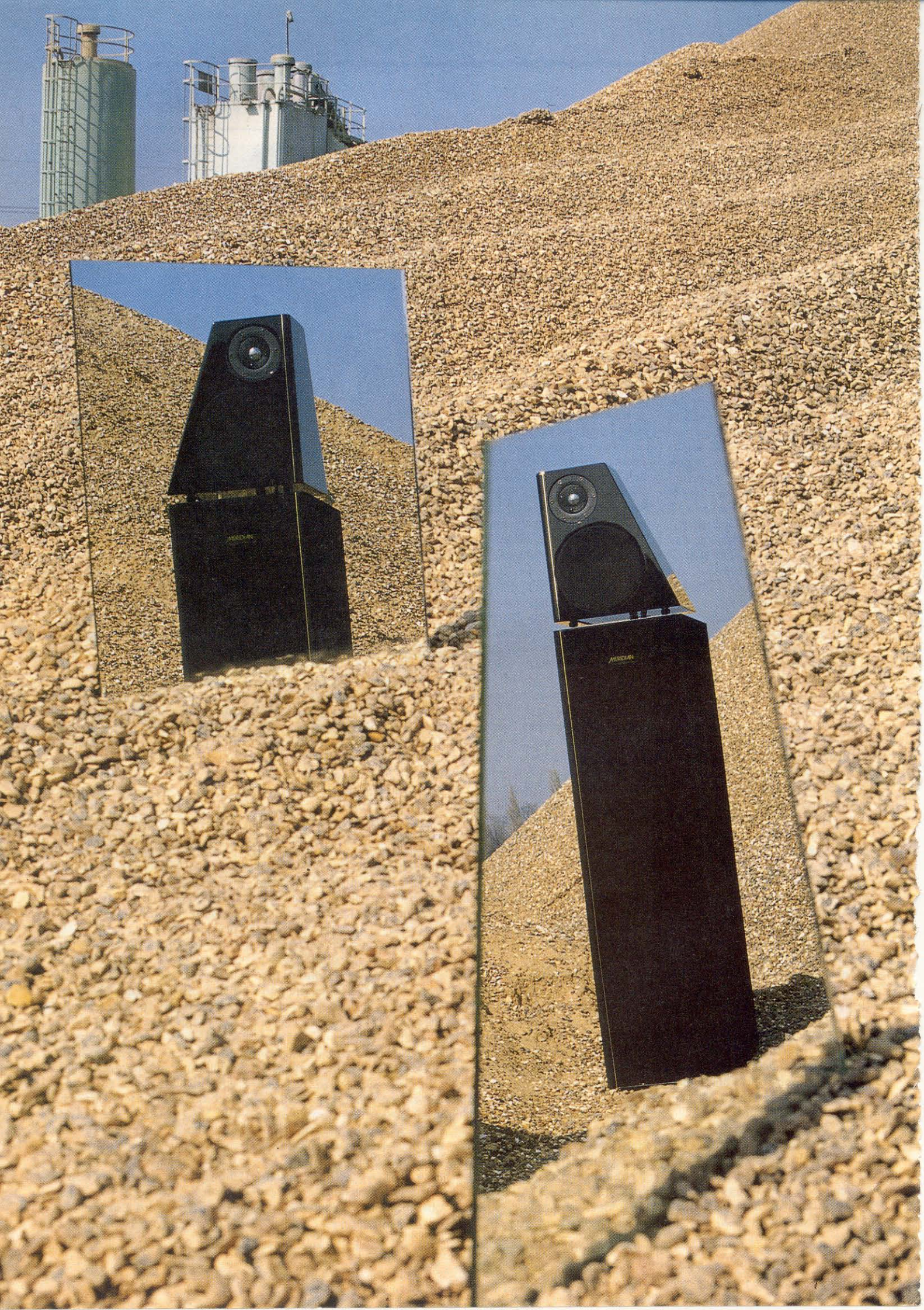




MERIDIAN D6000 & 607

Meridian's D6000 loudspeaker is about as digital as a digital speaker can be. Alvin Gold reflects on the future of hi-fi, and marvels at the 607's handling of good ol' vinyl

Just what do people mean when they talk about digital loudspeakers? One suggestion is that for a loudspeaker to be truly digital, its output must be determined directly from the incoming bitstream. That would require digital to analogue conversion to take place within the transducers or drive units. To my knowledge this technological barrier has yet to be broken. Until it is, this Meridian D6000 is the nearest commercially available product to a pure digital loudspeaker.

The 607 outboard black box supplied with the D6000 is the first analogue-to-digital converter made by a hi-fi manufacturer specifically to interface with a digital loudspeaker. Without the 607 or equivalent converter, owners of the D6000 will be unable to connect their analogue sources — record players, cassette decks, tuners etc — to the digital loudspeaker. The introduction of the 607 speaks volumes for the advanced technology at the heart of the D6000, which looks like a loudspeaker but is in fact an awful lot more. Apart from the array for drive units, the D6000 conceals a mass of electronics including those for power amplification and command/control resources.

Installation involves programming the D6000 via a series of nested menus accessed by remote control which are displayed (with extremely terse syntax) on a front display area of each speaker. 'Master status' is assigned to one of the two speakers, which then controls the rest of the system and tells the unit what type and number of components are connected, whether they are from Meridian, and to which input(s) they are connected.

The D6000 accepts only digital inputs, of which there are four: two each coaxial and optical. These are switched dynamically according to remote control commands, or from a system preamplifier if one is used. In most cases there is no need for a preamp at all; the 6000 has adequate inputs for most applications, as well as onboard DSP (digital signal processing) to take care of other housekeeping tasks expected of a preamp.

The DSP elements of the D6000 extend

well beyond what is feasible in the analogue domain. One of these functions is a sophisticated digital/analogue volume control which operates without the clicking noises associated with other digital volume controls, and which fits the 97dB-odd of digital signal/noise in the D6000's 117dB of available dynamic range so it will be inaudible in almost any circumstances. Balance is achieved digitally, and includes a phase delay for the nearest speaker to preserve relationships off-axis — a small taste of the power of DSP, which also extends to bass equalisation, tilt and loudness.

The most impressive demonstration of the D6000's DSP capabilities, however, is provided by the variable directivity crossover. The frequencies passed by each drive unit are controlled by digital filters instead of the usual power-robbing rat's nest of components. Phase problems from such filter roll-offs are eliminated. Bass response is also actively extended — the system has positive gain below 100Hz to lower the bass floor. Crossover points are at 200Hz and 2.6kHz, and BitStream technology is used throughout the system.

In addition, adjustable directivity (courtesy of a control on the system remote) provides a 'correct' listening axis for any listener, whether standing, sitting or squatting on the floor.

In my judgment the D6000 is 135cm of sheer elegance. Each speaker consists of two

parts. The base section is a large floor-standing box, spiked above and below decks. Two 210mm bass drivers in diecast frames are on each side of the carcass operating in opposition to produce a near cylindrical wavefront. This mode of operation means there is no net rocking moment on the enclosures.

Spike-coupled above is the midrange/tweeter enclosure, a superbly lacquered thick-wall sealed box with rounded edges to reduce diffraction. All units other than the SEAS-derived customised metal dome tweeter have polypropylene cones. The status display and remote control receiver are fitted behind the blackened glass front panel of the main (bass) enclosure. Separating the bass section of the D6000 helps prevent mutual interference.

A Meridian 603 preamplifier was used to provide extra flexibility. I also used a 602 CD transport, 204 tuner and 607 A-to-D converter (see panel) — a complete Meridian system in fact — plus a Townshend Rock Reference turntable fitted with an Excalibur arm and Dynavector DV17D2 MC cartridge, chosen partly on the grounds of expediency and retained on the grounds of brilliant performance.

To say sound quality was first rate is to considerably understate matters. In a number of areas the D6000 sets new standards. Its combination of bass depth, authority and control for example is quite without precedent in my experience, and is enough to leave speakers as solid sounding as the Linn Isobarik sounding decidedly sick in its main area of competence — and this is said neither lightly nor in ignorance. The Dorian recording of Mussorgsky's *Pictures at an Exhibition* (introduced to me by D6000 designer Bob Stuart) was nothing less than awesome. At high volumes, the room shook and the sealed double glazing units in a nearby bay window rattled violently as I counted the wave crests out, and back again on their return from the other end of the room. These classic virtues were achieved with an openness, spaciousness and airiness at astonishing volume levels. Meridian claims, and I can only agree, that the D6000 is among the only true hi-fi speakers capable of playing music at realistic volume levels. I have tolerant neighbours and caned the D6000s ruthlessly; but I was unable to discover the system's limitations.

Naturally, the midband is pretty much as good as the bass. (If it hadn't been, the bass itself would have been spoiled since it is deeply tied in with the reproduction of bass harmonics.) Again, a key quality of the system is its tremendous openness and clarity. Stereo imagery has enormous depth, breadth and scale (especially scale), though I found it necessary to toe the speakers inwards to achieve central focus. Treble was exceptionally sharp and clear, a factor that significantly contributes to help the near holographic clarity of the D6000. This three dimensional resolution of stereo informa-

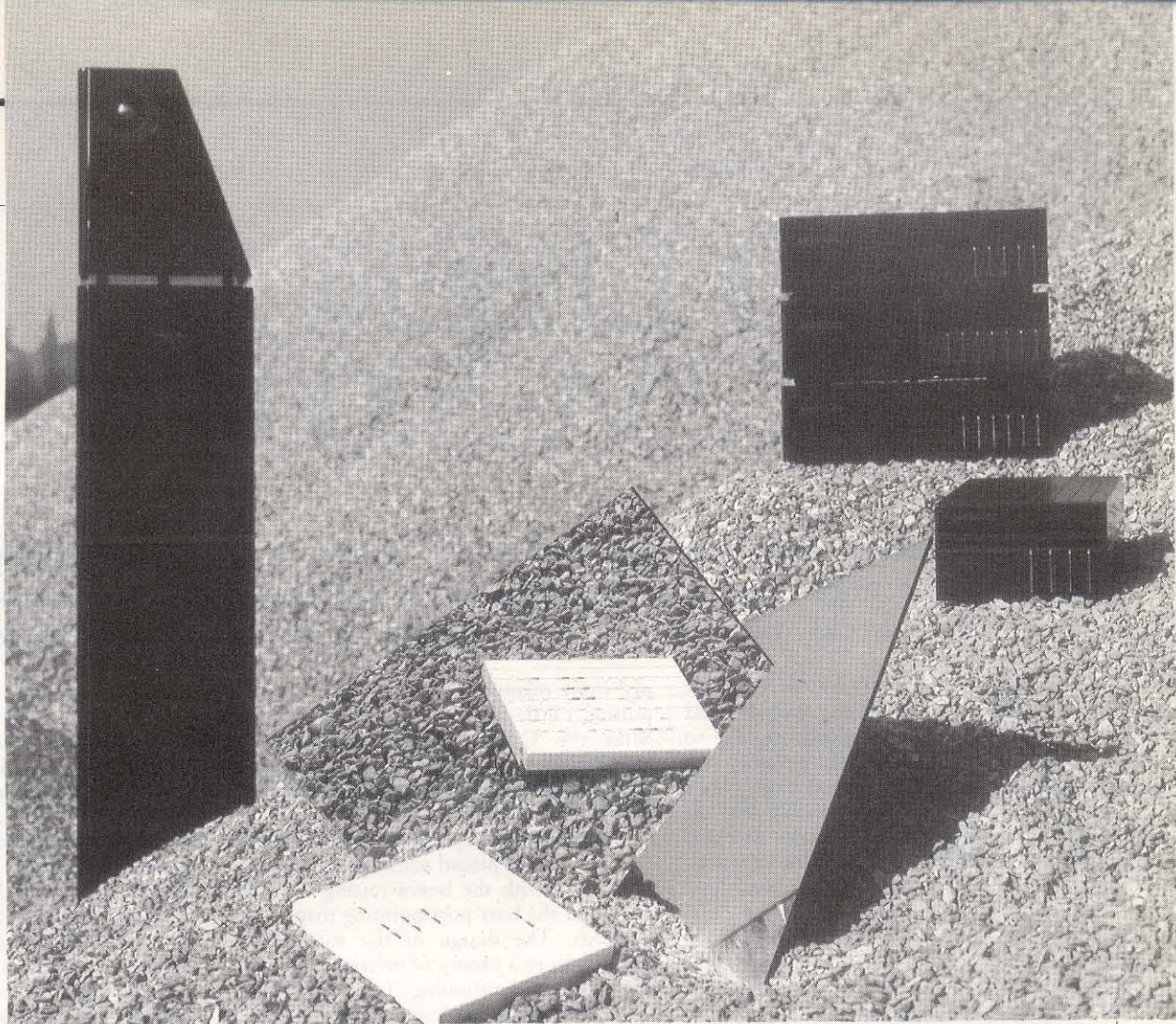
Design

- ☐ State of the art bass extension and control
- ☐ Open and highly detailed midband
- ☐ Can sustain genuinely realistic volume levels
- ☐ Some horny-like/brash effects from tweeter

Performance

- ☐ 'Digital' speakers with power amps and digital crossovers as integral part of loudspeaker
- ☐ Digital Signal Processing allows control of balance, directivity, volume etc without passive components
- ☐ 607 stand-alone ADC for analogue sources

Massed Meridians:
(left to right)
D6000 £7050 per
pair including
white remote; **606**
DAC (top) £1221;
603 DAC/preamp
(middle) £1630;
602 transport
(bottom) £1630;
607 ADC (alone on
gravel) £1006. The
607 converts
analogue inputs
(turntable, tuner)
to digital form for
the digital
processing of the
D6000 speakers



The A-to-D of Meridian

The 607 analogue-to-digital converter is the key to any extended Meridian D6000-based system employing analogue sources such as radio, tape or records. The stand-alone A-to-D converts the signal from such sources (usually via a preamplifier) into a digital signal that the D6000 understands. In this review a 603 preamplifier was used, fed by the components listed separately.

Built into a standard Meridian single-width box, the 607 has two optical and two coaxial outputs, the two sets of inputs, one of which can be driven by a source offering higher than line level, as you might expect from the output of a preamplifier with the volume set to a normal gain level. Front panel switching selects inputs, sampling frequency (44.1 or 48kHz) and preemphasis. Technology is in line with other Meridian products. BitStream powered, the 607 uses 64x oversampling delta/sigma conversion with third order noise shaping, and is built onto a four layer circuit board. A great deal of attention has gone into power supplies (of which there are three), dithering and clock integrity (to reduce small timing errors or jitter). In common with other Meridian equipment including the D6000 itself, socketry is based on phono connectors (electrical) and Toshiba plastic fibre (TOS-link optical) sockets. Meridian recommends the electrical connectors in preference to optical on the usual sound quality grounds.

tion rendered many recordings in a new and vivid light. Yet when the volume was turned down, the system retained both its clarity and its presence.

For all this, there is a sting in the tail. What at first I took to be a sharpness in the mid treble due to a lack of running in, soon established itself as a feature of the design that wouldn't go away. It wasn't always obvious. With a wide range of more distantly miked material, or where the treble content of the music wasn't too demanding, it was noticeable if not a problem. There were times however when it could not be ignored, as it smeared massed vocals (in Verdi's *Requiem*, for example) or added a false emphasis or glare to the harmonics of woodwind, brass and violins.

There is a good circumstantial evidence that this has nothing to do with the digital circuitry. I am pretty sure that much of the blame lies with the mesh cover over the tweeter and its semi-horn loaded mounting plate. It may do much to improve dispersion, but it also appears to invest it with a somewhat horn-like characteristic.

The 607 ADC turned out to be one of the highlights of the show. It is an astonishingly transparent performer which demonstrated its mettle with a whole range of inputs, including the Meridian 602/606 combination which I used to compare with the sound of the 602/D6000 system. But using a test signal constrained by CD standards is at best self-serving, and the most eloquent testimony to the 607's abilities was the slack jawed expression on Bob Stuart's face after

he had heard a couple of records reproduced by his system. His surprise was well founded. Given that the system was built around digital sources from the ground up, all the special qualities of a fine turntable were fully exploited. Surface noise was restrained and gentle in character, spurious low frequency bearing noise and rumble were absent despite the enormous LP bandwidth of the system, and the spatial and dynamic qualities of the recordings were amply exposed. The sheer vitality, scope and clarity of the sound off records conceded nothing to Compact Disc.

In short, and despite the slight sting in the tail, what Meridian has achieved here is nothing short of a triumphant vindication of the thinking that inspired the system. Meridian has demonstrated an ability to effectively design DSP functions, especially the ability to separate frequency and phase performance in the crossover. In addition, there are benefits to CD and DAT users in that it is beneficial to keep existing digital signals in digital form as long as possible to avoid the losses inevitable in amplifier and buffer stages, interconnects and speaker cables. The signal is converted into analogue at the last possible moment, at the input of the power amp, itself adjacent to its drive unit(s). Minimising analogue signal paths is also central to the D6000, and helps explain its unprecedented clarity and dynamic abilities. Complexity, build quality and performance fully justify the price.

■ **Right of Reply:** see page 83

Right of Reply

bass drivers have doped-paper cones, the mid driver is a very special custom unit using a critically terminated polypropylene cone and a phase-plug.

I am puzzled at the sharpness Alvin refers to. When I set the system up for him it did sound just as he describes; we assumed that normal warm-up would resolve it. We have since used the same components in three locations and cannot reproduce that defect. Maybe it was a power-supply problem?

Finally I should like to comment on my surprise at the LP sound Alvin produced on this system; the last time I heard LP that good was on a \$60,000 system in California, not quite up to CD standards, but . . .

Bob Stuart

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I am delighted that Alvin liked the D6000 so much. As he clearly understood, the digital and acoustical technology applied in D6000 was concentrated to reproducing the natural dynamics of the music.

One point of fact I should like to clear up; while the four