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ORTOFON ANNIVERSARY

To celebrate their 75th anniversary Ortofon have produced what they feel is the ultimate cartridge. The MC7500 is machined from a solid chunk of Titanium, one of the strongest materials available. The surface of the titanium body is so hard that the name has to be laser engraved! The cartridge also features a new twin-ellipsoid stylus profile, named Orto-line, which is 25% finer than the stylus on the MC3000 and 5000 cartridges. This allows it to reach further into the grooves of a record and reduces the effective mass.

Other special features include 99.999999% (eight 9s) purity copper wiring, carbon fibre armature, three point mounting to improve the fit between body and headshell and a slightly raised output. At present there is only one in the U.K. and retail price will be £2000. Look out for a review shortly.

Ortofon UK Ltd. Chiltern Hill, Chalfont St. Peter, Bucks SL9 9UG. Tel: 0753 889949

CREDO

The Swiss Credo range of audio electronics are now to be distributed in the UK by Townshend Audio.

Townshend Audio Ltd, Tim's Boatyard, Timsway, Staines, Middx TV18 3JY. Tel: 0784 455866

GYROPOWER QC

Michell Engineering have produced a power supply unit for their Gyrodec turntable. The PSU is built, as you'd expect, from high quality components throughout, including surface mount devices and polypropylene capacitors. It enables the user to change the Gyrodec from 33 to 45 rpm automatically, without fiddling around with the belt. The Gyropower QC costs £349 and is in the shops now.

J A Michell, 2 Theobald Street, Borehamwood, Herts WD6 4SE. Tel: 081 953 0771.

THE ALEONS ARE COMING!

Isak is a new range of equipment stands from Aleon Design. Designed for their visual appeal as much as for their rigidity, they can be supplied with accessories such as spikes, and provide the flexibility of either wall- mounting or floorstanding use.

Prices had not been set at time of going to press, but the five-shelf unit should retail for around £300, smaller units for less.

Aleon Design, 98 Grove Road, Walthamstow, London E17 9BY Tel: 081 509 3693.
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There's just one reason why the new SIXES loudspeakers look and sound as they do.
BUSY! BUSY! BUSY!
That's Harman Kardon, judging from the number of their press releases pouring through our letterbox.

They've brought out their first pre and power amp combinations for six years, calling them the 'Signature Series', because each one bears the name of Harman/Kardon's creator, Sidney Harman.

The pre-amplifier is the £500 AP2500 which provides five line inputs, two tape loops and MM/MC phono stages. The power amplifiers are the 45watts per channel PA2100 at £350, the 70watts per channel PA2200 at £580, and the 120watts per channel PA2400 at £900. All are bridgeable.

Harman/Kardon have also announced the acquisition of AKG, the Vienna-based microphones, headphones, and accessories company, and also a minority interest purchase in Madrigal Audio Laboratories, the makers of the Mark Levinson and Proceed brands.

Harman Audio, Harman International Industries Ltd. Unit 2, S Rowley Lane, Borehamwood, Herts WD6 5PZ. Tel: 081 207 5050

JVC BLASTOFF...
JVC are launching a satellite! Well, a satellite system actually, employing a 10cm midrange driver with a 2.5cm soft-dome tweeter, and a 'Kelton type' sub-woofer employing two 13.5cm drive units. The set retails for £300.

JVC (UK) Ltd, JVC Business Park, 12 Priestly Way, London NW2 7BA. Tel: 081 450 3282.

...ALONG WITH BOSTON
Also in the satellite market are Boston Acoustics, who have launched a new version of their Subsat Six satellite and subwoofer system, the Series II model, retailing at £450, and an extra £30 for the satellite's wall brackets, if required.

Portfolio Marketing, 67 New Road, Little Kingshill, Great Missenden, Bucks HP16 0EU Tel: 0494 890277

HARDCORE
Ixos have brought out a new 'speaker cable to build on their success with their original 'Hardcore'. The new cable is known as the 'Hardcore 12' and takes its name from the fact that there are now twelve cores to the wire, each of the same gauge as that used in the original 'Hardcore'.

To facilitate bi- or tri-wiring the cores are paired in separate sheaths within the screened outer sleeve. All this for just £5 per metre run!

Path Group Plc, Unit 2, Desborough Industrial Park, Desborough Park Road, High Wycombe, Bucks. HP12 3BG. Tel: 0494 441736.

THOR, NORSE GOD OF THE HERNIA
You'll know what I mean if you try to move Alchemist Products' new Thor stereo power amplifier. Weighing in at 120Kgs, measuring 70 x 120 cms, with 24 output MOSFETs, four separate power supplies, with a 3mm thick stainless steel casing, delivering 450watts per channel, and costing a hefty £5995.

They also have Vidar, Thor's little brother, at a mere 250watts per channel and a price tag of £3995, and the Forseti, which is a 'grown-up' Kraken delivering 100watts per channel and costing £899, and also the Anniversary Kraken, all dressed up in snazzy stainless steel chassis and gold knobs, retailing at £499 for the integrated, with the pre-ampl at £455 and the power amp at £445.

Alchemist Products, 4 Rosebery Mews, Muswell Hill, London N 10 2LG. Tel: 081 883 3008.

EQUINOX FROM RUARK
Ruark have designed and built a dedicated bass/midrange drive unit for their new Equinox loudspeaker, first in a series of expensive audiophile designs. The tweeter is a fabric dome design from Scan Speak which, we found in our drive unit tests, gives superb results. Ruark place the crossovers in the partnering stands, to remove them from the influence of vibration and magnetism. A very high standard of construction, detailing and finish are claimed, to give a product that looks and feels as good as it sounds. Ruark have a great reputation for their loudspeakers. The new Equinox is likely to be impressive, but this sort of quality comes at a price - £1749.

Ruark Acoustics
Annwood Lodge Industrial Estate
Arterial Road
Rayleigh Road
Essex SS6 7UA
Tel: 0268 728890

LOWER PRICES!
Exchange rate behaviour is quoted as the reason Copland amplifiers are now being offered at lower prices. The CTA401 30watt integrated falls from £1700 to £1495, the CTA501 30watt power amplifier from £1600 to £1420, the CTA302 from £1500 to £1250 and the CTA504 valve power amp from £1500 to £1750. So it's never been a better time to consider buying one of these well made and finished Swedes. If you are interested, contact.

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World Radio History
NEW GARRARD PLINTH
Loricraft Audio have launched a new plinth for the Garrard 301 and 401, made of 28mm ash or oak, and sporting reinforced corner bracing. The plinth, complete with perspex cover, costs £350. There is a walnut version in the pipeline, possibly costing a little more.

Loricraft Audio, 4 Big Lane, Goose Green, Lambourn, Berks RG16 7XQ Tel: 0488 72267.

MUSIC TECHNOLOGY COURSES
Evening courses entitled 'Introduction to Sound Recording' and 'Introduction to Music Technology' to provide a BTEC National Certificate in Design will be re-run by South Thames Colleges. They are part time, two days a week, and provide an introduction to modern music recording techniques, using MIDI, synthesizers, as well as an introduction to the music recording industry. For course fees, times and all other information, contact John Dodd or Des Lyver on 081-870-2241, extension 340 or just £299.

GARRARD PLINTH

That's how it would appear from a general press release from the music recording industry. For course fees, times and all other information, contact John Dodd or Des Lyver on 081-870-2241, extension 340 or just £299.

AL4 OPG. Tel: 0727 827311.

AV ROUNDUP
It seems like everybody's moving into AV and home theatre, or that's how it would appear from a general press release from the music recording industry. For course fees, times and all other information, contact John Dodd or Des Lyver on 081-870-2241, extension 340 or just £299.

So what's happening in the fast, new exciting world of AN, where your living room becomes a cinema? And where your living room becomes a cinema? And where your living room becomes a cinema?

The folk at Polk will be launching their RM5000 "sonically and cosmetically integrated four piece front stage home cinema system" at £1099, early in 1994.

B&W have their slightly more expensive seven box (three front and two side monitors, with two passive subwoofers) THX system, retailing at £4395, and available now. THX is the Lucasfilm surround sound system, as opposed to the more common Dolby.

Richard Allan Audio are direct-marketing their six box (centre channel, two side, and two rear loudspeakers, and one subwoofer) A/V-1 system at just £199. They also have a 'Gold' version of this system, employing their Minette Gold 'speakers, at just £299.

Last, but not least, Tannoy have their 623 dual-concentric loudspeaker, shielded for centre-channel and side/surround use, retailing at £180 each.

Polk Audio, Tyttenhanger House, Courser Road, St Albans AL4 0PG. Tel: 0727 827311.

B&W Loudspeakers (UK) Ltd, Marlborough Road, Lancing, West Sussex BN15 8TR. Tel: 0903 750750

Richard Allan Audio Ltd. Bradford Road, Gomersal, Cleckheaton, West Yorkshire BD19 4AZ. Tel: 0274 872442

Tannoy Ltd. Rosehall Industrial Estate, Coatbridge, Strathclyde ML5 4TF. Tel: 0236 420199

COMING SOON

We hear that ...

HEYBROOK
Heybrook have been at work on an integrated amplifier for some time, known as the Integra. It is due out within the next few months. Hopefully, it won't get as delayed as the revised Sextet loudspeaker, expected for the Penta 1993 show but now on a back burner. Apparently, Heybrook are selling as many Sextets and Quartets as they can make, which is hardly surprising considering how good they sound. It's nice to know that good products still sell well. The AV boys should take note.

CELESTION
Or perhaps they have - taken note that is. Big in AV are Celestion, but in spite of Dominic's naughty comments in his column last month, they are actually hard at work developing a new range of hi-fi loudspeakers that will be truly different and attractive, we are told. Will Dominic have to eat his words? Should we start printing Hi-Fi World in rice paper? If Celestion are right, perhaps so.

TANNOY
Designer Paul Mills of Tannoy has, for years, been experimenting with the thorny problem of motional feedback controlled subwoofers. We've also experimented with this possibility, finding they can deliver astonishingly tight and fast bass - then the cone flies out. Whoops! Scared of decapitating their customers, the British hi-fi industry have steered clear, but for Paul Mills, who has conquered the problem. What is it? The trouble lies in the cone knowing where it is in the gap; absolute position sensing is needed or the system goes unstable and it's time to dive for cover. Various methods of position-sensing are possible, but all have drawbacks. It looks like Tannoy reckon they have cracked the problem though, so expect dynamite bass shortly, possibly from a very small cabinet - suit of armour unnecessary.

SHOW NEWS
Suits of armour do, however, have their uses at hi-fi shows, especially when they get crowded and you want a drink from the bar. So polish up your mace, saddle up your white charger and prepare to set to in the crowds at the Bristol Hi-Fi Show, now officially known as the Sound & Vision Show in acknowledgment of the industry's current feeding frenzy over A/V. We'll be macing a few TVs while we're there, just so people can get to hear something better - our super exotic 300B valve amplifier.

The venue is the Marriott Hotel in Lower Castle Street, Bristol. The drawbridge goes down at 12 midday on Friday 18th February, whereupon festivities commence. It flies back up again at 6p.m. on Sunday 20th February when the sales serfs make a frantic dash for their white chargers (Vauxhall Cavaliers) in order to get home before midnight. Merriment and ribaldry are to be found aplenty, between those times. So bring a wench, keep a firm grip on her, and enjoy yourself at Bristol's Sound and Vision 94 show.
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<thead>
<tr>
<th>Cable Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPK 100</td>
<td>Twin-core white cable, each core with 130 copper strands (total 260 strands).</td>
</tr>
<tr>
<td>SPK 200</td>
<td>Tripple-core grey cable for bi-wiring with twin-core treble (260 strands) and 3-core bass (390 strands).</td>
</tr>
<tr>
<td>SPK 300</td>
<td>7-core blue cable having 13 strands per core (each strand laminated). Requires soldering.</td>
</tr>
</tbody>
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3 Dewing Road (off Wendover Road), Rackheath Ind Est, Rackheath, Norwich.
Telephone: (0603) 721995.
Oh what a surprise! - and a very pleasant one too. After seas of mediocrity, here at last is a solid state tuner that does start to approach the magnificent sound quality of the Leak Troughline. NAD’s new 402 tuner has a wide open sound stage, plus powerful but well defined bass reproduction, not short of rhythm and energy. There’s oodles of insight, and a sparkle in the treble. How NAD have managed to get such an impressively scaled sound from modern silicon chips I don’t know, but the 402 does it well.

The only small drawback revolves around operating convenience. Being a budget design, NAD have decided to cut the number of buttons they have to fit by making the normal Up/Down tuning buttons act as preset selectors. This eliminates the usual row of ten or so station selector buttons, but it also means more button stabbing is needed. Also, the back-lit liquid crystal frequency display doubles up to show tuned frequency as well as station store number, another cost saving measure.

However, in their favour, NAD have made efforts to minimise the impact of these compromises - and for me they worked. The station number store is ‘circular’, going from No 12 straight to No 1 in the Up direction, rather than stopping (the tuning system does likewise, going straight from 108MHz to 87MHz). That halves the maximum number of times a button must be pressed to find a wanted station. The buttons act quickly too, which also helps. And finally the display automatically alternates between store number and frequency a few times to make the link between them clear.

The 402 has medium wave as well as stereo VHF/FM, so you can get Virgin 1215 if you want, providing you don’t mind the trailing wire aerial NAD supply with it. There’s no loop aerial of any sort, so medium wave lovers need to inspect their picture rails for this one. A few drawing pins and a longer piece of wire than that supplied will get more stations, although more interference as well I suspect. In Central London the bit of wire made just four stations available - not a lot.

There was no problem with the VHF section though. This is a sensitive tuner and from our external aerial, which supplies a strong signal of many millivolts from each station, the increasingly crowded airwaves on VHF came spilling through. Like so many tuners adjusted to auto-tune with a poor aerial, the 402 stopped at every squeak and whistle in the ether, thinking it had found a station, but that’s not uncommon.

It can, alternatively, be manually tuned, but I found the on-tune light could not then make up its mind, suggesting on occasion that no fewer than three successive fine 0.025MHz steps represented the correct tune frequency. Any one may have been good enough for satisfactory sound quality, but only one could be correct. A curious extra entitled Lock then has to be used to force a final decision. But these little difficulties are likely to be one-off for most people, because once the station memories have been filled, manual or automatic tuning becomes unnecessary, unless more than twelve stations are available.

Apart from a Mono button and Blend, both of which cut down hiss on weak stereo stations, the 402 has no other facilities. To use it after programming in required stations, switch on, make sure Mode is set to Preset and then just press the Up or Down button to trawl through the twelve station...
stores. Build quality and styling follow NAD’s tradition of being simple, stark and satisfactory. The 402 is finished in - er - a sort of grey, with green hue. Perhaps the marketing department of Dulux would call it ‘Lichen’. The front panel is a plastic extrusion and the buttons poking through it have various colours according to function. There’s a good visual balance and a lack of clutter that make for a neat yet simple appearance.

But the outstanding feature of this tuner is its sound quality. It excels by possessing a lucidity and a sense of depth and body to the sound that is rare in modern tuners. Our listening tests show that bass commonly sounds strangled and the upper mid-band flat and coarse on so many modern designs, even when they measure well. The 402 magically avoids these problems. It has plenty of bass welly for Reggae, Disco and Rave; the beat just pounded out of the speakers on Saturday night’s programmes, as strong as that from the Troughline. In the upper mid-band there was little sign of compression and coarseness; in fact the 402 comes across as open and sweet in its treble - rare indeed. It needs good, live, studio transmissions - commonly found on Radio 2 - to show just how much of the studio atmosphere comes across. Terry Wogan was in good form when I tuned to 2; his dulcet Irish tones - that deep croak! - were rich and resonant, hanging between the speakers in the room. But for a short while I was alarmed to hear hiss - and then suddenly it stopped. I’d been listening to a tape running. As the continuity engineer switched back to the studio there was silence; this tuner does not hiss at all.

The old 4025 was a superb tuner; the new 402 betters it. It betters most other tuners though, which is embarrassing for the competition - at any price. In fact really expensive tuners commonly sound worse because they over-process the signal. If you are in the market for a tuner with really superb sound quality, ignore the low price of the 402 - it is simply one of the best available.

Dominic Says
I have been using a Troughline for several months now, and am still overwhelmed by the scale and depth of presentation it

MEASURED PERFORMANCE

The much admired, but now obsolete NAD 4025 tuner had a flat frequency response to around 12kHz above which it rolled off smoothly, contributing to its attractively warm sound. The new 402 is different: it has a smooth, but gently rising, response all the way up to 16kHz, as the analysis shows. This will, at least, add an air of brightness, making the 402 sound less fulsome and warm than its predecessor. It will also add a sense of insight and analysis to the sound. It is a result up with the best of the crop, irrespective of price; tuners cannot easily go higher than 6kHz when a pilot tone filter is used.

Unusually wide channel separation and very low distortion also mark the 402 out as a high performer. I was expecting to measure a satisfactory but unexceptional level of around -72dB. Since over the last year or two I’ve noticed tuners seem unable to surpass this, doubtless because the current silicon tuner chips available - and affordable - offer no better. So when a figure of -75dB was notched up, with 1mV of signal from the aerial, the 402 showed itself to be above most others in the field as present. It means that, fed a strong enough signal (1mV or more), hiss from the tuner will be inaudible. This is good news for critical Radio 3 listeners.

The 402 showed it was up with the best in its ability to separate stations from each other (selectivity), and it is also very sensitive too, again matching the best by needing 20µV for hissy stereo (-50dB noise). An output of 550mV is enough to ensure the tuner matches any amplifier.

In summary, the NAD402 measures extremely well by the highest current standards. It has no weaknesses or foibles, other than a frequency response trait that suggests its sound may be a little lighter or more insightful than others. NK

TUNER TEST RESULTS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
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<tr>
<td>Stereo separation</td>
<td>57dB</td>
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<tr>
<td>Distortion (50% mod.)</td>
<td>0.08%</td>
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<tr>
<td>Hiss (CCIR)</td>
<td>-75dB</td>
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<tr>
<td>Signal for minimum hiss</td>
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<tr>
<td>Selectivity (at 0.4MHz)</td>
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<td>Sensitivity</td>
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</tr>
<tr>
<td>mono</td>
<td>1.2µV</td>
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<tr>
<td>stereo</td>
<td>20µV</td>
</tr>
<tr>
<td>Signal strength meter</td>
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Distortion

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Top Aerials

Noel Keywood explains why the NAD402, or any tuner, will benefit from a good aerial.

Does a tuner as sensitive as the new NAD402 need a proper aerial, or can it make do with an indoor wire dipole? The answer is "yes" and "yes". Use an indoor wire and it will get plenty of stations, but also a lot of hiss and noise accompanying them, unless there’s a transmitter nearby (i.e. within 10 miles or so). For hi-fi sound quality, which with tuners specifically means much improved insight and clarity, an outdoor aerial is usually essential, and you’ll get distant stations too.

Let me describe the differences in more detail. The radio gives us speech and music and, generally, we only expect to be intelligible, hi-fi tuners can give a lot more than mere intelligibility, even though users don’t commonly realise it. Given enough signal, they can display a strong insight into the material being transmitted. Live studio acoustic comes through - the presenter shuffling papers, people coughing, chairs squeaking, even the hum of air conditioning. A good hi-fi system will project that atmosphere into the room and it’s quite a revelation to suddenly become aware, as never before, that the tape recorder has hiss and that behind the oft strained tones of the reporter there is traffic noise, wind and goodness knows what else going on.

Other worlds can sweep into your listening room. To get all of this you need to provide a tuner like the NAD402, or at least I mV or so on each station. The specifications appear to suggest that a lot less signal is acceptable. Stereo sensitivity measured 20μV (twenty microvolts) which is fifty times less. Unfortunately, that’s to get good intelligibility, not real hi-fi fidelity. It is the amount of signal required to get background hiss down to a level equivalent to that of a cassette without Dolby and not many people would feel that had much to do with hi-fi.

What is needed is a signal strong enough to get hiss down to the lowest level possible, a condition known as ‘full quieting’. Most tuners, including the NAD402, need at least 1 mV for this, then hiss will become effectively inaudible. With the NAD it sinks to -75dB, a very low value.

Indoor dipoles typically give around a few hundred microvolts (μV), except when close to a transmitter. It is impossible to be precise about this, because the surrounding terrain has a big influence on signal strength, as does transmitter power. Where a transmitter is in line of sight though, 5-10 miles is about the limit of a simple dipole aerial. At around fifty miles away, it is common to need a three or four element aerial to get a strong enough signal for full quieting.

Aerials must be mounted as high as possible to obtain a strong signal. They need to be pointed toward the local transmitter, whose position is given by reception maps available from the BBC and IBA. If you use these, then you’ll need a compass. In some locations, two transmitters may be available, usually in opposite directions. Local aerial erectors are best consulted and used for outdoor work, for their local knowledge, possession of a signal strength meter and for your own personal safety. You can usually get an aerial erected for around £60.

One of the great potential benefits of buying a budget tuner like the NAD402 is that it leaves change for a good aerial. And there’s no doubt that a 402 plus a good aerial will eclipse any tuner you can think of, irrespective of price, working from a poor aerial. That’s the worth of a good aerial.
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Dominic Baker and Simon Cooke agree that Mission's latest version of their 760 loudspeaker is a very accomplished performer.

Healthy competition between loudspeaker manufacturers over the last few years has produced some of the best budget miniatures ever seen. Nowadays it's hard to make a mistake with £130 to spend on a pair of speakers with so many good ones around. Celestion's Is, Goodmans' Maxims, Tannoy's 603s, Richard Allan's Minettes and Mission's 760s are all fantastic value for money and offer a level of sound quality way above what you'd imagine from the small price tags.

Recently both Goodmans and Tannoy have updated their budget blasters and Richard Allan have produced a super Minette, the Minette Gold. Now it's Mission's turn.

The £149.90 760iSEs are virtually identical in appearance to the standard 760s, the only hint of change being the second set of terminals on the rear panel for bi-wiring. However these are not just a bi-wired version of the 760s, higher quality crossover components and internal wiring have been used to further enhance the already excellent 760. But how do these changes affect the sound?

Well, you get a surprisingly huge sound from such a small box, the new 760iSEs fill a room like a floorstander should. Used a few inches away from a rear wall the sound stage is wide and spacious and they really impress. The bass is not particularly deep, but what is there is solid and powerful and once they get hold of a bass line they refuse to let go. They have plenty of punch as well, the small lightweight driver gives them an energetic and snappy sound.

One area where Mission speakers have always been a little weak is in the treble. They don't have so much fine detail, but they have a bright and open character that never becomes harsh, making listening enjoyable rather than tiring.

The new Mission 760iSEs didn't disgrace themselves even on the end of a fairly esoteric £3000 system. I've heard speakers costing several times the price sound considerably less musical and involving. This makes the 760iSEs one of the best miniatures around at the moment. Never mind the low price, their performance is nothing short of excellent.

Simon says
The Missions are very impressive at the price, and although they are simply not big enough to drive the realistic bass of a large orchestra or even the deep thrumming of a solo double bass, they really come into their own with the faster, higher frequencies, and from then on it's music and metronomic rhythm all the way. They can be driven quite hard without complaint, and paint a room-filling and believable picture of music of any kind. The mid is easy on the ear, and although the treble is a little soft, there's enough there to lose the interest, and then some. Only on really stinging steel guitar or harp did the tweeter's soft tone disappoint, so think twice before you buy them if you're a National or pedal steel fan, although, come to think of it, there isn't much out there that would better the Missions, even if you are.

All in all then, a most impressive loudspeaker, which will give Mission's competitors quite a lot to think about.

Mission 760iSE £149.90
Mission Electronics
Stonehill,
Huntingdon,
Cambs, PE18 6ED
Tel. 0480 451777
**SUGGESTED SYSTEMS**

The suggested systems priced below all include the popular NAD 5120 turntable but an alternative turntable or CD player is available at extra cost. Please see "OPTIONS" list below for further details.

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Simon Cooke listens to the new Tannoy D100 ‘Definition’ loudspeakers, to find out how they define the music.

Tannoy have domesticated their D700s, shrinking them down to bookshelf size. The new D100s use a 6.5inch version of their dual-concentric loudspeaker drive unit, which places the tweeter in the centre of the bass/midrange driver to produce a full-range point source ‘speaker. The new speakers have the same classy rosewood veneer finish and triangular cabinet cross-section (to reduce internal standing wave propagation) as their larger siblings.

Another characteristic which the D100s and D700s share is that they are both quite unforgiving of amplifiers with sharp, gritty treble or reticent bass, but in the case of the D100s, a valve amplifier can be used with greater ease, and I found our K5881 drove them better, or at least more musically, than our reference transistor amplifier.
With the first track I played, the performance level of the D100s was impressive, but they were not without their limitations. The bass was well defined, but not quite as tight as I would have liked. The midrange was very good, with vocals and all instruments in this range being well portrayed, but there was a slight lack of detail in the higher frequencies. The treble was clear, but perhaps a little too bright, with some loss of detail in the lower frequencies.

The bass sounded solid and well-defined when the speakers were placed against a wall, but when moved away from the wall, the bass frequencies almost disappeared. Against a wall, the D100s go respectably, but not especially low, solo double bass not having enough energy to really reverberate. They can, however, drive out enough low frequency energy to give an impressive sense of atmosphere and space in well recorded group vocals such as a Tallis Scholars recording or Gregorian chant.

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"They can, however, drive out enough low frequency energy to give an impressive sense of atmosphere and space in well recorded group vocals such as a Tallis Scholars recording or Gregorian chant."

Tannoy D100
Rosehall Ind. Est.
Coatbridge
Strathclyde
MLS 4FT
Tel. 0236 420199
£650

**MEASURED PERFORMANCE**

Tannoy's D100s use one 6.5inch dual concentric driver instead of the two 10inch drivers found in the bigger D700s. Because of this they obviously don't have quite the same power in the bass, a gradual downward trend from 1kHz on the frequency response plot indicates that they will have a light bass, so wall reinforcement will probably have to be used to balance the sound.

From 1kHz to around 3kHz there is a raised hump that will push the midrange forwards, especially vocals, which is not necessarily a bad thing. This kind of lift in the mid normally emphasizes detail, giving an open and spacious sound and clean and powerful vocals. Above this small hump there is a short, sharp dip, presumably where the 6.5inch cone passes over to the centrally mounted tweeter, which has a smooth, slightly rising response. This should give highs a slight sharpness, although with such a small lift, not an unpleasant one.

The D100s, unlike the D700s, are a much easier load for an amplifier. Although they are not quite as sensitive, 88dB, they have a lower overall impedance which only dips below 5ohms for a short range. Overall, using pink noise over the full audio band to give an idea of what the amplifier actually has to drive, impedance measured a high 9.5ohms, which means that they will not draw much current. So although they are less sensitive, they are more efficient.

Overall, the D100s are a nicely engineered pair of speakers, used against a wall they should produce a reasonable bass for their size and the forward mid will give clear and powerful vocals. DB

**Frequency Response**

- Midrange hump
- 1kHz to 20kHz

**Impedance**

- 2.5ohms to 5ohms
"Rock fans will enjoy the way the speakers handle the kicking bass line..."
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SMASH THE SYSTEM!

Here's one of the most stylish and four of the best systems available for the money -

selected by the editorial team.

Christmas time is here, by golly, and you're stuck for a present for the kids, the husband, the wife, the granny, or Fido, aren't you? So you flick through the Argos catalogue and what do you find? The hi-fis! Yes! You know that all your problems are solved, or just beginning.

When the doom, gloom, and despondency sets in because you don't know what to look for, you should be flicking through the pages that follow here, to brush up on what's available, and what it can do.

Systems, literally, come in all shapes and sizes, and there are far too many to list and test here, so we've chosen one 'lifestyle' product, from Denon, and then we've taken the liberty of putting together more style conscious than usual, whilst still producing an enjoyable sound.

Each of the four 'editorial' selections

...
THE STYLE OF LIFE

Simon Cooke finds a single-manufacturer system with style, looks and a good sound to match.
The Denon had an easy going, lively quality, and the ability to drive a big, room-filling sound out of the small SC-M2 'speakers.'
With a budget of £1500, Noel Keywood selected Michell's Mycro turntable, Denon's PMA-350II amplifier and specialist loudspeakers from Spendor.
When I heard a well run in pair of Spendor SP2s the other day, in a shop demo room, their transparency struck me immediately. Vocals in particular seemed beautifully uncoloured and natural. "They're close to an 'organic' sound," that's why I keep them on demo, beside the ESL63's," Luigi at Hi-Fi Confidential told me. We were taking valve amps at the time; I had our single-ended tube under my arm - and when that was hooked up to the Spendor's, even I was surprised. They're finer speakers, so for my system here I asked for the less expensive stable mates, the S20s.

This system is one that I could live with in that it offers the sort of sound I prefer, but from items less exotic than those we, well, build for ourselves but sell as well. I chose a solid state amplifier able to combine smoothness with strength, the Denon PMA-350II.

The original PMA-350 always had plenty of go, with rock solid bass and at times a fiery treble delivery that was fine with some speakers, but kissing the borders of pain with others. With the PMA-350II Denon have smoothed out the treble difficulty, reducing distortion in the process, to end up with a smoother top end. The amplifier still has plenty of deep bass power, plus a good grip upon its delivery, making for a well developed sound. Here's a solid state version of the large and imposing SP2s. Scaled down in size, they seem less scaled down in sound, working well on stands placed within 12in or so from a rear wall, where they benefit from some low frequency reinforcement. Ours came in a pleasant 'natural oak' veneer, definitely smarter than once-dominant teak. An immediate point of visual interest is the clear, see-through cones of the bass/midrange drivers, pointing to the fact that Spendor use their own, unique design. They are paired with a Scanspeak fabric dome tweeter that our tests in Supplement No6 showed gives very smooth treble. The bass unit works in a sealed enclosure (infinite baffle), which provides acoustic damping down below 20Hz.

SOUND QUALITY

The S20s sound lucid and balanced. They've got the same striking midband clarity of the SP2s, which conveys vocals especially well. Yet there are no unnatural emphases in this speaker; it doesn't project by enhancement, something I try to avoid. The '20s are just very, very capable, more so than so many competitors. They can deliver bass power with authority; they don't fall apart under this pressure. The strong bass line on 'You owe it all to me' by Texas growled and rumbled behind Sharleen Spiteri's nicely placed and sweetly reproduced centre-stage vocals. The use of a custom cast subchassis and precision engineered main bearing, it manages to look breathtakingly simple. The heavy platter is rim driven through a soft, compliant rubber belt that acts as a clutch at start up. Press a little power button on the motor (a sensible place to put the power switch) and watch it scrobble to get the platter up to speed. This doesn't take long, then the Mycro can show off its abilities. Having a very compliant suspension system, it is well isolated and rumble free of course. However, floor bounce will upset it I found, so a firm wall shelf is recommended. The clear, acrylic base and lid, possessed of a slight green tint, look wonderful, presenting the Mycro as a piece of - literally - transparent engineering. Anyone suffering black box syndrome should love this silent and beautifully made turntable, complete with Rega RB300 cast alloy tonearm. It offers 33 and +5rpm, plus a platter engineered to properly support a record whilst playing in order to minimise sound box effects.

Matching the Mycro's smooth cast curves is the Rega RB300 tonearm. It blends in perfectly. The Rega is unusually rigid, due to the fact that it is a one-piece alloy casting. On the Mycro it possesses the twin benefits of being light and compact too, so the overall package should fit into most homes with reasonable ease. Within the Rega I fixed a Goldring 1022GX cartridge. Both items are known for their clean bass performance, due mainly to their incredibly rigid structures. I wasn't surprised to find that the set up had no trouble in offering clean, well timed bass lines, strong in definition, plus a fine midband that fully complemented the abilities of the Denon amplifier and the Spendor speakers.

CONCLUSION

This system offers a smooth yet dynamic sound, with plenty of go to it, yet finesse too. It treats a fine line between the common extremes of sounding powerful, but sharp and aggressive, or being so smothered in the name of smoothness as to be boring.

**DENON PMA-350II** £219.99

**MICHELL MYCRO** £539.00

**GOLDRING 1022GX** £79.95

**SPENDOR S20** £579.00

**FURUKAWA INTERCONNECT AND CABLES**
Dominic Baker managed to squeeze in a separate CD transport and DAC with an AMC valve amplifier and floorstanding loudspeakers for his £1500.
I wanted to put together a system that offered an insight into what is available outside of the high street chain stores. Something with a separate CD transport and DAC, a valve amplifier and a pair of high-tech loudspeakers. With £1500? Why not. A little careful searching and I got all of the above and more for my £1500.

The CD930 at £200 is the cheapest Philips CD player that I could find with a CD-M-9 transport inside. I’ve had excellent results with stand-alone transports using this same mechanism, so treated with a little care I was hoping to get similar results with the CD930.

Much talked about at the moment is Townshend’s Seismic Sink, which is an isolation platform that absorbs vibration and improves the quality of sound from CD. As the CD930 is a fairly lightweight affair with a thin steel case I thought that it was about time that I tried one of these platforms.

Although the effect was not quite as dramatic as has been reported by other users, it certainly had its benefits. Without the Seismic Sink the sound of the player was a little coarse in midband. With the Sink placed beneath the player things cleaned up a little, giving a smoother, richer sound with a more punchy upper midrange and a sweeter treble. Obviously, something that works to reduce the effects of vibration will be dependent on its surroundings and the equipment used. If you live next to a main road with heavy traffic going by the result will be very different to that from a farmhouse in Northern Scotland. However, in most cases some improvement will be noticeable, so the Seismic Sink is a home audition before you splash out.

The DAC I chose to use was the QED Digit. I did also consider using Select System’s Dacula, but the extra cost would have limited my choice of amplifier and its surroundings and the equipment used.

November issue, but have a little more deep bass to fill a bigger room thanks to the second bass driver and their floorstanding design. They use Audax’s glass fibre bass/midrange units, which have a crisp and clear sound to them, and a large soft dome tweeter for clean and detailed highs.

I decided to finish my system off with a Campaign Audio Design 4-way mains block, figure-of-eight mains lead for the Positron, silver-plated copper-interconnect and silver-plated copper ‘speaker cable. The ‘speaker cable is for bi-wiring, thin cables for the treble and thicker for the bass, and if you also use similar cables with the LS 0500s be aware that the bottom terminals are actually for the tweeter and the top ones for the bass. Or at least they were on my sample, it is easy to screw the terminal dish in upside down during production, so check first.

**CONCLUSION**

If you are in the market for a CD based system and like the sound of any of the systems in this test, remember that they are all personal choices. I chose my system to meet my criteria, yours may be totally different. Even a short demonstration with a good hi-fi dealer is enough to save precious money on a system that doesn’t suit your taste. Oh, and make sure you leave enough funds for some music to play on your new system, they’re pretty useless without it!

**PHILIPS CD930**

**QED DIGIT, POSITRON AND DIGIFLEX INTERCONNECT**

**AMC CVT3030 AMPLIFIER**

**HARMAN KARDON LS 0500s**

**TOWNSHEND SEISMIC SINK**

**CAMPAIGN AUDIO DESIGN SCREENED MAINS CABLES, SILVER PLATED COPPER INTERCRENTS AND ‘SPEAKER CABLES**
Dominic Todd, impressed by the Pro-ject 2 turntable, combined it with a classic NAD/Celestion amplifier and loudspeaker combination.
I

t wasn't long ago when the extinction of all vinyl, bar the most obscure, had been predicted to be complete by
the mid-nineties. Whilst vinyl has disappeared from many high street record
stores, there has been something of a resurgence of specialist record stores
(rather like the specialist CD-only stores one used to find when CD first came
out). With this has come a recent wave of quality budget and mid-priced
turntables.

No fewer than six manufacturers: NAD, Akai, Project, Townshend, Michell,
and Systemdek, have all brought out new turntables within the last year or so.
Therefore my choice of turntable proved the hardest
decision. I narrowed it
down to the new
NAD 533, the
Systemdek 1 920,
and Pro-j ect 2.
All would make
excellent starter turntables, but in the end
I opted for the Pro-j ect 2, which is
extraordinary value for money when
bought with the Ortofon MCI Turbo
cartridge (worth £60). The audiophile
touches, such as spiked feet and multi-
adjustable arm, combine with the detailed
and enjoyable sound quality to form the
basis of an excellent package. To make
the most of the Pro-j ect's phono sockets,
I've added an ixsos 104 interconnect which
should allow more detail through than the
standard interconnect.

Choosing an amplifier was made
easier by the need for a reasonable
phono stage. The NAD 304 fitted the
bill perfectly, just pipping another favourite of
mine, the Denon PMA-350 MkII to the
post. The NAD offers plenty of inputs
(for future additions), plenty of power
and, most important of all, sound quality
that's good enough to withstand several
upgrades in the 'speaker and turntable
department. Like the Denon it also has a
high number of quality components and
it's clear to see that money has been spent on getting the best performance for
the money, rather than flashing lights and
gizmos. The styling and build quality have
also improved upon NADs of yesteryear,
as has circuit design, which now uses the
shortest signal paths possible, in line with
competing Japanese brands. Unchanged,
however, is NADs excellent 'real world'
'speaker-driving capabilities. An output of
35 watts may not seem a great deal, but
such is the design of the NAD's power
amplifier that it is able to produce peaks
nearly four times that figure and with
good current delivery.

Having such a versatile and gutsy
amplifier didn't restrict the choice of
'speakers. However, the limited funds
remaining do. The shortlist contained the
Richard Alan Minettes (rather too
unrefined in the treble region for my
liking), the B&W 600s, (too expensive
now), and the Tannoy 603 and 605s (the
605s can sound a little uninvolved and the
603s would have been chosen had it not
been for the Celestion's ability at
unravelling detail at lower volumes).

The recently revised Celestions aren't
bi-wireable, although this isn't necessarily
a bad thing as bi-wiring can make small
'speakers sound overly bright.

Additionally, improvements have brought about the
addition of a rear port, which seeks to
improve bass extension a little. In practice
bass is reinforced, although the 'speakers
can't be placed as close to a rear wall as
the original 3s could.

With the lively nature of the MC 1
systems.

Trying something with a little more
weight had me yearning for a larger
'speaker. With June Tabor's 'Freedom and
rain', one was left feeling that, despite the
system's ability to get the foot tapping
with decent pace, there was a lack of
body to the sound. Rather than the bass
leading the tracks it took something of a
backstage position. It did make me
wonder if a larger cabinet such as the
JPW P1 would have been a better choice.

Having said that, the bass was tight and
well integrated with the mid range. Vocals
were well projected, and with any female
vocalist one appreciated the refined
treb led, which has to be one of
the finest points of the
'speaker, as it doesn't draw
attention to itself-often the
Achilles heel of cheap
compact speakers.

The NAD ensured
that there was always
plenty of power to enable
the system to comfortably
reach high levels which, in
some ways, made up for the lack of
solidity, although this wouldn't be much
consolation to those restricted to
listening at moderate volumes.

Raising the tempo somewhat, to Jason
Rebello, provided an opportunity for the
system to really shine. Whilst it had the
ability to involve the listener with an
invoke 'out of the box' sound, technical
details (which can spoil a good system no
matter how involving) weren't left in
the dark. Despite some tracks being rather
complicated, the system made a fine stab
at separating all the instruments, and
giving each its own space. Having said
that, don't expect pinpoint accuracy with
musical images. That's the preserve of
costlier stuff.

SOUND QUALITY
One of the great unpredictabilities of hi-fi
is that a system whose individual
components excel in their respective
classes may prove a disappointment as a
whole. Alternatively, a system can excel in
being greater than the sum of its individual
parts. Although I know the individual
components of this system well, the sum
could still be unpredictable.

However, in this case, it came as a
relief that the system jelled, and worked
efficiently as a whole. The initial
impression was one of a lively and
detailed sound that avoided the boxiness
often imposed by cheapish small
'speakers. A Beethoven violin concerto in
D, Opus 61, proved light and breezy.

Stringed instruments were produced
with sufficient sparkle and realism, which
made a pleasant change from some budget CD
players that can sound rather granny or
veiled in comparison. A credible sound
stage emerged, aided by the fine imaging
characteristics of turntable and 'speakers.

The Celestion's refinement managed to
keep a grip on the turntable and cartridge,
which can sound a little strident in some

**Vocals were well projected, and with
any female vocalist one appreciated the
refined treble**

CONCLUSION
At the price, this system offers a good
choice for those with only a small room
to fill and/or musical tastes that don't
require trouser-flapping bass. Yet this is by
no means the definitive vinyl system at
this price and I'd certainly consider
listening to the NAD and Pro-ject with a
selection of 'speakers, and maybe even
save up a little for something more
satisfying in the longer run.

**PRO-J ECT 2 & ORTOFON
MC TURBO** £249.95

**NAD 304** £229.95

**CELESTION 3MK2** £119.00

**CUSTOM DESIGN STANDS** £95.95

**SM ROTEL SUPER 2.5**

**IXOS 104 INTERCONNECT**
Simon Cooke combines the smoothness of a Yamaha CD player, the light and dynamic presentation of a Rotel amplifier and the room filling sound of Mission's 760i SEs for his £700 budget.
my £700 CD system is fronted by the newly-launched little brother to the CD-X 870 CD player (which came first in our November group test), the CD-X 570. It's a competent, solidly-built and well-specified CD player priced at just £240 with all the functions that you'd expect from a standard model. These include remote control, skip, memory and random play, as well as a couple of less common features, such as readout dimmer, output volume control (make sure that this is set to maximum for the best performance) and peak search. The latter repeats the section of a CD containing the highest signal level - useful when recording onto tape. In fact, the only thing missing is the flip-over fascia panel section which its bigger brother sports, so it doesn't look as sophisticated as the '870, but that's not really important.

The amplifier I selected is the latest from Rotel, the line-level RA935BX, which gives an impressive performance for just £199. The fascia bears a central volume control, two knobs for source and record select, and a 'speaker select button, so it's quite uncluttered. There are inputs on the back for CD, tuner, aux. and two tape loops, as well as two sets of speaker binding posts. Of these inputs, only those for CD are gold plated.

The RA935BX continues Rotel's tradition of simple, uncluttered fascia design, and also provides the 'Rotel sound', which many of you will be familiar with from your own first systems. It's a light, yet dynamic sound, often a trifle thin at the top. This last blemish I have tried to tame with the fullish, mildly bloated but smooth sound of the Yamaha CD player. Another palliative would have been the NAD 304 with Dominic Todd used, but that sounded too full for my taste when paired with the Yamaha, even if the treble was softened. However, I would concede that some people may prefer such a system to the one I eventually settled on. I did successfully tailor the sound of the NAD set up to my taste by using the £120 QED Digt, but that left no money for cables and stands, so I used the Rotel.

For loudspeakers, I was going to use the £80 Richard Allan Minettes, as they impressed me so much when I heard them last summer. At the last moment, however, the Mission 760iSEs came in, and although almost twice the price, they were exactly what was needed to lift the sound of the system, since they are very 'out of the box' speakers.

The Missions are a two-way, front-ported design, retailing at £150.

For stands and interconnects, I used a pair of Target 'speaker stands, and QED Incon and 79 Strand as interconnect and 'speaker cabling, the latter trimming the last remnants of 'sharpness' from the foundation on which to build the rest of the performance. It was quite fast, but not particularly deep. The TDL RTL 2s reviewed in our December issue would, perhaps, have given better bass quality, but they cost a hundred pounds more than the Missions, leaving nothing in the kitty for cabling. If you go for bass though, do try them.

The midrange was clear and lucid, having both force and room to breathe, whilst not slaming out of the 'speakers as though possessed, as so often happens with budget models. The thundering drum line at the beginning of Runrig's live recording of 'Nightfall on Marsco'/ 'S tu Mo leannan' having force enough to pin me to my seat without becoming flaccid, yet the haunting purity of Mouth Music's 'Frach a Ronaigh' came across with a gentle, icy purity. In fact, all of the CDs I tried were handled well, from solo harp or vocals to large orchestral or rock works. Even the steel guitar on Warren Zevon's recent live album was well handled in this area, wowing and grinding impressively, right up there in the middle of the soundstage. My one quibble was that the system fell prey to the reticent vocals of some tracks, not quite resolving the words through the strings, but I've heard worse at more than twice the price, and this is some kind of peculiarity of the CD.

The treble was a little soft, although the Rotel and Missions seemed to me to be a particularly good partnership, with the Missions softening the faint 'sting' of the Rotel's top end, while the Rotel just managed to prevent the tone softening too much, most of the time. Occasionally the performance slackened a little on fast strings, again on the Warren Zevon live CD 'Learning to flinch'. Sustained strings, such as violins, however, had a resolution of tone and level of detail that's difficult to beat at the price; the system gives quite a few more expensive selections a run for their money.

Staging and imaging were impressive at the price, with the Missions painting the broadest possible picture of the soundstage; it seemed to extend even beyond the confines of the room at times, with some very well recorded orchestral pieces.

Even though the soundstage was extensive, a firm grip was kept on the positioning of the performers; there was no trace of the fluidity or mobility which many systems suffer at the edges of a wide stage. All of the players, whether centrally placed or peripheral, had a concrete presence to them, lending a reality and believability to the performance. The stage even gave the impression of extending forwards at times, so that on live rock recordings the audience welled out of the stage, engulfing the room in their exuberance, and adding to the atmosphere of the recording in a way that few systems endeavour to, welling out and involving the listener in the music.

CONCLUSION
It's not so long since I was looking for a system. I had to keep pushing up my budget to find components that would keep me involved in my music. When I changed from, for instance, Bach's thundering 'Toccata and Fugue' to the unaccompanied Breton harp of Alan Stovell. These items couldn't deliver the power to give a piece like Bach's 'Toccata' the 'oomph' it deserves, but that is more than made up for by the detail and punchiness of the performance, and the delicacy of the Breton harp.

Here's an all-round system with plenty of insight and involvement. It may not be perfect, perhaps, but it is a good deal more than your average seven-hundred quid's worth of kit.

YAMAHA CD-X 570 £240
ROTEL RA-935BX £199
MISSION 760iSE £149.90
TARGET AUDIO STANDS £67.90
QED INCON AND 79 STRAND CABLES £149.90

The midrange was clear and lucid, having both force and the ability to breathe.
Close your eyes and see Arcam’s Delta system of state-of-the-art hi-fi components.

Ignore the fact that the Delta 290 is our finest integrated amplifier, the recipient of a coveted Design and Engineering Award from the world’s pre-eminent consumer electronics show, the Chicago CES. Don’t be swayed just because the UK hi-fi press agree, giving it “a compelling and enthusiastic Recommendation” and describing it as “an amplifier with real clout, able to deal with virtually any level of musical complexity.”

Next cast a jaundiced eye on the Delta 280 tuner. Again, disregard the pleasing aesthetics and the convenience of remote control. Don’t even be led by reviews revering its sound as “lucid”, “warm” and “attractively open”.

Then, visit your scepticism on the Delta 270 CD player. “Solidly built”, it “strikes a balance between smoothness and punch” to gain a class leading, 5 star recommendation.

If that’s not enough, take a sideways look at our remarkable two-box CD player, the Delta 250 CD transport and Black Box 50 DAC. “To justify their significant cost, two-box systems really have to offer that little bit extra in terms of sound quality; but Arcam’s combination does just that - and more”.

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ually, in our group tests, the conclusion is taken up with comparisons, criticisms, and a ranking of the components in order of performance in the test, as well as general comments and opinions about them.

That all goes out the window with this test, however, because these systems have not been compared with each other and, in fact, cannot be, since it is really matter of finance as to whether you go for the £700 or the £1500 system, and personal taste whether you like vinyl or CD as your source. After all, what's source for the goose is not always source for the gander.

But enough of the bad puns, already! We've all enjoyed reviewing components throughout the year, as well as putting together our favourite systems for this issue, but there's still a lot of ground we haven't covered with them. After all, nobody has tried tuners, cassette decks, DAT, DCC, or anything like that with their systems here, since the brief was for the best sound quality at the price, which means, generally, one source only.

So you're sitting there, reading this, and thinking, "What if I want more than one source?" Aren't you? Most people want a cassette deck, at least, if only to tape for in-car use, and many want a tuner as well, so we'll round off our test with a few recommendations of other sources which won't disgrace your system.

Think cassette, and the first name that'll probably spring to mind is 'Nakamichi'. It's a name synonymous with the best that Compact Cassette can offer, and their DR2 deck, at £500, will make the most of any of the systems here, whilst the DR3 at £300 would be a better partner for either of the £700 systems.

For tuner fans, there's also a choice of models. The Naim NAT 03 at £500 is worth considering if you're going for a £1500 system. For the £700 systems, there is only one tuner to recommend, and that's the latest model from NAD.

The more expensive DACs listed above would all be good upgrades for the £1500 system, as would DPA's Bigger Bit at £650 or the Pink Triangle Ordinal at £695.

With the two vinyl systems, the cartridges would most probably be the best place to upgrade, the £700 system should benefit from the Goldring 1022GX at £80, as used in the £1500 system, rather than the Ortofon provided, if finances will permit. Upgrading the cartridge on the £1500 system to the excellent Goldring 1042 at £100 would make sense. Further up the scale, the Shure VST-V at £150 is one of the finest moving magnets around.

If you want to go for a Moving Coil cartridge, the amplifier will need upgrading; for which the Audiolab 8000A would be suitable at £430. The £100 Ortofon MC15 cartridge springs to mind as a good first move into Moving Coil cartridges. If you feel like a better amplifier, but want to stay with Moving Magnet cartridges, the Sugden A48B is also worth considering at £460.

Either of the amplifiers listed above are possible upgrades to the amplifiers we used. The amplifiers from the £1500 systems are also worth considering as upgrades to those used in the £700 systems. In addition, the loudspeakers could be used to upgrade the cheaper set ups in the same manner. In fact, the whole point of this group test, as I've said before, is to present four preferred selections offering the best sound for the money. If you want to go for one of them, but don't quite like the sound when you audition it, you should try interchanging with the components used in another system.

Basically, all of the components we used are better than average in our opinion and deserve general recommendation. When it comes down to it, it is you who has the final choice of what you buy, so don't be afraid to 'mix and match' the components to suit yourself. The most important thing to remember about buying a system is that it is your hard-earned cash you're spending, so don't just take our word for it, but go out and audition all the various components you can, until you have built up a system that suits you, and above all, enjoy yourself.

Have a happy Christmas, too.
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Music to your ears.
Well of course, it had to have valves in it, and it had to be a bit radical. Tim de Paravicini has just produced the much threatened 834P disc preamplifier stage, capable of working with moving magnet or moving coil cartridges. Designed primarily to complement the EAR834 valve amplifier, it can also be used with any other amplifier. And it’s different.

Not only does the 834P employ valves for good sound quality, it also uses input transformers for moving coil cartridges to give, potentially, less hiss than is possible by any other method. In most preamps, the MM/MC switch controls a X/O amplifying stage; in this one it merely switches in the transformers - one per channel. They’re not the sort you usually see. Tim prides himself on being able to design and hand wind (for prototyping) any transformer going, and to make it perform better than any other as well. His MC transformers in 834P take the form of bright metal cylinders, which nestle up close to the input sockets. The cases are made from Mu-metal, for screening and flux concentration. With generous cores and cans, these items are relatively large, considering they handle relatively small signals; no cost cutting here.

I hadn’t encountered before.
And so it continues, Tim relies on his transformers, plus an intimate knowledge of audio engineering, to come up with products that, generally, are unusual, but also very well engineered. The 834P falls into that mould with consummate ease. How many valve phono preamps are there in the world, complete with custom-designed MC input transformers?

The benefits of experience show through in build quality, ergonomics and sheer practicality. 834P is a strong black box, made from mild steel, as it has to be for hum-screening purposes. It has a rotary on/off switch and a gain control on a thick alloy front panel. The rear panel carries an IEC mains input socket, phono inputs and outputs, a fuse holder and an earth terminal. There’s also a small push-button input transformers?

The slight bass lift - admitted by Tim to be a deliberate hint of subjective tinkering - made itself known in Sly Dunbar’s pan-potted drumming on the track ‘Bullshit’, for example. There was extra weight and slam - real heft in fact as the drum riff nearly exploded out of the speakers, right to left. The 834P underlined the contribution of these rhythm masters (i.e. Shakespeare and Dunlair). But it didn’t bring Jones forward in the mix, where she is in any case quite a way back, nor did it draw attention to the hardness in the recording, a feature solid state disc stages sometimes emphasise to the point of pain. When I cranked the Garrard 401 up to 45rpm, just to try out Carol Kenyon’s delicious ‘Dance with Me’, the metronomic bass beat had seismic depth and power to it; the 834P can at times really flex its muscles, shaking room and ‘speakers.

Much the same generally large and fullsome balance came over in more natural mixes, notably on the new Lemonheads album, ‘Come on Feel the Lemonheads’ where the 834P had Evan Dando large and real, centre stage at the end of ‘The Jello Fund’, his guitar sounding rounded yet clean, full and rich, with no hint of edgy brightness. The new Texas album, ‘Ricks Road’, also sounded fullsome and warm, yet clear and fluid in its balance, with Sharleen Spiteri right out on her own, singing clearly whilst playing guitar.

COPPING AN EARFUL

Noel Keywood pins back his ears for Tim de Paravicini’s EAR 834P disc pre-amp.
Experience just how good your LPs and CDs really can sound by listening to them through one of our hi-fi systems. From £50,000 to £500 we put together the finest hi-fi to suit every budget. Our demonstration room is available for booking anytime day or evening from Monday through to Saturday; alternatively, we will demonstrate systems in your own home if you wish. We install both single and multi-room remote control systems, and can put together the finest in audio-visual home cinema. Call us or pop in to arrange a musical experience you'll never forget.

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Workshop 30, Royal Victoria Patriotic Building, Fitzhugh Grove, Wandsworth Common, London SW18 0 8 1 8 7 5 9 5 9 3
Normally, I use a Deltec phono stage. It's wonderfully pure in its sound, enormously detailed and analytical, yet not hard or remorseless. The Michell Iso is another - the only other - great solid-state phono stage, with a holographic sound. Tim's 834P matches the Michell so and another - the only other - great solid-state enormously detailed and analytical, yet not quiet, more civilised to use than solid-state need to say it is one of the best phono cartridges over the last few weeks since the Penta hi-fi show, where it was first demonstrated. At the show, a hassled looking Tim de Paravicini dropped off 834P for us to have a play with, and it is this head amp that I've been using with the Garrard. As Noel suggests, in theory, step up transformers used to provide the extra gain necessary for MC should result in virtually no increase in noise. So the 834P should have an ultra quiet MC stage - and it does! If the volume is turned up to a reasonably high listening level and the stylus lifted from the groove, the hiss/hum is inaudible a few inches back from the loudspeaker cones, and this was using sensitive loudspeakers (90dB) which tend to highlight noise.

With the Garrard/SME/Ortofon set-up, EAR834P head amp, Audio Innovations valve pre/power amplifiers and stripped down Quad ESL63s the sound was nothing short of breathtaking. Images were conjured up within a massive soundstage with such solidity and depth that you can just drift into the audience and spend hours enjoying the performance. The 834P has a lovely sweet, musical and spacious sound which makes it involving to listen to, even after hours of listening it doesn't become tiring.

The enhanced bass, although not strictly accurate, does add some speed and slam. With the B-52's Wild Planet album it adds real punch to the sound and the tracks bound along energetically. Kate Pierson's voice full of character and power. When the cymbals were hit hard the sound remained clear and free from grittiness.

At £290 you can't fault the 834P. The quality of engineering and the lucid, musicality of this head amp stand out above the crowd. I rely mainly on CD as a source, but the last few weeks I have torn furiously through my own, fairly limited, LP collection and numerous albums borrowed from friends; I must admit that I haven't enjoyed music quite so much for a long time, and the 834P enhanced my pleasure.

EAR 834P £290/£310 with volume control.
Esoteric Audio Research, Unit 11, Stukeley Meadows Ind. Est. Huntington, Cambs. PE18 6ED
Tel: 0480 45379

MEASURED PERFORMANCE

An unusual and fascinating feature of this preamplifier, attributable to the use of input transformers for moving coil, is the low hiss on this input. Normally, where an additional x10 preamp stage is used, switching in MC raises hiss considerably. With the 834P, hiss increases by just 1dB, amounting to 0.06µV of equivalent input noise (CCIR). That's about as low as it is possible to go with MC - and certainly one of the lowest figures I have measured, making the 834P very quiet.

The use of valves, especially in a confined space, threaten hum. There was a little, measuring 0.24µV equivalent input noise. The impact of this can only be assessed subjectively, because comprising mainly 50Hz, our analyser showed, the ear is less sensitive to it than hiss. It's a low level of hum, but the question has to be: is it low enough? It's obvious from the internal construction, with a tin plated mild steel screen, Mu-metal shrouded input transformers and a screened toroidal mains transformer, that every precaution possible has been employed to combat this potential difficulty. Listening tests showed that hum was effectively inaudible however. Hiss was also inaudible on both MM and MC.

Frequency response has been curated at low frequencies by a warp filter, albeit with a low turnover frequency of 20Hz (±1dB). The filter used to achieve this affects MM and MC equally, also adding a bit of bass lift around 60Hz, which will usefully add some speed and bounce to the sound. The RIAA equalisation characteristic is followed perfectly (MC and MM), to within less than 0.1dB error, except above 20kHz on MC, where output rises to hit +1dB at 60kHz and +5dB at 124kHz, when the transformers are fed from a low impedance source that accurately mimics an MC cartridge. This rise isn't a rise, so much as a lack of fall (-6dB/octave, ideally). Being out of the audio band it should not affect sound quality and certainly, in use, the 834P showed no signs of brightness or glassiness.

Distortion was low at around 0.04%, except as full output was approached. Being second harmonic only, as the distortion analysis shows, it was subjectively innocuous, not being of a nature to add roughness or coarseness to the sound.

Valves can swing a lot of volts, so overload margin should not be a problem. I measured high overload margins of 80mV on moving magnet (MM) and 8mV on moving coil (MC). However, the 834P should see a 47kΩ input impedance or more, which most - but not all - amplifiers have. This preamp was designed for the EAR834 integrated valve amplifier of course, not your run-of-the-mill solid-state black box. Its output level is attenuated by a low input impedance, reducing the overload margin.

This is a quiet and cleverly engineered valve phono preamplifier. It measures very well in all areas and offers a radically different way of engineering a phono head amp. NK

**MOVING COIL**

- Frequency response: 18Hz-60kHz
- Separation: 44dB
- Noise: -75dB
- Distortion: 0.04%
- Sensitivity: 0.17mV
- Overload: 8mV

**MOVING MAGNET**

- Frequency response: 18Hz-83kHz
- Separation: 46dB
- Noise: -76dB
- Distortion: 0.03%
- Sensitivity: 1.7mV
- Overload: 80mV

**Distortion**

- Low 2nd harmonic distortion: 0.1%

**Frequency Response**

- Bass peaks up giving speed and bounce to the sound.
GERMANIUM
I have not been around long enough to understand all this single-ended valve working, with H.T. lines and transformers and things. All I know is transistors, and from what I can make out, single-ended means a common-emitter Class-A type amplifier. In most text books it strongly advises against using these for power amplifying because they are inefficient, but we’re talking audio here so that doesn’t count.

About a year ago I designed, and have since been refining, a Class-A amplifier. It is based on the AD149 PNP germanium output transistor. Although germanium is noisy and can’t take heat, it is the superior semi-conductor when it comes to conducting (higher mobility, smaller band-gap, lower impurities required to dope into P-type). These are getting rarer of course so they are inefficient, but we’re talking audio here so that doesn’t count.

Unfortunately, the 10W per channel that it produces requires 75W of continuous power, but it does keep the room nice and warm. Talking of warmth, that’s how it sounds, which seems to be the predominant term when it comes to you lot talking about valves. At the same time it also has punch and drive, possibly brought out by the sealed box speakers it drives (also my own design, but I won’t go into that now), and sweet, clear high frequency reproduction. It is still a little hummy, and the hiss is nearly audible, but that will take money to fix (to build a better PSU).

I have noticed the occasional mention of amplifiers like these (e.g. the Yoshino tranny version and one of your reader’s MOSFET amps) in Hi-Fi World but you don’t say much about them.

WIN HI-FI WORLD SILVER PLATED COPPER INTERCONNECTION CABLES

The writer of the most interesting or funniest letter will receive a free set of Hi-Fi World’s own silver plated copper interconnect cables, worth £69.95.

Letter of

The pleasure I usually take in reading your magazine was somewhat marred by ‘Kaleidoscope’ in September, in which Noel Keywood wrote clearly, but ill-informedly upon our much-vaulted and much-decried educational system.

It is true that the biasing of Science and Technology Curricula bear little obvious relationship to the ‘real’ world - nevertheless we do emphatically NOT spend “hours messing about with ... potassium and sodium”. If seen at all, save in a 3-minute O.U. Video, then only in minute quantities, with screens, goggles etc. and in demonstration by a (foolhardy) staff member. Nor do we have time, materials or inclination to teach the skills of cabinet-making (except where an individual might warrant it).

The ruling factors at the root of all of this are:

a) the National Curriculum, its associated texts, tests, gradings, Records of Achievement etc. and
b) the devolved ‘Local (Financial) Management of Schools’. It can be seen that these are each the remit of the “Department for (?) Education”, i.e. Central Government.

When G.C.S.E. (not ‘O’ levels) were introduced in 1988, the additional funding available from Whitehall amounted to £6 per child - not per term, not per year, just once! Under L.M.S. in 1991, the material budget per child per year in technology was about 63p! Including the costs of text-books, copying, stationery etc. many schools had nothing left with which to maintain existing facilities, let alone buy electronic equipment.

The Government-inspired ‘A’ level syllabi largely ignore component electronics - only stating the theoretical base of ONE transistor type I’ll leave it to you to infer which and

Send your letters to Hi-Fi World Letter Page,
cheapy tranny amp has a hundred times less distortion and sounds awful. I do listen to a lot of music, as this is the main aim of all of this, and Hi-Fi World is good in this respect by not just concentrating on what reproduces the sounds, but what also produces the sounds. I listen to a lot of early synthesizer music (Tangerine Dream, Kraftwerk, early Vangelis and The Art of Noise (not so early), definitely not J-M Jarre), as well as a little classical and Judie Tzuke who has a wonderfully clear voice and some groovy tunes. Adam Chambers Sheffield.

Yes, thermionic single-ended is ‘common-emitter, Class-A’ in solid state terms, but with transformers, as you note. Solid state single-ended is a rarity, but your arguments for it look interesting. Tim de Paravicini insists solid-state Yoshino sounds as good as the valve version and has always looked a bit saddened by the world’s lack of interest in this proposition. The amplifier languishes somewhere in Para headquarters, gathering dust amongst the car tyres, blown loudspeaker cones and 1960s Studer open reel studio recorders that populate its corners. It was always Tim’s contention that solid state is no different from valves, but I have to say that I believe there is a fundamental difference between solid-state and thermionic amplification.

I was fascinated to read your justification for using germanium rather than ‘superior’ silicon. But all those horrid features of solid state make my flesh creep: I mean, who wants something that suffers variable band gap, questionable mobility, impurities and comprises rectifying non-linear junctions that, Scroggie said, don’t even obey Ohms Law. How dare they? Give me a nice vacuum with a swarm of warm electrons flying through it any day!

Single-ended working does for some reason appear to give a warm, smooth yet deeply insightful sound, even though, when engineered properly, it fulfils basic hi-fi performance criteria.

Finally, the psycho-acoustic affect of distortion in amplifiers is barely understood at all. Tests have been carried out to determine the threshold of perception and subjective impact of second, third and higher order distortions, as well as intermodulation distortion, but whilst the results are undoubtedly valid, the tests may not represent common everyday conditions. Many audio engineers of experience suspect it is the modulation pattern of various distortions that we are most sensitive to, rather than harmonics in
steady state form. There's little to suggest that harmonic distortion in itself - especially third harmonic - adds warmth.

The reason a single-ended amplifier can sound "warm" (not all do I have been told), when it measures normally, and when it is operated linearly so only occasional musical peaks suffer distortion, is a mystery many have sought to explain in our letters pages over the last few months. If we knew, there'd be no mystery in hi-fi any more - but that's a long way off I suspect.

**EFFICIENCY**

A radical proposal for speakers approaching 100% efficiency (!) was described briefly in a recent issue of 'New Scientist' (21st August 1993).

The details they published are rather sketchy but at least give the flavour of the idea which is for a fairly large panel speaker - not a box. According to N.S., scientists from the MOD's Defense Research Agency (DRA) some years ago patented a novel aluminium composite material for use in helicopter sound deadening panels. They also found that when it is electro-mechanically driven the composite behaves as a sound producer. They have demonstrated a metre-square panel of the composite with a mechanical coil attached to the back driven by a power amp (how was not specified by New Scientist). The panel material consists of thin sheets of aluminium metal (0.06mm) that sandwich a 10mm thick air-filled honeycomb of an aluminium alloy. The stuff is expensive of course but volume production ought to make the material available for proper acoustic tests though, so hopefully we'll know more soon.

**IN A SPIN**

It has been brought, somewhat belatedly, to my attention that your August issue contained a letter from Paul Zahl of Brussels seeking information on the Q55 tunerbox we used to produce. If M. Zahl would care to contact me I will be happy to supply all the information he requires, together with a set of instructions for the very simple setting up procedure which, once accomplished renders further "tweaks" neither necessary nor desirable.

I would, however, be intrigued to learn on what foundations E.B. bases his statement (in his reply to M. Zahl), that I became somewhat disenchanted with the hi-fi business. Clearly there have always been areas of contention and disagreement on certain matters, but I have endeavoured to retain an open mind, although I readily admit to having grave reservations about the magical properties some products claim to possess. I don't recall being particularly vociferous (at least in public) about any of the various controversies which occasionally rage, and despite the many sillinesses (or perhaps because of them!) there is still a lot of fun to be had.

As one who is rapidly approaching geriatric status in the hi-fi business, I still retain a genuine enthusiasm for the trade, and derive much pleasure and satisfaction from the work I do in conjunction with Castle Acoustics and others. Over the years I have made countless numbers of real friends both at home and abroad through our involvement in the world of hi-fi. This industry, in my experience is full of kind, helpful, generous people, and I have much cause to be grateful.

If that is disenchantment, so be it!

Colin Walker
Frodsham,
Cheshire.

**COMPLACENT**

I really cannot allow the sheer mind-numbing complacency of the Philips/Decca responses to Amon Ben-Jacobs' letter on CD sound quality to go unchallenged.

I unreservedly accept that the technology of the 16 Bit CD itself is capable of a sound quality that is really beyond serious criticism. Most CD collectors will have discs that prove this to be true, and a small select group of companies, like BIS, habitually achieve first class results - most do not.

I just have to agree with Mr Ben-Jacobs that many CD's (full price) give a sound that contains ranging degrees of distortion and it serves no useful purpose to deny faults behind a smokescreen of technological jargon. The criticism comes, not only from private collections, but from professional reviews in the music press. (Less than 10% of the discs recommended in the 'Good CD Guide' have full marks for sound quality).

I have only two Philips CD's (Concerti Per Oboe on 420-189-2 recorded in 1986, and 'Vivaldi Guitar Concertos' on 434-082-2 recorded in 1991. To my ear the earlier recording is by far the better of the two; but neither of these CD's comes anywhere near the open-window clarity of BIS-CD-288 recording of the Vanhull 'Double Bassoon Concerto', for very similar forces and therefore musically comparable - and recorded back in 1985!!

I have only one Decca CD - Nicola Hals's astonishing 'Virtuoso Transcriptions' for solo guitar on 430-839-2 on which the sound quality is close to BIS standard - what a pity about the noisy edits, and the traffic noise in the background!!

My experiences with BIS CD's confirms that the medium itself is not to blame for the mediocre results; so, it seems to me that we are driven to the conclusion that, all too often, too little care is taken at some stage/stages in the CD production process - from studio microphone to finished product. If the record companies took a little more care then, I believe, it would not be possible, with domestic quality hardware, to detect sound quality variations between discs!!

We are paying a very high price for CD's and I feel that we have a right to expect first class products without any blemish.

We need corrective action, not denials of the facts, like a lot of politicians with their heads in the sand.

For those who enjoy music of the Mozartian flavour I strongly recommend BIS-CD-288 - partly for the super sound quality - but also for the 'conversation' that is conducted between the two solo bassoons, left and right, exactly as illustrated in the photo on the back of the booklet - as an aid in speaker positioning in a good stereo system. It's a real cracker of a CD and sets a standard that must be the envy of many record companies - if, for once, they are prepared to be objectively honest.

S.C.R. (Rod) Smyth
(Address withheld).
I saw a lovely little comment the other day that the "rounded valve sound" is most likely due to ... valve amplification tending to eliminate the higher frequency overtones normally present in speech and music". It was in the context of radio, but I suspect it was meant to embrace all "valve amplification". The writer was basing his views on the technology as it was thirty years ago, but that's not the way it is today. Many other reasons are put forward to explain the unexpected revival of valve amps, but few are very accurate. So what do valve amps have to offer, and what are their drawbacks?

The transistor made computers and, should I say, the modern world possible. It also made cheap, powerful amplifiers a reality. In light of this and the apparent impracticality of the valve, a lot of people understandably feel that blind nostalgia, or even plain ignorance are at play.

The writer I quoted thought that it was the inadequate frequency response of valves, their inability to reproduce really high audio frequencies, that caused people to like their sound. Fair enough. Old radios had audio amplifiers that didn't go too high, mainly because radio speakers of the day didn't either, nor did A.M. radio. But there's no intrinsic difficulty in getting a valve to reproduce right up to 20kHz, the upper frequency limit of the human ear. Had the writer enquired further the fact that modern valve amplifiers reach up to 30kHz or more might have changed his view.

Another hoary old reason for "the valve sound" comes from the music world where valve guitar amplifiers still reign supreme, purely because of their sound. Here, the reason valves sound the way they do is commonly put down to the presence of second harmonic distortion. This is an odd view, since the few guitar amps I've measured were stuffed with distortion (3% or so) - and not a lot was second harmonic. However, it strikes me that since distortion analysers are complex, slow and difficult to use, and expensive, not so many people actually know this is the case, so it's a contention that tends to pass unchallenged. Which is of course convenient, when you are trying to argue a point. As a hi-fi reviewer though, I was long ago forced to buy a high speed distortion analyser and this has shown me that valves don't necessarily produce just second harmonic, transistors that do don't sound like valves and, in any case, that second harmonic (in large quantities of 10% or more) lightens timbre, it doesn't add warmth or smoothness.

There are other views, some less technical. Nostalgia is oft quoted reason for people going "back to valves", in the same way they hanker after old blowers Bentley's and a time, I suppose, when Britain's byways were quiet and tranquillity was broken only by the occasional owl or the rasp of crook of the odd pheasant. Nothing as horrible as motorways existed then; Britain managed to prosper without them. And valves were plenty good enough, thank you, to bring together the reasonable far bluing reaches of the Empire. It sounds idyllic and there is an historical thread of interest to valves, but again that is not the reason for their reappearance.

That valves might do something transistors don't do is a more difficult idea to come to terms with, especially since there's little evidence to support such a contention. They seem archaic and, except in a few respects, inferior to transistors in all measurable ways. Valves like the EF86 can be very quiet, but the best FETs are quieter. Big valves can handle lots of power, up to 100watts apiece, but paralleled transistors strapped to heat sinks take up less room and can handle more. Valves are, of course, cumbersome, fragile and difficult to support in their power requirements, needing heater and H.T. lines, one drawing heavy current, the other demanding high voltage - double trouble.

So what's the truth? Why do some people like valves so much? What is it they offer? Quite simply, they do have a different sound to transistors, one that is usually acknowledged to be easier on the ear, less hard and fatiguing, sweeter and more open and - especially - considerably less flat and papery in sound stage construction. They put a sense of depth into music, a curious effect that is difficult to explain. Explanations are on offer of course, some quite plausible, but usually on investigation they are inadequate. It does seem possible that valves actually enhance what we hear - that certainly is an attractive theory - for a valve power amplifier seems able to breathe life even into the product of a solid state recording chain, where the amount of signal processing is horrendous. Yet at the same time, even if the depth dimension they generate is artificial, their smoothness and lack of graininess is not.

What is certain is that there are no simple explanations. Modern valve amplifiers, providing they are well engineered, meet today's technical requirements for hi-fi reproduction. They easily reproduce all audio frequencies, from the lowest to the highest - and distortion can be reduced to a very low level of around 0.02%. So technical performance is not a limitation.

Knowing how subtle yet complex phenomena affect our perceptions, I do suspect that some interesting processes are responsible for the sound quality of valve amplifiers. Chesky have demonstrated on a CD how stereo can be given height information, depth and apparent extension beyond the lateral boundaries of the loudspeakers. Now Sensaura breathtakingly extends the trick. Is it that valve amplifiers manage to affect reproduction in the same manner, perhaps by introducing interchannel phase changes? We don't know at present. It is the case, however, that valve amplifiers offer an enormously pleasurable listening experience, one that offers an interesting alternative to the norm. Nor matter what the reasons are, if they improve our enjoyment of music, then that in itself is good enough.
Rotel have always had a good name for budget or mid priced CD players. The RCD 855 (at £249.95) was highly acclaimed in its day, even though it was part of a multi-bit battalion about to face a one-bit onslaught. Its own blood brother, the RCD 865, was one such machine and also proved immensely popular as one of the first bitstream players. I had one myself, which replaced a rather unloved Denon DCD920, and found it an easy-going partner for an otherwise vinyl dominated system.

Then came the new range of players’ the nine series. Surprise, surprise, the RCD 965 won every award going even if its sibling, the RCD 955, was less well received. This is where the story becomes rather complicated. After a spell at the top the 965 began to lose its edge and Rotel had to do something. Various price rises were followed closely by price cuts. A bewildered public were then faced with the RCD 965 Limited Edition at £379.95. Strangely this didn’t sound as good as the standard player once the players were on equal terms, i.e. using the same interconnects rather than the LE using £40 Monsters and standard 965 using 40p freebies. Not surprisingly the LE lasted a matter of months and became a favourite amongst the discounters.

Now Rotel’s back with another model, the RCD 965 Discrete. In terms of price, at £349.95, it falls neatly between the RCD 965 and RCD 965 Discrete Limited Edition (I think you’ve managed to collect all the go faster stripes there, Rotel). It’s based on the standard 965, which means a Philips transport and SAA7323 PDM DAC. There’s also the usual high standard of build quality and understated styling, although Rotel do spoil this with a rather tacky “Discrete” badge. The Discrete differs in offering a discrete output board, strapped to the inside rear panel of the machine. This replaces several cheap op-amps which aren’t particularly well known for their noise and distortion free characteristics.

The Rotel sets out to attract audiophiles on a tight budget by offering a machine with a specification that wouldn’t disgrace rivals costing twice as much. Indeed, Rotel proudly boast that Micromega offer similar specifications on their equivalent machines. This is all very well, but if Rotel are to stand a chance of making up for lost time, then this player has to sound conclusively better than the already fine, standard 965.

As soon as I started to listen to the Discrete, memories of my own 865 came flooding back. Now whether this is a good thing or not depends hugely upon one’s personal tastes in music and, indeed, hi-fi. The Irish harp on Danny Thompson’s ‘Fair Isle Friends’ showed a characteristic rich texture that has been Rotel’s trademark for some time now. Quiet solo performances also benefited from the Rotel’s superior output stage. Although the standard 965 is quite a clear and clean sounding machine, one could hear an inky blackness surrounding individual performers. Unfortunately, a slight veiling of strings and high frequency brass, together with an average sound stage, led the performance to be rather too laid back and ultimately uninvolving. I put this down to a lack of articulation against speedier rivals, yet couldn’t help admiring the creamy smooth way in which the music simply poured out of the speakers.

Wendy James’ “Basement kiss” was perhaps a little unfair for the refined Rotel. Rotels tend to be set for a “classical” balance, and therefore playing Wendy James on one is a bit like taking a Roller rallying! Still, the Rotel put up a good show despite its obvious displeasure. Close microphone techniques were handled well, with the Discrete keeping a tight grip on the mid/upper range and sibilance rarely became a problem. However, there was a definite lack of
what can only be termed ‘grittiness’. Not to be confused with ‘graininess’, the Rotel was too polite with this type of music and lacked the sheer grunt needed to carry this particular song with conviction. This wasn’t a surprise. What did come as a surprise, though, was that fine detail from background percussion seemed to be masked and the bass didn’t go as low as some competing players. No problems with depth or projection though. The Discrete is amongst the top players here.

“Nothing to do Blues” proved to be more the Rotel’s style. The convincing piano sounded a touch blue itself, just as it should, and avoided the ‘splashy’ antics of competing Marantz players. Yet once again this was tempered by a lack of involvement culminating from the smothering of fine detail that ultimately lead the foot to start tapping and, if it’s really good, the head to start nodding!

A lack of ‘drive’ tainted Suzanne Vega’s ‘Blood makes noise’. The Rotel’s mellow tones had suited earlier more delicate tracks, but when it came to this particular one, which is supposed to sound as gruesome as the name implies, it couldn’t quite hack it. Percussion which is meant to be grating was rounded off and the bass, whilst being well integrated, didn’t take the lead like it should.

The 965 Discrete was at its best with light orchestral pieces, which were free from graininess often afflicted by the digital medium, and progressive folk in particular. I couldn’t think of another player at the price which could make a better stab at Capercailie’s “Delirium” album. Vocals were well separated from the rest of the mix and the Discrete made good use of the involving rhythm throughout the album. More to the point, one actually felt the player was at ease with the music.

Rotel have got it right. The Discrete is a fine player in its own right, and expands the Rotel sound further. Unlike the 965 Limited Edition whose claim to a £50-£70 price premium over the standard was rather dubious, the extra £50 for the Discrete is money well spent. The best part of all is that Rotel offer a dealer-fit Discrete upgrade for only £59.95 to owners of non-Discrete 965s. So if you’ve become attached to your standard 965 or feel a bit cheesed off that a manufacturer has gone and upgraded your machine before you’ve even had it five minutes, then you can bring it up to present spec. It’s good to see manufacturers offering decent after-sales service.

However, the 965 Discrete isn’t perfect. But then no C.D. player of this price can hope to be. Drawing the listener’s attention away from possible flaws is the trick. Here the player is partly successful. With lighter classical pieces, folk and ‘easy listening’ (excurse the term) music the Rotel is in its element. If it were a radio station it would be a cross between Radio 2 and Classic FM. Yet if your musical tastes are more Guns n’ Roses than Glona Hunniford you could find the Discrete a little lack-lustre and too refined. Still, it’s a fine product and deserves an audition against such hopefuls as the Marantz CD52SEII.

Rotel RCD 965 Discrete £349.95
Gamepath Ltd
25 Heathfield
Stacey’s Bushes
Bilton Keynes
MK12 6HG
Tel. 0908 317707

MEASURED PERFORMANCE

The RCD965 Discrete is basically a standard ‘965 with a discrete analogue filter fitted, rather than an integrated circuit chip (IC). This should, in theory, give a better quality sound. Rotel first delivered a standard ‘965 which I measured along with a few other players. Fortunately, a second player arrived shortly after, the correct ‘Discrete’ model this time.

I measured both the standard and Discrete players to reveal some interesting results. At high levels the Discrete player had lower distortion, but by -30dB distortion was double that of the standard player. At -60dB the figures were very similar, giving a dynamic range of 102.5dB for the discrete and only 0.5dB more for the other. What was interesting was that all through the distortion analysis, at every level, and with both players, there was a strong non-harmonic distortion product at 7.35kHz.

At -30dB distortion was a high 0.05%. The distortion plot clearly shows strong 2nd and 3rd harmonics which contribute most to this high figure, but higher up in frequency the distortion spread is mainly odd order. I would expect some sharpness to the sound and possibly a sting in the treble due to this distribution.

The frequency response shows the characteristic w.f. ripple of Philips’ 7320 series of PDM Bitstream converters. The QED Digit and Micromega Duo Pro both use DACs from this series to great effect, so with a discrete analogue filter the Rotel may be something special to listen to.

The Discrete player we measured had a slightly higher output than the standard version, so if you do an A/B comparison volume levels may have to be adjusted for valid comparisons. One area where the discrete measured very well was stereo separation. This was an average 98dB at 1kHz, but had not fallen at all by 20kHz, which suggests intelligent circuit layout. DB

TEST RESULTS

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<thead>
<tr>
<th>Frequency response</th>
<th>4Hz-20.7kHz</th>
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Noel Keywood finds a train in his listening room, courtesy of Thorn EMI's Sensaura surround-sound recording.

Surround-sound is back. Don't groan at the back of the class! This time it's fiendishly clever and better still, it is free (we hope). Called Sensaura, the system has been developed by a company that I thought had long ago given up on hi-fi - E.M.I. "Not so", I was told by Dr Alastair Sibbald, "the Central Research Laboratories (situated at Hayes, Middlesex, where E.M.I. once had its LP pressing plants) employs 180 people on original research". They've had a team of scientists working for years on Sensaura, headed by Dr Sibbald.

Yes, it should cost you nothing, because Sensaura is an ingenious and complex recording trick that relies on a comprehensive understanding of psychoacoustics to work properly. It processes position cues into a recording, in order to make the ear/brain hear sounds from all around the room. You don't have to go out and buy new hardware, since all the special information lies within the music; a conventional stereo system is fine. Sensaura comes on CDs or cassettes (no special format needed either) and, providing the music biz doesn't decide to hike the price of Sensaura discs in the way that they've upped DCC tapes to £14.99, it should move into widespread use within a very short time.

Unlike so many other developments in hi-fi, Sensaura looks both effective as a technology and fully acceptable in commercial terms. We've heard it on a demo disc and have interviewed E.M.I. at length about its background and its future. There's no doubt that Sensaura works well; it isn't just another nutty scheme founded on a set of misunderstandings, something that is common in hi-fi.

Sensaura requires investment by recording studios and this, I fear, may be used as an excuse to increase CD prices: we'll have to see. But its effect is so great that I really cannot see it becoming anything other than a success. I've personally heard just about every audio enhancement system invented over the last twenty years, including the best four-channel encoding systems and, whilst Sensaura isn't quite as powerful as full sound field encoding, neither is it so impractical or expensive for end users.
You don’t even have to wait to hear it. E.M.I. told me that a new release from Frank Sinatra, entitled ‘Duets’ is “lightly encoded”. Dr Sibbald says “listen to the intro to track 11”. In a long explanation of the complex way in which we position and locate sounds, using time and amplitude differences, I was fascinated to be told that one of the earliest examples of this was, believe it or not, the use by Jimi Hendrix of ‘flanging’ to make his guitar take on weird effects. Whilst Electric Ladyland is heavily pan-potted and phased, to give the impression of movement, it is the previous album - Hendrix’s last recording in Britain - that holds the best example of flanging used to make an image wander. Listen to ‘Bold as Love’ on the album Axis Bold as Love; headphones bring out the effect best. Hendrix makes his guitar fly.

Whilst Hendrix and others have used phasing to achieve interesting effects, and whilst numerous researchers have, since the thirties, carefully experimented to find out just how we are able to place sounds around us, few have managed to construct a comprehensive sound processing system that relied upon such effects. “The reason is you need a lot of high speed digital processing power to do what we did,” Dr Sibbald told me. “Equipment like this would not have been available even a few years ago”. So how is it done? E.M.I. use a dummy head at the centre of the recording system. This is a full sized replica of the human head, complete in all major detail, especially with regard to the ears, each of which contain a high quality Bruel and Kaer microphone. A recording made through a dummy head dramatically reveals the position of sounds, but only to a listener using headphones. Through loudspeakers strange effects occur, due to the sound passing through the dummy head and, effectively, through the listeners head or two heads. It is this problem that E.M.I. have overcome.

Dr Sibbald explained that the major cavity of the outer ear, known as the concha, resonates around 3kHz, producing a peak. Passed through two heads, this peak doubles in amplitude, sounding unnatural. This effect, plus others, such as inter-aural crosstalk, must be corrected back to single-head state and it is with that Sensaura uniquely manages to achieve using complex digital processing.

Other commercially available systems exist, as Richard Brice explains in his column on page 53 this month, but as a music company with studios, CD pressing plants and retail outlets, E.M.I. look to have a head start of their competitors. Sensaura does, of course, make multi-speaker systems redundant; four channel may never again raise its head and perhaps in future, even televisions will be able to project sound effects right around the living room.

How well does it work? The current test disc possesses a fairly ad hoc selection of programme material, much like the tennis matches and trains E.M.I. used in the fifties to demonstrate stereo on LP. It kicks off with many minutes of road traffic driving around one end of the room, which for a Londoner is not exactly a novelty, but we judged E.M.I.’s traffic a faithful replica of that outside. The disc has got a train too and this is where Sensaura started to show what it could do. The train pulls in across one end of the listening room (neighbours will love this!) and amongst the clatter of the doors opening and closing a woman alights, distinguished by the sound of her heels on the hard platform. She walks from far left, passing quickly across the front of the sound stage and then disappearing up a flight of stairs at the side of the room.

After the train comes a military band walking across the stage, which was a little less engaging, then finally a recording of an orchestra to show that Sensaura processing adds considerable depth to the sound stage but does not upset basic sound quality. Dr Sibbald told me they had decided to leave out the sound of a helicopter lifting off vertically through the ceiling.

As a way of capturing information about the sound field Sensaura was seen to be in harmony with higher specification digital recording equipment and improved recording quality, I was told, rather than data removal ('compression'), as practised by DCC and MD - a technique that has raised howls of anguish amongst music lovers everywhere.

Talking about E.M.I.’s sudden return to audio, heralded by Sensaura, I asked whether there was any likelihood the company would be taking up hi-fi manufacture again. Some of the subtle psycho-acoustic cues exploited by Sensaura already exist in ad hoc form within certain products and could possibly be better exploited, especially in loudspeakers. At this Dr Sibbald would only say that E.M.I were interested in audio, but at this stage he could comment no further. Which, reading the smoke signals, means E.M.I. may have more interesting developments up their sleeves.

In 1957, E.M.I. released the SDD1 stereo demonstration LP, complete with traffic noises, trains and an orchestra. Perhaps the new Sensaura test CD marks their return to innovation in High Fidelity.

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GOLDEN DRAGON MAIN DEALERSHIPS, available in selected areas. Please call Clive Norris for details.
The launch of the Thorn EMI Sensaura surround-sound system raised wry smiles in the offices of Select Systems, since we have been marketing a similar system for some years now. It is based on the same principles as Sensaura, but does not use a dummy head. Almost the moment that EMI’s press releases hit the streets, our fax machine started spewing paper and it hasn’t stopped since. The messages come from amazed customers, puzzled agents and indignant artistes, and every fax finishes with the same question: isn’t this what you guys have been doing for two years? The truth is, yes!

Not that I’m complaining, the enthusiasm has which greeted Sensaura will help raise public awareness of three-dimensional stereo systems. The messages come from two loudspeakers) and, I believe, because such systems represent the most exciting development in sound recording since the invention of stereo, there is room for all of us at the new frontier.

Like Sensaura, our own OM 3D system, which I initiated, works with any standard two-loudspeaker system, so no extra equipment is required by the end-user. The system works psychoacoustic cues to position sounds within a 360 degree arc anywhere about the head, due to the multiplicity of reflections from the pinnae (the pinnae are the bits of skin and cartilage we hang our sunglasses on). What’s more amazing still is that the frequency response of the ear is different for every position about the head, due to the multiplicity of reflections from the pinnae (the pinnae are the bits of skin and cartilage we hang our sunglasses on). The OM 3D uses left-right channel time delays to make low-frequency sounds appear to come from beyond the boundary of the loudspeakers. For example, on one of our experimental demo CDs we created a 3D storm sound-effect with a roll of thunder which appears directly behind you. It’s enough to make you turn around when you hear it, yet there’s no loudspeaker there! - it’s all a psychoacoustic ‘illusion’. OM 3D can place sounds behind listeners; we wonder whether this is possible with Sensaura.

In fact, low-frequency 3D stereo is relatively easy to create. It’s at high frequencies that a 3D system has to be really clever, because the ear and brain determine acoustic directions at high frequencies by analysing the tonal spectrum of a sound as it enters the auditory canal. The brain is able to do this incredible real-time processing because the external ear has an incredibly non-linear frequency response (if Noel or Dominic measured an amplifier with a response like the ear, you would hear the howls of derision in Knightsbridge!).

What’s more amazing still is that the frequency response of the ear is different for every position about the head, due to the multiplicity of reflections from the pinnae (the pinnae are the bits of skin and cartilage we hang our sunglasses on). Fig. 2 shows a typical frequency response of the external ear at one position around the head. Our own OM 3D system mimics these complex frequency response changes using electronic filters.

The practical realisation of 3D system is an achievement for any company. Thorn EMI have apparently spent three years developing their Sensaura system and I believe Roland’s Japanese engineers spent at least that much time developing the RSS system. We openly demonstrated our system to EMI in June of this year. Like Sensaura, our OM system was developed in the UK. I studied human perceptual psychology at Bradford University (home of Professor Bailey, transmission lines and long haired wool!). Strong on auditory, my studies at Bradford stimulated me to develop this form of surround sound when I left. The final OM 3D system represents the culmination of many thousands of hours of carefully prepared listening tests and electronic development by a team at Select Systems. My columns in Hi-Fi World and Franchise, the stereo enhancer, both exploit knowledge gathered from mass market CDs, tapes and radio broadcasts, and has been employed by musicians and engineers to enhance musical styles as diverse as experimental jazz, and children’s educational tapes!

Like Sensaura and Roland’s RSS system, OM 3D uses left-right channel time delays to make low-frequency sounds appear to come from beyond the boundary of the loudspeakers. For example, on one of our experimental demo CDs we created a 3D storm sound-effect with a roll of thunder which appears directly behind you. It’s enough to make you turn around when you hear it, yet there’s no loudspeaker there! - it’s all a psychoacoustic ‘illusion’. OM 3D can place sounds behind listeners; we wonder whether this is possible with Sensaura.

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There is considerable interest in CD transports, DACs and players at the moment, and these items must make up 50% of our business. Until recently the AMC CD6 was our best seller at £350 but due to production problems has been unavailable for 2/3 months. The good news is that it should be available by the time this advert appears and we still don't know of a more enjoyable player at the price. Above the AMC we then jump to the AVI integrated player, which is superb both as a player or a transport, and at £999 is a bargain. To join the AVI we have now taken on the Sugden agency, having been a fan for many years, and now have the SDT-1 player in stock at £949, together with their AS1 pre/power combination at £799 and £1250 respectively. Their SDD-1 transport at £749 makes a cheaper entry to the AVI for those requiring a transport alone and uses the same CDM-9 mechanism. The Micromega Stage 1, Stage 2 and Stage 3 should be available by now, allowing upgrades from one stage to the next, and are bound to be popular, together with the T-drive and T-Dacs. With Pink Triangle Ordinal and Da Capo and AVI DAC and Wadia there should be a combination to delight your ears. So why not ring for a demonstration?
The strength of the Japanese Yen is not necessarily bad news to the British hi-fi industry. In fact, the stronger the Yen gets, the more competitive British hi-fi becomes. Because of the high value of the Yen, it is becoming increasingly difficult for Japanese hi-fi to compete in the way it has over the last decade or so.

A good example of this is Furukawa cables. As the Yen has become stronger and stronger, more and more $$Sterling are needed to buy the cables in from Japan. Eventually the time came when Quantum Audio, the UK distributors, would have had to double the UK retail price to make the same profit. Obviously, trying to sell a cable that cost £80 last month for £160 in the following month is not easy, especially in such price sensitive times. Furukawa cables are now no longer being imported, which is a shame - they were very good.

The same is happening with hi-fi equipment. If you apply what happened to Furukawa to an amplifier, say, it now has to be built for considerably less money in Japan in order for it to have the same retail price in the UK. So cheaper components are used, thinner chassis, etc and the result is a lower quality product, for the same price. So whereas British manufacturers have found it near impossible to match the Japanese products in the past, at least in terms of features per pound, they are now in a much stronger position.

But the Japanese aren't slow. They have foreseen this potential loss of competitiveness and have set about finding solutions. One is to add additional value or appeal to their products. Several of the larger manufacturers now use British designers or listening panels to tune the sound of their products to suit the market. What the consumer gets, at the end of the day, is a Japanese product that is economical to produce, but one that contains a sprinkling of specialist audiophile grade parts. This approach has worked very well: just ask Denon, Pioneer or Sony.

In some ways, though, I'm surprised they even bother. The separates market must represent only a small fraction of the business they conduct, compared to personal stereos and midi-systems, two areas where they are free to trade unopposed. Years of careful and powerful marketing have convinced the British general public that a midi-system is hi-fi. When you go out to buy "a new hi-fi" and a salesman in the local Dixons shows you the latest Sony with intelligent graphic equaliser etc, you could be forgiven for thinking that you had found the very latest and most technically advanced system available, and all for £800 or less.

I used to work in a shop where midi-systems were used to lure the average person in. They're cheap and, these days, they represent hi-fi to Mr Average. Once inside we would explain that a British separates system need cost little more and would in fact offer considerably better performance than a midi. Nine out of ten customers left the shop with a budget separates system - usually a Japanese CD player with a British amp and 'speakers. So the majority of music lovers are willing to compromise a little convenience for greatly improved sound quality, if only someone tells them that an alternative exists in the first place and is willing to prove it by demonstration.

This was clearly evident at Live '93 where for the first time in years British manufacturers got the chance to show their products to a general audience, rather than one consisting of hi-fi enthusiasts, as found at the Penta and Bristol shows. Many found that the general public were in fact very interested in having a good sound in the home, but never knew that such a wide and varied range of quality equipment was available. And it's not surprising. Hi-fi has been treated as a specialist club for too long. It was okay in the 70s and later 80s, because the club was still quite large and could support the industry, but the overall market is falling in the U.K., although only very slowly at the moment.

Britain's retailers have been the first to recognise this because they experience the effects directly. Their approach, in many cases, has been to broaden the range of services that they can offer their customers. So whereas once they would have stocked just specialist hi-fi equipment, they are now turning to upmarket midi-systems, stereo TVs, videos and other AV products. They quickly learnt that the same customer who bought a better than average hi-fi system was also likely to be in the market for a better than average television and video. But they remembered that hi-fi was still the core of their business, that customers would come back a year or so later to upgrade their hi-fi, but until the television/video they had bought broke down, they would not be looking to replace it.

Manu facturers need to consider this if they are to prosper as the recession lifts. Better marketing will introduce their hi-fi products to a broader, and in most cases, receptive audience. Once the concept of quality, rather than useless features, has been conveyed to the general public, everyone will see better value for money - and it won't be from a cheap Oriental midi-system.

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MAGAZINE MARKETING
Like the fairy on a Christmas tree, the HD7725 sits at the top of Harman/Kardon's CD player range. Dominic Todd asks "is it just there for show?"

Look at those feet! Apart from sheer weight, the first thing to impress the purchaser of an HD7725 CD player are four, apparently solid, metal feet. The fact that they are really just metal-skinned plastic ones marks this player down as being from the Japanese school of 'supermodel' CD players. Heavy weight build, plenty of features, but often this is no more than skin-deep gloss.

This is Harman/Kardon's first real attempt at a high-end CD player, and at £799.99 it needs to be good if it is to succeed against established heavyweights. First impressions are favourable, apart from the silly feet. The styling follows H/K's usual form with a double curvature on the facia. It's interesting to see other manufactures are now discarding sharp edges and flat sides in favour of more aesthetically pleasing 'organic' curves. The front panel is finished in matt black with tasteful white-gold graphics (H/K have sensibly resisted scrolled script). The controls work smoothly and are easy to locate. Combine these with the fact that the 7725 isn't over-burdened with gimmicks, and you have one very classy looking CD player.

No one could accuse Harman of skimping on facilities either. There's a 32-key remote control echoing the style of the player, a motorised variable output and headphone socket, switchable digital output (coax and optical), display off key, direct access keypad, intro scan and a comprehensive 30 track programming system, a sensible blend of features that many players of this price neglect.

Good looks, solid build and useful facilities are all very well, but if the player is bog standard inside then it's likely to founder when it comes to sound quality. The 7725 is a mixture of good and bad inside. The cheap transport system is a disappointment and clearly lifted straight out of the cheaper models. On the other hand there's much to praise. A mass damped lid, discrete output stage, six separate power supplies and grounding for digital, analogue, transport and display sections, Elna capacitors in the power stage and, most interesting of all, a unique D/A conversion process. The Harman uses two selected Burr-Brown PCM61P-K converters per channel with their own Real time Linear Smoothing (RLS) integration process. Briefly, this is designed to reduce high frequency quantisation noise, which should have the effect of smoothing the sound a little.

When it comes to sound quality there's actually little wrong with the 7725 overall. It rarely offends, with a smooth, controlled, sound free of digital nasties. The problem with this type of balance though is that such refinement and control doesn't suit all types of music. For example with lively pop, such as Matt Bianco, I felt slightly hard done by. There were no complaints to be levelled at the smooth and natural vocals or the powerful and solid bass line (no doubt partly due to the heavy-weight construction), yet the sound was two-dimensional compared with other multi-bit players in this price range. Bass notes could also suffer an occasional thickening, which could have the effect of making the bass line seem slightly detached from the rest of the music.

The Harman's rich balance came into its own with female, and indeed male, vocalists. It did an excellent job of taming the sibilance and disguising the thinness of Suzanne Vega's first album. What can be a particularly tiring album on some CD players turned out to be involving and enjoyable to listen to on the 7725. Vocalists of a richer nature with less sparse backing were handled equally well. Sinead O'Connor's 'Am I not your girl?' (a vocalist not usually renowned for her richness) had better depth than shown with Matt Bianco and a lushness that should be present in this type of music. My only concern is that, used with bass heavy 'speakers or a loose sounding amplifier, the sound could become a little too rich and detached in the bass region.

However, the same smoothing quality that lent itself to vocalists proved to be something of a thorn in the side when it came to jazz. Brass instruments found themselves strangely muted, with any vibrancy rounded off. This was one area where I found the Harman's coloured balance to be out of place, unless one had
a particularly bright and penetrating system which needed a little warmth adding. One positive effect of this was that it became possible to listen to the music at high levels for sustained periods without the fatigue that can sometimes accompany more explicit sounding CD players.

With classical music, the performance was once again mixed. Brass sections suffered from the same 'rounding off' that had affected jazz. Yet in this case it was more tolerable as classical brass tends to jazz. Yet in this case it was more that it became possible to listen to the music at high levels for sustained periods without the fatigue that can sometimes accompany more explicit music at high levels for sustained periods.

To some extent, the disappointing brass sections of Brahms' Symphony No. I were offset by the string sections. Violins, in particular, were given a rich yet articulate balance, and the whole symphony jelled well with a pleasing lack of muddle in the crucial mid-range, despite an overall balance which was slightly too eager to gloss over fine detail. Nevertheless, once again the music was enjoyable and relaxing to listen to, with no hint of edginess to jar the listener.

This rather sums up the sound of the 7725 over all. Those who find some CD players on the market today a little too explicit or grainy will warm to the refined character of the Harman. It is well suited to simple vocal pieces and similarly sparse quartets. The clarity and control shown through the mid-band also assists piano recitals; it's refreshing to hear a CD player which doesn't make a grand piano sound like one of the "honky tonk" variety. However, a slightly detached bass and rounded treble take their toll on other types of music. Don't get me wrong, these are not serious flaws, simply the character of the player. There are other players that offer a slightly more coherent sound, but possibly at the cost of some of the Harman's warmth. Again, other players may offer a more detailed and revealing treble, but sometimes at the expense of sharpness.

Where the Harman does score is in its heavy build quality (especially compared with some from British and American cottage industries), a sensible balance of facilities and smart aesthetics. Yet at the £800 price point these factors alone are not enough. The main problem the 7725 faces is strong competition from the likes of Quad and Micromega, to name but two. There are also very special players for only a couple of hundred pounds more, such as the Conrad Johnson Sonagraphe. Despite these reservations, I feel Hamian can be proud of their first attempt at entering what is, after all, a fiercely competitive high end market.

Harman Kardon HD7725 £799.99
Harman Audio, Harman International Industries Ltd. Unit 2, 5 Rowley Lane, Borehamwood, Herts WD6 5SP. Tel. 081 207 5050

**MEASURED PERFORMANCE**

The HD7725 uses Harman Kardon's Realtime Linear Smoothing (RLS) DAC circuitry. A pair of Burr-Brown PCM61P-K DACs per channel are used to give a smoother waveform and reduce quantisation noise. The HD7725 also has a discrete output stage, six separate power supplies and separate grounds for digital, analogue, transport and display circuits. Obviously a lot of thought has gone into the design and components used in this player.

One problem with using two DACs per channel is that they have to be very carefully matched to each other to give satisfactory results. Distortion figures for the HD7725 are average at all levels, 0.02% at -30dB being about twice as high as the very best players. Looking at the distortion plot there are quite strong 3rd, 5th and 7th order harmonics which will tend to lend a sharpness to the sound. In practice these odd-order distortions may be low enough to add just a little sparkle to the treble, without going too far and becoming harsh.

As with the Monarchy Model 22A DAC, reviewed in our August issue, which used a similar DAC process, there was some channel imbalance. The right channel gradually slides downwards towards 21kHz which will prevent any sharpness being exaggerated. However, on the left channel the treble peaks up a little which will give a slightly sharper sound. As these deviations are above 10kHz and very small, this may not be much of a problem.

Elsewhere the HD7725 measured well. Output was a little higher than the Philips specified player, only listening will tell if the effort was worthwhile. DB

**TEST RESULTS**

Frequency response 3Hz-21kHz
Distortion %
-6dB 0.0044 0.0059
-30dB 0.023 0.021
-60dB 0.787 0.632
-90dB 35.7 26.4
-90dB dithered 11 4.4
Separation dB left 100 101
right 88 88
Noise with emphasis -104dB -104dB
Dynamic range 104dB
Output 2.35V

**Frequency Response**

**Distortion**

**Frequency Response**
transmission line speakers

Transmission line speakers have a reputation for reproducing lower bass frequencies than other loudspeakers of a similar size. TDL now complements its range with a series of 'reflex transmission line' speakers. Incorporating a truncated line to preserve the special bass performance for which TDL is renowned, they are sufficiently sensitive to operate optimally with almost any high fidelity system. They should be judged in performance against speakers beyond their size and price category – affordable TDL!
I've just gone and done something I rarely do. I've made an impulse purchase. The Scottish blood in me dictates that I'm usually careful with money, but this was different. It wasn't an essential purchase for something I actually need, like shoes or clothes, but for an old Revox B760 tuner. Until now I've never even had a proper tuner, and had very little desire for one. But as soon as I saw this immaculate "one old lady owner" B760 I knew I just had to have it. At £175 it wasn't particularly cheap being only about £25-£75 below the rest price. I also realise that many of today's tuners could better its technical and sonic performance. It was a combination of factors that tempted me.

The fantastic "battleship" construction (twelve kilos puts the 'Vox firmly in the heavy-weight tuner category), the well thought out symmetrical design, the beautifully engineered controls and the hordes of useful facilities (something I object to in other components) all make the Revox a joy to use. I'll probably never use the mast motor rotator controller or the output for an oscilloscope, but it all adds to the 'feel good factor' of owning such a piece of equipment.

This, I feel, is the reason many of us have become bitten by the hi-fi bug. Music is of course the prime consideration, but it's the equipment itself that holds consideration, but it's the combination of factors that make the Revox a joy to use. I'll probably never use the mast motor rotator controller or the output for an oscilloscope, but it all adds to the 'feel good factor' of owning such a piece of equipment.

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Furthermore, it's fun to tweak equipment in order to improve sound quality (although this can be taken to such an extreme that it completely overshadows the enjoyment of listening to music). There's been a lot of talk in the hi-fi trade of the impending doom of the quality hi-fi market as we know it, namely separates. Audio visual, 'lifestyle' and to a lesser extent Nintendo are cited as the grim reapers of separates. What has become more obvious with recent shows is that, whilst these formats have their appeal, it is more limited than many marketers would have you believe. There will always be a strong demand for decent systems on which to play music, and I can't see these other formats being much of a threat to the separates market.

One of the main problems that many of us face, though, is persuading the general public that a separates system really is better than spending money on the latest 'lifestyle' system or whatever is hip in audio visual at the time. Enter Live '93. Many in the hi-fi industry saw this show as a threat to Penta's future and ultimately a threat to the hi-fi industry as future shows become swamped with audio visual, 'lifestyle' and computer equipment. This couldn't be further from the truth. What Live '93 has done is enable Penta to concentrate on high end and equipment for enthusiasts, whilst mainstream manufacturers attend future 'Lives'. Yet, stalwart names of the hi-fi industry, that attended Live '93, were far from outdone by rival technologies. NAD, Rotel, Arcam and Quad, to name but four, were inundated with interested punters. Furthermore, one of them has reported an 60% increase in demand for their hi-fi separates in the South East. So is hi-fi dead?

Live '93 proved a great public educator in the benefits of separates, and also proved that there is still demand for what is, after all, the backbone of the hi-fi industry - separates.

Whether this will lead to a reversal of the steady decline in hi-fi separates sales, and have a knock-on affect in enlightening more people to the world of 'real' hi-fi, remains to be seen. One thing that is for certain though is that such was the success of Live '93 for those hi-fi manufacturers that attended, most are booked for Live '94 (at the larger Earls Court venue) and many have taken stands twice the size of this year's. Likewise, many of those who missed out this year have made firm reservations. You won't find many specialist valve or vinyl companies there, but they'll still thrive at Penta as enthusiasm filters through from increased interest in bread and butter hi-fi, now being shown to a far wider sector of the public at shows such as the Live event.

The hi-fi industry is fighting back, and I believe that in the long term it will see out 'lifestyle', mini, micro and all other niche products that the marketers can throw at it. Audio visual has a limited market in separates form (for many, having speakers at the rear and sides of the room is unacceptable). It may not simply be a fad, but in the mass market we'll probably see more T.V.s with such a system built in. I can't see full A.V. systems having the penetration that separates systems have now. There can be no doubt of the impact of video/computer games. Younger people are building up games collections, perhaps at the expense of record/CD. However, it is not really a competing market because as one matures, a music collection of some sort becomes an important a part of life (how many students that you may know don't have any form of music whatsoever? Not many).

All that leaves us to do is sit and wait. In the mean time does anyone have a secondhand Revox B77 or Nak ZX-9 out there?

Dominic Todd

Reverberations from a Revox tuner classic
FERRETING AROUND
Since reading your magazine I have been inspired to go around and ferret out old equipment from local car boot sales and such like. So far I've managed to acquire Leak, Quad, Garrard, SME and Armstrong equipment to name a few makes, and am finding it very rewarding to service it and bring it back to life (it's a pity my wife doesn't!).

I would like to ask some questions about my 'every day' system which I have been slowly upgrading over the last three years (I also have three children!). Currently I'm using a Rogers 175 S2 tuner, a Hitachi D980 3 head cassette deck and Thorens TD160B MKII with mods and SME Series 2 fitted with an Ortofon VMS20E (in need of replacement). My recent purchases being a Marantz CD605E, the excellent Audiolab 8000 C/P and a pair of Ruark Talisman MKIs bi-wired using Monitor power cable studio line 4.0 QMM.

Overall, I'm pleased with the sound quality (all equipment was carefully auditioned) but I do find that the odd CD can sound over-harsh.

I do have immediate plans to upgrade the tuner possibly with an Audiolab 8000T and, if funds permit, improve upon the turntable set up.

My first question is with Write in with your problems to Hi-Fi World, 64 Castellain Road, Maida Vale London W9 1EX. Our panel of experts will endeavour to solve them or at least offer some practical advice regarding to my Talismans. Now with the arrival of the MKIs I understand that Ruark are offering tweeter and crossover upgrade kits which replace the metal dome tweeter and capacitor types of the original. Have you plans to audition this modification and, if so, is it worth it? Also, would it sweeten those odd CDs?

My second question, in several parts I fear, is with regard to my turntable. First I've heard many a bad word spoken of the old 160, so should I pension it off or could I replace my VMS20E and give it a new lease of life, a Roksan Corus Blue or Black perhaps?

I also have (dismantled) a Garrard 401, an SME Series 2 12" (9" on the 160) and a Decca CAE possibly in need of a new stylus. Is it worth re-mounting all this on MDF or a piece of stone (your recent article referring to an SME Series III)? Possibly with a new cartridge. Alternatively, should I forget it and buy myself a Rega Planar 3 with a suitable cartridge?

By the way, my choice of music is varied, depending on mood, from Classical to Rock.

I hope my letter is not too long, keep up the excellent work. Thanking you in anticipation.

B. Clift

As you suggest, some older designs do take some beating, the 401 being one example. The Leak Trouthline another. For the price of the very nicely engineered and put together Audiolab 8000T you could pick up a Trouthline, have it serviced and re-aligned, add a good decoder from either Tim de Paravicini or GT Audio, buy a large multi-element aerial and still have change to spare towards the rest of the system. This is no criticism of the 8000T; it is a fine solid state tuner, one of the best in fact. But nothing betters a good Trouthline.

I have not heard the new Talismans, but I did make a quick 'phone call to Ruark to find out what the changes were. The crossover is replaced, new wadding fitted and the metal dome tweeter is replaced with a high quality SEAS fabric dome. This will almost certainly bring a sweeter balance to the treble.

DB

HI-FI HOME
I am writing to you for advice on my next step in system building. As it will probably be my last upgrade for some time (I'm going for the ultimate upgrade - a new house).

My system now consists of: LP 12/Valhalla/Ittok/Audio Technica OCS/Naim 62/140/Hi-Cap/Ariston Maxim 3/Micromega Microdac/Yamaha 330 cassette and Sony 370 tuner/bi-wired Epos ES1s and stands (quality interconnects
and Naim speaker cable), turntable on a Soundcraft wall shelf, rest of kit in and on a pine hi-fi unit (a bit overcrowded).

My questions are:

1. Power supply for the Linn
2. Better cartridge for the Linn
3. Better transport for the DAC
4. Replace equipment tables for all the other kit (Tri-pod?)
5. New Naim Tuner £ 499?
6. Can the Naim be bi-amped with 2 x 140s or does it have to be 2 x 135/250. I know you have to have a separate crossover (don't know it's name though).

As I have said, it will have to be my last upgrade for some time, so I would like it to be a really worthwhile one. Budget approx. £600, present room dimensions approx. 15 by 12 ft, new room approx. 20 by 15 ft. Musical tastes varied from folk, blues, soul to rock, with a bit of popular classical thrown in for good measure.

I know the only way to audition is to listen for yourself, but your advice has helped me very much in the past, so I would be much obliged for any advice given. Is there a possibility of a compatibility list being printed as an article in your magazine showing a 'family tree', future upgrades, the benefits and improvements etc. My kit has taken a long way. Something of this description would assist both novices and audiophiles alike.

Bob Walker
Gravesend,
Kent.

You don't actually say what you feel is wrong with your system, which makes it hard to offer advice. I will have to assume that you are happy with your system and are looking for an overall general improvement, in which case I will concentrate on its weakest areas.

I suspect that you are suffering a rather bright sound from your vinyl source; the OPC is well known for its: shall we say, vibrant treble. Try the Goldring Elite at £200. This has a smooth and detailed sound that will suit the system well.

This leaves only £400 left, you would need at least £600 for a new transport, so that cuts off that route. The £400 you have left could be spent in two ways, 1) look for a second-hand NAP140 and bi-amp the ES11s, 2) buy some good equipment stands. Also try Townsend's Seismic Sink under your Maxim CD player and at the same time and upgrade your interconnects. DB

BOOM BOOM

My system consists of a Meridian 200 transport (latest version), Meridian 203 DAC-7, Meridian 201 pre-amplifier; Linn LK280 power amplifier with a Linn Spark power supply, and Tannoy 609 loudspeakers on Tannoy stands (sand filled). For interconnect I use Audioquest Digital Pro (0.5 metre) between the CD transport and DAC, Linn interconnect (1 metre each) for all analogue connections and Audioquest type 4 speaker cable (3 metre runs) bi-wired. The speakers are placed 12 inches from the rear wall and 24 inches from each corner in a 12 'foot by 18 foot room, slightly angled inwards. I listen to a wide range of music imaginable from rock to soul, country and western to jazz, classical to reggae (if it sounds good I will listen to it!).

I am happy with the sound that my system produces, but the bass can be slightly boomy, especially with 60's recordings where the sound of the bass guitar tended to be quite deep and loose (i.e. 'Lady D'Arbanville' by Cat Stevens). The obvious area to blame, taking into account that I tried Meridian monoblocks, but preferred the Linn/Meridian combination, is the Tannoys, which I have been told are a little rich and coloured in the bass department.

I decided to look at floor standing speakers which should retain the depth of bass that I currently enjoy, but with more control. I have been considering my options which are initially Linn Kellidhs, Mission 753s and Ruark Talisman 2s. However, would I be better off waiting a while until I can afford a higher spec. of speaker such as the Heybrook Sextets or Linn Kans?

I have also been informed that using solid core 'speaker cable may be accentuating the problem and it was suggested I change to multicore cable. All very well, but as there is little facility to audition this option, do you agree, and if so, have you any suggestions as to which cable may be better suited to my system?

I have also read that isolating devices such as the Seismic Sink will improve the sound of a system. Would such a device be relevant to my problem?

Lastly, could the problem be with the room?

Unfortunately, I have little option with the layout, and after experimentation, have settled for the best compromise. If the room is the cause, are there any methods of acoustically dampening it which will not unduly affect the aesthetics?

Alan D'Alvarez
Bromley,
Kent.

Linn Kans! With the greatest respect for Linn I hardly think that these will improve upon, or even match the bass depth of your Tannoy 609s. The simple answer is that, given the calibre of the rest of your equipment, Heybrook Sextets would be the minimum needed to get the best from the system. I strongly suggest you audition a pair of Sextets. They take a little while to get used to, so a home demo is best, but they really do sing with a good system in front of them.

For speaker cable runs the best is usually silver plated copper. The higher frequencies of the audio signal travel down the skin of a cable so the silver gives a smooth and detailed sound, and the copper adds bulk to take the current. There are several silver plated copper cables on the market, I believe that DPA Digital and van den Hul can both supply these. It is usually agreed amongst users that multicore is best for good bass.

Townshend's Seismic Sink is something that I have yet to try, although several people within the industry that I would trust have claimed excellent results. Try it and see, you should be able to find a dealer who can demonstrate the Seismic Sink, or even let you borrow one for a little while.

Lastly your room. The acoustic of a room can be controlled by the furniture and carpets. If the room sounds bright and hard, drawing the curtains over large glass windows, covering bare concrete walls with something soft, laying thick carpets and using big sofas will help to absorb rather than reflect the sound. The presentation will become warmer and more amenable, but go too far and it will start to sound dead. This is a simple way of changing the acoustic of a room without great expense.

In addition, if you find the bass too heavy, try moving your listening chair forwards a little. If you are too close to a rear wall you are in a high pressure area and a cleaner sound can be found by moving forwards. For the same reasons, pull the speakers forward as much as possible. The Tannoys do have heavy bass and ideally should be 24-36 inches away from the walls.

DB

KICK THE K9

It's time to upgrade! At the moment, my system consists of an LP12/Akito/K9 connected to the Moth Series 30 phono/passive control/30 watt
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stereo amp with Musicable interconnects. This is bi-wired with Linn X-400 to Linn Kan IIs on the Kan stands. I want to upgrade the LP-12 with either an Ittok tonearm or a Lingo power supply. Which would provide the biggest improvement for the money?

If I buy a tonearm, is it necessary to upgrade the cartridge? I read the article in the March issue about upgrading the K9. This mentioned cartridges at the bottom end of the spectrum. Could you suggest some in the middle and upper end of the spectrum that would match my system? Is the Ittok good enough to handle cartridges of, say, the Linn Asaka calibre? This may eventually be what I will aim for (at a much later date).

Speaking of amplification (or not), one would think that I would have gone for a Naim Nait II instead of the Moth system. But, since my wife had a 50% choice in the decision, we got the Moth system. Although she heard the bounce and liveliness in the Naim, she preferred the clarity and richness of the sound provided by the Moth. Aren't there any products out there that offer both? Our musical tastes vary widely. Mine tend toward rock and hers toward soul and easy listening. Which probably explains our taste differences.

Finally, I bought a Tandy sound pressure meter and, using the test tones provided on Stereophile's Test CD 2, I measured my system's response at my listening chair. I was really surprised by how ragged it looked in comparison with the charts shown in various Hi-Fi magazines (please see the accompanying graph). I would hope it is my room that is responsible for this and not the system. If it is my room, how do I go about fixing it? If it is my system, what could possibly be wrong?

Mike Cole
Munchen
Germany

The K9 is the item you should seek to upgrade first. It's merely a budget Audio Technica AT-5E variant, with a remorselessly hard upper midrange that gives a forward sound. The common replacement is a Roksan Corus Black, as you are aware, but an Ittok will certainly take an Asaka; the two were all but made for each other. However, this cartridge has been discontinued, replaced by the Klyde. I haven't heard the Klyde on its own, since Linn have insisted that it be reviewed only in a Linn system, a condition that is not acceptable to us. I have, however, used Asakas in the past in preference to all else, Linn moving coils being amongst the best in my view. I would suggest you try and audition their latest MCs, which have understandably received little coverage generally. They should be good, if expensive.

The trade off between smoothness and snappiness is common enough. Dare I say it, the best way of getting both is to go for a modern valve amplifier. In truth, valve amps can offer much more than this, they provide a dimensionality to the sound too, delivering a bigger and more believable sound stage. An EAR 834 is something to hear, but being built only during certain phases of the moon, when Tim is at his - er - liveliest, they are rare. You'll need a head amp too, since 834s are line-level only.

Don't worry about the frequency response of your room. The Alpine range you've plotted is just what's expected at the listening position. It includes room reflections at low frequencies, which add peaks and dips, according to their arrival phase, plus high-treble roll-off, caused by attenuation over distance. Loudspeaker response has to be measured close to the speaker itself, around 1m or less in a reflective room, and then the contribution of the individual drive units won't integrate as it would when listening at a distance unless their output is averaged together carefully. You can't do this with a Tandy microphone though, something like £8542.80 is needed for a Fast Fourier Transform analyser of the sort we use - and then you'll need a better mic!

With a small speaker like a Kan, however, close-up measurement should give a fairly accurate picture of what the loudspeaker is doing, since the drivers are small and close together.

You won't get such a thing as a 'flat listening room' unless it is made anechoic - and having listened to music in an anechoic chamber I can assure you it is a most unnatural experience. Of course, the Japanese, who take everything very seriously - and to the limit - have put whole orchestras into anechoic chambers, just so that you don't have to suffer concert hall ambience. The executable results are available on Denon Test CD PG-6006, plus all sorts of other room testing sounds, recording techniques and such like.

Specially treated listening rooms invariably don't work; they're so unnatural sounding as to be unnerving. So the apparent imperfection you see in your graph is in fact what the brain needs to hear in order to know it is in a room. You can get rid of those peaks by using headphoens or by putting the speakers in the middle of the room and sitting 12 inches in front of them. Have fun! NK

OFF THE COIL

About five years ago I purchased the following system:

LP12 (Basic Plus replaced two years ago with second-hand Ittok LVII and new ATF-5)

Exposure VII pre-amp
2 x Exposure VI supplies

Exposure VIII power amp

Epos ES 14 speakers

The turntable and speakers stand on Origin Live stands and the speakers are connected via ten metres (each) of Exposure cable. All mains plugs, phono, bananas, etc. are gold plated jobs from Hi-Fi Review.

After getting this lot together I gave up buying magazines and listened to some music for a while! The problem now is that after five years I don't know what's what any more and the ageing power amp has shuffled off its mortal coil. The pre-amp has also been indicating it's imminent demise for some time now and I need to replace it.

I have always had a desire to try valves and reading the article on your 300B amp got me thinking again! Would valves work well with the ES14S? What pre-amp? Should I change the 'speakers anyway? What upgrades have appeared for the LP12 over the years? I have enjoyed the sound of my system overall, but it can sound a little, well, 'exposed' at times, what should I do? Please help before I start throwing money at it and making matters worse.

Mike Homar
Middlesborough, Cleveland.

The ES14S are very sensitive, 89dB, and have an impedance curve that sits above 7ohms so they shouldn't take much current to drive them either. From these measured figures it would suggest that a valve amplifier should have no problem driving them very nicely. All the same, I would tread carefully. Try auditioning a good push-pull design such as Audio Innovations' Series 800 against some of the better solid state alternatives, such as Michell's Stereo Alecito or DPA Digital's 2005. To assess how well each power amplifier is driving the ES14S I would suggest using the same pre-amplifier with each. Because your primary source is vinyl I'd suggest trying Michell's Iso MC head amp and the matching Argo pre-amplifier. These are very revealing and should extract the very best from your front end.

You should also consider upgrading the cartridge if you want to get the very best from your record collection. Linn's MCs have always been excellent so I would try and search out the new £449 Klyde for an audition. If you feel this is a little expensive there are still a few Asakas around. These retail for £373, but since they have been effectively replaced by the Klyde, a bargain may be had.

DB
WIN ONE OF FOUR

COMPETITION ENTRY FORM

1) Which of our reviewers recommended the £1500 vinyl system?
   - Dominic Baker  - Simon Cooke  - Dominic Todd  - Noel Keywood

2) Which amplifier did Dominic Todd choose for his system?
   - NAD 306  - Rotel RA935-BX  - NAD 304  - Denon PMA350 MkII
   - AMC CVT3030

3) What kind of amplifier is the AMC CVT3030 used by Dominic Baker in his system?
   - Push-pull valve  - Single-ended valve  - Transistor/valve hybrid  - Class A transistor
   - Class NB transistor

4) Which system was reviewed by Dominic Todd?
   - £1500 vinyl  - £1500 CD  - £700 vinyl  - £700 CD

THE TIE BREAKER (Obligatory)

If you'd like to win one of the CD systems, please complete the following tiebreaker:

The birth of CD was a joy to us all,
Its super sound had the power to enthral,
No more clicks and pops, no more hiss,
I couldn't believe music could sound like this.

If you'd like to win one of the LP systems, complete the following:

Silly and smooth, my records sound great,
Music's produced in a wonderful state,
Who cares about crackles, pops are short lived

Please complete one tie-breaker ONLY.

---

Yes it's Christmas! You can tell by the way your favourite hi-fi magazine is being so generous, giving away not one, but four - yes, four - prizes this month.

You'll find a full description of all four systems in the group test on page 27, but to save you the trouble of looking for them now, here's a quick description.

We put together two systems valued at around £700, aiming for the very best sound quality at the price - not the best looks, ease of use, or the most flashing lights - simply the best sound. One is a CD system and one a vinyl system.

The CD system, reviewed by Simon Cooke, comprises a Yamaha CD-X570 player, Rotel RA-935BX amplifier, and a pair of Mission 760iSE loudspeakers.

The vinyl system, Dominic Todd's recommendation, comprises an Ortofon Pro-ject 2 turntable, NAD 304 amplifier and Celestion 3 MkII loudspeakers.

So that's two systems - and only half of the total prize! There are two more systems, each worth £1500, so you have another two chances of winning.

The £1500 CD system, recommended by Dominic Baker, is sourced from a Philips CD930 CD player, but using the QED DAC PAC as a digital to analogue converter. The amplifier is an AMC CVT3030 and the loudspeakers are Harman Kardon LS 0500s.

The £1500 vinyl system auditioned by Noel Keywood has the respected Michell Mycro turntable, the amplifier is a Denon PMA350 MkII and the loudspeakers are Spendor 520s.

These were the systems which we thought best for the money at each price point. If you want to know how well each
TOP VALUE SYSTEMS

system performs, sit back, relax, and turn to the group test on page 27, where they are reviewed, together with a lifestyle system from Denon. But if you just want to go ahead and get stuck in, the questions are on the opposite page.

Please send your entry on a postcard, on the back of a sealed envelope, or in an envelope. Complete your entry in block capitals. It must arrive no later than Friday 14th January 1994. Address it to:

CHRISTMAS COMPETITION
Hi-Fi World Magazine,
64 Castellain Road,
Maida Vale,
London. W9 IEX.

In the event of more than one entrant submitting all the correct answers, the winner will be selected by the Editor from the tiebreaker. We will endeavour to publish the results in the March 1994 issue.

No correspondence about this competition will be entered into and the Editor's decision is final.

No employees of Audio Publishing Ltd. or any of the companies associated with production or distribution of the prizes may enter.

PHILIPS DIGITAL LOUDSPEAKER WINNER OCTOBER ISSUE COMPETITION

One of our lucky readers, Simoni Alper of Linton, Cambridge, is going to have his system enlivened by the prize from our October '93 issue competition, the Philips DSS930 digital loudspeaker system. Well done, Mr. Alper.

MOREL BASSMASTER DELIVERY SEPTEMBER ISSUE COMPETITION

The winner of our September issue competition, Mr. I. Clarke of Milton Keynes, took delivery of his prize, a pair of Morel Bassmaster 402 loudspeakers, this month. We haven't heard from him since, maybe he hasn't been able to tear himself away from them?

Anyway, happy listening, Mr. Clarke!
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If anything ought to be an inalienable right - in this humble scribbler's opinion - it ought to be a woman's option whether or not she bears children, be that before or after conception. America's Right To Life lobby has its barmy elements, like everything in the USA seems to require, so the other side needs all the help it can get. Hence this admittedly mixed-bag compilation in support of the latter. It includes such disparate ingredients as Tom Waits (The typically angular 'Box Spring Hog'), a middling live cut from Bob Mould's 'Sugar', flavours-of-the-month The Levellers with the righteous title cut, and a powerful Cowboy Junkies rendition of the classic 'Lost my driving wheel'. There's the odd clud then, the occasional well-intentioned cut that adds nothing to its source, like Matthew Sweet giving the Beatles' 'He Said She Said' a flawless, if uninspired, live run-through. But there are unique elements too, witness REM and Natalie Merchant coming together beatifically on the opening 'Photograph'. A good cause if ever there was, and an interesting if quirky collection of songs made in its support.

PJ HARVEY
4-Track Demos
ISLAND MCD 170/518 450-2

I've made my feelings about this lady perfectly clear in these pages before. In case you missed the issue in question, I firmly believe 'Rid Of Me' to be a landmark recording, and Harvey herself to be one of the most important singer-writers of the current (at least) decade. Harvey's music is bare-bones rock'n'roll at its most powerful, all judderingly
THE VELVET UNDERGROUND
Live MCMXCIII
SIRE/WB 9362-45444-2

- All but totally ignored during their brief (four studio LP) lifetime, the Velvets, since their dissolution in 1970, have gone on to become one of the most influential bands of the past thirty years; certainly David Bowie would have sounded very different without their lead, and as for punk - both in look and sound - that could hardly have existed. The list goes on; even now hardly a record review goes by that doesn't make some reference to the VU's influence, and the cover versions are legion.

The original line-up waited until this year to meet up again, sadly minus the presence of their German chanteuse Nico, who died in a cycling accident a few years back. The result was the tour commemorated by this double recording, made in Paris this summer: Apt that the French, with their long-standing love of all perverse Americana, from Mickey Spillane and John Waters to such neglected rock acts as The Flamin' Groovies and Richard Hell, should play hosts to the Velvet's reunion, just as they did when Lou Reed, John Cale and Nico got back for a one-off gig a few years back.

Despite original friendliness all round, Reed's already fallen out with Cale (again) so it would seem as if the experiment will never be repeated.

So, the real question that has to be answered by this set of 23 songs - all oldies bar the one new composition 'Coyote' - has to be 'was it worth it?'
And is this collection worth owning if you have, and already revere, the original recordings?

Like the Rolling Stones, The Velvets were never technically brilliant musicians, but they were daring and original in an age of predominantly safe, sometimes laboriously twee, pop and rock, and the collision of Reed's dangerous lyrics and ear for strong melodies with Cale's anarchic experimentation made them something special and unique. Plus there were drummer Mo Tucker's bin-bashing simplicity of approach and Nico's bizarre vocal style - Marlene Dietrich in a psycho ward - together with the solid backbone of second guitarist Sterling Morrison, and heaven knows what mysterious alchemies. The group produced a dazzling selection of songs and a series of LP's that never re-trod the same ground.

Needless to say, line-up changes had something to do with this: Nico left after the first LP, and Cale after 'White Light White Heat', easily their most dangerous and experimental disc. The gentle, achingly poetic sound of the third LP was replaced by hard jangling pop of 'Loaded' (which Reed didn't mix and was subsequently to disown). But for all the amputations, the Velvets were predominantly makers of great songs: songs that stand the test of time even if, occasionally, their own prime composer is himself their worst enemy. The middle-eight of 'Venus In Furs' for example, loses all its kick here and on 'After Hours' the band's traded vocals are let down by Reed's somewhat flat rendition. That said, there's plenty to treasure here too: Cale's chilling piano-led take on 'Waiting For My Man', ditto his viola additions to 'Pale Blue Eyes', or the whole band's work on the driven version of the little-feted 'Guess I'm Falling In Love'.

If the recording as a whole doesn't have the power and cohesion of the double set 'Live 1969' or even if it sounds at times a mite too polished to be as charming as 'Live At Max's Kansas City' (a pocket-tape recording of Reed's last gig with the band), plenty of people will want this unique, but sometimes laboriously twee, pop and rock, and the collision of Reed's dangerous lyrics and ear for strong melodies with Cale's anarchic experimentation made them something special and unique. Plus there were drummer Mo Tucker's bin-bashing simplicity of approach and Nico's bizarre vocal style - Marlene Dietrich in a psycho ward - together with the solid backbone of second guitarist Sterling Morrison, and heaven knows what mysterious alchemies. The group produced a dazzling selection of songs and a series of LP's that never re-trod the same ground.

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JOHN HEGLEY
Saint and Blurry
HANNIBAL HNCD 1376

- He's one of the funniest performers in Britain today, celebrating such typically cute and decidedly British obsessions as dogs, the wearing of glasses, and - above all - that disappearing cult, the train spotter.

In poetry and song, his tongue always at least partially in his cheek. Hegley moves from wry observation, to out and out belly laughter, as we hear tell of why it's wrong to bow to the conceit of contact lenses, bemoan various canine tragedies (one dog dies, one looks like a loaf of bread etc.) and meet such eccentrics as Eddie (“He don't like furniture, if you give him some for Christmas, he'll return it to ya'”) or the pleasingly plump Pat. Elsewhere, and to
unerringly witty accompaniment, Hegley introduces us to the bullying Colin, slags off the Edinburgh Tattoo, celebrates Jimmy Greaves and the delights of Sumo. This is one very funny man, and no one who cares for classic British comedy, from Ealing and Hancock to Faulty Towers should be without his works. Nice one, John.

10,000 MANIACS
MTV Unplugged
ELEKTRA 7559-61569-2

- Latest in MTV's live concert series is this swansong from the much admired Maniacs, cut shortly before the departure of singer-lynchpin Natalie Merchant. Shame they never got beyond the accolade stage, because this was a band that really ought to have gone all the way with their strongly-melled contemporary country-rock, centring as they did on such fairly atypical themes as having babies (the sublime 'Eat For Two'), the gentle beauty of 'Noah's Dove', or 'Trouble Me' with its folksy use of pizzicato strings. They could boogie along with the best of 'em, as on the chugging 'Like The Weather', or be heftily subtle as on the five minute-plus 'Don't Talk', and even take a leaf from the Soul Rock on the charming 'Candy Everybody Wants'. Ms Merchant deserves to go on to greater things. In the meantime this is a fitting tribute to a group that could, but never quite did, if only as far as sales were concerned.

But then maybe having such a weird name didn't help (borrowed from a cheap horror flick from the doolally Herschell Gordon Lewis). Careful next time kiddoes!

MOOSE
Honey Bee
PLAY IT AGAIN SAM BIAS 260 CD

- A year or so ago, Moose were garnering music paper covers like they were going out of style, visiting America, etc. In other words, getting the full music biz brouhaha. Then, inexplicably, their label - Hut - dropped them back into the wilderness from whence they came. Since their two prime movers met at London's Music & Video Exchange (a bunch of shops where you listen to hundreds of records ten hours a day for palty wages) Moose are nothing if not Catholic in their musical tastes, carrying the bones of everyone from Arthur Lee's seminal Love (West Coast folk-rock, '66-'68) to the late lamented British folkie Nick Drake, and no doubt a hundred more besides. But it doesn't really matter if all this background stuff's a total mystery to you, because Moose make a gentle, subtle-as-a-tracing and, above all, most seductive noise. The vocals, true, can be a little weak or even lacklustre at times, but the music features various canny blends of past, present and future, and when - as on 'Stop Laughing' - the voices are lushly arranged and the whole thing leavened by smart wah-wah guitar, clever harmonica fills and God knows what other quiet sound-tapestries, then Moose are a rare treat for the ears and soul. A breath of summer for the wicked months ahead.
In seasonal mood, choral music predominates this month, with pride of place going to George Lloyd's magnificent Symphonic Mass, in a recording conducted by the composer. The only purely Christmas offering comes from Vienna - normally better-known for its New Year's Day Concerts - and features Domingo, Carreras and, no, not Pavarotti this time, but the sylph-like Diana Ross. Musical contrasts don't come much greater.

CHRISTMAS IN VIENNA
Music by Brahms, Schubert, Mascagni, Irving Berlin and others.
Diana Ross, José Carreras, Placido Domingo;
Gumpoldskirchner Children's Choir; Vienna Symphony Orchestra; conductor, Vjekoslav Šutej
SONY CLASSICAL SKS3358 (DDD/63.10)

Superficially, this appears to be a replay of the 1990 World Cup gig in Rome with a sleek American superstar replacing portly midfield supremo Pavarotti, and I daresay it will enjoy similar success. Straightaway, it must be said that this live recording of a concert given in Vienna, December 1992, is beautifully produced, with startling presence and transparency and with the principal voices magically captured. Sony certainly seem to have something special with their 'Super Bit Mapping' and 20-bit recording technique, if the smoothness and accuracy of the sound here is anything to go by.

At first, Schubert's 'Ave Maria' would seem to sit uneasily alongside Irving Berlin's 'White Christmas', but the juxtapositions actually work well, perhaps due to the fact that no less than Lalo Schifrin was the musical arranger for all but two of the items. There is more Schubert ('Mille cherubini in coro') and Brahms' 'Cradle Song', Mascagni's setting of 'Ave Maria', John Newton's 'Amazing Grace', Katherine Davis' Carol of the Drum' and the concert ends with - what else? - that best-known of German carols, 'Stille Nacht' (Silent Night). I could have lived without the opening rendition of 'Jingle Bells', which is oddly out of character with the gently lyrical nature of the rest of the programme, and I rather wish Placido Domingo had left 'White Christmas' solely to the light, pure, unadorned voice of Diana Ross. Elsewhere, though, he is on terrific form, as is Carreras (superb in Schubert's 'Ave Maria').

An undemanding, enjoyable slice of seasonal sentimentality and, as already mentioned, a recording of demonstration class.

JOHANNES BRAHMS
Stephen Kovacevich, piano, Ann Murray, contralto; Nobuko Imai, viola; London Philharmonic Orchestra; conductor, Wolfgang Sawallisch
EMI CLASSICS CDC 7 54578 2 (DDD/59.28)

While signed to the Philips label, Stephen Kovacevich (or Stephen Bishop-Kovacevich as he was then known) made several recordings of Brahms' solo piano music which firmly established him in the front rank of Brahms interpreters. Yet, for whatever reason, he did not tackle the two concertos, perhaps because Philips already had fine versions in the catalogue.

Last year, Kovacevich switched allegiance to EMI and has now followed up an excellent debut recording of Beethoven with this magisterial account of Brahms' often turbulent first piano concerto. He is joined by a conductor for whom Brahms is in the blood, the German maestro Wolfgang Sawallisch, and the combination, as you might expect, produces a performance that is deeply considered and attentive to detail. It is not as overtly exciting as some, but the stormy side of this work can be overplayed. A certain restraint is infinitely preferable.
In a refreshingly honest and straightforward introduction to his Symphonic Mass, utterly devoid of the pseudomysticism which grips some composers when they approach a religious subject, George Lloyd describes the moment that convinced him that he should tackle a major choral work with what he calls "religious overtones". It was a summer evening in 1990 and he was due to conduct his Twelfth Symphony in a Three Choirs Festival concert in Worcester Cathedral. While waiting in the garden at the east end of the Cathedral, he heard the choir within singing some Delius which was to occupy him for another two decades.

Brahms composed the concerto during a time of great personal anguish; his close friend, Robert Schumann, had suffered a nervous breakdown, had been committed to an asylum after a failed suicide bid, and was to die within two years. Meanwhile, Brahms was struggling to come to terms with the giant shadow that was to come to an end. While Schumann was struggling with his mental health, Brahms was gradually being recognized as a major composer. He was to become his first symphony, were it not for the way the piano writing had become so complementary to the orchestral texture. Brahms decided to opt for the concerto form in 1856, the year of Schumann's death, but the reworking occupied him for another two years. Even then, he continued to amend the score right up to the first public performance in January 1859.

 RECORD OF THE MONTH

GEORGE LLOYD
A Symphonic Mass
Brighton Festival Chorus, Bournemouth Symphony Orchestra; conductor, George Lloyd
ALBANY RECORDS TROY 100 (DDD/60.50)

- From the explosive opening to the Kyne, this is a work of colossal power and driving energy. The mood of the Kyne is very different from the usual treatment of the text: no reverential act of supplication here, rather music of almost barbaric intensity and anguished urgency. I venture that it is some of the finest music to come from George Lloyd’s pen. His sure touch with orchestration is nowhere better heard than in the opening of the Gloria, where the women's voices glide above a brilliant ostinato figure played by woodwinds, harp, and celesta. Lloyd continues to weave a splendid tapestry of sound then, at the plaintive "Qui tollis peccata mundi (Who takes away the sins of the world), introduces an orchestral 'interlude' as the fourth movement, titling it Offertorium) and contains some glorious choral writing that would not be out of place in Verdi (one of the composers George Lloyd most admires).

- After the intensity of the Credo, the deliberately lightweight Offertorium, with its delightful dialogue between solo violin and solo cello, makes a welcome contrast. Yet, again, the music is of the highest quality. The same is true of the setting of the Sanctus and Benedictus, where Lloyd once more eschews the traditional musical treatment of the words and places his own interpretation on the context and the resonance of what is being sung. It is stunningly effective and wholly convincing.

- After the shattering climax to the Benedictus, the Agnus Dei has a light, almost pastoral, quality and brings the work to a quiet, noble conclusion. In his accompanying note, Lloyd comments that the words Dona nobis pacem (‘grant us peace’) became “the most unbearably poignant and relevant of any.” Not, perhaps, unexpectedly for someone who served - and suffered - on the Arctic convoys during the Second World War.

George Lloyd conducts this recording of his Symphonic Mass superbly and obtains total commitment from his orchestral and choral forces. The Bournemouth Symphony Orchestra is on top form, as is the Brighton Festival Chorus, immaculately tutored by Laszlo Heitay. Artistically and technically, it is a triumph; musically, it simply bowled me over!
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The only section of the intended symphony which Brahms retained was the first movement, which he marked "maestoso," an instruction which Kovacevich and Sawallisch take to heart. After the commanding orchestral opening, Kovacevich adopts a measured, thoughtful and unmannered approach to the solo part. Nothing is glossed over; the impression is of a player who has thought about every note and the empathy between soloist and conductor is evident throughout, not least in the adagio which is hauntingly and tenderly played. Wolfgang Sawallisch, seventy this year, brings his wealth of experience to the interpretation, eloquently pointing the orchestral detail, and the LPO responds enthusiastically.

The recording - made in Studio One at Abbey Road and engineered by Mark Vigars - is truthfully balanced, and the fill-up, the two 'Songs for Alto with Viola and Piano', is highly appropriate since it, too, like the concerto, has a link with one of Brahms' closest friends, the violinist Joseph Joachim. The songs are exquisitely sung by Ann Murray, and the playing of Nobuko Imai is a delight. Could we hope for more substantial playing of Nobuko Imai is a delight.

The fine singing of 'Pro Cantione Antiqua' is augmented by richly colourful and characterful instrumental contributions from the London Cornett and Sackbut Ensemble and the violin, lute, violone and bass violone of the Restoration Academy. The performances are scrupulous and idiomatic, and full of expressive warmth and dignified splendour. I found them deeply moving. Given its first-rate recording, this valuable anthology makes a welcome return to the catalogue.

HEINRICH SCHUETZ
10 Motets: Hodie, Christus natus est/Fili mi Absalon/Houmih Domine/Ich danke Dir Herr/De Engel sprach/Auf dem Gebirge/O quam tu pulchra es/Die Seele Christi, heilige mich/Exultavit cor meum/Selig sind die Todten/Meum/Selig sind die Todten.

GERMAN SACRED MUSIC
Works by J.S. Bach, Brahms, Mendelssohn, Schoenberg and Wolf.
Schola Cantorum of Oxford; conductor, Jeremy Summerly.

The recording was made in the resonant acoustic of the chapel of Hertford College and is convincingly atmospheric, even if a little hard-edged in the loudest passages. Full texts and translations are provided and - for once - in a legible type size!
Speaker Stands
MAF speaker stands have received critical acclaim since their recent launch. Trevor Butler said in Hi-Fi News (Feb '92) "Vocals were portrayed with superb realism and presence. Bass drums were reproduced with authority and orchestral bass was improved becoming smooth, deep and highly musical." These unique stands do deliver and are made in a variety of sizes and heights dedicated to specific speakers. These are not 'one size fits all' stands. Phone for details, or a copy of Trevor Butler's review.

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These are the stands used by Chris Beeching in his feature on servicing and rebuilding the ELS (Hi-Fi News, Nov '93), and have elevated the performance of the ELS into another league.

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political motivation, the music exploded. The advances made by the music in that decade took it from being inextricably tied to tonal harmony - either the breakneck chord changes of bop or the stately movement of cool jazz - to a regular rhythmic pulse.

The driving force behind this process of losing the need for regular pulse, harmony, and recognizable melody - those things which, for many listeners, really define music - was improvisation. Post-war jazz had drawn the centre of attention to improvised solos, and the great innovators of the '60s took this imperative into every part of the music, making improvisation the cutting edge of jazz. No other development in the music's history has stayed at the forefront for this long. Perhaps it's as far as one can go, but on the evidence of the records reviewed here, there's a huge area to be mapped out once the last vestiges of pre-conception are discarded.

The Americans, midwives of jazz, did total improvisation, naturally, but so did the Europeans. So did the British, and how!

Groups like The Spontaneous Music Ensemble and the Music Improvisation Company brought a sort of intellectual nigour to Free Jazz, which gave it immense strength, even if it attracted flak from less rigorous critics and listeners.

Drummer John Stevens founded the SME; he'd come from a traditional working musician's background, having played in all kinds of swing, bop, trad and dance band situations. This might not have been apparent in his playing with the SME, but certainly the range of his vocabulary owed them something. In subsequent years he returned to more conventional settings, including time spent with musicians as diverse as singer-songwriter John Martyn and '80s jazz crossover star Courtney Pine, as well as leading more of his own groups, such as the John Stevens Dance Orchestra and Freebop.

Tenor and soprano saxophonist Evan Parker often played with the SME and has since developed into one of the greatest innovators on the instrument since John Coltrane. His extensive solo work has helped establish his reputation, and like Stevens, he has played in many surroundings over the last couple of decades, but his records as leader or co-leader have always carried the torch for Free Jazz.

And it don't come much freer than 'Corner To Corner'. Recorded this summer, the album captures two master musicians spontaneously creating new worlds. Parker limits himself to the soprano, the instrument to which he's contributed perhaps more than any other living saxophonist. On more regular dates, Stevens will use a more regular kit, but here he too limits his choices, playing a kit of just two hi-hats and a child's snare drum.

This isn't music of the grand gesture, or of opulent sound. It's music of incident, driven by its own urgent need to invent, evaluate and re-invent, over and over. Like all Free Jazz it's music of immense history yet with no desire to acknowledge its music of huge skill, but with a hatred of virtuoso gestures: it's above all music of communication. For lovers of this music, 'Corner To Corner' is an essential gem. For newcomers, this record is a fine example of some of the most exciting music that exists on the planet.

Simon Hopkins

Simon Hopkins reviews the latest Free Jazz releases, while Simon Cooke stays a little more structured with two string albums.

THE TONY OXLEY QUARTET
The Tony Oxley Quartet
INCUS CD15

• Guitarist Derek Bailey was another SME stalwart, and in the years between then and now he's become this country's greatest advocate for Free Improvisation, developing a mesmerising, multi-technical styleショム of a sense of history or precedent.

Another former session musician, he first came to Free Jazz while playing with the composer and bassist Gavin Bryars and drummer Tony Oxley. He joins the latter on this disc - another fine release from Incus, the label formed by Oxley, Bailey and Parker and now run by the guitarist - along with two electronics manipulators, Pat Thomas and Matt Wand.

If anything, this is even more daunting a listen for the Free neophyte than 'Corner'. Bailey's basic ability to play the guitar is often called into question, his style having moved so far beyond traditional techniques. The electronic tapestry woven around his - by turns delicate and blistering - creations is equally harsh. In a world where boffins serve up ever more advanced electronics, Thomas and Wand revel in the sheer shock of cheapo drum machines, tape loops, samples and synthesizers. Add into this lot Oxley's shifting, fragmented drumming, and you certainly don't get an 'easy' listen. But again, close listening will reveal this to be another corker.

Simon Hopkins

Simon Hopkins reviews the latest Free Jazz releases, while Simon Cooke stays a little more structured with two string albums.

Evan Parker/John Stevens
Corner to Corner
OGUN OGCD005

• According to the standard history of jazz, the music started to lose impetus in the late '50s and early '60s. Rock music - in all its hybrids - took a whole generation of young people away from jazz, and hence stole its vitality and even its purpose.

That's one of the histories at any rate. Another is that in the 60s, partly through...
EVAN PARKER
Conic Sections
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Meanwhile, Parker adds another gem to his body of work as a solo improvising soprano saxophonist. Like Bailey, Parker has developed techniques most instrumentalists could barely conceive of. His solo playing is a wall of sound, contrapuntal lines weaving in and out of a seamless, endless maelstrom, the usual monophonic qualities of the horn and the basic human need to breathe is apparently lost on Parker, who sounds like - at the very least - four great improvising saxists. Breathtaking stuff.

FUSHITSUSA
Allegorical Misunderstanding
AYANT AVAN 008

Half a world away and coming to us - by his own telling - via 70s hard rock and mediaeval plainsong, Japanese guitarist Haino Keiji brings us the inventions of his own improvising power trio Fushitsusha. I hope to have much more to say about this maniacal guitarist in future issues, but for now, a strong recommendation to buy this record will have to suffice. Essential, for serious guitar junkies.

STEPHANE GRAPPELLI / MARTIN TAYLOR
Reunion
LINN RECORDS AKD 022

Before I start this review, I’d better say that I’m not exactly a fan of either Grappelli or Taylor. I generally find their phrasing and tone, especially in Grappelli’s case, lacking in content. It just doesn’t say anything to me.

On the other hand, I am happy to accept that there are lot of people out there who like this kind of jazz, and for them, this album is pretty much an essential item.

Grappelli is rapidly acquiring ‘elder’ status in the mainstream jazz/easy listening world, while Taylor is still, by comparison, a mere infant on the knee of the older man, but a veritable Hercules between the twin serpents of timing and melody. He, like Grappelli, imposes his will on the tune in a light and easy manner which, for all that it makes me cringe with it’s syrupy, cloying sweetness, is most admirable.

As you’d expect from a Linn recording, the mix is a lot better than average, and although it leans toward the slightly over-full and rounded sound provided by Linn hardware, it matches the feel-good, almost self-congratulatory tone of the recording very well.

If this is your kind of music, this is one of the most impressive recordings available of these two maestros at their best.

EBERHARD WEBER
Pendulum
ECM 1518

Despite appearing on a jazz label, and hence in jazz record stores, and also playing double bass, an instrument which vies with tenor sax as jazz mainstay, Eberhard Weber denies being a jazz musician, and remains almost impossible to classify within accepted stylistic frameworks.

As a bassist, Weber has supported, and been supported by, European jazz names such as Jan Garbarek and Rainer Brueininghaus on many recordings, but his style is far removed from mainstream jazz idiom, as he proved in concert on the South Bank in ’90. If a solo bass concert sounds boring, don’t be fooled: Weber has a gentility of humour often lacking in modern jazz music, and took the time to refute his jazz reputation during the concert by giving a sketch rendition of the history of jazz, crystallising each school into a few bars, and, incidentally, including a Stephane Grappelli impersonation of truly masterful proportion.

Weber may claim to have rejected the soulful meanderings which other European jazz musicians have drawn down to a fine art, but much of his work has the distant yearning of whalesong, and on ‘Pendulum’ he combines this with strong rhythm to produce a sound that is at once happy and disturbing, joyful and serene.

‘Pendulum’ follows the ECM tradition of recording quality, and almost does justice to the ingenuity and skill of the musician. It’s an education in musicianship, but if you really want to do him justice, go see him live. This is music-of an esoteric kind, I’ll admit- of such depth and detail as to make you wonder why you’re bothering with hi-fi at all.
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Speaker Cables.
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from Wollaton Audio and
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WOLLATON AUDI-0
Tel/fax: 0602 284147
Dealer enquiries welcome.
Here's a superb, Class A, 20watt stereo power amplifier that uses the inexpensive Russian 5881 output valve, a military version of the obsolete American 6L6, intended for low distortion audio work. It has super-quality output transformers (4/8/12 selected internally) to minimise distortion and the input stage uses triode working. A rugged, sixteen-gauge, all-welded steel chassis is provided, together with protective bottom plate for safety; a protective top cover is an optional extra.

Designed for long life, low running costs and excellent sound quality, K5881 is sensitive enough to be used with a simple passive pre-amp, or our own line-drive pre-amp, and it matches modern loudspeakers well. There is a choke-regulated power supply, plus heavy 4mm 'speaker terminals that accept bi-wiring.

K5881 costs just £395 as a kit of parts, £495 for an easy-build version with made-up tag board and wired mains supply, and £595 fully built from an approved build service. The U.K./Europe version has a 240/220V transformer but 120/110V can be supplied as an alternative - see Overseas details on Order Form, page 63.

**SPECIFICATION**

- **Power**: 20watts/ch.
- **Frequency response**: 16Hz-40kHz
- **Distortion**: 0.02%
- **Separation**: 60dB
- **Noise (CCIR)**: -103dB
- **Sensitivity**: 240mV
- **Dimensions (mm)**: 400x300x180h
- **Supply**: 110/120V or 220/240V, 220W
- **Weight**: 16kgs(34lbs)
This is a specialised amplifier based on the highly linear 300B triode valve. Tim de Paravicini designed it - including the massive transformers - for minimum distortion without overall feedback. If you want feedback (tertiary or overall), it can be applied without difficulty.

Our 300B runs in Class A, giving one of the most sweet, open and neutral sounds possible today. Matched with good loudspeakers, it is unsurpassed.

The kit comprises a strong 16-gauge mild steel chassis, fully punched, welded and ground smooth. Finish is a durable 'powder coat' black. A protective bottom plate is provided for safety; a protective top cover is an optional extra. Output terminals (one pair) take 4mm plugs axially and radially for bi-wiring, or heavy gauge bare cable. Output options of 4/8/16Ω are selected internally at the transformer. A small circuit board carries most of the components. 240/220V and 110/120V versions available - see Overseas details and prices on Order Form.

All parts are included in the kit, except valves since different 300B makes are available.

A fully built version from an approved build service is also available for £1050 (valves extra).


**SPECIFICATION**

- **Power**: 28 watts
- **Frequency response**: 5Hz-36kHz
- **Distortion**: 0.2%
- **Separation**: 54dB
- **Noise (hiss/hum)**: -100dB/-72dB
- **Sensitivity**: 240mV
- **Dimensions (mm)**: 405w, 295d, 175h
- **Supply**: 110/120V or 220/240V, 220W
- **Weight**: 20kgs (44lbs)

**DEMONSTRATIONS!!**

By the time you read this we hope to have our K5881 20W valve power amplifier and KLP-I valve pre-amplifier on demonstration at Hi-Fi Confidential, 34 Buckingham Palace Road, Victoria, London. Phone the patient and understanding Luigi on 071-233-0774 to check availability. He's a valve afficianado, knows Tim de Paravicini and is still sane, and stocks plenty of good products - including World Audio Design. So hear us against the others - and don't you dare buy them!

**4W SINGLE-ENDED TRANSFORMERS £190**

A set of transformers (8kgs) for our single-ended amplifier (December '93. Supplement No 6).

1) Mains (1 off) Secondary: 0-210V a.c. at 150mA, 6.3V centre tapped. Primary: 220/240V or 110/120V - please state which on order form. Drop through fixing.
2) Output (2 off) These transformers use high quality materials, laminations of thin and best quality grain orientated silicon steel. Output tapped 4Ω, 8Ω and 16Ω. Drop through fixing.
3) Choke For smoothing of the H.T. line to provide best sound quality, a 5H choke that fixes under the chassis. Frame mounting.

6080 valves - double-triode power valve for the single-ended amplifier - £15.00

**K5881 (20W CLASS A) TRANSFORMERS £220**

There are four transformers in all, weighing 12kgs.

1) Mains (1 off) Secondary: 0-360V, 1 x 6.3V centre tapped. Primary 220/240 or 110/120 - please state which on order form. Drop through fixing.
2) Output (2 off) These transformers use high quality materials, laminations of thin and best quality grain orientated silicon steel. Output tapped 4Ω, 8Ω and 16Ω. Drop through fixing.
3) Choke: For smoothing of the H.T. line to provide best sound quality, a 5H choke that fixes under the chassis. Frame mounting.

**300B (28W CLASS A) TRANSFORMERS £430**

Seven transformers in all, weighing 16kgs (35lbs).

1) Mains (1 off) Secondary: 490V-0-490V, 6 x 5V, 1 x 6.3V. Primary 220/240 or 110/120 - please state which on order form. Drop through fixing.
2) Output (2 off) Designed for low distortion and broad load compatibility from the 300B. Cores with centre-hole fixing to avoid corner flux concentrations; laminations of grain orientated silicon steel. Output tapped 4Ω, 8Ω, 16Ω. Drop through fixing.
3) Intervalue/phase splitter (2 off) Special Tim de Paravicini design, potted in steel for secrecy. Drop through tags.
4) Chokes (2 off) For smoothing of the H.T. lines, two 5H chokes that fix under the chassis. Frame mounting.

**HIGH PERFORMANCE 3-WAY SPEAKER £729**

Our high performance 3-way DIY loudspeaker featured in Supplement Nos. 3 & 4 is now available as a kit. The cabinet has been designed to be extremely easy to build (even though there are 36 panels for the pair) requiring only wood glue and stretchy carpet tape to clamp the panel in place. All drive units and hardware are supplied.

When built, the loudspeaker is comparable to those costing more than twice the price, with a transparency and openness in the midrange that is unmatched by most. The price for this entire kit, including VAT and p&p is £729.

See page 91 for order form...
WARNING
THESE ARE EXPERT KITS, NOT FOR THE INEXPERIENCED.
THE VALVE KITS CONTAIN LETHAL VOLTAGES. WE CANNOT BE HELD RESPONSIBLE FOR ANY ERRORS ARISING FROM
THE CONSTRUCTION OF THE KITS.

ORDER FORM
Please send your completed order form to: WORLD AUDIO DESIGNS, 64 Castellain Road, Maida Vale, London W9 1EX
Tel: 071 266 0461 Fax: 071 289 5620

240/120 option - delete the voltage NOT required.
Valves included except where stated.
“BUILT” - we can supply the amplifiers built up and tested by an approved service, for safety and guaranteed performance to
specification.

DESCRIPTION ORDER No. QTY PRICES OVERSEAS
UK (inc VAT & carriage) (net)

SINGLE-ENDED transformer set
K5881 20W budget valve amplifier
KIT
K5881-K240/120
K5881-B240/120
K5881-TR240/120

300B 28W specialised valve amplifier
(prices do not include valves)
KIT
300B-K240/120
300B-B240/120
300B-C
300B-TR240/120

KLP1 line preamplifier
KIT
KLP1-K240/120
KLP1-E240/120

KLS1 3-way floorstanding loudspeaker
KIT
KLS1-K
KLS1-D

KLS2 2-way, high definition, floorstanding speaker
KIT (Satin Black)
Mahogany veneer
Drive units
Loudspeaker measurement
mic and preamp + test disc

NAME: ____________________________ ADDRESS: ____________________________
POSTCODE: __________ TEL: ____________________________

I enclose a cheque/postal order for £____________ made payable to World Audio Designs Ltd.
I wish to pay by Access/Visa, please debit my account no:

OVERSEAS PRICES AND DETAILS
All our kits can be supplied overseas excluding the European Community, free of UK tax (VAT). However, allow for your
own local import taxes (customs duties) and for carriage charges, which must be added to our net price.
Surface mail is slow (1-4 weeks) but inexpensive; airmail is fast
(up to 7 days) but more expensive. Couriers like Amtrak we
recommend for speed and door-to-door service.
We package overseas orders strongly.

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Payment in advance. Contact us for details.
CONTACT: RICHARD JOHNSON
PHONE (9.30am-6pm) 071-289-3533
ANSWERPHONE (24hrs) 071-266-0461
FAX (24hrs) 071-289-5620

HI-FI WORLD JANUARY 1994 91
HI-FI WORLD
SPECIAL MAIL ORDER

HI-FI WORLD SOLID SILVER INTERCONNECTS.
Constructed from strands of solid core silver wire and silver soldered to the excellent Neutrik Profi phono plugs which are probably the best available. These line level interconnects offer the ultimate in transparency, openness and detail. The plugs are bonded to the cable with adhesive heatshrink to ensure that the cable has a long life without fatigue occurring at the plug join. Available exclusively through Hi-Fi World Mail Order

HIFI WORLD SOLID SILVER CABLE £139.95/1M PAIR.

HI-FI WORLD SILVER PLATED COPPER INTERCONNECTS.
These have a similar construction to our solid silver cables, but use silver plated copper and standard Gold Phono plugs. Because the majority of the audio signal is passed through the skin of a cable these can approach the quality of a silver cable with the cost of a normal high quality copper cable.

HIFI WORLD SILVER PLATED COPPER INTERCONNECTS £69.95/1M PAIR.

HIGH QUALITY MAINS CABLES.
Supplied to Hi-Fi World by Campaign Audio Design these mains cables are screened to reduce Radio Frequency and Electromagnetic Noise. They also come with a VDR fitted which protects equipment from mains spikes. The MK plugs have a silver plated fuse and holder for the cleanest supply. Available with IEC or Figure eight (Marantz/Philips CD players) equipment plugs or with a hard wired, soldered 4-way mains block.

IM WITH IEC PLUG £ 19.20
IM FIGURE 8 PLUG £ 15.75
IM 4-WAY BLOCK £ 31.95

RECORD STORAGE CUBE
Designed to hold about a hundred LPs, with an internal width of 37cm, height of 32.5cm and depth of 32cm. The cubes can be stacked or placed alongside each other - and are even strong enough to be used as seats! Made from 15mm MDF (Medium Density Fibreboard) with a smart durable black paint finish, the cube is supplied in flat-pack form ready for home assembly.

RECORD STORAGE CUBE £42 EACH

FREE!
20 RECORD SLEEVES WITH 2 CUBES
50 RECORD SLEEVES WITH 4 CUBES

6 CUBES FOR THE PRICE OF FIVE £110.00
8 CUBES FOR THE PRICE OF SEVEN £294.00

MICHELL ENGINEERING PLUGS
Craftsmanship marks out Michell Engineering’s rage of gold and rhodium plated plugs from the competition. Simple but elegant.

GOLD-PLATED SIDE ENTRY BANANA PLUGS (4) £10.00
GOLD-PLATED SURE-LOC BANANA PLUGS (4) £14.95
RHODIUM-PLATED SURE-LOC BANANA PLUGS £16.95
GOLD-PLATED SPEAKER CABLE CONNECTORS £10.00

ARCAM RCA PHONO PLUGS
This heavy-duty phono plug, specially made in Japan to Arcam’s specification, will accept cable up to 7mm in diameter. The body is nickel-plated, the contacts plated in gold. Supplied in pairs marked with either one ring or two to allow directionality to be taken into account.

RCA PHONO PLUGS (4) £15.50
GOLD PLATED 4MM BANANA PLUGS
We have a new style, heavy-duty, gold-plated banana plug with a unique type of axial solderless connection for loudspeaker cables. The cable is stripped back and pushed into a clamping collar which is then screwed down tight, accepting cable up to 6mm external diameter and 4mm core diameter. Supplied in sets of four.

BANANA PLUGS (4) £8.00
ANTI-STATIC RECORD SLEEVES
Translucent sleeves, treated to reduce static and dust attraction, supplied in packs of fifty. They will fit inside ordinary printed inners.
LP SLEEVES (50) PRICE £7.50

BUG AUDIO
A fascinating little device no larger than a hand-held remote which allows the user to adjust bias on any cassette deck perfectly for any tape. You can check the state of your cables and connections with it, too! Supplied with a cassette test tape and full instructions. (See review, Nov. 1992 issue.)
BUG AUDIO £59.99

GOLDRING EXSTATIC MAT
For vinyl users, the Goldring Exstatic is a felt mat made with fine carbon fibre strands. This helps to reduce positively charged static electricity that builds up on the surface of records.
GOLDRING EXSTATIC MAT £7.50

KONTAK
An effective cleaning solution that removes contaminants from electrical connections. After application, a system regains its original life, sparkle and vigour.
KONTAK £19.00

HI-FI WORLD DRY STYLUS CLEANER
Keep your stylus sharp and bright for perfect tracking without using fluid. Cut a strip about the size of a matchbox striker off this sheet of card and draw it gently under the stylus from back to front. One sheet of this card, with its aluminium-oxide micro-abrasive coating, should be enough to clean your stylus at least forty times.
DRY STYLUS CLEANER £1.95

MILTY TRIPLE A
Suitable for all types of cassette players including auto-reverse, the Milty Triple A wipes clean single/dual capstans and pinch rollers with a non-abrasive cleaning action.
MILTY TRIPLE A £6.50

MILTY MAGNET IX
The Milty Magnet IX comes complete with battery. It requires approx one second to de-magnetise the heads removing magnetic charge build up. Recommended after every 30 hours of playing time.
MILTY MAGNET IX £10.50

PIXALL MK II RECORD CLEANER
Made in the UK, this simple record cleaner uses a replaceable roll of sticky tape which lifts dust out of the groove. After use, the dirty length of tape can be peeled off, reducing the risk of any gritty particles picked up being ground back into the vinyl. When the tape runs out, a new roller is simply clipped in.
PIXALL MARK II £10.75
REFILL ROLLER £2.75

SOUND SWIVEL
A rotating, upright, double-sided, storage cabinet with space for up to 160 Compact Discs, including 8 double jewel-cases. Mounted on an all-steel turntable, it swivels smoothly through 360 degrees giving easy access to the storage compartments either side. Manufactured in durable MDF with a Black Ash effect finish, the Sound swivel comes packed for self assembly with full instructions.
SOUND SWIVEL £49.95

SUPER EXSTATIC CARBON FIBRE DISC CLEANER
Effectively removes dust and grime from record grooves, this cleaner is a combination of one million carbon fibre filaments and a soft velvet cleaning pad.
EXSTATIC CARBON FIBRE CLEANER £9.75

SUPPLEMENTARY CONTENT

Fingerprints, oil and film, while a pad lifts off dust. Pad brush and fluid are supplied.
AUDIO-TECHNICA RECORD CLEANING SYSTEM £10.50

AUDIO-TECHNICA COMPACT DISC LENS CLEANER
A disc the size of a CD, with fine brushes - one of which is dampened with cleaning fluid. As the disc spins in the player, the brushes clean the laser lens. It may not suit all machines.
CD LENS CLEANER £16.25

World Radio History

93
Hi-Fi World

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Return this coupon with your order and receive 10% off your Audio Accessories.

Offer closes on the 19th December. Orders received after the 19th December 1993 will not be eligible. Due to the December postal rush we cannot guarantee delivery before Christmas.

Name
Address

HI-FI WORLD SPECIAL AUDIO ACCESSORIES ORDER FORM

Please send me:

- Arcam RCA phono plug £15.50 (4)
- Audio Technica CD Lens cleaner £16.25 each
- Audio Technica Green CD Ring Stabilizers £6.50 (Pack of 5)
- Audio Technica Record Cleaning System £10.50
- Automatic CD Cleaner £21.95
- Bug Audio Blabbug £59.99
- CD sound swivel £49.95
- Gold plated 4mm plugs £80.00 (4)
- Goldring Exstatic Mat £7.50
- Goldring Super Exstatic Carbon Fibre Disc Cleaner £9.95
- HFV Silver Plated Copper Interconnects (1m pair) £69.95
- Hi-Fi World Dry Stylus Cleaner £1.95 per sheet
- Hi-Fi World Solid Silver Interconnects (1m pair) £139.95
- Kontak cleaning fluid £19.00 each
- Laseway Green Pen £8.50 each
- Laserguide £14.95
- Michell Gold-Plated Side Entry Banana Plugs (4) £10.00
- Michell Gold-Plated Speaker Cable Connectors £10.00
- Michell Gold-Plated Sure-Loc Banana Plugs (4) £14.95
- Michell Rhodium-Plated Sure-Loc Banana Plugs (4) £18.95
- Milty Magnet IX £10.50
- Milty Triple A £6.50
- Nagaoka Anti-static record sleeves £7.50 (50)
- ON Stylus Cleaning Kit £2.50
- Fixall Mkll Record Cleaner £10.75 each
- Fixall refill roller £2.75 each
- Record storage cube £42.00 each
- Screened Mains Cable With 4-Way Block (1m) £31.95
- Screened Mains Cable With Fig 8 Plug (1m) £15.75
- Screened Mains Cable With IEC Plug (1m) £19.20
- TDK Head Cleaning Kit CK-A1 (double bottle) £5.50
- TDK Head Cleaning Kit CK-TB (single bottle) £4.65

All prices include postage & packing in the UK only, add £1 for overseas p&p.

I enclose cheque/PO for £ made payable to World Audio Publishing Ltd.

I wish to pay by Visa/Access, please debit my account no:

Expiry date:

Name

Delivery Address

N.B. If delivery address is different to the credit card holder's address please supply both.

Tel:

Please send completed order form together with your cheque/PO to:

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FrameWorks is an innovative range of strong, rigid, and versatile hi-fi supports. They achieve a high standard of strength and rigidity from their 'triangulate' design. The shelves are supported on struts of thin cross-section, which in turn are rested on struts of thicker section, and through these connected to four sturdy corner columns. This variety of cross-sectional frame members effectively reduces resonances through their spread and dissipation. The supporting columns may also be filled, to further optimise these supports for your equipment. Versatility is guaranteed by the variety of two and three shelf supports available as well as the stacking unit for additional shelves and the isolation shelf, which can be used as a stand-alone unit on a shelf or floor, if preferred. So these shelves will stack and expand as your system grows. All you need do is add components as and when you feel the need.

FrameWorks stands come with attractive toughened smoked glass, which is fully 10mm thick. This is supported on spikes which have rubber dampers around them to reduce vibration and lessen the tendency for the glass to slide. Metal parts are finished in a hardwearing satiny black powder coat.

We at Hi-Fi World have been using Frameworks stands for several months now and have yet to find anything that comes close. They are supremely rigid and hard wearing and will extract the best out of any equipment. Frameworks' excellent hi-fi equipment stands are now available through our Mail Order Department. Please phone for further details: 071 266 0464.
A rich and varied selection of recordings, all offered at very competitive prices!

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DUKE ROBILLARD
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RODY BLOCK
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- Yamaha KX 260

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- Marantz CD 52 II SE
- NAD 502

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- Audiolab 8000 T
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- Harman Kardon TU 9400

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The Bartletts Suggested Systems listed below are supplied with the Marantz CD 53, an alternative CD player or Turntable are available, see below for price details. All systems are supplied with 8 metres of 79 strand loudspeaker cable. QED 4mm plugs are available at a cost of £1.00 each. Carriage charge for delivery to an address on the UK mainland is £12.00 per order. All items are sent fully insured. Prices were correct at time of printing but are subject to change without notice. E&OE.

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CD Players

- Aiwa XC 305
  - Deduct £60.00
- Denon DCD 595
  - Deduct £20.00
- Denon DCD 695
  - Deduct £20.00
- Denon DCD 890
  - Deduct £70.00
- Marantz CD 42 II
  - Deduct £100.00
- Marantz CD 52 II SE
  - Add £20.00

Turntables

- Dual CS 503-2
  - Deduct £30.00
  - Add £30.00
- Sony CDP 311
  - Deduct £100.00
- Sony CDP 711
  - Add £100.00
- Sony CDP 911
  - Add £100.00
- Technics SL PG 440
  - Deduct £20.00
- Yamaha CDX 470
  - Add £45.00
- Yamaha CDX 570
  - Add £60.00
- Yamaha CDX 670
  - Add £90.00

Choices. The following CD players or Turntables can be ordered instead of the Marantz CD 52 II in the above systems

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  - Deduct £60.00
- Denon DCD 595
  - Deduct £20.00
- Denon DCD 695
  - Add Nil
- Denon DCD 890
  - Add £70.00
- Marantz CD 42 II
  - Deduct £20.00
- Marantz CD 52 II SE
  - Add £100.00

- Turntables
  - Dual CS 503-2
  - Deduct £70.00
- Sony CDP 311
  - Add £50.00
- Sony CDP 711
  - Add £100.00
- Sony CDP 911
  - Add £100.00
- Technics SLPG 440
  - Deduct £20.00
- Yamaha CDX 470
  - Add £45.00
- Yamaha CDX 570
  - Add £60.00
- Yamaha CDX 670
  - Add £90.00

Bartletts Super Savers

- Marantz CD 42 II CD player
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- Celestion One Loudspeakers
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"The sound quality when using the Slate Audio stands proved to be a revelation, something special."

Paul Messinger, Hi-Fi Choice. May '91

"The finish is excellent, the sound quality magnificent and breathtaking. Turn Bryans. The Telegraph. June '92

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**Clearance Offers**

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- All prices are subject to change without notice.
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  - CD-3222: £449
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  - CD-1222: £299
  - CD-1122: £249
  - CD-1022: £199
  - CD-922: £149
  - CD-822: £99
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CREEK CD60 £500
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NAIM CD1 £1598

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DENON DCD 890 Exciting and forceful sounding player, but slightly characterful. Nov'92
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SME 309 Based on IV and V: Aluminium armtube and detachable headshell. High end value for money. May'92
SME SERIES V A masterpiece of precision engineering, with a cohesive sound. May'92

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SUMIKO BLUE POINTE £100
ORTOFON MC15 £100
GOLDRING 1042 £100
SHURE VST-V £150
GOLDRING ELITE £200
MORCH DA CAPO £500

GOLDRING 1012 GX Rounded bass, slightly forward midband, clean transients. A bargain. Jul'93
GOLDRING 1022GX Extra degree of dynamic range and speed over the 1012 GX. Jul'93
SUMIKO BLUE POINTE The blue point casts a romantic charm over all types of music. Robust too. Oct'92
ORTOFON MC15 A reference to all other MMs regardless of price. Jun'92
GOLDRING 1042 Moving coil cartridge at a moving magnet price. Has a tight grip on rhythm. May'92
SHURE VST-V One of the finest moving magnets currently available. Excellent tracker. Jul'92
GOLDRING ELITE British made moving coil. Good value, smooth and detailed, but can sound brittle at times. Apr'92
MORCH DA CAPO Scan-Tech designed moving coil cartridge. Musical and accurate, without any flaw. May'92

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PIONEER D-500 £600
TEAC V8000S £699
NAKAMICHI DR1 £780
NAKAMICHI CR-7 £1500

NAKAMICHI DR2 Worth every penny, pushes recordings to the limit and remains unflustered. Mar'93
PIONEER D-500 Very smooth sounding DAT deck, but still slightly coarser than the original source. Apr'92
TEAC V8000S 'Domestic' deck with Nakamichi sound quality, and manual head azimuth adjustment. Jun'93
NAKAMICHI DR1 No Dolby 'S', but auto tape tuning and motorised head. Astonishing complexity; The Best! Aug'92
NAKAMICHI CR-7 The Best!
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YAMAHA TX-950 £260
H/K TU9400 £300
QUAD 66FM £490
NAIM NAT 03 £500
NAIM NAT 01 £1377

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Fine all-rounder, with good AM section. Jul '92
Fairly basic facilities, but sound which beats anything at the price. Jul '93
Among the very best in terms of tonal colour and imagery. Remote controllable. Nov '92
Warm and easy sound with a good sense of atmosphere. Excellent value. Sep '93
The best solid state tuner currently available. If you want better radio, live in the studio! Mar '92

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DENON PMA-350II £220
H/K HK6550 £349
AUDIOLAB 8000A £430
SUGDEN A48B £460
AUDIONOTE OTO £1250
EAR 834 £1295

Good sounding starter amplifier. Great dynamic range, excellent bass. Jun '92
Lots of insight and detail, but could sound a little rough in the wrong system. Jan '93
Exceptionally sweet mid and treble, plus the superb dynamic range of the A400. Dec '92
Thoroughly refreshing, tonally neutral amplifier with a realistic price tag Sep '93
Very neutral and superbly built. Good bass, great imagery, but can be sterile. Nov '92
Gentle performer, but never masks the music with warmth. Tonaly very even. Apr '92
12w Valve amplifier. More in tune with music than hi-fi. Superb dynamic range. Jun '92
Valve integrated amplifier with a sweet, open and detailed sound. Feb '93

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A. SYNTH. PASSION £750
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£475 or £275 for the kit version. Unrivalled transparancy from a passive pre-amp. Aug '93
Not quite the 50S, but there's still nothing to match it at the price, use with 200S power. Jun '93
Impossible not to recommend. What more does your vinyl want? May '93

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QUAD 606 £675
DPA DPA 2005 £750
MICHELL ALECTO (S) £1300
A. I. SER. 1000 £1500
MICHELL ALECTOS £1800
CHORD SPM 1200 £2995
E.A.R. YOSHINO £25,000

100 Watts of smooth, detailed, full bodied sound. And at a bargain price. Apr '93
140W powerhouse. Smooth and civilized, with the legendary Quad back-up. Aug '93
Not as cold as the 50S. Better than anything else at the price. Jul '93
Valve like transparancy, big warm easy going sound. Sep '93
A rich and smooth blend that offer their best when bi-wired. May '92
The Alectos have a lucidity and three dimensional realism that is rarely attained. Sep '93
Massively powerful, dynamic and detailed sound. Among the best of solid state. Mar '93
Single-ended valve design. Noel is still suffering withdrawal from this product. Jul '93

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GGL MAXIM £120
MISSION 760i £120
TANNYO 603 £125
ROGERS LS2a2 £209
TRIANGLE COMETE £375
HARLEH FLL-P £400
H/BROOK QUARTETS £555
JPW RUBY £500
A. E. AEGIS £620
REL STADIUM SUB. £695
PROAC RES 1 S £918
APOGEE CENTAUR £1200
TANNYO D700s £1970
TANNYO GRFM £3500

Low price, compact size, big sound. An exciting all round performer. Oct '92
Fast and lively sounding. competent bass. Sep '93
Replacing the Maxim 3; not as tight in the bass but still one of the best at the price. Aug '93
Detailed, fast, and have bags of rhythm. Ear bashing pleasure. Nov '93
A rich and smooth blend that offer their best when bi-wired. Sep '92
So far the most correct speaker we have discovered at the price. Sweet and even natured. May '92
Highly efficient small-box loudspeaker with a superb mid band. Great for valve amps. Apr '92
There probably isn't a more neutral sounding design anywhere near the price. Feb '93
Sensitive enough to work with low power valve amps. Fast and detailed sound. Jul '93
Metal driver 'speaker with an exciting and lively presentation. Aug '93
Depth and transparency. Fast and lively metal driver loudspeaker. Sep '93
Mono, self-powered subwoofer that works! Very flat frequency response. Jun '92
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Hybrid ribbon design. Great imaging and detail. Good value for panel fans. Jul '92
Dynamic and powerful. Needs a good clean power amplifier for best results. Sep '93
Giant loudspeakers. Capable of awesome sound. Need good valve amplification. Jul '92

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<table>
<thead>
<tr>
<th>Brand</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECHNICS</td>
<td>SL1210 MKII</td>
<td>£300</td>
</tr>
<tr>
<td>MARANTZ</td>
<td>CD 52 II SE</td>
<td>£225</td>
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<tr>
<td>TECHNICS</td>
<td>SLPG 520</td>
<td>£150</td>
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<tr>
<td>DENON</td>
<td>DRS 810</td>
<td>£245</td>
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<tr>
<td>BOSE</td>
<td>AM5 II</td>
<td>£575</td>
</tr>
</tbody>
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### TECHNICS
- SL1210 MKII: £300
- SUV A900: £250
- SUA 800: £240
- SUA 700: £180
- SUA 600: £145
- SUVZ 320: £129
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- STG 650: £165
- STG 550: £139
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- ST 610: £99
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- SAGZ 230: £180
- SAGX130: £150
- RS8X 747: £219
- RS8X 727: £180
- RS8X 646: £169
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- RSTR 777: £219
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- 504: £175
- 505: £175
- 502: £175
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- 306: £175
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Ray Gregory, HI-Fl Choice.

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