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banded to this issue

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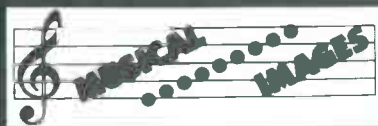
dpa Digital Ltd.,  
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Cardiff, Wales CF3 0EF  
Tel: (0222) 795621  
Fax: (0222) 794267

The logo for dpa Digital Ltd., consisting of the lowercase letters 'dpa' in a stylized, white, sans-serif font.

A logo for the 'dx 128 processor'. The text 'dx 128 processor' is written in a white, sans-serif font inside a white oval shape with horizontal lines.



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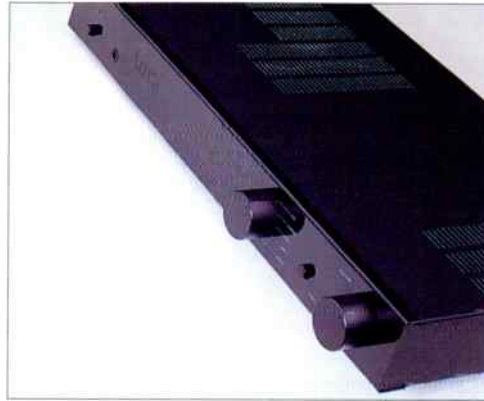


Cover Photograph by  
Paul Hartley Studio 071- 482 3768

# THIS MONTH'S REVIEWS

## AMPLIFIERS

**AURA VA-80** 19  
The Aura VA-50 was much liked by us at Hi-Fi World, but now Aura have replaced it with the VA-80, a more powerful version that promises improved sound.



**HIGH-END AMPLIFIERS** 31  
We find four of the best pre/power amplifiers money can buy and put them through their paces with the TDL Reference Standard transmission line loudspeakers.

**LINN KAIRN/KLOUT**  
**NAIM NAC72/NAP250**  
**JOHN SHEARNE PHASE I**  
**ALCHEMIST FREYA/GENESIS**

## COMPACT DISC

**TWO AFFORDABLE 'AUDIOPHILE' CD PLAYERS**  
Two new CD players recently launched with the audiophile in mind. With both of them priced around the £250 mark, who has the sonic edge?

**ROTEL RCD940BX** 50  
**DENON DCD-825** 51



## LOUDSPEAKERS

**TDL REFERENCE STANDARD** 14  
A massive Transmission Line Reference loudspeaker from TDL. This £6000 beast can really shake the earth.

**MISSION 752** 41  
Using latest technology High Definition Aerogel drive units in an elegant floorstander, the 752s are Mission's latest pièce de résistance.

## TURNTABLES

**HEAD AMPLIFIERS** 57  
Following our group test of £400 turntables last month, we follow with some of the best phono head amplifiers around.

**EAR 834P**  
**DPA DIGITAL DSP 200SD**  
**MICHELL ISO**  
**AUDIOLAB 8000PPA**  
**KINSHAW PERCEPTION**

## CASSETTE

**ONKYO TA250** 48  
A £350 three-head cassette deck from Onkyo. Dominic Todd asks whether it can compete against its Nakamichi rival.

## TUNERS

**PIONEER F-303RDS** 29  
From Pioneer's new range comes the F-303 RDS equipped tuner. We take a close listen to assess its abilities

## REGULARS

**NEWS** 8  
Read all about it - new products, technologies, shows.

**LETTERS** 38  
Your news, views and musings.



**AMERICAN**  
and  
**CANADIAN**  
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- see page 68

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**Noel Keywood**  
Assistant Editor  
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Production Editor  
**Ferewin T. Michael**  
General Manager  
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Marketing Manager  
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Advertising Director  
**Caroline Knott**  
Advertising Tel: 071-266 0969  
Advertising Executive  
**Amanda Sweeney**  
Design Engineer  
**Andy Grove**  
Technical Assistant  
**Nick Lucas**  
Contributors  
**Eric Braithwaite**  
**Richard Brice**  
**Giovanni Dadomo**  
**Peter Herring**  
**Simon Hopkins**  
**Dominic Todd**

Cartoonist  
**Freddy Ahmet**

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**Q&A** 115  
Looking for the best upgrade, need a pair of 'speakers to match your valve amp., a cartridge for your turntable - we have the answers.

**COLUMNS** 61,63,69,71  
Meanderings from our team of hi-fi hounds.

**NEXT ISSUE** 60  
Don't miss our November issue, complete with another Free Supplement.

**SUBSCRIPTIONS** 68  
You don't even have to go outside to get your copy of Hi-Fi World, subscribe and you need never leave your listening room.

**ACCESSORIES** 97  
Mail order accessories for system tuning.

**HI-FI WORLD LIBRARY** 101  
Teach yourself about hi-fi with this wonderful range of books for the enthusiast.

**DIAL-A-DEALER** 89  
Who sells what and how to get in touch.

**WORLD AUDIO DESIGN** 81  
Kits for the enthusiast. Build your own amplifiers and loudspeakers from our professionally designed kits.

**MEET YOUR MAKER** 84  
The manufacturers' directory.

**WORLD FAVOURITES** 110  
Our pick of the best equipment reviewed in Hi-Fi World.

**CLASSIFIEDS** 123  
Browse the ever expanding range of quality second hand and vintage equipment for sale in our classified section.

**SPECIALIST HI-FI DEALERS** 77  
Need a specialist? - look no further.

**ADVERTISERS' INDEX** 130

## FEATURES

**GRUNGE AUDIO** 23  
Quality separates hi-fi on a shoe-string. We check out the bargains and bring you a taste of real Grunge Audio.

**RESTORE OR RENOVATE?** 64  
Hayden Boardman of Audio Classics explains whether you should restore your vintage hi-fi to its original glory, or modify and update as you rebuild.

## DIY SUPPLEMENT

In this month's FREE Supplement: we design a pure Class A monoblock power amplifier using special new output devices and delivering 36watts; build the SPL-1 loudspeaker kits from Wilmslow Audio; show you how to build your own interconnects and review a Hart kit designed to teach the art of soldering. Of course, there's also the usual Kit News, Book reviews, DIY letters etc.

## MUSIC

We select the best Rock, Classical and Jazz releases of the past twelve months. Hi-Fi World's essential guide to music everyone should hear.

**ROCK AND POP** 73

**CLASSICAL** 85

**JAZZ** 93

## COMPETITION

Win a £3000 Mission Cyrus system. Discmaster transport, Dacmaster CD convertor, Cyrus FM7 tuner, Cyrus III amplifier and High Definition Aerogel 752 loudspeakers. 66



# CONTENTS

GET YOUR FINGER ON THE PULSE



# THE LIVE AUDIO



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## PROAC IMPROVE TABLETTE IIIS

The Tablette III is now available in Signature form, enhanced by distinctive real wood veneers.

This model has additionally been given a new bass drive unit which uses copper in the magnet assembly. Proac say heavy copper rings mounted above and below the T-shaped pole-piece reduce non linear and modulation distortion and increase overload margin. Further improvements have been made with the use of an open, equalised reflex port and crossover modifications.

The Tablette III Signature is available in real wood veneers such as Burr Oak, Ebony and Birds Eye Maple for £849 and also in Rosewood and Yew for £779.

**ProAc**  
**130-132 Thirsk Road**  
**Borehamwood**  
**Herts. WD6 5BA**  
**Tel: (081) 207 1150**



## ROTEL LAUNCH NEW AMPLIFIERS

Three new integrated amplifiers, the RA930AX MkII (£149.95), RA930BX (£199.95) and the RA935BX MkII (£249.95), as well as a RQ970BX phono equaliser (£129.95) should soon be available from Rotel dealers.

All three amplifiers are the result of development initiated in the UK and they use high performance components new to Rotel.

The entry level RA930AX MkII is a development of the RA930AX in which higher quality components have been introduced in key areas to increase performance and enhance value.

Rotel hope that the RA930BX, which uses audiophile components throughout and specialist integrated circuits in the line stage, will be a serious contender in a competitive area of the market.

The RA935BX MkII amplifier reflects Rotel's approach to audiophile design by using a toroidal power transformer and slit foil capacitors in the power supply and a symmetrical PCB with mirror image layout and star earth grounding techniques to maximise stereo imagery. It is also available with an integral high quality phono stage at a cost of £299.95.

The RQ970BX phono equaliser was built primarily to partner 'line only' amplifiers, although Rotel claim it can produce a marked improvement in performance when used in place of the integral phono stages of integrated amplifiers. This unit also uses audiophile components throughout and features switched MM/MC with fixed loads and gold plated input and output terminals.

For further information on Rotel's latest products contact the Marketing Department of Rotel UK.



**Gamepath Ltd.**  
**25 Heathfield**  
**Stacey Bushes**  
**Milton Keynes MK12 6HR**  
**Tel: (0908) 317707**



## SUB-£300 CD PLAYER FROM ARCAM

The new Alpha One CD player is the first machine from Arcam to enter the market below £300. Designed and built in the UK, it comes equipped with a Sony three-beam transport and Burr Brown's new PCM1710 multi-level delta-sigma DAC with fourth order noise shaping to reduce sensitivity to jitter and increase stability.

Arcam have also brought out a new top-of-the-range Delta Black Box 500 which will retail for £749.90, bringing their range up to six models. This is a DACC (a new acronym to us), or Digital Audio Control Centre. It offers digital-to-analogue conversion for up to seven digital sources, including laser disc, DAT and DAB (digital audio broadcast) and of course CD.

First class sound quality is promised from the Arcam, designed 1-bit DAC, built with discrete surface mount components. Arcam claim that new standards of jitter-free CD sound reproduction are set when the '500 is 'Sync Locked' to their Delta 250 CD transport, at a total package price below £1500. The Delta Black Box 500 can also be used as a digital pre-amplifier via the use of remotely controlled input selection and output levels.



**A&R Cambridge Ltd**  
**Pembroke Avenue**  
**Denny Industrial Centre**  
**Waterbeach**  
**Cambridge CB5 9PB**  
**Tel: (0223) 861550**

## ROOM DESIGNED LOUSPEAKERS

Roy Allison formed the new American Company RDL Acoustics (Room Designed Loudspeakers) last year with Edgar Villchur, the founder of Acoustic Research and inventor of acoustic

suspension and the dome tweeter. Two lines of product should be made available in the UK during September.

One is the RDL line which comprises several models of the same loudspeaker, each one individually optimised for a different room placement. There's the RDL FS-1 floor stander for use away from a wall, and the RDL F-1 for use against a wall. The B-1 operates on bookshelves, but away from a wall, whilst the smaller S-



It is designed to sit on a shelf, but against a wall.

The second range is the RA Labs (Black Gold) series, intended to offer great value. There are three stand-mount and two floorstanding speakers, ranging from £80 to £400 per pair.

RDL sell direct to the public only, offering their customers what they believe to be a unique '30 days, no-quibble, no-strings attached' returns policy, allowing potential buyers to try the speakers at home for up to 30 days before making a final decision, only having to pay for the return postage if not entirely happy with the product.

**RDL Acoustics**  
**20 Cleveland Way**  
**Shelley**  
**Huddersfield HD8 8NQ**  
**Tel: (0484) 603333**

## ELECTROFLUIDICS' LOUSPEAKERS GROW

The Sonolith 1 loudspeaker has recently been refined and is now the Sonolith 1.1xr. A larger model, the Sonolith 2.2xi, has been introduced to the company's range. After a lot of research into cabinet materials Electrofluidics eventually

developed vibro-cast, inert mineral-polymer enclosures for their speakers, which they claim minimise sound transmission, structural resonances, internal standing waves and external diffraction. Electrofluidics' founder Patrick Handscombe claims: "Removing most of the limitations inherent in normal cabinets allowed us to realise the full potential of our controlled-flexure alloy-cone drive units." The speakers

also have an aerodynamic port system to prevent air movement noise and optimize tuning. Computer-aided design followed by a large amount of testing has ensured that the high quality components used in the crossovers reach their full potential.

The speakers come in two standard finishes - Anthracite Nextel and Instrument Black Monitor, but almost any applied finish and colour is available to order. The recommended retail prices for July 1994 are £1995 for the Sonolith 1.1xr and £2695 for the 2.2xi.



**Electrofluidics**  
**27 Fournier Street**  
**London E1 6QE**  
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## BRIO HORN LOUSPEAKER

Two years of research and development have gone into the Brio corner horn loudspeaker, claim Thomas Transducers. Intended to complement valve amplifiers, an efficiency of at least 98dB SPL for 1 watt at 1 metre is claimed. Standing 51 inches high, it has an effective horn length of 15 feet and uses a single Lowther PM6A Hi-Feric drive unit as standard. The Brio should be available in September and will retail from £4750 per pair, depending on finish and drive unit specified.

**Bravura**  
**Thomas Transducers**  
**White House Hall**  
**Hadlow Road**  
**Tonbridge**  
**Kent TN11 0AJ**  
**Tel: (0732) 851408**

## ADVANCED COMPOSITE TECHNOLOGY LOUSPEAKERS

Wilson Benesch have overcome the difficulties encountered in producing the curved enclosure panels in the world's first Advanced Composite Technology (A.C.T.) loudspeakers. A 10mm thick aluminium baffle holds the custom-built three-way driver array, and sculpted hardwood forms are used to contrast with the black anodised surfaces and carbon fibre panels. The production prototype made its debut appearance at the Frankfurt Hi-End Show in August. Despite the advanced materials used their price is expected to be similar to that of floorstanding speakers made of MDF. They should be available in England from November 1994.

**Wilson Benesch**  
**Unit Two**  
**Fall Bank Industrial Estate**  
**Barnsley S70 3LS**  
**Tel: (0226) 770199**

## YORKSHIRE HI-FI & HOME CINEMA SHOW

Specialist retailer Sound with Style have arranged this popular show for the third time at the Doncaster Moat House in South Yorkshire. Taking place between 10am-5pm over the weekend of 15th and 16th October some 5000 people or more are expected to attend. The organisers claim that "most major British manufacturers will be there, including Linn, Naim, Arcam and KEF".

For further information contact -

**Sound with Style**  
**Tel: (0742) 737893**

## NEW PATH PLUGS

Path Group have improved and added to the Ixos range of plugs.

Whilst retaining the original side-entry banana plug (204) and the crimp fit screw terminal at £9.95 for a pack of four, new models for loudspeaker cable connection are a locking banana plug with an expanding centre pin (211) and a sleeved pin banana plug (212), both at £19.95 for four. The 212 features an insulated sprung sheath that covers the entire length of the pin to eliminate the possibility of shorting out the amplifier outputs by accidentally touching pins when connecting/disconnecting the speaker leads.

Two new phono plugs are also available, the 209 at £12.95 for four and the 210 at £9.95 for four. All plugs in the Ixos range have 24 carat hard-gold plating on their contact surfaces.



**Path Group PLC**  
**Unit 2**  
**Desborough Industrial Park**  
**Desborough Park Road**  
**High Wycombe**  
**Bucks. HP12 3BG**  
**Tel: (0494) 441736**  
**Fax: (0494) 461209.**

## NAD CHANGES CDS

NAD claim that their new model 513 CD changer has '...the performance and price of a single disc player'. Using MASH technology for digital to analogue conversion and costing £269.95 the 513 will handle up to three discs at once, rather than the usual five. This has come about after careful market research; apparently most people do not need or even want to play more than two or three CDs, one after another. With a full remote control it is possible to program up to 32 tracks from any of the three discs in any sequence. With the 513 NAD hope to offer a combination of performance, reliability and convenience at an affordable price. The player should be available at most NAD dealers from the end of August.

**NAD**  
**401-405 Nether Street**  
**London N3 1QG**  
**Tel: (081) 343 3240**



# PHILIPS INVENTS

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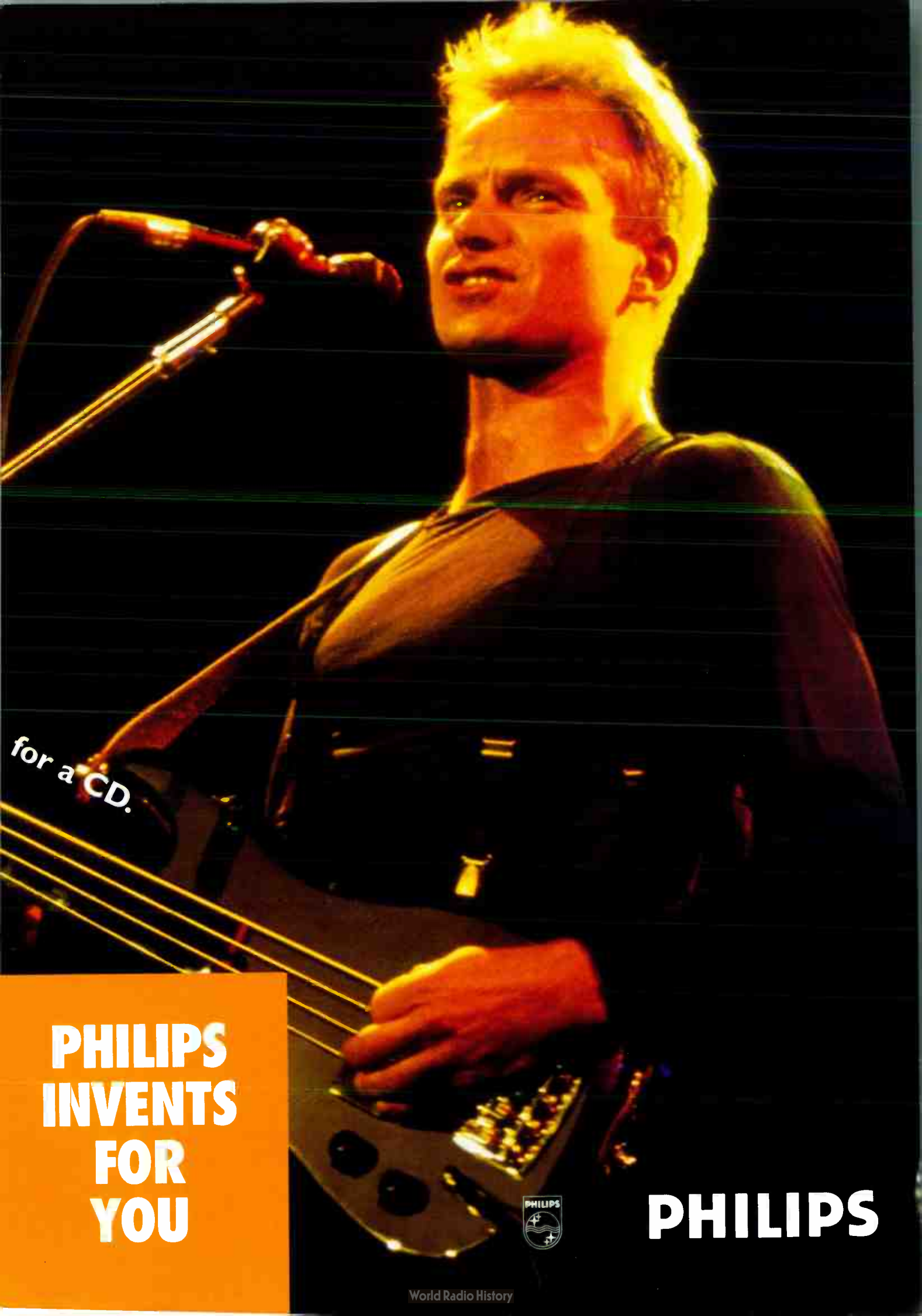
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**PHILIPS**

# TRANSMISSION TOWER

Next time you go to grip with some of the deepest bass around, remember to try TDL's new Reference Standard transmission line loudspeakers.

The customer gawped: "Wow, there must be some big speakers in there" he said, as three people struggled past with a cardboard box large enough to double as a potting shed. We corrected him: "No, there's just one speaker in here". The TDL Reference Standard transmission lines (RSTLS - 'M') take their place in the Pantheon of ginormous loudspeakers alongside Tannoy GRFs, at 70kgs apiece (154lbs) needing at least two people to get just one off the ground.



These monsters are for those in love with transmission lines; each one has no fewer than three. There are two bass lines, tuned differently to give smoother bass, and a midrange line. Each bass line has its own bass unit, whilst two midrange units feed one midrange line. There are two tweeters and one super tweeter, making a total of seven drive units per cabinet.

Distributing power amongst so many drivers has the benefit of giving very good power handling. TDL have worked to eliminate the incohesiveness that multi-unit designs can suffer by setting them symmetrically around the super tweeter, to give a virtual point source of sound, they claim. To do this, the drivers are clustered together so that distances between them are less than half a wavelength of the lowest frequency they handle, to prevent cancellation effects.

But why use so many transmission lines in the first place? These long, tapered lines absorb the rear wave from a loudspeaker drive unit, reducing its low frequency limit, giving deeper bass or a wider operating range, in the case of the midrange drivers. Transmission line bass is also known for sounding smoother and more even than the resonant bass from tuned boxes, be they sealed or ported. Twin bass lines, stagger tuned, also distribute bass energy and give these speakers the ability to produce enormous bass power at low frequencies. Although an ideal transmission line is very long and tapers down to nothing, in practice it is impossible to build a line long enough to absorb all energy, so the end is ported on this speaker, providing further output at very low frequencies.

The midrange line, TDL say, extends the lowest operating frequency of the two midrange drivers down low enough to make the crossover point to the deep-bass units inaudible.

In a nutshell then, these speakers have been designed to produce very deep bass of enormous power. They have high power handling and can generate massive volumes too. Yet the drivers have been arranged to provide a cohesive sound with good stereo imaging.

I know from experience that big TDLs need a very large room to show what they can do. Small rooms make a speaker like this sound bloated and overpowering in the bass. We needed a large room with good acoustics, plus a number of power amplifiers to find a good match, preferably a few muscular Naims. Son et Lumiere at

67 Tottenham Court Road, London's premiere hi-fi street, provided us with a fine listening room, plus a brace of Naim amplifiers and CD players and equivalent models from Linn. Few dealers stock both Linn and Naim these days, yet that's what we wanted, since both manufacturers make big speakers, as well as amplifiers capable of driving them.

### SOUND QUALITY

There was an initial defining moment for bass performance from the TDLs: it was a single deep drum strike at the start of Agolo. From the References this was a major event, one that I felt in my stomach, one that shook the room. Other loudspeakers would attempt to cope manfully with the bass lines and percussion on Angelique Kidjo's Aye, but

able to reach down to 5Hz, unrestricted by any cabinet.

The TDL Reference similarly played fundamentals cleanly and with huge power, although they softened out upper bass detail a little; Billy Idol's weighty bass intro on Prodigal Blues didn't so much step down in pitch, but change weight, but then other speakers commonly don't convey much of the power behind this intro., so the TDLs were giving an alternative view of the performance, with emphasis on sheer bass power.

But I found this aspect of their performance was also very power amplifier dependent. To my surprise and consternation, the Naim NAP250 put too much power behind the low bass of these speakers; it became overwhelming. Linn's Klout pushed the bass forward and, inexplicably, gave the References a boxy, hollow sound at low frequencies, causing them to boom. Higher up though, the Klout showed it was a smooth and detailed performer, knitting together the multiple drivers well, to give a detailed and relatively cohesive sound. The Alchemist Genesis power amplifiers sounded more balanced through their lighter bass, but the John Shearne Phase 2 came out best here in terms of balance, displaying tight if strong bass in reasonable balance with the rest of the spectrum.

So bass performance proved very amplifier dependent with this speaker, more so than I am used to. This is as much a reflection upon the speaker as a load as it is upon the qualities of the amplifier driving it. Although bass proved excessive with Naim's NAP250 this is almost certainly because it can swing huge current at very low frequencies into low loads; it's normally a benefit, only in this case was it a drawback.

Big speakers mean big panels, which commonly resonate and colour vocals. Even the resonant tones of Billy Idol's crooning on Charmed Life failed to excite the TDLs in this way though. They projected his voice well, giving much the same interpretation as any good loudspeaker, indicating good basic fidelity in this area. The metronomic drum beat behind Grace Jones on Fame is another nasty one that tends to get cabinets going badly, but not this time. The force of the beat was huge, but Jones' voice was unaffected by it, being set up well at centre stage, seemingly out of the speakers.

I heard reasonably strong lower-treble



A cut-away view showing the impressive internal construction of the RSTLS - 'M'

they bypassed this event altogether. There was a closing finale too, which I'll describe later.

The References not only go down very, very low, finding instruments and sounds other speakers - even big ones - miss completely, but they also put enormous power into drums and low bass fundamentals. I've heard just one loudspeaker able to put more power into bass fundamentals than higher frequency harmonics, emphasising power over pace, taking some emphasis from pitch changes. That was the unique Celestion SL6000 open dipole subwoofer, a loudspeaker

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energy that gave a curiously but pleasantly rich quality to steel strings of Steve Earl's guitar on *Someday*, but also I noticed a small sting in the treble, probably from the super-tweeter. This carried through to violins in Tchaikovsky's *Symphony No.6*, which sounded a little forward, if not edgy because of the sweet nature of Tring's SBM recordings of the Royal Philharmonic.

It was when making these comparisons that differences between the Linn Klout and Naim NAP250 again became obvious. This time, however, it was the Klout that prevailed, sounding smooth, cohesive and finely detailed in conjunction with the TDLs. For classical listeners in particular, I felt the NAP250 was less appropriate because of its tendency to sound a little bright.

Exactly how the TDLs sounded really did come down to amplifier matching. Generally, they're a speaker with massive bass power and extension. They need a big room, preferably with one dimension of at least 20ft, as well as a high ceiling. They handle vocalists well, projecting

*“ The References not only go down very, very low, finding instruments and sounds other speakers - even big ones - miss completely, but they also put enormous power into drums and low bass fundamentals. ”*

them out of the cabinets into firm and realistic images, set between the speakers rather than forward of them. Neither peaks nor suckouts colour the sound; these speakers are tonally smooth and even, which made them sound fine reproducing violins. But perhaps surprisingly, they are more dynamically restrained than many Rock listeners might like, being developed primarily to suit classical music, where smoothness of tone and neutrality are regarded more highly than speed and punch.

It was when the violins of the Royal Philharmonic gave way to canon in the 1812 that the TDLs gave a fitting finale. Listening on lesser speakers, I thought the orchestra had timidly used a kettle drum to simulate canon fire. Ha! Tring's beautifully recorded version of the 1812 sent the roar of a real canon into the room with a power from the TDLs that shook the sofa, rattled windows and

rocked the building. It was so awesomely powerful, it was a little frightening. This underlined differences between the References and other loudspeakers; they can produce a seismic event like no other ●

**Our thanks to Colin Welford and Alester Kells at Son Et Lumiere, 67 Tottenham Court Road, London W1 (Tel: 071-580-9059) for their excellent listening room, Linn & Naim amplifiers, records and participation.**

### MEASURED PERFORMANCE

Measured on the axis of the super tweeter, the TDL Reference Standard Transmission Line loudspeakers look reasonably flat in their frequency response, as our analysis shows. However, the super tweeter pencil-beamed; moving off axis by a few degrees when measuring caused treble above 10kHz to fall significantly. The drive units also interfere with each other, causing large phase suckouts in the speaker's frequency response when slightly off axis. The argument for accepting this is that the sound integrates in the far field, or in lay terms, the speaker should sound tonally flat and even at a distance, but this is serendipity. Multi-driver loudspeakers - each TDL has seven - commonly suffer this problem and it does give them a somewhat variable character, according to seating position and room behaviour. They do, however, have the advantage of enormous power handling, so it's a trade off.

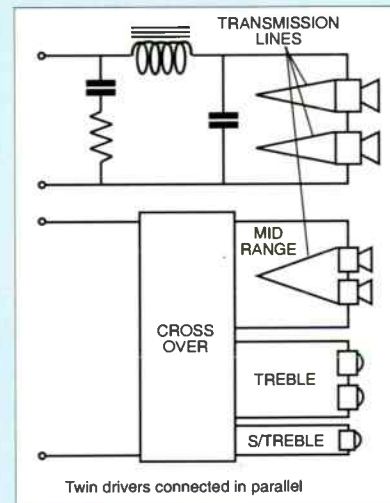
After having heard disturbingly large differences between the bass performance of power amplifiers attempting to drive the TDLs I was surprised to find that they are a relatively light electrical load, having an overall impedance of exactly 8ohms, dipping to 5ohms at 100Hz and at 2kHz, but only over a narrow band. Yet in spite of this, the speakers are sensitive at 89dB, another surprise, because they look as if they need a lot of power, yet they do not. So TDL's engineering in these areas is pretty effective, yet listening tests showed the speakers were unduly power amp dependent and in this I can only assume that back-emf was playing a part, although the many slopes of the numerous bumps in the impedance plot all indicate reactance (energy storage), so this speaker is reactive, except below 10Hz and above 4kHz.

The speakers are meant to be angled inward quite heavily and kept away from rear walls, and the listening position should be greater than x1.4 the distance between the speakers, conditions we adhered to in our listening tests.

The twin bass lines can be separated from the other drivers and fed by a separate amplifier, since these speakers are bi-wirable. The circuit diagram shows the pi-filter network used to feed the bass units, which work in parallel. It seemed to me that this would be the best way to impose one set of conditions upon the bass units and another upon the midband/treble. Bass drive needs to come from a piledriving amplifier, whilst the rest of the speaker should be fed by something detailed and subtle, the Linn Klout

sounding ideal. This method of operation would allow bass level to be independently adjusted too.

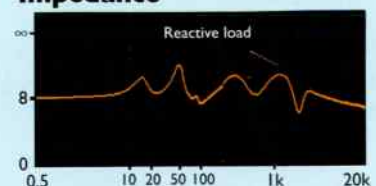
The TDLs are surprisingly easy as a load in some ways, being unusually sensitive for a speaker of their size, so they don't demand the use of overly powerful amplifiers. With a lumpy but flat frequency response that extends down to very low frequencies, room size preventing us from measuring the low limit meaningfully I'm afraid, these speakers measure well, even if they do have some of the foibles common to large multi-driver designs. **NK**



### Frequency Response



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HI-FI SHOW 1994, RAMADA HEATHROW, ROOM 1022

# AURAL INVESTIGATION

**David Harris listens to Aura's replacement for the VA-50. Can the new VA-80 amplifier improve on its predecessor?**

Replacing the popular VA-50, the Aura VA-80 is an attractive line level integrated amplifier possessing a 'mirror black' finish. A small on/off switch, volume control, input selector and a tiny tape monitor button decorate its front, although a headphone socket and a single green 'power on' LED complete the 'facia'. Like other Aura products, the VA-80 has a low profile, measuring just 65mm high. It's reasonably

compact too, and should fit into almost any shelf space.

Four MOSFETs have been used in the power stage, giving it a manufacturer's rating of 45 watts rms per channel. There are six line-level only inputs, so an additional phono amplifier would be required in order to use a turntable.

Four substantial binding posts are located on the rear panel of the amplifier alongside the row of phono inputs, those

for CD being gold plated.

This amplifier looks and feels well finished. It has a 'state of the art' appearance that would not go unnoticed in the most modern of homes.

## **SOUND QUALITY**

The most striking characteristic of this amplifier, which stood out immediately, was the warmth it gave to the lower registers. Bass lines were pronounced and

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very rounded, but not particularly slow and lingering, although they did lack the control and detail that is present with some more expensive integrated

*“I liked the midrange - vocalists were allowed to breathe, performing with space around them, a quality that often eludes amplifiers at this level.”*

amplifiers. Receiving its signal from an Audiolab 8000CDM transport linked into a Pink Triangle DaCapo DAC, the Aura VA-80 produced a quality of bass that was definitely over-warm and detached from the remaining music. Aura would not expect such an expensive front-end to be used in practice, however, so this warmth could be beneficial in certain circumstances, with a budget or mid-price CD player possessing a drier, coarser sounding bass, for example.

I liked the midrange - vocalists were allowed to breathe, performing with space around them, a quality that often eludes amplifiers at this level. Generally, the midband was smooth and polite, giving a pretty detailed insight into the music without throwing it out - with the occasional exception: Randy Brecker's trumpet was particularly impressive - it had real power.

Although this amplifier is quite explicit in the midrange and capable of revealing most shortcomings in recordings or the preceding equipment, its treble quality is not in quite the same league. Although sounding smooth and fairly free of grain, it masked the finer detail that more revealing amplifiers can resolve. Still, we're not exactly dealing with high-end equipment at this price and realistically, considering the level of front-end that it is likely to be partnered with the amplifier, its ability to smooth things out a little may be an advantage. The refinement in the higher end of the sound spectrum that 'affordable' CD players commonly lack could be hidden by the Aura to some extent, or at least calmed.

The guitars in Guns and Roses' Patience sounded a little confused - not completely mixed together but blended a little, compromising their individuality. This impression is based upon comparison with our KLPI valve pre-amplifier driving

our Class A solid-state mono-block power amplifiers, so it's really a small criticism for such a reasonably priced amplifier.

As well as the midrange, the other main strengths of the VA-80 lie in its ability to open up a big, wide soundstage which seemed to fill the room. This, along with good imaging ability, ensured that a life like illusion was created, seemingly revealing the positions the musicians within a band, or sections within an orchestra.

Another quality of the Aura that captured my attention was its ability to lay bare the rhythm behind the music. You simply couldn't fail to be aware of it - almost everything I listened to had a tight, flowing rhythm, driving pieces along. This is probably more attributable to the Audiolab/Pink combination, but nevertheless it reveals the accuracy present with this amplifier in terms of

conveying timing.

In the VA-80 Aura appear to have tailored an amplifier to suit this particular sector of the hi-fi market - and why not. For those people who want an affordable amplifier to complement affordable equipment, the Aura should not escape an audition. The VA-50 was unusual in its sound and much appreciated because of it; the VA-80 should find equal success ●

**Aura VA-80 £279.95 (black mirror)  
£329.95 (chrome)**

**Aura Designs Ltd.,  
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### MEASURED PERFORMANCE

The Aura produced a healthy 50watts into 8ohms, a standard loudspeaker load. Into 4ohms, a low load, it was less impressive. Ideally, there should be a substantial increase in power, up to double, but the Aura's small toroidal mains transformer wilted, causing the amp to give just 56watts. This is likely to soften out bass drive a little. However, Aura have now given this amp the ability to swing current without thermal limiting in the output MOSFETs and, in any case, this is essentially a budget design that aims to combine modest performance with good sound quality, so these deficiencies have to be seen in the context of price.

I was surprised to measure a very low channel separation figure of 36dB, even though the amplifier has no balance control across which crosstalk can occur. Low separation actually enhances the sound, strengthening centre images, usually vocalists, giving them stronger embodiment.

There was little noise, no hum and acceptably low d.c. offset. Bandwidth was a surprisingly wide 12Hz-50kHz. In the past Aura have rolled off treble response very early, to give a warm sound. Perhaps this was accidental, due to impedance mismatching around the volume control, or perhaps it was policy that Aura have decided to revise. Whatever, the new VA-80 moves away from band limiting just as other amps, like the Linn Majik-I, take it up with relish. Its effect is best judged by listening tests.

Distortion levels were low at all powers, right across the audio band. At high frequencies the distortion component was predominantly second harmonic, except at high output, when higher orders started to appear. I'd expect there to be little sign of distortion in the sound, since this is a very respectable performance.

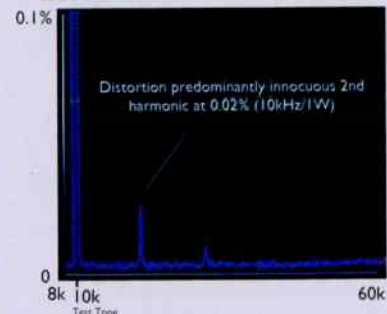
Whilst there are distinct signs of cost

consciousness in the VA-80, that's only to be expected. The art, in a budget design, is to make savings in the right places and measurement suggests Aura have been judicious in this process, since this amplifier measures well enough. **NK**

### TEST RESULTS

Power	50watts
CD/tuner/aux.	
Frequency response	12Hz-50kHz
Separation	-36dB
Noise	-98dB
Distortion	0.004%
Sensitivity	200mV
dc offset	9/10mV

### Distortion



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# GRUNGE AUDIO!



The shelves inside Audio Gold hold reams of affordable Grunge hi-fi.

**Dominic Baker visits Audio Gold in Finchley, North London, to speak to Richard Goldsmith about Grunge audio - second hand gear that's too old to be valuable and too new to be vintage.**

**G**runge Audio is a valuable way for the budding or impecunious audiophile to get on the road to better sound quality. It's a product of car boot sales, swapmeets, audio jumbles and suburban shops like Audio Gold, stocked to bursting point

with second-hand goods. "I stock affordable hi-fi, but I also like to have some unusual things in the shop, things that are rare and interesting that people enjoy", Richard Goldsmith told us.

Question enthusiasts and you'll

often find that this is how they started out. "My customers are in their twenties and thirties, have often just moved into the area and want music in a flat or bedsit. They like the build quality of the earlier hi-fi, the solidness of it, and the fact that each item is



**Marantz and Trio are familiar names in Grunge Audio.**

individual rather than a series of black boxes without character; character or quirkiness comes from age."

Grunge Audio falls between the vintage/collectors market, which is for specialists who know what to buy and are prepared to spend and then restore, and modern second-hand that fetches reasonably high re-sale prices. A typical Grunge system might comprise a Pioneer PL12D/Thorens or similar record deck with SME 3009 'S'



**A fantastic GEC cabinet system - they don't make 'em like this anymore.**



**A pair of heavy duty Celestion 25s sit below a Transcripator turntable.**

shaped tone-arm and Shure cartridge, a large, silver fronted, receiver complete with sturdy controls from JVC, Technics, Rotel, Pioneer or Marantz and a pair of floorstanding Celestion Dittons, KEF Codas or even JBLs.

the cheapest midi-system, possessing a weak and crude solid-state amplifier driving the simplest of loudspeakers, comprising one drive unit in a small box.

In contrast, Grunge products are usually large, heavy and surprisingly well built. They're usually from the East, mainly Japan, being built in the days when labour costs and exchange rates were favourable enough to yield products of a quality the West could barely match. Most of them, like the big receivers for example, are cumbersome but they were in most ways built to last: heavy switches, cast sub-chassis and platters, large, high quality drive units, sturdy metal casework.

A whole system might cost between £150 and £300 and it will be a bargain in comparison with modern day price equivalents, such as there are. "They know that separates will give them better sound than an all-in-one system, yet will cost less and can be upgraded easily". This sort of money would otherwise only buy

The conservative design of these items means that at heart they have life in them. However, minor problems can lurk and may be the reason such goods were sold off by their owners in the first place. Quite often, switches and the like become intermittent due to oxidation of silver contacts. This imposed a strict working life of a few years. But faults like this can be easily cleared and the equipment should then last for many more years. "We give three months guarantee on all items



**A Marantz cassette deck just in and awaiting service. This SD3020 must be one of earliest decks to have a double speed transport.**



with the exception of speakers, but we still like to help. A lot of the time the faults are minor and we repair free of charge. I have a couple of engineers who check for safety and wear, so everything has life in it". This kind of equipment wasn't budget hi-fi. A lot of it was near top of the range and engineered to a very high standard in most respects.

Not only can Grunge Audio provide a way into separates for the budding audiophile, but it's also great fuel for the enthusiast tweeker. Take Grunge speakers for example. The boxes are large and heavy and the drive units normally sturdy KEFs, Celestions, Tannoys or JBLs. However,



**My favourite, the Marantz 4240 Quadrophonic receiver. The styling is outrageous, and how did they get all of those controls on one front panel?**



**KEF 102s - the drive units alone would cost a small fortune these days.**

the components used in the crossovers can be easily improved upon by substituting modern audio grade (Solen or Ansar) polypropylenes and such like. The internal damping can be replaced and re-tuned to give more or less bass and new internal wiring fitted. Anyone who has tried these modifications will vouch for their effectiveness - and it doesn't cost more than a few pints down at the local. "A lot of people who come in here find high-end shops

and prices intimidating. Grunge audio gets them on the way to separates hi-fi at a price they can afford".

### **WHERE TO FIND GRUNGE AUDIO AND WHAT TO LOOK OUT FOR.**

Apart from Audio Gold in London, where else can you

spot Grunge Audio? There are a number of places that Grunge hi-fi is likely to turn up: jumble sales, junk shops, hi-fi dealers that sell second-hand equipment, market stalls, etc.

The problem with Grunge hi-fi is that in most cases it won't have been checked out by an engineer. This isn't so bad if you're looking for speakers or a turntable, where if it can be demonstrated as working there is normally little that can go wrong. But amplifiers, tuners and cassette decks in particular need servicing and checking thoroughly if you are to be sure of a useful lifespan.



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If something is not working, there is little point paying to have it repaired. Most engineers will charge around £20-30 an hour these days, and as anyone who has worked on this kind of hi-fi knows, it can take an hour just to get into the case and find the faulty component, let alone order a replacement and fit it. But if the equipment has been checked it is normally so well constructed that it should keep going for many years ●

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040325432  
0303 258860  
0843 226977  
0932 851121  
071 431 9133  
081 445 1443  
081 393 2252  
071 323 2747  
081 876 7632  
081 952 5535  
081 569 5802  
081 852 5780  
071 723 7565  
071 629 1234  
071 938 4811  
021 276771  
0232 451381  
061 417222  
0232 332522  
0254 51842  
0472 351391  
0384 233191  
0602 622150  
0782 336233  
0533 530330  
0604 37515  
0753 521706  
0295 263222  
0992 465531  
0453 762485  
0203 385489  
0275 833135  
0753 884552  
0272 686005  
0582 663383  
0752262976  
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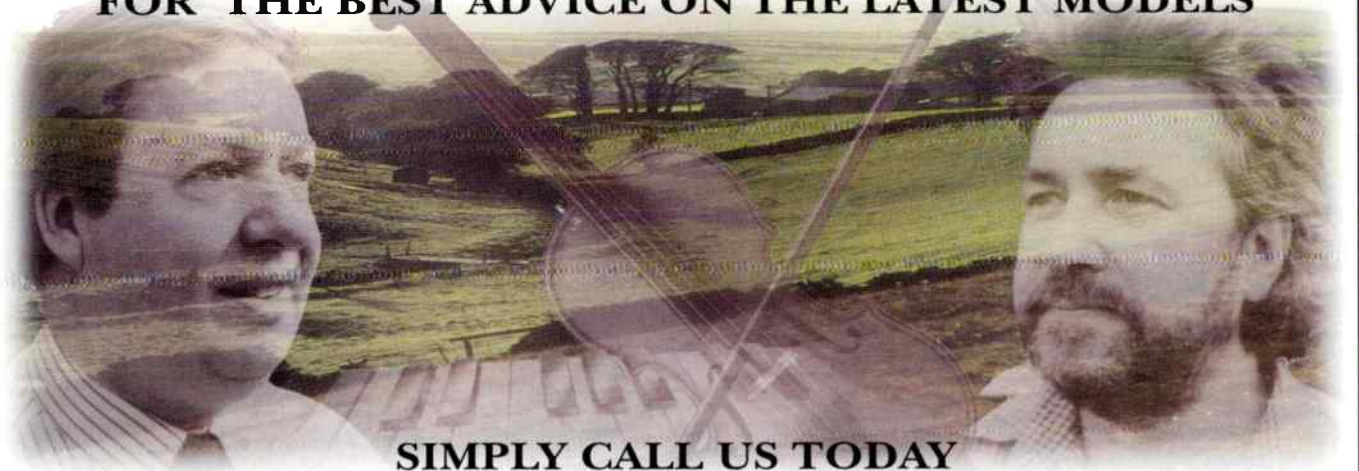
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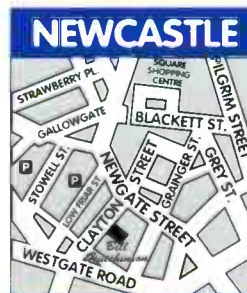
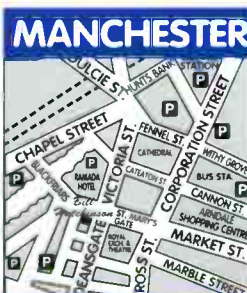
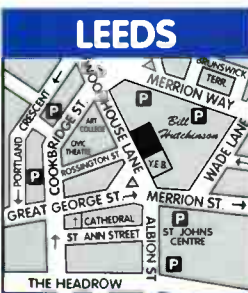
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World Radio History

# AIR DISPLAY

review

Pioneer's new F-303RDS tuner gives a useful display of what's on the airwaves.

Eric Braithwaite finds it sounds good too.



**P**ioneer's F-303RDS tuner is £179.95, a one of the new breed of Radio Data System tuners which gives listeners access to the full range of RDS services - all very readable price. The tuner automatically tunes to the strongest FM transmission in any area through the Programme Identification, or PI mode of RDS, something the Pioneer did without hitch. It displays the station name as well as its frequency and the type of broadcast ('Rock', 'News' and so on) and it allows you to search for a station that is currently broadcasting 'Sport' or 'Classical' or whatever, without the pain of tuning into the twenty-odd FM stations one by one. It also strobe test messages across the tuning window.

...and even, from a 100% level, the 100% of the tuner's display, which is a...  
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...the tuner's display, which is a...

When the Beatles' 'Here Comes the Sun' came in on R2, so did a sparkle. Distinctly brighter than the Quad FME, it went with a pleasing zing. No bad thing, in some ways, though any added sparkle couldn't really make Kiss FM's compression bearable, despite what was a reasonably solid bass issuing from the tuner. The only spoiling element was a degree of hollowness in the mid-band, more

...the tuner's display, which is a...  
...the tuner's display, which is a...  
...the tuner's display, which is a...

**Pioneer F-303RDS tuner** £179.95  
**Pioneer UK**  
**Hollybush Hill,**  
**Stoke Poges,**  
**Slough SL2 4QP.**  
**Tel :0753-789789**

## MEASURED PERFORMANCE

The F-303RDS has a small rise in its treble output that will add some brightness or just better detailing. Above 16kHz an mpX filter rolls down pilot tone and sub-carrier output enough for them not to be a nuisance when recording.

Distortion was respectably low at around 0.15% and, given 1.25mV or more from an aerial, hiss sinks to -73dB - inaudible even during the silences of Radio 3.

Selectivity in Wide mode was a sensible 66dB (adjacent channel); narrow mode takes the figure up to a healthy 83dB, easily enough to prevent powerful stations breaking through to weak ones even when close by.

Sensitivity was a little low, measuring 40mV on stereo and 4mV on mono., half that commonly achieved nowadays. This won't be so obvious except in marginal reception areas or with poor indoor wire aerials.

Pioneer fit a fairly good six-sector signal strength meter that works from 16µV of aerial signal through to 630µV, the last sector representing a usefully high level in terms of fidelity and, therefore, aerial effectiveness.

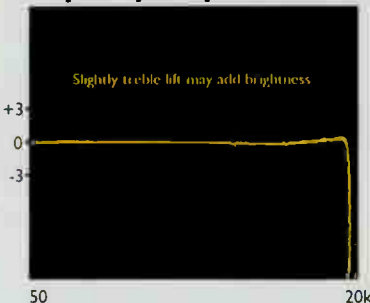
The F-303RDS measures well all

round, offering a lot of performance for the price. **NK**

## TUNER TEST RESULTS

Frequency response	13Hz-16kHz
Stereo separation	42dB
Distortion (50% mod.)	0.15%
Hiss (CCIR)	-73dB
Signal for minimum hiss	1.25mV
Selectivity (at 0.4MHz)	66/83dB
Sensitivity	
mono	4µV
stereo	40µV
signal strength meter	
Sector	1 2 3 4 5 6
Level (µV) -	16, 32, 63, 160, 320, 630

## Frequency Response





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# POWER STRUGGLE

**Noel Keywood listens to four power amplifiers as they struggle to drive the big TDL Reference Standard transmission line loudspeakers.**

**NAIM NAC72-NAP250**

A good number of readers ask about choosing a big power amplifier, and Linn and Naim rank highly as a potential choice. With the enormous TDL Reference loudspeakers looming into view on our calendar, we decided this would be a fine opportunity to get to grips with the Linn Klout power amplifier as well as its rival from Naim, the NAP250. To assess their relative merit, we pulled in the John Sheane Phase I power amplifier and the Alchemist Genesis monoblocks.

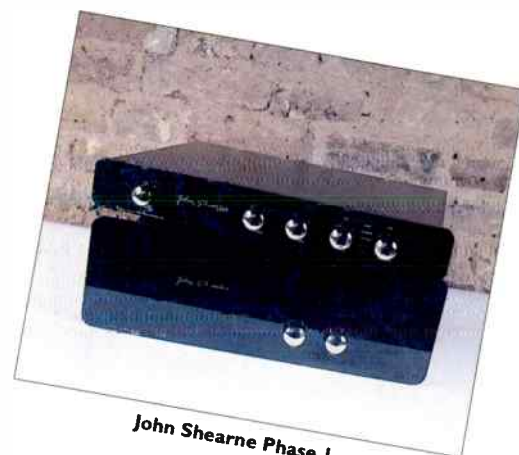
Normally, you'd choose a power amplifier on the basis of power output and the way in which its own innate sound quality complemented your speakers and appealed to your tastes. In this case, the speakers proved to exert such an influence upon the amplifiers that the two couldn't be so conveniently separated. I strongly suspect that what we heard in listening tests at Son et Lumiere wasn't just the simple combination of the two, but a fairly strong interactional process. Consequently, to try and more clearly distil the

metre from an 87dB sensitive speaker like the TDL Reference, then I need 13dB more power than 1watt, or 20watts. If I want 110dB peaks I need 23dB more, or 200watts. Since 100dB peaks give an average music level of around 93dB SPL or so this is playing softly; hitting 110dB peaks is playing loud, tests with our B&K 2230 Precision Integrating SPL meter show. That gives you some idea of just how much power requirement changes according to volume. Someone who plays loud or very loud, especially in a big room, needs hundreds of watts; someone who plays at restrained levels in a small-to-medium room needs no more than 50watts.

This example is sufficient for everyday guidance, even though it's at one metre in front of one speaker when in practice listening four metres in front of two speakers is usual, a situation that demands even more power, making the above figures minimums. It's really the ratio jump between normal and high volume listening that matters though; when you wick it, the power you need leaps upward. But before you decide that only a 200watt amplifier will do, bear in mind a few other points.

Big power amps have traditionally been more about power engineering than high fidelity; not all of them sound that good. The reputation Linn and Naim have for sound quality has probably helped their credibility in this field. So beware - 200watts can be 200watts of pain. Choose amplifiers for their sound quality in conjunction with the speakers you use; don't go for power just for the sake of it.

All loudspeakers, with the exception of horns, are inefficient; a lot of the musical signal just goes to heat up the drive unit voice coils. If you have a large room, want high volumes and intend to use a big 200watt amplifier to full capacity then the speaker will have to be able to take it. One way of ensuring it can is to distribute the power amongst multiple drive units - each TDL Reference has seven. High powers stress loudspeakers; make sure they can take it or you'll suffer horrible muddle and distortion, followed by failure when the voice coils start to rattle



**John Sheane Phase I**

or when they burn out altogether.

Finally, our listening tests underlined again the occasionally strange and unpredictable way in which hi-fi products interface with each other, making performance predictions hazardous and possibly misleading. The only speakers I have encountered that upset amplifiers as much as the big TDLs were the Celestion SL6000 sub-woofers. They have much in common: big heavy cones - two per speaker - moving a lot of air. Since cone and air load mass in combination are reactive, meaning they store and release energy, these speakers return more energy to the driving amplifier than usual - and it showed. Yet again this highlights the importance of getting a demonstration before buying, since generalities about sound quality aren't necessarily enough ●

**Linn Kairn-Klout**

innate sound of the amplifiers we also used them on other speakers, our own KLS3s and Linn Kabers.

How much power do you need? I'm afraid there's no easy way to assess this down to the last watt, simply because it depends mainly upon room size and, especially, volume levels. Look at this example. If I want 100dB peaks at one



**Alchemist Freya-Genesis**

# NAIM NAC72-NAP 250

The 250 underscores Naim's reputation for producing power amplifiers of ultimate drive and pace. Big Naims maintain astonishing grip at low frequencies, coupling it with brutish power and drive. Surprisingly, although the NAP250 gave the best bass quality of all the power amplifiers, it injected too much power. Bass from the speakers became overwhelming. To use Naims for their grip and control, the TDLs would have to be bi-amped, the bass amplifier having its gain reduced slightly by an attenuator on the input. Less expensive, but less satisfactory too, a high power series resistor could be used to attenuate the bass line. This wouldn't affect electrical damping much, because a series inductor, which has an appreciable d.c. resistance, is used in the crossover.

The 250 has insight and delivers detail, but at the same time it has its own distinctive character in the lower treble region, sounding a little forward and bright, if clean. Since most loudspeakers possess a suckout in the 3-7kHz region, since few bass/midrange and dedicated midrange units reach smoothly up to 7kHz, this forwardness can usefully balance out the sound. Partnered with a loudspeaker that covers this region well, the 250 will come over as a little less than refined when

reproducing violins in particular, which are unusually strong in the energy they project across the upper midband.

With the big TDLs the 250 laid emphasis on the lower treble unit, pushing the prominent strings of Steve Earle's Gibson guitar forward with real bite and presence. It was good, visceral stuff and any Earle fan would love it, but at the same time it threw a spotlight onto the T62 treble unit, robbing the speaker of cohesiveness.

It was the absence of this glare that made the Klout sound smoother, more composed and refined, yet that wouldn't appeal to a Naim fan, since it gives a performance that's less dynamically challenging. But that's hi-fi. The big Naim amps have a grip of steel, allowing them to control the TDLs, teasing out firm yet deeply expressive bass lines and perfectly controlled yet clearly delineated percussion and rhythms ●

**NAP 250** £1486.38  
**NAC 72** £683.03  
**HI-CAP** £599.25  
**Naim Audio,**  
**Southampton Road,**  
**Salisbury,**  
**Wilts. SP1 2LN**  
**Tel: 0722 332266**

## MEASURED PERFORMANCE

Power output of the Naim NAP250 power amplifier was identical to that of the Linn Klout: it produces 78watts into 8ohms and exactly double, 156watts, into 4ohms. Naims always were about good power supply regulation and the NAP250 demonstrates it well by doubling its power in this manner.

The NAP250 produced second harmonic distortion in the mid-band and at high frequencies with low level signals. Higher order harmonics up to 5th appeared at high powers though. Since level reached 0.1% maximum, commonly considered to be a safe upper limit, it is questionable whether these distortions are audible. **NK**

## TEST RESULTS

Power	78watts
Frequency response	11Hz-22kHz
Separation	70dB
Noise	-90dB
Distortion	0.005%
Sensitivity	90mV
dc offset	8/12mV

# LINN KAIRN-KLOUT

I was struck by the smooth and finely detailed delivery of the Klout. This power amplifier has real insight; it reminded me of a DPA amplifier and, indeed, there is a similarity: both use surface mount components. The percussion, vocals and cross rhythms of Angelique Kidjo's Aye album were handled beautifully by the Klout; they were entrancing in their sense of life and complexity. Equally, the Klout showed itself at home reproducing a large orchestra: strings came over sounding sweet, smooth and well separated. I found the Klout both intriguing and satisfying in this respect: it delivered music with a degree of smoothness and finesse that isn't so common from big power amplifiers.

Another valuable and much appreciated property of the Kairn preamp and Klout power amplifier in this particular instance was its cohesiveness. I suspect this elusive factor is determined by component colourations. Poor components, like non-audio grade metal film resistors and polypropylene capacitors, can introduce quite a shriek into an amplifier, we've found during listening tests on components for our own designs. Eliminate such colourations and an amplifier becomes smooth and

cohesive in its sound. This is an area where the Klout excelled. It would be easy to say the resulting smoothness suits classical music particularly well, but I think not. There's a need in Rock music for neutrality too and the Klout has it.

It was only in the bass region that the Klout seemed a little chameleon like and, on occasion, open to criticism. It couldn't get a hold of the TDLs; they boomed quite strongly. Yet with the Kabers the Klout sounded quite restrained at low frequencies - a bit on the light side in fact. The Klout didn't live up to its name; it has more finesse than clout and this, I felt, was its forte. The Kabers held together nicely under its influence, coming across as well integrated, smooth and fundamentally right, apart from spitty treble caused by the ceramic dome tweeter. But unfortunately the Klout was not a partner for the TDLs at low frequencies - they were quite obviously mismatched ●

**Klout** £1895.00  
**Kairn** £1398.00  
**Linn Products Ltd.,**  
**Floor Road,**  
**Waterfoot,**  
**Eaglesham,**  
**Glasgow G765 0EP**  
**Tel: 041 644 5111**

## MEASURED PERFORMANCE

The Klout, like the NAP250, produced 78watts into 8ohms and 156watts into 4ohms. There's plenty of grunt here, except for very large rooms, or very insensitive loudspeakers. The power supply is well regulated, meaning the Klout is likely to have controlled bass. In this, Linn join Naim and DPA.

Distortion measured a low 0.005% in the midband, rising to 0.01% close to full output (-1dB). The components were solely odd order, which is unusual. At high frequencies this rare pattern was repeated, reminding me of Pioneer's A-400. The Klout may well have a bright-ish or perhaps sweet (like Pioneer) treble as a result of its basic transfer characteristic. Only listening tests can tell. **NK**

## TEST RESULTS

Power	78watts
Frequency response	12Hz-28kHz
Separation	100dB
Noise	-92dB
Distortion	0.005%
Sensitivity	230mV
dc offset	0.3/0.3mV



# ALCHEMIST FREYA-GENESIS

**H**aving wrestled with the big Naim and Linn power amplifiers, with no outstanding success I felt, the Alchemist Freya preamp and Genesis monoblocks were lined up with some trepidation. In the event they managed well, certainly better than I had expected.

Having considerably less bass drive than the NAP250 they suited the TDLs by removing emphasis of the deep bass region. The initial strike on the bass drum at the start of Angelique Kidjo's Agolo was softened out and muted. It seemed, subjectively, to have about half the power behind it provided by the NAP250 and whilst, in other circumstances this might well be categorised as a minus point, in this case it was definitely a plus point; reduced output from the deep-bass transmission lines brought them more into line with the rest of the performance, making the strong, but rich bass rhythms on Aye stay in touch with the rest of the performance. With the NAP250 they could swamp the vocalists; with the Alchemist bass lines remained powerful, if sounding a little soft and ill defined. All the same, the Alchemists stayed clean sounding and

didn't make the TDLs boom, as did the Klout.

Across the vital midband and treble regions the Alchemists showed they were lucid and smooth - even a little polite in the upper treble. Whilst not possessing the detailing and finesse of the Klout, the Alchemists did meld the drive units into a fairly cohesive source, from which violin, vocals and steel stringed guitar sounded natural enough. The dynamics were gentle rather than gripping, but these speakers do have a smoothness that tilts them toward classical useage rather than heavy, punchy Rock, in spite of their bass performance. Here, the Alchemist suited their outlook nicely, giving a smooth and gentle rendition of music, yet one that still had plenty of scale and, of course, fearful deep bass ●

**Freya Preamp**  
**Genesis Power**  
**Alchemist Products,**  
**4 Rosebery Mews,**  
**Muswell Hill,**  
**London N10 2LG**  
**Tel: 081 883 3008**

**£1020.00**  
**£1525.00/pr.**

## MEASURED PERFORMANCE

The Genesis power amplifier has plenty of power - it develops no less than 110watts per channel into 8ohms and 196watts into 4ohms, so it can drive big speakers to high levels quite easily and it has good power supply regulation too, almost doubling output when load halves.

An unfortunate feature of the Genesis was its distortion. At 1watt output at 10kHz it measured an acceptable 0.036%, primarily second harmonic, as shown in our analysis. As output increased though, the level rose steadily to reach no less than 0.5% at -1dB below full output. This is none too impressive, around 0.2% being about the maximum tolerable before audibility. **NK**

## TEST RESULTS

Power	110watts
Frequency response	16Hz-40kHz
Separation	102dB
Noise	-77dB
Distortion	0.004%
Sensitivity	400mV
dc offset	44/37mV

# JOHN SHEARNE PHASE 1

**T**he mysteries of amplifier-speaker matching, especially in an acute case such as this, were highlighted when I connected up the John Shearne Phase 1. Hoping for the best, but fearing the worst, I was surprised to hear a good, tight drum strike at the start of Agolo and firm, clear bass lines, strong but not excessive in level. Unexpectedly, the John Shearne amplifier struck the best compromise between bass power, control and the rest of the performance.

The full expressive range of Angelique Kidjo's voice came over without hindrance from the potentially thunderous transmission lines, yet as always there was plenty of bass of a sort that just doesn't exist with lesser speakers. I was never left wondering whether the big TDLs had gone weak kneed with the John Shearne, the finale of the 1812 showing clearly that it pays not to underestimate the speakers. Canons roared, the room shook and I was left a little awe struck. Few speakers can pummel you so hard physically; this is one of hi-fis most visceral experiences, nicely held together by the Phase 1 power amplifier.

Providing well etched vocals and clear cut cymbals, the Phase 1 also

showed itself to possess a good sense of clarity, reinforced by reasonably strong treble. A slight spitch to sibilance became apparent and again, as with the big Naims, I noticed that there were individual drive units at work in these speakers, loosely knitted together to form a whole. In possessing some treble character, at least with these speakers, the Phase 1 joined the big Naim amps in drawing attention to the individual properties of the drive units, at the expense of cohesiveness. This was a small minus point. Steel guitar on Steve Earle's Someday had real bite; the track kicked off with force, as it's meant to. The Phase 1 wasn't without kick, but it also made massed strings sound a little harder and less delicate than I might have wished. On balance though, I felt the Phase 1 offered the best all-round results with the TDLs, an unexpected outcome ●

**Phase 1 Power** **£1999.00**  
**Phase 1 Preamp** **£1099.00**  
**Shearne Audio,**  
**PO Box 22,**  
**Stevenage,**  
**Hertfordshire SG2 8HF**  
**Tel: 0438 740953**

Continued on page 37 ...

## MEASURED PERFORMANCE

The Phase 1 power amplifier produces 78watts per channel into 8ohms, dropping substantially to 56watts into 4ohms. Usually, power increases into low loads, but the Shearne was unhappy with them; it also produced more distortion into 4ohms.

Distortion rose at high frequencies, hitting 0.12%, with a spectrum of high order harmonics. Different results between the channels suggested it was crossover, determined by individual output transistor characteristics.

The John Shearne Phase 1 has been designed to deliver some of the character of a valve amplifier from solid-state. It has an unusual performance, at least in terms of solid state behaviour. It is best judged in terms in sound quality. **NK**

## TEST RESULTS

Power	78watts
Frequency response	4Hz-32kHz
Separation	72dB
Noise	dB
Distortion	0.01%
Sensitivity CD/Tuner	650/140mV
dc offset	20/3mV

# BUYING A PRE-AMPLIFIER AND POWER AMPLIFIER

**Integrated amplifiers these days deliver a lot of power, so why buy a pre-amplifier and power amplifier combination? Here are some of the subtle reasons for doing so.**

**I**t doesn't make sense, but it does seem to work in practice. Integrated amps should work every bit as well as separate pre/powers, yet ultimately dedicated preamplifiers and power amplifiers still offer the best results.

Separate pre/powers are a historical hangover from the days of valves, when power amplifiers were massive and generated so much heat they had to be found their own place in the home - definitely not on a shelf, usually down on the floor. To prevent owners getting 'scrubbers knee' from repeatedly switching the power amps on and off, the preamp invariably controlled the power amplifier through a large umbilical cable. Leak and Quad used such an arrangement and only by the mid-seventies was it being discarded.

Nowadays, separate preamplifiers and power amplifiers exist for different reasons. Massive power supplies are needed if high power is to be delivered into esoteric loudspeakers that plunge down to an impedance of a few ohms. This makes for a heavy and bulky amplifier, as do large heatsinks which are also a feature of high power designs.

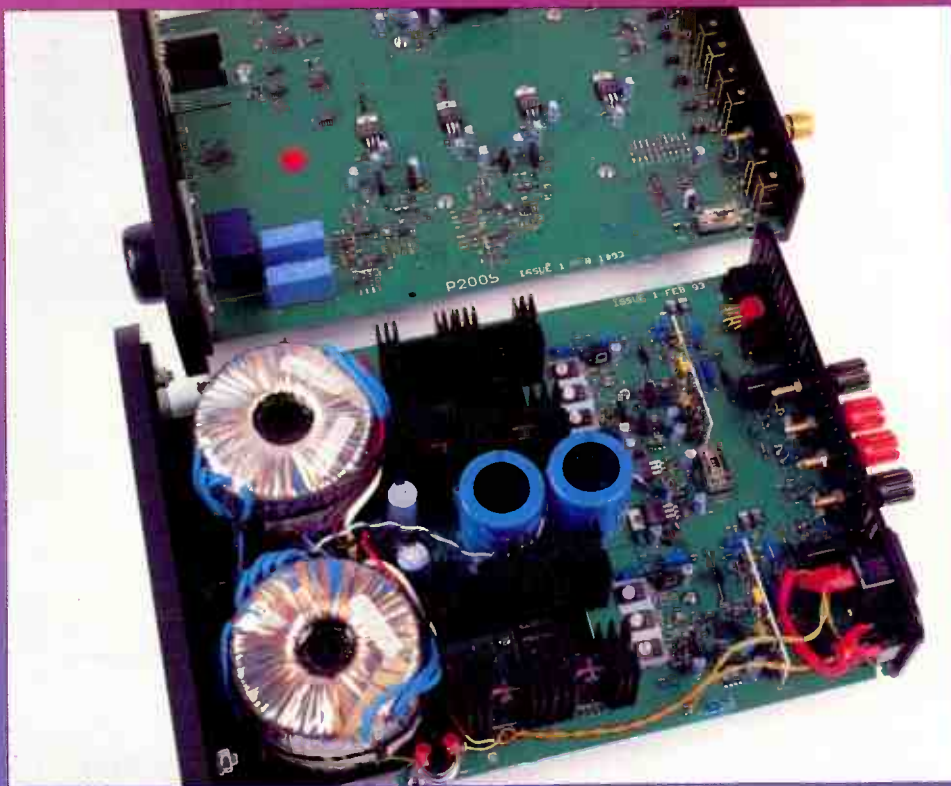
For reasons of convenience and appearance then, it makes sense to split the preamplifier away from this mass of metalwork, since preamps can be neat and small. The preamp is sited conveniently on a shelf; the power amplifier can be placed either on display, or out of sight. Also, from the designer's viewpoint, especially when sensitive high impedance stages exist in the preamp, splitting the two also makes it easier to avoid hum

induction from the mains transformer.

A modern power amplifier is a chunky beast whose role is, or should be, to drive all loudspeakers - even the most difficult like electrostatics - well. Integrated amplifiers may offer the same level of performance on paper, but are rarely as sophisticated in other ways. Class A working, where enormous amounts of heat must be dissipated, or Class A/B with a heavy bias toward Class A, again where a lot of heat is produced and must be lost both demand a large case. Massive heatsinks also allow a dedicated power amplifier to run at a reasonable temperature when delivering very high power continuously. With the Klout, Linn use a single alloy extrusion to form the sides, front and rear of the case. As well as providing impressive structural rigidity this expanse of metal also acts as a heatsink to keep temperature down. So size offers performance advantages; it is most easily coped with in the home by keeping preamplifier and power amplifier separate.

Other more subtle features of independent power amps should not be ignored. A good example lies in the use by DPA and, now, Linn of surface mount components. These are micro-miniature components, little larger than a pinhead, that offer better sound quality than standard 'leaded' components. At present specialised items like this tend to be found in top quality power amps and preamps only, not in mass market integrated amplifiers.

Similarly, enthusiasts can expect to be confronted with some perplexing choices of sound quality with separate pre/powers, but then this is also a potential advantage, since it gives greater freedom of choice. Naim power amplifiers are known for their superb grip, pace and dynamics. Naim integrated amplifiers do not seem to be able to provide these properties in such strong and aurally distinctive form. DPA power amplifiers rely on



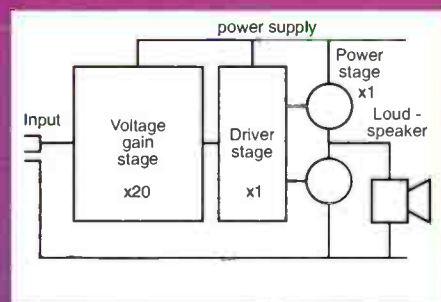
**DPA Digital were one of the first to use surface mount components, this is their latest pre/power, the 200S.**

surface mount technology, a novel form of output stage and, unusually, massive amounts of feedback (90dB) and they too have quite a distinctive signature. Chord power amplifiers use a switched-mode power supply and output MOSFETs to give a clear, precise sound with unusually deep, yet dry sounding bass. Then there are valve power amplifiers of course, like our own 300B design which can be operated with no feedback at all; this gives a free flowing and expansive performance.

Clearly then, apart from basic specified performance, independent power amplifiers are also about distinctive sound quality and in this our experience is that the good ones do truly have something special to offer.

There is a flip side to this though: many power amps of yore were simply audio generating stations as much suited to high frequency welding as anything else. Much a product of the late seventies, these have largely slid out of favour, being replaced by more sophisticated packages from those manufacturers mentioned above, plus many others. Generally, be wary of anything styled heavily to make a power statement, massive illuminated output power meters being one warning sign.

## PREAMPLIFIERS



**In outline, power amplifiers have a voltage gain of around x20, typically needing 1V in to deliver full output of 20V (50W). The output stage has to deliver high current - up to 10A or more.**

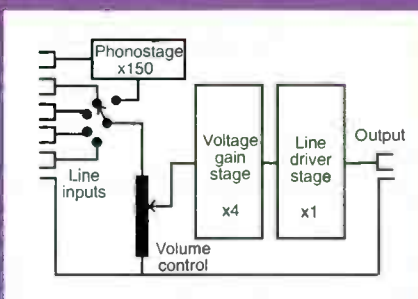
Preamplifiers commonly have a peculiarly subtle yet influential affect upon overall sound quality in any pre/power combination and, even though they seem so intrinsically innocent, are often responsible for significant - even major - sound quality problems. Where power amplifiers often stamp their mark out with big boots - what they do is obvious and you like it or leave it - preamplifiers are altogether a more complex sonic proposition. Poor ones, often those which are fearfully complex in terms of their inputs and facilities, tend to erase detail from a performance, flatten perspectives, contract the

sound stage and add grit to the treble. Preamplifiers have the ability to make a system sound lifeless, cardboard cut-out and boring. Their degradations can have more impact in the long term than those of most power amplifiers.

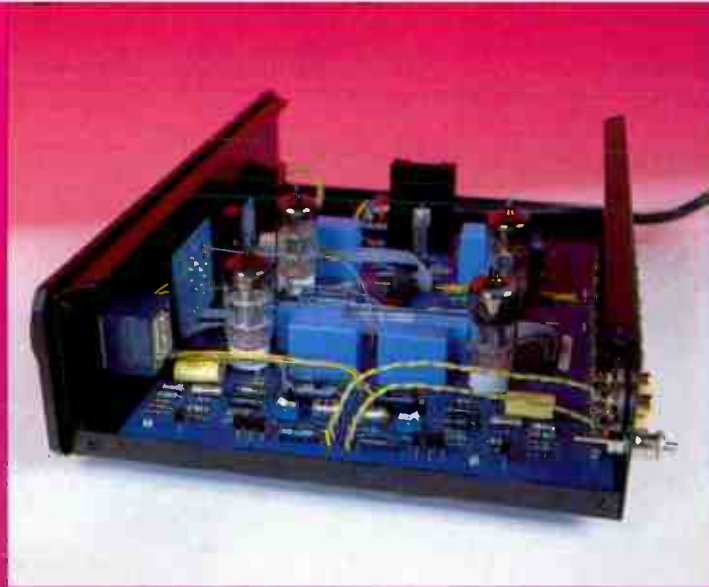
Good stand alone preamplifiers are difficult to find, we feel. Michell, DPA and Rose (hybrid valve/solid state) all find favour with us, as do Audio Innovations with their valve L2 line stage. Linn and Naim also know that a preamp is a delicate device, rather than just a signal switching unit. Be very careful when auditioning any preamp.

This issue sees a group test of head amplifiers for phono cartridges (p57). Head amps are a specialised form of preamplifier, needed to amplify the minuscule signal from a moving coil or moving magnet pickup cartridge up to a level where it can be fed into a line input (i.e. tuner/aux/tape). Head amps like these underline how much of an influence preamplifiers can have.

There's more variety in preamps nowadays with the appearance of good valve designs which generally have a more fluid and relaxed sound than solid state types. However, do be very careful about these since low level valve stages are extremely sensitive and there's greater latitude for poor design to ruin the final product. Good valve



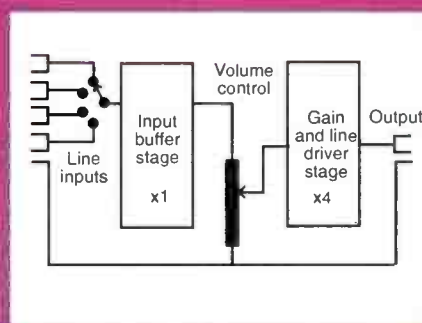
**Pre-amplifiers most commonly have all line inputs run direct into the volume control track via the input selector switch. Phono runs into a separate preamplifier/equalisation stage.**



**The Rose RV-23S valve/solid state preamplifier has an open and sweet sound.**

preamps are beguiling to listen to; poor ones may sound bland and suffer both hiss and hum.

There's a good argument for using



**Some manufacturers, like Quad and Naim, prefer to use an input buffer to give better defined input conditions. Input overload is a potential drawback with this system.**

a valve preamplifier with a solid state power amplifier. It's a combination that provides some of the openness, sweetness and fluidity of valves, with the practical strengths of solid state power amplifiers, namely good load tolerance, small size and high power output. There's less practical benefit in combining a solid state preamp with a valve power amp, although even this can in some cases be successful. However, a good valve power amplifier is very loud and can be seriously compromised by a solid state preamplifier of mediocre ability.

Independent preamplifiers and power amplifiers like those reviewed for this issue may offer little more power than an integrated one, say, the Denon PMA-350II. Good ones, these days, have a lot more to offer in terms of fidelity, however. That's the main reason for buying a quality pre/power combination. ●



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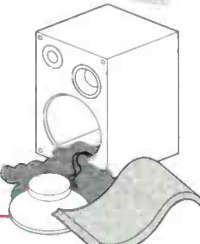
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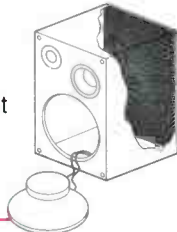
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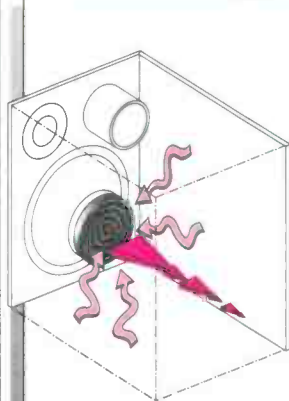
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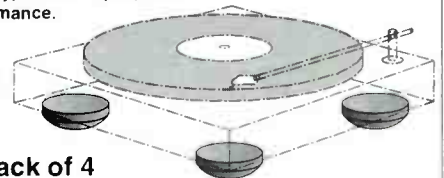
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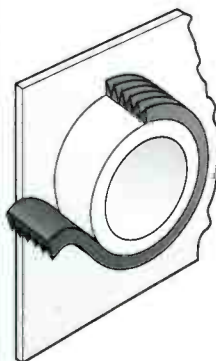
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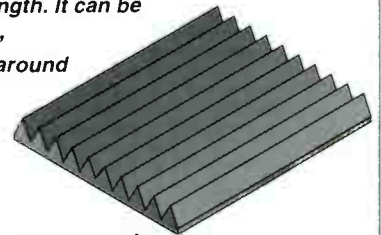
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# POWER AMPLIFIERS

## CONCLUSION

... Continued from page 33

It seemed to me that the tail was wagging the dog. We set out expecting to hear the innate differences in sound quality between power amplifiers and describe them in relation to the speakers. In the event, we heard some fairly radical effects of a magnitude beyond anything I am used to when changing amps around. Were the amps driving the big TDLs, or were they driving the amps? Sometimes, it seemed like the latter.

The tail can wag the dog. All loudspeakers generate a back-emf that opposes the amplifier and the bigger the cones, cabinet and air load, the greater this will be. I got the feeling that it was at times so great with these speakers that they were - electrically - shaking the amplifiers around a bit. The Linn Klout seemed most disturbed by the TDLs, producing peculiarly boomy bass. The big Naim got into a power struggle, whilst the Alchemist and John Sheame Phase 1s managed to keep a respectful distance and do their best, such as it was.

We weren't expecting this; but that's hi-fi for you - unpredictable. Basic differences between the NAP250 and the Klout were maintained and they were quite obvious, it's just that bass drive problems were so intrusive they became overwhelming.

Firstly, let me deal with the Naim NAP250. Known to deliver tight, deep and superbly controlled bass, giving Rock in particular great drive and superb timing, they understandably have a enthusiastic following. However, the NAP250 also has sharper treble with more bite than is to everyone's taste; the bigger, more expensive NAPI35 monoblocks have a smoother presentation. At low frequencies, the 250 in fact did the best job of all with the big TDLs, but in this case it was too much - there's just no justice! The twin bass lines delivered colossal bass, so much so that it overwhelmed everything. The best way to resolve this, using Naims, would be to bi-amp and reduce gain to the bass amplifier. This would pull bass level down, bringing it into line with the rest of the performance. But the NAP250 also made the TDLs sound less cohesive than the

other amps, due to their brightness, which wasn't so good. Ideally, with the TDLs the Naim would be best as a bass amp in a bi-amp system. It wasn't the best match otherwise, partly because the TDLs don't complement their speedy, dynamic nature. Bass apart, I felt the speakers sounded best with a smoother and more cohesive amplifier, a category into which Linn's Klout slips supremely well.

The Klout was, surprisingly, the most inept of all four amplifiers in terms of bass drive. It sounded weak with Kabers in contrast to the NAP250, and it became curiously overblown and boomy with the big TDLs. Yet, bass apart (again!) the Klout struck me as a beautifully detailed

Whatever, the name Klout struck me as inappropriate for a design whose strengths lie elsewhere. Don't let my criticism of the Klout's somewhat variable bass deter you from listening to this amplifier, since it has a beautiful presentation, one that I personally took to immediately. Being a bit of a valve head, the qualities of smoothness, ease of delivery and cohesiveness are ones I very much appreciate, substituting short term drama for relaxed and enjoyable long term listening. The Klout has refinement. Bass performance can be judged in a shop demo, but it must be with the speakers you intend to use.

The Alchemist Genesis monoblocks, like the John Sheame Phase 1, came over as mercifully detached from the TDLs in the bass department. They appeared to make little attempt at forcing the speakers to perform to the full extent of their abilities, unlike the Naim. It was just as well, since by backing off a little the Genesis produced a reasonably balanced result, albeit one of no outstanding merit. I found them gentle sounding, smooth and cohesive, but of limited low frequency drive in conjunction with the big TDLs. There was still plenty of bass, but it was somewhat soft and unengaging in nature. A pleasant performance then, not an inspiring one.

With the big TDLs the John Sheame Phase 1 came over as most balanced sounding of the four amplifiers. It too couldn't or wouldn't push the TDLs hard, bringing a welcome and needed reduction in deep bass output. Yet their bass sounded tight and articulate with this amplifier. Further up the audio band, the Phase 1 came over as a little bright in the upper midband, but detailed and insightful all the same; it was a good all-round performance I felt.

Given that the TDL Reference Standard loudspeakers don't sound sprightly enough for those wanting supreme speed, dynamics and timing for Rock music, and given that they have multiple drivers, they are best paired with a deeply smooth and cohesive amplifier like the Linn Klout, or a DPA 50S. Being bi-wireable, the bass lines are, ideally, best disconnected from the rest of the speaker and driven independently. In this role the colossal power and grip afforded by Naim amps seems ideal ●



**This cut-away of TDL's Reference Standard transmission line speaker shows the task a power amplifier faces when asked to drive a high power monitor. A large bass unit on either side, each rear-loaded by its own transmission line, must be driven and kept under control. At each end of the central drive unit array lies a midrange driver, both back-loaded by another transmission line. Two tweeters and one central super-tweeter complete the line-up of seven drive units.**

and cohesive sounding amplifier that delivered more of the music than the other three models. I was reminded very much of the DPA sound and wonder whether Linn's use of surface mount components had something to do with the qualities of the Klout.



# World



## CALLING ALL HI-FI ENTHUSIASTS

I thought I would put pen to paper after reading Dominic Todd's earthy and practical views in your July edition. I found myself in agreement with everything that he said in his Fair Views article about musical evenings, technical knowledge and hi-fi enthusiasts, despite being the owner of an olive green anorak (for hiking purposes only).

Manufacturer's and dealers that want more turnover from customers buying Lifestyle systems and Home Cinema should be very careful indeed about neglecting real enthusiasts who want more from their hi-fi systems. But enthusiasts themselves could do more also. I decided to start up a hi-fi enthusiasts group arranging musical evenings and trips to shows etc. At my own cost I typed up and copied letters, sending them to selected dealers and manufacturers, as well as enthusiasts. I was very disappointed with the response. Out of eight dealers, only two afforded me a reply. Out of twelve manufacturers I received only three replies. What I found worse than this is that subsequently the people that appeared initially to be most interested in the project let me down.

A year on I have grown content with not having the number of people involved that I would have liked, though I feel very proud of the few people that have remained staunch hi-fi junkies and have since become friends. I would like to thank all of the people who have formed the nucleus of the project, for keeping it alive and to the two dealers in our area for caring.

I am pleased that Dominic's view of the musical evening has been changed and hope that dealers and manufacturers will take notice of the message he included in his article.

My message is a simple one to all the above mentioned people 'WAKE UP'. Do not let our pastime get replaced with Sonic the Hedgehog and computer-generated recreation.

There's a lot more pleasure to be had listening to music and tinkering around with hi-fi equipment than many people think. So come on dealers, manufacturers, hi-fi enthusiasts and the hi-fi press, promote and encourage such clubs and musical evenings. It is our hobby - your future.

If you live in the North East and you wish to contact me, please do so.

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**Hi-Fi Heretics**  
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## REPLACING NEW FOR OLD

As my amplifier and speakers are now about twenty-five years old, I have recently been looking around for replacements. With the current interest in valves I have been trying to remember back to valve amplifiers that I have owned and wondering whether I should go back to the old technology.

Many modern sound systems, although having very low distortion, excellent signal to noise ratio etc., sound rather bland and unexciting. This makes me wonder whether the system that I

have now is as enjoyable as some that I have owned in the past. There have been certain milestones in my musical enjoyment that I can remember clearly.

The first was when I built a 10watt amplifier from a circuit in a magazine using a pair of 6V6s in push-pull. Previously I had simply plugged the turntable into the radio and this amplifier was my first step towards High Fidelity.

The next step was mounting the speaker on a tapered board that fitted in the corner of the room to form a kind of horn. With the 10watt amplifier I thought this sounded great. The 10watt amplifier had been built from well used parts and failed after a few years, so I built a Mullard 3-3 to replace it. Although far less powerful, the Mullard

## Letter of

### THE TIDE IS TURNING

It seems that the tide is turning, the 'new is best' orthodoxy of the 1980s being gradually jettisoned in favour of a more commonsense approach to assessing equipment - that of its actual quality, rather than its newness.

In the 1970s problems were solved by new technology. We had wow and flutter 'solved' by Direct Drive and then solved again (?) by Quartz Lock. We had the problem of tonearm geometry which was duly 'solved' by S-Shaped, Straight and finally Linear Tracking arms. Digital Synthesized Tuning 'solved' the problem of drift on FM. This was partly marketing driven, but there was nevertheless a climate of science that hovered over the hi-fi world, promising solutions.

This all faded when the

'80s arrived and brought with it an approach heavily influenced by a somewhat metaphysical notion of musicality. In the now defunct Flat Response, then Hi-Fi Review people would write in with all manner of exotica (Oracles, JBLs, Systemdeks, etc.) and request advice on cartridges or record clamps and the like and be told to flog the lot and start again with an LP12, NAD and a pair of KEF Codas.

Both wisdoms espoused one thing: they celebrated the new and ignored the old.

With digital audio this has reached new heights. I own a Marantz CD52IISE and am very happy with it. I came across a Sony CDP101 last week in a junk shop for £45. This is the very first Sony player ever made. I bought it for a bedroom system. After cleaning the laser lens with

Send your letters to Hi-Fi World Letter Page,

# writes

sounded even better than its predecessor.

By this time stereo was becoming more common and I soon built a pair of Mullard 5-10 amplifiers to replace the 3-3. I used ultra linear output transformers which it was claimed would reduce distortion to 0.1%. For some reason the 5-10s never seemed to sound quite as

good as the 3-3.

I used a number of early transistor amplifiers, some of which sounded awful, before settling on my present 30watt. This was built from a circuit published in a magazine and was considered to be somewhere near the ultimate at the time.

It is clearly impossible to remember exactly the sounds of old amplifiers, but the one that I remember with the

most affection is, without doubt, the Mullard 3-3. I thought at the time that this was the most enjoyable amplifier that I had ever heard. On paper its performance was quite modest, but it sounded absolutely marvellous. Perhaps the sheer simplicity of the design and the small number of components had something to do with it. Some people also claim that a single-ended output stage sounds better than push-pull.

I wonder if it would be possible to build a Mullard 3-3 today using modern components and use it with good quality interconnect cables, and how its sound would compare with a modern design? Although 3watts seems ridiculously low powered by modern standards this was quite sufficient with the higher efficiency speakers of the fifties and sixties. Perhaps someone knows of a modern speaker that would go well with this amplifier.

What really matters is not

the measured performance of a component, but how enjoyable it is to listen to. Many modern amplifiers and other components are capable of reproducing the sound accurately, but sound cold and clinical. I shall be doing a lot of listening before deciding on replacements. The days of making decisions on measured performance have gone for good as far as I am concerned.

**Brian Darling**  
London

The only problem with building the Mullard 3watt amplifier, which I also built many moons ago, is finding an output transformer. You may well find that F&S Trading or Sowter can supply one. Alternatively, there's our 4watt single-ended amplifier kit, which comes complete with chassis, transformers, valves and all components for £385 and will save you a lot of hassle. Its output

continued on page 45...

## the Month

a paintbrush and isopropyl alcohol, Duraglitting the phono sockets and mains plug and fuse (a tweak that invariably works sonic wonders, incidentally!) imagine my surprise when I heard deeper, stronger, more tuneful bass and a midrange with superb front to back imaging and a real tuneful, listenable, (dare I say it?) almost valve like quality - from the Sony! The Marantz is much better in 'hi-fi' terms; frequency extremes, left-to-right imaging and low level treble detail, but aside from a slight tizziness on naturally tizzy digital cymbals, the Sony cleans up.

Don't dismiss 'old' hi-fi. If it weren't for the running costs, I'd be behind the wheel of a Jensen Interceptor FF instead of my Peugeot 205. Fortunately for hi-fi enthusiasts, we are largely exempted from the bottomless pit of expense that can go with old cars

and thus have little excuse not to investigate classic hi-fi.  
**Julian Price**  
East Sussex.

Magazines were certainly partly to blame for the way things went, with their sweeping statements about what is right and what is wrong and no room for manoeuvre in between. Any self respecting audio enthusiast knows that the sound they like may well differ from that of others.

As the larger manufacturers have charged off on the trail of AV and Home Cinema, hi-fi has become less pressurised and freer, with less of the push-and-shove of the 'heavy sell' mentality and more concern about finding a true way ahead, be it by valve, transistor, digital or analogue. Less hype and more genuine improvement is what we all want. **DB**

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# MISSION FLY WITH AEROGEL

**Using a special new cone material, High Definition Aerogel, Mission launch their new 752 loudspeaker. Dominic Baker enjoys the flight.**

The slow bluesy beat, lightly brushed cymbals, tight snappy drums and deep free flowing bass line of Counting Crows' Perfect Blue Buildings was my first introduction to Mission's new Cyrus 752 loudspeakers. Straight away it was clear that these were something different, the crisp, detailed and agile manner with which they handled the music making them one of a currently-rare new breed offering a level of quality that normally demands a higher sacrifice than £500.

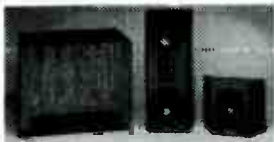
Mission are the first manufacturer to introduce a loudspeaker using the advanced High Definition Aerogel (HDA) cone material developed by Audax in France. This is quite a step forwards for Mission, the majority of their standard range using either Plastiflexed paper drivers or a form of polypropylene.

The 6.5inch HDA bass/midrange driver used in the slim and elegant 752s is the most expensive unit Mission have ever used in a production loudspeaker. But their designer Henry Azima believes that the qualities of HDA more than deserve the extra outlay, and from my experience of this cone material I would wholeheartedly agree.

Mission don't take the same care with their 6.5inch HDA tweeter drivers from Audax as they do with the



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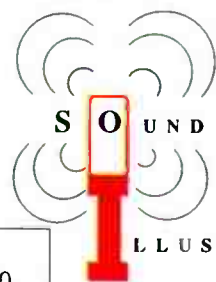
*DPA, LFD, Michell, Orelle, Pink Triangle*

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Mike Harvey's



**Secondhand/Ex Demo equipment:**

Acoustat Mod 3 electrostatics £1500, Croft Super Micro-A £350, Musical Fid. A370 £1000  
 Oracle Delphi + Linn Ittok £600, Sonus Faber Electa £1300

*Anywhere in the South.*

make a few subtle modifications of their own, the only visible one being the black crackle cone finish, instead of the usual battleship grey/blue of HDA. This driver is mounted on a slanted baffle to time align its acoustic centre to that of the 25mm metal dome tweeter, and just beneath it lie three reflex ports which provide the bass tuning.

The midrange of the 752s wasn't quite as forward as I'd expected, as if Mission were trying to hide the fabulous qualities of HDA and keep the secret to themselves. I suspect that the slightly more restrained character of the 752s was chosen for its softer, less brutally revealing nature, which may offend listeners used to less a less intense sound. However, even though a little restrained, the superior quality of the HDA material makes itself known. The 752s have a crispness, a grasp on the focus of a piece of music and an

devoid of character, and I normally regard this as one of the better recordings available on CD. But on the same note, the Missions have the ability to show just how incredibly clean a good player can sound. A heavy polypropylene or even paper cone seems to mask this, putting some of the character back into CD; the 752s reveal it for what it is.

Mission have chosen to combine their special HDA bass driver with a metal dome tweeter, something which is normally frowned upon at Hi-Fi World. However, in the 752s it proves to be a wise choice, the use of a smooth metal dome tweeter with its bright character suits the HDA material especially well, allowing the units to integrate in an almost seamless manner. Cymbals and metal stringed instruments were given a pleasant sparkle, the upper harmonic structure preserved to create an open and natural atmosphere.

The bass of the 752s wasn't especially deep. In fact, on some tracks the deeper fundamentals were missed altogether; on others they were there but lessened in impact. But what is there seemed concentrated in its energy, waiting to explode in an instant. This gives the 752s terrific punch, driving tracks forwards and underpinning Rock to give a firm and well timed foundation. Higher sensitivity drivers do tend to have a leaner bass quality, their resonant frequency being raised by lighter cone materials, but what you get instead is improved bass articulation, where notes are played rather than lazily pondered over.

The most spectacular ability the 752s was the extra degree of intelligibility they imparted to apparently muddled or confused recordings. L7's *Stuck Here Again* with its solid kick bass and heavy rock attitude is a nasty, grungy recording, but was great fun on the Missions. They have the control to turn this kind of recording into a listenable and enjoyable experience. I can't think of a better way of inflicting brain damage!

The 752s are, in my opinion, by far the best loudspeakers Mission have ever designed. I'm sure that they will quickly assume cult status alongside the likes of Epos ES11s and Quad ESL63s, where a display of quality engineering combined with innovative high performance materials produces something far greater than the sum of the parts. Mission have something special in the 752s, something unique - at least for the time being - that once again pushes them out in front of the crowd ●

**Mission 752** £500  
**Mission Electronics,**  
**Stonehill,**  
**Huntingdon,**  
**Cambs. PE18 6ED.**  
**Tel: 0480 451777**

**MEASURED PERFORMANCE**

Mission's use of a High Definition Aerogel bass/midrange unit has provided a loudspeaker that combines good bass power with high sensitivity.

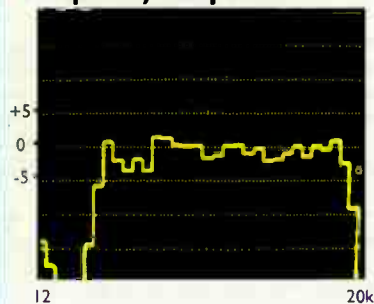
Using a nominal watt of pink noise (2.83V true rms) and measuring at a distance of 1m, I recorded a healthy 88dB from the 752s. This means that they will go a fair bit louder than most speakers at any particular volume setting. Their high overall impedance of 8.9Ω also indicates easy drive characteristics; they will not draw much current. The impedance curve stays high over most of the audio band, another good sign, but there is a dip in the treble down to 4Ω where the 752s will draw more current.

The frequency response of the 752s is very smooth, with no real peaks breaking the overall trend. The response does have a shallow dip through the mid-band though, which I suspect will soften vocals and lessen projection into the room. But as long as the box is good and solid this shouldn't reveal itself as a box bound colouration.

Overall the 752s are an interesting piece of engineering. They combine a flat response with good driver characteristics which should ensure consistent results with a wide range of partnering equipment. They're easy to drive and likely to be highly compatible.

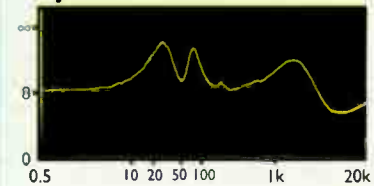
**DB**

**Frequency Response**



Essentially flat response, but shallow dip through mid-range

**Impedance**



Treble impedance dives to 4Ω

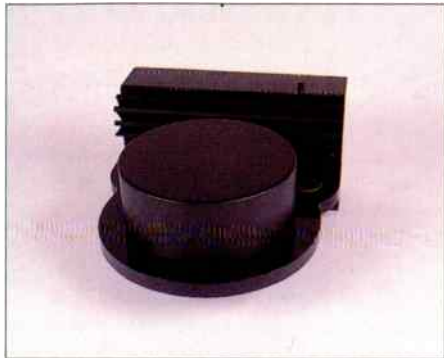
*“The 752s have a crispness, a grasp on the focus of a piece of music and an effortless ability to produce detail and energy that places them far ahead of similar paper or plastic cone drivers.”*

effortless ability to produce detail and energy that places them far ahead of similar paper or plastic cone drivers.

Like the DPA 1024 and DaCapo CD convertors, as soon as the 752s are played you can hear that they're significantly different - and something special. There are a lot of loudspeakers out there, but the 752s are clearly distinguishable from them. They make the jump: they are not only different, but better. Vocals sound so lucid and transparent that it gives the 752s a cold and dry sound. This isn't an inaccurate character bestowed on the music by the cone material, more an absence of the colouration usually present.

It's quite surprising what the 752s can do to CDs and CD players. We all know that CD has its faults, but the 752s quite brutally reveal the hard, processed sound of lesser players. On several machines, some costing three or four times more than the 752s, Michael Stipe's voice on REM's *Everybody Hurts* became squeaky clean - too clean, too

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Ken Kessler - Hi-Fi News & Record Review August '94

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.... continued from page 39

transformers are larger, in order to give better bass drive.

There are some loudspeakers around that will go loud enough with 3-4 watts. If you want to build your own our KLS-2 has a sensitivity of 94dB, plus a flat impedance curve, being specifically designed for low output/low-feedback amplifiers like the Mullard. Otherwise most horn

already large record collections. We now offer hundreds of records (LPs & 78s) by mail order, with a full money back guarantee. Since we have minimal overheads, we can keep our prices at a reasonable levels and are usually able to get most items if we don't stock it ourselves. We will also grade all items aurally before despatch.

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were more interesting than they knew and say a lot about the current state of hi-fi in this country. What was so fascinating was that they gave two rankings for every machine: the order of preference and the average estimated cost for each. Their results showed -

- 1) People either have no idea about the law of diminishing returns, or cannot imagine how expensive good CD players can be.
- 2) People seem pretty good at

people can't recognise an expensive player when they hear one, they just don't like them. Why?

One might need to be educated into good hi-fi, the same way as one learns to taste wine. However, if this is true, then there are two unwelcome implications. Either high-end hi-fi sounds less like live music than 'ordinary' hi-fi, or people have forgotten what live music sounds like. I suspect the latter; most of the music that people hear has been electronically processed.

So, the manufacturers of high-end hi-fi may need to start encouraging people to get away from the technology, go out, and hear sound waves created by musicians. If they cannot do this, then the hi-fi future could belong to Home Cinema.

**Dr David Foreman Staffordshire.**

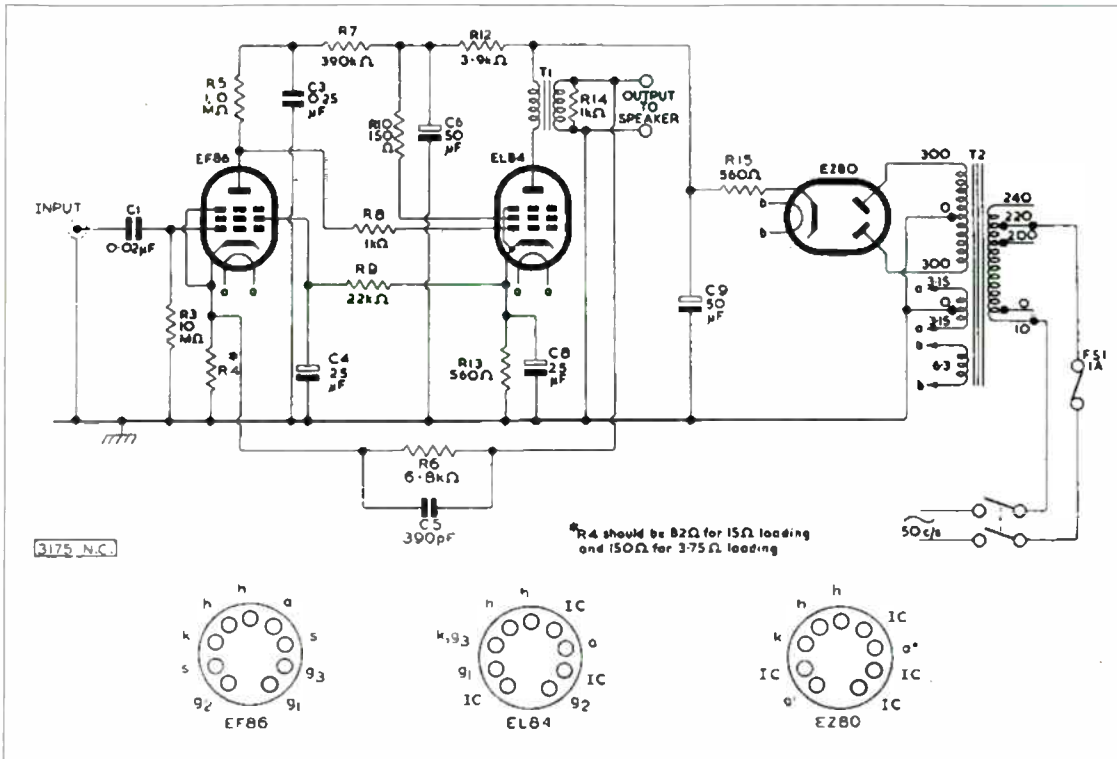
Differences in sound quality can be surprisingly

inconsequential to many people and for

them there is probably little difference between a good mid-priced player, costing say £400, and a high end machine costing several times the price. Much depends upon the perceptions and sensitivities of the listener and with a large, unselected group, the 'median' listener may well not be very discriminating.

Differences can be subtle too and require a long period of careful listening even on a revealing system before becoming obvious. Sometimes a new product

continued on page 47 ....



The Mullard 3w, 3 valve single-ended amplifier.

loudspeakers are plenty sensitive enough to pin you to the wall with a few watts. I'd go no lower than 94dB sensitivity though, otherwise you may be listening to the amplifier while it is clipping. **DB**

**ROLL UP - GET YOUR VINYL HERE**

In response to the letter from L.W. Perkins in the July issue, and in view of your response, I would appreciate your magazine informing its readership of a terrific source of quality used vinyl - me!

My associate and I formed Sunset primarily to expand our

**Steve Lawrence  
Sunset Records  
P.O. Box 3711,  
Stratford,  
London.**

**CD - THE PRICE OF PLEASURE**

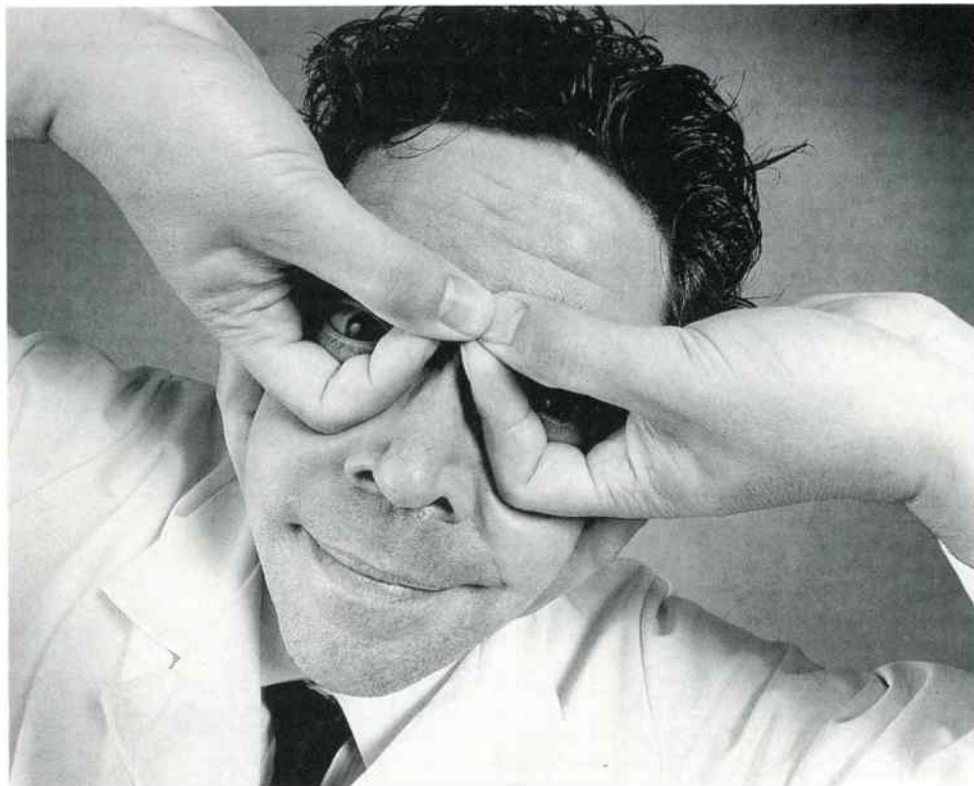
One of your rivals recently published what they claimed was the largest blind test of CD players ever undertaken. Three hundred people listened to seven machines, with prices ranging from £250 to £1300. The CD players were from reputable manufacturers and most had received good reviews.

The results they printed

telling more expensive from cheaper CD players, as plotting the actual cost of the CD players against their estimated cost gives a convincingly straight line.

3) People do prefer mid-priced players to budget players. However, even budget players are preferred to high-end designs. Here, plotting preference against estimated price gives a U-shaped graph, with the cheapest players at the bottom of the 'U'.

If high-end CD players represent the cutting edge of advancement, then it is hardly clear that the advance is going in the right direction. It's not (as your rival suggested) that



## Meet Mike Martindell. The man who broke the sound barrier.

In the world of hi-fi there are those who have it and those who have not. And Arcam's Mike Martindell has it in spades.

This is a man who did more for the anorak than Chuck Yeager did for the flight jacket. A man with only three things on his mind. Your left ear, your right ear and the final frontier... your wallet.

It took plenty of the right stuff (what Chuck would drawl 'moxie') to even dream of producing a CD player with Arcam's standards of sound quality for under £300. But if anyone could do it, Mike could. Our chief engineer and his team of self-confessed audiophiles have a rather compulsive habit. They like to break old records (of which Arcam has a rather inelegant sufficiency).

Combining a liberal dose of obsession (and we're not talking

after-shave) with the same principles and techniques that produced the first complete UK manufactured CD player, they created the new Alpha One.

The British-built A1, as it is affectionately nick-named (for reasons you will fully understand when you check it out at your Arcam dealer), has all the hallmarks of Arcam's legendary quality. Best sound performance in its class? Check! Elegant appearance?

Check! Future proof digital output? Check! Remote control? Check! Unique Arcam Fibreglass printed circuit board? Check! Military specification flow soldering? Check!

In fact the only thing that has been scaled down in this single-minded pursuit of glorious sonic performance...is the size of your cheque. Check!



**The Alpha One CD Player. Around £299\***

# ARCAM

*For more information about the Arcam Alpha One CD player and the name of your nearest dealer, please complete and return this coupon to us. In addition, if you would like independent reviews of any of our hi-fi equipment, please state which products and we'll be happy to send you the relevant material. Arcam, Pembroke Avenue, Waterbeach, Cambridge CB5 9PB. Or telephone: (0223) 440964 (24 hours). Fax: (0223) 863384.*

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\* Recommended UK manufacturer's retail price £299.90.

.... continued from page 45

can sound good at first, but after a few weeks of use its sound and its foibles begin to dominate. A quick blind listen with an unknown room, system and music is not enough for serious conclusions to be drawn. In such tests most people distinguish only the different sound balance between players - is it bright, dull, forward, bassy, bass light etc. It can take several minutes and several different tracks to be sure of even this, before you start to be able to listen for stage depth, height, width, detail, separation, image quality and focus, tonal colour, distortion and what have you.

At the budget end players commonly have gritty treble and weak bass. By the time you get up to £300 or so, most are sounding a lot smoother and more balanced, and from here onwards there is little that can be improved upon in terms of tonal balance. So it is easy to separate the cheapest from the mid-priced players, but the changes from there on upwards are less obvious in a short demonstration.

The system that is used will also have a great effect on the results. If, say, a Pioneer A400 was used for amplification, with its bass warmth and bloom, it would suit the weaker bass of budget machines better than high-end players which may sound overblown in comparison.

Sadly, there are so many variables that such tests can't be seen or taken as definitive even if, superficially, they look attractive. At best they form an interesting experiment.

**DB**

**I MISSED**

I feel rather like Baggio having missed a penalty in the recent World Cup Final shoot-out; he missed the goal, I missed the

301.

Six months ago, in an unknowledgable desperation, I bought an Akai tuner from a bootsale for £5.00 just to listen to Jazz FM and a few other broadcasts. The cold, compressed sound began to drive me crazy - really. So having browsed through your magazine (not as thoroughly as I should have, as you will see) and reading about the warmth of valve I thought it might be an idea to buy an old valve tuner - audiophile or not the warmth would do for me. A few weeks ago I saw an old valve tuner and though I initially didn't like the look of it, it was valve and for £1.50 I thought what the heck! I also relented and bought the valve amp for £1.50 which was being sold along with it.

I got the tuner home and well, it didn't work. A fuse change and hey presto! Reading through your magazine recently I read that the Leak Troughline was superb but needed realignment and 5mV aerial strength for best results, so I was delighted with my purchase. The amp is a Leak Varislope 2.

So I went on to read about Garrard decks. The 401 I thought - that's what I must look out for. So last week I passed up a 301 at a bootsale thinking it inferior. Every time I think about it I feel as sick as poor Baggio must do.

But before you go thinking, "There's an ungrateful soul" I must say that if it came to a choice I would have picked the Troughline Stereo FM3 over the 301 as I love listening to Jazz FM in the evenings and the Troughline delivers it in dazzling style. I hope whoever got the 301 loves it as much as I do the Troughline.

**Gilbert Akinyele  
Benhillwood Road,  
Sutton.  
Surrey SMI 3SS**

P.S. Please help! When I got the Troughline home the string came off the tuning pulley. Some repair shops say

they can help but they need the diagram to show which way the string goes - how many turns this way and so on. Having got a manual from T.I.S. there is no indication of this. Or would this come under the term 'realignment'? If so is there a place where I can have this done which isn't too far from me? If it doesn't come under the term 'realignment' please advise me of the configuration so that I can listen to GLR once in a while. (I've manually tuned it in to JFM).

**Try speaking to Graham Tricker at G.T. Audio on 0895-833099, who specialises in restoration of tuners, including Troughlines. Situated in Higher Denham, like you he's close to the M25 construction site - not so far away in terms of**

behalf as the magazine is exactly to my liking. My newsagent has been instructed to supply me with future editions. The second issue I bought came with Supplement No.8, again, an excellent read!

I have two questions I hope you can answer satisfactorily, these are:-  
1) Are issues 1 - 7 of the Supplement still available? If they are I am willing to pay for any cost/postage that may be involved.

2) As I am a complete tyro in such matters can you recommend any book(s) that will educate me in matters electronic? Ideally, something that will take me from the simplest (e.g. what a capacitor is, where it goes, and why does it go there) through to more advanced knowledge, practical and theoretical.

I look forward to further



**Anyone know how to put the string back on the tuning wheel of a Leak Troughline?**

distance, if not time with traffic speed being about that of a bulldozer. **NK**

**AN INTEREST REKINDLED**

I have recently re-acquired my taste for listening to music, live and recorded.

As a consequence of this interest I again started to look at the current range of 'hi-fi' magazines and because it cost less than the others I bought your May edition of 'Hi-Fi World'. A wise choice on my

issues of Hi-Fi World, please do not drop your standards. Congratulations!  
**W.E. Bowman  
Newcastle-upon-Tyne.**

P.S. I prefer the 'sound' of analogue reproduction.

**We did not know how popular the DIY Supplements were going to be. Of the first seven supplements, Numbers 2 (April '93) and 6 (December '93) are not**

**continued on page 55 ....**

# TAPE CHALLENGER

Can Onkyo's new 3-head TA250 cassette deck take on the might of Nakamichi? Dominic

Todd listens closely.

Without beating about the bush, it's clear that Onkyo's most recent cassette deck entry is after Nakamichi's blood. Priced at £349.95 the Onkyo leaves a mere tenner change between itself and the highly rated (and aspired to) Nakamichi DR-3. Onkyo are by no means the first large Japanese company to attempt to do battle with the cassette deck kings. Sony, Technics and Aiwa, to name but three, all field decks to compete at this level and above.

What marks the Onkyo out as being special though, is that rather than taking the usual approach of trying to woo the customer with "bells and whistles", often to disguise less than top rate sound quality, they've opted for a sensible range of facilities and good quality engineering (rather like Nakamichi). Thus you'll find a good quality three head and three motor dual capstan transport and "clean"

sounding electronics. What you won't find are gimmicks such as powered doors, tape editing features and such like.

Onkyo haven't been too stingy, though. There's still an excellent track search device (that actually works), a multi-function counter and fine bias control, as well as the usual three-head ability to monitor recordings. Onkyo have also resisted the temptation to join the Dolby S bandwagon (so far). Otherwise, the actual finish of the machine is up to Onkyo's high standards, and is good enough to stand comparison with Nakamichi. Drawbacks were that the case was too wide to fit a standard 19in rack - and that's wide - and there's no tape type indicator, even though selection is automatic.

Being as well built as a Nak' is one thing, sounding as good is quite another. To see if the TA250 lives up to Onkyo's

aspirations, I put it along side a Nakamichi DR-3. Most striking was the stability with which images were portrayed. Vocals remained staunchly in the centre of the soundstage and the Onkyo's pitch stability was never in doubt. This comes as no surprise for a deck offering dual-capstans and three motors. What the transport can't make up for, though, is the quality of the electronics. Here the Onkyo was impressive, but by no means flawless.

Recordings generally had a slightly bloated, albeit solid, bass line. There was plenty of deep bass extension; subsonics from a closing door sound effect buried within Billy Idol's Pumping on Steel shook the room impressively. The bias control was a bit flaccid in comparison with most others, full rotation from minimum right around to maximum bias offering less change of sound quality than expected even with ferric and chrome tapes. This

## MEASURED PERFORMANCE

The Onkyo replay response had been very carefully adjusted, giving an especially flat frequency response maintained right up to 20kHz. The replay amplifiers were quiet, but the transport ran +1% fast, which may be noticeable as slightly raised pitch on pre-recorded tapes. Tapes recorded and played on the machine will run at the right speed.

Recording frequency response was good too, due to the use of a quality dual head. Unfortunately, I had to crank metal bias up to maximum to get treble flat - and then only just, as our response analysis shows. High performance metals like TDK MA-XG cannot be tuned in, since there isn't enough bias adjustment range. Cooking metals like TDK MA and Maxell MX match in at full bias.

As usual there was enough bias range for chromes and ferrics, all of which can be tuned in to yield a wide, flat frequency response, so the TA-250 will in practice suit a wide variety of tapes. However, metals these days really do give excellent results and, now, are relatively cheap, so it seems a pity that a recorder with pretensions to quality is barely able to cope with them. Onkyo need to ponder this one.

Distortion levels were low and head overload limits high in the midband (MOL315) and at high frequencies (SAT10k). With 0VU set at Dolby flux, metal recordings can be peaked at +6 or thereabouts on the Onkyo display.

Chromes and ferrics can be taken up high too, to around +4. These parameters are all primarily a function of head quality.

Hiss levels were low enough to be determined by the tape being used, Dolby B giving a full -10dB hiss suppression and C -20dB, a good result. Sensitivities (record gain) were correct too.

The transport possessed tight basic speed control, as the sharpness of the spike at right in the seed stability analysis shows. There was little capstan wow, but surprisingly a little flutter can be seen as a broad peak in the middle of the analysis. I wouldn't expect this to add much coarseness or papery colouration though.

NK

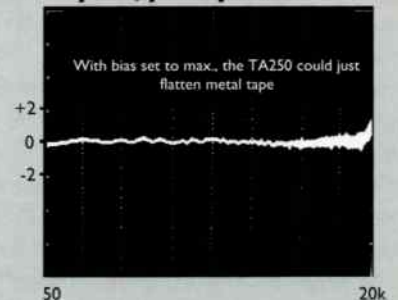
## TEST RESULTS

REPLAY (prerecorded tapes)  
 Frequency response (-2dB) 30Hz-20kHz  
 Speed accuracy +1%  
 Hiss (70uS, Dolby out) -60dB

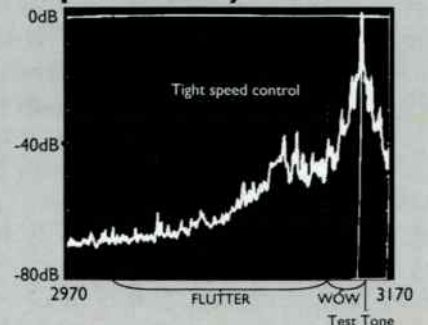
RECORDING (blank tapes)  
 Frequency response (IEC Primary Refs.)  
 ferric (IECI) 12Hz-19kHz  
 chrome (IECII) 12Hz-18kHz  
 metal (IECIV) 12Hz-20kHz  
 Separation (1kHz) 55dB  
 Distortion (315Hz) 0.4%  
 Hiss (70uS, Dolby out) -56dB  
 Speed variations (DIN total) 0.1%

Flutter energy (3-3.13kHz)	-27dB
MOL/SAT (IEC Refs)	315/10k
IEC I (ferric)	+4.5dB/-5dB
IECII (chrome)	+4dB/-6dB
IECIV (metal)	+4.3dB/0dB

### Frequency Response



### Speed Stability







has a few consequences. TDK AR sounded dull and warm at normal bias, as it often does, being a low bias tape. However, swinging to minimum bias didn't clear the warmth and lead to convincingly natural tonal balance, which was a pity. Bass stayed a bit soggy too, whereas AR can give unusually clean sounding bass, since it can accept more bass level than metal tapes. Higher coercivity TDK AD immediately showed that it is the right sort of match for this deck, giving tighter, cleaner and punchier sound with stronger treble.

Chrome tapes came over as quieter than ferms (which they are!) but otherwise little different in their general presentational quality, exhibiting some general warmth and fluffiness, or shall we say a lack of definition and precision to the sound, even though basic tempo was held tightly by the transport. Again, bias variation didn't affect the situation much, offering some fine tuning with TDK SA-X but never quite making it sound right. However, the general level of quality was good; this deck possesses no nasties.

Metal tapes also came over as less pin-sharp and clearly defined than usual, even though they were clearly brighter than the original. This was a trifle odd, since metals commonly become a little

coarse as their treble rises, but not on the Onkyo. All the same, TDK MA gave a balanced sound with clean, inoffensive treble.

Whilst the 250's transport endows the deck with excellent pitch stability and dynamics, further comparisons with the source revealed the 250 to lack that final "edge" to the recording (something which plagues most cassette decks and distinguishes most Nakamichis). Also, the bass didn't quite reach the same quality as the source, yet it did at least remain composed and in tune with the rest of the mix, if a little bloated.

Pre-recorded tapes varied, and lacking any form of Play Trm, certain recordings could sound a little dull. However, the TA-250 managed well in this area and it is obvious that Onkyo have tried hard to adjust it carefully to do as good a job as possible - which is better than most, except of course a Nakamichi (again!).

Dolby B reduced what little background noise there was to virtual silence. Yet, typically, the other side of the coin was that treble detail became less precise, drum beats slightly veiled and the sense of space without Dolby was subtly replaced by a return to the sound becoming processed. Having said that, the end result was by no means poor and

would be quite suitable for those forced to listen with Dolby due to close speaker monitoring, or sensitive speakers.

Dolby C was far better implemented than is often the case with such circuits. It actually ran "B" quite close, with a scant softening of dynamics the only real clue. Neither circuit suffered "pumping", effects and were above average in their operation.

The Onkyo is effective, but it isn't a worthy alternative to a Nakamichi DR-2 (£500), although it does rival a DR-3 in some respects. The build quality, operational aspects and solid transport aren't in doubt. It's the electronics which don't quite pass muster in this company, yet at the same time the Onkyo was still in a better state of factory adjustment than most rivals and through this alone it manages to compete effectively. At the price, it's an effective machine, if not quite an inspiring one - yet few cassette decks are except, well, you know who ●

**Onkyo TA-250**  
**Onkyo UK,**  
**401 - 405 Nether Street,**  
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**£350**



# DIGITAL

**Dominic Baker auditions two new corporate representatives in the fiercely contested**  
**aimed at the**

## ROTEL RCD940BX - £229.95

The RCD940BX CD player replaces the highly acclaimed RCD945AX. But for this new model Rotel have moved away from the Philips transport and chipsets they normally use, and instead have gone to the East for these parts. It uses a multibit 18bit 8x oversampling digital to analogue convertor, but the circuit is tweaked by Gamepath, the UK importers of Rotel, for improved sound in the critical UK market.

### SOUND QUALITY

After reading mediocre reviews of Pink Floyd's new album, *The Division Bell*, I'd decided that it wasn't worth risking £14 for, but spotting it for £9.99 a couple of weeks ago, I couldn't resist. I'm glad I didn't too, I think *Division Bell* is one of the best Floyd albums since *The Wall*. *What Do You Want From Me* starts in classic Floyd style, a deep bass drum taps out the beat whilst soaring electric guitars wail away in the upper midband. The 940BX revelled in this, the clean and pure tone of the guitars given wonderful presence and a crystalline clarity.

The RCD940BX is remarkably free of the grittiness sometimes pronounced in the upper mid and lower treble of even some expensive two box players. Here it excels with its smooth and open projection of detail, engaging you in the performance and urging you to listen on.

If I was being especially critical, against more expensive machines it does thin out vocals just a touch, on this particular album making David Gilmour's already lean and dry voice more hollow that it really should be.

The rich and moody saxophone on *Wearing The Inside Out* had a lovely tone to it, natural and clear. The 940BX can be a bit clinical in its presentation though, dissecting the components of a performance and laying them bare. It's not clinical in an uninviting way though, managing to hold my attention well. It's just very ordered in the way it deals with a piece of music, a property which can break the flow, but I found it informative and interesting to listen to all the same.

The treble of the 940BX is bright, occasionally too bright, emphasising sibilance on Blur's *Parklife*, but most of the time has an engaging sparkle to it. Whether, like the Arcam Black Box 50, this 'sparkle' will become fatiguing over an extended listening period remains to be seen. I used the RCD940BX over a fortnight and didn't take offence at its presentation, which appears to be a good sign. But steer clear of peaky metal dome tweeters or amplifiers with high treble distortion, just to be on the safe side.

On albums like *The Division Bell* though, where Floyd's use of a sharply hit cymbal taps out the beat that keeps the rest of the track moving, and on most rock albums, this treble emphasis helps clarify the tempo of the track, keeping the listener abreast of the music.

One thing that was quite marked

with the 940BX, was its ability to separate the two stereo channels, but still hold an image in between. As Velvet Crush's #10 begins, you can quite clearly hear three footsteps forwards from the left hand side of the stage to a near centre position, followed by the damped sound of clothing brushing against the guitar as the performer sits down. A guitar a little further back on the right starts the track, and after two notes the sitting guitarist joins in with his first chord.

I wasn't expecting to be able to hear this level of detail and image clarity from a £230 player, so it came as a bit of a shock, but as it says on the disc cover 'custom engineered for a full range of audio experiences'. It's not just the recording that's good though, the music is superb. It's good rock and roll, with plenty of guitar, good drumming and vocal harmonizing along similar lines to the *Lemon Trees*. The Rotel made tidy work of this album, giving it the energy and drive it deserves.

The Rotel RCD940BX has many great qualities for a £230 CD player. The bass is firm and deep, if a touch dry, the midband is uncluttered and the treble sparkles, giving the whole a busy and active balance. It is capable of bringing order to music, sometimes in a slightly clinical manner, but it doesn't become overwhelmed as the music becomes more complex. A little more emotion at heart wouldn't go amiss, but the new Rotel still rates as one of the best players in its heavily contested class.



# DELEGATES

**budget CD player market - Denon's DCD-825 and Rotel's RCD940BX, both audiophile.**

## DENON DCD-825 - £219.99

The new Denon DCD-825 was designed and specified in the UK, in similar fashion to the Rotel, and purpose built for this market. It features high quality, audio grade Burr Brown op-amps and dual mono 18bit Burr Brown PCM61 convertor chips. Denon have put a lot of effort into the DCD-825, hoping that it will re-establish them as leaders in the budget audiophile CD player market.

### SOUND QUALITY

The Denon DCD-825 had a much firmer presentation than the Rotel RCD940BX. Whereas the Rotel had a light and airy sound, the Denon puts more weight behind individual notes; even its treble seemed more solid, losing the wispy airiness of the 940BX. Bass lines were given greater prominence, underpinning the music more firmly, but it did tend to get a little carried away at times, losing grip and giving a soft bloom to strong bass lines.

On Pink Floyd's *The Division Bell* album, the kick bass drum and guitar were given more power, their full impact being resolved more completely. And again this effect was noticeable with Blur's *Parklife*, where the strong, poppy beat gained an extra degree of impact and drive. The DCD-825 is a

really energetic little performer, squeezing the beat out of music, pushing it forwards.

The same soaring guitars on Floyd's *What Do You Want From Me* didn't have quite the same presence and clarity that the Rotel could manage though. Instead they took on a sharp, almost grating quality, showing a rougher sounding midrange on this player. In fact there was a fair amount of grain in the upper midband and treble which made itself known especially with female vocals and strings, imparting a coarseness to them.

The treble too, although less bright than that of the Rotel, was splashy and occasionally could become a touch fierce. Velvet Crush's #10, although much more immediate and forthright, lost some of its delicacy and light, open touch, the upper harmonics of the steel strings becoming brittle. Having said this though, it did have more warmth to its sound, giving a less clinical edge than the Rotel.

The Denon easily carried off the pace and rhythm of L7's latest album, *Hungry for Stink*, holding its own with the heavy, thunderous guitars and intermittent doses of clumsily applied feedback. Here the DCD-825 is able to contribute best, injecting some of its own might to force the music along and power it out of the loudspeakers.

Stuck Here Again - punchy bass line, grungy guitar and aggressive female vocals - gave the Denon something to really chew on. Where the Rotel took some impact and drama away, the

DCD-825 showed off its dynamic abilities. Sad thing is, you couldn't take too much of it with the Denon. The Rotel, although less impressive with rock, was easier to listen to for longer periods.

Denon's DCD-825 didn't share quite the same stereo separation and imaging abilities of the RCD940BX though. It was still possible to follow the three footsteps and movements of the guitarist on the *Velvet Crush* CD, but without quite the same precise focus. Central images became more diffuse too, spread out across the stage instead of being located in tightly defined areas. The upside of this though was a less mechanical presentation, performers seemed more closely linked in to what they were doing, not separated out as individuals as on the Rotel.

The Denon has a firm sound with impact and incisiveness that keeps the music flowing with a solid beat from below. It's a great machine for rock and pop, where its enthusiasm and exciting presentation add drive to the music, making it more involving for the listener. I feel its midrange is a bit coarse and the treble can become a little spitty at times, but the DCD-825 makes up for this with an engaging and enjoyable presentation.

Again, as with the Rotel, peaky metal dome tweeters and sharp sounding amplifiers are best avoided if you want it to stay on the right side of fatigue, but in a matched system the Denon is able to conjure up a dramatic and strong performance.

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8000DAC Digital-analogue Converter  
8000CDM Compact Disc Transport



## AUDIOLAB

Cambridge Systems Technology Limited, Spitfire Close, Ermine Business Park, Huntingdon, Cambs. PE18 6XY. Tel 0480 52521

## CONCLUSION

Both the DCD-825 and RCD940BX are good machines in their own right, the Denon for its powerful and solid performance and the Rotel for its more refined midband and top. For rock and pop listeners I suspect that the Denon will win the day, but for more refined classical and vocal work, the Rotel has the smoother presentation ●

**Rotel RCD940BX**  
**Gamepath Ltd.,**  
**25 Heathfields,**  
**Stacey Bushes,**  
**Milton Keynes,**  
**Bucks. MK12 6HR**  
**Tel: 0908 317707**

£229.95

**Denon DCD-825**  
**Hayden Laboratories Ltd.,**  
**Hayden House,**  
**Chiltern Hill,**  
**Chalfont St. Peter,**  
**Bucks. SL9 9UG**  
**Tel: 0753 888447**

£219.99

### DENON DCD-825 MEASURED PERFORMANCE

In its response balance, the Denon DCD-825 veers in the opposite direction to the Rotel, with a slight bass lift and treble fall. Even though these trends are only minor, from experience I would expect them to give the DCD-825 a good solid bass and gentler treble than that of the Rotel, since even small response differences are clearly perceptible with CD.

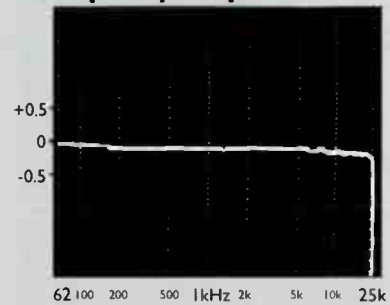
Again though, distortion is higher than I would expect from a Japanese player, and certainly a lot stronger than the older DCD-890 which has long been a favourite at Hi-Fi World. Like the Rotel it has strong low order distortion, which from experience I would almost certainly expect to have an influence on the sound.

The output of the Denon is high at 2.4V, similar to that of the Rotel, allowing extra headroom for passive preamps and possibly giving it an edge in A-B demonstration room comparisons against players adhering to the Philips 2V standard. Dynamic range is some 7.5dB greater than the Rotel thanks to lower overall distortion; separation is wide and noise low. **DB**

### TEST RESULTS

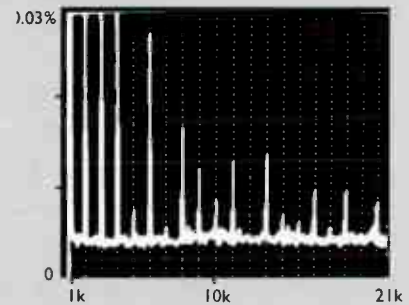
Frequency response	4Hz-21kHz	
Distortion %		
-6dB	0.006	0.006
-30dB	0.044	0.064
-60dB	0.53	0.51
-90	29.6	30.9
-90dB dithered	4.96	9.19
Separation dB	left	right
1kHz	98	99
20kHz	74	78
Noise	-110dB	
with emphasis	-110dB	
Dynamic range	105.5dB	
Output	2.4V	

### Frequency Response



Bass lift and treble fall gives solid sound

### Distortion



High distortion

### ROTEL RCD940BX MEASURED PERFORMANCE

Unusually for a Japanese CD player, the Rotel RCD940BX did not measure especially well. The frequency response is as flat as any up to 10kHz, but here the RCD940BX departs from the norm and heads upwards to a treble peak reaching +0.4dB at 20kHz.

This rise will almost certainly add a brightness or sparkle to the treble, although not necessarily a nasty one. However, distortion harmonics (see below) at -30dB, or typical music level, are high and wide ranging, which I would expect to add some form of sharpness to the sound, although to what degree can only be assessed subjectively.

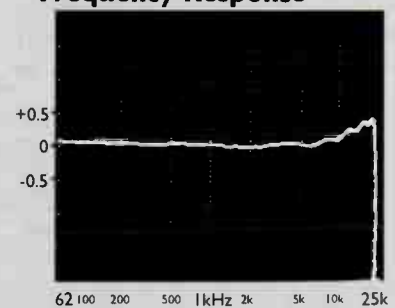
Elsewhere, the Rotel RCD940BX measures well, with good separation and low noise, but dynamic range is limited to 98dB by high distortion.

Output is a little high at 2.35V giving the Rotel an advantage in the demonstration room. **DB**

### TEST RESULTS

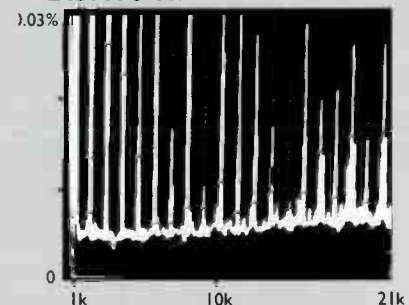
Frequency response	4Hz-20.75kHz	
Distortion %		
-6dB	0.040	0.066
-30dB	0.093	0.191
-60dB	1.71	1.78
-90	36.5	36.7
-90dB dithered	11.9	12.8
Separation dB	left	right
1kHz	100	102
20kHz	74	75
Noise	-109dB	
with emphasis	-109dB	
Dynamic range	98dB	
Output	2.35V	

### Frequency Response



Treble peak adds some brightness

### Distortion



Strong and wide ranging distortion

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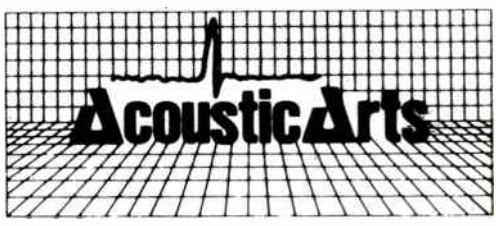
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Cornwall TR14 8RE  
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Fax: +44 (0)209 711939

U.K. agent:  
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Chalfont St. Peter  
Bucks. SL9 9UG  
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Fax: 0753 889636



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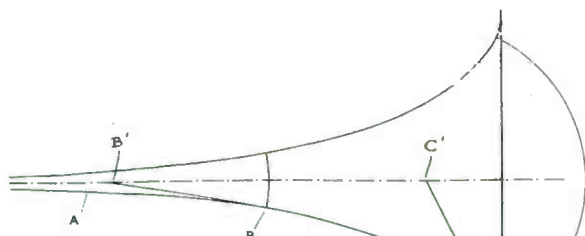


FIG 1.

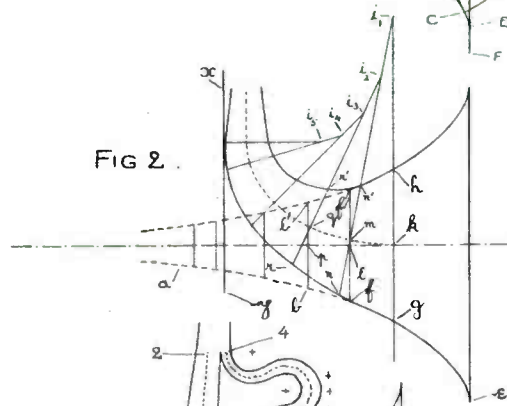


FIG 2.

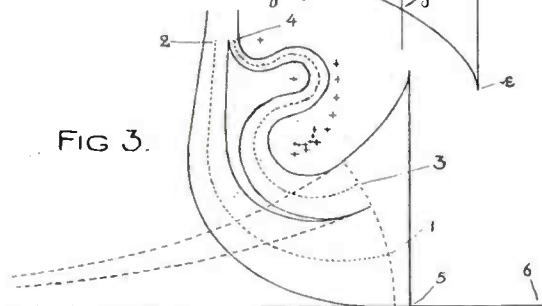


FIG 3.

[This Drawing is a reproduction of the Original on a reduced scale.]

Paul Voigt early Tractrix horn drawing, from his 1927 patent.

.... continued from page 47

available any more and the others are in very short supply.

A book that will take you from a beginner to advanced level between two covers is *The Art of Electronics* by Horowitz & Hill - it's superb. There's a chapter of basic theory which takes a look at individual components such as resistors, capacitors and inductors. The book then carries on to explain transistors, FETs, op-amps and so on. Each chapter starts at a basic level and at the end there are practical circuit suggestions which you could build to help get a feel for the components. This book is available through Hi-Fi World Mail Order, or from technical

book shops. **DB**

### TRACTRIX

It was most gratifying to read the article on Paul Voigt and his Tractrix horn loudspeaker in the June issue. Far from being a historical curiosity the Tractrix horn is alive and well today and for good reason too.

Bruce Edgar, long time horn experimenter in the US, produces a 'domestically sized' midrange horn using the tractrix contour mated to a Dynaudio D54 loudspeaker. He states that the tractrix contour assumes that the waves travelling down the horn take on a spherical shape instead of a flat shape assumed by the

exponential horn. In the tractrix horn the wavefront at the mouth couples better with the air and as a result sounds better than the exponential horn.

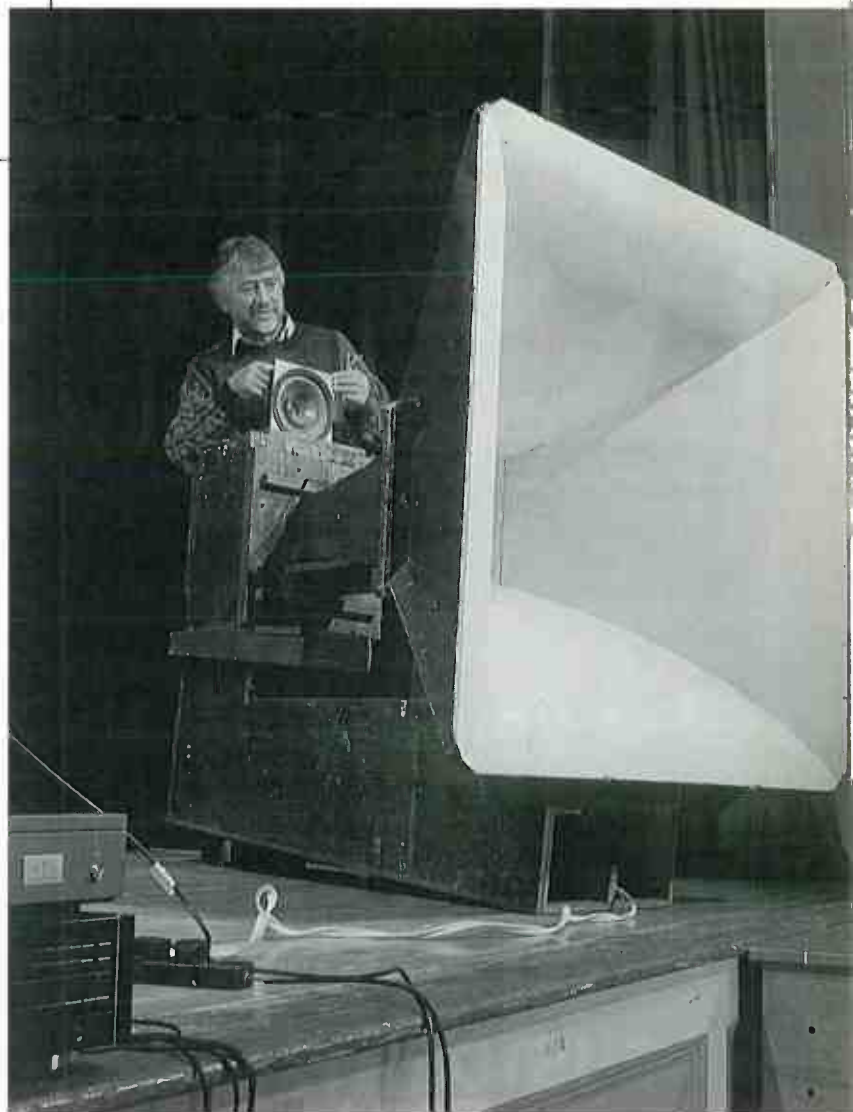
Articles on Bruce Edgar's tractrix horn designs and an interview he did with Paul Voigt have appeared in *Speaker Builder* and *Sound Practices*. For those who are interested in more information try contacting -

**1) Speaker Builder**  
**c/o Audio Amateur**  
**Publishing Group**  
**PO Box 576**  
**Peterborough**  
**NH 03458-0576**  
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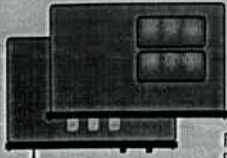
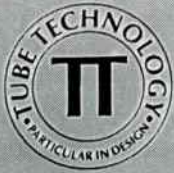
**2) Sound Practices**  
**PO Box 180562**  
**Austin**  
**Texas 78718**  
**USA**  
**Phone/Fax: 512 339 6229**

**3) Bruce Edgar**  
**(Edgarhorn)**  
**Box 1515**  
**Redondo Beach CA**  
**90278**  
**USA**  
**Tel: 310 370 1302**

**Ian McPhail**  
**Australia.**



The Tractrix horn, built by Paul Voigt.



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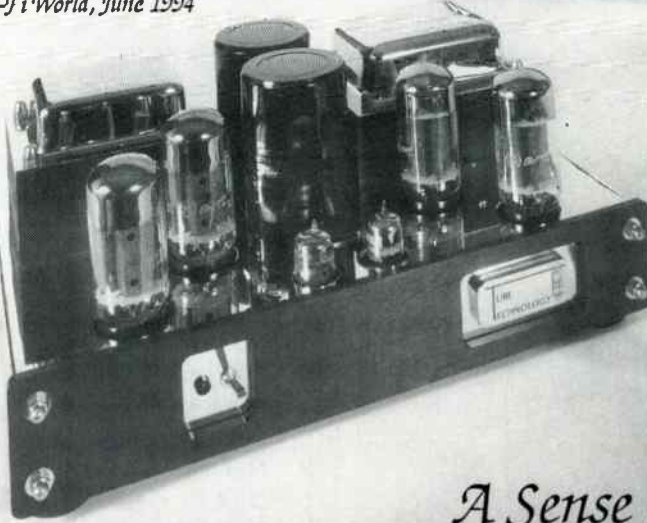


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*Pictured:- The Genesis 100 watt All Tube Monoblocs.*

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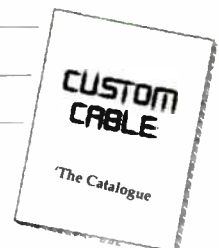
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HPW7/94



# HEAD HUNTING

**Eric Braithwaite searches for the best phono head amplifier.**

**H**ead amps are great for serious vinyl lovers. They're super high quality amplifying stages for cartridges, both moving magnet (MM) and moving coil (MC). The pre-amplification and correction (RIAA equalisation) they apply used to be built into ordinary amplifiers, forming the 'phono stage'.

Because this function is quite difficult to engineer properly, cheap chip solutions were commonplace in integrated amplifiers, leading to a certain mediocrity of reproduction from LP. As CD has taken over from LP, manufacturers have happily abandoned the phono stage altogether, producing line-level only amplifiers. Trouble is, people have huge LP collections and still want to listen to them. The independent head amp is a superb way of doing so.

But what do you need to look for when buying a head amp? For ultimate quality you must consider using a moving coil cartridge, so an MC input is important; happily most stand-alone head amps have them. Moving coil cartridges generate minuscule outputs measured in millionths of a volt. This demands the use of an ultra low noise input stage if hiss is not to be a problem, at least with low output MCs like the Ortofon MC7500 (0.19mV) or Linn Klyde (0.25mV) for example. Hiss will be less audible from moving coil cartridges

having a high-ish output, like the new Ortofon Supremes, which give 0.7mV. That's no less than 11dB more than the MC7500 (and 9dB more than the Klyde), meaning that hiss will be equivalently lower. Subjectively, it's a huge difference. But don't confuse high output MCs like the Supremes with high output MCs designed to feed MM inputs; the latter give double the output or more (e.g. 2mV or so) and they do not give all the sonic benefits - they're a compromise.

Then there's the warp filter problem. Without a warp filter you can suffer from flapping loudspeaker cones, at least if you have a compliant MM cartridge in a heavy arm and you use ported (reflex) loudspeakers. The IEC insisted some time ago that disc stages be fitted with a filter that removes signals below 40Hz to eliminate this potential problem. Yet few of these dedicated disc stages have one, or at least, a good one. Audiolab are the exception, fitting a neat, switchable filter - a very unusual feature and one I've always recommended. Warps are less of a problem when an MC cartridge is used, because they have lower compliance, so not everyone will need such a filter and since they lighten bass and audibly remove subsonics, designers often avoid them.

If you're running Quad II power

amplifiers (like so many of our readers it seems), or any low sensitivity power amp that needs 1V input for full output, beware! Most of these head amps cannot satisfactorily drive such beasts direct, through either a volume control, a passive preamp or an active preamp like our own KLP1 which has line drivers but no gain. For example, with a very low MM gain of x77, the Audiolab will barely produce 0.5mV output on peaks, so even at full volume a Quad II would not deliver full output. These head amps have been designed to feed a line input with 200-300mV input sensitivity.

To retain good specified overload headroom for head amps, designers are forced to keep gain down when faced with an output swing of around 5-10V rms from today's silicon chips. A discrete high voltage output stage with a little gain would solve the problem, but only the inventive Tim de Paravicini has seen this solution and used it with the EAR834P, using valves to swing 20V of output, no less. As a result, the EAR834P is the only head amp that can drive a Quad II or any power amp direct, whilst also being able to work with any integrated amplifier too. Bear in mind that a gain of x160 minimum is needed if a head amp is to feed low sensitivity power amps direct. **NK**



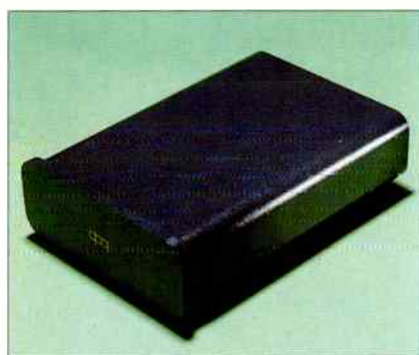
## **AUDIOLAB 8000PPA £799.90**

The Audiolab offers two inputs and outputs, needing no internal re-configuration, so changing from MM to MC presents no practical difficulties. A muting circuit automatically operates when switching inputs or when choosing high or low gain for MC, or switching in the LF filter. This filter I couldn't entirely decide upon; on some recordings I felt leaving it switched out slowed things down; on others, particularly rock music, it added weight and gravitas. The apparent amount of filigree detail was remarkably impressive, with the elements of classical recordings particularly laid uncompromisingly bare. It was almost as

though a musical recording had been etched into Italian glassware instead of cut in vinyl. The position of every orchestral section was defined with unmistakable clarity, layers laid out like a skinned onion. Anyone who takes a connoisseur's interest in microphone positioning would be able to draw a map from the Audiolab without any assistance.

The amount of sheer space was startling and, at first, hearing an instrumental echo bounce off some part of the location was quite surprising. However, ultimately there was a lack of 'roundness' and body to the overall tone, producing a somewhat anaemic effect compared to the other phono stages. Instruments had a somewhat flat perspective.

On MM the same fine detail and delicacy was well in evidence on orchestral recordings and the sense was of through-going tonal colour and of a performance that was more cohesive. The elements of rhythm made up of lead guitar, bass and drums couldn't be faulted individually, but required more torque from the engine for unsticking a behind from the armchair and dancing.



## **DPA DIGITAL DSP 200SD £495.00**

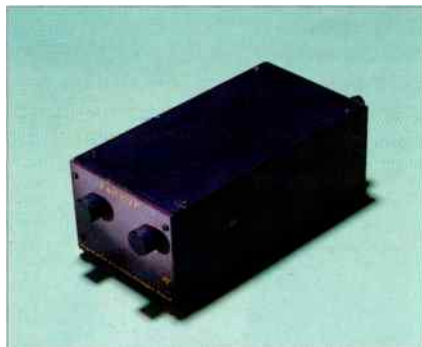
Lodged within the now-standard gunmetal grey, flat-fronted case, the DPA phono stage is configurable for moving-coil or moving magnet cartridges, switchable by two toggle switches at the rear. So far, so straightforward, but using a Morch da Capo with what should have been a sufficient 0.2mV output, there wasn't enough gain.

The DPA conformed more closely to what one would expect a piece of electronics from this stable to sound like with the Koetsu (with fifty per cent more output) than the da Capo. It was bright, forward, thrusting and lively, putting lead

guitarists and lead vocalists crisply in front of the plane of the speakers. While strings had a bright tone, but without taking on any feared steeliness, jazz piano fared less well, a grand ending up with more than a suspicion of honky-tonk in the upper notes. As with all these phono stages, detail in the mid-range was exemplary, the DPA pulling off that trick of differentiating between the sides of a percussionist's triangle, a rare subtlety. On orchestral music, imagery was well defined, fairly broad, but slightly compacted between the speakers.

While the bass was expected to be strong and deep - and it was - the crisper pace of the mid-range and speedy treble rather detracted from it. Bass rhythms - particularly in orchestral music - tended to sound somewhat slow by comparison, although rock and jazz was a little less foot-dragging.

Initially, with the Goldring MM the same traits were evident, though this time with the more up-front projection and tough bass than the Koetsu had produced and far more than the da Capo. Again, however, upper treble, in violins, guitars and piano developed a steelier quality than I would have liked. Detail was again very fine, and the bass really extremely powerful. All in all, it was very lively - if a little too forceful for some.



**EAR 834P £340**

Inevitably, perhaps, this is the only one to use valves, but despite a somewhat ordinary-looking rectangular box, produced a startlingly good sound which belied the fact it was the cheapest on test. Like the DPA, the 834P is switchable for either MM or MC via a small push-button at the back. If the DPA's gain was too low, then the EAR's was on the high side.

Most marked was the EAR's uncanny silence, both on MM and MC. Equally marked was the clarity of definition, the finest detail coming through the speakers untrammelled. The 834P performed with some of the anticipated Paravicini hallmarks. It was the only phono stage of this group, except for the Iso, to transmit those delicate nuances of voice which on a recording often apparently disappear, but through equipment like this are revealed as a singer's breath control. It gives vocalists and soloists a real third dimension between the speakers.

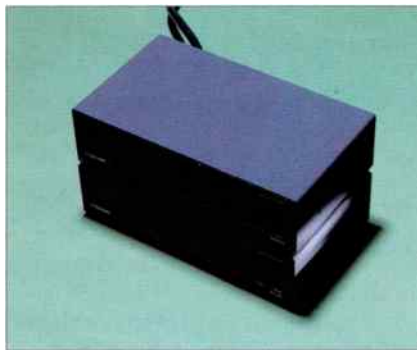
Splendidly, the EAR reproduced ambience quite proportionately to the

recorded voices and instruments, with no tonal emphasis or aberrations to destroy the illusion except for a somewhat over-crystalline quality to violins. It was by far the most seamless at reproducing some clever pan-potting across the soundstage.

Only one reservation regarded the bass. On piano, it was very strong and firm, giving an excellent impression of the scale of piano sound, but double basses and cellos had rather too warm and less defined a bloom.

Imagery was extremely precise, with plenty of positional information, yet also a homogenous whole.

On moving magnet? Exactly the same, allowing for the inevitable disparity between the overall sound and tonal quality of both cartridges, though there was a little more treble brightness and sharpness from the Goldring.



**KINSHAW PERCEPTION PHONO CENTRE £525**

Like the Iso, the Perception Phono Centre arrived with a dedicated power supply in a box similarly shaped, sized and Nextel-grey finished. While a variety of MC cartridge loadings can be catered for, puzzling out from the instructions precisely how the various bits and pieces fit on the circuit board is not entirely simple. I had severe attacks of doubt sorting it all out. But then, normal buyers would have a dealer to help.

The Perception certainly demonstrated plenty of it on MC, being on a par with the best of the rest. Allied to inner detail and subtlety, it produced a very tight soundstage, and a very 'big' and expansive sound which took little notice of the confines of the speakers. Orchestral sections and band members performed precisely in their allocated places, with a good deal of verve and fluidity.

The overall result was extremely impressive, with a strong and large bass underpinning everything and constantly present. Tonal quality was distinctly faithful, with first and second violins clearly differentiated and vocals and solo instruments full of nuance. These qualities made rock music extremely exciting, but on orchestral music a slight doubt crept in.

On moving magnet, the Perception really came to the fore, with a splendidly rich quality to orchestral woodwind and brass. Any reservations about its dynamics which surfaced during the Eighth on

moving coil were quickly dispelled as woodwind and brass burgeoned and swelled out over the whole orchestra as they should. Reproduction of ambience was also the near equal of the Iso and EAR, with depth almost as good. Rock came over with an excellent studio ambience, although double-tracked vocals for some reason were less clearly so than on MC, blurring into each other.



**MICHELL ISO/HERA £528**

As might be expected, the Iso is encased in a brown acrylic box, through which a red LED glows when it is powered up from the bulky optional Hera power supply. This one is unusual, in that of this group it is for moving coil cartridges only. I discovered that in fact, should customers insist, an MM Iso can be bought, but it cannot be converted to MC afterwards.

Like the Perception, the Iso can be configured for a variety of cartridge loadings, but unlike the Kinshaw, also for degrees of gain, though this is done at the factory rather than by the user. This does make the Iso extremely versatile.

In common with the others, the Iso reproduces about as much of the finest mid-band and treble detail anyone could wish for, overtaken on the extreme subtleties of instrumental and vocal nuance only by the EAR. Imagery was extremely well-defined, with rather more space and air than any of the others, with the exception of the Audiolab.

Where the Iso differs somewhat from the Kinshaw and EAR is in its presentation of bass. Always very tight and rhythmical, it needs a low D on an organ recording occasionally to convince a listener that it's there when required. It arrives when needed, but doesn't make itself felt in the background all the time, which may be disconcerting to some listeners.

By comparison with the DPA, Kinshaw and EAR, the treble is perhaps somewhat sweeter, though some of the sharper recordings still let rip with ear-piercing exactitude.

Like the EAR, the Michell Iso gives a thoroughly cohesive picture of a recording, with the ability to be surprisingly revealing. A plus (or a minus) for some is that the Iso, like the EAR and Audiolab can be ruthless about recording quality, though the natural flow of music means that this aspect is unintrusive until you start listening for it.

## CONCLUSION

In vinyl replay, there is often so much variation between cartridge, turntable and arm performance that it must seem that a totally pure, entirely neutral replay system might be beyond the power of mankind to invent. In the end, the judgement has to be almost exclusively subjective.

I spent some time carefully comparing original vinyl with CD re-issues and remasterings through a very wide variety of equipment. Despite some prejudices to the contrary, many producers and engineers do treat the master tapes with great respect. Some don't, but I don't use their results for reviews like this. Replaying vinyl, the essential balance to be struck is between a natural impression in the living room and an accurate reproduction of what was on the record. Between both ideals lies a wide no-man's land.

Most natural, with a high score on grounds of accurately fishing detail out of the groove as well, were the Iso on MC and the Perception on MM. Close on their heels followed the EAR, much the best in terms of equal performance on both MM and MC, my reservations about its 'valve-like' bass bloom compared to the tighter transistor quality of the others failing to put it at the top of the pile. On price, it represents an absolute bargain.

On MC, gain certainly appeared to present a problem. The DPA, Kinshaw and Audiolab were more dynamic with the Koetsu, with its 0.36mV output and more restricted with the da Capo's 0.2mV. For midband clarity, the DPA was downright astonishing, being extremely impressive in this area, albeit with a sheen to the treble which I found a little exaggerated. The Iso, Perception and EAR were distinctly sweeter and smoother, with the Perception always sounding exciting. The Audiolab, as it happened, was sweet to the point of being a little too laid-back by comparison.

Audiolab's 8000PPA is rather unnerving. On both MM and MC it is supreme at undoing the stitching in any recording and laying it out for forensic inspection. Academically, it is exceptional; but the result remained stubbornly clinical. Going back to Klemperer, the Audiolab would fail to convince anyone already prejudiced that he had any 'get up and go' at all. Yet the evidence of other vinyl replay systems and some highly rated CD transports and DACs does belie that belief. Beethoven's Eighth here remained a late 50's quality recording, with only passing acknowledgement of its being a wonderful performance, something which the EAR and Iso grasped firmly.

Auditioning phono stages may be an arcane pursuit, but when one is on the shopping list, it is about to become another essential hi-fi chore. Pick your phono personality, then go and do some matchmaking with your cartridge to see if you can live together. My ideal mate from the disc dating agency would be either the Iso or EAR, but I wouldn't necessarily turn down an offer from the others ●

## AUDIOLAB 8000PPA

The Audiolab 8000PPA has three switched gain settings. MM switches in a 47k $\Omega$  input load and x77 gain, whilst the two MC settings switch in 100 $\Omega$  and x720 or x2250 gain. The 8000PPA is best feeding a preamplifier possessing gain. It is not really meant for a passive preamp feeding a low sensitivity power amp like the Quad II, for example, which needs 1V in.

The input noise levels were extremely low for both MM and MC, being right at the lower limit of what is achievable. In this respect, the 8000PPA is a very good choice, being quieter than most.

The bandwidth was a wide 0.5Hz-80kHz, -1dB, the lower limit rising to 50Hz with the warp (LF) filter switched in. **NK**

Frequency response	0.5Hz-80kHz
Separation	90dB
Input noise (CCIR)	
MM	0.3 $\mu$ V
MC	0.06 / 0.05 $\mu$ V
Distortion	0.005%
Gain	x77, x772, x2250
Overload	12V rms out

## DPA DIGITAL DSP 200SD

This preamp sounds different because it uses DPA's own thick-film integrated circuit, the DH-OA32, a unit developed for audio work.

Frequency response was flat from 8Hz to 37kHz within 1dB limits on MM, but in fact high frequency gain doesn't fall fast enough above 20kHz, giving a net rise in treble response.

On MM this preamp was the quietest we've ever tested, managing just 0.15 $\mu$ V on input noise (CCIR). On MC however, it was noisier than most, giving 0.12 $\mu$ V of input noise. This is about double

that of other stages, meaning the DPA will give 6dB more hiss. **NK**

Frequency response	8Hz-37kHz
Separation	90dB
Input noise (CCIR)	
MM	0.15 $\mu$ V
MC	0.12 $\mu$ V
Distortion	0.01%
Gain	x135, x1550
Overload	5.5V rms out

## EAR 834P

The 834P uses input transformers for moving coil cartridges. Not relying exclusively on silicon chips, it can swing 20V rms output allowing it to drive even insensitive power amps like Quad IIs, direct.

Frequency response was wide and there's no warp filter in the 834P. Input noise levels were low at 0.55 $\mu$ V on MM and 0.06 $\mu$ V on MC. These figures are up amongst the best, making the 834P very quiet. The 834P offers a fine all-round performance.

**NK**

Frequency response	6Hz-87kHz
Separation	44dB
Input noise (CCIR)	
MM	0.55 $\mu$ V
MC	0.06 $\mu$ V
Distortion	0.01%
Gain	x290, x2750
Overload	20V rms out

## KINSHAW PERCEPTION

The Kinshaw Perception head amp has very low noise on MM, but is hissy on MC. It doesn't have enough gain to feed insensitive power amplifiers direct. With a maximum output of 10V rms, determined by the silicon chips used internally, the Kinshaw must feed a sensitive line input stage.

Bandwidth on both MM and MC was high, measuring 6Hz-120kHz. This version of the Perception headamp does not have a warp filter, which can be problematical, especially on MM when a compliant cartridge is used. Lack of such filtering

does, however, give stronger, deeper bass. **NK**

Frequency response	6Hz-120kHz
Separation	80dB
Input noise (CCIR)	
MM	0.17 $\mu$ V
MC	0.25 $\mu$ V
Distortion	0.002%
Gain	x100, x930
Overload	12V rms out

## MICHELL ISO/HERA

The Iso is for moving coil cartridges only. Like so many disc preamps, this one has no warp filter, maintaining gain down to 5Hz, so the Iso should possess a weighty deep bass and a more open quality.

The Iso has a gain of x1100 at 1kHz and a maximum output swing of 9.5V. This is just enough for low output moving coil cartridges, 0.2mV from a cartridge giving 220mV output from the Iso, so it is best best feeding a preamplifier possessing gain.

Input noise was low, measuring out at 0.09 $\mu$ V.

This is a straightforward moving coil stage of low noise and high gain that will suit most moving coil cartridges. **NK**

Frequency response	50Hz-16kHz
Separation	63dB
Input noise (CCIR)	
MC only	0.09 $\mu$ V
Distortion	0.003%
Gain	x1100
Overload	9.5V rms out

# IN THE NOVEMBER ISSUE

Don't miss the next colourful and exciting issue of Hi-Fi World, full of up to date reviews, features and everything hi-fi. Next month we'll be giving you another free DIY Supplement, a treat for you DIYers out there. Here's just some of the things we hope to bring you in November:

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## DIY SUPPLEMENT No. 11

Just to keep all you DIY freaks happy, they'll be a free DIY Supplement with the November issue. Look out for our experiences with Maplin's Millennium 4-20 valve amplifier kit. Of course, they'll also be all the usual letters, news, book reviews etc. Don't miss it.

Colouration is the issue. It may be colouration that decides what a hi-fi system sounds like more than just about anything else. It seems to be everywhere and since it's the result of resonance, which, like feedback, surrounds us in everyday life in a myriad forms, perhaps this isn't surprising.

Colouration can't easily be detected by conventional measurement and it is stimulated by impulsive signals like music. This makes it a prime candidate for an effect that we can't easily measure yet seems pervasive, fitting the bill as the most likely source of the sonic signature of every little component in a hi-fi system. We know how strongly it affects loudspeakers, but we don't yet fully understand how it affects electronic components, although some plausible theories exist.

Colouration in its most blatant form is the wooden sound of a loudspeaker cabinet resonating, stimulated by music, especially deep male vocals. The chestiness and wooden thrum this produces taints speech and overhangs it too, dying away just after speech has stopped, just as you'd expect from a resonant system. Another property of colouration is that, like distortion, it has a Jekyll and Hyde nature: it can be annoying - and generally is - but it can also be euphonic. Wooden speaker colouration sounds out of place until the speaker is asked to reproduce cello, then suddenly it can add welcome warmth and woodiness.

Schoolbooks illustrate the basic principle of resonance with a weight on the end of a spring. This is an example most of us can understand from experience. We know the weight will hang motionless unless disturbed. Give it a jolt and the weight will start to bounce up and down on the spring. No matter how it is jolted, whenever the system settles down the weight ends up bouncing up and down at the same rate; it doesn't jitter up and down one minute then laze up and down the next.

We can often identify a material, like steel, from the sound it makes when struck, and humans are pretty adept at associating the particular sound of a resonant system with the material producing it. As far as hi-fi goes, this acuity is unfortunate. It means we are unduly sensitive to the way resonances colour sound and, indeed, we often use materials to describe the peculiar sound of resonance, describing something as "steely", "wooden" or "papery", for example.

It's this association that makes me suspect



components used inside, including the valves. This makes them pliable, as it were, in their sound quality, which is very good news.

Transistor amps seem less amenable to character change, possibly because transistors themselves are more consistent in the materials used for their construction and because more active components are needed, so statistically changing one component has proportionately less effect. That's not to say component changes don't have an effect though.

If manufacturers become

## Reflections from Noel Keywood

# kaleidoscope

colouration is the problem. Too often in hi-fi, the sonic properties we would ascribe to a component seem to describe the sound of its basic material.

I suspect the sound of cables may well be attributable significantly, if not fully, to the materials used. At least, the difference in sound between carbon, copper and silver cables seems to very closely mimic the respective resonant signatures of their base substances. Silver cables sound astonishingly bright, clear and detailed; I find them quite a revelation. Carbon in cables and resistors comes over as supremely neutral, a property I also rather like. Copper is a well damped metal and because it is what we use it is a de facto sound standard - more on this soon. The subject of the influence of copper, especially in chassis where steel is commonly used, is an interesting one that we spend a lot of time talking about here - I hope we can bring some more information on this fascinating subject (which the Japanese take very seriously by the way).

Experimenting with loudspeaker crossover capacitor types and the affect of damping them with Blu-Tack, Tannoy take the view that resonance is the most likely explanation for the effects they heard. Whilst external vibration can be cited here, it seems as likely that the currents flowing through components commonly set up weak electrostatic and magnetic forces that exert some mechanical influence, enough possibly to cause a characteristic signature to be developed by the substance concerned. In the same way that wood gives a wooden colouration, I suspect that other materials manage to impose their signatures also. Whether the inherent electrical resonances of capacitors, often well out of the audio band, are a part of this I don't know, but they could well be.

As far as constructors and manufacturers are concerned this is largely good news, but with a hint of bad. Our experiences suggest that a large proportion of the characteristic sound of a good valve amplifier is attributable to the

more aware of the differences audio grade components make, then the speciality and uniqueness of audio engineering - always close to an art form (a science with more than seven variables) - will also be enhanced. With so many more variables (the sound of components) and with a recognised need to balance them, the artistic side will come to the fore. Ever tried to balance the sound of paper-in-oils against polypropylenes? It's a fascinating experience and a instructive one too. I hope in future it becomes a more common one as audio engineering becomes less glib and more specialised. There are plenty of signs that things are going in this direction.

And the little bit of bad news? Well, the day we know all there is to know, the mystery in audio will vanish. If banishing colouration moves us much further ahead, then this day will approach; we'll certainly have systems that sound more alike. Colouration won't be an issue, but we'll have less colour in our lives!

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Classical records are recorded differently. Although it's entirely possible to "mic-up" every instrument within an orchestra and then - with a combination of multitrack and electronic panning - create a stereo picture of the orchestra, this is usually not done for two reasons. Firstly, the technique would be very costly and complicated and secondly, this "multi-miked" technique has never found favour when it has been tried. Critics, musicians and audiophiles all agree that it fails to provide as faithful a representation of the real orchestral experience as more simple, or "purist" microphone techniques.

Oscar Wilde wrote in *The Importance of Being Earnest* that, "Truth is rarely pure and never simple", and it is certainly the truth that "purist" recordings are not as pure as all that! For, whilst I have heard many excellent recordings made with just a pair of microphones (and some passable ones of my own!), it is often the case that extra microphones must be employed to boost a particular instrument or group of instruments.

For instance, although a typical classical recording may be made with the major part of the signal derived from two or three microphones, these will often be supplemented with outrigger microphones to add ambience and spot microphones to bolster the horns and the oboes.

Furthermore, the strings may often be miked from above so as to control their level relative to the rest of the orchestra. When extra spot microphones are employed it is often necessary to add artificial reverberation because, being so close to the instrument they are picking up they often sound too "dry" in

comparison with the signals picked up from the main stereo pair.

Nevertheless, despite these extra complications, the fact remains that the majority of the signal that goes onto the master tape at a classical recording session is derived from just two or three microphones. Surprisingly there are no fixed rules as to how these main microphones should be arranged, although a number of popular deployments have evolved over the years. To some extent, the way microphones are arranged



# recorded message

Left by Richard Brice

achieves a certain character of sound. Often it betrays a "house style" as distinctive to a classical recording connoisseur as a Stock/Aitken/Waterman production to a pop critic.

Deutsche Grammophon currently use two Pressure Zone microphones taped to huge sheets of perspex, an arrangement which is essentially the same as wide-spaced omnidirectional microphones much beloved by American recording institutions.

British record companies have developed their own arrangements too, and hence their own house-styles. Decca pioneered the eponymous Decca Tree, whilst the BBC stuck almost exclusively to co-incident crossed pairs (sometimes referred to as Blumlein stereo) until relatively recently. Other companies, Philips for instance, use a combination of techniques.

The problem with all of these microphone arrangements is that each one fails (in different ways) to provide an absolutely satisfactory rendering of the sound field in which the microphones are immersed. Whilst the crossed pair technique probably produces the sharpest spatial picture,

many recording engineers prefer the less accurate - but often more natural - sound of spaced microphones. The reason for this probably lies in the coincident microphone technique's failure to capture the time difference cues we experience in real life due to the fact that our ears are on either side of our head - and therefore about eight inches apart.

Coincident microphones are so called because the microphones are, as far as is practically possible, coincident in space (in other words there is as little space between them as the recording engineer can contrive). Due to the way stereo works over loudspeakers, the relative amplitudes of the signals in the stereo channels are more important than their relative timings and coincident microphones have many advantages over a spaced pair because they "capture" only these direction dependent level differences.

Spaced microphones, on the other hand pick-up plenty of time differences, but generate insufficient level differences. Unfortunately a compromise seems inevitable. In the process of producing a

"sharp" and well defined stereo image, coincident microphones discard the time differences which do so much to convey to the listener the pleasant sensation of spaciousness that is apparent when spaced microphones are employed, even though spaced arrangements fail to produce a fully focused stereo image.

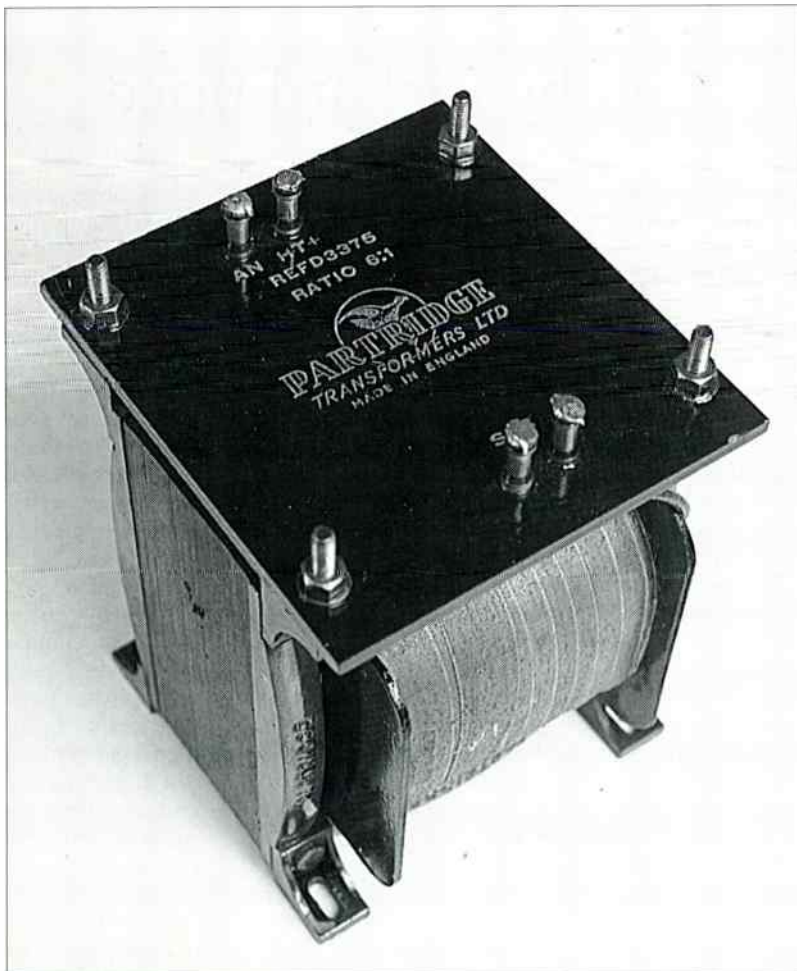
The really good news is that with modern signal processing, it may be possible to have one's cake and eat it too, so to speak. I recently did some experiments with a new

microphone technique which utilises spaced omnidirectional microphones either side of a baffle of wood. The dimensions of the microphone spacing and the size of the baffle are derived from the dimensions of the human head. In itself there's nothing new in this, the BBC have been experimenting with similar microphone arrangements for the last couple of seasons of the Proms.

The interesting aspect of this new technique is that the signals from the two microphones pass to two high quality analogue to digital converters and thence to a digital signal processing unit where the signals are analysed and modified. The new technique, dubbed TIHM (for Time-Intensity Hybrid Microphone) results in a particularly natural and accurate impression of sound in real space. So accurate, in fact, that in early trials I was able to walk in a one-hundred-and-eighty degree arc around the microphone array and this was accurately conveyed when replayed over just two loudspeakers. Further trials are planned for the system, including a series of orchestral and chamber recordings. Watch this space ●

# RESTORE OR RENOVATE?

**Should you wreck the nation's heritage by soldering new components into an old amp or become a museum by lovingly re-crafting a 1948 widget? Haden Boardman of Audio Classics discusses the complex ethical issues facing those who frequent car boot sales. And you thought life was easy!**



**An original Partridge driver transformer.**

**S**hould you put new components into old amplifiers when renovating them, or try to retain their originality by using old components? Whichever you choose to do, each has its own set of benefits and drawbacks, affecting both value and performance

At one extreme of the market

there's a band of engineers who take an original and rebuild it to a totally different circuit. These guys use a bare chassis and transformers - the bits that are difficult to have made in small volume for sensible cost - as the basis of their own design. Most of these 'rebuilt' are so drastic that none of the original character of the original

remains. My personal opinion about this is unprintable.

At the other end of the scale is the customer who wants to touch nothing. The kind of person who, if a capacitor or resistor fails, will only replace it with exactly the same type. This person believes the original engineer was 100% right in the first place with both choice of component and circuit. This is all well and good, but sometimes it is just impossible to track down brand new original 1950s components. I haunt Amateur Radio rallies and the like hunting down boxes of new/old stock components and it ain't as easy as popping down to your local electronic components supplier.

What you do with a dead amplifier which has leaky coupling capacitors, abnormally high value resistors, no valves and electrolytic capacitors that have exploded all over the inside of the chassis is a totally different argument. If its exterior is rusty, do you re-spray it in the original colour or do you chrome plate it and hand glue a couple of rosewood cheeks to each side?

It's a question of degree. Some vintage amplifiers seem to gel in original form. Any undue interference with a soldering iron worsens the sound. The Goodsell 'Williamson', H. J. Leak's original TL12 0.1 and W & N Electronics' Audiomaster 520 all used the best quality components available at the time, such as Hunts metallised polyester capacitors, Mullard and Marconi/Osram valves, which were state of the art. Early classics like these should be restored as near as possible to their original form.

My personal nightmare would be a chrome plated TL12 0.1 with all new 'designer' label components. The original designers got this one right. As there are so few of these beasts about, it should be a criminal offence to molest them. However the later Leak TL12+ with EL84s in ultra-linear configuration instead of KT66s triode connected (as in the TL12) is quite a different breed of animal.

All the Leak tube amps have a common theme running through their design. In the case of the later 'Plus' and 'Stereo' range, I don't think H.J. Leak & Co. got it 100% right. Since ECC81s and ECC83s do not work



well in this circuit, renovation and modification are the order of the day here; restoration back to original form is not imperative. I personally don't think that ultra-linear operation is at all successful, so I ditch it. The ECC81/83 phase splitter is changed for an ECC82 and the circuit to one that does a better job than the original devised by Leak. The EF86 at the front bites the dust, to be replaced with an ECC83. Different people do different things with totally different results. Russ Andrews, without changing the fundamental circuit, makes a Stereo 30 sound totally different. Better or worse, as is the case with my own rebuilds, is up to the end user.

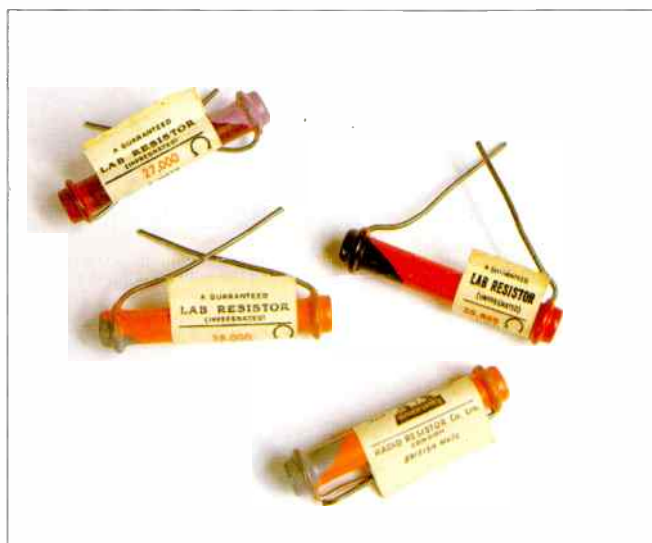
A lot of the cheaper 1960s valve amps also benefit from renovation or improvement. Rogers Cadets can sound very good when re-built with better quality items. Later Radfords and early Quad IIs are another 'Holy Grail' that should only be touched with extreme caution, their designers being very crafty in the layout of the design. One disturbed wire on a Quad II can upset the stability margin and therefore the sonic purity. On the

wounds is extremely difficult. The variety of components offered by Audionote, GT Audio, Maplin, RATA and Sonic Frontiers is amazing. Audionote and GT Audio appear to follow the paper-in-oil/carbon film route, RATA and Sonic Frontiers the more modern polypropylene/metal film route. The others seem to offer a mixture, which is just what I recommend. Remember that more modern components will give you a different sound that may not fit in with what your idea of the amplifier in question should sound like.

In modified amplifiers I personally use metal film type resistors as grid leak and stoppers, carbon as anode load resistors and wire wounds in the power supply and as output valve cathode resistors. The capacitors I use are mainly metallised polyester layer (similar in sonic character to the original 'Hunts' type). I try not to use one capacitor

original animal will fetch. Remember, you might actually de-value some items by restoring or renovating!

There are a lot of cheap little valve amplifiers out there that sound poor. Changing some of the out-of-



**Solid carbon rod resistors were the order of the day, these made by the Radio Resistor Co. of London.**



**Large oil filled paper capacitors for HT smoothing.**

other hand, a couple of mods can be performed to improve sensitivity and reliability without changing the sonics at all.

One problem with DIY mods is you can never be sure that you have actually made the thing you are working on better. Some times a sideways or even retrograde step can appear initially to be an improvement. It may well offer something sonically different and if you have done the work yourself it will be gratifying to hear, be it good or bad.

The choice of whether to fit new style Ansar Supersound or Kimber capacitors, Holco or Vishay resistors against old style metallised polyester or paper-in-oil, carbon film or wire

type more than once. Paper-in-oil coupling capacitors need to be watched. A new sample of these critters killed a brand new Marconi PX25A which put me in a grumpy mood for a week. Plain and simply, paper-in-oils are not as reliable as other types. Avoid their use when driving expensive, irreplaceable triodes. Making a decision whether to restore an amplifier to its original factory

condition, or renovate it by fitting more modern components to improve the circuit, is a matter of personal choice. If it's a rare bird, restoration to original form is a must, especially if you want to sell it later. If it's a cheap 'n' cheerful item, like a little Rogers Cadet (which used very poor original components), it's well worth the renovation/updating route. Just bear in mind that when you have finished it's worth no more than any other Rogers Cadet, even if you have fitted four Audionote silver foil signal capacitors at £120 each! Just apply a little common sense. I cannot sell a modified Leak TL12 0.1 for anywhere near the amount an

value components for new ones will not necessarily transform a £5 car boot sale special into the likes of a TL12 0.1, but for little cost it can provide hours of fun with a soldering iron and give you something that may well have a reasonable sound. And just think - you will be able to say you fixed it up yourself!

One final thing that may help your decision to restore, renovate or just plain tinker, a famous proverb; "if it ain't broke - don't fix it" Never a truer word spoken ●

\*\* ECC82s will not plug straight into A LEAK without modifications.



**TCC paper in oil signal capacitors; these are military surplus.**

# WIN A MISSION CYRUS HI-FI SYSTEM WORTH OVER £3000

This month we have a rather special competition for you, a complete Mission Cyrus system worth over £3000. This state of the art system comprises Mission Cyrus Discmaster transport and Dacmaster CD convertor, FM7 tuner, Cyrus III amplifier and a pair of the stunning new 752 floorstanding 'speakers using superb HDA drive units.

The electronics are all housed in Mission's custom die-cast magnesium alloy casework, giving them a smooth, solid, high quality feel. Ergonomically, they are a lesson in clarity, with neat

micro-processor controlled push buttons mounted on a 45° ledge at the bottom of the fascia.

The Cyrus Discmaster transport and Dacmaster CD convertor are at the leading edge of technology. The transport uses the specialised and rarely seen CDM-9 Pro mechanism and when used with the Dacmaster is linked by an AES/EBU balanced digital cable, a superior and more refined mode to optical or co-axial.

The Dacmaster CD convertor uses Analogue Devices' 1862, a very high quality device again rarely seen

elsewhere. When Eric Braithwaite listened to the combination he described the benefits of this device as allowing "a listener to discount vigour in favour of its marked strengths in portrayal of ambience, precision of focus and mostly spot-on tonal definition". Summing up the Discmaster and Dacmaster combination he wrote "It has been a long wait, but I feel it was definitely worth it".

The second source the lucky winner will receive is the Cyrus FM7 tuner. Complete with seven presets and a beautifully weighted rotary tuning knob, the FM7 is a delight to use. When we listened to the FM7 for the April '94 issue, we found it possessed a musical, communicative and incredibly detailed sound, with insight straight into the studio and its surroundings.

The Discmaster, Dacmaster and FM7 all feed the Cyrus III amplifier, long awaited successor to the Cyrus I and II. The Cyrus III has four line level inputs and provision for MM phono, and tape monitor. Pushing out a healthy 66watts from its compact cast casework, the Cyrus III is no slouch, capable of powering most loudspeakers with ease.

But this isn't really necessary with the fabulous 752s that form the final link in the system. Using High Definition Aerogel drive units they are sensitive, detailed and sweet on the ear with breathtaking clarity in the all important midrange. Bass is firm and deep, and highs open and natural, all in all, the perfect partner for the equipment that lies before.

To enter this fabulous competition for a complete Mission Cyrus system worth over £3000, simply complete the questions opposite.

Please send your entry on a POSTCARD, or the back of a SEALED ENVELOPE, and completed in block capitals, to arrive no later than Tuesday 4th October 1994 to:

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## COMPETITION ENTRY QUESTIONS

1) What is the casework of the Cyrus electronics constructed from?

- |                             |                  |
|-----------------------------|------------------|
| A. Sand-cast alloy          | B. Pressed Steel |
| C. Die-cast Magnesium alloy | D. Aluminium     |

2) What DAC chipset does the Cyrus Dacmaster CD convertor use?

- |                     |                          |
|---------------------|--------------------------|
| A. Philips DAC-7    | B. Analogue Devices 1862 |
| C. Burr Brown PCM63 | D. Crystal CS4328        |

3) How many preset stations can the Cyrus FM7 tuner hold?

- |      |      |
|------|------|
| A. 4 | B. 5 |
| C. 6 | D. 7 |

4) What is the power output of the Cyrus III amplifier?

- |            |            |
|------------|------------|
| A. 66watts | B. 55watts |
| C. 44watts | D. 33watts |

Don't forget to include your name, address and a telephone number so we can contact the winners promptly.

In the event of more than one entrant submitting all the correct answers, the winner will be decided by the tie breaker. We will endeavour to publish the results in the December 1994 issue. Purchase of the magazine is not a precondition to entry.

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

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**AUGUST ISSUE  
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WITH MATCHING TDL  
LOUDSPEAKERS**

First prize of a Rotel RC/RB-980BX pre/power amplifier and TDL RTL3 loudspeakers goes to: Richard Ward of Lewisham, London

Second prize of a Rotel RA-960BXII integrated amplifier and TDL RTL 2 loudspeakers goes to: R.J. Masterson of Whitley Bay, Tyne & Wear.

Third prize of a Rotel RA-935BX integrated amplifier and TDL RTL1 loudspeakers goes to: R. Keegan of Workington, Cumbria.

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**H**ang on a minute, first we have CD - perfect sound forever, then DAT - perfect sound and with the convenience of being recordable. But DAT fails on the domestic market, adopted only by recording studios and is replaced by the domestically aimed DCC and MD. But before they've even gained popularity, we're told that CD isn't as good as it should be and that three new systems are being developed to improve its performance. Does that mean that DCC and MD are dead before they even got going? Or will DCC become a more serious rival to CD, as it is developed and resolution improves, perhaps overtaking CD sometime in the future?

The PASC section of DCC has always been capable of 18bit resolution, and in theory 20bit is possible. We already know that there is a true 18bit version of DCC due for launch in December, the DCC730. You may ask what's the point if there are no 18bit sources available to take advantage of this, but Decca studios are already working on new 18bit DCC recordings. DCC will also gain a turbo drive, making tape spooling five times faster than existing machines, and track access times three times faster, bringing it closer still to CD, but with the advantage of being recordable.

So what future will CD have if two improvement systems for 16bit CD, developed by Sony (Super Bit Mapping) and Philips (Adaptive Noise Shaping) and the new HDCD recording system are, once again, to fight it out for popularity? Will anyone buy 'improved' CD, or will the masses give up and revert back to vinyl and analogue cassette? And if three new 'improved' CD systems are being developed, confirming that CD wasn't good enough in the first place, what if they fail like DAT? Who will want CD once it's been discredited? The marketing antics of the larger manufacturers could quite possibly spell the

death of digital all together.

Any manufacturer knows that for a product to have a long and fruitful lifespan, it has to be at the leading edge of technology when it is introduced. In fact, it has to be something special, something that will take years to improve upon. Take QUAD as an example, and their electrostatics. When introduced they were truly innovative, there was nothing like them. The complexity and level of engineering ensured that for anyone to improve on them would take years of



Dominic Baker

## dB on the level

research and development. And it worked, they still sell well today and compare with the best.

CD was behind even when first introduced. The first players sounded dreadful, vinyl was leaps and bounds ahead. DCC and MD just took another step backwards - MD especially because it doesn't appear to offer any route for improvement, looking more like a fashion accessory than anything else. Too much has been made of convenience and secondary factors such as surface noise, and not enough about quality. These systems were engineered to be adequate, nothing more. Their 16-bit coding system gives a reasonable sound, so that's what we got - something reasonable, nothing special. Higher bit systems were possible but not thought necessary - I bet they're kicking themselves now.

Vinyl is still the audiophiles' only medium engineered for sound quality first and foremost. Yes it's inconvenient, has

surface noise, is bulky to store, wears out etc, but at least it does the job intended. And what's a little surface noise compared to a harsh and gritty treble, or the sterile and emotionless sound of CD?

Perhaps I'm being a little too hard on CD - it's not that bad, it's just not as good as it should be. I started out with CD and have invested thousands of pounds in a collection of discs, at a far higher cost than vinyl, for a medium who's days now look numbered. I wouldn't have minded the extra cost so much if CD had been an improvement over LP, but it wasn't. I've moved backwards, as it were, in order to enjoy the quality vinyl offers, starting an LP collection quite recently.

So where does it all go from here? Well in my mind there is only one way forwards for CD that will prove successful. One system has to be adopted, one that is recordable, and one that is far superior to 16-bit CD. 20-bit isn't

enough, look at the plot in the September issue of a 20bit wave form (p51). If you saw that kind of waveform distortion come out of an amplifier you were developing, you'd throw it in the bin and start again. If 20bit systems are the next step, in ten years time we'll be faced with the same problem again. Amplifier and loudspeaker technology will have improved and the shortcomings of CD will once again be revealed.

A large step forwards needs to be made, maybe 24bit. I certainly don't want to be sold short again,

caught with thousands of pounds worth of out-of-date CDs, and I should think that the majority of music lovers agree. We've listened to SBM recordings, and good though they are, they're not the kind of step forwards that the audiophile wants. Anyway, this kind of system isn't really new technology, more a clever manipulation of an outdated one.

Before we rush once again into a new technology, a little thinking and future planning needs to be done. Any new system is going to have to be demonstrably better than any existing system available, and by such a margin that the buying public can be convinced that they should have it - then there will be a demand. When introduced, colour TVs had a clear advantage over black and white, something that was so obviously better, that you had to have it. CD or its successor desperately needs to make a similar kind of leap if it is to be unequivocally successful ●



Hi-fi systems can be built up from the humblest of beginnings, to a system worth thousands. There are people fortunate enough to go along to a hi-fi shop with a great wedge of cash and purchase a complete system in one fell swoop. For many of us, however, this is just not possible. Instead, finances dictate that the long and often turbulent path of "upgrading" is the only way to an audio heaven that lurks an impossible distance away.

I fall into this category, not having the finances to blow on a once-and-for-all system, or the contentment to just leave things alone. My own system started from as humble beginnings as any - an Arcam Alpha amplifier bought for £100 from a secondhand shop. For the first five months it was used with nothing more spectacular than an Aiwa "Walkman" and some Philips 'speakers from a 'tower' system.

Five months later, with my tolerant Arcam still in one piece, I put together my first proper system. A secondhand Aiwa AD-F270 (still a current model at the time) provided a cassette source for £50 and 'speakers, courtesy of Comet, in the form of the Sony APM 10ES. A brand new Denon TU-550 tuner was the next addition. Combined with a four-element outdoor aerial it provided excellent results that weren't too far behind the Revox tuner I use today.

Before I'd even contemplated a main source, I was already on the upgrade path. A secondhand pair of Celestion SL6s at £125 were too good a bargain to miss. These were the first speakers where I realised there was more to hi-fi than just deep bass and crisp treble. The SL6s showed me subtleties that existed in the mid-range too. Selling these later was to be a mistake.

My first mistake, however, was the purchase of my first main source: a Denon DCD-920. It wasn't so much that it was a bad CD player, merely average, doing little to encourage me to go out and try new artists on CD. Yet it did teach me a

lesson - and that was to always listen to a piece of hi-fi before buying it, no matter how cheap it may be.

The SL6s were sacrificed for a pair of Tannoy DC2000s. At the time I remember being immensely impressed by the presence of the Tannoys and their excellent imaging. It wasn't long though before I started realising something was "missing" in the mid-range. Vocals didn't seem to have the body that I'd taken for granted with the SL6s.

The upgrade bug had well and truly bitten. I sold



## Fair Views

- from Dominic Todd, our man in Scarborough

the Arcam to a friend, replacing it with one of the first Pioneer A-400s. I remember it not impressing me as much as I was expecting, but found it grew on me as time went by.

The Denon CD player made way for a Rotel RCD 865. Although this was more of a sideways move, it seemed to gel with the A-400, unlike the Denon

It was all change on the tape front too. My trusty AD-F270 was ousted in favour of an all-singing, all-dancing Sony TC-K520. As it happened, the TC-K520 featured in the first cassette deck group test that Hi-Fi World featured in May '91. Not that it scored particularly well, managing a resounding "average".

My next move was pretty radical. Having decided I greatly preferred the sound of vinyl to CD, I not only sold my Rotel, but all my CDs as well. A Manticore Mantra took over the reins as my main source and a record collection was quickly established. Sticking with the vinyl theme, I upgraded the Audio Technica AT95E (a stalwart

if ever there was one) for an AT OC5 and then later an OC7. Never quite content with the DC2000s, I traded them in for what I consider to be my first piece of semi-esoteric hi-fi. The Celestion SL600s, which I still have now, had identical drive units to my much missed SL6s, and with better cabinets to boot.

In a quest to upgrade my amplifier, I sold the A-400 and invested in a Cambridge C/A 100. That didn't last too long, neither did the Audiolab 8000A, Albarry PPI or an ancient Radford. I settled on a Meridian MCA-1, mainly due to its excellent phono stage.

All was well until I decided that I really needed CD to complement vinyl if I was to get all the new albums I wanted. The Meridian wasn't so hot on line level, so after listening to dozens of amplifiers, it was another A400. This time though, I adapted the Meridian's phono stage (powered by a separate transformer) to use with it. Again, I'm still using this today.

A Pioneer PD-S801 CD

player was sold to finance the CD player I have today - a Cambridge CD3M and DAC3. Even though Cambridge had disappeared, so I knew it was a bit of a gamble, it paid off, and has been totally reliable....so far!

The Revox B760 tuner was another opportunistic purchase which I have written about before in these pages. Needless to say it has been faultless operationally and encourages me to listen more to the radio than I would otherwise. What more could you want from a tuner?

A Sony Professional Walkman replaced the TC-K520 cassette recorder. It's a fantastic companion when on the move, and means I don't get withdrawal symptoms from my music when I'm on holiday. The recent addition of a Roksan Xerxes brings things up to date. Although even this hasn't escaped being upgraded. The Pickering 7500 cartridge was changed for an Ortofon MC20 II, and the Tabriz arm for an Artimiz.

Needless to say, I'm delighted with the results, although people keep asking me when "that" amp. is going to go. The answer is when one comes along that comprehensively outclasses the A-400, and doesn't break the bank. At the moment, though, it looks as though a bank job is going to be the only way of funding further upgrades (a perennial problem when one reaches a certain stage). Yet I'm enjoying my music more than ever and seem to be buying more records and CDs than ever too. Cloud Nine is now just that bit closer ●

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At V'Audio we try to keep our feet firmly on the ground and don't go in for much of the hype in the Hi-Fi Trade, including that perpetuated by the press! Two in particular spring to mind during the 'silly season', as there's not much new to talk about. One is about 'front-ends', i.e. The Garbage In - Garbage out bit; not that there isn't much truth in this but it gets too dominant and it constantly amazes me how people will spend fortunes on front-ends and yet seem reluctant to change their speakers and yet in 90% of the cases that would gain them the greatest benefit! Most front-ends aren't that bad and amps are far more consistent than speakers; indeed there aren't that many really good speakers out there, which is why we only sell quality products such as ATC, RUARK, HEYBROOK, ALON, TRIANGLE: all of these have unique qualities but let's get back to the title 'BROADSWORD'. This stand mounting speaker was one of Ruark's first, hasn't been reviewed for ages and just tends to get forgotten with new units such as the TALLISAM, CRUSADER, TEMPLAR and EQUINOX coming out. It has been modified over the years and at £850 is still one of the finest we know at that price especially driven by AVI monoblocks. So if you want to improve your back-end at a realistic price ring for an audition. I'll consider 'Hype No.2' next time!

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# The Music a Pages

Giovanni Dadomo

## INDEX

### RECORD REVIEWS - ALBUMS OF YEAR

**ROCK & POP** .....74  
Giovanni Dadomo

**CLASSICAL** .....85  
Peter Hornig

**JAZZ** .....93  
Simon Hopkin



### BLUR Parklife FOOD CD 8 29194 2 1

● Blur's Parklife is, quite simply (though it's anything but simple) the most focused, refreshing, totally damned inspired record in the whole year's heap. I've had it some twelve weeks now, even got a cassette so I could listen to it in the street as well as at home, and my partner reckon's I'll get my marching orders if I don't stop playing the damn thing.

Like Pulp's *His'n' Hers* this sounds like a ready-made Greatest Hits package, and singer/writer Damon Albarn has become a hero to rank with Ray Davies, Pete Townshend, Frank Black, Arthur Lee — or maybe twenty others at their peaks. Simply put, he writes great, catchy, funny, melodic little tales that are perfect slices of today: 'Bank Holiday', 'The Debt Collector', the one with Phil Daniels talking about feeding birds in the park — there's not a bad song on here and it *just* has to be one of the Great English Records of the Nineties.

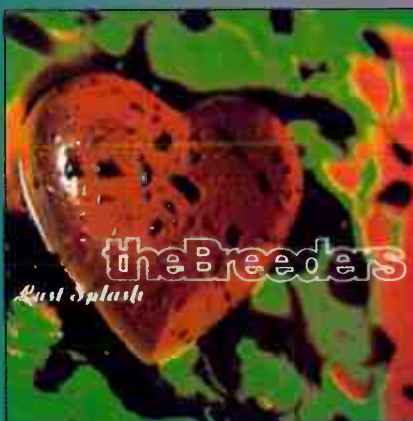
I went on and on and on about this in the August issue, so check your back pages. And if you don't have it or knod the budget rise with it last week, no worries. More words never could do great music justice and this is — really, really is — great British pop at its best. If you never buy another pop record in 1994 so they say.

### P J HARVEY Rid of Me ISLAND CD 8002 514 616-2

● Twelve months can be a long time, but if anything in this collection stands the test of time it's the second album from Polly Harvey. Time and again her trio prove the old adage that it's not what you put in, but what's left out that matters. Led by PJ's deceptively simple, predominantly percussive guitar work and

ably abetted by Steven Vaughan (bass) and drummer Bob Fillis, this is some of the hardest, most potent music I've ever heard. I reckon Beethoven would've loved it — he could probably have even heard it!

Favoured mostly — that stuttering guitar re-emerges and again, but treats no criticism (listen to the early, classic Pink) for repetition as glibness. And if the music is sparse, sometimes to the point of brutality, then Harvey's voice and lines are anything but — the words are clipped, sparse, ironic, wise. It's no pretension to do, Sylvia Plath too would've loved PJ's beautifully condensed poetry, and no feminist in this politically correct age could possibly fail to respond to the splendid twirling of fractal imagery on songs like 'Man on a Hill' — 30-foot Queenie or, best of all, 'Me Jane' with its wondrously perverted arsenal of macho mythology it is entitled, 'Won't you move over Tigger/Banana you see I'm bleeding/Me I'm Jane and I'm transito make sense of your screaming.' The best thing to come out of the West Country since the Trojans (no joke, they made some brilliant discs too) and really my Woman Of The Year, this is a classic record from a true 30-foot woman. Do not miss on any account.



### THE BREEDERS Last Splash 4AD CAD 3014

● This is one music I'll take with me to my grave if only because it contained (did you spot it) the greatest error of fact that former member Tanya Donnelly had

gone off and wed Ken Coates (RIP). That was a serious case of jelly. Kate Bush or one of the Brontës above I think. But that's another, or all story.

Anyway this, the weird Brendon record proper (there were two EPs between) and what started out as a job project of the overtime Blue has, thankfully, turned into a proper career. That Mr Jim Dear is not was a best-seller may not now always seem obvious from her Pines (best, waiting at the bar alongside such major guests as that of Blind Faith and Joey Santiago, but it's a story for more. Shadows of the past, inevitably anger — Invisible Man or The Arch, say has them more to The Wicked than a few notions of past examples. The music is by turns tough melodic, gets the the usual Tommy Gentry tones of the early rock 'n' roll, which appears in two distinctly different (but equally inspired interpretations) while 'Big or Small' are hard and tough enough for the most committed rock listener — and I'm not talking about one of The Shadows now. A cracking good long player, I can't wait for him to have another baby. If you know what I mean.

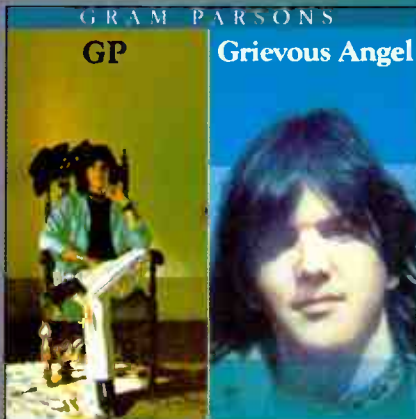


**THE LEMONHEADS**  
Come On Feel The Lemonheads  
ATLANTIC 7567 82537-2

Former indie heroes The Lemonheads make their crossover breakthrough with this previous. It's A Shame About Ray and it was a sure bet that with Evan Dando and company becoming international heroes and Dando himself the inimitable face of '93 a few short notes would turn up their noses with the release of this inevitable. But before that in a month that found them competing with new releases from The Wonder Stuff, Teenage Fanclub and Tinderbox — pretty damn good records one and all — this remains the cream of the crop as far as this old fart's concerned.

There's the lovely Gram Parsons tribute 'Big Gay Heart' (the best of the 50s), and express train country law 'Down Again'. Dando can be big and bullish like John Wayne or Prospero Bon, or turn on the delicate pop charm and sit

back with an item like 'I'll Do It Anyway' — where he's more than ably assisted by Robyn's Carolee surprise surprise (well I was). But this time the guest appearances almost as surprising — Rick James for one, who might have been a prime inspiration for Lenny Henry's hillbilly song 'Mr. Widdowson'. All of this is speedily flushed out by a band who can handle everything from funk to punk to country without missing a note. A Major on my player.



**GRAM PARSONS**  
GP/Grievous Angel  
REPRISE 7599 26108 2

● I shall make no apology for including a couple of twenty-year-old releases in this retrospective because, frankly, I couldn't do my mind be about when or where, but what's in the groove. And times, I don't want to take the edge off these two brilliant discs from the tragic Mr P, a man who can rightly be counted as a great rock innovator, all important in the way of Hendrix, Joplin, Lou Reed or Dylan. The topical sleeve notes to this two-record set will tell you how Gram just about invented Country Rock, first with the International Substandard Band, then as key member of his own flying, Barnets Brothers, not to mention having taught The Byrds a few dose-home cowboy licks along the way. Hell, he was almost a Rolling Stone, and Evan Dando (who once proudly sported a GP's shirt for many years) photo-shoot he seemed to do last summer.

When his own band split Gram teamed up with Eric Burdon and it was a marriage made in that same rock 'n' roll pantheon that put John and Paul, Mick and Keith on, even more aptly, Don and Phil every alongside one another. Parsons' croaky, husky voice, forever on the point of flatness, but miraculously forever keeping just this side of the edge was wonderfully paired with Eric's more than delicate tenors. And could the boy pen a tune — 'Well Sweep Out The Ashes', 'The Morning', 'Ste', 'The New Soft Shoe' — disarms every one. There's even an amazingly beautiful cover of Don and Phil's 'Love Part 2'. There's more to rock a swatch of Bud by,

but more than that it's a record no collection with heart should be without. I've been listening to the geezer for a good twenty years and he still touches me in places very few others reach. Some epitaph.



**THERAPY?**  
Troublegum  
A&M 540 196 2

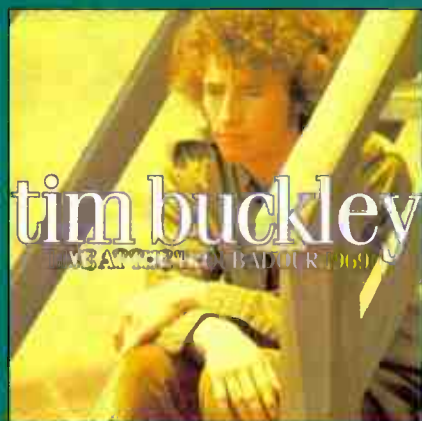
● An Irish trio who went the usual indie route prior to moving to the inevitable major, the band's second A&M release more than underlines the fact that this really is a force to be reckoned with — forget U2, I still think they're the best thing to cross the water since Guinness or James Joyce. Andy Cairns (vocals, guitar), Fyfe Ewing (drums), and Mike McKeegan (bass) are as hard, fast, tough and mean as they come. Nobody this side of Shane McGowan could have come up with such classic lapsed Catholic lines as "Heaven fucked you or you weren't wearing a tie", or made songs about holy old clichés like religion, sexual guilt and all the rest of the old palaver sound as fresh and exciting or be seen with such inspired eyes.

But it's the music that'll grab you by the coat-tails and kick your bottom all the way down the street and back again. There's nothing harder, faster, punchier or more ear-wrenching this side of the classics — everyone from Led Zep to Joy Division and Husker Du spring to mind, but you can never forget this is Therapy? you're listening to. They'll give you an ear-bashing to be sure, but it'll be positively exalting as well as exhausting.

**TIM BUCKLEY**  
Live At The Troubadour 1969  
EDEL ED CD 400

● Unlike the Gram Parsons disc, this live set's not a reissue, but as the title explains it is a quarter of a century old. But then it's like they say about good wines or whiskeys — sometimes the old ones really are the best. Since his untimely death in 1975, the one time folkie's been discovered by at least one new generation, and it's unlikely that

things will change now. His songs, his extraordinarily gorgeous voice, the sheer wealth and range of the music he made, will doubtless be thrilling hearts in another quarter century or more. Hendrix, Charlie Parker, Miles Davis, even the aforementioned Parsons, these are the kind of god-given talents that make it all worthwhile, whose work helps to make this confusing mess we call life not meaningful at least tolerable.



Buckley emerged as part of the post-Dylan folk scene, and he cut a mere nine studio discs in his too brief life, but in that time he managed to try everything from folk-rock, to wildly experimental dalliances with jazz that took in every one from Ornette Coleman to Sun Ra before dabbling in the nascent rock and funk coalition of his later years.

Having been a cult figure for so long, Buckley's attraction not to mention his very eclecticism means his fans really are fanatics, and being such are hotly opposed as to which was his best work. I've always loved the sweaty, pre-Springsteen funk of his later days, Greetings From L.A. in particular; other camps favour the wild experiments of Lorca or Starsailor. It's from the era of these last two that this live set comes, and the most surprising thing to me on first hearing was that the music was more fully formed, coherent, less rambling than on record. So now I love every record the man ever made and this one, so long available only a frequently iffy bootleg, is one of the best. A wizard.

**PULP**  
**His n' Hers**  
ISLAND CID 8025

● One way and another it's taken Jarvis Crocker and his band Pulp a decade to make this record. They've indie'd themselves to death, cut more Records Of The Week than God, and finally come up with a record as rich and invigorating as the flower that opened this very morning. Crocker's madly angular vocal deliveries go perfectly with his tales of suburban life at the end of the century, a world full of joy-riding, fast and vapid sex, all set against a very Ealing-style Brit background where a cup of tea is both the ultimate panacea as well as the



accompaniment to some curdless dinner, mid-afternoon Resident's Wives, naughtiness.

In Candida Doyle's superb and encyclopaedic keyboard work, from grand to Tri-Ang piano (even a Spooky saxophone, DJ wagon, Prussian Service and his guitar, all provided with a solid rhythmic skeleton thanks to Neil Birrell and Steve Huddy, percussionist and bass respectively). This sounds like it's Greatest Hits, because I've seen before, and I love every wild and crazy, impeccably catchy, totally delicious moment of it. It's like the best of the past thirty years of Britpop — from Kinks to Spinks (well, they made their best records here anyway) to Steve Hazy, I could go on and on and on — but mostly I still, I know, go on and on listening to and loving Pulp.

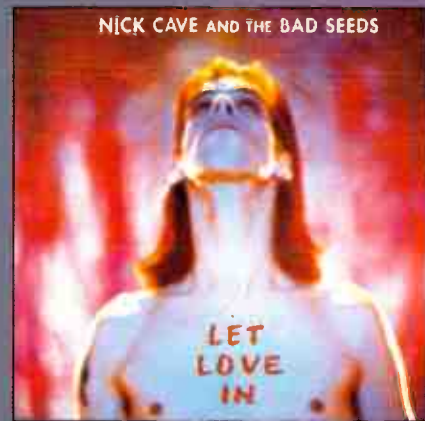


**PRIMAL SCREAM**  
**Give Out But Don't Give Up**  
CREATION CRE CD 146P

● Yes, yes, yes. Primal Scream owe a huge amount to the Stones, we all know that, for a fact after Screamadelia. Still, it was and remains a classic record as good as anything the older bellies did in their Sticky Fingers. Back On Main Street prime. Can you really expect them to have changed that much from one disc to the next? Of course not, and this is something of a Screamadelia revisited. So Bobby and the boys took themselves to Ancient Studios in Memphis (home of so many Stax-Walt classics etc, etc.) got in veteran producer Tom Dowd, pulled in some help from the utterly crucial

Memphis Horns (hell, they even dug up funk-wrangler George Clinton for the suitably named (if hardly original) so-funny-fun). The result is a record that it does by no means hurt to listen to, one that manages to span the four-form narrow gap between the late Sixties to current Dances-Club-feels.

And you know what? They pulled it off again. Big Ins Plane is a stone groover for Robert, yeah well it does, and 'City of Mystery' is one of the loveliest ballads made in a few dozen moons. And I don't care what anyone says, hell, not do I like this one a whole lot, it's appearance, and it's couple of months prior to the new Stones, cause makes for some real hard head scratching. You know, I was at a party the other night and this young woman — I think she was having a fluff, asked if I was Keith Richards. Did I really look that ragged? I thought! But it was the real RP, I think I might just damn Mick and Ronnie and the rest, and beg Bobby Gillespie for a gig.



**NICK CAVE & THE BAD SEEDS**  
**Let Love In**  
MUTE CD STUMM123

● Confession: the first time someone lent me a Nick Cave album I figured myself silly. Here was some crazy, gothic Australian, yacking on in the most monotone drone this side of Ben Cooper and pretending he was Robert Plantum in that old picture where he plays the guitar with the 'love and hate' tattoo on his shoulder.

But I persevered and in the end I grew to love the guy. Australian or not he was, of course. Krig Gethin the days of Birthday Party, then went solo and peaked (or as I believe) with Tender Prey. Well, this is his best record since. Assisted by most of the quality guys, crew.

...Bibi Stangland and a host of guests, Cave turns in his best performance since the aforementioned Tender Prey (not that he didn't shine more than occasionally on the likes of The Good Son (or Henry's Dream) but it's a long time since Cave was a consistently inspired or empowered as on the likes of 'Thirsty Dog', the awesome 'Do You Love Me' or the totally off the top-out 'Cut out and keep



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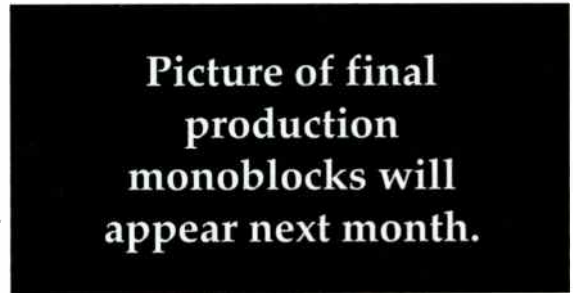


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BUILT	K5881-B240/120	<input type="text"/>	£595	£550
transformer set	K5881-TR240/120	<input type="text"/>	£220	£180
<b>300B 28W specialised valve amplifier (prices do not include valves)</b>				
KIT	300B-K240/120	<input type="text"/>	£850	£725
BUILT	300B-B240/120	<input type="text"/>	£1150	£950
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# Classical

## Peter Herring

**I would imagine there must be as many 'nouveau classiques' each year as there are 'nouveau vins' and, like wines, there are many which will only ever qualify as 'vin de table', while a select few will acquire vintage status. And, to pursue the wine analogy, there are some which are fit only for flushing the drains.**

**Which of the 1994 will acquire that vintage status? I've a dozen-or-so nominations drawn from this year's reviews, ranging from the familiar made fresh by some inspired performances, to the kind of discoveries which can excite even the most jaded ear (and they don't come more jaded than those of a record reviewer).**

One of music's hoary platitudes is that Georg Philip Telemann was merely a journeyman composer providing lightweight entertainment for his patrons and of far inferior stature to his contemporary, Johann Sebastian Bach. This is ignorance masquerading as judgement and is perpetrated by those who believe Bach could do no wrong (as a clique, exceeded only by those who tell you that Mozart never put a foot – or a note – wrong). In his time, Telemann was regarded not just as Bach's equal but, his superior and if you explore his chamber music, you'll discover that those seventeenth century 'musos' were by no measure misguided fools.

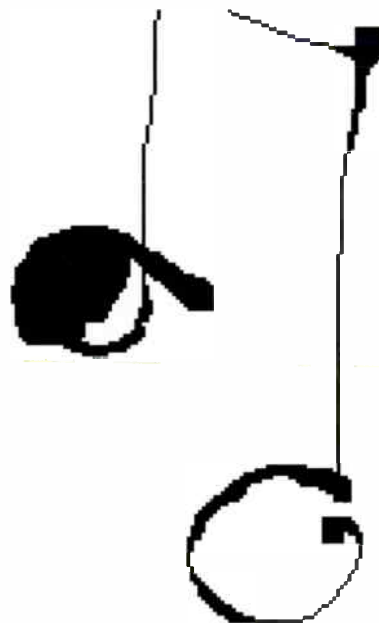


Of course, Telemann's music – anyone's music – can sound dull if played by unresponsive and unsympathetic players. The Drottningholm Baroque Ensemble does not fall into that category. They play with an enthusiasm and relish that suggests they are discovering the pleasures of Telemann's music and they want to make sure that you, the listener, make the same discovery. The Ensemble is directed by Nils-Erik Sparf in a generous selection of Telemann's chamber music on the Swedish label BIS, which is imported into the UK by Conifer Records. The sound is as lively and engaging as the playing and the catalogue number is BIS CD-617.

The Drottningholm players also contribute to another of the year's finest recordings, this time on Decca's L'Oiseau-Lyre label. Here, it's not a case

of discovery, more a scrub-down for one of music's monuments, Mozart's Die Zauberflöte (The Magic Flute). Arnold Ostman directs a performance of wonderful freshness and clarity, one that while not eschewing the traditions of the work, is not weighed down by them. This, you feel, is how Mozart surely intended it to be conveyed; it is after all very much a bizarre pantomime graced by great music. Whether it does or doesn't have a hidden agenda comprehensible only to magicians and masons is irrelevant. Ostman, aided by a generally excellent team of soloists (with Sumi Jo as the Queen of the Night the pick of them) takes the opera at face value and produces a performance which is not only the best of the period instrument recordings, but one of the handful of great interpretations on record. You'll find the Drottningholm Zauberflöte on L'Oiseau-Lyre 440 085-2.

Just as there isn't one great Magic Flute, so there isn't one version of Mahler's Ninth Symphony which towers above the rest. I love this work – it would be with me on the proverbial desert island – and I enjoy having several recordings in my collection, all of which possess special qualities: Abbado,



# Classical

Barbirolli, Kubelik, Walter among the conductors. It's also richly satisfying to be able to add to these personal favourites and the live recording by the Russian conductor Rudolck Barshai has slotted in without difficulty alongside the names above.

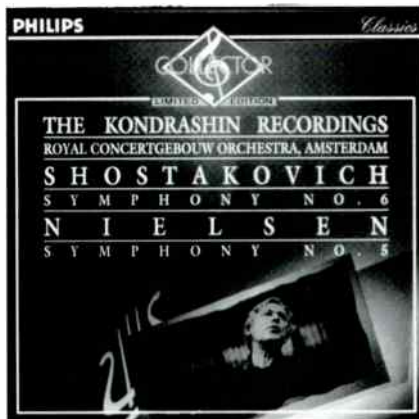


It is, as with all great interpretations of this score, an intensely personal view, conscious of the deliberate banalities of the work as well as its visionary beauty. If the acid test is, does it involve you, does it convince you, then Barshai scores on both counts. The recording is wholly acceptable and if the playing of the Moscow Radio Symphony Orchestra hasn't the polish of Abbado's Viennese or Barbirolli's Berliners, it lacks nothing in commitment. Rudolck Barshai conducts Mahler's Ninth Symphony on BIS CD-632.

Another fine Russian conductor whose recordings always merited considered evaluation was the late Kiril Kondrashin. It is a sad irony that, at a time when mediocre musicians in the west



were being given the freedom of the studio – and the budget – to chum out innumerable equally mediocre recordings, the opportunities for the like of Kondrashin were so cruelly limited by a political divide. However, enough survives to vouch for Kondrashin's undoubted qualities, including some tapes he made in The Netherlands towards the end of his career. These radio recordings have now been issued by Philips in what, according to the label's marketing-speak, is a strictly limited edition. For me, the plum is a coupling of two of the most elusive, multi-layered and even puzzling symphonies of this century, Shostakovich's Sixth and Nielsen's Fifth, both in performances which are nothing short of revelatory. These are concert recordings and some audience noise does intrude, but the performances are riveting and there are telling contributions from every department of the Royal



Concertgebouw orchestra of Amsterdam. Kiril Kondrashin conducts Nielsen and Shostakovich on Philips 438 283-2.

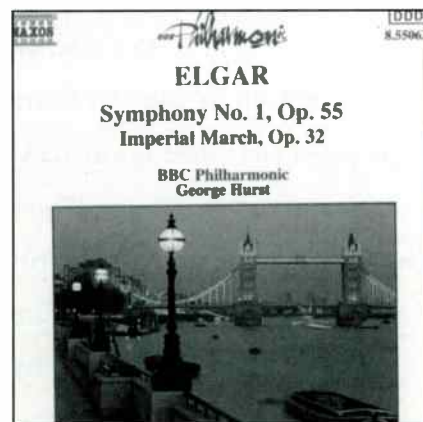
Staying with twentieth century symphonies, no lover of Vaughan William's music will want to be without a couple of vintage performances in Sony classical's British Pageant series. On an exceptionally well-filled CD, Dmitri Mitropoulos conducts an electrifying Fourth Symphony, one that brooks no compromise when it comes to harsh, even violent sonorities of this extraordinary work. "I don't know if I like it, but it's what I meant," remarked the composer, and here the listener can get some inkling of the impact the symphony must have had on the audience at the premiere in 1935.

It has been generally believed, certainly by me, that the first recording of Vaughan William's Sixth Symphony was



made by Sir Adrian Boult for HMV. Not so: Boult was pre-empted by Leopold Stokowski and this New York performance is coupled with Mitropoulos's Fourth. It isn't in quite the same league, both in the playing and the interpretation but remains a valuable – and historical – document. Vaughan William's Fourth and Sixth Symphonies are on Sony Classical SMK58933 and, sandwiched between the symphonies is a splendid performance of the Tallis Fantasia.

If this Vaughan Williams disc is a bargain, then so is George Hurst's memorable performance of Elgar's First Symphony on the budget Naxos label. This seems to have been one of those sessions when everything just came together: the BBC Philharmonic Orchestra plays out of its collective skin and the hugely underrated George Hurst appears determined to demonstrate his status as an Elgarian. The result is utterly compelling, and a reminder of how fine a work this symphony is, easily comparable to any written across the channel during the late nineteenth and early twentieth centuries. If you don't believe me, invest a fiver or so in Naxos 8.550634.



English music from a much earlier period is collected under the heading 'Elizabethan and Jacobean Consort Music' by the New London Consort under Philip Pickett on a Linn Records issue. Among the better-known of the composers features are William Byrd, Thomas Campion, Anthony Holborne, John Jenkins and Thomas Morley and, inevitably, there is a contribution from the



ubiquitous Anon.

It is fifty minutes or so of delightful music-making, with soloists Catherine Bott and Michael George in splendid voice. The textures are richly-coloured, the programme well-judged in terms of contrast and sonorities, and the recording is convincingly atmospheric; the sum of the parts exudes a soothingly hypnotic spell and you'll find it on Linn **CKD011**.

I found a similarly spell-binding quality to the sacred music of Nicholas Ludford, as indeed have many others to judge by the commercial and critical success of the series on ASV's Gaudeamus label. Ludford was born around 1485 and died circa 1557 and, for much of his life, was a member of St. Stephen's Chapel, Westminster. That is about as much as any musical dictionary will tell you, but reference to Frank Harrison's lucid evaluation of early English polyphony in volume three of the New Oxford History of Music will give an illuminating insight into Ludford's importance and his contribution.

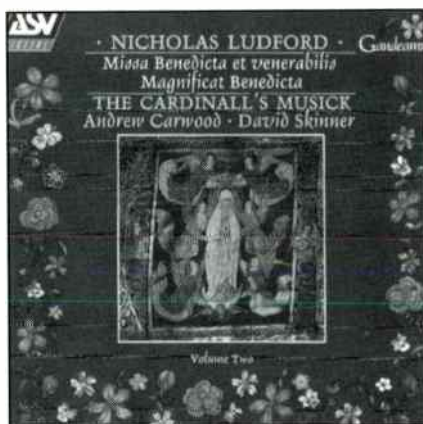


What Frank Harrison says in words, ASV's recordings convey with equal eloquence in sound. Andrew Carwood directs The Cardinal's Musick and makes a very persuasive case for Ludford with each of his recordings. The Missa Benedicta et venerabilis and the Magnificat Benedicta, coupled together on ASV **Gaudeamus CDGAU132**, are outstanding settings in every respect.

How much more music awaits discovery among the archives of the British Museum, or those of our great cathedrals and universities? You would imagine that, of all Renaissance

composers, the music of the Italian, Giovanni Pierluigi da Palestrina – regarded by many as prince of polyphonists – would be amply represented in the catalogue. This is far from the case; indeed, surprisingly few of his Mass settings have been recorded outside the more famous works, the Missa Papae Marcelli and the Missa Brevis, for example.

Over recent years, recordings by the Tallis Scholars have introduced several important Mass settings to the catalogue for the first time and, to commemorate the four hundredth anniversary of Palestrina's death in 1594, these have all been brought together in a superb four-CD set (not fourteen-CD as somehow appeared in the original review!). The set is an incomparable introduction to Palestrina's music, with Peter Phillips directing performances of remarkable insight and scrupulous scholarship, but with no lack of fervour or colour. Given the time-span of the recordings, the sound quality is astonishingly consistent; and the qualities of clarity, line and purity of tone that Phillips has always sought from his choir are evident from first-to-last. The Tallis Scholars commemorate Palestrina on **Gimell CD GIMB400**.



All the Tallis Scholars' recordings come into the category of a 'collectable series'. Another such series which was enhanced this year is the Lindsay Quartet's 'Bohemians' on ASV. As the name implies, this features Czech composers and has already brought first-class recordings of string quartets by Dvorak, Smetana and Janacek. In the newest addition to the series, the Lindsay Quartet is augmented by that fine pianist Peter Frank in Dvorak's Piano Quintet Op81 and the Piano Quintet No2 of

Bohuslav Martinu. The combination makes for thrilling music-making, superbly recorded on **ASV CD DCA889**.

And if you enjoy the thrill of first-class recording along with performances of stature, then Leonard Slatkin's Britten issue on RCA Victor will not disappoint. He offers the most famous of Britten's orchestral pieces – the Young Person's Guide to the Orchestra, the Sinfonia da Requiem, the Sea Interludes and Passacaglia for Peter Grimes and the Chacony and the London Philharmonic is in top form throughout. It's on **RCA Victor Red Seal 9026 61226 2**.

Herbert Blomstedt's San Francisco Symphony Orchestra comes into the same category with a CD which shows commendably imaginative programming in contrasting Richard Strauss's Ein Heldenleben (A hero's Life) with that most poignant and heartfelt work of his later years, Metamorphosen. Music which is worlds apart because the world in which they were created had changed so radically. It is sumptuously recorded on **Decca 436 596-2**.

My selection ends as it began, with a recording from Robert von Bahr's BIS label. Not only can you discover Telemann with BIS, but also the often extraordinary sonorities of the chamber music of Heinrich Ignaz Franz Biber, with



some dazzling violin playing by Maria Lindal. Biber, who died at the age of sixty in Salzburg in 1704, was himself a violin virtuoso whom the Concise Oxford Dictionary of Music succinctly describes as a "considerable composer for this instrument". They're right, as Maria Lindal and Ensemble Saga prove on **BIS CD-608**.

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# jazz

Simon Hopkins

methods and materials in an intelligent manner, and without entertainment as its prime function. Typically then, a handful of this year's best records

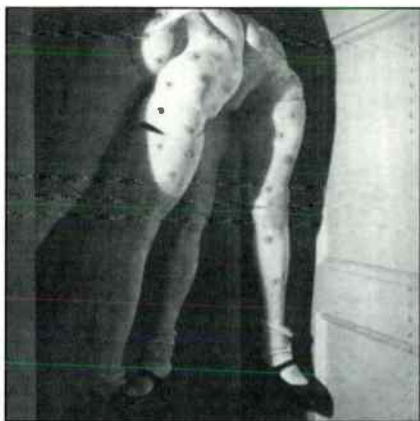
have seen musicians from an improvising background, if not always a specifically jazz one, tackling this whole area of ambient music-making, and coming up with at least as fine a music as the best coming from the post-rave arena, and very possibly a damn sight better. Chief example: Absinthe, one of two offerings during this year from New York altoist-collagist-composer John Zorn's occasional supergroup Naked City, a quintet of New York noise-makers comprising bop drummer from Hell Joey Baron, keyboardist Wayne Horvitz, Brit-guitar-improviser Fred Frith on bass, guitarist Bill Frisell and Zorn himself.

This column has blathered on endlessly about both Zorn and Naked City and with just cause: despite his pretty widely reviled approach to music, Zorn remains one of contemporary jazz's - indeed one of all contemporary music's - most creative, most persistently fertile imaginations. But nothing in the decade and a half of Zorn's music could really prepare the listener for Absinthe, for where the altoist's music has always been noted for its short attention span, for its schizophrenic genre-leaps, for its omnivorous consumption of hard bop and b-movie soundtracks and surf music and Free Jazz and thrash metal and punk rock and Christ-knows-what ever else came to hand, Absinthe - though unquestionably dense, bewilderingly multi-layered stuff - is yet the most motionless, static piece of music Zorn has produced to date, certainly the only one which could possibly approach description as ambient.

Yet while the form and overall sound of the piece distinguishes it from the bulk of Zorn's, its sound puts it emotional lightyears from the increasing vapidity of rave-orientated ambient. And its sound is born of its theme. A natural conceptualist, and surely this generation's most consistent successor to John Cage, Zorn has often inextricably bound his music up with some overarching story, image or theme. The music of Italian film

soundtrack composer Ennio Morricone in *The Big Gundown*, the rise of German fascism in *Kristallnacht* and so on. In Absinthe, it is the emotions and senses experienced under the influence of the narcotic liqueur loved by fin-de-siecle Parisian bohemians, and this music's uneasy, shifting, often barely audible, highly imitating version of stasis owes everything to these experiences.

This is uncomfortable stuff, and listeners looking for the womb-like slumber party soundtrack of rave-orientated ambient aren't going to go a bundle on this stuff, but it's encouraging that far from being a totally isolated piece (though it is, of course, highly unique in its realization), Absinthe unwittingly finds itself among a whole clutch of records aspiring to infuse the stasis of ambient with the psychotic unease of mid-20th century art music, records being made by musicians otherwise unconnected by background and genre. Check out Lull and Final and Main and Techno Animal and Thomas Koner and Seefeel and a whole host of others, and find disparate, perhaps even mutually hostile music-makers pulling ambient in broadly the same direction. Absinthe is a stand-out example of just this manipulation, and certainly the finest created by a group coming from an unquestionably jazz background.

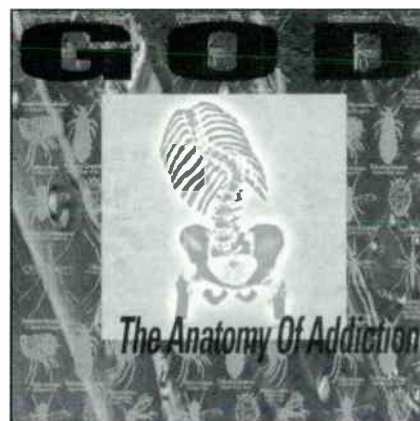


**NAKED CITY**  
**Absinthe**  
**AVANT**

● The buzz word - or one of the most used at any rate - in recent pop music has unquestionably been "ambient". A term first coined by early Roxy Music keyboardist-turned serious composer Brian Eno, it was intended to denote a functional mood music which at once drew on the bizarrely oxymoronic fields of American minimalist music - most especially that of La Monte Young and Terry Riley - and industrial/environmental background music, or muzak.

The current vogue for ambient kicked in at the end of the 80s as music for the chill-out room, where strung-out ravers could come down from their musically- and chemically - induced high. With these post-rave associations, ambient has been dragged into the nineties with most commercial succes by musicians coming from a dance background, with The Orb as both prime example and hugest stars.

Of all definitions of jazz it's always seemed to this writer that one of the most useful descriptions is that the music provides a platform for using pop music's



**GOD**  
**The Anatomy of Addiction**  
**BIG CAT**

● If Absinthe occupies so much time here, it's because it encapsulates in its outward simplicity so much of the best creative jazz of the last twelve months, and accurately describes its mood. Despite the TV ad-friendly nature of so much pre-1960 jazz, none of the music's leading edge has ever been anaesthetic; it's a music almost by definition agitating, unsettling, revolutionary. A billion miles from the stasis of Absinthe, British industrial-thrash-jazz collective God represent a similar dysfunctional approach to improvised music making.

This was the fourth time out for God, and saw the group at its barest, most stripped-down yet, though the line-up itself remained a big one: leader Kevin Martin and Tim Hodgkinson on



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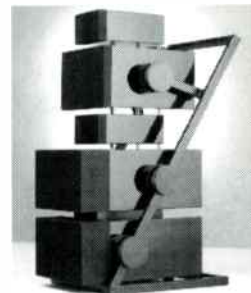
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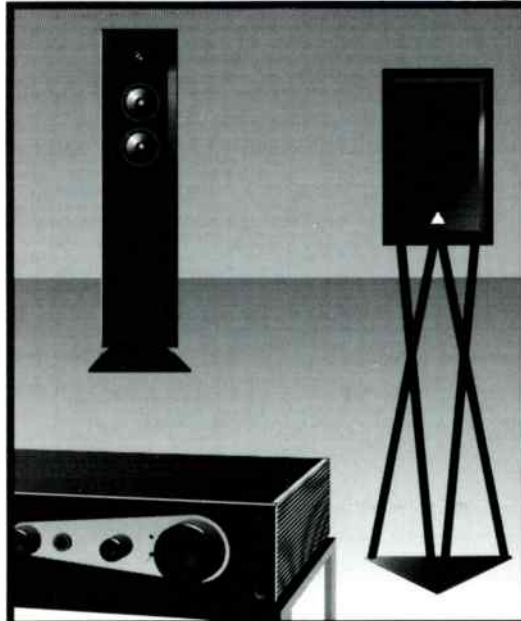
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saxophones, Godflesh's Justin Broadrick and Terminal Cheesecake's Russell Smith on guitars, Tom Prentice on viola, John Edwards on double bass, Dave Cochrane and Gary Jeff on electric basses, Scott Kiehl and Lou Ciccotelli on drums and Swiss reedsman and leader of 16-17 (of whom more later) Alex Buess guesting on bass clarinet.

On previous albums - the live *Loco and Consumed* and their studio debut *Possession - God* have shown a distinct taste for expansiveness with often long work-outs seeing huge swathes of saxophones, guitars, vocals and samples meshing over a dense backdrop of massive bass, driving drums and clattering percussion. On *Addiction*, these elements remain, naturally, but even with the often highly dubbed-out production, there is a focus here I've not previously heard them muster. Here tracks get stripped down to their bare bones, to massive HM riffs or dub reggae basslines or 70s Miles Davis grooves, over the top of which elements of the group's sound are brought in and out of the mix like so many fleeting fantoms; the massed ensemble sound that this band can summon up like no other is only sparingly brought to bear, but when it's there, it's breathtaking, pulverizing.

Still the finest band in Britain, still one of the most awe-inspiring groups working in (or at least somewhere near) contemporary jazz, *God* remain unparalleled, and *The Anatomy of Addiction* is their finest yet. Where to next?

## 16-17 'GYATSO



### 16-17 Gyatso PATHOLOGICAL

● A further crucial example of work happening along the God axis, noisy Swiss improvisers 16-17, led by the aforementioned Alex Buess, have been around for some years now, but *Gyatso* is a radical step forward and without question one of this hack's favourite records of the year. A trio of Buess on saxophones and bass clarinet, guitarist M Kneubuhler and drummer K Remond, 16-17 are augmented here with God-leader Kevin Martin on samples and GK Green from Birmingham's grindcore kings Godflesh on bass.

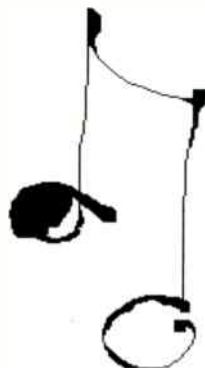
Like *Anatomy of Addiction*, Gyatso sees Martin in the producer's chair and the results again bear the fruits of a kind of Interactive Age approach to jazz; Martin has recorded hours of this group improvising and then done the ultimate cut-and-paste job on the lot, taking sections and spinning out tape loops from them, offsetting solos against each other, generally cannibalising the proceedings in a voracious way; only then has the bass been added with yet further saxophones plastered all over the proceedings. The results are mind-boggling: a relentless, inconceivably dense mass of stop-start rhythms and sprawling improvised sound. This is undeniably one of the toughest records of the year, a truly daunting listen (to listen to it end-to-end, non-stop is almost physically draining), yet one of the last twelve months' creative landmarks.



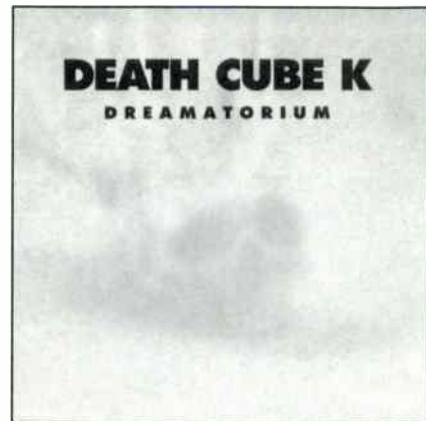
### DEATH CUBE K Dreamatorium STRATA

### KAZUYUKI K NULL & JAMES PLOTKIN Aurora SENTRAX

● Two more offerings from musicians from an improvising background, and hence one at least tangentially jazz, which offered a sort of anti-bliss take on ambient. *Aurora* saw Japanese monster thrash metal guitarist KK Null, leader of Zeni Geva as well as creator of a series of fantastic solo records (check every damn one out if you can find 'em), join forces with fellow guitarist Jim Plotkin from the American group OLD who themselves



whip up a fine blend of thrash metal noise and psychedelic improvised sprawl. The results of their meeting are a genuinely beautiful record; *Aurora* is a series of exquisite, fragile sound sculptures shot through with an uneasy tone.



While *Dreamatorium* brought together two old friends in the shape of Death Cube K: producer-bassist-arranger Bill Laswell and San Franciscan avant-garde speed metal guitarist Buckethead. Again musicians noted for the outward freneticism of their output - a freneticism as often as not born of their restless hybridizing - they've turned out a collection of beautiful, but highly disturbing tone poems.

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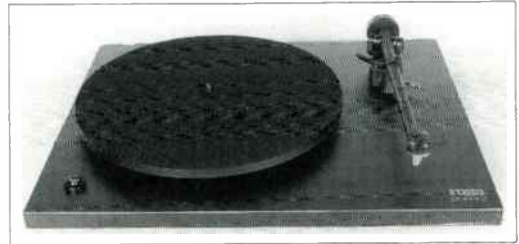
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Original Speed control disc - 401	13.75	2.20
Xeroxcopy Owners Manual 301 incl. full size mounting template	7.35	1.85
Xeroxcopy Owners Manual 401 incl. full size mounting template	5.20	1.85
Replacement Intermediate drive wheel	19.95	2.85
Replacement 301 control knobs On-Off/Speed select	pair 20.25	2.55
Replacement 301 suppressor unit	5.65	2.25
Replacement 301 motor pulley (-2%), (-1%), (Std), (+1%)	each 12.65	2.25
Replacement 301 Chrome plated mounting bolts	set 3.70	1.85
Recommended Lubrication set - early 301 or 301/401 (specify)	5.20	1.85
<b>Goldring/Lenco</b>		
Idler wheel (lock-nut or clip fixing)	19.95	2.85
Arm Pivot bearings with instructions	7.85	1.85
Spindle/Main bearing assembly complete	22.85	3.85
Headshells	from 21.95	2.55
Instruction books	from 4.20	1.85
<b>Thorens</b>		
<u>TD.124 series</u>		
Idler wheel	19.95	2.85
Drive belt	9.85	1.85
Chassis spring suspension (replaces 'mushrooms')	13.85	2.55
<u>150/160 series</u>		
Drive belt	9.85	1.85
Suspension springs (-1%), (Std), (+1%)	set 10.85	2.55
Suspension bushes	set 12.50	2.25
Armboards for most models	from 16.90	2.55

Cecil Watts Dustbags/Parastats/ (spares incl. Preener wicks)  
Cartridges and styli for 78s & Mono LPs in addition to current Stereo LP

**TECHNICAL & GENERAL PO Box 53. Crowborough,  
E.Sussex. TN6 2BY Tel:- 0892 654534**



## AUDIO ACCESSORIES



### HI-FI WORLD SOLID SILVER INTERCONNECTS.

Constructed from solid strands of pure silver wire, and with a thick outer casing and screening braid, these interconnects offer the ultimate in transparency, openness and detail. Superb Neutrik Profi phono plugs are silver soldered to the cables in pseudo-balanced configuration for lowest noise/interference and extensive use of adhesive heat-shrink is used to strengthen the join between cable and plug for long life. Available exclusively through Hi-Fi World Mail Order.

.....£139.95/1M PAIR.

### HI-FI WORLD SILVER PLATED COPPER INTERCONNECTS.

A similar construction to our solid silver cables, but using silver plated copper and standard Gold Phono plugs. Because the majority of the audio signal passes through the skin of a cable these can approach the quality of silver, but at the cost of normal high quality copper cable.

.....£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



### 4-WAY MAINS BLOCK WITH RF FILTER

Similar to the standard 4-way mains block featuring 2m screened mains cable, MK plug with silver plated fuse and holder and VDR to stop mains spikes reaching your equipment, A special RF filter has now been added which cuts out even more mains borne interference. Suitable for top-end systems

.....£45.50

### EQUIPMENT SPIKES

Machined from solid brass these equipment spikes can be placed under equipment to help ground harmful vibration and enhance the visual appearance of your equipment. The spikes come in sets of three and will

support equipment weighing up to 10kg. We hope to introduce a larger spike suitable for heavier equipment and loudspeakers within the coming months.

.....£6.50

### AFFORDABLE SILVER PLATED COPPER INTERCONNECT

A 'budget' interconnect featuring high quality silver plated copper co-axial cable and standard gold plated phono plugs is now available. The plugs are silver soldered to the cable for good electrical contact and high mechanical strength.

.....£28.00/1M PAIR



### HIGH QUALITY AERIAL LEADS

If you've just spent a lot of money on a good tuner and aerial, then you'll want to connect the two together with the best cable possible to ensure the signal is preserved. We now have a high quality copper co-axial cable furnished with gold plated connectors which does just that. Because the length of cable required for different circumstances will vary greatly, we are offering a custom termination service for this cable.

.....£19.95/1M +£2/EXTRA 1M



### GARRARD 401 CELEBRATION SME IV TONEARM

A special version of the SME IV cast magnesium alloy tonearm, dedicated to the Garrard 401. The SME IV is precision engineered to be fully adjustable, making set-up easy and precise. If you want to get the best from your Garrard 401, this is a fantastic tonearm, sympathetically styled to form a perfect combination.

GARRARD 401 CELEBRATION SME IV TONEARM .....£820

## AUDIO ACCESSORIES



LP together. Review in Hi-Fi World August 1994, these machines are a must for the dedicated Vinyl collector.

### BASIC RECORD CLEANING SYSTEM

.....  
**£199.90**

**RECORD MASTER RECORD CLEANING SYSTEM FOR ALL SIZES (7/10/12") WITHOUT ADAPTOR** .....

**£249.90**

**1.5 FI FULLY AUTOMATIC SINGLE SIDED RECORD CLEANING SYSTEM** .....

**£399.00**

**MINI-PRO I RECORD CLEANING SYSTEM BOTH SIDES CLEANED SIMULTANEOUSLY** .....

**£599.00**

For further details and cleaning fluid cost please contact the Mail Order Department on 071 - 266 0461

**NEW**

### NITTY GRITTY RECORD CLEANER

Bring a glossy shine to your LPs with the Nitty Gritty series of record cleaners. Several versions are available from the basic machine to the near fully-automated Mini-Pro (pictured) which cleans both sides of the

### 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**



### MICHELL ENGINEERING PLUGS

Craftsmanship marks out Michell Engineering's range of gold and rhodium plated plugs from the competition.

**GOLD-PLATED SIDE ENTRY BANANA PLUGS (4)** .....**£10.00**  
**GOLD-PLATED SURE-LOC**



**BANANA PLUGS (4)** .....**£14.95**  
**RHODIUM-PLATED SURE-LOC BANANA PLUGS** .....**£18.95**  
**GOLD-PLATED SPEAKER CABLE CONNECTORS**...**£10.00**

### GOLD PLATED 4MM BANANA PLUGS

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**

### 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** .....**£45 EACH**

**SIX CUBES FOR THE PRICE OF FIVE** ..... **£225.00**  
**EIGHT CUBES FOR THE PRICE OF SEVEN!**.....**£315.00**



### 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 £8.15**

### 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**



# Hi-Fi World

# AUDIO ACCESSORIES

## AUDIO-TECHNICA RECORD CLEANING SYSTEM

Removes both dirt and static; a tiny amount of cleaning agent in the handle removes 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**



## 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**

## EQUIPMENT SUPPORTS

FrameWorks is an innovative range of versatile hi-fi supports whose high standard of strength and rigidity results from their 'triangulate' design. The shelves are supported on struts of thin cross-section and four sturdy corner columns, to reduce resonances.

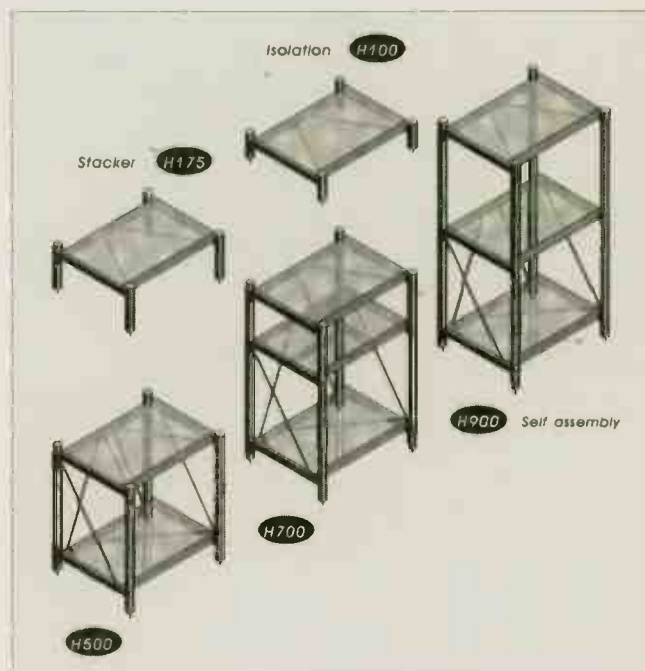
Versatility is guaranteed by two or three shelf options, an additional isolation shelf and a stacking unit to expand the system as the hi-fi grows. All you need to do is add components as and

when you feel the need.

FrameWorks stands come with attractive 10mm thick toughened smoked glass shelves, supported on rubber-damped spikes to reduce vibration and lessen the tendency for the glass to slide. Metal parts are finished in a hardwearing satin black powder coat.

FrameWorks stands will extract the best out of any equipment.

FrameWorks' excellent hi-fi equipment stands are now available through our Mail Order Department.



PRICES FOR FRAMEWORKS EQUIPMENT STANDS ARE AS FOLLOWS;

CODE	HEIGHT	PRICE
H100	100MM	£109
H175	175MM	£119
H500	500MM	£205
H700	700MM	£275
H900	900MM	£305

ALL FRAMEWORKS SHELVES ARE 550MM WIDE BY 450MM DEEP. All prices include VAT & p+p for UK only.



**H100 ISOLATION TABLE**

# AUDIO ACCESSORIES

## 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



## 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** £9.95



## 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

## HI-FI WORLD SPECIAL AUDIO ACCESSORIES ORDER FORM

Please send me:

- 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
- Basic Record Cleaning System .....£199.90
- Record Master Record Cleaning System (without adaptor).....£249.90
- 1.5 Fully Automatic Single Sided Record Cleaning System .....£399.00
- Mini-Pro Record Cleaning System .....£599.00
- Bug Audio Biasbug .....£59.99
- CD sound swivel .....£49.95
- Equipment Spikes .....£6.50
- Garrard 401 Celebration SME IV Tonearm .....£820.00
- Gold plated 4mm plugs .....£8.00 (4)
- Goldring Exstatic Mat .....£7.50
- Goldring Super Exstatic Carbon Fibre Disc Cleaner .....£9.95
- Standard Silver Plated Copper Interconnects (1m pair).....£28.00
- Hi-Fi World Silver Plated Copper Interconnects (1m pair) .....£69.95
- Hi-Fi World Solid Silver Interconnects (1m pair) .....£139.95
- Hi-Fi World Aerial Leads .....£19.95 per m + £2.00 per extra m
- Hi-Fi World Dry Stylus Cleaner .....£1.95 per sheet
- Kontak cleaning fluid .....£19.00each
- 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 .....£8.15 (50)
- Pixall MkII Record Cleaner .....£10.75 each
- Pixall refill roller .....£2.75each
- Record storage cube .....£45.00 each
- Screened Mains Cable With 4-Way Block (1m) .....£31.95
- Screened Mains Cable With RF FILTER4-Way Block (2m).....£45.50
- Screened Mains Cable With Fig 8 Plug (1m) .....£15.75
- Screened Mains Cable With IEC Plug (1m) .....£19.20

Prices are exclusive of postage & packing, please add £1.00 for postage in the UK and £2.00 for postage overseas. With the exception of the Record Cleaning Systems which are £4.00 UK and £10.00 overseas.

- Your name and address may be added to our mailing list only. If you would prefer not to receive details of new products or special offers please tick box. Hi-Fi World magazine is published by Audio Publishing Ltd.

10/94

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### Books

- Electrostatic 'Speaker Design & Construction .....£19.95 + £2.00 p&p
- The Williamson Amplifier .....£9.95 + £1.00 p&p
- Mullard Circuits for Audio Amplifiers .....£13.95 + £2.00 p&p
- The Loudspeaker Design Cookbook .....£23.75 + £2.00 p&p
- The Art of Electronics .....£35.00 + £4.00 p&p
- The Art of Linear Electronics .....£16.95 + £2.00 p&p
- Audio & Hi-Fi Handbook .....£40.00 + £4.00 p&p
- Loudspeakers: The Why & How .....£10.95 + £1.00 p&p

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# Hi-Fi World WORLD LIBRARY

## **ELECTROSTATIC LOUDSPEAKER DESIGN AND CONSTRUCTION, by Ronald Wagner. £19.95**

This book takes you step by step through the design and construction of a full range electrostatic loudspeaker, including the basic operating principles behind electrostatics. Whether you intend to build your own electrostatic, repair and restore a vintage electrostatic or are just interested in the principles behind electrostatics, this book is a must.

The author takes you deep into his design decisions and offers practical advice on how to build the amplifier and set it up for best performance.

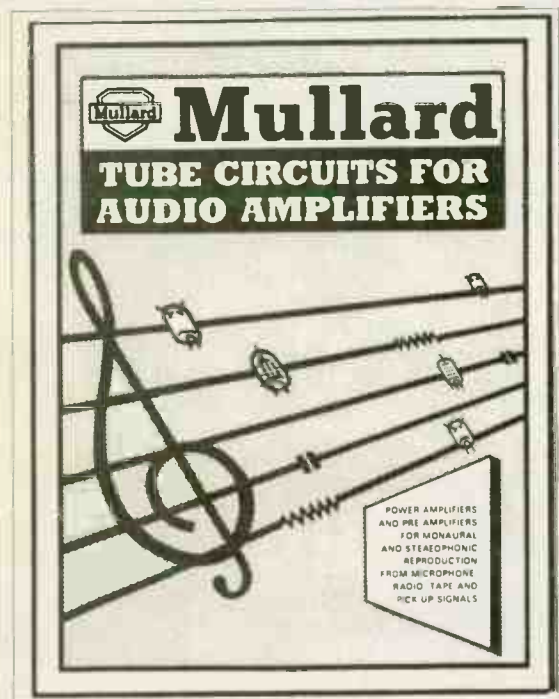
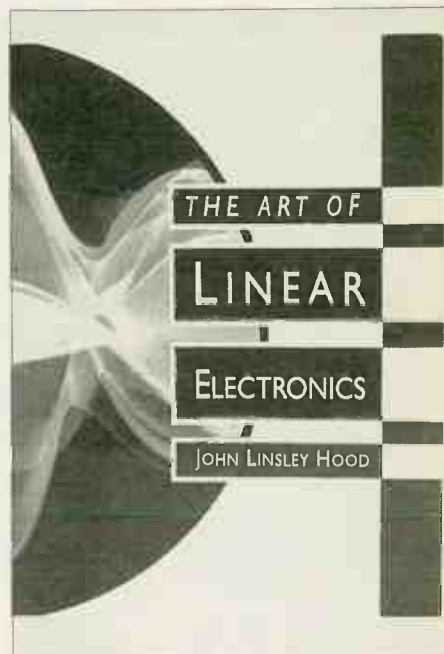
principles through to full design exercises and practical circuits.

## **LOUDSPEAKERS: THE WHY AND HOW OF GOOD REPRODUCTION, by G. A. Briggs. £10.95**

A popular and easy to understand book on building loudspeakers, using empirical techniques that pre-date computer analysis. A fine grounding, written by a manufacturer with first hand experience - recommended for beginners.

## **THE LOUDSPEAKER DESIGN COOKBOOK, by Vance Dickason. £23.75**

This best selling book in the field of loudspeakers offers good, up-to-date practical design information for the home constructor. Like today's manufacturers it uses modern Thiele Small theory and parameters.



## **MULLARD TUBE CIRCUITS FOR AUDIO AMPLIFIERS. £13.95**

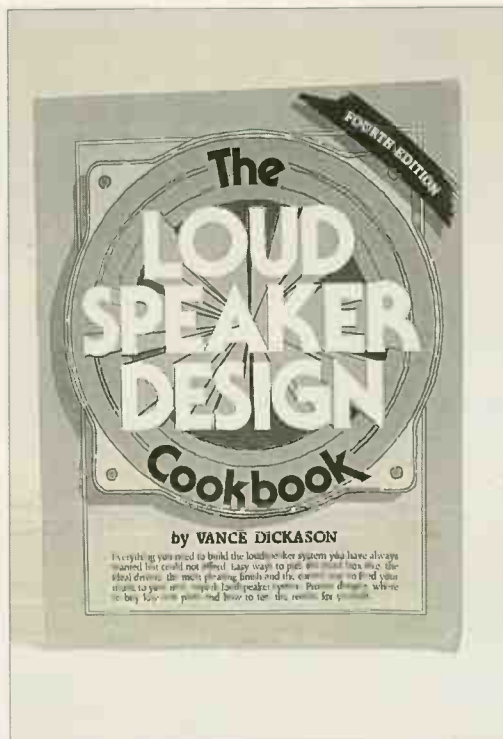
First published in 1959 by Mullard, this book includes full designs for eleven power and control amplifiers, including the 5-20, using valves. This book begins with a four-chapter tutorial on getting the best sound from valve amplifiers.

## **THE ART OF LINEAR ELECTRONICS, by J. Linsley- Hood. £16.95**

Concentrates specifically on analogue electronics for audio and goes into detail on obscure topics like the drawbacks of feedback, as well as its advantages. Covers mainly solid state but also includes valves. A must for serious enthusiasts and budding designers.

## **THE WILLIAMSON AMPLIFIER, by D. T. N. Williamson. £9.95**

In April 1947, Williamson's valve power amplifier became an overnight success.



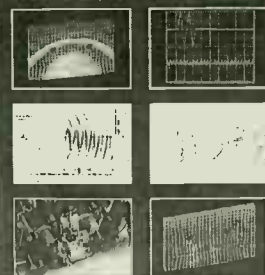
## **THE ART OF ELECTRONICS, by P. Horowitz and W. Hill. £35**

The definitive electronics book. The Art of Electronics is an ideal book for the beginner through to the engineer. Written in easy to understand English, each chapter takes you from basic first

## **AUDIO AND HI-FI HANDBOOK, edited by I. R. Sinclair. £40.00**

The Audio and Hi-Fi Handbook is written by some of the best known designers and spokespeople of the audio industry. It offers an insight into every area of audio, from sound waves and acoustics, through to car hi-fi.

## **AUDIO & HI-FI HANDBOOK**



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# RINGMAT

## FOR RECORD LOVERS

First record support to be properly designed

### Hear what reviewers say:

"A carefully researched and innovative product which genuinely transforms analogue replay at nominal cost. The string bass was more dynamic, the separation cleaner and, more importantly, the phrasing of the music was more fluid - you heard the vocal line arch and fall." **Christopher Breunig (Hi-Fi News, September '93)**

"I found I preferred the RINGMAT and will carry on using it. The results were wholly positive..." **Jason Kennedy (Hi-Fi Choice, April '93)**

"RINGMAT gave a sharper, cleaner, more solid sound, with better fine detail and clarity. On complex material the improvement in stability and focus was remarkable; easily comparable to an expensive tonearm, cartridge or power supply upgrade... Any drawbacks? None I could detect..." **Jimmy Hughes (Audiophile, October '93)**

"I found the sound of my LPs improved significantly, reminding me of the experience of listening to records on a Goldmund Reference turntable with a van den Hul Grässhopper cartridge with its nude stylus. All of a sudden, much more of the music, and the space in which it was performed, was evident. I'm sure that the legions of Linn and Rega owners out there who still play their LPs will want to make the modest investment required for a major improvement in vinyl play."

**Andrew Marshall**  
(Audio Ideas Guide, Winter '94)

### Hear what your fellow music lovers say:

"I would agree with everything you claim for this product. The music is more natural, more musical, and with a loss of a certain rawness which persisted, no matter what, beforehand."

**Mr. C.R., Northants**

"RINGMAT goes on my very short list of things that make differences I care about." **Mr. P.F., Washington D.C.**

"This product must be one of the most cost-effective accessories ever to be offered to music lovers." **Mr. R.A., Norway**  
*Can RINGMAT really be that good?*

Yes, it is, but there is only one way for you to find out - try it yourself. But be warned; if you let your best friend borrow it, you will finish up buying another!

### Prices

Different versions to suit turntable or budget from **£25 for RINGMAT 200 to £45 for RINGMAT 330 MKII XLR**

They can be obtained through good Hi-Fi retailers or on mail order direct from:

**RINGMAT DEVELOPMENTS**  
**PO BOX 200 BRENTWOOD ESSEX CM15 8QG**  
**Tel.: 0277 200 210 Fax: 0277 201 225**

(p&p: additional £2.50 UK, £5.50 outside)

USA: Something Worth Hearing, Rochester, N.Y. tel.: 716 461 1295

TAIWAN: Taifu Electronics Corporation, Taipei, tel.: 8862 341 9137

GERMANY: Fortissimo, Düsseldorf, tel.: 211 482 372



# Dynamics

## HIGH END AUDIO BOUGHT/SOLD EXCHANGED

	PRICE	TYPE	PRICE
MARK LEVINGON ML7A PREAMP MINT	2895	S HAND	3800
MARK LEVINGON N026 N026 BAL MINT	435	EX DEMO	5000
SOTA COSMOS VACUUM PLATTER SME V MINT	13,750	S HAND	17,500
WELL TEMPERED WATT TURNTABLE 3 ARM MINT	11,495	EX DEMO	12,995
MERIDIAN 602 TRANSPORT B&G DAC 2 LATEST MINT	12,995	EX DEMO	15,495
CAMBRIDGE CD1 CD PLAYER 16 BIT MODIFIED WITH			
MAGNIVE POWER SUPPLY 1 SUPP FB	1,795	S HAND	PHONE
METAXIUS ICARUS INTEGRATED AMPLIFIER CHROME MINT	1,395	EX DEMO	2,995
AUDIO RESEARCH SP15 REVISION A PREAMP BLACK	1,345	S HAND	1,700
AUDIONOTE M1 SILVER PREAMP V G C	1,320	S HAND	1,500
PINK TRIANGLE PP2 MK2 YSHAY MODIFIED PREAMP MINT	1,295	S HAND	1,500
CARY CAD 105 PREAMP PHONO & PREAMP MINT	1,295	S HAND	1,500
QUONTERPOINT SHIL LINES TUBE & SA9 PHONO STAGE GO BLOW	1,295	EX DEMO	1,500
YOUR MIND & WALLET MEGA V G C	1,295	S HAND	1,500
QUINTESTER 000 1400 PREAMP BALANCED MINT	1,295	S HAND	1,500
AUDIO RESEARCH D70 MK2 POWER AMP MINT	1,295	S HAND	1,500
COUNTERPOINT SA4 OTL MONO AMPS V G C	1,295	S HAND	1,500
MARK LEVINGON ML2 REFERENCE MONO POWER AMPS			
BALANCED SUPERB V G C	1,295	S HAND	1,500
MARK LEVINGON ML3 POWER AMP MINT	1,295	S HAND	1,500
NRG A2015 POWER AMP BALANCED LATEST SPEC MINT	1,295	S HAND	1,500
NRG A 401 400 WATT CLASS A MONO POWER HOUSES			
BALANCED HIGH FIDELITY WITH SPECIFICATION V G C	1,295	S HAND	1,500
CONRAD JOHNSON PREMIER 3C VALVE PREAMP MINT	1,295	S HAND	1,500
ULI-VAE RESEARCH ORI POWER AMP MINT	1,295	S HAND	1,500
MERIDIAN D5000 DIGITAL ACTIVE SPEAKERS STUNNING			
LOOKS AND SOUND TO MATCH MINT	1,295	S HAND	1,500
ACOUSTIC ENERGY AEG SPEAKERS & STANDS MINT	1,295	S HAND	1,500
BATH TUB & SPINDLES SIMILAR WATTS & PUPPINS WALNUT			
VERY INTERESTING 980B V G C	1,295	S HAND	1,500
DELLO AMATI SIMILAR TWIN MOUNTED PAIR IN OAK ON			
GRANITE STANDS SUPERB V G C	1,295	S HAND	1,500
LANNUN L50 SPEAKERS & STANDS BLACK MINT	1,295	S HAND	1,500
DYNAUDIO FACETTE SPEAKERS BLACK OR CHERRYWOOD MINT	1,295	S HAND	1,500
DYNAUDIO CONSEQUENCE SPEAKERS FLAGSHIP MODEL IN			
CHERRYWOOD DYNAMIC DRAMA STUNNING MINT	1,295	S HAND	1,500
CALL 401 SPEAKERS & CHROME STANDS BLACK GOOD	1,295	S HAND	1,500
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MELAN ARGENT 1 SPEAKER PIANO BLACK MINT	1,295	S HAND	1,500
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MELAN ARGENT 3 SPEAKER ROSEWOOD MINT	1,295	S HAND	1,500
PROAC PROSTATIC ELECTROSTATIC SPEAKERS RARE V G C	1,295	S HAND	1,500
SNELL A3 SPEAKERS WALNUT MINT	1,295	S HAND	1,500
APOGEE DVA 8 DAX TAUFER SPEAKERS MINT	1,295	S HAND	1,500
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Japanese, Armstrong, Rogers, Leak, Quad, Meridian, Pre-Amps, Power-Amps etc.
- RECEIVERS - Japanese, Goodmans, Leak, Armstrong etc.
- TUNERS - Analogue ones, Digital ones etc.
- CASSETTE DECKS - Single, Twins, Old Top Loaders etc.
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- CD PLAYERS - Geriatric ones, Modern ones, Multibit ones, Singlebit ones.
- SPEAKERS - Big ones, Little ones, Famous ones, Forgotten ones, Brown ones, Black ones, inc. Diamonds, Goodmans, Maxims, Celestion, Dittons etc.  
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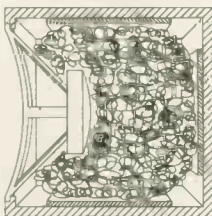
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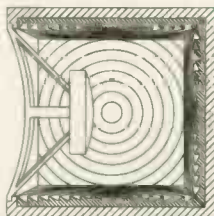
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**cd 63**

**Marantz**

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Since its launch earlier this year the **CD 63** has been heralded as a player with outstanding performance and exceptional value for money.



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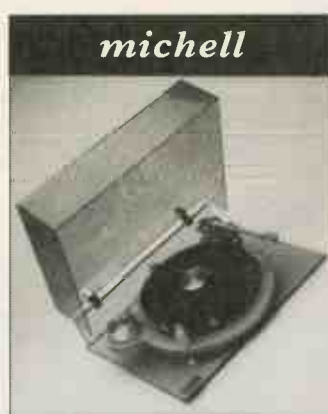
**Pioneer**

It's here, the new star of the CD world at an outstanding price. With Pioneer's unique Stable Platter Mechanism and their revolutionary Legato Link DAC, is this one to judge the others by? Audition this exciting new player with front runners from Arcam, Marantz, Rotel and others today. Yet more reasons to check out this award winning range at Sevenoaks Superfi.

Oh, and by the way, Pioneer are offering a generous £ 50 allowance when you part-exchange any hi fi, for an **A300X, A400** or **A400X** amp at

any of our branches listed below.

Sevenoaks, Tunbridge Wells, Watford, Chelsea, Leicester, Guildford, Oxford, Croydon, Hanley, Nottingham, Leeds, Derby, Sheffield, Lincoln, Camden, Hull and Birmingham.



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**Michell**

The **Gyro Dec** has always been a class act. Beautifully styled, it looks like no other turntable and has the performance to match. After twenty years of success John Michell now complements it with products that are impossible not to recommend. At Sevenoaks Superfi you can audition the range including -

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Our other turntables include the Pink Triangle **Export GTI** and **Anniversary**.



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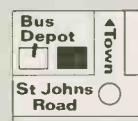
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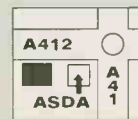
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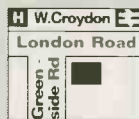
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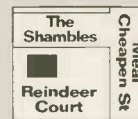
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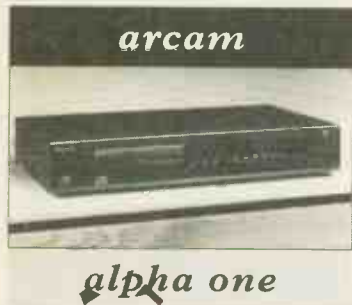
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## Arcam

Talk to Arcam and they'll invite you to 'listen' to sound rather than just 'hear' it. It's a principle they adopt in their dedication to product design and manufacture, ensuring that the music you listen to is reproduced with breathtaking accuracy.

Their new **Alpha One** is yet another of their products to encompass these principles. A CD Player that has an ideal balance of performance and price.



*dcd 825*

## Denon

At the forefront of digital and analogue recording technology, Denon are arguably the leading Japanese hi fi brand available in the UK. Their products deliver a unique combination of design quality and audio performance right across the range.

The **DCD 825** is a player that will continue their reputation as a maker of truly great hi fi equipment.



*ordinal*

## Pink Triangle

Once again, this innovative British company has set new standards for digital reproduction with the

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To audition **Ordinal** and **Da Capo** or our other Audiophile CD players, Transports and DACs which include Roksan, Teac, Quad, Arcam and Cyrus, contact your local branch **Musical Fidelity**.



*e 100*

The **E100** integrated amplifier is just one model from Musical Fidelity's new **Elektra** series. Together with the **E200** (Preamp), **E300** (Poweramp), **E500** (CD player) and **E600** (Tuner), it forms an outstanding range that complements the **A1000** (Integrated amplifier) and **F Series** components superbly.

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Sevenoaks Superfi are at the forefront of Hi Fi retail in the UK. For over 21 years our companies have been selling quality Hi Fi products to discerning customers, and our enthusiasm is undiminished.

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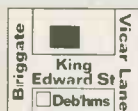
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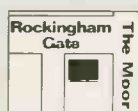
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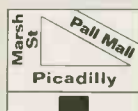
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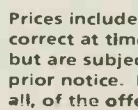
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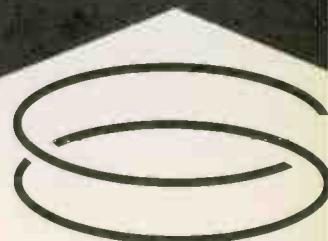


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# World favourites

## COMPACT DISC PLAYERS

NAD 501	£180	A break from the MASH tradition, the Philips powered 501 gives excellent results.	Apr'94
ROTEL RCD965 DIS	£350	A smooth and easy sound make this one of the best value players around.	Jan'94
QUAD 67	£790	A new breed of Quad. Lacking nothing in verve or excitement.	May'93
SUGDEN SDT 1	£850	Airy and spacious with a rare quality of ambience.	Mar'93
NAIM CDI	£1598	Single box, 16 bit player. Close to the two box CDS, has vital 'tingle factor'.	Apr'92

## COMPACT DISC TRANSPORTS

ARCAM DELTA 250	£750	Transport with sync-lock facility. Good partner to BB50	May'94
DPA DIGITAL T-1	£795	Superbly detailed sounding transport when sync-locked to DPA's converters.	Jan'93
ORELLE CD10-T	£799	Very involving, unforced and natural when used with Orelle's DA-180 DAC.	Feb'94
M'MEGA DUO CD.2	£1850	Seriously priced, serious CD using Philips' CDM-9 PRO mechanism. Exemplary.	Apr'93

## DIGITAL TO ANALOGUE CONVERTERS

DACULA	£376	This little devil from Select Systems really gets its fangs into the music.	Dec'93
ARCAM BB50	£450	Detailed and lively sound. Sync-lock to Delta 250 transport for best results.	May'94
DPA LITTLE BIT II	£450	Clean and confident sound with good resolution and focus.	May'94
ORELLE DA-180	£599	'Analogue' sounding converter, best with matching transport.	Feb'94
P. T. ORDINAL	£695	Pure sound, smooth and free from hardness. One of the best at any price.	Jul'93
P. T. DA CAPO	£1450+	Pink Triangle's own one bit DAC reaches new standards in digital. One of the very best.	Mar'94
		Even better with DC supply and new filter options.	July'94
DPA 1024	£6000	A reference for all other convertors. DPA's own discrete design.	

## TURNTABLES

SYSTEMDEK IIX900	£230	£330 with RB250 tonearm. A fine all-rounder and easy to upgrade. Neutral character.	Sep'94
PRO-JECT 6.1	£435	Complete with Ortofon MC15 Super and can even play 78s for an optional £10.	Sep'94
TOWNSHEND ROCK III	£799	The MkIII has a fabulously stable, solid image and terrific bass.	Feb'94
P. T. ANNIVERSARY	£1200	Very neutral turntable. Excellent imagery and detail.	May'92
SME MODEL 20	£2495	The last great turntable, bettered only by the £11,000 Model 30.	Oct'92

## TO NEARMS

REGA RB 300	£139	Simple and superb; dynamic with solid bass.	Various
SME 309	£568	Based on IV and V: Aluminium armtube and detachable headshell.	Jan'93
SME IV	£850	Loses little to the fabulous V, possibly the best value for money SME.	Dec'93
SME SERIES V	£1232	A masterpiece of precision engineering, with a cohesive sound.	May'92

## CARTRIDGES

GOLDRING 1012 GX	£60	Rounded bass, slightly forward midband, clean transients. A bargain.	Jul'93
GOLDRING 1022GX	£80	Extra degree of dynamic range and speed over the 1012GX	Jul'93
SUMIKO BLUE POINT	£100	The Blue Point casts a romantic charm over all types of music. Robust too.	Oct'92
ORTOFON MC15	£100	Moving coil cartridge at a moving magnet price. Has a tight grip on rhythm.	Jun'92
GOLDRING 1042	£100	A reference to all other MMs regardless of price	May'92
ORTOFON SUPREMES	£225-450	The MC10, 20, & 30 Supremes offer superb sound and value for money.	July'94
LINN KLYDE	£450	Soft treble, but a stonkingly good cartridge.	June'94
ORTOFON MC2000	£650	We came across this one by accident: used on a Garrard 401 with an SMEIV it gave one of the best results we've ever heard.	Dec'93
ORTOFON MC7500	£2000	The best MC available? Produces real-life scale of music.	May'94

## CASSETTE RECORDERS

AIWA AD-F850	£230	Fine recording quality and good playback. A real bargain.	July'94
NAKAMICHI DR2	£500	Worth every penny, pushes recordings to the limit and remains unflustered.	Feb'94
NAKAMICHI DR1	£780	Nakamichi sound quality, and manual head azimuth adjustment.	Jun'93
NAKAMICHI CR-7	£1500	No Dolby 'S', but auto tape tuning and motorised head. The Best!	Aug'92

## TUNERS

NAD 402	£160	Stunning budget tuner, with a warm and open sound. Can compete with the best.	Jan'94
AURA TU-50	£230	Superb FM-only tuner. Produces a delightful, three-dimensional sound. A cracker.	May'92

# World favourites

MISSION CYRUS FM7	£299	Clear and lucid sound. One of the best, regardless of price.	Apr'94
QUAD 66FM	£490	Among the very best in terms of tonal colour and imagery. Remote controllable.	Nov'92
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# readers' queries

## DRIVING APOGEES

In my search for a suitable amplifier to drive my Apogee Centaur Minor speakers, I have noted that amplifiers with a high (200-500+) damping factor produce, good, clean, well controlled bass. Valve amplifiers that I have listened to generally have a low damping factor and produce badly controlled bass at best. What relevance is the damping factor?

My system consists of the Apogees, Teac VRDS-7 CD and a B&W 250D Power amplifier (1980's - 100 wpc into 8ohms). No pre-amp, direct input from CD, volume control via gain controls on power amp. Interconnects are KLOTZ professional cable and speakers cable is from MAPLIN - 431 strand OFC.

The sound is flat/dull, compressed, poor in imaging and lacks integration and is not very loud at max. volume. The speakers are easy to drive - worked reasonably well with an Audio Innovations 300 (10 wpc) but appear to need a high current amplifier to get the best out of them. I have been recommended the likes of Krell but is outside my budget. What about the Crown (Amcron) Macro Reference (700+wpc)+ PSL-2 pre-amp (from Shuttle Sound), seems a real bargain(?) at £2300 + £569 +vat. Can you

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suggest alternatives that would not require a second mortgage?

Music:- Electronic Jazz Chic Corea and the likes of Joni Mitchell/Cohn. The wife listens to popular music. Should I try

adding a pre-amp to the system before spending money on a new pre-power combination or change the speakers for the Vandersteen 2 Ces? By the way, is the designer of the Vandersteen speakers the same Mr Steen who had a speaker company in the '80's operating out of Surbiton, Surrey?

My son's (16yrs) system consists of KEF 103.4s, Technics SLPG 620 CD, Audio Innovations 300 amplifier, Revox A77 MK II 15ips Reel to Reel tape deck, Tandy interconnects and 79 strand speaker cable. Sound is bright and lacks bass, the amp needs changing - help! The Technics SU900 and the Teac AX5030 amps are on the short list. Music - Nirvana etc. I have promised him either a

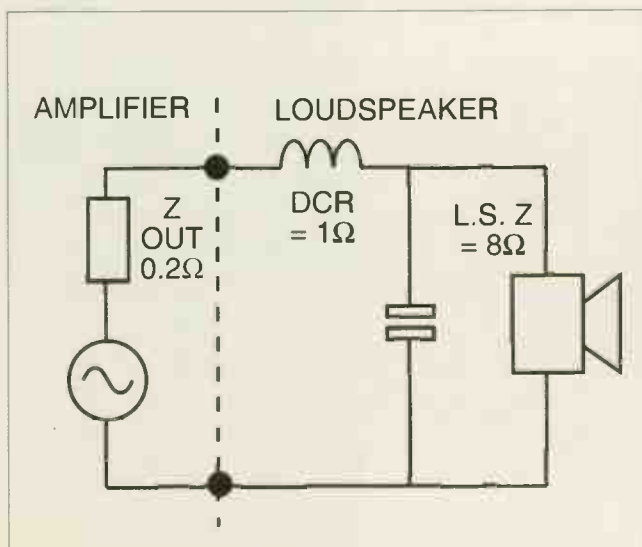
Teac VRDS-7 or a Micromega Stage as a replacement for the Technics CD player.

**Chulan Weeresinghe Kingston upon Thames, Surrey.**

Some of the properties of the Apogees are inherent to the speaker and some to the amplifier, no doubt. You'd be comparing them to your son's KEF 103.4s I imagine, which would make the Apogees sound a bit dynamically flat.

Damping factor, in the way it is traditionally talked about (ratio of amp output impedance to loudspeaker impedance), may be a bit of a red herring. What theorists overlook is the presence of a series inductor feeding the bass driver of nearly all commercial loudspeakers. With a DC resistance of 1Ω or thereabouts, this makes amplifier damping factors greater than 8 pure fantasy. Our diagram shows how an amplifier with 0.2Ω output impedance (Z out) appears to offer a damping factor of 40 (8/0.2) but in fact, as far as the bass unit is concerned, has a real output impedance of 1.2Ω (1+0.2), giving a true damping factor of 7.

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Continued on page 117...

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During the past few years there has been a significant increase in the availability of simple low power valve amplifiers - particularly in single ended configuration. This would have been a more valuable development if there had been a corresponding increase in availability of high sensitivity loudspeakers. A 5-9 watt valve amplifier needs to see a very even load and a sensitivity of 98 dB/w @ 1m. or more. Without this the full benefit of these simple amplifiers cannot be fully realised. In many ways the amplifier/loudspeaker relationship is so important that it should be considered as a single unit.

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* Pioneer PD 901S				Systemdek 11x900. Oak	100
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.... Continued from page 115

tends to tighten and dry out the sound of an amplifier and since it also lowers output impedance it would seem from simple inspection that high damping factors give a tighter sound when in fact other factors are responsible. Our recommendation is not to worry about it too much. Simple correlations rarely hold up to critical analysis in audio, which is why it is a black art.

Absolute Sounds, importers of Apogee, told us the speakers need plenty of current and are insensitive. With a mismatched amp, they told us, the dynamic bass driver will not subjectively match the ribbon mid/treble unit. Depending upon room size, you need 50watts or more. We'd recommend you go for a super-quality hi-fi solid state rather than a part-time welding amplifier. Try a DPA50S or a Naim 82/180. A Chord SPM1200 would also make a good partner.

Valve amps are more load sensitive than solid-states and will react differently to the varying load of the Apogees. Absolute Sounds noted this, saying that some do work and some don't, which is what we would expect. You would need to audition a valve amplifier before making a choice.

Vandersteen Loudspeakers are imported by Arcam, and not from Surrey, but Canada. Stuart Perriam of Arcam Sales said the Mr Steen you refer to started S. D. Acoustics, of Surbiton, Surrey. Vandersteen loudspeakers can be auditioned by appointment at your nearest Arcam dealer. Phone Stuart at Arcam on 0223-440964.

You need something with a bit of wallop in it for KEF 103.4s, the Audio Innovations being unsuited (try our super-sensitive KLS2s for them). For the KEFs try a Pioneer A-400X, an Audiolab 8000A or a Sugden Stemfoort

SF60 which has really tight, dry but punchy bass. **NK**

### STOPPING THE MUDDLE

I am writing to give you some feedback about the magazine and ask for some advice.

The reason I subscribe to Hi-Fi World is because it usually contains the right mixture of articles. People do not change their kit every month so pieces about electronics and record reviews mean that there is always something to read when an issue contains reviews of things that are either too expensive or too cheap.

I own a Walker CJ 55 turntable, Mission arm and a Goldring 1012 cartridge, an A&R Cambridge A60 amp, Mission cable and 760i 'speakers on bookshelves out of reach of my daughter.

I am happy with the sound when I play string Quartets or Suzanne Vega, but full orchestras and Pearl Jam quickly sound muddled when they play forte/loudly. With a budget of £400-500 what should I do? I seek an overall improvement in clarity with better imaging. I am considering a basic Rotel or NAD pre-power combination as a path towards future upgrades. Is this the right step to take?

I would be grateful if you could send me Mr Walker's address to ask him how to set up the turntable correctly.

**Owen Palmer  
Valencia,  
Spain.**

The muddle at high levels is most likely to be due to your cartridge, especially if the deck is not set up properly. The Cambridge A&R (now Arcam) A60 is an old warhorse with a smooth sound and plenty of power and the Mission speakers are also very competent.

First, check that the arm is still moving freely by balancing it out (i.e. reduce the tracking weight to zero) and seeing whether it floats

laterally and vertically with reasonable freedom. Do this with the stylus guard on or, if you've lost it, with the stylus removed. If the arm is sticking, this will degrade tracking and introduce muddle on peaks; it will need servicing. Contact Mission on 0480-451777.

Alternatively, the arm may not be set up properly or the stylus may be worn or damaged. The 1022 should track at around 1.8gms, but try 2gms maximum. Ideally, you should buy a stylus gauge to check this. Ortofon and Goldring can help here.

Have a good look at the stylus cantilever to make sure it isn't bent. If the stylus is more than a year old and has been used a lot you should consider replacing it. The 1012 body will take a 1022 or 1042 stylus assembly, a cheap way of upgrading performance. But be sure that your arm is in good condition first and that you know how to set it up. I feel fairly certain that this is where your problem lies. **NK**

Though the A&R A60 is now on the elderly side, I would, as always, upgrade step-by-step to make the best use of resources. Bear in mind, however, that the final improvement on clarity and imagery will be brought about by putting the Missions on good stands rather than on bookshelves. However, until your daughter reaches an age of responsibility vis-a-vis speaker cones, consider acquiring a Rega RB300, or from the second-hand market, even an Alphason Xenon or SME309. Colin Walker's CJ55 shouldn't need much work, but the Mission arm could be worth replacing. This is a relatively simple matter, involving straightforward carpentry. The arm-board is a rectangle of 18mm MDF, so a piece can be cut to size and drilled for any arm. Originally it was drilled for a Linn-type mounting, so Linn or

Alphason arms will fit anyway. Pick your arm, then pick up your drill! Colin is now semi-retired, but can be contacted on 0928 733326. He will be able to supply a copy of the original instruction manual.

As to the next stage, pre-power combinations which include a disc stage are not easy to find at around £400. The A60 should be easily convertible to a pre-amplifier by your dealer, and a short-cut thus occurs to me. Temporarily, try out a Rotel or NAD power amplifier using the converted A60: you can then upgrade the pre-amplifier later when funds become available. Don't forget the little audiophile bargain from Crimson, the 620B, which has re-appeared again and is a very agile and inexpensive power amplifier. But also listen to Sugden's excellent integrated amplifiers if you can and even the JVC AX-A662BX. **EB**

### ONE BOX OR TWO?

I would very much value your advice on up-grading my front end. I'm looking to buy the most suitable CD player for my Pioneer A-400X and Richter Harlequin speakers (floor-standing, twin 125mm woofer design with 89dB/watt @ 1 metre sensitivity and tonally neutral balance - does this help?). CD is my only source and my current Sony CDP-211 is rather outclassed. My tastes range from Holst to Grace Jones, from the MJQ to the Stone Roses.

I had intended on getting a quality single-box player such as the Arcam Alpha 5, but I was extremely impressed listening to the QED Digit with the Marantz CD52 MkII as a transport. Hence my quandary: is it better to stick with a costlier single-box player, or a cheaper transport, but with the QED DAC? If the latter, are there better alternatives to the ever present Marantz, such as a

Continued on page 119... ▶▶



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Chris Beeching, Hi-Fi News & RR Aug. 94.

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.... Continued from page 117

NAD 502? I'm looking for a front-end that combines the most superior amalgam of information retrieval, dynamics and atmosphere.

Hope you can help.

**Damien Hasan  
Perth,  
Western Australia.**

Which ever way you look at it, the route of separate transport and DAC is going to be the most costly. Even if you use the Marantz CD-52 as a transport with the Digit DAC it is going to cost you the best part of £500. What it does offer is great

the cheaper players around on sonic grounds. It also has a CDM-9 transport inside, so when the time comes it would survive an upgrade to an external DAC much better, and comes with the legendary Quad back-up and service. Have a listen to both and see what you think. **DB**

#### WHERE'S LOWTHER IN THE UK?

I have currently a more traditional hi-fi (high-end?) system: Linn LP12, Ittok. Asaka, Proceed Transport/DAC Mk 2, Linn Kaim and Klout. Audiostatic ES 100. In this system I very much prefer the LP section. From

valve amplifier (power requirements). Do you have an opinion on this comparison? Why is there no mentioning of Lowther or other horn designs in your magazine (especially in your interesting discussion on the need for more efficient speakers)?

**Uwe Steinmueller  
Deisenhofen,  
Germany.**

The Lowther and ES100 are at opposite ends of the speaker scale. It would be difficult to go easily from one to the other without becoming aware of some disturbing differences. Horns are dynamic; they have the unique ability amongst loudspeakers of driving the air load of a room properly; that's what the horn part is all about - it's an acoustic transformer, load matching drive unit to room. A good horn will move air like no other loudspeaker, giving apparently massive and effortless dynamics. Because of good acoustic matching, efficiency is very high too, little energy being wasted. So horns need just a few watts, as you've found out, meaning they can partner esoteric low power single-ended amplifiers, which helps improve overall sound quality. But they have some significant limitations too. Even a big horn has limited deep bass extension and the large, often wooden, throats can introduce boxy, wooden colourations. Few have a flat frequency response either, meaning there's usually a strong character to the sound. So horns are a trade-off; we suggest you listen carefully, at length and with a wide variety of material, from strings and solo violin though to Rock with clear vocals and deep bass lines. Lowther products are sold mainly overseas; they have no UK dealers, offering home demos only. Hørning Agathons use Lowther drivers and are also available in Austria and

Germany; you may like to locate the dealer and listen to them too.

Electrostatics are inefficient and can sound dynamically a little flat. They also sound, generally, very sweet and smooth, free of colouration and distortion. The use of a dynamic bass unit often results in a poorly integrated sound though, since most bass drivers differ significantly in character from the thin plastic film of an electrostatic. Inefficiency often means that a large solid state power amp must be used, which imposes its own limitations.

Whilst we greatly appreciate the distinctive properties of both horns and electrostatics, it is possible to advance the more domestically acceptable conventional loudspeaker toward them. Audax, the French drive unit manufacturer, keep us abreast of the latest developments in drive unit technology and from them we can get drive units that approach the efficiency of horns and the transparency of electrostatics, without the drawbacks of either. To prove the point, we designed and built KLS3 and find it's a fabulous speaker, to which we're becoming a bit addicted. It's almost spooky to see such a large floorstander delivering an impressive scale of sound from something like our 4watt single-ended amplifier. With a near-flat 8Ω impedance, near flat frequency response, 90dB sensitivity and simple crossover design this, surely, is the way ahead for conventional loudspeakers. **NK**

#### ECSTATIC STATICS

I thought I would write to express my gratitude for the advice you have given to other readers and to ask for some for myself. Yours was the first

Continued on page 121....



The Quad 67 CD player will survive upgrades well, thanks to its superb sound.

flexibility, and upgrading to a better DAC appears to be an easy option. But, bear in mind that if you do upgrade the DAC, its performance will almost certainly be limited by the transport, so pretty soon you'll want to be upgrading the transport as well.

Personally, I'd go for something like the £350 Rotel RCD965 Discrete. It has a smooth sound, but with plenty of detail and atmosphere. Another excellent one box player is the Quad 67. It is a lot more expensive at £790, but would probably far outlive any of

your magazine (and a few others) I got interested in tube amplifiers (do they make CD more enjoyable?). Last weekend I could hear a single-ended triode 2W amp (from Tube Amps in Germany) driving a Lowther Bicolor 200.

I am not in the situation to really say whether it sounded better than my system, but I am very sure that I have never heard such a dynamic and detailed imaging system. After this session it is clear for me that I need to decide whether I like the ES100 or the Bicolor more, because this decision is important for the choice of a

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.... Continued from page 119

magazine that had consistently good things to say about Quad speakers and amps. My hi-fi (thanks to you) consists of 2 pairs of Quad ESL 'speakers driven by a pair of Quad IIs. The rest of the system is a Linn LP12 with Ittok arm and K9 cartridge, a Pioneer F90 tuner, a Teac A108 cassette deck, a Sony DTC690 (if you are thinking of buying one of these, buy it from an authorised dealer - take it from me!) a Denon DCD1420 CD player, and the original Musical Fidelity Preamp.

I well remember the first pair of ESL speakers (cost £200) I bought and my thinking that I shouldn't expect too much from them (I had been using Arcam 2+ speakers for several years previously). I was bowled over! The next step was the acquisition of a second pair, also for £200, just in case I was thrashing the single pair. I had them mounted one pair on top of the other for a while, but I had to take the top pair off because they blocked out the light from the patio doors. I have just converted the garage into a music room and I

expect I shall mount the second pair soon. I added the pair of Quad IIs a year ago - bliss. . . However, my query.

I have had the Musical Fidelity Preamp (bought second hand from Dave Berriman no less, for £100) for about about 12 years, but now it doesn't have enough inputs. Does anyone know if it is possible to have three extra inputs added to it and who might do it? Alternatively, can you suggest a pre-amp with six inputs, two of which must be tape inputs that sound as good or better than the Preamp. Is it true that line level pre-amps would not be suitable for the Quad IIs because of their low output?

Whilst I think of it, what about asking readers to send in funny stories about their experiences when buying equipment? Here's mine. I bought the Denon CD player from Absolute Sounds and Video, which is now Audio T in Basingstoke and the entire demonstration lasting one hour of various CD players was carried out by a salesman who played a guitar throughout! It was a bass guitar and although I could not recognise the make it

appeared to be of the fretless variety. He held the guitar when no music was played, but when the music played - wow - he really came to life, even at low volume! He played along to the music and discussed prices at the same time. The only thing he didn't do was take the guitar off and lean it against the wall. I was so impressed with his musicianship I had to buy something! The name on the receipt was Simon.

Many thanks once again for a great magazine.

**Lance Maleski  
Whitchurch,  
Hampshire.**

First of all, ask Quad to send you their information sheet No. 021 which explains exactly how to mount a pair of stacked Quads. There is also a protection circuit that can be fitted to the ESL to help prevent damage, so ask about this too. It really is worth stacking them, they can sound absolutely fantastic.

The problem of too few inputs is easily addressed. QED have been making switch boxes for years which give extra inputs to pre-amplifiers. They are simple and cheap, and available at nearly all hi-fi dealers.

I think you are getting in a bit of a muddle about which pre-amps would be suitable, should you wish to change. It is not the power output of the Quad IIs that causes the problem, it is the amount of signal needed at their input for full volume. The input sensitivity of the Quad IIs is around 1.4V, which means

that they need 1.4V of signal from the pre-amplifier for full output.

There are two basic sorts of pre-amplifier you could buy, those that can amplify (active) and those that do not (active and passive). An active pre-amplifier usually has gain, so if you plug in a tuner that can produce only 0.75V, the pre-amplifier will amplify this low signal up to the 1.4V required to get full power from the power amps. For the Quad IIs you need an active pre-amplifier with gain, because all items except CD do not produce enough signal.

A line level pre-amplifier is one which doesn't have a phono stage. Records do not give a flat frequency response, they have more treble than bass, so an equalisation circuit is needed, the equalisation being the RIAA curve. As you have a record deck you need a phono stage, so a line level pre-amplifier would not suit.

So what you are looking for is an active pre-amplifier, with a phono stage, six inputs and two tape monitors. It sounds more complicated than it really is, honest. If, after wading through all of this, you do decide to go for a new pre-amp, here's a short-list of suitable devices with inputs for CD, tuner, phono and two tape decks: Rose RV-23S at £495, a valve design with a sweet and clear sound; Rotel RC980BX at £350 which has a smooth and laid back sound and the long standing £450 Audiolab 8000C which is possibly a touch gritty for your system. Whatever you do, have a good listen first. The Quad IIs and stacked ESLs will produce a very revealing system that may highlight preceding equipment's shortcomings.

As to readers' funny stories about experiences when buying equipment, we already get a lot of them, but yours is one of the few that is printable. **DB**



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Tel: (0706) 345418.

SENSIBLE OFFERS FOR: Speakers; Quad Electrostatic Bronze, Wharfedale Linton, Leak Sandwich. Cassette Decks; National Panasonic RS2600S, Akai GX-R6, Pioneer CT-200. Aiwa F660 Turntables; Beogram 1200, Thorens TD124/11 SME 3008 Ortofon cartridge and pre-amp, Strathearn STM1, Garrard 80SB MkII. Tuners; Leak Troughline 3, Leak Fectic FM, Sugden RD51, Pioneer TX-940L, Quad FM4. Amplifiers; Leak Stereo 30, Leak Stereo 30 plus, Sugden stereo, Hart Lindsey Hood. CD player; Marantz CD63T.  
Tel: (0723) 372473.

LINN LP12 (black), Circus, Naim ARO, Troika (new), Exposure active power amplifier system, Naim SBL loudspeakers, Mana reference tables, all cables, £8000. All boxed and immaculate. Tel: (0934) 522635 (Answer phone).

LINN ITTOK pickup arm, as new, boxed with instructions, £200.  
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FOR SALE. AIWA ADF-660 cassette deck 3 heads, Dolby B/C £65 o.n.o. Lynwood Advanced Mains Conditioner £95 o.n.o.  
Tel: (0642) 559078

NAIM ACTIVE SYSTEM. 72 pre-amp 2x140 power amps NAXO, dual power supply RATA Regs+caps etc. £1530. SNAPS, 2x140 power amp boards. £120.  
Tel: (0670) 354726.

LONDON JUBILEE (Decca) phono cartridge. As new £500 o.n.o.  
Tel: (0403) 733055.

WANTED Audio Innovations S700 or Beard BBI00 amplifier or other interesting line level valve amp around £500. For sale. Musical Fidelity A100, boxed £200  
Tel: (0480) 460502 (Cambridge Area).

WANTED: SONY TAE-1000 Dolby Pro-Logic pre-amplifier.  
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TWO QUAD 405IIs £120, £160. K9 pick-up £7.50. Lynwood mains filter £40. Tel: (081) 556 9102.

MAGNUM MF250 POWER AMP. 150Wrms, £295. Meridian M3s active 105Wrms speakers £395, 200/203 DAC7 £745. Albany AP4/1008II £795. Artemiz £295, Naim NAC42 £130, Nait I £165 p/exchange?  
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AUDIOLAB 8000All latest spec, mint £295. Linn LP12 black/Akito/K5 £395. Wharfedale 507s + stands £100.  
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GARRARD 401 £150. Lowther Acoustas £150 pair. Quad 100watt mono valve amp £50. Thorens TD125MkII, SME3009 and Shure V15 £85. Vortexion mono valve amp £20.  
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REGA PLANAR 3. RB200 arm. Arcam C77 cartridge (20+ hrs use) mint, boxed £125-00. Quad 33-303 pre/power amps. v.g.c. £150-00. Cyrus solid core speaker cable 4x3m £18-00.  
Tel: David (081) 348 0612 (home) (081) 741 3119 (days).

TANNOY CORNER LANCASTERS £450, Leak TL50+ £200 each, Stereo 20 £180, Troughline £50. Garrard 301 £150, Linn Akito arm £60, Decca Gold £50, Wharfedale SFB3s £200. Wanted good pre-amp (exchange?)  
Tel: (0709) 555403.

NAIM 72 PRE-AMP, current style, good condition. Variable and straight through boards. £400  
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VALVE GEAR: Avantic SPAII £120, tuner £30. Armstrong amp £60, receiver £60, Leak Troughline £50. Goldring GL75 Varispeed £45, Decca Gold £50, Lowther Accousta horns new Ticonal PM6s £350.  
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LOWTHER ACOUSTA HORNS, efficient, fast, dynamic £390, Fisher FM100B valve tuner £495, Kelly Ribbon tweeters £95, Garrard 301, Decca FFSS, MkIII head £195, Technics tuner ST-53 £39.  
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**FOR SALE**

- 1) Audio Alchemy DAC DDEv1.0 and 'Clearstream' interconnect. Boxed as new, cost £499-00, accept £245- ono.
- 2) Leak Troughline stereo FM3 tuner, mint condition £149- ovno.
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LINN LP12/Ittok/Asaka - £650; Linn LK280 - £400; Cambrdge P50II (1973, faulty, use case for DIY preamp?) - offers. Northampton (0604) 403947 after 7pm.

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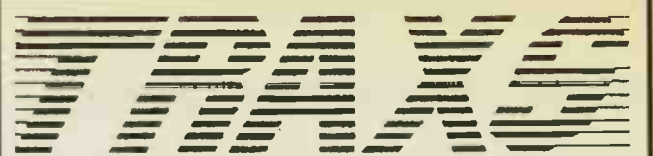
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# Advertisers Index

## MAIN ISSUE

ACOUSTIC ARTS	54
ACOUSTIC SOLUTIONS LTD	22
AMADEUS S & V	40
ARCAM	46
ARION ACOUSTICS	103
ART AUDIO	128
AUDIBLE DIFFERENCE	114
AUDIO GALLERY	113
AUDIO PHYSICS	114
AUDIO SUITE	124
AUDIOCRAFT	113
AUDIOLAB	52
BETTER HI-FI	96
BRENTWOOD MUSIC CENTRE	20
BURY AUDIO	72, 113
CUSTOM CABLES	56
C.A.D.	27
CABLE TALK	122
CAMBRIDGE HI-FI	120
CD EXPRESS	128
CHOICE HI-FI	113
CHORD ELECTRONICS	54
CLASSIC HI-FI	114
COTTAGE AUDIO	118
DAN DULEY	122
DAVID ORTON AUDIO VISUAL	106
DEFINITIVE AUDIO	116
DHM DESIGN	124
DIVA	28
D.P.A.	IFC, 3
DYMANICS	104
E.J. JORDAN	94
ESOTERIC AUDIO IMPORTS	114
EZEE ENTERTAINMENT	128
F & S TRADING	40
FRANCIS AUDIO	126
FRANK HARVEY HI-FI	107
FULLERS AUDIO	70
GLOTTA AB	94
H & R CLOAKE	20
HALE HIFI	122
HAMPSHIRE	76
HEATHERDALE AUDIO	118
HI-FI CONFIDENTIAL	106
HI-FI SHOWROOM	62
IAN EDWARDS	70
IAN HARRISON HI-FI	128
J.E. SUGDEN	IBC
JAMO	26, 27
JEM DISTRIBUTION	126
K.A.L.	18
KESWICK AUDIO	20
KIMBERLEY HI-FI	122
KINSHAW ELECTRONICS	54
KLIPSCH	56
KRONOS	03
L.F.D. AUDIO	122
LEONARD BOOTH	112
THE LISTENING ROOMS	62
LORICRAFT	128
MANTRA AUDIO	114
MICHELL ENGINEERING	44
M.J.S	124
NAD	10
NORTHWOOD AUDIO	72
ONKYO	BC
ORANGES & LEMONS	20
ORPHEUS	116
ORTOFON	16, 18
OVERTURE	120
OXFORD AUDIO CONSULTANTS	112
PHILIPS	12, 13
PLATFORM 7	76
PREMIER MARBLE	76
RARE RECORDS	120
RDL ACOUSTICS	116
RECITAL	62
REFERENCE IMPORTS	96
RINGMAT DEVELOPMENTS	104
ROOM ACOUSTIC SERVICES	112
SCARBOROUGH HI FI	105
SEVENOAKS	108, 109
SHEARNE AUDIO	22
SLATE AUDIO	126
SONIC FRONTIERS	44
SOUND ACADEMY	42
SOUND GALLERY	30
SOUND ILLUSION	42
SPALDINGS	107
SPEAKER CO.	105
SPECTRA DYNAMICS	36
STEVE BOXSHALL AUDIO	27

STUDIO ONE	16
SUSSEX SURPLUS	118
TECHNICAL & GENERAL	96
TABULA RASA	88
TESSERAC	62
THE AUDIO ROOM	40
THE RECORD SHOP	88
TOCA	70
TRAXS	126
TRIANGLE	94
TRY ME & SEE	02
TUBE TECHNOLOGY	56, 128
UKD CALLAS	76
V'AUDIO	72
WESTWOOD & MASON	20
WILMSLOW AUDIO	88
WOLLATON AUDIO	72
ZEN AUDIO	124

## SUPPLEMENT

BADGER BOARDS	12
BANDOR	4
BILLINGTON EXPORT	IFC
CHELMER VALVE CO.	16
CRICKLEWOOD ELECTRONICS	12
ELECTROMAIL	OBC
EUROSONICS	4
G.T. AUDIO	IFC
GLASS AUDIO	24
HALCYON	4
HART ELECTRONICS	20
I.P.L. ACOUSTICS	14
KIT SUPPLIERS	26
LANGREX SUPPLIES	14
LOCKWOOD	24
P.M. COMPONENTS	17
SEAS	IFC
SERIOUS KITS	IBC
SJS	24
SONIC FRONTIERS	12
SONIC LINK	24
SOWTER	12, 24
VINTAGE VALVES	IFC
WILMSLOW	12
WOLLATON	4



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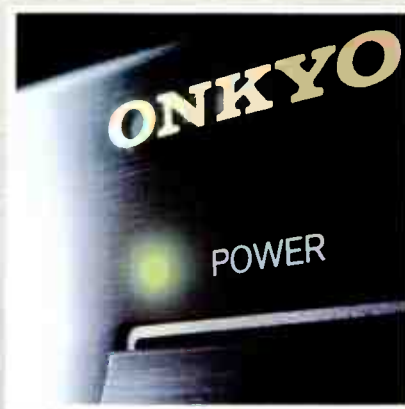
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