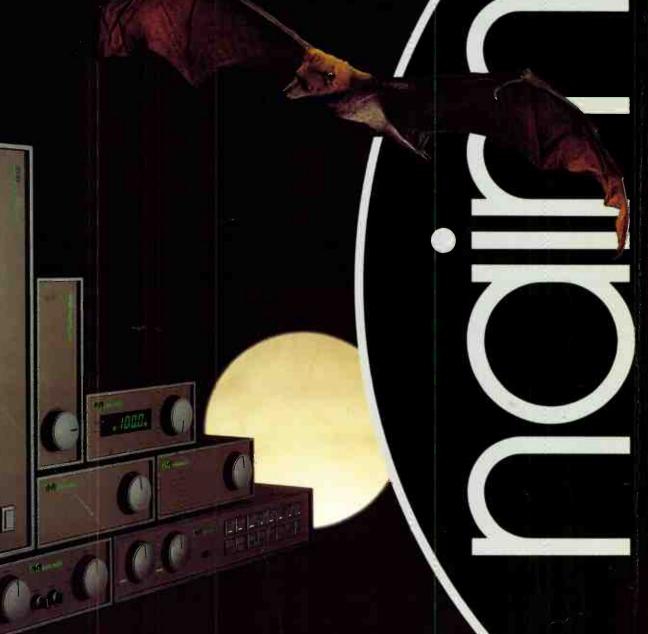


Trust your instincts.





HI-FI CD PLAYERS AMPLIFIERS
TUNERS TONEARMS LOUDSPEAKERS

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NAIM AUDIO LTD, SOUTHAMPTON ROAD, SALISBURY SP1 2LN.

# This Month's World

- Every now and again, NAD come up with a textbook example of affordable audio engineering just listen to the 402 tuner for proof of this. Will the new 614 cassette deck also have rivals on the run? See p13.
- McIntosh is a venerable US manufacturer renowned for stunning "big Mac" valve amplifiers. Now they've released a monster solid-state amp. See p20 for their latest recipe.
- B&W tried it long ago and Sony more recently. Now Cadence of India have had a go, combining an electrostatic midrange to a dynamic bass in one giant loudspeaker. It sounds great see p42.
- In the struggle to advance, amplifier design is getting strange these days. Check out Alchemist's beautifully styled low feedback Axiom on p23, and TEAC's balanced-bridge A-BX10 on p31.
- Mission have produced some great 'speakers in their time. Their £430 734 floorstanders look good too, but face stiff competition from Mission! See p26.

D brought convenience to the public and economical storage to the music business. But it didn't advance sound quality - some claim the opposite, including me. This isn't blind prejudice as measurement shows it has significant limitations.

Now we're getting a real advance. The two new proposed video carriers have enough storage capacity for ultra-high quality audio - and a working group of digital engineers and industry academics have put forward a 21st century specification. But don't panic, backwards compatibility means your CDs won't become obsolete! We bring you an exclusive, on p34, of what could be a monumental advance for music lovers.

Noel Keywood, Editor

# SHOW! SHOW! SHOW!

Hear our DIY kit designs at the Sound & Vision Show, Cumberland Hotel, Marble Arch, London. It's a great venue for real hi-fi, held from 21st-24th September 1995 (the same time as Live 95, so you can go to both). We'll be there, with a stand and a room.

# **TEST EQUIPMENT**



- Hi-Fi World has its own advanced test laboratory and acoustically treated listening room. No other hi-fi magazine has the benefit of such facilities.
- Hi-Fi World has a dedicated in-house team of experienced listeners, and uses selected freelance professionals. We review thoroughly by extensive auditioning, rather than by quickfire group listening tests.
- Hi-Fi World's engineering team designs a wide range of products in-house. We export kits, parts and built-up products around the world, delighting buyers in far flung corners of the globe. No other hi-fi magazine is so expert and dedicated.

# LISTENING ROOM (TREATED BY RPG ACOUSTIC TOOLS)



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SUBSCRIPTIONS see page 68 for details

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ABC

SEPTEMBER 1995

# THIS MONTH'S REVIEWS

# **AMPLIFIERS**

#### **McINTOSH MA6800**

20

How do monster transistor amps weigh up? Dominic Baker listens to £3500 of America's finest.

## **ALCHEMIST AXIOM**

23

This intriguing £300 integrated from metalworking masters Alchemist is reviewed by Douglas Floyd-Douglass.

# TEAC AB-X10

31

David Price asks whether this upmarket Japanese integrated amplifier can compare to the best of British?



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# **ROTEL RCD-975BX**

29

Rotel have produced some fine CD players in their time. Dominic Todd auditions their latest mid-price contender.

# **TECHNICS SL-PS840**

49

Dominic Baker listens to Technics' new Compact Disc combatant, the well-specified SL-PS480.

# LOUDSPEAKERS

# **CASTLE SEVERN**

18

Dominic Baker listens to a beautiful exercise in woodworking that also happens to be a fine mid-price floorstander.



#### MISSION 734

26

Mission's medium sized budget floorstander goes more for showroom appeal than outright sound, finds David Price.

## **CADENCE ES**

42

Douglas Floyd-Douglass listens to these imposing £3500 electrostatic/moving coil hybrid loudspeakers from India.

# **REVOLVER COLT**

65

It's tough on the shelves for small 'speakers, so can Revolver's budget boxes prevail? Peter Downs listens in.

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57

David Price auditions Ortofon's new budget super-transducer, the fine lined MC25F/L moving coil, along with the cooking MC25E.

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NAD 614

13

Does NAD's latest audiophile cassette deck fulfill the promise of their earlier designs? Noel Keywood listens in.



# TUNER

## **DENON TU-215RD**

**4**0

Denon should have success with this bargain entry level RDS tuner, finds Eric Braithwaite.



# WORLD VERDICT

OUTSTANDING - Superb sound, something we'd use ourselves.

GOOD - Has strong merit. Well worth an audition.

ADEQUATE - Mediocre in vital areas. May be worth auditioning.

POOR - Seriously flawed. Not worth considering.

**a a** 

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Comment, criticism and overviews on the everchanging hi-fi scene.

## **NEXT ISSUE**

60 October's Hi-fi World has some big surprises in

store.

## COMPETITION

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Why try to buy hi-fi from your local video and hairdryer emporium when you've got a real hi-fi dealer close at hand! Find it here.

# **MEET YOUR MAKER**

Who makes what, and how to get in touch.

# **WORLD AUDIO DESIGN**

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Who sells what, and how to get in touch.

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# ROCK RECORD OF THE MONTH:

Supergrass: I Should Coco

## CLASSICAL RECORD OF THE MONTH:

Mahler: Symphony No6 in A minor. Strauss: Metamorphosen for 23 string instruments.

New Philharmonica Orchestra; Sir John Barbirolli

**ROCK AND POP** 

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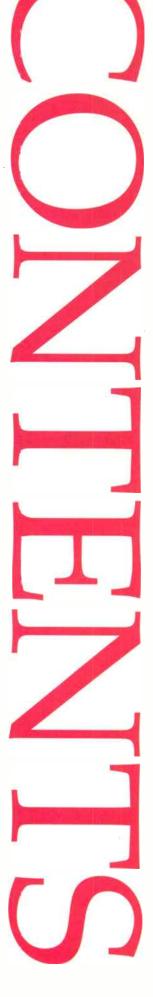
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86

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93

# Win REL subwoofers worth £1500! A monster REL Stadium II is the first prize, and a serious REL Strata goes to the runner up.



HI-FI WORLD **World Radio History** SEPTEMBER 1995

# One of life's more rewarding decisions.



KEF Reference Series

If only all decisions in life were as straightforward as this.

The fact is that if you want the purest sound and the most uncompromising specification, it simply has to be New KEF Reference.

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bass performance. With KEF's famous 'coupled cavity' bass system, now further improved with interports, you get it. We go to similar extremes in perfecting every detail

Some you can't see, like Oxygen-Free Copper internal wiring or magnetic shielding (vital in Home Theatre). Some you can sumptuously veneered cabinets with heavily gold-plated feet and terminals, for example.

In other words, each pair of Reference speakers is as close to perfection as KEF can make it.

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The experience of sound

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CARDIFF	Audio Excellence (head office)	01222 228565
CHANDLER'S FORD	Hampshire Audio	01703 252827
CHELTENHAM	Sevenoaks Hi-Fi	01242 241171
CONGLETON	Congleton Hi-Fi	01260 297544
COVENTRY	Frank Harvey Hi-Fi	01203 525200
EDGBASTON	Music Matters	0121 4292811
EDGWARE	Musical Images (head office)	0181 958 8777
GODSTONE	Surrey Hi-Fi	01883 744755
GUILDFORD	P J Hi-Fi	01483 504801
HEREFORD	English Audio	01432 355081
KINGS LYNN	Martins Hi-Fi	01553 761683
KNUTSFORD	Wilmslow Audio	01565 650605
LEEDS	Audio Projects	01132 304565
LONDON-NW6	Studio 99	0171 624 8855
LONDON W1	HiFi Experience	0171 580 3535
LONDON W1	K J Leisuresound	0171 486 8262
LONDON W5	Audio Concept	0181 5#7 8703
MAIDSTONE	Speakers Corner	01622 677773
NEW MALDEN	Unilet Audio	0181 942 9567
NEWCASTLE	J G Windows	0191 2321356
NORWICH	Martins Hi-Fi	01603 627010
NOTTINGHAM	Nottingham Hi-Fi	01159 786919
OTLEY	Aston Audio	01943 467689
OXFORD	Audio T (head office)	01865 742044
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PORTSMOUTH	Jeffries Hi-Fi	01705 663604
SALISBURY	Sa-isbury Hi-Fi	01722 322169
SHEFFIELD	Sound With Style	01142 737893
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WORCESTER	Sevenoaks Hi-Fi	01905 612929
WORTHING	Phase 3 Hi-Fi	01903 245577

## IF YOUR TOWN ISN'T LISTED PLEASE CONTACT:

KEF AUDIO (UK) LIMITED ECCLESTON ROAD, TOVIL, MAIDSTONE, KENT ME15 6QP. TELEPHONE (01622) 672261.

# September 1995 trade winds

# ERGONOMIC DENON MULTI-BIT

Featuring 18-bit Burr-Brown DACs, 20-bit 8 times oversampling filters, and "interesting new styling and excellent ergonomics", Denon's new DCD-625 seems to have a lot going for it at only £199.95

This new player sports an improved digital servo control for the laser assembly, said to give improved tracking over the DCD-615 player it replaces. The DCD-625 also has more than its fair share of features, including coaxial digital output, full remote control with remote volume and synchronised record with Denon cassette decks.

Hayden Laboratories Ltd.,
Chiltern Hill,
Chalfont St. Peter
Gerrards Cross
Bucks SL9 9UG
10 01753 888447



## **INFINITE VARIETY**

American loudspeaker manufacturer Infinity has announced new budget standmounters featuring APG drivers with carbon and Kevlar fibre cones, which give high sensitivity and faster transient response.

The UK range comprises the £149.95 Ref Ii with 130mm APG woofer giving 89dB sensitivity, the £199.95 Ref IIi with 170mm bass unit and 90dB sensitivity, and the £299.95 Ref 2Ii (pictured) with 210mm APG woofer and a quoted 92dB sensitivity. All three are available in Chatsworth Oak or Black Ash cabinet finish.

Infinity UK
Gamepath Ltd.
25 Heathfield
Stacey Bushes
Milton Keynes MK12 6HR
20 01908 317707



# **LINN PINE FOR MORE FINISHES**

Linn have announced that you can now have your Keltik, Aktiv, Kaber or Tukan loudspeaker in any wood finish you like. With their special custom finishing service, just provide a sample wood and Linn will match your new 'speakers' finish to it. The Tukan can now also be ordered in a white, paintable finish for absolute colour matching to rooms. For the less fastidious, four real wood finishes are available directly from stock - Cherry, Black Ash, Rosenut and Walnut.

**Linn Products** 

HI-FI WORLD

**2** 0141 307 7777

World Radio History SEPTEMBER 1995



# Can sound be this simple?

The answer is an audible Yes. Unlike many electronics companies, NAD specialises in delivering innovative, award-winning audio and home cinema products - and nothing else.
Simplicity and symmetry. A free-ranging approach to design. Balancing acoustic excellence, ease of use, reliability and value. Principles which need for little else.

NAD MARKETING LIMITED NAD BUILDING 401-405 NETHER STREET LONDON N3 1QG, TELEPHONE 081 343 3240

# pure.and simple.



# September 1995 trade winds

# **QUANTUM MECHANICS**



Quantum Audio brings you this limited edition dc coupled hybrid integrated amplifier going by the name of Partridge. Boasting 26 watts into 8 ohms at IkHz, it is said to feature "cool and quiet operation, excellent build quality and product reliability of an order not typically

associated with valve amplifiers". The Partridge comes with a choice of valves, either the 350B for £1799.99 or the Sovtek 5881, said to sound more lively, at £1699.99.

Quantum Audio Ltd., PO Box 26, Kilmarnock Ayrshire, Scotland KA3 7JA



designed output transformers, Aerovox, Roedestein and Nippon ChemiCon Capacitors, Beysschlag metal film resistors, gold connectors and ceramic valve bases.

Kronos Distribution, 35 Farlough Road, Newmills, Dungannon N. Ireland BT71 4DU \$\tilde{\text{TO}}\$ 01868 748632

## **SOLID AS A ROK**

Roksan have announced two new models. The Ojan 3X loudspeaker builds on the strengths of the Ojan 3 with an acoustically braced cabinet, but features new custom-built high

performance drivers. This, say Roksan, makes for "more extended low frequencies and a cleaner, clearer midrange". The 3X comes in black for £1195, and in rosewood for £1395.

Also making its debut is the 3S subwoofer, a passive device which turns the Ojan into a pure three-way design, as

well as acting as a stand. £795 buys you a textured black 3S, or £895 in rosewood.

Roksan Stockley Close, West Drayton, Middlesex UB7 9BB & 01895 436 384



# SWINGING SENNHEISER

Remember a time when Radio One DJs were young? Yes, the swinging sixties are being revived by Sennheiser in the shape of their "new old" HD414 headphone. For their fiftieth

anniversary, this venerable 1968 design has been exhumed now boasting updated sound capsules with Copper Clad Alloy Wire and 99.99% OFC copper cable. Coming in Sennheiser's trademark black and yellow rather than the original's grey, the limited edition HD414 CLASSIC, said to be "tough as old boots", will set you back £49.95.

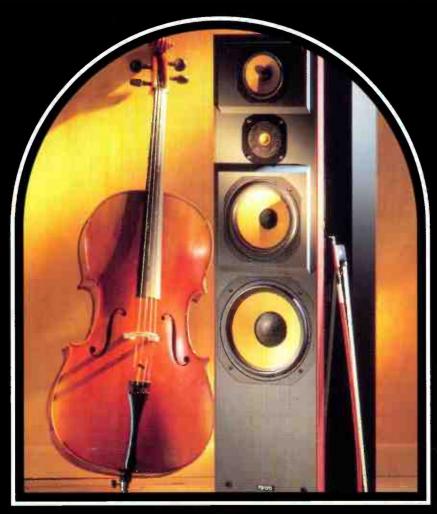
Sennheiser UK
12 Davies Way,
Knaves Beach Business Centre,
Loudwater,
High Wycombe,
Bucks HP10 9QY
2 01628 850 811

# **ARION APPELATIONS**

Arion Acoustics have announced a range of tasty looking tubular belles in the shape of the Elektra, Eos, Talos Triode (illustrated), Triton, Eros, and Tycho valve amplifiers. The model range stretches from £1199 for the Elektra integrated to the Tycho integrated at £1850, and all feature Audio Note-



# AUDIOVECTOR





You may be forgiven for thinking that the best solution for a speaker design is the commonly found, easy to manufacture, rectangular box. Not so.

The asymmetric cabinet used with all AUDIOVECTOR speakers is an example of the finest engineering and visual design.

- non parallel sides reduce standing waves
- ultra-rigid front panels
- quality crossover and high sensitivity
- exceptional design

- = more clarity, articulate bass
- = better transient response, greater dynamics
- = easy load for amplifier
- = unrivalled depth of sound stage and imaging

In technical terms, the absence of parallel surfaces means there are no standing waves. This results in less distortion, higher sensitivity and a cleaner sound. In layman's terms this means an involving and enjoyable sound...

...but if you have heard the AUDIOVECTOR speakers you would know this.

AUDIOVECTOR 2X Black Ash £850	AUDIOVECTOR 5 Cuba£2500
AUDIOVECTOR 3X Cuba £1500	AUDIOVECTOR 5 Black Ash
AUDIOVECTOR 3X Black Ash £1500	AUDIOVECTOR 6 Black Piano £4600

For more information and demonstration, contact:.

The Chord Company Ltd., 30a Sarum Business Park, Portway, Salisbury, Wiltshire SP4 6EA. Tel: 01722 331674 Fax: 01722 411388

Distributors of Audiovector speakers for F3/LYD, Meinungsgade 8, D2, DK-2200 Copenhagen N, Denmark. Tel: 01 39 60 60

# September 1995 trade winds



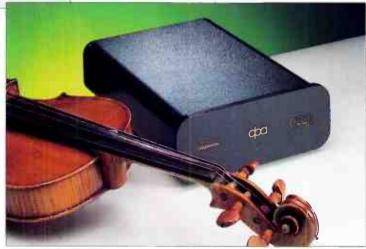
platter! The Cantus parallel tracking arm also looks an interesting proposition at a very modest £350. Opus 3 also produce a range of similarly weighty loudspeakers, the Credus, Chorus and Chaconne, ranging from £400 to £1400.

Pentacone,
4 Cross Bank Road,
Batley,
West Yorkshire WF17 8PJ.
1 01924 445039

### NAD COMMITTED TO TAPE

The ever-prolific NAD company announce yet another new model, in the shape of the 614 cassette deck. This £269.95 two motor, two-head machine promises NAD's usual high sound quality allied to some interesting features. Play Trim ensures compatibility with virtually any tape, while the CAR button compresses recordings for best results with in-car or portable players. There's also a fine bias control, electronic tape counter, Dolby HX Pro and vertical LED bargraph meters. Look out for this new model suffering our customary tape deck torture test in this issue.

NAD Building 401-405 Nether Street London N3 IQG 181 343 3240



# UNPARALLELED

Pentacone have announced they are importing Opus3 products from Sweden, including the £550 Continuo turntable which made its debut at the Buxton show, fashioned from 24kg of concrete marble composite, complete with a 7kg



# **ENLIGHTENED CONVERSION**

DPA Digital have announced the Enlightenment DAC upgrade kit for the Little Bit 2 or Bigger Bit. For £400, Rob Watts will convert your ageing pride and joy into an Enlightenment DAC, complete with its unique discrete DX32 processor with 32times digital filtering and simple analogue structure.

DPA Digital Ltd., Units 7&8.

Willowbrook Lab Units
Crickhowell Road, St. Mellons.

Cardiff CF3 0EF

**2** 01222 795621

# **OBITUARY: ARNOLD SUGDEN**

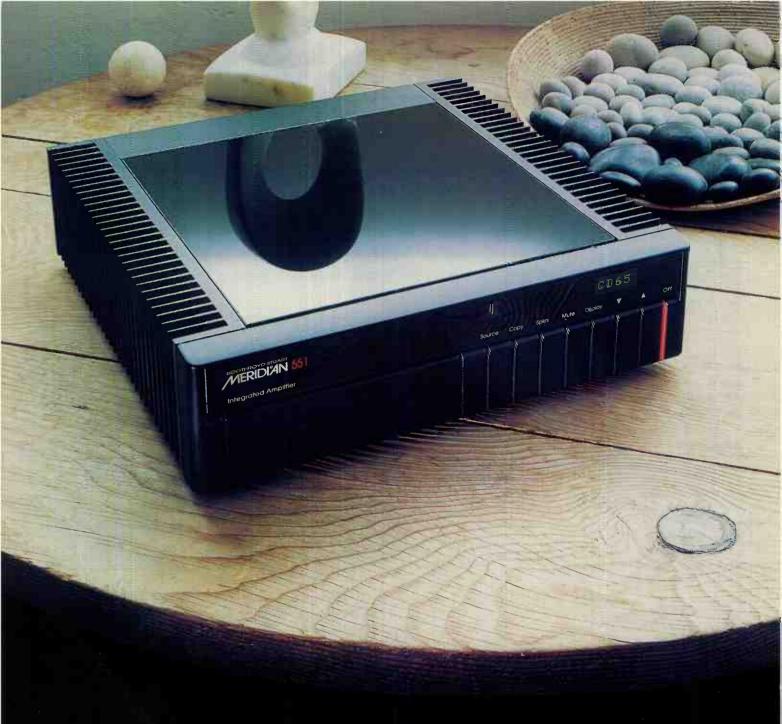
The death of Arnold Sugden on Saturday 27 May 1995 leaves a large gap in the living history of audio reproduction. In his own right as owner and managing director of the Connoisseur company, and as associate and mentor of some of the early revered household names, Arnold's engineering expertise and original turn of mind produced answers to fundamental problems in the establishment of high fidelity as we now know it.

His BD1 and BD2 turntables are still known and used throughout the world and older enthusiasts will recall the sensation of May 1956 when, at the Waldorf Hotel in London, he produced and demonstrated stereo reproduction from a single groove disc for the first time.

To those who knew him well, his reminiscences of behind-the-scenes development work in ceramic cartridges and stylus mounting, pickup arms, stereo amplifiers, microphones, loudspeakers, and engineering in general, were a delight and an eye opener.

I must add that he was also a lovely man and a firm friend - in all my business dealings with him nothing was committed to paper, a handshake being sufficient. He leaves a wife, Vera, a son, Robin, and a daughter, Christine. Dennis Burke

Technical & General, East Sussex.



# THERE'S A FIRST TIME FOR EVERYONE

An integrated amplifier from Meridian? It's true!

The new Meridian 551 is our first time – but this is no ordinary integrated.

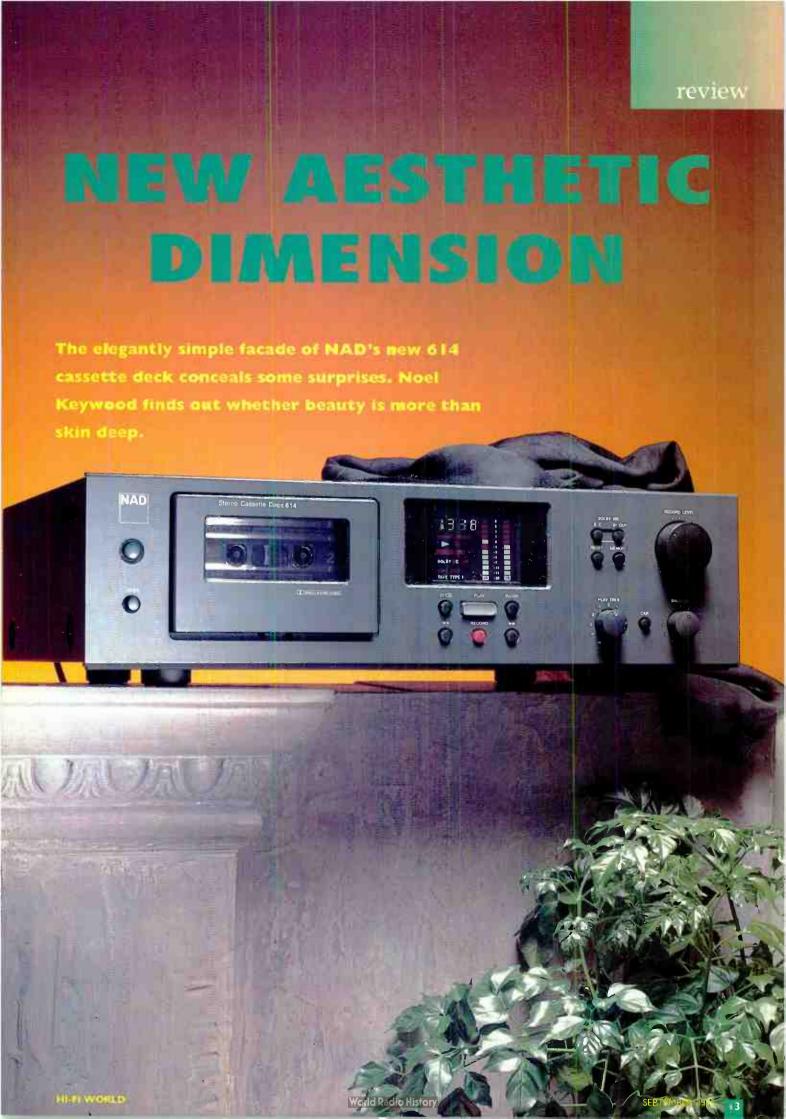
Just look at it and what do you see?

Power, elegance, simplicity, quality. What else would you expect from Meridian? It's what you don't see that makes this product a true thoroughbred and your best start to a Meridian system. Dual mono construction, a massive twin-wound toroidal transformer, four layer circuit boards to aerospace standard and a unique feedback topology with precision local error correction.

If it's your first time to try Meridian, discover the real audiophile quality is now within reach.



Just clip this coupon and send it to Meridian Audio Ltd 14 Clifton Road Huntingdon Cambridge PE18 7EJ Tel 0480 52144 and we'll send you our new brochure.			
Name	Age	Address	
Postcode		Current system	
			Ref 04 94





# TRAILING edge TECHNOLOGY

Of course, the leading edge of hi-fi loudspeaker technology is firmly rooted in...

England? - Of course.

America? - Certainly.

Japan? - No doubt.

France? - Absolument.

But in India we're a bit backward. Yes, most of our technology and arts can be traced backwards for at least a couple of thousand years: music, yoga, metallurgy, woodcraft, building, silk manufacture. But somewhere along the line we managed to miss out the essential technology of music reproduction.

So we read on the back of a cereal packet something about how the electrostatic is the most straightforward and efficient approach. After a couple of years of fiddling in our R&D facility, anechoic chamber and some records, we are now proud to announce the launch of the CADENCE ES hybrid electrostatic.

For those of you for whom such things are important, here are some figures:

Efficiency: 91dB

Power: 20 - 200 Watts RMS (500W burst, ALL frequencies)

Operating temperature: 0 - 40 degrees C

Operating humidity: below 90%RH

Charge up time: < 1 second

We'd like to tell you about how the chemically formed stators are aligned with the 5 micron PTFE membrane in such a way that arcing is impossible. And how the crossover unit seemlessly integrates the bass, midrange and treble. Or how the cabinet is treated to eradicate internal standing waves.

But that would stretch credibility, wouldn't it.

But then, you could always go and hear them for yourself at Kamla in London's West End (0171-323 2747).

inished in a colour once robustly described as Battleship Grey (now probably known coyly as Dove Cote), NAD's new £270 614 cassette deck isn't as colourful as a Renoir or as solidly built as a man-Owar. But it does appeal to the eye more than earlier NAD designs and, crucially, looks smarter and easier to comprehend than its oriental rivals.

Funny that, because in fact the new 614 has lots of facilities, but the absence of 'go faster stripes' makes the deck look comparatively simple. Mind you, there are conspicuous frailties. The cassette door was flimsy and appeared not to shut firmly. I often found tapes grinding to a halt, the cure being to open the door and then close it again more positively. This apart, the 614's operational ergonomics are excellent. It's so neatly styled, clearly marked and sensibly laid out that foreign rivals could learn a thing or two. NAD use nice, large displays, bevelled rounded corners, gentle curves, colour and even shape coding. The record meters have a useful peak hold action and put the red zone where it should be - above OVU (which has been set, as usual, at Dolby flux). It was all so obviously right as to be surprising.

User adjustable bias is provided for tuning blank tapes, but unfortunately finds its way to the back panel. NAD's Play Trim facility is also here, and is very useful for tweaking the treble balance of pre-recorded cassettes to banish that muffled sound they so commonly suffer. Good as this is, and as enthusiastic as I am for any deck with properly set up replay amplifiers, recording is still a prime use for cassette decks, so bias trim really should be on the front panel.

# **SOUND QUALITY**

The 614 gave a smooth, cohesive presentation and easy dynamics from Isaac Hayes' Branded album. I recorded the album onto TDK SA without Dolby, the meters peaking just below +3dB. This deck's ability to get high recording levels onto chrome-bias tape helped nearly eliminate tape hiss (TDK SA is a very quiet tape). It handled this well -

until a cymbal crash went "schhhh" past my ears like a flaming arrow - flutter and high rate wow were dirtying the sound, adding coarseness percussion instruments. This said, the 614 was no

worse than others of its ilk in this respect, but no better either. Although hard struck chords from Steve Earle's close-miked steel string guitar on Guitar Town produced some turgidity and muddle on TDK SA, chrome and ferric tapes always suffer this problem to a greater

or lesser extent, so the NAD wasn't at fault. Indeed on balance, it turned in a creditable performance with TDK SA chrome tape: smoother, quieter and more dynamic than usual.

Metal tape (TDK MA) gave more vibrant treble but remained slightly coarse: nevertheless, hiss was very low. If recording levels are kept below +2dB the 614 works well with metal tape. Piano held stable, with little sign of any of the subtler aspects of wow, such as "cracked" notes (caused by small, sudden speed changes, or random wow) appearing - at least, over most of a tape. However I got a nasty surprise at the start of a tape, with dreadful capstan wow adding a rapid warble that was heard through everything, even the most varied rock music. This was a disappointment, being sufficiently audible to be unacceptable.

Our analyser hinted that TDK AR might not sound too good, exhibiting a ropey on-screen response. And that's roughly how it sounded to the ear, with some coarseness, while treble came over as soft and fluffy. Whilst uncritical users would probably think this normal enough for a budget ferric tape, TDK AR can in fact sound amazingly smooth and relaxed, because it has some great properties, but it just didn't match the 614. TDK AD gave a more positive sound, especially in the treble, but I still detected a lack of real smoothness and cohesion. With these ferrics the 614 worked satisfactorily, but no better.

It was with pre-recorded tapes that the deck really pulled ahead. Tina Turner's 'Addicted to Love' strode along beautifully, with strong bass and ringing cymbals from the drum kit. With

soft sounding tapes like Diana Ross' Eaten Alive, cranking treble up fully brought a sense of clarity that only Play Trim can find within what seems to be an irretrievably dull recording. In this respect, the NAD's almost magically superior to the herd, elevating pre-recorded cassettes to

respectability.

"It's so neatly

styled and sensibly

laid out that

foreign rivals could

learn a thing or

two. "

The NAD 614 worked very well with chrome tapes like TDK SA, averagely with ferrics and will handle metals if it's not pushed too hard. It makes recordings as well as one can expect for £270 these days, with the exception of the poor transport, giving a variable performance affected by load, or the amount of tape on each hub. It's a well designed and aligned machine, with all the benefits that brings. It plays pre-recordeds very well, making it a must for anyone using them as their primary source. But NAD haven't been able to offset head and transport limitations, and their variable bias facility was poorly implemented. All this bodes badly for the NAD, with an overall performance that can only be described as satisfactory

**NAD 614** 

£269.95

NAD Building, 401-405 Nether Street Finchley, London N3 IQG 27 0181 343 3240

# WORLD VERDICT



Excellent electronics let down by poor transport means the 614 doesn't quite make the grade.

Measured Performance see p113-121

# TRUE MUSICAL

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551

All Meridian components, from the simplest to the most complex, are designed to be operated by the touch of a single button on the MSR remote control.

The **\$51** integrated amplifier is no exception. It will provide the same, very high, standards of music reproduction as every other model within the superb Meridian range. Utilising a dual-mono configuration similar to that used in the \$55 power amplifier, the 551 can deliver enough current to drive most loudspeakers with control. Combine this with a high quality pre-amplifier section that includes many of the technical features of the 501 pre-amplifier, and you have a superb performer, suitable for all applications.

However, the real benefits of the **\$51** only materialise when it is used with other Meridian products like the **\$06** or **\$08** CD players and the **\$04** digital tuner. Thus, creating an advanced, and flexible digital remote control system

audiolab



8000O

With the introduction of the new **8000Q** pre-amplifier, Audiolab are able to offer a true 'audiophile' product, capable of working within any ancillary combination.

New 'Zq' technology ensures ultra low noise and distortion, while a printed circuit layout realizes the optimum (shortest) signal path.

The **8000Q** is best described as a purist design, yet it certainly is not minimalist. Six line, and three tape inputs mean it is an ideal partner for Audiolabs own **8000P** or **8000M** power amplifiers.

For more details on the complete Audiolab range, including the 8000A, 8000C, 8000CDM, 8000DAC, 8000T and 8000PPA, contact your local Sevenoaks Hi Fi branch.

monitor audio



# STUDIO 12

The breathtaking, new STUDIO 12 loudspeakers from Monitor Audio, clearly show the no compromise approach they have to design and construction. This is obvious the moment you see them. Whether they are finished in a standard satin veneer or a luscious grand piano lacquer, the STUDIO

12's are stunning.

All of the models within the new STUDIO series offer a combination of a gold anodized tweeter and an aluminium alloy bass/mid range driver. If partnered with suitable amplification, the STUDIO 12's offer remarkable transparency and the necessary focus to reproduce very complex passage's of music with glorious accuracy. To experience the Monitor Audio STUDIO series of loudspeakers, including the STUDIO 20SE, just visit our branches in Sevenoaks. Chelsea, Croydon, Guildford, Watford and Witham (Essex).

# arcam



# ALPHA 5+CD

When the original **ALPHA CD** was launched, few could have thought that it was destined to become such a success.

Over the years the **Alpha** outsold every other model (from Britain and Japan) in its price category, and although other manufacturers made wholesale changes as new technology was developed, Arcam kept to their original philosophy.

Today the new **ALPHA 5+CD** still uses multibit conversion. Arcam, firmly believe that this reproduces instruments and vocals naturally. With an improved master-clocking device on its DAC board, the **ALPHA 5+CD** player can provide technical accuracy and musical enjoyment.

You will discover the Arcam **Alpha** and **Delta** series at all Sevenoaks Hi Fi branches.

# cyrus DAD 7

DAD 7

The DAD 7 CD player is the one box derivative of the acclaimed DISCMASTER and DACMASTER. Like these, the DAD 7 utilizes a multibit conversion stage, which ensures that all music, from rock to classical, is delivered with a close attention to detail.

All Cyrus products are designed with the same innovative styling, and each reproduces music with natural sophistication. To improve performance further, simply add the PSX-R power supply, which isolates the unit from the mains, therefore reducing the chances of extraneous noise and glitches.

For more details on the Cyrus DAD 7, DISCMASTER, DACMASTER, PSX-R, FM 7 digital tuner, award winning CYRUS III amplifier and the new PRE-POWER amplifiers, contact your local Sevenoaks Hi Fi-Cyrus stockist.





77

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# EXPRESSION

# hi fi connoisseurs and music lovers

The new **77** integrated amplifier embodies all of the hallmarks of quality you associate with Quad, which have made them such a well respected and successful manufacturer over the last fifty years.

Compared with many other integrated amplifiers, the **77** is revolutionary. The new **77** has almost limitless expansion capabilities, thanks to a new 'intelligent' remote control.

With a 77 CD player, and tuner soon to be released, this family of exciting products represent that rare breed of innovation and tradition, that is only available with Quad.



# RA970BX

Designed and developed in the UK the new RA970BX is instantly recognizable as a Rotel product. With the same slimline styling and characteristically solid build quality as every other Rotel amplifier, it delivers the performance you would expect from models at twice the price. Four line inputs, a tone defeat switch, and a split volume knob provides finite adjustment.

When partnered with a suitable pair of loudspeakers, the new **RA970BX** is capable of getting feet tapping. 60 Watts RMS per channel means that bass lines are punchy, and treble is crisp.

For further details of the Rotel range, including the new RCD970BX CD player, and RC/RB970BXII pre/power amplifier combination, visit your local Sevenoaks Hi Fi.



There are no obvious revisions on the exterior of the new **HOWARD 11**. Yet beneath the handcrafted, real wood veneer cabinet, are more closely specified components.

Castle's mastery of quarterwave bass technology was evident in the original

HOWARD. However, combine the new crossover with the offset metal dome tweeter and fibre polymer bass/mid range driver configuration, and you have a loudspeaker that is adept at handling all types of music well.

The HOWARD II encapsulate all of Castle's style, offering nine real wood finishes on all of the models in their range, like the compact TRENT II, DURHAM 900, SEVERN and CHESTER II



Marantz are one of the dedicated manufacturers that enjoys making recorded sound

as realistic as is possible. This development of pure hifidelity has led the Hi Fi Press to bestow numerous Best Buys and Recommendations upon models within their range.

The CD63SE offers the kind of sparkling performance you associate with more expensive CD players. With a high mass drawer mechanism, and copper screening, ensuring unrestricted CD transportation and air flow, music is always reproduced faithfully.

The CD63SE also offers an easy upgrade path, via coaxial and optical digital outputs. With this pedigree, the CD63SE represents exceptional value for money.



514

Nad's no compromise approach to the development of the new **514** CD player, has meant that many unique features and specifications have been demanded.

At the heart of this unit is a one bit dual digital to analogue (DAC) MASH converter. This maintains the purity of the all important audio path by eliminating the need for any capacitors. Thus, yielding real benefits in terms of musical detail and nuance.

The **514** also offers a new CDR audio compression circuit, enabling the **514** to make top quality recordings onto tape for a wide variety of listening environments, such as car audio

To hear the new **514** contact a Sevenoaks Hi Fi near you.





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World Radio History





# SEVERNTH HEAVEN?

Dominic Todd asks whether Castle's new Severn loudspeakers can deliver us from the evils of mediocre mid-price floorstanders.

ver since TDL launched a range of good quality floor-standing 'speakers for under £500, other competitors have been falling over themselves to compete. Once the province of stand-mounted stalwarts such as Epos' ES14 and Celestion's SL6, the £300-£500 loudspeaker market now finds itself awash with floorstanders.

Castle Acoustics are no strangers to floorstanding loudspeakers, having already enjoyed success with their Chester and Howard models. Now they've turned their attention to the fiercely competitive £500 sector, with the introduction of the

Severn priced at £499.95. Mission, Ruark, Royd, TDL and Tannoy have already pushed class standards to such heights that for the Severn to be simply capable isn't enough. To succeed it needs to offer something different

and transcend mere competence.

The Severn makes an excellent initial impression. It's one of the best finished 'speakers at its price, shaming models costing hundreds of pounds more. The real wood veneer is finished immaculately with not a sharp edge in sight. Castle make much play of their real hardwood veneers, but whether this is environmentally sound when there are so many convincing pulp reconstituted veneers around is questionable.

In an effort to break up standing waves, as well as bracing the structure, the cabinet is internally divided via a sloping shelf. The two-way, bass-reflex design features two entirely new drive units, each designed and built in-house by Castle. The woofer features a rigid cast chassis, long-throw voice coil and injection moulded polymer cone. The tweeter is a soft dome, traditionally held to give a sweeter sound than hard plastic types.

Properly run in, these 80cm high 'speakers gave of their best in free space about one metre from the rear wall, with the bi-wiring terminals used. Castle 'speakers have never been

known for their gut-wrenching bass and awesome dynamics, and the Severns offer the familiar Castle refinement, without the last word in rip-roaring audacity. The Brand New Heavies proved these 'speakers aren't for bass freaks. But look beyond the dynamic constraints and there's much to recommend.

Sound staging was spacious and unconfined, and acoustic instruments were both well defined and cohesive with the rest of the mix. Bass may not have been especially deep (ironically, no deeper than a similarly priced stand

**4** The Severns offer

the familiar Castle

refinement, without

the last word in rip-

roaring audacity. "

mounter), but it was solid enough to underpin the music firmly. Treble could become slightly splashy, but the fine transparency and imaging offered was ample compensation.

By comparison, Tannoy's similarly priced 637s offered greater dynamic contrast, but at the expense of a cloudy mid-range and abrasive portrayal of the saxophone.

Danny Thompson's 'Whatever's Best' showed the Severns in an even more favourable light. Correct tonal colours for the acoustic guitar, alto sax and double bass let me listen right into the recording. Treble seemed happier too, lending great refinement and sweetness to the alto sax's higher register. Despite the relaxed pace of things, detail didn't appear to have been left out, and the depth of the recording was well depicted. Some listeners may sense a lack of drama though. Although all the basics were there, the effect could just feel too scaled down at times.

A Super Bit Mapped Stevie Ray Vaughan disc provided the Castles with a superb, uncompressed and expansive recording. The Severns rose to the occasion, and didn't impede upon the fine recording in the slightest. They were quite capable of handling difficult guitar transients without glare or compression. Nuances of Vaughan's voice, often missed by Castle's less

courtly rivals, were clearly displayed. While bass wasn't the deepest, it was substantial enough not to have most listeners yearning for more welly.

Castles tend to major on classical music, and the Severns were no exception. Schubert: Scherzo: Presto, from Trout Quintet, once again demonstrated their relaxed, easy-to-listen-to nature. The violins were liquid-smooth and not at all wearing, yet they still gave a fine insight into the music, with bass tight enough for speedy and accurate timing. Breaths and creaks from musicians chairs were there too, adding a sense of realism. The whole performance was informing and vivacious, but never over-bearing.

If you can accept the Castles' limitations, they have much to offer. Those who find their system lacking refinement or who don't want a floorstander with strong bass will warm to the Severns. They're not the sort of 'speaker to jump out at you on initial audition, but their qualities of subtlety, transparency, strong imaging and accurate timing will show themselves, over time, to be of far greater worth.

The problem for Castle is that both the Mission 752 and Ruark Templar offer similar sonic qualities and slightly more ability in some areas. But it's here where Castle play a strong card. The Severns are better finished than either of the others, and offer a wider choice of finishes to boot. So anyone looking for a compact, floorstanding 'speaker unobtrusive in its surroundings would do well to listen to the Severns

**Castle Severn** 

£499.95

Castle Acoustics
Park Mill, Shortbank Rd,
Skipton, North Yorks BD23 2TT
TO 01756 795333

# WORLD VERDICT



Highly capable floorstanders with a polished performance and finish.

Measured Performance see p113-121



# Dominic Baker finds McIntosh's MA6800 an extremely tasty high-end amplifier.

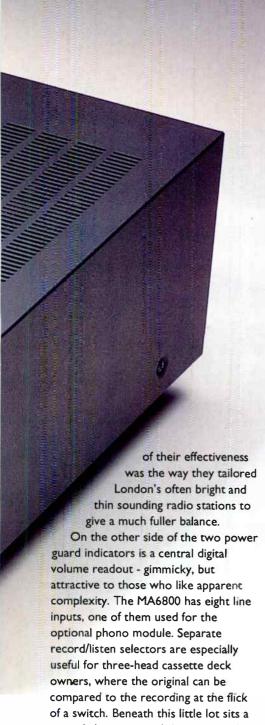
ombining sixties-style power meters and control knobs with nineties' electronic switching and digital volume readout could be a recipe for disaster - who wants the worst of both worlds? But despite my doubts, I came away impressed that

McIntosh have blended these differing ingredients to perfection.

The styling of the £3735 MA6800 carries an aura of American heritage and prestige, with the message of high technology engineering fully conveyed too. Although covered in enough lights,

meters and what have you to rival any midi-system, McIntosh get away with it it doesn't look gimmicky, so much as functional. It's a precision instrument, dedicated to the task of amplification.

Eschewing the minimalist approach, the McIntosh has just about every feature you could possibly need - and then some. To the far left of the thick glass-fronted fascia there are bass and treble tone controls. Thoughtfully engineered to have a subtle action at either frequency extreme, an example



row of electronic push-button switches covering mono, listen and record functions, or an external signal processor that can be switched into the signal paths. A 6.3mm headphone jack separates these from mute, switching for two pairs of loudspeakers and the power switch. As the volume control at the far right turns, the central digital readout shows level as a percentage of full power. I rarely got past 7-8%, and with around 150watts on tap and a peak

output current of 55amps, you are unlikely to run out of steam into any loudspeaker. As if this wasn't enough, the McIntosh is also fully remote controllable and can be linked to other McIntosh components to allow control from one handset, meaning it's equipped to become the centre of a remote controlled multi-room system. The power amplifier and preamplifier sections can be accessed separately, making bi-amping easily facilitated, should you feel the need for more power!

Inside, construction is not the neatest, but then the substantial 40kg chassis is packed with electronics. There are separate power supplies, banks of relays for input switching, huge smoothing capacitors and heatsinks, all interconnected by thick looms of wire. It was reassuring to see good quality audiophile grade components throughout the signal path. The MA6800 also uses McIntosh's 'autoformers'. These do essentially the same job as the output transformer of a valve amplifier, providing exactly the right load for the output stage to drive, whatever the impedance of the loudspeaker connected. This, McIntosh claim, means the output stage is always running into the optimum load for highest efficiency, which improves performance and reliability.

As you'd expect, the MA6800 didn't so much play music as take control of it. There was an effortless drive to bass lines. REM's 'Low' with its mellow, resonant bass guitar intro powered the 'speakers 'cones to their limit with control and precision. The MA6800 had terrific upper bass punch, with dynamics to match, giving a crisp, firm attack to well recorded rock. The burst of leading edge dynamics you get from a guitar chord was captivating.

With a good recording such as Sheryl Crow's recent Tuesday Night Music Club, the overall scale of reproduction was massive, creating a three-dimensional sound stage. Stage height and width was expansive, and depth surprisingly good, if not quite up with the best. The MA6800 has a brightly lit treble, which helped to give the sensation of space and atmosphere, and an incisiveness with hi-hats and similar percussion. Images weren't as precisely located as I'd have liked, but by being dispersed a little they added to the overall scale and air of the presentation.

Locatelli's Concerto for violin, string and basso continuo proved a good test of tonal character. The MA6800 is velvety smooth through the midrange, with just the slightest hint of grain - and then only on the most fiercely struck notes. Here it rivals DPA's original 50S power amplifier, one of the smoothest transistor designs I've heard. But the MA6800 has a richer texture to it. giving more body to strings and a captivating warmth. Perhaps it is not quite as neutral as a DPA, but still offers a very musical presentation.

Serious classical listeners will notice the extra incision given to upper string harmonics. With rock, this gave an extra sense of precision and crispness, the steel strings of Grant Lee Buffalo cutting the air like a switchblade. But with the more subtle harmonics of violin, an edginess was added to the soft decay, which struck me as unnatural. This is unlikely to be a problem though, as long as sharp or gritty metal dome tweeters are given a wide birth.

McIntosh have combined all the facilities you are ever likely to need in one integrated package. In sound quality terms alone this amplifier could be bettered at the price. But for the listener who wants a versatile amplifier its own distinctive style, the MA6800 looks good. Its strength comes from its unusually broad range of abilities, rather than for any one judged in isolation. Expensive yes, but by any standards it is an impressive piece of engineering

## McIntosh MA6800

£3735

**MPI** Electronics, 13 Weston Road, Guildford, Surrey GU2 6AU T 01483 454993

# WORLD VERDICT @@@@



A mighty confection of power, facilities and style, and it sounds good to boot.

**Measured Performance** see p113-121

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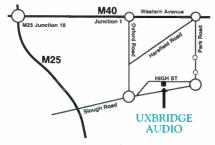
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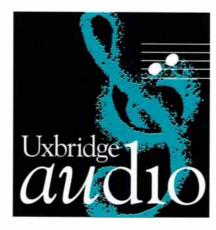




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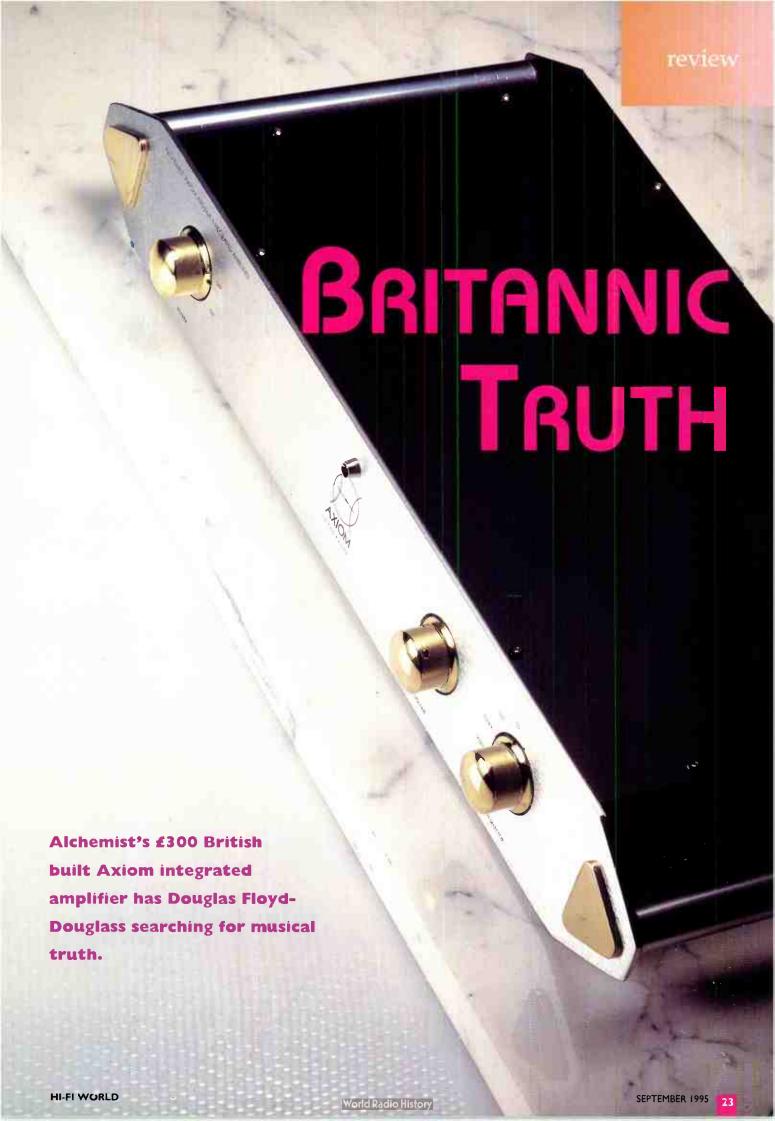




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n the best Alchemist tradition, the new baby Axiom integrated sports an intergalactic Battlestar design finished in brushed aluminium and polished gold, but gone are the dragon wing heat sinks which the original integrated Kraken so proudly displayed.

The outboard power supply has also been replaced by a more practical, internal version which is at the heart of the 30watt Axiom. There is no phono input, but Alchemist have blessed the Axiom with CDV, video and auxiliary inputs in addition to the standard tape, tuner and CD. The loudspeaker terminals are solid and are plastic shielded to protect against short circuiting. Finish is neat, uncluttered and facilities accessible.

The cycloptic power indicator, slap bang in the middle of the front panel, took a while to glow its bright corporate

• The personality

that the Axiom

displayed was

musical in a way few

others can manage at

the price. "

yellow. John Lee Hooker's 'Chill Out' had good depth of soundstage and a warmth so befitting the blues. Cymbals were open and gave a good indication of the ability of this amplifier to handle transients with musical dexterity. The percussion was

tight and fast and skin drums sounded natural and were given good space amidst the full band accompaniment. Most appealing was the sound of the lead guitar which had me rushing to check the album cover - no doubt at all it was unmistakably Carlos Santana in person, and the Axiom delivered this with truth and absolute precision.

'One Bourbon, One Scotch, one Beer' had the semi acoustic guitar plucking along the temperate blues riff to the left, supported by the subtle-slick-slide on the right. The final four bars oozed the atmosphere of a low-ceiling live jazz venue, and the power in the snare emphasised this. A final drum roll across the kit sounded lifelike and the stereo image well placed. Decay of cymbals seemed to linger forever, the whole sound laid back, rather than projected and imposing.

Isaac Hayes' new Branded album is an example of the digital studio put to good use, sometimes to the extreme. The

album has huge dynamics, and lovers of real soul would have died and gone to heaven, having heard 'Let Me Love You' performed by the Axiom. Bass was seriously deep, and was to be the magic carpet upon which the wind chimes, vibes and muted cymbals were to ride. Soul is often a difficult style of music to translate, but the Axiom produced a moody, heady swell of music.

Pink Floyd's 'Goodbye
Blue Sky' was mellower than I had
previously heard, but nonetheless
compelling. If anything was lacking, it was
the projection of Waters' vocals,
particularly in the lower midrange.

Soundstage was wide, although not as deep as usual, particularly noticeable on the strings. Setting the customary Floydian atmosphere and tone were the voices of the kids in the playground at the intro to 'Brick in the Wall Part1'. The typically 'big' production was emulated by the Axiom and in particular the

stereo delayed guitar and bass were true to form. At times, the bottom end seemed to lack complete control, and the cat call at the end of the track was distant, suggesting a wavering or fluctuating control of dynamics.

Bach's Toccata and Fugue in D minor pulled no punches, the bottom end proving really impressive. At times, high arpeggios sounded thin compared to the consistently solid bass and midrange, again suggesting a change of sorts in the amplifier's character.

Chopin's Impromptu No I had good midrange detail and the piece sparkled into life. Piano tone was natural and demonstrated a lifelike timbre all the way down the scale. The only disappointment (and there were few) was that there was once again an inconsistency in the higher notes, which could sound edgy and thin. This was occasional, and didn't really detract from my enjoyment of the otherwise charming character.

The grand finale of Bizet's 'The Pearl



Fishers' was a real tribute to opera. The Axiom demonstrated its dynamic capabilities with orchestral grace. Whilst the tenor sounded faultless and set the emotional scene, the baritone raised the encore. Soundstage was open, theatrical and had great presence. A great performance.

The Aura VA-80 I later compared the Axiom with was smoother, and undeniably more accurate and stable. However the personality that the Axiom displayed was musical in a way few others can manage at the price. Its good characteristics like extremely low noise levels, good dynamics and excellent transients outweigh the niggly details of inconsistency in the higher frequencies.

The Axiom typifies great British hi-fi on a budget. The baby Alchemist may have its quirks and eccentricities, but does at least have the ability to make music rather than just amplify, an attribute sadly lacking in so many of its rivals

Alchemist Axiom £299

Alchemist Products, 4 Rosebery Mews, Muswell Hill, London N10 2LG. 22 0181 883 3008

# WORLD VERDICT

Measured Performance see p113-121

# MASS MEDIA

The 734 loudspeakers are Mission's unashamedly populist way of making music. David Price takes a listen.

s the dust settled and the Audiolab monoblocks cooled down, I finally managed to put these handsome-looking Mission floorstanders into perspective. I'd been greeted by a sound that was at once impressive and profoundly unfulfilling, contradictory emotions that I had to resolve.

First things first, the 734s appear to be a lot of 'speaker for the money. At 84x20x33cm they're large and enjoy Mission's hallmark professional standard of styling and finish. With a metal dome tweeter paired to two translucent polypropylene-coned bass/mid drivers in a large box, what more could you expect for £430?

Run in, toed-in and well warmed through, the 734s produced an instantly attractive sound. 'Big' was the word that sprang to mind as Isaac Hayes crooned forth from 'Life's Mood'. Pianos had body, percussion was clear and the whole mix was highly animated. Unfortunately, I'd just been listening to their famed cousins, the 752s, which although £70 more expensive were far, far superior.

The 734s sounded muddled by comparison, with none of the finesse, detail or precision of their older cousins. The first problem was the polypropylene drivers, which although in essence are fairly clean and innocuous sounding, had a propensity to quack and thrum a little too much, making for a plummy upper bass. When the 8000Ms were cranked up, things got really bad.

Listening to the 733s tested in April, I'd noticed the rather early onset of

cone break-up, making for compressed attack transients at high volumes. Although better than their baby brothers, this is still a recognisable trait with the 734s, resulting in a softening and muddling of the sound on peaks. This isn't altogether unpleasant, but it means rim-shots and snares will never thwack you between the eyes, Linn Tukan-style.

Moving lower down, the 734s certainly had more bass than their older brothers, but were lacking in extension and grip. Again, bass had a pleasing sumptuousness and presence, but was rather rambling and ill-defined. I felt there was little connection between it and the tune it was supporting. Comparison with the 752s was hardly elevating, the opening heartbeat to 'lke's Plea' sounding emasculated, going on to almost disappear into the mix. The 752s held onto it right through, and managed to capture its rhythmic inflections far better.

Up top, the 734s weren't much to write home about either. They seem a touch less bright than either the 731s or 733s, but still have a tendency to sound fizzy and metallic. Carmen Lundi's 'Spring Can Really Hang' brought this into sharp relief. The Missions gave a creditably spacious and airy sound, but as soon as the slow ride cymbal came in it had me wondering what on earth was going on. Suddenly it developed a hissy, abrasive edge that just didn't square with the 752's sweet, svelte rendition.

Unfortunately, imaging wasn't a forte either, with Carmen Lundi's immaculately recorded vocal hanging





rather ponderously between the two 'speakers. So reluctant were the 734s to project that I wondered if it was a problem with the recording, but swapping over, the more expensive 752s again threw everything into sharp relief.

Wondering what the budget Missions would do to rock music, Teenage Fanclub's 'Start' found itself inside the Audiolab CD drive, and the Missions made their first good move of the day. Suddenly, this rather tinny recording (maybe Norman Blake was trying to emulate his mentors, The Byrds, on this count) assumed some warmth and body through the 734s, with an energetic, lively sound underpinned by a fairly fluid bass line. True, that tweeter grain was still there on hi-hats, but amidst the fray of jangley Big Star guitars, it wasn't so conspicuous. So, the plot unfoldeth. Give these floorstanders basic rock recordings and they'll oblige with an enjoyable sound, but ask them for more and the situation changes for the worse.

It's not that Mission can't produce decent 'speakers - as a fan of the 760is and 752s I'd never suggest that - but it seems Mission's market research has suggested that big, stylish boxes with an impressive showroom sound sell more than quality stuff. If that's the case then so be it, we're just lucky we've got the slightly more expensive 752s to save up for

Mission 734

£430

# WORLD VERDICT



Engineered for low price and showroom appeal rather than absolute sound quality.

Measured Performance see p113-121



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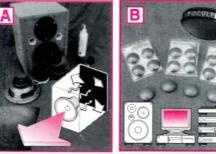
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# Black Velvet

# Dominic Todd finds Rotel's new RCD975 is a consummately smooth CD player.

he Rotel RCD975 has one of the best starts in life a CD player could wish for - it's based on the RCD970. The transport is the well-proven Philips CDM-9 unit with a continuously calibrated multi-bit digital to analogue convertor. The new machine adds a second DAC, run in dual differential mode. Cosmetically it's unchanged, meaning it maintains Rotel's usual conservatism and excellent build. First used in the 970, the case follows the trend for slimmer boxes, allowing the RCD975 to fit in discretely almost anywhere.

Eric Clapton's 'Running On Faith' saw the player showing a degree of maturity akin to a player from the class above rather than its own. But despite a confident performance, vocals lacked a little body compared to the Marantz CD63SE. What marked it out was

superb transparency - such was the ease with which it unravelled the various components of the mix that it was a breeze to follow individual instruments and vocals.

Acoustic Alchemy's 'Ariane' revealed more strengths - depth and spatial width, the sheer transparency and integration of the sound making the player rewarding to listen to. With acoustic music my only complaint was that bass didn't go down to quite the same level as a good £600 CD player, or even the CD63SE.

With James Taylor Quartet's 'In The Hands Of The Inevitable', the Rotel wasn't quite as light on its feet as some, but fine bass integration saved it from plodding. Bass weight was more than respectable; although unobtrusive when it needed to be, low frequencies were always present in sufficient quantities

when required. True to form, the overall sound was easy to listen to for long periods without seeming veiled. The broad sound stage accommodated all the instruments with ease, lending to the feeling of openness and transparency.

Occasionally though, the Rotel could be caught out. With Sibelius' Symphony No I, played by The Pittsburgh Symphony, the sound lacked a degree of drama and tension - a little too restrained and refined for its own good at times. That said, the 975 made a fine job of producing the tricky violin timbre correctly, never becoming confused, while the near-silent background brought out subtle detail during quiet passages.

The Rotel RCD975 has a well rounded sound quality that's easy to live with and transparent enough to make listening enjoyable. Perhaps it lacks enough spark with some types of music, but this has never really been a Rotel characteristic anyway. Build quality and appearance are also in its favour. The problem for Rotel though is that the 970 offers all this and nine-tenths of the sound quality. Ultimately, the Marantz CD63SE with E100 interconnect will outperform the Rotel, so it can't be classed as great value, but for those whose musical preference is for classical and acoustic, the Rotel RCD975 should definitely be on the short list

## Rotel RCD975 £449.95

Gamepath Ltd., 25 Heathfields, Stacey Bushes, Milton Keynes, Bucks. MK12 6HR なり1908 317707

# WORLD VERDICT



A smooth and civilised player that's well worth auditioning.

Measured Performance see p113-121



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# POWER RANGER

It's big, black, and it's gunning for the UK specialist market. David Price auditions TEAC's top integrated amplifier, the A-BXIO.

suppose it's inevitable that a review of TEAC's new A-BX10 integrated amplifier should be framed around the great east-west audio divide. After all, this new £1000 integrated rather seems set to gnaw away at the sales of some of Britain's foremost amplifier manufacturers, rather in the way they've been assaulting the Japanese

market recently.

Let's get the A-BX10's intentions straight from the start. Forget about bells, whistles and A/V surround sound processors - this is a Japanese real hi-fi product going straight for the jugular of UK audiophile amplifiers. You won't find any fripperies on this front panel. Indeed, in this review it finds itself in the

ironic position of facing a cheaper British amp. - the Meridian 551 - with more facilities, flexibility and convenience! Instead of Meridian's svelte user interface, remote control, digital display and what-have-you, the TEAC sports a single central volume control, with power on/standby and input selection knobs to the left and

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right respectively. There's also a tape monitor button and a mains power indicator which glows TEAC's corporate orange for standby and green for go.

At the back is the usual confection of gold-plated phono sockets, binding posts and IEC mains socket, as well as a pair of balanced inputs, telling prospective home market purchasers that this amp. wants to be regarded as a serious piece of kit. Its not inconsiderable 12kg weight underlines this, meaning TEAC certainly pack a lot into its compact (for a Nipponese amp) 443×103×381mm dimensions. Inside, it follows up-market thinking typical of the land of the rising Yen, with a goodly complement of high quality components neatly laid out, a large toroidal transformer and an

Befitting any expensive amplifier from this part of the world, the A-BX10 boasts an enormous 100W RMS rated power output, reflected in its propensity to raise the ambient temperature of any room you care to use it in. In use the TEAC is simplicity itself, the controls have a satisfyingly smooth, positive action, making for a quality feel.

optional plug-in MM/MC

phono board.

First impressions were highly favourable. A thorough warming up is recommended for this product, after which it took its partnering Linn Tukans by the scruff of the neck. One of its key home-grown competitors is Meridian's 551, somewhat cheaper at £695, but a product for which I have a lot of respect. In truth, I wasn't really expecting the TEAC to touch it, but I was wrong. Kicking off with Everything But the Girl's 'Sugar Finney', the most dramatic difference between the two amps was in their bass. The TEAC was punchier and tauter, with more grip and weight to kick drums, bass guitar lines and left hand piano parts. By comparison, the Meridian sounded softer around the edges, lacking the low frequency articulation of its oriental rival. But for all the A-BX10's

proficiency in steamrollering along the song, I couldn't help feeling the Meridian was more tuneful. The TEAC emphasised notes starting and stopping, but with its occidental brother things were noticeably more melodic.

Across the midband, the TEAC turned in an equally credible performance, with a vast, bold soundstage with satisfying depth and dynamics. Bob Marley's 'Waiting in Vain' assumed an enormous acoustic, with commendably large amounts of percussive detail springing forth. Images were more tightly located than with the

The TEAC is not to be confused with the headache-inducing Nipponese black boxes at the bottom end of the market.

Meridian, projecting forward from the 'speakers better. Again, its firmer bass gave more life to proceedings, clearly conveying the impressive counterpoint between bass and drums.

Once again though, for all the TEAC's cerebral delights, the Meridian was the more effusive, beguiling performer. Although its bass wasn't as tight, it caught the rhythmic subtleties of the organ playing noticeably better, which in conjunction with a smoother, finely etched treble made for a more fluid and natural rendition.

The Meridian also threw light on the TEAC's high frequency failings. Although the Japanese amplifier wasn't coarse, it had a slight haze that made cymbals brighter, giving them welcome lustre but losing their feel, making for a rather bland, generic sound. Most noticeable in the upper regions, this effect nevertheless extended to the midband. So despite the A-BX10's lively, grippy character, low level detail and atmosphere wasn't a forté.

It's not the first time I've heard British and Japanese amplifiers fall into these camps - the former 'soft and musical', the latter 'big and powerful'. I'm sure the lapanese like this sound and engineer their products with this in mind, because with super-dry, pin-sharp modern Japanese recordings, it certainly sounds impressive. Ryuichi Sakamoto's 'Asadoya Yunta' saw the TEAC gaining a lot of ground on the Meridian, sounding fast, lithe and detailed thanks to its talents with leading edge dynamics. The Meridian on the other hand sounded more natural, imparting the song's rather mechanical percussion and koto playing in a rather matter of fact way. As a further measure of the seriousness with which TEAC have approached the design of this amp, even the optional £150 phono card was good, being quiet on MC and giving little away in sound quality to line inputs.

Make no mistake, this is a fine integrated amplifier; the TEAC is not to be confused with headache-inducing Nipponese black boxes at the bottom end of the market. It's a very confident, grippy sounding device, strong on sound and build quality. Used with smooth ancillaries and quality interconnects, its drive and confidence may be just the ticket. But for British ears, the charms of similarly priced Meridian and Naim products may be too much to resist •

TEAC A-BX10 £999.95 optional MM/MC phono card £149.95

TEAC UK Ltd., 5 Marlin House, The Croxley Centre, Watford, Herts. WDI 8YA \$\text{27} 01923 819630

# WORLD VERDICT



Very strong all-round performer with excellent build and finish. Verging on the expensive though.

Measured Performance see p113-121

# ACOUSTIC RENAISSANCE FOR AUDIO

A group of audio experts have just proposed a twenty-first century specification for Compact Disc. It relies on the increased storage capacity of proposed new video players that use today's 5in CD, but in either multi-layer or double-sided form. Noel Keywood explains.

hese days, the Consumer Electronics business talks video, because that's where the money is. Packaged audio systems from the East have become a high-volume, low profit commodity items. So whilst Philips, Sony, Toshiba, Time Warner and just about every other major CE company get stuck into each other's throats in yet another video format war, audio has been ignored. No proposal has been made to put high quality audio onto these discs, except as an accompaniment to films.

# **ACOUSTIC RENAISSANCE**

Now, a group calling themselves the Acoustic Renaissance for Audio (ARA) have put forward a proposal for an advanced digital music coding scheme. The ARA comprises a small group of senior engineers with long experience in their respective fields of professional, broadcast and domestic audio (see box at end). It was, however, founded by Professor Hirokazu Negishi of Canon's (Japan) Research and Development headquarters whose aim, he told us from Japan, is to promote "the value of acoustics for audio and hence the arrival of the third paradigm". This means thinking of audio as an all-round experience, rather than frontal stereo or mono (second and first paradigms, in U.S. speak). As visiting professor to the

University of Essex, Professor Negishi has co-operated with others in Britain in drafting this proposal, but has been actively promoting it back home in Japan.

Sensitive to the failures of the past, the ARA have ensured their proposed system is "backwards compatible" meaning the system will be able to play current CDs, so they should not become obsolete. Whilst the digital audio code is out of date, the CD itself, seen as an information storage medium, is going from strength to strength. The growth of video in the home has pushed it along - moving pictures need considerably more storage space than music, so where audio CD has 0.6 Gigabytes capacity to give 73 minutes of music, the new discs have 5 Gigabytes (Toshiba/Warner) and 3.7 Gigabytes (Philips/Sony). This is achieved by using smaller pits read by higher resolution lasers.

## PREDICTING THE FUTURE

Faced with such massive storage, the options open out. Quality can be improved immensely, or playing time, or the number of channels used. Which to choose? This is where the proposal wisely acknowledges the impossibility of predicting the future and the folly of attempting to shape it. It can provide numerous options, according to the

intended role of the disc. From two to eight channels of high quality audio can be provided, but the authors lay emphasis on sophisticated surround-sound schemes. Although they see this as the future, the proposal specifically provides properly constituted stereo too, again for compatibility.

# CD's ACCURACY x 26!

How about 143 minutes of stereo using a 24 bit amplitude description at a 96kHz sampling rate? That's a resolution of 16,777,216 levels to describe amplitude, instead of today's 65,536 - a considerable gain. Industry experts with experience of high-bit coding schemes generally see 24-bit as offering such high resolution that all future argument about this aspect of digital sound should be made redundant. Let's hope so.

Using more digital steps to better describe the signal reduces distortion and increases dynamic range (theoretically, from 96dB to 144dB). This will give a smoother sound, lacking the glassiness and clinical dryness of today's Compact Disc. The view that CD omits detail and low level ambience cues, giving an immediately impressive but ultimately unconvincing sound, is likely to become a thing of the past.

Today's Compact Discs are sampled at 44.1 kHz. The new proposal recommends 48kHz or 96kHz. The latter gives an audio bandwidth of 48kHz (half the sampling rate), compared to today's limit of 21kHz. Pioneer already make DAT machines with this specification and listeners confirm that it sounds a lot more open, neutral and airy than the somewhat constrained sound we get from today's CD. In the background lurk arguments drawn from U.S. Army research that we

# THE NEW SPECIFICATION

- The new audio CDs will give improved resolution, making 24bit digital audio in the home a reality.
- Audio bandwidth will extend to 48kHz, double today's figure.
- The ARA hope to make sophisticated multi-channel surround-sound a reality, complete with height information.
- Existing CDs will play on the new players, but today's players will not play the new discs.
- The improved sound quality will put a gulf between midi systems and proper hi-fi.

need to be able to perceive information right up to 100kHz before recorded sounds and environments seem completely natural to us. So there might be a need to go even higher, but at least we know that doubling the sampling rate does bring perceptible benefits to sound quality and the ARA propose this within their system.

# **REAL HI-FI REBORN?**

So this new coding scheme offers some interesting possibilities, but it's also cunningly flexible. Ultra high-quality digital puts emphasis on hardware technology, and therefore cost, but ARA's scheme also allows low quality video or audio players to access and play some part of the disc. This universality has interesting ramifications. Obviously, it makes ARA music discs compatible with a wide range of players, from cheap to expensive. However, it also attempts to exclude budget hi-fi midi-systems and their ilk - from the high quality sections by imposing a stiff cost penalty. Few midi-systems could afford to incorporate 24-bit D/A convertors, their build budgets are so tight.

This should stimulate hi-fi sales by giving top end real hi-fi products a specific identifiable advantage. Unfortunately, it may well become a two-edged sword, being a benefit only in the short term until the necessary silicon becomes cheap enough for inclusion in a midi-system. Then

suddenly midi-systems will claim 'real hifi' credentials - and that will be that! It's unlikely however that any realistic way could ever be found to prevent this sort of thing, even though the ARA proposal attempts to hold off the wolves for a few years.

# **CD SURROUNDED**

Oldsters may be amused to hear that Ambisonics makes a re-appearance in this ARA proposal. This is a method of accurately encoding a sound field, the sound patterns within three-dimensional space, such as a room, theatre or even an outdoor scene. This, as its developer Michael Gerzon always made clear, is not concerned with the number of reproducing channels, which can be three or more, so much as recording a sound field so that it can be reproduced accurately.

#### **HOW IT WILL SOUND**

Vocalists and instruments will sound less clinical and hard in their representation. A greater sense of naturalness and air around the images will make music sound more convincing.

Treble will sound sweeter, smoother and more open. The timbrel properties of metallic percussion will become apparent. Natural ambience will be revealed.

As Ambisonics is spatially accurate in its coding, it requires a holistic view to be taken. This means meticulous attention to detail, from the soundfield microphone required to accurately capture a complete acoustic, to the decoding needed to translate four internal signals out to any number of speakers. As it is pure, it can be used for large choral works, dramatic Wagnerian experiences, tracking bees in Granchester Meadows, and such like. On the other hand, today's multichannel systems for cinema simply contrive movement, most sounds being artificially "steered" during the mixing process. This somewhat simpler requirement can also be accommodated by the ARA proposal.

## **UNLIKE MINIDISC OR DCC**

Enthusiasts will be pleased to learn that data-reduced digital of the sort seen in

PASC (DCC from Philips) and MD (ATRAC from Sony) is specifically avoided. Irrespective of arguments about whether such schemes are audible at one pass, there are problems when data reduction is applied more than once. This could happen if a datareduced DCC tape is broadcast through a data-reduced Digital Audio Broadcast radio transmission. This problem, and the fact that once mangled, music cannot be restored, is enough to have given many people in the professional audio business strong doubts about the wisdom of using such a process. Data-reduction is a retrogressive concept needed only to pack music at low data rate onto inadequate carriers, so it has no part in this new proposal.

## A COMMERCIAL REALITY?

The ARA have submitted their proposal to both camps in the video player battle and although there has been no official response, which will doubtless be contingent on many other factors in their commercial war, we were told by Bob Stuart of Meridian that "it has been greeted well". If approval comes through in the next year, and assuming other parties don't object or otherwise make things difficult, it is likely that the new Super-CD could appear in around three years time, or 1998. Then we'll discover just how "inadequate", as the ARA put it, 1970s' digital really was, consigning it to the dustbin of history alongside flared jeans!

# The ARA are:

Professor Hirokazu Negishi, founder of the ARA and Director of the Design and Development Centre of Canon Inc, Japan.

Professor Malcolm Hawksford, University of Essex, Dept. of Audio Engineering.

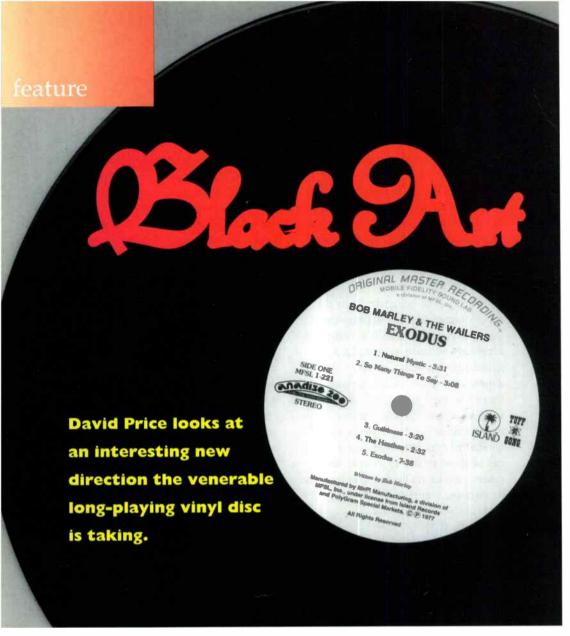
Bob Stuart, Technical Director of Meridian.

Tony Griffiths, Technical Director of Decca Recording Co.

David Meanes, R&D Manager (Audio and

David Meares, R&D Manager (Audio and Acoustics) BBC Research and Development. Michael Gerzon, ex-Oxford Mathematical Institute.

Francis Rumsey, University of Guildford.
Peter Craven & Chris Travis



s cost has started to play second fiddle to quality for many record buyers, the audiophile vinyl business has burgeoned. You only need to look at specialist companies like Audiophile International (who supplied the LPs for this feature) to see this. So what does spending £25 on an album that would normally retail for under £10 bring? Are they really better than everyday pieces of plastic? The answer isn't as simple as it seems, for the world of record manufacturing enjoys a number of conflicting viewpoints. Let's separate the wood from the trees.

# **ORIGINAL MASTERS**

There's a long and tortuous path between high quality studio recordings and your turntable. Copies of the mastertapes are made so the original masters can be archived. It's these copies that are often used by the pressing plant, meaning that before even

reaching vinyl, your album has lost at least one 'generation'. But audiophile pressings use the original first generation mastertapes, giving them the best possible start in life. But then comes the mastering process, about which opinions are divided.

# VINYL MASTERING

Between the master tape and the slice of plastic revolving in front of you is the mastering process, where the mastertapes are transcribed to the vinyl disc. Normally the cutting lathe (shown below) cuts a groove onto a lacquer blank from which, after a long and complex process, the moulding tool known as the stamper that presses the vinyl is made.

This intricate process is prone to many problems which adversely affect sound. But in 1980, Teldec introduced Direct Metal Mastering, originally developed by Telefunken and Decca in the 1960s for video playback from a vinyl disc (the format's failure was doubtless something to do with its ten minute maximum playing time!). As the cutting

lathe cuts the groove directly into copper, which doesn't deform too easily, it avoids lacquer's tendency to 'relax' after being cut, which can lose high frequencies. So the simpler, cheaper DMM process gives what Bob Bailey, production manager at EMI's



#### AUDIOPHILE VINYL -THE DIFFERENCE

- Audiophile pressings use the original first generation master tapes.
- \*Standard pressings weigh 120gm, while audiophile discs weigh in at 180-200gm.
- Many standard records are made from recycled vinyl. Audiophile vinyl is new and untouched.
- Standard pressings come with packaging that doen't protect the disc properly, and can actually abrade playing surfaces.
   Audiophile vinyl is packed properly.

Hayes production plant, calls "a closer representation of the analogue waveform", replicating fully the groove cut by the lathe.

Although conventional industry wisdom is that DMM "will give an improved result over a lacquer", why is it that none of the specialist audiophile pressings tested here are Direct Metal Mastered? Herb Belkin, president of Mobile Fidelity Sound Labs believes it's a case of best practice. For MFSL, instability problems at high frequencies are reason enough for rejecting copper as a mastering medium. Because it's so much easier to use, DMM looks an attractive idea, but Herb believes its subjective drawbacks outweigh its objective benefits. "DMM is a science," he says, "but working with lacquers is an art." This means neither mastering medium is perfect, and care taken in production quality control affects subjective sound quality as much as the mastering materials used.

Less contentious is half-speed mastering (HSM), which offers improved transient response by cutting a master tape playing at half its original speed on a lathe turning at 16 <sup>2</sup>/<sub>3</sub> r.p.m. The standard way to master discs until the early fifties, HSM was abandoned as soon as technology permitted timesaving double-speed mastering. Nowadays, most audiophile vinyl is half-speed mastered as a matter of course.

#### PRESSING QUALITY

Is there any point carefully transcribing the masters if you're going to press onto the first piece of plastic you can find? Audiophile LPs employ thicker vinyl, all titles tested here are pressed on 180gm vinyl, nearly twice as heavy as conventional LPs which weigh as little as 100gm, while Mobile Fidelity use 200gm vinyl. What difference does this make?

Bob Bailey argues there has been no conclusive research on this subject to date. Instead, he believes "the quality of vinyl is in the groove", rather than around it, "if a 120gm disc is formed well it will perform as well as a 180gm". As the average 120gm LP is 1.25mm thick, while the groove depth is less than 0.05mm, many industry engineers feel the extra thickness of an audiophile pressing is unlikely to improve performance.

However, Herb cites his company's reason for using heavyweight vinyl as longevity. Standard weight vinyl, he argues, means thinner, less resilient groove walls which can result in the vinyl developing a "memory" as it's repeatedly played. Thicker, heavier vinyl resists warps and wear, retaining the microscopic information in the groove better. Indeed Herb claims that MFSL vinyl "has at least as good a survival rate as CD". Audiophile pressings also have deeper grooves, which he believes gives superior signal-to-noise ratios.

There's also vinyl quality to consider - all these audiophile pressings come on virgin vinyl. Nothing to do with Britain's resident balloon flying, Cola-drinking entrepreneur, this simply means what you're listening to isn't made from reground ABBA records - the vinyl is new and unrecycled. In the seventies,

massive record sales meant fast pressing cycle times were needed. Using impure 'regrind' vinyl which was malleable and quick to cool, cycle times could be reduced to 12 seconds. But this made for a muddy sound with endemic surface noise. Pressed with high quality virgin vinyl, audiophile LPs can take over 1 1/2 minutes to cool, and are far harder to work with, but side-step the noise problems caused by contaminants in regrind vinyl.

Industry professionals don't see this in black and white. Some argue recycled vinyl is more stable and predictable, meaning greater real-world consistency. While Bob pointed out that "there's no research showing virgin vinyl is quieter", Herb countered that a properly set up press using virgin vinyl will give better results, and that mass production on EMI's scale doesn't allow time to optimise presses.

## STORY OF THE GROOVE

Many regard the fifties as the heyday of vinyl. Then, standard LPs were pressed on 180gm vinyl rather than today's 120gm norm. In the seventies, pressings got lighter, and suffered from the widespread use of inferior recycled vinyl which meant increased distortion and a lower signal to noise ratio.

At the end of the decade, while LP quality was entering freefall, audiophile pressings on heavy virgin vinyl appeared. Many Blue Note releases appeared Direct Metal Mastered on to virgin vinyl. Half-speed masters from Mobile Fidelity Sound Labs' Original Master Recordings made serious inroads into the market.

The mid eighties saw LP quality drop further still, thanks to the increasing use of second or third generation master tapes in the reissue of 'mid-price' albums. The use of regrind vinyl and ever flimsier jackets suggested that big record companies were losing interest in black plastic.

#### **Mobile Fidelity Sound Labs**



MFSL have long had an involvement in audiophile vinyl, being the first to produce half-speed mastered Original Master Recording LPs, says president Herb Belkin. The company shows exceptional attention to detail at all stages in the production process, from class A direct coupled power amps driving the cutting heads to supersmooth inner sleeves for the discs themselves.

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## AUDIOPHILE VINYL IN ACTION

Now, in the middle of the nineties, standard vinyl pressings seem to be getting better, so how do they compare against the serious stuff? We listened to titles from specialist audiophile labels including Mobile Fidelity, Decca SXL, Analogue Productions, RCA Living Stereo, and DCC Compact Classics, and rated them out of ten, with top marks awarded when the record disappeared completely! Does audiophile vinyl give more sound per pound?

Ray Charles and Betty Carter

DCC Compact Classics: 8/10 Standard: 2/10

This release uses valve power amps to drive the cutters, making for a dramatic improvement over the standard digitally remastered LP. Where the cooking version sounded dry and compressed, the DCC pressing had far more atmosphere. Brass had superb timbre, while Ray and Betty's voices projected much better. Surface noise was very low, with the recording's original analogue tape hiss replacing the digitally remastered disc's vinyl hiss and roar.

#### **Debussy Printemps**

Decca FFSS Stereo Phonic: 9/10
This had an even quieter surface than the DCC. Sound quality was excellent, with a deep, rich timbre to strings. The



Al was formed to meet the needs of the European audiophile software market, says director Keith Martin. They offer everything from LPs on ultra-high quality vinyl to gold CDs. Their catalogue covers a large range of music from classical stereo LPs and remasters of legendary rock titles to vintage jazz impossible to find on original vinyl.

**Audiophile International** 

room had a magnificent ambience, far surpassing any standard LP I've heard, while bass was unusually powerful.



## Debussy/Iberia/Chicago Symphony Orchestra/Fritz Reiner conductor

RCA Victor Living Stereo: 10/10

This was stunning. Never have I heard such an expansive, dynamic recording attack transients were unbelievable, enough to knock you off your seat at twenty paces. Vinyl roar and surface noise were totally absent, leaving an eerie silence behind the music. Soundstage was breathtaking, going back miles behind the 'speakers. This seminal 1958 recording is the best I've heard to date.

#### Bill Evans Trio Waltz for Debby

Analogue Productions: 8/10 Standard: 6/10

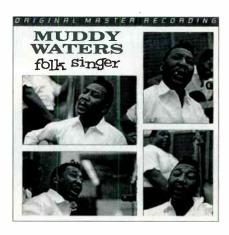
An excellent pressing almost up to RCA standards, it improved on the already impressive Riverside version in every respect. Again, imaging was far superior, the 'speakers disappearing and the acoustic projecting right out. The beautifully etched ride cymbals made the standard pressing seem muffled.

#### Stan Getz/Joao Gilberto

Mobile Fidelity Anadisc 200: 9/10 Standard: 5/10

This super-heavy disc sounded superb, with a faultless pressing that felt like the stylus was glued to the groove. Double bass had the best solidity of the group, while soundstaging was excellent. Cymbals were devoid of the grain of the already good standard pressing. So

accomplished was it that the disc disappeared, leaving me hearing only my cartridge!



#### **Muddy Waters Folk Singer**

Mobile Fidelity: 10/10

Pressing quality was again up with the best I've encountered, but the awesome dynamics showcased the vinyl better than the more laid-back Getz/Gilberto recording. The massive acoustic, the physicality of Waters' voice and the attack of his guitar came close to the heart-stopping drama of the RCA pressing.

#### THE VERDICT

The arguments over the practicalities of record production will run and run. What's obvious is that standard LPs are produced with very different time and cost constraints to their audiophile cousins. This explains why the latter are considerably more expensive. Sonically, audiophile vinyl has much to recommend it. The discs tested here provided a level of fidelity that shames conventional pressings, and some were just plain awesome. The quality of sound they wrested from my system has made it grow in my estimation, to say the least. The question you'll doubtless be asking yourself is "are audiophile pressings worth £25?". To this I can only say yes. It's a hell of a lot of money for a piece of black plastic, but not much more expensive than a lower-fi double CD. They'll also last a lifetime, and a very enjoyable lifetime it will be too.

# EON'S AHEAD

Denon's TU-215RD tuner brings you full RDS
'Enhanced Other Networks' capability for a mere
£150. Eric Braithwaite sees the future and is
impressed.

"I wouldn't give

tuppence for the way

most tuners treat solo

piano, but I couldn't

complain about the

TU-215. "

aybe it's because Denon has a strong footing in broadcast equipment in radio studios that they do affordable tuners so well. If you heard it on radio, chances are you heard it through one of Denon's professional-sector CD players. Here's the latest in Denon's tuners to keep others on their toes,

the TU-215RD, a mere £149. For this you get a remarkable selection of facilities.

It looks much like any other tuner, Denon or otherwise, yet here you get those nice solidtouch controls that inspire confidence. Not for Denon the narrowing down of

choice that fitting only VHF/FM imposes. The '215 has Medium wave radio too, so the new Medium wave specialists popping up in the UK can be captured. This is a synthesiser tuner

with no fewer than 40 station memories, optional remote control and full RDS (Radio Data System). Many of the front panel buttons relate to RDS, rather than other tuner functions, like selectable IF, which are absent.

Denon's RDS system gives you more than most: it's a full implementation. I mean, full. Not just

the station name. We have scrolling text ('Rachmaninov Prelude in C minor Op23 No 7') that does away with all those memory failings and allows you to impress your friends with your instant encyclopedic musical knowledge.

"What's that, then?" with "Ah yes, that's Rachmaninov, the Prelude . . . of course."

Or, via Choice FM, parrot 'Continuous jams in London'. For a moment I thought they meant jam sessions, which

seemed a bit of a new departure in programming, but this is RDS EON (Enhanced Other Network), which gives you the traffic updates.

Mind you, that message was hardly news and RDS expression can be a bit limited. What do the asterisks stand for in 'Sarah Kennedy, the \*\*\* early Show'? No, don't write in. You do need to be within a couple of feet to read it, though the display is usefully bright. I thought it was 'Wogan, with news weather and great wits' and was about to complain about misrepresentation until I looked again. It was 'great hits'. Some stations are now also finally broadcasting the time from the Universal Cesium clock, so you can tell people the time without even looking at your watch.

Impressive? That's only the written word. Spoken word was pretty good, too, with just a touch of cuppiness and nasality, but of the degree where you have to listen for it. I caught Yevgeny Kissin on Radio 3, and it wasn't only last year's Royal Festival Hall performance that scored, it was reading the names of all four encores as they began that came in handy as well.

I wouldn't give tuppence for the way most tuners treat solo piano, but I couldn't complain about the TU-215. A balance on the rich, warm side gave the left hand a very solid round and deep tone, while scales and arpeggios in the treble were clean and sweet, without any discontinuity. It was a very well-defined, rather close-up image between the speakers, with the applause properly confined across the sound stage instead of splashing around: a





good test of a tuner's control.

Tennstedt, conducting the overture from Die Walkure, came over pretty well, too, with, as you'd expect, rich fruity brass and sweet strings. Laid back, yes, but this is better than being thin and scrawny in tone. A solo violin piece again had a good, sweet and vibrant tone. Top marks at this price, here. Good marks at twice the price, even. Dynamics are a touch constricted compared with a reference, but the Denon made a better stab at the transitions between ppp and p than most.

So far, so very good, but rock devotees beware: this is not a tuner

tweaked for compressed rock stations. There are those that bend the truth, beef up the bass and sharpen up the upper end of the midrange to compensate. The Denon stays a bit of a smoothy, with decent finger-clicking bass timing and a dry bottom end. All this on FM, of course; AM is competent, a bit less cloth-eared than some, but lo-fi with enough added brightness to make it listenable, as opposed to sheer mud.

Yet again, Denon have come up with a budget tuner with real class and no false economies sonically. In Des's cringing catch-phrase: "how do they do that?"

Denon TU-215RD

£150

Hayden Laboratories Ltd., Hayden House, Chiltern Hill, Chalfont St. Peter, Bucks. SL9 9UG. T 01903 888447

#### WORLD VERDICT



With no technical weaknesses, great sound and comprehensive RDS facilities, it's a bargain.

**Measured Performance** see p113-121

# TWO-STEP

Getting an electrostatic panel and box bass to tango isn't easy. Noel Keywood and David Price judge a curious partnership in the shape of the Cadence ES loudspeaker.

he principle is sensible enough, but the practice peculiarly difficult. Open electrostatic panels offer an airiness to the reproduction of vocals and instruments that's hard to resist. I detected this in the £3500 Cadence ES 'speakers from the moment they sang their first song. But harmonising the efforts of gossamer-thin clingfilm with the antics of a weighty bass cone working against the air in a large, closed cabinet is another task altogether. Like getting a gnat and an elephant to dance together without treading on each other's toes, it's not a mismatch easily concealed.

I've tried a bit of this mularkey too, using an active filter to help give the bass driver a good prod to keep it in step. Experimenting with this gave me a good idea of the difficulties. I suspect Cadence opted for a closed cabinet because it offers better damping and potentially "faster" bass than the more common ported (reflex) cabinet, hoping it would match the electrostatic section more readily. This means the cabinet must be large if its bass is to go low - as buyers will expect from such a costly and complex loudspeaker. So, like B&W with their early-seventies DM70 hybrid, the Cadence is seriously large and not unintrusive. Does the trick come off? Can two drive units so different from each other stay in step?

I can't say they do. The Cadence crosses over noticeably from a full,

grumbling bass that argues with the floorboards to a sprightly midrange that has other things to do. Quite how obvious this was depended much upon the music played, the amplifier used and the required listening levels. In the end, I found they best matched mellow sounding power amplifiers with good bass drive and grip -Audiolab monoblocks fitted the bill.

The low synth throb at the start of Isaac Hayes' cover of 'Summer in the City' had so much weight and power it shook the room. The Cadences were deeply impressive here, with rare bass quality - deep, thunderous gut-wrenching stuff. Hayes' vivid percussion effects and tight rhythm section were well projected by the electrostatic driver. Here the Cadences showed just what they could do - by any standards they were impressive.

Peculiarly, in a Jeckyll and Hyde

HI-FI WORLD



sense of openness with a noticeable absence of overhang after notes cymbals and bells rang with delightful purity. I detected some extra zip in the treble that hardened guitar strings a little, giving them bite while avoiding sibilance. An underlying hardness of tone was evident, a metallic colouration that one listener said made them a little "clanky" sounding. This wasn't much of a concern with rock, but the violins of the Philharmonia Orchestra struck me as hard and forward with Wagner's Tannhauser. This 1960 recording isn't the newest, and I know the strings do sound hard, but not that hard. Balancing this was a gloriously wide soundstage

across which the string sections were arrayed convincingly, making the 'speakers impressive, even whilst wayward.

As electrostatic hybrids go, the Cadences are better than many I've heard, if not perfect. Cadence have made a good basic job of some difficult engineering, even though trying to

match an open backed electrostatic to such a huge bass cabinet was always going to be a non-starter. This apart, however, the Cadences are very sensitive - always a good point - so they'll work with all high quality amplifiers, even low power designs.

They need mains power of course, but overseas readers may well appreciate the fact that they're unaffected by very high humidity. The fact that these 'speakers hail from India partly accounts for this unusual plus point, but Singaporeans contemplating the monsoon will likely take heart too. Apparently, an Austrian electronics engineer designed the 'speakers for his own use, but development and production was funded by a large Indian company with various industrial interests, so presentation and back up are first class.

The Cadences were professionally finished and they measured unusually well too, which was the biggest surprise. It's the impedance/sensitivity/ reactance characteristics of a 'speaker that say much about its designer - an area where beasts of this size and

**World Radio History** 

complexity are commonly a dog's dinner. The Cadences were not. Those with a big wallet and a room to match should certainly listen to the Cadence ES 'speakers - they've got performance to match their size.

#### DAVID SAYS

**66** The Cadence

crosses over

noticeably from a full,

grumbling bass that

argues with the

floorboards to a

sprightly midrange

that has other things

to do. "

Now these are 'speakers I rate, but

before I start to wax lyrical I'll make one qualification - neutral and inconspicuous they're not. What they are, however, is fun the kind that brings an evil grin to people's faces when they know they're hearing something special. Isaac Hayes' 'Summer in the City' went from being just another cover version to an epic soundscape in which Isaac's voice battled with legions of wahwah, keyboards and

drums of cowering strength. As the track progressed Hayes' arrangement grew in complexity and the soundstage filled out to envelope me - while all the time the bass rumbled and growled like an Aston DB5. The Cadences appear able to convey scale, without limitation. As a critic, I could find problems, but as a music lover, they were awesome. An imperfect cadence, but an enjoyable one nevertheless • DP

Cadence ES

£3499

Ambience, 92 Ruskin Park House, Champion Hill, London SE5 8TH TO 0171 274 8317

#### WORLD VERDICT



An interesting design with a very impressive sound, but an inconsistent performer

**Measured Performance** see pl | 3-|2|



# World

#### IN DEFENCE OF SILVER DISCS

I would like to use the pages of your magazine to leap to the defence of the Compact Disc user. I reject the views put forward by some of your recent letter writers that CD users don't know any better and have been led astray by record companies and Philips' long-ridiculed marketing hype. I use CD because I actually prefer it!

Oh horror of horrors! I can just see the vinyl snobs among us wringing their hands in despair at my last remark. Contrary to the belief that CD is the spawn of the devil, I know what I

like and can recognise the strengths and weakness of both mediums.

In his review of moving coil cartridges in the June issue, David Price rather sneeringly remarks that CD users need to be told that there is more to music than just instant track selection. Not so Mr Price. I spent a lot time and money selecting my system and it suits me just fine. Why do people keep knocking me for it because I prefer CD?

When I read your letters page I often wonder how vinyl users have the time to listen to music because they seem to spend all their time

worrying about the effects CD is having on other people's systems. Why don't they mind their own business! Hi-fi is not a crusade for vinyl and should not be treated as such. Jeff Bryan Enfield.

Ooops, methinks I've been misquoted. I actually said that the vdH MC10 was "the sort of thing to remind CD fans..." - there was no suggestion that CD users need to be told anything. This wasn't meant to sound sneering of course CD users have got a right to enjoy their

music in veace.

Why do vinyl junkies make so many disdainful comments about CD? Simply because CD is a hostile threat to them. Record companies have unilaterally deemed that the world wants CD and can't have anything else. So I don't think vinyl junkies' complaints are addressed to CD users as much as the major corporate players in the "music software" game. Like you, all they want to do is enjoy their chosen format in peace.

# Letter of

#### **PASTRY, PUMPS** AND PEAKS

I have a number of issues that may be of interest to the readers of Hi-Fi World. Firstly, the bargain of my year was discovered while being dragged screaming and kicking around Ikea I stumbled across some lovely looking pastry boards. What I hear you say has pastry making got to do with hi-fi? They were marble slabs 60x40cm - I couldn't resist them and they've made my turntable come to life. with a marked improvement in dynamics and imaging over their wooden predecessors.

On the subject of equipment supports, 18 years ago I did an A- level project on finding a method or substance to isolate my Connoisseur BD1 turntable. After hours spent in the workshops building a test jig (incorporating an old ceramic cartridge) I tested a whole range of things, including foam, neoprene and springs. My conclusion was that a balloon partially inflated with air gave the best result. The only problem I had in using these for my turntable was that they kept deflating over time. It seems that Max Townsend has partially solved the problem with a valve and cycle pump!

I read with interest

Noel's comments about compact disc being seventies technology with an inadequate dynamic range "in vivo" limited by a horrendous sounding distortion that all too often makes itself known. I listen to mainly rock and jazz and find many recordings compressed to death. This doesn't surprise me at all. From my limited experience of recording a live band in a hall most of the time the VU meters barely moved from the -20dB area. Then, the vocalist lets rip and the needles bang the end stops and all the peak lights flash at you as if the end of the world is nigh! If you don't overload the

electronics and are recording onto analogue tape you get compression and some distortion of the peak. Judging by what you used to see going on in recording studios this was an accepted way of doing things. But never in your wildest dreams would you go over the limit recording digitally would you? You compromise, lower the levels, whack in the brick wall limiter, never daring to get to OdB. Wasting precious digital bits and resolution and getting into that horrible sounding 1-2% distortion at -6OdB. Oh and don't forget you have a restricted frequency limit caused by a ridiculously low sampling

Send your letters to Hi-Fi World Letter Page,

# writes

Fortunately, thanks to the noise made recently, many record companies are waking up to the undeniable demand for black plastic. DP

## POWER TO THE GARRARD

Following the note of the Vintage Communications Fair (Trade Winds, May), I thought I would go, and despite the drive down I really enjoyed it. Not a lot of hi-fi as a percentage of the floorspace, although I did see a pair of Heathkit amps and

preamp similar to the ones I built (mine were mono) to go with my deck, but I bought a couple of valve radios to join my small collection. I'll be back next year I think.

Now for a suggestion. If it's not in the pipeline, has anyone thought of designing a power supply for the Garrard 301/401 for inclusion in the supplement? I would think Andy Grove could knock one out in a tea break. I mention this because I have a 301, which I bought new when I was nineteen-ish, along with an 3012 SME arm and Shure cartridge. I remember my mother had to

sign the guarantor form for the hire purchase! It appears to be a transition model, a 301 deck with a platter and motor. It doesn't seem like 30 years ago. In fact, until when I started reading World I built another plinth for it with an RB 300, and it's now in its third incarnation. **Ken Johnston** 

Ken Johnston Glasgow

They knew how to make them to last. As Quad note, almost irrespective of purchase price, products with a life span like this are cheap in the long run. NK

## WORLD WIDE OF THE MARK

While I have been a fairly consistent reader of your mag for some time now, I feel I must take exception to the stomach-churning sycophancy of your multiple reviews of the DPA Renaissance CD player in the

June '95 issue.

You might well be on first name terms with DPA's designers but that's no excuse to completely lose your heads and objectivity over what is basically a very good value-for-money CD player, nothing more, nothing less. It's certainly not the best thing since free money.

When I'd got through counting the number of glowing terms you used to describe the player, I had to check the front cover to make sure I hadn't picked up a copy of What Hi-Fi by mistake. This was sensationalistic journalism at its most vulgar. To suggest the DPA has no competitor at the price is short-sighted and reckless.

As someone always on the lookout to better my existing set up, I have auditioned many top-end players. Good though they are in their own ways,

continued on page 47...

# the Month

frequency.

Think about this...You have a cine camera taking a frame 25 times a second. You are filming a see-saw oscillating at 12 times a second. Can you say which way the see saw is moving all the time? Can you say how high it is going on each cycle? Using my analogy I think ten times the highest frequency you want to reproduce is a good basis for setting the sampling frequency. 24 bit should be okay to allow for the waste around the edges. This makes red lasers and a 5" disc a non starter.

Dr David Matthews Thames Ditton, Surrey.

The need to record at low level on digital, so as never to go into overload distortion because it is so horrendous, has produced some disasters in the past. I've heard seas of violins shimmer and shake in the most astonishing manner because of this. Engineers have now twigged that 16-bit digital, including CD, only works well right at the top of its range, so they compress music up in effect, as you've noticed. You'll find that the new ARA proposal for the digital coding of music more or less satisfies your criteria. NK

DACULA

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OR PERFECT PITCH'S FRANCINSTIEN CD

ENHANCER

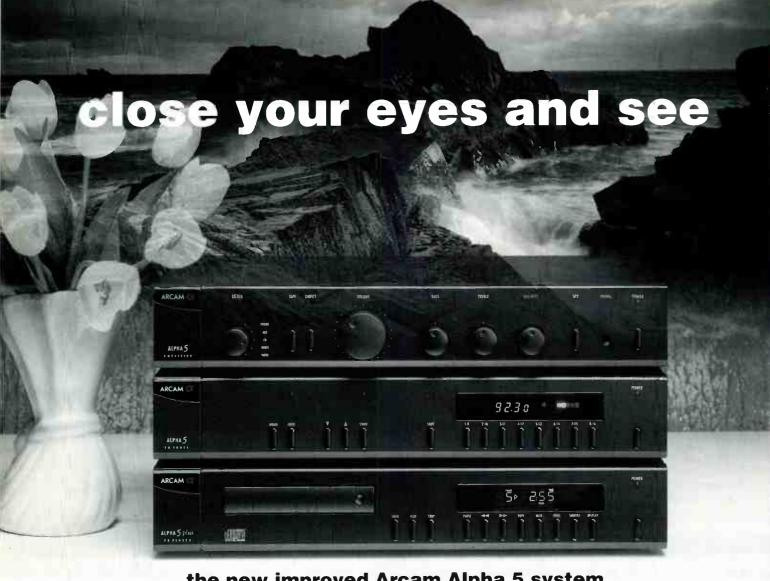
The writer of the most interesting or funniest letter will

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64, Castellain Road, Maida Vale, London W9 1EX.



#### the new improved Arcam Alpha 5 system

Close your eyes and see the difference between Arcam's new Alpha 5 system of hi-fi components and anything else in its price range.

Ignore the fact that the Alpha 5 amplifier is our best 'budget audiophile' amplifier ever, outselling all others in the UK for the past year. Don't be tempted by its attractive styling or a price tag which looks too good to be true. Just listen, and discover for yourself a quality of sound that can only be described as exceptional.

Next, try the Alpha 5 FM tuner. Again, don't let its surprising affordability seduce you. Instead, listen to broadcast sound that is natural, clear and dynamic - qualities which gained it a class leading

Recommendation in the 1994 What Hi-Fi? Awards.

Finally, feast your ears on the new Alpha 5 Plus CD player - quite simply, the best value high performance CD player ever produced by a UK manufacturer. Over the past year the critics have heaped praise on its predecessor, the Alpha 5 CD player, calling it "the player to beat" (What Hi-Fi?) and "standing head and shoulders above the rest" (Hi-Fi News)\*. Now, thanks to new master clock circuitry, the 5 Plus sounds even better and once again sets the standards for other CD players to match.

Just listen. Close your eyes, open your mind, and see the light.

\*If you already own an Alpha 5 CD player, we'd be happy to update it to full 5 Plus specification. Please call our service department at the number below during office hours for full details and prices.



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Please send me information and re	eviews on (please tick boxes):  Arcam tuners	Arcam amplifiers	Arcam's cassette deck □	Please send me a brochure w	AudioQuest cables
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including the DPA, to my great surprise none has bettered my existing CD source. You might be wondering how much I spent on such a capable player well I spent £825 to be exact. It's based around the modest Marantz CD63 player, with a £200 Audio Alchemy DAC-In-The-Box, the £275 Monarch Digital-Interface-Processor and a pair of Audioquest Video Z interconnects. Get your readers to check out this combo in comparison to the DPA. It's not the best thing since free money, it's just the best thing I've heard to date for under £2000. Nothing more, nothing less.

#### David Hull Northants.

I agree that if everything gets a "phew - wot a stunna!" review, we might as well give up and go home. But at the same time we go to lengths to identify good products and give them appropriate coverage.

The reason the Renaissance got three reviews was that it's a product about which opinions were divided. We all loved it, but weren't sure if its sound was 'accurate'. So our dilemma was whether we should rave about a euphonic sounding product - more a philosophical (if that's not to overburden the word) question than one of patronage, friendship or sycophancy. DP

#### TAKE OFF THAT ANORAK

I stopped reading World when you started wearing anoraks but recently started reading it again and was amazed to learn that you were planning to test the LP12 with all its different PSUs. Apart from the Lingo, all the others seem to have

adopted an underground status, almost as if they were the bastard son of an almost well-to-do family that no-one should talk about!

Have a listen to the deck with different base-board options and then try with no base-board at all. The sound opens out and losses that plumminess that has become its trademark.

I bought my LP12 with Valhalla power in 1991 and have replaced the Akito with a good Ittok III and had a Cirkus installed. However the best and most effective tweak came in the form of a bloody marvellous dealer, thanks to Paul and the guys at Listen Inn Northampton for their exemplary service and attitude.

## Gary Hastie Daventry.

Well, excuse us, but there are no anoraks here - the only vinyl in the office is of the circular, flat variety. I hope you enjoyed the LP12 feature - we'll be carrying more on it at a later date. The base board mod. sounds interesting, but remember to avoid any live mains you might find under the hood. DP

What a crime to be a clothes manufacturer these days. Flared jeans, anoraks, Barbours, white stilettos (the other journalists wear these!) all gentle forms of social rebuke. You'll be chastened to learn that when I 'spoke to Linn the other day about "Linnies" they thought I was having a go! It took a lot of verbal back pedalling on my part to avoid being shown the usual role of a Kaber. NK

#### **WEDDED BLISS**

I have just read the review of the Linn Karik CD player in the July issue and had to put pen to paper, having recently acquired one.

Before auditioning it, as usual I asked my wife to come with me to the dealer, expecting the usual curt refusal, but for some reason she agreed. The first machine was the Arcam Alpha Five, much better than my existing Philips but no match for my Linn LPI2/Ittok turntable. The new Mission player followed - even better but still no match for the LP12. A Mimik was next. We both preferred it to the Mission but how about a listen to the Karik?

Breaking into a cold sweat, I agreed. After the first track of BBM's 'Around The Next Dream', my wife asked me how much? I mumbled incoherently - it was clearly the best player we had heard - but the price!

I reluctantly suggested we settle for the Mimik. "No," said my wife, "It has to be the Karik or nothing!" A quick raid on the building society and it was ours! We are both delighted with it. It hasn't replaced vinyl but coexists with it. We can listen to both sources with equal pleasure, thanks to my wife. It's a funny old world.

## S Chapman Derbyshire.

PS I'm now trying to get her to listen to Heybrook Sextets!

#### A RUSH AND A PUSH

My current system comprises TDL RTL3 speakers, Denon PMA 480 amplifier, Denon DCD 910 transport, QED digit DAC with positron PSU, Monster component interconnects, Chord Company Speaker cable and a Technics RS-B765 cassette deck.

I've always found that no matter what I did during the various upgrade paths which have lead to my current system, things have always eventually started to sound tame and boring. The sonic revelations brought about by the addition of each new system element became

predictable and tarnished after just a few weeks and I was left questioning whether the money had been well spent in the first place.

However, given that I had invested considerable amounts in hi-fi over the years, I felt that the problem required perhaps just a little thought prior to the seemingly inevitable upgrade. After auditioning a number of new amps, CD players, interconnects and cassette decks to no avail, I turned my attention to my much-loved TDLs.

During a moment of contemplation I realised the only constant in my system during the last two years has been the internal components - the cabinets themselves having been rebuilt to more demanding tolerances by a local carpenter some time ago. Since he is also a hi-fi tinkerer of some local standing, I let him do the cabinet construction and the transplanting of the machinery in one fell swoop.

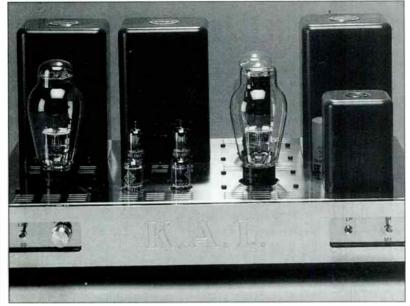
So I have never seen the TDLs with their clothes off so to speak. After a couple of minutes with a screwdriver, I had the bits laid out neatly on the floor and the problem was practically hitting me right between the eyes! That nearperfect signal upon which thousands of pounds had been spent was reaching the crossovers and then dying as soon as it was injected down the miserably thin bell wire which connected them to the drive units.

Given the inherent quality of the major components within the RTL3s, and their ridiculously low prices it stands to reason that corners had to be cut somewhere. Since I just happened to have some Chord Co. cable left over, I feverishly busied myself with the soldering iron.

The difference was

continued on page 53...

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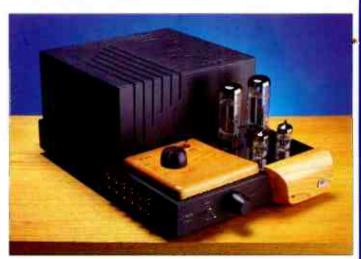




# "I WANT ONE"

Douglas Floyd-Douglass, Hi-Fi World

Now you don't often hear a reviewer say that about a product, do you? So what exactly was it that moved D.F-D to lavish such fulsome praise on the Unison Research Simply Two? Was it the specification? (12 Watts of single-ended pure Class A). Or the finish? ("It would do a Ferrari proud"). The price maybe? ("real value for money with no compromise"). All very impressive, no doubt. But the real answer is both deeper and more subtle. Simply Two is one of those rare products that makes listening to music a magical experience. Just as it should be.



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hings are hoting up in the midprice CD player grand prix.
With Marantz's CD-63SE on pole and NAD's 514 second on the grid, there isn't much room for outsiders. But this month we've tested two other serious contenders, from big name players too. Dominic Todd auditions the new £400 Rotel RCD-975BX, which has the benefit of being tuned up in the UK, and here we're concentrating on Technics' £450 SLP-S840.

Of all of the players in this race, the

Technics looks the most dated in terms of styling. Even the NAD has smoother, more aerodynamic lines and a more functional appearance. Although I thought the thin pin stripe that crosses the Technics' fascia had gone out with XR3is, the layout's still clear, neat and ergonomically at the

front of the pack. It has a wide range of facilities too, including the ability to sort tracks so that they fall neatly onto a cassette when recording.

Electronically, the SLP-S840 uses Technics' MASH 1-bit convertor chip, which should give a smooth, distortion free sound. Their Virtual Battery Operation power supply is said to reduce noise from the power supply and digital circuits. Technics are quick to claim comparison with audiophile techniques, like Class A and battery operation, but technically connections are tenuous in our view. All the same, component quality in this player was high throughout, with carbon film resistors and audio grade polypropylene capacitors. But there's only an optical digital output provided, which may limit its upgrade future.

Compared to the highly regarded £350 Marantz CD-63SE, the Technics had a heavier, more cumbersome bass quality. Even with the light, breezy balance of the Lightening Seeds' 'Open Goals', bass was fulsome but slightly

plodding, where it should have been driving forwards speedily. With thinner sounding recordings like Oasis' 'Supersonic' this was welcome, giving the bottom end a fuller, more rounded quality. But even here, although much of the balance of the recording was restored, a slowing of pace could be detected.

Another facet of the SLP-S840's presentation was relative lack of treble precision. Whereas lower down the sound was realistically solid, with the grungy guitars and hi-hats of REM's

• The Technics SLP-

S840 has some

admirable qualities,

displaying a smooth

and lifelike midrange,

plus a broad sweep of

sound stage 🤧

Monster, treble took on a splashy, phasey quality that destabilised notes. This was less noticeable on richer recordings with a softer balance, but could prove too much with some of the brighter metal dome tweeters around. It was noticeable with a smooth, soft-

dome tweeter, and although peculiar and incorrect, I did not find it overly annoying.

The player's midrange was commendably smooth and focussed. With prominent vocals where bass and treble energy aren't allowed to dominate, such as Bjork's 'Enjoy', the SLP-S840 acquitted itself very well. Her voice was projected out across the stage, her childlike emotion carried nicely. There was very little sharpness or edge to her vocals, even on loud transients, allowing the breathy, open character of the recording to flourish.

These traits carried through in similar fashion on classical works. Ravel's Bolero on the Chesky label sounded as if had been tweaked at the frequency extremes with a graphic equaliser. High percussion had a grainy edge, highlighting harmonics in an unnatural manner. The result, although certainly listenable, paled next to the smoother, cleaner and more refined CD-63SE. In the bass, cellos gained a plumminess which, whilst adding scale

to the performance, smothered the rich, woody texture of the instruments.

This track highlighted the Technics' basic character. Although, as is common with most CD players, soundstage depth was compressed into a narrow plane between the 'speakers, a good sense of stage width was apparent. So even though kettle drums had been moved forward to sit with the violins. the orchestra was spread wide past the boundaries of the 'speakers. Imaging was sharp, with orchestral sections tightly positioned. Across centre stage images lost some body, becoming thinner and more dispersed, but all the same the SLP-S840 did a fine job, making for a credible performance.

The Technics SLP-S840 has some admirable qualities, displaying a smooth and lifelike midrange, plus a broad sweep of sound stage. However, its failings - ponderous bass and lack of body in the treble - make it hard to recommend, in sheer sound quality terms, compared to Marantz's £100 cheaper CD-63SE. I'd even suggest that better value could be had from Arcam's more expensive Alpha 5 Plus, which takes refinement one step further. But if it's convenience, ergonomics and features allied to a solid performance, the Technics SLP-S840 is still in the points

Technics SLP-S840

£450

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#### WORLD VERDICT



Not the last word in sound quality but a performance with some strengths nonetheless.

Measured Performance see p113-121

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obvious even during the opening bars of Jean Michael Jarre's 'Chronology'. Once the first track was well under way, I was amazed at the improvement in the speakers' reproduction of individual instruments, and their ability to fit everything into a tight and coherent soundstage.

After going through a number of old favourites, I became aware of another characteristic of my 'new' system. I felt I could almost perceive the mood of Neil Peart during a hammering drum solo, or capture the thoughts of Alex Lifeson during one of his favourite tracks. It has to be down to the fact that everything is now so well presented by the TDLs - it's just so damned musical, there's no other word for it.

I realise now that it was that musical quality which I was looking for at every upgrade. When I thought I had achieved a better sound, it was probably down to the novelty value of the new component more than anything else. There is, after all, no doubting that the mind can fool the ears, if only for a limited length of time.

So the message to all out there is if you have speakers upon which the guarantee has expired (or you have plenty of cash), and you are confident in your tinkering ability then don't be frightened to have a look inside at just what you're asking those precious little electrons to pass through on their weary way from your crossovers to your drive units. You may well be surprised at how much signal corruption can occur in such a comparatively short length of wire, and how much your system will improve if you replace it with something better.

Andrew Walmsley Halifax, West Yorkshire.

#### DON'T PATRONISE

I've been a reader of Hi-Fi World for the last three or four years, so it's about time I wrote in! Overall the new format is a great success and is much more attractively laid out, but...

Noel is right to dismiss A/V and Home Cinema as a matter of editorial policy. The strength of World's competitors is that they can review a large quantity of equipment, albeit in less detail than here. Their rating systems can guide potential buyers towards worthwhile products, but can deify certain products at the expense of others. Hi-Fi World however, is not a buying guide, so why on earth do you feel it necessary to introduce a rating system? To me, it seems at odds with the magazine's enthusiast approach. Enthusiasm must be conveyed in the article, not with a patronising soundbite and star rating.

Secondly there's an unrealistic view of vinyl. CD for all its perceived faults is the mass market medium, and has brought reasonable sound quality to millions of homes in a convenient package. It seems to me that only at the price extremes that vinyl exceeds CDs. My Moth Alamo/Ortofon 510 is considerably inferior to my Marantz CD52, particularly in the bass. I may revise my view when I eventually have enough cash for a Linn LP12 and Karik CD player!

Rob Hall Bedford.

We have adopted a globe rating to avoid the criticism that we are either vague or equivocal in our conclusions. This is an old, old problem in fact, one I've discussed many times with different editors over the years. The best approach I've ever heard runs like this: "Look, would you buy it if you had £250, or not? -

that's what the readers want to know". Without this sort of frankness, too many writers tend to meander around or sink into uninterpretable euphemism when trying to conclude a review. Now they have to decide how many balls - no, globes - it deserves. NK

Less of the "star rating", please - the other mob do that! They're always seeing stars; we're more Worldly. But seriously (in the words of Phil Collins), you're quite right that the different nuances of performance a Michell Orbe has to a PT Anniversary cannot be conveyed in a star - I mean globe - rating, and they were never meant to.

World Verdicts weren't intended to be a graphic indication of how much better a Technics CD player is over the equivalent Aiwa. Instead they show how much we respect the design and whether we'd live with it,

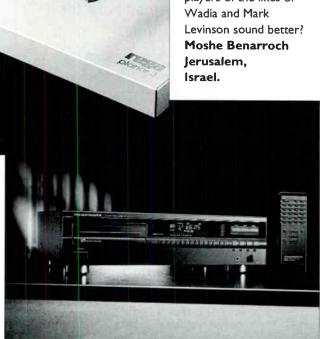
an important point. So, like everything at World, the globe rating works in a slightly different way. This is why we only need four globes, because if we were going to try and graphically represent absolute or relative sound quality, we'd need a scale of one to a thousand, at least.

As for your second point, the following letter artfully demonstrates the divergence of opinion on the subject. Kind-of makes you feel damned whatever which way you turn, doesn't it? DP

#### **VINYL VALUE**

In the June issue I read a letter by Mr. Crooks saying that a £2000 turntable would be better than an equivalently priced CD, but not a budget one. I used to think that way until I bought a new Mission Cyrus 3 two months ago, and man what a difference! My Rega Planar 3/Audio Technica AT120E now sounds much better

than my far more expensive Marantz CD53/Audio Alchemy Dac-in-the-Box. Maybe the opposite is true - that very expensive CD players of the likes of Wadia and Mark Levinson sound better? Moshe Benarroch Jerusalem,



Is it or isn't it? Opinions vary on whether budget vinyl is better than budget CD.

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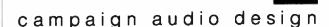
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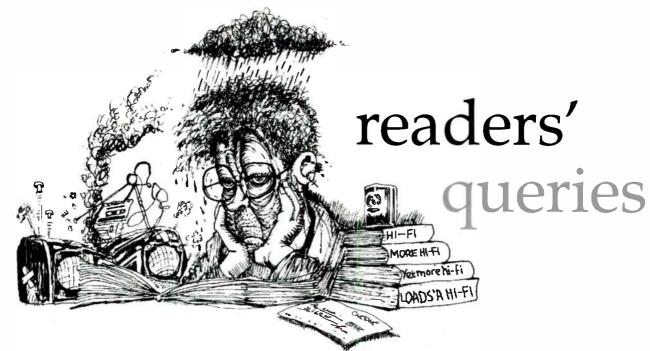
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#### **HDCD UPGRADE?**

I currently have an Audio Innovations 500 integrated valve amp, Yamaha CDX810 CD player with Straight Wire interconnects, original Monitor Audio 852 speakers, and NAC-4 speaker cable. In our 6 metre square listening room with high ceilings the sound is pleasant, but lacking involvement and bass. I also have the feeling that the level of detail may have declined since I first purchased the system, but this is subjective and may be due to changed expectations. My query concerns what to upgrade first. I shall be visiting Europe soon and wish to use the occasion to replace one or other of the above components.

Given the doubt over HDCD and CDV replacing CD, is it worth replacing the Yamaha? Would it be better to buy a new Rotel or for the same money install a Trichord Clock 2 or an outboard DAC such as Cambridge Audio's DACMagic? The most impressive speakers I have ever heard have been large Tannoys, and I believe strongly in the advantages of having a point source. Would I be better advised to buy the D100, the 638 or even the D500? I would appreciate your advice as I will not have

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much time in the UK. Thanks for an innovative and educational magazine!

Dr John Franklin

Sydney,

Australia.

Don't worry about HDCD for the meantime, it will take a good few years for anything directly relevant to filter into the hi-fi world. Pacific Microsonics' excellent system is already a reality, but it's too early to tell whether it's going to become a universal standard.

The Yamaha is your weakest component, so modifying it won't bring a great improvement. Your amp and 'speakers are good designs, so you

would be better served by a decent CD player. You haven't said how much you want to spend, but if money is tight, the £400 Arcam Alpha 5 Plus or £350 Marantz CD63SE would be an excellent start. If you have £800, listen to the Quad 67 against the DPA Renaissance. The former is consummately smooth and warm, the latter is all fireworks and pizzazz. It depends on your taste, but I suspect the DPA will be better suited to your amplifier's presentation.

## CD NEEDS OUTBOARD MOTOR

I currently own a system comprising an Aiwa XC-700 CD player, a Kenwood KA-3020 amplifier and Mission 760iSE 'speakers, bi-wired with Cable Talk 3 cable and mounted on sand-filled Atacama SE24 stands. Interconnects are Tandy Gold Patch cords.

I want to improve the system and was thinking of adding an outboard converter such as the Audio Alchemy Dac-in-the-Box using the optical output on the Aiwa CD player. Would changing the amplifier be a better solution or would

doing both changes be preferable? At the moment it sounds very smooth and I would prefer more bite and attack from the system, as well as a clearer and more tuneful bass. I have a budget of around £500 although I may be able to stretch it a bit further if you think it would be justified. I would be extremely grateful of your help on this matter.

Basharat Anwar

Oldham,

Lancashire.

What you describe reminds me much of the KA-3020SE amplifier, which I found a little weak and insipid in its sound. A firmer, more impressive presentation is to be had from the Denon PMA-450SE II, an amplifier with real muscle. This will definitely liven things up and give better bass.

The Aiwa CD player is smooth sounding, but not dull or boring. I believe you need to buy an external convertor of some ability before significant improvements become apparent, so don't be too quick to dispense with the Aiwa - and do try and listen first to any alternative. The QED Digit with Positron power

supply has the extra bite you are looking for, but beware of combining this with the Denon, since together they may swing the sound to become too sharp. NK

#### LOOSE LP12?

My system comprises a Linn LP12, Naim NAC82, NAP250, Hi-Cap, Marantz CD-63SE and Epos ES14s on dedicated stands, using Naim speaker cable.

I listen to delicate female vocals on vinyl a lot, due to its smoothness and ambience. I find the bass from the Epos can be ploddy, and so am considering upgrading them. I want a

smooth, detailed sounding system with tight, accurate bass and good imaging. My budget is £700-£1500 and my room is 13 ft square.

Michael Jones, Wolverhampton.

A 13ft square room spells trouble. It will have a strong main resonance at 43Hz, because length and width resonant modes coincide (rooms resonate like organ pipes). It is highly likely the ES14 has its own low frequency resonance in this region, like most 'speakers of its size. That's a horrible trinity of resonances that together are likely to be giving you the ploddy bass you complain of. There are various ways of ameliorating the problem, but only a Kango or a bulldozer can eliminate it.

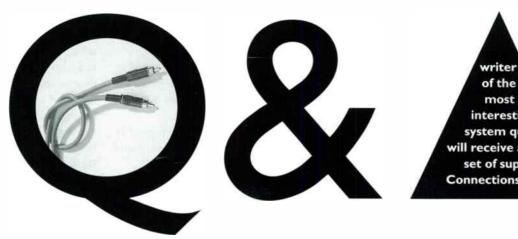
Firstly, both you and the 'speakers should be as far away from the room's walls as possible. Experiment. Pull your speakers forward and listen to a long bass line with plenty of movement across the note scale. Then progressively move out into the room yourself and note how much this lightens and imposes order on bass. Do what you can to site the speakers away from the wall, and yourself if possible.

High quality miniature

loudspeakers with limited output at 43Hz will put less energy into the room, exciting it less. Audition Harbeth HL-P3s or Linn Tukans. The ES14s have a bit of a low frequency kick and I suspect they are a relatively poor match to your room.

You'll not get the bass you want unless you resort to acoustic treatment. Small, square rooms resonate too strongly. And you will only get good imaging with the 'speakers away from the walls, which is how you'll get best bass of course. You could try RPG

Continued on page 61...



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#### TWO HEARTS BEAT AS ONE!

I have a simple question. Can one stereo system be shared by two hi-fi enthusiasts? I am very happy with my system that consists of a NAD 3130 amplifier, Sony 730ES Tuner and Rogers' LS4a 'speakers. I am a radio freak and like the dead "BBC sound" of the Rogers.

There is a problem - my wife. She is keen to start her own CD collection and is willing to go up to £400 for a CD player.

Unfortunately she hasn't got enough money to start her own system, and wants me to attach her CD player to my system. I have a feeling this will end in tears, as I know my wife likes a more lively sound than my system can produce.

What should I do? Is there a CD player that can overcome my dead system and bring it to life, or should I tell her it's impossible, and to keep her hands off my hi-fi? Vaughn Colley Isle of Man.

There's an easy answer for what appears a 'delicate' problem. Your wife should try the Marantz CD63SE CD player, which has a bright, vivacious sound, and connect it with decent budget interconnect such as the ones you've just won. This will give her the life she's after, whilst allowing you to keep your system just as you like it, which is of course one of the central preconditions to married

bliss!

As a radio freak, make sure you have an appropriate outdoor aerial, since this greatly affects sound quality. If you receive Holme Moss, roughly 120miles South-East from the Isle of Man, you'll need a large outdoor array, probably five elements or so, but always consult a local aerial rigger. Don't pass up an opportunity to listen to a NAD402 tuner either, DP





# FINE TIME

# Adding a fineline stylus to Ortofon's superb MC25E cartridge makes for more music, finds David Price.

t's puzzling that since LP was dethroned by CD, it has improved enormously. The component that's come along the most is the humble pick-up cartridge, Ortofon in particular shrugging off the presence of Compact Disc. These days their moving coil cartridges sport rigid aluminium bodies,

a variety of advanced stylus profiles, 99.99% pure OFC copper windings, and a healthy output voltage.

Measuring and tracking superbly, the £170 MC25E and £225 MC25FL tested here epitomise the Danish company's approach to the business of getting music from record grooves. If you

haven't quite got the funds for the top £2000 MC7500, you'll find something in the Super series for you, the MC25s sitting above the £95 MC10 Super and £125 MC15 Super II in what has to be Ortofon's most competitive range for years.

Both share a body weight of 10.5g and a tracking force of 2gms, meaning they'll work well in a variety of modern tonearms, including the SME312 used for this review. The only difference is the stylus, either an 8x18µm elliptical

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World Radio History

(E) or a 18x40µm fineline (FL). Both share the same aluminium cantilever, as well as similar measured performance, with the more expensive FL version offering, according to Ortofon, slightly better tracking ability and more extended high frequencies.



Mounted sturdily in our Garrard 401, the MC25E sounded extremely appealing, with a verve and swing to Bob Marley's 'Three Little Birds' that you don't usually get from 'affordable' moving coils. The E's sound was very 'get up and go', with a tight, driving bass line, plenty of detail and commendably delicate hi-hat sound. Switching to the MC25FL showed what the E was doing wrong however, offering a smoother sound altogether, reminiscent of the MC30 Supreme tested in the June issue. Cymbals were crisper, starting and stopping more tightly and displaying better timbre. This combination of greater grip and smoothness wasn't immediately as appealing, the MC25E's punchiness proving more entertaining on first acquaintance.

However, moving to David Crosby's 'Almost Cut My Hair', things looked a little different. The MC25E again did very well, with an animated performance to wake even the sleepiest hi-fi reviewer. Most impressive was the amount of detail this cartridge managed to wrest from such an old piece of plastic. Scratches and surface wear just didn't phase it, the Ortofon managing to excavate the backing Hammond organ with consummate ease, while making foreground instruments really sing.

If there was one criticism, it was the MC25E's propensity to sound slightly 'spitty'. Although subtle in effect, this phenomenon was conspicuous next to the MC25FL which wasn't going to let itself get upset by distressed pressings. As well as the extra smoothness, the fineline tip brought superb timing notes didn't blur into each other but were separately delineated. This precision could make the FL sound a touch analytical compared to its brother's gusto, but in the end, greater control won the day. Cymbals again

"The E's sound was very 'get up and go', with a tight, driving bass line, plenty of detail and commendably delicate hi-hat sound."

gained a beguiling delicacy of touch, while bass was firmer, but just as voluminous.

Moving to a vintage Decca SXL pressing of Mahler's Symphony No I in D Major (George Solti; LSO) and I found myself aghast at the superb quality of sound coming from the 'speakers. I - like most people I suspect - now do almost all my classical music listening with silver frisbees, forgetting just how pleasing it is to hear the body and physicality of an orchestra in full non-digitised glory. The MC25E again showed itself as a veritable greyhound, conveying the vigour and force of the LSO of yore with aplomb.



Interestingly, the MC25FL sounded more wiry and sinewy on strings, contrary to my expectations.

Comparison to the E saw the cheaper coil sounding somewhat airbrushed and nebulous, while the fineline was obviously getting further into the groove to impart the violins' harmonics in their entirety. This extra focus also made for soundstaging improvements, superb 'hear-through' stage depth as well as good imaging accuracy. As the E is already strong on soundstaging, the FL joins the distinguished company of

far more expensive coils in this respect.

Fifteen years ago, today's MC25E would have been a revelation, with such a bold, powerful musical sound and vice-like tracking - now it's just a considerable achievement. It builds on the MC15 Super II's

£169.95

£224.95

excellent basics and injects true verve and pizzazz. The MC25FL goes far further, snapping at the heels of the big boys in the £500 class. If there'd been a cartridge like this around at that critical moment in audio history, CD might have been 'just another Elcaset'. Makes you think, doesn't it?

Ortofon MC25E
Ortofon MC25FL

Ortofon UK Ltd., Chiltern Hill, Chalfont St. Peter, Bucks. SL9 9UG. 20 01753 889949



Delightfully sweet, musical sound with added refinement on FL means the MC25 takes some beating.

Measured Performance see p113-121

# FREE DIY HI-FI SUPPLEMENT WITH THE OCTOBER ISSUE

# INTHE

# OCTOBER

There's still just enough time to grab a copy of Hi-Fi World and head to the beach for the last few days of sun. When you're there, read about all the new products in trade winds, enter a super competition to win new kit, read reviews on all the latest equipment, scour the classifieds for bargains, and relax reading features on all aspects of audio. Here's some of what we hope to bring you in October's issue.

#### LINN TUKAN LOUDSPEAKERS

The Tukans are a miniature loudspeaker designed for a super-fast and clearly projected sound. David Price, a long term user of the original Kans, weighs up the new design.



#### DPA DIGITAL LITTLE BIT III CD CONVERTOR

DPA Digital's new Little Bit III is the most affordable discrete CD convertor available. Using their own unique inhouse designed and built DAC, the Little Bit III looks set to offer unrivalled performance at the price. We take a very look.

# ISSUE

#### WHARFEDALE VALDUS 500 LOUDSPEAKERS

The sub-£500 floorstander battle continues. Now Wharfedale have weighed in with the Valdus 500s. These metre-high floorstanders use a line up of three 8-inch drivers and a 28mm tweeter, and will set you back just £299! They could be the ones to beat.

#### VIRTUAL REALITY SYSTEMBEK/RB300/1042GX TURNTABLE SYSTEM

Working with Systemdek, Rega and Goldring, Virtual Reality have come up with this highly tuned turntable system. Just some of the tune ups include a precision Swiss motor for the Systemdek, new wiring for the Rega, and a carefully tuned Goldring 1042GX. We take a close listen to this high performance system.

# ALCHEMIST AMPLIFIERS WORTH #1500

Don't miss next month's competition, because there's a chance to win one of five Alchemist Axiom integrated amplifiers!



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#### .... Continued from page 56

bass absorbers, an effective acoustic treatment, if a little expensive for most people. Alternatively, stuff the room with heavy sofas, if possible, since they absorb low frequency energy.

You could also have a Cirkus kit fitted. At £299 fitted it's probably Linn's best value Sondek upgrade ever, and will improve both tightness and imaging. DP

## ELECTROSTATIC DEPRIVATION

My system consists of a Thorens 126 Electronic MkIII, SME 3010R and Grado Signature 8MZ cartridge, with a home-made valve MM phono preamplifier feeding a passive Mod Squad and Electrocompaniet DMB100. Loudspeakers are Celef Stratus, charged with sand and lead shot placed on Target ST20 stands. This current set up is the result of upgrading from an Ariston Q deck and Denon PMA-920 integrated amplifier. I also own a Micromega OPTIC CD player. The system rests on Tripod furniture, with the power amp on a separate stand.

I dream of buying an electrostatic loudspeaker because of the transparency and lack of boxiness. I've listened to Apogee Stage, Martin Logan Sequel II and Quad ESL-63, but unfortunately they are just too expensive. Could you advise me of suitable alternatives?

In the meantime, I've asked for information from Loricraft and Technical and General about tweaking my turntables. I'm going to give the Ariston a heavy wood base, but don't know if I should use the rubber feet or substitute cones. I've also designed a kind of Townsend trough for it.

Would it be wise to install Deflex panels in my loudspeakers, or should I change the drivers and crossover? Is the Ringmat as good as it is said?

Francisco J. Guillot Valencia,
Spain.

You may well know that we use modified Quad ESL-63s, amongst other 'speakers, and wouldn't be without them. Although other makes of electrostatic sound considerably different, as you say there's nothing quite like a good one; they make music a wonderful experience.

Dominic has been working on an open-baffle conventional loudspeaker. Our view is that many of the properties of an electrostatic (but not all) can be closely approached with conventional drive units. In particular a lack of box boom and colouration across the critical midband and treble regions, which results in a gloriously open, spacious sound is possible, providing very high quality drivers are used. An electrostatic drive unit has a Clingfilm diaphragm, the ultimate in low mass and colouration, so there's no point in trying to mimic its properties with quacky polypropylene or coarse paper cones. This does make the drivers expensive, but less so than a commercial electrostatic.

My alternative to the Quad is the Heybrook Sextet. It isn't really similar, except insofar as it has superb treble and a level of imaging and soundstaging that approaches ESL-63s. Otherwise, there's little in the commercial loudspeaker world that really offers the sort of sound you are after.

You cannot simply

change the drivers and crossover of your loudspeaker to gain improvement. They are carefully chosen, matched together and matched to the cabinet. Deflex panels are sound dispersers, rather than absorbers. Generally, it is best to mix dispersion with a little absorption, so they are worth trying, although we cannot be specific about benefits, because they'll vary.

Our review of the Ringmat (January 1995 issue) placed it as very good value on a majority of turntables, including Thorens. NK

## DUAL TO THE DEATH?

I am looking to upgrade the sound of my 1978 Dual CS510 turntable. Your review of the £1000 Pro-Ject 6.1SA seemed to provide an obvious candidate until I realised this retails for \$4000 here in Australia, and that would be really 'over the top'.

So returning to the Dual, which when purchased was a very good turntable, how would you suggest I upgrade it? Substitute a better tonearm, or fit a better cartridge and stylus than the Shure M95ED currently fitted?

The rest of my system comprises a NAD 3240PE amplifier with Altec Lansing loudspeakers. I would be very grateful for your advice. Colin A. Harrison New South Wales, Australia.

The Dual was a good deck in its day, but nowadays certainly isn't the last word on the subject. Even upgrading to a Rega Planar 3 would bring substantial gains in detail and imaging, as well as an extra solidity to the sound. You could also investigate the soon-to-be-

discontinued Linn Basik, or look for second-hand Axis or Manticore Mantra.

If you decide to keep the Dual, fitting a new arm isn't really worthwhile. In the seventies, part of Dual's success was due to the quality of their straightpipe arms. As they were integral to the turntable package it would be very time consuming to change, so consider a new cartridge instead. The Shure's sound and age is likely to make it the weakest link in your system. Try the ubiquitous Goldring 1042 whose generous bass will compensate somewhat for the Dual's lightness in this area. Also consider substituting the CS510's unsupportive mat for Rega's felt mat, or better still (but substantially more expensive), a Ringmat. However, it's unlikely that these modifications will raise it to Rega standards. DP

#### **ELCASET BARGAIN?**

I recently bought a Sony Elcaset EL7 along with an RM30 remote control unit and 25 LC90 tapes. Both units are in nice-unmarked condition and boxed and working. No one seems to know about the Elcaset and I wonder if you can tell me anything of the history of this machine. Considering its build quality, I would imagine that it was an expensive piece of kit. It came into my hands for £10.

## D.W. Bandpass Wallingford, Oxon.

At the time of Elcaset's introduction in 1976, cassette technology was substantially less well developed than now, with poorer tape formulations (no metal tape), transports and heads. Elcaset was Sony's brave attempt to address the Compact

Cassette's sonic problems while retaining its convenience.

Elcasets were basically cassettes of 1/4 inch tape, with 4 tracks running at 3 3/4ips. With this spec. they easily outperformed conventional cassette. Compared to Sony's top cassette deck at the time. their two Elcaset decks (EL5 and EL7) had better signal-to-noise ratios with an extended frequency response stretching 3kHz higher to (a quoted) 18kHz with Sony's flagship Ferrichrome tape.

Your machine was top of Sony's 1977 range, with a £550 price tag. However, Elcaset machines were soon discounted heavily, as buyers weren't convinced of its merits. The cassettes themselves were large and expensive and there were no prerecorded tapes. Open reel was the pukka enthusiast's medium, while cassette was for convenience. The new format fell uncomfortably between the two.

Although rare as a medium, Sony Elcaset machines still turn up quite often. Nowadays, they shouldn't be regarded as a serious alternative to cassette, as Elcaset tapes are almost impossible to come by and modern cassettes - especially metals - are considerably improved. DP

#### BETWEEN A ROCK AND A HARD PLACE

Thank you very much for your excellent magazine. Discovering it was like a finding a knowledgeable friend with the same outlook on hi-fi. I was a long time supporter of *Hi-Fi Answers* in the late seventies but found today's equivalents to be on a downward spiral into A/V comics.

My current system consists of Townshend Elite

Rock MkII/Linn Basik
Plus/A&R P77Mg, Audio
Innovations 200/QUAD 50E
monoblocks, and Rega
speakers from 1977. I have
assembled this system over a
number of years. While not
representing the newest or
best, its highly listenable
quality seems missing from
more modern equipment.

The Rock is a recent second-hand purchase through your Classified section. I would like to upgrade the arm and cartridge to an SME 309/ Audio Technica OC5 combination. I have used the OC3 which seems a good match for my MC input. The SME's detachable headshell and good adjustments should make setting up the Rock a lot easier. The SME 309 seems an illusive creature so I have not been able to hear the combination on a Rock MkII. Would you recommend this as a good match?

Now to the difficult bit. I want to replace both the 'speakers and power amplifiers but am not sure which combination would suit my desire for an open, clean sound with excellent vocal quality and good soundstaging. I am not a fan of heavy bass or high volume levels and my living room is 13' by 16'.

I am considering either dusting off my Quad IIs and getting them re-valved, having the 50E's enhanced by Avondale to give the top end more detail, sticking with Audio Innovations and getting a 200 power amp, or saving my pennies until I can move up to something like a K588 I PSE kit.

For the speakers I have been favourably impressed with dual concentric designs such as the larger KEF Q series and Tannoy 613s which seem to have the fluid midrange performance and clarity combined with great imaging quality I am looking for. On the debit side I was overwhelmed by the bass on the KEFs and unsure of the

Tannoy's presentation, somehow they sounded like a collection of drivers in a box rather than an integrated speaker.

Are there other speakers in the KEF or Tannoy ranges that you could recommend? As an alternative I notice in DIY Supplement 13 that KEF are releasing kits using their Uni-Q drivers, so how about a World Audio design based around a Uni-Q driver.

Reading Noel Keywood in the May issue has set me thinking that perhaps a second-hand pair of Quad Electrostatics may suit my speaker requirements, but how much space would they require around them?

Richard James

Swindon.

Lack of a stated budget doesn't help, because your predilections span quite a wide price/size range.

Systemdek 931s are moderately priced at £330, image well, are coherent sounding and have dry-ish, well controlled bass. Also, Harbeth HL-P3s may well fulfil your requirements, costing just a little more, and don't forget Rogers Studio 3s.

These days, original Quad Electrostatics don't come cheap, unless you find a pair lurking unrecognised in a junk shop (keep dreaming!). You can fit a pair into a 16ft long room - just. They need plenty of space behind, at least 3ft. Alternatively, use my trick of hanging curtains of carpet felt behind, preferably spaced behind the 'speaker by at least 6in. This lessens rear radiation usefully, easing placement sensitivity and cleaning treble.

Because the Quad is a bass dipole, heavily furnished rooms are best. If possible, rear bass radiation should be 'lost' down the length of a room. Placement at least one-

third the way up (i.e. 5ft from the rear wall in your case) is about right. They need to be spaced around 7ft apart.

The amplifier you choose will depend much upon your loudspeaker, especially its sensitivity and load impedance characteristics. Quad Electrostatics are notoriously insensitive (82dB) and really need a 45watt amplifier. The old 303 was meant for them, and now the 306 is a good match technically, although it doesn't have a lot of balls. The latest 606 is a good bet.

A valve Quad II power amp. delivers just 12watts (with the wind in the right direction), but I can't say it isn't a match because, although these items in combination wouldn't generate enough sound to down a gnat at five paces, many readers swear by the combination - so criticism by me is unwise! I doubt whether any system in the world could sound so sweet and relaxing. And get your Quad IIs restored by Quad - do not have them 'tweaked'. Our K5881 PSE is more modern in its sound, mainly because it has larger output transformers able to swing full output at both ends of the audio band. When the Ouad II was around, people couldn't afford such a thing, these days they

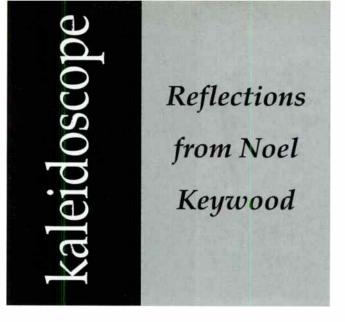
If you buy an insensitive 'speaker like the Quads, Harbeth or Rogers (all 82-83dB) I have suggested, in a room your size we would normally recommend an amplifier of around . 50 watts minimum for reasonable volumes. A Sugden Stemfoort (£500) or Aura VA-80 (£280) are both worth considering, the former for its timbrel richness, the latter for its smoothness. NK

eviewing loudspeakers is easy, great fun and bloody impossible! There's so much variety in their sound and we all know what we like. That makes it easy. Fun comes from hearing a really good one, but loudspeakers are so imperfect this is rare. And it's essential because there are so many conflicting influences that trying to define accuracy and hold a notion of perfection seems pointless. Let me deal with the last, very human problem first, because getting a grip on one's own approach is important to avoid some misunderstandings.

An important precondition for accuracy is a flat frequency response, which simply means all frequencies are reproduced with equal intensity. Readers often raise this point, asking why we don't try to define "accuracy" like this and seek it, which is fair enough. The British loudspeaker industry spoke of little else through the 1970s, with the implied promise of perfection just around the corner. Since then, things have gone a little quiet: here's why.

We've designed and built flat-response loudspeakers (it isn't so difficult nowadays) and they sound hard, thin and lacking in warmth; there would be few buyers in the showroom for a "perfect" loudspeaker like this. This raises a serious problem: if we can't develop 'speakers using even this most fundamental objective criterion, what can we use to guide us?

Loudspeaker engineers try to resolve the problem with yet more theory, wittering about total radiated power, reflected energy, total perceived energy and what have you. They are sailing into deeper waters - room interaction - without a chart. It's best to be pragmatic. The European Commission were not and spent millions on Project



Eureka, a joint research project investigating loudspeaker/room interaction. The result is, er, well . . .

Loudspeaker research soon starts to leave Planet Earth once people get a bee in their bonnet about loudspeaker accuracy. When measuring loudspeakers we look for a smooth frequency response, but don't demand flatness and are ultimately obliged to accept what we and others subjectively perceive as right. This usually turns out to be a slight tilt downward toward the treble in the response curve. Most people, from reviewers to studio engineers, designers and manufacturers find this gives a natural tonal balance.

We rely on measurement for guidance and explanation, but at the end of the day it's necessary to "take a view". Doing this involves taking into account other people's opinions. Sometimes reviewers and designers may differ from a common view, the topic of bass output is one example.

Reviewers with some experience under their belt generally don't gravitate to loudspeakers with heavy bass, yet showroom experience suggests many buyers are swayed by it. A 'speaker with heavy bass sounds big and superifically impressive in a short

demo; thunderous lows may set it apart from, for example, a small midisystem box. But heavy bass comes with long-term penalties. It's usually obtained by making the air in the box resonate, which gives a rotten one-note effect, rather like an acoustic pogo stick. This sort of behaviour not only destroys bass lines, it gives you a headache. So when we recommend a 'speaker, bear in mind it's unlikely to re-arrange your furniture. Strong bass isn't in itself what sways us; expressive bass, where you can follow a bass line, gathers more Brownie

Whilst reviewers don't usually go for excessive bass, they do sometimes gravitate toward prominent treble, or at least a bright revealing sound. I try to avoid this, yet I became aware that a common criticism of the original Heybrook Sextet I recommended so enthusiastically was that it sounded over-bright. It was more dry in the bass than excessive in the treble, and our standard but highly complimentary listening room brought up its bass just enough to make it sound balanced. Buyers with similar rooms (16ft x 12ft) would probably get the same impression I did, but for others it may come across as 'dry', losing body from instruments and making vocals seem a little shrill. So bear in mind that your



listening room makes a difference.

Why do reviewers favour a bright sound? In pursuit of detail and insight, I believe, but it can go too far at times. Worse, there are different types of brightness, the selective peakiness of a cheap metal dome tweeter giving the worst sort of "bright" sound, one that is spitty and coarse. They give a good early impression, projecting cymbals out of a mix with skill, but it doesn't take long to twig the fact that every piece of music has ringing cymbals, even a chamber orchestra! Luckily, measurement can easily identify a peaky tweeter and it's something we look for during tests, to be certain it doesn't pass unnoticed.

Beware of "showroom specials", 'speakers with excessive bass and peaky treble, or boom'n'ting, It's something quality British 'speakers have traditionally shied away from. Don't be mislead; smoother, less immediately impressive loudspeakers are a better long term proposition. Mission's 752 loudspeaker demonstrates smoothness and integration, good bass fine measured and subjective accuracy, plus super imaging, so use it as a benchmark.

What you choose in the end is very personal. I hope you can understand what we choose - and I hope the two are not so different!

t's a shame that as a self-build activity, digital kit hasn't received much coverage as it's a lot fun to put together. Digital equipment doesn't require the hundreds of volts of H.T. demanded by valves, so bench lash-ups are a breeze and experimentation is a quiet, gentle activity without the painful splats and buzzes which accompany experimentation with valve analogue equipment. And it's also the future - if you're interested in building electronics to prepare for a future job, it's as well to start climbing the digital learning curve as early as possible.

I've just finished designing a unit which may interest digitalaudiophiles and constructors alike, the DA150 digital power amplifier, but the unit might equally be termed a digital integrated amplifier because it comprises digital source selection. 18bit DAC, volume control and stereo, 150W precision power amplifier all in one. Other features include three AES/EAU and SPDIF inputs, LED flags for professional/consumer use of channel status, deemphasis and non-valid data, and comprehensive digital and analogue muting. Safety features include forced mute in presence of errors, a nonlocked PLL or non-valid audio data; soft (fade-in) mute on the power amp and relay protected speaker outputs; as well as heatsinkovertemperature thermal shutdown.

Combining DAC, volume control and power amplifier in this way brings some significant technical advantages. The unit delivers a guaranteed 16/18 bit performance by attention to low-noise design and ensuring that it's impossible to drive it into various forms of signal overload - a benefit in a high-quality monitoring or listening

environment. This is

achieved by designing

precisely in the digital

filter prior to the DAC

and consequently is

effect distortions.

protected from generating

TID and other transient-

Left by Richard Brice

amplifier sensitivity so that digital 0dBFS is equivalent to IdB below full-power output clipping, and by defining audio bandwidth chip. The power amplifier is thus safeguarded from reaching its slew-rate-limit

The power amplifier section of the unit is based upon a MOSFET output stage topology. If you have been following Doug Self's articles on power amplifier design in Electronics and Wireless World over the past months, you'll know that much of the current debate in semiconductor power amplifier design revolves around the inherent linearity of bipolar junction transistors (BJTs) compared with MOSFETs in the role of output

Doug Self regards the BIT as a clear winner. I believe this purist debate is something of an irrelevance and should not prejudice us against the use of MOSFETs. Most significant to commercial designers is relative price, with MOSFET output devices costing several pounds rather than the few pence of BJTs. Furthermore, MOSFETs have a finite - and relatively large - on

resistance which is wasteful of power and necessitates the use of paralleled devices in order to drive low impedance loudspeakers.

These two considerations affect 'watts per dollar' calculations considerably. But in the hi-fi market, where their higher price isn't such a disadvantage, MOSFETs have never achieved total acceptance either. So is it not wholly for commercial reasons that the FET is under attack - does sound quality play a part too? This design has proved to me that with care, a MOSFET amplifier is capable of producing results very little short of a dream ticket low-feedback, class-A semiconductor design.

When MOSFET amplifiers first appeared they were heralded as the answer to everyone's prayers. In those days, FETs were regarded as more linear than BJTs. Then the truth broke out -FETs are non-linear. Thus indicating that FETs must be used in an amplifier incorporating a relatively high feedback factor. Fashion dictates that this is a bad thing. But the same is true of a class-B, BJT amplifiers because real-life operating conditions - and the thermal time-lag in temperature compensation - means the bias often departs from the optimal value for the output stage's given



operating conditions.

So while some favour class-A (tube or FET or BJT) above class A/B or class B designs, it's not practically significant to favour BJTs over FETs when used in a predominantly class B design. Add to this MOSFETs' characteristics of constant gainbandwidth product and inherent protection against thermal runaway and secondary breakdown and I rest my case for their inclusion in a top-quality, class-B design.

To the question, "if I like it so well, why didn't I opt for Class-A?", the answer is that it's not possible to construct a practical class-A, BJT amplifier with a power output commensurable with monitoring digital audio programme without either depressing monitoring volume to an unacceptable level or including cooling fans, bringing operational problems of their own.

As well all the articles so far published about the Maximalist Preamplifier and a host of other information is available on-line by visiting my **Electric Perception WWW** home page at URL, http:// www.demon.co.uk/ epercept/. You can leave messages and comments for me there or alternatively at Compuserve ID100601,1614 or via email 100601.1614@ compuserve.com

amous for turntables, Revolver are new to loudspeaker manufacturing, with less than a year's experience under their belt. The £149.95 Colts reviewed here sit in the middle of their three model line up, priced. They feature a 130mm treated paper bass/mid unit with a 19mm soft dome tweeter in reversed alignment á la Mission, and a cabinet that's reflex-loaded from behind.

Positioned on 22" open stands, 11" from the rear wall, first impressions

were favourable with even tonal balance and good scale conjuring up a big sound well projected. Further improvements were achieved by bi-wiring, with a deeper sound stage and better focus. The Yellowjackets' Shades retained the driving beat of the drums, even if the last octave was missing from the bass guitar. The sax showed good tonal quality with the metallic honk produced well, percussion too was ably projected and even handed in presentation. However, dynamics were slightly

softened, with the opening of 'New Shoes' losing its explosive start. Moving to more traditional jazz with Dizzy Gillespie's Bebop Trumpet, the opening bars with Gillespie harmonising Benny Golson on tenor sounded instinctively 'right' - the breathy sax and slow laid back drumming making me want to reach for the Horlicks.

Turning to classical, and with Orff's Carmina Burana, only in the extremely loud passages did the Colts get ragged and lose their poise. Imaging was clear, with the orchestra well placed around the singers. With Beethoven's Piano Concerto No4; Brendel-Levinen, piano showed a slight thickening on the upper keys. Strings sounded sweet with no hint of wiriness - it was only when pushed hard that the Colts lost their composure and became strident. Used sensibly they're OK, and shouldn't be a problem unless you're a headbanger.

Their weak spots? They have lively cabinets which add bounce to upper bass and a degree of honk on some records. The midband could sometimes sound hollow, and although treble didn't suffer from metal dome tizz, there was a slight grain present, highlighted by female voices.

Still, the perfect £150 loudspeaker is yet to come, but at the end of the day the Revolver Colts were enjoyable to listen to. This alone means they're worthy of audition against budget big guns like KEF's best-selling Coda 7

# TOP GUN?

Peter Downs asks whether Revolver's budget Colt loudspeaker can face off the opposition.



Revolver Colt

£149.95

RAM UK Ltd.
16 Willan Trading Estate,
55 Waverley Road, Sale,
Manchester. M33 7AY
17 0161 9730505

#### WORLD VERDICT



A good honest standmounter with a musical sound, but not the last word in refinement.

Measured Performance see p113-121

nter this month's competition and your system could be instantly supgraded with the addition of a REL subwoofer. If you crave bass extension to add an extra dimension to your system and new levels of

enjoyment to your listening, don't miss this one. We're giving away two super REL subwoofers, the new Stadium II for first prize, and a Strata for the first runner up.

REL's Stadium II uses coarse/fine roll

off controls which set the upper frequency limit and an overall gain control. This system allows it to be accurately matched to a wide range of loudspeakers, giving a smooth and even balance. The electronics feed a robust

# **ADD REAL DEPTH TO YOUR SYSTEM -**WIN REL SUBWOOFERS WORTH £1500!



100watt power amplifier, bolted securely inside the heavyweight 72litre cabinet.

The Stadium II sits on four spiked legs, the high power Volt bass driver firing downwards. Set up properly, the Stadium II is capable of revealing bass lines and subsonic detail that conventional loudspeakers completely miss. After living with a subwoofer capable of revealing this extra low frequency information, it's hard to imagine being without it.

The runner up gets a REL Strata subwoofer. This more compact device uses a 60watt amplifier and a smaller cabinet. Although bass isn't quite as powerful as with the Stadium II, it still goes very deep, reaching 20Hz at - 2.5dB! More importantly, it's tuneful and articulate with it. Ideal for small to medium rooms, the Strata will complement almost any system.

So if you want real bass from your system, don't miss out. All you have to do to enter is complete the questions and tie breaker 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 4th SEPTEMBER 1995 to:

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

# JULY ISSUE COMPETITION - WIN EPOS LOUDSPEAKERS WORTH £2775

Congratulations to:

Bredan Woods, Halewood 1st Prize - Epos ES25s

K. Waller of Harrow 2nd Prize - ES14s

Stuart Tyler of Penrith 3rd Prize - ESIIs

#### **COMPETITION ENTRY QUESTIONS**

Cut out and affix to the back of a sealed envelope

- I) The REL Stadium II has a built in power amplifier. How powerful is it?
  - A. 40watts

B. 60watts

C. 100watts

- D. 200watts
- 2) The internal volume of the REL Stadium II is?
  - A. 72pints

B. 72gallons

C. 72cc

- D. 72litres
- 3) The high power bass driver used in the Stadium is specially made by?
  - A. Volt

B. Audax

C. KEF

- D. Focal
- 4) The REL Strata goes how low at -2.5dB?
  - A. IOHz

B. 20Hz

C. 30Hz

D. 40Hz

#### TIE BREAKER (obligatory)

Although my system sounded ace,

I wished it had faster bass,

Then one day I found,

A subwoofer with a sound,

Complete the last line of the above limerick and compose the next verse.

••••••	•••••	 •	 ••••••

Name: .....

Address:

Post Code: ..... Tel No. .....

Please do not add my name to your mailing list.

#### **COMPETITION RULES AND CONDITIONS OF ENTRY**

- [1] Only one entry per household will be accepted. Multiple entries will be automatically disqualified.
- [2] In the event of more than one entrant submitting all correct answers, the winner will be picked from the tie-breaker by the editor. We will endeavour to publish the results in the November 1995 issue. Purchase of the magazine is not a precondition to entry.
- [3] No correspondence about this competition will be entered into and the editor's decision is final.
- [4] No employees of Audio Publishing Ltd. or any companies associated with production or distribution of the prizes may enter.

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

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 from us alone please tick the box. Hi-Fi World magazine is published by Audio Publishing Ltd.

# PREPARE TO BE BLOWN STATEMENT OF THE STA

"Dead good speakers"
Mr. GR Hudson, Hampshire, on the Beretta

"Astonishing performance and value.

A surefire success"

Mr. D Mclean, Surrey, on the *Purdey* 

"a range that aims to blast away established sharp-shooters in the £100 to £250 corral"

Malcolm Steward, Hi-Fi Choice on the Revolver Purdey, Colt and Beretta Loudspeakers

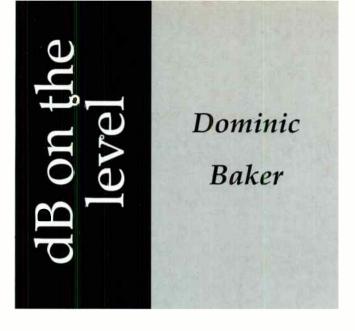
"Revolver's reliability is so good that we are placing a 10 year guarantee on all our loudspeakers"

Ray Nugent, RAM UK Ltd.



This month's column continues on from the experimentation I've been doing with Studio 12's stereo decoder for mono tuners. I've done a lot of thinking on this recently; with the quality of Japanese tuners suffering due to the strength of the Yen, it's becoming more appealing to have that dusty old valve tuner renovated and connected up to a good stereo decoder. The joy of bringing vintage equipment back to life and into everyday use with better performance than a modern £200+ tuner (NAD402 excepted, even if it isn't as much fun) makes it all the more worthwhile.

Around the late fifties when stereo FM was first being broadcast, most tuners were still mono, but with an MPX output which could be wired to a decoder to take advantage of new-fangled stereo FM.



lights up with the "PYE" logo at power on.

I've always wanted one, but they're mono with no MPX output. Yet when I spotted this one it set me thinking again. Since a mono tuner contains everything you need to receive a stereo signal, apart from the decoder, it must be simple to convert for an

> MPX output. Checking with Stan at Studio 12, and after consulting a couple of good radio books, I took up my

soldering iron for what transpired to be a very simple task.

I have drawn a simple representation of a mono tuner output circuit (Fig.1), showing the signal coming in from the discriminator. The signal from the radio station transmitter has treble boost applied to it, called pre-emphasis, to improve noise performance. This has to be countered at the receiver end to

give a flat response. This is called deemphasis, and is performed by the the resistor and capacitor shown in Fig.1.

The output from the discriminator valve

volts of DC on it. The coupling capacitor labelled C<sub>out</sub> is there to block this DC from the output. It's very important to leave this capacitor in series with the output of the tuner to prevent damage to your amplifier. This capacitor is normally around  $0.1\mu F$ . The Leak Troughline is one of the few exceptions. having a low voltage, direct coupled MPX output.

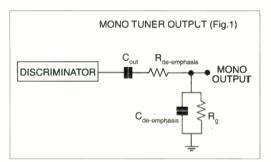
can have several hundred

To convert this mono output stage for use with a stereo decoder all you have to do is disable the de-emphasis capacitor (Fig.2). The de-emphasis in a stereo tuner is done individually on each channel after the stereo signal is decoded. I inserted a small switch which I mounted internally so that this deemphasis can be easily switched back in to give a usable mono audio output. It also enabled me to keep the same captive output wire. This way the tuner is kept as original as possible, and the modification is reversible.

These de-emphasis components form a circuit

with a 50µS time constant. Preferred values are  $47k\Omega/1000pF$  or  $470k\Omega/100pF$ , which makes them easy to recognise. If you are considering doing this modification to an American mono tuner. bear in mind that the deemphasis is set to  $75\mu$ S. Another vintage mono tuner prime for this kind of modification is the Quad FM1. These are plentiful and still cheap, and with Quad's legendary backup service, you know you'll always be able to get it going.

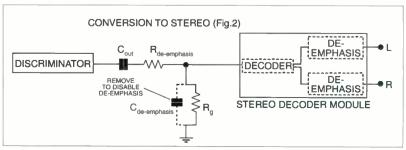
Well, after converting the PYE Mozart, I plugged it into the Studio 12 decoder module. At this point I was expecting to be disappointed with the sound compared with my usual Leak Troughline, but although the Mozart didn't have quite the same bottom end power, the sound was crystal clear, spacious and open with superb treble detail and extension. What's all the more satisfying though, was bringing this fantastic copper fronted vintage tuner back into every day use after a thirty year rest



I'm always surprised at the number of tuners like this that were produced during the period, and that so many of them are still around today shows just how well engineered they were.

Prior to the early stereo broadcasts though, tuners were mono with no MPX facility for a stereo decoder. Recently, I stumbled upon a PYE Mozart tuner at Classique Sounds ( 20116 283 5821), a vintage specialist based in Leicester. I'd seen a couple of these before, with their fantastic fifties styling. The tuner matches the Mozart preamplifier, with a shiny copper fascia and a triangular cut-out for the frequency display. The power switch is clear, and

HI-FI WORLD



World Radio History SEPTEMBER 1995

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Hear the difference.

f Sir John Harvey-Jones were to "troubleshoot" the British hi-fi industry, he'd have a field day. It's not so much a problem with what's being produced, but more to do with the fact that the industry, with a few exceptions, has to be one of the worst self publicists. Take Tannoy as an example. One of the oldest loudspeaker manufacturers selling a massive range of 'speakers world-wide. You'll find Tannoy 'speakers in a surprisingly large number of studios, the Houses of Parliament, and through their professional brand, in many of the world's airports and stations. To cap it all, Tannoy are in the rare position of boasting a generic brand name - who hasn't heard the term, "over the Tannoy"? Yet ask a member of the public to name a 'speaker manufacturer and you'll likely as not be faced with a barrage of Japanese

It's not just Tannoy who are doing themselves down either. The whole specialist industry at large faces a severe image problem. The problem is that quality hi-fi seems to appeal only to those with an interest in either the equipment or music (although many musicians are renowned for owning some of the cheapest and tackiest hi-fi around). Ask Joe Public to name a quality hi-fi brand, and sure enough the list would consist of the Japanese majors once again, and probably Bang and Olufsen, too.

The two main difficulties the industry seems to be facing are that of not appealing to a wide enough audience, and not appearing too cliquey. Many manufacturers do a fine job of selling themselves, but only within the specialist press. The only British



- from Dominic Todd, our man in Scarborough

listen to it? Half-an-hour, a

companies I can think of that have taken the bull by the horns and really tackled the non-specialist press, in recent years, have been Linn and Mission. It's the public at large the manufacturers need to appeal to if they are to stand any chance of real bi-fi getting the recognition it deserves.

The other issue that needs to be addressed is that of inconvenience. Running-in, cables and tweaking are all factors that go hand-in-hand with achieving the ultimate system, yet many will throw up their hands in

*⁴ Ask a member of the* public to name a 'speaker manufacturer and you'll likely as not be faced with a barrage of Japanese brands. \*\*

> horror at the very idea. And you've got to admit it, the whole running in syndrome can seem a little baffling to those used to buying their computers, TVs and videos that work, one hundred percent. straight out of the box. Not only do new products need several hours to work properly, there's also the question of how long should you leave your system on before you

couple of hours or burbling away all day to ensure everything's at its optimum operating temperature? The trouble is that running-in does make a difference. I've lost count of the number of times people have told me how disappointed they've been when having listened to a pair of highly reviewed 'speakers. More often than not, the dem' has been carried out with 'speakers straight out of the box.

The responsibility here seems to lie with both dealers and manufacturers. Dealers should (and some do) ensure all demonstration products are properly runin. Manufacturers could also make more of an effort to run products in before they leave the factory. You can't blame people for feeling cheated that they have to complete the last five percent of manufacture themselves. This would inevitably add to the cost, though, and whether it's worth pursuing in the name of wider acceptance, is a moot point, and likely to come up against strong resistance from those in the industry quite happy to put up with the practice.

Cabling and tweaks can be just as beneficial, but can again cause enough confusion to send potential buyers off to the nearest "kettle shop", to seek out this week's latest



mini-system. The way of getting round this is for manufacturers to provide decent cables (the sooner we get away from the awful freebie interconnect syndrome the better) and built-in tweaks (i.e. a decent specification) to start with. This way, people who want something that will work straight out of the box are satisfied, while the enthusiasts still have the score for the usual experimenting.

This works in the car industry. If you were to buy a quality sports or luxury car you'd expect it to come with decent quality tyres, oil, filters and so on, to allow it to give of its best. Yet there will always be room for the enthusiast who wants to change the tyres, dampers. exhaust and so forth. But the point is the product as a whole stands up to scrutiny in its own right without any modifications. But to listen to a CD player with its own interconnects just isn't the done thing.

The British hi-fi industry is respected world-wide, and undoubtedly produces some of the best hi-fi going (and not always at telephone number prices). If it could just promote itself better and convince consumers that there really is a difference between mini-systems and real hi-fi then it could become a force to be reckoned with

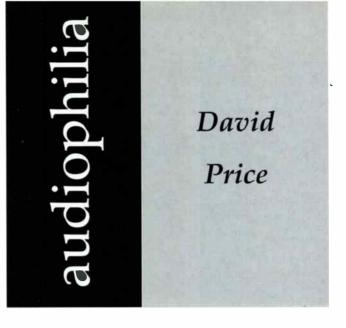
une the 22nd was one of those unusual days when the office was a calm, relaxing place to be. For some reason the phone wasn't ringing itself to bits, and everything was running smoothly. Noel was away on business, while Dominic was out in Germany's Black Forest mingling with the hi-fi glitterati (and some journalists as well) at a Thorens bash.

I was on the phone to Peter Sheehan of Pentacone discussing the relative merits of turntables fashioned from 24kg of concrete, as you do. Suddenly the Zen-like tranquillity was disturbed, as Audio Publishing's general manager Mark ran in from the advertising office exclaiming "John Major's resigned!"

Having more than a passing interest in domestic political machinations - I'm the kind who believes sport should be banned from the media to make way for more parliamentary tittletattle - I was aghast. It was one of those epochal "where were you when" type moments - you know the sort: Lennon's murder, the Thatcher coup, Dave Lee Travis' resignation speech on Radio One.

My first instinct was to find out what the hell was going on. Mark and I looked around for a radio. Neither of us could find one, but then I suddenly remembered - Brian Morris from Linn had been down that morning with their new preamp, the Wakonda, within which, if my memory served me correctly, was a Kudos tuner module. Brilliant. thought I, Radio Four's PM programme is a mere press of a button away. I dashed downstairs, grabbed the Wakonda, plugged it into a couple of Audiolab 8000Ms, an FM feed and an IEC mains. and we were off, or so I thought.

In the best traditions of hi-fi journalism, I hadn't read the manual and so had no idea how to activate the tuner. So in



my haste to catch the news I found myself unpreparedly scrolling through the Wakonda's input selector, scrabbling for something that sounded like radio. Nothing. I started running through the record/listen options thinking I'd got something wrong. Nothing again. So in desperation I pressed everything. By sheer chance I got the tuner, only to be faced with silence - it was in preset mode. More frantic stabbing of buttons had me skipping through the Kudos' bank of unassigned presets. I was going nowhere fast, and rapidly missing news of something that could be a defining moment in media hype, if not history.

Getting increasingly annoved with something I didn't have the time or patience to understand, a moment of inspiration arrived. The Troughline! Yes, our own 'distressed' Leak radio receiver, held together by parcel tape appropriately marked "Fragile"! As it would get the Hi-fi World four globe award for the most shabby looking tuner still in existence, I thought the Troughline couldn't possibly work at a time like this. So dilapidated is its appearance that the slightest suggestion of a G.T.Audio rebuild would have Graham Tricker announcing early retirement.

But the clock was ticking and there was

nothing to lose. The grubby captive phono leads were plugged into the shiny new Wakonda, the power switched on, and the tuning knob twisted to 92.5, whereupon the magic eye started glowing. To my total surprise, a smooth sounding Robin Oakley -BBC politico numero uno - wafted from the speakers. At last I'd managed to switch a radio on.

Rapidly approaching my fourth decade on this earth, and dwelling under the impression (if not the knowledge) that I'm a reasonably intelligent being, it's curious that it took me so long simply to tune in to Radio Four. Stranger still was that Linn's latest super hightech exercise in userfriendliness was harder to use than an old twist-andgo fifties radio. It's not that it's badly designed or unduly complicated - quite the reverse. But like many modern hi-fi products, it's not intuitive - it requires 'learning' first.

This is something relatively new to hi-fi. It's come about now that the physical process of turning, twisting, switching - all things we learn at a very early age - has been superseded by a 'virtual' environment designed in software. With the Meridian amp I use, if you want to hear a tape, you can't just press the tape button anymore, you have to scroll through "LP-



CD-RD-TV-T1-T2" on the display, unless you've got the remote.

For me, at least, this is a problem. In everyday use it's fine, but when I need to do something instantly, without thinking - turn the volume down by half for example - 'virtual' controls are a disaster. I have to hit the down arrow and watch as the volume slowly scrolls down from 'LP78' to 'LP39' - hardly as natural as a quick flick of a volume control.

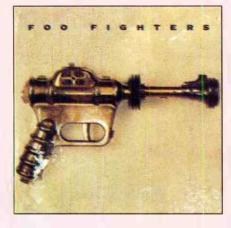
This human need for intuitive ergonomics, where a physical action corresponds directly to a perceived effect is something the motor industry discovered a decade ago. Remember the infamous MG Maestro with the digital dashboard? Even Jaguar dabbled with electronic displays, to drop them like the Tories dispose of their leaders. The message was: fancy electronic 'user-interfaces' are for Knight Rider only.

Hi-fi manufacturers are on a learning curve. Making electronic controls appear analogue (oops that word again), or - in the case of motorised volume controls on Naim preamps - making analogue controls appear electronic, has to be the way forward. Still, with his backbenchers' propensity for excess volume, I'm sure John Major would find an instant electronic mute button very useful all the same



In a post-grunge world, pop stylists Supergrass are showing the way forward, but the Foos are fighting back. Meanwhile Elvis and Van run through some standards (borrowed or otherwise), and Madchester raves on again courtesy of The Stone Roses.

#### Giovanni Dadomo



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# FOO FIGHTERS FOO Fighters CAPITOL 7243 8 34027 2 4

 Of the surviving Nirvana members, nobody's come up with any post-Cobain material except widow Courtney Love and her band, the ever so subtly named Hole, were extant well before hubby Kurt bit the bullet. But here come Foo Fighters, a combo built around drummer Dave Grohl (a relative new boy too, having joined after the group's Bleach debut and hitherto unheard as either a singer or penner of songlets). He's aided and abetted by occasional Nirvana sideman Pat Smear (guitar), Bill Goldsmith (drummer) and bassist Nate Mandel, the latter two survivors of the legendary Sub Pop band Suny Day Real Estate. Grohl himself picks up guitar,

vox and primary writer's duties. And he's no mean purveyor of any of these disciplines, best evinced on the cracking opener 'This Is A Call'. There's the odd Nirvana echo, perhaps inevitably so, particularly on over-familiar refrain of 'For All The Cows'. They go over the top occasionally ('Exhausted' is an ironically apt title, more bluster than bite) but this remains a promising if by no means classic debut. Still, nothing to be embarrassed about. Now what are the other guys going to come up with? Forgotten their names already? Me too. Sad. But millionaires deserve all the tears they can muster.

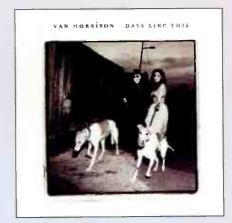
#### ELVIS COSTELLO Kojak Variety WEA 9362-45903-2

• Journalists - who needs 'em?
Certainly not Master Costello - the sleeve notes to this latest collection of cover versions are as concise, informed, fluent and polished as any review you're likely to read this year. This doesn't in itself make this latest EC disc a work of genius of course. And as a matter of record, it must be noted that this is not strictly speaking a 'new' Costello record. It's been bootlegged to hell and back, and is largely the result of time spent in the studio following his hit-and-miss Mighty Like A Rose.



Inevitably it's the more familiar goods that leave most to be desired hence Dylan's 'I Threw It All Away' ends up with Costello doing precisely that. Ironically though, it's Costello's over-impassioned delivery that makes you realise just how masterfully understated Bobby Zee was on his original. Similarly, and although I must confess to not knowing the original version, El's morosely downbeat interpretation of Mose Allison's 'Everybody's Crying Mercy' sounds, to be honest, like a weak Allison out-take. And 'Pay-day', by no means the best song penned by the often brilliant Jesse Winchester (as El says in his sleeve notes, the man's debut LP featuring The Band is sheer brilliance and ought to be in any serious music lover's collection) gets a similarly rough and ready runthrough.

Reservations are inevitable, yet even lukewarm Costello is better than most. Here much of the credit goes to a superb selection of backing musicians from Presley guitar maestro James Burton to Larry Knechtel, whose sterling Hammond will chill your spine, warm the cockles of your heart and bother several bits in between. Midprice, I'd say buy it for the far from infrequent tasty bits. Full-price I'd think twice. And as for that title, well, I scratched my head so much I could stand in for Yul Brynner.



#### VAN MORRISON Days Like This EXILE 527 307-2

The old bugger just won't go away will he? It's over three decades now since Van the Man first launched his articulate and totally unmistakable Celtic tonsils on an unsuspecting planet as lead singer with Them, and the odd glitch apart, he's been constantly inspired and inspiring.

He's been on a roll lately, not unlike his Canadian contemporary Neil Young, and Days Like This is Morrison on top form. The disc was recorded and mixed in Bristol and Dublin but you'd never guess it. The sound is richly textured, production and arrangements are sparkling and smart, with Pee Wee Ellis' production leaning towards classic Stax, while there's oodles of rich Hammond organ from John Savannah.

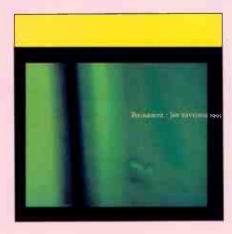
Van's voice is on top form, and he's helped out on a couple of cuts by daughter Shana and Brian Kennedy, the latter particularly strong on the call-andresponse chorus of 'No Religion'. And if Shana's voice isn't too impressive alongside her daddy's - but then who would be? - she's a definite asset on the cover of Ray Charles' 'You Don't Know Me'. True there are times when he verges on self-imitation ('Underlying Impression' is just too Van, if you know what I mean) and 'Songwriter' is a throwaway filler. But overall, a strong addition to an already awesome catalogue.



#### THERAPY? Infernal Love A&M 540 379-2

• Therapy? (don't you just hate that silly question mark?) haven't exactly mellowed out but this latest offering certainly isn't quite so abrasive as their previous work. And a good thing too-there was always the danger that the hell-bound Catholic bit would turn into

a self-parodying stance, so it's nice to know there's brains behind the musical brawn. They're still one of the hardest hitting rock acts this side of early Killing Joke, but then what can you expect from a group who open their latest album with a song called 'Epilepsy' and follow through with 'Jude The Obscene' and 'Bowels Of Love': Keep away from Gran and others with delicate sensibilities.



# JOY DIVISION Permanent: 1995 LONDON 82824.2

And if you need an antidote to the chirpiness of Blur et al. what better than this well thought out selection from the vaults of the Kings of Mancunian Gloom? Of course there's always the epiphany of 'Love Will Tear Us Apart', but the likes of 'Transmission', 'She's Lost Control', 'Dead Souls' and so on are as sombre, brooding, and driven as when first released. But remember - it's only a record. Relax. Rock's answer to Charles Baudelaire.



#### **RECORD OF THE MONTH**

# SUPERGRASS I Should Coco PARLOPHONE 7243 8 33350 22

Yes, yes, yes, I'm getting well marked with all this jolly Cockney geezer stuff too. And alright, I agree that the frontman for this trio looks like nothing more than the mutant offspring of a young Mick Jagger and one of the Simians from Planet Of The Apes. And a mate said that they're the new Monkees. But so what? I like The Monkees. And I very much like Supergrass. They're a brash, cheerful pop trio with - like Suede minus the affectations - strong echoes of early seventies' pop/glam rock - a Bowie intonation

here, a Cockney Rebel one there, the exuberance the best of the Chinnichap groups, Sweet in particular.

PLAYABLE ON STEREO & MONO EOU PMENT

#### SUPERGRASS I STOULD GOGO



Most importantly though, this debut LP carries heaps of good short snappy, catchy, joyful pop songs. You'll

have heard the hit single, 'Strange Ones' no doubt, and there's bound to be more to follow. If they stumble it's only when they stay from their brief, as on the six-and-half minute 'Sofa (Of My Lethargy)'. Says it all really. And yes, there's always the danger that we'll all eventually get tired of all this boyish, lager-primed high spiritedness. But by then Supergrass will probably be living it up in Rio next door to Ronnie Biggs. A Madness for the nineties? Yeah, why not?

Lock Lep.

#### Jon Clarke



# STONE ROSES The Complete Stone Roses SILVERTONE ORE CD 535

• The Stone Roses are as important to Britain's contemporary rock scene as Manchester was to the Industrial Revolution, as The Complete Stone Roses demonstrates. While Manchester's thriving cotton manufacturers fuelled the fires of the industrial revolution, so the city's finest band since New Order kick-started the most exciting music since punk's heyday.

Being a student in Madchester, as it was called in the late eighties, was to be invited to a happy, buzzing scene full of

flowery T-shirts, flares and floppy Man City hats - as the cover picture of this new release demonstrates. The music was a fusion of house and indie pop, giving a dance-friendly foil to an intense summer of love hangover.

Along with The Charlatans and the Happy Mondays, the Roses carved a unique scene which for a few sweet months consumed the whole city and then the entire country, even the world. But no sooner had it emerged when it fizzled out, with "Death of Madchester" headlines screaming from the music press once London hacks had grown weary of spending three hours on the train travelling up from the capital. It was a precious moment, a time to savour - a night at the Hacienda, a dance at the Ritz and the hottest ticket of all a place at G. Mex or Spike Island for the Stone Roses.

The Complete Stone Roses is less an essay on the formation of a modern-day supergroup than a preface to 1994's best album. The Second Coming. 'I Wanna Be Adored' best explains the allure of the band, a mystifying chant of joyful rhythm, a bolt of thunderous guitar pop and lan Brown's lazy humming. But as with so many of the 21 brilliant tracks, it's hard to single one out for particular attention. 'Sally Cinnamon', 'Made Of Stone', 'She Bangs The Drums', 'I Am The Resurrection',

'Fool's Gold'- special moments to be remembered.

Kicking off with the early sessions, it's easy to hear a young and unsure band in the garage, messing around trying to find their niche. Most of the first five or six tracks are standard indie jams, but show how the Roses developed from the early days of 1985 to peak in 1989 with Fool's Gold. This is a joyful package for the world to enjoy, one that shows just why the best British rock is still the best in the world.



#### THE CHEMICAL BROTHERS Exit Planet Dust 7243 8 40540 2 I

The Chemical Brothers are Tom

and Ed, two geeky students who just happened to get lucky. Like Ed from Radiohead and darling of the clubby press DJ Justin Robertson, Tom Rowlands and Ed Simons did their time grafting the syllabus at Manchester University.

Hanging out at the UK's hippest Uni at a time when the Roses and the Mondays were doing their bit for style setting, the boys were inspired to set up a little-known dance band of their own, Ariel. But not making huge waves there, they settled on what every half-sussed student wanted to do in the late eighties - they dumped their dissertations for a pair of Technics SL1210s. And suddenly the Dust Brothers were going from basement parties in Moss Side to trendy clubs in the centre of town.

On graduation the boys returned to London, and having set up the much raved about club night Heavenly Social Sunday, they were soon on the front covers of the music monthlies, remixing the Primals and taking as many DJ trips to the States as they were 'vibes'.

Exit Planet Dust is a fitting name for their debut album, after the boys had to forego their old name to avoid a hefty law suit. And it's darn good too. From the first track and single 'Leave Home', the album takes off on a twisting, grinding industrial dance journey. Eleven medium core tracks with the recognisable Tom and Ed feel leave a strong impression with the listener. This is not a hangover cure or bedtime listening. It's a pick me up and get me going - like only Tom and Ed would know.



# VARIOUS Macro Dub Infection Volume One 7243 8 40475 2 8

 Tape loops, hard bass lines and spooky melodies shape Macro Dub Infection - a 23-track compilation of sound clash slices. Designed to assault your speakers, this long player is an oddball mish mash of dub reggae cuts. It stands as a sort of intellectual forum on reggae's least commercialised outlet.

Dub is an artform - impressionism in music - and it shows. Macro Dub Infection is a testament to its experimental beginnings, pulling together a range of different musical outfits, the album skips by as perfect background music. Ranging from the industrial noise of Coil to the indie/rap of Tricky, the majority of these tracks have a Mad Professor feel at heart. But ultimately while many parts of the album shine, much touches on tedium and repetition.

#### David Price



# BANCO DE GAIA Last Train to Lhasa PLANET DOG BARK CD011

Concept album alert! The KLF were always excused boots as far as their 'trips through ambient dreamscapes' were concerned, because just when you thought all the atmospheric sounds were getting a bit overbearing, they'd cleverly lapse into self-parody. Unfortunately Banco rather miss the plot, bringing you a full-on techno train trip to Tibet's capital city complete with Trans-Global Underground-style Rai sounds, assorted ethnic wailings and a predictable electronic steam locomotive chuffing its way through virtual countryside.

This said, despite its Megadog techno hippy thematics, Last Train is a seriously good album. Toby Marks (for it is he) has a feel for a song as good as anyone, something he proved in no uncertain terms with last summer's scorching Maya debut. Continuing in the vein of what coffee table fashion

monthlies would dub "pop situationism", Banco de Gaia bring you a satisfyingly melodic set of Asia-Pacific traveller anthems, all mystic samples, tribal chants and kicking sub-bass. An accomplished, well-rounded outing with designs on being 'Deep Forest' for the Glastonbury set.



#### WAGON CHRIST Throbbing Pouch RISING HIGH RSNLP30

 Megastore-goers of late will have noticed that electronic music's new golden boy is a certain tank-driving West Country gentleman by the name of Richard James. So prolific is he that his Aphex Twin project has near-asdammit become the bleepy version of pop's blond-rinsed, pointy bra'd Ms Ciccone. But as Bob Mould cried in one of his more poignant moments, "I want something that's not Madonna", and that's where Rising High's enfant terrible Mr. Luke Vibert comes in. Although lacking the showroom appeal of AT, Wagon Christ is just the ticket for those with their minds away from the mainstream.

More than a touch reminiscent of (the tragically now-defunct) Black Dog's Spanners epic of six months previous in the way it melds rare groove, fusion and hip hop, Throbbing Pouch marks a move away from the darker dominions of Luke's debut long player Phat Lab Nightmare, towards the more slippery funk of his recent At Atmos EP. The secret is the way dreamy Portisheadstyle grooves are contorted into LFO's twisted robotic hard-core, making for a chilled out ambient funk so fresh and new you'll ask yourself why no-one else has thought of it. Full of epic dance tunes with their guts ripped out, it goes to show that Rising High could well be a self-fulfilling prophesy, if ever there was one.

Rock + Ep.

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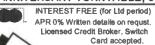
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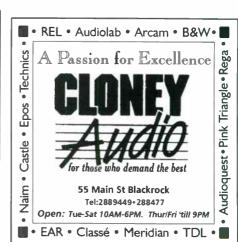
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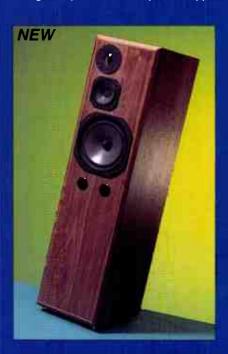
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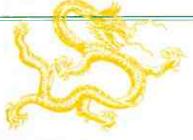
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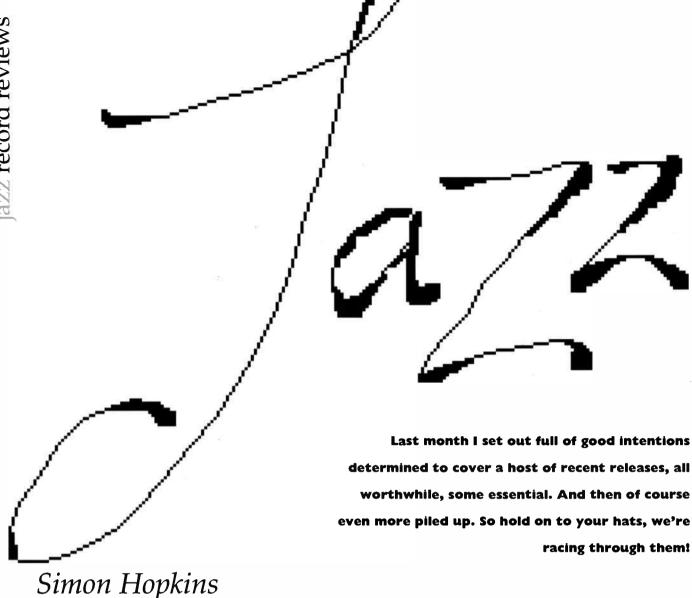
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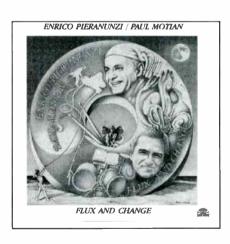




#### **KEITH JARRETT TRIO** Standards In Norway ECM 521 717-2

 Pianist Jarrett is one of the most publicly successful jazz musicians of his time. Having found fame with Miles Davis' electric groups, in the seventies his work gradually eschewed contemporary instrumentation in favour of acoustic settings and the results most especially his epic solo work as heard on such masterpieces as The Koln Concert and the mammoth Sun Bear Concerts - practically defined a genre of ascetic, introspective, capital-S Spiritual instrumental jazz. During the eighties however, he turned back to straighter jazz improvising in the company of two musicians with whom he's since performed live and recorded extensively. Featuring drummer Jack De Johnette and double bassist Gary Peacock, the "Standards Trio" regularly perform songs from the standard jazz repertoire, yet inject them with a hugely explorative intelligence which constantly has the discerning listener wrongfooted. Recorded live in Oslo in 1989, Standards in Norway is as good a place as any for a newcomer to this group to sign up, and will be essential for its fans.

You can forget questions of experimentation versus classicism with this group and delight in three players who understand each other's musicianship intimately and who wilfully, yet lovingly ravage and subvert such common material.

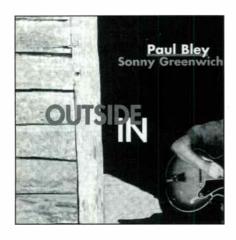


#### **ENRICO PIERANUNZI / PAUL MOTIAN** Flux And Change SOUL NOTE 121242-2

 More subversion of the jazz classics here. One time Jarrett-colleague, composer, bandleader and masterdrummer Paul Motian joins Italian pianist Enrico Pieranunzi in an intriguing set. Constructed as three suites, Flux and Change connects radically

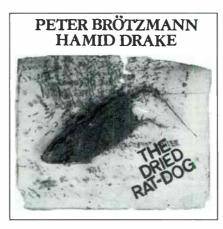
reworked (often to the point of being almost unrecognisable) jazz standards, and intersperses them with oblique originals written by both participants. I like to think that along side Jarrett, Motian - as gifted a composer and arranger as he is a drummer - has led a whole new audience to a greater appreciation of the classical jazz repertoire; in particular his trio with saxist Joe Lovano and cult electric guitarist Bill Frisell has deconstructed the repertoire over and over, with frequently dazzling results.

But the music here is something else. A constantly shifting soundscape almost leaves one seasick or vertiginous, as vaguely familiar themes move momentarily into focus then just as rapidly out. This is undoubtedly a music which owes as much in its tonal colouring and formal grace to European impressionism as it does to any Afro-American tradition, but it's utterly compelling. A record for which I had no expectations, and to which I have returned constantly. Highly recommended.



# PAUL BLEY Outside In JUSTIN TIME JUST 69-2

 Another duo, again working similar territory, albeit for radically different reasons. Pianist Paul Bley, like both Jarrett and Motian, took many of his musical cues from pianist Bill Evans, a musician who in the sixties introduced a sense of lyricism to jazz which has infected the music's history ever since, though not necessarily as noisily or famously as, say, the electric experiments of Miles, or the revolutionary "outside" explorations of the more urban New Thing. (An aside: Bley also has in common with Jarrett and Motian a long history of recording for cult German label ECM, whose very existence it's difficult to envisage without the influence of Evans.) Outside In captures a day's jamming between Bley and guitarist fellow Canadian Sonny Greenwich. Like Bley, Greenwich has a keen ear for oblique yet scintillating melody, full of heart-stopping interval leaps and staccato flights - and the facility to see it through (though softer ears may find his approach and tone a tad hard-going). Together they work their way through a set of originals, improvisations and standards whose title describes it perfectly; this is music at once easily familiar and vibrantly new. A minor gem.



# PETER BRÖTZMANN / HAMID DRAKE The Dried Rat-Dog OKKADISK OD12004

Yet another acoustic duo, but moving still further away from the chamber jazz tradition. Saxist (though that barely hints at the range of regular and arcane reeds this man plays) Peter Brötzmann is without question one of the giants of modern music. Emerging on the European Free Jazz scene at the turn of the seventies, he was one of a group of musicians who offered a strictly continental alternative to both urban American Free lazz (a music still steeped in the traditions of jazz and blues tradition at its most revolutionary) and the more self-consciously reserved work that emerged from British improv round about the same time. This music was bombastic, declamatory and above all noisy (the infamous landmark Brötzmann-led Machine Gun just about burns in its wake anything recorded before the emergence of genuine noise culture in eighties post-punk), and Brötzmann had a sound and technique to match the music. The hugely underrated drummer and percussionist Hamid Drake, on the other hand, emerged from the American free school, and is one of an ever-growing group of American jazz improvisers who view jazz as part of a vibrant pan-ethnic

continuum. He brings out a more lyrical, altogether less city-as-dystopia side to Brötzmann's honking. Although these things are relative; I mean, don't expect a Jan Garbarek record, just because this album features songs with titles like 'Trees Have Roots In The Earth' or 'Dark Wings Carry Off The Sky'. This is after all still an album of Brotzmann originals, and even here, he reveals a powerful malevolence lurking in every environment. An more contemplative Brötzmann, then, and in great, truly sympathetic company.



# FUSHITSUSHA The Caution Appears LES DISQUES DU SOLEIL ET L'ACIER CDSA 54039

 Now we're talking noise making. Japanese guitarist, composer, singer and bandleader Keiji Haino has appeared here before, albeit as a bit of a cameo. A legend among a handful of extreme rock aficionados and Jap-o-philes in this country, the rumours about him - he plays live with eight Marshall stacks (oh yes please...), dresses only in black robes, that he's secretly a monk, or that he's never been seen without regulation black shades - are rife. The sole availability of his records as expensive Jap imports has done nothing but add to the mystique, but here, finally, are couple of records you don't have to be either hugely wealthy, devotedly fanatical, or incredibly suggestible to actually buy.

On The Caution Appears, Haino is in the company of his regular group Fushitsusha. Details on this record are non-existent, but from the sound of it this is the trio version of the group. (Haino sometimes appears with a second guitarist - as if that were really necessary). He shows himself to be the most exciting, extreme, sublime, mesmerising electric guitarist to emerge in the last fifteen years, a guitarist from a world where Jimi Hendrix and Black

Sabbath grew up listening to Gregorian Chant and John Coltrane, and where clichés like this weary one mean nothing.



#### KEIJI HAINO A Challenge To Fate LES DISQUES DU SOLEIL ET L'ACIER CDSA 54029

And here's Haino solo and live, and if anything yet more incredible. Haino shrieks like an electric guitar, plays guitar like one of Cage's prepared pianos, plays percussion like a genius three year old. For all Fushitsusha's transcendental, purifying zeal, A Challenge does slightly have the edge on Caution, although in a perfect world of course you'd buy both. This is a truly unique soundworld, where terrifying torture-victim shrieks preface edgily gorgeous ambientscapes; a music of devastating, and devastated poetry.

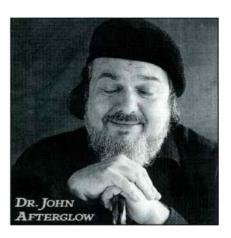


# ARTO LINDSAY TRIO Aggregates 1-26 KNITTING FACTORY WORKS KFW164

 Guitarist, singer, songwriter and sort of professional New Yorker Arto Lindsay is a genuine pop original. From sideman to new music stars like Zorn and Frisell to co-leader of avant-pop funksters Ambitious Lovers, his twenty

years plus of music making in and around the New York new music scene have witnessed the marriage of his voracious assimilation of musical styles (punk, Brazilian pop, Free Jazz, funk... you get the picture, we're talking metropolitanism-as-art here) to his trademark scratchy guitar and paranoid, freaked-out singing, with frequently stunning results. Aggregates 1-26 is one such success. A trio recording with avant-funk super-bassist Melvin Gibbs and drummer Dougie Brown, it touches the usual Lindsay bases - stop-start tempi, languid funk, indiscriminate acts of ultra-violence, coy, geeky sexual come-ons - but delivers it all with terrific power. All your Bowie wannabees and revivalists be damned this is the truly alternative pop world.

#### Simon Cooke



#### Dr JOHN Afterglow GRB 70002

• Everyone has those tracks you just have to play when your woman done lef you, the dog died, the car's been repossessed, you can't pay the rent, you're out of coffee, life just gets you down. This is one such CD, showcasing Dr John's ivories in a setting of bluesy jazz tracks which though quite well known, are far from standards.

I'm not a Dr John fan, mainly because I don't much like his easy, swinging 'life affirming' take on music, until now that is. This one really hit the spot. Technically, the recording is very clear, keeping the piano right up-front and lending it a limpid, spring-water quality. This instrument bubbles, chuckles and flows just as much as Doc's vocals. And of course, there's always that distinctive Dr John voice.

The ten tracks are an interesting

mix; a couple of Doc's compositions with Doc Pomus and a few older tracks such as Irving Berlin's 'Blue Skies' - a cracker - Robin/Jordan's 'I Know What I've Got' and Ellington/David's 'I'm Just a Lucky So-and-So', all showing a beautifully full big-band sound behind Dr John.



# SCOTT HAMILTON Live At Brecon Jazz Festival CCD-4649

• Another Scott Hamilton release, this time recorded live at the Brecon Jazz Festival last year. In that Hamilton fronts British talent in the form of Brian Lemon on piano, Dave Green on bass, and Allan Ganley on drums, it's the follow-up to 'East of the Sun'. It's a group that knits well, each player complementing the others. Of course, this is not surprising considering that the Lemon-Green-Ganley axis are so well known to one another.

While Scott is a fine performer comparable with the great names of mainstream jazz, this CD shows clearly that his playing has slipped from effortlessness into mild lethargy - has he lost the challenge? Does he feel he's seen it, done it, and played it all too often? Is he just getting old? I don't believe either that Scott has passed his best or that he's yet played everything available to him.

Hamilton has been a quality artist in this idiom for so long - bursting onto the scene as a blast from the past then becoming the main man of mainstream - that jazz has caught up with him, and that there can be no more challenge in playing this way - too knowing to startle, too set to change. He has never been a performer to re-invent himself, but unless he tries he'll be unable to offer any more to jazz than he already has. Still, if you like any of these performers, this is an excellent recording up to Concord's usual standards, and well worth the money.

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LONDON, GREATER MANCHESTER. MERSEYSIDE, MIDDLESEX, NORFOLK NORTHAMPTON. NOTTINGHAMSHIRE. OXFORDSHIRE, SHROPSHIRE, SOMERSET, STAFFORDSHIRE, SUFFOLK

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SURREY, SUSSEX (EAST), SUSSEX AWESTI, TYNE & WEAR, WARWICKSHIRE. WEST MIDLANDS, WILTSHIRE.

WORCESTERSHIRE, WEST MIDLANDS, YORKSHIRE (SOUTH)

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YORKSHIRE (WEST), SCOTLAND, EDINBURGH, ARERDEEN AYRSHIRE GLASGOW, INVERNESS, TAYSIDE, , IRELAND, DUBLIN, BELFAST, COUNTY DOWN, LONDONDERRY, WALES, NORTH WALES, GLAMORGAN (SOUTH), GLAMORGAN (WEST), **GWYNEDD** 



























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Continued on page 97....



### Peter Herring

The art of recording is literally about making sound judgements. In the case of the Swedish Opus 3 label this means matching acoustics to the music and continuing to rely on tried-and-trusted analogue techniques. For the New Queen's Hall Orchestra, it's a matter of selecting the right instruments and obtaining truthful balances within the orchestra, as well as redefining the approach to performing the romantic repertoire. But there's nothing new about taking such decisions: as Barbirolli's **Mahler and Strauss recordings** prove, EMI's engineers were getting them right three decades ago.



WOLFGANG AMADEUS
MOZART
Clarinet Quintet in A Major
KV581\*
JOHANNES BRAHMS
Clarinet Quintet in B minor
Oplis

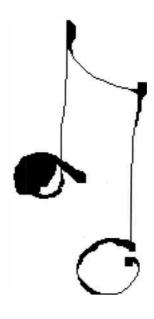
Kjell Fagéus, basset clarinet\* and clarinet; Zetterqvist Quartet OPUS 3 CD19301 (AAD/71.03)

• Despite the AAD coding, this is not a reissue: the recording was made as recently as 1993. So is the Swedish-based Opus 3 label simply being perverse in sticking with analogue recording when the rest of the world has embraced digital? Not in the least, judging by the sound quality here.

Opus 3 was founded in 1976 with the simple philosophy of recording music in the kind of acoustic for which it was written, and very successful they were too. The label's engineers also employed the minimum of electronics in the recording process - seldom more than four amplification stages between the microphone and the storage medium - and came to appreciate the special qualities that valves could bring to the sound. Valve equipment is still extensively used in the recording process, as is the basic Blumlein microphone configuration of crossed figure-of-eights. Why change when you can achieve the kind of glorious sound which enhances these two clarinet masterpieces?

With its broad sound stage, fullness of tone, satisfying timbre and overall transparency, this recording truly offers the sensation of a performance taking place before you. Judicious setting of the volume control brings an immensely pleasing immediacy, with everything in its place in a light, airy acoustic.

Moreover, this Mozart and Brahms coupling is as satisfying artistically as it is technically. These are warmly affectionate, poetic performances, full of character. The impression that all five



#### RECORD OF THE MONTH

I suspect the two works on this EMI reissue were primarily chosen to demonstrate the matchless conducting of 'Glorious John', as Ralph Vaughan Williams affectionately dubbed Sir John Barbirolli. Secondly, the two composers were contemporaries, although Richard Strauss outlived Mahler by thirty-eight years. Yet there is another, and I feel very significant connection between Gustav Mahler's Sixth Symphony of 1904, and Richard Strauss' Metamorphosen of 1945; that connection is the notion of the 'hero'.

Mahler's Sixth - originally given the subtitle 'Tragic' by the composer, but later discarded - concerns the fall of the hero figure, and in Metamorphosen, Strauss topples the heroes of Ein Heldenleben and Also Sprach Zarathustra just as surely as Allied bombs brought his beloved Munich Opera House crashing to the ground, the event which was supposedly the catalyst for the work's composition.

Yet there the comparison ends. Mahler was haunted - with justification, as it turned out - by impending tragedy throughout his life. The Sixth, his most pessimistic and bleakly brutal utterance, was nevertheless the product of one of his happiest years, 1904. Strauss, on the other hand, seldom had reason to be less than confident, assured and optimistic: he was, after all, music's first millionaire.

The Second World War changed all that, for it was not until Germany's impending defeat that the eighty-yearold composer could bring himself to recognise the tragedy that had been inflicted upon the entire world, as well as upon his own country, whose culture - which he so revered - had been so defiled by a new breed of

barbarians.

With its half-suggested quotations from Beethoven's Eroica Symphony and Wagner's Tristan, as well as from his own compositions, it is both a valediction and an anguished lament. At the conclusion of Mahler's Sixth, the fateful blow is dealt with all the stark finality of a coffin lid slamming shut; in Metamorphosen, the hero confronts his mortality with a quiet, aching resignation. The contrast could hardly be greater, but they share one common, all-pervading bond, that of abject disenchantment. Mercifully, perhaps, neither of these works was to prove their composer's epitaph: Mahler was to find consolation in the final movement of the Ninth Symphony, and in Der Abschied (The Farewell) from Das Lied von der Erde. The Song of the Earth); for Strauss, final solace was to be found in the 'instrument' which had dominated his life's work, the soprano voice, and in the poetry of Hesse and Eichendorff which he brought together in one final, beautiful and transcendent moment as the Four Last Songs.

#### **GUSTAV MAHLER** Symphony No6 in A minor **RICHARD STRAUSS** Metamorphosen for 23 string instruments

New Philharmonia Orchestra; conductor, Sir John Barbirolli EMI CLASSICS CZS 7 678162 (2CD SET) (111.23)

 Mahler's star continues to shine brightly - as least as far as those programming this year's Prom concerts are concerned, for they have included all nine symphonies, Deryck

Cooke's completion of the Tenth Symphony and the major song cycles. And with not a single Mahler anniversary to commemorate: I trust Bruckner will merit similar comprehensive coverage in 1996, his centenary year.

Why does Mahler now enjoy this universal appeal? The contribution of the LP record and stereo recording back in the early 'sixties should not be overlooked, making his gigantic symphonic canvases accessible both physically and aurally. Now though, that we are no longer left openmouthed and wide-eyed by the panoply of orchestral effects and colours, and by the sheer scale of the symphonies, or left emotionally drained by the inexhaustible melodic riches, perhaps other reasons should be sought. Is his popularity down to the extraordinary contrasts of his sound worlds, where the sublimely beautiful can coexist with the banal, the grotesque, the ironic, the witty and the downright bizarre? Is it because we recognise so many of our own, and the world's, contradictions in the music and character of this lewish musician from Bohemia, each of whose symphonies seem part of some public process of self-exploration, within whose span it is possible to touch the spiritual heights as easily as it is to plumb the depths of vulgarity and despair?

Of Mahler's nine completed symphonies (ten, if you add in the essentially symphonic song-cycle Das Lied von der Erde), the Sixth is unquestionably the most complex in psychological terms. Even Mahler felt compelled to state: "My Sixth will present riddles which only a generation which has assimilated and digested my

players thoroughly enjoyed making these recordings comes across very strongly, with the clarinet playing of Kjell Fagéus utterly spellbinding, especially in the wistful slow movement of the Brahms. It brought home to me just what wonderful music this is, reflective, tender, glowing in its autumnal colours. And the accompaniment from the Zetterqvist Quartet is quite beautiful.

In the Mozart, Fagéus follows the example of several other clarinetists (Anthony Pay, Thea King, Alan Hacker) in using the basset clarinet for which the work was written. With its extended range (by four semitones) and richer, darker tone quality, this instrument noticeably changes the character of the piece, and its use is not simply an exercise in authenticity. As in the Brahms, Kjell Fagéus and his colleagues point up the lyrical side of 255 je a

Mozart's smiling inspiration. Throughout, this is sensitive,

thoughtful and very beautiful playing, sympathetically recorded, and marking a welcome return by the Opus 3 label to the British market. There is always room for recordings which offer this combination of artistic and technical excellence.

#### **RECORD OF THE MONTH**

first five symphonies can tackle."

Despite its outwardly abstract, four-movement neo-classical structure, the autobiographical nature of the symphony is evident throughout, not least in the half-hour long final movement, where three fantastically orchestrated development sections seem to hurtle headlong and out-ofcontrol towards some terrifying abyss (in fact, the orchestral writing here is as taut and coherent as any Mahler produced - it just sounds wild). And indeed, the abyss awaits in the shape of three 'blows of fate' (Mahler asked for them to be executed by a sledgehammer!) which bring each section to a shuddering halt. Mahler added, by way of explanation (as if any were needed): "The hero receives three blows from Fate, the third of which fells him like a

tree".

And with the sense of tragic irony which had haunted the superstitious Mahler throughout even his happiest years, fate did indeed deal him three blows: a year after the symphony's premiere in 1906, he was asked to relinquish his post as director of the Vienna Opera (the position which he had been so ambitious to secure that he converted to Catholicism in order to appease the innate anti-semitism of his employers). Then in July 1907, his daughter Anna died aged four; a few days later, a doctor diagnosed Mahler's own, ultimately fatal, heart disease. Alma Mahler, the composer's widow later recalled: "Not one of his works

came so directly from his inmost heart as this...The music and what it foretold touched us so deeply. The Sixth is the most completely personal of his works, and a prophetic one also."

It is also a symphony which has inspired a variety of interpretations,

Not that Barbirolli glosses over the detail - little, if anything escapes his attention - and the finale is a tour de force, with all the nightmarish impact that Mahler could surely have wished for. Returning to Barbirolli's interpretation after several years (I

recall its last incarnation was on Classics for Pleasure), I was surprised just how persuasive it remains. Barbirolli shapes and moulds the music without ever appearing to impose his ideas on it, and even in the comparatively low-powered first movement sustains the flow and the underlying tension.

All this alone would be sufficient to earn this set the highest recommendation, but there is more. First, is a welcome return to the catalogue for one of the finest recordings ever made of Strauss's Metamorphosen, ravishingly played and performed with a

compelling intensity. Second, to enhance the Mahler, is a Kingsway Hall sound produced by Ronald Kinloch Anderson and engineered by Peter Brown that is more than a match for anything produced in the intervening twenty-eight years and, in the finale, has a scale, clarity and range the like of which I've seldom heard equalled. This is not the only Mahler Sixth I would want in my collection - alternative views of this work are vital - but it is nevertheless indispensable. And the Strauss represents Barbirolli at his treasurable best.



from Solti's hard-driven Chicago performance on Decca to Bernstein's idiosyncratic, but utterly convincing reading on DG. There have been other great performances from Abbado, Horenstein, Kubelik, Karajan and Tennstedt to name but a handful. And then there is Barbirolli, measured, even plodding compared to Solti in the first movement but, as quickly becomes evident, =- with a clear idea of where the performance is leading. This is cogent, coherent conducting the like of which is all too rare these days, with the over-emphasis on detail.

# WAGNER SIX OVERTURES AND PRELUDES THE NEW QUEEN'S HALL ORCHESTRA UNIQUE DOUBLE PERFORMANCES ON 2 CIX BARRY WORDSWORTH TRUST COMMISSION AND PROPERTY OF THE P

# RICHARD WAGNER Overtures: Rienzi; Tannhäuser; Die Meistersinger von Nurnberg/ Preludes: Lohengrin (Act I); Tristan und Isolde (Act III)/Prelude and Close of Act III from Parsifal

The New Queen's Hall Orchestra; conductor, Barry Wordsworth EYE OF THE STORM EOS5001 (2 CD SET) (DDD/144.03)

• Six Wagner excerpts occupying over two hours? Either these are

performances at tempos which make Leonard Bernstein's Enigma Variations appear hurried, or there is some other explanation. I'm pleased to say it is the latter which applies to this provocative set from the recently founded Eye of the Storm label. It offers two performances of each work at, I should swiftly add, a single disc price (£14.99), and all recorded by the same orchestra and conductor, and all in the same venue.

So what's the point of the exercise? Before the philosophy, a little history. The original Queen's Hall Orchestra was founded in 1895 for Henry Wood to conduct at the Promenade Concerts in London's Oueen's Hall. The word New was added to the orchestra's title in 1915, but by the late 'twenties, the ensemble was absorbed into the BBC Symphony Orchestra, which became the principal 'Proms

The story now moves forward to 1992. Enter John Boyden, one of the most controversial personalities in classical music, but also someone with an enviable list of credits to his name, not least the pioneering Enigma label. Boyden had become disillusioned with modern-day orchestral performance and recording, especially of the romantic repertoire from the late nineteenth and early twentieth centuries. He disliked its bland homogeneity, the way the sound balances no longer reflected composers' intentions. But he reserved his most scathing criticism for what he described as the "de-humanising effect of today's recording process," with its "search for perfection above all".

I should add that John Boyden is not the first to voice this kind of criticism, although he has the capacity to articulate it better than most. The notion that there is something inherently deceitful about piecing together an acceptable 'performance' from a series of edits was put forward by the founders of the Nimbus label over twenty years ago. True, it was some while before Nimbus brought this philosophy to the complexities of orchestral recording, and Boyden's Enigma recordings, with Tony Faulknerr doing the engineering, were probably the first attempts in this country to reverse the trend.

Anyone who has sat in on recording sessions of late will be only too aware of the jiggery-pokery that can take place, although to be fair I have detected a move towards the 'complete take' in some quarters, with editing merely used to 'tidy up' the odd split note or whatever.

However, Boyden's revisionist approach goes beyond the misuse of the digital editing machine. He believes we have also lost much of the character and colour of orchestral playing, that the over-emphasis on so-called perfection has diminished players' scope for individual expression. Not least of the problems was that the instruments

themselves had changed radically over the past seventy years, principally in response to the dry acoustics of recording studios and many modern concert halls. Brass instruments for example have become much louder, as have the woodwinds; to compete with this change, strings have had to exchange the mellow quality of gut strings for the more shrill metal variety.

It was to show that orchestral performance and orchestral sound did not have to follow this apparently inexorable path that John Boyden, together with his associate James Thomson, founded the New Queen's Hall Orchestra. The choice of name was not made out of pure nostalgia; the intention was to replicate the kind of sound and style of performance that its predecessor would have produced at the turn of the century for musicians to play, as John Boyden puts it, "in a way that Wagner, Dvorak and Elgar would recognise".

To this end, instruments of the correct period are employed, along with the requisite playing techniques, the recordings have been made with just three Neumann microphones placed above the conductor, the orchestral balance has been restored to something of an equal partnership, and the barest minimum of editing has been employed. But all these points could have been made on a single disc, so why two?

It is here perhaps that John Boyden makes his most important observation, that in the current quest for the 'ultimate' performance, as perceived by conductors and record companies, if not always by the customer, we have lost the very spark of imagination, intuition, feeling - call it what you like -

that makes for a memorable, affecting, enlightening musical experience. And for what it's worth, I believe Boyden is right, witness the immense popularity of reissues from the fifties, sixties and earlier.

Here, conductor Barry Wordsworth demonstrates how even Wagner overtures and preludes can respond to different, but equally valid approaches, in terms of tempos, dynamics and phrasing. Compare and contrast the more measured approaches to Tannhäuser (successful, I feel) and Rienzi (less so), or the radiant Parsifal excerpt which concludes the second CD. The recording lives up to the expectations aroused by John Boyden's treatise in the booklet, which also contains a challenging essay on contemporary Wagner performance by his son, Matthew Boyden: controversy clearly runs in the family!

The concluding track on the first CD has several members of the orchestra's brass and wind sections demonstrating the differences between their older instruments and the newer variety, and - believe me - you need no special expertise to appreciate them, or for that matter to appreciate the special colours and timbres that the older instruments possess. Unintentionally, this track also provides a telling test of the accuracy of the reproduction system employed.

However, this set is not wholly about groundbreaking and challenging accepted attitudes, it is also musically rewarding. As John Boyden puts it: "It's not simply a matter of recreating a period orchestra as an exercise in accuracy. It's about a return to balance, beauty and above all musicianship." Amen to that.

#### ....Continued from page 92

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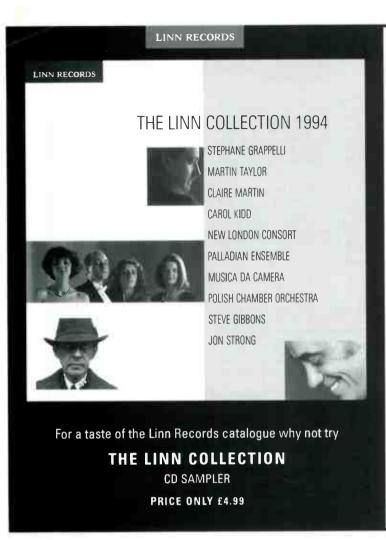








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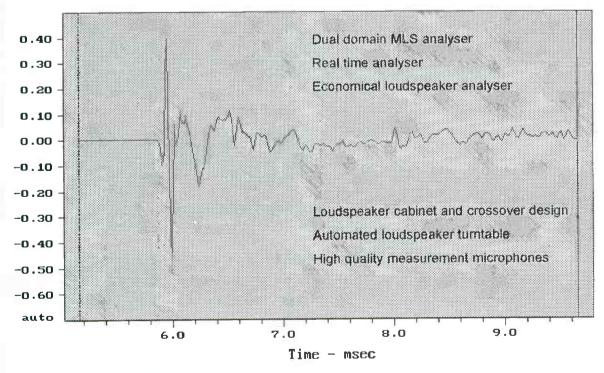
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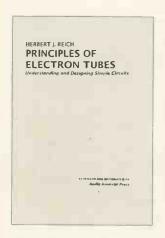


# Hi-Fi World

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#### **NEW VALVE BOOKS**

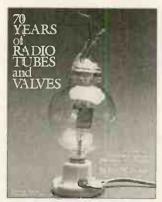
PRINCIPLES OF ELECTRON
TUBES, by Herbert J. Reich
£29.95



Principles of Electron Tubes first appeared in 1941 as a textbook for beginners studying valves for the first time. The book starts with the basics of how a vacuum tube actually works, including how construction and materials effect performance. Once this basic understanding is in place, Herbert Reich goes on to explain the principles of the simple diode valve, the triode and multigrid valves. Familiar with the various valve types and their operating principles, the book continues to show how a simple circuit is designed and on to amplifiers, transformers and power supplies. A must for budding valve enthusiasts and an invaluable reference for hobbyists.

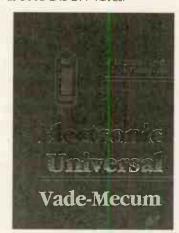
# 70 YEARS OF RADIO TUBES AND VALVES, by John W. Stokes £19.95

New Zealand author John Stokes, with over fifty years experience, outlines the evolution of radio receiving tubes and the part they played in the domestic radio receiver in this beautifully illustrated (B&W) book. An ideal reference for those interested in the history and development of valves and for collectors alike.



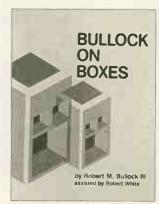
#### ELECTRONIC UNIVERSAL VADE-MECUM, by Piotr Mikolajczyk & Bohdan Paszkowski £49.93

This sizeable data book contains no fewer than 5693 valves divided into 442 groups. It contains connection details, operating parameters, load lines, example circuits and more making it one of the most comprehensive reference books we've seen, although there are some omissions, such as 300B and 211 valves.



#### LOUDSPEAKER BOOKS

BULLOCK ON BOXES, by Robert M. Bullock £12.95



This book relies on manipulation of Thiele-Small parameters (supplied with all drive units) to optimise reflex box design, but with a calculator and at high school level. With lots of helpful tables and graphs, this straightforward book is every beginners best bet for getting to grips with sizing the box and port of a reflex loudspeaker.

#### ACOUSTICS, by Leo L. Beranek

From analogous electrical circuits important for modelling, the author moves through to microphones then loudspeakers. He covers design factors, showing how theory

influences practice in drive units. Loudspeaker enclosure types covered include sealed, ported and horn. The behaviour of sound in rooms, very important for hi-fi, is also covered extremely well here.



#### QUICK & EASY TRANSMISSION LINE SPEAKER DESIGN by Larry D. Sharp. £10.95

A practical approach to designing and building your own transmission line loudspeaker. Covers the background theory, but is very practical in approach. Design examples and equations, even a computer package to run under Lotus 123 which takes care of the maths.



#### THEORY AND DESIGN OF LOUDSPEAKER ENCLOSURES by J. E. Benson. £23.95

This book covers loudspeaker enclosure design; infinite baffle, reflex, passive radiator etc in great detail, with a highly mathematical approach, making it unsuitable for beginners, but highly authoritave to experienced designers with a good foundation in acoustics.



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# SOLID STATE ELECTRONICS

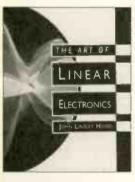
#### THE ART OF ELECTRONICS, by P. Horowitz and W. Hill. £35

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 principles through to full design



exercises and practical circuits.

# 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.

#### AUDIO ANTHOLOGIES

### Audio Anthologies - When Audio Was Young

There are five volumes of the Audio Anthologies, listed below with a brief description and guide to their contents. They cover one of the most exciting and important eras of hi-fi, from the end of the second world war, through the introduction of stereo, magnetic recording, binaural recording and the FM Multiplex decoder. They contain many ground breaking circuits and theory covering all aspects of hi-fi design. A must for valve enthusiasts.

#### Volume One - May 1947 to December 1949

The first new audio amplifiers, tuners and speakers designed after the long delays of the Great Depression and World War II

**Summary of Contents:** 9.5watt, 5watt and 6.5 watt 6AS7G amplifiers, 30watt 300B amplifier, valve FM tuning indicator, 30watt 211 power amplifier, cathode follower amplifier using 6V6, an adaptation of the Williamson amplifier, valve phono preamplifier, several horn and reflex loudspeaker designs and much more.

#### Volume Two - January 1950 to July 1952

More great amplifiers, preamps, loudspeaker designs, and the first glimmer of the stereo revolution plus magnetic recording aids.

**Summary of Contents**: Ultra linear 6L6 design and operation of the Williamson, a direct coupled amplifier, Williamson type amplifier using 6A5s, 40watt 845 push-pull amplifier, valve phono and line preamps, valves and loudspeaker damping, design and construction of reflex and hom loudspeakers.

#### Volume Three - August 1952 to June 1955

Seven power amplifiers, eighteen preamps, twelve loudspeaker designs, including four horn types and binaural recording techniques.

Summary of Contents: Simple valve phono stage, transformerless amplifier using 6082, 20watt 5881 amplifier, 10watt 6V6 amplifier, stereo valve preamp, high quality valve phono stage, a preamp for the Williamson, low distortion tone control preamp, binaural or stereophonic?, transistor phono amp, corner hom loudspeaker, concrete hom loudspeaker.

#### Volume Four - July 1955 to December 1957

How to plan an audio system, twelve amplifiers and preamps, solid state techniques and circuits introduced and six loudspeaker designs.

Summary of Contents: 18watt 5881 amplifier, 4watt single-ended tweeter amplifier, budget 11 watt amplifier, versatile bass/treble control, transistor theory, transistor preamp, transistor techniques, battery powered transistor phono preamp, loudspeakers explained.

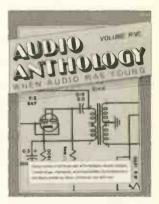
#### Volume Five - January 1958 to December 1959

Stereo comes to full flower with four FM Multiplex decoder designs, seven power amps, eleven preamps, a commercial killer, five loudspeakers, and theory articles by Olson, Crowhurst and McProud.

Summary of Contents: Stereo valve multiplex decoder, 7watt EL84 amplifier, valve active crossover and 20watt treble amp/50watt bass amp., monaural, binaural, monophonic and stereophonic explained,

heterodyne FM multiplex adapter, transistor preamp, 60watt EL34 amplifier, high power audio amplifiers, hi-fi loudspeaker enclosure.

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#### **VALVE BOOKS**

# AN APPROACH TO AUDIO FREQUENCY AMPLIFIER DESIGN, seventeen circuits from 5 to 1100watts. General Electric Co. £19.95

Seventeen high quality amplifier designs from the Research Laboratories of the General Electric Company (UK). Designs range from 5 to 100watts, using KT66s, KT88s, DA100s, etc.



Also includes two valve pre-amplifiers complete with valve phono stages.

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

First published in 1959 by Mullard, this book includes full designs for eleven power

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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.

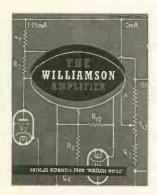
THE WILLIAMSON AMPLIFIER.

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#### by D. T. N. Williamson. £9.95

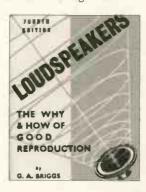
In April 1947, Williamson's valve power amplifier become an overnight success. The author takes you deep into his design decisions and offers practical advice on how to build the amplifier and set it up for best performance.



#### **LOUDSPEAKERS**

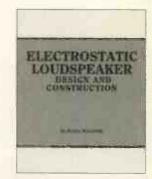
LOUDSPEAKERS: THE WHY
AND HOW OF GOOD
REPRODUCTION, by G. A.
Briggs. £10.95

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.



# 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 LOUDSPEAKER DESIGN COOKBOOK, by Vance Dickason. £23.75

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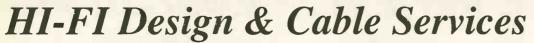


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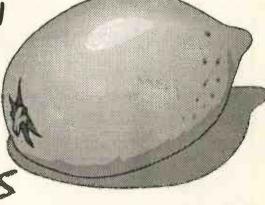
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We accept YISA. Mastercard. Access. Diners. and Amex., to pay this way, we will need your address, card no with start and expiry dates, you can also pay by bankers draft, Euro cheque or cheques drawn on a UK bank account. Please note that there is a minimum charge on credit card transactions of £20.00 Delivery is normally about 14 days from receipt of cleared funds, but

please allow up to 60 days for some items, if not stock at the til

order. If any of you reading this have possession of any books which contain information relevant to the subject of Audio Design and which would be useful to share with others, plases the visione with the year or telephose, there is an award of £20.00 (payabla in valves or other bits, postfree) to anybody who sends us a book which contains useful information about valve ampliffier design or theory.

CIRCUTS, VALYEDATA & MAIC TECHNICAL INFORMATION.

If you would like some suggestions which to base a future project around, then we shall be happy to provide you with a circuit pack containing good circuits fike DNAGNI, VECOM/NASSAI, MERIO, CAKU-ON plus several other power amplifier circuits and the NYTJube pre-amplifier, which is the best pre-amplifier circuits and the NYTJube pre-amplifier a stamped self addressed A4-size envelope, together with 5 00 pounds in a small denomination URI stamps, or if you live outside the UK USS 15.00 in \$ bits will do, please do not send Bankers Drafts in USS, International Desenger Company or International moves unders, as they cost more to Response Coupons or International money orders, as they cost more to cash than their value

Response Coupons or International money orders, as they cost more to cash than their value.

We have a large number of requests for the circuits of the AUDIO NOTE UK-made amplifiers, like OTO Phono SE, MI Phono, MEISHU, SORO etc., and since we (unlike the majority of our talented competitors) do not have any secrets in this department, and are only too pleased to help extend the envelope of knowledge in this much maligned field, we shall be happy to send you or any existing or prospective competitor, one or more circuit diagrams; they cost 15,00 each, or you can buy for example all phono-integrated amplifiers, for £30.00 (\$ 50.00), or all Line integrated amplifiers for £25.00 act, or \$20.00 (\$ 50.00), or all can be paid either by credit cand, cash, bankers draft or cheque drawn or a UK bank, the cost includes postage.

We can also supply a set of data sheets for the most commonly used avives, ECOSE, CCBSB-9522, 12AY7/6072A, 7052/12AX7WA/ECOS3, 6SN7, 3008, 211/1746, 495, EL34/6CA7, 2A3, SN4, 5U46, GZ34/SAR4, EL84/6BOS, 76076, LBC, SS8/HELBWGK/ETG, 6AJIn send a stempor of toxicis the UK another USS 15.00 with suffice.

Since nothing really exists which gives a reasonable background to the

Since nothing really exists which gives a reasonable background to the subject of valve amplifier circuit design, Guy Adams and I have written and assembled a number of articles and extracts from old books which give some background to the subject, do not expect to become an instant expert, but it will serve as a useful reference, for the beginner as well as expert up in while serve as a useful reference, for the beginner as well as the more advanced, we have expanded this infrequent to include even more useful information, so if you have already bought the old pack, just send £2.00 or IOS\$ 5.00. For the full pack a small charge is required, this time £7.00, in small denomination stamps with a stampe set a addressed envelope, or outside the UK, please send US\$ 25.00. We accord still Kenner belong set if you have remoded up to reach 5.00 whe accord still Kenner belong set if you have remoded up to reach 5.00.

SOUND PRACTICES .

If you are seriously interested in the subject of vaive amplifier design, without the usual preconceived notions of what is "yopod" amplifier design, and technology (the traditional view, which has brought us the blessings of the transistor amplifier, has obviously disqualified itself quie monumentally), then SUND PRACTICES is the magazine to read, here you will find articles about design parameters, DIY articles for amplifiers and speakers, reviews of new and old in other words the very subjects that none of the settlewing, advertising led traditional press will touch as they do not enhance the business of their normal advertisers. You can buy SOUNO PRACTICES from us at £5.00 per copy (there are currently 5 issues available) or by subscription from SOUNO PRACTICES P. 0. Box 180562, Austin, TX 78718, USA. A regular modern world bargain, and there are practically none of those in Audio today. With enough subscribbon support SOUNO PRACTICES may us bring about the sound practices" that the hift industry has abandoned for so long. So get a subscription I by the time you read this SOUNO PRACTICES issues & should be HERE, so this should keep you off the street for the next weekend! Buy a copy for £5.00 + postage (or set addressed envelope with order if you live in the UR), contains the following articles. Blue Thunder- 1017 YAD and Focal Horn System from Zurich, The Lowther-Voigt Legacy, Join the Club, Lowther Dubbs by Joe Roberts. The Refichert 3005 Amplifier, by none other than Herb Reibertl, Homebrew Gallery, Photos of Readers Projects and Systems, Requereating foll Tridoes, New Russaan Trodes, A Screen Orive Driver Stage. A Cathode Follower/Brighe, Applifier, and much more!

Much pood and informative reading as usual, again £5.00 + an AM

Much good and informative reading as usual, again £5.00 + an A4 re, stamped self addressed envelope if you live in the UK or US\$ 10.00 and a self addressed envelope if you live abroad

POSITIVE FEEDBACK:

This is one type of feedback that we are not entirely against! Positive feedback is the club magazine for the Oregon Triode Society with aspirations towards greatness, not unlike the great underground

magazines of the 1970's. It is a quarterly publication of zany, controversial commentary, by in-house writers, members, as well as various industry doyens on the subjects of music, audio, technology a the quest for musical satisfaction. I for one, think it is an excollent read and provides a good alternative view to most of the established press, when thends to view the world in the context of what new products is available right now, without quining much perspective backwards, Post-Feedback latest issue is just off the press and is available at £6.00 per Issue.

At the current moment the following kits are under development, and should be available during 1994, the sequence of introduction may be different from the number, we have the KIT THREE available for shipment

6550 single-ended, 15 watts Class A, on a stemo chasses, expected coat £ 599,00 incl currently untanow due to unavaulability of Sovitek 6550MA, we can offer it without valves for

NOT THREE 3008 parallel single-ended, more chasses, 16/17 watts Class A, cost \$1,450.00 lind Viii.

NOT FOUR 5/46 push pull, 10 watts Class A, stereo chasses, expected cost \$199.00 lind; Viiii. delivery

May 1950: 211 single-ended, 15 with Class A, mono chassis, expected cost E2,256.00 led, Vet, delivery Cultins 1955 file larger. 211 single-ended, 75 with Class A, stemo chassis, expected cost E495.00 including valves and file. The sufficient of the serior Class A, stemo chassis, expected cost E495.00 including valves and file. The sufficient of the serior Class A, stemo chassis, expected cost E495.00 including valves and file. The sufficient cost of the serior cost of the serior

If you are in doubt asto whether a kit project is suitable for you, we suggest you spend £10.00 on buying the instructions for the KiT DNE, single 3008 amplifier, this will give you a good idea whether a kit project is for you, if you deede to buy a kit then the £10.00 will be refunded against the cost of the kit. As the other kits become available their against the cust of the Kit. As the other kits become available their instruction manuals will also be available at £10.00 each. We have the Kit One instructions available in English and Italian,

AUDIO NOTE DUTPUT TRAKSFORMERS.

We are in the process of building up four separate ranges of Audio Note output transformers, inorder to offer the best possible outputs at different pricepoints, they will fail into four categories.

8.) Mild-price range, which are the output transformers already on offer, we have made a couple of additions to this range, since the last list.

C) High Ousiety range, this will be a range of double C-core outputs for single-ended circuits exclusively, no push-pull outputs will be offered, unless demand requires it. Again 3 offerings initially.

The quality criteria for group A are 20Hz to 20KHz -1 to -1.5dB, they are IE cored with silicon steel laminations and are supplied with frames and solder tags, which will allow good audio quality at the cost. The main

and solder tags. which will allow good audio qualify at the cost. The main cost saving help the use of a smaller core, specified to the exact power level required, rather than overspecifying by 50 or 100%, as we do on Group 8 is, the winding qualify and copper wire is the same. Group 8 are hypitally 20½1 to 400kt minus 1.568, it cored with high qualify silicon steel laminations, wound with oxygen-free copper wire and supplied with either bell-ends or frames always with frying leads. Group C are typically 12½2 to 70KHz minus 1.5dB, stripwound double C-cores made from the best available silicon steel lamination, these outputs will compare more than theorutably with the best available types from days gone by and from other current sources like Parindge, Tango, Tamura etc.

ra etc. oup D use **Audio Note** silver wire, need I say more??

\*\*Specifications\*\*
PP = Push Pull, PPP = Parallel Push-Pull, SE = Single-ended, PSE = Single-ended Parallel. UL Signifies 43% ultralinear laps, as a general rule we do not condone the use of UL laps, as we consider these detriment to sound quality. "\*\*Dymaco replacement\*\*
All primary impedances are calculated for Class A operation, with the

main consideration given to maximum dynamic power transfer ability and minimum distortion, rather than meaningless steady state sine- or squarewave conditions. All our single-ended output transformers are airgapped, and the maximum standing current allowed before saturation is shown in column

S.

All our output transformers are tested to insulation levels of minimum 3,000 volts, all 211/845 outputs are lissulated to 5kV flash, every transformer is tested to this level of insulation.

We generally overspeerly our transformers by 50% power in Push-Puil (which means that a transformer stated as 25 watts will allow about 35 watt peaks, our single-ended outputs are generally over specified by 100%, which means that they will instantaneously allow peaks of double the given maximum power through undistorted, this is necessary due to the better clipping behaviour of the single-ended stage.

We do not give any further technical will afformation on our output transformers, as we do not wish to take part in technical competitions, our products are designed to criteria which are and will be understood once they are listened to!

once they are listened to!

In addition to the output transformers offered below, we offer a design service, where we can supply almost a requirement for wideband transformers, whether for microphones, moving coil cartridges, line input, phase splitter, interstages, driver or power output, we design and manufacture protypes in-house, the cost for the page design is £200,00, prototype cost is calculated on a per case basis. We can also

produce production quantities

Sizes are given as Width/Height/Depth, where depth is the depth of the coil itself and width is the length of the core.

Single-ended Output:	L				
Recommended Valve	Max	Prim-Sec, Imp	Size/Weight Ma	x. Current P	More Ex. UK
CLA Power				VAT	
3008/2A3/684G	45	ANT 18 A	AD 43 64	00 105	
	15 watts		80x67x68mm	90mA SE	44.50
801AVT62/845	20 watts			100mA SE	73.50
3008/2A3/684G	20 watts	11025 - 4/8 Ohms	15	OMA PSE	84 50
Group B					
Recommended Valve	Max	Prim-Sec Ing.	Size/Weight	Max Cerrent	Price Ex. UK
CT. A Power				YAT	
ELBA/ECLBG/EV6	20 watts	2K6 - 4/8 Ohms	117x98x90mm	110mA PSE	87.00
3008/2A3/684G	25 watts	285 - 4/8 Ohrns	117x98x90mm	90mA SE	91.00
EL34/6CA7	30 watts	1K5 ~ 4/8 Ohms	115x98x95mm	180mA PSE	113.00
2A3/684G	30 watts	1K25 - 4/8 Ohms	98x82x95mm	130mA PSE	113.00
5881/KT66	30 wafts	2K1 - 4/8 Ohms	115x98x95mm	140mA PSE	196 00
211A/T-C	30 watts	10K - 4/8 Ohms	117x98x100mm	150mA SE	114.00
211/VT4C/845	50 watts	10K - 4/8 Ohms	112x134x150mm	150mA SE	124 00
3008	50 matts	1K25 - 4/8 Ohms	135x115x125mm	180mA PSE	151 00
845	50 watts	2K5 - 4/6 Ohms	137x114x130mm	180mA PSE	172.00
211/VT4C	75 watts	5K - 4/8 Olivins	137x115x145mm	240mA PSE	237 00
EL34/6550/KT88	20 watts	3K - 4/9 Ohms	117x98x92mm	130mA SE	104 00
3008/2A3/684G	<b>25</b> ×2115	2K5 - 4/8/16 Olivins	117x98x90mm	90mA SE	102.50
6L6G	30 watts	3K - 4/8 Ohms	115x98x95mm	140mA SE	107 00
NEW SE Product					
5550/KT88	60 watts	2K3 - 4/8 Ohms		110mA PSE	123.00
Group 8					
Pash-Pell Circuits					
FLBA/FCLBS/FV6					
EL346L6G/5881	15 watts	8K - 4/8 Ohms	80x67x68mm	PP	
28345E46/3008	25 watts	6K - 4/8 Ohms	88x73x80mm	PP	
ZR4004U/3000	30 watts	5K - 4/8 Ohms	88x75x80mm	pp.	63 00

nes C					
agle-ended only					
08/2A3/684G	25 watts	2K5 - 4/8/16 Ohms		90mA SE	360.00
1/VT4-C/845	50 watts	10K - 4/8/16 Ohms	185x148x140mm	150mA SE	410.00
08	50 watts	1K25 - 4/8/16 Ohms	165 ±110±138mm	180mA PSE	396.00

Pers Silver Wired Outsets

25 watts 2K5 - 4/5 Ohms 117x/98x90mm 90MA SE 1,545 00 50 watts 10K - 4/5 Ohms 112x134x150mm 150mA SE 1,975 00 The AUDIO NOTE silver wired outputs listed here are designed and made in the UK, we can supply the AUDIO NOTE Japan manufactured outputs for the ONGAKU, KAGERI; GAKU-ON or the KEGON, but they are exceptionally expensive, as you would expect from items that take upwards from 100 hou naise, for example an output transformer for an ONGAKU costs £18,500 00.

ALIDIO MOTE CHOICES & MIDUCTORS

Veive	Size	Price Ex. UK Va
0.5H/400mA		18.0
3H/100mA		14,00
3H/250mA for ONGAKUIC		24.00
5H/150mA		21.00
SH/400mA		31.00
10H/125mA	63x74x76mm	26.00
10H/200mA	98x65x83mm	33.00
20H50mA	68x58mm	24 0
0	4	

Other values can be supplied to order, ask for quote

UDOD NOTE MARK TRANSFORMERS

This range relates to our finished products, mains transformers are notoriously difficult items to offer as the number of permutations of HT and Meater voltage are almost entered to the real terminations or in and Meater voltage are almost endiess. We have added mainstransformers for making replicas of the KASSAI and DNGAKU, as there has been considerable call for these, likewise we are preparing mainstransformers for the WESI described in Sound Practices Issue 1, we shall confline to expand the range as opportunities and our experience with your requirements improve.

Literary Annualing	secondary to assessing	oocomest used asset	WELL AN ES CHAPE
ov/100w/110w/120v	Ov - 230v at 350mA	Dv-12 6v at 1 Amp	34 00
0w/220w/230W/240w		3.15v-0v-3.15v at 4 Amp	
120w110w100w0v	0v-230v at 0.4 Amp	Dr-12.8r at 1 A	41.00
0v/100w/110w/120v		3 15v-3 15v at 4 Amp	
120v/110w/100w/0v	300v-0v-300v at 60mA	12.6v-0v at 1.5A	46 00
100w/110w/120v		6.3r-0v at 600mA	for M77ube Pre-amp
			with 50H choice vious
			Mor
0v/100w/110w/120v	0v-290v at 40mA	12 Br-ov at 1.5A	26.00
0v/100v/110v/120v		0v-6.3v at 300mA	
9v/100v/110v/120v	310+244/0v-244v-310v (	£ 3.15v-0v-3.15v at 4.5 Amp	72.50
0v/100v/110v/120v	320mA	12.0v at 1.5 Amp	
120x/110v/100v/0v	0v-920v at 160mA	0-10v at 4 Amp. 0v-6.3v at	98.00
0v/100w/110w/120v	150v-150v at 50mA	1.5A, 0v-5v #2.5A	
120v/110v/100v/0v	390v-0v-390v at 200mA	3 15v-0v-3:15v at 1.2 Amp	.7v 86.70
0v/100v/110v/120v	170e at 50mA	#3A 7v#3A 5v#2A	
120e/110e/100e/0v	425v-0v-425v at 220mA	3 15v-0v-3.15v at 2.5A	95 60100v/110v/120v
	7.0r-0v at 24, 7.0v-0v at 2	M,	for KIT ONE & KIT
		5 Ov-Ov at 3A,	THREE
MONO channel			
		3.15v-0v-3.15v at 750mA	
120w110w100w0v	390v-0v-390v at 200mA	170-0v at 50mA, 7.0v-0v at	107.00
100w110w120v		3A, 7.0-0v # 3A, 5v-0v #	
		2A, 3.15v-0v-3.15v at 1.2A	For KASSAI replica
120v/110w/100v/0v	380v-0v 380v at 200mA	150v-0v at 150mA, 10v-0v	*37.00
		3.25A, 10+0v at 3.25A	
		5v-0v at 3a, 5v - 0v at 3A,	For ONGAKU replica

5v - Ov at 3A, 5v - ov at 3A 6.3v - 0.6.3v at 1.25A

5" - 0 rat M, 4" - oral M M

We also have a mainstransformer/choke kit for the WE91 power
amplifier as shown in Sound Practices, this combined with our singleended output transformers with 3KDhm prinary impedance, will make a
very fine replica of this classic amplifier total cost §240-40 per set
We now also have the facility to make any mainstransformer to your
specification, a slong as you order minimum 2 pos. they can be supplied
with solderage, Shring leads, frames or bell-ends. Ask for quote.
On a more general nota, it is important to understand the specialised
nature of the design and manufacture of transformers for audio
equipment, in most industrial applications the main criteria are cost,
weight or longerly, an audio mainstransformer also have to have good regulation under load, must run cool, and generate no mechanical noise
or vibration, produce no excessive stary magnetic fields et. et. c., a prefit
tall order, when one considers that the cost also has to be reasonable. So
matter where you order your mans transformer entember that it and other, when one visible is later took also that to be flasticiable. So no matter where you order your mains transformer remember that it should conform to the above criteria, so specify this when you order. As a general rule we do not recommend potted transformers, as all listening tests have shown these to sound less clear, than unpotted equivalents!

tests have shown these to sound less clear, than unpotted equivalents!

AUDN DIT PAPEN BU SEANL CAPACITORS

These handmade signal capacitors are sonically superor to any of the plastic or other paper hypes we have come across. If you have never experienced the difference that a really good paper/oil capacitor can make in a valve amplifier, then you really should try. Our specially made paper/oil caps tave a life, colour, tack of harshness and evenness of dynamic behaviour across the frequency range, which is gouarnessed to brighten up your day! Recommended as replacements in old and new valve amplifiers, as like (and even in the odd transistor amplifier), and essential for DIY projects. In line with environmental standards, all AUDIO MOTE paper in oil capacitors contain only non-loculy, to ensure optimum performance all round. As you will see, we are slowly incorporating soil deposition of the paper is a specially treated and impregnated by a method that enhances longerly this range of paper in oil capacitors can well, in common with ecopper and silver foil types. There are several new values available, including the 22 arth50 vol caps made for speaker crossovers and the 0.56mF/200 volt suitable for RIAA equalizing networks, and the old leedback loop of

Total	DC Yottage	Size Price !	Ex. UK Vat
2, 2mF	50 volt	21x9mm	11.65
0.1mF	200 volt	32x11mm	265
0 56mF	200 volt	25x36mm	4 95
0.001mF	400 volt silver leadepholres		4.95
0 0028mF	400 volt allver leadoutwires		4.95
0.0082mF	400 volt silver teadouteures		5.45
0.01mF	400 volt silver leadoutwires		5 45
0.015mF	400 volt	21x9mm	3.25
0.022mF	400 volt silver leadoutwires	35x10mm	5.45
0.047mF	400 volt silver leadoutwires	32x11mm	6.15
0.082mF	400 walt	33x14mm	4.25
0.1mF	400 volt silver leadoutwires	33x14mm	6.25
0.12mF	400 volt	33x14mm	4.75
0.15mf	400 yolf salver leadoutwires	34x16mm	6.65
0.18mF	400 volt silver leadoutwires	32x16mm	5.15
0.22mF	400 volt silver leadoutwires	35x18mm	5.85
0.33mF	400 volt	43x18mm	8.75
trmf	400 volt silver leadoutweres		12.65
1 Amf	400 volt	70x24mm	14.95
0.00018mF	630 yell	17x9mm	2.95
0 0004MF	630 volt	20x9mm	2 95
0.00082mF	630 yell	20x9mm	2 95
0.0015mF	630 vot	17x9mm	2.95
0.0047mF	630 volt	20x9mm	2.95
0 012m€	630 volt	21x11	3.45
0.015mF	630 voit	21x11mm	3.45
0 022mF	630 volt saver leadoutweres	20x10mm	5.45
0 033mF	630 volt	32x11mm	3.75
0.039mF	630 volt	32x11mm	3 95
0.047mF	630 volt	33x14mm	6.85
0.056mF	630 volt	33x15mm	4.25
0.058mF	630 volt	33x14mm	4.25
0.060mF	630 volt	33x14mm	4.25
0.065mF	630 voll	33x16mm	4.25
0 071mF	630 yolt	33x16mm	4 35
0.072mF	630 volt	33x16mm	4.35
0.073mF	630 volt	33x16mm	4.35
0 074mF	630 voit	33x16mm	4 35
0 075mF	630 volt	33x16mm	4 35
0.078mF	630 volt	33x16mm	4.36
0.082mF	630 voli	33x16mm	4.55
0.1mF	830 volt	34x16mm	5.66
ft 16m6	630 well relaw lands during	· Quitari	7.70

1,18mF	630 volt	43x18mm	5.45
3.22mF	630 walt	52x19mm	7.25
).22mF	630 volt salver leadoutwres		9.15
27mf	630 volt	53x22mm	6 15
1.33mF	630 volt	52x22mm	7.25
36mF	630 volt	43x25mm	7.45
39mf	630 volt	\$2x26mm	7.95
0.47mF	630 volt silver leadouteures	\$2x26mm	9 85
3:018mF	1000 wolf	32x11mm	4.55
22mF	1000 volt	56x26mm	6.95
1.39mF	1000 volt	61x26mm	11 65
168rWF	1000 wall	52x32mm	13.85
1.2mf	1900 volt	72x40mm	16.75
3.22mF	1609 volt	60x26mm	9.65
).22mF	2000 volt	70x29mm	11.55
).1mF	4000 volt	Square can with	28 75
		porcelan	
		insulators	
		45×45×108mm high	1

All AUDIO NOTE paper in oil signal capacitors are axial type. We are preparing a range of very small picofarad value paper in oil capacitors at the moment in addition to the above. The range of AUDIO NOTE paper in oil signal capacitors is steadily expanding, so ask for values that you do not see.

AUDIO BOTI PAPER IN OIL COPPER & SLIVER FOIL SIGNAL CAPACITORS. We are currently developing a two further ranges of paper in oil capacitors where instead of using aluminium foil as in the above paper cape, in the first range we use an opper fere copper foil with 99 99% pure soild silver lead out wires, these copperdoil paper signal capacitors are considerably better than the standard offenings. Secondly to "bridge" the price-quality gap between the more standard paper/oil caps and the Jaganese handmed Silver foil signal capacitors, we will be offering our own 99.99% pure silver foil signal capacitors, which are pretty staggering in quality, even if I have to say this myself (as I am the only one who have heard the samples sordy the silver for draps will also have solid silver lead-out writes. To start with there will be a few values/voltages of each available.

JOIO NOTE COPPER FOIL PAPER IN OIL CAPACITO	R
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Size Price Ex.	UK Vat
	11.55
	11.55
	11.55
	12.15
30x9mm	13 75
28x16mm	15 35
33x22mm	15 65
35x22mm	18 15
56x25mm	22.45
36x30mm	26.65
56x38mm	31.05
65x44mm	50.15
	RS COLUMN

MONE SICA	EN FUNL PAPER IN UIL GAP	MUI UNO	
047mF	630 volt	14x46mm	41.00
.1mF	630 volt	16x46mm	74.00
15mF	630 volt	22x36mm	101 00
22mF	630 volt	19x46mm	135.00
,47mf	630 valt	25x46mm	196.00
mf	630 volt	38×46mm	486 65

AUDO NOT SLYER RUL SIGNAL CAPACITIONS.
Best signal capacitors available, quality really speaks for itself, used in amplifiers like ONGAKU, KEGON, GAKU-ON and M7Tube Silver, handmade he iver limited quantities at alusion Notes tacility in Toeyo, Japan. These capacitors use a fine mytar film dialectric, and are manufactured using constictable tension on the foil and dialectric to give the best possible contact and the least spoep for internal resonance.

live	DC Voltage	Price Ez UK Vet
)1mf	500 volt	177.00
12mF	500 volt	211 75
XmF	500 volt	346.75
Imf	500 volt	645.75
2mF	500 volt	995.75

AUDIO NOTE PAPER IN DIL RESERVOIR CAPACITORS.

Mainry for	use in inductor	power supplies, but have o	other uses
alue	DC Voltage	Size	Price Ez UK Vat
mf	400 volt	30x40x55mm	26.75
mF	630 volt	35x45x72mm	33.66
mF	1000 voit	45x45x72mm	41 75
mf	1600 volt	50×70×72mm	45.95
mF	1000 volt	45x45x120mm	49 95
mf	2500 volt	70x70x120mm	266 75
0mF	1000 valt	70x100x100mm	96 75
2mF	1000 volt	70x100x120mm	109 95
2mf	1600 volt	100x10@x120mm	136.75
2mF	2000 volt	100x100x220mm	159.75

AUDIO MOTE ACIO & CLORIDE FREE SILVER SOLDER! The bast solder we have been able to find, does not contaminate the junction, which over time shore unction insistance. Used in all our amplifiers from OTO to the GARUL-ON

Weight Messure	Price Ex. UK Val
50 grammes or about 9 metre 1 mm diametre	19.95
1 late roll of 1mm diametre	210.65

Audio note cames a wines.

We are proud to offer the AUDIO NOTE range of high quality copper and silver coax, speaker and wifing cables, which, depending on the overall price of the project, will do justice to any hift system, repardless of

price.		
Gauge	Insulation Material Price	per Metra Ex. UK Val
0 05mm	Polyurethane	16.75
0.2mm	Polyurethane	22.75
0.35mm	ML	24.95
0 6mm	ML	27.85
0 8mm	ML	31 75
1mm	M .	36.75

Pure AUDIO NOTE Silver Wire.

The above solid silver wires are suitable for inductors for speake crossovers, both active and passive or for internal wrining in tonearm

under and it is made to be the control of	10703		
Type/Colour Code	Construction	Price per Storee Matro	Ez. UK Vet
AN-A yellow	symmetrical 6A copper	MZ CORX	15.32
AN-C red	symmetrical OPHC copp	er Miz coax	29.79
AN-S dark grey with yellow stripe	symmetrical 99 99% silv	ver IIIZ COBX	84.25
AN-V silver grey with yellow stripe	symmetrical 99 99% sth	wer Miz coax	152 35
AN-Vx silver grey	symmetrical 99 99% salv		382 98
t its recommended to use the internal			internal wiring
cable, this is what we do in amplifiers	The the DNGARU, MITTUD	e etc	

AUDIO NOTE Speaker & Wiring Cables

pe/Colour Code	Construction	Price per Steree Metre	Ex. UK Val
f-D green or red	single conductor 6N	copper speaker wiring	685
i-8 blue white writing	double strand, scree	ned 6N speaker wire	12.34
I-L blue black writing	double strand, scree	ned 6N Biz copper speaker wire	2511
I-SP salver	single core 15 stran	199 99% litz giller speaker wire	106.38
I-SPx salver	single core 20 strain	99.99% Biz päver speaker wire	382 98

PTFE leastand Silver Pland Copper Wine:

We can also provide less expensive wiring wires for hard wiring circuits, these PTE insulated silver plated copper wires are 19 strand of 0.15 mm wire and come in brown black, blue, pink, red, green, orange, violet, white and red/whith, they cost

AUDO INTE NICH OWALITY STEPPED ATTEMATIONS & SWITCHES. These handmade attentators and switches are manufactured by a friend of Mr. Kondo of AUOIO NOTE, and represent the best says and would controls and switches you can use in your pre-amplifier; the attenuator is 48 steps and with silver/rhodium plated contacts/brushes made with an array of antalum film resistors. The switches feature silver plated contacts and self cleaning action.

AUto four valve bases are of the highest possible qualify, made from steatifie and using the best metal parts from alloys which retain their spring tension around the valve pin for longer. They are recommended as upgrades to most old valve amplifiers and should be an essential part of any DIY project.

Туро	Mounting	Plating	Price Ex.
			ME AM
4-ain LDI4 for 3008/2A3/901	Chassis	Gold	8.25
4-em LOX4 for 3008/2A3/801A	Cheses	Mickel	7.25
4-pin LIX4 WE-type for 3008/2A3/801A	Chassis	Silver	14.75
4-pm UX4 WE-type with bayonst mounting	Chassis	Saver	48 95
4-pm Jumbo 4 for 211A/T4C/845	Choose with bayonet	Silveriches	
5-ain LIYS for 807	Chassis	Gold	9 75
7-ain 87 for 6X4. DAZ	PCB	Silver	6 15
7-pin 87 for 6X4, DA2	PCB	Gold	7 85
7-om 87 for 6X4, QA2	Chassis from above	Silver	6.75
7-min 87 for 6X4, DA2	Chassis from above	Gold	7 95
8-pin UBX for EL34, 6550, 5U4G, GZ34, 6L6	G, etc. Chassis	Silver	5 65
8-pen UBX for EL34, 6550 5U4G GZ34, 6L6	G. etc. Cheesis	Gold	8 65
9-out 89 for ECC83, ECC88, 5687, 6350, etc	PCB	Saver	3.85
9-em 89 for ECC83, ECC88, 5687, 6350, etc.	PC8	Gold	5.75
9-pat 89A for ECC83, ECC88, 5687, 6350, d	Ic. etc. Chesses from above	Silver	4 45
9-pm BBA for ECC83, ECC88, 5867, 6350. 6	tc. etc. Cheesis from above	Gold	6.75
9-on 99A for ECC83 ECC88, 5687, 6350, 6	tic etc. Chassis from below	Sliver	4.95
9-pm 99A for ECC83, ECC86, 5687, 6350, 6	to et Cheese from below	Gold	7 15
	TOPCAPS	Art co. cd	9.75
Topcag	For 807 persode etc	Michal	9/5

You may want to start your project with less overall cost, and for this purpose we can offer the following "industrial grade" ceramic valve

Type	Mounting	Price Ex. UK Vet
B-gás for EL34, 6550, KT85, 6L6G	Chassis with bracket	1.45
9-pen for EColl3, ECC86, 5687, 6350	Chasses with shroud	1.85

In most hardwired valve power amplifiers it is frequently difficult to pet the HT and heater rails properly suspended and separated, safely and neathy from the chastis, this especially applies when building amplifiers using the really high voltage directly heated trindes like 211, V14-C, 945, 948, 904TL, 0400 etc. When planning design like this, it is important to incorporate suitable layout from the start, and the AUDIO NOTE stand-offs should be more or less mandatory in that context. They are screw-in type with steatile insulator and either a wrap-round turned "head" on the single way version or separated solder solds on the multi-way versions. Type the Namier Might Keepin Sader Chaesters (Lassas Frameworks).

Type He.	Hursber	Height's ongth	24 see, Connectate	CHARGE LITTING CT.
of Tage				UK Vet
AN-421	1	25.5mm	Wrap-round	Screw-or bolt 1.41
AN-422	1	17 4mm	Wrap-round	Screw-in bolt 1.41
AN-423	1	22.6mm	Solder slot	Screw-in 1.41
AN452	2	Adjustable, 17mm	Solder slots	Dual bolt screw-in 2 42
AN-453	3	Adjustable, 24mm	Solder slots	Dual boil screw-in 3.05
AN-455	5	Adjustable 32mm	Solder slots	Qual bolt screen in 4 04
AN-458	6	Adjustable, 58mm	Solder skots	Dual bolt screw-st 5.79
AM-460	10	Adjustable 72mm	Solder slots	Dual boit screw-in 7.31
AH-476	6	25mm/45mm	Solder slots	Screw-in bolts 5 35
AN-479	9	25mm/66mm	Solder slots	Screw-in bolts 7 53

### AUDIO NOTE SELECTED AUDIO VALVES

Our valves are selected from the best available sources and are tested to the same stringent standards that we apply in the production of our own amplifiers, they fall into two catagories, standard production flems and rare, mostly MOS (New Old Stock) where which are no longer in production. We have compiled a special list of the MOS flems, which is available against a stamped self addressed envelope, if you live outside the UK, send USS 2.00. You should be aware that the valves on this site MOT cheap, but we have stock of onginal GE, RCA and United Electronics 211, both standard versions and reinforced afforce type, 845 estingatious, CVTZS10107, VTZS01014, WTZS0103, STC4300A, Mulard GZ34CV1377, Tungsol SU4G (best sounding SU4G I have ever heard!), Chatham SR4WGY and many others.

Standard Stock Rems.		
Type No.	Type Price Ex.	UK Vat
FCC83S/12AX7WA/7025	double triode	2 95
FMCC/6622/6DJBWA/7308	double blade	3.95
FFB6/6267/Z729	periode	2 45
FCC82/12ALI7/5814a	double blode, mil spec	5 95
6SM2GT	double triods, UBX base	1.75
6SL7GT	double triode, UBX base	2 65
5687WA	double triods very powerful driver	8.75
5350WA	double triode	6.75
F1.84/6805	small power penilode	1.55
FL84NASBOSWA	small power pentode; mill spec version	4.51
EVEGT	small power periods	2.45
6L6G	medium power peritode	2.75
5881 ACT66/GLENGC	roacheta power latrode	4.51
SCAT/EL34 For Buffs	power tetrode	8 85
EL34G	power peritode	6 45
6550KT88	large power tetrode	12.45
6033	powerful regulator, indirectly heated trode	24 65
6AS7/6080	strong regulator indirectly heated troots	8.45
2A3 4-on	directly heated small power tripde	17 95
3008	directly healed power triods	57 95
VAIC VV308	directly healed power triods	250.01
SUAG	HT-rectiler	3 25
SY3GT	MT-mgt/her	2.25
9V4GT	MT-recider	2.25
GZ34/5AR4	MT-rectifier	8.75
6X4	HT-rectifier very good for pre-amplifiers. 7-pm base	2 65
603	HT-recision for pre-amplifiers & power amplifier front-ends.	
	CHIT have	2.65

Please note, our 3008's are manufactured in China by Gold
Oragnon's Drugang, but are tested in-house under real working on onditions
to parameters somewhat more stringent than is otherwise done. No, they
do not sound quite as good as original WE 3008's or STC 43004's, nor
ot they carry the same premium price, please consider the following,
unless you have absolutely tons of money or you happen to have them in
your artic, do not consider original 3008's. It is in most cases far better to
invest the money in more permanent features of the amplifier project, like
thereto proper triansformers, better signal caps or resistors or the like,
valves wear out, better quality passive components last. A pair of original
WE 3006's cost at least £1,200.00, on a good day, think in terms of an
overall price compormise; you can get some fabrious sounding passives
for the difference in cost between a pair of Chinese 3008 and the
original WE's, and in many cases the improvement in sound quality is original WE's, and in many cases the improvement in sound quality is greater than the WE 300B's will contribute. AND the contribution to sound is permanent, consider that when you plan your project

RESISTORS
We endeavour to stock the entire E12 range of all the different m we encoavour to stock me entire cir a raige of an und more in these of resistion than we stock, except the very lowest omme values, which are extremely costly, as a nile we do not stock values below 10 Ohms or above 3M3. Whits we always try to have every single E12 value in stock this cannot be guaranteed, delivery, especially on the Holcos and transmit film resistors can be very long indeed, however, since most are used in our production of finished products, there will generally be stock available withing 4 weets:

RETACKLAG.
We offer three quality levels of resistor quality, all are 1%, starting with the Beyschlag metalfilm, which are slightly magnetic (as are the vast majority of other makes of metal film resistors), but nonethiess very good sounding, as used in all our UK-made amplifiers, up to and including quality Level 3, the MEISHUP3/P4, 3008 no-feedback triode amplifiers.

Beyschlag 1 wait. 1% resistors up to 500K0hm. £ 0.11, above

amplifiers.

Beyschlag 1 watt, 1% resistors up to 500KOhm, £ 0.11, above 500KOhm £ 0.13 each

HOLD.

Better sound quality can be achieved with the H2.1 watt. 1% non-magnetic resistors, which we regard as the best "industrial grade" metaffilm resistors available. They have one small drawback, as they are quite fragile, and require careful handling, do not bend the legs too close

quite fragile, and require careful handling, do not benot the body, they may become obley, to the body, they may become obley, the control of the poly, they may be come obley, HOLCO resistors type H2 50PPM cost.C3 06 each from 180 to 580, 50 89 each from 581 to 1989, 10,36 each from 200mm to 230k0hm, 50 41 each from 231k0hm to 180hm, £1.02 each from 1811 to 2840, £1.24 each from 2M1 to 4M0, and £2.21 each from 4M1 to 5M0.

### SHIMKOH TANTALUM FILM RESISTORS

SHIRKON TATALAUM FRUI RESSIONS.

This is definitely the best sounding resistors available, forget the VISHAY, which may be ok in high feedback transistor amplifiers, but in our opinion quite uncomplimentary to the qualities of real Audio and policy and the control transistor amplifiers maining feedback free in single-ended Class A), this is where you will need the tantalum film resisting for the host greatifier.

resistor for the best results.

The 1/2 watt Shinkoh tantalum resistors are non-magnetic and cost

### \$2.26 each. Some values are available to 1 wall from Stanlagh at £4.00 each, flat of stock available.

AUDIO MOTE 1 WATT TATALUM RESISTORS.

Up to now the fantalum film resistors have been extremely difficult to get, however, after much persuasion and against a minimum quartify guarantee from Audio Note Uk. the manufacturers have agreed to widen the range of 1/2 watt and reintroduce the 1 watt range which becomes an exclusive range for AUDIO NOTE, we consider this to be major breakthrough, since without a reasonable range of values at the 1 wort rating it is pertly difficult to get the very best out of the best circuits. As with most handmade specialist frems, which covers most of this list delivery can be quite long on some values, so be prepared to wait if the value is not in stock.

delivery can be quite long on some values, so one properce to what in the yalue is not in 150th waitt 1% tantalium resistor values are \$3.70 each. We shall now be owinging on getting 2 and 3 Watt tantalium resistors made available as well, and who knows perhaps we will be able to build amplifiers in a year's time that have all tantalium resistors in all parts of the circuit.

AUDIO NOTE PRECESSIO CARROHHUM RESISTORS.

In addition to the non-magnetic tantalum resistors, we are going to stock a range of precision goldplated carbonfilm resistors, in many cases the carbonfilm resistor is preferable if you are building an amplifier based on an old circuit, like for example the WESI or another circuit of similar winday. We shall be stocking values suitable for process like the WESI in 1/2 and I wait values, these resistors are made especially for us by a major considerable.

major manufacturer.

They cost for the 1/2 watt £ 3.30 each 1 watt £ 4.85 each 2 watt £ 6.89 each

### HIGH WATTAGE WIREWOUND RESISTORS

Not warrace intersection in SISSIONS

As a new liter we shall start offering a range of 2 - 15 watt wirewout resistors, we shall be starting with a small range and expanding it as we go along, at the moment the following is available, all these resistors are 6% interace and distant.

Wattage	Value	Telerance	Price Ez. UK Vet
6 age	47R	5%	0.86
figar 3	1008	5%	0.86
6 wat	470A	5%	0.86
6 matt	100	5%	0.86
6 wat	21/2	5%	0.86
6 watt	15K	5%	1.32
6 watt	20K	5%	1.32
9 watt	1008	5%	1.24
9 = 20	115	5%	1.24
9 watt	1108	5%	1.24

Bauth control and be adold over the rect is north. topine with some behalfor retrocted to the control of the rect is north. Topine with some behalfor retrocted to the control of the cont

### IMPORTANT NOTICE!

PLEASE MOTE. THE PRICELIST FOR BLACK GATE CAPACITORS IS A GUIDELINE ONLY, DUE TO HUOUS STRENGTHENING OF THE MAPANESE YEN, IT IS IMPOSSIBLE TO PRINT UP TO-DATE PRICES MONTHLY, SO ASK FOR PRICE WHEN YOU ORDER

Value	Voltage	BG-Type	Suggested List Price Ex.	
47mf	25volt	PK	Anywhere	1 65
33mf	35volt	PK	Spywhere	1.75
0.47mF	50volt	PK	Anywhere	1.05
1mf	50valt	PK	Anywhere	1 12
2.2mF	50voll	PK	Anywhere	1.23
3.3mF	50volt	PK	Anywhere	1 38
4.7mF	50vcR	PK	Anywhere	1.68
10mF	50volt	PK	Aziyunere	1.87
22mF	50volt	PK	Aziyahere	2 68
22mf	16volt	Standard	Anywhere	2.82
33mF	16volt	Standard	Assywhere	3.42
67mF	16volt	Standard	Azywhere	4.11
330mF	18vot	Standard	Asymnere	6.68
10mF	50volt	Standard	Anywhere	2.97
42 mf	50volt	Standard	Anywhere	4.41
100mF	16volt	Standard	Anywhere	473
100mF	50volt	Standard	Anywhere	5.47
220mF	50volt	Standard	Azywhere	1 41
10mf	100voR	Standard	Anywhere	3.71
22mF	100volt	Standard	Asymhere	6.31
47 mF	100voll	Standard	Anywhere	1.54
100mF	100vaR	Standard	Azymhere	7.75
220ml	100volt	Standard	Anywhere	22 1
1000mF	16voit	Standard	Asysthere	8.23
1000mF	50volt	Standard	Anyonere	24 55
220mF	16voll	Standard	Attrature	4.3
470mF	16volt	Standard	Anywhere	63
2200mF	16voit	Standard	Anywhere	13.4
10,000mF	80voll	Standard	PSU	234 6
4700mF	16voll	Standard	Anywhere	14.2
47mF + 47ml	500volt - 550v surge	SX-Type	PSU tites capacitor	85 9
100m + 100		SK-Type	PSU filter capacitor	181 9
100mF	500volt - 550v surge	SK Type	PSU filler capacitor	72.7
220mF + 220	mf 350vat - 400v surar	SX-Type	PSU Illiur capacitor	92 6
100mF + 100		SIC-Type	PSU filter capacition	753
22mF	350volt	VK-Type	Decoupling or litter capacitor	18 9
150mF	350volt	VK-Type	PSU filter capacitor	41.2
47mF	15voit	FK-Type	Ultra Iow ESR version,	7.1
		,,,	comparable to film caps	

			comparable to film caps	
F	16volt	FIC-Type	Ultra low ESR version.	9.95
			comparable to film caps	
F	25volt	FK-Type	As above	14.28
F	25vot	FK-Type	As above	21.43
F	50vat	FIL-Type	As above	15.31
né	50valt	FIL-Type	As above one anywhere	58.71
né .	35volt	FK-Type	As above use anywhere	55 71
mF	63volt	<b>FI</b> L-Type	As above 600 (Mywhere	101 43
ŕ	100velt	FIL-Type	As above see anywhere	32 85
F	50voř	C-Type	Fer circuits with DC potential difference	2.07
F	50vor	C-Type	Fee circuits with DC potential difference	3.35
F	50 ret	Beoler	For toudspeaker crossover petworks	12.65
	50vot	Bigolar	As above	16 85
	50vot	Bipolar	As above	23.95
	50vot:	Bipolar	As above	36.95
4	50volt	BG-No Type	For PSU decoupling	12 35
ě.	6.3vot	9G-No. Type	For pages low noise PSUs	11.85
6	16voll	BG-N Type	For super low noise PSU's	24 65
f	16vali	BG-N Type	As above	28 95
inf	35vall	BG-N Type	As above	210 45
	50voll	BG-N Tyee	As above	\$ 45
f	50vall	8G-N Tygo	As above	6.65
	50voll	BG-Is Type	As above	7.55
	50vall	BG-III Type	As above	13.75
	50voli	BG-N Type	As above	20.35
lmf	50vall	BG-N-Type	As above	99 95
	100x00	BG-N Type	As above	423.35
in our			isting of all available Bla	
	bether their size			

Lastly, we can supply a range of more modestly prices components. still good quality, but more industrial grade, if you like.

POTENTIAMETERS.

Best available from sound qualify - price viewpoint, made by Noble in Japan, high qualify conductive plastic film

Volume Controls		
Imandance	Construction	Price Ex. UK Vat
100kOhm Storeo	Frame type, PCB mounted	3.95
100KOhm Stereo	Encapsulated type, PC8 mounted	15.65
A better altern	ative is the KO-ON volume controls wh	nch are used in
A petier arter	the MATTURE AND ON POINTE CONTROL OF	wereing on the

pre-amplifiers like the M7Tube, M7Line, and in a mono version on the input on the NEIRO. KASSAI, KEGON and GAKU-ON, these are very good sounding pots by any standard. ng pots by any standard.

100KD0m Stereo	Encapsulated	12.25
100KÜtus Mono	Large Encapsulated	79.65
100KOhm Stenso	Large Encapsulated, high quality	107 45
Balance Controls		
Bainage Controls	Construction	Price Ex. UK Val
1007/Dhm	Frame type. PCB mounted	4.45
1 1 × 0 mm	Excapculated type, PC8 reporter	
KO-ON also make	s a very good quality 100K0hm bala	ince control.

similar to the encapsulated 100K pot, this costs £32.25.

4.7n

6 Br

STANDARD TYPE SWITCHES.
This switch is adjustable 2 - 6 - way, n has gold plated contacts and a stainless stell ball for best possible corrosion protection and contact.

, KO-ON offers a very nice quality sealed switch, 6 way 2 channel

### STANDARD ELECTROLYTIC CAPACITORS

Good quality sta	ndard audustrial types		
Value	Voltage	Size Price E	L. UK Yel
100mF	10volt	18x6mm axat, 11x7mm radial	0 23
100mF	18volt	15x6mm axxii	0.29
220mF	16v0ff	11x8mm radial	0.31
220mF	40volt	13x10mm radial	0.42
100mF	63valt	13x10mm radiol	0.47
4700mf	16roll	38x18mm radial	0.82
2200mF	50vall	35x18mm radiol, 41x16mm axail	0.87
10mF	168vet	15x10mm radial	0.56
22 <del>ml</del>	350vot	25x12mm radial	1.25
22mF	450vot	41x16mm assal	1.89
47mF	385vot	25x21mm radiol	216
Short	400vot	30x21mm radiai	2.37
68mF	400volt	30x22mm called	2.68
100mf	400vell	30x25mm radial	3.26
220mF	38brot	52x30nvm radial can	445
220mf	450roit	40x30mm radial tax	5 85
220mF	550volt	112x35mm radiol acrew terminals	27 65
670mF	385 rot	50x35mm milai cat	456
an mag.	PONCHE	School-burn chilling gilling	

### RCA, BNC, BANABA, PLUGS, RCA SOCKETS, SPEAKER & GROUND TERMINALS

RCA Plags	
Standard Gold plug	1.55
AN-C Gold plus	3.65
AN-GP ALIDIO NOTE cold stup	8.51
AN-P ALIDIO NOTE silver plug, tellign insulated, non-magnetic	25.53

Tree	Mounting	Price Ex UK Vat
RCA social recipi patel	Chassis mounted	0.41
RCA societ gold plated	Chassis mounted	0.65
AN-CS AUDIO NOTE non-magnetic tallon insulated	Chases mounted	3 65
social, gold plated		

Type	Price Ex. UK 937
Standard BNC plug	3.45
BNC Saver Plated Social chassis mounted	2.05

ALYDNO MOTE Banana plug, gold plated, spring leaded temples	2
ALYDIO MOTE Loudspeaker Cable spade, silver plated, non-magnetic	41
AUDIO NOTE All-STSpeaker Terminal, chassis mounts, nichel plated, red or black	1
ALIDAD MOTE AN-STAG Speaker Tormonal, changes magents, gold plated, rad or black	2
ALYDIO BICTE AN-STR Speaker Terminal, chassis mounts. fully gold plated,	
non-managing rad or black	4
Ground Torontool, chasses mounted and recket plated	1
Our range of components is constantly expanding, as we fin	d new

better suppliers, so stay in touch by reading our adverts in Hifi World and Hifi News.

### FERRITE RINGS

FRANTR RIMS
In many systems, especially ones using transistor based amplification, there is often a problem of incoming RF mixing into the feedback loop, especially from connected CD-players, clamping a termit entities around the cable between the CO-transport and the DAC or the output of the DAC or CD-player and the pre-amplifier input yedras surprising results.

A set of two Ferrite rings costs £8.50

Audio more worming coal, co time a winut marchined transformers and since we already make and used coal. (CD and Input matching transformers, and since we already make and use these, it might be a good idea to offer them for general sale. Common to all of these small signal transformers is that they come in a mumetal screenling can with a mitted of spindle with a mid for mounting.

Type	Calour Code	Size Primary/Secondary Impedances - Main Use	Prima E
177-			UK Y
TT7987	Brown	3 & 12 (Ihm - 100k Ohm, copper wired MC matching	51.5
117688		15 & 60 Ohm - 100KOhm copper wired. MC matching	51.5
TT7689	Drange	150 & 660 Dam - 245 & 10K Olive, copper wired. fine matching	51.5
117690		3 & 12 Ohm - 100K Ohm, copper wired High Quality, MC matching	78.2
117591	Green	15 & 60 3km - 100KOkm, cooler tapped cooper wired. High Quality	١.
		MC-matching	78.2
TT7692	Blue	150 & 60 Ohm - 2KS & 10K Ohm, copper exred High Quality.	
		See majorine	783
TT7693	Violet	25 & 100 Ohm - 2K6 copper eved High Quality fine matching	78.
117694	White	150 - 150 Ohm copper wred High Quality time matching	101
		and the first the state of the	170

3 & 12 Ohm - 100000km silver word MC matching 15 & 60 Ohm - 10000km silver word. MC matchin

The moving coil matching transformers are suitable for all moving coil cartridges, the low imgedance versions are suitable for cartridges like the Audio Note Tolly, most better Ondrons, the Goddbu, Klesifs and some Koestus', the high versions are meant for Goddring Erocas, most Denons, Cierarusios, Van den Hul cartridges, the Neda and a few higher output Koestus. The line matching transformers can be used in a number of

The nine macroing instansion less due to be set in a violution of applications, inter-component isolation and matching (as we recomment between CO-Player and pre-amplifiers, to separate earth planes and RF transfer), as pre-amplifier input or output transformers or whatever else you can think of.

### AUDIO NOTE CHASSIS SETS

We have decided to offer for sale the two standard chassis' that we use for production of the OTO/SORO/DAC range of UK-made AUDIO NOTE products. Chassis's are notionously difficult toget on a one off basis, so here you are. We will only sell the chassis that we have rejector production, due to manor failures in the finish, they still look allright out are not strictly at larviers. Brisished product quality.

94	Stee	Price Ex.	
sesses 1 Aburelenium	mater Committee (\$71090x125mm)		84.50
nessis 2 Aluminum	294x396x125mm		69.50
nassis 1 Copper	437x396x125mm		198 50
houses 2 Copper	294x396x125mm		165 00
IT ONE/KIT THREE Chasses.			
did steel, arey point	400x300x58mm		78 90
T ONE AUT THREE Chasses mild steel			
nished chromed	400x300x50mm		116.70

You have to specify, when you order, whether you must channic 2 for per-simplifier or power ampli-nat. The yes respillable has inpute on the side of the late you only the young amplifier has supery room evaluation before, so with an Eye you and E you that you have the part to include a libble a year cover, add C19 75 to the cost of the chassic and remarked the partial by white you creater. Please that no support ore-simplifier that it workers have been supported and to the channist a. E. or partial before a down the channist and the channist is a first and to channist in the channis

As mentioned earlier, we are developing a range of complete lids, to give those of you while have the stability, but do still have the time to division a project from the ground, so is speak, knother to be able to fifty the best possible quolity - price resilizonship the lists and fall and be possible conduct, with no-tritis gover supplies and components; at this have imput relaims control to allow use of a single source.

Based around the jumble towards and descript headed brode, we see this life as the temporation is made Augula Angelination. As covers all this temporate apports of design receivary. Single-Friend, the Freedhack, Claim A, Direckly Header Effects, to become a member of the accesses of their singularity. Aff One has no 300B per channel running at 420 vorts with 75mM current giving 9/10 watts of the cleanest power you will ever hear, the impulstage consists of a SSATG with a 5567 double mode driver stage running in SRPP. The powersupply is a capacitor-choke-capacifor with a 5464 KH restrict, the heaters are AD heated. Component quality is samilar to our Level 2 finished products. AUIOIN NOTE paper in oil signal capacitors. Beyochila ywat 11 K metaltilini resistors, good quality electroytics (sorry NO Black Gatest) and a simple, attractive stereo chassis in gray gamthout, Protecting, cover is cartix. We have several upgrade tors available for KN One, ask for ortalis.

Price 2799.00 incl. Vat, which includes all valves (yes, also the 2 x 3006 needed) but not postage/packing which to UK customers is £12.00, topcrover is 599.00 extra KN One is also available with a polished chrome chassis and price model transformer bell-ends. Bits makes the KN One a real "stunner!" Add £200.00, to total £399.00. The KN One is available now.

KIT Two features a single 6550WA Soviek terrodes running in Single (RT two features a single 6550/WA Soviate Ricroses ruinning in single-fielded mode, vielding some IT varies of pure Class & valve rectifield HT for the output stage, stereo chassus, and 653/RT input and 58144/ECD2 SRPP offerer stage, componentry and chassis as KI flow RT IT wo is currently unavailable due to the lack of supply of Soviek 6550/WK, see can offer it without valves for ES70 oil in LL VII val. It used with Chinese 8550 s no claims for faults in powersupply or output transformers will be

accepted!!

Price E599.00 Incl. Vat, Includes valves, but not postage/packing, cover is extra at E99.00. With polished chrome chassis and chromed bellends on the transformers, £799.00.

NOT MINES.

Kill Three features 2 x 9008 per channel running in single-ended parallel yelding 16/17 watts in pure Class A, this kill is on two mono chassis with valve rectified HT supplies on signal leedback, if uses SIN/GT double tinded as input valve and a pair of 5687 double tinded running in SRPP as drivers.

The KIT THREE is essentially a mono version of the KIT ONE with double the power, the same component choices and on two chassis' instead of one.

The NT TITLES double the power, the same component criticises and of one The KIT THREE costs £1,550,00 and is available now. Cover is £99,00 extra per chassis £198,00 for two). Polished chrome chassis and belieneds is also available at £40,000 extra. Several upgrade kits are available and several control of the control

ET FOUR is really our introduction to valve amplifier kit building, circuit and power supply mounted on one single printed circuit board, with two 0T0 - type parts-pull output transformers, all mounted in a small PISE type chasses, covering everything, so nobody with be able to see that you have succurate to the lure of the valve amplifier, which is sweeping the world. The circuit consists of two 6VGS tertodes running in Push-Pull class A, yielding about 10 watts, driven by a 65M7G1 and a ECC83 input stage Easy to build, even for the beginner.

The KIT FOUR costs £199.00, and is available from May, 1995.

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Randy Newman - Trouble In Paradise	ED 305
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### MEASURED PERFORMANCE

It's important to measure products to assess performance, find explanations of sound quality and warn of peculiarities or faults. Only Hi-Fi World has an advanced in-house laboratory with digital signal analysis for this purpose. In conjunction with this facility we assess sound quality in our own acoustically treated listening room. We measure most products reviewed. Here's a simple guide on our test

### LOUDSPEAKERS

Smooth, flat frequency response is important to ensure a balanced sound. Look carefully at overall trends; rising treble will give a bright sound, falling treble a dull sound. A rise through the midrange normally corresponds with good projection.

High sensitivity (better than 86dB) means less power is needed for a certain volume, meaning a low power amp. can be used.

The impedance curve tells us how easy loudspeakers are to drive. Low or wildly varying impedance is bad; a flat impedance around  $8\Omega$  is good.

### CD PLAYERS

Even small trends in frequency response of CD players can affect their subjective balance. Generally, those with a gently rolled off treble and, more rarely, a rising bass will sound best. Rising treble can

produce a sharp sound.

The distortion plot we show is taken at -30dB, to represent a typical music signal. High distortion at this level, combined with rising treble, can result in a harsh sound. Yet other effects have to be considered. especially low level linearity, which we also test for, including -90dB signals with dither applied.

### **AMPLIFIERS**

Distortion from solid state amplifiers should be no more than around 0.2%. Even order (2nd, 4th, 6th etc) distortion is aurally innocuous, but odd order (3rd, 5th, 7th etc) distortion makes for a glassy, nard sound, or grittiness.

Frequency response can be band limited, with bass and treble rolled off just out of the ear's range, or wideband. Each has its own characteristics. Small wideband response variations colour tonal balance.

Power output is easy to understand: the higher the figure, the louder it will go. Just make sure there's enough power output to drive any loudspeakers you intend to use.

### **TUNERS**

Frequency response, as always, says much about tonal balance and character traits, like peaky treble (due to a mis-matched MPX filter). Distortion and channel separation need to be less than 0.3%

(according to harmonic structure) and better than 25dB.

Hiss level must be lower than -70dB for Radio 3 silences to be just that - silent. And full quieting, the strength of aerial signal needed for optimum results, should be around ImV or less

Selectivity, the ability to separate stations under the most difficult conditions should be better than 60dB and sensitivity better than 30µV on stereo.

### CASSETTE DECKS

Replay performance is measured to IEC 94 Standards using IEC test tapes. This ensures that recordings made on a machine transfer to a car player, personal stereo or another domestic recorder properly, as well as ensuring optimum results with commercially prerecorded tapes. Look for a quoted replay response of 40Hz-10kHz, no more than 1% speed error and hiss in the replay amps lower than -58dB.

Recording quality considers frequency response, bias variation, head performance and alignment. Frequency response should stretch from 40Hz-15kHz or so. Head overload (MOL315) must be above 0dB, reaching around +4dB for good results.

From the transport mechanism look for less than 0.15% wow or flutter. Overall (DIN weighted) wow and flutter should be no more than 0.1% or so.

### TUNER

### **DENON TU-215RD**

I wasn't surprised to find the new 215RD had slightly falling treble - Denon seem to understand that with tuners this is the best choice, giving them an amenable sound. Some bass fall will mean this tuner will lack bottom-end oomph, however.

Distortion was low at 0.1% overall, mainly second harmonic, an impressive result for so inexpensive a design. At -72dB, hiss was low too, with ImV or more from the aerial, a good result. There was plenty of audio output: it measured 800mV.

The RF performance was up to scratch as expected with excellent selectivity at 80dB (alternate channel), if not quite class leading sensitivity at 35µV, due to the presence of RDS which always seems to compromise this parameter.

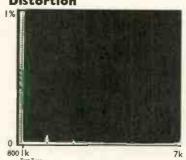
The TU-215RD measured as well as Denon tuners usually do. It's a fine allrounder. NK

### **TEST RESULTS**

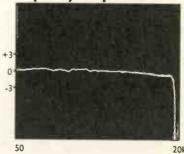
Frequency response	3Hz-15kHz
Stereo separation	55dB
Distortion (50% mod.)	0.1%
Hiss (CCIR)	-72dB
Signal for minimum hiss	ImV
Selectivity (at 0.4MHz)	80dB

Sensitivity mono 4µV 35µV signal strength meter

### Distortion



### Frequency Response



Continued on page 115

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As any hi-fi specialist will tell you, to get the maximum benefit from your loud-speaker / speaker stand combination, you should fill your stands with a suitable material. Until now, the most common medium has been sand or a sand-based alternative. The other option was lead-shot that, although very dense, is extremely expensive and difficult to source.

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### **AMPLIFIERS**

### **ALCHEMIST AXIOM**

The Axiom measured well enough in most areas, having wide bandwidth and low noise, but low sensitivity too at 400mV, meaning some budget cassette decks and tuners of 300mV output or so won't match.

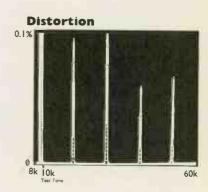
But I was most worried about this amplifier's peculiar distortion behaviour, which drifted significantly with device junction temperature, changing its harmonic structure with level. Distortion was severe at high frequencies (around 1.4%), with an extended harmonic structure - not a good omen; it raises the possibility of rough sounding treble. The two channels were quite different from each other as well.

This amplifier appears to be a low feedback design whose basic circuits are unable to support such a purist approach.

Whether the benefits of low feedback can balance the innate problems of solid-state devices - their variability, thermal instability and non-linearity - can only be judged by listening tests. **NK** 

### **TEST RESULTS**

Power	32watts
CD/tuner/aux.	
Frequency response	4Hz-47kHz
Separation	80dB
Noise	-102dB
Distortion	1%
Sensitivity	400mV
dc offset	4/6mV



### McINTOSH MA6800

The MA6800 is massively powerful, producing 200watts into 80hms and 326watts into 40hms. That's easily enough to drive insensitive loudspeakers (i.e. 82dB) loud in a large room, as Americans might. Output overdrive (clipping) was held in check usefully by an auto-gain reducer and distortion at all levels and all frequencies even 35V at 10kHz - was extremely low, a very good feature. This amp is likely to sound clean, smooth and composed.

The tone controls were pedestrian, with poor low level behaviour - unlike Arcam, Audiolab, etc. The Loudness control offers bass boost only and must be hard on its end stop to not affect bass output; a bypass switch is needed. DC output offset was low, as was noise.

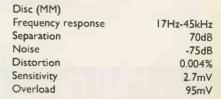
The phono stage is MM only and reasonably quiet, if a not a class leader (judged by equivalent input noise).

Frequency response was sensibly wide with good but not excessive bass extension, sensitivity normal and overload margin high.

At heart, the MA6800 is very well engineered, a powerhouse for insensitive loudspeakers, with plenty of lights and buttons and a svelte performance to match. **NK** 

### **TEST RESULTS**

Power	200watts
CD/tuner/aux.	
Frequency response	I4Hz-46kHz
Separation	77dB
Noise	77dB
Distortion	0.003%
Sensitivity	280mV
dc offset	1.2/1mV



# Distortion 0.1% 8k jok 60k

### TEAC A-BX10

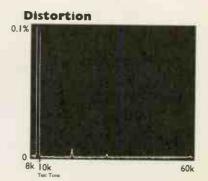
The A-BX10 is a bridge amplifier that delivers no less than 112watts into 80hms and 200watts into 40hms - enough to drive the most insensitive loudspeakers, even in large rooms.

Bandwidth on CD was wide, albeit with some curtailment of subsonic bass, the -IdB limit being at 18Hz, where some amplifiers reach down to 3Hz or so. This will give speedy bass. Distortion was low at all output levels and frequencies, hitting just 0.02% at full output, 10kHz - a very good result. I'd expect a smooth sound.

With low noise, good channel separation and low DC output offset, the Teac measured well all round. NK

### **TEST RESULTS**

Power	112watts
CD/tuner/aux.	
Frequency response	18Hz-70kHz
Separation	86dB
Noise	-90dB
Distortion	0.006%
Sensitivity	280mV
dc offset	-1.6/1mV



Continued on page 117







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### **CD PLAYERS**

### **ROTEL RCD-975**

A CD player with gently rising bass output and smoothly rolled off treble normally makes for a fine subjective balance - and this is exactly how the RCD-975 measured. These characteristics help give good subjective weight to bass lines and smoothness to the treble. But because the overall response is tilted downwards it may well result in an over-warm presentation.

Distortion was low at all levels, although not quite as low as the best. In the plot below, taken at -30dB, there are just a couple of harmonics visible. At -60dB harmonic distortion appears to be extremely low at 0.22%, giving a wide dynamic range of 115dB (EIA) test). But there was a lot of inharmonic 'distortion' which, when summed, came to around 0.8% and this may well have an effect on the sound. Output was 2.2V.

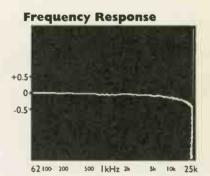
I'd expect the Rotel to have a smooth sound with a full bass, but perhaps it may be

just a little too warm, loosing treble attack and detail. Only listening tests will tell. **DB** 

### **TEST RESULTS**

Frequency response		4Hz-21.1kHz
Distortion (%)	left	right
-6dB	0.007	0.007
-30dB	0.016	0.017
-60dB	0.22	0.22
-90dB	29.7	29.5
-90dB dithered	- 11	14
Separation (dB)	left	right
IkHz	126	128
20kHz	114	114
Noise		-108dB
with emphasis		-108dB
Dynamic range		115dB
Output		2.2V

# Distortion 0.03%



### **TECHNICS SLP-S840**

Like most Japanese CD players at this price, the Technics SLP-S840 turned in a fine set of measured figures. Frequency response was nearly flat, with just a gentle lift in the bass and smooth roll off in the treble. These are characteristics that will help it to develop a solid bass, along with smooth treble.

Distortion measured low right across the board, but had a wide harmonic structure at all levels, which may be more audible than distortion restricted to one or two harmonics. At -60dB distortion measured just 0.47% giving a wide dynamic range figure of 109dB (EIAJ test). In all other areas the Technics measured competently. Output was higher than the Philips standard at 2.5V, but this gives useful extra headroom where passive preamplifiers are used. **DB** 

### **TEST RESULTS**

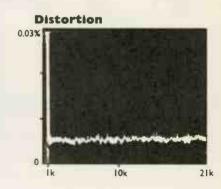
Frequency response

4Hz-21.25kHz

Distortion (%)	left	right
-6dB	0.005	0.005
-30dB	0.018	0.019
-60dB	0.40	0.47
-90dB	29.3	30.1
-90dB dithered	15.3	17.7

Separation (dB)	left	right
IkHz	114	113
20kHz	92	89
Noise		-116dB
with emphasis		-118dB
Dynamic range		109dB
Output		2.5∨

# +0.5 - 0 -0.5 - 62 100 200 500 [kHz 2k 5k 10k 25k



### LOUDSPEAKERS

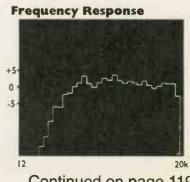
### REVOLVER COLT

As you'd expect from a box this size, bass isn't the deepest around. Our response plot shows a falling bass response below 100Hz, but this will be boosted somewhat by nearwall positioning. To balance this subjectively, Revolver have engineered a response that falls gently through the midrange and treble, which should prevent them sounding thin. Their overall response is very smooth, so I'd expect a natural and balanced presentation.

The Colts are relatively easy to drive too, having a high overall impedance of  $9.8\Omega$ .

which means they won't draw much current, and around average sensitivity of 86dB. I'd recommend partnering with amplifiers capable of delivering approximately 20-30watts for best results. **DB** 





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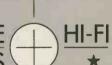
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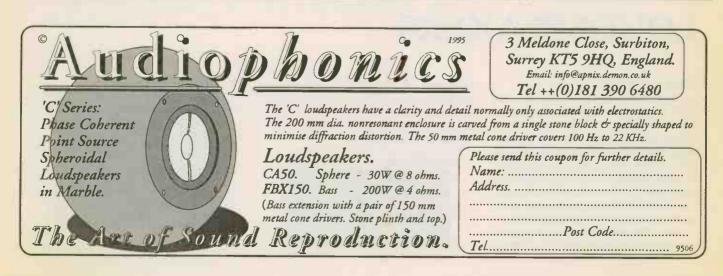
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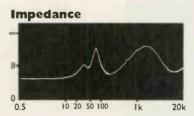
### **LOUDSPEAKERS**

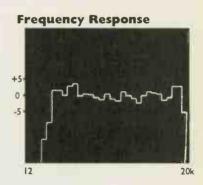
### MISSION 734

Essentially a 733 with an extra bass unit, the 734s should offer better power handling with a clearer, more focused sound. The 734s have a reasonably balanced response, that is to say, although lumpy, energy is distributed evenly across the audio band. There are some notable trends; I suspect the most obvious in subjective tests will be the treble peak around 12-16kHz, but this may well add a pleasant brightness to some systems.

The 734s are sensitive; I measured 89dB at Im using a nominal watt (2.83V) pink noise signal. This means that for the same volume control position the 734s will go louder than most, and should fill larger rooms well.

Overall impedance is low though at 6.2 $\Omega$ , most of the impedance curve sitting well below  $8\Omega$ , which contributed to the sensitivity. I'd recommend a good amplifier capable of delivering 30watts or more into low impedance loads for best results. **DB** 





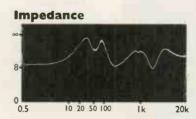
### **CASTLE SEVERN**

Castle's Severns are a small two-way floorstander, with reflex port tuned bass. They show quite well extended bass for their size, so I'd expect a reasonably full and powerful bottom-end. Above this the smooth and even response is marred by a strong peak centred around 2-2.5kHz, the crossover region. This suggests that the two drivers are overlapping to produce a lift; Castle may need to inspect the tolerances of their drivers and crossovers to produce a flatter, more consistent response.

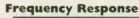
Typical of British loudspeakers, the Severns have a high overall impedance of 11.2Ω. This means they will draw little current from partnering amplifiers. The impedance curve shows the high overall trend, and a notch just above 2kHz where

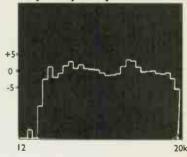
both drivers are drawing power to produce the peak in the frequency response. Sensitivity isn't as high as some recent Castles, measuring a lowish 85.5dB at 1m for a nominal watt (2.83V) pink noise signal.

The Severns are reasonably engineered, but Castle would do well to tolerance



crossover alignment more tightly and generally be a bit more rigorous. **DB** 





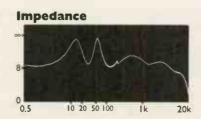
### **AMBIENCE CADENCE ES**

Being a hybrid design, combining a 10" bass driver in a reflex loaded cabinet with a curved electrostatic midrange and treble panel, the Cadences are difficult to measure accurately. With the microphone positioned directly in front of the centre of the electrostatic panel, the only place where there was good integration, there is a treble peak. In practice this will not be as strong at the listening position, so the Cadences should sound reasonably balanced, especially as the rest of their response is so smooth.

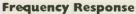
Being an electrostatic, notoriously inefficient beasts by nature, I was surprised to measure 88dB sensitivity at Im with a nominal watt (2.83V) pink noise signal. This is very good, better than a lot of conventional 'cone' designs. Impedance

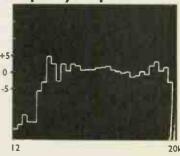
measured spot on  $8\Omega$  overall, but the plot shows a strong fall above 5kHz, passing through  $2\Omega$  at 20kHz. The Cadences may well sound overly dull with some amplifiers which will not be able to develop full power into this kind of load.

The Cadences are an interesting loudspeaker, but like many high end designs



have their quirks that require caution if a good match is to be found. Partner with care; think Naim. **DB** 





Continued on page 121



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### **PHONO**

### **ORTOFON MC25E & FL**

Like any good fine line - and Ortofon make some of the best - the MC25FL suffers less change in treble response between outer and inner grooves than the less expensive MC25E. Superior tip contact spreads the load, dampening down tip mass resonance and tracking shorter wavelengths better. Subjectively, this usually results in smoother and more detailed treble. And by any standards, the MC25FL has a flat frequency response, as our analysis shows. By contrast, the MC25E tracking outer grooves exhibits a +4dB treble lift at 20kHz, which will probably be heard as a little spittiness in the treble.

Both cartridges tracked extraordinarily well, at low and high frequencies, staying secure in a 25cms/sec torture groove, for example, that nearly all other cartridges fail to negotiate. I'd expect a confidently stable sound, even on 1812 cannons and vocal peaks.

The fine line tip exhibited half the distortion of the elliptical, but at 1% overall it was again exceptional in performance and the E version just normal. Correct vertical

tracking angle (22degrees) helped toward a good result.

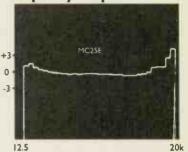
Output was good at 0.5mV at 3.5cms rms (0.7mV at 5cms/sec), but channel balance mediocre at 26dB for the FL and 30dB for the E.

Both these cartridges measured very well, as Ortofons usually do. The FL in particular was impressive. **NK** 

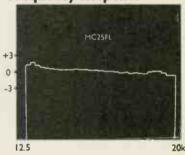
### **TEST RESULTS**

	Е	FL
Tracking force	2gms	2gms
Weight	10.5g	10.5g
Vertical tracking angle	22degs.	22degs.
Frequency response 20	)Hz-16k	20-20k
Channel separation	30dB	26dB
Tracking ability (300Hz)		
lateral	90µm	90µm
vertical	45µm	45µm
lateral (IkHz) 25c	cms/sec.	25
Distortion (45µm)		
lateral	1.7%	1%
vertical	2%	1%
Output (5cms/sec rms)	0.7mV	0.7mV
Channel imbalance	0dB	0dB

### Frequency Response



### **Frequency Response**



### CASSETTE

### **NAD 614**

Bias at normal setting was low for today's metal tapes, TDK MA showing a +3dB treble lift at 10kHz and treble overload (SAT10k) measuring higher than midband overload (MOL315). Bias variation was unusually large with metals, but the head couldn't handle it, distorting badly as bias was increased.

Performance was more impressive with chromes. Frequency response was admirably flat and overload levels (MOL315/SAT10k) impressively high. TDK SA chrome-bias tape managed +4/-2, for example - almost as good as metal tape on a budget Nakamichi.

Ferric tape suffered earlier treble overload, but had excellent midband output. TDK AR hit +8 in the midband and exhibited just 0.8% distortion (0VU), even at 40Hz.

The transport performed satisfactorily, but it was a bit erratic, as budget designs often are. One minute the analyser screen looked like a horror movie, the next a clip from Bambi. Our analysis shows the latterthe NAD in a better moment. Longer running-in may have smoothed things out, but all the same, performance was mediocre, wow and flutter measuring 0.08%. Speed was +0.8% fast.

Replay equalisation was accurate and head azimuth correct, giving extended treble

output to 16kHz. Pre-recorded tapes will sound balanced and if they don't, Play Trim - a great idea - offers +/-3dB treble lift/cut.

The NAD614 is well engineered and adjusted. It will provide satisfactory recordings on all tape types and good replay of pre-recorded tapes. But it has some obvious limitations. NK

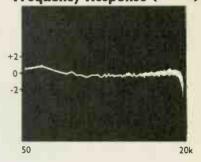
### **TEST RESULTS**

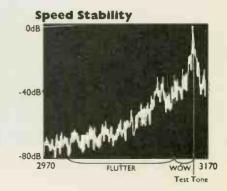
REPLAY (pre-recorded tapes)
Frequency response (-2dB) 30Hz-16.5kHz
Speed accuracy +0.8%
Hiss (70uS, Dolby out) -60dB

RECORDING (blank tapes)

Frequency response (IEC Primary Refs.) ferric (IECI) 30Hz-16kHz chrome (IECII) 30Hz-16.5kHz 32Hz-17kHz metal (IECIV) -45dB Separation (IkHz) Distortion (315H) 0.8% Hiss (70uS, Dolby out) -55dB Speed variations (DIN total) 0.08% -25dB Flutter energy (3-3.13kHz) MOL/SAT (IEC Refs) 315/10k IEC I (ferric) +5dB/-7dB +3.3dB/-3dB IECII (chrome) IECIV (metal) +2dB/+3dB

### Frequency Response (Metal)







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EL84 MULLARD	£7 ea	20H 120MA	£20		
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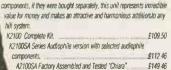
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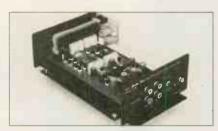
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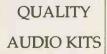
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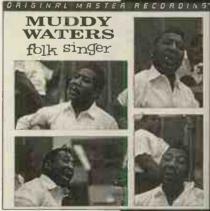
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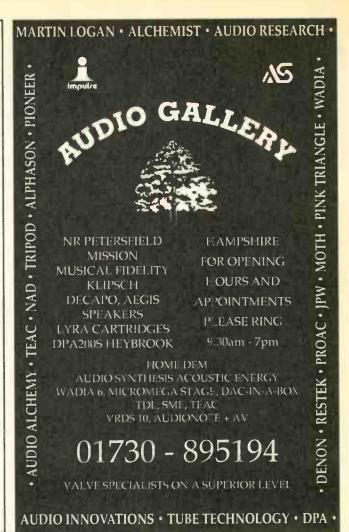
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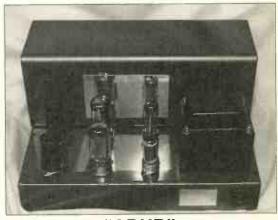
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Telford: 01952 502097.

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Tel: 01284 769985 (Suffolk).

QUAD 34, MINT CONDITION, boxed, £19S. Quad 306, mint condition, boxed £17S. Linn Nexus loudspeakers, Linn stands, Cable Talk 3 bi-wire cable, mint condition £275.
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LINN SONDEK LP12, Valhalla power supply, Ittok arm, Linn K9 cartridge, VGC £375. Also Audiomaster ML52 speakers £25.
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SONY TAE 1000 ESD Pro-Logic preamp with learning remote, £450. Hafler DH 120 mosfet power amps, £200 each. JBL control 4312 loudspeakers – studio quality with amazing bass, high sensitivity (91dB) £550. Linn Axis/Akito and Black Chorus, £350 ono. All excellent condition. Tel: 0117 9853943.

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Tel: 01924 (Wakefield) 279281.

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RADFORD RENAISSANCE series valve amplifiers (by Woodside Electronics) SC25 pre-amp with moving magnet input (£950) £400; STA 35 power amp £1,320) £500. Both excellent condition and revalved late 1994.
Tel: 01843 592542 (Kent).

SYSTEMDEK IIX turntable with arm, mint £160. Audio Technica OC9 MC cartridge, new £140. Denon 304 cartridge £50. Dynavector M.C. Step-up transformer £50. Rega RB250 arm £45. Tel: (01634) 387686. Kent.

QUAD 34 control unit; 306 power amp; FM4 tuner £720 ono. Tel: Nottingham (0115) 973 4358.

LINN LP12 Valhalla, Ittok LVII. Klyde and Cirkus upgrade November 1993. Very little used since owner enjoys CD. Full service history. £900. Dave Billinge (01705) 293 646 (Portsmouth).

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### TECHNICAL INFORMATION BULLETIN No. 1 MANTICORE TURNTABLE POWER SUPPLIES

Manticore Audio Visual's range of power supplies suit all turntables fitted with the Philips Impex range of AC synchronous motors. This includes Manticore (of course!). Linn, Rega, Logic, Ariston (not all models), Systemdek and many more. Our power supplies can also be adapted to other AC synchronous motors and we have built up a lot of experience over the years in this area.

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All Manticore Audio visual products come with a lifetime guarantee. This is qualified in the following way - electronic components, such as transistors, are guaranteed until the end of their reasonable working lifetime. Mechanical assemblies for the most part manufactured by us are guaranteed until the reasonable end of their specified design life. The first Mantra was produced 12 years ago and is still in fine shape,

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OAD ESL - 63 speakers, dark brown. excellent condition, £1,200. Tel: (01622) 832356 (Marden, Kent).

MARANTZ CD10 compact disc player £650. Audiolab 8000T tuner £450. New. Boxed Will demonstrate. Tel: 0181-949 7809 (Kingston).

GARRARD 401, SME 3009/11 in substantial plinth. Very good condition, deck unmarked. £175. Tel: 0181-747 4764.

REGAPLANAR 2 with AT LIGE cartridge boxed £95; Linn Ittok LVII with Linn K18 cartridge £195 boxed; Target (28 inch) speaker stands £40 all in excellent condition. Tel: 01257 263403 (Lancs).

NAIM NAXO 3/6 new style active crossover, V.G.C. £285. Meridian 105 Monoblocks 100 watts/channel V.G.C £265 o.n.o. Meridian 101B pre-amp for above £75 o.n.o. or the pair for £300. Creek T40 tuner £75 o.n.o. Wanted: Kimber Cable 4TC and 8TC Bognor Regis (01243) 262235.

LINN HI-FI: Karik III (3 months old) £1,095; Kairn (inc. brilliant) £950; Klout £1,195; Kabers (passive, polymer stands) £795; Kaber Aktiv Modules £475; LP12 (Valhalla, Cirkus) £495; Ekos £79S; Klyde £195. Mostly 12-18 months Tel: (01922) 640737

SONY TC 399 reel to reel. Recently serviced, Offers, Glover Tel: 0181-940 4384.

LINN LP12 turntable, Valhalla PS, Akito arm, K9 cartridge. Latest spec bar Cirkus. Pristine condition with boxes and receipts. Costs £1,270 new. £500 ono.

Tel: 0171-258 7300 (O) or 0181-464 3969 (H).

GYRODEC BRONZE, Kuzma arm, AT-OC9 and QC power supply. Perfect £650. Tel: 01372 373069

EXPOSURE 7 AND 8 pre/power amp early model with balance controls, £225. Linn Kan speakers, MKI with MK2 stands - Rosewood, £225. Linn Akito pick-up arm £65. Sound Org. T/T wall shelf £25. Demion Pro Gold headphone/ speaker switching unit £25. Tel: 01902 374786 (Nr. Wolverhampton).

HEAVY DUTY 4 shelf equipment stand, plus dedicated CD turntable support, fully welded £150. Tel: 0115-9463693.

WANTED TONEARMS, BREWER, Fidelity Research, Ortofon. Cartridges, Decca, Koetsu, Ortofon SPU (any model), Turntables, EMT 927, Technics SP10. Amplifiers, Audio Research SP6, Naim Nap 160, Lux LX33. CDs, Marantz CD80. Tel: 01642 559S43

CELESTION SL600s, crossover upgraded with Solen Polypropylenes, £225. Cambridge CD2 CD player, light use, vgc., £230. QED Digit and Positron, vgc. £110. Sony Walkman Pro and heavy duty external PSU, £200. Tel: 0171 286 4143, C Scott.

ROTEL RCD 965BX CD player, boxed, very little used £165. Solihull (0121) 7331961.

PROAC RESPONSE 3 speakers, mahogany, lovely condition, £2,250. Tube Technology Genesis valve monoblocks, 100WPC, excellent condition, £1,600. EAR 834P phonostage, as new, £225. Silver Sound 14/4 speaker cable, 2 x 4m, terminated, £200. Great sound deal £4,000 for all. Tel: 01474 327286 (private answerphone).

QUAD II/22/FM2 Multiplex decoder £395. Avo Mk4 valve tester, data book £275. 401 chassis £95. TD125, SME3009, plinth, lid £125. Various Troughlines from £60. Pye black box £50. Wanted: single Radford MA15/3, PX4 Valves, new/used, (swap GEC Tel: 01550-740272.

CROFT SUPER MICRO pre-amp, Croft series five amp – £350 o.n.o. Mitchell Focus One turntable and Maywire arm and Mayware cartridges - £100 o.n.o. Rotel RCD 865 CD player - £150 o.n.o. All in excellent condition. Dave 01902-29665 (Wolverhampton).

WANTED: Revox B790 or B795 turntable. For sale: Uher 4400 Report-IC £100. Fons CQ30 3-speed (variable) turntable with SME 3009-II arm. £120. Lloyd. 01424 843587

ROGERS STUDIO I speakers, Teak, Target HJ15/3 stands, 2 x 4m Linn LK20 cable, £200. Rogers A75 series 2 amplifier, fine complement to speakers, £50.

Tel: 01276 29922 evenings/weekends (Camberley, Surrey).

BRAND NEW AUDIO Technica OC9 cartridges £175 inc P&P. Quad 34/306 mint condition £380. Heybrook HBI MKIII mint condition, boxed etc. £180. Naim 42.5/90 £450. Wanted: PSX. Wanted: Cyrus Tuner. Tel: Jules (01792) 280061.

GARRARD 401 DECK and SME 3009 arm. Both in excellent condition, very little used. £145. Includes Shure M55E, plinth and cover. Tel: 01442 846881 (office) or 01462 456357 (home).

HIGH END Hi-Fi collection for sale. Total range of equipment and styli, cables. Ring with requirements. All privately purchased new in UK most oxed and mint, no traders. urther details: 0973 390962.

ROGERS LS4a/2 speakers. £110. Nakamichi IA3 amplifier with separate phono amp £125. Tel: 01948 667521.

SNELL TYPE E II speakers complete with Pirate stands, immaculate condition £700. Very sensitive - make ideal partners for Audio Innovations amplifiers. Please call Mark on 01252-845128 (Fleet, Hampshire).

NAIM 82 (MC + MM), HiCap, 250 -£2,400. LP12 Valhalla, Ittok, Kiseki Blue - £550. Epos ES14 + Stands - £400. Tel: 01752 789100 evenings/weekend (Plymouth).

ARCAM ALPHA S CD player, mint condition, boxed £250 o.n.o. Linn Majik l amplifier, with phono module, mint condition, boxed £500 o.n.o. Will accept £700 for the pair. Phone 01628 890858 (daytime)

NAIM NAC72 NAP 180 SBL speakers. Linn Sondek, Mission arm, Ortofon cartridge, five months old, sale due to emigration. May separate, £2,400. Tel: Stoke-on-Trent (01782) 787087.

PIONEER PD 802 CD player £230. Origin Live OLI loudspeakers £275, plus dedicated stands. Kelvin Labs class A Integrated amplifier (original model) £150. All boxed. Tel: 01489 572958 (Hants).

NAIM NAP160 power amp V.G.C. Can demonstrate £225 ono. Also approx. 300 Hi-Fi magazines £100 ono. Nigel 0181-384 2717 evenings

NAKAMICHI CR7 cassette deck, mint condition, boxed with manual and remote £850 ono. Dais turntable with Zeta tonearm and Audio Technica ATOC9 cartridge (hardly used), boxed Matt: 0141 621 0480

WANTED: Valve compressor, working or not, circuit diagrams for same, equalisers, and early transistor examples. All sought by enthusiast of limited means. Clive: 0181-692 8129.

OUAD 33/303/FM3 mint condition. Handbooks, Unused since full Quad service. £225. Audio Technica OCS, few hours use. £75. Shur VI5/III good stylus. €30.

Phone Barry: 01604 411194 (Northampton).

SUMPTUOUS CASTLE Trent II loudspeakers and Creek 4240 amplifier. Both barely used and boxed. Will sell both for £350 including cables. May split. Tel: Lee on 01475-707319.

KELVIN LABS M60 monoblocks £695. LFD Linestage L\$2 pre-amp £595. Nottingham Analogue Spacedeck with Mentor arm and Tracer 3 MM cartridge £800 complete. Tel: 0116 2811736.

MERIDIAN 207CD, 203DAC, 209 remote control. £540. Linn LKI, Dirak power supply, LK2/75. £425. All in excellent condition, boxed with manuals. Tel: 01582 762 962.

QUAD 606 MARK two power amp, new February, long guarantee. Save £240 at £450. SME V arm, fine condition, £690. Tel: 0181-659 9538

KEF REFERENCE 107/2 black, as new. Upgraded to MK2 last August by KEF. Complete with Kube 107/2. Boxed. Instructions. Can demonstrate. Would cost £3,800 new. Quick sale for £1,295

Tel: 01279 724804 evenings/weekends. Herts.

**World Radio History** 

ITEMS FOR SALE: Linn Isobariks, black. externall passive crossovers, panel stands, Price £900. LK600 10 metres x 2. Price £100. Isobariks Aktive crossover and Dirak. Price £450. Tel: 01895 444911

MICROMEGA DUO CD3/DUO BS Very little use, boxed £950.00. Nakamichi DR2 £375.00 boxed. Sony Professional Walkman £160.00. Boxed. All immaculate. Tel: 01753684887 (London, Heathrow).

ROXSAN DPI compact disk transport, black, boxed, £700 ono. Can demonstrate lon 0181-888 2537 after 6.00pm.

MUSICAL FIDELITY MC2 loudspeakers £130. Musical Fidelity pre-amp 3B £130. Rotel RT-83AL tuner £50. Rega RB300 tonearm £50. Heybrook HBSI stands £40 Tel: 01634 811456 (evenings and weekends).

WANTED: PROAC EBS loudspeakers and stands. Must be in mint condition, late model (1988) and preferably one owner. Excellent price paid for the right pair. Vincent Poole. Tel: 0151 423 1391 (work) or 01606 782877 (home after 7pm).

AUDIO INNOVATIONS T2 moving coil transformer, absolutely brand new, genuine reason for sale, happy to demonstrate, cost £400 will sell £299. Tel: 01784 447354 (work) or 01734 665988 (home).

ROCK REFERENCE, Sykline Platform £1,150 SME 4 with 5 Wiring Trough £695 Dynavector XX-C £295, Sumo Polaris £225 MF MVT III £495, Genexa (Linaeums) Alphason Stands £175. Tel: 01273 515095.

ARCAM DELTA 290 integrated amplifier, boxed, £300 ono. Apollo 3 tier equipment rack, square section construction 220mm, 320mm shelf spacings. £25. All as new. Tel: 0121-605 5218.

RUARK SWORDSMAN, black £160, Linn Isobariks DMS, mahogany £750. Linn stands £150. V.D.H. Clearwater cables 2 x 10m £S0. Minolta X700 camera, Macro bellows outfit. Half price. all excellent condition. Tel: 01206 861457, Jim.

MUSICAL FIDELITY "Studio T" power amp. £400. MVT pre-amp with Stax SR84 headphones £450. Al integrated amp £125. Marantz CD 873 LE disc player £125. Technics ST E4S0L tuner Tel: 01635 36019 evenings (Newbury).

MAGNEPAN 1.5SE, 1 1/2 years; Dac-In-The-Box, once used, Yamaha tuner TX 580, new; Chord Company Flatwire 4 x 8m; Monster Phono Link M 1000, 3 pairs; all 30% off. Tel: 0171 439 7986

RADFORD STA25 valve pre, power amplifier with matching valve tuner, excellent £575. Cambridge R50 speakers £240. Oracle Delphi with Syrinx arm and Ortofon MC cartridge £450. Tel: 01274 545219.

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### **NEWSLETTER NO 5**

After many years of listening to various audio systems, I have concluded that for ultimate sound quality the amplifier involved in the system should be pure class 'A' in it's operation!

A bold statement, and I can feel the readers of this, cringing in their armchairs, however think on this. If you go along to your local High St. friendly dealer, and audition say, 4 amplifiers in the same price range, it is no wonder that you will become confused.

It is very probable that these 4 "best buy" products all sound very similar. If you then ask to hear a genuine class 'A' amplifier it will become obvious instantly, that this is right and the others are wrong.

So why do manufacturers bother using this "wrong" technology. Put simply, sound quality is often further down the criteria than other factors, like styling, ergonomics and build costs.

Surely, the reason for making an a applifier is to produce better sound quality. I think many companies miss the point completely, perhaps because of commercial decisions.

Unfortunately what we, the listeners end up with, is masses of products that all sound much of a muchness! It is no wonder that I come across so many average sounding but expensive systems, to put right for their disappointed owners.

This leads to the next question, why aren't there more class 'A' amplifiers available. Well I reckon it's because not enough designers have 'cottoned' on yet. Class 'A' incidentally means that the output devices are constantly in the 'on' position, therefore electrons are available to carry the smallest of signals, without the interaction of switching distortion. I believe this is a major contribution to "mechanical sounding" hi-fi, which is the culprit that causes us to watch telly, earlier than anticipated. So, ban switching distortion and listener fatigue by auditioning a class 'A' amplifier. Then, magically the contents of what you are reading will make utter sense.

Musically there are less compromises with the class 'A" products, they tend to be as deep in bass content as they are open in the treble. Basically these amps tend to be linear across the musical spectrum. Fine low level detail is retrieved far more convincingly with this technology.

There can be one or two drawbacks of the technology, such as physical size.

If for some reason, 100w is required, then the amplifier becomes large. This is because the output devices get very hot, and require large heat-sinks or fans for dissipation.

Luckily, most of today's loudspeaker designers are opting for more sensitive, easy to drive units, thus creating a more efficient transducer. This then allows amplifiers of a lowly 20 watts or so to produce high sound pressure levels.

Class 'A' output technology allows the listener greater access to the enjoyment of reproduced music through hi-fi. If your system sounds great, really dynamic etc, but you can only listen for an hour before fatigue sets in, or the television beckons, then there is something wrong! In most cases you are hearing the shortcomings of class 'B' amplification which runs cool, fits in a small case etc.but does not reproduce music anywhere as convincingly as class 'A'. Remember you bought a hi-fi to enjoy the music.

The debate for many years has been Valve versus Transistor. Again I believe this to miss the point. The real argument lies with class 'A' versus anything else.

J.E. Sugden invented the class 'A' output stage, and that breakthrough is still used in their products today. Their technology is so far ahead of most of the competition that a comparison becomes amusing.

the competition that a comparison becomes amusing.

AudioNote also are very switched on to the class 'A' argument, and provide us with the best sounding class 'A' single ended valve amplifiers on the planet. No switching distortion, means less listener fatigue.

If you have read this with bewilderment the the only way to understand my ramblings is to book a demonstration, and experience for yourself, non-mechanical hi-fi. You'll be surprised to find, that it costs less to get it right, than to make a dreadful mistake.

As ever, a musical month to you all.

Kind regards

David W. Speirs

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AUDIONOTE DAC 1	£675	£399
AURA VA100 amplifier	£300	£199
AURA TU50 tuner	£300	£195
<b>EXPOSURE 18</b> power amp	£795	£525
<b>EXPOSURE 15</b> amplifier	£750	£550
KEF Reference 2 speakers	£1500	£1199
ROKSAN Xerxes/Tabriz	£1125	£625

The above is a selection of the ex-demonstration equipment offers we have in our Summer Sale a full list is available on request.

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### PRIVATE

ART AUDIO QUINTET Plus VPI valve amps, Sonic Link Violet interconnect £775 o.n.o. Pentachord 'A' speakers (black ash) plus stands plus cables, £275 o.n.o. Garry, Wakefield (01924) 290949 day. 365376 evenings.

NAIM NAIT 3 FITTED with MM phono boards. Mint condition £390. Townsend Seismic Sink isolation support. Standard size FRO

Tel: 01256 461453 (Basingstoke).

LEAK TROUGHLINE Stereo 3 tuner C/ W Leak Stereo 30 Plus amp in double black Ash sleeve £130.00, Leak Stereofetic tuner C/W Leak Stereo 30 plus amp in double black ash sleeve £85.00. Both in excellent condition. Tel: 0181-669 1083 anytime.

QUAD II VALVE bi-amped system. 4 x Quad II's into Monitor Audio R552 speakers. Electronic crossovers. Sounds fantastic! £700 ono Leak Troughline 3 Stereo tuner £100. Sony Profeel component TV £450. Tel: 0171 263 2831.

MISSION CYRUS 2 plus PSX (Mk I). Mission DAD 7000 CD player. Spendor SP2 speakers. Foundation speaker stands. All in excellent condition. £400 the lot. May split. East Sussex. Tel: 01825 890667, evenings after 7pm.

N.V.A. T.D.S. amplification system, pre amp with 4 x PSU pair A50 monoblocs with 2 x PSU, smooth, effortless sound, lack of space forces reluctant sale, £1.150. Tel: 0585 802136 Suffolk.

QUAD 33 AND 303, FM3 tuner and pair of Quad ESL (Bronze) manuals and Quad boxes for speaker transport. £475

Leeds (0113) 2454 829.

FOR SALE: Sony STS-311 R.D.S./E.O.N. tuner - 'What Hi-Fi?' award winner, excellent condition, poxed, complete with all accessories and instructions, £130 o.v.n.o. Tel: Coventry (01203) 678094 after

**ENTHUSIASTS CLEAR OUT: Tannoy** 609 Ils £200 o.n.o.; Celestion DL3IIs £75 o.n.o.; Mission 760; SE £75 o.n.o. All boxed, as new. Wanted: Goodmans Maxim IIs. Tel: 01202 475781.

CHORD 1000 poweramp. 250 watts per channel. Magnificent sound. Glowing reviews (see M. Colloms HFN June 1992). Mint condition. Boxed. £1,000 (new £2,400). Tel: 01206-825887 (Colchester).

QUAD 22 & PAIR IIs with GEC KT66 £325, ESLs pair in bronze £323, excellent condition, all original manuals, receipts, boxes. Garrard 301 "Strobe". original manual, receipts, very good. £140 Linn LP 12, Grace arm, little used £180. Ortofon 212 arm £20 Marantz PM44SE amplifier as new £120. Will demonstrate any Tel: 01934 626959 (Weston super Mare).

WHARFDALE SPEAKERS, one pair Dovedale Ills, solid mahogany cabinets 14" x 12" x 24", very good condition, £250 o.n.o. Tel: 01405 768845.

RESTORED CLASSIC EL84 valve power amp. Extensively uprated with modern components. Very good sound quality £240 Te: 01403 891349 (Sussex).

PINK TRIANGLE LPT: black acrylic top plate, Pink fabricated lid, Rega RB300 brand new A.T.OC3 Lentek moving coil pre-amp. £420.00 o.v.n.o. Sound Organisation table and wall shelf. Tel: 0181-669 1088. Anytime.

LINN LPI2, Valnalla, Ittok, Troika. £400. Tel: 01982 553170. Sutton-Croydon.

CLEAROUT! CONCOEDANT Exquisite valve pre-amp (with Doug Dunlop's final mods) £ 1.200 (£1,950). Meridian 263 DAC £200 (£495). Cary 5500 valve line-level pre-amp £450 (£1 500). Rotel 965 BX &E-D CD player with Trichord 2 modification £300 (£566). Tel. 01372-468266 (home).

QUAD ESL63/AUDIONOTE PI: ESL63 loudspeakers, black, custom stands available, immaculate, (£3,000 new) £1,400. Audionote P1 valve power amplifier, new, sadly unwanted prize (£699 new) £500 Call Simon 0171-603 3755

ROGERS STUDIO IA monitor speakers plus stands £325 (cost over £700). REL 'Stadium' sub-bass speaker £350 (cost £795). Would exchange either for Quad 606ll. Also wanted: Kef kube 200 equaliser. Southampton (01703) 738935.

KOETSU RED M/C cartridge (careful, limited use) £225 o.n.o. Koetsu tonearra SAI 100D MKII baxed £, 20 o.n.o. (boxed) Mission 773 high output M/C £60 ono. Wanted: Naim M/C boards (late). Tel: 0191-4877796.

NAIM HI-CAP £300, Naim 62 (new style) K boards £250, Naim 32.5 MC and K boards £170, Denon TU260 tuner £60. All good condition and boxed Mike 0171-775 3616 (office).

EXPOSURE MONO-BLOCKS VIII reg. Available through upgrade. Superb dynamics, versatile "sound for all seasons". Good condition, boxed. Can demonstrate. £650 ono. Tel: 0181-341 7037 evenings.

ION AMPLIFICATION SPI/X-Pak 2/ 4xT 750/4xSAM 40/active crossovers. Stunning sound £1,295.00. FMT-2 tuner £150. Immaculate condition. Guarantee and professional service back-up. Wanted: five tier Mana Acoustic; Roksan tall tables; Moth record cleaning machine. Tel: 0161-432 0744

SUGDEN SDT-1 Integrated CD player in excellent condition £500.00. Mordaunt Short MS 5.40 speakers (shielded magnets), with rosewood effect finish and Sound Organisation sand filled stands £250.00. Tel: 01702 463232 (Essex)

AUDIO INNOVATIONS 700 integrated amplifier, excellent condition, recently serviced, £540 ono; Pandora mains filter and Kimber 4TC mains lead, £60 ono; North London. Tel: 0171-704 6775

ARRIVAL OF FURNITURE in small cottage forces sales of prized Hi-Fi. Linn P12 VAL/NIR Ittok/Asaka 1990. Electro pre3/power 25 amp. Mission 770. Will include NAD 4020 tuner Dual 814 tape and Denon CD player together with Apollo tables. £800. Phone: 01342 718864 evenings. Copthorne-Sussex

SONY WMD6C Professional Walkman, Rechargeable batteries plus mains power and recharger unit. Very clean recently serviced - little used but much cherished £200. Phone: 01703 260446 (Southampton).

LP12 AFRO LINGO EKOS K9, excellent (boxed) £1,150. Magnum Dynalab FT 101 tuner and 205 Signal Sleuth aerial pre-amp tuner (black) inc. Whip aerial

Tel: John 01686 413568 anytime. Can demonstrate.

MOVING ABROAD! MUST SELL; Elite Rock turntable. Excalibur arm, mint £400. Acoustic Energy AEI monitors, bi-wire £380. Linn Intek integrated 50w amp £150. Technics RSB 350 cassette £35. Various accessories and records. Tel: 0181–299 3642.

MUSICAL FIDELITY MC2 speakers original Martin Colloms design with Heybrook HBS1 stands, £195. B200 amplifier, £195. Pioneer PDS801 CD player, £195. Technics tuner, £39. All received excellent reviews. Tel: 01642 532696

TEAC VRDS10 CD player £450.00, Technics PS 700 C.D. player £170, Creek T40 tuner £100.00, Linn Kairn pre amp £750.00, Linn LK280 power amp plus Spark power supply £650.00, Luxman 507X amplifier £120.00, Technics ST9600 tuner £100.00. Tel: 01977 643629.

AUDIONOTE A.N.L speaker cable. 2 x 4m bi-wire with gold plugs. £300 o.n.o. Tel: Guildford (01483) 572796.

CABLES PLUS - Phono: 6m Sharkwire 91 x 0.08mm OFC, £75; Im DNM Solidcore, £10; Speaker: 4 x 5m Sharkwire 10 AWG/0.08OFC, £15, £50 all; 2 x 5m DNM Solidcore, £25; Solidcore 'S', £25; Ortofon T4PMC; QED, RSC, NAD items. Tel: 0121 350 9230

TANNOY GOLD MONITOR dual concentric loudspeaker pair. Original near mint condition. With LSU/HF/15/L crossover. Asking \$U\$2500.00 OBO. C. Phaneuf 972 Guillaume Boisset Cap-Rouge (Quebec) Canada GIY-IY9. Tel: 1-418-652-2430 evening & weekends.

AUDIO INNOVATIONS 1000 monoblocks £750 pair; Quad FM4 £200; Quad 44 £130; Quad 405II £220; Quad 33 £80; Denon DCD1000 £80; Marantz CD63 (original) £80; Garrard 401/ Mission 774 Arm / Plinth / Cover £170; Thorens TD150/SME £60; Mission 770 £80; HI Fi Answers R50s £140; Linn Index II £150; TDL NFM £75; Sequence 30 £120; Rogers Cadet II £50. Tel: 0121 353 4942 (Sutton Coldfield).

MERIDIAN 201 pre-amp. £250. 204 tuner £225. 209 master control £15, Audio Alchemy DAC in the box £135. All books, boxed and pristine. Bert. Weekdays 0181 853 4646. Evenings/weekdays 0181 473 4057.

WANTED DESPERATELY: Belt for Ariston Forté turntable. Where did all those spares go? Will pay over the odds. Phone 01728 830778. DYNAUDIO MICRON high quality miniature loudspeakers. Exqusite real Cherry wood veneer, boxed and in immaculate condition. Cost £1100. bargain at £400. Contact Paul (10-6pm) Tel: 0171 482 3768.

LINN ISOBARIKS. Black Ash. Immaculate condition. Reluctant sale. (Were £2,500) £1,050 o.n.o. Phone 01708 704092.

LEAK CLEAROUT. Leak Trouhgline III (Mono) tuner £90 (o.n.o.); Leak Stereofetic tuner £25 (o.n.o.); Leak Stereo 30 £30 (o.n.o.); Leak Stereo 70 £50 (o.n.o.). Any offer considered. Highest bid secures, everything must Adam 01737 843601.

DNM PA2 MONOBLOKS, rare hi-end bargain (70 watts, starearthed, separate PSUs) £1,250 ono. (Tri-wire Cables, plus mathcing 3B twin pre-amp, may be available). Magneplnar SMGa panel speakers (boxed) £350 ono. Tel: 0150 6825546.

LINN KAIRN (Phono "Brilliant") £875. Linn LK100 £325. Naim NAP 180 £600. EPOS EST I + Stands £325. All VGC boxed. Spendor BCIs Teak, gc, no Tel: Barry 01256 882607 (Basingstoke).

QUAD ELS-63s with new unused Arcici stands £1,400. Tel: (Oxford) 01865 63160.

QUAD 44/405 £299, Marantz CD-75 £49. Nakamichi BX150E £59. KEF 101 speakers £99. Teac CX400 £39. Tel: 01283 73 2622 (Evenings), 01332 340178 (Daytime).

AT OC9 CARTRIDGES, brand new £180.00; Heybrook HBI MKIII brand new £180.00; Naim NAC62 preamp, mint £340.00; Roksan Darius I/s, black, Tel: Jules on 01792 280061.

ENTHUSIASTS HI-FI Clearance moved house! Includes speakers, tape recorders; reel and cassette, tuners and other components, everything in good order, some as new. Tel: 01323 769793.

GOLDRING-LENCO 88 deck. Original instructions, plinth template, lid, Thorens arm £30. Armstrong FM56 tuner (mono) with valve power supply £25. Solid state phono £10. Tel: 01480 460502 (Cambridge area).

ARGAIN! MERIDIAN 207 PRO CD/ PRE-AMP. Meridian 209 MSR remote control. Both mint condition and boxed! £1,100 new a bargain at only £399. QUAD 606 power amp boxed only £349. Yamaha DSP E300 Pro Logic sound processor mint, boxed with remote £560 new only £299. Peterborough Tel: 01733 322334.

ACOUSTIC ENERGY AEGIS loudspeakers. Walnut finish, in mint condition. £325.00. Slate Audio stands also available at £180.00. Tel: 01525 384174.

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### Hi-Fi World

### PRIVATE

NAIM SBL LOUDSPEAKERS, black Ash, in original unmarked condition £900, Naim IBLs black Ash £350; Naim Naxo 2x4 active crossover with Avondale power supply suitable for SBL or IBL loudspeakers £275 Tel: 01524 381389

BOSE 901 IV vgc (new £1,600+) £495 ono. Quad 33/303 vgc £175. Croft valve pre £125. Wanted AVI tuner/CD or good DAC.
Evening 01452 812618
(Gloucestershire).

ARAGON 4004 power amp, 200 WPC, recently serviced, £750. Matching Aragon 24K pre-amp with external PSU, £550. Both boxed, approx. 3 years old, good condition. Both £1,895 new. Tel: 01483 825234

CAMBRIDGE CD3 (grey) MC remote £350. Spendor Pretide speakers (real walnut veneer) £150. Cliff Stone Foundation speaker stands £50. All boxed. Exceller t condition including instructions.

Tel. 01244 681805 (Chester)

ARCAM ALPHA 5 Plus CD player £315. Micromega Microdac £125. Theta TLC Jitter Buster £175. Audioquest Crystal speaker cable 4m single bi-wire £60. All items vgc and postage included. Tel: 01534 66238.

AUDIO INNOVATIONS 5.500 int valve amp. Woocside STA 35 Renaissance Series valve power amp. Ruark Talisman I speakers in Ash £TC. Wanted: Best Naim equipment W.H.Y. 01626 774246 Devon.

LINN LP12 (BLACK), Ittok, Stilton AT-F5, boxed £550, Meridian 200/203, boxed £695, SD Acoustics SD1 floorstanding loudspeakers, superb, boxed £695 (£1.700 new), Mission Cyrus 1 amplifier £125 Tel: (01449) 676335.

REGA PLANAR 3 with RB300 arm £175 o.n.o.
Tel: 01352-754274 (Chester, North Wales).

AUDIO INNOVATIONS S500 New Sovteks £475. Arcam Delta 170 transport £225. Deltec PDM1/I I £275. Yamaha OSR70 Prologic £75. Mission 73C £125. 2 x 9m Soniclink Brown £150. All boxed, upgrade clearout. Wanted: Leak TL 12, REL Stentor/similar.
Tel: 01 773 609 104.

CROFT Micro Valze pre-amp. Recent Mil.Spec. valves. Gold/PTFE phonos £125. Sony ELCASET EL5 Recorder + 29 Tapes £55. Targe: Stand, 5 shelves 20 x 16" £235. JVC KD-V44 cassette, auto reverse £25.
Tel: 01628 82 2040.

REL STRATA Subwoofer, active, 7 months old, excellent condition, £340 ono. NAD 304 amplifier, 1 year old, vgc, £130 ono.
Tel: 0171–387 7189 (London).

WANTED: MUSICAL FIDELITY MC4 loudspeakers (transparent cones), also Audiomaster monoblock valve amplifier (one) with Partridge transformers and cherry red base. For sale: Rotel 965BX CD Player £150 (300).
01566781275 Corpwall.

LINN LP12 VALHALLA/Ittok/Asaka; Linn LK280; various Hi-Fi magazines, 1970s onwards – offers? Northampton (01604) 403947 weekends or after 7pm.

TOWNSHEND ELITE ROCK MKII turntable, excellent condition, armboards for Roksan/Rega/Helius arms £22S ono. Goldring 1006 stylus (new) £20. ATI 10E cartridge £10. Mike 0181–777 S423 (Croydon).

PROAC RESPONSE IS speakers, latest specification, including Target RI stands, all items boxed and in mint condition.
Tel: 01582 592211, Evenings.

NAKAMICHI 1000 ZXL the cassette deck. Rare. Truly little used, unmarked, mint. (£1,850.00) £1,250.00 ovno. One owner from new. Original manual and boxing.
Tel: 01364 72292.

NAKAMICHI 1000 ZXL with remote con rol just serviced by B&W. £1,800. Pair Musical Fidelity MA50 power amps £400. Pair Quicksilver power amps £750. Original type Meridian tuner £150. Tel: 01923 826830

MISSION SPEAKERS 753 rosewood £530, Quad preamp 34 £250, Quad power amp 405-2 £260 – ono. All mint boxed, must sell, upgrading. Tel: 0121 357 9561.

MOTH SERIES 30: phono stage MM/MC; passive pre-amp; power amp. One year old – £350 (£590). May split. Linn Nexus LS250 speakers. Black Ash veneer, Ku-stone stands – £285 (£600). Soundstyle Tripod 2 shelf stand. Spiked top shelf. £50 (£100+). Goldring Elite MC cartridge. Low hours – £85 (£200). All perfect, can demonstrate. Near offers invited. Tel: 01455 636695.

LINN KAIRN, latest spec £900 ono. Linn Klout, two months old £1,300 ono. Can dem. Ring 01480 351781.

LINN SONDEK LP12 £200. Rega RB300 £65. Meridian M3 active speakers with 101B preamp, IXOS module, cables £295. All V.G.C. Wanted: Gale GS401C. P.S. Audio 4.5. Robertson 4010.
Tel: 01280–706488.

HFW 4WSE (performance checked by HFW) £450 (Upgrading). Leak Troughline 3 stereo (GT Audio) £275. Troughline 3 Mono £50. Wanted: Audio Innovations \$400 or \$300Mkil. Tel: 01834 86068I (Dyfed).

WANTED LEAK Trou hine ster to tuner Must be mint and working, Cash for best example. Kevin Yates 0171 222 0777 (day)

AUDIO RESEARCH SP9 MK1 preamp mint £895. Pioneer PD-91CD player mint £450. B & W Solids, loudspeakers mint £120. Tel: Tony 01229–833168.

MUSICAL FIDELITY MVX.2 pre-amp and PSU, mint condition, boxed with manual (£2,500 new). Bargain £750. Tel: 01263 512815.

SYSTEMDEK IIXE/Moth arm/Linn K9 (excellent, boxed) £195; Armstrong 521 amplifier, Armstrong 524 tuner – £40 each.
Tel: 01970 832694 (Dyfed) after 6pm.

NAIM 2SO AND HI-CAP (old style) and NAC72 (new style). All in perfect condition £1,390 ono. Tandberg 3011 tuner £160. Available in Dublin. Tel: 00 3531 4591432.

PRIVATE SALE: ProAc Mini Towers MKII, black ash, condition mint £475 o.n.o.
Tel: 0181–854 6738.

ARCAM ALPHA 5 CD player, still under guarantee, immaculate condition, upgrade forces sale. £300. Phone: 0114 2SS 3464 evenings (Sheffield).

WANTED USED or second hand SME IV arm, also Naim Fifty Two and Eighty Two must be in good condition, used or second hand.
Tel: 0161 747 5679

ARCAM DELTA 170.3 transport and black box 5. Boxed in good condition. £500.
Tel: 01705–382025.

CELESTION 100 SPEAKERS. Sound great. As new/mint/any test/boxed. Less than two years old. Book price £539. Absolute bargain £220. No offers please.
Tel: 01777 818153 (North Notts).

ROGERS LS 3/6 BBC monitor loudspeakers, genuine BBC design, superb condition, including stands £325. Tel: 01603 714 528 evenings/weekends.

TOP MERIDIAN SYSTEM. Pair 605 power amps £900. 601 digital pre-amp £1,500. 602 CD £900. 504 radio £225. KEF speakers 107 MK2 £1,500. Superb condition. Mike O'Driscoll. Eastbourne: 01323 712865 this number first 11am – 5pm daily or 01323 842227.

NAKAMICHI CR7E, mint condition, hardly used £900. Nakamichi DRI cassette deck still under one year guarantee. Almost new, boxed £500. Lodnon 0181–543 8625.

SME 309 TONREARM £449. SME V tonearm £900. Sony 715E CD player £179. Pioneer A400X £210. Moth 30 Series amp £250. Townshend Selsmic Slnk £134. Deltec Black Slink balanced £150.00. Mission 780 SE £199. All guaranteed. Credit Cards Tel: 01582 24414.

KEF MODEL 1 Reference speakers black Ash, boxes and manual. November '94, as new condition cost £995 sell £600. Genuine sale reason. Tel: 01604 753391.

CONCORDANT EXHILARANT line level valve pre-amp. Superb sound. Unmarked wooden and/or metal surround case. £450 ono. Tel: 0181–202 3307 (Hendon).

T.D.L. MONITOR loudspeakers, dedicated stands, black Ash. As new £1,250 or exchange for Quad ESL 63 loudspeakers.
Phone: 01772 315723.

DPA TI with PDM | Series 3 £850. Impulse H2 speakers as new £1,000. Second Audio triodes, mint £1,000. Must sell.
Tel: 01425 470907 Hants, after 6pm.

TRIO L-07D D.D. turntable with L-07D power supply A.D.C. cartridge £350. Pre-power combination L-O8C control amp + 2X L-08M mono block power amps £750. Vinyl junkies need only apply (may split).

Tel: Richard 0155 9376212 (day).

AVI \$2000MP pre-amp £350. Perfect Pitch Francinstlen CD enhancer with 0.5m DNM interconnect £95. Alphason R5555 MDF rack £75. MAF 12 inch speaker stands £75. Bournemouth 01202–767315 (evenings).

TEAC 73002T STUDIO quality open reel tape deck, two track, two speed. Built in mixer, excellent condition, superb sound two available £275 each, £495 pair.
Phone after 6pm. 01704 563178.

RADFORD RENAISSANCE Series valve amplifiers by Woodside Electronics SC2S pre-amp (M.M. input) £400. STA 35 power Amp £500. Both in excellent condition. Recently revalved. Purchased new 1991.
Tel: 01843 592S42 (Kent).

MICHELL ISO phono stage, as new, 6 months old, was £415, now £300. Tel: Bucks 01296–86211 (evenings).

LINN TUKAN with Brakits. New £390. Kaber active crossover £490. Quad stands for E\$L63 £100. Hafter DH101 pre amp £100. Tel: 01753 851429 after 6.

AUDIOLAB 8000P 2.5 years old, mint, boxed £325. Target and S.O. wall mount table £20.00 each.
Phone 01422 2030S7 (W. Yorks) evenings.

PINK TRIANGLE DA CAPO/1307 £1,100. Orelle CD-IOT £450 SP200 power £400. SC200 pre/MM/MC £250 Orator speakers £300. Target R2 stands £200. Sonus Faber Electa £1,000. Copland CSA14 £750. All boxed, as new. Tel: 01252 311016.

CYRUS II. NUMBER 7 circuit board/ PSX power supply, excellent condition, boxed, £300. Audioquest Quartz Interconnect, one metre boxed £40. Tel: 0181-644 3678. After 6pm.

LINN ISOBARIKS and stands. Teak Finish. 2 x 7.5m NAIM A4 cable. Very good condition £700. Tel: 01299 401939.

DENON 24HX dual capstan cassette deck (light use) £125. Audio Technica ATH70 Electret Condenser headphones £85. Mod Squad (passive pre) line drive £200. Bruce Rae Audio Active Cable drive with 5 metres cable (adds guts to passive pre amps) £250. Denon 250L tuner £60. Audioquest Sorbothane turntable mat £25. BLQ1 speakers (similar to Linn Kans) £60. Robin 500T multimeter £25. Tel: 0181–502 3017.

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Yamaha NSE 80 Centre Channel speaker - new, boxed	#	£150	£200
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Pioneer CLD 2950 Laser disc players x 2, boxed, unused	#	2600	£700
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Orange Valve pre amp		€400	
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Micromega Solo - Excellent condition	#	£650	£1500
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Helius Scorpio - needs attention x 2 each		€50	£190
Helius Aururm Tonearm		£130	£300
Helius Aurius II Tonearm		£190	£400
Souther Linear Tracking arm		€400	£1300
Croft pre amp - super micro		£150	
Sony 715 CD player - 30 hours use - HiFi Choice Best Buy	#	£180	£250
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### V'audio

**Hi-Fi Consultants** 

lan C. Vaudin
36 Druid Hill, Stoke Bishop,
Bristol BS9 1EJ
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### SALE OF P/E EQUIPMENT

PAIR OF NAIM 135 MONOBLOCKS	
(OLD STYLE)	£1200
NAIM HI-CAP (OLD STYLE)	£350
NAIM 72/HI-CAP/180 (1YR OLD)	£1500

QUAD ESL63's (TEAK - IMMACULATE) £ 1500 MARTIN LOGAN AERIUS (6 MONTHS OLD) £1500

TRESHOLD FET 10e + PHONO + SA4E (100W CLASS A) £5000 RUARK ACCOLADES (BLACK) £1500

### **AUTUMN LEAVES?**

Sorry about the heading, I just couldn't think of an appropriate one this month! It's quite difficult to think of something new to say every month, as much of the time we are actually working and don't have time for analysing new equipment. Last month therefore I re-used an older advert extolling the virtues of British hi-fi, but we must not ignore the rest of the world. Of course the Americans make excellent hi-fi, but by the time it reaches the UK, the price can be increased by 50 to 100%. It's very frustrating reading reviews in 'The Absolute Sound' of all the US equipment that doesn't reach these shores!

European equipment, in comparison, can be quite reasonably priced, such as the excellent <u>Triangle</u> range of speakers from France, starting with the <u>Titus</u> model at £325, while <u>Opera</u> from Italy start at £450 for the <u>Prima</u>, and <u>Unison Research</u> from Italy have some cute valve amps, starting at £995 for the <u>Simply Two</u>.

### **ELECTROCOMPANIET NEWS**

In comparison the Electrocompaniet amplification from Norway, has been more expensive with their line stage pre-amp (EC-4) at £1315 and their least powerful amplifier the AW100 at £2030. However, the integrated amplifier ECl-1, which offers comparable performance to the above pre/power, i.e. 100 watts/ch + 80 amps current, comes in at a more affordable £2100, while the new ECl-2, which should be in by the time this advert appears, gives 50w/ch and 35 amps for £990. The great thing about these amps is the large current delivery which allows them to handle speakers with low impedance characteristics; for example, the large AW250 will deliver 1100 watts into 1/2 ohm! Also due in are the Qube, near field monitor, two way speaker with 89db sensitivity at £1265 and an interesting DAC, with user adjustable clock, and input impedance trimmer for £1240.

All should be on display at Ramada, and I expect to be flitting between their room and those of ATC/AVI and Ruark, so if you wish to have a chat leave a message.

Happy listening!

### Hi-Fi World

### PRIVATE

KOETSU ROSEWOOD cartridge, recently rebuilt by Koetsu, superb £290. Fisher 500c valve receiver (18 valves) 2S WPC with original walnut case and service manual, £250. Will consider part exchange. Tel: 0181-8835618.

QUAD ESLs, BRONZE, good condition, never overdriven £300. Quad Ils and 22, resistors and capacitors replaced, recent new valves £300. Tel: 01243 576073 Chichester.

FOR SALE: SPENDOR BCI new reflex £270 ono. Linn Intek pre-amp still under warranty. Boxed £280 ono. Tel: 01753 856809.

BRYSTON 4B NRB £1,150; Audio Research SP14 £1,500; Gradient subwoofers for Quad ESL-63s with crossover £1,000; Bryston 10B professional crossover (nearly new) £1,000; all boxed and being sold by original owner. Tel: 01865 63160.

MUSICAL FIDELITY 2A preamp. Mint condition. Boxed. Surely the best available at £85. Leak Stereo 30 £35. Audio Technica in line transformer, boxed, mint £40 o.n.o. Tel: 01280 706488.

SONY TAE 1000ESD Digital Processing pro-logic AV pre-amp. Built in DAC, full remote £475. Kenwood DP-X9010 transport £300. Both boxed and mint. ATC 50 actives in mahogany, stands, cables. Not current specification (1992). Excellent £2,650. All items ono

Tel: 01527-523268 evenings and weekends (Redditch area).

AUDIO ALCHEMY DDE VI,0 DAC £200 ono (£400), Tannoy 611 MK2 speakers fitted with Deflex panels £290 ono (£480). Tel: Milton Keynes 01908 678628 (evenings).

LINN SONDEK LP12, EKOS, AT OCS plus Linn Lingo power supply. Fully serviced by Audio Counsel August '94 - boxed since. £750 ono. Ring Dave 0161 799 0710 evenings only.

NAD 1000 PRE-AMP, NAD 2100 power amp. One & half years old £300. Rotel 965 BX CD player £175. SEA5 H392 tweeters. £15 pair. Tel: 01205 750314.

AKAI M9DX REEL TO REEL stereo tape recorder with 35 tapes. Cross flow head, VU metres and many more features. Definitely a collectors item.
Offers – 01423 771474.

SUGDEN P28/C28 amplifier £300. Rotel RT85OAL tuner £80. SME Series 35 new £80. Cartridges Ortofon, A&R Arcam, Nagaoka, AT, Shure, Rata, Glanz, Unused, cheap, Half price. Ring 01352 761887 for details.

MARANTZ CD 94 II with Trichord clock mod, instruction manual and remote. A classic. £475. Tel: Guildford (01483) 267516.

FOR SALE: QUAD 22-11-11 amps. 1 KT 66 valve. I Connoisseur amp. I Stereo tuner (Mullard). £300 the lot. Tel: 01132 403496.

AUDIO RESEARCH SP& All valve preamp £750. Wanted: Gyrodec. Tel: Alan 01661 852874.

TC 100A in personnally selected Mat ogany (new £5,000+) earlier model. therefore £2,500 o.n.o. - Meridian 602/ 606 boxed and mint, only £1,250 o.n.o. Cortact Tel: 018: -888 3715. No time wasters please.

SUMO ATHENA PRE £250 o.n.o. Sumo Andromeda I pw-£350 p.n.o. (Rare) Sumo Aurora tuner £300 o.n.o. Contact Tel: 0181–888 3715. No time wasters please.

NAIM AUDIO NAIT 3 including M/M phono stage (£625) accept £375. Wanted: Shearne Phase 2. Tel: 01642 542395 day; 01429 274638 evening.

MERIDIAN 206 Delta/Sigma £550, Audio Alchemy DDE DAC plus uprated P/S £200, Linn Sara Nine including stands £395. Deltec little bit DAC £175. Rega Planar 3 € 160. Tel: 01926 831388

CROFT SERIES V (2) stereo valve power amp £275. QED MA34PG passive pre-amp £25; Sennheiser HD480 headphones £20; Deltec 'Slink' interconnects (half metre pair) £15; QED 'Digiflex' £9; Sorbotnane feet (set of four) £15. All as new. Tel: (01978) 750151.

LINN LP12 WITH Akito/K9/Valhalla. Excellent condition, little used with all original boxes. £350. Hampshire 01329 835039 evenings/ weekends.

MERIDIAN ARGENT I. Piano black. Excellent (see Hi Fi Choice buyers guide) £550. Linn LP12 (black). Valhalla. Ittok. LVII. Shure. VSTV (new stylus). Mint. £550. Quad 22 preamp/FM tuner/ AM tuner. One Quad II poweramp (needs attention) offers. (Devon) 01803 770006.

MARANTZ 7G imperial speakers made in the USA. Rebuilt to original specification at the cost of £200 and polished V.G.C. offers: Tel: 0171-790 3404

NAIM HI-CAP, 3-NAP 250s, and 32.5 wanted (old style), also CDS, DBL, 82 and AEIs considered, cash payment, can collect/meet half way whatever. For sale: 4 new style NAPI35s £925 ea. Tel: 01924-271043 evening, 01924-274887 day, Paul.

TANNOY ARDEN 15" D/C recently reconed £1,000. Tannoy Devon 12 D/C £300. KEF Cantata £100. Quad valve tuners AM/FM £25 each. Quad 33/303 pre-power £100. Thorens TD160 SB £50. Thorens arm on TD 124 arm board £30. Plinth for TD124 £40. Teac A2300 reel-to-reel £200 Phone: Paul Harris on Cardiff: 01222 770428.

HITACHI PCM digital audio recorder, very rare, brilliant sound quality and reproduction. Uses VHS format. £2,500. Nakaimichi ZXL 700 computing cassette deck, also rare with all above qualities Tel: 01202-290091.

NAIM 2S0, HI-CAP both old style NAC 72 (new style) all in excellent condition £1,300. Naim CD3 brand new £760. Thorens TD160/Grace/Supex 900 excellent £200. Meridien 200 transport £450. Available in Dublin. Tel: 00 3531 4591432.

CABLE SALE X.L.O. Signature digital link B.N.C. to phono half metre £150, balanced half metre £175. Mandrake interconnects half metre balanced £275. All one month old. Van den Hul The First Interconnects metre £120. The first Digital 0.6 £50. Tel: 0113-2682287.

ROTEL RCD965 BX LE Discrete CD. (£425) £225. Rotel RC850 pre/RB850 power 50 WPC stereo, 150 watts bridged mono, £175. Audio Innovations series 200 MM preamp immaculate, £220. Mission 753 speakers, black. 150 WPC power handling, 90dB sensitivity, immaculate, £475. All boxed. Tel: 01706 345418.

KEF CODA 7 AS NEW £95. Revolver Purdey mint condition £250 sell £149. Royd Sintra II bi-wired approx. 2 years old. Excellent condition £375 sell £175. Boxed, demo, no offers. Tel: 01865 59737 Steve.

REL ACTIVE SUB-WOOFER £285 (readvertised). Aura Evolution 100 amplifler £185. 2 x 8 metres. 'Origin Live' speaker cables with gold banana plugs £28. Tel: (01794) 514916.

CAMBRIDGE CD2, immaculate condition, only £220. Sony WMD6C professional walkman + microphone, spare 'phones, £150. Call C. Scott on Tel: 0171 286 4143.

WANTED: PAIR OF Decca/Kelly "Ribbon" H.F. loudspeaker. D.K. 30 with crossovers Tel: Peter 01227 374838.

BARGAIN: COMPLETE SYSTEM in excellent condition, CD: Rotel RCD-965BX; tuner: Quad FM4; amp: Arcam Delta 60; speakers: Celestion SL6; turntable: Thorens TD 150; cartridge: Goldring 920; black Ash cabinet. Cost when new £1,590, sell £575. Circenster (01285) 659704 (near Swindon).

FOR SALE: AUDIOLAB 8000A amplifier, excellent sound, also Arcam Alpha II tuner with FM-MW-LW, and Technics cassette deck RS-B465. All in good condition, £350 Tel: 01 354 57636 (near Peterborough).

MERIDIAN 208 (DAC7) CD/preamp etc. Boxed, mint, very little use, £745. Retired owner purchased 602/603 to match 605s Tel: 01202 470789

### TRADE

V,R.R. IKON 5+5 SI. New, 5 watts per channel, single ended, intergrated valve amplifier from only £395 built. Quad II, Rogers Cadets, KEF B139s. Repairs, custom design and manufacturing. Tel: 01903 501158.

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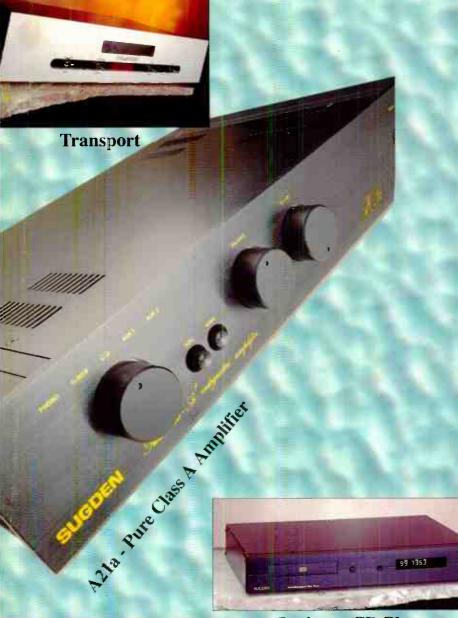
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SF 60 Line Level Integrated SF 100 Line Level Integrated



**AU 41 Pre & Power Amplifier** 



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