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SEPTEMBER 1996 £2.30

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COMPETITION

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SYSTEM BUILDING - FIVE CD PLAYERS TESTED

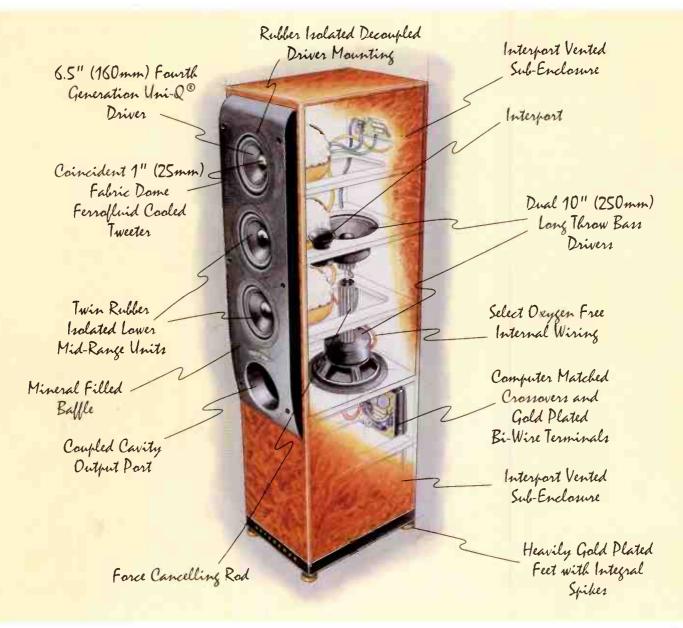


World Radio History

MISIO

KEF REFERENCE SERIES MODEL FOUR

The Inside Story



Look inside the new KEF Reference Series Model Four and you'll understand why it has been hailed as one of the finest loudspeakers in the world. You'll find brilliantly innovative design, bristling with advanced features found on no other speaker. No wonder it has met with such critical acclaim.

"...KEF's best yet, showing that musicality and neutral balance can result from the high-tech and deeply researched designs that KEF is famous for..."

"...It'll play loud throughout the range, holding onto its fundamental inner balance, one which is recognisably truthful to the programme input..." "...This speaker has a degree of slam and overall dynamic range associated with the best at two or three times the price..."

Martin Colloms, Hi-Fi News



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Audio Concept, LONDON W5
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The Hi-Fi Room, MANCHESTER
Robert Ritchie, MONTROSE
Unitet Audio, NEW MALDEN
J G Windows, NEWCASTLE
Martins Hi-Fi, NORWICH
Autingham Hi-Fi, NOTTINGHAM
Aston Audio, OTLEY

Audio T (head office), OXFORD
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Sevenoaks Hi-Fi, WORCESTER

Phase 3 Hi Fi, WORTHING

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THIS MONTH'S WORLD

- First in an all-new line-up of 75 series loudspeakers from Mission is their 754 Freedom 5. Using a quality silk dome tweeter, High Definition Aerogel midrange and powerful 8in. bass, it promises much. Do these new Missions deliver? See page 14.
- This month's group test of £500 CD players sets us on the way to assembling a top sounding system. The winners make it through to the next rounds, where first amplifiers and then loudspeakers will be tested. It all starts on page 19.
- Fresh in from Denmark. Eltax's Symphony 6 loudspeakers certainly give the competition something to think about, so says Douglas Floyd-Douglass on page 30.
- And don't miss our competition this month, where there's a chance to win a pair of JBL's £3,500 \$2600 hybrid horn loudspeakers; details on page 66.

Two years ago it was uncommon for us to measure a loudspeaker with above 87dB sensitivity. Now I'm coming across them all the time. A sensitive loudspeaker turns more of the signal from your amplifier into music. Reducing the load on an amplifier reduces its distortion, and the lighter cones needed for higher sensitivity respond better to small, low level signals responsible for a lot of the detail and ambience in a recording. This is good news for all of us.

At last we are also starting to see a wider range of cone materials, with better performance than commonly found paper and plastic. B&W pioneered the use of Kevlar and now Mission have unveiled their second model to use a High Definition Aerogel driver, the 754 Freedom 5. It's taken a while, but finally we are beginning to see a strong effort to improve loudspeaker fidelity, using synthetic materials with advanced properties.

Dominic Baker, Editor

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. No other hi-fi magazine is so expert and dedicated.

LISTENING ROOM REATED BY RPG ACCUSTIC TOOLS



IN THE OCTOBER ISSUE

Here's just some of what we hope to bring you to read as the evenings close in:

SUGDEN AUSIC/PHONO/SYMMETRA AMPLIFIERS

Dominic Baker has been living with some top flight amplifiers from Sugden. How did this preamplifier, phono stage and Class A monoblock power amplifier combination fair? Find out in October.

BUILD A SYSTEM - PART 2

Part two of our four part series continues with amplifiers, since the winning CD players have been picked in this issue. Then, in the November issue, we'll be testing a range of loudspeakers to match. In December we will be assembling the best system possible from the winning components.

HARBETH HL-S8

Harbeth have shied away from producing a floorstander in the past, feeling that they couldn't match the performance of their light but rigid Super Tuned Structure cabinet standmounters. So the S8, their first ever floorstander, is a big step. We are first in line for an audition.

KEF REFERENCE SERIES FOUR

'Flagship' only goes part of the way to describing these new KEF Reference Series loudspeakers. Towering high, they've a powerful sound to match. KEF have spent a long time perfecting the Reference Fours and are proud of them. Fingers crossed!



THIS MONTH'S REVIEWS

AMPLIFIERS

JOHN SHEARNE PHASE 6 PRE-AMPLIFIER AND PHASE 3 POWER AMPLIFIERS 28

We wire up John Shearne's new Phase 6 preamplifier to a brace of Phase 3 power amps. Can this bi-amped system match its attractively marbled exterior?

DENON PMA-425R

Carrying a price tag of £230, Denon's PMA-425R 45watt integrated is set to enter the tooth and nail budget amplifier market. Haider Bahrani asks, can it better the competition?

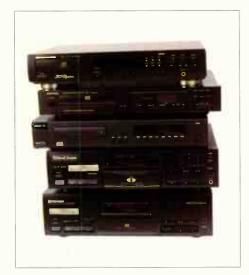


COMPACT DISC

CD PLAYER GROUP TEST

Five of the best £500 CD players square up to each other in this group test. Find out with Jon Marks which one took the laurels.

Trichord Genesis
Rotel RCD-975
Arcam Alpha 5+
Pioneer PD-S904
Marantz CD-63mkII KI-Signature



SYSTEM

RESTEK CHARISMA CD AND FANTASY AMPLIFIER 57

Douglas Floyd-Douglass polishes the silverware with Restek's Charisma CD player and Fantasy amplifier. Do they sound as polished as they look though?

LOUDSPEAKERS

MISSION 754 FREEDOM 5

14

Fresh from their unveiling at New York's Hi-Fi and Home Theater Specialty Show where they created a real commotion, Mission's new 754 Freedom 5 loudspeakers dazzle Dominic Baker.



ELTAX SYMPHONY 6

19

30

Following in the Danish footsteps of System Audio's 1005s from last month is Eltax's latest £240 floorstander, the two way Symphony 6. Douglas Floyd-Douglass is the man with the golden ears.

THOMAS TRANSDUCERS ACCELERANDO

33

Standing well over a metre tall, these corner horns from Thomas Transducers can only be described as imposing. Jon Marks plucked up the courage to put them through their paces.

CELESTION IMPACT 30

41

Can the Impact 30s emulate their siblings, the Impact 23s, which Dominic Baker concluded were a sonic bargain? Jon Marks places himself on the hot spot this time around.

OUTSTANDING - Superb sound, something we'd use ourselves. GOOD - Has strong ment. Well worth an audition. ADEQUATE - Mediocre in vital areas. May be worth auditioning. POOR - Seriously flawed. Not worth considering.

REGULARS

NEXT ISSUE

A tantalising glimpse of what will be going into next month's Hi-Fi World.

NEWS 7

If you want to stay abreast of what's going on in the hi-fi industry, this is where to look.

READERS' LETTERS/Q&A 42

Avoid information distortion with the high feedback we provide to September's mailbag.

COLUMNS 56, 62, 63

Hi-Fi World's experts let you in on what makes the world of high fidelity tick.

SUBSCRIPTIONS 61

Give your pet Doberman something to chew on next month - take out a subscription and let the postman do the walking.

SPECIALIST HI-FI DEALERS 69

Advice is what you need before parting company with your money; these dealers are the ones to provide it.

MEET YOUR MAKER 73

These are the manufacturers responsible for the high-tech boxes that sit in every music lover's listening room.

WORLD AUDIO DESIGN 74

Hi-fi nirvana is but a kit and soldering session away, thanks to World Audio Design.

WORLD BUYING GUIDE 78

The bee's knees, the cat's whiskers, the creme de la creme - it's all here.

HI-FI WORLD LIBRARY 86

Whether you're an old hand or a budding audiophile, you can broaden your hi-fi horizons with the information on offer in our library.

ROCK AND POP 81 RECORD OF THE MONTH: Long Pigs: The Sun is Often Out DANCE/AMBIENT 84 RECORD OF THE MONTH: Carl Cox: At the End of the Cliché JAZZ REVIEWS 87 CLASSICAL REVIEWS 93 RECORD OF THE MONTH: Mozart: Die Zauberflöte

DIAL-A-DEALER

Looking for that elusive component to complete your set-up? Look no further than the dealers on these pages.

MEASURED PERFORMANCE 103

Find out how the equipment that passed our ears fared on the test-bench.

READERS' CLASSIFIED

118

Put your business acumen to use and assemble a system even your bank manager would be happy to pay for.

ADVERTISERS' INDEX

130

FEATURES

THE FUTURE OF CD

37

Dominic Baker gazes into his crystal DAC to discover more about Digital Video Disc for audio, Sony's DSD and the Acoustic Renaissance for Audio's HOAD.

CHOICE RADIO

50

Noel Keywood compares the joys of owning a vintage classic like the Leak Troughline with the convenience of a modern solid state tuner.

COMPETITION

PAGE 66

In this first part of a two-part competition, you could be the lucky winner staggering home with a pair of JBL's superb £3500 S2600 loudspeakers.





HI-FI WORLD World Radio History SEPTEMBER 1996

DENON



BRITISH HI-FI AWARDS 5/96 DCD-825 CD Player DRS-640 Cassette deck AVR-900 A/V Receiver



PRO-LOGIC AMPLIFIER OF THE YEAR
AVC-1800 Amplifier



LA-2300 Laser Disc Player AVC-2800 A/V Amplifier



WHAT HI-FI 5 STAR REVIEWS
DCD-1015 CD Player 3/96 D-77 Mini System 8/95
D-C30 Mini System 3/96 D-C1 Micro System 6/96



12/95

AVR-900 A/V Amplifier



WHAT HI-FI AWARDS 1995 RECOMMENDED BUY AVC- 2800 A/V Amplifier TU-260L Tuner



HI-FI CHOICE RECOMMENDED
DCD-825 (D Player



D-F10 Mini system



BEST BUY AVC-2800 Amplifier

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trade winds

HARBETH PLUG THE GAP

Fresh from the factory is Harbeth's HL-K6, a two way ported loudspeaker destined to fill the size gap between the HL-P3ES and HL Compact 7. The £975 HL-K6 borrows from its siblings not only in its construction, which features Harbeth's SuperTunedStructure cabinet and FramelessFrame grille

cabinet and FramelessFrame grille design, but also in the drivers it uses. The 8" low coloration mid/bass unit comes from the Compact 7 while the HL-P3ES donates its 19mm dome tweeter, both being magnetically screened for use close to TVs.

Following hot on the heels of the HL-K6 is a range of three stands to match the HL loudspeakers. These are single column types veneered to match the Harbeths they support and retail for £199.

Harbeth Acoustics Ltd
Unit I, Bridge Road,
Haywards Heath,
W. Sussex
RHI6 IUA
Tel: 01444 440955
E-Mail CompuServe 100624,455



trade winds

CANADIAN FRONTIERS

Fresh in from Sonic Frontiers Incorporated of Canada is their new remote controlled SFCD-I Compact Disc player. This £3495 player combines many of the

attributes of Sonic Frontiers' separate transports and digital processors, like E88CC valves in the output stage and Pacific Microsonics' HDCD decoder, but it integrates them into

one unit.

Equipped with three
customised potted toroidal
transformers and twelve separate
voltage regulation stages, the SFCD-

I is designed to turn in a very low noise, low jitter performance.

MPI Electronic 13 Weston Road, Guildford GU2 6AU Tel: 01483 454993





Stonehill, Huntingdon, PE18 6ED, England. Telephone: +44 (0) 1480-431577 Fax: +44 (0) 1480-432777 E mail: info@roksan.co.uk

SEPTEMBER 1996

A NIGHT AT THE OPERA III

The £999 Terza (Italian for 'third') is the latest addition to UKD's Opera range. Where the Prima and Seconda were both medium-sized standmounters, the Terza is a slim three way floorstander. In keeping with UKD's fondness for the fruits of the rainforest, the Terza's cabinet is constructed from interlocking inch-thick mahogany panels, which provide strength and rigidity.



While one of the loudspeaker's two reflex loaded 130mm drivers covers mid as well as bass, the other only works up to about 150Hz, the idea being that two smaller drivers working in tandem produce faster bass with better extension than a single woofer. The rest of the frequency range is dealt with by a 25mm soft dome tweeter.

UK Distribution 23 Richings Way, Iver, Bucks. SL0 9DA Tel: 01753 652669

GOLDEN ERA FOR MUSIC SALES CONTINUES

The first three months of 1996 saw CD continuing to consolidate its domination of the album market. According to BPI figures, trade deliveries of CD albums rose a massive 23% to top 35 million,

trade winds

finally allowing the album market (made up of CDs, cassettes and LPs) to break through the 200 million sales barrier.



This may be good news for the fans of digital, but cassette and LP purchasers have rather less to be happy about. While there were still over 8.5 million cassette albums sold between January and March of this year, cassette's market share slumped from 24% to 19%.

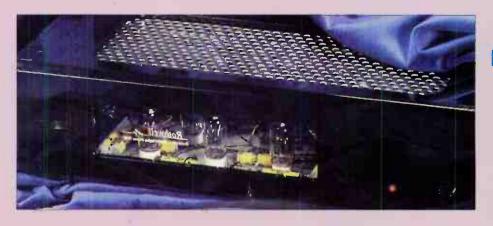
Showing a drop of just over half a percent, the LP might appear to have escaped lightly, but a market share of 1.6% is making vinyl look like an increasingly incidental statistic.

STEPPING OUT

Dissatisfied with the quality of standard volume controls, Rothwell have built their new £479 Indus passive preamplifier around two sets of stepped attenuators. These are assembled on hand made switches with silver-plated contacts to allow both coarse and fine adjustment of volume, adding up to a total of 132 volume settings.

The Indus can also be fitted with the £200 Rossane phono stage for listeners of the vinyl persuasion. Both the moving magnet and moving coil versions use discrete transistors in a Class A circuit, with capacitors selected for their low dielectric absorption.

The final link in Rothwell's amplification chain is the Rubicon power amplifier which weighs in at £799. The Rubicon is unusual in arranging four EL 84 output pentodes, strapped in triode mode, to give a parallel push-pull output





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SEPTEMBER 1996

stage. This, claim Rothwell, gives a power output of 10watts per channel into either 4 or 8 ohm loudspeakers.

Audio Images
7 All Saints Road,

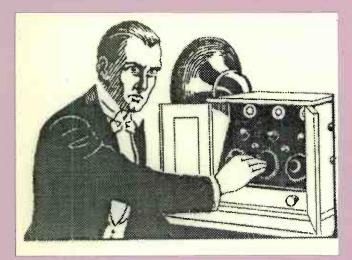
Pakefield,

Suffolk NR33 0JL Tel: 01502 582853

VINTAGE HEAVEN

All hi-fi collectors and enthusiasts should make a note of Sunday 1st December 1996 in their diary as the day when the fifth National Vintage Communications Fair (NVCF) comes to Hall 3 of the Wembley Conference Centre. There will be thousands of items on offer from the 300 dealers and collectors specialising in areas like Classic Audio and Hi-Fi, Vintage and Early Broadcasting and Phonographs.

The NVCF will also be celebrating several landmark anniversaries, including the 100th anniversary of Marconi's



patent on the world's first practical wireless communication system.

Admission from 10.30am to 4pm costs only £5 (under-14s get in free) and includes a free copy of the NVCF Show Catalogue and Guide. For more information write to the NVCF at 2-4 Brook Street, Bampton, Devon, EX16 9LY or call Jonathan Hill on 01398 331532.



TDL TERMINATED

TDL Electronics have unveiled their new 'Ultraflex' loudspeaker cable. This is made of oxygen free copper, like many of its competitors, but unusually comes

trade winds

fitted with 4mm gold-plated banana plugs at both ends.

Available in three different lengths and two gauges (the standard 551 strand and a heavier 770 strand reference grade), the cables range in price from £24.95 to £64.95 and can be bought from any TDL stockist.

TDL Electronics
Chiltern House,
Knaves Beech Bus. Centre,
High Wycombe,
Bucks. HP10 9QR
TEL: 01628 850111

REVOLVER RAVES ON

According to Revolver, their new £169.95 model 230 standmounting loudspeaker, with its ported enclosure and long throw bass driver, is designed to deliver the kind of solid bass that dance, rave and rock need to really thrive. They also claim that with its bi-wireability and a sensitivity of 88dB the 230 will suit quality amplifiers like those from Arcam, Denon and NAD. For maximum domestic compatibility two finishes, Black Ash and Bahia Rosewood, are available.

Revolver
77 Dane Road,
Sale,
Cheshire
M33 7BP
Tel: 0161 973 0505



trade winds

BARNSLEY
Barnsley Hi-Fi Centre
40 Sheffield Road
Tel: 01226 205549

BARROW-in-FURNESS

Searle Audio

223-229 Rawlinson Street

Tel: 01229 821233

BATH

Paul Green Hi-Fi Kensington Showrooms, London Rd Tel: 01225 316197

BLACKBURN

Romers Hi-Fi 94 High Street, Rishton Tel: 01254 887799

BOURNEMOUTH

Suttons Hi-Fi 18 Westover Road Tel: 01202 555512

CAMBRIDGE

The Audiofile 41 Victoria Road Tel: 01223 68305

CANTERBURY

Q Audio Oa Lower Bridge Street Tel: 01227 462787

HARPENDEN

Studio 82 82 The High Street Tel: 01582 764246

HARROGATE

Harrogate Hi-Fi Centre 15 Commercial Street Tel: 01423 504274

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HARROW

Harrow Audio 27 Springfield Road Tel: 0181 930 9933

HASTINGS

HASTINGS
Adams & Jarratt
-18 Norman Road, St Leonards
Tel: 01424 437165

HULL

ZEN Audio 36 George Street Tel: 01482 587397

IPSWICH

Eastern Audio 41 Bramford Road Tel: 01473 217217

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	Alpha 9 New	499
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	Alpha 9P 70wpc Pwr-Amp	399
Audiolab	8000A	499
	80005 New	649
	8000C Pre.	549
	8000P Pwr.	749
	8000Q Pre.	1099
	8000M Mono Pair	1599
Aura	VA80SE-X	249
	VA100 MkII	349
	VAISO	799
Denon	PMA250se	159
	PMA350se	229
	PMA425 New Remate	229
Krell	KAV300i New 150w integrated	
Marantz	PM34	119
	PM66se Remate New	229
Mission	Cyrus III	499
	PSX-R Power Supply	299
	Cyrus Pre-amp	649
	Cyrus Power-amp	449
Myryad	MI - 120	529
,.,	MA - I20 Power Amp	449
NAD	310	99
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	314	259
Quad	77 Integrated (inc Remote	
4	Control Console)	849
	77 Pre-amp & Remote	849
	77 Power-amp	599
	707 Power-amp	799
Rotel	RA930AX II	149
	RC970-11 Pre-amp	175
	RB970-11 Power-amp	225
Technics	SU-A700 11	279
	SU-A900 Mk2	449
Yamaha	AX-390	169
	AX-490	249
	AX-590 100wpc	299
	270 тоопре	

COMPACT DISC

.71.		
Arcam	Alpha 7 New	319
	Alpha 8 New	519
Aura	CD100 - New	399
Cyrus	DAD-7	899
	System Remote Control	99
Denon	DCD315	149
	DCD625	199
	DCD715 With PITCH Control	234
	DCD825	239
	DCM260 - 5 disc	299
	DCD1015	349
Marantz	CD67 New	269
	CD63 Special Edition	349
	CD63 Signature	499
	CD17	799
Myryad	MC100 New	699
NAD	510	199
	512	249
Quad	77 Bus Powered	595
	77 240v Powered	850
Rotel	RCD930AX	199
	RCD970BX	349
Technics	SL-P5570	169
	SL-P5670	199
Yamaha	CDX-390	129
	CDX-490	169
	CDX-590	229
Densen	DeMagic Demagnetiser Disc	10.95

CD DACs & TRANSPORTS

Audio Alc	hemy Dac-in-a-box	22
Arcam	Delta Box 50	47
	Delta Box 500	74
	Delta 250 Transport	79
Audiolab	8000 DAC	89
	8000 CDM Transport	139
Cyrus	Discmaster	74
-	Dacmaster	74

SIMPLY

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SPEAKERS

DM302 New

B & W	DM302 New	125
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	CDMI New	599
	P4	675
	PS PS	875
	P6	1075
Celestion	Impact 10	129
	Impact 15	199
	Impact 20	279
Goodmans	Maxim (rrp £119.00)	89
KEF	Coda 7	129
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	Coda 9 New	299
	Reference I	1099
Mission	73s	99
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	732	199
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	Studio 100	699
	Response One S	999
Ruark	Templer	499
Tannoy	Profile Plus 631	129
	Profile Plus 631SE****	169
	Profile Plus 632	199
	Profile Plus 633	299
	Profile Plus 635	449
	Profile Plus 637	549
	Profile Plus 638	649
Su	ib-Sat 3 (Woofer + Satellites)	199
TDL	Near Field Monitor	99
	RTL 2	299
	RTL 3	399
	Studio .75M	749
4	Studio IM	899

CASSETTE DECKS

CASSELLE DECKS		
Denon	DRM550	159
	DRS640 Drawer Load	199
	DRM6505 - New Dolby-5	229
	DRM740 3-Head	269
	DRWS80 - New Dauble	199
	DR\$810 3-Hd Drawer Load	309
Marantz	SD\$45 Double Special Offe	r 199
Nakamichi	DR3 **Stock still available**	449
Technics	RST-R474 Twin	219
Yamaha	KX390	149
	KX490	199
	KXS80 Dolby-S	249
	KX690 3-Hd Dolby-S	399
	KX-W392 Double	179
	KX-W592 Double	279
	KX-W952 Double	599

HEADPHONES

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THE GREAT ESCAPE



Making their escape from conventional cone materials, Mission's new 754 Freedom 5 loudspeakers use a High Definition Aerogel midrange driver. Dominic Baker tastes freedom.

hen our reporter in New York first told me about a fabulous new loudspeaker he'd found at the Stereophile Specialty Audio Show, I must admit to having been a bit miffed. Why? Because the 'speaker in question was an all-new flagship model from UK residents Mission. So how come they were being launched to the US market first? Mission were surprised we'd found out about them so fast and, game up, provided a pair for review. This is how they shaped up.



I thought the contrast between the black and natural Oak wood finishes and the clean lines of the cabinets looked superb. They might be a shade too tall for some perhaps, but at least things are right in engineering terms with the inverted drive unit layout placing the acoustic centre between midrange and tweeter perfectly at ear level.

Simple and elegant they may be from the outside, but a lot of complex design has gone into the 754 Freedom 5s. Starting from the top, Mission's Managing Director and Chief loudspeaker Designer, Henry Azima, has chosen a high quality lin. silk dome tweeter, ferrofluid cooled to improve linearity and power handling. This crosses over at 2kHz to a 6.5in. High Definition Aerogel (HDA) midrange driver. HDA is a composite material made from an acrylic polymer gel into which carbon and Kevlar fibres are embedded. These ingredients create an extremely light, stiff cone that possesses excellent internal damping properties.

To take best advantage of the 6.5in. HDA cone's properties, it comes fitted to a Kapton former which improves heat transfer away from the voice coil and thus increases power handling. The large magnet assembly that drives the cone is also fixed to a die-cast chassis for maximum rigidity. The driver is then

housed in a sealed enclosure and responds down to 110Hz below which the bass driver takes command.

This highly specified 8in. polypropylene bass unit is mounted inside the cabinet in a bandpass arrangement to deliver efficient and powerful bass from the downward firing reflex port. Again, there's little point in all this effort and complexity if it's let down in other areas. So, to provide a solid structure, Mission have chosen 25mm MDF for the cabinet which is rigidly constructed using their TFT Transverse Folded Technology. Inside, visco-elastic panel damping cuts down on the resonant energy produced and minimises coloration.

High quality components, including film signal capacitors, are used in the 12-element crossover. Because Mission have chosen a set of efficient drivers, the amount of power needed to drive the 754s is reduced. This means that ferrite core inductors, which have a lower resistance for a given wire gauge and allow more of the signal to pass, can be used in the crossover, again improving efficiency.

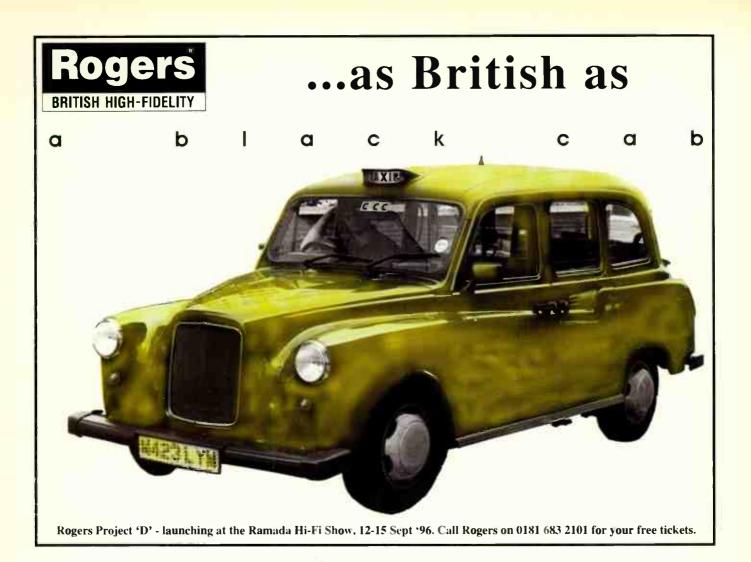
The crossover design itself is 2nd order throughout. In the bass, this works in tandem with the 2nd order roll-off characteristic of the bandpass enclosure to create a steep 4th order

filter. This helps to prevent any spurious harmonics making their way into the midband, keeping it clear and uncluttered.

SOUND QUALITY

Mission's 754s do a very complete job of addressing all of the 752s' weaknesses, small though they may be considering the £500 cost. The 752s are still one of the most enjoyable loudspeakers around at the price in my opinion. In fact, a pair have taken up permanent residence in our in-house listening room.

The metal dome tweeter of the 752s, although one of the best examples of its kind, can be a little obvious at times. The most discerning listeners can find its character somewhat at odds with that of the Aerogel midrange. In the 754s, the sweet and extended response of the silk dome tweeter marries more harmoniously with the HDA unit, and along with a well engineered and implemented crossover, makes for a near seamless tonal quality right across the frequency range. This endows the 754 Freedom 5s with greater transient speed on leading edges and more delicacy in their decay, producing a convincingly organic sound.



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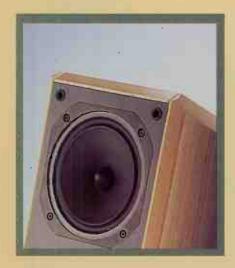
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The 752s could also be criticised for their slightly recessed midrange, which although giving them a pleasant warmth, fails to fully exploit the breathtaking openness and clarity of the Aerogel driver. In the 754s, vocals and strings alike benefit from a more neutral and spacious midband. They're still not as forward as some, but the slight cloudy softness of the 752s is replaced by a super-clear, clean midrange layered deep with delicious detail.

When I first heard about the driver line-up in the 754s, I reacted a little hesitantly. A silk dome tweeter, light, efficient HDA midrange and polypropylene drivers for the bass? I had a sonic vision (nightmare?) of fast, clear midrange and treble shackled to soft, slow, soggy bass. I should have known to expect rather more from Mission's Henry Azima. The 754s never sound slow and better still, they possess extremely well balanced bass. On first acquaintance, they come across as dry and tight, but with little real earthshaking ability down below. This was no problem though, and I was more than happy, having been prepared for the worst.

It wasn't until a change of CD found Bjork's 'Violently Happy' playing that the 754s gave me a real taste of what they



could do. With little overhang or waffle, subsonics rumble nicely and deep, punchy bass lines higher up on this track were well portrayed, each note developing a clear form within a tight envelope.

Bjork's vocals were luscious, liquid and deep with emotion, although there was a smidgen of unnatural emphasis on lower notes. This manifested itself as a kind of thrum or hollow resonance that coloured, but didn't disturb the flow of the music. However, this is real nitpicking next to class-leading low-level detail resolution that described a hauntingly convincing atmosphere and acoustic space all around Bjork.

With Tricky's 'You Don't', the Missions certainly did, pumping out an electronic bass line that dived like a depth charge. It was easily deep and powerful enough to set the windows rattling, scattering a line of birds perched on the window sill. Control was maintained a long way around the volume control too, reaching a more than acceptable level before complaint was audible.

Hammond organ on the intro to the Lightning Seeds' 'Open Goals' was the next to capture my attention and highlight another area where the Missions perform particularly well. This track is recorded with a dry, sparse sound to give it a cold clarity, forward and strong. And that's exactly how it sounded on the 754s - super dry and detailed, pushing forcefully out from the soundstage until the solid, funky bass line took over, pushing up the tempo.

Shamen's 'Hear Me O My People', mixed by Orbital on vinyl, showed that the 754s could hold their own in the face of a real barrage of synthesisers and drum machines. 'Hyperreal' too exploited the speakers' top to bottom reach with deep, strong bass and powerfully extended treble emerging either side of Plavka's smooth vocal.

Swapping dance for classical had the crisply lit violin strings of Locatelli gliding in majestically from stage left, countered by cellos at far right. The Missions certainly know how to open up the layers within a recording, placing horns and bassoons further back and more centrally than cellos. Behind the violins, timpani and percussion could be clearly heard punctuating the score. There is only a handful of 'speakers around that are capable of presenting a recording as convincingly as this.

Imaging, although not quite as

precise as Quad's ESL-63 electrostatics or JBL's \$2600s, is firmly up there with the best. The 754s managed to create as convincing a sound spread with tightly located performers as any other direct radiator loudspeaker I've heard, including Harbeth's super-precise HL-P3s which, being a miniature, have size on their side, because small 'speakers display better imaging.

CONCLUSION

The 754 Freedom 5 is the first in a new generation of 75 series loudspeakers from Mission and is set to be the flagship of the range. Our current £500 favourites, the 752s, are already undergoing improvement; as I write; we've been promised a pair of the new £600 752 Freedoms within the next week or so. I'm happy to see that Mission have chosen to continue their use of the HDA cone midrange driver. They're real hi-tech, in a world of paper and plastic. With the Freedom's, Aerogel and silk are a treat for your ears

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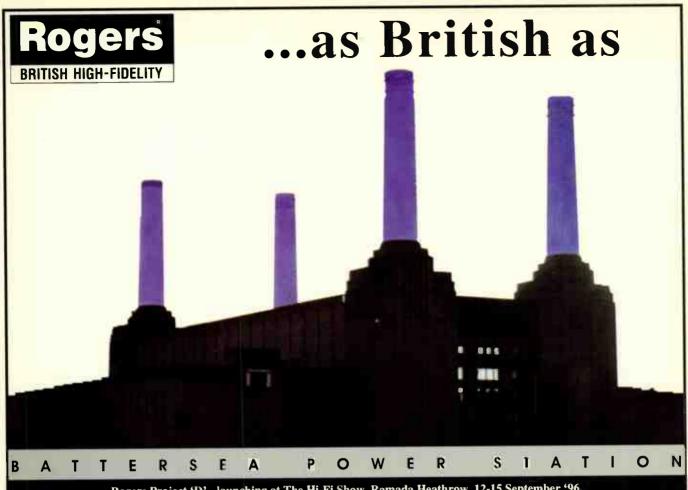
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This month sees Hi-Fi World setting out to find the components you need for a superb system. The first step on our journey finds the intrepid Jon Marks choosing the best £400-£600 CD player from amongst the top contenders on offer today. In the coming months we'll be testing matching amplifiers and loudspeakers.

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BINARY STARS



he £400-£600 price bracket offers best value with CD players. There's enough in the development budget to engineer a very high performance player. Spend more and you'll hear diminishing returns; 16-bit CD technology is nowadays regarded by many engineers as barely adequate; highend players are hitting its limits.

Super digital is on its way, but it will be a few years yet. In the meantime, tuned up designs are becoming a focus of attention within the industry, the way being pioneered (no pun intended) by Marantz. Their CD 63SE (Special Edition) tune-ups have sold well and rivals have taken note. This report sees Marantz bringing the personal touch to this process by attribution to their chief audio engineer, Ken Ishiwata (hence KI-Signature). Surprisingly, Trichord's tune-up of Pioneer's PD-S504, also in this report, comes with the Japanese company's blessing.

Representing Britain in this group of players we have Arcam with their Alpha 5+, the Trichord Research Genesis, a Pioneer PD-S504 modified with Trichord's own high precision Clock 2 and Class A biased output stage.

Flying the flag for Japan are the Marantz CD-63mkll KI-Signature, Rotel RCD-975 and Pioneer Legato Link Conversion S PD-S904.

OCTOBER ISSUE - Amplifiers
NOVEMBER ISSUE - Loudspeakers
DECEMBER ISSUE- The System

otel's RCD-975 is a compact and neat looking player with a weighty build. It's probably the most unassuming in the test, but its exterior hides high quality mechanical and electrical parts inside.

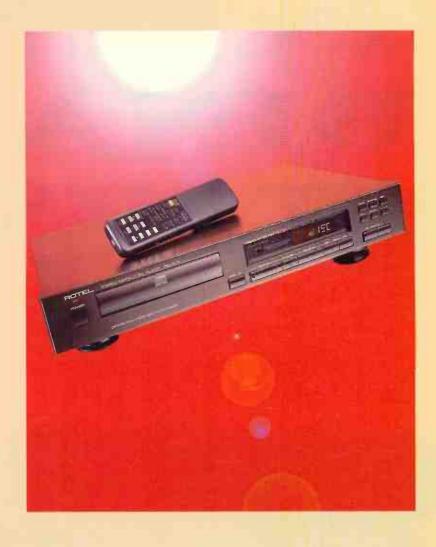
It looks as though Philips' electronics and transports are the order of the day as far as most of the players in this group test go. The Rotel is no exception here, with its CDM-9 mechanism and TDA1305T DAC chips. A pair of these are used in dual differential configuration to cancel common mode distortion and so improve low level linearity, which should give a smoother sound and better retrieval of recorded ambience. Toeing the anti-jitter line, Rotel fit an external clock to improve the timing signal, even though the 1305 has its own clock in-built.

SOUND QUALITY

'1982-A' from the Sons of Champlin and their Loosen Up Naturally CD had a full-blooded delivery that really propelled the track along, the tight bass stopping the pace of the song from getting out of control. The drummer takes a large part of the credit here, with the Rotel's subtlety in lower midrange and bass highlighting his musical expression. Upper midrange, however, didn't quite have the detail or insight to match.

The RCD-975 gripped the rhythm of 'Rooftop' with equal conviction, emphasising just how tight the Champlins' playing can be. On the busier passage that makes up most of the finale of this song the Rotel did sometimes sound slightly confused because of an upper midrange and treble that needed a little sweetness (as opposed to euphony) and separation.

Mingus, Mingus. . . showed Charles Mingus really letting rip on his double bass. On tracks like 'II B.S.' there was less confusion than on some of the Champlins' CD, although a slightly flat soundstage wasn't giving the musicians quite as much room to manoeuvre as they really needed. Changing down a gear from 'II B.S.' to the gentler 'Celia' caused the Rotel no problems. There



was a lightening of tone with percussion and trumpets on this CD, but it wasn't enough to change the instruments' character.

It was only as '18 Wheels and a Crowbar' from BR5-49 wound down to its conclusion that I realised that my head had been bobbing and my foot tapping throughout. The RCD-975 has an ability to communicate the feeling of a song in an unobtrusive and even-handed way. In spite of this, the Rotel didn't manage to give cymbals their full metallic shimmer and a lightening of tone removed some of the substance from the atmosphere of the venue.

'Muhammad My Friend' from Tori Amos' Boys For Pele demonstrated that reproduction of piano and harpsichord is one of this player's fortés. Harpsichord on both this album and Vivaldi's Four Seasons was weighty without sounding overheavy, powerful without jangling and possessed subtle detail that made it convincingly life-like.

CONCLUSION

Foot-tapping rhythm seekers and lovers of piano and harpsichord everywhere should push the Rotel towards the top of their shopping list - a tuneful, pungent bass allied to a generally neutral sonic balance doesn't come along very often at an asking price of £450. Those looking for upper registers possessing the same degree of insight and subtlety won't be quite so impressed with the Rotel. While there was never any harshness to the player's sound, its rather flat soundstage and lightening of tone in the upper midrange and treble meant that it could come a cropper on busier tracks.

he CD-63mkII KI-Signature is an even more highly tuned version of the CD-63 than the tweaked SE model. The tuning starts off in the power supply with a toroidal mains transformer wound with high grade copper wire and built with composite materials, aimed at improving bass punch and extension. It continues with copperplating on the chassis and screws, to reduce eddy currents. This lowers noise levels in the player's circuitry, and hysteresis distortion.

The final touch is the use of

The final touch is the use of Marantz's own copper shielded HDAMs (Hyper Dynamic Amplifier Modules) in the output stage, in place of the more common chip based op-amps. These HDAMs are claimed to respond to transients faster than op-amps and provide better sound quality.

SOUND QUALITY

On the first track of Loosen Up Naturally by the Sons of Champlin, vocals made an immediate impression. They sounded unprocessed, as though there wasn't a hi-fi system sitting between the Champlins' performance and my eardrums. 'Get High' revealed an electric bass that had a funky fluidity and well judged weight which put a smile of appreciation on my face as I followed the bass player's prestidigitations. Whereas the drummer usually seems to be relegated to the back of the soundstage and left to his own devices on this song, through the Marantz he was given a chance to make a proper rhythmic contribution, adding his own pace and drive.

A change of musical course brought me to Spring's Pastoral dances from Vivaldi's Four Seasons. Here, the KI-Signature demonstrated a poise and expressiveness that gave the dances a natural, cohesive flow. Solo violin on the build-up to Summer's Thunderhead also showed a host of tiny changes in tempo and volume. It revealed a depth to this piece which hadn't made it, intact, off the



CD with the other players. No one area, like treble purity or breadth of soundstage, stood out for particular recommendation, and for that alone the Marantz deserves praise. It has balance.

Tori Amos and her Boys for Pele album gave the KI-Signature a chance to flaunt its bass ability. 'Talula', with its combined kick drum and African percussion bass line normally ends up a recipe for waffles. But the Marantz had no trouble getting the floorboards twanging with deep, taut, detailed bass that packed all the punch of a boxing glove full of horseshoes.

Further up the frequency range, BR5-49 were proof that the Marantz wasn't adept with bass alone.
'Knoxville Girl' had a slide guitar smooth enough to set a cowboy's tears flowing at fifty paces, and the frenzied fiddling of 'Ole Slewfoot'

never sounded compressed or sour, even at its most powerful.

CONCLUSION

The Marantz is a rare CD player, putting together a performance which is greater than the sum of its parts. The combination of subtle detailing, an organic cohesion and great neutrality adds up to a presentation that never fails to draw the listener into the music. Technically, the KI-Signature handles the whole sound spectrum with ease, right from its impressively dynamic and detailed bass up to a naturally sweet and transparent treble, but what sets it apart from most of the competition is the way it communicates the emotion and purpose in a piece of music.

he only British built player in this test, the Arcam Alpha 5+ is decidedly reserved in its appearance. Inside its smart blackdressed casework, Arcam, like Trichord, follow the road to reduced jitter with a discrete master clock. This clock, which runs off its own separately regulated power supply, improves on the standard on-chip clock to increase the accuracy of the timing signal fed to the Philips TDA1541 multi-bit DAC and so boost sound quality.

Philips also supply the transport, in this case the well-regarded CDM-9, which spins the discs in Rotel's RCD-975 as well. Just to make sure there aren't too many slips 'twixt disc and amplifier, separate regulated supplies feed the digital and analogue sections.

SOUND QUALITY

Faced with 'Mood Indigo' from the Charles Mingus CD, the Arcam Alpha 5+ came up trumps with its retrieval of the subtlety in Mingus' technique. The drummer's brushwork, which was delicate and refined, fitted the gently sombre mood of the piece well. Soundstage width and depth were also good, although saxophone tended to push toward the front of the stage because of a slight midrange emphasis.

'Better Get Hit in Yo' Soul' gave the Arcam a chance to demonstrate its control, with even powerful percussion and energetic trumpets failing to blur imaging. Although Mingus' playing was obvious under the rest of the band's work, bass didn't have quite the focused tunefulness of the Rotel and as a result produced rhythm with a little less drive.

The Alpha 5+ had no problem with the lilting feel of Spring's Pastoral dance from Vivaldi's Four Seasons, where smooth violins and powerful cellos combined to give the piece momentum. Here, the size of the soundstage lent the music scale - especially on crescendos like those of Summer which had real power and fury to them.



The bump and grind of Tori
Amos' vitriolic 'Professional Widow'
benefited from the same scale and
power, particularly with the bonecrushing drum machine bass line.
There was a hint of sibilance on the
vocals which Tori Amos spits out on
this track, but it remained just that,
a hint. The sparser 'Marianne'
possessed a flatter, narrower
soundstage than some of the more
densely orchestrated songs on 'Boys
For Pele' like 'Talula' and 'In The
Springtime of His Voodoo'.

Moving into Hillbilly territory, the feeling of space that the Arcam conjured up around the members of BR5-49 made it easy to pick out Guy Bennett's lead vocals against a backdrop of yodelling, beer-swilling truckers and cowboys. Smilin' Jay McDowell's double bass possessed a bloom that emphasised the CD player's rich presentation and

cymbals had that golden shimmer which the Rotel had missed out on.

CONCLUSION

With its ability to produce a sizeable soundstage full of clearly delineated images, the Arcam Alpha 5+ makes it easy to become immersed in the music. The sense of involvement is helped along by a bass richness and a generally warm sound. Like the Trichord, this doesn't constitute the last word in neutrality, but it is certainly preferable to the clinical presentation of many CD players at this price. The only problem this bass quality gave rise to was a slight lack of drive with more up-tempo tracks, but then, this is a difference of character rather than a shortcoming.

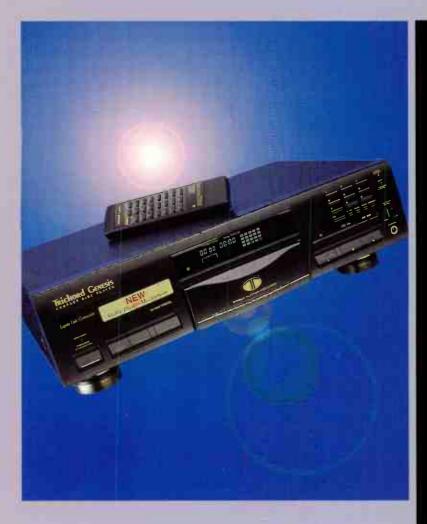
he first thing I saw when I opened the Genesis' box was the Pioneer manual. In fact, the only external features which distinguish this Trichord version from the standard Pioneer PD-S504 are badges on the player's fascia and its remote control. The real differences lie inside the casework.

Here, Trichord have fitted their own Clock 2 masterclock to reduce the amount of jitter introduced into the digital signal. By tightening the timing, this should produce a cleaner, smoother sound. The clock modification comes with its own power supply regulator, to lower noise. The output stage has also seen some revision - it now works in Class A which many regard as a better biasing arrangement than the more common Class AB.

SOUND QUALITY

Using an Audiolab 8000S and our KLS3 loudspeakers, I couldn't resist treating myself to another listen of BR5-49's Live from Robert's CD to start putting the Trichord through its paces. The Genesis showed the band members and their instruments firmly located in a nicely transparent, open soundstage. It let the atmosphere of Robert's bar through into our listening room. Plucked double bass had the necessary transient speed and delicacy in its decay to sound convincingly organic, while good bass weight made it easy to picture the drummer pounding away.

With Vivaldi's Four Seasons the Trichord handled the abundant string energy of the first movement smoothly, avoiding any raucousness. Here, one note flowed into the next in an engaging and natural way, allowing the rhythm and drive of Spring to come through undiminished. The separation between different strands of music throughout this CD not only made following the various sections of the orchestra easy, but also helped to give the piece as a whole a cohesive feel. Another Brownie point the Genesis earned was for its ability to pass on the feeling and passion of



the music from the little silver disc to the amp's inputs.

Tori Amos' vocals on Boys for Pele showed the same smoothness as the violins of Vivaldi. From the inflections in Tori's voice it was easy to catch the mood of the track, although some of the clarity of this CD seemed to have been exchanged for extra warmth in the presentation. I was pleased to feel my eardrums taking a beating from the drum machine bass line of 'Caught a Light Sneeze', even though bass depth was slightly exaggerated.

The sense of the recorded acoustic was brought out well by the Trichord on the Sons of Champlin reissue CD, Loosen Up Naturally. It was obvious that 'The Thing To Do' and 'Misery Isn't Free' had both been recorded in a fairly small studio. Images were clearly placed in the soundstage too, with the drum kit back in the corner,

while powerful vocals took centre stage.

CONCLUSION

I was impressed by the natural integrity of the music that the Trichord Genesis produced. It may not have been strictly faithful to what was encoded on the CD - the music was imbued with extra warmth and bass weight was emphasised - but it made listening to music easy, CD after CD. The only slight reservation I have is an occasional inconsistency in its presentation, especially with vocals which could sound thick on certain tracks whilst coming through more clearly on others. That said, what with the soundstaging, insight and involvement the Trichord offers, it certainly looks as though an audition could lead to £549 well spent.

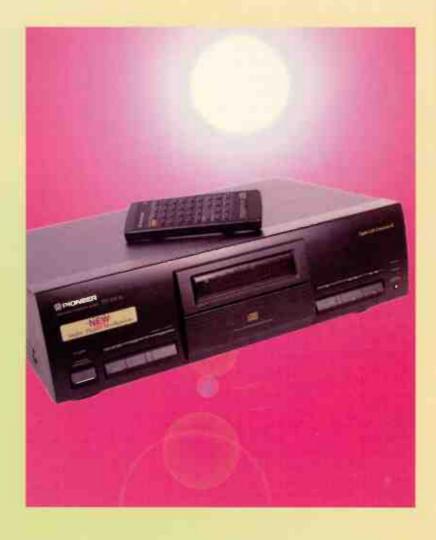
'd been looking forward to listening to Pioneer's PD-\$904 and its second generation Legato Link system for quite a while, sharing as I do Pioneer's feelings about the shortcomings of CD sound quality. Dissatisfied with CD's limited frequency response that only runs up as far as 22kHz, and feeling that this was the main reason for many people finding digital sound quality unappealing, Pioneer set about developing their Legato Link in an attempt to improve matters.

The system is designed to guess what's going on sonically above the cut-off of 22kHz and add this extra information to what is encoded on the disc in order to produce an output signal that extends as far as 30-40kHz. Even though this new information isn't actually recorded on the disc and cannot be heard directly, Pioneer believe that it has an effect on audible sounds and should, according to their theory, rid CD of its clinical edge.

SOUND QUALITY

Opening the proceedings with 'Muhammad My Friend' from Boys For Pele found Tori Amos' vocals projecting from the centre of the soundstage, easily intelligible by virtue of quite a light tone. Her piano playing sounded clear and fresh too, moving smoothly from one note to the next and giving this track real direction. Although George Parker Junior's bass didn't quite have its customary pungent and powerful extension, it still worked well with the piano to produce fleet of foot rhythm.

BR5-49's Live From Robert's yielded a slightly broader soundstage than had Boys For Pele, although here again images tended to congregate at the centre around Gary Bennett's vocals. Aiming to discover what the PD-\$904's bass was made of, I homed in on 'Me 'n' Opie (Down By The Duck Pond)' with its drum roll intro. This sounded rather dry and didn't have sufficient depth or punch to it to really get this track fired up and ready to roll. Double bass fared much the same, unable to muster enough power to get the floorboards of our listening room jumping along with the audience



at Robert's. Vocals were a different story though, projecting clearly and powerfully on the melancholy 'tear in my beer' strains of 'Knoxville Girl'.

Swinging across from Nashville to California found the Sons of Champlin in fine voice on Loosen Up Naturally, the PD-S904 doing a sterling job with smooth, clear vocals and a saxophone that had a brassy reediness in place of the gritty, raucous edge some players add. Higher up the musical scale, the Pioneer's rendition of cymbal crashes was good if not exceptional, capturing the detail of the rivets in the rim, but missing out on their tonal colour. Bass was still rather dry, and while it took nothing away from the funkiness of the arrangements on this album, the feeling of raw drive that permeates this album was diminished.

While the Champlins retained their original funky character, at the hands of the PD-S904's dry bass and limited tonal colour both Vivaldi's Four Seasons and Charles Mingus' Mingus, Mingus. . . CDs sounded rather thin, lacking the bass weight to balance the classical string sections and jazz trumpets.

CONCLUSION

From Gary Bennett's country warbling to the dulcet tones of Tori Amos, the Pioneer always allowed vocals to flow smoothly. Saxophone was another beneficiary of the PD-S904's midrange ability. Percussion and strings, however, could sound tonally divorced from the rest of the music, even though there was detail aplenty. Whilst it would be churlish to describe bass as lightweight, a little more extension and punch would help to open out the soundstage and give the music a more substantial feel.

CD GROUP TEST CONCLUSION

f I was left with one impression more than any other after spending time with these players, it was that £400-£600 can buy real audiophile sound quality. Any one of these players is reason enough to burn the midnight oil going through a CD collection. But what separates the best from the very good at this price are qualities like subtlety, low-level detail retrieval and a natural presentation that in combination can allow you to stop hearing the hi-fi and start listening to the music.

THE RESULTS

At £399.95, Pioneer's PD-\$904 is the cheapest CD player in this group test. Considering its price tag, though, the Pioneer demonstrated that in certain areas it could stand alongside the best in this field. Pianos and vocals in particular sounded clear and fresh on the excellent recording of Tori Amos' Boys For Pele, and the saxophones that accompanied the Sons of Champlin and Charles Mingus were free from any roughness. It was the frequencies above and below the smooth, lucid midrange that started to show the Pioneer's limitations, with a slightly insubstantial bass and tonally limited upper register.

Next on the podium is Rotel's RCD-975. This player's taut bass grips

a track rhythmically and gives it a real feeling of impetus. It also has the weight and power to make harpsichord and piano sound surprisingly life-like. Upper midrange and treble, however, lacked the extra sweetness and insight that players like the Marantz, Trichord and Arcam are able to wring from the CD, and it could occasionally become confused on energetic passages.

It was thanks to its richness and ability to transmit the nuances in a piece of music that the Arcam Alpha 5+ came in ahead of the Rotel. Remaining unruffled by the powerful trumpets and percussion of Charles Mingus' 'Better Get Hit In Yo' Soul', the Arcam allowed the bandmembers to show just how expert their playing is on this virtuoso performance. BR5-49 took up their positions on the Live From Robert's album in a large soundstage populated by sharply focused images that made the music immediately accessible. The sole problem I had with the Alpha 5+ was that its bass richness could sometimes take a little of the drive out of more up-tempo tracks, but this is a character trait, not a fault.

Now we come to Trichord's
Genesis. Here, the warmth of the
player's presentation meant that the
power of period violins on Vivaldi's
Four Seasons avoided any sharp
shrillness. Although bass figured rather

large in the proceedings, it still displayed impressive speed, insight and impact, hammering out the drum machine bass line of Tori Amos' 'Caught A Light Sneeze'. Where the Trichord really scored was in its ability to pass on the emotion captured in a recording, whether it was the vitriol of Boys For Pele or BR5-49's carefree irony. In this area at least, the Genesis was the Marantz's equal. What stopped it from taking the honours were its less than neutral balance and an inconsistency in the way it handled vocals, which could sound thick on some tracks while coming through clearly on others.

It was given a hard run for its money, but the Marantz CD-63mkll KI-Signature won through in the end. All of the players in this group test have individual strengths and weaknesses which give them their character. The Marantz is the victor here for the simple reason that it imposes less of its character on the music than any of the other players. It has a self-effacing transparency and neutrality across the whole of the frequency range, passing on the music in a natural and cohesive manner that never fails to engross. If you're lucky enough to have £500 lying around along with a spare shelf on your rack that's looking to house a CD player, you're in for a treat with the CD-63mkII KI-Signature

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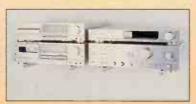
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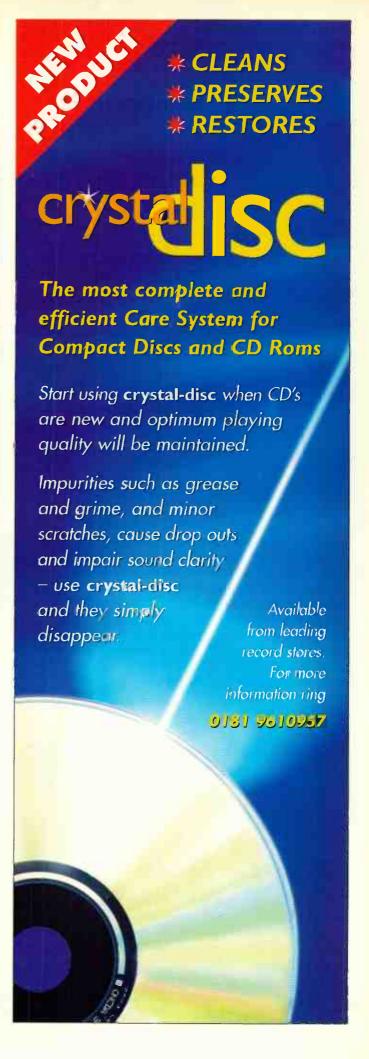
ELEMENTAL OR ELEMENTARY?



Back in the good old days, when life was simple and so were those that lived it, there was a group of men that called themselves Alchemists. They heralded the beginnings of what we might call the scientific age. By questioning the world around ALCHEMIST them, they devoted their lives to finding ways of changing the

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PHASE UNFAZED

ou might have thought that the British amplifier market was pretty well stitched up at the moment. There are the major players such as Arcam, Audiolab and Cyrus, a middle league consisting of companies like Naim, Linn and Sugden, and dozens of smaller companies specialising in both valve and transistor designs. It goes without saying that newer and

Does Shearne Audio's latest £895 Phase 6
preamplifier have a clear head for detail?

Dominic Todd resolves all.

smaller companies are entering an extremely tough market indeed.

But occasionally such companies do

stand out from the masses. Shearne Audio may not have been around for long, but they have already received

critical acclaim for their integrated and pre/power designs. The Phase 3 power amplifier has been reviewed within these pages before and impressed us enough to be listed in the 'World Favourites Guide'. So this time, we take a look at Shearne's latest pre-amp, the Phase 6.

A price tag of £895 may seem a little steep, especially when you consider the opposition (DPA DSP200S and Audiolab 8000Q amongst others), but the Phase 6 goes some way to justifying it with a carefully considered specification that includes two power supplies. The first cleans up the mains before passing it on to the second which feeds the pre-amp's active

Although the circuit itself is fairly straight forward (you won't find the same level of technology here as in DNM and Audiolab's latest designs, for example), good quality, discrete components are used throughout. The enthusiast will also be pleased to see fully balanced XLR sockets supplementing the standard phono outputs. Surprisingly though, both phono stage and headphone amp are optional at £195 and £95 respectively.

I tried the Phase 6 with my usual system as well as some Phase 3 power amps. The first track to hit the deck was Tricky's 'Suffocated Love'. With a single Shearne power amplifier the results were impressive. Vocals were expressive and projected clearly from the 'speakers, and the sleazy atmosphere of the track was well communicated.

The transparency of the pre-amp was more than capable of showing the benefits to be had when bi-amping. In this arrangement, the combination gave the genuine dynamic clout that only comes from the very best pre/power combinations. I was more aware of the quieter passages simply because the bass notes were kept under tight control and not allowed to wallow beyond their alloted stay. This control led to an impression of added space around individual instruments and made background detail more apparent

Bass power impressed once again

on 'Jah Wobble - More Like God'. With the right 'speakers (those with real bass control and extension) this track is strong enough to rattle windows without becoming overbearing. Rather like the power amps, the pre-amp seemed to strike a good balance between control and ambience. Whilst it may not be able to strip away layers of detail in quite the way some preamps manage, I felt it was more enjoyable for not being so ruthless.

Likewise, an occasional harshness in the treble would be shown up by the sweetest Class A and valve amps, but

As a pairing, the Phase 3 and 6 make a strong case for themselves they are dynamic, powerful and engagingly neutral. System integration seems to be fine too, the Shearnes working happily with a wide variety of components. The only slight problem was with their treble which could sound a little harsh and uninformative through some 'speakers.

Judging the pre-amp independently is a more difficult task. In my opinion, although the pre-amp is better than average, it's the poweramp(s) that are due the most credit. I suspect

The transparency of the pre-amp was more than capable of showing the benefits to be had when biamping. In this arrangement, the combination gave the genuine dynamic clout that only comes from the very best pre/power combinations.

whether they could match the bass power and control of the Shearne is another matter. As well as a seamless response that didn't seem to favour any particular frequency, the pairing also gave the music excellent depth of soundstage. Which is just as well, as the stereo width wasn't all it could be. even though bi-amping had improved matters slightly.

The evenhanded nature of the Shearnes meant they handled acoustic and classical music equally well. Tom Waits' voice, for example, was suitably guttural, and backing piano and saxophone had a natural, unforced timbre. The bass didn't seem especially deep, but as it was produced acoustically, it wasn't meant to be.

A completely different atmosphere was created with Sibelius' Symphony No.1. Here, the brass section had a vigorous attack that never became wearing, although partnering the Phase 6 with bright ancillaries could lead to an unpleasant hardening of the sound. Once again, the pre-amp's grip on the music produced the desired tension in the piece whilst allowing the solo flute its natural fluidity.

Audiolab's 8000Q would partner the Phase 3s just as well, yet the very fact that the Phase 6 can at least be mentioned alongside the Audiolab (which is a highly developed product, remember) shows Shearne may well be able to show the major players a thing or two yet. If you've money burning a hole in your pocket, then the Shearnes deserve your attention

John Shearne Phase 6 £895 John Shearne Phase 3 £619

Shearne Audio PO Box 22, Stevenage, Herts. SG2 8HF Tel: 01438 740953

WORLD VERDICT



Matched with a smooth amp and speakers, the Phase 6 is capable of a transparent and rewarding performance.

Measured Performance see PI03

HOME-BRED HARMONY

Designed and built in Denmark; Eltax have crafted a fine loudspeaker in the Symphony 6, according to Douglas Floyd-Douglass.

Itax's Symphony 6 is a substantial design of impressive finish, solid build and clean Danish lines. The realistic wood-grain veneer is unnervingly deceptive; something you might expect on the set of Cold Lazarus as the future apparition of real wood. Creepy, but convincing. Seldom am I this impressed by 'budget' loudspeakers. The necessary scales of economy dictate compromise, which inevitably

to achieve a targeted price point. Cabinets are often out-sourced, being manufactured in Europe, Scandinavia and as far afield as China. And drive units frequently come from the Middle and Far East, as well as our Viking pals up north. So it is something of a rarity to be greeted by a loudspeaker that hails from its own country of origin. . . well nearly. Although the bass driver is specified by Eltax, like so many others,

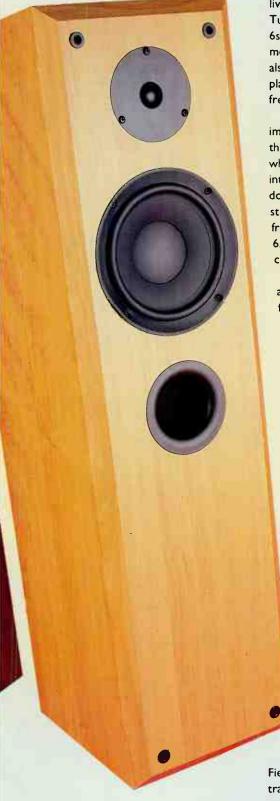
"Dance and synthesized music is extremely good fun played on the Symphonys."

occurs in one of two areas; finish or components. Eltax appear to have defied this precursor.

In order to survive in the ferociously competitive entry level, manufacturers are forced to cut costs it is built in the Far East.

The Eltax Symphony 6 is a thoroughbred Danish floorstander with flair. I began listening with the grilles on (partly because Dominic suggested not to) just to listen to the result, and to

SEPTEMBER 1996



give myself fewer clues as to what lay beneath the shroud of acoustic cloth. The initial clunk of David Byrne's guitarcome-footstomp in 'Psycho Killer' was lively and the guitar notably twangy. Turning the volume up, the Symphony 6s sprang to life saying "I'll have a bit more of that please" - although they also demonstrated their pleasure at playing loud by delivering ear frying high frequency lift.

Removing the grilles I was further impressed. The first thing I noticed was the ubiquitous Vifa 19mm tweeter which has successfully found its way into a number of more expensive domestic 'speakers and professional studio monitors alike - including models from Tannoy, KRK and Rogers. The 6.5inch bass driver has a concave dustcap, giving a very smooth cone profile.

Removing the grilles didn't attenuate presence or alter the hard firing treble, but it did smoothen out and open up the presentation very well indeed, as Mr Baker himself had predicted. Grille-free, soundstaging and imaging deepened (as it would in most designs), but to a lesser extent than I'd expected as the voicing was forward, with notable attack. It is harder to perceive a deep soundstage when a lead guitar is flying at you a lot faster than the bass.

> Mike and the Mechanics' 'Over My Shoulder' sounded lively and fresh with a wide dynamic. Bass was tight (not so deep though) and the fat, gated snare sounded punchy and quite toppy - in a clean, insightful sort of way. Vocals were smooth, but again with their presence forward in the upper midrange, which lends itself to a distinctive sound. Paul Carrack's fabulous voice needs oomph lower down and this showed up the Symphony 6s, where body and richness were lacking.

Jean Michel Jarre's 'Magnetic Fields', as with a number of white-label trancy-dancy mixes, really shone on this youthful loudspeaker. The dynamic response lent itself well to the lively colouration; dance and synthesized

music is extremely good fun played on the Symphonys.

Their cabinet has a large forwardfiring reflex port situated just below the woofer. This gave a bass that was generally tight and sounded powerful, with fast attack and sharp decay due to the rigid material used in the driver. This proved great for dance music, but was death to Debussy. Music that required depth and sustain, for example cellos and piano, was not so well represented.

Integration between drivers was not quite as seamless as midrange fans might demand. This, along with bright treble, can be improved by firing the 'speakers straight down the room 'in the nude' though. There was still a thinness to vocals, but it's more a characteristic than a fault. If you like your music crisp and loud, you'll like the Symphony 6s.

I have to confess to being extremely impressed with the Eltax Symphonys; finish is top class and they have the best dynamic range in their class. They are reasonably efficient at 85.5dB (see page 103) and make the best of even modest amplification, delivering music with energy and pace. Whilst not the last word in refinement or accuracy, at £239 Eltax have set a new quality standard of entry level product that will be hard to match

Eltax Symphony 6

£239.99

Eltax Electronic 4 Warren Yard, Warren Farm, Wolverton Mill, Milton Keynes MK125NW Tel: 01908 226464

WORLD VERDICT

A touch bright, but clean, open and lively sounding with it. Little else to fault at the price.

> Measured Performance see P103

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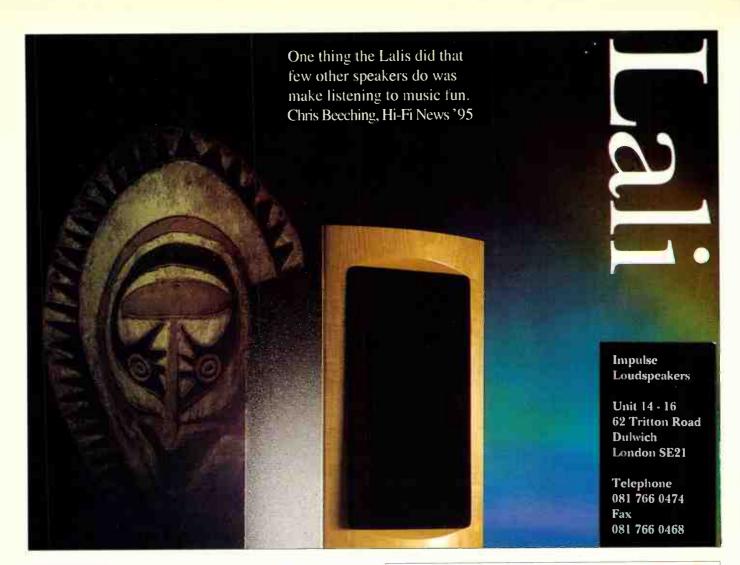
A TRIP AROUND THE

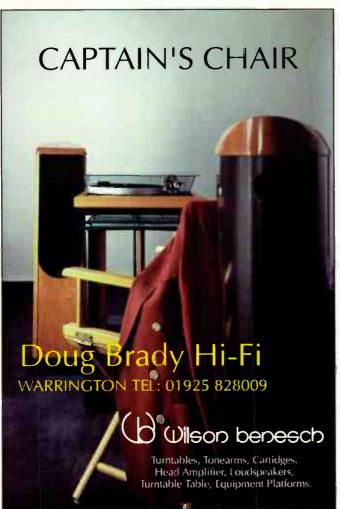


Jon Marks sets sail to investigate the huge new Accelerando horns from Bravura.

rsat staring rather apprehensively across the room. Facing me were two very large cabinets (39x129x83cms), manfully hewn from MDF and veneered with American Cherry. They had the kind of purposeful look to them that suggested commonplace boxes would be forcefully swept to one side. And with a name like Accelerando, it'd probably all happen in an instant.

With a claimed 102dB sensitivity (verified by our own measurements) the Accelerandos are certainly capable of responding to transients in an instant too. Single cone horn loudspeakers like this also have the flat impedance characteristic that suits single-ended valve amps right down to the ground, so a Border Patrol 300B SE (a high-end purist off-spin of Audio Innovations) was wheeled in to do the honours. Out of a perverse sense of curiosity lalso tried the Audiolab 8000S and Aura VA 80, but the Accelerandos were way too revealing for these to be successful marriages - considering the £6600







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asking price, that's par for the course.

Inside the cabinet of 18mm MDF lurks a folded exponential horn with baffles of 12mm MDF, its mouth driving into a room's corner which acts as an extension of the horn, improving depth of bass response. At the throat of the horn sits a Lowther PM2A full range paper cone driver, intended specifically for use in rear-loaded horn applications such as this. The difference between this incarnation of the 'speakers and what has gone before is a redesigned chamber behind the driver - this now has non-parallel sides lined with Deflex panels to minimise standing waves.

It took quite a lot of manoeuvring to get the best balance from these 'speakers. I tried them firing almost straight down the room where the midrange and treble response was at its smoothest, but this didn't allow the bass its proper extension. Toed in with the axes of the drive units crossing about 6ft in front of my head seemed to give the best overall balance, with

HI-FI WORLD

dynamic, extended bass balancing a powerful upper mid. The high treble response decreased off axis, but reducing the toe-in over-emphasised the upper midrange.

First digits to arrive at the Pink Triangle Da Capo CD convertor made up 'Tangled and Dark' from Bonnie Raitt's Luck Of The D raw CD. On this track the weight of drums came across particularly well and a dry, tight upper bass gave them impressive punch. Bass guitar strode along cleanly - the lack of bass overhang here made a very pleasant change from the comparatively blurred waffle of normal direct radiator 'speakers. The lightness of the Lowther drivers' cones paid dividends on Bonnie's vocals, giving them free and easy expression, although they were set a little further back in the soundstage

Guitar strumming on the intro to 'No Business' had real conviction to it, and vocals had the same powerful expression as on the previous track. But there was a hint of emphasis in the upper mid which could occasionally make itself heard as a 'shouty' quality on energetic singing.

While soundstaging was wide and

deep, it wasn't really up to the kind of standard I'd expect. considering the financial outlay involved. This might in part have been down to the fact that the speaker's bass response as a whole sounded rather uneven. Lower bass also seemed to lack the kind of subtlety necessary to transmit the aural cues that make up the shape of an acoustic

In search of some more rhythm and a real bass pounding I enlisted

the help of the Chemical Brothers' album Exit Planet Dust. There was no doubt here about the punch and drive to the bass - listening to this album left me feeling I'd spent a couple of rounds in the ring with Mr Tyson, which is just how it should be.

Joni Mitchell's Turbulent Indigo CD provided the antidote to the Chemicals' aural fireworks. Here, the skin of the drum on the title track was easy to visualise, the leathery thwack and decay the Accelerandos produced made a strong impression. The woodiness of the guitar body sounded slightly tubby though. Unfortunately, Joni's vocals failed to really project, as had Bonnie's and soundstaging was still a little unimpressive.

Dynamically, the Accelerandos are very convincing, and when allied with an amp like the single-ended Border Patrol, which has real kick to its bottom end, they can produce slamming bass. Personally, I found their overall response a little too uneven and never really felt drawn into the music - John Lee Hooker, who usually has me metaphorically reaching for the bourbon, only got as far as an orange squash. But for anyone looking for sensitivity and dynamics above all else they could well be worth checking out

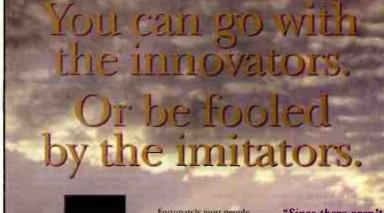
Bravura Accelerando

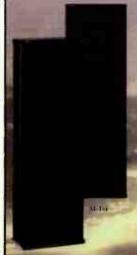
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Measured Performance see p103





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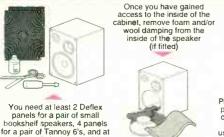


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CD - WHAT'S THE FUTURE?

In future we are likely to see a higher resolution CD system for audio, but what form will it take? Dominic Baker investigates with the help of three industry experts.

ver the last few months there has been an increasing amount of debate about the future of CD. It is now widely recognised

WHAT IS DSD?

DSD was developed primarily for two track mastering, but there is also good potential for audio, multichannel and surround sound applications. The provisional specifications for DSD are far higher than the 16-bit CD system we use now. The sampling frequency is 64times higher, bandwidth is 100kHz compared to CD's 21kHz, and dynamic range 120dB (up to 20kHz). At a sampling rate 64times higher, DSD produces four times the digital data of CD.

amongst engineers and enthusiasts alike that CD in its current 16-bit form just isn't good enough for top notch sound quality. The resolution limit imposed by

16-bit digital leaves little scope for improvement of hardware.

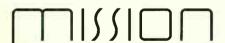
But what's caused the sudden flurry of interest in a new high resolution audio CD? The answer: video. Not the bulky tape format we're used to at present, but a new system using a CD size Digital Video Disc. DVD video players are expected to hit the streets next spring. Using a finer laser beam and smaller pits on the silver disc, DVD discs can hold nearly eight times the information of a standard CD, enough to carry

WHAT IS HOAD?

HQAD is a high quality audioonly specification proposed for DVD discs. It uses a 24-bit. 96kHz sampling PCM system. The body behind HQAD is the ARA - Acoustic Renaissance for Audio. Founded by Professor Hirokazu Negishi, Director of the Design and Development Centre of Canon Inc., Japan, their members include: Bob Stuart - Technical Director of Meridian, Professor Malcolm Hawksford - Dept. of Audio Engineering at Essex University and David Meares - R&D Manager of the BBC's Audio and Acoustics R&D department.

a full length feature film and surroundsound soundtrack. It didn't take long for the audio world to start thinking about all of the extra information they could cram onto one of these discs to create a Super Audio CD.

At present there is one formal proposal for a Super Audio CD based on DVD discs, the Acoustic Renaissance for Audio's HQAD system. But Sony's DSD system, originally developed for archiving their music catalogue, is also a potential contender. We asked a number of industry experts to give us their views on these systems, as well as asking Sony to describe DSD in more detail. We first published a description of ARA's HQAD system in the September '95 issue of Hi-Fi World.



Thank you for giving me the opportunity to comment on DVD. Unfortunately I have not been one of the few to have heard either of the two audio formats (Sony's DSD and ARA's HQAD) in their current development stages. Having said that, both will offer a substantial perceived increase in sound quality.

Sony's DSD format has ready been described as a 'quantum leap' (by

Sony!) in audio performance over conventional CDs. Its 100kHz bandwidth and 120dB dynamic range are undoubtedly far better than any commercially available domestic digital system. It appears to offer only limited flexibility, in that it can only run at multiples of 44.1kHz and 48kHz sampling frequencies and be configured to run 74minutes of high quality multichannel music. The inherent ultrasonic performance of single bit will help out-of-band filtering (as with today's 1 bit systems) but care has to be taken when

departing from a conventional linear PCM system so as not to introduce inter-modulation back into the audio band. Data compression using high data rates are not as efficient as linear PCM and are psychoacoustic type. Studio processing will be complicated if 1-bit is used, again deteriorating the sound quality.

The Acoustic Renaissance for Audio's (ARA) conventional linear PCM system will provide a higher quality two channel audio medium. I have had many respected audio

engineers tell me that high resolution (true 20-bit or greater) systems provide an ideal medium for audio storage. The high resolution pushes the quantisation noise below that of the analogue noise floor, masking digital artefacts.

Frequencies past 48kHz (HQAD's upper frequency limit) are not encoded, but they are barely audible and may only comprise unwanted noise.

HQAD's data compression techniques are similar to computer data compression i.e. data in equals data out. This is very important. By extending the

sampling frequency to 96kHz from 48kHz only requires approx. 30% increase in space as the HF program can be efficiently compressed without loss (this is not so with 1-bit). This can be further improved by pre-filtering to 30kHz, while still offering the advantages of the high sampling rate.

HQAD offers a great deal of flexibility to the disc producer.

Depending upon program length and the required number of channels, it is possible to vary the number of channels from 2 to 8, sampling rates from 48 to

96kHz and between 16 and 24 bit resolution. This information is then embedded into the code. The maximum rate 2 x 24bit at 96kHz is better than current converter technology so it will ensure a continual improvement in sound as technology progresses. HQAD will also support backwards compatibility with current CD software, which will encourage consumer acceptability.

Steve Sells, Verity Labs (Mission)



Thank-you for allowing me to comment on the ARA proposal on the new standard for audio DVD and Sony's DSD.

Sony's DSD is a fairly conventional 1-bit 64 times oversampled delta-sigma ADC technology. I have for several years been researching the performance of delta-sigma ADCs with a view to producing our own Analogue to Digital converters for the professional market. Indeed, we have just been told that we have been successful in receiving a European Union grant (under FUSE) to develop and design the silicon needed to produce a radically new form of Analogue to Digital convertor for the professional market.

The research done to date includes computer simulations on the performance of different noise shapers. One of the models was a fifth order, 64 times oversampling noise shaper similar to the Somy DSD. This model used a 3-bit output, not 1-bit, and will perform to a better standard than DSD. However, in researching noise shapers, we uncovered a number of subjectively important errors that degrade sound quality. This is why on our 1024 convertor we use 8 dithered noise shapers running at 192 times oversampling to reduce this problem. The problem relates to the number of output pulses available to reconstruct the output; the limited number limits high frequency

resolution. I thought it might be interesting to see these results.

The plot below shows the filtered output from the noise shaper. This is 22.05kHz, at -40dB. It clearly shows considerable noise as the noise shaper hunts around trying to represent the output. Another test I did was a spectrum analysis at 22.05kHz 0dB output. Inband noise was at -135dB. Remember that this is a 3-bit output, not one bit. One bit would be about 15dB worse. This gives good agreement with the DSD figure of 120dB dynamic range. Note Actual signal-to-noise would be worse than -109B. This represents 18bit performance.

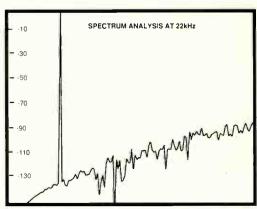
Much more worrying than signal-to-noise is high frequency resolution, as seen by the sine wave at -40dB. The fundamental resolution at 100dB is -2dB. For DSD, this figure would relate to -90dB. This is not even 16-bit performance for high frequency resolution.

The new structure I have developed (I can't give any details at present as patents have not been filed) gives theoretical signal-to-noise of 200dB, and can resolve -100dB 22.4 kHz to an accuracy of -0.001dB. Moreover a signal at -60dB 22.05kHz looks like a perfect sine wave. This exceeds 24-bit performance across the whole bandwidth.

The DSD system probably sounds

better than other ADCs at the moment. It is, however, severely limited and will be radically improved upon in a couple of years. On the other hand the ARA proposal, by being technology non-specific would allow improvements in ADC design in the future.

I cannot possibly recommend the DSD proposal; indeed it would be a



The plot above shows the filtered output from the noise shaper. This is 22.05kHz, at -40dB. It clearly shows considerable noise as the noise shaper hunts around trying to represent the output.

disaster if DVD was to be implemented in this way. The ARA proposal, 24-bit at 96kHz would, if perfectly implemented, be theoretically perfect. DSD is severely limited and would not be the ultimate performance. Indeed, we may find in the future with better ADCs that even conventional 16-bit CD could sound better.*

Rob Watts, DPA Digital

SONY

*At this point, we are at the very early stage of developing a concept that we think will become a key enabling technology for the music industry. Sony hasn't officially proposed DSD as an encoding technology for DVD high density discs. While DVD has triggered a mad rush to fill up these 4.7GB discs with music, Sony is the only company in comprehensive talks with the people who make music - record labels, recording engineers, mastering engineers - to begin to describe a migration path for technology that will prepare our label and the industry for the future.

Sony has worked closely with its music label, Sony Music, to discuss its long-term needs. The result is DSD, a technology which we feel holds tremendous promise for addressing a the critical challenges facing our industry.

QUALITY AND ARCHIVAL STORAGE

In the US, Sony Music has approx. 300,000 analogue masters, 90,000 lacquers and tens of thousands of metal parts. The older material is reaching the limits of longevity. Sony Music has begun a monumental archiving project to transfer all this analogue material to a digital archive.

We needed a digital encoding technology that could capture all the information stored on the analogue master. DSD offers a solution at the A/D stage because of its tremendous

bandwidth (flat to 100kHz) and dynamic range (>120dB to 20kHz).

STABILITY AND MULTIFORMAT CONVERSION

DSD signals can be easily converted to a variety of bit-rates and sampling frequencies. Thus far, Sony has demonstrated prototype DSD recorders which operate at 64fs (fs=44.1kHz), a sampling rate of 2.8MHz. DSD can be easily down-converted by dividing by a whole number integer to produce a variety of "commonly used sampling rates", including 24-bit, 96kHz.

FUTURE EXPANDABILITY

It should also be noted that DSD is not restricted to 64fs. Our demonstrations to date have used a prototype DSD recorder which operates at 64fs. However, there is nothing to rule out higher sampling rates such as 128fs or 256fs.

Besides the sampling rate, the other factor that affects quality will be noise-shaping. In this regard, the higher the order of the filter the better. Our prototype is currently using a fifth order filter, but again this does not preclude using higher order filters in the future.

In regards to noise shaping,
University of York Professor James
Angus in his paper 'The One-Bit
Alternative for Audio Processing and
Mastering' points out a much more
significant strength of one-bit systems:

"...the noise shaping filter is a function of the encoding process. It does not affect the decoding, which is the same

irrespective of the noise shaping filter. This means that tapes recorded with different noise shapers can be interchanged providing the sampling rate is the same. This has some important consequences:

- •The signal quality can be improved by changing the noise shaping filter without affecting the format.
- •The recorder's performance can be optimised for different applications (e.g. higher bandwidth, same noise) by changing the noise shaping filter and not the format.

PRODUCTION

In speaking with record labels, there is far more interest in improving and adding value to the current Compact Disc than there is in introducing a new high density carrier. DSD can actually help achieve both.

It is expected that the first step DSD will take into the production environment will be in the mastering studio. By providing a better A/D stage which transfers more of the information from an analogue master to the digital domain, coupled with very precise decimation back to 16-bit 44.1kHz, higher quality, standard density CDs will be possible.

In terms of the possibility of future high density discs, DSD can help record companies to create a high quality archive from which they can draw once higher resolution carriers are available. David Kawakami, Sony New Technology.

We asked David Kawakami to comment on a few important issues regarding the furture of Super Audio CD.

I) If the DSD system is adopted as a future medium on DVD, will it be backward compatible?

Two weeks ago in Tokyo, an international music industry committee, put together expressly to explore the question of high density 'pure audio' DVD, issued its first 'wish tist' to the DVD consortium of companies. On the subject of backwards compatibility, the committee was very clear by stipulating, "CD discs must play on

DVD machines" and "DVD audio discs must play on CD machines".

2) How do you think your system compares to the ARA's HQAD system, 24-bit/96kHz?

24-bit, 96kHz is another incremental step in the improvement of PCM audio. DSD is a more sweeping longer term proposal designed to meet a broader agenda of needs of the music industry for the next 10-20years.

3) We heard a rumour that DSD had already been selected as the next high quality audio

system for DVD discs. Is this true?

Recommendations were issued by the Advanced Digital Audio (ADA, a subset of the Japan Audio Society) conference to the DVD Pure Audio Working Group. Although the recommendations did not mention DSD by name, it asked for many of the characteristics of DSD (100kHz bandwidth, scaleability, etc).

In closing, David Kawakami said "although our approaches are different, Sony and the ARA seem to desire the same thing - better audio"

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SOFT IMPACT

Jon Marks lends an ear to Celestion's imposing new £430 Impact 30 floorstanders.

hen Celestion's Impact 30 loudspeakers came through the door I heaved a sigh of relief. A pair of £430 floorstanders surely would not cause too much exertion. Wrong again! It was time for a work out as I moved these 'speakers around to get the best sound out of them.

Sitting down with thoughts of Zimmer frames crossing my mind, I relaxed briefly to the dance strains of Empirion's Narcotic Influence CD single. With the Da Capo/8000CDM and Audiolab 8000S the Impact 30s produced a big, beefy drum machine which suited this track well, even if it was more amorphous than I've come to expect. The rather loose bass did slow the rhythmic drive of the CD a little, but it still had enough gumption left to get me bobbing on the settee.

Looking for the spaciousness of a well recorded live set, I turned to BR5-49's Live from Robert's. This produced a better spread of sound than the heavily processed Empirion CD. Bass was also tauter and more focused, but still failed to render the organic resonance and leading edge twang of double bass notes. With 'Hillbilly Thang' a rather thick, dull midrange edited out most of the incidental details that this CD is teeming with; where there is usually the clinking of glass beer jugs, with the 30s it sounded as though the barman had decided on plastic jugs all round. By the same token, vocals and guitars emerged from behind the plane of the 'speakers, foreshortening the soundstage's perspective.

Elgar's violin concerto in B minor and Vivaldi's Four Seasons were pictures painted in much the same

way. The sound generally lacked detail and projection. At least this avoided the glassy sheen that many 'speakers add, but at the same time I would prefer to have been given rather more insight. However, the music did still flow along agreeably - bass related problems were less in evidence here, and on simpler passages most of the emotion of the piece was captured.

Switching to vinyl and the B-52s' eponymous album 'Planet Claire', its energetic midrange and treble helped to brighten the 30s' sound. It also revealed the upper register's shortcomings - cymbals lacked the harmonics that make their sound really shimmer and female vocals had a hardness to them. Swapping the B-52s for Tracy Chapman's Crossroads and Tina Turner's Simply the Best LPs resulted in much the same.

I have to say that for £429 the Celestion Impact 30s don't really deliver the kind of sonic goods you'd expect. While they produce a passable result with processed music like Empirion and Speedjack (reviewed in August by Viv Craske), they lack the control, subtlety and insight necessary for really getting to grips with music of a more acoustic nature

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LETTER OF THE MONTH

HELPFUL BURGLARS

My photographic studio was recently broken into and, as well as camera equipment, most of my hi-fi was taken. The burglars took anything that was fairly new and modern, that is anything black box natured.

Two recent purchases I had made were old battered 60s' gear - a Leak Troughline mono tuner and a Rogers Cadet II valve amplifier. The burglars had left these untouched on the hi-firack, obviously believing them to be of no use. I connected them to a small pair of budget speakers (Rogers LSI) which were left behind a couch and not seen by the burglars.

Quite frankly I was astounded at the result! Firstly it persuaded me to listen to the radio, which I rarely did before. As a result I found myself discovering a variety of new types of music I'd previously ignored, as well as several interesting stations I was not aware of. To me it was a whole new entertainment arena.

Secondly, it has led me to question my previous expensive purchases. Three thousand pounds worth of gear was stolen yet I'm now happily listening to a system costing only £300 (including £150 for the Rogers LSIs). The sound is full, warm, clear and detailed and very listenable. I find far less to criticise about this system than I did with my own reference system! I have not even had the Troughline or the Cadet serviced yet - my only input was to construct a home made aerial from an old chrome-tubed chair. My next purchase will be the Stereo Decoder that I expect will improve quality still further.

If we were to believe all that manufacturers and marketing men told us we would all assume that hi-fi was now of ultimately superior sound to its older predecessors. I have learnt otherwise - albeit the hard way. I think more people should be warned of the perils of forever expecting quality to rise in proportion to money spent. Don't believe the hype.

Jonny Thompson Branch Place, London.

At Hi-Fi World we are well aware that many older products were real goodies. That's why you'll find items like the Garrard 401 and Leak Troughline listed in World Favourites. I cannot emphasise enough however that our comments apply to properly serviced and aligned samples, used with care. Old valve based products often possess capacitors and resistors that are out of specification or just dud. Electrolytic capacitors in particular age and fail. Such components should be replaced, but with good quality modern items designed for audio use. The Troughline has a superb

measured audio performance but is very insensitive. For best results (i.e. full quieting) it needs an aerial signal of 2mV or more, which in most areas means using an outdoor aerial. I suggest you give that chair on your chimney pot the push as soon as possible; a decent aerial costs little. In London, you need one, since its transmitters are a long way south, at Wrotham (BBC) and Crystal Palace (IBA). NK



World Mail

ROGERS WOOFERS

When Rogers announced the ABI subwoofer for the legendary LS3/5A a couple of years back, I immediately 'phoned them to see if they planned a similar device to suit their Studio 3 (derived from the LS3/5A), which I have been using since

Rogers'
ABI subwoofers add bass power and depth to the

pair in a competition. The Studio 3s don't really need help in the bass department if used close to a wall, but the layout of my room forces me to use them on a window sill (not ideal!), or in free space which loses too much bass. The news was encouraging. An AB3 'sub' for the Studio 3

was in the design pipeline.

LS3/5as

All was going well, until, early this year, I was told that the AB3 for which I had been waiting and saving had been cancelled. I got the impression that this was a result of the recent take-over of Rogers. Somewhat 'gutted' I found myself cursing corporate take-overs, bottom line merchants etc. However, having 'vented my spleen' and thinking more or less rationally again, I wrote to Rogers with several queries and suggestions for ways around my problem. Their reply offered a

stunningly simple and very welcome solution: "If you want AB3s that much we'll make you some", they said.

So, I recently picked up what I believe to be the world's only pair of AB3 subwoofers from the

Rogers factory. I

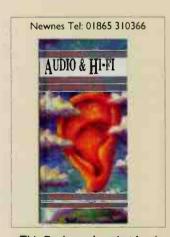
was also treated to
a tour of the
design,
development and
manufacturing
facilities and a
chinwag with
designer
Andy
Whittle.
The fact
that car

problems caused me to arrive late on a Friday afternoon, when Godfearing folk are heading for home, or the pub, was brushed aside.

One or two cynics have told me that Rogers only needed to modify a pair of AB1s. This is to completely miss the point. Rogers could have said 'tough', but they didn't. Instead they went out of their way to produce a beautiful pair of subs, properly decked out with AB3 badges etc., all for the standard price of the AB1.

I now have a very nice sounding system and cannot thank Rogers enough for their contribution to it. So long as we have companies with this commitment to customers, Rogers slogan, 'Great British Hi-Fi', will continue to be more than just words.

Colin Berresford Billinge, Lancs. Things aren't as bad for Britons as the gloom and doom reports of newspapers would have us believe. Our Japanese kit distributor said he wanted to offer "support for World Audio Design customers in Japan". Taken aback that this seemed to be a novel idea to him. I mentioned it to colleagues who had lived there and was told that very little support is offered for old products; you're meant to buy the latest model instead. This attitude works against the establishment of a worthy and valued brand image. Old Japanese product, to the Japanese, is tat. That's why they love to import our old gear, especially Garrard 301s, because it was genuinely built to last. This idea of intrinsic longevity is especially strong to the British and it is likely to be preserved by Quad, Rogers and others because it is recognised as a valuable part of their overall image. I think it unlikely such things will be junked so easily. NK



This Engineers' pocket book makes an interesting read for hi-fi enthusiasts

A SOUND DANCE

My system - Pioneer PD-S703 CD, Pioneer A400X amplifier, TDL RTL 3 loudspeakers, Cable Talk III cable in separate runs (biwired) and Tandy Gold interconnects.

Firstly allow me to congratulate you on a very informative magazine. Thanks for bringing back your World Favourites Guide; it might not be very technically informative, but I sure as hell know if World says "it's good", it damn well is.

This is my first ever separates system and as you



REL's powered Strata subwoofer will bring tight, deep bass to any system.

can imagine, after setting it up for the first time, I jumped up and down like a yo-yo; I even managed to rave to Pavarotti's Nessun Dorma. I wasn't on any medication, but I sure loved my new system.

However, after having lived with it for eight months, I usually sit and listen to Dorma rather than dance to it. I feel it really could be more musical and present better bass extension, especially with classical music and at lower listening levels. How can I achieve this without dumping any equipment. Would a DAC solve my problems? I was thinking along the lines of either the Arcam Delta Black Box 50 or Teac DT-I or any

...44 >

DAC in this price range. I really don't want a cheapie DAC below £300 as I intend to upgrade to the Teac T-I transport in a year or so. I would prefer a DAC with several digital inputs for my laser disc and other digital products I might purchase. Will the transport on the PD-S703 cope with the DACs mentioned?

Also, what's all this jitter business? I think it absurd that in 1996 you need a three box CD player to achieve an audiophile sound. What's so wrong with a one box player with, for example, two separate power supplies? It's all marketed at gullible audiophiles like myself who will spend any amount for a perfect sound.

Thanks for your time and keep up the excellent work.
Christopher Bantar
Luton,
Bedfordshire.

Hmm. It's odd that you find bass extension limited. The A400X and the TDL RTL 3s especially are both known for their deep, full sounding bass quality. However, I don't know the Pioneer PD-S703 player you are using, so this may well be the culprit if it possesses weak bass. I think you are right to consider a DAC as your next upgrade, as the PD-\$703 will make a good transport. Spending £500-£600 on a completely new CD player will only get you one rung up the ladder. The same spent on a high quality DAC will get you much further in sound quality stakes.

For musicality and detail I'd recommend you take a listen to DPA Digital's Enlightenment DAC. This is a discrete design DAC, rather than a chip-based product, offering superb performance and value. It should bring a

great improvement over the Pioneer; hopefully it'll have you dancing once again.

If you really want earth shaking bass, with very deep extension, your best bet is to go for one of the REL subwoofers. The £500 Strata is a powered sub, so won't effect any of the quality or transparency of your main 'speakers, and drives deep down to 20Hz. At low listening levels this will also allow you the flexibility to turn the bass up a touch, which is useful. DB



Get the best from your DAC upgrade with this Chrysalis interconnect

GOODBYE GOLDRING?

I am at the moment using a Goldring 1042 cartridge in an AR Legend, Rega 300 arm, Ringmat, Denon 350 II amp, JPW AP2 speakers. I have an Audiovector 10X high output cartridge from 1984 used only 6 months, it is one that Onelife Research produced before Dynavector took over and it weighs 9.5g.

I had it in a Focus One deck before I bought the Legend. I have been using a K9 since 1986 'till this year when I fitted the Goldring. I had forgotten about the 10X.

What I would like to know is if it is worthwhile changing the Goldring for the 10X. It will mean shimming up the arm as it is taller, also suspension would need slight alteration.

You will be wondering what is wrong with the 1042.

Nothing really, but it does dig into any muck at the bottom of



Ortofon's VMS2E has a smooth, warm sound - all for £10

the groove, which the K9 didn't. It is mostly records bought off markets etc secondhand.

P.S. I can't remember what the IOX sounded like new. Having the records cleaned hasn't done any good.

D.C. Rayner Glendale, Truro.

Snap, crackle and pop comes from muck in the bottom of the groove, as you say, but also from groove damage. The 1042 stylus will certainly highlight groove damage and this is always a potential problem when upgrading from a stylus that was contemporary in the time of Stonehenge. However, the 1042 stylus should be little different from others when it comes to reading what lurks in the bottom of the groove. For record cleaners to be effective they must Hoover up muck, rather than washing it to the bottom of a groove; that's why most use a vacuum pump.

One other little mentioned problem you might care to consider is loss of lubricant from the vinyl. Believe it or not, records dry out and can get progressively noisier with age, even when unplayed. I've never tried this, but Rocket WD40, available in

car accessory shops, is supposed to provide a cure. I believe it is a silicone lubricant.

Quite which of these three potential ailments afflicts your records, I cannot be sure. What I can be sure about is that the 1042 is not meant for agricultural

duty. When it comes to ploughing, you could swop the stylus for a 1012, which is more of a blunt instrument. Or, for real masking of such problems, try an Ortofon VMS2E. This extraordinary device tracks like crazy at 2gms, so it won't cause groove damage, yet it costs just £10 or so. Falling treble output in the frequency response gives it a warm, cosseting sound that helps disguise groove gunk and collision with boulders. Have fun. NK

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FINDING A DREAM SYSTEM, NO MESSING

I'm only 24 years old, but not new to hi-fi. My dad had a separates system when I was in Junior school. I slowly got the drift of hearing good sound and bad over many years.

Unfortunately, I was in a bike accident three years ago and I am now disabled. I have been told I will very soon be receiving a large

amount of compensation. Hi-fi is my love and so I would like a state-of-the-art system.

I already have this



Aura's VA-80 has a sweet, musical sound that belies its £250 price tag

bedroom. I only use it as a music room. Kenwood 1030 amplifier; Pioneer PD M603 CD; Jamo Classic 6 loudspeakers; Cable Talk the flat one; Tandy Gold patchcords. My room is 12ftx12ft. I only play CDs.

The sound of my system is quite good, but I want a lot better. Money isn't a problem, but if I am going to spend over £2,000 or even £3,000 and more, I need to know the best possible setup for my room. There is a lot out there and I don't want to get in a mess.

D Ecckeshall Warley, W. Midlands.

Beware of the acoustics of your twelve by twelve room, which will have a strong resonant mode up around 90Hz (high-ish bass) and is likely to boom noticeably. Keeping the speakers away from the walls reduces the drive into the room, but this is likely to be inconvenient.

If you choose small, quality wall standers, which I suspect is the best option, then tread carefully or you could end up with strong one-note bass. Some small cabinets peak in this region, giving the impression of speedy,

punchy bass, but in your room output in this frequency band may become overpowering, according to the furnishings and exact room geometry. You need

to consider wall standers with shelved bass

output, specifically to cope with wall reinforcement. Try Rogers LS1s as a starter, or B&W DM302s.

One of the most remarkable CD players I have heard recently is the DPA Renaissance. I think you could well start at this point with CD and try other high quality sources against it, like the Marantz CD-16.

Quite which amplifier you use depends upon your tastes. The Aura VA-80 is exceptionally smooth as solid-state amps go. The Denon range have real muscle, if not as much subtlety. Above this price level you are starting to look at pre/power combos, but high power is likely to go unused in a small room. NK



Wire up your new system with Chord's Chrysalis interconnect.

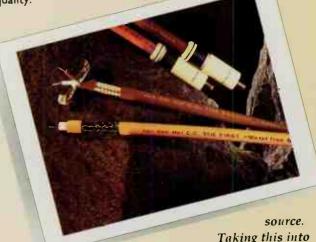
SHORT WIRE SHORT-

My system comprises a Micromega Solo CD, Audiolab 8000C/P and biwired Alphason Orpheus loudspeakers. Source interconnect is Audionote ANS and amplifier connection is made with Kimber 8TC. Treble speaker cable is Sonic Link Black, bass is Audionote

My problem is that I wish to purchase a reference-quality interconnect to use at the source and am unsure of which to buy, It must be available in 0.5m lengths, it must not introduce glare or brightness and it must retain the system's open, neutral quality.

the aforementioned cables would be too over-specified for my system? **lennifer McNeill** Antrim.

N. Ireland. in your system you are right to recognise that any glare or brightness introduced by a cable is to be avoided. The Audiolab 8000C/P could be accused of being a touch clinical, although very clean with it. And the Ribbon tweeter in your Alphason Orpheus loudspeakers has flat and well extended treble, as well as good delivery of fine detail. It will very quickly highlight any sharpness, especially from



Van den Hul's First and Second carbon interconnects.

Cables I have short-listed include: Audionote ANVx, Audionote ANV, Cogan Hall Intermezzo Reference, Mandrake Silver, Lieder, Silver Sounds, Kimber and XLO.

Which do you think would slot synergetically into my system? I intend to use the Audionote ANS to hook up the amps. The new interconnect must also represent a significant quality increase over the already excellent ANS. Finally, do you think any of

Taking this into consideration, I'm going to err on the side of caution and recommend one of van den Hul's carbon interconnects, which I find work especially well between CD and amplifier, tempering any splashiness or sibilance without compromising detail and openness. There are three to tru: First, Second and Thunderline. First is a pure carbon cable and the softest sounding one; Second uses a metal screen and I find it has better bass - tighter and stronger; Thunderline is a

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Audiolab 8000A integrated, s/h, £189.00 Audiolab 8000C pre-amps s/h, vgc, £239.00 Quad 34/306 pre-power, s/h, good condition £389.00 Exposure 11 pre-amp, 9 power supply and 4 Dual Reg power amp, s/h, vgc, set £1500.(might split) Ex-dem items include Arcam Alphas, Delta 290, 290P, Audio Research LS7, D130, D200, Copland range, Densen Beat, DM10, Naim Nait.

Loudspeakers

Magneplanar MG-1c panels, light oak, s/h £479.00 Rega Ela, black, immaculate but no boxes, £399.00 Spica TC50 unusual wedge shape, s/h, £249.00 Sonus Faber Minuetto, ex-dem, one pair only £650.00 Ex-dem items include most Castle models, Epos ES11, ES22, Heybrook Sextet, Martin Logan SL3, CLS3z, Naim SBL, Neat Critique.

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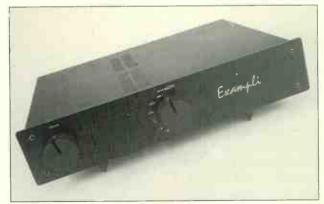


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silver plated copper cable with a carbon coating - try this one if you find the others too soft for your liking in your system.

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Gen up your hi-fi knowledge with this Audio & Hi-Fi Pocket Book

SHOULD AN UPGRADE BE

My current system consists of - LP12, Lingo, Trampolin, Cirkus, an Ittok arm with Goldring 1042 cartridge, Arcam Delta 70.3 with QED Digit, Naim 72 with Naim 180 and Linn Kabers triwired. There is also an NAD 6340 cassette deck.

The problem is how to upgrade. Do I wait until I can afford two 180s to tri-amp, do I add a Hi-Cap to the system, go for a moving-coil cartridge, or improve the CD side of things?

I have around 200 LPs and a slowly growing CD collection, but in view of potential changes to this format I am reluctant to go too far down the digital road at present. Would the Ortofon MC25 recently reviewed be compatible with my Linn/Naim system? Charles MacDonald Irvine, Ayrshire.

I shouldn't worry about any 'possible changes' to the CD format, assuming you are talking about ARA's proposals for highquality audio on a superdensity CD. These will in any case allow for the current CD standard twochannel audio to be played back on a current CD player. Apart from that, it will be a year or two at least before they appear, since the earliest examples will be dedicated to film or CD ROM. Meanwhile, there are more than a million recordings on CD out there, so choice is not exactly going to be limited.

Therefore, I urge you to improve the digital end. The Arcam Delta 70.3, although now discontinued, is fundamentally a good transport, though admittedly a little long in the tooth. QED's Digit is certainly a good little converter, but it is a budget one and the Arcam transport deserves better. The converter therefore needs attention. I suspect an Audiolab 8000DAC would be one to try in your system, since it might well balance out a degree of warmth in the transport. Otherwise, my own favourites are Meridian's 561, Sugden's SDD-1, and of course Pink Triangle's Da Capo. For a strongly forward, very punchy presentation, which I think you might find attractive, try a DPA Digital Little Bit Mk III converter. EB



Try a new interconnect too.
This Chord Chrysalis should
do the trick.

DISC DOUBTS

I am interested in purchasing the KLPPI, but I want to ask whether you think it will be compatible with my turntable and CD, as I obviously don't want to buy it and find that it

Our KLPP1 preamplifier will work well with the Linn K18 moving magnet cartridge. When it comes to moving coils, no valve input stage can match the low noise of modern FETs, especially when they are paralleled up to noise cancel, a technique used in many of today's super quiet chips. However, KLPP1 is still quiet enough to work with most MCs having reasonable output, like Ortofons and van den Huls, to name two quality makes. Very low output types, like Lyras and Linns are best matched in using a quality step-up transformer. This approach eliminates hiss



The Audio Innovations' P2 Valve phono stage is one of the best we've heard

doesn't suit my equipment.

I have a Linn Sondek, with Lingo and Ekos, using a K18 II stylus (which at some stage I'd like to upgrade to a MC), a P700 transport and a Cobalt 307 DAC, with vdH 'The First' connected to my Creek 4140S2 amp. Can a vdH interconnect be used between the KLPPI and power amp without problems? Similarly, vdH loudspeaker cable?

What are the dimensions of the KLPPI? I use Sonique speakers rated at 88dB into 8 ohms, so I suspect none of your power amps are powerful enough if I go down that road. Paul Martin Park Holme, completely. And dare I say it, a good valve preamplifier, like KLPP1 or Audio Innovations P2, is streets ahead of a solid state design, which commonly sound coarse, hard and bright by comparison. NK



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lock loop for low jitter, ultra simple analogue technology and extensive RF filtering. Surface components are used, with the manufacture and design solely by dpa - unique for a budget product. It's in a 400mm chassis with a laser cut front panel.

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XLO are synonomous with top class interconnects and speaker cables, but what a lot of people don't know is that they make an analogue phono cable which can be terminated with an SME or indeed any type of arm plug. Most arms however good tend to come with what can only be described as a mediocre interconnect lead. Using the XLO Reference or Signature cable

realises the true potential of your turntable.
XLO Reference Imtr with SME plug
XLO Signature Imtr with SME plug
Ortofon Rohmann Cartridge

To say that this cartridge is expensive would be a crime. I don't think that I have ever cone across a Moving coil cartridge which performs as well as the Rohmann for under £1500. Clarity, great bass definition, realism and musical, all these things and more describe this bargain of



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KICK OUT THE SPIDERS?





A vintage valve tuner or a modern solidstate design? Noel Keywood looks at the differences.



hink of it as buying an old Roller, tatty with neglect and careless use. Riding around with the engine spluttering and spiders still on board is surely not what you would have bought such a car for? Refurbish it and enjoy its charms.

In my view the Leak Troughline is one of the greats; paying £5 in a car boot sale and using a steel chair frame as an aerial isn't quite what I had in mind when recommending it. Troughlines might come cheap, relatively speaking, but they will in most cases need repair and realignment. Bear in mind that they are around 30 years old and will suffer the ravages of time. In my view, you'd be better off buying a new tuner, like a Denon TU-260L or a NAD 412 than running a Troughline as found.

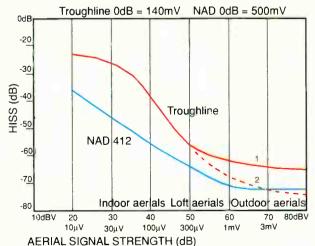
Remember that Denon can sell you a TU-260L for just £120 - a bargain. NAD's super 412 costs £190 and leaves even expensive rivals standing. A restored Troughline will cost more than both, reflecting its real abilities.

Here's the difference between a Troughline, or any old valve tuner if it comes to that, and a NAD 412, in our view its nearest modern rival and undoubtedly a fine design. My measurements underline some interesting facts about both old and new, and the importance of the aerial.

Dominic Baker, Hi-Fi World's editor, and I choose to use Troughlines, but they're both in slow failure mode.

Restoration beckons - coming soon I hope. Like old cars, these tuners are frail and demand care and attention.

Our experiences make me believe that buyers should beware.



Quieting graphs show how hiss decreases as aerial signal strength increases. Stereo sensitivity is quoted at -50dB hiss. Most tuners need at least 1mV to minimise hiss, a condition termed "full quieting". The NAD412 works well even with a mediocre aerial.

AGEING

Unlike transistors, valves age, losing emission and gain. In a tuner, this means sensitivity will slowly decrease, noise rise and, in the end, limiting will fail. An old Quad FM1 I tested recently varied its audio output level as I varied the strength of signal input from a test generator. Its limiting wasn't working at all - and Troughlines are little different.

A valve change in a tuner will cost £20-£30 or so, hardly a fortune. Low power valves have a long life, but not an

infinite one. Around 6,000-10,000 working hours can be expected.

A valve change isn't. guaranteed to cure all sins though. My own Troughline isn't limiting properly and a valve change gave no improvement. This makes little difference to me, because I use a large outdoor aerial that delivers 2mV-6mV or so from the main stations (Wrotham and Crystal Palace) and, as my graph of quieting performance shows, at these levels my Troughline (2 see graph), at -74dB, is quieter than NAD's 412, which measures a typical -72dB. It also gives full audio output, a not so massive 200mV from the original germanium transistor



Like all electronic products of the time, the Troughline was hardwired, using discrete components. Many, like high value resistors, become noisy or fail.

stereo decoder. If my tuner was hooked up to a poor aerial though, it wouldn't do very well.

We discovered that Dominic's Troughline (I - see graph) has started to become noisy (-65dB) and although a valve change helped, dropping noise to -70dB or so, it appears that a component is on its way out.

Old fashioned components, especially electrolytics and high value carbon resistors, age and fail. Thirty years is too much to expect from them. Today's components last much longer, with the exception of electrolytics, which last for ten years or so.

Dominic's tuner limits properly and he finds it very sensitive, pulling in pirates easily. Measurement confirmed its sensitivity, which was nearly as good as a modern tuner. But on the minus side he's always found it tune sensitive, unlike mine. That's an alignment problem and measurement showed that his did distort quite badly as it tuned into and out of a station, whilst mine did not (AFC doesn't help).

So although in many ways our Troughlines work very well (both have flat audio frequency response and low distortion), neither is quite right. But we both use good aerials and this ameliorates a lot of problems.

ALIGNMENT

Oh what a problem this is. It makes tuners very difficult animals to service. Like most tuners the Troughline has two tuned RF stages and a local oscillator. These tuned sections have to be

adjusted so that they track well, right across Band II, 88MHz-108MHz. There is a triode mixer, with tuned anode load, followed by a pentode IF stage. Both need to be tuned to match each other for correct passband shape.

The IF stage is followed by two pentode limiter stages and again both possess tuned IF transformers that must be in adjustment. In all, there are three IF transformers, each with two tuning slugs apiece, preceded by the RF stages. Leak warned that the Troughline could not be aligned without suitable test

equipment and this still holds today.

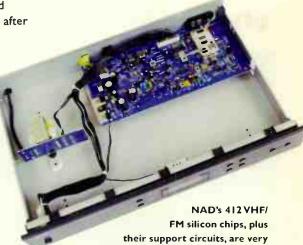
Alignment equipment is expensive and RF (Radio Frequencies) is a difficult field. It is only realistic to pay a bit for the time, knowledge and test equipment needed to put a Troughline right and, if ours are any guide, there's a good chance alignment will be needed, after repair.

We do have all the necessary alignment equipment but I'm reluctant to tamper with mine until it becomes absolutely necessary. Also, I want some spare IF transformers, just in case a slug breaks (which they do).

TROUGHLINE OR NAD?

As my quieting graph shows, the Troughline only draws ahead of NAD's 412 when it is getting a very strong signal. Otherwise, the NAD is considerably more sensitive and works better with indoor aerials. It produces no less than -20dB less hiss than a Troughline when fed a meagre 30µV, which is what you'd get from an indoor aerial.

There is more to it than this of course. The Troughline is fundamentally as accurate but has a walk-in sound stage and the sort of silky smoothness, especially noticeable on strings, that only valves can give. Troughlines also have nuclear bass, showing solid-state jobbies to be anaemic. NAD's 412, however, gets very close to our Leak fave; its a great tuner. If you don't want to have an argument about ownership with a bunch of spiders, and aren't the sort to get excited about RF test equipment, I suggest NAD



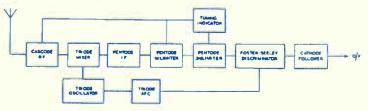
well honed by the chip manufacturers.
They offer a fine performance, with sufficient stability to need little alignment - and take up little room.

SERVICING

On no account should the pre-set trimmer capacitor C8 or the pre-set tuning slugs be tampered with or adjusted in any way.

It is not possible for an F.M. tuner of this calibre to be accurately aligned without using a double beam oscilloscope, F.M. signal generator complete with an accurate 'marker' oscillator and a D.C. valve voltmeter.

These requirements should be emphasised to a potential service engineer, and if all the above equipment is not available, work should not be started.



BLOCK CIRCUIT DIAGRAM OF 'TROUGH-LINE 3' F.M. TUNER



The

ensemble

Music System



PRIMADONNA GOLD

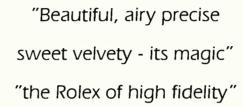
"Simply Stupendous"

"good real bass"

"so much dynamics"

"- amounts to quite frankly a

miracle"





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AERIALS

The aerial is all important, even with modern tuners. Noel Keywood explains why.

uner sensitivity is quoted for -50dB hiss level, a mediocre figure that gives good intelligibility with speech - important when tuners were unknown as such and wireless reigned - but not high fidelity. There's a big difference between the two, shown by the Quieting graph I've drawn for this report. The term "quieting" refers to the way an FM tuner becomes progressively quieter (i.e. hiss free) as the aerial signal increases in strength. The graph shows some interesting facts.

You might be surprised to see that a creaky old valve tuner can be as quiet or quieter than most modern day solid-state wonders. Both suppress hiss to below -70dB if given enough aerial signal. And that's where the main difference between the two can be found. The Leak Troughline needs about 3mV to get below -70dB, against ImV for a modern tuner like the NAD412 (modern tuners differ little in this area, so the NAD is representative).

Any good budget tuner will nowadays suppress hiss down to -50dB with just 25-40 millionths of a volt (25µV-40µV) from the aerial. In comparison the Troughline needs 60µV, which on paper appears a lot worse. What this amounts to though, in practical terms, is just another element on the aerial and for that you'll be stung another £10-£15. Adding an element provides around 3dB signal gain, or x1.4. All tuners, old and new, benefit from being fed by a proper aerial. Old tuners do need more, but modern

Giving a tuner the signal it needs has a greater impact than simple noise figures would suggest. You do get a lovely quiet back-

ones still need a lot.

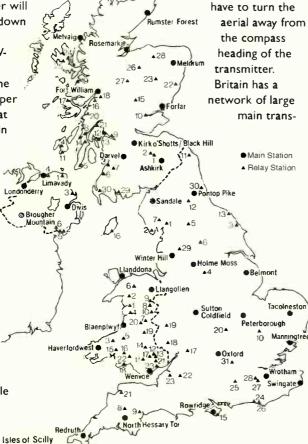
ground of course, but the apparent improvement in clarity and depth of soundstaging is more dramatic. An aerial, by reason of its directivity, also aids selectivity by cutting out off-axis stations. Point it at the local transmitter and signals off its directional "beam" are rejected.

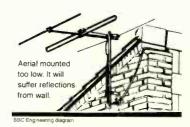
HOW TO AIM IT

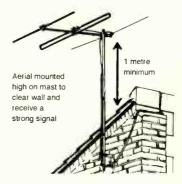
The one thing any aerial needs is height. Get it up as high as possible, but before fixing move it up/down 3ft or so to get maximum signal. Occasionally, a delayed reflection will cause local cancellations to occur, producing a null at one particular height, so experiment to avoid this possibility.

Similarly, swing the aerial around a bit laterally. Again, this is to ensure you are receiving as much as possible of the direct signal and as little as possible from local reflections off buildings. If the

two are close you may







mitters (see map), originally erected by the BBC to provide carefully planned national coverage. Difficult dead spots, like deep valleys, are invariably served by a fill-in transmitter that relays output from the local transmitter; the map shows a forest of relays in Wales, for example. If you live in a valley you will probably have to point your aerial at a relay, not the main transmitter.

The BBC and IBA can provide service area maps that will identify the site of your local transmitter or relay. From this a compass and a piece of map reading will reveal which way to point the aerial - sort of. There are plenty of peculiarities. For example, Brightonians are served by a very local transmitter on a nearby hill, but a police station sits in the way, complete with its own transmitter. Half of Brighton's aerials point toward the local transmitter, but the other half point in exactly the opposite direction, to the Isle of Wight. It might be further away, but there's only water in between - no police transmitters. So be aware that quite a few options may face you. This is where it is handy to have a tuner with a signal strength meter. Have fun or, if your roof looks like no fun, get a professional aerial installer. It will cost £80-£150, but you won't regret it

AUDIO MOTE

AUDIO NOTE AUDIO COMPONENTS PARTS & PRICE LIST.

So what is new? Firefu on have moved in much humar ora So traction where "Pricing was care warmed to minute suggest previous to accommission to consumeration completed in demands that we filter experienced over the page 2 years. On of their many completeds that are larved against our lates in that we do not differ the facility for you be hear them, no by the titte yave read their we will filter as an extract ordinance or in the new factory place a democracy in Marchester. Surrous Kd, OTE? TOT 4823, where you can see and hear this ALID C NOTE range of lots, we will stall not sell the lots in an asse mbled form that up to now see have also been unable rate them. Subject to prior arrangement you will be able to see and hear the rapidly expanding range of lats combination with our existing cable speaker d'a convi eter and amplifier program. To titose of you who have nunced delays in your orders. If with the thank you for your patience

In order to achieve the rapid expansion of the lot program, strengther and improve our technical advisory service in general and to get under may a set of finctivical valve and valve circuity application valves we have engaged Analy Grove, forwards of Hith World tame, to increase our capacity to inform you and give you the best service possible. licre worked with Analy before and he is one of the most forcyledgeable individuals in this much-milligred and

general and up or easier wall y an extractive there are made to charge agreement and a the property of the first term up to the first t nation of this, at 55 worts, Class & SE a 211 has about 50% harmonic distortion, one has in direction the or implication or critical, at 25 stags, but an A.C. of a C.F. has about 2014 implication consistent on the operation and some of processing of any signal at that desicration level. If notify the magazines sport as intend time and immany on exposing the chiminates whose implication public as they do trying the copium the intended of DOC and whitever other new increases technology is being present into service as a music carrier, we would have a channer and more just market subject houng correct and builting would not be a marketing disadriti Back to the swineth matter, all this talk about austice and correctness would be valisty if not backed by action so in order to enhance your above to design and menutostore your own special version of any of the entitle-ended circuits being discussed, whether old or new see will combinue to expand on what is aiready like meet extensive range of utility ponents that the discerning "do-6-yourself" velve amplifier entire post can use to construct any unição-ented or (shame on yetal) push pull amplifior refetther trade or pentode. All of these parts are used in various models of the menufactared line of the ALCNO NOTE amplifiers. Those components exclude mostly specially made digms like curpmic valve bases with either silver or gold plated pins, paper in oil aluminoum foil signal capacitors copper & solver feel signal capacitors. Black Gate graphite @adirulytic capacitors: acid-correcters, non-reagnetic tantition relectors, non-tragnetic RCA and speake mots, volves and many other until d bits and pieces for epyrating old or constructing new write arrowners All prices are excluding LIK Var at 17 50%, which if you live mode the EEC LIK Vat will be added to your prinches after the addition of postage and packing costs

VACUUM TUBE VALLEY

Name I has you never heard of time, one haden, but demonstrating the strength of the revical in everything that has to do with valves, whether simple-exists, push-pull or pest old and good. Victious Table Valley is a quarterly Puph quinty print and read, each sees focuses on a US brand of yester year in the current issue (fissue 2 Yell don't with extensively. There is a long article by Eric Barbour about the EL34 (not a lavourse of none any longer but a otheiess, and an interesting overview of available and violage types. The Audio Test Bo looks at tools -and opugment for DTY propriestion building, very practical and week! Cathode lies, a great article about liese to bas the VVS2B and biasing and habe life in general, Take matching (valve matching to us Britist) and much more it is not to see a majorsee that takes a historical perspective. Well worth a read, available from us at 5 6 50 a copy or derectly from VTV 1995. E. Dianie Ave. Suite 106, Samayvale CA 94066. USA, \$ 35.00 for foreign

POSITIVE FEEDBACK

This is one type of feedback that we are not estably against? Powers Feedback is the clab massame for the Ores Thode Society with aspirations towards prestness, not unlike the great underground magazines of the 1970's R is a quarterly publication of zarry, controversus commentary, by st-league writers, members, as well as various i coyers on the subjects of music, audio, bucksology and the quest for musical substaction. Her one, think it is an cellent road and provides a good alternative waw to most of the established press, which lends to view the world in the context of what new products is available right now without giving much perspective ba back issues available of Postave Feedback and the lettest issue is just off the press and all are available at £7.00 per issue. Yours findly is a regular contributor to PF, what better reason to subscribe?

COMPLETE KITS

As the current moment the following kits are under de-abopment, and should be available during 1994. The sequence of introduction may be different from the aumitor, we have the KIT THREE provisible for shapment now. ICT TWO 6550 and call 15 calls Dises A, on a sterno charts, expected onet £ 599.00 mol. Vet. antly unknown due by unavallmenty of Sovieti 6550WA, we can offer it without valves for £ 570.00. 3008 parallel samin-anded mans chases: 16/17 walts Class A, cost £1450 00 incl Vet IOT FOUR 6V6 outh pull 10 watts Class A. stereo change, expected cost £ 199 00 Incl. Val. delivery KIT RIVE 211 satella-endtal: 15 watts Class A. mone chattile. expected cost - 2,250 00 with Val.

very Dec. 1995 We little

IQT SEX 3008 single-ended, 7/8 wells Class A, stereo chassis: expected cost E 499.00 is free and Vol. this will be our "entrymmen" or gateway" by sarate-ended troops bless or mock and roll if you profe

If you are a could also whether a had project is switched her you may explice; you spould E 10 00 on buying he instructions for the OT DNE simple 2000 assignifier, then will appropria a good does without a kit project of the you'll you decode to havy a let them the — 100 out fill no individual appeared the cost of the kit. As the other is to decome a validate that materiates instruction amounts and also for available of E1 100 ones. We have the 100 OF the Instructions are suited.

AUDIO NOTE OUTPUT TRANSFORMERS

We are in the nancess of heiding on four separate ranges of Audio Male petical transformers, in order to offer the best

package, attemby we will only be offering 3 pagie-ended output transformers in this range, pumb-pull outputs are under development, but do not expect to see any on this side of August 1995.

B) Mati-price range, which are the output transformers already on offer we have made a couple of additions to this

C.) High Duality range this will be a range of double C-corn outputs for single-ended circuits exclusively, no pitch-gull outputs will be officined, priess deviated requires it. Again 3 of increase articles

D.) Super High Quality range, all-salver wired outputs of the best possibly exality, when I say best possible I do no on in say that these salver outputs will be as good as the salver output transformers in Japan they won't, but then again they do not carry the price tag either

The number criteria for name: A are 201/z in 2000z -1 to -1. Soli: they are IE count with spaces shall invest are supplied with frames and sorder tags, which will allow good audio quitiey at the cost. The main cost saving bein the use of a syntaler core specified to the exact power level required rather then over specifying by 50 or 100%, as

we do on Group B the winding quality and copper wire is the same Group 8 are typically 20Hz to 40KHz minus 1.5d8 IE cored with high gravity solcon steel fertiletions wound with

copper-free copper were and supplied with solids half-wates or frames already with liquid basis.

Group C are hypotally 12th to 7000's makes 1 5d6 stropwood double C-cores made from the best available solocon-stale for machini these outputs will compare more than furnishably with the best available hypes from days going by and from other current sources like Partnége. Tango, Tamura etc.

Group D use Audio Note silver Wire need I say more?

PP x Push-Pull. PPP x Parallel Push-Plui. SE x Simin-model. PSE x Sonth-ended Paralle. L. copinies 439 obrainment tags. It's a general rule we do not condomn the use of UL-tags, as we consider these detriment to squad guildy. ** Dynaco regiscoment.

All primary empedances are calculated for Class A operation, with the main consideration given to maximum dynamic power transfer apply and minimum distinction rather than meaningless standy state size- or square wave con All our simple-ended output transformers are air gapped, and the maximum stording current allowed before saturation un colum 5

All our output transformers are tested to equipmen levels of minimum 3,000 volts, all 251/845 outputs are insulated

was a copy a procedure as the collection of events of minimal 2,000 close. In critical supplies of minimal to the first field in the list of feed in the collection of the col

to?

In addition to the output transformers offered selects we either a design service where we can supply alread any
requirement for weighted transformers, whettler for restructives, moving one carriedges the region phase solitortranscapes, moving or power output, we weight and manafestomer promations whence the count for a power design in
ECOD or grattinger one calculation as a pract design and manafestomer promations weighten as
Scots are great as Wildo-Neuryth Olypich, where depth is the depth of the core

The contract of the core of

AUDIO NOTE AUDIO QUALITY OUTPUT TRANSFORMERS

Group A

Single ended Outputs					
Recommended Valve M	ia CI, A Power	Prim-S-c.I	mp Size Weight	Max Correct Pr	nce En UIL VAT
3008/2A3/684G	15 sqt3s	26-480	tos 80:57:68mm	90mA SE	44.50
801A/YT62/845	20 watts	6K - 4/8 0	hms	100mA SE	73 50
3008/243/6846	20 walts	1425 - 4/8 0	hes	1 50mA PSE	84 50
Group B.					
ELSA/ECLISAE/VS	20 matte	245 - 4'8 Ohr	ns 11 7198190	110nWPSE	87 00
3008/ZA3/684G	25 sights	2K5 - 4/8 Ohn	ts 117x98x90mm	90mASE	91 00
EL34/6GA7	30 weeks	115 48 Ohr	ns 115:590:95 im	180mAPSE	113.00
2A3/684G	30 watts	1 K25 - 4/8 (Par	ns 98x82x95mm	1.30mAPSE	113.00
5881 NT66	30 warrs	201 - 48 0hr	ns 115/98/95mm	14 - APSE	136 00
211A/T4C	30watts	10K - 4/30hr	no 117x98x100mm	150mASE	114 00
121 VT4G845	50x233	10x - 490hr	ns112x134x150mm	150mASE	124 00
3008	50 watts	11(25 - 4/8 Ohr	ns135x1 15x125mm	180mAPSE	151 00
1845	50 ====	265 - 48 Ohn	ns137x114x130x	1 UAPSE	172 00
211NT4C	75watts	5K - 4/90hr	ns137x115x145mm	240mA PSE	237.00
EL34 6550 NT88	20 watts	3K - 48 OM	ns 11 7x98x92mm	13JUA 56	104 00
3008/2A3/684G	25 watts	2K5 - 4/6/160hr	ns 117x98x90 mm	90 mA SE	102 50
6L66	30 wors	34 - 48 Ohi	ng 115±98±95 mm	14 June SE	107 00
NEW SE Product					
6550/KT88	eatts	2K3 -4.9 Ohi	16	110mA PSE	123 00
Group 8.					
Push-Pull Circuits					
ELBA-ECLBS 6	15 weets	8K 4/8 Ohr	ns 80x57x58 mm	pp	42 00
EL34/5L6G/5881	25 watts	6K 4/8 Ohr	68×73×80 mm	PP	59 00
2A3684G-3008	30 watts	SK 4/8 Ohr	ns 88x75x80 mm	PP	63.00
KT85/6550	50 watts	6K6 - 4.8 Olim	105191190 mm	PP	73 00
£L34/KT66/5881	50 watts	3K - 48 0M	ns 98x82x83 mm	PPP	74 00
845	50 matts	601 - 41 Ohr	ns. 108x91x90 mm	PP	114.00
KT88/6550	60watts	4x3-4/8/160hr	ns125x100x113mm	ULPP	111 00
IET88/6550	100watts	242-419 160hm	ng150x147x118 mm	UL PP/PPP	134 60*
Group C.					
Single-ended only					
3008/2A3/684G	25 watts 25	5 - 4:160 ms		90 mA SE	360.00
2119T4-C845	50 matts 10	- 4/6/160hms	165x148x140 mm	150 mA SE	410.00
3008	50watts 14	25-4/6/160hms	165x11@r138mm	180mAPSE	396 00
Group ().					
Pure Silver Wired Or	itpurs.				
3008/2A3/ 684G	25 walts	285 - 4/8 Otens	117x98x90 mm	90mA SE	1.645.00
211NT4-C/845	50 watts	10K - 4/8 Ohms	112x134x150 mm	150m SE	1 975 00
The AUCKO NOTE silver	mred outputs lie	ted here are descri	tod and made in the U-	we can supply the	AUD 0 DUA

for an OHGA/OJ costs E 18 500 00

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0.5N 400mA		1800
3H/1 00mA		14.00
3H/250mA for CNGAVQUCu		24 00
5W150mA		21:00
5H 400mA		31 00
10%125m	63x74x76 mm	26 00
10H/200":A	98x65x83 mm	33 00
2014/50Ma	68:56:68	24 00
Other velops can be supulied to	order ask for exite	

AUDIO NOTE MAINS TRANSFORMERS.

The cargo mater is our fitting products within transformers are noticeastly difficult does to offer as the re-of permeatition of IVI may believe relations are about envirous. We have added mitter transformers for making registers of the ASSA will GMSACO, as not the about constitution and first. Severe are an appropriate principles and an experiment of the Severe Production to the severe and constitution and the report that making an experiment set the resource settlement and the remembers sentence.

	lry HT Winslans			
Primary libitages Second		S-condary Heater Windings	Price Ex: UR Vot	
0v/100w/110w120v I	N-230vat350rsA	Or-12-Brat I Arry	34 00	
0x220x230x240x		3 15v-0+3 15v at 4 Ath		
120v/110w100v10v Or-	230v at 0.4 Amp	0e-12 6r at 1 A	41.00	
0x/100x/110x/120x		3 15v - 3 15v at 4 Attip		
120v/110v/100v/0v 300v - 0	300vat 60%A	12.611-0rat1.5A	46 00	
100-y110//120y		6.3v - Ov at 600mA	for M7Tube Pre-amp	
			orth 50H choice impail filler	
0v100v/110v/120v 0	- 290v at 40mA	1.25v-0v at 1.5A	26 00	
0x7190x71 (0x1120x		0x - 631 at 300mA		
0x100x111 x120x 310x 244	0-246 310vat	3 15v -Oi-3 15v at 4.5 Amp	72.50	
Out 100m110w1 20v	320mA	12.6rat 1.5 Artp		
120v T 4v1 00v 0v 0v	920r at 1 60 hA	0 - 1 Ov at 4 Amp. 0v-6.3v at	98.00	
0/1 1 3 120v 150	1-150s at 50 mA	1.5A, Dr - 91at 2.5A		
120/ 1 (5 v100 / 0) 390 / 0x	390v at 200 mA	3 15/40v-3 15v at 1 2Amp ?v	86.70	
Out 80x 110x11 20x	1 70v at 50mA	at 3A 7v at 3A, 5v at 2A		
120w110w100w0v 425v-0	r-425v at 220mA	3.15+0+3.15v at 2.5A.	95,60	
100-11 = 120v		7.0x-0x at 2A, 7.0x-0x at 2A.	for ICT DIVE & ICT	
		5 Ov-Ov at 3A.	THREE SIGNO channel	
		315-0-3 15rat 750nA		
120vr110vr100V0v 390v-0	-390r at 200mA	170-0v at 50mA, 7 0v -0v at	07 00	
100-1 J /120v		3A, 7 O- Oval 3A, 5v Oval		
		2A	For KASSAI replica	
		3.15v-0r-3.15v at 1.2A		
120v 110v 100 10v 380v - 0	v 380v at 200/HA	150v8vat 150mA, 1 0v-0v	137 00	
100W110W120V		325A, 1 Ov-Ovat 325A,		
		5v - Ov at 3A, 5v - Ov at 3A,	For ONGAVQ replica	
		Se - On at 3A, Se - De at 3A		
		6.3v - 0 6 3v at 1 25A		

We also have a mains lizessormer social As for the WEST power amplifier as shown in Sound Practices. this contribude sinch our simple-model codput transformers with SIGTIM primary imposance, will make a very line molec of this classic amplifier locks cost E 420 40 per set. We new also think the Society to make any misma transformer by your specification, as long as you order minimum 2 pcs, they can be supplied with soldertage. Bying leads, frames or half

On a more general note in is important to understand the opecatised nature of the design and m one a more parties make a legislativit, in most institution and application that in one of the side between the state of the state of the side and t

AUDIO NOTE PAPER IN OIL SIGNAL CAPACITORS

These handmade signal capacitors are somitally superior to any of the plastic or other paper types we lit across if you have sever experienced the difference that a really good paperiod capacitor can make in a value amplifier then you welly shooled by your sproadly make proclead cape them a fills, colour lack of tractimes and writtens of dynamic belowance across the Responsery crops, what is operated to brighten any your dray! Recummenders of the procleams and and more withor suppliffers after or even in the cold traceastic annulfular), and nembal for DTY projects. In fine with environmental standards, all AUDIO NOTE paper on oil capacitors contain only non-loss, biodogradable vegetable oil. the

paper is a specially treated and imprognated by a method that enhances longevity and sound quality, to origin optimus performance all specific As you will see we are screly independing seek 500 50%, guins sheet fluidors on the range of papers and explanation as such as construction with the oppoper and sheet for here. There are several new and assume a mustally entirely and the 2006-550 received by a construction with the conformation of the conformati

Value	DC Voltage	Size	Price es: UK Vet
2.216	50 volt	21:9 mm	11 65
10.1mF	200 wolf	32x11 mm	265
56 F	200 vnit	25:08 mm	5.45
0.001mF	400 volt silver leadouturires	21:9mm	5.45
0.0028mF	400 ut up min	21:9mn	545
0.0082mF	400 wolf unver inschangeres	21 d mm	5.45
0:00spr	400 volt over leadoutures	21:9 mm	5.45
10.015mF	100 volt	21:9 0000	3 25
0 022mi	400 - Francisco leadoutwires	35×10 mm	5 45
0.033mF	400 volt illier leedrubrires		5.95
0.047cF	400 reit silver leadout wires	32x11 mm	6 15
0 F	400 viit	33x14 mm	4.25
0.1mF	400 volt user teadourwres	33x14 mm	6.25
0 12mF	400 Vult	33x14 mm	4.75
0 15 W	400 voll silver isadoutveres	34x16 mm	6.65
0.1564	400 volt silver leadoutsores	32x16 mm	5 15
0.22mF	400 volt silver leadoutveres	35x18 mm	5 85
0	400=0	(3:18 mm	6.35
0.33mf	400 voltver isadovres	43x18	7.95
0.47mF	00 mit sever lead out mittes	39:25 mm	8 95
0 68mF	400 volt silver leadoussines		11 15
1#F	400 volt stiller baddur ercs	53x24 mm	12.65
1.4mf	430 voti	70x24 mm	14.95
0.006*IIIIF	630 voll	1719 11111	2.95
0.0004mF	630 voll	20x9 = n	2.95
0 00082wif	630 vdl	20:9 mm	2.95
0.001 SmF	630 yoll	17x9 mm	2.95
0.0047HF	fex 063	20:9	2.95
0.012mF	630call	21d1mm	3.45
0.015mF	630rct	21x11 mm	3 45
0 022m	630 volt silver leadoutwires	20x10 mm	
0 033mF	630 volt	32x11 inn	3.75
0.039mF	630 volt	32x11 mm	3 95
0 047mF	630 volt	30x14 mm	6.85
0.056mF	630 vpt	32x15 mm	4 25
0.058mF	630 voti	33x14 mm	4.25
0 060mF	630 vpil	35:14 mm	4.25
0 065mF	630 volt	33c16 mm	4.25
0.071mF	630 vall	35x16 mm	4.35
0 072mF	630 vct	33x16 mm	4.35
0.073mF	630 not	33x16 mm	4.35
0.074mF	630 roli	33x16 mm	4.35
0.075mF	630 rpl	33x16 mm	4.35
0.078mF	for 003	33×16 mm	4.35
0.032mF	630 voit	33:16	
0 1115	630 volt	34x16mm	6 65
0 15mF	630 voll salver landoulerres	42:16 mm	7.75
01	630 volt	43:18 mm	5.45
0 22mF	630 volt	52×19 mm	7.25
0.22 F	630 vall silver leadoutheres	52x19 mm	9.45
0.27mF	630 volt	53x22 mm	6 15
0.33mF	630 vall	52x22 mm	725
0.994	630 voll	43:25 mm	7.6
0.39mF	630 vol	52x% mm	795
0.47///	S3 - Say Industria	5205 pm	9.85
0.68mF	630 year suver leadoutheress	32,000	12 45
t mile	630 voll silver leadoutwires	99.41	15 15
0.018mF	1000 volt	32r11 mm	4.55
0.22mF	New 2000	56x26 mm	6.95
0.39mF	1000 vall	61 (26 mm	11 65
0.68FF	000 vplt	52xG2 m	13.85
1.2mF	1000 voll	72x40 mm	16 75
22mF	1600 volt	80x25 mm	965
10.22mF	2000 volt	70x29 mm	11.55
0.1mE	4000 voit	Square car with	28.75
		porcelai eccumors	
		45±45×108mm Proh	
	The same of the same of	TOTAL COMMENT COMMENT	

AS AUDIO NOTE paper in oil signal capacitors are auditype. We are preparing a range of very small poor/arad volum to the above. The range of ALIDIO NOTE paper in oil signal capacitors is steedily expending no ack for values that you do not see.

AUDIO NOTE PAPER IN OIL COPPER & SILVER FOIL SIGNAL CAPACITORS.

We are currently developing a two further images of paper as oil capacitors where included of imany alumination for as or the above paper caper in the first range, we image caryyon tree cooper foil with 99.99% your exist share lead out were these cooper foil paper segmal capacitors are considerably better than the standard offerings. Secontly to "bridge" the prop-estility can between the more spacetral paper toll caps, and the Japanese handwade Silver full signal ca er will be offer ning delf own 99 99% pure silver foil signal capacitors, which are pretty staggering in quality, even if I tive to say this myraff the silver fed caps also have solid silver lead-out some. To start with there will be a fin zone of each available and we shall entered as fact as we can to cover all the popular vittee

AUDIO NOTE COPPER FOIL PAPER IN OIL CAPACITORS.

Värine	OC Yoftage	Size	Price es: UK Val
0.001 mF	630 vc	23x9 mm	11.50
D.0028mF	630 val	23:9 -	11.5
D 0082mF	Rev 003	23x9 pm	11.50
0.01 mF	10v 003	23x9 mm	12 1
0 022mF	630 vn	30x9 cm	13.75
3.047mF	630 vpl	28x16 mm	15.35
D 1mF	630 ***	33x22 mm	16 65
15mF	630 volt	35x22 mm	18.15
D 22mF	630 yeat	56x25 pm	22 45
33mF	630 vp0	35x30 m	26 65
0.47mF	flow OE3	56x38 mm	31.05
limf-	630 volt	65±44 mm	56 15

0.047mF	630 vot	14x46 mm	41 00
0 1mF	630 W	16:46 mm	74 00
0.15mF	630 108	22x36 mm	101 00
0.22mF	630 w III	1 9x46 mm	135 00
0.47mF	630 107	25x66 mm	196 00
tmf	630 😁	33 M m	486 65

AUDIO NOTE SILVER FOIL SIGNAL CAPACITORS.

Best squal capacitors architiste, gratily ready spouss for fault used on amy flors the OYEAU, CESON, GALL OR and AFFided Seek, incorrection on very limited quantities of Audio Eleas basily in Clorps, Japan - These capacitors use a New york file mediture, and an envirtacidamic and groundcrafted treasen on the fael and difficults to you the best possible meditivised contact and the least scope for incomed resources.

0.01 mF	500 volt	17
0 02mF	500 volt	21
0.05mF	500 vc	34
0 tmF	500 voit	64
0.2%	500 v	99

AUDIO NOTE PAPER IN OIL RESERVOIR CAPACITORS.

may for your 1996 (in	power mentils between other cost.		
(MP	DC Voltage	Size	Price En UK Vat.
if .	40 (6)	32145335	26.75
nf .	630 vol	35x45x72 mm	33 65
40	100-4	45x45x72 mm	41.75
mF .	1600 volt	50x70x72 mm	45.95
wi .	000 voit	45x45x120 mm	49.95
nf	2500 volt	70x70x120 mm	265.75
in .	000 = it	70x100x100 mm	96.75
laf.	1000 wolf	70x100x128 mm	109 95
10	1600 vill	100x100x120 mm	136.75
WE.	2000 will	100x100x220 mm	159 75

AUDIO NOTE ACID & CLORIDE FREE SILVER SOLDER.

The best policy we have been also to Fig. does not contaminate the function, which care time more

LORNESTICS CORD IN THE ONE SUSTAINED LOSS CLOSE CLOSE CLOSE COAPT-CALL	
Weight/Measure	Price Ex. WK Val.
50 prartities or about 9 motor 1 mm diameter	19-95
1 lain roll of 1 mm diameter	213 654

AUDIO NOTE CABLES & WIRES

the are proved to offer the AUDIO BOTE range of fligh quality copper and other costs, speaker and sirring cables which on the overall price of the project, will do justice to any hill system, regardless of price

td 99.99% Pure AUDIO ROTE Silver Wire		
uge .	Insulation Material	Prica per Meter Ex. UK Vat.
5mm	Polyumithane	16.75
mo '	Polyanethene	22.75
5mn	ML.	24.9
	ML.	27.05
the .	M,	31.75
m	14.	36.7

choles, inductors for speaker crossovers, both active and passes or for internal energy in bosonins, amplifiers etc. A water range of gauges is stocked, so enquire about required gauge. It may will be stock. Somes trade decounts

AUDIO NOTE 15 Strand 8.09mm 99.99% Silver Wiring Wire.

ds. the same were is used in the AN V interco and as somel wirne were in all Mr. Kondos amenifers and pre-amelifiers, available in red, white, error and black. We will sell as little as 25cm of each colour, so buy a little and see if it makes a difference in your amplifier, a good place to start is on the Phono or CO most Cost per reming mater £ 22.50

AUDIO NOTE COEX INTERCONNECT CABLES.

ype/Colour code	Construction	Price per Storeo Meter En. UR Val.
Ut A y ar	cz. 611 copper litz coax	153
Vi-C red	metrical OFHC co	297
UPS also gray orth you as entire.	echcal 99 99% salver Bitz coax	84 2E
MI-V salver prey	prevences 99.99% sever litz coax	1 52 3E
M-Vx silver grey	and the second second	382.9

AUDIO NOTE SPEAKER & WIRING CABLES.

Type/Colour code	Construction	Price por Mone Meter
		En UK Val
AN-D green or red	single conductor 61 copper speaker unraig	6.85
AN-8 blue white writing	double strand, screened 5N speaker were	12 34
AN-L blue black writing	double strand, screened 6N litz copper speaker wire	25 11
JAN-SP Joint	single core 15 strand 99 99% litz either speaker wire	106 3E
AN-SPX tiber	smale core 20 strand 382 9E salver speaker work	99.99% Rz

Enabulated Silver Ptated Copper Wilves
an also provide lase concesse writing wates for land mining carsolis shows PTHE concessed withing
var 19 datumed did 15 kmm were and come on larvow, black, bi<u>lley</u> pills, red, grand, drungs, wellde fille may cost 0.1 60 per meter in any colour

AUDIO NOTE HIGH QUALITY STEPPED ATTENUATORS & SWITCHES

are Restricted absorbant; and primities are restricted by a Yeard of Mr. Nome of AUTO NOTE, and represent here available relates controls and events you can use at your pre-profiler. The collection is 40 lines and with a "Indicate priside consciss" but have now in the an array of tractions film resistors. The switches feature sheet and consciss and self-coloring actions

Туре	Value	Price Ex. UK Val.
Sterec Patentin Mrs. Advantage	-0	221 7E
Stereo Posseri	50KD	221 7E
Stored Pytorh	30.0	237 7E
2 Ch switch	6 way adjustable	- ™ 7E
Oi Li	6 - Limit admissibility	19476

AUDIO NOTE HIGH QUALITY CERAMIC VALVE BASES.

Type		Ecosting	Plating.	Price Ez. UK Vet
4-par LDG	for 3008-243-001A	Cramos	Gets	825
4-pm (D)	Ffor 3008/2A3/901A	Chases	Pictel	7.25
14-pm (8	64 WE type for 3008/2A3/601A	Channe	Sher	14.75
14-pm UX	4 WE-type with bayonet mounting	Chassis	Silver	48 95
14-Pin Ji	imbe 4 for 211 NF40/845	Classis w ^{ell} bayonal	Surgrations	15, 95
15-pm U*	75 for 807	Channe	Gold	9.75
7-0 87	for 6X4 OA2	PCB	Slier	6.15
7-pm 87	for 6X4, OA2	PC8	Gold	7.85
7 87	for 5X4 OA2	Chessis from above	Stiger	6.75
7-pm 87	for 6X4 QA2	Chassis from above	Gold	7 95
8-pm US	Clay EL34 6550 504G GZ34 60.6G etc.	Channe	Stor	5.65
8-pin US	for EL34 6550 5U4G GZ34 6L6G etc.	Chimin	Gold	8 65
9-pm 89	for EDC83 EDC88 5687 6350 atc.	POB	Stier	3 85
9-pm 89	for ECC83 ECC88 5687, 6350 etc.	PCB	Gold	5.75
9-pm 894	A for ECC83 ECC88 5687 6350, etc. etc.	Construction and	Street	445
9-pm 89/	Nur ECC83, ECC88, 5687 6350 etc. etc.	Chassis from above	Gold	6.75
9-mm 894	Nam ECC83 ECC88 5687 6350 etc etc.	Chases from below	Silver	4.95
9-pm 89/	for ECC83 ECC88 5687 6350 etc. etc.	Chassis from below	Gold	7 15
TOPCAR	S			
Торсар		For 802 pentode etc.	flidal	9.75

You may want to start your project with less overall cost, and for this purpose we can effor the following "

Туре	Mounting	Price Ex. LBC Vat
8 per for EL34 6550 NT66 8L6G	These Meditors (No.	1.43
9-pin for ECC83 ECC88, 5687, 6350	Committee and parties	18
9-pin for ECC83 ECC88, 5687, 6350	and showing	

AUDIO NOTE CERAMIC STAND-OFFS.

red valve power amplifiers it is troquently difficult to get the HT and healer rails properly suit; and separated. Cally and study from the character, the separately appear and manufacture properties on young manufacture and separated to the properties of the separated properties of the separated

Type No Numbe	er of Togs	Height/Length	Solder Connection	Chasses Fixing Price	En. UIE Vol.
AN-421	1	25.5	Wrentted	Screw-in bolt	1.41
AN-422	1	174	What-round	Screw-in boll	141
AN-423	1	22.6 mm	Soliter slot	Screw-et	141
AN-452	2	Adjustable, 17	Solder slots	Dualbolt screw-et	2.42
AN-453	3	Attended 24	Sal or slots	Dated bolt screw-ex	3.05
AN-455	5	Adjustable, 32mm	Solder slots	Dual bolt screw-sit	404
AN-458		Division Stem	Swiffer stees	Directors acress-se	5.70

AUDIO NOTE SELECTED AUDIO VALVES.

(New Did Stock) where which are no brange or production. We have computed a special last of the NOS thems, which are and the American and the American and American are are also because of the American and American standard vorcions and reprismed authors non 845 Westing frame, VT25/10/10/Y VT62/00/A WE3008 STC4380A Williams GZ3A/CV1377. Turripout SUAG (best sounding SUAG Pitore over fractile. Charlests SRAVISY and many other

	Туре	Price Ex UK W
/1025	double from	29
107W8	Nigh gain seper levi noise	39
nri	8W to noise: Whe morephone and suon without	54
do	value trade from gain ECCES type exceptional sounding would in	9.4
0	AGALL MIT he Silver ATOSN protectly best sounding ECC83	
A 7308	dcuble briode	39
	postode	24
143	multie trivile in ill spec	5.9
	drawle triode UEX bess	2.7
16 D	US in Invenous ly, superso	59
	double winds. USX base	3.2
	double transp	6.7
ISA	double triods, powerful driver used in ONSAQU, KEGON etc.	6.7
cal Bestric U	SACCLUSE tricks very powerful driver pre-equivalent of 5687W3	14.7
	hode-passada	2.6
	and power periods	15
	small power pantade, mill spac version	45
	small power telepade	2.4
	rapdiate power postode	2.7
IC.	Redigm power tetrods	45
	medium power letrode, standard been	55
	power tetrode	8.8
	power peritode	64
	over trade. Audio Note Bisarded and tested to our specification	55.4
	own trinds. Audio Rate branded and tested to our specification.	29 4
	power frmin. Ainti-Rate tooled and tried	33.4
	report usely hand trinte	24 6
	The property and the Part of Chile	64
for Audio	directly hasted small power trode	
	ons Second Audio Arry Fors	17.9
	HT-recti tu	3.2
	HT-rectifier	2.2
	HT-not far	3.9
	HT-rectifier	2.2
p-	HT-recitor	8.7
Mind	HT-recibiler	44 6
105	HF usualism equantized to GZ32/34 but hollow sounding	9.5
SA	Very powerful HT-recition 2.500-oil at 100mAI	24 5
	ill-restflir, very good for pre-emptions. 7-pin boso	2.60
HTred	over for pre-sentiors & power amplifur front-ends, UEX base	2.60

Please ratio, 6st 2008's an examilacizant in Class by Gold Disposit Simption, but an instead a-though under mail violating confidence to parameters accessed more strangent table in otherwise done. End this file and strong data so good an averyal to KS 155's or 51's CASAL, see on they comy the times previous price please to consider or whole the consider and the strangent of the price of the consider or significant of the consider or the consideration of the consideration

Respublies, For all of their spacing finished of respect spacing, sell on 1%, custing, with the Depositing manual fills, which are aligning recogniting part on the extent sequency of other research and entail film research; but devaluations, any pood sportings, as used at all our UP research amplifiers, up to and installing quality Level 3, the MESPALPPSY 5008 representation brook and all our UP research amplifiers, up to and installing quality Level 3, the MESPALPPSY 5008 representation to contract the contract of the contract of

MICLUS. Belter sending quichy can be advised with the HCLL 1 well. If You was dispressive reactions, which we regard as the heal "Histories and paid" related the resistors and the HCLL as the year open to taple, and request contributions, or on each the heat to be paid on the HCLL as the HCLL 1 t

S-HIMEOH Tarts tem Files Persistors.
This is difficult be bed senting a parties a called longe the VSMAY, which may be on a high bedding temporary to the collect of may have been a senting to the collect of may have been a senting to the collect of may have been a feet to sent the collection of the

AUDIO NOTE 1/2 WATT TANTALUM RESISTORS.

With our or-fiscate entage of continuous reactions recovering all the time, and Shintish becoming less and less able to 68 820

The 1/2 watt Audio finth tantalum residors cost £ 1.99 mil/s

AUDIO NOTE 1 WATT TANTALUM RESISTORS.

Up to now the tantalism film reastors have been extremely difficult to get Temperer after milital persulting an guisst a mining option y countrie been select out the entire to one options and mean profittion and qualitat a mining option y countrie been select out the entire to the entire the entire the entire to the entire to the entire entire the entire entire the entire the entire the entire the entire entire the e

AUDIO NOTE 1 wall 1% Camera register values are £ 3.70 each

Ye camenous be seen any on periong 2 and 3 Main tritistion recisions under excitote as well, and who bisous perhaps see or the able to build an use on a year's time that have all terminan resistors or all parts of the corost

AUDIO NOTE PRECISION CARBON FILM RESISTORS.

to addition to the new territor combine reserves, we are enter to stock a rarest of processes and about carbon 5 has recommend on more requirement of the recommendation of the recomme They cost for the 1/2 wall £ 3.30 tests 1 wall £ 4.85 each. 2 wat: £ 6.89 each

ALLEN SRADLEY 1 Wark 5% Carbon film Resistors.

On the polyment on "self- and a general tack of other sources, we time standed stocking a range of Allen Bradleys
carbon film resistors, mater exponenced DYFers. Illia my fr carbon film resistors. for applications

Available in the £12 range of values. The 1 well cost £1 43 each

HIGH WATTAGE WIRE WOUND RESISTORS.

As a new form we shall start officing a range of 2 - 15 well wave variety requires we shall be starting with a small range and cogniting it as we go along all the memoral the following is wealther all those resistors are 5% behaviors and present

Wattage	Yaive	Tolerance	Price excel V
suit .	47R	51	0
inati line	00R	511	
inati in the same of the same	470R	5	0:
S well!	(0)	5%	0.1
S would	2/2	5	0
5 wellt	150	51	13
line i	MK	5%	1:
watt	100R	5%	1.
and and	KS	511	1
3 watt	11/8	5%	1:

BLACK GATE FLECTRON TRANSFER, High Performance, Gray-like foll capacitions.

Firstly, I would like be chapterably shift had any remove abod files to fair acquaints being emissible or decurred and in highly expected. A summarised of the CRES is consulty the size secure as Europe and decurred and in highly expected. A summarised in the control of the

Back Gate program available. Aut us to sond you this lest as it is too long for an advertisement or to incorporate our standard component flet, wherefore it is not included in full. Again, as always, we approciate a stamped self

PLEASE MOTE, THE PRICE LIST FOR BLACK GATE CAPACITORS IS A GUIDELINE ONLY, DUE TO T OUS STRENGTHENING OF THE JAPANESE YEN. IT IS IMPOSSIBLE TO PRINT UP-TO-DATE PRICES MONTHLY, SO ASK FOR PRICE WHEN YOU DROER

Value	htter	BG-Type	Suggested Use Price Ex	UKT
17-17	ant.	PK	Adjustace	- 1
33mF	Sint	PK	According	- 1
47(11)	50 mg	PK	Attywhere	1
time.	50mit	PIC	Acyntere	- 1
294	50 10	PIC	A material	- 1
3.	50 lift	PK	Almerica -	- 1
4.7%	50110	PK	Russian	1
10-1	50mm	PIC	Accessor	- 1
22mF	50veit	PK	Appellerer	2
22mF	Tilut -	Standard	Acronham	2
33mf	16 m	Standard	Acres (married)	3
47	1010	Standard	Amount	4
33ur	1 II UE -	Standard	American	6
bir'	50v it	Sandorf		2
17mF	50-oit	broad	Arienters	4
13 mg	1914	Stragged		4
100mF	50vot	Standard	Allywhere	5
72	50°08	Sinder	A.	10
19 F	130voR	Standard	Armine	3
Z2mF	100 tub	Standard		5
1711 F	100103			
911	100volt	Statistical	Azayschore	8
220 F	00rot	Stendard		7
ZPIN	1 00volt	Standard	Russen	22
	16volt	Standarf	Ry	8
1000mF	50volt /	Santon		24
a '	1 Not	Streton	Arythere	4
47	16:00	Standard	Aramshore	6
2200mF	Hict	Shipping	A. Heliore	13
.000mF	80x38	Section 1	PSU smoothing	234
6700mE	1 list	Standard	Attipulare	14
	500 it - 550v imps	Care Tumo	DCI I filler contrador	85
	500volt - 550v uurge	SK2,Type	PSU filter capacitor	101
	500um - 550v arrgs	Skz-Type	PSU filter capacitor	72
	350voit - 400v runge	Sitz-Type	PSU filter capacitor	92
CEUIE & CEUIE	35.04 - 400 step			
22mF		SK2-Type	PSU filter capacitor	75
	350vc3		Deccupling or filter capacitor	18
15	Sivis .	VK-Type	PSU filter capcotter	41
3 47	50vati		ow ESR Law is milence anywhere	- 1
22 II F	Eliot	F-Tyne	Apriling	1
100mE	63100	F-Type	As above	1
220mF	first	Filips	As it ve	2
2200mF	6.3102	F-Type	As abilite	4
ClinE .	16volt	PK-Typot.	tira low ESR visition, compared to the caps	7
3m00 1	1 6cm	RK-TypeS	Bra low ESA scrollen, comparable to film caps	13
220mF	1 6vets	RK-Typell	lira low ESA scresion, comparable to fifth caps	9
130mil	25volt	RC-Type	As above	14
220mF	25volt	Ri-Type	As above	21
100/16	50est	RCTyps	As above	15
1000mF	50xoti	Ri-Type	As above see all your well as	58
2200mF	35vct	FIL-type	As above anyways	55
2200mE	63voll	Ri-Type	As above use anywhere	101
LULUF	100 tipli			32
		PK-Type	As wifee use paywhere	SZ.
2215	50voll	C-Type	For circuits with DC	
			potribal difference	2
7mF	50valt	C-Type	For carcults with DC	
			potential difference	3
5.8mF	50volt	Syster	For loudspending	
			crossover networks	12
10mE	50vott	Boster	as above	15
22mF	50 tolt	Bijoter	as above	23
17mF	50vat	Bestz	as librae	36
47mF	50volt	BG-Nx Tion	For PSU decouping	12
20mF	6304	BG-Nx Type	For super low noise PSUs	11
100-	160	BG-N Type	For super low name PSU's	24
Vo F	16/08	BG-41 Type	ror super rorr room r'su's	28
1700mF	35 col	DC 4-5 -	25 2004	
1700mi Im6		BG-N Type		210
	50v	BG-N Type	25 (11)	5
17/	50 oil	BG-N Type	35 SD0ve	6
D1F	50	BG-N Type	A STATE OF	7
17mF	50 tolt	BG-N Type	as above	13
SON .	50xell	BG-N you	20 (Brs)	20
000mF	50volt	BG-N Type	as above	99
200mF	190vol	BG-N Type	as above	423
n pur componen	bit you will led a little o	d all periods floor	t Gate values. Incomber than sizes, hard usage	de

Lastly, we can supply a range of more moderally prices components, still good quality, but more industrial grade if

POTENTIOMETERS

Bost excentile from scand quality - price versioning, stade by Nobre in Japan High quality conductive plants; iLlin

Valume Controls		
impetance	Construction	Price Ea. UR Val.
110000hm Stereo	Frame type: PCB mounted	3 95
OFF CO. Staron	Ercapsulated type PCB mounted	15 65
OFF CO. Staron	Encapsulated type PCB mounted	15

A before about the EO-ON value controls offices are used on pre-city files the NATI also NATI are and on a minore version on the impact on the NERIO KASSAL KEGCH and GAQU-ON these are very good sort timing pots by any

m podance	Construction	
OCP Úlim Sieres	Encapsulated	32
PRINTED STORE	1 6	72

Introduce PCB most

532.25

STANDARD TYPE SWITCHES

STANDARD ELECTROLYTIC CAPACITORS

Gold quality standard industr	nal types		
Value	751.594	Size	Price Es. DK Yes.
100mF	(WOR)	18 idinim avail 11 m/mm radial	0.23
1941	16/02	15x6xm axai	25
220mF	16Vot	15alimen radial	0,31
20011	- But	13×10mm radial	0.40
100mF	53vm	13x10mm radial	0.47
4700mF	15.	38c19mm radial	183
2200=F	50 14	35x15 radial, 41x16 avail	0.87
10mF	160v	15x10mm radial	0.56
22mf -	35944	25x12mm radial	1,25
22mf	450 (4	41x16e im axsal	1.89
42145	385 www.	25x21mm radial	216
56rrF	÷00v	30x21mm radial	2.37
Bed .	400	30x22 mm radial	2.68
100mi	(00)	30x25 mm radial	3.25
220mF	285	52x30 mm radial can	4.45
220mf	450148	40x30 mm radial can	5.85
229/11/6	550valt	112x35 mm radial screw terminals	27 65
470mE	385voll	50x35 mm radiol can	4.56

RCA BNC BANANA PLUGS RCA SOCKETS. SPEAKER & GROUND TERMINALS BLOUDSPEAKER SPADES

RCA PLUGS

Standard Gold plug	155
AN-C Gold plug	3.65
ASI-GP AUDIO NOTE gold plug	8.51
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BNC PLUGS & SOCKET	
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Ground Terrimot, choses mounted and nuclei prised	1.45
Our range of companies is constaintly expanding as we find now or builtur suppliers as stay in touch budwirs in Hill World and Hill News	y reading our

FERRITE RINGS

In every systems, expectably once using transator based amplification; there is often a problem of excerning RF mixing into the fundback loop, expectably from connected CO-physins, classified a ferrite rings around the cable between the CO-transport and the DAC or the eviluat of the DAC or CO-physic and the pre-immiffer immit yields

AUDIO NOTE lifering Cell. CD Line & Input Matching Transformers.

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117688	Red	15 & 600km - 1000.Dhm. copper world, VIC matering	51 50
117689	Drange	150 &6000hm - 2KS & 10KUhm, copper word, fine matching	£ 51 50
TT7690	France	3 & 12 Olum - 1907/Dhm. copper wired (Figh Guality E. MC malu-	78 20
177001	Green	15 & 600km -100k@hm centre tapped copper wind High Duality.NIC-matching	78.20
TT7692	No.	150 & 6000hm - 2KS & 1010hm, copper scred High Quality, line matching	78 20
TT7693	Yold	25 & 1000hm - 24.8. copper wind High Dictify Ene Michigan	78.20
TT7694	The	150-1500km copper world Hinh Qualit Geomatic	101 50
117695	Silver	150 - 150 silver wired High Quality line making	378 60
TT7006	Baca	3 & 120km - 000 Dism - or wind MC model ing	376 00
TT7697	Gold	15 & 600hm - 10010hm silver weed MC mercinis	378 60

or the supporting assessments can on beauth a support or any recommend between CO-Player and pre-cargotiers, to sepa-red or output transformers or whethern else you can tilmit of a shall expand this range to stocked more types as we go

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Chassis 1 Copper	437x396x125mm	98
Chaesia 2 Copper	29412 1125	165
KIT ONE/KIT THREE Chases sold state grey paint	400-300-0 mm	78
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I.C. Three limitures 2 x 3008 par channel renneng as single-ended parallel yielding 16:17 wates in pure Class A, this lot as on two mono chasses with vizive rectified HT supplies no surjett feedback, it uses a 65H7GT double broade as input refre and a peir of 5687 double blodes retring in STPP as driver

The KIT THREE is assertably a mono version of the KIT ONE with double the power. The same comscrollo beetsts, recents of

The XVT THREE costs © 1 550 00 and is available now. Cover is © 99 00 extra per chasses (© 198 00 for two). Perioded chrome chipmes and bell-exist is also evenible at © 400 00 extra. Several apprecia hits are available for Kit Three as

The KIT FOUR is really our extradiction to valve amplifier lot building, circuit and power supply in privided coresel board, with two OTO - two memb-oull output transformers, all mounted in a small PISE type change covering everything no nobody will be able to see that you have success to the lare of the valve amplifier which is ang the world. The circuit consists of two 645GT tetrodes running in Push-Pull class A, yealthing about 10 world. cirron by a 6SAPGT and a ECCO3 signal stage. Easy to build, even for the burgioner. The ALT FOUR costs £ 198.00, and is available now.

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ANDIO MOTE

wasn't happy to see the Audio Engineering Society reiterating the industry's ingrained prejudices about reviewers and reviewing and putting them into print recently. They were published in a Standard on the subjective evaluation of loudspeakers.

The AES say reviews "contain biases or errors. Such errors may be serious when they cause a manufacturer to launch a new product, only to have it falter in the marketplace, or when biased opinions reach the general public through a product review in a magazine."

No evidence is offered in support of this assertion. The statement stands as a fact, when it is simply a prejudice. Let's look at this matter of listening tests and so called "objectivity" as the AES see it.

They demand that listening room dimensions shall be 20square metres minimum, with 2.1m minimum ceiling height. That is, roughly 5mx4m, or, say, a 16ft x 12ft living room. This is just big enough to prevent

Mysteries from Noel Keywood

source are their particular strengths.

But they must not be judged in a large room, where bass will die and power input will be too great to fill the space. This condemns Britain's small speaker makers to suffering inaccurate reviews based upon unrealistic listening conditions, something the Standard purports to avoid.

I see more contradiction in their stipulation that "extensive use of commercial all the hoary old ideas the AES recommend in this paper that I have learnt how flawed they are.

Recognising that nearly all recordings are "inaccurate", simply because most microphones are inaccurate, the AES sail into another weirdo piece of unreality: reference recordings. By definition, such a recording (made with a perfect microphone in an anechoic chamber, no less) is completely unrepresentative

> of anything commercially available. Yet here we are asked to judge a loudspeaker by it. It goes on. Anything

other than a blind listening test is "to be deprecated" because it must exhibit bias. This is just plain

absurd! At one point the AES in this standard try to ameliorate the influence of the curtain that a blind test requires, then later talk about retaining ceiling reflections because they "are an unavoidable condition of use". So is sighted listening.

By cataloguing the need to use a wide range of music programme, which I agree with, whilst at the same time imposing no time conditions, this "Standard" waves through the invidious practice of using quick fire music excerpts, during which listeners are expected to reach an informed view of a product. If ten loudspeakers are to be group tested in one day, as is usual because it's difficult to get experienced listeners to attend for longer, each loudspeaker gets 36 minutes. If six excerpts are



used, this gives 6 minutes per excerpt. Which is why so called "objective" group tests usually arrive at peculiar conclusions that go quite against the general view

No loudspeaker - or any product if it comes to that must receive anything less than the sort of extended and relaxed auditioning that it would receive in real life. Contrived "objective" conditions are anything but, yet the AES fail to understand

At Hi-Fi World we long ago exceeded the abilities and conditions stipulated by the AES. We have a carefully treated listening room, but we also use smaller and larger rooms, for smaller and larger loudspeakers. We use many informed listeners, but rarely in a group. We use lengthy but relaxed listening sessions as a minimum. We also measure extensively and design and build our own loudspeakers, using the same software and suppliers as Britain's major manufacturers.

And there's the rub. We also know how little effort and investment some manufacturers put into their products and how flawed their engineering is. When, not unsurprisingly, they receive even mild criticism for quite blatent sins, like cheap metal dome tweeters, appalling load characteristics, honking cabinets and low quality drive units bought in for £1-£6 apiece, their reaction is to blame reviewers for what they hear and for the product "faltering in the marketplace". Methinks the problem lies elsewhere

"Anything other than a blind listening test is "to be deprecated" because it must exhibit bias. This is just plain absurd!"

low frequency room effects colouring a loudspeaker's bass performance

The simple truth is that many loudspeakers, possibly most, are used in rooms of smaller dimensions. Experienced and realistic designers, aware they must deliver a product that works well in real life situations, cleverly exploit small-room modes to add speed and punch to a 'speaker. The Linn Kan, Wharfedale Diamond, Tannoy 631 and a host of other contenders are wonderful in small rooms, because they are designed to excite small-room modes in the 80-120Hz region. Generations have marvelled at and have enjoyed 'speakers like this. Flat frequency response (above 180Hz or so) and superb imaging from what is nearly a near-pointsound absorbers or diffusers is not recommended" and then, further on, "efforts shall be made to damp and stagger low frequency room modes". There's so much energy in low frequency modes that to contro! them requires extensive use of sound absorbers, be it in the form of large padded settees (which do a great job) and/or tuned Helmholtz resonators. We use both in our room, by the way.

Similarly, the AES want "flutter echoes suppressed by diffusion or absorption", which is impossible unless diffusers or absorbers are used, which they don't recommend. Or are reviewers to use the traditional bookcase to achieve this end, because it isn't a diffuser even though it does diffuse? Oh what a muddle.

It's by using, in the past,

SEPTEMBER 1996 **World Radio History**



Silver Trophies

Restek's Charisma CD player and Fantasy amplifier have Douglas Floyd-Douglass thinking about polishing up his act.

ike solid silver bullion bars, the Restek Charisma CD player and Fantasy amplifier are weighty on the hand and glossy to the eye. They carry off that expensive feel too, with styling typically German; shiny stainless steel (in abundance) and minimalism in the button department.

In use though, the Resteks have their awkwardnesses. The CD player on/off button is positioned where most players have their open/close function, so every time I tried to change music, I inadvertently switched the player off. Frustrating.

All rear connections, inputs and internal components are of impressive quality. Loudspeaker terminals are particularly good; you could easily wire the amplifier with solid 5mm cable if you had the inclination and budget. The package allures to a substantial performance.

Cosmetics aside, the polished silver wasn't really for me, the Resteks and I began to get along when the music played. On my trusty Stax headphones, the dynamic range and quietness of this CD player was quite evident. At points the noise floor of some recordings rose dramatically (in quiet passages it was most noticeable) indicating that the signal/noise ratio was quite exceptional.

For those of you that think that modern life has been immeasurably improved by the advent of nuclear power, soap operas and the ending of all wars, you should replace all your records with CD's.



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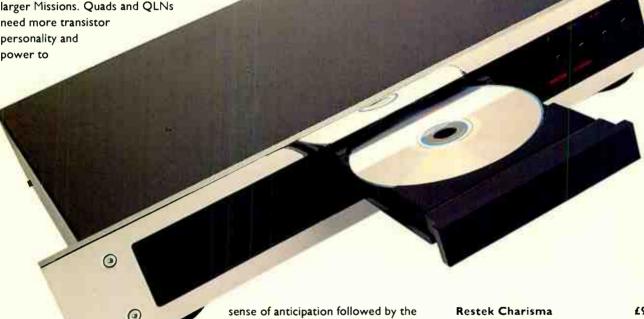
Salif Keita, the African vocal magician, has tremendous power and the album Listen is a prime example of this. The Charisma CD player was smooth, obsessively clean and articulate. Plugging it into the amplifier, this was borne out in an exacting combination. Together, the two Resteks suit a fairly efficient loudspeaker best, as the 50 watt output is very clean (reminding me of a highly polished Japanese sound), but lacks balls. They need an engaging and excitingly balanced loudspeaker to bring them out of their shells. Sound is clinical, rather than captivating. This would suit 'speakers of character, the new JBL \$2600 horns for example or larger Missions. Quads and QLNs

Trumpet was forward in the solo performances and a flawless midrange lent a spectacularly polished sound.

Simple Minds' 'Alive and Kicking' again displayed a superbly separated yet well integrated soundstage with snare drum tying the music together. Backing female vocals were rich, and the 'flat' midrange allowed the alto and soprano duet to embellish in harmony, with the two vocal parts clearly separable. At the bridge, where the sustained guitar plays out to welcome the solo piano, there

was a great

This is a critical sounding combination that works in a deliberate fashion. Listen on your favourite loudspeakers, and if you like it, you'll get super clean and resolute delivery of detail. The combination could be accused of possessing little more character than a top end lapanese combo. But then, they're cleanly styled, nicely built and different enough from the norm, to make them an attractive alternative



balance their inherent neutrality and wake them up from their relative inefficiency.

Wynton Kelly's 'Temperance' is a moody, subtle and raspy recording with plenty of feel and subway-smoky emotion. The electronically 'silent' operational characteristics allowed the analogue recording to really shine, and I found myself enjoying the 'purist' accuracy a lot more than I had first imagined. Sax was deep, bubbly and all the salivant sounds were there in blatant reality. Upright bass - perfectly positioned in the soundstage - made the hairs on the back of my neck rise.

Lillywhite bass and drum in unison with a magnificent vocal solo. . . it sent chills down my spine as the snare roll played out. I was really enjoying this.

On next to Elgar's Cello Concerto, the real timbre test. Not as impressive as the admittedly over engineered Simple Minds track (sorry, Steve), cellos did sound a bit dry due to their sparkling cleanliness. It was another one of those inevitable audio compromises you can't have it both ways. Separation was again excellent and definition most impressive. Enigma variations sounded equally fine and was pleasantly devoid of dominant amplifier/source character. The timpanic crescendos never became distorted or compressed; the sound remained expansive and intact (albeit conservative) at all times.

Restek Fantasy

£979 £900

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WORLD VERDICT

A clean and polished sound from this pairing makes them worth seeking out. Can be a little colourless though.

Measured Performance see PI03

"All I need is the right lead... "

- Sam Spade-Connector during his undercover investigations into the Mystery of the Lost Chord. He subsequently solved the case by utilizing a pair of ORTOFON SPK100 speaker cables.



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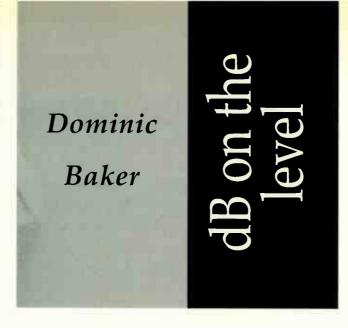
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FERROFLUID AND KAPTON

Although a bit of an obscure subject, I'd like to devote this month's column to loudspeaker voice coils. I was lucky enough to attend the Kensulat Voice Coil Symposium at the Heathrow Hilton a month or so back, and very interesting it was too. There were two core subjects discussed during the day: Kapton as a material for voice coil formers, and the use of Ferrofluid. I'm sure most readers will be familiar with the words 'Ferrofluid cooled tweeter' and maybe even 'Kapton voice coil former', but what exactly do they mean?

FERROFLUID

Ferrofluid, as the name implies, is a synthetic oil containing magnetic particles. This fluid is

injected into the magnet gap of a drive unit, where it is held in place by the strong magnetic field around the voice coil. Its presence enhances the performance of a drive unit in many ways.

Ferrofluid is around five times more thermally conductive than air, so heat is transferred away from the voice coil and into the magnet assembly and driver chassis more efficiently, improving power handling and linearity. For example, the voice coil of a large 2in. compression driver may reach 180°C with a power input of 15W over a three hour period. With Ferrofluid in the gap, this temperature would be reduced to around 80°C under the same conditions.

The fluid's damping properties can provide a degree of control over the driver's resonance

and high frequency break-up modes, which in turn may lead to simplified crossover design. If the voice coil is not perfectly aligned in the gap, Ferrofluid exerts a restoring force which centres the coil and reduces the chances of rubbing. This force also helps to lower distortion by reducing any sideways rocking motion.

Ferrofluid is most commonly found in tweeters nowadays, where the performance gains are large, but there are a couple of midrange units around that use it and you can expect to see bass drivers following suit in the near future.

KAPTON

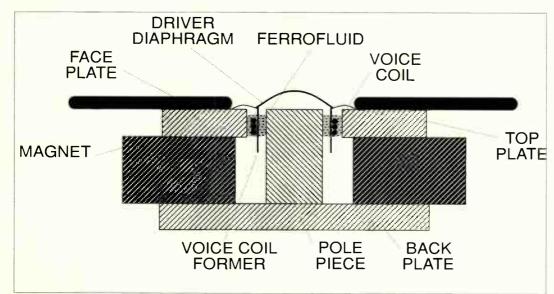
Kapton is a high performance material designed as a replacement for the paper and aluminium traditionally used in voice coil formers. It is vitally important that the tubular voice coil former, is perfectly round so that it aligns properly inside the magnet gap. It needs to be extremely stiff as well, so that it rigidly links the voice coil, where the driving force is developed, to the cone.

In cheaper drive units paper is often used as the former material. But this does a poor job of transferring heat away from the voice coil and prevents the use of Ferrofluid, which would soak into the former. Aluminium is a common choice for higher performance drivers because it's light, more rigid than paper and efficient at drawing heat away from the coil.

Kapton, however, takes things a whole stage further. Kapton is a polyimide film that won't dent, crease, tear, melt or burn and isn't affected by humidity. Another feature is that it is nonconductive, so no eddy currents flow in the former (as they do in aluminium), giving a better extended high frequency response. It is also more efficient than aluminium (even black anodised aluminium) at dissipating heat in the voice coil, a useful ability considering that as the voice coil heats up its properties change and the frequency response of the driver is affected.

Kapton was once only available in a range of

thin films, but can now be moulded and formed to produce complete cones, surrounds and spiders. Celestion use Kapton formers throughout their range of loudspeakers and many other high performance drivers also use Kapton, like the HDA midrange driver in Mission's 754 Freedom5s reviewed this month •



ou know when the hi-fi bug has truly bitten. The sudden realisation comes when you consider that spending a few hundred pounds on wires is actually pretty good value. To the hi-fi illiterate, it seems like lunacy, but to those who've experienced the difference, good 'speaker cables and interconnects make rational sense. There are those who are die-hard cynics, but many more simply aren't aware of the differences to be had with quality cables, despite far greater promotion within the hi-fi press and trade.

I must confess to having twinges of doubt as to the real worth of some cables myself. Yet just when clouds of doubt begin to set in, I meet a customer, whilst working in the store, whose enthusiasm after having heard the differences good cables make for the first time, bowls me over. The enthusiasm is infectious too, with the hands on approach being one of the most rewarding parts of buying hi-fi (after listening to it of course).

The problem we face is that cables are still perceived very much as an accessory rather than an integral part of the system. It's now fairly widely recognised that cables improve a system's sound quality. But the fact that you can completely tune a system simply by the type of cables used isn't such common knowledge.

Cables come in a huge array of forms and materials, but generally you'll find there are two main types; multi-strand and solid-core. Multi-strand cables usually offer a deeper bass and a more euphonic response. They can sound a little too diffuse though, which is where solid-core cables score with their precision, detail and, in most cases, lack of glare and smear.

The type of material used also has a profound effect on the overall sound quality. Copper is the stock conductor used and comes in various forms of purity which, you've guessed it, all

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have different effects on sound quality. Generally the more pure a copper is, the smoother the sound. Ortofon's 'speaker cable is a case in point with their ultra-high purity copper multi-strand cable almost passing for solid-core.

Next up the rung comes silver. More affordable cables will generally feature a silver coating over copper, Good quality cabling needn't stop with external wiring either. Many hi-fi companies have long recognised the need for quality cables within their components. Turntable manufacturers have used quality silver cabling for tonearms. Good quality amplifiers often benefit from care taken with internal cabling, and many

"If you've spent a pretty penny on 'speaker cable it seems a bit inconsistent to sandwich it between a 'speaker and amp' which are probably using something a couple of grades up from bell-wire."

whilst more expensive ones will advocate the use of solid silver. This is when it starts to get expensive. But all along there are improvements in purity of sound and detail analysis. Having said that, there is a blurring between the qualities of high purity copper cables and silver plated copper ones. Silver plating is no guarantee of superior quality.

Other materials have been tried, such as van den Hul's graphite, but copper and silver are still very much the order of the day. Personally I prefer the smooth, integrated sound of a good solid-core such as DNM's copper Reson, or Nordust's silver Blue Heaven. But I'd be the first to admit these won't suit all systems and musical tastes.

loudspeaker companies fit high quality cable as a matter of course. Heybrook, for example, use their own Heywire throughout their 'speaker range, which really lends an edge to their cheaper models in particular.

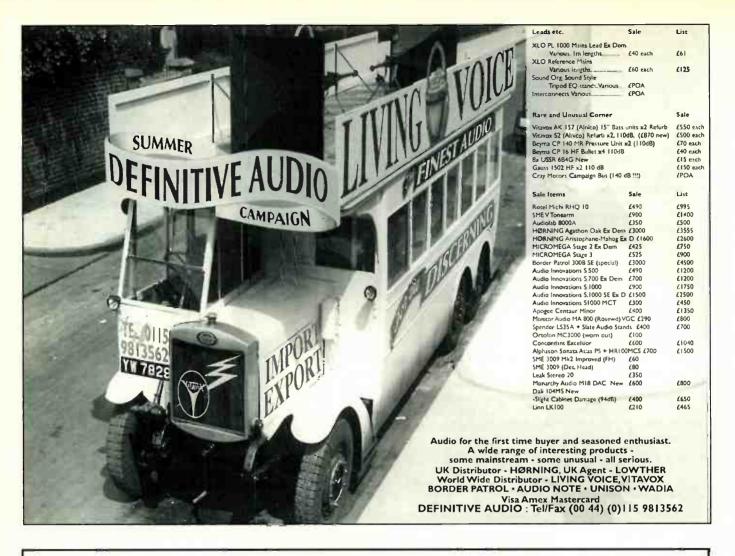
Whilst fine quality cabling used in analogue components is often the norm these days, it's unusual to find it in three hundred pound CD players. Yet I know of at least one manufacturer starting to use silver plated PTFE cables within their midrange (£300) players. It seems manufacturers are beginning to realise that whatever electronics are used, they can nearly always be optimised by the use of good old cable tweaking.

So, you've got the

equipment with decent spaghetti inside, so now what? Well, how about using the same cable through out the entire system, including the innards! There's actually a lot to be said for this. After all, if you've spent a pretty penny on 'speaker cable it seems a bit inconsistent to sandwich it between a 'speaker and amp' which are probably using something a couple of grades up from bell-wire. Re-wire the 'speakers and amplifier (provided it's not all on a circuit board), and if you're feeling really adventurous, why not try an interconnect made out of 'speaker cable. The purists may scoff, but I've had excellent results from Heybrook, DNM, and Audioquest leads used as

The stuff of lunacy? Well, I've just re-wired my SL600s with DNM (also used as the main 'speaker cable and interconnect) and found significant improvements in terms of integration and transparency over the previous (Ortofon 300) cabling. Although I was initially cynical of the idea, I have to admit an improvement to the overall cohesion of the system. It's a funny old world, and none more so than the world of hi-fi.

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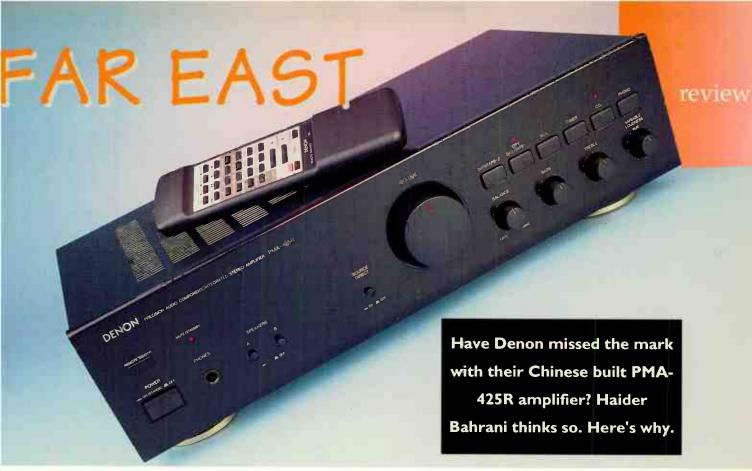
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ood, powerful integrated amplifiers with plenty of bells and whistles, and built to a budget, are really the hallmarks of a product from the land of the rising sun. The Denon 425R amplifier, though, is actually made in China.

Behind the black forest of function knobs and selector switches, this £230 amplifier packs a punch worth 45watts per channel. The selectors choose between six inputs, including an moving magnet (MM) phono stage. The knobs, apart from the volume control, can be bypassed via the Source Direct button. These include balance, tone and variable loudness.

Danny Wilson's 'Mary's Prayer' on CD was promptly slipped into the tray and pumped through to the amplifier. With Mission 752 loudspeakers the sound was big - very big - with a bass that edged on overfed. The soundstage was broad and had reasonable depth too. So far so good.

A bit of classic Yes gave a clearer picture though. The big, full sound also carried with it a somewhat jumbled centre stage. Despite this, 'Starship Trooper' demonstrated the PMA-425R's ability to handle attack and pace more than adequately. Here it showed timing that would normally be more representative of products in higher price brackets.

Do You Like My Tight Sweater?, a new album from a band called Moloko, reminds me of the sort of thing you can find on old Parliament or Funkadelic records, sprinkled with a little bit of Portishead. On the Denon it was punchy, bass-heavy and loud, with a wide open soundstage and loads of pace, but these characteristics alone do not make a good amplifier. The mid-to-upper bands lacked substance, thinning out gradually as instruments travelled up the scales. Cymbals and high-hats were overemphasised, but cleanly at least, so they didn't inflict pain.

Vocals on tracks like 'I Can't Help Myself and 'Lotus Eaters' tended to become recessed in their instrumentation, while drums spat rather than growled. More clearly on the Prince album, 'Love 2 The 9's' was too crisp at the top, with the rim shot searing out from the 'speakers, whilst the drums resided back stage. Strangely enough, none of these problems caused a real distraction, but they did add up to a misrepresentation of the music.

Putting the Moving Magnet phono stage to test was not a very fruitful exercise either. Playing at 33rpm I had ZZ-Top's Tres Hombres spinning on the deck. 'Waitin' For The Bus' didn't do much for me, and the bluesy 'Jesus Just Left Chicago' also failed to impress. The sound reproduction was also too thin across the whole spectrum, with little substance. Bruce Springsteen's 'Born to Run', off the LP of the same title was empty in the mid band and bright at the top, much the same as my findings on the line stage.

With remote control helping me switch back to CD, I reached out for my old faithful Ziggy Stardust album. The panning drums on the introduction to 'Starman' still bounced between the speakers quite amiably, and David Bowie himself conjured up an inspired performance. The crescendo on 'Five Years' though, built up into confusion, predominantly at the top end where cymbals became messy.

As budget integrated hi-fi amplifiers go, the Denon PMA-425R certainly has a lot of toys to play with, including a handy remote control. I'm sure some will appreciate the punchy bass output and tone controls. This is an amplifier to liven up slow or dull 'speakers, but don't pair it with boom-an'-ting types. Subtlety is not its strong card

Denon PMA-425R £229.99

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Measured Performance see p103

W I N

JBL'S \$2600 HYBRID HORN LOUDSPEAKERS WORTHOVER \$\(\psi\) £3500

Here's a chance to get your hands on one of the best 'speakers we've come across, JBL's \$2600, in this two-part competition.

f you don't normally enter our competition, break the habit this month. Why? Because we're offering a pair of one of the best loudspeakers we've heard as the prize. JBL's S2600 loudspeakers, reviewed in our July '96 issue, impressed Dominic Baker enough for him to declare "I have a new favourite loudspeaker. . . it will be difficult to live with anything else once they're gone".

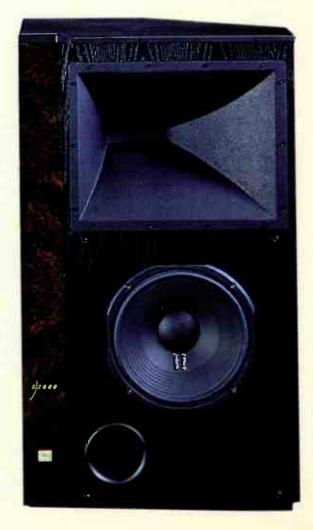
The S2600s are a hybrid. They use a horn for midrange and treble output. It works from 800Hz upward, so much of what the speakers produce is delivered with authority, thanks to the benefits of horn loading. A powerful 12" reflex loaded bass driver fills in the lower octaves.

JBL use their Stabilised Imaging Horn in this speaker. It has a profile that delivers equal sound pressure across a wide horizontal listening plane, creating a stable image over a broad range of listening positions. Supplying the horn throat is a highly efficient compression driver, a device normally

seen only in professional audio circles.

Using a horn and a 12" bass driver makes the \$2600 very sensitive; we measured 90dB under test. So they need only a few watts to go loud; Dominic used a high quality 20W class A amplifier with remarkable results. Here's a big speaker that will do justice to specialist low power amplifiers. Producing an effortless, open and dynamic sound, the \$2600s gave one of the most musical and enjoyable performances he'd come across.

If we haven't whetted your appetite yet, we'll leave you with these words from Dominic's review. "Lou Reed's 'Perfect Day' was an



absolute pleasure. Piano sounded pure and graceful, vocals intimate, strings smooth and rich in texture. Imaging was fantastic; I loved the way the JBLs painted a clear, stable and convincing picture that precisely pinpointed where everything was located on the stage."

To enter this month's competition, complete the questions and tie-breaker opposite, but don't send your entry yet. Next month, in the October '96 issue, there'll be a JBL token to fix to the entry form. Only then will your entry be valid.

Please put your entry on a postcard or the back of a sealed envelope. It must reach us, complete with the JBL token from next month's October '96 issue, no later than 4th October.

Send to: JBL Competition Hi-Fi World Magazine, 64 Castellain Road, Maida Vale,

London W9 IEX

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

JULY ISSUE COMPETITION

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In our July '96 issue, we gave you
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COMPETITION ENTRY QUESTIONS

Cut out and affix to the back of a sealed envelope

- 1) JBL's \$2600s use their Stabilized Imaging Horn to -

 - A. Deafen anyone within 20yards

 C. Place an image on the ceiling
 - B. Give a stable image over a wide area D. Make them unfeasibly large
- 2) In the S2600s, the horn is driven by a -
 - A. Electrostatic driver
- C. Mad driver
- B. Ribbon driver
- D. Compression driver
- 3) What size is the bass driver in JBL's \$2600s?
 - A. 8"

C. 12"

B. 10"

- D. 15"
- 4) What sort of bass system is used in the \$2600s?
 - A. Reflex
- C. Transmission Line
- B. Sealed
- D. Horn
- 5) How sensitive are the JBL \$2600s?
 - A. 80dB
- C. 100dB
- B. 90dB
- D. 110dB

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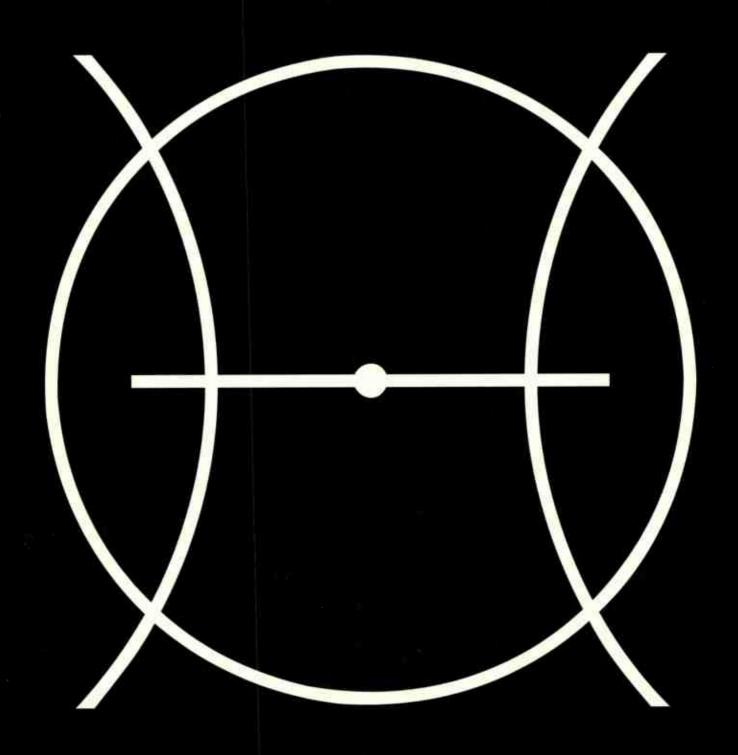
COMPETITION RULES AND CONDITIONS OF ENTRY

- [1] Only one entry per household. 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 second issue following the closing date.
- [3] Purchase of the magazine is not a precondition of entry.
- [4] No correspondence will be entered into; the Editor's decision is final.
- [5] No employees of Audio Publishing Ltd. or of any companies associated with the production or distribution of the prizes may enter.

If you would prefer not to receive details of new products or special offers please tick the box.

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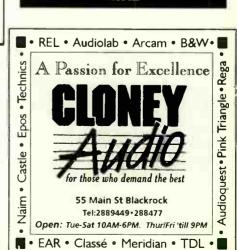
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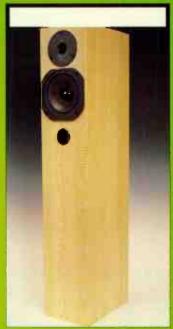
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World favourites guide

COMPACT DISC PLAYERS

One of Quad's best products for a long time, the 67 is warmer and smoother than most, yet is highly musical and revealing. Good enough to frighten many rivals.

DENON DCD-315

£150

Real hi-fi and real music for a mere £150. Achieves a good semblance of orchestral dynamics and acoustic space.

NAD 510

£200

A competent all rounder with lifelike soundstaging and impressive treble clarity.

lts smooth sound and fine treble extension make the 512 something of a rarity at the price. For the money rivals are few.

ARCAM ALPHA ONE

An excellent entry-level player from Arcam that's far better than equivalently priced Japanese machinery.

MARANTZ CD-63 Special Edition £350

A superb budget buy. Addressing the problems of the CD-52II SE, its detailed and musical sound embarrasses many expensive players.

The 514 conveys deep bass notes with conviction and weight. A supremely relaxing player to listen to with fine build quality.

MARANTZ CD-63MKII KI-SIGNATURE £500

Similar to the CD-63SE but with more powerful and authoritative bass and an all-round smoother sound.

TRICHORD GENESIS
Conveys music in a powerful and dramatic fashion. Smooth and sweet, with a good sense of depth. Maybe a little soft sounding though.

DPA RENAISSANCE

Words cannot describe its infinite variety, but suffice to say you'll love it or hate it. Highly emotional, involving presentation with not a hint of self-doubt.

MARANTZ CD-16

An extremely neutral CD player, smooth and reserved in its performance. Beautifully built too.

Superb one-box player. Its supremely rhythmic, musical sound with delicacy and finesse puts it up with the best of the rest.

This single box 16-bit player sounds very engaging compared to your average bitstreamer. Has that vital tingle factor of the larger, two-box

MCINTOSH CDM7009

£2635

A thoroughly inspiring machine. One of the most musical CD players around; sweet, open and detailed

COMPACT DISC TRANSPORTS

TEAC VDRS-TI

£550

Not as substantially built as its chunky looks suggest, the TI is nevertheless a good entry-level transport with a warm, expansive sound.

AUDIOLAB 8000CDM

Beautifully built and finished, the CDM is packed with sensible features and performs superbly, day-in day-out.

CD CONVERTORS

DPA LITTLE BIT III

£300

A lot more weight at frequency extremes than the II and far better control. For £300 there's nothing to beat it.

THORENS TDA2000

£700

Used with the TCD2000 as a transport, the TDA2000 produces a sound that is focused, detailed and spacious. Good value.

DPA ENLIGHTENMENT

£795

Some believe this to be the best convertor around. A truly charismatic performer, it dives into rock music with rare passion

PINK TRIANGLE ORDINAL

£837

Pure, smooth sound free from hardness. One of the best at any price, losing little to the big guns.

PINK TRIANGLE DA CAPO

Offers a choice of filter modules, all up there with the best. The Da Capo is superb in many respects, but can sound a touch polite on rock.

Proof positive that today's CDs needn't sound CD-like! Uses an in-house discrete convertor, and DPA haven't skimped on the build either!

TURNTABLES

GARRARD 401

In a decent plinth with an arm of SME309 calibre, the 401 has a highly authoritative overall sound with the most solid, expressive bass in the business. Very musical, but treble isn't up to modern standards.

THORENS TD124

second-hand

One of Thorens' best-ever turntables. Needs a modern plinth to give of its best. Duly installed, it's good enough to face off the Garrard 401, swapping some of its bass power for a more delicate, incisive treble.

SYSTEMDEK IIX900/RB250

£330

A fine all rounder and easy to upgrade. Brings more depth and breadth than a Rega 3.

SYSTEMDEK 2X2

£499

Although tuneful, bass isn't as deep as some rivals. More than makes up for it though with neutral and precise midrange and treble.

RESON rsl

€600

A lean, yet vibrant sound quality that really draws the listener in. With good detail and rhythmic integrity this is an impressive turntable package.

MICHELL GYRODEC

£800

Stunning looks, build and engineering, and don't underestimate the sound. Standard PSU and Rega arm gives a detailed, architectural, if undynamic sound. With QC PSU and SME V, its scale and insight kills the competition at the price.

PRO-JECT 6.1SA

The Pro-ject places the listener in the best seat in the control room. Outrageous dynamics and a punchy, seriously deep bass. Comes with Sumiko arm and Ortofon MC30 Supreme.

LINN SONDEK LP12

£840 - £1530

Cirkus bearing puts it back up with the best. Superbly beguiling, rhythmic sound that plays jazz like few others, but lacks the Gyrodec's detail or imaging. With a Lingo PSU and EKOS tonearm, you'll forget CDs were ever invented.

PINK TRIANGLE ANNIVERSARY £1200

One of the finest-sounding turntables around, the Anniversary takes the listener nearer the recording studio than almost any other deck. Works with Rega, Linn and SME arms alike.

MICHELL ORBE

The Darth Vader of analogue, the Orbe builds on the strengths of the Gyrodec. An ultra-tuneful, expansive sound.

SME MODEL 20

Including the excellent SME V tonearm, the Model 20 is possibly the last great turntable, unless you've got £11,000 for the Model 30, that is.

TONEARMS

REGA RB300

£130

Supremely capable at the price, but not quite humankind's salvation as has been suggested. Detailed, tight, rhythmic sound but tonally rather grey and cold-sounding.

LINN AKITO

A well made entry-level tonearm which works especially well with the LPI2, but struggles to match the RB300 on other decks.

SME 3009SII

£375

This Paleolithic device doesn't bother with frequency extremes or detail, but its legendary serviceability makes it a cult in Japan. Oh death, where is thy sting?

SME309

A down-market version of the IV and V with aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

A Series V with lower toleranced bearings, cheaper cables and no damper. Still vastly over-engineered and almost capable of its bigger brother's sonic fireworks. SME's best value product.

A masterpiece of precision engineering with a cohesive, ultra-transparent sound. A dream to set up and use.

LINN EKOS

A thunderous battleship of an arm, with a very impressive sound, masses of detail and dynamics, but lacks the SME V's cohesion and musicality.

World favourites guide

CARTRIDGES

ORTOFON VMS-2E

Warm, full-bodied, punchy and fast. Not to be sniffed at for a tenner. Can be upgraded with a better stylus at a later date.

GOLDRING 1012GX

An accomplished MM with a solid bass, slightly forward midband and clean transients. £20 buys the faster, more dynamic 1022GX.

GOLDRING 1042

The best moving magnet available. Has an extremely cohesive sound that's warm but highly involving. Deliciously delicate treble and strong, powerful bass.

ORTOFON MCIS SUPER II

An excellent budget moving coil with a smooth, polished, detailed sound. Tracks superbly but verges on the analytical at times. A bargain.

ORTOFON SUPREMES

£225-£450

The MC10, MC20 and MC30 Supremes all offer superb sound and value for money, with a distinctively rich, smooth and detailed musical performance. The valve brigade love them.

LINN KLYDE

£450

The Klyde's soft treble and prodigious bass mean it's tonally unbalanced, but it's still a real musicmaker that many will love in the right system.

ORTOFON MC2000

We came across this one in an SME IV on a Garrard 401; it duly gave one of the best results we've ever heard.

ORTOFON ROHMANN

In a way it's MC2000 meets MC7500 with all the tonal strengths and dynamo sound Ortofon has been putting into its best moving-coil cartridges of

LYRA LYDIAN

A truly musical, sophisticated device that makes most other MCs sound frigid.

VAN DEN HUL MC-10

Fluid bass, finely etched treble and highly tuneful in between. The MC10 is honey, pure and simple.

ORTOFON MC7500 £2000
Conclusive proof that there's hope for humankind. Makes music of enormous scale and vibrancy. CD lovers would die if they heard it.

INTEGRATED **AMPLIFIERS**

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Classic sweet sounding, punchy budget super-amp with strong phono stage. Able to embarrass many modern budget amps.

A real hi-fi amplifier at a bargain price. Forms the heart of a separates system that will murder any midi system at twenty paces. No phono stage, but you can't have everything at this price.

NAD 312

Smooth, clear and dry. Fine detailing with little to complain about at the price. Good facilities.

ARCAM ALPHA 5

A well-engineered budget amplifier with a bold, exciting presentation. Plenty of power and facilities, but lacks subtlety.

DENON PMA 450II SE

A solid, refined sound with plenty of power make this a good all rounder, but hard and steely with the wrong ancillaries. Mediocre phono stage.

AURA VA-80

The VA-80 is superb for the price with a confident, powerful sound. One of the smoothest around, it is capable of embarassing more upmarket competition.

ORELLE SA-100

Clean, open, active sound. Smooth and detailed with good punch too. One of the best at the price.

AUDIOLAB 8000A

A jack-of-all-trades whose facilities, build, power and top-rate phono input make it a steal. Sound is good, but less involving than the Naim Nait 3.

NAIM NAIT 3

A taste of high-end audio. The most involving, musical design at the price, but low power. Superb phono stage is £100 extra.

MISSION CYRUS 3

€500

Superb engineering, a solid cast chassis and a clear, spacious sound. Phono stage could be better

SONNETEER CAMPION

An amplifier that delivers near studio definition along with exemplary timing. Utterly gripping.

DPA RENAISSANCE

Rich and smooth, the Renaissance is one of the sweetest amps around, if lightweight.

AUDION STERLING ETSE

£600

Economically but well built single-ended valve amplifier. Wonderful clarity with vocals. £600 with I line input, £800 with 5.

SUGDEN A21a

Class A transistor amp. Rich, crisp, deep, tight sound and it images well too. Wonderful.

AUDIOLAB 8000S

Fast, clear, crisp sound with a wide-open sound stage. One of the best at the price.

MERIDIAN 551

Beautifully-built integrated with a sweeter, clearer sound than mid-price alternatives. Plenty of facilities and remote controllable.

UNISON SIMPLY 2

This single-ended valve amplifier is smooth, sweet and open. An extremely musical amplifier.

UNISON SIMPLY 4

Sonically similar to the Simply 2, but with more power and control.

AUDIONOTE OTO SE

Ten watts of the sweetest sound around. Use sensitive speakers though, because it's unlikely to crack windows or trigger earthquakes.

McINTOSH MA6800

The MA6800 not so much plays music as takes

control of it, with effortless bass drive and a three-dimensional sound stage.

PRE-AMPLIFIERS

NAIM NAC32.5

second-hand

Naim's one-time top preamp is still a force to be reckoned with thanks to its precise, fast sound and excellent phono stage.

ROTEL RQ-970BX

Superb value entry-level phono stage with audiophile quality components and clear sound.

DPA DSP200S

Not quite the 50S, but there's little to match it at this price if outright sound quality is your priority.

This interesting valve/transistor hybrid has a smooth, rich, spacious sound.

AUDIOLAB 8000C

Versatile with superb phono input. Can sound sterile, but latest version is much improved.

MICHELL ISO/HERA

This phono stage has fine midband and treble detail, with taut bass. The £850 ISO/HR brings more of everything, and for many people is the last word on the subject.

AUDIO INNOVATIONS P2

Fantastic bass and super insight make this one of the best phono stages around. One for vinyl lovers.

AUDIOLAB 8000Q

Excellent line-level only preamp, greatly improves on 8000C with a more fluid, musical sound and greater grip. Remote control.

NAIM NAC82

This remote control preamp thrusts detail forth in true Naim fashion.

POWER AMPLIFIERS

Classic valve monoblock with many thousands still in use around the world. Archetypal warm, smooth valve sound, although not the last word in detail or dynamics.

LEAK STEREO 20

The Stereo 20 can sound impressively up-to-date, although power and detail are ultimately limited.

Solidly built, but lifeless sounding, power amp which can be substantially improved by a Quad factory service.

MISSION CYRUS POWER This power amplifier is a honey. Rich and smooth,

but with a firm grip; a fine blend of properties.

ROSE RP190 Used with the partnering preamp it gives 70watts of smooth, relaxing sound.

SUGDEN AU41P

Extremely competitive at the price with 100W of unusually smooth, full-bodied sound.

SHEARNE PHASE 3

A neutral, highly dynamic and thoroughly exciting amplifier. A sonic bargain.

World favourites guide

QUAD 606II

£675

Quad's latest 140W powerhouse is smooth and civilised, but engagingly musical. Legendary backup service.

DPA DPA200S

Better than anything else at the price. Not as dry as the 50S

NAIM NAPI80

Partnered with a NAC82, this has classic Naim control, making for a superbly rhythmic presentation. A touch lean for some tastes.

MICHELL ALECTO STEREO

A refined transistor amplifier with valve-like transparency and a full, warm, easy-going sound. The £1800 Alecto monoblocks have rare lucidity and three dimensional realism.

AUDIOLAB 8000M

Beautifully built, powerful amps that will drive anything you care to throw at them. Detailed, analytical sound, but a touch grey compared to valve rivals.

€2995

CHORD SPM 1200 £299.
This is one of the best solid-state power amps around, with a massively powerful, dynamic and detailed sound.

TUNERS

LEAK TROUGHLINE second-hand

Our favourite way of listening to the wireless. A deliciously smooth, mellifluous sound that will have you junking your transistor radio in seconds. Ergonomics are crude, and you'll need a decent aerial and stereo decoder.

NAD 412
The 412 is remarkably musical and natural sounding. Rich sound and full bass are a rarity. Unbeatable at the price

KENWOOD KT-6050L

Very, very tuneful and as clear and detailed as CD. Tuners like this have you sitting in your seat wondering at the sheer wealth of music out there.

MISSION CYRUS FM7 £300
Clear and lucid sound that puts it up with the best regardless of price. Superb build and superior ergonomics to the NAD.

ROTEL RT990BX

High quality Michi-based tuner with a sophisticated, forward sound with great imaging and soundstage. Sensible facilities and remote control.

The NAT03 is further proof of Naim's proficiency with tuners, with a warm, easy sound and a good sense of atmosphere.

FANFARE FT-I

In its native US the FTI is no mere tuner but a 'broadcast monitor' no less, a task at which it acquits itself well, with a clear and powerful sound.

The best solid-state tuner available. For better radio, live in the studio.

CASSETTE DECKS

AIWA AD-S750

Sonically a very decent machine. For the price there's nothing better. With Dolby B, C and S

DENON DRM-650S

Forget metal tapes, but sound quality with ferrics and chromes makes it a bargain.

PHILIPS DCC 730

£250

Digital playback gives a good 'analogue' presentation and analogue playback is reasonable too. A DCC bargain.

AIWA AD-S950

A stable transport, superb head and Dolby S make this an excellent recorder.

PIONEER CT-S740S

£430

A great piece of engineering from Pioneer, a bit complex, but a first rate sound on playback and recording. Dolby S included.

NAKAMICHI DR2 660 Where serious cassette decks start. The DR2 pushes recordings to the limit, remaining unflustered at all times.

NAKAMICHI DRI

£850

Better still than the DR2, with manual head azimuth adjustment to boot.

NAKAMICHI CR7

Kills every other cassette deck and stamps on

LOUDSPEAKERS

MISSION 730iSE

second-hand

Big clear sound and tuneful bass with plenty of punch. An audiophile bargain at a budget price.

Arguably the new king of budget standmounters, the 7 has a highly musical presentation.

MISSION 731 LE

An extensive reworking of Mission's entry level 'speaker, much tighter on transients and more refined treble. Neutral and revealing.

TANNOY 631 SE

Great bass extension, super open and focused midrange and fine detail up-top. Work best on filled dedicated stands; unmatched at the price.

B&W DM601

Tight, solid and tuneful bass with a clean and pure tonal quality. Midrange is a little laid back, but sound stage is wide and open.

ELTAX SYMPHONY 6

A touch bright, but clean, open and lively sounding with it. They're well built and use high quality drive units. Top value.

ROGERS LS33

£249

Big sound and a wonderful impressionist. Combine with matching AB33 subwoofers for extra bass depth.

TDL RTL 2

Bass on a budget from one of TDL's best floorstanders. Solid, vibrant and spacious sound.

REL Q-BASS

Few subwoofers match the Q-Bass at the price. The tuning controls can be a bit of a fiddle, but once set up the rest is pleasure.

EPOS ESII

Extremely refined, well engineered standmounters that need distinguished partnering equipment if they are not to sound over-polite.

World Radio History

£500

More capable than many twice the price. Using advanced High Definition Aerogel drivers, the 752s are clear, crisp and focused. Good sensitivity makes them easy to drive.

The Strata is not a toy. Offers superb, true hi-fi

TANNOY DIOO

REL STRATA

bass depth and power.

€650

This small dual-concentric loudspeaker produces believable three dimensional imaging.

PROAC STUDIO 100

£700

Excellent monitors with detailed, natural sound and plenty of atmosphere.

HARBETH HL-P3ES

A fine example of good loudspeaker engineering. The top of the mini-monitor league.

KEF REFERENCE SERIES ONE

The KEF's combine pin-point imagery and detail with a smooth and polite balance. Good, agile bass too.

HEYBROOK SEXTET II

Heybrook have retained the strengths of the original Sextet, whilst improving on bass

extension and smoothness. Treble and imaging still up with the very best.

MISSION 754 FREEDOM 5

Highly articulate and informative sound with fine imaging and tight, deep bass extension. Uses silk dome tweeter, High Definition Aerogel midrange and bandpass loadad 8" driver for bass.

HARBETH HL COMPACT 7

Dry and analytical, but truthful and uncoloured with it. A cohesive sounding top class monitor.

KEF REFERENCE SERIES TWO £1500

A truly endearing 'speaker, with clarity, cohesion and precise imaging. Bass has superb extension.

Epos' best. Combines near-uncoloured tonality with characteristic fireworks in the rhythm department. Superb by any other name.

SPENDOR SP7/I

£1970

This big Spendor is very appealing thanks to its lucid sound and valve-friendly load.

TANNOY AMS8

Bold sounding professional active monitor with solid bass, clearly focused midrange and delicious treble. Built-in amplification.

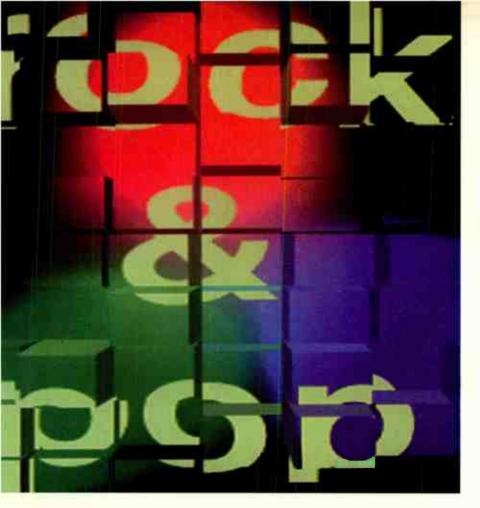
QUAD ESL-63

A reference against all other loudspeakers, with superb imaging qualities and genuine transparency. Earlier ESL model is an excellent second-hand buy; both enjoy legendary Quad service back-up.

Smooth, detailed and spacious with great dynamics and fine imaging. Capable of producing a superb performance when used in a big room.

TANNOY WESTMINSTER ROYAL £10,000

An incredibly dynamic, detailed full-range horn design with a rich sound. Its high sensitivity predisposes it to valve amplification.





GLEN MATLOCK

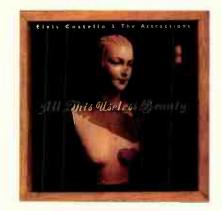
WHO'S HE THINK HE IS WHEN HE'S AT HOME?

CREATION CRECD 191

I suppose you could call me one of the blessed, but I was actually around at the birth of the Sex Pistols. Now whatever the arguments are - and they'll no doubt go on forever - the truth of the matter is that Matlock (whether he was writing the hits or not) was an ace musician, whilst Sid, for all his death-wish charisma, wasn't (no point mincing words about this unless you want to take it outside).

For anyone who loves or loved rock 'n' roll's naughtiest boys, the spirit of the age is more than ably caught on this new disc of Glen's. True, his voice lacks the

mad mannerisms of Lydon's, but there is some brilliant guitaring on the likes of 'Hot Water', the ironic (I wonder who this could be about now?) 'My Big Mouth', or the charmingly titled 'My Little Philistine'. Classic rock long-player, no argument. Or do you still wanna take it outside?



ELVIS COSTELLO AND THE ATTRACTIONS

ALL THIS USELESS BEAUTY WB 9362-46198-2

It's no secret to anyone except maybe Ray Charles and Stevie Wonder by now, but by far the biggest creative error of

MUSIC REVIEWS

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Giovanni Dadomo

Declan 'Elvis' Costello's 20 year-plus tenancy in the pop pantheon was growing That Beard. A clean shave and a reassembling of The Attractions put things back in kilter, and if there was any lurking doubt that EC had yet to get back into tip-top form then this latest disc dispels it once and forever.

Take the live, decidedly blatant evidence of 'Complicated Shadows', a song as vociferous and potent as anything the man's ever done. The band remains as punchy and articulate as any combo these grim isles ever spawned - check only the delicately awesome power of Steve Nieve's keyboard work on 'Distorted Angel' or the rhythm boys' work on any cut you care to flick to. Costello is in true King Kong form, from the sweet soulings of the aforementioned cut to the ensuing - and aptly sanguine -'Shallow Grave'. I know it's 'Let's re-live the late Seventies' time right now, but if anyone can carry it off then it's EC and his boys. A stunner - disagree at your peril and loss.

THROWING MUSES

LIMBO

4AD CD 6014 CD

Confession - unlike a friend of mine, I was never a big Throwing Muses fan. But then I caught a hearing of Kirstin Hirsh's 'Hips And Makers' LP a couple of years

SEPTEMBER 1996



past and was completely captivated by her persuasively hypnotic vocal style and thrillingly oddball lyrics.

I've been a convert ever since and this, the Muses' seventh or eighth studio disc (press releases being, as ever, nothing if not obtuse) is a joy to the old lugs. I mean, it may not exactly be PC, but how many women singers can you imagine showing gratitude for being chained to a bed?

But then that could well be what I love most about La Hirsh - her distinct disavowal of received contemporary mores and a way of phrasing her far from orthodox responses in a way that is as original as it is sexy. Her voice is gently seductive with a subtle undertone of dangerous menace. And this, to put it as bluntly as possible, is about as sexy as sexy gets. Marc Almond often gets away with the same sort of sexual ambiguity, which is probably why the two of them are among my favest current vocalists.

The production is as clean as a well sucked wishbone, the arrangements are as crisp as a white dress-shirt back from the dry cleaners and, as usual, Kirstin Hirsh delivers. By the bucketload.

SOUNDGARDEN **DOWN ON THE UPSIDE**

A&M 540 526-2

You'll like this one. A couple of years ago I was in the Eye-talian countryside heading for my local hostelry and jiving to Soundgarden's 'Fell On Black Days', the song that made me a fan-plus of Seattle's finest. Suddenly the ground vanished and I fell twenty metres into a dry canal. I never saw my (t)rusty walkman again, but Soundgarden remained a firm favourite, and this latest instalment is no blot on a glowing copybook.

The tunes are strong, the music has a

hallmark all of its own, and the vocals are as unique and passionate as ever. 'Pretty Noose' (a truly astonishing single), 'Burden In My Hand' and the more adequately named 'Blow Up The Outside World' take their titles all the way to rocking Valhalla. Plus, there's a baker's dozen of wondrous moments and inventions galore, and more inspiration than anybody could possibly wish for. This album is proof, if it were needed (which it ain't), that Soundgarden are one of the most worthy, vital and essential combos currently ploughing the fields of contemporary US rock at its most golden.



rock & pop record of the month

LONGPIGS

THE SUN IS OFTEN OUT

MUMCD 9602/551 542-2

No question about it - this is the most interesting, exciting and stimulating disc to have infiltrated my ears this past month or more.

The irony is that Long Pig is a cannibal euphemism for human flesh. Odd, because Longpigs' music is anything but avowedly carnivorous. It is more gentle and sensitive by a mile than, say, Tindersticks. (This is no criticism; I'm as large a Tindersticks fan as they come).

The group hail from Sheffield, a town which, over the years, has become as essential a creative nexus of British popular music as London, Liverpool, or Manchester. Think only of Human League and their various offspring or a score more.

For the record, Longpigs consist of



Crispin Hunt and Rich Hawley (guitar, vocals), Simon Stafford (bass, piano, Hammond organ, vocals) and the frequently ear-opening Dee Boyle (drums and vocals). Guitar power is never far from the band's door. Just

witness the strident intro to 'Lost Myself', with its wild, wild coda, or - by strong contrast the gentle semi-folk rock of 'On And On'. The band's ability to change mood and feel are possibly best heard on 'Sally Dances', with its gently pained opener which suddenly explodes into pure fury. 'Elvis' has a grand vocal format and comes on like the Hezbollah on ice - need more be said?

Elsewhere there are respectful but far from derivative echoes of The Beatles circa Revolver, particularly in the deceptively simple guitar dynamics. The vocals are never less than

impassioned, the lyrics eye-openingly wry, and the music is a constant and surprising joy, blending shades of history and bold new steps with equal alacrity, charm and imagination. One to treasure for sure.

Jon Clarke



FREAKPOWER

MORE OF EVERYTHING FOR EVERYBODY

BRCD619

The original graduates of the Levi's academy of musical excellence - the band that grooved the nation last year with 'Turn On, Tune In, Cop Out' - have made it to the second album stakes.

Like Jas Mann, with the irritating but catchy 'Spaceman', and Stiltskin with their one and only decent track 'Inside', Freakpower were launched to music stardom via the world-famous Levis advert.

It was the springboard that almost certainly carried their 'Turn On' single to number 3 in the charts in April 1995 and allowed the debut album Drive Thru Booty to hit the number 11 slot soon after.

A year on, with the dust settled and without the hype, we can judge Freakpower entirely on their musical ability.

And the truth is they do have real talent. While More of Everything for Everybody is not quite earth-shattering, it comprises a range of catchy, solid pop tunes, perfect for the summer ahead.

Like Jazzy Jeff's 'Summertime', Freakpower are easy on the ear. The music drifts along nicely, with decent soul and funk inspired riffs.

Sure, they are naff in many ways, but only when you compare them to the current vogue for laddism within music. They are not another Blur or Oasis, and are not about bashing drums and whacking the strings. Freakpower are about getting us back into the Disco.

Shades of James Brown, the madness of Funkadelic and George Clinton, a slice of Stevie Wonder, a flirtation with

Acid Jazz and a natural slant towards the likes of Galliano, Jamiroquai and The Young Disciples can all be found in here. This is a drive away from noise and beats.

Starting with the five-minute 'Trip Through Your Mind', the album gets off to a trippy start indeed. It then moves on nicely to 'Husband' and 'Can You Feel It' - a hard, garage, DIY sound. The catchy Clintonesque 'Government Drug' bursts onto the palate as the last bubble on this A side groove cocktail.

On side B things go decidedly pear shaped for a while though, with the appalling 'KK Nuns', followed by 'Song No6' - an extremely odd choice of song, it being the spitting image of that awful Bruce Springsteen track from the film Philadelphia.

But the band soon get back to their funky best with the ooh! ahh!, almost too groovy by half, 'Let It Go'.

And the rest just keeps on rolling. . .

But these aren't generally tracks you can pigeonhole.

Flexistentialism has the same cutting-edge feel as the influential first few Rebirth of Cool compilations. In other words, it has a range of new sounds and styles, while at the same time not venturing too far off the beaten track.

Featuring tracks from the very excellent Up, Bustle and Out and Coldcut, the hour-plus album also contains a series of trippy vibes from DJ Food and the elusive 9 Lazy 9, and the wicked 'Shakatakadoodub' from the experimental Kruder and Dorfmeister.

This is a must for anyone looking for the ultimate compilation for the summer (and the year). As the label's catchphrase goes: "No one loves you like Ninja". You better believe it



NINJA CUTS FLEXISTENTIALISM ZEN CD22

This little beauty should have been reviewed ages ago. But the anonymous looking compilation had sat around in my flat gathering dust with a pile of other dodgy looking new releases.

Hot on the heels of last month's excellent Up, Bustle and Out album comes this brilliant offering from the same forward-thinking label, Ninja Tunes, described by its mentor as "scratchmological waxploitation - the joy of dex".

With a front cover adorned by a series of DJ turntables, the 24 varied tracks loosely adhere to the realms of the dancefloor. But only just. Most of them are highly original tunes, largely influenced by Jazz and Rap, and many have the unmistakeable strains of Spanish guitar running through them.



Vio Craske





ROBERT MILES

DREAMLAND

DECONSTRUCTION 74321391262

I don't think there's anyone who hasn't heard 'Children'. And you've probably heard 'Fable' although you could be forgiven for thinking it was 'Children'. That's the thing about Miles' first album 'Dreamland', it's very samey. This, depending on your mood and how much you want an album to tax your brain can be a big fat plus or an even fatter minus.

If you take each track separately without any pre-prejudiced feelings, you've got a host of sleepy piano melodies and a range of basic and simple beats, driving beats. A whole cornucopia of sweeping orchestral movements awash with emotions.

But this is an album, and a whole album of beautiful, similar dance can wear a bit thin. The beats are alike, the piano melodies simplistic and the orchestral refrains become predictable. In fact there are moments when tracks like 'Princess of Light' start to sound like a selection of documentary signature tunes from the 80s

So why do I keep listening to it again and again? Well for a start 'Children' (Miles' track about how many Italian clubbers die in car crashes, having to commute the long distances between clubs) was an incredible tune when I first heard it, and it still is. The same goes for 'Fable'.

The feel is almost Balearic, the keyboards chime with melancholy and peace. 'Children' is also the biggest selling instrumental for 23years. Listening pleasure for these vulnerable summer days, just don't expect too much variation.



GRACE
IF I COULD FLY
PERFECTO 0630149472

'Not Over Yet' holds a special place in my heart. I first heard the track in a sweaty club at three in the morning around '91 or '92 when I was relatively untarnished by the lure of the dance culture. And this is one of a handful of tracks that changed everything for me. Like all the best music, the vocals and melody tip-toe a fine line between sadness and utter joy, the simple story of the lyrics yearning for your attention, lifting your dreams and feelings to a new level. But Grace's vocalist Dominique Atkins didn't actually sing on the single (although she's re-voiced the

track for the album).

Grace - a project of veteran house DJ Paul Oakenfold and Steve Osbourne - sees Dominique penning 4 tracks on this debut LP. The nuts and bolts of the production side are left in the capable hands of knob-twiddlers Paul and Steve, Dominique happy to front the band with her hushed dance-diva vocals.

Besides 'Not Over Yet', singles 'Down To Earth' and 'If I Could Fly' are present, the former a melodic house stomper, the latter an unusually effective drum n bass track.

'If I Could Fly' is pure, driving housebacked production with songs inconspicuously slapped over the top. Like Billy Ray Martin or Everything But The Girl this is house for people not smitten with the stuff.



VARIOUS
THE EPIC HOUSE EXPERIENCE
RUMOUR TRIPCDS

Oh great, another sub-genre of house you might think. But at least with Epic House you get an idea of what's in store. Pioneered by acts like Sasha, BT, Dave

Seaman (not the footballer) and Blue Amazon, Epic House takes all the elements of a classic, euphoric, hands-inthe-air tune and multiplies the thrill by a factor of ten. Many tracks hit the 6, 7, 8minute mark with an intro, suspenseful build-up and heavy melodic pinnacle.

This isn't just eight tracks, it's a concept, a feeling, a collection of friends from every house emporium you've ever frequented man! So, OK the Sasha and Maria house single is obvious by its absence, but there's no disappointment for the Sasha fans, as Blue Amazon do a stonking mix of his 'Magic'.

But it's Blue Amazon's own 'No Other Love' that draws together the whole house ethic, while the 'Stonk' remix of Tenth Chapter's 'Wired' leaves crowds sweating like pigs on prozac.

The music for once really is inspirational, whether heard in the true context of clubland or not. A collection of the classiest, bassiest slabs of uplifting house and European trance around.

Then along comes the perfect ending, Van Basten's 'Uber Alley' with its squelchy beats and looped vocals, funky breaks and its pure electronic buzz. Rarely is a dance album title so fitting. An epic in eight parts.



MOONDOG FAT LOT OF GOOD BETTER BETCD002

You're never going to believe this but Moondog's head honcho and singer Liz Westwood and guitarist/songwriter Derwood Andrews used to be none other than Westwood, the 80s pop band responsible for 'Sonic Boom Boy'.

OK, so this is crap then. Well no! Westwood and Andrews had the sense to do a runner with the royalties of their one hit wonder,

disappearing to a place picked out on the map - Carefree, Arizona.

And here, as the story goes, Andrews learnt to play slide blues guitar while Westwood sang with the spirits. Before returning, a Navaho Indian blessed the band members with his name, Moondog. The final piece of the jigsaw falls into place on their return to England when they met Martin Lee Stephenson, a man heavily into the break-beat rhythms of drum n

And so this CD is a simple amalgamation of these three parts. Slide guitar, drum n bass and vocals. An unusual combination you might well think, but for the most part it all glues together with ease and subtlety. Like the best in the drum n bass arena, the other instrumentation and vocals draw the attention of the listener away from the beat just enough to compliment the track perfectly.

There are songs in the rock/pop sense of the word, as well as jungly tracks laden with clean, but visceral guitar samples. But the luscious, adaptable vocals hinge the album together. From the 'Sonic Boom Boy' to sonic bloom. Enjoy.

dance & ambient record of the month

CARL COX

AT THE END OF THE CLICHE ULTIMATUM 0090752COX

What can you say? Even his name sounds impressive. Everything this man touches seems to turn to gold. He's now been pioneering dance music and funky vibes for 18years and few artists command as much respect as him. And the great thing is, it hasn't gone to his head. He still takes the time to shake the clubbers' hands and chat after he plays. He still has the most unnerving ability to feed off the energy of the crowd, understand how they feel and what they want to hear, and push it right back in their faces with his legendary 3-deck mixing skills.

Married and living in some sleepy part of Sussex, he remains one of the most

booked DJs with his own label, club and this, his first proper album. Riding on the back of the success of his mix album F.A.C.T., At The End. . . zooms into your cerebral cortex with its

Carl Cox

funky beat-tastic electronica.

But on the first listen to this CD, it doesn't appear to be what you'd expect from banging hard house DI Coxy. The tracks are centrally tuneful

> and slightly softer-edged than his superb mixing slots. And more noticeably, his own tracks are funkier.

Opening with the single 'Pheobus Apollo' with its whispered sample and crisp beat, the album sprints through single-to-be 'Tribal Jedi' and his recent 12" 'Sensual Sophis-ti-cat/The Player'. He says this album is for him, which is obvious by the tracks written for his record company and his wife ('Song For Rachel').

This set of unadulterated house and techno is verging on perfection, oozing Coxy through and through.

Offers practical advice on how to build and set up the amplifier for best results. Code: 1040 £10.95

Principles of Electron Tubes - Herbert J. Reich A textbook for beginners

starting with the basics of how a vacume tube actually works and shows how a simple circuit is designed including amplifiers, transformers and power supplies. A must for both enthusiasts and hobbyists.

Code: 1010 £31.95

An Approach to Audio Frequency Amplifier Design - Seventeen circuits from 5 to 1100watts -General Electric Co.

High quality amp. designs using KT66s, KT88s, DA100s etc. Includes two valve pre-amps complete with phono stages. £21.95

Code: 1020

Mullard Tube Circuits for Audio Amplifiers -Includes full designs for eleven power and control amps, including 5-20, using valves. Begins with a four chapter tutorial on getting the best sound from valve amplifiers. Code: 1030 £15.95

70 Years of Radio Tubes & Valves - John W. Stokes Outlines the evolution of radio receiving tubes and the part they played in the domestic radio receiver. A reference for those interested in the history and development and collectors alike.

Code: 1050 £21.95

Electronic Universal Vade-Mecum - Piotr Mikolajczyk & Bohdan Paszkowski This Data book comprises of 5693 valves divided into 442 groups. A comprehensive book which contains connection details, operating parameters, load lines and example circuits. Code: 1060

\$55.95



LOUDSPEAKER BOOKS

Quick & Easy Transmission Line Speaker Design - Larry D. Sharp

Practical approach to designing and building your own transmission line loudspeaker. Includes design examples, equations and a computer disk (Lotus 123) for the maths!

£12.95 Code: 1130

Loudspeakers: The Why & How of Good Reproduction - G.A. Briggs

An easy to understand book on building loudspeakers, using empirical techniques that pre-date computer analysis. A strong recommendation for beginners. \$11.95 Code: 1070

Bullock On Boxes - Robert M. Bullock III

Using Thiele-Small parameters clearly, it offers lots of helpful tables and graphs to get to

BULLOCK

grips with sizing the box and port of a reflex loudspeaker. £14.95 Code: 1100

Electrostatic Loudspeaker Design and Construction

Ronald Wagner Step by step guide to the design and construction of a full range electrostatic loudspeaker, including basic operating principles. Strongly

recommended for those wanting to either build, repair and restore or are just interested in electrostatics.

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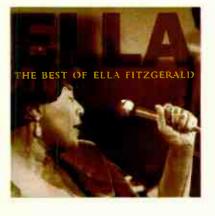
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Simon Cooke



ELLA FITZGERALD
THE BEST OF ELLA FITZGERALD
GRP 16592

Ella Fitzgerald died on the fifteenth of June this year, and with her passed an era in Jazz. For myself, no great fan of the biggest names of Jazz - preferring smaller artists - this sad news was appropriately bracketed by the arrival of two re-issue compilations on the GRP label. 'The Best' was first to arrive and covers twenty tracks recorded with Chick Webb, The Ink Spots, Louis Jordan, Louis Armstrong, Bob Haggart, and Sy Oliver, among others.

The play list includes her signature 'A-tisket, A-tasket' on the first track and runs through 'Stone cold dead in the market', 'I'm Just a lucky so and so', 'Oh, lady be good', 'Lullaby of Birdland' and 'Hard hearted Hannah' to name just five.

All twenty tracks - and also those on the next CD - were transferred from original acetates, metals and tapes into digital media by Steven Lasker and Erick Labson. Audio restoration is by Labson using the Sonic Solutions NoNoise system. Incidentally, this was the system used by these same people to re-master material for the 'Original American Decca Recordings' series which I reviewed over a period last year.



ELLA FITZGERALD
ELLA AND FRIENDS
GRP 16632

This CD arrived on my doormat just after Ella's demise, and covers twenty different tracks, arranged in a slightly different format; these tracks are grouped according to who they are recorded with. Louis Armstrong, The Ink Spots, Louis Jordan, The Delta Rhythm Boys and The Mills Brothers all appear. Tracks include 'The Frim Fram Sauce', 'Into each life some rain must fall', 'Petootie Pie', 'Ain't nobody's business but my own' and 'For sentimental reasons'.

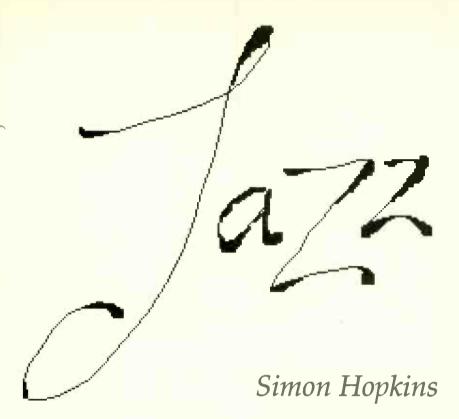
It would be nice to end this review on an upbeat note, but basically a decision on whether to buy these CDs rests on how well you like the remastering that's been done on the originals. Try before you buy.



TOMMY SMITH
BEASTS OF SCOTLAND
AKD 054

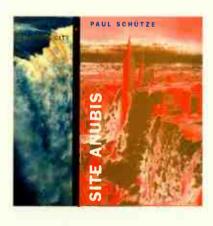
A few CDs which I've reviewed recently have been produced in association with, or by virtue of a commission from one branch of the Arts Council or other. 'Beasts of Scotland' is another such, commissioned by the Glasgow Jazz Festival in association with the Scottish Arts Council. Often it seems fulfilling that there is this beneficent body keeping an eye on the health of the British jazz scene, giving us works of outstanding beauty which might never have otherwise seen the light of day.

In the case of 'Beasts' the thanks might well be less effusive than it could



have been, however. The original concept was that the Glasgow International Jazz Festival commissioned poems from Edwin Morgan on the 'Beasts of Scotland' theme. Tommy Smith was also commissioned by the Festival and Arts Council to provide music on this theme. It seems to me that here the concept falters, because, while Morgan's words - reproduced in the booklet but not in the recording succinctly capture the essence of the animals, Smith's music uncharacteristically takes longer, leaving this CD with just ten tracks in over seventy-seven minutes. This leaves us with tracks like 'Wolf', 'Conger eel' and 'Wild Cat' being nicely timed at three to six minutes, but leaves 'Midge' and 'Spider' interminably long at over ten minutes. I can't but feel that without the luxury of outside funding, this work would have been tighter, more driven and more effective. Altogether more like the Tommy Smith of earlier works.

Never mind, grouch over. Smith more than makes up for any compositional shortcomings in his playing. Ably abetted by Guy Barket on trumpet, Andy Panayi on flute and alto sax, Steve Hamilton on keyboards, Alec Dankworth on bass and Tom Gordon on drums, superbly translated into a characteristically robust Linn recording, this slightly over-fussy piece becomes an eminently recommendable slice of modern British Jazz. You might tire of it in parts, but you'll enjoy the whole wholeheartedly.



PAUL SCHUTZE & PHANTOM
CITY
SITE ANUBIS
BIG CAT ABBI06CD

Almost certainly the most important - and, frankly, to these ears easily the most enjoyable - jazz album of the year has come in the unlikely form of a debut supergroup. They were formed under the auspices of ex-pat Australian film composer and ambient recording artist Paul Schutze.

Schutze has behind him a catalogue of at least a dozen albums scattered across at least half as many record labels. Yet despite the disparity of the musical styles they have drawn on, they have revealed a single-minded trajectory revealing one of the most consistently innovative musicians working in contemporary music.

Site Anubis is the final part of Schutze's "Pacific Unrest" trilogy. New

Maps of Hell and An Index of Metals - soon to be reissued here by Big Cat - presented a bird's eye view of a city in broiling turmoil. The music veered dramatically from New Maps' dense, foetid 70s Miles Davis-inspired jazzrock to its successor's verdant and fareastern minimalist serenity. But good as they are, neither approaches the sheer brilliance of this concluding album.

For this album Schutze has assembled an incredible international group of musicians from around the world: Finnish jazz rock guitarist Raoul Bjorkenheim, one of the few genuinely exciting jazz guitarists to have emerged in the last decade; Swiss bass clarinettist Alex Buess of anarchic avant-jazz cut-up thrashers 16-17; the veteran British jazz soprano sax virtuoso Lol Coxhill; the genre-busting New York bassist, producer, ambient soundscaper Bill Laswell; legendary trombonist Julian Priester and Belgian drummer Dirk Wachtelaer.

Eschewing the group-recording methods of most jazz dates, Schutze has opted to effectively form a 'virtual group'. Basic rhythm tracks are created and the other musicians add parts one by one in their respective locations around the world. Finally various acts of radical editing and post production are performed once all the parts are assembled. Hardly extraordinary working methods in the pop world, to be sure, but no-one ever overestimated the luddite nature of jazz musicians.

The results are astoung and spring directly from t' working methods, and fr Schutze's intensely focu sense of sound. While virtuoso performer hi Schutze has brought together these fabulous players' work and given them a context of a detailed brillia contemporar music undor owes a gre the more extraordinary end 70s fusion - Herbie Hancock, Julian Priester and perhaps most essentially Miles Davis. It is explosive throughout, vividly illustrating Schutze's notion of some cataclysm in a city leading to the spontaneous appearance of a giant statue of Anubis at the city's heart.

Essential; an album which truly lives up to its bold and timely ambitions.

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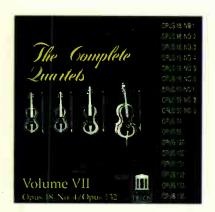
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Peter Herring



LUDWIG VAN BEETHOVEN String Quartet No4 in C minor Opl8 No4/String Quartet No15 in A minor Op132 Orford String Quartet

DELOS DE3037 (DDD/68.21)

The combination of one of the earliest of the Beethoven quartets with one of the five towering masterpieces from his last years is unusual, but how well it works in the hands of the Canadian-based Orford Quartet. What emerges most strikingly is that the Opl8 work from 1800, written when the composer was thirty, is by no means the poor relation of the A minor Opl32. True, it owes much to Haydn and Mozart, but as ever with Beethoven - it develops themes and structures in ways they would never have dreamt of.

For Beethoven, the key of C minor always possessed an element of demonic drama, witness the 'Pathetique' piano sonata, the Third Piano Concerto and, of course, the Fifth Symphony. That sense of drama characterises the Orfords' performance, with a powerful momentum to the opening allegro of Opl8 No4 and an appropriately spirited response to the quicksilver rondo finale. But their playing, while full of colour

and subtlety, never lapses into artifice or exaggeration. They have also been supremely well recorded by Marc Aubort in the Emmanuel Presbyterian Church in Toronto. The sound is airy and detailed with a pleasing ambience, yet retains an essential intimacy.

The so-called 'Late Quartets', of which Opl32 is numerically - but not chronologically - the penultimate, remain the great challenge for every string quartet, not least because of the 'intellectual baggage' which music scholarship has attached to them in the ensuing 170 years. There is no disputing - as every sleevenote writer tells you that these works represent one of the pinnacles of western art, let alone music, but I do wonder if such lofty descriptions leave listeners convinced that the quartets belong to the realm of the unapproachable and incomprehensible. This is far from the truth as, for example, the lyrical finale of Opl32 amply demonstrates.

Beethoven was working on this quartet when he was taken seriously ill in the spring of 1825. His recovery, towards the end of May of that year, inspired one of the greatest, most deeply-felt slow movements in all music, the 'Heiliger Dankgesang eines Genesenen an die Gottheit, in der lydischen Tonart' ('Song of thanksgiving to the Deity on recovery from an illness, in the Lydian mode') which forms the heart of the five-movement structure of Opl32. The test for the players is to capture the timeless, heartfelt spirituality of this music, but without becoming excessively introspective, and in this the Orford Quartet is hugely successful. Their playing has a profound intensity and breadth of expression, but always avoids sentimentality. The approach, as in the rest of this many-layered work, is intelligent, tasteful and thoughtful - and, for that matter, very recommendable.



THE GOLDEN AGE: VOLUME 1 - EUROPE

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Rebelo and Tomas Luis da
Victoria. Ruth Holton, soprano;
Magnificat; director, Philip
Cave

LINN RECORDS CKD052 (DDD/57.05)

As far as I am aware, this is Linn Records' first venture into the world of choral music. If so, it is a highly successful debut, and one that promises much for the future. The programme here could easily qualify as a 'primer' in the field of Renaissance polyphony, containing as it does works by five of the giants of the epoch, and at least three of its most enduring masterpieces: Victoria's Ave Maria, Palestrina's Stabat Mater, and the extraordinary Miserere of Gregorio Allegri, a work so jealously guarded by the clerics of the Sistine Chapel that according to legend - not a single copy was seen beyond the Chapel's confines until the young Mozart, having heard the work there, wrote it out from memory.



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It is well performed here, although not all of the ornamentation is to my taste. The Victoria and Palestrina are better served, the simple beauty of the former's Ave Maria being joyfully conveyed, and the stoical anguish of the latter's Stabat Mater coming across most movingly. The impact is further enhanced by the translucent and atmospheric recording, a Philip Hobbs/Ben Turner collaboration from St Jude's-on-the-Hill in London's Hampstead. Each soaring vocal line is captured with thrilling, shining clarity.

Now enjoying its fifth year of musical activity, Magnificat draws largely on young choral scholars from Oxford or Cambridge and on graduates from leading music conservatoires. It takes its name from the Virgin Mary's canticle in St Luke's Gospel: Magnificat anima mea dominum (My soul doth magnify the Lord), a song of joyful praise reflecting the spirit of the music that has played such a formative role in the artistic development of each choir member.

One of the most striking and heartening aspects of musical life in Britain today is the quite exceptional number of first-rate choral ensembles and the fact that they are exploring and bringing alive repertoire that not so long ago was largely the preserve of dry scholarship. Magnificat certainly belongs among that number, and its founder and conductor, Philip Cave, has put his experience with the likes of The Clerkes of Oxenford, The Sixteen, The Hilliard Ensemble and The Tallis Scholars to good use.

It is also encouraging to see Magnificat introducing works by such as the Portuguese, Joao Rebelo, and the Spaniard Francisco Guerrero alongside the more famous names, and they round off this representative selection of pieces with three motets by Orlandus Lassus, the last - Timor et Tremor - a real choral tour-de-force, with daring harmonies and imaginative rhythmic devices that reflect the fear and dread expressed in the text.



SUMMON THE HEROES

Music by John Williams, Carl Orff, Leo Arnaud, Mikis Theodorakis, Michael Torke, Leonard Bernstein, Vangelis, **Dmitri Shostakovich, Josef** Suk, Miklos Rosza. Tanglewood Festival Chorus; **Boston Pops Orchestra**; conductor, John Williams SONY CLASSICAL SK62622 (DDD/62.28)

Starring role in this 'souvenir' recording to mark the forthcoming Olympic Games in Atlanta goes to composer and conductor John Williams, who, having composed the noble Olympic Fanfare and Theme for the 1984 games in Los Angeles, has been invited to repeat the success twelve years later. First impressions, however, are that Summon the Heroes isn't quite in the same league as its predecessor.

Three other composers with, like John Williams, impressive cinema credentials are included here. Mikis Theodorakis's Ode to Zeus from his Canto Olympico, written for the Barcelona games in 1992, is lusty, stirring stuff, and Miklos Rosza's Parade of Charioteers from Ben Hur is a movie music classic, but Vangelis's famous theme for Chariots of Fire, to me, simply doesn't suit the full orchestral treatment. And Leonard Bernstein's syrupy and pretentious Olympic Hymn

> should surely have remained in the obscurity to which it was consigned after composition in 1981.

However, there are two gems on offer here. Michael Torke's Javelin is a new commission for the Atlanta games and for the fiftieth anniversary of the Atlanta

Symphony Orchestra, and its lightness, elegance and understatement are a refreshing antidote to the mood of much of the other music on this disc. Finally, though, the gold medal here goes to Josef Suk's Toward a New Life, a charming, smiling piece from the 1932 games in Los Angeles. With its unmistakable Czech flavour and absence of bombast, it is a worthy winner. I should add that the recording, made with Sony's Super Bit Mapping system, is outstanding.



RALPH VAUGHAN WILLIAMS

Four Hymns/Merciless Beauty/The Water Mill/The New Ghost/Ten Blake Songs/On Wenlock Edge lan Partridge, tenor; Janet Craxton, oboe; Jennifer Partridge, piano; The Music **Group of London EMI Classics 'British** Composers'

CDM 5 65589 2 (ADD/69.44)

This year marks the centenary of the first printing of A.E. Housman's collection of poems entitled 'A Shropshire Lad', so the reissue of one of the finest ever recordings of Housman settings - Vaughan Williams's 'On Wenlock Edge' - is especially welcome.

In 'On Wenlock Edge', composed in 1909, Vaughan Williams - for whom the melancholy aspect of Housman would have had little appeal - selected six texts from the collection with evident care. He then set them with both sensitivity and, in accompanying the voice with string quartet and piano, an arresting imagination. In fact, the description 'accompanying' does less than justice to the contribution of the five

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RECORD OF THE MONTH

WOLFGANG AMADEUS MOZART

Die Zauberflote (The Magic Flute) KV620 Rosa Mannion, Natalie Dessay, Linda Kitchen, Anna-Maria Panzarella, sopranos; Doris Lamprecht, mezzosoprano; Delphine Haidan, alto; Hans Peter Blochwitz, tenor; Anton Scharinger, baritone; Reinhard Hagen, Willard White, basses; The Children's Choir of the Opera de Lyon; Les Arts Florissants; conductor, William Christie

Mozart's last, and most enigmatic opera has been a lucky work on record, with several fine versions currently available: Solti on Decca, Haitink and Beecham on EMI, Bohm on DG to name four. In the field of 'period' performance, however, Arnold Ostman's Drottningholm production on Decca's L'Oiseau-Lyre label has been the clear leader. Now, though, the Americanborn conductor, William Christie, offers a production from his adopted France which even more than Ostman challenges the traditional, heavyweight Germanic approach to this work,

ERATO 0630-12705-2 (DDD/150.23)

This Erato set, recorded in Paris by Radio France, is of the immensely successful 1994/1995 staging by Robert Carsen for the Festival d'Aix-en-Provence, and from the very first bars it

epitomised by the likes of Herbert von

Karajan.

is evident that the spontaneity and electricity of those concert performances has been transferred undiluted to the recording studio. The freshness and vivacity are captivating, and Christie's brisk tempos ensure the momentum never flags.

He benefits from a very fine team of soloists, with Rosa Mannion an enchanting Pamina, Natalie Dessay commanding as The Queen of the Night and Linda Kitchen a delightful Papageno. The male voices are no less impressive, with Hans Peter Blochwitz



an excellent Tamino and Anton Scharinger completely at home in the role of Papageno the birdcatcher. Reinhard Hagen is an imposing Sarastro, and Willard White brings an appropriate gravity to the role of the Speaker.

Above all, though, it is the overall approach to vocal technique adopted by William Christie that distinguishes

this production. As he argues in the accompanying booklet, the opera would have been written for light, youthful voices and this is how best to capture its air of fairytale-like fantasy. To give it the Italian 'verismo', or even Wagnerian treatment is to miss the point.

The result, with crisp, fluent playing from the period instruments of Les Arts Florissants is wholly persuasive and compelling, and Christie, a conductor best-known for his work in the Baroque repertoire, displays a firm understanding both of Mozart and of this strange, multi-layered work whose subtexts and symbolism have been the subject of debate since the first performance in Emanuel Schikaneder's Freyhaus-Theater on September 30,1791.

Less than three months later, on December 5, the dying Mozart expressed the wish to hear once more some of his own music. It was not a movement from one of the string quartets or piano concertos, or one of the great operatic arias or choruses, but Papageno's simple but beguiling little song, 'Der Vogelfanger bin ich ja' ('A merry birdcatcher am I'). Perhaps more than any of the scholarly analyses to which this opera has been subjected, this moment conveys what the work meant for its composer.

This Aix-en-Provence production of Die Zauberflote simply sparkles with wit, humour and colour, yet never seems superficial. William Christie displays a keen awareness of dramatic timing, and the 20-bit recording is from the top drawer.

instrumentalists; it is every bit as evocative as that of the tenor soloist.

lan Partridge's interpretation of 'On Wenlock Edge', recorded in 1971 with the Music Group of London, led by that fine violinist, Hugh Bean, was rightly lauded at the time and, a quarter of a century later, it remains unsurpassed. And the artistry, understanding and wonderful tonal colours which characterise the Housman settings are employed to similar telling effect in a much later song cycle, the Ten Blake Songs composed in 1957 and first performed shortly after the composer's death in October 1958.

Vaughan Williams was more attracted to William Blake the artist than the poet - Blake's illustrations for the Book of Job were the inspiration for one of VW's greatest orchestral works. Nevertheless, for the final time, Vaughan Williams proved what a master songwriter he was. Where the piano quintet was such an inspired choice for 'On Wenlock Edge', so the surprising combination of voice and oboe is utterly right here. Janet Craxton is outstanding in accompanying lan Partridge's fine performances.

The other works here - Four Hymns, Merciless Beauty (three rondels

attributed to Chaucer), The Water Mill and The New Ghost - merely reinforce the claims of this CD to be arguably the best anthology of Vaughan Williams's songs currently available. It also comes at mid-price, in EMI's treasurable 'British Composers' series. The recordings, made at Abbey Road by the reliable team of Christopher Bishop and Neville Boyling, have also stood the test of time remarkably well; they want for nothing in terms of warmth, presence and clarity. An essential purchase for any lover of the works of Vaughan Williams, and of English music in general for that matter

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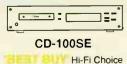
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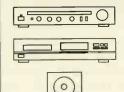
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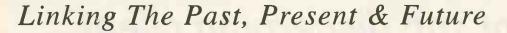
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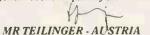
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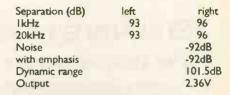
Measuring the Alpha 5+ reminded me of the original Alpha player. It had treble roll-off, which was partly responsible for the sweet sound that made it so popular. The 5+ is very similar, but just before the treble roll-off, which starts gently from 7kHz upwards, there is a subtle lift around 3kHz. This will help project detail forwards and should give the 5+ an exciting balance. There's some bass lift too, which should give weight to bass lines.

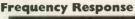
The Alpha 5+ exhibits strong distortion though. At -30dB, a level chosen to represent a typical music signal, distortion levels were fifteen times higher than the best; the wide spread of harmonics can clearly be seen in the

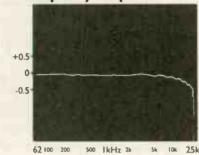
distortion analysis below.

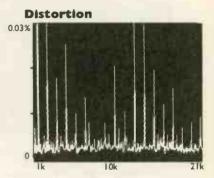
High distortion at -60dB corresponds to an unimpressive 101.5dB of dynamic range. Output was high at 2.36V, which gives a little extra headroom when using a passive preamp. Noise was curiously high at -92dB, but low enough to be inaudible in practice. **DB**

Frequency response		4Hz-20.7	5kHz
Distortion (%)			
-6d B	0.009		0.009
-30d B	0.10		0.09
-60d B	1.01		0.90
-90d B	49.3		44.5









PIONEER PD-S904

Unlike Pioneer's previous Legato Link CD players, the PD-S904, sporting Legato Link Conversion S, doesn't have a rolled-off high frequency response. It's very flat in fact, flatter than most. This I would expect to give a neutral sound with fine treble extension. There is some gentle bass lift lower down which will add power and solidity to the bass, subjectively a good thing I find.

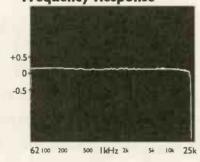
Distortion was low at all levels; in the plot taken at -30dB, a level picked to represent a typical music signal, only the slightest 2nd harmonic is visible. At -60dB, distortion was as low as the best, giving rise to a dynamic range figure of 110dB (EIA) test). Elsewhere the Pioneer continued to turn in a fine set of measured figures, with wide separation, low noise and output just above the Philips standard at 2.5V, providing useful extra headroom for those using passive pre-amps. **DB**

Frequency response 4Hz-21.75kHz

Distortion (%	.)	
-6dB	0.005	0.005
-30dB	0.005	0.005
-60dB	0.35	0.34
-90dB	28.5	28.4

right Separation (dB) left IkHz 135 134 20kHz 123 121 -117dB Noise -119dB with emphasis HOdB Dynamic range Output 2.5V

Frequency Response



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ROTEL RCD-975

The RCD-975 is a nicely engineered player. Frequency response is very smooth so I'd expect a balanced sound as a result. Treble starts to roll-off gently from 5kHz upwards, being 0.36dB down by 20kHz. This is enough to soften the sound a little, but shouldn't unbalance it too strongly. There is also a very slight lift in the bass so I'd expect solid bass lines too.

At -30dB, a level picked to represent a typical music signal, distortion was very low. There are no low-order harmonics visible, just 5th and 9th higher up. I'd expect a smooth sound as a result. In all other areas the RCD-975 measured well; separation was wide, dynamic range a healthy I 15dB echoing the low distortion at -60dB (EIAJ test), and output a touch above the Philips standard at 2.2V. DB

Frequency response 4Hz-21.1kHz

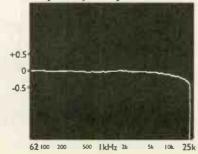
Distortion (%)		
-6dB	0.008	0.008
-30d B	0.015	0.015
-60dB	0.23	0.22
-90dB	29.4	29.6

IkHz 126 126 20kHz 112 114 Noise -109dB with emphasis -109dB Dynamic range 115dB Output 2.2V

eft

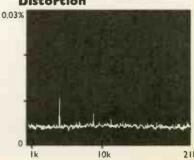
right

Frequency Response



Distortion

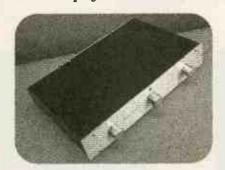
Separation (dB)



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CD PLAYERS

MARANTZ CD-63mkli Ki-Signature

On the test bench the Marantz measured well. Frequency response was smooth and flat, but with a subtle plateau lift around 5kHz, I'd expect detail to be pushed well forwards.

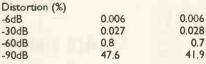
Distortion figures were around average at all signal levels. There was just the smallest amount of 2nd order poking through the noise floor, but even order distortion tends to be innocuous anyway.

Separation was very wide, being above 125dB at 1kHz and 20kHz. Dynamic range exceeded the 100dB barrier and noise was very low indeed.

Compared to the 63SE reviewed in the May'95 issue most of these results are virtually identical, with the exception of distortion which appeared slightly worse. HB

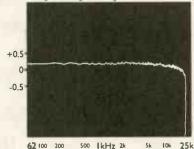
Frequency response

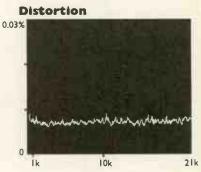
4Hz-21kHz



Separation (dB) left right IkHz 137 132 20kHz 126 127 Noise -123dB with emphasis -123dB Dynamic range 103dB 2.3V Output

Frequency Response





TRICHORD GENESIS

The Genesis player is based on the Pioneer PD-S504, but modified by Trichord. Its frequency response shows strong treble rolloff, IdB down at 15.2kHz with both channels displaying virtually identical characteristics. This I would expect to give a soft, warm sound.

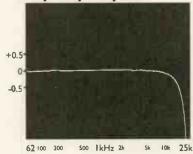
Distortion levels were low right across the board. At -30dB, a level picked to represent a typical music signal, there's only a small amount of 2nd harmonic visible. As even order distortion is generally innocuous, especially at such a low level, I'd expect a smooth sound from the Genesis. Separation remained above 90dB even at 20kHz. No noise figure could be obtained because the Genesis mutes under

The dynamic range figure of 105.9dB is very good echoing the low distortion at -60dB. Output voltage was above standard, the Genesis providing 2.4volts rms. Apart from the discrepancy in the frequency response the

Trichord Pioneer fairs well. HB Frequency response 4Hz-15.5kHz

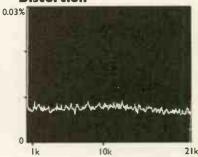
Distortion (%)		
-6dB	0.006	0.006
-30dB	0.020	0.019
-60dB	0.56	0.62
-90dB	30.1	31.5

Frequency Response



Separation (dB)	left	right
IkHz	122	124
20kHz	96	99
Noise		N/A
with emphasis		N/A
Dynamic range		105.9dB
Output		2.4V

Distortion



RESTEK CHARISMA

In frequency response terms, the Restek Charisma CD player was pretty much run of the mill, displaying a -IdB high frequency roll-off at 21kHz. There's a slight peak before this which could give an impression of greater detail - but only subjective tests will tell.

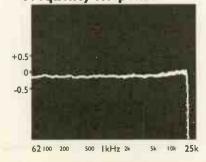
Distortion figures were a little below par giving an average dynamic range figure of 102dB. Separation over midband frequencies was fairly wide at 106dB, narrowing to 85dB at the top end.

Noise was low, but output lower than standard at 1.8V (Philips set 2V). The Charisma is well enough engineered. HB

Frequency response 4Hz-21kHz

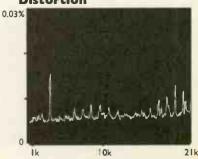
Distortion (%)		
-6dB	0.004	0.005
-30dB	0.026	0.030
-60dB	0.80	0.88
-90dB	32.7	33.4

Frequency Response



Separation (dB)	left	righ
IkHz	105	106.2
20kHz	85	85.6
Noise		-109dB
with emphasis		-109dB
Dynamic range		102dB
Output		1.8V

Distortion





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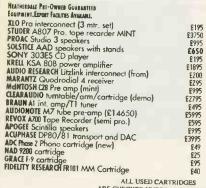
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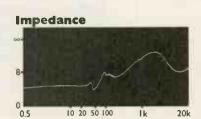
LOUDSPEAKERS

MISSION 754

With a commendably wide and flat frequency response the Missions look set to produce a balanced, full range sound. Treble is impressively smooth, a gentle lift around 8-10kHz being certain to add some incision at the top end. There's a bit of a lift between 600-800Hz in the lower midrange, but even this I wouldn't expect to colour the sound severely. Bass extended impressively far downward too, but wasn't boosted above the rest of the response too strongly. I'd expect dry, deep bass as a result - the best kind.

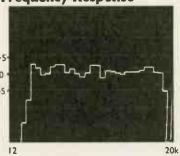
So what are they like to drive? Sadly, and quite unlike Missions of the past, the 754s aren't the easiest of loads. Their 86dB

sensitivity isn't too bad, about average these days. But the impedance curve shows they will draw strong current in the bass, staying below 5Ω under 250Hz. Above this, impedance rises back above 8Ω , giving an overall figure of 6Ω . The 754s demand a good amplifier; look for power amplifiers of



around 60watts output and with the ability to drive low impedance loads. DB

Frequency Response

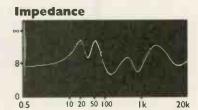


CELESTION IMPACT 30

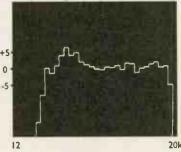
The Impact 30s are a three way design - rare at this price point. They appear to have been successfully engineered too, having a smooth, even response. There is a little ripple around 3-4kHz where the midrange driver crosses over to the tweeter, but it is small enough not to colour the sound noticeably. Below 400Hz bass level starts to rise, peaking at 160Hz by 5dB or so. This should give them a strong punch, but perhaps an over-full sounding bass too, although this will depend as much on the room they are used in.

With just above average sensitivity at 87dB, and an overall impedance figure of 7Ω , they are easy enough to drive. The

impedance curve shows some sharp changes though, indicating that the Impact 30s are a reactive load, which can affect amplifier performance. I'd recommend 40-50watt amplifiers to be on the safe side. DB



Frequency Response



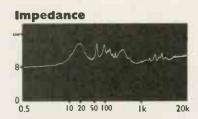
THOMAS TRANSDUCERS ACCELERANDO

Being a large folded horn design, the Accelerandos had to be measured in two stages. First, the microphone was placed in front of the main driver for midrange and treble measurement. Bass was then added to the analysis with the mic. placed at the mouth of the horn. On-axis they have a strong peak at 2kHz which tends to add either harshness or shout. A wider lift between 6-8kHz may add some detail and insight, but as at 2kHz, the peak is so strong (+8dB) I suspect that it will be too much.

10-15° off-axis things looked a lot better, at least in the high treble where the 6-8kHz lift flattened out to give a much better

balanced response. The peak at 2kHz remained, but dropped to around +5dB so will be less obvious. Bass extension is very good, stretching well down, but I'd expect a dry quality as it stays flat too.

Driving the Accelerandos isn't a problem; at 102dB at 1m for a watt of pink noise, and with a smooth impedance curve



of 12.8Ω overall, they need little power. I'd recommend amplifiers in the region of 5-25watts. DB

Frequency Response

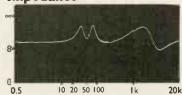


ELTAX SYMPHONY 6

With their thick MDF grilles in place the Eltax Symphony 6s suffered. The tall, hard walls the grilles place around the drivers cause reflections resulting in a strong peak at IkHz and a dip just above. Removing the grilles removed much of this problem and luckily treble level stayed the same; I was worried that it might have increased even further. As it is, they are still going to sound bright due to the plateau lift in the treble. Best results are likely to be with them firing straight down the room - slightly off-axis upper treble will roll-off. Bass went deep and was tuned low, so I'd expect impressive depth from these mid-size floorstanders.

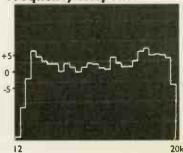
At 85.5dB sensitivity the Symphony 6s are about average, and a high overall impedance means they won't place too demanding a load on partnering amplifiers. The sharp changes in the impedance curve indicate they are a reactive load, but nothing most modern amplifiers shouldn't be able to

Impedance



cope with. I'd recommend amplifiers in the region of 30-50watts. DB

Frequency Response



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AMPLIFIERS

RESTEK FANTASY

Hailing from Germany, the Restek Fantasy line-level integrated amplifier proved capable of delivering 98watts into an 8Ω resistive load and a thundering 156watts into 4Ω . The Fantasy is a DC coupled amplifier

with reasonably wide bandwidth, DC-69kHz at IdB limits. I'd expect deep bass and an open and insightful treble as a result. Distortion figures were excellent too, barely increasing with power or frequency. The midband low power (IW) result of 0.008% THD is exceptional.

Two things niggle though: an input overload of 2V and a lowish separation figure of 61dB. The former could lead to transient

intermodulation and slew induced distortion when faced with signals at or beyond this level - typical in CD, where some players deliver 3.5V. The separation isn't so much of a worry as only 25dB or so of separation is needed for good stereo. HB

Power	98watts
CD/tuner/aux.	
Frequency response	0Hz-69kHz
Separation	61dB
Noise	-106dB
Distortion	0.013%
Sensitivity	200mV
dc offset	-0.5/-2.9mV



8k 10k

JOHN SHEARNE PHASE 6/PHASE 3

John Shearne amplifiers have always been designed to mimic valve amps. As a result, some of their measured parameters are unusual. Output impedance is high, and power line regulation low, causing the amplifier to deliver less power into a low load (30W into 4 Ω) than a normal load (50W into 8 Ω). Whilst this might mimic a valve amp. it is a simulacrum, not an exact copy.

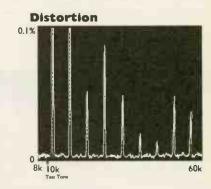
Distortion rises at high frequencies and our analysis clearly shows extended odd order harmonics, probably due to low feedback. This is crossover distortion, but at 0.2% at 10kHz it may not be intrusive.

Bandwidth has been reigned back to 27kHz, usually a good idea in solid-state as well as valve. Bass reaches down to 5Hz.

Input sensitivity was normal enough at 220mV and noise adequately low at -89dB. I was happy to see low DC offset too.

I don't believe valves can be mimicked by solid-state; the two are radically different and superficial similarities in measured performance are not enough to bring them together. All the same, John Shearne amps have attractive properties of their own and it is on these that they can be judged. NK

Power	45watts
CD/tuner/aux.	
Frequency response	5Hz-27kHz
Separation	51dB
Noise	-89dB
Distortion	0.03%
Sensitivity	220mV
dc offset	1.5/3.7mV



DENON PMA-425R

On the test bench the Denon managed to deliver 66watts into an 8Ω load and a massive 90watts into 4Ω . This amplifier shouldn't struggle with any of the loudspeakers on today's market. Its frequency response to a sinewave sweep was good too, going down to 7Hz with a -IdB roll off point of 25kHz.

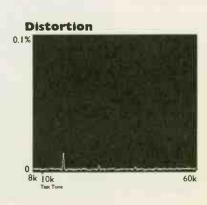
I would assume that this curtailed band pass response contributed to the harmonic distortion figures which were very good indeed (as low as 0.003% IkHz @ IW) and predominantly second order in nature. Sensitivity was a bit higher than usual at 140mV, but this isn't a problem.

The moving magnet phono stage did slightly less well, with a frequency response limited at the bottom end, running from 95Hz to 23kHz. This is excessive warp filtering and I would expect a less than substantial bass performance.

Sensitivity of this stage was normal at

3.5mV, with the input overloading at 150mV. Input impedance was measured at $27k\Omega$ at both low and high frequencies.HB

Power	66watts
CD/tuner/aux.	711 05111
Frequency response	7Hz-25kHz
Separation	61.9dB
Noise	-97.3dB
Distortion	0.015%
Sensitivity	140mV
dc offset	-0.5/0.0mV
Disc	
Frequency response	95Hz-23kHz
Separation	51.32dB
Noise	-81.6dB
Sensitivity	3.5mV
Overload	150mV



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For those not wishing to pursue the single-ended valve route, or have power hungry speakers, should give serious consideration to amplification from GRAAF: Yet more well designed, good looking amplification from Italy, the 5050 is a push pull design using Svetlana 6550B valves and costs L2,100. Their WFB Two pre-amplifier with phono stoge is superb value at L1,100.

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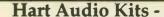


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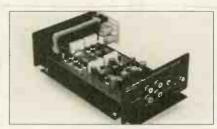
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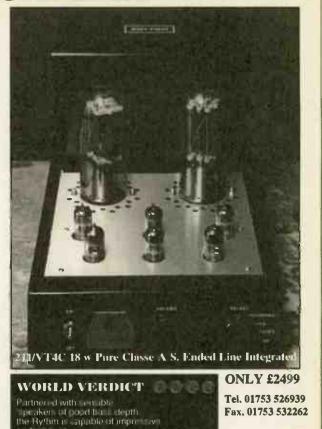


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LINN AXIS, BASIC PLUS, K9 (new stylus fitted) £325. Audiolab 8000A £175; Musical Fidelity MC2s £125: Foundation spiked stands £30. Target turntable stand £15. All immaculate. Tel: Tim 01625 613 404.

WANTED: SUGDEN A21 Class A integrated amp from late 1960s, early 70s. Tel: 0181 S08 3343 (eves, London/ Essex)

McIntosh MCD 7009 £2150. Musical Fidelity, FIS, power amp, awesome sound, only three weeks old, reason for

Tel: 01424 431 S36 (E. Sussex)

MARANTZ CD94, J.F. Le Tallec heavyweight turntable, Garrard 401. Leak Sandwich speakers and tuner. Lowther drive units. Nakamichi/ Ferrograph, Mordaunt Short Fesivals. May swap p/x. Wanted: Linn Ittock, Nalm, pre/power etc. Tel: 0114 248 6493

M&K V125 ACTIVE subwoofers. Mint very little use. Many rave/best buy reviews. Cost £1600. Bargain £1000 pair or £550 each. Tel: 01945 463077

MAINTE PERAME (1275, H. Cip.s.) гтово тър £1900 # U1730 060 2

REGA PLANAR 3, RB300, K9, Target wall shelf £19S. Exposure 10 (MM) + Exposure cables £22S. All boxed, excellent.

Tel: Martin 01491 671 735 (eves)

WANTED: NAIM NAC 32.5 Linn Lingo and Ekos tonearm, DPA Little Bit CD converter. Write to: B Kuhn, Gregor-Mendelstr 3, 1180 Vienna, Austria

SONY PROFESSIONAL Walkman WM-D6C with headphones, mains adaptor and leads, mint condition £200.

Technics SL-PGS20A CD player, boxed, excellent condition £80. Ter: 01744 894787

PAIR LOW THER ACCOUNTAL TOL cabin ts - PMo Bar ain 6240 10 - 01752 500 22 - c 0175 - 302 072

AUDIOLAB 8000C & 8000P Pristing condition £7\$0 ono. Tel: 01926 885316 (Leam Spa)

MERIDIAN 2068 CD player, mint condition £350 ono. Will demonstrate. Tel: 0181 889 6457

QUAD COMPACT disc player 67 for sale £550. Tel: 01462 677 662 (Herts)

300B SINGLE ENDED Audionote Kit I. The sound can only be described as luxurious. Built £1130 only £600. EL34 based amp in attractive copper box, outboard PSU £400. Tel: Nick 01925 245 323

REVOX B77 Half track 3 3/4 and 7 1/2 ips with remote control, good condition (\$95. Also offers please for Garrard 301 turntable and Nakamichi 580 cassette deck. Tel: 01222 754 900

HI-FI WORLD

SDI LOUDSPEAKERS, Early model refurbished by manufacturer with uprated crossovers, slightly reduced cabinets and attractive Oak veneer. Super large scale sound £550. Marantz 94 DAC mint £175. Fidelity Research 64 FX tonearm, spare headshells £150. Tel: 0181 686 3640 (eves) 0181 889 \$788 (w/ends)

MISSION 752 SPEAKERS, Rosewood, as new, boxed 10 months old guaranteed €400 Tel: 0151 924 4286 (Liverpool)

LINN KEILIDHS Black with ceramic stands, as new boxed £430. Musical Fidelity P140 power amp £160. Tel: 01263 S12 815

MUSICAL FIDELETY 2 r pre- unp. Quid 303 payer, Quel FM3 tunar 7325 Tel Mite 9181 (07 2014 (evenius)

ALPHASON HRIOOS MCS tone arm. Van Den Hul wired, excellent condition, boxed £195. Wanted: Denon DCD 3250, DCD 3650, DCD 3300 or Pioneer PD 91 CD player. Tel: 01634 387 686

WANTED: LINN KARIK MKIII CD player. Tel: 01222 830 127

LINN ISOBARIKS BLACK (9/88) latest stands, active or passive use, mint £800. Linn Kellidh (1995) granite stands, mint £550. Naim Nait £120. Delivery possible. Wanted: LK400 speaker cable. Tel: 01622 858 085

ARISTON RD40, RB300, ATF3-OCC amazing looks £180. Hi-Fl News Flutterbuster £40. Blackhead £30. Bellini Wedge cassette £50. Wilmslow Digital 90 speakers, alloy stands £200. Tannoy 609DC speakers £130. Tel: 01903 754 326

NAIM 62/90/HI-CAP (Black Box), Linn Kans I, rosewood plus stands. Denon DCD 1500 Mkll CD player, absolutely mint £600.

Tel: 01344 775 769 (eves, Berkshire)

da 1 vitter, dis printed Mide in Flolland 1 3 Mullard short black ba e. Jass prost d british Made

AVI 2000 MC, mint, boxed, 12 months old, little use. Van Hul Den 1st digital 0.6m, 6 Kable Jackets (USA) Offers. Tel: Andy 01S27 S77 280 (answer machine)

MATCHING PAIR BTH Vintage valve monoblocks 20 watts p/c spare valves and transformers. Mike Pointer serviced, excellent £450 ono. Pair Quad ESL S7s bronze + stereo set spare panels & transformers £550 ono. Tel: 01322 384 074

LINN LPI2 WITH ITTOK arm and KI9 cart. plus Lingo power supply, all in Al condition £999. Aurex tuner £150, Linn LKI + 280 pre/power £450. Mission 780SE in black £160. Tel: Andy 0161 860 7393

TARGET RI LOUDSPEAKER stands £150. Audioquest Lapis (1m) Interconnect two phono to five pin din £150. Audioquest Video Z (1m) phono to BNC £30. Audioquest Opti Z (Im) £20. Chord company interconnect (Im) two phono to five pin did £1S. Tel: 01S65 632 796 (Cheshire)

AUDIO REJ ARCH SIS valve pre amp up i uded to MHI specimint condition, can demonstrate £758 1-1 =1246 =209 578 (d.y) ur =1246 =88

YAMAHA NS1000M speakers on stands £400. Linn Sondek model with Basik arm, K7 cartridge £200. Large open reel tape deck Tandberg 3600XD £100. Leak Stereo 70 in wooden sleeve £50. Tel: 01279 435 194

PAIR PROAC RESPONSE 3 loudspeakers, black Ash, excellent condition £1.650. Audio Innovations First power Emplifier £800. Tel: 0141 959 4134

PAIR MERIDIAN 605 power amps, Sony TAE 1000 ESB, Digital Pro-Logic surround pre-amp, Sony TAN 220 four channel power amp, Target TTSTSA rack £1975. Tel/Fax: 01908 376 966 (North Bucks)

ATC 5CM Out Yew booked is new (950 AT SEM IC is Walnut brand new (800 Equition) line level buttery pre unp is input superly (1750 new). bur un t8 Cournel 304 MDF plinth SEEL 3001: was ongo diminust £168 To F01774-759-603

QUAD 606 MK1 upgraded to MkII spec in July 95, still guaranteed £400 ono. Tel: 0181 S08 8932

SONIC FRONTIERS SEDI DAC (Balanced) HDCD compatible, amazing sound, boxed as new, I yr old - 4 yrs warrenty remains, bargain at £1795 or will sell together with Theta Data Basic, 1 yr old £3450. A fabulous combination. Tel: 01623 871 950

REGA ELA SPEAKERS (240. Tel: 01525 374 652 (eves, Beds)

LYRA LYDIAN CARTRIDGE, low hours 629S. Linn Trampolin base 670, Linn K9 cartridge £50, Linn Akito arm, boxed, slight fault £65, Ortofon SPK-200 speaker cable, 6m bi-wire with Michell plugs £60. Micromega co-ax digital cable 0.5m £20. Tel: Richard 0973 751 264 (NW

London)

MARANTZ CD-17 AS NEW, black 662S reviewed 03/96, CD-63 £135. Classic 1970s cassette decks both require attention. Technics RS2799S adjustable Dolby top loader. Yamaha TC800GL Wedge £12S each. Tel: 01273 325 901

NAIM SBLs WAINUT PASSIVE 4900. NAC 32 5 (75 boards) Efr Cap NAP 250 silver edged (90% Mendran 200-203 tan port l'A power cambination 7500 all pri tine Tel. Neil 01485 (52 012 (day) 01276 473 512 (eve.)

MISSION CYRUS 2 and PSX power supply. Highly reviewed latest type with flip switch, balance control and alloy casing. Good condition £300 ono. Tel: 01228 514 966 (Cumbria)

MERIDIAN D600B digital active speakers (walnut) (remote, analogue/ digital pre-amp, seperate D/A converters, 225w active power) quite superb, unfortunately neighbours don't like them. Cost £299S, bargain £1300. Tel: Kevin 01923 490 297

MAGNEPLANAR 2.5 R panel speakers, excellent condition £950. Tel: 01302 S39 469 (S.Yorks)

ALCOUTT HARGAIN TUNETY STAGE wer amp i 725, also matching PM pre ing with phonostage 1850. Only few month old, mur, boxed (1500 for both or sell separate To: ((115-92)-(05) after 5pm No tim-

WANTED MISSION CYRUS JUNET wwinted Financia Creation plants and two-times and with remote control and mountain to the product of the produ

ROKSAN XERXES, Black, Xerxes stand. XPS II Artemiz £650. Monitor Audio 852 loudspeakers with stands £275. Linn Lingo PSU £325, all as new. Dalquist DQ10 loudspeakers with stands £22S. Tel: 0161 432 6120 (Stockport)

ORELLE CD-10T/DA 180 transporti DAC mint boxed instructions Silver Digital Interconnect £700 ono, First to hear will buy. Sound Research Tube pre/ amp mint boxed. Crimson Electrik 100w power amp £175 each ono. Tel: 01689 600 258

DIAMOND ACOUSTICS REFERENCE 3 speakers, light Oak finish, three way, Volts, Audax, Bandor metal drive units. cost £2250. Excellent condition, original packaging available. Offers around £995. KEF Centre 100 Pro Logic speaker, mint condition, £250. Tel: 01709 851 993

TO FAIN or nower limes

WANTED: MARANTZ SX72 Signal Conditioner recently sold by Richer Sounds. Good price paid. Tel: Mr Troop 01203 445 880 or 01203 412 193

ARCAM DELTA 170 transport upgraded 170.3 BBS (50 spec) Video Y Interconnect £570. BB3 E100 All boxed Armstrong 521 amp 523 tuner Ferrograph 5 mono tape recorder. Offers Tel: 01293 784 693

MUSICAL FIDELITY E100 integrated £400, E200/300 pre/power £800. E CD player £400. Meridian 201 pre - 209 remote control, pair of 205 100w monoblocks - (cost new £2500) £975. Radford CP player £450. All ono. Tel: 01323 846 410 (eves - East Sussex)

MISSION 7S2 LOUDSPEAKERS, excellent condition, superb sound £375. Wanted: Naim Nait 3 or Cyrus 3 amplifier. Tel: 01886 888 772

NAIM NAP 140 POWER AMP. Mint condition. Boxed. £350 ono. Tel: 01980 625 319 or 01264 710 536 (weekday)

OUAD 405-2. Recent example, boxed £150. JPW sub-woofer mint, boxed £70. Mission speakers and heavy target stands £50. Linn K9 and KS bodies £S each. Tel: 01432 359 265

WANTED: SPENDOR SPI or SP2/2 speakers. Quad 34 or 66 pre/606 power amps/67 CD/FM4 tuner. Gradient subwoofers. Tel: 01384 273 051 (evenings)

CASTLE HOWARD SII speakers. Mahogany finish, 4 months old only 4800. Genuine reason for sale. Tel: 0161 928 2889



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CASTLE DURHAM 900	£300	£199
EXPOSURE XX AMP	£625	£450
MICHELL GYRODEC C/W QC	£1214	£869
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MARANTZ CD 17	£800	£640
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McINTOSH MC7100 PWR	£1400	EPOA
MUSICAL FIDELITY F22 PRE;MM.	£1100	£799
MUSICAL FIDELITY FX PWR AMP	£1100	£799
MUSICAL FIDELITY FCD CD PLAYER	£1500	£999
MUSICAL FIDELITY E200 PRE-AMP	£600	£480
MUSICAL FIDELITY E300 PWR-AMP	£700	£560
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MUSICAL FIDELITY A1000	£1500	£1120
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Hi-Fi World

PRIVATE

AMPLIFIERS OR SPEAKERS WANTED. Unison, Audion, DPA, Exposure, Naim. Any small quality speakers. Sonus Faber, Callas Opera Gold in exchange for Spendor SPI/2 speakers + MAF stands (£1500) Tel: 0181 S31 S979

HI-FI WORLD 4 WATT Single ended integrated amplifier. Expertly built by BBC engineer, Mint condition, Readvertised due to time waster. Any audition welcome £430 ono. Tel: 01732 35 88 96 (Tonebridge)

DAC £595 201 pre amp £295, 209 remote £20 M20 loudspeakers £485 Systemdek, Linn Itto c. Elite Grail £250 one Denon DR-M07 £35 Tel 015242 41769 [after 8pm)

OUAD ESL-63 ELECTROSTATIC speakers £800. Quad FM4 tuner £200. Quad 34 control unit £150. Quad 405-2 £150. Marantz CD7S offers. Luxman PD-300 turntable offers. Collectors items KEF Carlton A6048 speakers Tel: 01892 834 662 (evenings)

QUAD ESLS7 (PAIR) BRONZE Serviced by Quad 1995: New tweeters, dust covers and clamp boards. Less than 10 hours use, hence £475. Tel: 0116 279 2430 (Leics)

VAN DEN HUL The Wind II. Silver/ Carbon speaker cable. 8 x 6 metre biamp/bi-wire set. Cost £17.50 per mono metre (£840) sell (£480) Tel: 0802 872 016 (London)

WANTED: WADIA DAC, AUDIO Research poweramp, will consider Krell, Counterpoint etc. For Sale: Deltec PDMI S2 DAC £245, Apogee Scintilla ribbon panel speakers, 4 ohm, grey, £1295 (£5000 new) Tel: 01449 676 335

NAIM CDS £2500 (New £3600) Naim NAP 140, 90s facia £350. KEF Q60 black, boxed etc. £280. Naim CDi recent service etc £1400. Tel: Jules 01792 280 061

ROGERS LS3/SA SPEAKERS and AB-1 subwoofers wanted. Must be bi-wireable and in mint condition. Also Audiolab 8000S amplifier. Reasonable prices please. Willing to travel. Tel: 0121 326 8083 (Birmingham)

MUSICAL FIDELITY E100 Amplifier, only 7 months old, as new, boxed, cost £600, bargain at £350. Tel: 01702 SS6 116 (Essex)

LINN LP12 WALNUT, Full specification Lingo, Ekos. Main dealer serviced in March. £1,195. Ortofon MCIS Super 2. 2 months old £65. Tel: Brian 01904 490 796 (York)

DPA ENLIGHTENMENT DAC with DPA digital Interconnect. Superb sound, excellent condition, only one year old. Owner upgrading, £445 (£825 new) Tel: 01623 798 210

LINN KANS PLUS STANDS £155. Linn K9 + extra stylus £60. Naim 110 power amp £120. Wanted: Troika mint, Naim 72 and 250. Tel: Kevin 01202 342 072 (day) 01202 523 319

AUDIONOTE ANV SILVER Intercon-Tel: 01323 841 472 or 01323 764 065 DYNACO U.S.A. STEREO valve tuner £130, Dynaco PAS valve preamp £150. Dynaco transistor preamp £75. Armstrong S21 amp £30. Leak stereo 30 plus amp £30. All excellent. Tel: 01372 467 264 (Esher)

TROUGHLINE 3 VALVE Stereo tuner £130. SME 2009 Series II improved, brand new £120. Leak Stereo 70 amp £65. Quad MC module for 34 preamp £15. Brand new. Tel: 01372 467 264 (Esher)

QUAD 34 PRE/306 POWER/FM4 tuner, stand £650. Transcriptors hydraulic reference table, all accessories £440. Thorens TD124/II, SME3009/II £290 (Hi-Fi World preferred to Garrard) Tel: 0181 991 0762, day 0181 810 7018

MICROMEGA 3.1 TRANSPORT I month old, immaculate with Microdac £950. Marantz CD10 Trichord, solid high end sound £675. Michell Iso/Hera £325. AEI speaker stands £120. Helios tonearm £75. Tel: 01603 633 451

AUDIO INNOVATIONS P2 phono pre amplifier, moving magnet version, little u = £450 ono Tel Gary 01242 236 981

WANTED DYNAUDIO MIRAGE Kit speakers cabs must be well con-structed, also Musical Fidelity A370 Mk I. Required for research, no silly prices please. May swap, p/x Emerald Horns. Tel: 01226 764 272 (Yorkshire)

INN LETZ BASIK PLS K9 303 SCD ayer No 62/Hiop/250, Nam IBL Target Delta Strack, recollent Condition Office actually College condition Offers around £2100 Tot 0116 291 7726

LINN KAN Mk2 (Kustone) One of the last pairs made with Kustone inserts (Bi-wire) walnut £275. Wall brackets £25. Wanted: Nakamichi CR5E. Tel: 01422 372 063 (answerphone,

AIR TANGENT IB air bearing tonearm, Hi-Blow pump, excellent condition. Recently silver rewired, can demonstrate £1500 ono (£3000) Tel: 01628 476 836

HEYBROOK SEXTETS, Walnut, mint £620, Meridian 101 pre amp. 105 monobloc power amps (100w) £240. also second 103 preamp £85. Technics SL120 D/D turntable unit £125. Tel: 01892 536 919 (W. Kent)

GOODSELL GW12 MONO amp KT66 Williamson circuit with preamp and FM tuner, offers please. Wanted: Quad FM4 tuner (grey) and Spendor BC I speakers. Tel: 01245 381 961

RICHARD ALLEN RA 8 II Black ash 19" stands 91dB, good reviews (What HiFi) £200. Leak TL12+ pair in bits. Good transformers £100. Early Linn LP12 and Gale 401s chrome, offers. Tel: 01268 4SS 966

SLATE AUDIO IS" LOUDSPEAKER stands, cost new £360 accept £200 ono. Genuine reason for sale, JPW AP2 biwire loudspeakers cost new £200 accept £100 ono. Tel: 0171 265 0155

NAIM HICAP new style £400. Old style £350, Special NAC 72 £400, Naxo (SBL) £250, Wanted: Prefix S. Tel: 0121 SS3 1121

OUAD S7s BRONZE £190; Black £190. Leak stereo 20 needs rebuilding - offers. Leak Troughline III ST tuner £85, 200 used audio valves ? £45. Spendor BC1 £150, QED passive pre £15. ProAc Super Tablette £165. Tel: 01304 813 S72 (Canterbury)

LEAK STEREO 20 with Varislope pre amp. Some new components and valves 6275 one Tel: 01625 260 903 (Stockport area)

VALVE AND TRANSISTOR kits built and tested by professionaly trained engineer and hi-fi enthusiast. Also Hardwood panels made and fitted to Tel: 01424 715 692 (South East area)

ROGERS LS3/SA, Good condition, superb sound £400. Spendor BCI BBC designed studio monitor, cabinets fair, new grilles, excellent all round performer £300. Tel: 01553 765 400

CD67 Clock 2 ndipted 2500 Mitsubishi B82 S VHS £350 Scriy Pre-Walkman £150 Sony D303 CD Walkman £150 Cambridge DAC Magn £100 Audioquest Ruby Hyperlitz £50 Tel 0181 655 2733

HARBETH BBC LSS/12A mini monitor loudspeakers in Mahogany, very little use, genuine reason for sale, cost £1200 new, accept £750. Tel: 01293 786 912 (Surrey)

LORICRAFT-GARRARD 301 with light Oak plinth, SME 3009 arm and Audio-Technica ML170 cartridge. Perfect condition £750 ono. Tel: 0181 882 8218 (North London)

LEAK STEREO 20, rebuilt, superb sound, mint, c/w manuals £295, Leak Varislope Stereo, mint £50. Leak Troughline II mono £65. Goldring Lenco GL7S turntable, boxed with manuals £75. Tel: 01978 780 580

LEAK 2200 AMPLIFIER £SO, Ferrograph F307 amplifier £50, Leak 2001 turntable £50, Armstrong 400 Series tuner £40. Immaculate order, seen working. AR 77XB turntable, noisy motor £20. Tel: Milton Keynes 674 193 after 7pm.

ART AUDIO VPI valve preamp £350. Quintet valve power amp (new valves) £700. Both 4 years old, latest specs. Kinshaw Perception phono stage £240. All boxed, excellent condition. Tel: 01509 231 254

ARCAM ISO NICAM stereo tuner £180. Arcam Alpha 6 CD £480. Arcam Delta 80 tuner £240. Orelle 180 DAC £260. Akai open reel tape deck 4000DB Dolby £60. Tel: 01229 470 259

QUAD ESL63 SPEAKER stands £80. Uher CR160 portable (cassette) stereo tape recorder £350. Armstrong 623 receiver Rosewood £130. Straightwire Maestro interconnect 0.9m £90. All in excellent condition Tel 0181 801 S0S3

KAYLPSO BY CR Developments -18wpc valve amp - 14kg - £295. Michaelson Audio Odyseus - valve class A - 45wpc - "stunning sound - beautiful balance and control - What HiFi', 'Here was something special - HiFi News' £599 (£1200) Tel: 0181 372 2584

N.V.A. POWER SUPPLY £80, Rogers T7S Series 2 tuner £17S. Tel: 01432 264 S67 (Hereford)

NEW BOXED UNUSED. Musical Fidelity Elektra E10 amp £290. Elektra ESO tuner £210. TDL 3 speakers £300. Technics SL-1200 Mk 2 turntable £320. Mint condition Impulse H2 speakers £1350. Passion passive pre-amp £350. Good condition Sony Tuner S30 ES FM 660 Tel: 014S2 611 917

AUDIO INNOVATIONS Series 500 vgc. cyrck box id £430, Concordant Exultant (Ouad II based) 37 wart nonoblocks £450. Wanted QC power supply, REL or intor, Pro Logic Decoder Private enthu in t Tel 01773 609 104

SPICA TCSO QUALITY speakers including stands £200. Ruark Talisman II speakers £450. Ariston Maxim tuner. performance for £100, Pioneer \$901 CD player £200. Tel: 01377 257 084

CASTLE HOWARDS Mahogany £595. Alchemist Forseti integrated £650, Aura TUSO FM tuner mirror black £95. Tel: 0121 628 9247

THANGE CARDINAL transport year I've llent condition £550 1-1 0181 248 3607

MISSON DCD S CD player mint boxed with instructions £150 ono. Garrard DD450 semi auto turntable £40. Mission spiked speaker stands £30. Tel: 01274 789 631

NVA P80/A60 passive pre/power amps with Phono I (MC). Mint condition £S2S. NVA AP3S integrated amp with MM phono £12S. Wanted: Soundpipe speakercable NVA power supply unit DACon or TES CD player. Tel: 0181 871 0424 (SW London)

HICROMEGA LOGIC CD player £300 Aura VA100 Evolution amplifier £200 Both mint and boxed Tel 01862 810 645 (High

CROFT MICRO PREDAMP with pair of EAR S09 Mk I monoblock valve power amps, 100 wpc, black and chrome finish, all items mint £950. Tel: 01622 764 780 (Kent)

MISSION 751 hardly used £300, will sell £199 mint condition. Mission 731 mint £129 sell £79. Mission 7611 approx 3 months old £180 sell £109, no offers. Boxed, demo. Tel: 086S S9737 anytime

AUDIO INNOVATIONS SERIES 1000 pre amp and mono blocks "Rare" unmarked in excellent condition. Hardly used, Can demonstrate. Bargain, all three for £995. Tel: 01252 614 055

NAIM 62/90 PRE-POWER amps + Flatcap power supply £SSO. May split. Acoustic Energy AEI speakers in rosewood + stand £SSO ono. Tel: 0171 278 6291

DELTC DPASOS four box pre phono stage, power amp, PSU including speaker and interconnect cables plus The Power mains filter, Boxed, manuals, mint, see review HFW April '91 £995 Tel: 01703 223 065

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Audio Innovations P1 phono stage	£250	(£350)
Audio Innovations Series 200 pre-amp	£250	(£350)
Audio Innovations Series 700 line Integrated	£650	(21199)
Audio Innovations 2nd Audio Amplifier triode power amps	£1200	(£3300)

Tel/Fax Brighton 01273 276716

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Arcam Delta 70.3 CD Player (£700)		Mint	£325
Audio Research LS3B Line Preamp (£2250)	Ex.Demo		£1650
Audio Research LS7 Preamp (£1600)	S/Hand	Mint	£1150
Audio Research SP14 Preamp	S/Hand	Mint	£1495
Classe 70 Power Amp (£1400)	S/Hand	Mint	£850
Counterpoint 3.1 Preamp	S/Hand	Mint	£795
Densen B100 Beat Integrated Amp. (£600)	S/Hand	Mint	£475
Densen DM10 Integrated Amplifier 70w (£1.300).	Ex Demo		£850
EAD CD-1000 Series III with HDCD (£2000)	Ex Demo		£1595
Magnaplanar MG 1.4 Panel Loudspeakers	S/Hand	Mint	£450
Mirage M-190i Audiophile Monitor (£299)	Ex.Demo		£165
Mirage M-290 Audiophile Monitor (£399)	Ex.Demo		£250
Mirage MBS Bipolar Satellite Spks+Stand (£450)	Ex.Demo		£315
Mirage M-5si Bipolar Loudspeakers (£2000)	Ex.Demo		£1595
Ortofon MC2000 Cartridge (10hrs)(£650)	,Ex,Demo		£395
Musical Fidelity Pre 3A Preamp	S/Hand	Mint	£175
REL Stadium Subwoofer (£800)	S/Hand	Mint	£450
Theta TLC Jitter Buster (£229)	New (2)		£175
		مظلم	

CD Players, Transports and DACs

Last month we referred to the deservedly popular Trichord Genesis, and are pleased to report that we also now have in stock another favourite of ours, the Parasound CDP-1000, retailing at £750. Not quite as open as the Genesis, the Parasound is very begulling, and possibly more suitable for anyone who finds the CD medium a trifle harsh! Above these two of course, we have the AVI Reference Player and our top two box combo, the Audiomeca Mephisto, with either Trichord Pulsar or Pink Triangle Dacapo. However, there is no doubt that the general improvement in integrated players has knocked the Transport/DAC market, even though there is nothing like a really good Transport+DAC, to get as close as possible to that good old analogue sound.

Trichord Pulsemaster

This could be about to change however, with devices such as the Trichord Pulsemaster (£349), which is a itter reduction device which fits between Transport and DAC, and with the sound improvement this achieves, could re-instate the Transport/DAC back to popularity. As it is claimed that all transports capture the same digital data, and that it is the time domain discrepancies in the data which accounts for the differing performances, then it is with great interest that we await longer evaluations with the Pulsemaster, including it's effect on cheaper one box

aud10 Hi-Fi Consultants 36 Druid Hill, Stoke Bishop, Bristol BS9 1EJ Tel/Fax: 0117 9686005



players when using an outboard DAC. It is still amazing to find how many systems really don't like the CD medium, which is why we always attempt to produce well balanced systems that are almost as happy with CD's as Vinyl. That is why our personal home demonstration service is so vital in enabling us to hear exactly how our system reacts to a piece of equipment we have recommended or you have asked to hear. If we stock it, it has to be good, but that doesn't mean it will suit your system and if it doesn't we'll say so, even if you like it! We can probably recommend another unit that will work and then we'll both be happy.

P/E BARGAINS

a) TRILOGY 902 LINE LEVEL PRE+ 958 100w MONOBLOCKS £1750 b) EAR 509 MkII VALVE 100w MONOBLOCKS £900 c) QUAD 77 CD+INT. AMP+R/C (5 months old) £950 d) NAIM CDI PLAYER (Immaculate)

PRIVATE

LFD MONO BLOCKS + LS2 line stage £1,650 (will seperate). Also MC2 phono stage (silver wired) £560. Stunning sound and in as new condition. One owner from new.

Tel: 01255 436 876 (Essex)

WANTED: LINN LK280 and LK1 Pre. Cash paid, call anytime. Tel: 01628 485 996

AUDIO RESEARCH VT60 Perfect condition. 1 1/2 years old. Little used due to absense. Just about run in. £1800 (£2650) Tel: 01628 476 836

QED DIGIT AND POSITRON power supply, including Sonic Link Green digital interconnect. Mint condition cost new £270 sell for £100 ono.
Tel: 0121 605 5218 (Birmingham)

WANTED: CELESTION DITTON 66 or Ditton 88 or Ditton 662. Tel: 0181 980 8149

MERIDIAN SOI PRE-AMP, system remote control, phono module, sale due to digital upgrade, mint boxed £475. Nakamichi cassette deck, rarely used, superb quality, boxed as new £275. Tel: 0151 677 7386 (Merseyside)

WANTED MINI CONDITION Michell syradec (branz), with RB300 or better & quality MC cartridge. London based chap will travel reasonable distance for d.m.
Tel: Adhan 0181 675 6004

NAIM 72 HICAP 180 new type 12 months old mint condition & boxed. Can split £1500. Also Mission 753s (black) mint and boxed cost £700+, accept £475 ono.
Tel: 01598 760 247

DELTEC/DPA 'The Little Bit' DAC, 'The Power' mains filter and 'Digilink' digital interconnect £150.
Tel: 01978 750 151

NAIM NAP 250 old style. Naim NAP 72 (MM & MC) new style. Sony STS730ES tuner. Ali perfect. Wanted: Naim '82 (K) & 135. Target wall shelves. May p/x. Tel: 01843 593 958

NAIM 62 PRE AMP, Naim Hi Cap power supply, Naim 250 power amplifier £1650. Tel: 01444 248 424

KEF 107:2 £189S ono. Ray Lumley Ref pre amp £3000 only £950 ono. Boxed as new, may p/x. Acoustic Energy AE3 £795. Tel: 01225 480 990

EPOSURE ANNIVERSARY pre amp. Exposure VI dual supply, Exposure IV power amp £1200. Arcam Delta 270 CD £350. Linn Intek £250. Linn kabers £650. Castle Howards (Rosewood) £800. Epos ES22 £750.
Tel: 01952 502 097 (Telford)

AUDIO INNOVATIONS \$1000 Mk3 valve mono blocks £675; Set of eight EL34 Groove Tube valves £75; Im Audio Synthesis Silver Blue Interconnect cable £50.

Tel: Peter 01960 372 845

LEAK TLSO +, pair renovated by GT Audio, absolute quality build and sound quality from these GEC KT88 amps. Leak Stereo 20, Leak export model, 110v Leak mains transformer. Rebuilt to spec. £800 ono for both. Tel: 0181 881 3790 QUAD 67CD/34 pre/306 pwr/FM4. excellent condition £1195. Tel: 01S3 527 3461

KRELL KSP-7B PRE-AMP. Unused and boxed cost over £2000 will accept £99S ovno. Also Stax SR Lambda Pro headphones with 5RMI driver amp. Unused and boxed £450 ovno. Tel: Mark 01202 875 069

NAIM 32.S/HI-CAP/2S0. Old style cases, Karma boards. All mint and boxed £900.
Tel: 01299 401 939 (Worcs)

REVOX B710 MKII cassette deck vgc £550. Revox B77 MkII HS £700. Tel: 01246 275 479 (evenings)

AUDION SILVER NIGHTS 300B valve monoblocks. Stunning sound mint condition £1350. Sonus Faber Electa speakers. Gorgeous walnut and leather finish. Superb sounding £900. Tel: 0117 9736 586 (ansphone)

NAIM 13S MONOBLOCS old case style but immaculate, boxed £1395. Naim hi-Cap old case vgc, boxed £335. Linn Troika. Some wear, but usable (or retippable) boxed £185. Tel: 0161 928 8464

LINN KAIRN PRE-AMP MM/MC
"Brilliant" £795. Pink Triangle Ordinal
DAC 1307 filter £575. Theta TLC 'Jitter
Buster' £95. Epos ES11 speakers own
stands black £275. All vgc, boxed.
Tel: Barry 01256 882 607 (Basingstoke)

BRYSTON 4B-NRB, Canadian Hi-End stereo/mono power amp, 300w per channel, 20 months old, mint, cost new £1700, accept £102S ono. Meridian 506 CD player, remote control, mint £580. Tel: 0171 268 6270 day or 01689 855 063 eyes

SONUS FABER MINIMA Amator leudspeakers. Superb sound only 2 months old. As new. 22 months unexpired warranty £895 Tel. 01628 789 360 (Berkshir)

ROSE RV23S PREAMP Quad 606 power amp £550, may separate. Proac Tablette speakers £120. Sound Organisation table £20. All excellent condition. Wanted: Counterpoint pre amplifier.
Tel: 01277 659 650

ORELLE ORATOR loudspeakers with Heybrook stands and 4x6 metres of Cyrus solid core cable for bi-wiring £300 (will split) Musical Fidelity B200 amplifier £110. Tel: 0171 289 0568 (home) or 0181 214 3336 (work)

MILLENIUM ULTRALINEAR Stereo valve amplifier, 30 watts per channel, uprated PSU, Sovtek valves plus spare set, superb sound, can demonstrate, unused except for specification testing £450 ono.
Tel: 0181 427 1378 (Harrow)

SYSTEM COMPRISING ROTEL RCD965BX player, Exposure X amplifier, Monitor Audio 852 Gold speakers on Something solid stands. Yamaha K340 cassette deck, Target rack, new condition, original packing £1100.
Tel: 01252 623 674 (Fleet)

TECHNICS 520A CD Player, £110 ono. "Can Opener" for connecting headphones to Naim amps £40. Tel: Matlock 01629 583673

LEAK TROUGHLINE STEREO, serviced by GT Audio and complete with latest Studio 12 decoder, £180 or swap for NAD402/412 + cash (need the sensitivity). 300B single-ended amplifier. Home built, but very professional finished in chrome and brass. High level of components: Black gates, Shinkoh, silver plated wiring, choke input/polypropylene capacitor PSU etc. Absolute bargain at £600; the components alone cost more. Selling to fund next project. Wanted: Nakamichi RX-202 or RX-50S auto-reverse cassette decks in mint condition. Tel: 0181 830 7214

NAIM WANTED 2 x 135s in mint condition and latest spec. Also Naxo 2-4 in mint condition and latest model, reasonable price given. Willing to meet halfway.

Tel: 0151 493 2429 (call after 6pm)

MISSION 752 SPEAKERS, Black, only 3 months old, as new, boxed £350. Marantz PM44SE amp, 50 wpc, black, mint £85. Ortofon T10 MC Step-Up £35. Cambridge DacMagic I DAC, mint, excellent £100. Radford T90 'Tristar' speakers, 3-way classic design. A lot of speaker for only £100 inc. stands. Teak finish, excllent condition. NVA PS0 pre amp, MM phono, separate power supply £100 Tel: 01706 345 418

GARRARD 401, SME Plinth, SME 3009II, Elite 700 £195, Mission 774 damped arm £50. Radford SC22 £30. ETI system A preamp (MC & MM boards) £60. Tel: 01503 250 679 (eves or w/ends)

LFD MC2 Phonostage with external power supply. £775 (Retail price £1500) Tel. Cheltenham 01242 231766

ROYD MINSTREL Loudspeakers, real wainut veneer. Only light use. Mint condition and still boxed £200 Tel: 01986 89568S eves (Suffolk)

KRELL KSA100 MK2 £1395, Mark Levinson JC-2 preamp, separate power supply £695, Audio Research LSI preamp, classic 60 poweramp £2400, Alon II reference monitors, rosewood £1395, all mint Tel: 01449 676335

LEAK TROUGHLINE MKIII Stereo tuner £150. Copland valve amp CTA401 £500. Revox G36 tape deck £350. Michell Gyrodec Ext. PSU Rega RB300 Shure VST-V £450. Croft Micro preamp £120 Tel: 01702 291592

AVI 2000 MC 20-bit CD player and AVI pre amp. Boxed mint £1050, may split. Alchemist Forseti 100w integrated £595. AE Aegis loudspeakers on Ataciama stands £350.
Tel: 01226 710 605 (Yorkshire)

PIONEER VALVE RECEIVER 40 w.p.c. excellent condition with instructions £200 ono. Roksan Xerxes/RB 300 £350. Rotel RCD965BX £150. Sanyo reel-to-reel deck £40. Wanted; Meridian S00/ S06
Tel: 01621 772884.

1991 XERXES/PSU (matt black) and Artimiz arm with ATOCS MC. Excellent condition £530. Also Nakamichi BX300E cassette, regularly and just serviced £32S. Boxes and set-up manuals. Tel: 0181 668 7459 (Purley, Surrey.) NAKAMICHI DR3 cassette deck. Features Dolby B+C, logic controls, variable bias, vgc. "Outstanding recording quality" What Hi-Fi, £440 new - accept £260 ono.
01234 241 976 (near Bedford, Milton Keynes, Northampton)

WANTED: Technics SL1210 turntable and Nakamichi RX-S0S in mint condition. Tel: 0181 830 7214

CABLES - HIGH QUALITY - Ortofon 7-9s I/Connects Im £75 - Keswick Audio TI I/Connects Im £30, Sonic Link Care speaker cable 1.7Sm bi-wire £60. Tel: Neil 0121 353 1593

GARRARD 401/SME 3009 II, Shure VIS in SME plinth. £225 ono. Decca London arm/FFSS cartridge £75 ono. Tel: 01442 392 368

MAGNEPLANAR MG 2.5 panel loudspeakers. Light Oatmeal grilles and Teak surrounds. Excellent condition and superb, natural sound. £1,175. Tel: 0161 432 6120 (Stockport)

NAIM 32.5, SNAPS power supply, Naim 140 power amp £495. Linn Kabers (passive), including stands £650. Linn Sondek LP 12, ittok arm, brand new AT-OC9 cartridge £495. Naim 101 FM tuner with dedicated power supply £395. Naim 32.5 pre-amp (72 upgrade), HI-Cap power supply £550. All above immaculate and boxed.
Tel: 01142 454 601

AURA HI-FI EQUIPMENT WANTED. Tel: 0171 284 2823

WANTED: SONY PRO Walkman for cash or will exchange for Sony ICF SW1, superb minature short wave/FM radio. Tel: Alistair 0141 942 8415 (Glasgow)

REVOX B77 MkII Reel to Reel 4 track, hardly used. Offers around £350 Tel: 01293 654 444 office hours or 01293 426 008 evenings.

LINN KARIK 3 CD player, two years old £1150. Linn Kabers, one year old, save £950 on new ones, yours for £850, American cherry.
Tel: Mr H. Lancaster 01344 488 342 home or 01628 604 455 ex 385 works.

MUSICAL FIDELITY A100 amplifier, 50 watts per channel, Class A, good condition, bargain at £150.
Tel: 01202 482 110 (Christchurch)

BILL BEARD BB100 Mk2 integrated valve amplifier. Dual mono design. 50 wpc. 18 valves set in mirrored chrome finish. Superb construction and sound £750 ono.
Tel: David 0161 969 7119 anytime (Sale, South Manchester)

WELMAR UPRIGHT PIANO (1876) in solid Mahogany. Restored to pristine condition by Reldy's of Blackburn. An investment in real fidelity and a beautiful piece of furniture £2,200 ono.
Tel: 0161 969 7119

SD ACOUSTICS SDI New model (2000) £650, Beard P100Mk2 (Gold Lions) £700. Audionote OTO SE (1250) £700 mint. Pro-Passion unbalanced (400) £200. Wanted: Maggies - Biown tweeters O.K. Wanted: Quality record deck.
Tel: Andy 01993 883 822

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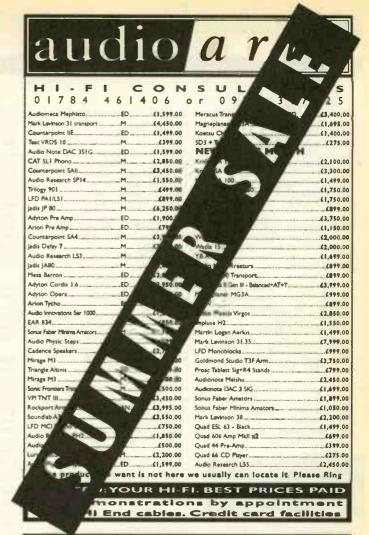
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AUDIO RESEARCH D125 (balanced)	mint s/h	£1995	APOGEE SCINTILA	mint s/h	£895
MERIDIAN 605 monoblocks	mint s/h	£1395	THIEL CS 1.2	mint s/h	£1195
KRELL KSA 1005	mint s/h	(3495	ALON 0.5	mint s/h	€750
KRELL KSA SOS	mint s/h	€2250	SONUS FABER MINIMA AMATOR	as new	£1095
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JADIS JA 500 monoblocks	mint s/h	€8995	MERIDIAN MI	mint s/h	6595
EXPOSURE XVIII/XIX pre/power	mint s/h	6995	REL STENTOR ACTIVE SUBWOOFER		£1095
KRELL KSA 250	mint s/h	£3250	SONUS FABER CONCERTINO	as new	€450
NESTOROVIC ALPHA I monoblocks		£1495	DUNTECH Crown Prince	mint s/h	£2495
TRILOGY 958 monoblocks	mint s/h	61795	RUARK TALISHAN II	mint s/h	£450
OUAD 306	mint s/h	£245	LINN KABERS	mint s/h	£1095
LFD PAI/LS1 pre/pwr	mint s/h	(895	CASTLE DURHAM 900	mint s/h	£175
	mint s/n	£4995	MARTIN LOGAN AFRIUS		
JADIS JA 80 monoblocks				mint s/h	£1495
AUDIO INNOVATIONS SSOO	mint s/h	6525	MARK LEVINSON NO 36/37	mint s/h	£5995
AUDIO RESEARCH D200	mint s/h	£1995	THETA DATA / GEN III	mint s/h	£3995
AUDIO RESEARCH V70 balanced	mint s/h	£1895	MARK LEVINSON 30/31	mint s/h	£9995
YVES COCHET AL3 (Valve 75wpc)	mint s/h	£1295	DENON DASI / DPSI	as new	£9995
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KRELL KAC2	mint s/h	€2495	KENWOOD DP-X9010 transport	mint s/h	£350
MARK LEVINSON No 38	mint s/h	£2200	MICROMEGA MICRODRIVE/DAC	mint s/h	€995
McCORMACK ALD-1 Line/phono	as new	£995	MARK LEVINSON 30.5/31	mint s/h	£13995
McCORMACK MICRO	as new	£395	THETA DATA IL/PRO. GEN III	114117 20 11	E13//2
AUDIO RESEARCH SP8	mint s/h	6795	AT+T - BALANCED		£4995
EXPOSURE XIV + IX	mint s/h	£1495	COPELAND CDA 288 cd player	as new	£1295
HEYBROOK SIGNATURE	mint s/h	£350	LINN KARIK/NUMERIK	mint s/h	£1695
		-			
JADIS JP80mc	mint s/h	C5995	PINK TRIANGLE ANNIVERSARY/SMEY	mint s/h	£1895
CONRAD JOHNSON PREM 7B	mint s/h	£6500	LINN LP12/EKOSII/CIRKUS/	1 6	****
BURMESTER 808	mint s/h	£1795	LINGO/TROIKA	mint s/h	£1995
EXPOSURE XI + XII	mint s/h	£795	LINN LP12/EKOS/CIRKUS/LINGO/	mint s/h	£1495
TESSERAC TALA	mint s/h	£795	YPI TNT mkill	new	£P.O.A.
CHRONOS pre-amp	mint s/h	£1495	PIERE LURNE JL/SLS	mint s/h	(2495
MUSICAL FIDELITY MYX	mint s/h	£995	KOETSU RED K. SIGNATURE	mint s/h	£1295
McCORMACK TLC-I	as new	£795	LYRA LYDIAN	mint s/h	£395
AUDIO RESEARCH BLI	mint s/h	£495	MONSTER SIGMA GENESIS 2000	mint s/h	£195
APOGEE MINI GRAND	mint s/h	£3995	ORTOFON MCIO supreme	mint s/h	£150
8+W SILVER SIGNATURES + stds	mint s/h	2995	TESSERAC TAHA		
MARTIN LOGAN CLS 112/ARCCICI	mint s/h	€2995	Phono stage mm/mc	mint s/h	£895
KINERGETIC SUB-WOOFER	mint s/h	€2750	JADIS JPP200 Head amp	mint s/h	€2495
WILSON WATT 3 PUPPY 2+paws	mint s/h	(5995	EXPRESIVE TECHNOLOGY Head amy	mint s/h	£1995
ALON Y	mint s/h	£2995	QUICKSILVER HEAD AMP	mint s/h	£150
SONUS FABER AMATOR	as new	£2250	LYNX TUNER	mint s/h	£295
HERIDIAN ASOO	mint s/h	£495	ACCUPHASE TIO8 tuner	mint s/h	6995
KEF 103.4	mint s/h	£695	LINN LINGO	mint s/h	(395
SONUS FABER EXTREMA + STDS	mint s/h	64395	STAX SR GAMMA + SRD	mint s/h	(295
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PRIVATE

WANTED - TOSHIBA 6400DXC 486 laptop PC computer. Any considered. Tel: 0181 830 7214

QUAD FM2 £70, Leak Throughlines stereo/mono £100/£70. Micromega Logic £150, Pioneer 9090 £70. Leak Minisandwich £30. Garrard 401/SME 3009/Howland West plinth £200. Tel: 01608 643 553 (Chipping Norton)

"LINDY" LEAK Stereo 20, Black plano finish, sliver wired throughout. New Golden Dragon valves - original. Offers? Audio Innovations LI active valve line pre £200 ono. Both recently serviced and in mint condition. Speakers: Lumley Reference 3.5 floorstander £750 ono. Dynadio Audience 15 floorstander £775 ono. Tel: 01265 42772 anytime.

MICHELL GOLD GYRODEC with Rega RB300 and Audio Technica OCS. Limited export edition with gold plated finish and fitted with oxygen free wiring, absolutely mint condition £750.
Tel: 0181 954 9929 (day)

MONITOR AUDIO ET500 direct drive record deck with Rega RB250 arm and Linn K5 cartridge. Good working order, will dem. With Apollo wall shelf £250 ono. Tel: 01702 420 693 (eves)

WANTED: ELECTROCOMPANIET Two channel amplifier. Working/not working, anything considered. Also QLN subwoofer. Tel: 01283 701 443

PIONEER PD-S703, Mission 734s, Marantz PM-44SE Mkil, Sony ST-311, bi-wired Cabletalk 3. All boxed, excellent condition £750 ono. Tel: 01494 S10 741 (eves/weekends)

AUDIO ALCHEMY Vac-In-the-Box Phono stage. Comparable with the best, boxed £175. Denon DL 304 MC cartridge, low use £80. Denon TU-260L tuner £60. All immaculate. Tel: 01827 261 082

MERIDIAN 605 Monoblock power amps (150 watts) Excellent condition, boxed, highly recommended (MC) (33 marks) £1495 ono. Tel: 01903 261 931 eves after 7pm. (Worthing, Sussex)

NAIM 72/HI-CAP latest + phono and NAC A5. Boxed. Can demo, send next day delivery no problem. £750. DPA DAC (625) £250. Upgrade any single box player. Tel: Adam 01268 711 536 (Mon-Fri

only [lam-6pm)

MUSICAL FIDELITY Elektra E500 FM tuner with full remote control facility with original box and instructions Brand new unwanted gift. First £350 secures.

Tel: 01904 763157 (York)

ROTEL 965 BX CD Player £135, Focal 444 floor standing speaker kit, 3-way, Keviar drivers, built up and running cost £500+ to build, £200 or offers. Tel: 01205 750 314

HEYBROOK INTEGRA Integrated amp vgc. 75 wpc, can be used as pre. May '95, £325 (£555) Upgrading. Tel: 01525 874 852

NAIM CDS CD Player for sale. As new condition, very little use. Excellent sounding machine. Absolute bargain at only £2,250. Tel: 01275 333 020

LINN KARIK II CD Player and Linn Numerik DAC complete with Brilliant power supply, Theta TLC for reduced litter and solid Chord interconnect. All boxed and unmarked. New price today (£3300) £1,695 ovno. Tel: 01202 624 094 after 7pm

QUAD 606 POWER AMPLIFIER £400. Cambridge Audio digital-analogue converter £80. Pair Tannoy 6IIS speakers. Meridian 201 pre-amplifier with Meridian 205 monoblocks power amplifiers £750. Naim NAC 32 preamplifier £130. Philips CDI with £550 worth of accessories £400. All above boxed, as new. Tel: 0181 681 1054 (Croydon)

DUNLOP SYSTEMDEK II (round) + Rega RB300 + Nagauka N-II MP Boron cartridge £200. Linn K18 cartridge new £100. ADC ALT1 tonearm £10. Tel: 01933 626 170

TOWNSHEND MONOBLOCKS 650P. complete with power supply. Excellent £225. Gale 401 chrome, mint £295. Wanted: Wharfedale 708, Sony Elcaset, Revox A77, SD Acoustics, SD2, SD1, Isobariks, Lyra cartridges. Tel: 01604 791 252

LOWTHER ACOUSTA Twin including PM7 drivers (need reconditioning) £200. Tel: 0191 274 9539 (Newcastle)

LEAK TROUGHLINE II. Exceptional condition Inside and out. Serviced, revalved, Studio 12 decoder, Suit audiophile £195. Quad 44 control unit and 405-II amp. Boxed, manuals, Quad connectors £395 the pair. Tel: 01732 882 966 (Kent)

LEAK STEREO 20 £250, 2 x Rotel RB970 BXII power amps & Rotel RC970 BX pre-amp £500. Ruark Swordsman + 2 speakers £200, Kef Kit 3 £200, 2 x Kef B139 drivers in sub-housing £150. O.n.o.s accepted. Tel; 01827 281 370 , I

WANTED: BANG & OLUFSEN 7002 music centre in A1 condition. Tel: 0171 267 1906 after 9pm

NAIM FELSPEAKERS Black Ash, 3 month: old £1,150, 72 pre amp, F. phor boards: - 85 - 12.5 pre amp £175 €D3 £550: All immaculate and boxed. Will . demon trate Let 01/03 667 728 day or 01/01 898

WANTED ENTRY LEVEL HI-FI equipment. Preferred manufacturers. Arcam, Audiolab, DPA, Naim, Quad, Acoustic Energy, B&W, Heybrook T.D.L. Best price paid for good equipment. For Sale: Sony Professional Walkman WM-D6C £225 ono. New unopened. Tel: 01703 812 972 (eves/weekends)

WILLIAMSON VALVE amps, Dual monobloc configuration. Use stereo or 2x2=4 for bl-amping. £400/pair or £700/ four. Stunning sound and looks. Thorens TD 124 Mahogany/acrylic superb £225. Tel: 01924 870 361

MICHEL ALECTOS 100+100 watt £950 mint. SD Acoustics SD | E mineral polymer enclosures £900 mint. HI-Fi World K5881 PSE sem pro built £360. Offers for Ploneer SX87.8 receiver: Beltek 8 track tape recorder; Voxon H305 amp; Grundig \$740 amp; Heathkit A1214 amp. Large prototype transmission line speaker £270. Part X Tel: Mike 01734 693 377

QUAD BLACK FLS + 38 + 303 + FM\$ + 5ME Plinth + 3009 + TD125 + all 171 978 1994

PAIR KLS3 6 months old, professionally built, plano black, Reason for sale building KLS6s. Price £775 ono. Tel: 0115 929 4060 (after 5.30pm, Nottingham)

ROGERS LS3/SA MONITOR and AB-I sub/w wanted. Also Audiolab 8000 C/P or Q/M pre/power amplifier. Private

Tel: 0121 326 8083 (Birmingham)

AUDIOLAB 8000A AMP £225: Arcam Alpha S+ amp £150; Sony TCK6115 cass/deck £130. Sell due to upgrade. Buyers must collect. Tel: 0121 326 8083 (Birmingham)

MERIDIAN 60S MOSFET Power amps 150 wpc (rave reviews) £950. NAD 302 stereo amp as new hardly used £95. Akai GX65 3 head cassette deck £125 ovno. Dual CS S0S-4 turntable with Ortofon cartridge, offers. Tel: 0181 332 6140

MAGNUM ASO MOSFET Monobloc power amps 280 wpc £500 Tel: 0181 332 6140

VOIGT DOMESTIC Corner Horns, A. matched pair of these rare speakers driven by Lowther Voigt PM 2AMk Is. Excellent sound. £1500. Tel: 01273 684 424 (Brighton)

LEAK AMPLIFIERS 2 x TL10s £500, 2 x TL12 plus £400, ST20 and Stereo Varislope £300, single TL12 plus and mono Varislope £90, Troughline Stereo 3 (80 Tel: 01273 684 424 (Brighton)

LEAK TRANSISTOR amps; Stereo Delta 70 £50; Stereo 70 £40; Stereo 30 plus £10; Armstrong 226 tuner/amp £70; Avantic/Beam-Echo amp SP21 £110. Tel: 01273 684 424 (Brighton)

MUSICAL FIDELITY CDT single ended triode CD player £250. Single speakers; Tannoy 15" DC HPD £80; Goodmans Audiom 91 18" bass £20;. Naim MC boards £30; Quad 34 MC board £10. Tel: 01273 684 424 (Brighton)

VOYD VALDi turntable, RB300, Tracer I cartridge £400. Hafler pre & power amp £400. Ruark Swordsman Plus £150. All mint condition. Tel: 01592 265 096 (Scot)

ORELLE 100 CDSE Excellent reviews, two hours use £425 ono. Helius Cyalene Il Audio Note wired £695 ono. Audio Note tone arm silver wired £600 ono. Tel: Tony 01483 34795 or 0385 114 213

INN HIZTATE me Ekos Mkil, Arliv 90bis Kan vo tor t (8000 01480-217-661 (Cambinda

QUAD FM TUNER £50, Quad QCII £20, Quad II £150, Garrard 4HF £20, or complete in Oak cabinet £220. Quad ESL £180. Leak Troughline Stereo £60, Leak Stereo 30 £20. Tel: 01452 617 761 (Gloucester)

TOWNSHEND ELITE ROCK, RB250 arm, boxed £250, Rogers L54A speakers as new £125. Myst Tma amplifier £50. Pioneer A400 GTE and RATA upgrades £175 (boxed), Aiwa 810 3-head cassette deck unused and boxed £100. Tel: 0114 221 5271

QUAD ESL SPEAKERS, mint condition, serviced April '93, new treble panels, protection circuita, covers. Metal stands if required £42S ono. Tel: 01904 626 915 between 7pm-9pm (York)

NAIM SBLs BLACK, PAXOs £800. Linn LP12 Valhalla, late Ittok LVII £550. Ortofon Rohmann, just run in £750. Tannoy D500 loudspeakers, 3 months old £950. Thorens TDISO Mkll, Linn Basik Plus K9 £150. All vgc ono. Tel: Leigh 0171 774 3934 (day) 01245 283125 (evening/wweekends)

AUDIO INNOVATIONS 500: Revox turntable; Revox CD player; Revox amplifier; Revox speakers; Heybrook Quartets + stands; Audion PP valve monoblocks. Wanted: Snell Ks (Js) Offers to: Tel: 01 179 SS9 342 (Bristol)

CABLE CLEAROUT, Deltec Black Slink Goretex (1m), Deltec Slink (0.75m), Chord Flatline Gold (3m pair), Absolute Wire Force 4 (5m pair). Offers? Tel: 0151 489 1770

AURA CA-200 Remote preamp with excellent phono stage. Only 2 months old, cost new £699. Asking £399. Rotel RHC-10 passive preamp, cost new £795 asking £200, just 6 months old. Tel: 01296 437 314 (evenings, Aylesbury)

AUDIOLAB 8000A boxed as new £300. Quad II power amplifiers, Quad 22 control unit, Quad FM tuner, sell complete £550. Wanted: Stage for Gyrodec? Nalm Tuner? Tel: 01243 265 126 (Bognor)

NAIM NAC 32.5 £175, Hi-Cap £300, NAP 250 £650 classic old style threesome of good vintage. SBLs £750, NAC 5 2x7m gold plugs. Tel: 0973 737 957

NAIM-AFFORDABLE UPGRADE, 92 (MC boards) mint. Hi-Cap/140 old type excellent condition £975 ono. Genuine reason for sale. Tel: 0113 260 8656 (eves, Leeds)(No dealers)

LOWTHER ACOUSTA'S PM7(A)'s housed in dual position Acousta enclosures £500 ono. Revox tape recorder model A77, 2 track, built in output amps and speakers, microphone and tapes £350 ono. Tel: 01705 230 689

ROGERS LSIB Original centre bass unit for LS3/5a. Walnut £200. Technics EPC205C Mk3 cartridge (very low miles) and spare stylus (unused). SME fitting £65. Armstrong \$21 tuner £20. Nytech CTA252 Series 2 £75. Kef Coda 2s £65. Wanted: Elite 600 power amp. Tel: 01620 823 678 (Haddington)

DPA 50s PRE/POWER PSU Black Slink cables etc. Highly praised £950 (2500) Tel: Adam 01268 711 536 (Mon-Fri only 9am-6pm)

KEF 104.2 REFERENCE Speakers walnut In mint condition, boxed £600 ono. Thorens TD 160 c/w SME III arm plus Goldring boxed £100 ono. Buyer collects. Tel: 01736 719 023 (Penzance)

WANTED URGENTLY, SENNHEISER HD580 Jubiliee special headphones must be mint and fully boxed. Tel: Paul 01524 400 642 or 0836 327 370



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GZ32 Mullard	£15 each	ECC32 Mullard	£15 each	1UF 600V	£6 each
GZ34 Mullard	£15 each	ECC33 Mullard	£15 each	2UF 600V	£6 each
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6L6G USA	£25 each	3A/110B STC	£25 each	8UF 1500V	£30 each
6L6WGB USA	£12 each	LS7 STC	£30 each	4UF 800V	£12 each
6B4G USA	£35 each	3A/109B STC	£25 each	4UF 1000V	£12 each
L63 GEC	£12 each	5B/255M STC	£12 each	2UF 1000V	£10 each
H63 GEC	£12 each			1UF 2500V	£15 each
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A2900 GEC	£20 each			.1UF 2500V	£10 each
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CV4004 Brimar	£12 each	10H 250MA	£30 each		
M8137 Mullard	£15 each	10H 350MA	£35 each		
ECC82 Mullard	£8 each	10H 100MA	£20 each		
CV4003 Brimar	£10 each	1H 300MA	£15 each	MOSFET POWER TRANSFORME	
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ECC88 Mullard	£10 each	2.5H 220MA	£15 each	26V .5A £40 each	
EF86 Mullard	£10 each	3.5H 300MA	£15 each		
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5Z4G Brimar	£6 each				

Riverside Audio

18, Riverside, Cambridge CB5 8HL. Telephone/FAX: (01223) 512253

18, Riverside, Cambridge CB5 81Our aim at Riverside Audio is to enable the home constructor to build valve amplifies which combine superb sound quality with the professional finish of the best high-end products at a low price. Our financius and conservative designs ensure that you get long and troublifies envice from your amplifier. We offer our amplifiers in various forms, from circuit designs, through printed circuit boards, to full kits and in fully amplied amplifiers for those who cannot wait to listen to them.

The Riverside 40-40 is our integrated amplifier, it features dual mono construction and has five line level inputs and both 402 and 80, outputs. The output stage is configured in the classic Michitosh connection, which gives stable, wide-band operation even with difficult lout speaker loads. The staintus steel chassis and transformer cover are hand polished to a mirror finish, and come with a semi-matt black.

126

inuclapsaliar loads. The stainlius stell chassis and transformer cover are hand pollahed to a mirror finish, and come with a semi-mat black valve cover. 4xEL34, 4xECC83, 2xECC82. A full-description, including circuit diagram, is given in the 4040 reference menual, £8.50. Kit £780, fully casembled £995.

Technical specification: dual monoconstruction, 40.W/channel, 12Hz to 25kHz power bandwidth, distortion -0.11%, five line level inputs, tape output, 230/240V mains input.

Stereo amplifier circuit board: board only £49.50; component pack (including valve bases), add £83; populated board £125; full valve set, add £45. Power supply board: board only £20.50; component pack, add £16; populated board £83. Input board: board only £15.50; component pack, add £16; populated board £83. Input board: board only £15.50; component pack, add £16; populated board £83.

The output transforming are configured for the McIntosh connection and have excellent low frequency response and a primary reflected impedance of 3800Ω. Full connection instructions provided, Price £70. The mains transformer is wound for dual monoconstruction, as this gives superior isolation between channuls which sharpens immong and eliminates inter-channel ground loops in the amplifier. Primary 0-230-240V. Secondaries 2x285V@0.25A (0.44 Int.), 2x70V@30mA, 2x6.3V@5A. Price £80. Other primary voltages can be supplied to special order. Data sheets giving connection diagrams, specifications, as wall as circuits for using each transformer, £2.50 each.

The chassis, comprising main chassis and

was as because or asking of the chassis, comprising main chassis and transformer cover, is hand polished, welded 1/16" stainless steel - NC machine tooled for a perfect fit and cloan finiah. Each kit also includes a mesh valve cover and basepiate, finished in

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semi matt black. Price £310, Also available in mild steel finished in black, £195. For those who with to use one of these high quelity chasels for their own projects, details of the chasels are given in the 4040 relevence manual, £8.50.

Connector kit; twelve gold plated phono connectors, two sets of louispeaker terminals, an IEC mains socket with integral tuse and switch, and an IEC mains lead with fitted 13A pluc £51.50. Cable kit; all cables required for the 4040, 58.

The Riverside P2 phono presembling is dusigned to partner the Riverside 4040 for those who enjoy the vinyl sound. Equalization is provided for moving magnet output to line level. The P2 features a high accuracy feedback RIAA equalization drout, ensuring a natural tonality, a regulated high voltage supply per channel and cathode bottower outputs. 3xECC83, 1xECC81, 2xECF80. Full disatis and circuit degram in the P2 reference manual, £6.50. Kit £225, fully assembled £275.

Technical specification: 47kΩ input impedance, 14kΩ impedance output for driving long interconnects. Stereo circuit board: board only £5; component pack, add £37.50; populated board £70; full valve set £20.

The mains transformer is wound for dual mono construction and is toroidal for low leading. Primary 0-230-240V. Secondaries

valve set £20.

The mains transformer is wound for dual mono construction and is toroidal for low leave getfux. Primary 0-230-240V. Secondaries 2x295V@20mA, 2x8.3V@0.45A, 16V@1A. Price £30. Other primary voltages can be supplied to saucial order. These transformers are also suitable for power supplies in preempfliers and other line level valve circuits see data sheet for details, £2.50.

The chassis (main chassis and transformer cover) is made from mild steel. Each kit comes complete with a mesh valve cover and baseplate, finished in black. Price £110. For those who wich to use a high quality chassis for their own projects, details of the chassis are given in the P2 manual, £8.50.

Connector kit: four gold plated phono connectors, IEC mains socket with integral fuse and switch, and IEC mains lead with fitted 13 A plug, £15.

and switch, and IEC mains lead with index 15 mplug, £15.

We normally ship within three working days. If we do not have the Item in stock we will advise you of expected delivery and confirm before deepatch. P&P (in UK): £2 for each part of £40, maximum of £10; manuals free of charge. Assembled units despatched by courier free; courier sendoe on other flems £10.

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AIL WALTED SEESTILL LAP . O ∡ all for alc (ll new tyle) as FA'I.5 DEL active ⊆l ver Hi C. p LEU PECE DISE speakers, or mal care all of conduces, be mouth old. efort of r 1 con-

QUAD 606 POWER AMPLIFIER, 66 pre ampifler, 56 FM tuner and control panel £1300, Meridian 506 CD player £450. Tel: Debbie 01274 816 714

ROGERS LS4A Loudspeakers, Black. Tel: 0181 302 9063

WANTED: TANNOY 615 Floorstanding loudspeakers preferably with mass loading floor stands must be black Ash models and immaculate. Cash waiting. Tek 01256 58669

LINN LF12 with Basik plus arm, K5 cartridge £250. Casio DAT recorder with accessories £250, Revox B77 for spares £100, Philips 220 CDI £200. Tel: 0141 632 5408 (Glasgow)

AUDIO TECHNICA AT 160 ML and Technics EPC205 Mk4 cartridges wanted in good condition.
Tel: 01752 266 753 anytime

REL Q-BASS SUB BASS system, 4 months old, excellent condition £220

Tel: 0402 507 902 (mobile)

BRAND NEW AT OC9 Cambridge £200. DPA 200/5 pre power immaculate condition £700, Roksan Xerxes, black Ash, Artimiz tonearm, Shiraz cartridge, XPS Mkil PSU £1,100. Tel: Jules 01792 280 061

LINN LP12, VALHALA, Ittok, K9, black Ash, Immaculate £450. (Option on 200 rock, folk, blues LP collection) Linn LK I/ LK2 pre/power, with remote, immaculate £350. Tel: Pete 01945 772 393 (eves)

B&W P4 SPEAKERS, New, unwanted prize, still in original unopened boxes. Retail at £675. Serious offers by facsimile to 01903 816604. Successful bidder collects from Worthing area.

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Tel: 0171 499 3007 or 0171 495 0935

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ROKSAN TMS £1375 (new £2750), DSI £395 (new £695), SME V £850 (new £1391), Total £2620 (new £4836) 2 1/2 years old, 400 hours use, very fussy owner, immaculate, also Shiraz 300 hours £150, Naim HI-Cap old case £350, all original boxes. Tel: 01743 860 671 (after 6pm)

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NAIM CD3, 90.3/92 AM5; Spendor 5P3/ 1; Stands, cable, table. 6 months old £1,995. Will split, Tel: 01932 345 241

DPA RENNASANCE CD Player mint condition, boxed, manuals etc. 8 months old £700 inc p&p. REL Stadium Sub I year old, rosewood, boxed etc £550.
DPA Enlightenment DAC, 8 months old, immaculate etc £470 inc p&p. Tel: Jules 01792 280 061 (anytime)

ROGERS LS3/5 (15 ohm) £220 ono. Thorens TD 126/II (3 speed) £185 ono. Lux 309V int amp (75wpc) with matching tuner (T3004). Both in rosewood cases £200 ono. Arcam Alpha CD player with Black Box 2 £235 Tel: 0191 422 3415

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WANTED: TRIO/KENWOOD Turntable model No. KD850 or KD770 or KD990 or KD5100, also Hi-Fi year books 1958-1960-1968/69-1981. Tel: Malcolm 01837 546 83 (evenings)

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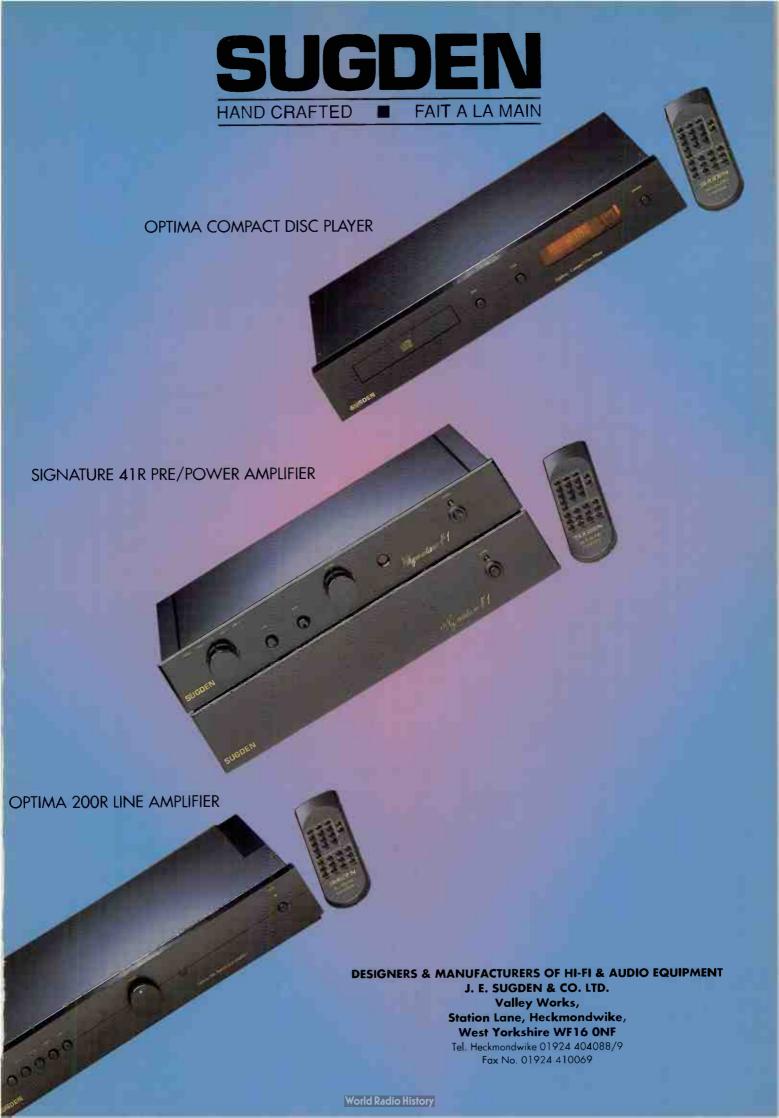
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