

Hi-Fi WORLD

NOVEMBER 1992 \$2.00

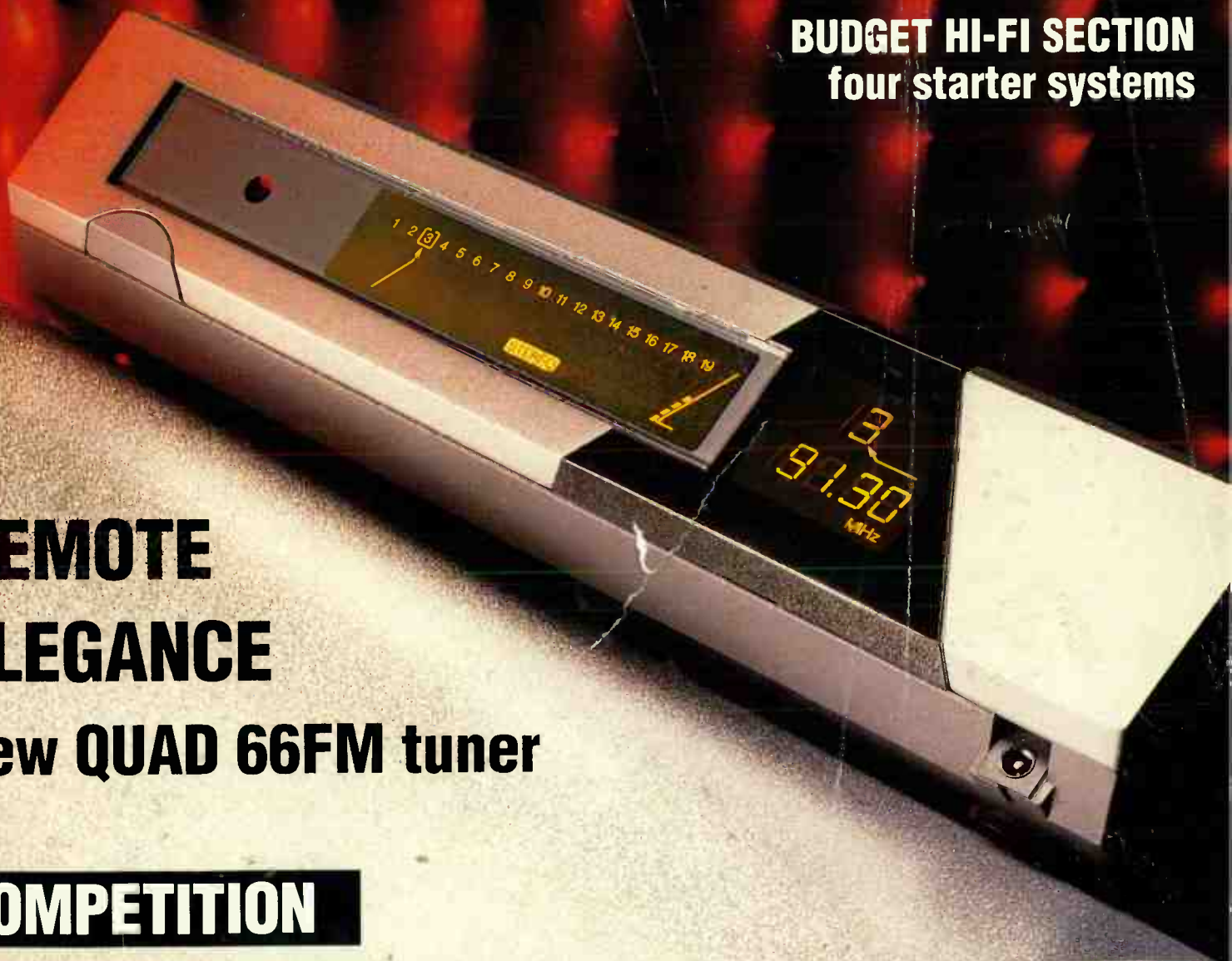
SIX CD PLAYERS
under £250

PENTA SHOW REPORT
the latest new products

HARMAN KARDON
HK 6550 amplifier

NEW TDK TAPES

BUDGET HI-FI SECTION
four starter systems



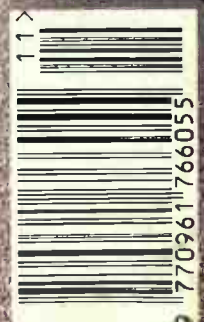
**REMOTE
ELEGANCE**

new QUAD 66FM tuner

COMPETITION

win a complete **STARTER SYSTEM**
chosen by our experts

NEW BUDGET HI-FI SECTION



WITH PHILIPS DCC, TOM CAN LISTEN TO MOZART DYNAMIC INFLECTIONS. IN OTHER WORDS IT SOUNDS

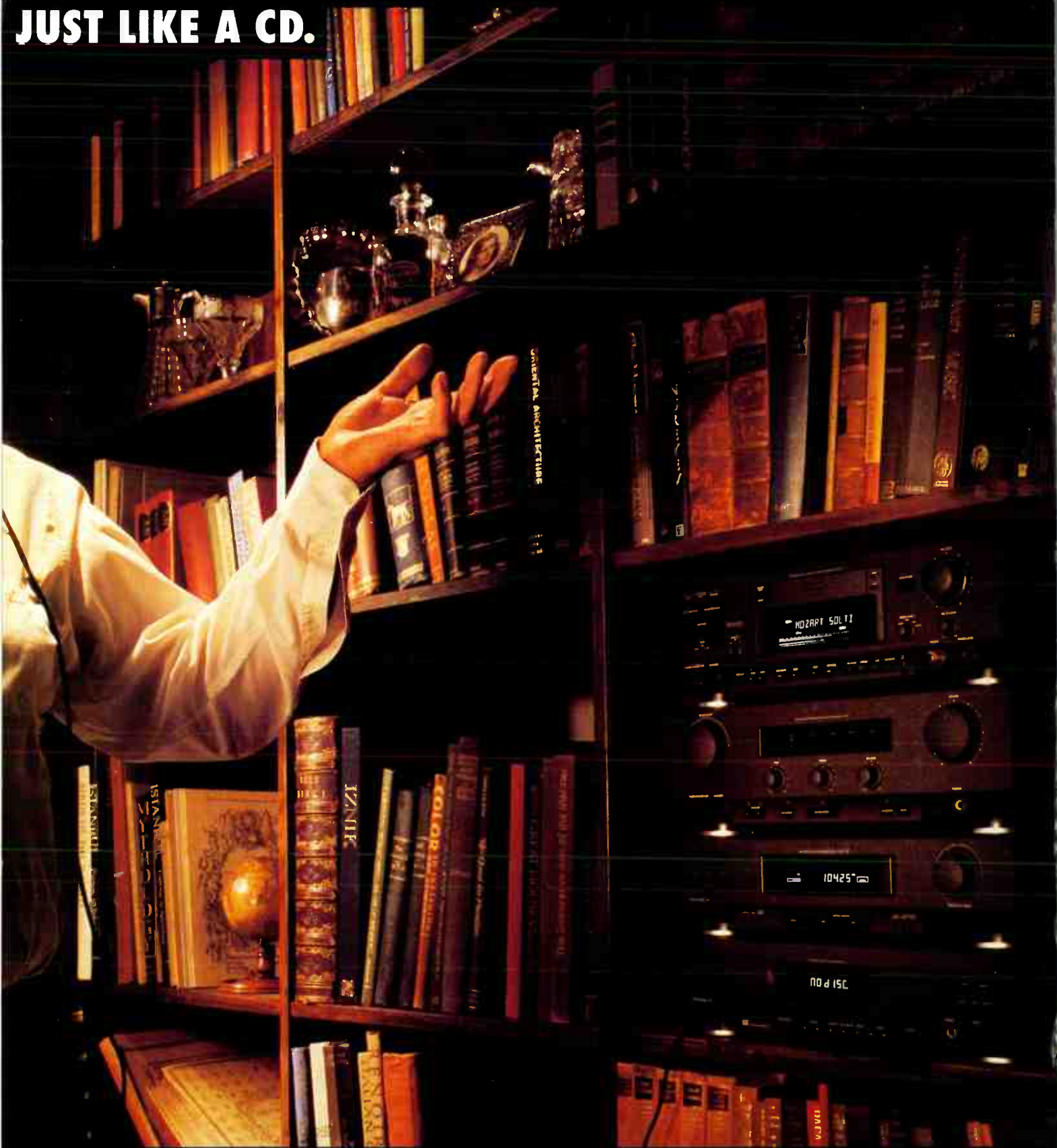


FA 930 AMP

Philips new Digital Compact Cassette player, available as part of the superb 900 Series Hi-Fi separates, will And whilst Tom is very impressed by how we've managed to accommodate the 16-bit 44.1 kHz signal of CD

PHILIPS

**ON A TAPE AND RELISH THE DETAILED YET COHESIVE
JUST LIKE A CD.**



CD 950 CD PLAYER



FT 930 TUNER



DCC 900

enable you, for the first time, to perfectly combine the digital sound quality of CD with the convenience of cassette. onto tape by means of Precision Adaptive Sub-band Coding, we think you will simply be impressed full stop.



FOR A SIMPLE EXPLANATION OF PHILIPS DCC AND WHERE TO FIND IT, DON'T ASK TOM JUST READ ON.

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Army & Navy, SW1 071-834 1234
 Atlantic Electric, NW10 081-451 0302
 Bartlett's Hi-Fi N7 071-607 2296
 Comet, Mill Hill 081-203 8558
 Covent Garden Records, WC2 071-379 7635
 Deons, W2 071-723 4630
 Desgate/Galaxy, E1* 071-247 0567
 DH Evans, W1 071-629 9470
 Dixons, Oxford Street, W1 071-408 0890
 Francis, Streatham 081-769 0466
 Horp Electronics, W1* 071-636 4611
 Horrods, Knightsbridge, SW1 071-730 1234
 Hi-Spek, N3* 081-349 1166
 Hi-Way Hi-Fi, W2* 071-262 9267
 House of Fraser, W8 071-937 5432
 Hyper-Fi, Barking 081-591 6961
 John Lewis, Brent Cross, NW4 081-202 6535
 John Lewis, Kingston upon Thames 081-547 3000
 John Lewis, W1 071-629 7711
 Mossey, Chiswick 081-994 1317
 Peter Jones, SW1 071-730 3434
 Selfridges, Oxford Street, W1 071-629 1234
 Studio 99, NW6 071-624 8855
 Tempo, Kingston* 081-547 0404
 Woolfmans, Ilford* 081-553 2587

South East

Adams & Jorrett, St. Leonards on Sea 0424 437165
 Audio T, Enfield* 081-367 3132
 Bonds, Norwich 0603 660021
 Brittain & Hobbs, Sheerness* 0795 665 551
 Chew & Osborn, Epping* 0992 574242
 Comet, Guildford 0483 32625
 Dixons, Kingston 081-546 3611
 Heelas, Reading 0734 575955
 Invicta Co-op, Dartford 0322 223444
 Jenners, Tenterden 0580 63230
 Ricemans, Canterbury 0227 766866
 Sevenoaks Hi-Fi, Sevenoaks* 0732 459556
 Smythe & Barrie, Eastbourne 0323 29192
 Stondens, Tonbridge 0732 353540
 Trewins, Watford 0923 244266
 Vernon Collard, Rayleigh 0258 772237
 VJ Hi-Fi, Folkestone 0303 56860

East Anglia

Hughes TV/Audio, Lowestoft* 0502 585 611
 Levett & Word, Colchester 0206 210 844
 McCullough, Cambridge 0223 426766
 Robert Sayle, Cambridge 0223 61292
 Rose & Wright, Bury St. Edmunds 0284 768 586
 R.C. Snelling Ltd, Norwich 0603 712 202
 Tavistock Hi-Fi, Bedford 0234 356323
 Wheelers, Kings Lynn* 0553 774 037

South

B&B Hi-Fi, High Wycombe* 0494 535910
 Bryants Hi-Fi, Aldershot 0252 20728
 Burden Electronics, Swindon 0793 490613
 Churcher Audio Video, Worthing 0903 230558
 Vic Climo, Maidenhead 0628 21765
 Cosmic, Weybridge 0932 854 522
 Hemmings, Farnborough* 0252 520 472
 Hickmans, Swindon 0793 537 971
 Hi-Fi City, Watford 0923 226169
 John Lewis, High Wycombe 0494 42666
 John Lewis, Milton Keynes 0908 679171
 John Lewis, Welwyn Garden City 0707 323456
 C.F. Lake, Slough* 0753 538287
 Mid-Sussex Electronics, Burgess Hill 0444 242 336

Power People, Bicester 0869 320280
 P. Shee Television, Farnborough* 0483 503606
 Sinclair Youngs, Basingstoke 0252 28623
 Suttans, Salisbury 0722 327171
 Tru-Fi, Redhill 0737 766 128
 Tyrrell & Green, Southampton 0703 227711

Wales and West

M.A. Buzzard, Bonbury 0295 250 036
 Covendish House, Cheltenham 0242 521300
 Comet, Bristol 0272 591445
 Dixons, Cardiff 0222 228611
 Hinchly & Lloyd, Cardiff 0222 621561
 Horns of Oxford, Oxford 0865 511 241
 Hutchinsons TV, Cheltenham 0242 573 012
 John Lewis, Bristol 0272 279100
 F.H. Moss, Bath 0225 465 085
 Oxford & Swindon Co-op, Abingdon 0235 53366
 Radford Hi-Fi, Bristol* 0272 240 878
 Radiocraft Sonus, Cardiff 0222 231 166
 Paul Roberts Hi-Fi, Weston-Super-More* 0934 621 204
 T.E. Roberts, Wrexham 0978 364 404

South West

Central Radio Services, Burnham on Sea 0278 782 112
 Chelston Hi-Fi, Chelston 0803 606 863
 Dorchester Hi-Fi, Dorchester 0305 264 977
 ETS, Helston* 0326 573 801
 Ford & Sons Electrical, Sidmouth 0395 512 501
 Hi-Fi Attic, Plymouth 0752 669511
 James TV, Barnstaple 0271 43731
 Mike Manning Audio, Yeovil 0935 79361
 Plymouth Co-op, Plymouth 0752 662800
 Upton Electronics, Poignton 0803 551 329

Midlands

James Beattie, Wolverhampton 0902 22311
 Derann Audio Visual, Dudley 0384 233191
 Hereford Hi-Fi & TV, Hereford 0432 268922
 John Lewis, Peterborough 0733 44644
 McCarneys TV & Video, Shrewsbury 0743 368972
 Noom Hi-Fi Vision, Birmingham* 021-633 4944
 Queens Park Radio, Birmingham 021-427 4008
 Universal Electronics, Wolverhampton 0902 23741
 Walls TV & Video, Leomington Spa 0926 883883
 Webb Brothers, Cannock 0543 570787

East Midlands

Comet, Leicester 0533 630688
 HN&L Fisher, Nottingham 0623 553 436
 Forum Hi-Fi, Nottingham 0602 622 150
 Jessops, Nottingham 0602 418282
 A.G. Kemble, Leicester 0533 881 557
 Logic Electrical, Heonor 0773 769 680
 Monton Electric, Derby 0332 48369
 Moys Hi-Fi, Leicester 0533 625 625
 Nottingham Sound & Vision, Notts. 0602 264 711
 Raiby TV, Leicester 0533 394544
 D. Robinson, Buxton 0298 85424
 F.L. Smith Electrical, Chesterfield 0246 823 167
 Sykes Video Links, Lincoln 0522 542 325
 J.H. Wand, Bourne 0788 421 250
 Stuart Westmoreland, Melton Mowbray* 0664 63366

North West

Armstrong Smith Hi-Fi, Wallosey 051-639 9257
 S. Bokewell, Penrith 0768 62187
 Beaver Radio, Liverpool 051-709 9898
 Brooks Music Centre, Whitehaven 0946 692 116
 Cleartone Hi-Fi & Video, Bolton* 0204 31423
 Comet, Liverpool 051-228 8032
 Martin Doves, Warrington* 0295 30521

D&T, Monchester 061-445 2694
 Kenneth Gordner, Lancaster* 0524 64328
 George Henry Lee, Liverpool 051-709 7070
 Goodrights, Preston 0772 57528
 Hi-Fi Centre, Borrow in Furness 0229 838757
 Island CD, Ramsey, Isle of Man 0624 815 521
 John Littler, Warrington 0925 812 963
 Misons Sound & Vision, Carlisle 0228 22 620
 Morris & Pinch Ltd, Eastham 051-327 4170
 New Down Hi-Fi, Chester 0244 324179
 Partingtons, Isle of Man 0624 676 767
 E.A. Stevenson Video, Liverpool 051-420 8054
 Tomorrow's Studio, Warrington* 0925 601354
 Peter Tyson, Carlisle 0228 25891
 Wallons TV Monx, Isle of Man 0624 675 310
 Yeoman & Russell, Altrincham* 061-941 3131

North East

Action Acoustics, Redcar 0642 480723
 Amrik Electronics, Bradford* 0274 722530
 Bainbridge, Newcastle Upon Tyne 091-232500
 Chesterfield Co-op, Chesterfield 0246 220200
 Cole Brothers, Sheffield 0742 768511
 Comet, Sheffield 0742 617747
 DeCobain Sound & Vision, Goole 0405 720 001
 Dixons, Gateshead 091-493 2003
 Jones, Leeds 0532 400666
 G.F. Manders, Grimsby 0472 351391
 Lintone Audio, Gateshead 091-477 4167
 Miller Brothers, Doncaster* 0302 321 333
 Scarborough Hi-Fi, Scarborough 0723 374 547
 F.L. Smith, Chesterfield 0246 823 167
 Thompson Bros., South Shields 091-456 2551
 J.G. Windows, Newcastle 091-232 1356

Scotland

J.D. Brown, Dundee 0382 26591
 W.M. Coupar, Blairgowrie 0250 872436
 F.B. Croig, Hamilton 0698 882 029
 Dixons, Glasgow 041-221 8828
 Carl Dyson, Edinburgh 031-554 0355
 Hi-Fi Corner, Edinburgh* 031-220 1535
 Bill Hutchinson Hi-Fi, Glasgow* 041-248 2857
 John Lewis, Aberdeen 0224 625000
 John Lewis, Edinburgh 031-556 9121
 Laser Audio, Kilmarnock 0563 40292
 A. McKenzie, Stranraer 0776 2818
 John McLochlan TV, Paisley 041-889 3026
 Bruce Millers, Aberdeen 0224 592 211
 Music Room, Glasgow* 041-332 5012
 Robert Ritchie Hi-Fi, Monrose 0674 73765
 Robert Smith, Glasgow 041-248 5242
 Robert Whyte Photographics, Glasgow 041-334 3238

Northern Ireland

Audio Times, Belfast* 0232 238 495
 C.S. Supplies, Belfast 0232 241181
 Dixons, Belfast 0232 439266
 Lisnaree, Dromore 0762 881028
 Nicholl Bros. Rodio, Ballymena 0266 49616

Channel Islands

Farluna, Jersey 0534 32549
 Teleskill, Guernsey 0481 56508

And at all Currys Superstores.

*These dealers have more than one branch at which DCC and 900 Series may be stocked. Please telephone the given number for a dealer near you. **Or call the DCC Information Line on 0800 212 643.**

Contrary to the way Tom may explain it, DCC is not only simple but simply brilliant.

There will be 500 titles available at launch encompassing all music tastes from light opera to heavy metal. But the real beauty of Philips DCC is that it's totally backward compatible, which means that not only can you play those new DCC tapes on the machine but also your old tape collection as well.

And because the 900 Series FA930 amplifier has digital circuitry, Tom can record a selection from his Mozart CDs onto DCC

with no loss of sound quality.

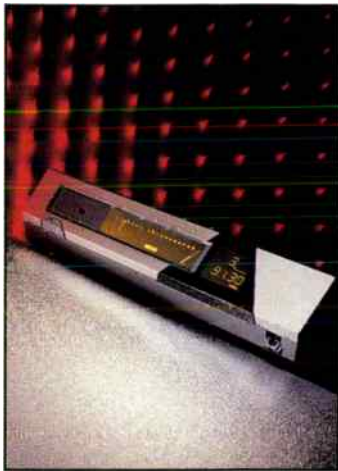
Also in the 900 Series is the FT930 digital tuner, equipped with Radio Data System (RDS) for easy station identification and storage, whilst the CD 950 Compact Disc player has DAC 7 Differential Bitstream conversion for absolute clarity of sound.

The system is available from £649.99 (R.S.P.) and is also available as separates from £149.99 (R.S.P.).

For more information on DCC and the rest of the 900 Series see your local Philips dealer. What could be simpler?

PHILIPS





Cover Photograph by
Paul Hartley Studios 071-482 3768

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MORE FOR THIS MONTH'S FEATURES, SEE PAGE 7  

The new Naim CDI

Getting things right the first time is a tradition at Naim Audio.

Which is why our first CD player, the CDS, has received such world-wide acclaim.

We are now delighted to introduce a second model, the Naim CDI (shown here).

The Naim CDI incorporates all of the technological innovation and expertise gained from the development of the CDS. Designed to be the best in its class and devoid of gimmicks, here is an affordable player capable of providing true musical enjoyment.

Our efforts are bearing fruit.

It's a Peach



Naim Audio, Southampton Road,
Salisbury SP1 2LN, England.
Telephone: (0722) 332266

Now you know what's in a Naim.

 naim audio

Features

NEW! BUDGET COMPONENTS GUIDE

Hi-fi on a shoestring! Cheap-an'-cheerful! Our new section puts quality first but high prices last. Avoid the squeeze with our new regular budget section.

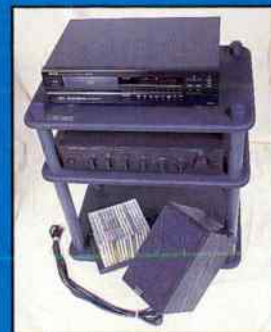
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Hi-Fi World endeavours to produce the majority of reviews in-house, using our own lab facilities and listening rooms.

When NAD announce a new amplifier and CD player, it's time to take note.

Not one, but two new products from NAD at the same time is indeed a rare occurrence.

By our own admission it doesn't happen very often.

Our last amplifier delighted the reviewers for ten years during which time more music lovers bought it than any other.

We hold the quaint old notion that solid engineering values don't fundamentally change with fashion and a few new visual features don't make better sound.

So when NAD introduce a new amplifier and CD player, there's more behind it than meets the eye.

They represent radical improvements in audio design to heighten your listening pleasure even more.

The new 502 CD player encompasses all the latest advances made in CD technology since its conception. One-bit MASH digital-to-analogue converter restores the warmth to the music sometimes lacking in other, much more expensive players.

It's also very easy to use. Improved operational logic/ergonomics and full function remote control with direct track access means your favourite music is at your fingertips.

As for the new 302 amplifier, we feel that it would be better to pop down to your local hi-fi dealer and listen for yourself. One piece of music will say a thousand words.

The competition will undoubtedly be taking note.



THE NEW 302 AMPLIFIER AND 502 CD PLAYER FROM NAD

NAD

BRITISH BY DESIGN

NAD MARKETING LTD. ADASTRA HOUSE, 401-405 NETHER STREET, LONDON N3 1QG. TELEPHONE 081-343 3240

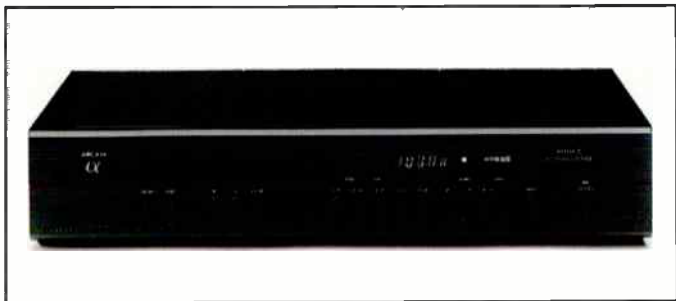
World Radio History

ARCAM ALPHA 3 - DIGITAL TUNER

Arcam announce an all-new partner for the successful Alpha 3 amplifier, the Alpha 3 digital FM tuner. "Sound quality was the main goal, rather than excessive bells and whistles," says John Dawson, Arcam's Managing Director. Sixteen preset stations are available at the touch of a couple of buttons, with tuning either manually in 50kHz steps or via 'auto tune' which scans the FM band and stops at usable stations. Designed to match the rest of the Alpha range, the Alpha 3 tuner costs £199.90.

Our spies have been busy again; a brief listen of the Alpha 3 tuner was sneaked at a London dealers. It was felt to be a dramatic improvement over the earlier tuner, bettering a number of lower price models.

A & R Cambridge Ltd., Pembroke Avenue, Denny Industrial Centre, Waterbeach, Cambridge CB5 9PB. Tel: (0223) 440964.



Hi-Fi World brings you all the latest news from the hi-fi industry

TECHNICS NEW RANGE

Technics have announced a range of new products to see them into the new year. Refining their 'Class AA' circuitry, Technics now offer MOSFET devices in their latest SU-VX820 and SU-VX920 amplifiers. The MOSFET is used as it gives improved linearity against conventional solid-state devices. Technics consider that the MOSFET's poor power delivery and high input capacitance make it unsuitable for driving loudspeakers directly, so conventional bipolar transistors are used in this section.



IMMINENT DCC FROM MARANTZ

First shipments of Marantz's 18-bit DAC-7 equipped Digital Compact Cassette player should arrive in the UK this month. The DD-82, a full-sized machine, is priced at £599.90. Soon to be launched is a 'super' version with a gold finish, cast side panels for extra rigidity, a copper-plated chassis to reduce magnetic interference effects and customised components in the analogue stages. Price will be £649.90.

Other new products are the Mk II CD-42 and CD-52 Compact Disc players, with improved components and power supplies, which will retail at £169.90 and £199.90 respectively, and an 'SE' version of the CD-72 with copper-plated chassis, customised components and an OFC mains lead, retailing for £499.90. Added to the 'Special Edition' models will be two amplifiers, the £599.90 PM-80 SE with 100w power and the 70w PM-52SE at £399.90. On offer for video addicts is a Dolby Pro-logic equipped multi-channel amplifier for £399.90, the PM-700AV. A new tuner, with RDS, is the ST-72L priced at £249.90.

Marantz are even joining the increasing ranks of loudspeaker manufacturers again, with two new models. At £199.90 a pair, the two-way reflex DS-110 uses a titanium dome tweeter and paper cone bass-mid range unit. Costing just £100 more is the DS-220, with a 7in woofer instead of a 5 1/4in one in a larger cabinet.

Marantz Hi-Fi UK Ltd., Knightsbridge House, Padbury Oaks, 575-583 Bath Road, Longford, Middlesex UB7 0EH. Tel: (0753) 680868.



BASSMASTER

Morel, makers of audiophile drive units for other people's cabinets since 1975, have now produced their own loudspeaker. The Bassmaster 602 is the first of a new generation of speakers from the company, using their own drive units and a unique double-chamber bass system. By having separate custom-tuned enclosures for both cone areas (one for inside and one for outside the voice-coil) Morel claim extended bass down to 16Hz using a 6 1/2 inch woofer in a compact 14 litre cabinet. Two 1 1/8 inch treated fabric dome tweeters are used in this mirror-image design for improved dynamic performance. They have separate crossover frequencies to avoid interference. Power handling is 250 watts. Instead of a grille, the drivers are protected by horizontal bars, in black, solid stainless steel or 18-carat gold-plate. Finished in Natural Oak or Black Ash veneer with solid wood edges, the Bassmaster 602 will be priced between £1250 and £1350, depending on finish.

Morel (U.K.), 11 Foxtail Road, Nacton Road (Ransomes) Industrial Estate, Ipswich IP3 9RT. Tel: (0473) 719212.



AUDAX KITS

French component loudspeaker manufacturer, Audax, are introducing a series of five complete loudspeaker kits, through their distributor, Harman Audio. The range starts with the £199 ADX40, said to be the first satellite/sub-woofer system available in kit form. Sporting magnetically shielded speaker components in the two-way satellites, the 87dB-efficient ADX40 can be used in audio-visual applications, with the dual voice coil subwoofer hidden from view.

The four remaining loudspeakers in the PRO range begin with the £249 PRO 21 two-way. Next in line is the £349 PRO 120, which sports a TPX woofer, combined with a 34mm dome mid-range and a 14mm super-tweeter. The identically priced PRO 218 uses two 6 1/2 inch mid-bass units in tandem, with a 25mm titanium dome tweeter. Finally, the PRO 317 also uses a 25mm titanium dome tweeter, this time with a TPX mid-range and two 6

1/2 inch Bextrene bass drivers. The PRO 317 costs £449.

For more details, contact Harman Audio, Mill Street, Slough, Berks, SL2 5DD. Tel (0753) 576911.

PRO-JECT PRICE CUT

Prices of the Austrian Pro-Ject turntables imported by Kronos Distribution have been reduced. The Pro-Ject 1, originally £175, is down to £149 and the Pro-Ject 2 is cut from £245 to £199. A new Pro-Ject cartridge is now available at £60; customers who bought a turntable at the old price will be offered the cartridge for £30 with proof of purchase. A new suspended-chassis turntable, the Pro-Ject 6, was launched at the Penta Show. Turntables now also come with a lifetime guarantee.

Kronos have also added Leidespeler and interconnect cables from Holland to their range. Solid silver stranded, the Cadens retails at £125 per metre, with a less expensive version for the UK market, the Adcante, retails at £50 a metre. An interconnect, Le Chanson,

is £199 for a metre pair terminated with WBT plugs.

Details from Kronos Distribution, 35 Farlough Road, Newmills, Dungannon, N. Ireland BT71 4DU. Tel: (08687) 48632.

WPS INTEGRATED AMP

We have now had a sight of the Waytronics Power Systems low-cost integrated amplifier, the WPS IA1, mentioned in last month's Tradewinds. With five inputs, pluggable/bi-passable cartridge circuitry and an output of 50watts, it is also biwirable. Production began in August on the same production line Waytronics use for manufacturing military power supplies. Price will be £350.

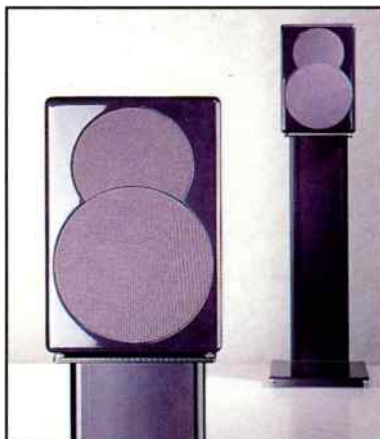
Waytronics Power Systems, Godinton Way Industrial Estate, Ashford, Kent. TN23 1JB. Tel: (0233) 642227/642976.



JUBILEE CARTRIDGE FROM DECCA LONDON

A new Decca cartridge "defying digital domination" is launched to celebrate the 25th anniversary of the first Decca London model of 1967. At £999, the Decca London Jubilee is claimed to be the "ultimate" Decca, built into an anodised gold computer-machined two-part aluminium body. Designed and developed by John Wright, who was an engineer with Decca for twenty years, and whose company now owns the license to manufacture the Decca cartridge designs, the London Jubilee uses a British-made line-contact stylus for the first time. Output is 5mV and the cartridge will track at between 1.6 and 2.2g depending on the arm.

Contact: Presence Audio, Woodside, Spronketts Lane, Bolney, Haywards Heath, W. Sussex RH17 5SA. Tel: (044485) 611.



FIGARO

Keswick Audio Research, who despite the name hail not from the Lakes but Wakefield, announce a miniature reflex two-way loudspeaker called the Figaro. The cabinet is constructed of 25mm material with a special laminated bonding to reduce tonal coloration. Available in Mahogany, Walnut, Piano Black and Marblite-coated Medite finishes, the Figaro will retail for £695.

Contact Kar (Keswick Audio Research), 54 Coach Road, Outwood, Wakefield, W. Yorks. WF1 3EX. Tel: (0924) 870606.

BEYER'S NEW TWO-CANS

Beyer Dynamic, whose DT 211 headphones greatly impressed the Hi-Fi World team recently, have launched two new models to supplement the range. The £79.99 DT 511 is a circumaural open design with large diaphragms and replaceable velvet ear cushions.

The second headphone to appear is the DT 211 TV, retailing at £29.99. As the name suggests, the 211 TV is designed for use with television and features a stereo/mono switch and independent left and right volume controls. The DT 211 TV so impressed those at the summer Consumer Electronics Show in Chicago this year, that they were awarded one of the coveted Design and Engineering Awards.

Beyedynamic (GB) Ltd., Unit 14, Cliff Industrial Estate, Lewes, Sussex BN8 6JL. Tel: (0273) 471825



SHOW

Now in its tenth year, the Paul Roberts Hi-Fi and Video Show will be at the Royal Hotel on the seafront at Weston-super-Mare on Saturday and Sunday 28th and 29th November. Among various special offers will be the opportunity to win a CD player in a free draw. Opening hours are 10am to 7pm.

Details from: Paul Roberts Hi-Fi branches at Bristol (429370), Weston-super-Mare (414423) or Taunton (270000).

BUZZ FROM THE MUSIC BIZ

INTERNATIONAL CLASSICAL MUSIC AWARDS

Kenwood are sponsoring the International Classical Music Awards from 1993 - the first awards ceremony will take place on 8 January at Birmingham's Symphony Hall and will be transmitted on BBC2 the following Sunday. Judges for eighteen of the nineteen categories - ranging from Singer of the Year to Best Radio Concert of the Year, and taking in Recording of the Year and Composition of the Year on the way - will include Andreas Whittam-Smith, Editor of The Independent, Christopher Raeburn, the Record Producer, Gotz Friedrich of the Berlin Opera and John Rockwell of the New York Times. Members of the public will have the opportunity to vote for the Personality of the Year award through The Independent and the new BBC Music Magazine. Symphony Hall will host the Awards in 1994, with the following years probably in Berlin, Tokyo, Rome and Chicago.

CLASSICAL DOLBY S

From this October, all new classical audio cassettes from BMG will have Dolby S noise reduction. Labels to look out for if you have a Dolby S-equipped machine are RCA Victor, RCA Victor Red Seal, RCA Victor Gold Seal (mid-price), RCA Victor Silver Seal (budget price) and Deutsche Harmonia Mundi. The first autumn titles - Henry Mancini's Top Hat, James Galway at the Movies and Jerry Hadley's Tenor on Broadway - will be followed by Placido Domingo's Greatest Hits, Sir Colin Davis conducting Verdi's Requiem and Rubinstein's last recital among others. New York boss of RCA Victor/BMG Classics says "Everyone wins with Dolby S. Dolby S cassettes not only rival CDs on the new Dolby S cassette decks, but also sound great on regular players and cost no more than regular cassettes."

MORE BITS FROM SONY

After our mention in September's Music Pages of Sony Classical's new 20-bit Classical recordings and review of the first off the production line, news comes from New York of other recent sessions. Isaac Stern, Yo Yo Ma, Emanuel Ax and Jaime Laredo have

recorded works by Brahms; Lorin Maazel and the Pittsburgh Symphony have laid down some Sibelius, the Juillard Quartet have various works by Ravel now on tape and The Metropolitan Opera have been recording Verdi's Don Carlos. All use Sony Classical's 20-bit recording chain.

SUPPORTING SALISBURY'S SPIRE

The two-hour Compact Disc version of the Prince of Wales's 'Symphony for the Spire' concert in aid of the appeal for Salisbury Cathedral has been released by Koch International Classics. Tracks include two arias from Placido Domingo, Strauss songs from Jessye Norman, cellist Ofra Haroy playing Popper's 'Hungarian Rhapsody' and Rimsky-Korsakov's 'Flight of the Bumblebee' and performances by Phil Collins and Peter Donahoe which weren't in the TV broadcast. Phil Collins sings 'Another Day in Paradise' and Donahoe performs Gershwin's Rhapsody in Blue in the original Paul Whiteman Band arrangement.

Audiophiles are promised 'La Rejouissance' from Handel's Music for the Royal Fireworks, with the augmented 87-strong English Chamber Orchestra even more augmented with two tons of fireworks! All royalties go towards the upkeep of the Cathedral. The double disc, with 56-page souvenir booklet, costs £24.95 from record retailers; on cassette, without the booklet, which can be obtained separately for £1, price is £14.95.

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So why should you believe us? After all, we could be accused of bias. Throughout the world, fair but discriminating critics have been universal in their praise for DPA products. Take for example a recent review in Australia's High-End magazine Stereo Buyers Guide where the PDM2, in a group test of 27 DAC's, was quoted "...you get a sound that can't be matched by any other. Only for those that demand the very best." Hi-Fi Choice Dec '91 also states that "..."(the PDM2) goes on to redefine many areas of CD sound quality."



However, rave reviews are not just the exclusive domain of DPA's PDM2. Hi-Fi World, on the PDM1 S3 said "Any enthusiast who wants the best from CD at a reasonable price should consider (the PDM1)." What Hi-Fi, Nov '91 said "...the Bigger Bit is set to destroy all its competition." Our amplifiers are equally well respected with Hi-Fi Choice saying of the 50S pre-power "...unmatched detail resolution, control and transparency."

Why should you believe the Hi-Fi critics? After all, it's your money and your Hi-Fi. Visit one of our dealers and ask for a demonstration of DPA products. If you value music and not distortion we think you will agree with DPA - simply the best.

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IN BRIEF

NORTHERN IRELAND SOUND AND VISION EXHIBITION

Organised by Hi-Fi specialists Zeus Audio and LRG (Sound and Vision) of Northern Ireland, this year's show will take place at the Stormont Hotel from 23rd to 25th October.



A PREMATURE MERRY CHRISTMAS FROM SCOTCH

Being packed full of early Yuletide joy, Scotch are offering a free Chrome XSII 90 minute blank cassette, worth £1.35, with every promotional twin pack of E180 and E240 video tape. Although at least a bottle of Teachers might have been expected from a company called 'Scotch', at least this will give the home taper something to do while the children fight over the video recorder on Boxing Day.

FOUNDATION

Ortofon UK have become sole agents for the range of Foundation Audio loudspeaker supports.

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



MONSTER MOVES

Gamepath have announced that they have taken over the UK distribution of Monster Cable, from Haman UK. This does not interfere with sales and distribution of Rotel's own Supra cables.

Gamepath Ltd. 25 Heathfield, Stacey Bushes, Milton Keynes, MK12 6HR. Tel: (0908) 317707, Fax: (0908) 322704

TV WITH CORNFLAKES

The Cornflake Shop in London has added a separate Audio-Visual room to its refurbished main listening rooms, where clients can see and hear Laserdisc, Dolby Surround and NICAM stereo.

The Cornflake Shop, 37 Windmill Street, W1P 1HH. (071) 631 0472.



REL FACTORY RELOCATION

REL Acoustics' factory has moved to Unit 2, New Street, Bridgend Industrial Estate, Bridgend, Mid Glamorgan, CF31 3UD. Tel: (0656) 768 777, Fax: (0656) 766 093.

PATH PLUS

Path Group have recently announced that they will take over distribution of Heco Loudspeakers in the UK. The new division, called Path HiFi, will cover sales and distribution of Heco, Luxman and Alphason New Concept furniture, as well as Path's range of accessories to specialist dealers.

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

IN HI-FI IN STOCKBRIDGE

In Hi-Fi have moved to new premises at Galloway House, 8-10 Bakers Place, Stockbridge, Edinburgh EH3 6SY. Tel: (031) 225 8854.



SENNHEISER KEEP OUR PRICE LISTENING.

Eagle-eyed readers may have spotted 'listening posts' in some of the larger Our Price Music stores up and down the land. A return to the days of the record booth, today's post is more open plan, playing a CD of recommended releases and giving the listener the ability to skip through tracks.

These listening posts would pass us by without notice, save for the fact that they use Sennheiser HD 450 headphones. There will also be a supply of HD 450s in the shops, for those that become addicted to headphone listening.

PENGUIN JAZZ

Joining the respected Penguin Guide to Classical CDs is one for the Jazz collector. Edited by Richard Cook - ex-editor of Wire - and Brian Morton - Jazz critic of The Sunday Times - with 5,000 entries it's no doubt going to become an indispensable reference book. The Penguin Guide to Jazz on CD, LP and Cassette, £15.99.

Hi-Fi that speaks for itself:



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World Radio History

All The Sixes!

Quad 66FM

Quad's latest tuner completes a fully remote-controlled system.

Eric Braithwaite sits back to find everything under control.



Anyone who holds their breath while waiting for a new product from Quad is liable to end up pretty purple in the face and in need of oxygen. This old-established company - in hi-fi terms anyway - has never been one to flirt with annual vagaries of fashion or succumb to the lure of the novel just for novelty's sake. New designs tend only to emerge from the Huntingdon headquarters once a decade on average. We've just begun a new decade - and, inevitably, Quad have brought out a series of products for it including this new, fully remote-controlled tuner.

That's not to say Quad do not have a long and respectable history of innovation. People with any interest in hi-fi who don't know about the original Quad electrostatic loudspeaker - a real landmark in speaker design in the late Fifties - must be few and far between. The Quad II valve power amplifier of the Fifties is still going strong as the basis for rebuilds; the transistor replacement, the 303 power amplifier, seduced an awful lot of hearts and minds in the Sixties; the 'current-dumping' 405 power amplifier was another landmark design and the ESL-63 which finally replaced the original electrostatic in the Eighties rapidly acquired classic status.

For the Nineties, Quad have not exactly launched a new series of hi-fi

separates that will create shock-waves in the way the ESL-63 did. Yet the new 66FM tuner - and its partners - is a novel departure. Its fascia is entirely devoid of any controls apart from its single semi-circular on/off switch. Like its partnering equipment, it's fully - and only - remote-controllable.

But what a remote control! Ergonomically, this has to be one of the best designs around, as well as being distinctively stylish and effective. It's particularly remarkable because it doesn't even have to be pointed at the tuner, the amplifier or the CD player to set things working - hide it behind your back, leave it aimed at a corner of the settee, no problem - things click and whirr smoothly into action. After a merry dance around the room it had to be pointed out of an open window before it could be persuaded not to transmit its commands by whatever devious route it could find.

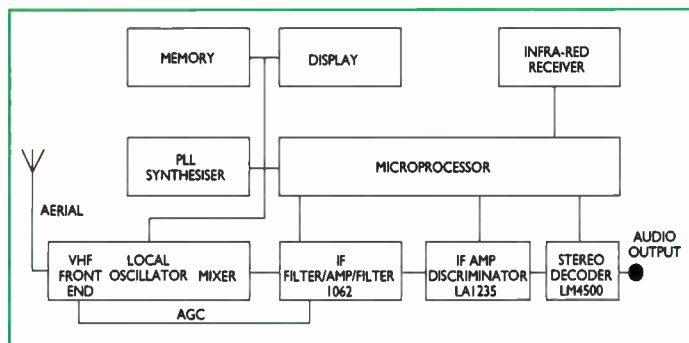
This remote is something of a little masterpiece all on its own, emblematic of some serious thought about functionalism which Quad have put into the whole of the

'6' series. If the battery dies, for example, an owner will not be bereft of sound: a lead coiled in the battery compartment will power it from a socket on either the pre-amplifier or the tuner. This is the kind of sensible forethought which marks Quad's newest products: a commonsense approach which adopts the convenience factors inherent in the fast-developing 'lifestyle' market, without depending on gimmicks or gizmos and keeping a firmly focussed eye on serious hi-fi sound as well.

Like its relatively recent stablemate, the FM4, the 66FM offers just what is necessary for effective reception - and nothing more. The orange fluorescent display

contains a diagonal line which lights up in segments and which proved extremely effective. None of the all-too-common Oriental trick here of fitting a display that shows maximum all the time - even with an inappropriately weak signal; if the Quad display reaches the top, then the signal is

offering a bottle of champagne to the first to come up with the correct answer. All I know is it's better than the measly seven on offer from the FM4 which led to the joke that that was probably six more than many Quad customers needed because they only listened to Radio 3 anyway. That



Quad 66FM block diagram showing signal chain along bottom.

was a slur, I think. All the same, even in London I had to programme a few sub-standard pirates to hit nineteen, so even with the FM band filling up the number should suffice for most people.

of good detailing, something which is often praised in rival tuners because a slight tonal upturn in the treble, say, will bring some of this detail out. As an example, the sounds of an announcer's intake of breath or a slight smacking of the lips on both the 66FM and FM4 were exactly of the volume they would have been had he been sitting between the speakers. The hum of air-conditioning or the buzz of a fluorescent light can be heard well in the background - where it's supposed to be.

A Serious Tuner

As it should be with a serious tuner, little things like different microphones, the distance someone turns away, the soft footsteps of someone sneaking out of the continuity studio, all become noticed in passing without making separate bids for the listener's attention.

too strong, just as the handbook tells you.

The rest is equally simple and easy on the brain cells: nineteen presets, programmed via the CD control buttons on the remote, a frequency display and a reminder of which preset number you've switched to. Tuning is digital, controlled by the Search functions on the same remote.

That's it! I spent barely ten minutes reading the manual, to sort out the dual-function commands on the remote and fill the memory with all nineteen stations. Why nineteen? I don't know. Quad are

to keep the memory occupied suggested that the 66FM is a little less sensitive than the FM4: one or two distant stations in the South-East were noisier and it failed to pick up France Musique altogether, though admittedly even on the FM4 with my aerial it seldom comes in with more than AM quality.

Quad's 66FM has all the hallmarks of the FM4: an extremely smooth, clear sound free of the graininess or tonal inequalities that afflict so many other tuners. The two share the same qualities

Scouting for enough stations

Much the same is true of instrumental colour and breadth. Listening to Proms concerts - always something one has to be a little wary of since the Albert Hall has its own signature - it was striking how the 66FM maintained a full spread of sound. The orchestra flowed from the speakers; the audience's applause had no gaps. The same was true of an organ recital: I was listening to another tuner as well, and while it and the Quad were tonally almost equally accurate, in the other there was a sense of the organ pipes being too distinct from each other, as though they were

MEASURED PERFORMANCE

These days Quad rate ease of use and pride of ownership higher than all-out performance, yet at the same time, being Quad, performance has to reach a standard both adequate for the task and broadly comparable with that set by the opposition.

I didn't expect the 66 to offer a measured performance better than the norm and in fact there's not so much that can be improved upon these days, many VHF/FM tuner parameters having reached a practical limit. The 66 hit many of them, if not all. Comparison with Pioneer's F-676 tested in this issue is illuminating, since it gets the Quad's measured performance into perspective, even if it fails to put the tuner itself into context, which is of course that of a completely remote controlled Quad system. For as Eric points out in the main review, here's a tuner without any front panel controls at all!

Frequency response shows just the slightest upward trend, amounting to a fraction of a dB around 5kHz. It's enough in energy terms to ensure the 66 sounds clear, if not bright, and avoid any tendency toward an overly soft or warm presentation. The MPX notch filter is a good one, well terminated, allowing the upper response limit to hit 16kHz (-1dB). Above this frequency output drops fast, as the response trace shows at right, to suppress 19kHz pilot by -51dB. There was little pilot and no

sub-carrier on the output of the 66, so apart from audio, it produces virtually no unwanted signals.

The benefit of effective pilot suppression lies in ensuring cassette recorder Dolby systems track properly. When present, Dolby sees this high frequency tone as a steady music signal, a situation that limits the amount of compression applied to low level signals, which means in effect the full benefits of noise reduction are not realised.

Curiously, the Quad, like the Pioneer, has a slow low frequency roll off which results in a lower limit of 27Hz. Tuners don't have inherent difficulties down at low frequencies, unlike LP for example, so this lower limit is likely to be down to a simple design decision, probably reflecting the company's traditional reticence about extending low frequency output because it doesn't suit the ESL-63 electrostatic loudspeaker.

All the same, the limit is low enough to reproduce the full musical spectrum properly, but I would expect the 66 on a wideband system (i.e. one using loudspeakers with extended bass) to sound a little leaner than some tuners as a result of this and the small treble plateau effect. These minor trends are, for those interested in fine details, just large enough to determine its basic tonal character. For Quad I should imagine the fact that the 66 has as wide an audio bandwidth as most competitors is enough.

Channel separation was a healthy 44dB in

the mid-band with some small decrease as usual to 33dB at high frequencies. This is a very good result. Similarly, distortion was low at around 0.12% at 50% modulation, the spectrum analysis showing a bit more second harmonic than third. At these low levels it is difficult to say much about the impact of these distortion harmonics on sound quality, especially with benign-sounding second harmonic being dominant. The 66 compares well with the best tuners available (0.08% or thereabouts) in this respect, however, and it should not display any tendency toward sounding rough or coarse.

If there was one feature of the 66 that mildly disappointed me, it was its mediocre noise floor. At full quieting hiss measured -72dB, a figure that is commonly improved upon these days. Whilst -70dB is the break point of acceptability, I'd hope and expect a quality tuner like the Quad to exceed it by a healthy margin, say 5dB or so. The real test of acceptability in this area lies with Radio 3. Since the archetypal Quad listener is one that takes his listening to this station very seriously, it's where the 66 should excel. In most circumstances I know from experience that at -72dB hiss will be difficult to detect. However, I wouldn't put a bet on the odd pernicky listener with a really good aerial array not being able to just detect a faint hiss from the 66 at times. Quad themselves quote "signal-to-noise" as -70dB; a cassette recorder with Dolby B manages this nowadays. It's not an impressive figure for an expensive tuner.

separate instruments. For all that the '66 couldn't really bring off the real floor-shaking lower notes, there was more a sensation of music being made - and when the organist used the pedals or literally pulled out the stops you could almost walk up into the organ loft and point a finger at what he'd touched.

This is the difference between recognising an instrument and being able to guess with a reasonable degree of certainty who made it and whose fingers are playing it. It goes for Rock music, Jazz and Classical equally - that moment of recognition marks out a really good tuner from a good one - and the 66FM possesses just that amount of insight to put it into the former category.

Compared to its predecessor, the FM4, there are small qualitative differences. Another listener left after a couple of broadcasts mildly puzzled, preferring the greater bite and blare of brass on the FM4, but also happier with sweeter-sounding strings on the 66. Lower strings - and bass guitars, for that matter - had a spot more resonance on the

66, with an increased impression of going deeper. Below Middle C, there was a slightly 'fruitier' tone in the new tuner.

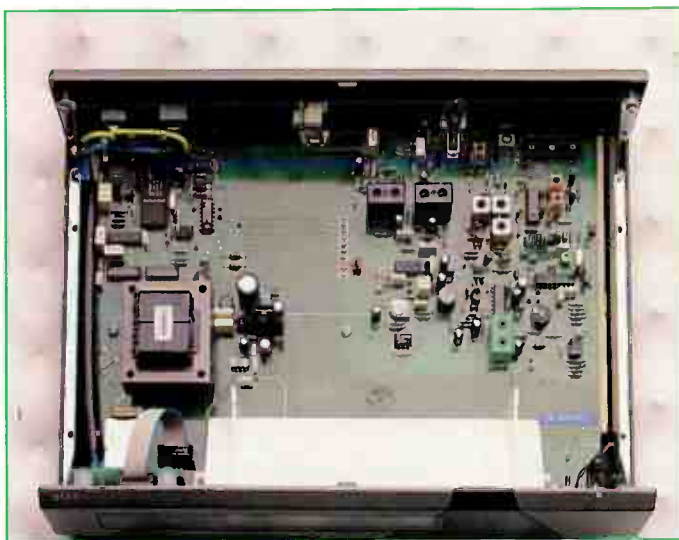
Some time later, this was put down to a slightly sharper, narrower focus - more

While it was not in the least intrusive, and had to be listened for very hard, there was just fractionally more background hiss and fuzz from the 66FM.

Also noticeable, on soloists, was a somewhat more forward presence, with a harpsichord concert placing the instrument ideally between and just a few inches in front of the speakers. It was a contrast to the more laid-back approach of the FM4, though it has to be said these differences were of the kind of degree that needs searching out.

In a way, these subtle differences were problematic. The 66 is marginally smoother, marginally less incisive and analytical than its predecessor. It's slightly 'rounder'. This is all to the good for current tastes, as it's certainly less destructive of compressed Rock, more listenable, a little less provocative of wincers. Is it better or worse? Opinions might be divided - I felt it was just slightly less unforgiving of a broadcast, but by no means

inaccurate. It's among the very best in terms of tonal colour and imagery; and since it can be controlled entirely from the armchair, in that respect it has few rivals ●



Like all Quad products, the 66FM is a picture of neatness internally. The radio stages are at right, the signal entering via a coaxial socket seen at the top of the picture. After the RF stages and mixer, it passes through a 1062 chip IF and then through a microprocessor based detector/decoder.

commitment, as it were - to the instruments in the mid and lower mid-range, but at the expense of clarity in displaying hall ambience or background silence.

Sensitivity to weak stations was good on stereo, but mediocre on mono, due to the presence of a faint 10kHz beat tone on the output. Since we're talking about very weak and noisy signals though, I don't think this sort of thing is especially relevant to users' expectations during normal usage. And at 25uV for stereo the 66 is as sensitive as most tuners around. Thankfully, Quad fit a fully informative signal strength meter that covers a very wide signal range and whose function is simply but succinctly explained in the handbook. Anything below 30uV is inadequate, they say, which is very true. "Adequate-to-good signal strength" ranges from 60uV up to 2.5mV, according to Quad, and overload is impending if the top bar lights, which it will do at 8mV. I found that bars five, six and seven cover the normally accepted signal range that gives best results.

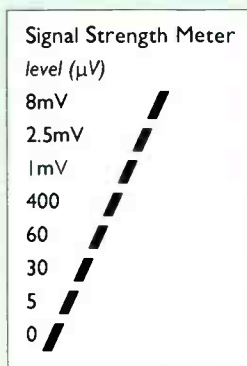
At 65dB, alternate channel selectivity was adequate for most situations in the UK, where station spacing is good enough to suit ordinary radios capable of far less discrimination than the 66. The only time high selectivity is really required is when trying to capture a weak station close to a very powerful one. The station must be so weak, that it'll not be of 'broadcast quality', so again high selectivity values, like sensitivity values, do not relate to normal hi-fi usage. The Quad's selectivity is entirely adequate for its intended purpose, even if they are not as high as that commonly achieved nowadays.

The new Quad 66 doesn't break any

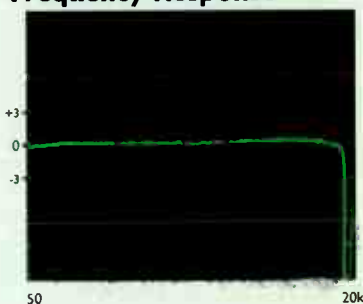
performance limits, but it does meet many - if not all - of the best. It will provide a sound quality comparable with the best tuners available, with the undoubted benefits of full remote control, ease of use that is unmatched and - a great signal strength meter! **NK**

TUNER TEST RESULTS

Frequency response	27Hz-16kHz
Stereo separation	-44dB
Distortion (50% mod.)	0.12%
Hiss (CCIR)	-72dB
Signal for minimum hiss	0.8mV
Selectivity (at 0.4MHz)	65dB
Sensitivity\mono	4uV
stereo	25uV

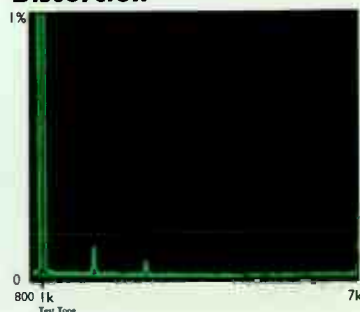


Frequency Response



A flat frequency response from 27Hz right up to 16kHz (-1dB) gives the 66FM natural tonal balance and a good sense of clarity.

Distortion



At half-full audio signal level (50% modulation) the 66FM produces little distortion at 0.12%, with second harmonic dominant.

harman/kardon *HK6150* i n t

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For information on the complete range of harman/kardon separates contact the Technology Centres above or Harman Audio, Mill St, Slough SL2 5DD; 0753 576911

Vintage Quad

In 1949 The Acoustical Manufacturing Company produced the QA12P integrated amplifier - valves, of course - along with an HRI AM tuner. Two years later came the Quality Unit Amplifier Domestic from which the acronym QUAD, by which the company has become widely known for forty years, was quickly derived.



THE FIFTIES - THE FM II

The Fifties saw the hey-day of the valve, Quad's own famous contribution being the Quad II power amplifier in 1953, which reached a venerable old age, lasting until 1970. It acquired a matching tuner (mono, this was before the days of stereo) in 1955 with an outboard stereo decoder appearing in 1965 as stereo broadcasting began. It was replaced in 1968 by a hybrid valve/transistor FMIII tuner in a case which matched the newly-launched 33/303 transistor pre and power amplifier.



THE SEVENTIES - THE FM3

The transistor age dawned for Quad in the Sixties, with the release of the 33 pre-amplifier and 303 power amplifier in 1968. Ether addicts had to wait three years for a matching all-transistor tuner, the FM3. Styling was unmistakable, the bronze case with yellow push-buttons not ousted for sober charcoal grey for nearly twenty years. Sound maintained valve-like qualities. Discontinued in 1982, the FM3 is still a favourite on the second-hand market.



THE EIGHTIES - THE FM4

If Quad are about anything, it's consistency and continuity. The Eighties was the decade of the FM4, which eschewed the angular lines of the Sixties for a smoother outline while retaining the circular cut-out around the tuning knob which derived from the earliest tuner of the Fifties. Only seven presets were provided - the airwaves didn't yet require an air traffic control. This is a tuner capable of excellent detail and insight. ●



AERIALS

There's nothing especially convenient about having a piece of your hi-fi on the roof, but that's where it should be. This is the peculiar status of the aerial. Its role can be usefully likened to that of the pickup cartridge in a record deck; indeed, Naim insist aerials have their own particular 'sound'. Aerials gather the signal for subsequent processing in the tuner. If the signal is bad, then nothing following on will be able to redeem it. All the Double RFs and Narrow IFs in the world won't do a lot of good.

In fact, double RFs and Narrow IFs aren't needed if you have a good aerial,

and here a favourable argument can be developed for installing one. It's better to get a good aerial and an inexpensive tuner than the other way around. The man who wrote in sheepishly admitting he was running an old Leak Troughline salvaged from the loft on a piece of wire illustrated the dilemma: this tuner in particular needs a very strong signal (4mV minimum) to sound good. Troughlines probably entered lofts because of this problem;



The Maxview Selfix FM3 aerial comes with support pole, fixing bracket, 33 feet of downlead, coaxial plug and fixing screws, for D.I.Y. installers. It is quick and simple to assemble, but although better than a dipole, is suitable only for areas of good signal strength.

The circular aerial at right is an omnidirectional folded dipole. It will receive stations from all directions, but has less gain than a dipole. It will give a weaker signal than normal aerials and is best used only in areas of high signal strength, meaning close to transmitter.

there's obviously no point in recreating the conditions that put it there in the first place.

Modern tuners don't need as much signal as their venerable valved predecessors. The Quad 66FM reviewed this month provides a typical example of what is needed, so I'll use it to illustrate what you do need and, from my own experiences up amongst the chimney pots, explain how to get it.

The magic figure to remember with tuners is 1mV (one thousandth of a volt). It might sound feeble, but to a tuner it is an abundance. Get this level of signal from an aerial and you'll be getting the best out of your tuner. In theory, the only parameter affected by aerial signal strength is hiss. In practice I have found - and others have confirmed this - that clarity, insight and stage depth strengthen markedly with a strong aerial signal. It may be due to the psycho-acoustic effect of reducing noise or it may be due to other less well understood factors.

If you want to hear the full potential of

Clarity, insight and stage depth strengthen markedly with a strong aerial signal.

the new Quad 66FM, measurement showed that like nearly all other modern, solid state tuners, it needs 1mV or more. On Quad's informative signal strength display, this lies higher up in the zone they define as showing "adequate-to-good" signal strength, being the sixth sector up (see the diagram). I'd agree with Quad in defining the region 60µV-1mV covered by the fourth and fifth sectors as "adequate". The lower strengths will give an obviously hissy sound in practice (i.e. barely adequate!), whilst anything above about

300µV can begin to sound pretty good. Optimum sound quality will come from about 0.8mV up to around 6mV of signal from the aerial, whilst anything above 10mV may start to produce overload, resulting in phantom stations appearing.

So a weak signal from the aerial not only results in audible background hiss, it also results in a flat, featureless sound that is best described as bland. Give any modern tuner an appropriately strong signal (i.e. 1mV or more) and it'll magically reveal far more from broadcasts. An-

nouncers in particular will suddenly become embodied, take on form and substance and speak closely - almost embarrassingly so - to you. In a radio studio the microphones are often no more than 12in from the individuals using them. At home this is the perspective you should expect to hear; it's a very close one. An exceptional tuner will reveal microphone sound quality, discernible as the mics being used are pulled in and out at the mixing desk, giving listeners a fine opportunity for A/B microphone assessment.

CHOOSING AN AERIAL

The big question for those without an electrical wand on their roofs is: will an indoor aerial give 1mV of signal? We've investigated this problem in some depth, carrying out measurements (March 1992 issue) on a range of powered and unpowered designs.

They offer no magic solution. Powered aerials (they have an amplifier) give little more signal (signal-to-noise ratio in fact) than unpowered ones, but they are smaller, that's all. They will be satisfactory in areas of high signal strength only, which means within a few miles of a transmitter. Of the larger, unpowered aerials I recommend a simple cheap, rigid aluminium dipole from Maxview or Antiference. This can be put on top of a wardrobe, in a stair well or in a loft. Another option is the tiny Parsec Wavecatcher (Path Group, tel: 021-776-7616). Tests showed that this works almost as well as a dipole, but it is much smaller.

Within about ten miles of a transmitter a loft aerial will generally do. These have a bit of gain and directionality relative to a dipole, but are a bit bigger too, commonly having one

cable clips and co-ax plug (which you wire on yourself - that's the hard bit!), priced at £18.95. In our area it gave more signal than a dipole (170µV in comparison to 100µV from a dipole, or 4.5dB gain), far from the Wrotham transmitter serving London.

Henry's told us that the omni-directional array, a curved dipole (also shown in the picture, price £14.95) is popular, because it is compact. This form of aerial receives stations from all directions, but it has even less gain than a straight dipole, so it provides a weak signal unless close to a transmitter. The best advice with this or any aerial is to mount it as high as possible and keep it away from a metal water tank.

Much further than about ten miles from a transmitter (an approximate distance, since height, obstructions, etc. come into it) an outdoor aerial with more than three elements will usually be needed. These are best put up by a proper aerial erector. They make quick work of a dangerous and difficult job - and they should know local reception conditions and peculiar problems, like reflections or dead spots caused

by large buildings and where 'fill-in' relays are sited that will provide a decent signal. Reckon on £60-£120 for installation, with a small amount for materials. Installers can be found in the back of this magazine on page 116 and 117, in the Yellow Pages or from the Confederation of Aerial Industries (CAI,

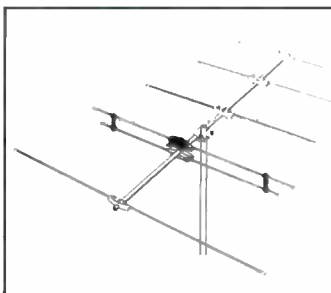
tel: 081-902-8998). The CAI say they are happy to advise people about their members and the standards they are required to meet. These include the possession and use of a 'field strength meter' which is vital; it verifies signal strength.

Outdoor aerials can be any size up to eighteen or even twenty elements (for highly specialised large arrays contact Ron Smith Aerials, tel: Luton 36561), but something like a six element unit is generally considered to be a conventional, high performance type. Much past this and the aerial begins to grow in size and weight to a degree that its visual impact and mounting arrangements need to be considered

fairly seriously. Even our own six element array on a fifteen foot alloy pole, necessary to clear local roofs, caused a complaint to be made to the local planning department, but luckily the shiny aluminium effectively looks white. As a result, when the planning officer took a Polaroid picture of it against a light sky, the aerial was not to be seen, so they couldn't prove it was visually intrusive. The officer looked a bit miffed at this, but even he saw the joke when I burst out laughing.

Big arrays also attract burglars, since they clearly signal the existence of a serious hi-fi system. A position away from the road lessens this potential danger, and it also reduces ignition interference. Much past fifty miles from a transmitter however, and a big array becomes necessary for a strong signal.

Although having a bit of the hi-fi on the roof is a bit inconvenient, it's also very necessary for really good sound quality. The aerial is a pretty inexpensive front-end to the tuner. Get this part of the radio right and the rest will sing just like it's meant to ●



The Antiference FM 1085 5 element array is typical of aerials suitable for weak signal areas.

Forward Gain	6.5dB
Front/back ratio	16.0dB
Acceptance angle	±28dgs
Length	2051mm
Width	1728mm

director element and one reflector, which in conjunction with the basic receiving dipole gives what is known as a three-element array. Most manufacturers have one in their range, for loft or outdoor fixing. Up to this size anyone able to handle a power drill (for wall fixing), a screwdriver and wire strippers could install their own. A visit to our local electrical shop, Henry's Audio Electronics on London's Edgware Road (tel: 071-724-0323) revealed a good array of types suitable for DIY installation. A Selfix pack from Maxview, pictured here, combines 3-element aerial with stub mast, wall bracket, all fixing screws and 33ft of cable, complete with

CONTACTS

AERIAL INSTALLERS - see pp 116 & 117

For information on aerial installers in your area -

Confederation of Aerial Industries
tel: 081-902-8998

For VHF/FM aerials and parts -

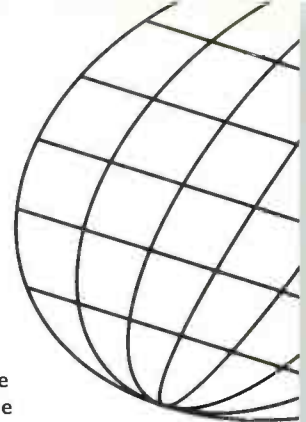
Henry's Audio Electronics
404 Edgware Road,
London, W2 1ED.
Tel: 071-724-0322

Antiference,
Aylesbury,
Bucks HP19 3BJ
Tel: 0296-82511

Ron Smith Aerials,
98 Ash Road, Luton,
BEDS.
Tel: Luton 36561



World



FROM MONA VALE TO MAIDA VALE

I have not purchased a Hi-Fi mag in years, but when I spotted the May '92 issue at the local newsagent and the words 'Free LPs', I picked it up.

After I had given it a quick flick through and discovered that not only did you have a catalogue of albums, you also had reviews of valve amplifiers, I was sold (and so was the mag!).

When I used to buy English and U.S. magazines, they seemed to ignore valve/tube amplification and I am the proud owner of a pair of modified Quad IIs and an Anawhata Audio preamp (an esoteric little number from New Zealand). You may be interested to know that I also have a pair of Rogers LS3/6's (?) modified with drivers from the Studio One (a kit from Swisstone). Yes, such items do make their way Down Under believe it or not. Not appreciated by the masses, of course, but definitely by this ex-Kiwi bom of English parents.

I read your mag from cover to cover and learnt so much about the status quo in the everchanging world of music

reproduction. Most impressed.

To come to the real point of my letter: I wish to order some items from your Audio Accessories catalogue and also a number of LPs. What payment options do I have? Do you accept 'Oz' Visa? I figure this could be preferable to an International Money Order/Cheque in case you don't have everything I want in stock or available.

One of the accessories I'm interested in is record cleaners. I have used Discwasher for years (without the fluid - just zerostat and brush) but if there is anything better, what is it and how much! I am interested in the Pixall MkII and Nagaoka systems but if they are applied radially on the record surface they would take ages to use.

Finally, do you have a valve catalogue. In the past, I have bought from Billington Valves of Sussex but would like to compare prices.

**Peter Blunden,
Mona Vale,
NSW,
Australia.**

As long as you supply a billing address, we accept Visa cards from around the world. . . even Mona Vale. It is a better system than using International Money Orders, as you have suggested.

The Discwasher zerostat and brush are as good as any system on the market today. I use the Decca Diplomat brush, but the Discwasher is essentially identical. Ideally, the Pixall or Nagaoka should be used in conjunction with a brush such as the Discwasher; use the brush as normal, then remove the thin line of lint that remains by using the sticky roller radially. By using it in this way, you only have to perform one sticky pass over the record.

Finally, we do not have a catalogue of valves, but would suggest that you try PM Components, Springhead Enterprise Park, Springhead Road, Gravesend, Kent DA11 8HD, who should be able to supply you with such a list.**AS**

An Anawhata Audio preamp eh? Now that's really esoteric. Ana whata goes with it? A Koala power amp?

These things we have not heard of, but Mona Vale is a different matter. As a humble contributor to Australian Hi-Fi magazine, based in Mona Vale (a coastal town a little North of Sydney), I travelled to Oz to retrieve accumulated contributors' fees (that surprised them!). The money paid for the trip, and I got an opportunity to see Australia and visit friends.

Never having been to Oz before, as a naive Pom I imagined Mona Vale might be a bit familiar, like Maida Vale. Hah! Staggering off the bus at midday, standing in the open I remember was like being microwaved. Then I noticed that no one was standing in the open and . . . wassat in the tree? A vulture?

In that heat, I have to admire your dedication using a valve amplifier. I'd be in that surf, just down the road. Give my regards to the Koala's; Australia was beautiful. **NK**

WIN FURUKAWA FA-2010 BALANCED ANALOGUE INTERCONNECT CABLES (1 metre pairs)

We are offering a little incentive to encourage readers to fill their fountain pens and break open a new notepad. The writer of the most interesting or funniest letter will receive a free set of Furukawa FA-2010 "balanced analogue" interconnect cables, worth £95. These are the cables we have recommended in the past.



Letter of

SPEAKER OF THE HOUSE

I found Alan Sircom's review articles on the KEF and Wharfedale loudspeakers which appeared in the September issue of Hi-Fi World very informative and helpful in enabling me to come to a firm decision concerning my choice of a pair of new speakers.

However, I must take you lightheartedly to task on one point. This concerns Alan's assertion that "the tale of the loud-speaker connected to the

mains is an apocryphal one beloved by loudspeaker manufacturers." Not so! I can vouch for the fact that this certainly happened to the brand new 12" Wharfedale in the early Fifties when an employee of a local Hi-Fi store did just that with alarming and explosive consequences! The young man was at the time avoiding conscription and Military Service by undertaking work "useful to the community".

You may not be surprised to learn that he was an Arts graduate, but you may be shaken to the core to learn that he subsequently became a °

Send your letters to: Hi-Fi World Letters Page,

writes

DIGITAL AGE SPEAKERS

How much longer must we wait for the loudspeaker to enter the Digital Age?

I see in your magazine even kits commanding a huge price-tag for a technology which has hardly advanced in 80 years!

Ruler-flat frequency responses and imperceptible levels of distortion are now the norm with even a modest £150 amplifier or CD player, where the innards simply brim with goodies.

But, it seems, not with the loudspeaker where such a price buys a cheap box with vinyl wrap and a couple of drive units not so far removed from the Great War wireless headphone!

The price of loudspeakers is quite crazy and the whole device mocks the technical achievement in other parts of the audio chain. Now is the time for magazines like yours to bring these scandalous non-achievers to book.

**Tony Andrews,
Worthing,
W. Sussex.**

I think, Mr Andrews, you

exaggerate somewhat. The digital age in loudspeakers has indeed begun, with models from Meridian and Philips, and Celestion's Digital Signal Processor for their 600SE speakers. Philips hold a patent on a true digital drive unit and they have been working on it for at least six years we are told, but apparently it is enormously complex.

Criticising the basic principle of a drive unit for not outwardly showing much sign of improvement is a bit like complaining that a bike is still the same fundamental design after a century. At bottom, the point is that it worked properly from the beginning, and it's still one of the most energy-efficient modes of transport ever devised.

The work that goes on in the loudspeaker world tends to be hidden from view, in the magnet assembly, cone material and methods of manufacture. While I'd agree that some designs are best forgotten and others are over-priced, the vast majority are superior to those commonly available twenty - let

alone thirty - years ago, and cost relatively much less. When I first looked for an affordable pair of real hi-fi speakers I had to find eighty pounds - more than an average week's pay - to pay for them - and they would be equalled by a number of designs around now for just forty quid more. (i.e. half an average week's pay). **EB**

GRANNY'S HI-FI

During my England holiday tour I bought Hi-Fi World magazine. I appreciate your articles on old and vintage hi-fi very much, since I had the experience that some old equipment is absolutely top with respect to sound quality and reliability. My old Revox G36 and A77 run endlessly, the Quad IIs sound comfortable and my Scott Stereomaster 312-D still receives lovely music from the air. And I do agree with your authors that the Garrard 301 and 401 are fabulous; I prefer them to my new Transrotor (Transcriptor) and Thorens. Well, to compare old goodies and brand new products can be painful for many top producers today!

Many thanks for all your efforts and advice and keep writing about daddy's or even granny's hi-fi! Best wishes from Germany, **U. Zyzik,
Bonn,
Germany.**

ASSURANCE FROM INSURANCE

An aspect of concern to many music lovers is insurance of Hi-Fi and/or music collections. Many of us are not exactly sure what ordinary Contents Insurance covers us for, and whether or not we would be better served by a separate purpose-designed policy.

I feel sure an article by yourselves on this subject and perhaps the offer of a policy in

conjunction with a major insurer through your magazine would be greatly welcomed by readers. Even an article on Hi-Fi theft and how to prevent it would be a very good start.

Perhaps readers should follow Noel Keywood and use an SA 470 and other such items far too heavy to move, but even largish items such as speakers aren't safe. A while ago I heard of a pair of stolen Linn Sara's found in a junk shop for sale at £20!

**Andrew S. Baird,
Winlaton Mill,
Tyne and Wear.**



Dawn of the digital age? Celestions Digital Signal Processor for the 600 loudspeakers.

I never so much upgraded my hi-fi as replaced it one step up every time it was burgled. At one time, after four burglarious entries in as many months I ended up uninsurable with a note on the window that said "The Hi-Fi Takeaway is closed - it's all been taken away." I now tend to the view that if it's not heavy enough or big enough to make me sweat carting it in, it won't prevent a burglar carrying it out. I recommend lead-filled stands, and I was very taken by a lead-based CD player last year: it sounded good, but it also required an Olympic weight-lifter to carry it.

More seriously, however, home contents insurance views hi-fi and records somewhat akin to televisions and jewellery, with a top limit per item. Normally, they expect to cover an average mid-system or budget separates - but not high-end by any means! The cost of replacing a pair of ESL-63's, as an example, usually well beats the 'single-item' limit the insurance companies impose. Individual parts of a system usually have to be insured as individual items, often with an

The Month

Member of Parliament - you can guess for which party! **Prof. C. Grey Morgan,
Department of Physics,
University of Swansea.**

So, that's one historical tale whose veracity we can count on. As an Arts graduate myself, mind you, I take exception. Though I have connected speakers up to the mains, before I join the ranks of idiots and Members of Parliament (or are they the same?), they were Quad ESL's. **EB.**

Ah! So this is the truth behind hi-fi's equivalent of the

Mitochondrial Eve. You've identified the origin of a tale much repeated by loudspeaker manufacturers, one that has come to take on symbolic meaning. Loudspeakers don't go wrong; that's what manufacturers believe. People damage them. The man that connected his loudspeakers to the mains represents, in extremis, this situation. It now appears that, like the Mitochondrial Eve, one person in hi-fi's pre-history did actually do it. This man has earned himself an eternal place in hi-fi folk lore. **NK**

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...continued from page 23

additional premium attached. Insuring a record collection - like insuring books - presents a near-insurmountable problem. Before an insurance company will consider the idea, it usually needs to be told the total adds up to serious money and you have to maintain an itemised list the way you are normally asked to do for large amounts of jewellery.

At this point, the premiums start to reach fairly horrendous proportions, especially, if, like me, you live in an area the insurance companies believe are mostly populated by characters with striped shirts and bags marked 'Swag.' The only solution is to talk to an Insurance Broker who will ring round to try to find the best deal. **EB**

PROFIT PROPHET

With the advent of DCC and MiniDisc just around the corner, there is again a lot of discussion about software prices. As I see it, the simple fact is that record companies don't want to maximise their profits!

Let's imagine that the price of the various formats was about £8 for CD, £7 for vinyl, DCC, MiniDisc. DAT and £5 for cassette. What would happen?

generate jobs, but would increase costs, but I think these costs would be more than covered with the extra sales.

So, the question is, why are prices so high? Is it:

- 1 Record companies don't do Market Research;
- 2 Record companies don't want to increase profits;
- 3 Record companies support illegal copying, or
- 4 Other.

I would be grateful if some of the major record companies could shine some light in this direction.

Another point on software pricing is why would a 'Star' have his/her software priced the same as 'new talent'. I think that many stars are guaranteed many sales, no matter how much their titles cost, whereas new artists find it hard to compete as many people would not like to risk £14 to discover if they like a new artist. I think that groups or singers who do not make huge profits should contribute to a fund which would subsidise the cost of less well known titles. For example, when Michael Jackson releases a new album, he makes millions. If about 5% of this was put in a fund, up and coming stars could sell their titles at cost price and take a wage from the fund, until their sales increase to a reasonable level. When they start to make money, then they would put money back into the fund. I would like to hear the opinion of others on the price of software and my ideas.

Phil McMillan, Gateshead, Tyne and Wear.

The answer is 'Other', with reservations. Certain stars having litigious dispositions, we

will not mention names, but some fees are indeed high to the extent of looking downright rapacious. While I believe software prices have risen to an extent that does look somewhat akin to greed, it isn't only the fee paid to a performer that has to be amortised. Producers, engineers, technicians, drivers, roadies, PR men and women ... all have to be paid when a recording is made. Studio time is also expensive - around

£2000 a day, roughly speaking - and a sum or two will suggest that if a band takes ten days to record an album (and that's lightning speed these days) the resulting CD has to sell around 3,000 copies just to pay that bill. (The record company takes half the retail price.) Few release more than one a year, and during that time they will be paid by the Record Company, which will almost certainly lose thousands every time the band plays live. In the Classical or Jazz field, it's not unknown for a recording to take twenty years of sales before the books balance.

It's a paradoxical notion, but economics textbooks tell us that prices rise while demand increases and fall when it diminishes. That's capitalism - the more items that can be sold, the more you can charge. I suspect that a five per cent fund would be a non-starter. Some pop stars have ploughed money back to help young artists, by subsidising studio-time, for example, or starting their own record labels. It's worth noting that record companies will often pay artists under contract to them as well as royalties on records sold, though Pop recording history is littered with contracts that left some bands practically penniless.

In the end, if a record company risks anything up to a hundred grand on releasing a recording by a new band that might not sell more than a couple of hundred CDs, is £14 too much of a gamble? It's what record reviews are for, after all. **EB**

SPEAKING SPIKES

Having 'spiked' my speakers and stands and finding a definite increase in sound quality, and being by nature a curious and experimental soul, I did the fridge as well. Now, I've had many an iceberg lettuce in that fridge, but never before have I heard a yodel when I opened the door. Also, being a fish eater I notice a definite improvement in the bass.

An obvious progression from here had to be spikes on the washing machine, which I feel gives a beautiful baritone hum to an once clanky old motor, vastly improves the soundstaging on 'spin only' and I swear my whites are whiter than ever before, which is a great comfort. Comfort . . .?

By far the greatest leap forward though, has been in the bed. As the actress. . . etc. Whereas only a fortnight ago the

wife had a snore like a chainsaw ripping through a very old corrugated iron shed, substituting spikes for the castors means I nod off each night to a beautifully rich cello-like lullaby.

Certain problems had to be overcome, like super-gluing spikes to the cat's feet (I found out early on that solder just wouldn't stick) but you should hear him purr; unfortunately on damp days he tends to stand on the lawn for long periods and he can be heard sliding down the roof sometimes.

The only major problem has been with a once squeaky wheelbarrow. Although quieter, the spikes have made rather a mess of my tarmac. Now then, just off to the Patents Office . . . **Paul Newsome, Drumcondra, Dublin.**

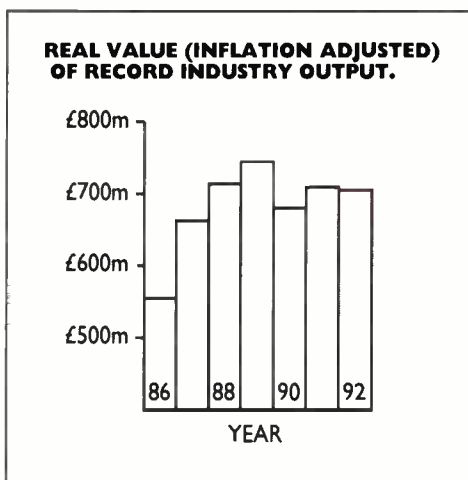
How come so many of these funnies come from Ireland? Have they all kissed the Blarney Stone or is Arthur using something other than Liffey water in the brew? As of now, please, please forget we ever said we'd give away cable to the writer of a funny letter. Mind you, we could always start a 'Hi-Fi Jokes' section. Have you heard the one about the Irishman, the Scotsman and the Englishman who went to a Hi-Fi dealer? The Englishman couldn't remember his name, the Scotsman just wanted to know the way to 'Arry's town' and the Irishman . . . No, perhaps not. **EB**

DIY INTERCONNECTS

I was interested in the interchange between Mr. Hall of Tunbridge Wells and EB in the September issue, concerning the current cult status of Tandy gold-plated patch cords for Quad owners. My own system is not Quad - it consists entirely of highly recommended budget items (principally NAD) which work very nicely together. I bought a Tandy interconnect as an experimental upgrade for my CD player, which, had it been entirely satisfactory, I would have used on all other parts of my system as well. I see no point in buying a highly expensive cable just for the CD player, as is sometimes recommended, if the purchaser can't afford to replace all the standard interconnects with the same cable; if the upgrade works at all, then the improvement in one part of the system is bound to lead to dissatisfaction with the rest.

I was generally pleased with

Continued on page 46...



Making money: recorded music sales at constant 1990 prices. (Graph courtesy of the BPI.)

We would buy many more titles, probably increasing our music budgets! This would benefit record companies because although they would make less profit per sale, sales would rocket and illegal duplication would reduce dramatically. More artists would find themselves in the charts and the charts would more accurately show public taste. The increase in sales would of course mean an increase in production which would

COMPACT CONTRASTS

As entry-level Compact Disc players improve, contrasts in sound quality have been narrowing. Yet not all of them sound alike, we found.

Report by Alan Sircom.
Measurements by
Noel Keyword.



PHOTO: JOHN BRUCE. Tel: 071-625 6056

Now that Compact Disc is an everyday medium, the budget or entry level is where the greatest range of models is to be found. With this in mind, we have assembled a good selection of what we consider to be sensible entry-level players, all priced below £250. We have taken a broad cross section of models at the price, combining ones that are likely to appear in the High Street store with those that might be seen in specialist shops.

The group consists of Denon's 'UK' version of the DCD-890, Kenwood's DP-5040, the CD-P4500 from Teac, the CD 930 from Philips' latest and distinctively styled 900 series, Yamaha's CDX-660 with its unique 'S-Bit Plus' circuitry and finally the JVC XL-Z452. These days you can buy cheaper players, but for a good basic performance you would be ill advised to do so. At a reasonable price, this selection offers a wide range of facilities, plus the acknowledgement by their manufacturers that sound quality is important; consequently it gets due consideration in the design process.

Pay less and you could get a nasty shock; digital distortion from cheap processing electronics can make music sound unpleasantly harsh, whilst poor filters compound the problem by

emphasising distortion harmonics. You could pay more of course, but the waters of hi-fidelity rapidly deepen; you'll encounter sync-locking, use of alias products as music harmonics and other potentially mystifying ideas and technologies, not all of which are effective in our view. Anything up to around £1500 can be justified on a good convertor and transport. It makes these players look like the good value they are by offering a good standard of sound free from digital nasties.

Discussing these players amongst ourselves - no fewer than three people listened to them - we broadly agreed that differences were smaller than those that exist elsewhere amongst competing hi-fi products. This is largely due to the way they are assembled from chips based upon proprietary technologies; beneath the skin similarities are often greater than the product literature and carefully honed 'brand identities' would have us believe.

Happily, some of the more imaginative importers and manufacturers have recognised this drift toward uniformity in Japanese products in particular, 'harmony' and 'uniformity' being very much a part of that nation's cultural idiom. Individuality is more admired in the

West, and it has been brought to Denon's DCD-890, for example, by UK inspired modifications, lifting it from the herd.

Yet at the same time, whilst the Denon and the Philips players (from Holland) stand out in terms of sonic character, the contrast they offer is just that - it isn't easily or fairly described as an advantage or a disadvantage. We are looking more at differences than distinctions here. The heightened contrasts offered by Philips' new player make it teeter on the verge of brashness. Similarly, the urbane smoothness of Yamaha's CDX-660 may be just a little too smooth for some tastes. The other players lie between these extremes, but huddled closer to the Yamaha than either the Denon or the Philips.

Although these budget CD players differ less than you might imagine and arguably less than is good for them or for buyers, they do offer greater consistency, convenience and - many would say - better sound quality than the budget record decks they now replace. In this sense CD has advanced from the days when machines in this price band were a pain in the ear. As an everyday medium Compact Disc is now good value and there's every reason for our choices to be popular. ▶▶





DENON DCD-890

£249.99

Technology moves forward fast. Two years ago, a group test of low-priced CD players would have consisted of mainly multi-bit machines. In this test, only Denon's DCD-890 keeps the faith.

A twenty-bit, eight times oversampling player, the DCD-890 is specially modified for the UK market after consultation with British reviewers and dealers; it features special 'audiophile' components. British players are most easily differentiated from the rest of the world's 890s by the absence of a headphone circuit and its attendant jack and volume control in the bottom right corner of the front panel.

The DCD-890 continues the chunky style of bigger Denon players of the past, with a blue LED display, solid-looking CD drawer and the main disc functions laid out like a Denon cassette recorder, at the far right.

Directly below the display there are

two rows of small push buttons. First are the track number buttons numbered 0 to 9 and 10+. The next row begins on the left with an Open/Close button, followed by eight which control the minor functions such as Peak Search, a Fader, and 'Auto-Space' to divide a CD into useful A and B sides for tape enthusiasts. It is also possible to programme favourite tracks, repeat tracks or an entire CD and even adjust the brightness of the display.

At the rear, there is only one pair of analogue phono sockets, together with a coaxial digital phono socket and a small link to allow synchronisation with a Denon cassette machine.

SOUND QUALITY

An exciting, forceful sounding player, the 890 had plenty of deep, rumbling bass. Not strictly accurate and tightly-defined,

but still a low end with plenty of force and good rhythmic qualities, especially with the Big Star CD.

Moving on to Delius, the 890 gave the choir and horn section a curious quality; the female component of the choir took on a coarse grating sound, while the horns brightened and hardened during the first movement.

As with the Yamaha, the Denon is adept at expression and creating an apparently natural musical presentation. On direct comparison, however, this naturalness begins to sound decidedly artificial. Whereas on the Yamaha, one is hearing the expression in the music, the Denon adds its own interpretation.

This is not as bad as it sounds, as the player's rich, dynamic sound is initially very beguiling. It was one of the two players in this test I found most engaging to listen to. Although the 890 has its own character, it is inherently musical in nature.

While there is little depth to the soundstage, images can fall wide of the loudspeakers and every instrument is easy to place with its own space around it.

It is not the most detailed of players, masking some subtlety in the recordings. It was unsurpassed at highlighting the detail of a single instrument, but complex music left the 890 a little breathless.

CONCLUSION

The most colourful-sounding player in the group, the Denon DCD-890 has much to admire about its performance. It injects a little too much colour and character for my liking, at the expense of some neutrality. On the other hand, this characterful sound can often 'cheer-up' a poor recording and will suit a large number of people who look for the magic first and the music second.

MEASURED PERFORMANCE

As a long term Denon watcher I sense a change of emphasis recently. Whether it is purely the outcome of product vetting and selection by Denon UK or a change in outlook back at headquarters in Japan one can never tell. Traditionally, this company's products have been a cat's whisker ahead of the competition, as a result of innovative technologies. Denon have always played upon their experience in recording and broadcasting in Japan to highlight the pedigree of their products, yet I was surprised to be told recently that in Germany their image was entirely different. There, Denon is a mass market name.

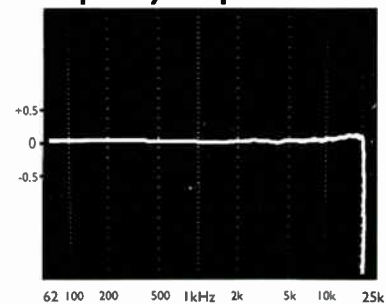
Perhaps a change of outlook and direction explains why the DCD-890 tested here displays some unusually obvious blemishes. It's not like Denon to field a product that falls behind the market leaders in the way it measures, yet this player suffers more distortion than is now the norm., returning 0.05% at normal music levels. The analysis clearly shows this problem as spikes, which represent distortion harmonics. Comparison with the other models gets the '890 into context.

Well maintained treble output will give this player forceful treble, like that of the Philips and Kenwood players. Otherwise, the DCD-890 measured normally. **NK**

TEST RESULTS (-1dB)

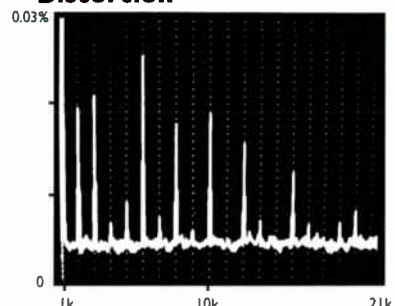
Frequency response	2Hz-21kHz	
Distortion (%)		
-6dB	0.005	0.005
-30dB	0.05	0.02
-60dB	0.61	0.5
-90	30	29
-90dB dithered	0.1	0.1
Separation (db)	left	right
1kHz	108	112
10kHz	83	86
Noise	-110dB	
with emphasis	-112dB	
Dynamic range	104dB	
Output	2.2V	

Frequency Response



Slight lift gives strong treble.

Distortion



Distortion spikes up to 18kHz

None of the other CD players have as funky a display as the XL-Z452. It sits in the centre, just below the slimline CD drawer, providing a yellow/gold elipsoidal peak level meter, reminiscent of the volume control on a Quad 66 preamplifier. Its purpose is beyond me, but there is no denying its fun factor.

Apart from the VU meter, the JVC is laden with functions, most of which are designed to aid the home tapper to split a CD into convenient A and B sides to fit a cassette, for example. In addition, JVC's own proprietary Dynamic Detection Recording Processor finds peak levels within a CD. If the XL-Z452 is connected to a JVC cassette with their Compu-Link system, this will send a signal to the deck so it will automatically set optimum recording levels.

The rest of the player is pretty standard, although there is only an optical digital output at the rear. The styling is interesting and very symmetrical. At the far corners of the player are two buttons; the On/Off switch on the far left, the Play/Pause button at the right. Along the radiused top row is the Open/Close bar, followed by the central drawer and then the main track handling controls.

Along the bottom row are the twenty-one track number buttons with those for the ancillary functions flanking the main display. Repeat, Program and Random function controls are in the bottom left hand corner with a headphone socket with rotary volume control above. Although the JVC is remote controlled, this does not include output level.

SOUND QUALITY

The JVC lacks the natural balance of the Yamaha '660, but where it scores highly is



JVC XL-Z452

£179.00

in its sense of excitement. It can sound a bit coarse and rough-edged at times, especially at the treble end, but is a useful palliative to blandness. In an already exciting-sounding system, however, the JVC may prove too intense.

I encountered a problem with this player's stereo imagery. Spatial information was blurred which, combined with a lack of depth to the sound stage, made it difficult to follow instruments within a mix. Curiously, the stage width was unaffected by these anomalies; everything may have been fuzzy, but at least it was well spread out.

Fine detail and tonal coherence were also a little indistinct, giving rise to a 'hi-fi' sound as opposed to a musical performance. It failed to convey some of the emotive nature of music.

The JVC did have a good dynamic

range, especially when playing Classical music. Although everything was on a smaller scale than the Yamaha, it was still of correct proportions. There was little sense of artificiality to the scale and breadth of music, making the player suitable for varied musical tastes, although the slightly light bass may preclude its use with driving rock.

CONCLUSION

One of the better players in this test, the JVC XL-Z452 still offers a sound that may prove too blurred and light for many systems. It is an undemanding player to listen to, yet its inability to portray music in a natural manner must weigh against it. As a player of background music in a budget system though, the JVC - like the Teac - must rank highly.

MEASURED PERFORMANCE

Quite obviously JVC have taken a decision to make the XL-Z452 sound smooth and easy by rolling down its upper treble. The effect isn't quite as pronounced as it has been on some UK-designed CD players, but it is strong enough to ensure the '452 isn't going to shriek with bad recordings. The frequency response analysis underlines this feature of the player's behaviour, the horizontal line sliding slowly downward at right.

Over most of the music range on CD little distortion is produced. Unfortunately for JVC, the linearity curve departs furthest from the ideal at around -60dB, where level measures 0.7% (0.4% is possible). This saddles the player with a mediocre EIAJ (Electrical Industries Association of Japan) dynamic range value of 106dB, yet lower down at -90dB it manages respectably well in producing just 2% distortion with a dithered signal. So overall JVC's budget player manages pretty well, but it isn't quite up with the leaders in its distortion behaviour. I would expect a clean, yet possibly warm sound from it.

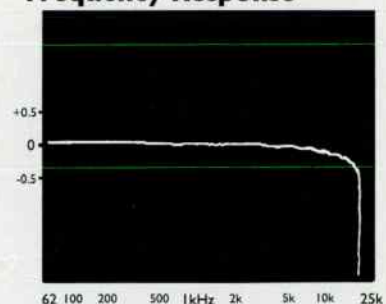
Good supersonic filtering has removed most unwanted signals above 21kHz from the

output, a good sign. Output was strong at 2.2V, always a benefit in comparative shop dems, since it helps the player sound just that bit louder and more impressive. **NK**

TEST RESULTS (-1dB)

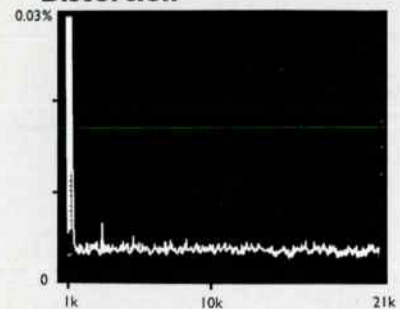
Frequency response (%)	2Hz-20.7kHz	
Distortion		
-6dB	0.004	0.004
-30dB	0.009	0.009
-60dB	0.7	0.7
-90	33	33
-90dB dithered	2	2
Separation (db)	left	right
1kHz	115	118
10kHz	91	96
Noise	-113dB	
with emphasis	-113dB	
Dynamic range	106dB	
Output	2.2V	

Frequency Response



Slight upper treble loss; smooth sound.

Distortion



Negligible distortion



KENWOOD DP-5040

£199.95

Logic control has been taken to the limit with the Kenwood DP-5040. With the exception of headphone volume, every control on the player is operated by the lightest of touches.

This player bristles with features, but they are presented in a manner that is visually restrained. The style should age well, with all its nicely rounded edges. Kenwood have effectively split the fascia into two. The upper half of the player has the On/Off button, with its small red LED, the drawer, a blue display and two large touch-sensitive buttons for Stop and Play/Pause. Above these are four smaller buttons for the lesser functions such as Programming, Repeat, Time Display and Display Mode.

Below the chamfered line, the bottom half of the 5040 carries the headphone socket and volume control. Along from the volume control, in the centre of the

player is the drawer control, followed by two rows of small and fiddly rectangular keys, for track selection. This function is better served on the 5040's remote control, as the layout is improved. Finally, the remote control sensor and four Track Search and Skip controls complete the picture.

At the rear, two sets of phono sockets provide fixed or variable output to the amplifier. There is no volume control on the deck itself; the variable output option is only fitted to the remote control. In addition, the 5040 sports a Toslink optical digital connector and two synchronisation links, for connection to both a Kenwood amplifier and cassette deck.

SOUND QUALITY

The 5040 has a brighter sound than the other players in the group. For the most part, this only causes a shift in the overall

balance, accentuating the female voices in a choir, for example. On occasion, however, this can create a zingy treble, a feature that makes the Kenwood unsuitable for bright sounding systems.

This treble emphasis served to play down the bass end of the player's performance. Bass drums and guitars in particular sounded too light and unreal in comparison to the other players in this test.

Tonally, apart from its accentuated treble, the player possessed a curious hollowness to its sound, making it difficult to define vocal articulation, especially on Classical programme. It brought a pinched nasality to male voice as well, regardless of musical genre.

Unlike the Philips player, these tonal aberrations did not influence the Kenwood's sense of coherence and musical performance. Although it sounded bright with a wide variety of music, the complex strands of Delius' Mass of Life were portrayed alongside Big Star and The Cramps without detriment or bias.

Like the JVC, the 5040 had a very forward presentation, but in this case with correct soundstage width. There was some layering of stage depth, but not enough to dance in the streets about, though placement of voices was a strong point. I did like the way the Kenwood could fill the room with sound.

CONCLUSION

Although the Kenwood DP-5040 tends toward a bright and forward presentation, it is still musically expressive and adept. While not as balanced as many of the players in the test and likely to suit only a narrow band of systems, it is still - for the most part - listenable. While it would not be in my top league for lower priced players, it seldom disgraces itself.

MEASURED PERFORMANCE

For some reason known only to themselves, Kenwood commonly choose to give their CD players a small lift at high frequencies in order to boost upper treble. This has the effect of making them sound distinctively brighter than most others. Even now, as recordings on CD improve and become less sharp-sounding in themselves, manufacturers shy away from this sort of characteristic. However, whilst it is detectable through many speakers - especially those with metal domes - there are some which will disguise the effect. I know from experience however, that in the context of a reviewer's system, the lift our analysis reveals will audibly brighten this player's sound.

Otherwise, the Kenwood proved well engineered. It possesses little distortion, as the smooth, spike-free line (noise floor) along the bottom of the distortion analysis picture shows. This performance was maintained right through the dynamic range, a dithered tone at -90dB possessing just 3% distortion. That's not quite as good as the best, which can manage 0.6%, but it is close.

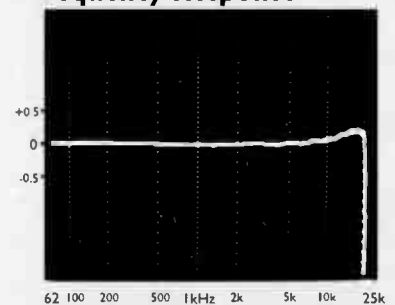
Here's a pretty competent player in

measured terms, but one that will have a slightly brighter sound than its rivals. In dull systems, it might be the tonic required. **NK**

TEST RESULTS (-1dB)

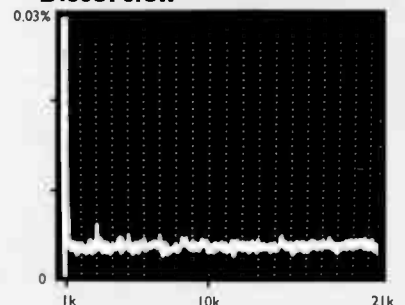
Frequency response	2Hz-21kHz	
Distortion (%)	-6dB	0.006 0.006
	-30dB	0.009 0.009
	-60dB	0.53 0.53
	-90	31 30
	-90dB dithered	3 3
Separation (dB)	left	right
	1kHz	107 106
10kHz	88 85	
Noise		-104dB
	with emphasis	-104dB
Dynamic range	105dB	
Output	2V	

Frequency Response



High frequency lift gives bright treble.

Distortion



Negligible distortion

Philips' latest 900 series components are uniquely styled to match one another. Although this promotes brand loyalty, unless you also own the 900 series amplifier, cassette recorder, DCC machine and tuner, the CD 930 could look ill at ease in a system.

With the centrally placed mechanism sitting below the large blue display, the Bitstream CD 930 looks more like a tape machine than a CD player. To the left of the front panel, there is a twelve digit keypad; 0 to 9, P for programming a track into the Favourite Track Select system and C to cancel a programmed instruction. Below this is the On/Off switch and the infra red sensor for the remote control. To the right is a single Open/Close switch with the headphone socket and its volume control below.

The remainder of the functions are set in a raised bar along the bottom of the player. These are further divided into greater and lesser functions. The former, such as Track Skip and Search, Stop, Play and Pause, are larger buttons and are directly below the CD drawer. Either side of these controls are the lesser functions, for Random Play and Favourite Track Selection on the left and editing, fading and spacing, for ease of taping, on the right.

At the rear of the player are the digital and remotely controlled variable-output analogue phono sockets, together with 'ESI bus' connections to link the CD 930 into a Philips system and a switch to disable the remote control if the CD player is to be controlled remotely from the amplifier's own receiver.

SOUND QUALITY

This player reminds me of the first generation of Philips Bitstream players, save that it has a harder edge to it. I found



PHILIPS CD-930

£199.99

the early players to have a Houmus-like texture to the sound; smooth, but with occasional gritty, lumpy bits. Although somewhat smooth and clear, the CD 930's overall character could best be summed up as bold, but curiously without undue forwardness.

It has the odd ability to turn Delius into a poor copy of Wagner, reducing his latter-day pagan passion into mere musical pyrotechnics. Cymbals crash and the orchestra and choir attack the music, but there is no sense of a musical theme running through the Mass of Life and one rapidly loses interest.

I can only attribute this to the 930's occasional coarseness. It is the antithesis of the Yamaha, which sounds overtly smooth. Whilst the '930 did not quite edge into sounding rough or bright, it lacks the silken nature of the Yamaha. In the excitement stakes, this may be seen as an attribute, but it

unbalances the 930's performance.

Of all the players in the test, the 930 has the widest soundstage and it retains a little of the depth perspective in a recording. If anything, the soundstage is spread too thin, making Big Star's version of The Velvet Underground's 'Femme Fatale' piecemeal and disjointed.

This quality, allied to its occasionally coarse sound, makes for a performance that is initially impressive, but soon after begins to undermine musical enjoyment.

CONCLUSION

The Philips CD 930 is a bit of a backward step after their earlier Bitstream successes. It is a logical progression from earlier players, but it makes a performance more exciting than natural. I would have preferred a more balanced approach, although I'm sure that some will like the Philips' all the same.

MEASURED PERFORMANCE

The CD 930 is a Bitstream player with what is known as a 'differential output', where certain forms of distortion are cleverly made to self-cancel. Trouble is, the '930 - like the '950 above it - produces very strong noise above 20kHz, some of which feeds back down into the audio band, to act like distortion. I found the problem was variable in its nature; when cold the player was at its worst. Within about twenty minutes noise products had largely, if not completely, cleared from the audio band, but they were still cluttering the immediate region above, becoming very strong - as CD players go - above 50kHz.

The variability of the 930's performance in this respect and the amount of supersonic noise it produces are both worries. Having such a performance, Philips disingenuously make it mute at digital zero, giving a misleadingly low noise figure of -120dB. The EIAJ dynamic range test better quantifies low level performance when problems like this exist, a poor value of 101 dB being a truer reflection of actual performance.

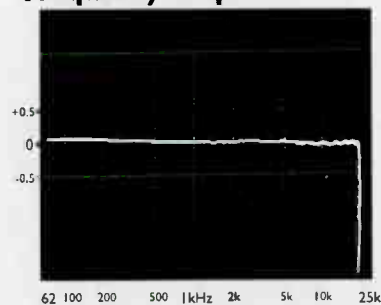
Noise and distortion apart, the CD 930 measures well enough. It has good channel

separation, alias products are fairly well suppressed and frequency response is ruler flat to 21 kHz, as the analysis shows. Output was low at 1.9V, so in a comparative shop dem. this player will be disadvantaged. **NK**

TEST RESULTS (-1 dB)

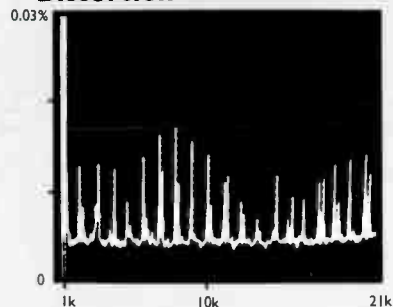
Frequency response	2Hz-21kHz	
Distortion (%)		
-6dB	0.004	0.004
-30dB	0.02	0.02
-60dB	0.8	0.7
-90	35	35
-90dB dithered	2.7	2.7
Separation (db)	left	right
1kHz	126	121
10kHz	127	120
Noise	-120dB	
with emphasis	-120dB	
Dynamic range	101dB	
Output	1.9V	

Frequency Response



Flat response with well maintained treble.

Distortion



Distortion when cold.



TEAC CD-P4500

£249.00

Central drawers seem to be a popular feature on today's CD players. Along with the JVC and the Philips, the Teac CD-P4500 also sports this once rare configuration, said to improve the stability of the transport.

Alongside the other CD players in this test with a central drawer, the P4500 is understated in its styling, with only the barest minimum of controls on the player and minor features, such as Repeat, relegated to the remote control. The only controls on the front are the most rudimentary: Track Selection, Play, Pause, Stop, Drawer Open/Close, pitch control, power on/off and headphone socket with its associated volume level.

This is the only player in the pack to have a variable pitch control, useful for any would-be disc jockeys or those with perfect pitch. Oddly, this is one of the few features that is on both the remote and

the player itself, ousting such comparatively useful functions such as Track Search. Three buttons form the pitch control; the first is an override, the others take the speed up or down by up to twelve per cent in increments of one per cent.

At the rear there are two sets of phono output sockets, but surprisingly both are variable in level by remote control. To the far left of the rear panel, there is a Syncro button, for controlling the operation of a Teac cassette recorder. Finally, Teac have chosen, like JVC, to supply the P4500 with an optical digital connection but no coaxial one.

SOUND QUALITY

Typical of the current breed of low-price, low-bit players, the P4500 is extremely smooth in its sound, especially when compared to budget CD players of a few

years ago. This smoothness may be its greatest downfall, as the P4500 often sounds just a little too smooth, compromising many a powerful piece of music.

Whereas the frantic performances of other players made Delius sound like Wagner the P4500 turned the most emotive passages into mere background music. Every hi-fi aspect of the player was competent, yet it lacked sparkle and life.

This laid-back nature was a disappointment, but was the most obvious part of the Teac's failings. It seemed as if there was a good CD player struggling to get out of the box; in all areas it seemed to have the potential to be up with the best of the rest, but just failed to come up to the mark. For example, the P4500's centre stage image was strong, but the lack of image precision across the rest of the stage detracted from this somewhat.

While the mid-range of the P4500 was reasonably coherent, it was not stunningly transparent and there was an occasional 'hiccup' with sibilant vocals. This inconsistency in the mid-range extended into the treble regions, while the bass was a touch ploddy and suffered from a bit of 'cotton wool' over drum kits.

The pitch control was a surprisingly useful feature. Neither this nor the remote volume controls caused undue problems elsewhere in the sound.

CONCLUSION

The Teac CD-P4500 could be classed as the 'if only' player of the test. If only it were slightly improved, its balanced approach would have placed it far higher in the listening tests. It is a good competent player, but by no means an outstanding one. As it stands, the P4500 merely offers a glimmer against the brighter glow of the competition.

MEASURED PERFORMANCE

Now being in command of modern digital technology, Teac reliably produce CD players of good basic performance. It hasn't always been like this for them, but the last few years have seen a steady stream of genuinely high quality products.

The CD-P4500 possesses a smooth looking frequency response characteristic having a gentle roll down above 10kHz, as the analysis shows. The absence of a treble peak is a good sign, both channels measuring similarly from 2Hz up to 20.8kHz (-1 dB). This sort of response characteristic usually results in an even and amenable-sounding tonal balance, free from sharpness or from the warmth that comes from a more pronounced roll-down.

Distortion levels were reasonably restrained, being higher down at very low levels than is the case with some machines, a situation reflected in the mediocre dynamic range figure of 104dB. The distortion analysis shows some spikes, a smoother result being possible.

This machine had high output (2.6V), something that will score over rivals in any

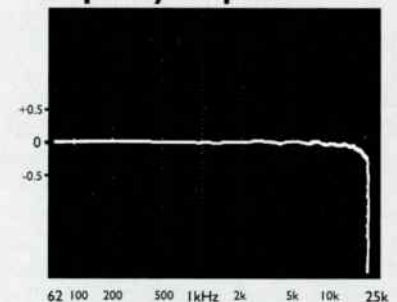
shop demo. There was little in the way of spurious output at 21kHz, a sign of good filtering.

The Teac measured well, having just a trace more distortion than some rivals. **NK**

TEST RESULTS (-1dB)

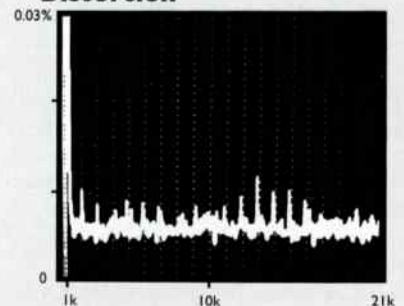
Frequency response	2Hz-20.8kHz	
Distortion (%)		
-6dB	0.006	0.005
-30dB	0.02	0.02
-60dB	0.65	0.65
-90	44	45
-90dB dithered	8	8
Separation (db)	left	right
1kHz	95	99
10kHz	69	76
Noise	-100dB	
with emphasis	-100dB	
Dynamic range	104dB	
Output	2.6V	

Frequency Response



Flat frequency response.

Distortion



Little distortion.

The CDX-660 sports Yamaha's new proprietary S-Bit Plus chip, allied to their own Time Base Corrector and an isolated clock. This is said to give the S-Bit Plus players the advantage with regard to time, resolution and amplitude. Apart from the S-Bit Plus circuitry, Yamaha claim the internal construction of the 660 features solid, anti-vibration measures, although the player is no heavier than, say, the Teac.

Externally, the most restrained and sophisticated-looking of the group, the Yamaha's svelte, understated lines come as a refreshing change after the JVC and Philips. Its charcoal front panel, light grey lettering and pale amber display give it a similar appearance to previous Yamaha players.

Layout is clear, with the primary functions in the top right corner, above the headphone socket and its attendant volume control. Beneath the clear display panel lie two rows of push buttons. The top row handles the secondary functions, such as Repeat and Random Play, and taping controls, as well as Track Skip and Search. Below this are the numeric keys, used for programming or quick track access. Combined with a remote control having a broad range of functions, this makes a convenient package.

At the rear of the player, there are two sets of phono connectors, for fixed output and remotely controlled variable volume.

SOUND QUALITY

The Yamaha lives up to its 'Natural Sound' slogan as the 660 was the most balanced and natural sounding of the players in this test. It was capable of coping with a broad range of music from Biber through to Delius and John Tavener, with a sprinkling of Blues, Jazz



YAMAHA CDX-660

£249.95

and even The Pixies and The Cramps thrown in.

Players like the Teac and the JVC came very close, but none were as able to make sense of the music in the way that the 660 could. This was especially noticeable in the Biber Mystery Sonatas. Here the recordings are so closely spaced that they often flow into one another; with the 660, you could clearly hear when one passage closed and another opened.

In addition vocals took on a natural texture, with good breathing space around the instruments. With small-scale music this could sound vivid without becoming imitating. The 660 does have a habit of getting a bit dazed and confused when presented with a complicated orchestral passage, however. The distinction between choir and strings was blurred on Delius' Mass Of Life.

The 660's imagery is rather two

dimensional, but no worse than any of the other players in this test. There is a moderate amount of image depth but the 660 still flattens depth perspectives, with a soundstage that seldom strays past the loudspeaker cones. This is, however, arguably better than the up-front approach offered by the JVC, which can become wearing.

CONCLUSION

The most pleasant-sounding player in the pack, the Yamaha CDX-660 will appeal to those seeking a well-balanced sound and who can live without a forward presentation to music. Save for the over politeness, and the lack of image depth that is common to all the players in this test, there is little to criticise about the 660's performance. Although it is the most expensive player in the test, it lives up to its price.

MEASURED PERFORMANCE

As budget CD players go, the CDX-660 is one of the best I have tested. It joins players like the NAD 5420/5, which has set a standard at the price for some time now, and the Sony CDP-497, recently introduced and marginally better. Like them, the CDX-660 has little distortion right through the entire dynamic range of CD. So often in the past, models at this end of the market have sounded coarse and unpleasant because of digital distortion. The distortion analysis clearly shows, by the absence of spikes, that the Yamaha avoids this problem at ordinary music levels. Additionally, it remains linear down at lower levels, producing just 1.5% distortion on a dithered -90dB tone. Its excellent linearity at all levels, not just high ones, is a strength that will translate into smoothness of sound in practice.

Like so many manufacturers nowadays, Yamaha play safe by making certain frequency response shows no sign of treble peaking; in fact there's a slight treble roll down above 15kHz. A very slight and gentle rise in treble output from 5kHz up to 15kHz may just add some sheen to this player's sound.

Excellent filtering cuts out unwanted

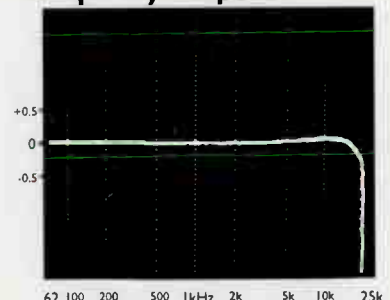
signals, known as 'spurious outputs' above 21kHz, a feature that also helps to keep this player sounding clean and smooth.

The high standard of the Yamaha's measured performance suggests that, subjectively, it will possess good sound quality at this price break. **NK**

TEST RESULTS (-1dB)

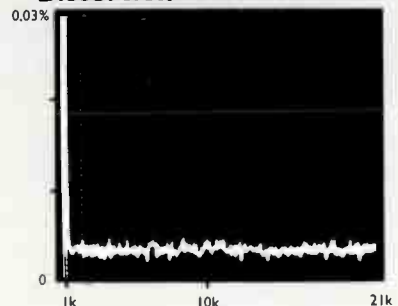
Frequency response	2Hz-21.3kHz	
Distortion (%)		
-6dB	0.004	0.004
-30dB	0.005	0.005
-60dB	0.47	0.4
-90	32	32
-90dB dithered	1.5	2
Separation (db)	left	right
1kHz	100	101
10kHz	73	74
Noise	-117dB	
with emphasis	-120dB	
Dynamic range	110dB	
Output	2V	

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CONCLUSION

With more than ten years of development behind Compact Disc, it would seem that manufacturers are now comfortable with the design of players. The lack of variance in their sound may suggest parallel development at each Research and Development plant or else it may be an arbiter of their close adherence to the

are about equal in their balance of strengths and weaknesses. Teac's CD-P4500 has a lot to offer, especially for the collector of transcriptions of older recordings. These may be recorded fast or slow and the pitch control does much to compensate for this.

Unfortunately, it is not the most exceptional of the CD players in this test.

This gave it the potential to be exciting, but it was a potential that remained undiscovered.

The UK special-edition Denon DCD-890 is the first of the players with true merit. It has a lot of character; too much for some systems. Very much a Rock CD player, it had a tight, rhythmic and tuneful performance, especially in the bass.

Where the Classical enthusiast may find fault with the DCD-890 is in its occasionally odd portrayal of certain musical instruments and especially of the female voice. When it goes wrong, the 890 takes on a peculiar hardness and grittiness.

For the most part, however, the 890's inherent musical nature overrode such anomalies. In a complementary

system its excitement factor, combined with a general lack of undue nasties, would prove difficult to better.

Finally, we come to the clear favourite among the six CD players, the Yamaha CDX-660. While there may be more dynamic or exciting designs, none had the 660's sense of performance, combined with its neutrality and balance. It simply got past all the problems mentioned so far and back to the music. Although its bass was not as prominent as the Denon's, there was no part of the Yamaha's tonal range that could be criticised directly. Its only sins were ones of omission, rather

chip manufacturer's specifications. Either way, it still results in six rather similar players, two of which are a bit more distinctive than the rest, for reasons discussed in the introduction.

There were differences, however, and sadly, of the six, the Kenwood DP-5040 fared worst. Although musically it was both capable and competent, its brightness and forwardness was too obvious, making it difficult to recommend in anything short of a very bland or dull sounding system.

Its presentation was reminiscent of early CD players. In today's market, I feel that the Kenwood's sound, although 'honest' in its approach, will be a major stumbling block, although its brightness will make it stand out in the demonstration arena.

I was surprised by what I feel to be a comparatively retrograde step made by Philips with their CD 930 player. Instead of being a development of their earlier successes, the 930 moves in a radically different direction, one that I am unsure of. While it brings both dynamics and excitement to Bitstream, properties critics have said it lacks, it does so at the expense of smoothness and subtlety - and this was always Bitstream's hallmark. A little more balance in the 930, trading some of the excitement for the refinement of previous Philips players would be a benefit I feel.

Both JVC's XL-Z452 and Teac's CD-P4500 represent the middle ground and

The P4500's performance is at best laid-back, but also occasionally laid-out. It has no major irritating flaws, although there are some minor niggles regarding the frequency extremes, but this player has an uninspiring character that suggests it is best suited to no more than background listening.

Both the P4500 and the JVC XL-Z452 are more balanced in performance than the likes of the Kenwood and the Philips, however. The difference between these two players and the previous two is small but significant.

JVC's XL-Z452 is the direct opposite



of the Teac, swapping the laid-back character for the most up-front performance of the test, yet one that was even-balanced and seldom bland.

Where it did fall down was in its lack of ability in conveying the passion and life in music. The reason was hard to pinpoint as the JVC was dynamic, if slightly bass shy.

than commission.

Although the Yamaha was in the upper regions of the price range for this group, its qualities still set the player head and shoulders above the others. If it were to prove too smooth for some tastes the Denon DCD-890 would be a good alternative ●

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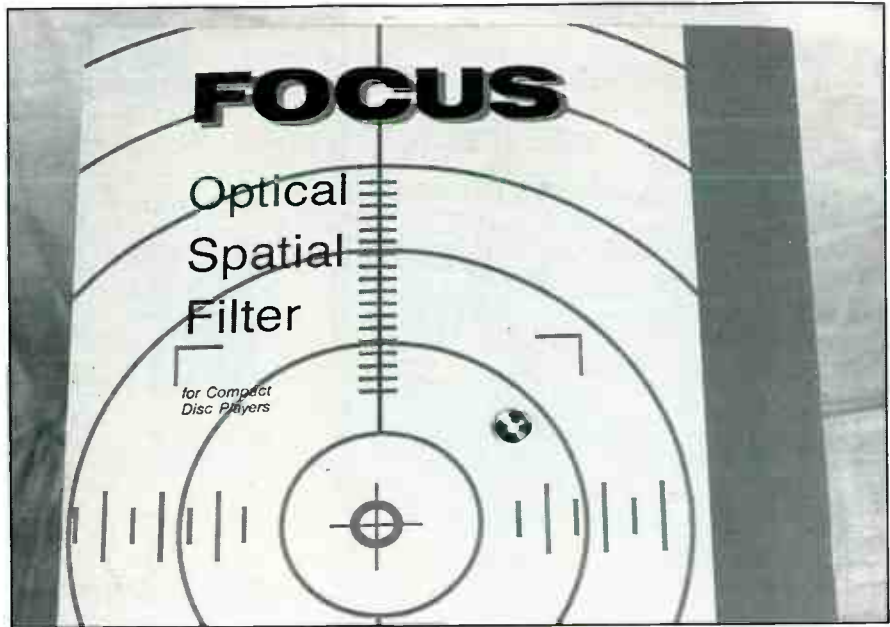
A few months back, attempting to de-rail the Green Pen business, or at least push CD-player tweaking onto a new track, I mentioned a 'Lens Hood' I'd heard of. It seemed to me that reducing scattered light at its source - the laser - looked like a better way of handling the problem than green ink or whatever on the software. The hood sounded like an interesting idea and, even better, it was made by a company I'd never heard but was wonderfully named: Laser Illusions. Here, I thought, could be a nutty notion I could have fun with.

For a while, I thought Laser Illusions was living up to its name; perhaps the company was more of an hallucination. Please sent to Illinois for a Focus Optical Spatial Filter - as their lens hood is called in commercial life - met with silence. I'd just about given up and decided the hood was a hoax when suddenly a package postmarked 'Naperville, Illinois' turned up in the post.

The Spatial Filters also came with a heavy-looking abstract catchily entitled 'Sonic Improvements in Digital Playback Systems Through Spatial filtering and Scattered Light reduction in the Optical Domain' by Laser Illusions' guiding lights (sorry!), Messrs. D. L. Sipes, L. Higley and T. Willy. I suspected Green Pen syndrome for a moment - the kind of pseudo-science dressed up with borrowings from wandering philosophising monks, a spot of astrology and a mention of Ley Lines and Nostradamus. To my relief, a quick glance showed a mention of Nyquist and histograms, so this looked respectable. They even used the B52's 'Cosmic Thing' in experiments! So I read it.

My apologies to Sipes, Higley and Willy if the following summary of their arguments misses some of the finer points. If it intrigues you, Laser Illusions live at 1220 West Ogden Ave., Naperville, Illinois, 60563 in the U.S.A.

Their starting-point is now fairly common ground. In theory, while digital formats can be perfect storage mediums, in practice they become bug-populated in retrieval. "Students of music were made brutally aware of the myriad of differences that exist between theory and practice



ILLUSION OR REALITY ?

Laser Illusions in the U.S.A. claim their Focus Optical Spatial Filter improves the sound of Compact Disc. Eric

Braithwaite puts it to the test.

when the Compact Disc reproduction format was first introduced with all its attendant harshness and atonality," they write.

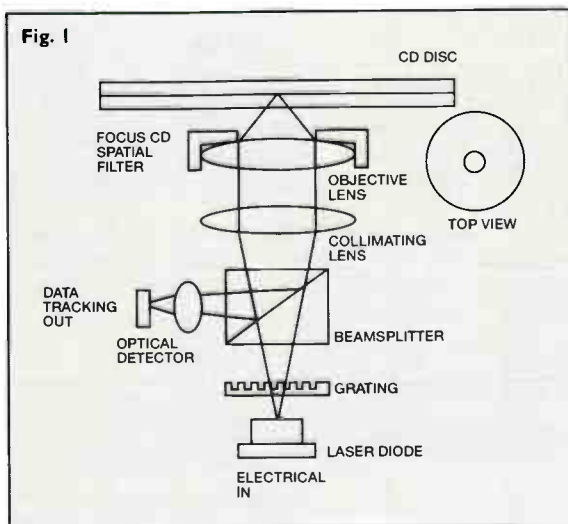
Here is a familiar argument, and its continuation aroused more of my sympathy. Compact Disc, in its 'shake-out' period, failed to approach the achievable sonic quality of analogue vinyl replay. First-generation players "offered mind-boggling levels of SNR (Signal-to-Noise Ratio) and dynamic range, but unfortunately the digital-to-analog conversion process contained phase-altering filters and lacked linearity that all but destroyed soundstage and any vestige of musicality that had

previously existed. "Oversampling and digital filters introduced in second-generation players improved matters, but still fell short of even mediocre analog systems.

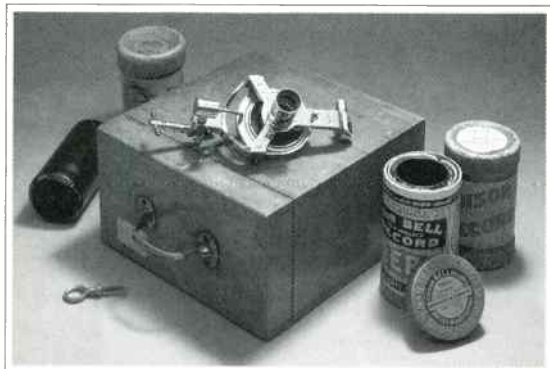
So, now to the why and the wherefore. Compact Disc replay is an optical system, depending on the reflection of light off the CD itself. Light from a laser diode, in short, is focussed as a spot on the CD 1um in diameter - the depth of the 'pit' on the CD. It is then reflected back from the CD surface and through a 'beamsplitter' to the photo-diode which collects it, after which the light 'pulses' are converted into electrical signals and sent to be processed, eventually ending up either at the digital output of a transport or through a digital-to-analogue converter and the analogue output of a CD player.

If the light from the laser simply had to bounce back from a 'pit' and was dissipated by anything else, life would be simple. Unfortunately, however, the musical information on the CD is encoded in EFM (eight-to-fourteen modulation) format. There are in fact nine sizes of 'pit' and the spaces between them for the laser to reflect off. The edge, as it were,

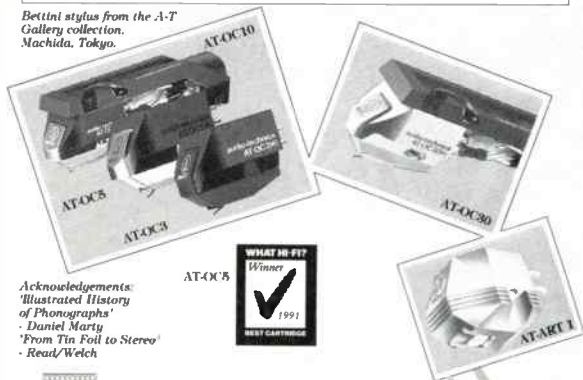
The structure of the laser head in a Compact Disc Player. Light is focussed through the objective lens on which the Spatial Filter fits. (Diagram courtesy of Laser Illusions.)



A Refining Of The PRINCIPLE



Bettini stylus from the A-T Gallery collection. Nachida, Tokyo.



Acknowledgements: 'Illustrated History of Phonographs' - Daniel Marty 'From Tin Foil to Stereo' - Read/Weich

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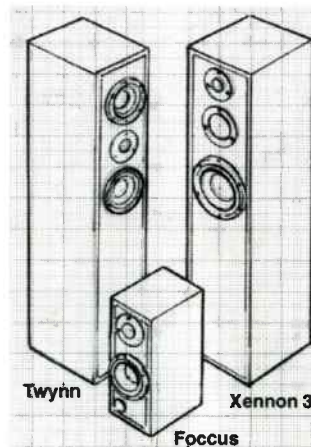
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between the pit and the space next to it (think of them as a series of holes in the road of different sizes, but the same depth) is the digital '1' and the flat space next to it (the road as far as the next hole) is the digital '0'. Although the photodiode and its associated circuitry is essentially reading either a digital '1' or a digital '0' in a stream and the processing is dealing with a string of the two numbers, it is also reading the time it takes to get from one hole in the road to another.

Optical Vacuum Cleaner

In the laser assembly, the lens which collects the reflected light, say Laser Illusions, acts as an "optical vacuum cleaner", collecting the beam it's meant to, along with any stray light which has been reflected off adjacent pits or plateaus. All CD players have 'error correction' circuitry built-in, so that if a meaningless jumble of 1's and 0's arrive, it's sorted out according to what went before and what comes afterwards so you still hear music. Despite impressions to the contrary, the larger record companies do try to produce a digital master which has as few errors in it as possible. They creep in later during the manufacturing process: at the beginning, it was rumoured that 90% of the first CDs coming off the production line were unplayable; now it's down to 1% or much less.

According to Laser Illusions' experiments, monitoring the error output from decoder chips shows up only a few uncorrectable errors throughout an entire CD: so the digital part of the system is doing its job. But it's not enough, they suggest. If the sound still isn't coming out properly - or up to the quality of high-end analogue - then errors are the result of the optical end. While an increasing number of manufacturers are examining ways of reducing the errors in timing, called 'jitter', by linking the Master Clock of a DAC to a transport - DPA Digital with their 'Deltran', and Arcam with their 'Synclock' - Laser Illusions reckon there is more of a 'jitter envelope', which embraces the optical as well as the digital domain.

Hooded Lens

Unlike the ideas behind the Green Pen or Stabilizing Rings, which treat the software, Laser Illusions' solution is to treat the laser assembly itself, in much the way a camera lens hood is used to prevent unwanted reflections reaching the lens. Physically, it's tiny, just a small shield which clips over the laser lens. It's removable, so it doesn't invalidate any guarantees, though with drawer-loading transports the case will have to be opened up to gain access. A CD player must be disconnected from the mains first. Spatial Filters are available for most breeds of CD players and transports.

This American company tested their new toy with real music played on real CD players to real people. They used a range of CD players "from portable

'boom boxes' to expensive Transport/Processor separates" in front of four hundred subjects. Ninety per cent, they say, identified a positive improvement, commenting on improved definition, smoothness and sonic three-dimensionality. I couldn't match the range or the size of listening panel, but I did inflict the Spatial Filter on several CD players and transports and several different visitors. As is usual, my guests were neither told what I was doing or if I was doing anything.

Primarily the most noticeable effect is that elusive attribute of the best CD players and the best hi-fi. With live performers, listeners' perceive space around them and behind them. It's one of the hardest tricks for hi-fi to bring off. The Spatial Filter, however, did increase the amount of air and space just discernibly. It wasn't an effect which leapt out and impinged on the consciousness; more that, removing it, one was aware of a lack of atmosphere that had been present before.

Dark Silences

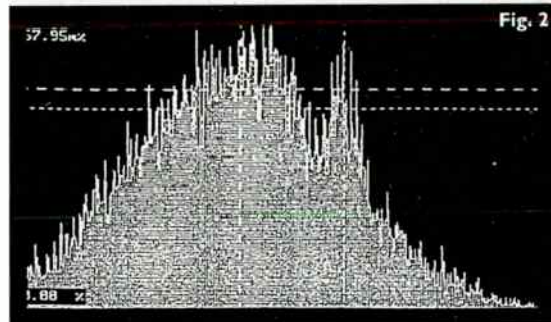
We all talk, now and then, of the 'darkness' of silences. When an instrument stops playing in an auditorium, just briefly, one becomes aware of the acoustic quality of the hall or studio. Some studios, of course effectively have none - and the silence between notes should be exactly that: quite sudden in its arrival. With the Spatial Filter in place, plucked strings particularly - or guitars - had a tiny degree more of precision and firmness. This translated into a sharper attack on almost all instruments throughout the range. Most subtly observable on orchestral and chamber music, it lent Rock a slightly tighter driving force, a more solid outline to performers and their instruments, especially on electric guitar and the drumkits. I don't think I've heard Peter Gabriel's 'So' quite so tight and clean before, except through seriously expensive players.

Don't get me wrong, this little device is not going to have people rushing into the street crying "I've found Nirvana". But it does engender an increased interest in the performance, produces a tidier holistic picture. Little things that contribute to pleasure in a recording, like the subtle gradations

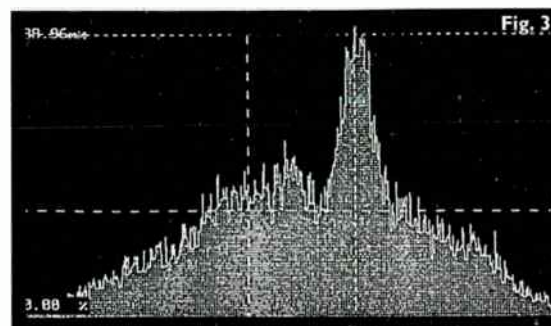
between pianissimo and piano, are clearer and more perceptible. A flute or a woodwind instrument has a mite more feeling, the embouchement of a soloist, the effort of his breathing that bit more pronounced.

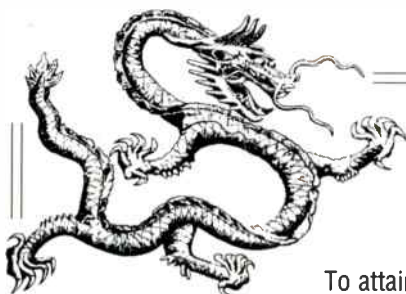
It all adds up to just that little bit more detail, particularly in the treble, that helps to involve a listener more. Just as a live performance does. It's not easy to measure, particularly as it is difficult to be sure whether the Spatial Filter will perform its magic on everything, but I'd say (and so would my tame listeners) that it represents an improvement by about five per cent. And it worked its alchemy on both a modern transport and an old top-loading Marantz 63B I resurrected out of curiosity. The results with this player were particularly interesting - it is prone to a certain degree of grainy harshness in the treble which was noticeably smoothed over without detail being lost. It seemed to me more consistently effective, albeit subtly so, than a Green Pen or Stabilising Ring.

All I have against it is that the Spatial Filter is tiny and it's fiddly to fit. It's certainly advisable - nay, essential - to lock the transport down to avoid damage to the arm. Laser Illusions are quite right when they say it's removeable; it is - though some care needs to be taken while levering it off the laser lens. I had to enlist the aid of some long finger nails. But then, I was doing 'before and after' tests; most people will fit it and forget it. At least, they'll forget it until they recall the degree of enhancement they've gained ●



Histograms above (Fig.2) without the Spatial Filter, and below (Fig.3) with, from a series of 20,000 measurements made by Laser Illusions of the time intervals between the 'pits' and the 'plateaus' of a CD. Note the 'tighter' distribution in Fig.2, which suggests jitter is reduced. (See text.)





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PENTA HI-FI SHOW 1992

**This year's latest products, brought to you by the fleet-footed
Hi-Fi World team straight from the show.**

Although this year's Hi-Fi News Hi-Fi Show at the Penta Hotel was haunted by talk of the recession, enthusiasm was in abundance, especially on trade days when numerous Far Eastern distributors seemed eager to buy the best in British hi-fi. The British hi-fi press was not as eager, however; Hi-Fi World was the only other specialist hi-fi magazine to participate in the show directly.

In spite of Britain's economic woes, there was still a plethora of new products at all price levels, from inexpensive accessories up to the new four-box Jeff Rowland Model 9 power amplifiers and a static display of the massive £17,500 Krell Audio Standard power amplifiers, with their enormous retro looking front panel ammeters.

Staying with new amplifiers, but at a more realistic price level, NAD announced a completely new range to replace their existing line. The new NAD products have been extensively restyled, both internally and externally, but they still retain some of the flavour of the earlier designs. The products that gained the most interest were the 302 amplifier at £159.95 and the 502 Compact Disc player priced at just under £200. They replace NAD's long-standing 3020i amplifier and budget CD players respectively.

Still in the lower price bracket, QED were displaying their new active/passive fully remote Vector preamplifier, expected



A complete new hi-fi range from NAD, announced at the show and seen in public there for the first time.

to retail for under £250. This will be supplied with a remote control unit that can also control Philips, Marantz and other RC5-system (Philips remote control protocol) players. In addition, QED announced the Positron power supply upgrade for their budget Digit DAC.

Alchemist Products, Arcam and John Shearne all launched new products on an unsuspecting hi-fi industry. The surprise of

the show was the new £449.90 Arcam Delta 290 amplifier and £349.90 280 tuner, both of which will be available shortly. Designed to replace the Delta 90 amplifier and Delta 80 tuner and utilising ideas and techniques learned from the recently upgraded Alpha range, the new products sport a completely new-style design, are remote control ready and were making some very interesting sounds when partnered with a pair of Vandersteen 2ci loudspeakers.

Hot on the heels of the Kraken integrated amplifier, which we reviewed in our September 1992 issue (and liked!), Alchemist announced a pre/power version of the same. John Shearne, on the other hand, introduced the Phase Two, a sweet-sounding £199 line-level integrated amplifier, to complement his Phase One pre and power models.

Musical Fidelity were celebrating their tenth anniversary with the launch of several new products. Apart from the valve CDT 'frog' CD player, they also displayed their new Tempest amplifier, CD2 CD player and two new loudspeakers, the MC3 and Reference 3.



Arcam's Hi-Fi Show surprise; Delta amplifier and tuner in completely new guise, both remote controllable.

Further up the scale, there were a number of new and interesting amplifier designs, both valve and solid state. Exposure were playing their latest XVII and XVIII amplifiers, through a pair of floorstanding Royd loudspeakers. The private showing of the new AR Limited range caused a stir. Designed by a consortium of high-end experts including Mark Levinson, Dan d'Agostino (Krell) and David Day (Day Sequerra), this new range of high-end without high-cost amplifiers, soon to be followed by CD players and tuners, look as if they have great potential. AR have undergone a complete management re-vamp: Art Blumenthal and David Day explained the company was determined to go back to its roots - making equipment for music lovers.

The British high-end was admirably covered by a number of companies, notably Michell Engineering with their unique and fascinating new Alecto power amplifiers, T&R industries with their range of amplifiers and modified Marantz CD players, and Chord with a range of power amplifiers topped by a new and massive



"Affordable high-end." The AR "Limited" power amplifier, with input from American big names in hi-fi design - Mark Levinson, David Day and Dan d'Agostino.

SPM 3000 that'll deliver about a Gigawatt it would appear, into just about any speaker you could care to name. Perhaps this will be the SA-470 (Musical Fidelity) of the Nineties that we have been looking for, a power amplifier with a grip so vice like, no speaker can escape.

Finally, one of the up-and-coming stars of UK high-end, Tesseract Audio, announced their new 60 watt Class A monoblocks. This company were also hosts to the new SME Model 20 turntable, launched at the show to coincide with our own SME front cover (!).

There were also some interesting developments in the valve world. Sound Research, Trilog, Dynaco and Kammerzelt all had some interesting designs, worthy of note. In the same room as Kammerzelt Audio Labs, who are soon to be opening their own valve-orientated store on the South Coast, Athena recordings announced they had licensed one of the great classic - and much sought

after - Fifties Decca recording of Petrushka played by the Orchestre de la Suisse Romande conducted by Ernest Ansermet.

Audio Innovations were showing their latest L1 and L2 preamplifiers, with separate valve phono stage, Art Audio had an attractive new gold-coloured preamplifier, Copland were displaying their new pre and power amplifier and Kronos Distribution were proudly showing the French-made Lectron amplifiers making a near-magical sound with a pair of new Triangle loudspeakers.

Unfortunately, PM Components ESTI range of amplifiers and loudspeakers hit problems. One of their new monitor loudspeakers accidentally toppled over, falling onto the valve pre and power amplifiers playing below. This was a great shame, for the combination looked and sounded fine before the accident. In addition, there was a static display of ESTI's new 300B monoblocks.

Aside from the valve amplifiers and loudspeakers, they also had their interesting and effective digital pre-processor that cleans up the digital waveform, improving sound quality. We have listened to it, in a pre-production form, and found that it dramatically improves the smoothness of the sound, in the manner of the Deltran clock conversion. Now that the DPP is in general production, expect to see a review in a forthcoming issue.

Following the suspension of Linx and

From Germany, Friedrich Kammerzelt's enormous prototype valve integrated amplifier in the Kal room. It will be made in Britain - in Folkestone.



The Alecto power amplifier from Michell Engineering. "They do for the look of power amplifiers what the Gyrodec did for turntables," said John Michell. Who could argue?

Cambridge electronics ranges, Wharfedale announced a return to electronics manufacture with their 2050A integrated amplifier priced at £249.90. In addition they were also displaying three of their latest loudspeakers, including the new £119.90 Diamond V bookshelf loudspeaker, which we hope to review shortly. The Wharfedale Diamond has traditionally held top spot in budget miniature loudspeakers.

A new name to the hi-fi shows, Sequence had a pair of interesting flat loudspeakers, priced at £199.90. These can be used in free-space or even hung on the wall. Looking more like panel loudspeakers than boxes, the Sequence 30's are a bold attempt to rid the budget loudspeaker of box coloration, by using a girder-like internal construction. First listening showed plenty of promise, with a clear mid-range, for the price.

The metal drive unit seemed to be in the ascendant at this year's Penta show. TDL were showing their new metal-coned £795 Studio 0.75 transmission line loudspeaker, which appeared to combine the deep bass of a all TDL loudspeakers with new levels of clarity and detail.

Monitor Audio continued their championing of the metal driver with the Studio 6 and Studio 20 loudspeakers, but also displayed a new sub-woofer for the baby Monitor One. Monitor Audio must win the award for quality of finish, especially with their excellent range of

Continued on page 48...



Last month, I looked at the first purchase for a new house - what other than a hi-fi. Now, at the other extreme here's a system that nestles in a listed fifteenth century thatched cottage in Cambridgeshire. It has taken years of building and renovation (the house, that is) having spent a good deal of time in a similar state to Judy Head's home I described last month. Today, however, the finished abode is decorated in a myriad of rich autumnal hues and it's not the sort of place especially well suited to black hi-fi boxes.

Paul O'Connor, owner of The Grog Blossom chain of wine merchants in London, has made his system an exercise in disguise. So well disguised, in fact, that the source components were virtually hidden from sight and near impossible to photograph. The system consists of a Marantz CD85 Compact Disc player, connected electrically to a latest specification Deltec The Little Bit digital-to-analogue convertor. This is hooked up to an older Audiolab 8000A integrated amplifier and then, via single-wired Exposure cable, to one of the first pairs of mahogany Epos ESI I loudspeakers made. A Sony 650ES cassette recorder and an old JVC T-V3L tuner complete the picture.

Originally, Paul was unsure about the Epos loudspeakers, purely because the standard black finish would look out of place in the living room. The walnut models were considered, but when the mahogany ESI I's were released, Paul was finally satisfied.

The black open frame stands used by Epos also look incongruous in such surroundings. This was overcome by



Paul and his expectant wife Kim outside their idyllic Cambridgeshire cottage.

covering them with material, similar to the Victorian idea of covering chair legs to avoid arousing the passions! In Paul and Kim's place, however, this had more to do with interior design and colour matching than suppressing eroticism.

Prior to the ESI I's, Paul used a pair of original ProAc Tablettes, a hang-over from previous systems he had when living in London. In the London flat, the ProAcs were never driven at any decent volume, because of angry neighbours. Once Paul moved to Cambridgeshire, where he



Pictures by Paul Hartley.

could really turn the music up, the ProAcs began to sound thin and weedy, probably due to the Audiolab 8000A noticeably running out of steam, so in came the Epos speakers. But in moving, the London flat was not abandoned. Instead it has become a repository for his cast-offs. These are to be an elderly Linn Sondek turntable and his substantial record collection, which is currently stored in the basement of the cottage.

The Epos loudspeakers, being a less current-demanding load than the little Tablettes, are far more capable of producing power, drive and energy with the Audiolab. There is still some thickening to the sound, as if the Audiolab is straining at times, but on the whole it is an enjoyable and listenable system.

Paul finds the concept of the hi-fi enthusiast strange. He finds it odd that people spend vast sums of money on their hi-fi, yet have only a handful of recordings. His system may not be the last word, but his CD collection is ever increasing and very varied - from Mozart to the Black Crowes, with almost everything in between.

Hi-fi is only a tool to him, only a means to an end. Music is all part of the Dionysian experience. Good food, conversation, fine wine and music are all more important. He does accept that one becomes attuned to the quality of good hi-fi reproduction, in much the same way as one learns to appreciate good wine; when new to the sport, it is easy to accept a cheap wine, as it is to listen to budget equipment. As your tastes develop and refine, you find it harder and harder to accept cheaper wine or hi-fi. Finally, you reach a plateau, where, although you can appreciate better wines or hi-fi systems, you are happy with your lot. At the moment, Paul has reached such a plateau

reader's system

Good food, fine wine and hi-fi.

Alan Sircom enjoys a Dionysian experience in company with a wine merchant.

with his own system.

Eventually, however, thanks to a friend who lent some Naim equipment to him, Paul will upgrade the system to fit a small Naim pre/power, which will suit perfectly. I also spoke of the cabling, but bi-wiring is currently low on his list of priorities. When Paul finally Naims the day, his Audiolab amplifier will be handed down to his system in his London apartment.

Possibly due in to accompany the Naim is a Nakamichi cassette deck; Paul was mightily impressed by its sound quality. In the end, Paul's London flat will end up as something of a de facto museum. Meanwhile his traditional home in Cambridgeshire possesses a sensible collection of items that deliver excellent sound quality yet have been carefully installed to blend in with their surroundings. It's a dream many proud home owners wish to fulfil ●



HARMAN

EXTRA DRY

**With a dry, tonally neutral character,
Dominic Baker finds Harman-Kardon's
HK 6550 amplifier approaches a hi-fi ideal.**

Harman-Kardon's HK 6550 is a bigger brother to the HK 6150 reviewed in the June issue and currently residing in our World Favourites section. Needless to say I was expecting great things from this larger and literally more weighty offering.

Harman Kardon have been producing well-engineered products for a long time now and their skills were clearly evident when I removed the amplifier from its packaging. Why is it that even the larger British audio manufacturers can't match the uncanny precision with which a company like Harman can get their Japanese manufacturers to mount their front panel controls? On the '6550 they have an equidistant gap of minimal

proportion surrounding the perfectly centred control knobs. Quite unlike the majority of British equipment, these have a silky smooth feel and steer clear of catching the casework as they are rotated. It's a detail that helps to give the amplifier a precision feel.

The front panel is finished in a dark grey satin textured coating which gives the unit a feeling of plush quality that entices you to touch the controls more often than would normally be necessary.

Harman Kardon, acknowledging the need to provide amps when driving low impedance or difficult loads, have made the '6550 a high-current design offering, they claim, around 40 amps of instantaneous current. This makes the '6550 a

capable amplifier, matching to loudspeakers should provide little or no problem.

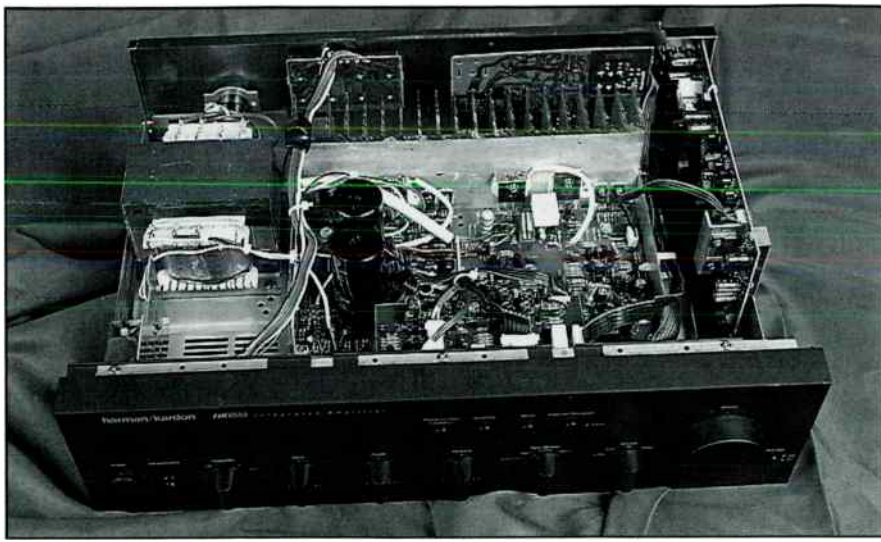
By audiophile standards the '6550 offers a lot in the way of facilities. These include tone controls, a subsonic filter and an external processor button which I found can be used as a handy muting switch when the 'phone rings. Its correct function, though, is to enable an effects processor such as a graphic equalizer (perish the thought!) or a surround-sound processor (no better!) to be switched into the circuit.

The '6550 also possesses an "exclusive Harman Kardon feature". This goes by the label of "Phase Correct Loudness" and is basically a bass equalization control for miniature loudspeakers with a phase correcting circuit. This phase correction is said to maintain a clear, neutral sound whilst the control is in operation.

Inputs are well catered for with five line level inputs and both moving magnet and moving coil pickup inputs. This seems a little over the top but the '6550 will be sold to a mass market audience so every option has to be catered for to get sales.

The HK 6550 has recently had a price hike from £299 to £349 which is a shame because it would have come close to being a bargain at the pre-increase value.

Harman-Kardon amplifiers are normally associated with a dry, lean tonal balance and this particular version is no exception. It almost goes too far, with a presentation similar to that of the clinical Audiolab 8000A, and a tendency towards a degree



the amplifier did tend to sound bass shy on the majority of material I used with it. The bass was certainly there, but not with any great force. I tried several different loudspeakers and additionally swapped it for a different amplifier in the same system configuration, but these experiments only confirmed my observations.

Overall though, the HK 6550 is a thoroughly refreshing, tonally neutral amplifier. Lucky are the ones who purchased at the pre-increase price, but even so it still offers a very realistic performance at its current price level ●

Mains transformer at left, large heat sink for the output transistors sits in the centre and low level disc stage board sits upright at far right.

of neutrality not usually associated with amplifiers at this price.

In fact the Harman is notable for its lack of character, having little or no effect on the signal it is conducting. Surely this is exactly what hi-fi is about, the less of its own character each component adds to the original recording, then the closer to the definition of hi-fi we approach.

The HK 6550 was used with a variety of equipment but most interesting of all was its insertion into a relatively high-class system consisting of a Teac P500 (labelled 'Esoteric') Deltran'd transport feeding a Deltac Bigger Bit converter and a pair of Heybrook Sextet loudspeakers. In this kind of company it was still hard to pick

“Harman-Kardon amplifiers are normally associated with a dry, lean tonal balance”

faults with the Harman, which without any fuss settled down to the job in hand, belying its price tag.

On Suzanne Vega's first album the '6550 gave her a chance to breathe, which she duly repaid by producing a clear and powerful vocal display, full of personality and her own character rather than that of the amplifier, its 'extra dry' nature suiting this style of simple acoustic plus strong vocals perfectly.

The Harman went on to produce excellent results with a variety of material including The Sugarcubes, Peter Gabriel and some light Classical pieces. The only valid complaint that could be made about it was a surprising lack of bass. Surprising because of its very acceptable power increase into a four ohm load, and additionally because of its wide bandwidth design. It is not a serious problem, but

MEASURED PERFORMANCE

Harman-Kardon's '6550 produces a very similar specification to that of its predecessor the '6500. In fact the only major difference is a reduction of the upper frequency limit of the amplifier. The output is a useful 66 watts into 8 ohms with a satisfying increase to 110 watts into four ohms. This indicates that current delivery is good and that the Harman should have no trouble driving low impedance loads with a suitable amount of bass drive.

Distortion figures were very respectable, hovering around 0.02% even at high frequencies. The notable lack of treble distortion should make for a clear and pain-free sound with the majority of loudspeakers.

As with many Harman-Kardon amplifiers the '6550 has a wide bandwidth of 2Hz-127kHz for line level inputs. This range is more than ample for a good CD player to express its subsonic abilities unhindered. Separation and noise are both adequate, as are the other measurements for the line stages.

The tone controls are effective with a +/-10dB variation at 50Hz and again at 10kHz. Minimum slewing of the response above the operating frequency of the bass control, along with a smooth gradual lift indicates good circuit design and makes this control useful in its effect. Unfortunately the treble boost has a shelf-like lifting effect on the response which is virtually useless, as the modification required in nearly all cases is one following a gentle curve either rising or falling up to around 12kHz. Only spectrum extremes need gentle alteration, not half the audio band.

The '6550 also offers 'Phase Correct Loudness', which is basically a bass equalization control for miniature loudspeakers with a phase correcting circuit. This phase correction is said to maintain a clear, neutral sound whilst the control is in operation.

Disc stages in mass-produced amplifiers have suffered over the last decade due to the monopolization of CD Harman have appeared to follow this trend with what appears to be an identical set of specifications

to the previous model but with worse separation figures. Could it be less attention has been paid to circuit layout? Otherwise, the disc stage is a reasonable attempt at what, after all, will sadly remain dormant in the amplifier's heart for many of its purchasers. **DB**

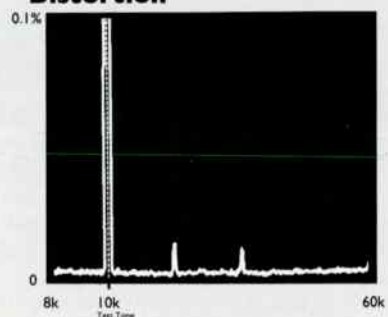
TEST RESULTS

Power	66watts
CD/tuner/aux.	
Frequency response	2Hz-127kHz
Separation	66dB
Noise	91dB
Distortion	0.02%
Sensitivity	150mV
dc offset	3/37mV

Disc MM	
Frequency response	4Hz-80kHz
Separation	65dB
Noise	78dB
Sensitivity	2.4mV
Overload	148mV

Disc MC	
Frequency response	12Hz-90kHz
Separation	56dB
Noise	66dB
Sensitivity	115uV
Overload	7mV

Distortion



Little high frequency distortion at 0.02%.

...continued from page 25

the Tandy product, but eventually rejected it on the grounds of flabbiness in the bass. This led me to cast around for a cheap alternative and, happily, I've found it. Maplin's catalogue lists an RF cable called UR76 (their item code XRI9V) which they also recommend for 'high performance audio connections.' It is a coaxial cable with stranded signal core and braided screen, 5mm in overall diameter. At only 36p per metre, it was too inviting to ignore, and the results in my system have proved so worthwhile that I've given up the notion of looking for anything better, as I can't find anything to criticise, given the budget nature of my system. I suggest that any reader handy with a soldering iron and contemplating an upgrade, should give it a whirl before splashing out on something much more expensive.

A word of warning, however. All interconnects I've ever tried show directional effects and this is no exception. Before cutting the cable into individual lengths, mark it in some way to ensure that all lengths run to the amplifier in the same direction. Which direction is best is a matter for experiment, as the cable gives a thinner mid-range in one direction than the other. Choose the direction which gives the most natural effect on voices. Having determined that direction, note that the cables connecting the amp to the 'line in' sockets of your tape deck should run in the opposite direction, as the information flow is reversed.

Tandy's gold-plated phono plugs (item 274-850) suit this cable. Item 274-321 is a satisfactory cheap alternative.

**G.L. Hewick,
Leicester.**

DISC-FREE OFFER

Further to the May edition of 'Hi-Fi World', I duly completed the coupon for the free LP of my choice, but, up to the time of writing, this LP is still not to hand. Your comments would be appreciated.

**L. Ambler,
Pudsey,
W. Yorks.**

Our apologies, and those of the Virgin Venture label, to those readers who have experienced a delay in receiving their free LP. The parent company was taken over by EMI shortly after our joint special offer, resulting in an immediate rationalisation of staff and the transfer of

various parts of the company from a number of different sites in London to the main Virgin building in Harrow Road. The inevitable result was that delays ensued in sending the LPs out. Most of the thousands of requests should now have been dealt with, but any readers who are still bereft of their vinyl should contact Virgin Venture (Hi-Fi World Offer), Kensal House, Harrow Road, London W9. **EB**

LINN LOVE

Six months ago I was forced, like many others, to purchase a Compact Disc player, owing to the lack of LPs. I purchased one of the best, a Meridian 602B. Right from the start I could not get on with it. I found it cold, sterile and could in no way become involved in the same manner as the Linn. I tried every tweak in the book: Green Pen, Laser Guide, CD feet, cable, P.W.B. products, etc. etc. Although the sound improved one hundred percent, it was still completely unacceptable compared with old fashioned vinyl.

Completely disillusioned I managed a straight swop with my dealer, exchanging the 602B and my old Ittok for an ex-dem. Ekos arm. I found bliss once more with the Linn!

Secondly, Sendor do not change their speakers often but when they do they get reviews second to none. Yet no hi-fi magazines seem to recommend them, despite their being used by the B.B.C. and German Radio Service and many recording studios over Europe. They are also about the only hi-fi specialists who never advertise. Why should this be so?

Lastly, for the vinyl lovers in the London area there is an excellent hi-fi dealer called 'Volume 1' at 41 Upper Wickham Lane, Welling, Kent. They have a selection of approx. 5000 second-hand LPs in excellent condition, costing between £3 to £4 and all neatly catalogued. You can change them for any reason, providing you return them within ten days.

**L.J. Reed,
Welling,
Kent.**

You would probably have been better advised to listen to a softer or warmer sounding CD player like an Arcam. As CD goes Meridian players rank alongside the expensive Sony players for sounding sterile or, as some would have it, coolly analytical. However, many people do like such a sound,

finding players like the Arcam too inaccurate. In the end, it comes down to personal taste, but we can't help feeling that a good demonstration of the equipment prior to purchase might have helped you avoid such an expensive fiasco. **NK**

ULTRA LINEAR

The pundits are recommending the valve amplifier but today all the lessons learned in the past, before solid state predominated, seem to have been lost.

Whatever happened to the ultra-linear output stage?

The biggest deterrent to valve amplifiers always was the output transformer and back in the old days they cost about £60 (LSD) and today a full spec of special iron, high primary inductance, honeycomb, low capacity windings, multiple interleaving to avoid inductance leakage etc. etc. would cost a small fortune, if you could find a firm to make it.

A 1kW solid state is a reasonably small box but a 1kW audio valve amplifier would require an extension to the house and needs a 2000v plus H.T.

**Brian Hill-Shardlow,
Bracknell,
Berks.**

Your letter joins many others warning about the perils of going back to old items. However, the reason for doing so is somewhat different to that you imagine.

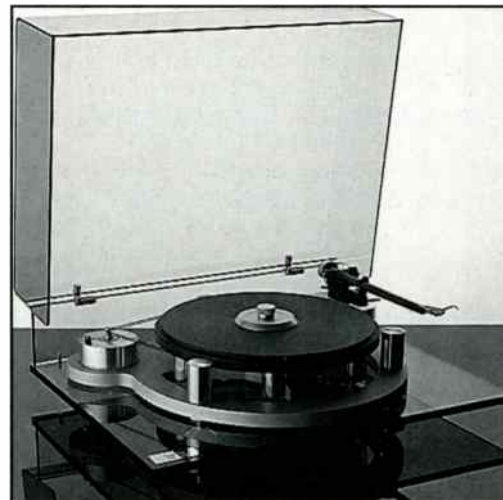
Valve amplifiers did not measure perfectly so there was at the time an obvious and tacitly accepted goal to strive for: perfect measured performance. Ultra-linear working was a step down that road.

Solid state amplifiers became 'perfect' some years ago. The first Hitachi MOSFET designs possessed no measurable distortion, flat frequency response, etc. etc. yet they didn't sound especially good. Furthermore, 'perfect' amplifiers still possess a characteristic sound.

Most people in audio, with a few notable exceptions, now believe unidentified factors

affect amplifier sound quality significantly, more so than some of the things we can measure, like harmonic distortion. When, for example, a new triode valve amplifier is marketed, its *raison d'être* is not blind retrospection, but an attempt to re-exploit some other factor the designer thinks is important, in this case simplicity and the least number of amplifying devices. Since distortion is not now thought to be necessarily important, providing it meets certain criteria regarding level and structure, the perceived need for ultra-linear working is not there.

Output transformers are still being manufactured and their cost is not prohibitive, even though it is high. The modern EAR 549 valve amplifier shows that 250watts can be achieved in a package of acceptable size. No more is needed. **NK**



Lust satisfied - by a Michell Gyrodec.

IN A SPIN

I should very much like to pass my sincere thanks to all at Hi Fi World magazine after winning the Michell Gyrodec in the June issue competition. Being an existing Michell owner (a Syncro in my case), I have long admired and lusted after a Gyrodec, but without the funds to turn my dream into reality - well you've now done that for me!

A very special thanks must also go to John Michell and his staff at Borehamwood. Rather than sending me the Gyrodec and leaving it at that, John invited me to collect it from his workshops and have a look around at the manufacturing of his products. I must say it was very enlightening to see the amount of hard work involved in producing each item, and pleasing to see the care and

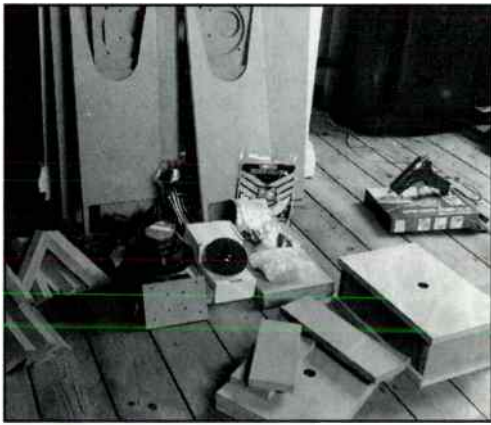
dedication John takes in each one.

John shared your views on cartridges and with the assistance of Lawrence Armstrong at Ortofon I have subsequently fitted the Gyrodec with an MC15 Super and all are now sitting in my living room making beautiful music.
Lee Wilkinson, London.

S4 PLEASURE

I was eagerly awaiting your review of the IPL S3 transmission line loudspeaker in the August issue as I was currently building the next model up in the series, the S4.

Although I was pleased to see that overall their sound rated favourably, I hope readers weren't too put off by their appearance and Richard Kelly's wrestling with the instructions! Apart from household DIY, I haven't done any woodwork of note since my schooldays, yet still managed passable results



A kit of parts for an IPL loudspeaker. Happiness for the home builder.

I wouldn't have cared if they sounded terrible; I could just sit and watch them quietly with a smug glow of pride but to my totally unbiased ear (cough) they are superb, more than repaying the effort that went into them.

Yes, the instructions could be improved and yes, the panels are butt-jointed, but I could hardly grumble at the price. The MDF is extremely easy to shape and recalcitrant edges can be knocked into line with a Surfom. My cabinets were finished in mahogany iron-on veneer which with a little practice proved to be a doddle. Well, it wasn't too difficult.

Mr IPL dissuaded me from buying the next model up as he thought there would be too much bass for my room size. I must admit this impressed me in itself - I can't see too many car salesmen saying "The Granada's

too big for you, sir. Save your money and buy the Escort."

John Rainer, Stowmarket, Suffolk.

The hi-fi industry abounds with horror stories about kits. One of the best is that of the man who, being unable or unwilling to wield a soldering iron, built his amplifier with plastic solder. He sent the kit back complaining about it not working. Since plastic solder is a form of lead-filled glue not intended for electrical work, it was hardly surprising.

The message is, however, that good instructions are essential for kits, which is why we scrutinised ours carefully.
NK

FROM CASSETTE TO DCC?

I have long been a cassette enthusiast, having abandoned vinyl seventeen years ago. (Yes, I

know - the ultimate heresy.) I'm unsure that I've done the right thing in starting a CD collection today: to quote Paul Miller, "full quality potential is still not achieved in many cases" (referring, of course, to CD). This statement is, perhaps, not all that

surprising when we learn from EB that CDs are "commonly" made from "a dismal, light and inexpensive DAT tape" which may well give a performance inferior to that of a Vertex cassette in the jaws of a CR-7E in good old analogue!

It seems to me that Philips should be using their undoubted influence in the CD world to insist that full price CDs are given the best possible start in life from the best available professional recording machines. The extra cost for top class travelling masters would be negligible in relation to other origination costs.

Your review of the DCC 900 would seem to suggest that the system is nowhere near ready for the market. If a specially prepared pre-production prototype cannot be persuaded to work properly, what hope for

mass-production models?

Perhaps it might be a good idea to wait 8-10 years from the launch of DCC before buying; after all, we've had 8-10 years of post-launch development of CD and the discs are "in many cases not achieving their full potential."

In addition to which the hardware manufacturers are by no means agreed on the best scheme to decode the beasts. My CD collection currently totals 29 full-price discs, 12 of which are mediocre and six others are less than totally satisfactory.

I am not the first to admit that most out-perform cassettes from my Yamaha KX330 but then, by golly, they should at nearly twenty times the cost per hour.

Finally, in a recent article Paul Miller refers to the standard CLV for CD as being 1.4 m/sec which set me to work with pen and paper to calculate the rotational speed. A quick twiddle with Pi and co. indicates that a CLV of 1.4m/Sec requires 637rpm, decreasing, of course, to the end of the disc. (11.75cm diameter seems to require 228rpm.). I've since noticed that the instruction manual for the Aiwa XC700 refers on page 54 to a rotation speed of "approx. 500rpm - 200 rpm". So NK's 2000rpm he quoted may be in error.

It's interesting to observe that, having established a minimum CLV (to provide the required quality standard) then the rotational speed variation vastly increases the playing time. Had speed variation been adopted as the standard for vinyl LPs then the playing time would have been substantially longer per side than CD and much of the oft criticised surface noise would have been eliminated due to the much reduced average tracking speed! (Fewer feet of dirty groove per semiquaver!)

S. C. R. Smyth, Porthmadog, Gwynedd.

Whoops! Many years ago I could have blamed the typesetters, but the simple truth is that an extra zero was added by mistake. As your calculations correctly deduce, the speed of a CD varies from 500rpm at

the start, where the laser is close to the centre of the disc, to 200rpm at the outside of the disc. The reason is to keep the pits going past the laser at a constant speed, known as 'constant linear velocity'. LP had a constant angular velocity,



Do we have to wait ten years for DCC to reach its full potential?

inner grooves going past the stylus more slowly than outer grooves, resulting in a smaller mechanical wavelength and tracing problems.

We actually liked the recording quality of DCC. The PASC data compression system has far less effect upon sound quality than one would imagine from the amount of data it throws away. The prerecorded tapes sounded bad because they were poor transcriptions we suspect. The graininess suggested they had been taken through the encode/decode process many times and were shot through with digital distortion. This was down to the people who transcribed the tapes, not Philips.

Similarly, in my view, CDs are steadily improving in sound quality mainly because studio recording techniques and equipment are being improved to cope with the medium. Many still sound awful, but the fact that quite a few don't suggests much of the problem lies in basic recording/editing quality.

Philips are under a lot of pressure to get DCC onto the market before Sony launch MiniDisc. Curiously, it was the policy of Gerry Wirtz to bring preproduction samples over to the (measuring) UK press, in spite of opposition from within Philips. He wanted in particular, he told me, to hear every criticism before the recorder hit the market and he felt the views of the UK press would be valuable in this respect. Their intention is to overcome problems as quickly as possible, of course, and they have adopted a bold but, I believe, effective way of doing it. **NK ●**

Continued from page 42

piano gloss veneers. Only a handful of loudspeakers, such as ProAc's Burr Ash Response Three Signature, came close.

Reference Imports' own Diamond Acoustics new £395 baby loudspeakers also sported metal drivers; sourced by a Cary valve CD player through a Metaxas integrated amplifier, all of which sounded very promising. Finally, both Jordan-Watts



The latest floorstanding loudspeaker from Ruark, The Templar.

and Bandor were displaying their full range of full-range drive units, together with some very enjoyable sounds coming from the Bandor'd Pentachord and Pentacolumn loudspeakers and the prototype of the multi-way, multi box design from Art Audio, who shared a room with Bandor.

Aside from the profusion of metal drivers, there were a number of conventional driver designs making an appearance. Ruark were displaying their latest small Templar floorstanding loudspeakers, with beautiful environmentally-friendly veneers, Rogers were playing both the Studio 3, a LS3/5a derivative using their own drivers and the new LS6a2 and Harbeth had a pre-production version of the new HL Compact 2, expected to be

around £720. Heybrook were showing their new Quartet loudspeakers, a two-way unit that is styled similarly to the Sextet with a column stand filled with their own mass loading material - Hayseed (better known as sand). Also, Heybrook were showing prototype samples of a new two-way design, the Trio.

B&W announced their new 2000 series loudspeakers, a range of four models. Possessing new baffle and cabinet design, they range from the compact 2001 at £119 to the floorstanding 2004 at the almost unbelievably low price of £239.95. Also in the B&W room we spotted Aura's new CD player, styled to match the Aura amplifier and tuner. Based around the latest Philips transport mechanism, the CDM-9, it uses a Bitstream digital-to-analogue convertor chip and a Class-A analogue stage whose components were selected in listening tests. This new player will be available soon for £369.95 in black, or for a little more in a very elegant chrome finish.

ATC loudspeakers were making excellent sounds using their own heavily engineered drivers, as fitted into the baby SCM 10's. These were played in two rooms, one using Quad's latest 66 system, the other with AVI's amplifiers and remote controlled CD - one of several using the new Philips CDM-9 transport mechanism to be announced at the Show.

There were also a number of noteworthy European loudspeakers in the high price regions. MAG Audio's new panel types look set to give Apogee a healthy run for their money. The tall, thin Posselt loudspeakers also scored points on the elegance scale, while Gradient continued to enhance the lives of Quad electrostatic owners with their new sub-woofers for the original Quad electrostatic.

But, for me, two loudspeakers really caught my eye. The first was a tiny loudspeaker called the Linaeum LFX, soon to be imported by Absolute Sounds. Although not possessed of the deepest bass in the world, this sported a superb-sounding ribbon tweeter that seemed unusually transparent. Secondly, in Definitive Audio's room stood a pair of Living Voice 'Air Partner' horns, that could move a vast amount of air and sounded more than "adequate", as the brochure put it. Priced at £9000 and with a huge efficiency of 103dB, these are every valve amplifier owners dream.

If last year's Penta highlighted the move away from analogue, this year's show could be dubbed 'The Year of The Home



So big there was barely space left in the room for listeners. Living Voice's 'Air Partner' horn loudspeakers.

Theatre'. A variety of companies were showing off their video-based systems. On the lower floors, there were stands devoted to Laser Disc, widescreen television and Compact Disc-Interactive, while along every corridor upstairs, companies such as JBL, Celestion, Tannoy and Mordaunt-Short were all proudly dimming their lights to play videos of 'Star Trek', 'Terminator 2' and 'Top Gun'.

The high-end digital market was covered by Audiofreaks, showing the multi-standard transport to match their Enlightened Audio Designs single-bit DAC. Wadia and PS Audio were also showing digital products new to this country. Path Premier had the new high-quality Mark Levinson No.31 CD transport and the new lower priced No. 32 DAC, based around the superb No. 30. Mark Levinson must be the only company who can call nearly £7000 worth of digital product 'budget'! At the lower end of the scale, Path Premier were also showing new Proceed CD players and DACs, as well as other improvements to the M-L amplification range. But by far the most 'nutty' high-end product of the day had to be the limited edition, air-bearing CD transport from Forshell, carrying an astronomical price tag.

A staunch vinyl supporter, Audio Note,



Across the Atlantic, 'budget' has a different meaning. Levinsons No 31 Compact Disc transport. With partnering DAC, a mere £7,000...



On show in the AMC room, a Compact Disc player to partner AMC's affordable hybrid valve integrated amplifier.

surprised the world with their own fine sounding valve DAC, in use in several rooms, including both Kronos and Rogers. The combination of Pierre Lume's magnificent new CD Transport (£1800) and the new Audio Note DAC sounded as good as it looked. Creek Audio Systems were also showing a new DAC, based on a Burr Brown convertor chip, rather than the traditionally more popular Philips chip set.

Staunchly digital and solid state, DPA Digital Audio (once known as Deltec) showed a prototype of their latest product, the long awaited DPA CD transport. Based around a heavily modified Marantz player, the DPA transport features a built-in Deltran synch. lock, allowing it to be locked into the master clock within their convertors.

At the end of one of these corridors, in a darkened room was Pink Triangle, showing for the first time their new battery-powered digital-to-analogue converter (DAC). One of this year's big open secrets, the Pink DAC stunned a number of rivals with its smooth yet detailed performance. Outside the room was a shrine to the analogue turntable, but the digital technology inside the room looked and sounded fascinating and was one of the talking points of the show.

There were a number of new CD players of note. Rotel announced the Special Edition version of their successful RCD-965BX player, which sports slit-foil



Sony were demonstrating Mini Disc, the rival format to Philips' Digital Compact Cassette, promising players on the market by the end of this year.

capacitors and a variety of minor modifications. As mentioned above, NAD were also showing their latest range of CD players, starting with the 502. Micromega were showing a prototype of the Microdrive transport together with their new budget Junior player.

Also announced was the matching CD player to the AMC 3030 hybrid transistor/valve amplifier. This new player does not sport valves, but it is intended to complement the 3030 both sonically and visually. The

combination of the CD, amplifier and their new low cost transmission line loudspeakers, all for just over £1000, has excellent potential. We hope to be looking at all of these products in the near future.

The surprise of the show in the digital world was, for me, the new sub-£800 VDRS-10 TEAC CD player. Resembling a studio machine more than home hi-fi, this twin DAC-7 player is basically a scaled down version of their superb X-1, although some suggest that it actually sounds better than the original.

This year also marks the launch of Digital Compact Cassette, shown to the general public in both Philips' and Marantz's rooms. Prerecorded DCC tapes were being played through Philips' new all-digital system which includes digital active loudspeakers.

Needless to say, Sony were showing their rival MiniDisc system. As if by magic, a preproduction factory demonstration MiniDisc recorder was also on show in the Sony listening room. The two sides were less than friendly toward each other's fledgling formats and, sadly,

demonstrations made of MiniDisc were too rudimentary to make any early judgements. There's no doubt, however, that the miniature disc in its protective plastic caddy is an attractive format.

With the rise of digital to its current dominant position, there were only a smattering of new turntable products on show. Aside from the superb SME Model 20 turntable, Ortofon had a MkII version of their MC15 cartridge and DNM finally managed to show their Rota turntable in the Virtual Reality room.

While most dealers and distributors were buying hi-fi at the Show, American consumer-goods company Singer, better known for their sewing machines, announced they were talking over distribution of Sansui in the U.K.. Richard Newlove, Sales and Marketing Manager, said "New, very dramatic innovations are expected next year. Among products flown over from Germany were an interesting sounding pair of speakers: no-one knew their price, but one visitor was



Vinyl lovers go digital - Pink Triangle's battery-powered Digital to Analogue Converter.

so impressed he offered over a thousand pounds for them!

A profusion of ART blocks, mains filters, high-end ART and XLO cables, Townshend Seismic Sinks and even room tuning devices showed that many were prepared to put in tweaking effort in order to make a good sound.

Of all the tweaks at the show, none were as hard to swallow, yet as demonstrably apparent in their subjective impact as the little Combak Harmonix products. These tiny rectangles, fitted to a pair of loudspeakers, dramatically improved an already excellent design. Scepticism makes it hard to believe that such products can work, but somehow they do. A truly off-the-wall tweaking product!

Although a hard year has taken its toll on the hi-fi industry, the spirit of enthusiasm still burns brightly among those at the Penta show. The public days appeared to be busier than last year, despite the new £2.50 admission charge ●

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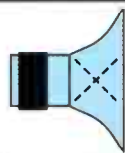
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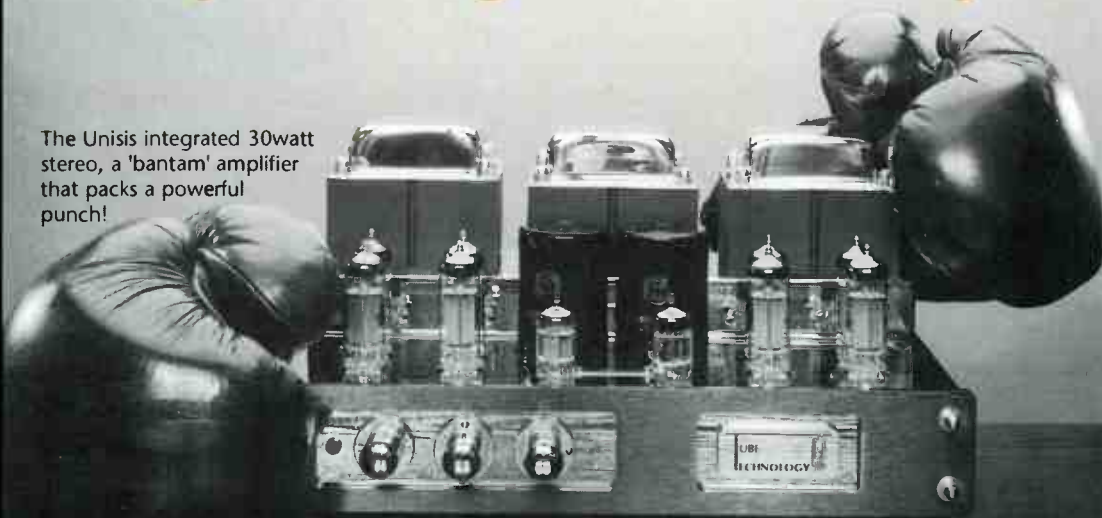
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TDK Launch

review

New

Tapes



Noel Keywood examines four upgrades from a major tape manufacturer.

TDK recently upgraded their entire chrome tape range and their standard grade metal, TDK MA. They also added the curiously named CDing I and II. It doesn't take a lot of guessing to come up with their role - the name says it all - yet our Press release remains very coy about them, as well as obtuse in its arguments. There's talk about "growth in audio systems with CD" and of "guiding average tape users towards a higher grade of cassette through use of an easily understandable product name."

After a lot of re-reading, I think I broke the Enigma code of TDK's market-speak. These tapes are meant to appeal to mini and midi system owners; that's where the only growth in the mass audio market lies, they say. These listeners do unpardonable

things like recording from CD. Worse still, they do so with cheap ferric tapes. TDK want them to buy CDing I which is available in a 100 minute twin pack only (suggested price £2.79). Having become completely addicted to it, they are then meant to be enticed up to CDing II, because it's available in 50, 70 and 100 minute running times. TDK attempt to make this argument without saying anywhere that the tapes are for recording from CD, because that makes the BPI (British Phonographic Industry) and IFPI go ballistic.

With a funny name and a coded press release, understanding the role of the CDing tapes became something of a challenge to me. I also wanted to be sure of their position in the overall scheme of the product range, since TDK already

have no fewer than three new chromes; CDing II brings to total up to four. Tests showed that CDing II is very similar to TDK SF, their budget chrome. Originally, this was a hissy tape, but now it is very close in performance to the company's chrome standard, TDK SA. Above SA lies the specialist SA-X. This tape is for enthusiasts, those who'll eagerly twiddle their bias adjusters, because on most decks it must be tuned in to give best results.

Above the new quiet chromes, TDK MA metal tape has been reformulated as well. Metals accept very high recording levels, especially at high frequencies, a property that gives them clearer, cleaner treble and better defined transients than chromes. They have a bit more hiss, but not much more nowadays.

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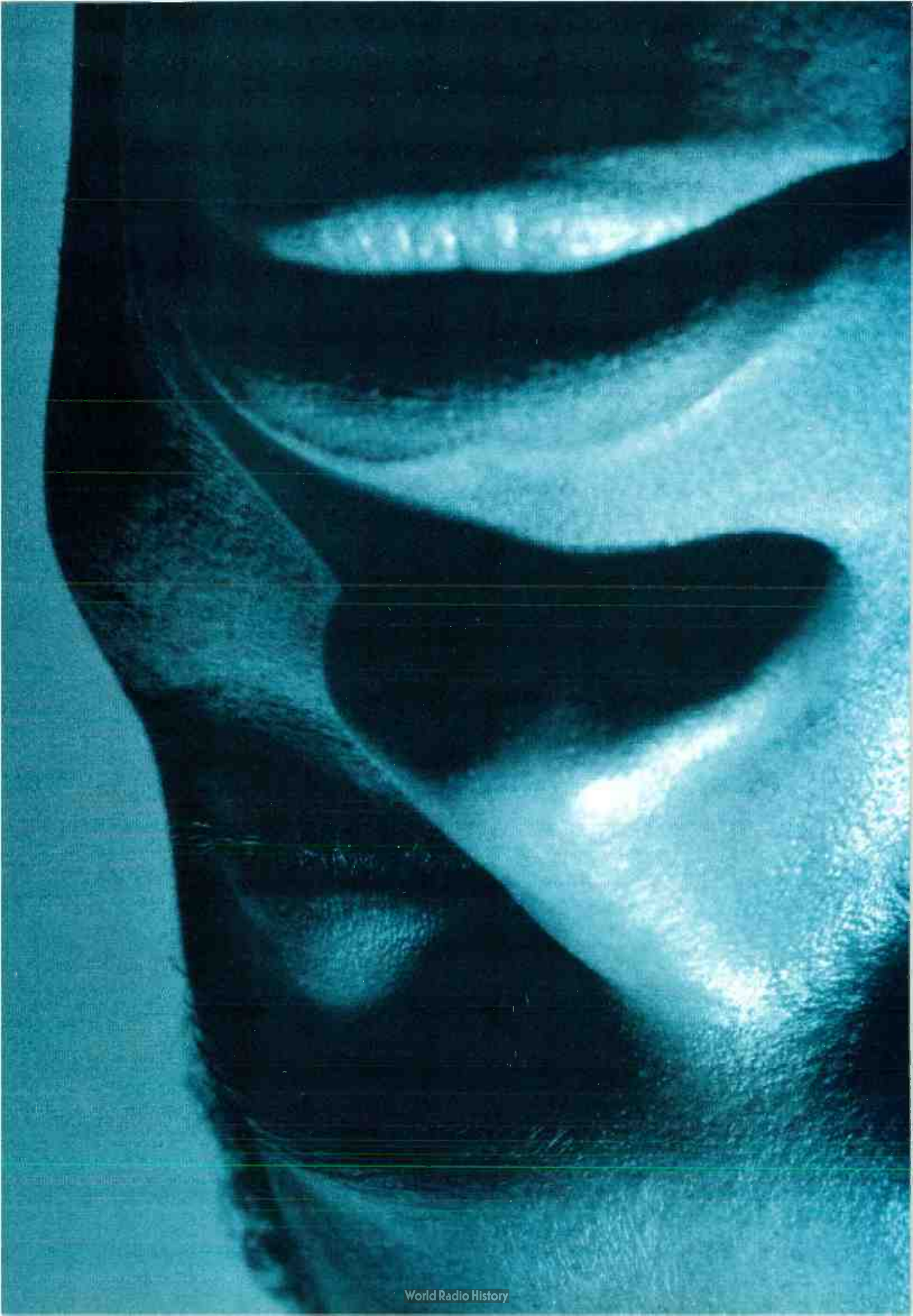


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A ROOM OF ONE'S OWN

First of all the gory details. My system comprises Linn LP12, Ittok LVII, AT-F5 through Michell Iso into Musical Fidelity The Preamp/Typhoon power amp., feeding a pair of eleven year old Heybrook HB2's.

I am fortunate to have a room of my own, dedicated to my system (thanks to an understanding wife) which is a front attic room 21ft. x 14ft. with a sloping roof. The room is fully carpeted and there is normal furniture. Turntable is on a



A boost in the bass from the REL Stadium subwoofer.

Sound Organisation wall shelf, the amps are on Goldring equipment tables and the Iso is on its own little home made wall shelf. Speakers are on Target HS20 lead shot filled stands.

I would like to change the cartridge (three years old) and speakers and would like your advice and opinions. I like a nice tight bass sound and a detailed, if bright, treble. (I am not a lover of warm-sounding equipment.)

I have not auditioned a long list of speakers and cartridges (except AEI's) as I would like you to suggest some from your own experience.

Music tastes vary from Rock to Classical (Bush to Bach). Budget? Cartridge £200-£250, speakers £600-£700.

**Alf Forcer,
Hartlepool,
Cleveland.**

On this occasion, it sounds as though the Audio Technica OC5 will match your expectations; speakers are a harder proposition at this price. However, if you liked the sound of the AEI's, Monitor Audio's Studio 5 or the Triangle Graphite could well turn out to be what you are looking for.

EB

BASS BOOST

My current system, which I have used for over two years, has given me immense pleasure, being analytical and musical, although the bass does seem occasionally muddled.

I have a budget of £1200 with which to upgrade, but this is likely to be my last upgrade for probably five years. I wish to retain the musicality of my system, whilst improving both resolution and bass.

My system is a Linn LP12 turntable, fitted with Linn Ittok arm and Linn K9 cartridge, on a Mana Sound Frame with NVA P50 with PSU and two A50 power amplifiers driving Monitor Audio R300MDs using NAC A5 cable.

My own thoughts are to add a Linn Lingo and improve the cartridge, but would the MA's be good enough to hear all of the improve-

ments? Friends have advised either a Lingo and a change of loudspeaker or changing both cartridge and speakers, but not Lingo. I would be grateful for any comments and recommendations you may have.

**Andrew Bowler,
Loughborough,
Leics.**

As you enjoy the existing sound that you are getting from your system, but need more detail and bass, then we need to add to the system, rather than chop and change.

My first move would be a Linn Lingo. Many people are surprised at the improvement that a power supply can make to a turntable until they hear the dramatic changes it produces. Power supplies like the Lingo affect the sound of the turntable at a more fundamental level than any arm or cartridge upgrade and will make the system sound more detailed.

The next improvement would be to add a REL Stadium sub-woofer to the Monitor Audio loudspeakers. One of the few sub-woofers that work, this would give the extra bass that you are after, but be very

careful about setting the Stadium up, as it can easily overpower the sound of the main loudspeakers.

Next, speak to NVA about improvements to the amplifiers and their latest range of interconnects and loudspeaker cables. This may help to clean up the sound, without incurring a major cost. Finally, if there is any money left in the kitty, look at a replacement cartridge for the K9. Better sounding cartridges start at about £100 for the Sumiko Blue Point, but also look at the nude 'turbo' Sumiko for £200, the Denon DL-304, the Dynavector 17D2 or the (as yet untested) Linn Klyde. **AS**

REEL LIFE?

Although I have up-to-date equipment for my everyday use (Quad 34, FM4, and 606 together with a Revox reel-to-reel tape recorder) I have kept my original Ferrograph 4AN mono tape recorder which has now gone on the blink.

The principal symptom is an inability to hold the solenoid in. I have established that the current is down and I suspect that a resistor in the circuitry supplying the solenoid has gone high with age. In addition there is hum on playback which probably points to defective electrolytics. Trying to run down a source of replacements for these has defeated me, and if you know of a possible source I would be grateful for the address. Replacements must be available because of the number of people offering complete overhauls of old valve equipment.

**L. E. Dowdall,
Colchester,
Essex.**

I suspect your diagnosis is correct and since you have a Revox must admit I wonder whether fixing the Ferrograph might really be worth it. However, Ferrograph themselves are still alive and kicking. Contact their Spares and Service department on (091) 427-7774. **EB**

WINDY

Before I approach my local dealers I would like to have some idea of what I need, so I would appreciate some help from your good selves re. improving the sound of my system. Last year I made my first foray into hi-fi, acquiring (second hand) a Technics SLP720 CD player and Gale GS20 speakers, followed recently by a new Arcam Alpha 3 amp., Solid Foundations 'K' speaker stands,

OFC interconnects and solid core mains cable complete the system.

The sound is very clear, with wide stereo and excellent reproduction, especially of acoustic instruments. However, the bass response leaves a lot to be desired. There is a good bass drum thump, but bass guitar and bass keyboard registers seem recessed; present and clean but dominated by the midrange. Treble is bright and can be harsh at times, but the midrange is finely detailed though lacking in ambience. These characteristics remain after a move to a larger room and much speaker manoeuvring.

I have considered improving bass by replacing the CD player with one noted for bass extension (e.g. the Arcam Alpha), by changing to larger speakers or by adding subwoofers to the second pair of speaker terminals. If the CD player is at fault would adding a DAC such as the Digit improve matters? I listen to Rock music from Metallica to The Cure to Ozric Tentacles to Richard Thompson, so I am more interested in a system that will accurately reproduce studio music than one that allows you to hear the third violinist pass wind. (A sense of air around the instruments?)

Finally, I have over 150 LPs gathering metaphorical dust. Could I find a deck/arm/cartridge to match or better the sound of the CD for under £250?

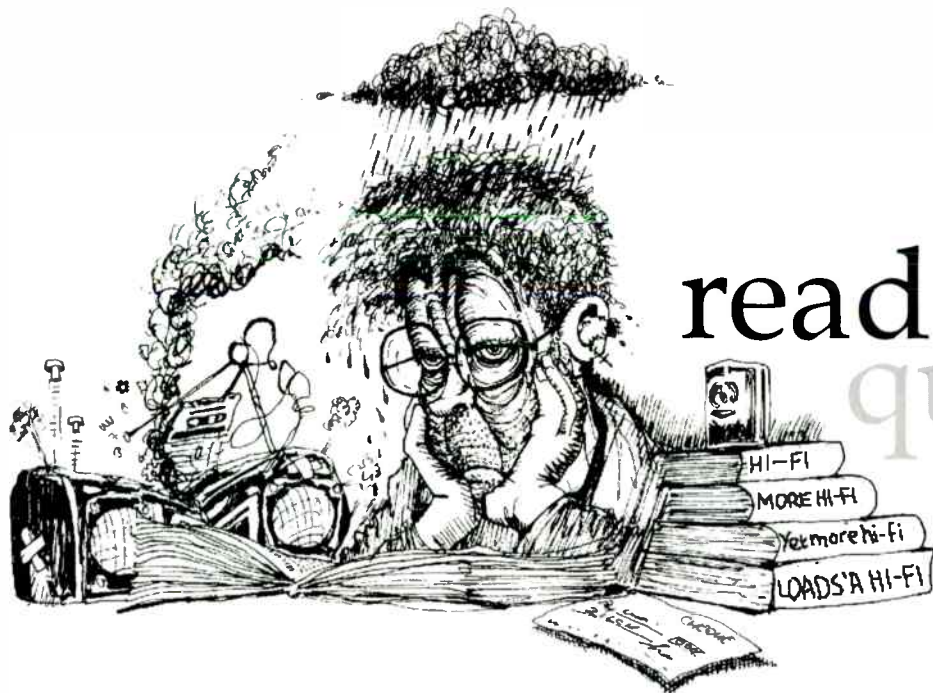
Thanks for an excellent magazine and the best Rock reviews anywhere.

**Mike Lowndes,
Croydon,
Surrey.**

Ah! The old problem. It sounds as though you might well like the old disco favourite the Bose 901's! However, a punchier, fiercer amplifier than the Arcam Alpha3 would be required; the Pioneer A400, very likely, or moving more up-market, pre/power amplification from Onix, Ion, Crimson or Naim.

A Digit would not offer any real advantages at the bottom end: however beefy the sound that goes into the speakers, it doesn't follow that the same beefy sound will come out unless the speakers can reproduce it. Try one of REL's subwoofers - the Stadium, for example - which should provide the bass you need allied with your current speakers, and consider the A400 as the powerhouse.

As to the turntable, there are two in the bracket: Rega's



readers' queries

Planar 3 and the Pro-Ject 2; the latter much more of a bargain now its price has been reduced. Oh, by the way, thanks for the compliment about the Rock reviews. **EB**

If my memory serves me rightly, you are describing the sound of the Gale GS20s. Try either the sub-woofer mentioned to extend their bass or replace them altogether. Since you find their treble occasionally unpleasant, I suggest the latter. Some of Tannoy's larger loudspeakers do a good job of rearranging the furniture whilst you sit on it; you could give 'em a whirl. **NK**

CD-R WORRIES

I am about to spend a - not so small - fortune upgrading my system and would like your opinion on the following:

CD Player:
Meridian 200/203,
Pioneer PD75 or
one of the Arcams.
CD-R Player:
Mission, Meridian,
Micromega etc.
Pre amp: Musical
Fidelity 3A or Krell
KSL.
Power amplifier:
Musical Fidelity
MA50 or Krell
KSA150.
Loudspeakers:
Ruark Accolade,
KEF 105/3 or
Infinity Kappa 9.

I have an LP12/Ittok/Karma but would eventually use CD as much as vinyl. I have just sold a Quad based amplification system and Bose Studiocrft Speakers.

I will use the CD player to feed the CD-R machine for

recording purposes; do you think there will be any compatibility problems and should I connect machine to machine or feed via the pre amp?

Does the sound difference between the MF's and the Krells justify the price difference? Due to room size (26x16), I am considering bi-amping the MA-50s; would this have a positive or negative effect on the sound quality?

Finally I would spend more, say 50%, if it would give me a significant improvement in sound. **G Flynn, Wakefield, West Yorks.**

First, I have to ask why you are interested in recordable Compact Disc (CD-R)? Although it is potentially superior to almost all other digital recording media, bar



Potentially a superior digital recording medium: CD-Recordable.

hard-disc storage, so far its high cost (minimum £4000) and relative inconvenience have restricted its applications largely to professional circles. The BBC, for example, are using

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CD-R, for their Transcriptions Unit.

If you are still serious about CD-R, however, then any recording should, ideally, be performed in the digital domain. As such, taking a digital output directly from a CD player would be preferable to converting the digital signal to analogue, taking it through the preamplifier and through to the CD-R, where it would have to be reconverted back into a digital signal.

This limits the choice of DACs somewhat, as many do not have a digital output. Exceptions include the Audiolab 8000A, Arcam's Black Box 5, the Audio Alchemy DDE as well as a select few of the American high-end DACs, such as the Proceed PDP-2. Or choose a transport with two digital outputs and take one direct to the CD-R.

A single box CD player, with a digital output may also be used here. The Meridian 206B, a Teac X-1, a Micromega Solo II

or any of the top-league players would do, depending on your listening criteria.

I would be surprised if there were any compatibility problems between these players and one of the CD-R machines that you mention, although you may fall foul of SCMS copy protection systems if you try to make multiple copies - that is, if you try to copy a copy.

Assuming that you have settled on a good CD player and CD-R machine, I believe that the Krell pre/power amplification would reap greater benefits than the Musical Fidelity system. While the M.F. equipment is fast-paced and powerful, the Krell amplifier has a sense of solidity of image that is difficult to better at its price. It does have a slightly leaner presentation than the warm M.F. however, which may be hard to take coming from the Quad system.

The loudspeakers will depend largely on the system you have settled upon and the dynamics of the listening room itself. I would favour the Ruarks over the KEF or Infinity models.

Were you able to up your budget by about 50% you should get an improved sound quality from your system, with judicious matching, but do not expect it to be 50% better than a cheaper system, as we are in the realm of diminishing returns. At this price level, we are venturing into the high-end, with, for example, Proceed CD players, cheaper Mark Levinson amplification and electrostatics or panel loudspeakers, from Quad, Apogee, Audiostatics, MAG Audio and Martin-Logan all within grasp.

Continued on page 64...

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FINAL MOVEMENT

**As vinyl music dies away, Alan Sircom listens to Alphason's
Symphony, one of the last turntable statements.**

Producing a flagship record deck almost at the moment of vinyl's extinction might seem brave and perhaps foolish. But Alphason are convinced that with their £1860 Symphony turntable they have saved the best for last.

Based around the two-motor design of

the Sonata turntable, though with the motors moved through ninety degrees to minimize interference with the cartridge, the Symphony shares some of the earlier model's features. Both use Alphason's own Atlas power supply, although the PSU supplied with the Symphony is in black acrylic with a gold on/off switch.

Both players suspend the subchassis from the plinth via three adjustable suspension towers.

Where the Symphony differs from the Sonata is in the subchassis itself. The Sonata's is made from cast iron, while the Symphony's is made from a unique polyurethane mixture, identical to that of



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Alphason's Symphony with their own HR 100S MCS tonearm.

the platter itself. Other materials were experimented with, including slate; the polyurethane was found to be better than cast iron and easier to work than slate. Other differences are largely cosmetic, although a change in plinth material from wood to black acrylic, Alphason suggest, has a positive influence on the sound.

The review turntable was fitted with Alphason's £549.95 silver-wired HR100S MCS tonearm and supported on their own New Concept stand. After a period of experimentation, Alphason felt that the best combination for their turntable was an £80 R3 table, together with a £45 R1 isolation platform and a final glass-topped platform, the £85 GR1, between table and deck.

Alphason's new turntable is said to prefer the support of a massy table; the

the lower regions.

In terms of setting up, the Symphony is more difficult and time-consuming than most. It does not need the specialist know-how of a Linn or Roksan, but it is far more fiddly to install than the SME Model 20, the Pink Triangle or the Michell Gyrodec. Once installed, final adjustment is performed by adjusting the three brass suspension towers. Thereafter it seems to hold its setting well.

For a long time, Alphason designs have been associated with the top Ortofon moving coils, due in part, to Mike Knowles (Alphason's MD) love of these cartridges. True to form, the review sample was supplied with the high-end Ortofon MC 5000, worth £1500. The complete package, weighing in at nearly £4120 including stand, is expensive, but offers

near total neutrality and refinement. From the start, the Alphason showed itself to be in the same league as its rival, the Pink Triangle Anniversary. It has the same ability to disappear, leaving just the sound of the cartridge behind. A little while ago, listening to 'Don't Wait That Long' from the latest James album Seven the bass line was well defined and clear on the Pink

Triangle, with the singers and instruments moving in and out of the mix precisely in accordance with the producer's wishes.

Playing the same track several weeks later, this time on the Symphony, it was

clear that the Alphason turntable was no less spectacular. It created a fully transparent picture of the performance for the amplifier and loudspeakers to reproduce. Record after record was played and with each new disc, the Symphony did its level best to vanish, leaving only the character of the comparatively transparent Ortofon behind. Ultimately, however, there was some Symphon-ic residue in the sound, but it was never detrimental to the performance.

This turntable has slightly different priorities to other super-transparent decks. It is no better or worse than the Pink, the SME or any of the other high end examples. The Pink Triangle Anniversary is unsurpassed in the mid-band, while the SME has a bass depth that is hard to better; the Alphason's virtue is that it takes a very slightly romantic view of neutrality.

Its bass is not as deep as the SME, but it is faster and possibly more rhythmic. Its mid-band is not as transparent as the Anniversary's, yet with some older poorly

‘superbly dynamic, adapting itself to the most demanding music with ease’

recorded material, this is not such a bad thing. The Symphony is superbly dynamic, adapting itself to the most demanding music with ease - and without any closing in of the very clean soundstage.

In sound quality it reminds me of the Pierre Lume Romance turntable with its Romeo tonearm. Both turntables place a near-transparent silken layer between the music and the listener. From memory I would say that the silken layer of the Symphony is less apparent than with the Romance and that it is the crisper and more dynamic of the two.

I find the Alphason Symphony has a healthy overall balance. It would not shift me from my Pink Triangle Anniversary, as I still find its character the least invasive of all turntables I have encountered. Alternatively, for those who like a little bit of magic and beauty mixed in with their neutrality, the Symphony has to be one of the best that the British can offer. It is expensive, but it is also a true sophisticate and its cost is more than justified ●



External power supply dedicated to the Symphony.

R3's pillars can be filled with sand to suit. Although it may be considered heresy, I prefer the sound of the Symphony on a Mana table, as it seems to have slightly more definition and control, especially in



Station Selector

Pioneer's F-676 tuner makes station selection simple.

Eric Braithwaite sets himself up to enjoy the broadcasts.

With deregulation the UK airwaves are becoming progressively more crowded. Pioneer's F-676 tuner at £199.95 is designed to cope with this plethora of new stations, having a bank of buttons to memorise no fewer than thirty-six and switchable selectivity to stop Motorhead interfering with Mozart. Or the other way round, of course, depending on your preferences.

Pioneer, in common with other Japanese tuner manufacturers, fit two 75-ohm aerial inputs at the back. It's difficult to persuade some people to put one decent aerial on the roof - how about two? It might not be so odd a sight eventually. While a rotator is a more effective way of picking up transmissions from different directions, having two aerials is one way, I suppose, of picking up The Clash from Clacton and Purcell from Purley. And then there's The Cramps from cable, even if sound quality from under the pavements can seem a bit muddy at times.

Muddy or not, it would certainly be better than relying on Pioneer's 'SSS' or 'Spectrum Simulated Stereo' for handling a weak terrestrial transmission or one that's not quite in line with the aerial's angle of vision. This is fake stereo, best avoided. My advice is to use the Mono button instead.

Everything about the F-676 oozes convenience. Those thirty-six presets are handled by twelve push buttons on the right of the fascia with a more logical method to accessing them than is often the case. Instead of using a 'Plus 12' button, preset 3, for example, can be discovered by pressing the one labelled '3/15/27' once, number 15 by pressing it twice, number 27 by pressing it three times. And so on. If you're still uncertain, the preset number and the station frequency will appear on the display.

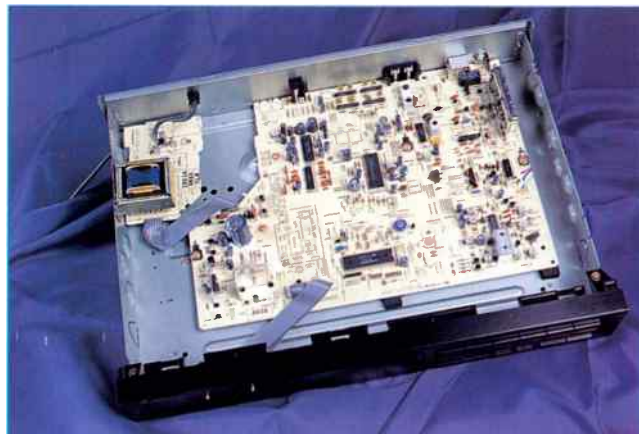
This central display can get a little cluttered. Pioneer are showing off a little, with flags to show all sorts of things, including whether IF selectivity is switched to 'Normal' or 'Super Narrow' and a bar-graph display to indicate signal strength. It consistently whacked itself up against the end stops except with dismally inadequate transmissions. Oh

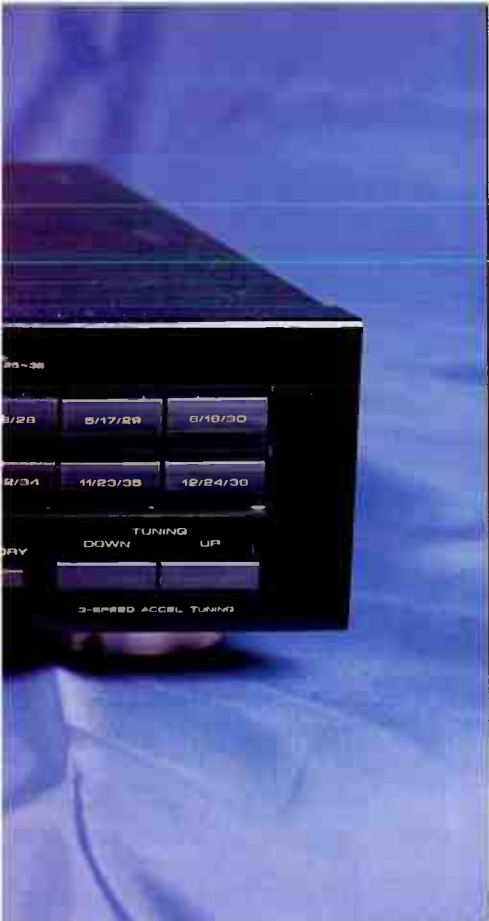
Twin aerial inputs at top right are switched by a relay. Below it is the RF tuner head.

yes, it shows you the frequency you're tuning into as well. Some care is required entering presets into the memory, for on VHF transmissions, the status of the RF, IF and MPX mode will be memorised as well. Forget which button is 'in', and you may forever listen to fake stereo instead of the real thing.

Since this is an AM tuner as well, there's a loop aerial in the box along with the usual thin wire FM one. Terminals for AM reception round the back are the usual spring-clip variety, audio output to the amplifier is through a pair of standard nickel-plated phono sockets.

Tuning is by Up and Down buttons under the presets on the right which proffer the legend '3-speed accelerated tuning'. There's nothing special about this: touch once, frequency goes up or down the scale a step; press a little longer and release and it will stop at the next transmission; keep pressed and it will scoot round the wavebands until you see a frequency you fancy and take your finger





MEASURED PERFORMANCE

Pioneer have fitted the '676 with an attractive blue fluorescent signal strength display, one that's large and colourful. It has no fewer than eight independently illuminated sectors, so there's plenty of latitude to cover a large signal strength range. Trouble is, Pioneer don't exploit it. The first two sectors light independently, but within fractions of a microvolt from each other. All the rest behave similarly, the indicator hitting maximum at 60µV, a signal far too weak for optimum sound quality. Like just about every other tuner, the '676 actually needs 1mV, or sixteen times more signal than maximum on the indicator, to perform optimally.

An indicator that reaches 1mV is able to show whether the aerial being used is adequate, which is obviously a useful ability. In contrast, Pioneer's indicator really shows little of value. It deceptively makes owners think the tuner is so sensitive it will work with a piece of wet string, when in fact it won't, an inability it shares with all its rivals, since no tuner gives optimum results at such a low signal level.

Meter apart, the '676 measures very well. As the analysis shows, it has a flat frequency response that reaches right up to 15.6kHz, before plunging steeply downward (at right) into the MPX filter notch at 19kHz. At left a slow roll-off at low frequencies can just be seen and this may well make the Pioneer sound a bit lean in the bass, if well controlled.

The MPX notch filter was effective in removing both pilot at 19kHz and sub-carrier at 38kHz; they measured -70dB down. There was little noise as well, providing the tuner is given a strong enough aerial signal, as I explained earlier. It needs 1mV or more for hiss to sink to a minimum of -74dB, a level low enough for it to be inaudible even during those seemingly endless silences on Radio 3. More than about five miles from a transmitter a signal of 1mV or more will only come from an outdoor aerial, so the F-676 is no different from all its rivals in this area, in spite of what the signal strength meter might suggest.

The sensitivity figures of the F-676 were normal enough at 25µV for hissy stereo reception and 1.6µV for the equivalent with mono. Although a Super Narrow selectivity option is fitted, it improves adjacent channel selectivity only. Stations have to be really close to each other (0.2MHz spacing) for this to be useful, a situation rarely encountered in Britain because of careful station planning. Selectivity on Normal was plenty good enough at 80dB I found.

Pioneer fit an RF attenuator, switched in to prevent front end overload. Only those living within a mile or so of a powerful transmitter are likely to need this and it is simply an on-board version of the line attenuators that were once commonly available in things known as radio-shops (now replaced by Rumbelows).

With Normal selectivity in use channel

separation on stereo was wide, measuring 48dB in the mid-band and little less at high frequencies. Distortion was low as well, measuring around 0.1% at 50% modulation. The analysis shows roughly equal amounts of second and third harmonic, a reasonably benign spectrum that suggests this tuner will have a fairly clean and smooth sound, although one that I would expect to have the apparent sparkle and 'clarity' that appears to come from a little third.

The F-676 has a fine performance in all areas that relate to sound quality. My only criticism of it is one that commonly applies to Japanese tuners: the signal strength meter reads maximum with a signal far too weak for good results, giving a false impression of high sensitivity. I wish the Japanese would not devalue the potential worth of a facility like this, for the sake of using it as a sales tool.

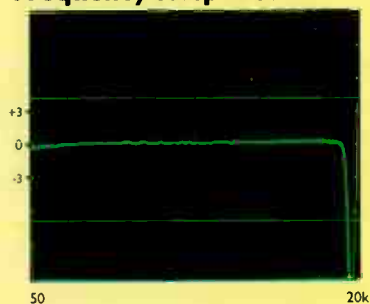
NK

TEST RESULTS

Frequency response	35Hz-15.6kHz
Stereo separation	48dB
Distortion (50% mod.)	0.1%
Hiss (CCIR)	-74dB
Signal for minimum hiss	1mV
Selectivity (at 0.4MHz)	80dB
Sensitivity	
mono	1.6µV
stereo	25µV

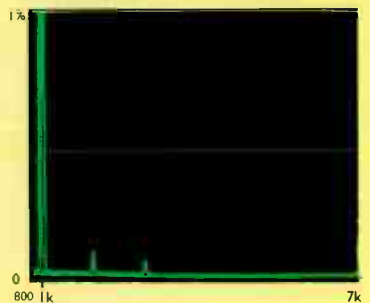
signal strength meter			
LED	level (µV)	LED	level(µV)
1	2.5	5	10
2	2.5	6	20
3	4	7	30
4	6	8	60

Frequency Response



Flat frequency response to 15.6kHz.

Distortion



Very low distortion at 0.1%.

away to stop it in its tracks. As is now usual it worked effectively without being fooled. The only lack is RDS, the Radio Data System.

It was evident fairly quickly that in sound quality Pioneer's F-676 ranks high in the tuner kingdom; fully equivalent to what you'd expect for a hundred pounds more. Imagery and staging, allied with a fair degree of depth, was exemplary, a difficult achievement for all but a few tuners in this price range. Along with this was a fine degree of detail - fingers on fretboards, on keys of woodwind instruments and suchlike. Tonal quality was extremely good, with a splendid tone to electric guitars and woodwind, with a real beefy presence to the bass end. Rock music - for all these stations' compression - was forceful and vivid.

So far, so perfect. It wouldn't be a review, however, if there weren't reservations. They are minor ones, however. Announcer's voices were fractionally less resonant, less chesty and throaty than they should have been. This was an effect, which, transposed into choral voices, led to less differentiation between basses and baritones, contraltos and mezzos than there should have been. It also led to less fullness of tonal colour between violins and violas.

Nonetheless, these were extremely minor effects. Pioneer have, for this price, come up with a tuner that is highly recommendable. In terms of detail it turns out a performance far superior than would be expected. AM performance was acceptable, less squashed than many rivals, though tending to woolliness, albeit it well-controlled. A buyer would be hard-pressed to find a better sound overall for a mere two hundred notes ●

Continued from page 57

I suggest that you lay aside your trusty list of components and instead listen to a small number of systems based around your budgetary constraints. Who knows, you may find that you can do without the CD-R, the wooden leg and the Jolly Roger. **AS**

FOUNDATION COURSE

Would there be any gain to be had placing Mission Isoplats underneath equipment already supported on Söund Organisation tables?

Also, is it worth placing an Isoplat underneath a video recorder, or, for that matter, underneath a television set?

Am I overdoing it?

Yours, spiked.

Dave Christy, Basingstoke, Hants.

I have never been a great fan of the Mission Isoplat, I admit, but your idea shows promise. Do not use an Isoplat under a turntable, however, as it has a tendency to blur the sound.

There is a theory, propounded by companies such as Mana Acoustics, that each table used to support products in the audio chain contributes subtly to the sound of the whole system. If each support works in harmony, then it will sound better and better, if not it will fail to shine.

From an objective standpoint, such theories are near impossible to prove, although subjectively systems that have been supported with Mana tables from beginning to end do seem to benefit from the exercise.

To that end, I would prefer to see Mana Sub-tables in the place of the Isoplats. The improvements in sound quality at each step in the chain are clearly audible on the Mana, but might be less easy to justify with the Isoplat.

Finally, if you think that you are overdoing it, then take a long holiday, or see your doctor about a stress test. **AS**

FLAT AND LAID BACK

I updated my system two years ago but I find it rather flat and laid back and am finding it difficult to live with. The system comprises Quad 34 and 306, Rogers LS4a (Mk I), Marantz CD65 MkII. All the local dealers give me different views. Some say the Quad is too laid back, some say the speakers need changing and one dealer says the CD is at fault although it sounded O.K. with an eighteen year old Rotel 610 amp which my No 2 son owns.

Which would be the best move to work with say a cost of approximately £400? Change speakers to say, Tannoy 609; change amp to Pioneer A400; change CD to Arcam Alpha? my music range is Jazz, Pop and Classical.

G. Smith, Birmingham.

All the dealers are right! The Quad 306 is flat and the Rogers are laid back and even the Marantz CD65 won't grab you by the throat, although it does have a pleasantly open and airy sound.

Although Quad won't officially admit it, the 306 was designed to drive the ESL-63 or

and I have come across people who feel that their sound is so laid back, it's almost horizontal.

The items you shortlist are all chosen well. Unfortunately, I suspect you need to change both amp and speakers. My personal preference would be to stay with the smoothness of the Rogers and get the Pioneer A400. It'll breathe life into them. However, I don't mind the Rogers sound and in general I find them smoother, more integrated, natural and easier to live with than many box speakers.

This is a personal view. I strongly suspect that if you can spend only £400 then you will find changing the speakers makes the biggest difference, Tannoy 609s or Epos ES11s being a good choice. The latter are a bit less speedy than the Tannoys, but a bit more smooth and refined, without sounding dull. **NK**

EFFORTLESS POWER

My present system comprises a Philips CD850(Mk I), Monitor Audio I4 speakers and a MF Pre 3A/P180 amplifier combination, using Audioquest Type 4 speaker cable and Audioquest Ruby and VdH I02/3 interconnect (VdH between pre and power amp).

The sound this system produces is very enjoyable, in particular the effortless power and drive of the P180 makes the MAI4s come to life, entirely different from the bright and bass-light sound of my earlier Royd Edens and Onix OA21s.

I intend taking this present set-up home with me within the next six months or so, however I would like to add a tuner, a DAC and, finances permitting, a new CD transport.

With regard to the tuner, I have short-listed the Rotel 950BX and Sony STS 370. I have also seen the MF TI (not MkII) for £170 new, would this be a better buy? I only really listen to FM and do not wish to spend more than £250.00.

The DAC was to be an interim move before replacing the CD850. If you were choosing to upgrade a CD850 to a Meridian or in particular Roksan transport, which DACs would you short-list?

Hi-fi World has had some very interesting articles but none I have seen explain why Class A amps produce so much heat. I am sure it has got something to do with current direction but why the heat? Why does the P180 run so hot if it is not Class A and will this affect its longevity? Finally, is it possible to attach

a stereo receiver to the tuner input of the pre-amp? I do not see how a connection can be made and will the placement of the pre/power amp and power supplies affect other components in a system?

Many thanks, I look forward to your advice and I hope that Hi-fi World is available in New Zealand.

Leigh McKenzie, London.

Rather than settle right away for the Musical Fidelity T1, which would probably suit quite well, I would also consider the Harman-Kardon TU9200, but would definitely try Pioneer's F-676 (reviewed in this issue) which comes in well under your budget and outperforms many at £100 more. It does have an AM section, but then, you don't have to use it. The resulting short-list must be listened to, since although each individually is very good, they also between them range from the slightly warm and rounded side of neutral to a leaner presentation. My own preference would be for the Pioneer.

A DAC to audition for a Meridian or Roksan CD transport is rather trickier. Apart from the matching DACs from Meridian and Roksan we think highly of the Audiolab 8000DAC, Sugden's SDA-1, the Deltec Bigger Bit (all around the £650 mark) and the Deltec Little Bit and Audio Alchemy Digital Decoding Engine at around half the price.

The Deltec convertors have a distinctive family sound - big, full and well projected. The Audiolab and Audio Alchemy are highly detailed and smooth; the Sugden falls somewhere in between, but is very transport-conscious.

Personal preferences - and your future digital upgrade path - come into the equation here, something which seldom seems to be mentioned. If you intend to have more than one digital source, a DCC machine as well as a CD transport for example, both the Audio Alchemy and the Audiolab will allow you to connect two sources and save you from plugging and unplugging interconnects. My own preference I think would be for the Audiolab or Audio Alchemy with the Meridian; the partner for a Roksan I would hesitate over, since I haven't had it at home and wouldn't like to pass judgement on the basis of show dem rooms. Please talk to a reputable dealer, most of whom will allow you a home trial. I presume that you have a



Changing loudspeakers to Tannoy 609's will make a big difference.

the original ESL electrostatic loudspeaker, both of which are best not exposed to anything too profane. The 306's role in this world is to symbiotically interface with an electrostatic, not to drive a dynamic loudspeaker like the Rogers.

Rogers speakers are laid back, but often enjoyed for this property, plus others that go to make them generally smooth, revealing yet easy to live with. However, speakers of all things are very much a matter of taste

receiver (i.e. a 'tuner-amplifier') lying around which you want to use temporarily as a tuner. It should have a fixed line-level output like any other amplifier; it will be labelled 'Tape Out' in fact. Intended to feed a signal to a tape deck, it will perform just the same duty to a pre-amp. Leave the receiver permanently switched to 'Tuner' or 'Radio' and connect the tape output to the tuner input of the pre-amp. There shouldn't be any problems unless the output is unusually high or low, at least if the receiver was manufactured within the last ten years or so when tape output levels and impedances were fairly standard. **EB**

Class A refers to the conduction state of a transistor. In a Class A amplifier the output transistors are always on and conducting heavily. In a class B amplifier two transistors switch in and out each dealing with one half of the audio signal. Thus in a class B amplifier the transistors are not continuously conducting at a high level so they run cool. Trouble is, the switch over point between them can rarely be arranged to be perfect, distortion being the result.

For this reason, a compromise known as Class AB is commonly used. Here, a continuous current at low level eradicates the sharp crossover transition, reducing distortion. The standing current employed varies, some designers making it

though the amplifier is not fully Class A and should not be described as such.

An amplifier can throw off waves of heat if biased heavily into Class A. This suggests its heat sinks are thermally conducting and radiating effectively, which will keep the output transistors cool. Problems arise when designers decide they can bolt output transistors onto thin alloy base plates, as they are periodically prone to do. Then the plate stays cool but the transistors may heat up severely, adversely affecting performance and life.

And yes - Hi-Fi World is available in New Zealand. **NK**

BUDGET BEST

After Eric Braithwaite and Noel Keywood's review of the Technics RS-BX606 cassette deck (November 1991) I finally succumbed to temptation and acquired one of these three-headers in March this year. It replaced a Sherwood DS1135C which I bought as a stop gap eighteen months ago and found rather disappointing.

The Technics is definitely the best of six budget machines I have had in the last sixteen years.

However, there is one problem I have encountered and that is a tendency for it to create the beginnings of some pre-recorded cassettes, the result being a rather swirling uneven sound on the first track. I bought a cassette of U2's Achtung Baby on Monday and the problem

no problem, but a repeat performance with not quite such resulting damage is happening on the Technics again with the new cassette tape.

So the question I would like to ask is "Is it that the tape is incompatible with the Technics or could there be some minor tracking/transport problem on the machine itself?"

I have recorded many tapes since acquiring the Technics using TDK, Maxell, even cheapie WH Smith's own brand (last of the line and going at half price), all giving very crisp results, except on one TDK D90 where the sound was muffled - again at the start of the tape - but I believe this was caused by some slight shedding of fibre on the head/pinch roller where I had just cleaned the deck's mechanism with a cotton bud and cleaning fluid. I keep the heads and pinch roller scrupulously clean.

The other problem, a common one, is that some pre-recorded cassettes sound dull when played with Dolby B switched in. This problem is not as common though as with the Sherwood and previous decks (ITT, Ferguson, Tensai) - the majority of my pre-recorded cassettes sound better than I have ever heard them before. That said, I find the tapes recorded on the Technics from CD, vinyl or FM Tuner vastly superior to pre-recorded tapes.

I have telephoned Sevenoaks Hi-Fi in Woolwich where I bought the Technics and they are quite happy to check the machine over. The person I spoke to stated, as a matter of interest, that record companies do tend to use cheaper tapes for their pre-recorded cassettes and that this might have some bearing on the problem.

Before returning the Technics for an examination, I would be most grateful for your observations on this problem.

**Dennis Turner,
London SE2.**

P.S. The 'creasing' problem causing the damage has happened on Island, WEA, RCA and CBS cassettes - Classical and Rock music.

The first thing I would suggest you do is to contact Technics Customer Support Services on (0344) 853943 who will give you the nearest service centre, or ask your dealer to do it. The problem you are experiencing is likely due to incorrect start up sequencing (pinch wheel and hub drive) or wrongly set tensions. It is very unlikely your dealer will be able to do much

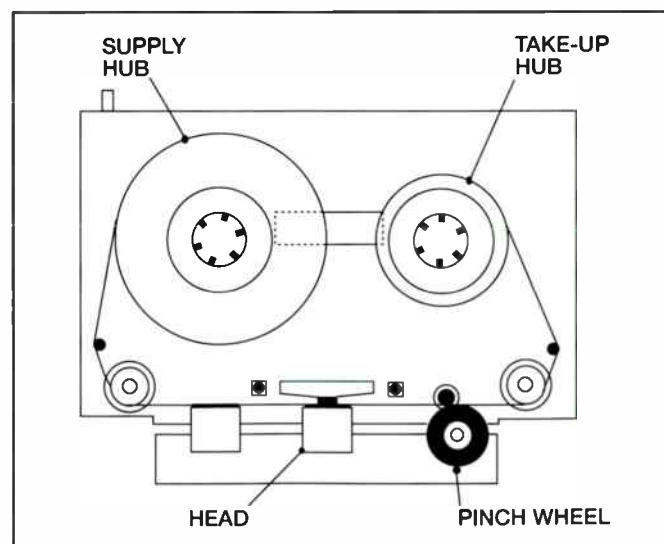
about this. We use prerecorded tapes on a Nakamichi ZX-9 and a Sony Walkman WM-DD33 and they don't screw up - nor should they. A good deck can handle poor tapes, although really bad ones will jam due to uneven winding onto the hub unless they are reformed often, a job we perform on the Nakamichi.

Prerecorded tapes that are dull in themselves are not uncommon. They have been over-recorded or simply recorded with inaccurate equalisation. You should find some dull, a few that are unusually bright (tiddled up by tape engineers to cope with the average grotty tape recorder) and, now, many that sound quite respectable. If too many sound dull, then head azimuth may be slightly out. However, Technics now well understand and cope with this problem and it does sound as if your machine is well adjusted in this respect. Beware that if head azimuth is changed, then all the tapes you have recorded will go dull.

We would suggest buying a two-part Teac or similar head and pinch wheel cleaning fluid kit. This particular kit contains a separate fluid for heads and pinch wheels, the latter containing the chemicals necessary to keep the pinch wheel rubber supple and in top condition. Ordinary head cleaner can turn the pinch wheel rubber hard causing tape take-up problems.

Any pre-recorded Ferric tape will shed oxide onto your tape transport mechanism so in a way they are all incompatible with tape decks as they are not good for them. However in practice this oxide shedding can be controlled by buying good quality tapes for home recording and only playing pre-recorded Ferric tapes when there is no choice. A clean every few plays can prevent any serious quantity of deposit building up.

To answer the question on the quality of pre-recorded cassettes, try holding a selection of tapes up to a bright light. Any good Chrome or a Ferric tape such as TDK D will have a smooth glossy appearance, whereas a pre-recorded Ferric and to a certain extent some Chrome tapes will tend to have a duller mottled appearance, indicating that a lower quality coating has been applied resulting in this varying texture and thickness. Draw your own conclusions as to which is the better tape! **DB & NK**



The tape path of a cassette deck. As the recorder starts, the tape head and pinch wheel move up in sequence with the take-up hub beginning to turn.

so high so that the amplifier effectively runs in Class A for all but high level signals. Such an arrangement causes a lot of heat to be dissipated, even

occurred again although the shop kindly replaced the tape with another.

I played the replacement on a £30 Aiwa personal stereo with

Arcam's Alpha Compact Disc player is considered to be one of the most successful £300+ CD players currently in the shops. In its three year life-span, over 18,000 players have been sold, with only one minor revision to the design, made some nine months after the player's launch.

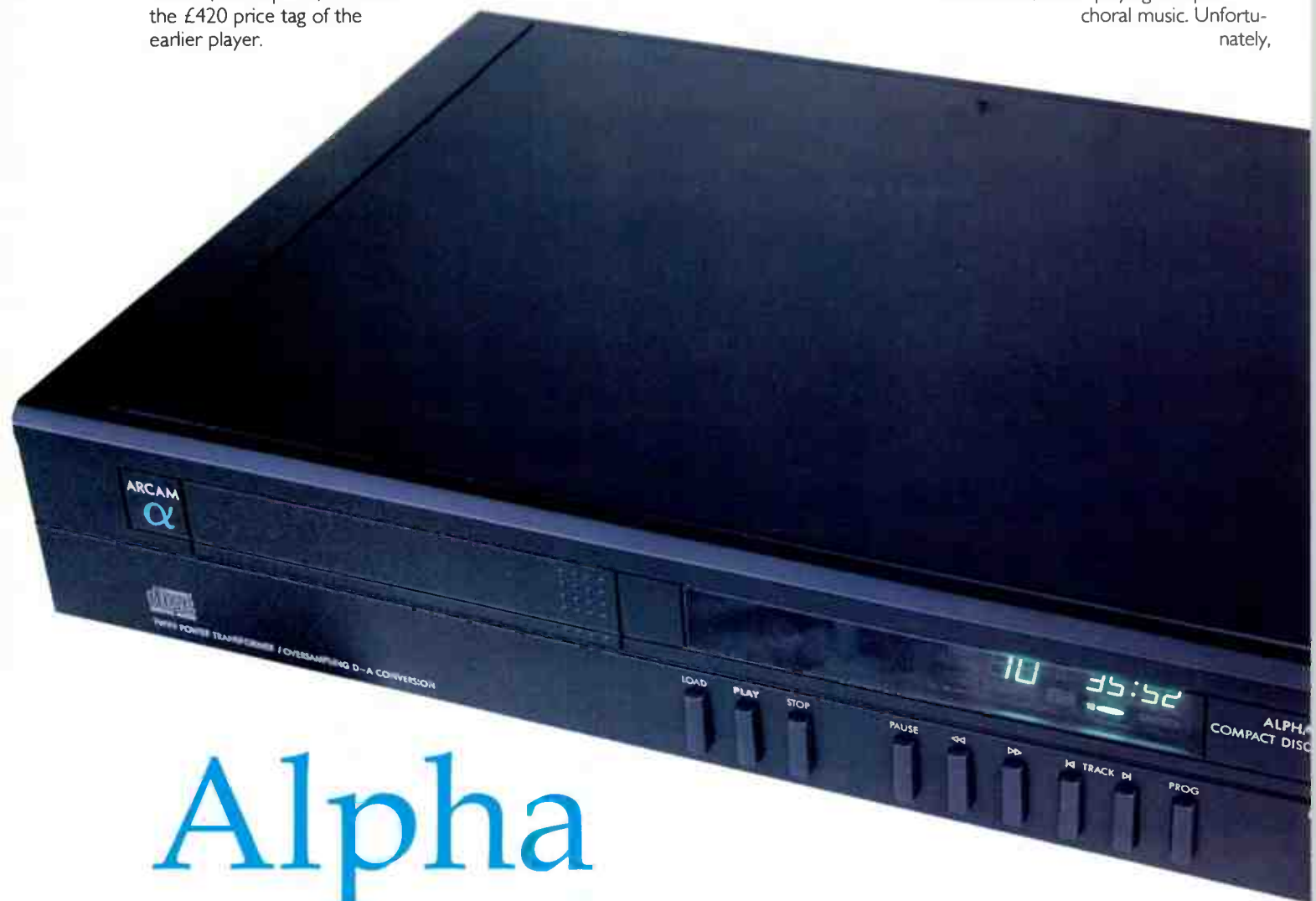
Time moves on however, and the competition was beginning to close in on the sixteen-bit Alpha, so the decision was made to improve it. The latest version, the Alpha+, maintains the £420 price tag of the earlier player.

"Furthermore, we took the opportunity to re-lay the board, in order to improve the player at the same time." Rumours of an Alpha II replacement on the horizon were denied. It has long been held that the Alpha CD player could not be improved without making it far more expensive.

Arcam have a firm policy of supporting existing customers. As with the Delta 70.3 upgrades, the Alpha+ output

between the two players; it is still fundamentally an Alpha CD player, with its dark, solid bass lines and warm, rounded and almost analogue-smooth top end. To many, the difference between the two is a blink-and-you'll-miss-it change, something that would largely pass unnoticed. It does not transform the Alpha into a high-end super CD player, but subtly refines an already good one, without losing any of its original 'ballys' character.

If anything, there is said to be increased refinement, when playing complex choral music. Unfortunately,



Alpha Beater?

Latest in Arcam's upgrades is the Alpha+ Compact Disc player.

Alan Sircom listens for the changes.

We asked Arcam's Managing Director, John Dawson, what changes have been made. "Essentially, the work we've done is on the output board, which contains the DAC. It's the same chip as before, namely Philips' sixteen-bit TDA 1541A, but there have been some detail changes, in the light of our recent experience with the Black Box 5."

board is available as a retrofit to existing Alpha CD players for £99.90. It can be fitted either by dealers or through the Arcam factory. Externally, there is only one clue to the latest player's new incarnation: the lettering in the top left corner of the front panel now reads 'Alpha+'.

There is no great change of character

I only had the Alpha+ player, but I contacted dealers who had compared both side by side. No one could find any negative aspects to the Alpha+ upgrade. I would find the £99.90 retrofit difficult to recommend, however, as it is so subtle a change.

But the Alpha+ does serve as an opportunity for us to legitimately re-

appraise the Arcam Alpha player, in the light of its competition. Characterful as ever, it still stands at the pinnacle of the sub-£500 CD player market for those attracted by its particular strengths. Even after three years of CD development, which have seen the introduction of low-bit, single-bit, 'Advanced Interpolative' and now 'Legato Link' players, it is difficult to find another that has such a rich balance of virtues at the price.

Its most direct competition comes from Rotel, with the Bitstream RCD-965BX, which at £279.95 is considerably cheaper. Both of these players have appeared in some very expensive systems, without disgrace. As a very rough guide-line, the



Rotel's performance steers it toward the more neutral system, while the Arcam is often seen where 'musicality' is to the fore. It is no surprise to see an Alpha CD player in an expensive Linn/Naim system, or the Rotel being used with a pair of Quad Electrostatics.

Although my own system tends toward neutrality, I admit to still having a preference toward the Alpha CD player above the Rotel. The Rotel 965 is the more transparent, but with that transparency I, feel, comes dryness. Listening to the Alpha in comparison, one basks in the warmer, more easy-going presentation and the tuneful, if somewhat euphonically enhanced, bass performance.

These two players continue to dominate the middle ground of the CD market and are the benchmarks for other players to beat. Three years on, and now with two minor upgrades under its belt, the Alpha+ shows that, ultimately, the competition still has a lot of catching up to do ●

MEASURED PERFORMANCE

Arcam have made only detail improvements to the Alpha+, not wanting to alter a winning formula. The detail work mentioned in the main review consists of improved power supply earthing, new higher grade output capacitors, enhanced EMC (ElectroMagnetic Compatibility, a current obsession with the EC) to reduce radiation and minor filter changes. The chip used remains the venerable Philips TDA-1541A sixteen-bit device, in selected SI form which generally gives a more tolerable form of digital distortion than the standard type, with lower-order harmonics dominating.

Comparison of measured performance with that on record for the original Alpha shows almost identical results; little has changed it seems. In time honoured Arcam tradition, frequency response rolls off slowly above 5kHz, as the response analysis shows. This gives Arcam players their distinctively mellow sound, a property the company have obviously decided to retain. As CD gets better, especially in terms of recording quality, this tailoring becomes less necessary. But with the Alpha+ it has been kept in check, the actual drop in level being -0.3dB at 20kHz, with an upper -1dB limit of 20.8kHz being retained as before.

There's no doubt that when frequency response is made truly flat, a state that would seem ideal and one achieved by recent Sony and Philips players for example, the sound from CD can become hard and remorseless. Arcam continue to avoid this last step toward theoretical perfection - and probably wisely. There are signs that - Philips and Sony apart - major manufacturers now also err toward this characteristic for safety.

Philips' TDA-1541 convertor chip, upon which the Alpha is based, is consistent in the pattern and levels of distortion produced. The Alpha+ is only marginally better than its predecessor, managing 0.05% distortion at -30dB music level, against 0.06% from the original. As before, the harmonics extend right up to 20kHz, as our analysis shows. This is an unfortunate feature of 'digital' distortion that makes it so much more audible and unpleasant than most other distortions. It has always been my suspicion that the slightly more positive, hard edged quality displayed by sixteen-bit (one appreciated by many listeners) is at least partially due to this effect. In banishing the last vestiges of digital distortion, Bitstream also guaranteed itself a softer, apparently less well defined (i.e. sharp) sound. So the sound of the Alpha+ is partially distinguished by its retention of sixteen-bit technology.

As before the Alpha suppresses unwanted signals above 21kHz quite well, allowing it to present a clean, noise-and-alias free signal to an amplifier. It's always a benefit. Players producing a lot of unwanted output generally seem to sound a bit 'grey' and wiry. Channel separation was good,

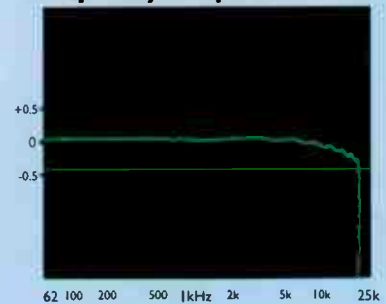
noise low at -115dB and output healthy at 2.3V, about +1dB up on the 2V standard. This would give the Arcam a subtle advantage in an A-B demonstration.

The Alpha+ is a well engineered player. It incorporates only minor modifications to improve, but not change, a sound that has become popular in its price stratum. In effect, Arcam are capitalising on the subjective merits of sixteen-bit with this machine, offering an alternative to Bitstream. **NK**

TEST RESULTS

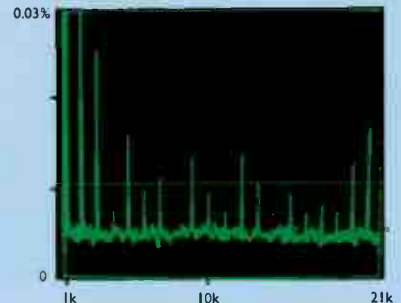
Frequency response	2Hz-20.8kHz		
Distortion (%)	-6dB	0.006	0.006
	-30dB	0.05	0.05
	-60dB	0.6	0.5
	-90	48	47
	-90dB dithered	10	9
Separation (dB)	left	right	
	1kHz	98	98
	10kHz	83	85
Noise		-115dB	
	with emphasis	-117dB	
Dynamic range	107dB		
Output	2.3V		

Frequency Response



Treble roll off; warm sound.

Distortion



Distortion 0.05% spikes



Golden Ears

Featuring the latest gold dome tweeter, Monitor Audio's MA800 Gold loudspeakers attract Alan Sircom's attention.

Monitor Audio have championed the metal dome tweeter for many years. The latest variant of their gold dome appears in the new £599.99 MA800 Gold loudspeaker. Matched with a more traditional bass/mid driver, Monitor Audio's refined and improved metal dome is said to have overcome the spit and sting of many others while still retaining the breed's speed and clarity.

The reason for the spitty nature associated with many metal domes is due to break-up at high frequencies. When a metal dome 'sees' a frequency above about 24kHz, the dome surface begins to act unpredictably. This has ramifications in the audible spectrum - instruments with a great deal of high frequency content such as cymbals tend to sound spitty.

Monitor Audio's answer to this dome break-up is to use a special alloy, a combination of aluminium and magnesium instead of the pure metal, aluminium or titanium, used by others. This takes the break-up point to about 28kHz where it is less likely to be over-excited by the high frequency component of cymbals and the like.

In the 800's this tweeter is allied to a single mid/bass driver with a front-firing port. Instead of being circular in shape, the port is more like a handhold and is smoother than most to allow the air easy passage. Placement away from a rear wall is recommended.

Quality Finish

Traditionally, Monitor Audio loudspeakers have been superbly finished. The 800's are no exception; the review pair were veneered in a rich Rosewood of a quality seldom seen in hi-fi loudspeakers these days. A variety of other veneers, including the ubiquitous Black Ash are available. Attention to detail is obvious apart from the veneer, with little touches like the semi-circular cut-out at the bottom of the grille which displays the Monitor Audio logo, or the company name on the two sets of gold 4mm sockets.

The 800's are supplied with chunky links to allow the loudspeakers to be used single-wired, though I would recommend bi-wiring or bi-amping wherever possible. It makes a big difference to the sound quality. These Monitor Audios also benefit from a hybrid cable, using solid-core to the tweeter and multi-strand to the bass.

By and large, Monitor Audio have achieved their aim of removing the spit inherent in metal dome designs. The new tweeter certainly can define treble detail. The traditional attributes of speed, detail, dynamics and attack were all readily apparent, without the searing nature of many metal domes. I also found the overall sound was unfussed by musical style. Almost.

Where it didn't quite work out was with heavily electronic music, such as The Orb's 'A huge ever growing pulsating brain that rules from the centre of the

ultraworld' or The Shamen's 'Oxygen Restriction'. Here, the synthesised drum sounds forced the loudspeaker into too forward and intense a treble attack. While on most musical programme, this forwardness caused no problem, the 800's did have the ability to become acerbically fierce.

The speed of the tweeter was virtually matched by the bass driver, although here too, the loudspeaker could be caught out by certain material. There was little trace of port resonance, except at high volumes when deep bass notes began to boom a little. Its only fault was a tonal character that did not match the tweeter. The two drivers often seemed at odds with one another; the tight, lean speed of the metal dome, set against the mid/bass unit, with its more ponderous approach. This made me feel there were two speakers fighting for supremacy.

Paradoxically, the whole was very much greater than the sum of the parts. Although it was very easy to be critical of the drivers in isolation, pointing to their failings, the overall balance of the 800 Gold is one that will find a great many followers. The mid-band in particular was very sweet, lucid and clear, without suffering from either extremes of aggression or blandness. This helped to give the

majority of music played on the 800's a silken coherence and fine imagery.

Unless musical programme had large amounts of high or low frequency content, there appeared to be no undue problem with playing any kind of instrument or any type of musical genre. Even notoriously difficult instruments, such as grand piano and female voice, were dealt with admirably.

This was also a loudspeaker that brought breadth and scale to music. They may have lacked the dynamic range of the

‘a silken coherence and fine imagery

Snell, Audionote or ATC designs, but the 800 was still capable of coping with dramatic changes in volume without fuss or bother.

The dispersion abilities of the 800s I found to be good, although this had more to do with the tweeter than the bass driver. High frequency sounds could be located within the soundstage from extreme left or right, although lower frequency notes were less competently

placed.

There is a loudspeaker that comes to mind when listening to the 800 Golds: the late and lamented Linn Sara. While the Sara was never one of my favourites, there are Sara enthusiasts who will never part with it. The Monitor Audio 800 Gold is similar to the Sara; it lacked the pin-you-to-the-wall drama of the old Linn speaker, but it had better imagery and was even faster in the treble.

On occasion, I have encountered products that, despite their self-evident traits, do not suit either my system or my listening criteria. The Monitor Audio 800 Gold is such a product. For those who like the sound of loudspeakers such as the LS3/5a, the tweeter of the 800 could prove too detailed, too incisive. Even the smallest degree of brightness in a partnering system will tip them over the edge. Those weaned on 'polite' speakers like Rogers or Spendor would find the 800's too assertive. On the other hand, for those who like Linn Kans, but need a bigger sound, the 800's have a lot to offer.

The Monitor Audio 800 Gold has outstanding speed of attack and dynamic range; it provides a huge sound together with good neutrality in the mid-band. This will attract it to many - especially speed freak Rock enthusiasts ●

MEASURED PERFORMANCE

There are some interesting trends in the frequency response of this loudspeaker. It is basically flat within close limits as loudspeakers go, our third-octave analysis having quite a high resolution of 5dB/division on its vertical scale. You'll see loudspeakers going steadily upward with frequency, which gives a bright, thin sound, or downward which gives a dull, muffled or warm sound. The MA800 Gold, which uses their own spun aluminium cone drive units, is set basically flat, so it will avoid the effects I have described.

However, those with an eye for loudspeaker response curves will also notice that there is a discernible bass peak of +3dB around 160Hz and also that treble output lifts by a dB or so above 4kHz until it reaches 12kHz, after which output rolls down to become -5dB at 20kHz. This pattern imposed on the response will give the speaker plenty of life in the treble and bass which, like a loudness control, peps things up at low listening levels in particular.

Emphasising higher bass harmonics has the effect of adding 'speed' to the bass; designs having emphasised lower bass conversely sound heavy and ponderous. With plenty of output down to 50Hz, the MA800's -6dB point, the speaker will produce true deep bass, but whether in practice it is obvious can only be determined by listening tests. In my experience with loudspeakers, an emphasis like this is prone to draw

attention away from abilities in nearby areas. And if the 160Hz peak is due to a resonance, it could lead to some overhang in the upper bass. As always, final judgements must rest on how the speaker sounds in use, the influences being complex and interactive.

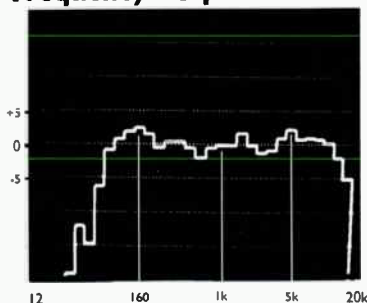
Metal cone drive units are known for a clean, bright sound and in the MA800 Gold the small lift above 4kHz will subtly emphasise this impression. The absence of any treble peak will ensure the speaker doesn't spit or get sharp, and the small lift in treble energy should enhance both clarity and detailing.

Like so many British loudspeakers, this one treats the nominal eight ohms impedance standard as an effective minimum, in effect playing safe with partnering amplifiers. A high impedance loudspeaker like the MA800 Gold will not demand a lot of current, but the corollary is that it will be less sensitive than one that does draw current and, therefore, power. At 84dB sound pressure level for one nominal watt (2.84V), the speaker is not especially sensitive, as I would expect from a nominal impedance of no less than 13 ohms. It needs an amplifier with a high power specification to go loud, around 50watts being a minimum I would suggest in a normal size room and at normal volumes. But this speaker is an easy amplifier load in that it doesn't demand much power from amplifiers (even though it does need high power amplifiers!).

The MA800 Gold will have a distinctive and lively sound, with a well stated treble and bass

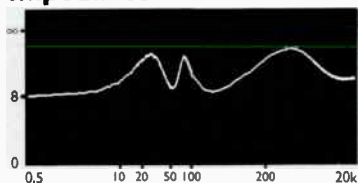
content. It is an easy load, but to go loud it should be partnered with an amplifier having good reserves of output. The overall standard of engineering is high; there are no peculiar suck outs or peaks, no unnatural trends. It's a well designed and built product, but a characterful one. **NK**

Frequency Response



Some bass and treble lift.

Impedance



Overall impedance greater than 8 ohms

Speaker Spokesperson

Monitor Audio's beautifully finished loudspeakers represent only a part of the craftsmanship of the Monitor Audio group of companies. Alan Sircom spoke to Mo Iqbal, the chairman.

AS: Where did you train to become a loudspeaker designer?

MONITOR MO: My background was as an engineer. Having studied telecommunications engineering at the University of Kenya, I came here, to Cambridge, to finish my studies in Medical Electronics and then worked for five years with the Medical Research Council at Addenbrookes Hospital.

We designed the first N.M.R. (Nuclear Magnetic Resonance) machine, commonly known today as a Body Scanner. This was about twenty-five years ago. Body Scanners use two very large magnets that create a field of about twenty-three thousand Gauss.

That was very good training for me, especially in the area of magnets, which is what a loudspeaker is all about. I also learned a lot about the ear. I discovered that we all hear about the same in the mid-band. For me, the mid-band is very important. If you can get the middle frequencies right, in terms of 'accurate' loudspeakers, you hit something which is beautiful.

I'm not too bothered about the high or low frequencies. Once you get the mid-band right with your drive unit technology, you've got everything. High frequency reproduction depends almost entirely on the design of the drive unit itself.

Low frequencies depend not only on the drive unit characteristics, but also the size of the box and the room you are putting the loudspeakers into. It is not a big deal to design low frequency response; there is not much that you have to do. I learned much of this from my days at the M.R.C.

AS: So why the jump to hi-fi loudspeakers?

MONITOR MO: I was very interested in audio and the interest grew from there. My family thought that I was mad! I started the company back in 1974. Things grew from there until in 1979 we were the top

loudspeaker producer, even in the volume market. The Eighties were bad for a lot of people, but we did very well with our 252/352 range. We didn't sit back and enjoy our success, although over the last twenty years we have been very successful.

AS: You seem to have taken a new direction with the metal alloy coned Studio series. Is this so?

MONITOR MO: All these years, we have been a value for money, middle market company, but I wanted to show with investment and with new technology, we can break into the high-end. I think that we have done it with the metal alloy drive units in loudspeakers like the Studio 20.

AS: In the past, metal coned driver units have been beset with problems to do with reliability, efficiency and low volume levels. How do you overcome this?

MONITOR MO: Our units don't break because the cone is a sandwich, not a single metal. As such, it is a very stiff cone, so that it doesn't change its shape. Secondly, the cone is anodised with ceramic material, that helps to cool the whole system. The cone is part of the voice coil, so that every time the unit has a current passing through it, it is cooling, with the whole cone surface effectively acting as a heatsink. Finally, we wind our voice coil on a solid aluminium tube. This

gives a metal cone with no compression, so that it can go very loud and is virtually unbreakable under normal conditions.

By using a very thin alloy extruded cone, this helps to make the driver more efficient. We have also looked into bonding to the rubber surround, and we use a special rubber that doesn't change with temperature and doesn't stretch.

Our cones break up at 6.8 kHz, yet we have a crossover point at 3.2 kHz. Spun metal cones break-up at about 4 kHz, which is too close to the crossover point.

The same thing applies to the tweeters. When they spit, or sound hard, it is basically due to material break-up. With most metal dome tweeters, this happens at about 23 kHz, creating a peak that can be up to 14-15 dB. A dome made of a single metal will break-up at that frequency, but an alloy dome breaks-up at 28 kHz. This break-up peak reflects back down to 24 kHz which means that you can't hear it.

AS: What projects do you have for the future?

MONITOR MO: We are releasing three new hi-fi products at Penta this year and on the drawing board we have a state-of-the-art high-end loudspeaker. This will be



the project for 1993-94 and should cost in the region of about £5000. It should use all metal alloy technology, about six or seven drive units a side, firing two eight inch cones into a rear transmission line.

Finally, we intend shortly to be introducing a free service, for all our customers over the past twenty years. Over the years, veneers fade a little, so they can take the loudspeakers to the plant and have them repolished ●

The monitoring loudspeakers in my studio, which have a forward-facing reflex port, frequently prompt the enquiry, "Why do your loudspeakers have holes in the front?" Indeed, this has happened so often that I thought I would describe this type of enclosure - the so called bass-reflex type. But first of all, perhaps one should ask why loudspeakers have to be in boxes at all.

Bass

Suppose for a moment that the loudspeaker is reproducing the sound of a kick-drum. The forward motion of the loudspeaker cone produces a pressure-wave in front of the loudspeaker which our ears must detect if we are to experience the sound of the original drum. Unfortunately the same forward motion that produces a pressure to the front of the loudspeaker creates a small vacuum behind it.

If the pressure wave is to travel to our ears so that we can hear the kick-drum, it must be prevented from moving around the edge of the loudspeaker to neutralize the vacuum behind. Without a box this is exactly what happens with all low frequencies: they are almost entirely lacking and the sound is "thin" or "tinny".

To obtain a good bass response from any loudspeaker, it is necessary to isolate the sound radiation from the rear of the cone from that at the front. The easiest way to do that is to put it in a box. The simplest form is one without any holes in it; technically this is known as the "fully sealed enclosure".

But the fully sealed loudspeaker enclosure, despite its popularity and widespread adoption, is not without its engineering problems. Trapped inside the apparently empty loudspeaker enclosure is air. And, although it's invisible there's more to air than meets the eye.

When we try to walk in a swimming pool, the resistance the water offers to our motion is very obvious. On the other hand, when we move through air we do so relatively unimpeded so it's easy to forget that it's there at all. But it has both weight and density. The loudspeaker designer must always remember that air has

mass and appreciate too an enclosed volume - like that trapped inside a loudspeaker box - possesses compliance or "springiness". If it's hard to believe that the invisible and intangible ocean which we unconsciously navigate every day has these properties, think back to the days of pumping up bicycle tyres and what happened when you put your finger over the outlet of the bicycle pump. You'll remember that the plunger acted against the invisible spring of the air trapped inside the sealed pump.



Thirdly, the loudspeaker becomes so easy to drive as far as the amplifier is concerned that it may "look" to the amplifier as if there is no loudspeaker connected at all. The amplifier thus loses control over the loudspeaker's movement. A loudspeaker near its resonant frequency is like a bolting horse which has thrown its amplifier rider.

The addition of an enclosing box does nothing to improve the performance limitations imposed by the loudspeaker's natural resonance. Very often

recorded message

Left by Richard Brice

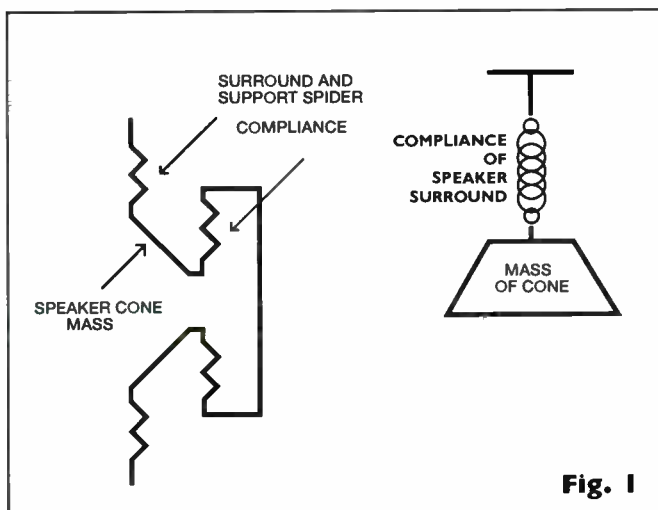


Fig. 1

Resonance

Like air, the loudspeaker unit itself possesses mass and compliance. In acoustic terms, the important mass is not the heavy magnet and frame assembly but the mass of the paper or plastic cone. The compliance is provided by the surround and support spider at the apex of the cone (Fig.1).

Now, as any bungee-jumper will tell you, it is the property of any compliance and mass that they will oscillate at their natural period or resonant frequency. The support's compliance and cone's mass determine one of the fundamental limitations to any loudspeaker's performance - the bass resonant frequency. Near this frequency the

acoustic output becomes distorted in a number of ways: firstly, because the loudspeaker "wants" to oscillate at its natural frequency, there is a very large increase in its acoustic output when it tries to reproduce notes in the vicinity of its resonance. Secondly, because the loudspeaker cone is very free to move at these frequencies, its movement becomes non-linear giving rise to harmonic or intermodulation distortion.

the situation is actually worsened because the springiness of the enclosed air inside the box augments the loudspeaker's own compliance and raises the bass resonant frequency of the combined loudspeaker and enclosure, further limiting its useful bass response (Fig.2). The good the enclosure does in increasing the bass output is partially undone by raising the bass resonant frequency.

Bass Reflex Enclosure

The use of a port or tunnel can improve all three areas of a loudspeaker's performance in the region of the bass resonant frequency: it can reduce the hump in the acoustic output, it can improve the load presented to the amplifier and it can reduce distortion. You might think from a superficial inspection of the bass-reflex loudspeaker that

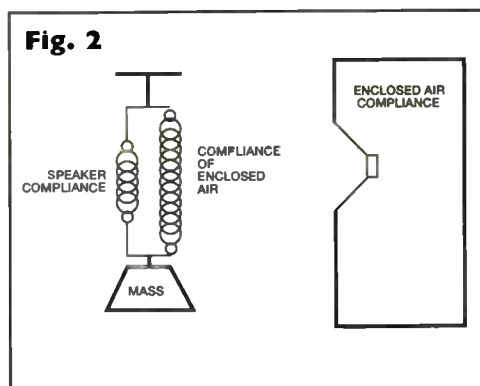


Fig. 2

Dealers For:

ACOUSTIC ENERGY
AIWA
AKAI
AKG/AR
ALBARRY
ALPHASON
APOLLO
ARCAM
ARISTON
AUDIO ALCHEMY
AUDIO INNOVATIONS
AUDIOQUEST
AUDIO TECHNICA
AURA
B & W
BANG & OLUFSEN
BEYER DYNAMIC
BOSE

**REPAIR
SERVICE**

**IN-CAR
HI-FI**

**TAX FREE
EXPORTS**

SUNDAY OPENING

0%

**INTEREST
FREE
CREDIT**

A.P.R. AVAILABLE TO PERSONAL CALLERS.
ASK FOR DETAILS

**MAIL
ORDER**

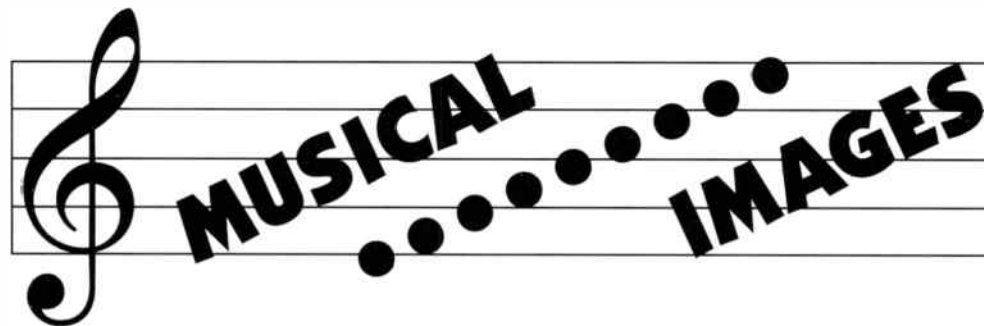
**DEMO
ROOM**

**PART
EXCHANGE**

Dealers For:

MONITOR AUDIO
MORDAUNT-SHORT
MUSICAL FIDELITY
MICHAELSON
NAD
NAGAOKA
NAKAMICHI
ORTOFON
PANASONIC
PHILIPS
PIONEER
PROJECT
PROTON
QED
QUAD
QUART
REVOLVER
REVOX

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MIDDLESEX. HA8 7JX
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balance over 6 mths.
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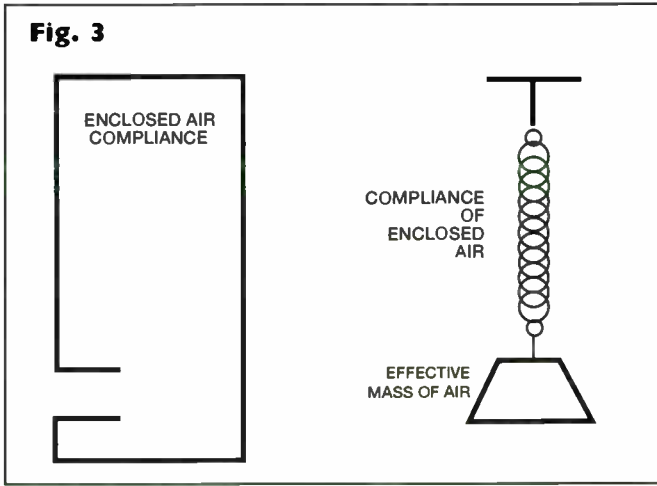
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MANY MORE

Fig. 3



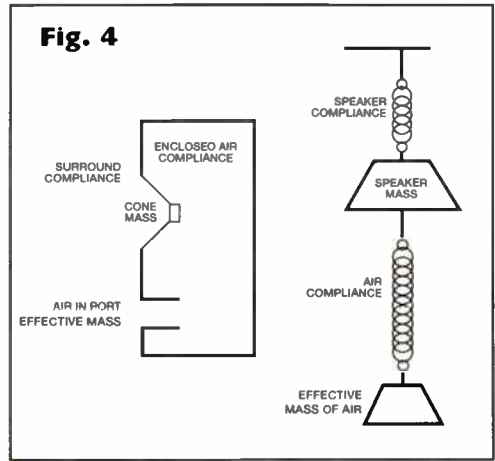
the port which after all communicates the cone loudspeaker's rear radiation to the front would sacrifice the benefits of the enclosed cabinet. You might reason that a pressure wave from the front of the loudspeaker will simply disappear down the port to neutralize the vacuum created within the box. At very low frequencies (frequencies below the loudspeaker's bass-resonance) this is indeed what does happen and the very low frequency response of a bass-

reflex loudspeaker enclosure is less good than that of a sealed box. (This fact alone has kept the sealed box a favourite amongst some designers.) It is at the resonant frequency of the loudspeaker that the bass reflex design really comes into its own. By calculating the compliance of the air trapped inside the enclosure and the effective mass of air resting within the port (Fig.3), the designer of the bass-reflex loudspeaker arranges for this mass and

compliance to resonate at the same frequency as the bass resonance of the loudspeaker unit itself. Try to picture in your mind's eye that, at this frequency, the effective mass of air within the port bounces upon the compliance of the air within the box. Mechanically the arrangement is similar to a mass and spring suspended from another mass and spring (Fig.4). The really wonderful property possessed by the bass-reflex loudspeaker is that at the bass resonant frequency the air in the port moves out as the loudspeaker cone moves out and moves in as the cone moves in. It thus selectively stiffens the combined compliance of the surround, support spider and the air enclosed within the

box, restricting the movement of the cone at and near the bass resonant frequency, lowering the load presented to the amplifier and reducing distortion. A resonance is used to "tune out" another resonance and the bolting horse is brought under control. So remember, next time you see a bass-reflex loudspeaker enclosure that it is very far from simply a box with a hole in it. It's an acoustic machine, cunningly devised to turn the usually useless and destructive radiation from the rear of the cone to advantage ●

Fig. 4



Reflections from Noel Keywood

kaleidoscope

You may have noticed a small picture of our test equipment on this month's contents page. Hi-Fi World is the only UK hi-fi magazine to possess its own in-house test facilities and listening room, something that we feel is of great value to the magazine. In future we will slowly be broadening and strengthening these facilities, but without letting tech-talk infect our articles. It's a valuable part of our general approach.

The hobbyists amongst you may also be interested to know that we'll soon be testing test equipment, as well as showing you how to use it. There'll be nothing too complex; I know how quickly such things sink into electronic jargon. Our aim is to introduce testing to the hobbyist with

little technical knowledge. The test equipment we will look at will be low priced too.

Since good, sensibly priced test equipment is difficult to obtain, items that work well will be made available through the accessories section of the magazine, hopefully at prices below those found elsewhere. We are thinking in particular of all the potential loudspeaker builders amongst you, plus those who hanker after a DIY valve amplifier. Basic test equipment is a necessity.

Product testing is an essential part of our curriculum on this magazine. Magazine reviews should be able, with a reasonable degree of success, to identify products that are accurate or inaccurate, since accuracy of reproduction is a prime requirement of true hi-

fi. Only measurement can do this. Final buying decisions can then be left to individual readers who can decide for themselves whether they'd be happy to live with something that was, say, inaccurate yet sounded nice. Subjective-only reviews cannot make this distinction.

A large percentage of readers expect us to be able to make knowledgeable, comprehensive and - above all - accurate assessments of products. And why not? I believe they have every right to do so, to avoid being misled. Being told by a reviewer that a product is wonderful because it makes his foot tap faster is both facile and absurd. I'm embarrassed to think what German and Japanese manufacturers and readers, for



example, might have thought of this in the past, when it has appeared in UK magazines that eschew measurement.

It is also insulting the intelligence of the many readers who know better. Hopefully, the days of subjective-only testing, which UK publishers saw as a way of lowering costs, are over.

Following in the footsteps of the better German, Italian and Japanese magazines, our test facilities and listening room enable us to reach informed conclusions about products, a strength we will be able to steadily build upon in the years to come ●

SPECIAL MAIL ORDER



ANTI-STATIC RECORD SLEEVES

Translucent antistatic record sleeves from Nagaoka, according to availability. A surface treatment makes them anti-static, lessening dust attraction. This helps keep records pristine. They are supplied in packs of fifty. We suggest you regularly change sleeves in order to prevent trapped dirt contaminating records, especially after cleaning. The record label is clearly visible through these sleeves, an aid to easy identification.

LP SLEEVES (50) PRICE £7.50

NAGAOKA CD CLEANING KIT

As with cassette deck cleaning kits, we don't recommend the 'cogs and wheels' cleaners and choose not to sell any of them. Tests we have carried out with a Cambridge CD-I CD Quality Control Unit clearly show that careful manual cleaning is the most effective way of removing all types of surface contaminants without causing damage to the disc. Remember that CDs must not be scratched - even finely. Tests showed that the Nagaoka kit was the best all round cleaner. It has a solvent and a chamois leather pad which, together, bring the CD surface back to almost as-new condition.

NAGAOKA CD CLEANING KIT £10.50

NAGAOKA ROLLING RECORD CLEANER

The big drawback with most record cleaners is that they fail to remove all types of dirt. Brushes pick up fluff, but they redistribute fine dust around the grooves, causing noise build up. Nagaoka's rolling record cleaner actually lifts dirt from the bottom of the

groove - even fine dust. It uses a peculiar form of sticky coating on a soft foam backing. Dirt of all types - especially fine dust of the sort left by brushes - is removed completely. It is lifted from the record's surface, and no deposits are left behind. This is an effective way to dry clean a record.

ROLLING RECORD CLEANER PRICE £10.20

AUDIO TECHNICA GREEN CD RING STABILIZER

These are detachable green rings which are fitted round the circumference of the Compact Disc. The non-slip material allows the disc to be picked up without touching the playing side and leaving fingermarks. It also raises the disc slightly from any surface it's placed on, avoiding scratches if you don't replace it directly in the jewel box, as you should! It also adds a tiny but significant degree of mass to the outer edge of the disc, improving its stability and reducing vibration when it rotates at high speed inside the CD player. Green absorbs stray red laser light, so reducing random reflections within the disc, much like a green pen. So the rings perform many useful functions - and they are removable too! Improvements to the sound include better focussed and firmer images, plus a generally denser and richer sound.

GREEN RING STABILIZER (5) £6.50

AUDIO TECHNICA RECORD CLEANING SYSTEM

The Audio Technica Record Cleaning System removes both dirt and static. When you lift the pad from the record, dirt comes off with it. A tiny amount of cleaning agent inside the handle provides just enough humidity to dissolve

fingerprints, oils, and film. A bottle of special fluid and pad brush are included.

AUDIO TECHNICA RECORD CLEANING SYSTEM £10.50

AUDIO TECHNICA CD LENS CLEANER

Here's a product for smokers in particular. However, seeing the peculiar haze that can coat

safe too. Just rest the stylus on its high speed vibrating brush and watch dirt get driven off automatically.

ELECTRONIC STYLUS CLEANER £19.95

CD JEWEL CASE

To house and protect your CD. **CD JEWEL CASE £1.00**



windows even when there are no smokers about suggests this clever little gadget is a necessity for one and all. It is a laser lens cleaner for your CD player, beautifully made by Audio Technica. Contained in the pack is a disc with fine brushes on it. Each brush takes one drop of cleaning fluid, then it is inserted and played. The brushes gently clean the laser lens, removing oil, grime, dust and other airborne deposits like nicotine (ugh!). Audio Technica recommend use once a month

CD LENS CLEANER £16.25

AUDIO TECHNICA ELECTRONIC STYLUS CLEANER

Scared of damaging your stylus when cleaning it? Try this amazing little device - an electronic stylus cleaner that vibrates gunge right off the tip! Powered by a small AA battery, it's a doddle to use and

AUDIOQUEST LASERGUIDE

There are many factors that can undermine the process of converting the pits on a Compact Disc into a digital signal to feed your CD player's D/A converter. How efficiently your player's transport can send laser light into a CD and then accurately read the reflections is crucial.

The surface of the CD itself is often a problem. The clear polycarbonate may look smooth to the naked eye but viewed under a microscope it is quite rough. This leads to unwanted random refraction and reflection of the laser light, causing additional jitter on the recovered digital signal.

Laserguide is a carefully engineered silicone based treatment which has a reflective index close to that of the CD's polycarbonate surface. It helps



Hi-Fi World AUDIO ACCESSORIES

accessory offers

smooth out that surface resulting in a claimed 50% reduction in refracted stray light. It is suggested that this improves stereo depth and openness. Video Discs also benefit with a sharper picture and less noise.

Just apply to the surface of the disc surface and wipe clean. One bottle treats approximately 300 CDs.

AUDIOQUEST LASERGUIDE £14.95



simply clipped in. This is one of the most effective ways of cleaning an LP.

PIXALL MARK II .. PRICE £10.75
REFILL ROLLER £2.75

LASAWAY GREEN PEN

When red laser light hits the silvered reflective surface of a disc, some of it scatters and is later reflected back off the disc edges, causing optical interference. Because green is far removed in the light spectrum from red, an opaque green coating effectively absorbs this scattered light, reducing interference signals reaching the laser and improving sound quality. The green coating is applied to outer and inner edges. It has been formulated by one of Japan's largest companies, Mitsubishi, to be harmless to the CD itself.

LASAWAY GREEN PEN ... £8.50

ON STYLUS CLEANER

Here's another simple but effective



cleaning kit. It consists of a stylus brush and cleaning solution. Use carefully to keep your pickup cartridge stylus and cantilever clean.

STYLUS CLEANING KIT .. £2.50

HI-FI WORLD DRY STYLUS CLEANER

A method of keeping your stylus sharp and bright for perfect tracking without using fluid. We're offering a whole sheet of card with an aluminium oxide micro-abrasive coating. Cut a strip off, about the size of the striker on the side of a matchbox, and draw it gently under the stylus from the back to the front. It removes the gunge that builds up. One sheet should be more than enough clean your stylus at least forty times.

DRY STYLUS CLEANER .. £1.95

PIXALL MK II RECORD CLEANER

Simple in both function and design, and made in the U.K, this uses a roll of sticky tape which lifts the dust out of the record groove. Three or four passes will clean the record very effectively, and can reduce static at the same time. After each pass, the dirty length of tape can be peeled off and thrown away, reducing the risk of any gritty particles picked up being ground back into the vinyl. When the tape roller runs out, a replacement is

TDK CLEANING KITS

A comprehensive range from TDK for cassette decks, Compact Discs and even connectors. The CK-A1, head cleaning kit includes two bottles of fluid for heads and rubber pinch wheel, and cotton buds for applying it. The CK-TB pack has a single bottle of dual-purpose liquid.

TDK offer three cleaning pens. Each with a soft double-ended replaceable shaped tip. The Audio Head Cleaning Pen for cleaning cassette heads, the CD Cleaning Pen for removing finger marks from CDs, and the A/V Connector Cleaning Pen for polishing up audio plugs and sockets.

The CD cleaning kit contains a bottle of fluid and a cloth which can be used for removing grime and stains. Finally, a dandy CD



cleaning tool for applying the cleaning fluid and drying the CD off afterwards.

TDK HEAD CLEANING KIT CK-A1 £5.50

TDK HEAD CLEANING KIT CK-TB £4.65

TDK AUDIO HEAD CLEANING PEN CP-AHI £5.00

TDK CD CLEANING PEN CP-CD1 £5.00

TDK A/V CONNECTOR CLEANING PEN CP-CRI .. £5.00

TDK CD CLOTH CLEANING KIT CD-C2TP £6.50

TDK WET AND DRY CD CLEANER CD CITB £8.75

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TDK WET AND DRY CD CLEANER CD CITB £8.75

TDK WET AND DRY CD CLEANER CD CITB £8.75

the panels are milled to have strong side joints. We have specified a durable black paint finish to give it a smart, yet unintrusive appearance. The screws are self-starting, but clearance holes are pre-drilled. It comes in a flat pack with screws and Allen key for easy home assembly.

RECORD STORAGE CUBE PRICE £42 EACH

FREE!

20 RECORD SLEEVES WITH 2 CUBES

50 RECORD SLEEVES WITH 4 CUBES

FOR 6 CUBES,

JUST PAY FOR FIVE (£210)

FOR 8 CUBES,

JUST PAY FOR SEVEN (£294)

RECORD STORAGE CUBE

This cube has been designed by us to hold roughly one hundred LPs. It has an internal width of 37cms. Internal height is 32.5cms and depth 32cms. The cubes can be stacked or placed alongside each other to increase storage - and they can even be used as seats!

Strongly made from 15mm medium density fibreboard (MDF),

GOLD PLATED SPADE CONNECTOR

For amplifiers with loudspeaker screw terminals, here is a heavy, duty gold plated spade connector. It has the same unique axial clamp connector as the 4mm plugs described above.

SPADE CONNECTOR (4) £10.00



Hi-Fi World SPECIAL MAIL ORDER



AUTOMATIC CD CLEANER

About the size of a portable Compact Disc player, this black battery-operated CD cleaner spins the disc while two sponges clean the disc with a radial motion. A bottle of cleaning solution is supplied: simply spray the CD, insert into the CD Cleaner, press the 'Start' button and in twenty seconds the cleaning cycle is over. An automatic shut-off facility operates if the lid is opened while the disc is spinning. The cleaning pads can then be replaced with a dry pair to dry the disc with another spin.

The Compact Disc Cleaner is supplied with washable foam cleaning pads and cleaning solution. Batteries (two size HPII are required) are not included, but the Cleaner can be powered through a standard transformer - like those for many personal cassettes - which has a 3v DC 350mA output.

AUTOMATIC CD CLEANER £21.95



SWEATSHIRTS AND T SHIRTS

A whole new range printed with "Hi-Fi World" and our slogan "The Magazine for enthusiasts" both front and back to prove to everybody you read probobably the best hi-fi magazine in the universe.

SWEATSHIRTS £12.00
HOODED TRACK-TOPS £15.00
T-SHIRTS £7.99

SORBOTHANE CD FEET

Four big, round rubber feet, 50mms in diameter and 18mms deep. Made from a soft, slightly sticky feeling form of artificial rubber known as Sorbothane, these feet have the peculiar ability to soak up vibrational energy, due to their high internal kinetic losses. Some people go nuts with them, swearing they improve everything, from the TV to the fridge! We sell them for use (as intended) with CD players, turntables and various other hi-fi components that might be sensitive to vibration. They improve sound quality by providing a more stable platform. Well-nutty and a lot of fun.

SORBOTHANE CD FEET £27.95



AUDIOQUEST OPTICAL LINK Z

This is a wide bandwidth, ultra high performance optical cable for digital links, made by Audioquest. The most common use is linking a CD transport to a digital-to-analogue converter. It is available in 1metre and 2metre lengths with conventional TOS-link connectors.

OPTICAL LINK Z (1M) £69
(2M) £99

AUDIOQUEST QUARTZ INTERCONNECT CABLES

A fully balanced analogue signal cable with heavy duty, gold plated phono plugs and advanced Quartz Hyperlitz cables using polypropylene insulation. The Quartz cable we have chosen from our own experience as a fine sounding type. It uses FPC-6 ultra-pure copper (99.99997%) and the plugs are welded.

AUDIOQUEST QUARTZ CABLE 1METRE LENGTHS £79/PAIR
2METRE LENGTHS ... £120/PAIR

ARCAM RCA PHONO PLUGS

Specially made in Japan to Arcam's specification, this heavy duty phono plug will accept audiophile cables up to 7mm in diameter. The 36mm long body is nickel plated and the contacts gold plated. Superbly built, we supply in polarised pairs with one/two ring end identity to allow send/receive ends to be established to take into account directionality. These plugs must be soldered with care to cables.

RCA TYPE PHONO PLUGS (4) £15.50

MICHELL ENGINEERING PLUGS

Craftsmanship marks out Michell Engineering's range of gold - and rhodium plated - plugs from the competition. Simple, but elegant.

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



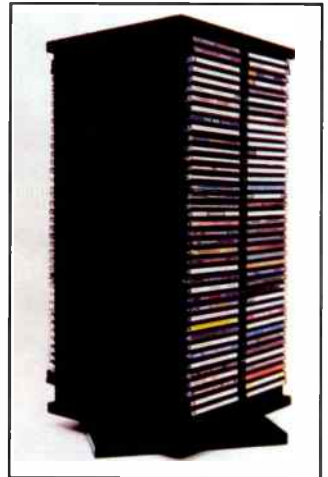
KONTAK

Contact Cleaning Fluid
Kontak is an effective two part cleaning solution that removes contaminants from electrical connectors of all sorts. It is applied with pipe cleaners supplied. Clear instructions list the most sensitive contacts that need treatment in a hi-fi system, although items like fuses which are not mentioned should also be treated.

The dirt that Kontak removes is clearly visible on the pipe cleaners, demonstrating just what degree of contamination contacts have reached and what Kontak is achieving.

Users commonly express surprise at the amount of dirt and

contamination Kontak removes. After application, a system regains its original life, sparkle and vigour.
KONTAK PRICE: £21.20



NEW! SOUND SWIVEL

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

GOLD PLATED 4MM BANANA PLUGS

We have a new style, heavy duty, gold plated banana plug with a unique type of axial solderless connection for loudspeaker cables. The wire is stripped back and pushed into a clamping collar, which is then screwed down tight. It will accept cables up to 6mm outside diameter and up to 4mm conductor diameter, holding them firmly and more evenly than the usual grub screw arrangements. They are supplied in a set of four.
BANANA PLUGS (4) £8.00



Hi-Fi World AUDIO ACCESSORIES

HI-FI WORLD SPECIAL AUDIO ACCESSORIES ORDER FORM

Please send me:

- CD sound swivel £49.95
- Record storage cube £42.00 each
- Sweatshirt (state size and colour) (XL, L, M) £12.00 each
- Hooded track-top (one-size) £15.00 each
- T-Shirt (state size and colour) (XL, L, M) £7.99 each
- Pixall MkII Record Cleaner £10.75 each
- Pixall refill roller £2.75 each
- Hi-Fi World Dry Stylus Cleaner £1.95 per sheet
- Kontak cleaning fluid £21.20 each
- CD Jewel Case £1.00
- Nagaoka Anti-static record sleeves £7.50 (50)
- Nagaoka rolling record cleaner £10.20 each
- Nagaoka CD cleaning kit £10.50
- ON Stylus Cleaning Kit £2.50
- Lasaway Green Pen £8.50 each
- Laserguide £14.95
- Audio Technica CD Lens cleaner £16.25 each
- Audio Technica Record Cleaning System £10.50
- Audio Technica Green CD Ring Stabilizers £6.50 (Pack of 5)
- Audio Technica electronic stylus cleaner £19.95
- Audioquest Sorbothane feet £27.95 (4)
- Audioquest Optical link Z £69 (1m)
- £99 (2m)
- Audioquest Quartz cable (pair) £79 (1m)
- £120 (2m)
- TDK Head Cleaning Kit CK-AI (double bottle) £5.50
- TDK Head Cleaning Kit CK-TB (single bottle) £4.65
- TDK Audio Head Cleaning Pen CP-AHI £5.00
- TDK CD Cleaning Pen CP-CD1 £5.00
- TDK A/V Connector Cleaning Pen CP-CR1 £5.00
- TDK CD Cloth Cleaning Kit CD-C2TP £6.50
- TDK Wet and Dry CD Cleaner CD C1TB £8.75
- Gold plated 4mm plugs £8.00 (4)
- Gold plated spade connectors £10.00 (4)
- Arcam RCA phono plug £15.50 (4)
- Automatic CD Cleaner £21.95

- Michell Engineering Gold-Plated Side Entry Banana Plugs (4) £10.00
- Michell Engineering Gold-Plated Sure-Loc Banana Plugs (4) £14.95
- Michell Engineering Rhodium-Plated Sure-Loc Banana Plugs (4) £18.95
- Michell Engineering Gold-Plated Speaker Cable Connectors £10.00

All prices include postage & packing in the UK only.

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Q

uestion

It is good that you publish an impedance plot as part of your loudspeaker reviews as this can be of assistance to buyers. However, there is almost certainly an error in the frequency scale. Surely the point you have labelled as 20Hz should read 2Hz and the point you have labelled 100Hz should read 10Hz.

As you often describe, there are many factors which determine the quality of low frequency performance of a loudspeaker; however a plot of the impedance at low frequencies can give readers an indication of how low in fundamental bass notes a loudspeaker

Ω LOUDSPEAKER IMPEDANCE

can usefully extend. The majority of sealed box loudspeakers have a single resonant hump showing on an impedance plot somewhere between 40Hz and 100Hz and many of the reflex designs have their double-hump low frequency impedance characteristic contained between 10Hz and 100Hz.

When conventionally tuned, acoustic double bass and electric bass guitar have their lowest fundamental at about

41Hz. Pianos and organ go down to somewhat lower notes as do the fundamentals of timpani and bass drums.

When all other influencing factors are close to ideal, a reflex design loudspeaker needs to have its port resonance tuned to the lowest frequency fundamental likely to be encountered in the type of music it is used to reproduce. This gives reasonable quality reproduction at good

A

nswer

A few manufacturers have muttered about the frequency scale seeming to be out of register with the peaks and we tried to be more diligent in positioning it, but to no avail. A more foolproof method of applying the scale to the spectrogram, a task performed on a computer, has now been devised. Any more mistakes and our artist will get transported to Australia.

Thank you for your interesting observations about the impedance curve. There was a fair bit of discussion between KEF and myself over this, since although designers such as Gilbert Briggs have said "the lowest point of the impedance curve between the two humps occurs approximately at vent resonance frequency" (Loudspeakers, p193), I have harboured doubts. Why is this the vent resonance alone and not the driver resonance? And where, then, is the driver resonance frequency? The answer is, KEF tell me, that the dip lies at the geometric mean ($\sqrt{F_p \cdot F_v}$) of the driver and port resonant frequencies, meaning it's at neither one nor the other, but between the two, as you

might expect. For this reason, using the dip as a guide to bass extension could be misleading. And assuming the two peaks represent driver and port frequencies is also wrong, I am strongly warned by both KEF and Tannoy. However, the impedance trace is still useful, for the following reasons.

The left hand end of the trace gives the DC resistance seen by the amplifier. With 'eight ohm' loudspeakers it is commonly 6ohms or so. The standing power dissipation

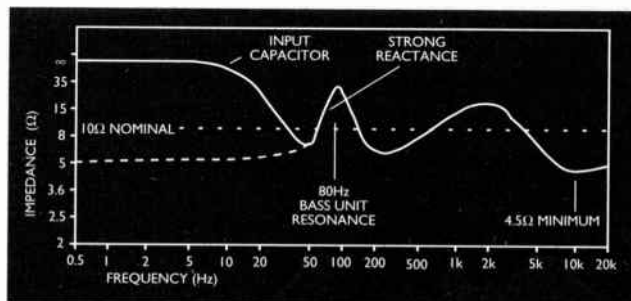
rate of roll-off immediately below this frequency isn't shown, nor is response flatness - or lack of it - down to the roll-off point. Readers might be interested to know that although a reflex enclosure goes lower than a closed box, bass output drops away more quickly at lower frequencies.

Our examples neatly illustrate how judging bass performance from impedance is likely to be misleading. Goodmans' miniature Maxim 3 would appear to reach 60Hz or

lower, whilst Wharfedale's larger 425 apparently gets down no further than 80Hz. In practice however, frequency response of the Maxim rolls off earlier than that of the Wharfedale and, similarly positioned, the Wharfedale has more bass, as one would expect from its larger cabinet. Also, with a suitable value of input capacitor forming part of the electrical network,

closed-box bass can be extended down by a factor of 0.7 (e.g. from 100Hz down to 70Hz). So whilst the Wharfedale 425 would appear to reach down to 80Hz it most likely gets down to 56Hz or so.

Bass extension also gives no idea of damping and 'control', since the latter depend upon other factors. If bass notes slur into each other, this is more subjectively disconcerting, we feel, than lack of deep bass extension. Whilst the latter affects just a small part of a performance's integrity, the former affects all of it.



The single-hump impedance plot of a closed-box (infinite baffle) loudspeaker, in this case one with an input capacitor, the Wharfedale 425. Most loudspeakers do not possess such a capacitor. Their curve would typically extend down as shown by the dotted line.

due to the DC offset of an amplifier can be derived from this.

Loudspeakers with input capacitors, namely models from KEF and Wharfedale, have a curve that rises up to infinity below 10Hz, something the impedance plot clearly reveals. KEF at least use the capacitor to extend bass as well as block DC, I should point out. The presence of an input capacitor gives protection against DC output offset in an amplifier.

Whilst the peak of a sealed box loudspeaker does indicate the lowest frequency reached, the actual

listening levels and often - again dependent on other system parameters - the quality of reproduction is even better when the port is tuned somewhat lower than the music fundamentals.

The frequency of the port resonance is at the bottom of the dip between the two humps at the low frequency end of an impedance plot. With most reflex loudspeakers there is little or no useful response at frequencies near and below the lower of the two humps.

Attempting to predict low frequency extension from an impedance plot of a sealed box loudspeaker is different to that of a reflex loudspeaker. Sealed box loudspeakers with a well damped resonance, having a lower and wider hump on the impedance plot in the 40Hz to 70 Hz region, are likely to give a reasonable performance, depending a little on room placement (as well as a multitude of other system considerations!). Those with a lesser damped resonance, having a narrower and taller

hump on the impedance plot, are likely to be adequate when such resonance is below about 50Hz and often the lower the better, again dependent on other system considerations and room placement - generally well away from walls and corners in the latter case.

When all other characteristics of a loudspeaker are close to ideal then usually the lower the frequency of its fundamental box/driver resonance, the better its overall performance will be in a good system and in a good room.

With many recent rock and pop recordings - particularly those mixed with reference to the diabolical sounding Yamaha NS-10 loudspeakers, regularly used as a 'consumer reference' in recording studios - there is little low frequency content below about 100Hz. Reflex loudspeakers with port resonances in the 40Hz to 80Hz range may perform adequately with such music, though perhaps best when the upper of the two resonance humps on the low frequency area of the imped-

ance plot is not much higher than about 100Hz.

Yamaha NS-10 loudspeakers are a sealed box design and have a single low frequency resonance a little above 80Hz - that is a full octave above the lowest note usually found on a bass guitar and well above the fundamental of a bass drum. I have watched and listened as a mastering engineer attempted to add some low frequency 'weight' to a recording containing a high-pass filtered bass drum monitored with NS-10 loudspeakers. The bass boost he applied centred on 90Hz and I was not surprised. Any attempt to drive them to reasonable listening levels with music containing fundamentals below about 90Hz causes them to sound worse than they otherwise do - hence the reason low frequency information is removed from much modern rock and pop recorded material.

C. Logan,
Sydney,
Australia.

It is for this reason that, ultimately, we prefer to resort to subjective description.

Of course, the fundamental purpose of the impedance curve is to show whether at any particular frequency speaker impedance dips so low as to be beyond the current delivery abilities of an amplifier. Our curves clearly show that around 20% of speakers dip to 3-4ohms, a value that will upset some amplifiers, especially in the hands of someone who wants to play Rock long and loud.

However, our curves also show that most UK loudspeaker designers play safe and aim for an impedance of 6-8ohms minimum, meaning that over most of the audio range the value is far higher. This makes for a loudspeaker that is an easy load, but also one that will not accept current and, therefore, power without Sizewell B on the other end. Separate pink-noise measurements show that 12ohms is a typical nominal impedance value, a value into which a 50watt amplifier (into 8ohms) will deliver no more 33watts. In this sense, high impedance loudspeakers under-utilise modern amplifiers, something that makes them insensitive - even if they are 'safe' - so there is a trade-off here. A high impedance curve indicates a speaker that won't go loud except with a powerful ampli-

fier (assuming average efficiency).

There is a good argument for quality loudspeakers, which are likely to be matched with capable amplifiers, having a low curve with an impedance that dips to around 3-4ohms minimum, giving around 6-8ohms nominal impedance. Then a 50watt amplifier will in practice be able to deliver all its rated output.

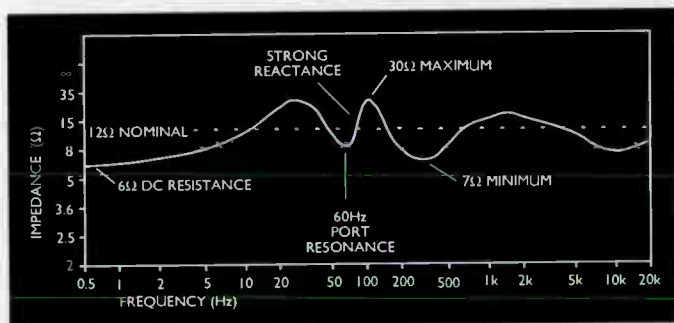
Finally, rate of change of impedance with frequency, visible in the impedance plot, is an indicator of the amount of reactance present in

I was surprised to learn from investigation that even in the UK the Yamaha NS10 you mention is widely used as a 'domestic reference'. Neither Abbey Road Studio's nor Studio Sound magazine were exactly complimentary toward them (ahem!). Abbey Road keep a pair "in the cupboard", using B&W 801, 805 and 808 domestic monitors most of the time. Like you, they felt the Yamaha was incorrect in its bass, but it had become a de facto standard.

Similarly, Julian Mitchell of Studio Sound said anyone mixing music on them is "asking for trouble". He confirmed their popularity and widespread use, but felt that the suggestion they alone were responsible for current recording quality was a bit far fetched. They are too small to be used about final decisions on sound balance. Most studios

should refer to proper full size monitors, from UREI, Tannoy, JBL, ATC and others.

The fact that studios use a speaker which many seem to agree is easily bettered is a bit perplexing. All the same, our experience indicates that modern Rock recordings are, generally speaking, gaining progressively deeper and cleaner bass as recording engineers realise that technically, CD has none of the limitations of LP (groove excursion/playing time). **NK**



The double-hump impedance plot typical of a reflex loudspeaker; this is the Goodmans Maxim 3. It reveals a lot about the loudspeaker's behaviour as a load.

the load. Sudden changes are therefore a bad sign. Our V/I phase analyses clearly show phase angles up to 60 degrees in the mid-band, meaning an amplifier is effectively driving, in conjunction with a resistor, a capacitor with a value up to microfarads.

All-in-all, the impedance plot is pretty useful to loudspeaker buffs, engineers and reviewers. Yet we remain careful not to use it as any basis for judgement of sound quality. Up to four pairs of ears displace our measuring equipment for this purpose!

The Music Pages

Edited by
Eric Braithwaite



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LOUDON WAINWRIGHT III History

VIRGIN CDV2703

(Also available on LP)

● He's a wise guy with a sly ear is Loudon Wainwright. History is full of twinges of post-forty melancholy - "I get the Blues, the Greens and Yellows . . . and the Chartreuses" - that make you wince in recognition while you're laughing. Songs like 'I'd Rather Be Lonely' are the kind of sharp stab at the flabby over-forty solar plexus that Tom Lehrer did so brilliantly: "Loneliness is happiness - it takes less than two." Wainwright has hit the period you might call the 'forty-seven year itch' right on the nail - when the children are growing, you're painfully aware of it and you're liable to see your own shortcomings all too clearly. Worse, you're liable to feel guilty. Though some of the rhymes are a bit lame, the flashes of wit sneak up on you - the birthday tribute to Bob Dylan is more sardonic than Mr Zimmerman would have liked - and one or two light up some curiously dark corners of the psyche. A line from the first song: "You wanna be normal, but people are strange." Yes. Wainwright can turn the trick of making a truism tart by sliding a sting into the tail.

Apart from the first track, a bit of a rocky start in more ways than one, the arrangements are neat and mostly acoustic, with accompaniment cut down to the occasional banjo, violin, bass. It grew on me. EB

THE PALE Here's One We Made Earlier

A&M 397 204-2

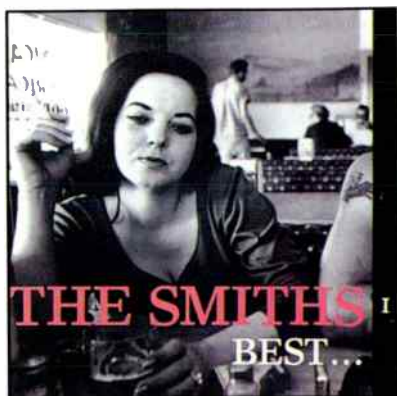
● They're a three piece hailing from Dublin, with an eclectic mix of ethnic Greek, Mittel-Europa Gypsy and Middle-Eastern rhythms and tonalities over a retro Seventies disco beat. 'Dogs With No Tails', says the press release, is going down well in Israel, and since it bears more than a passing resemblance to 'Hava Nagila', I can't say I'm surprised. On that track you have the full Balalaika-and-chips-by-the-Med bit.

Now that's the trouble; you begin to wonder whether this is eclecticism or pastiche. Take 'Day One', which when you take your attention off the clever mandolin and some neat bass playing, has a tinge of mawkish Andrew Lloyd Webber to it. By and large, the Poesie Concrete words - that means stream of consciousness if you look at it one way, random outpourings if you look at it another, don't make a lot of sense. Listen, however, to "I want to steal your car" where Matthew Devereux's strained-gravel vocals cover a sardonic, grim, but also very funny tale of joy-riding BMW's in Dublin for kicks.

It's all very musically inventive, it's quirky, and it leaves a nice sharp zingy taste in the mouth like Alka-Seltzer. The music-making is never less than clever - or could that be too clever by half? I have a feeling it might be; I wonder about the title, that odd



reference to TV cookery where the plat du jour comes out charred to a cinder and is replaced by "one I made earlier" that you strongly suspect is a polystyrene mock-up. The press photo shows each of them holding a baby . . . Could be the way they'll be left? Oh what the hell, it's fun. **EB**



THE SMITHS
Best . . . I
WEA 4509-90327-2

● Not many bands from the Eighties polarised opinion quite as much as The Smiths: for some they (and particularly singer Morrissey) were pretentious in the extreme; others hung on every word and note with religious intensity. No-one can deny their popularity; even I, sitting between the two camps, can see why. This compilation, selected from the Band's four studio albums plus the Singles and B sides, well illustrates the diversity and inventiveness of Johnny Marr's guitar playing. Along with Morrissey's idiosyncratic vocal delivery, there's variety enough to keep interest up to the end. The sound quality is good, too, less compressed than I remember some of the LP tracks being. For once, I agree with the record company - this is a 'best of'. **CB**

THE ORB
U.F. Orb
BIS LIFE/WAU! MR MODO BLRLP18

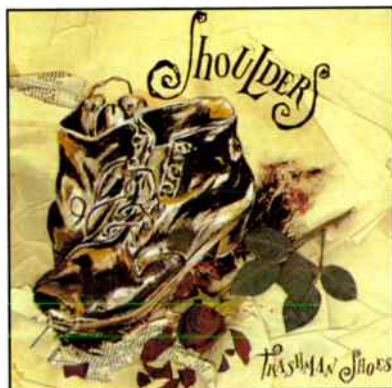
● Probably because they are so difficult to pigeon-hole, The Orb have been classified as an Indie dance band. Although heavily involved in the dance scene, The Orb's music is more sophisticated than the typical rave track. Take the single 'Blue Room' for example: on the album its seventeen minutes takes some time to get started, but when the bass rhythm kicks in it has subtlety that means it doesn't need the frantic energy of groups like Altern 8.

This sophistication comes by using some seriously 'wired' musicians from the past such as Steve Hillage. Connected with groups like Gong and today considered to be a musician

and producer of note, Hillage has come up with some of the strangest lines in rock history, like "I'm walking on the sky, though my mind is under the sea." It is this psychedelic quality that is so prevalent in U.F.Orb.

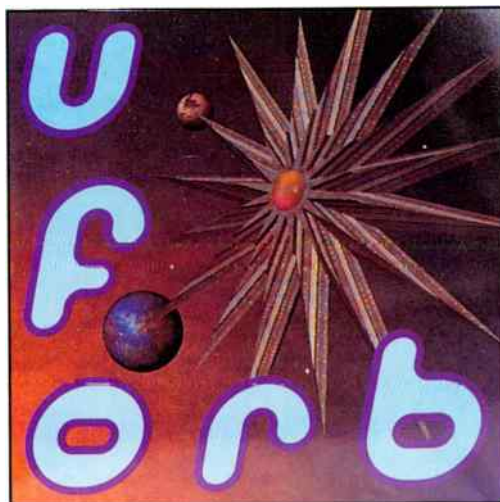
Rather than the peace, love and drugs of Primal Scream, the alternative lifestyle and drugs of The Shamen or just the drugs of the average Rave band, The Orb spy into a future, with the sounds of spaceships, laser guns and alien beings. There are more earthbound noises in there as well, used with humour, like telephone rings, dog barks and the sound of Victor Lewis Smith telephoning the EC for Haile Selassie.

It's not the easiest of albums to listen to directly, resembling Brian Eno's ambient albums; more engaging but still sounding best when used to work, eat or relax to. In its own way a masterful work, one that could replace Pink Floyd's *Wish You Were Here* as that 4am end of the party record. Tune in, turn on and say hi to the space aliens on the way back home. **AS**



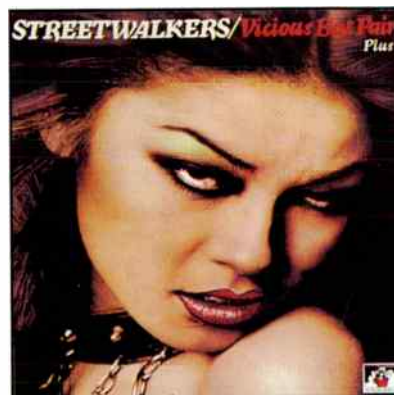
SHOULDERS
Trashman Shoes
MUSIDISC 108892

● "America's most successful unsigned band," says the press release. Imagine Kurt Weill still alive and writing songs for Hank Williams and you'll pick up some idea of what this weird four-piece combo from Austin Texas are



about. A melting-pot of influences, their instruments run from a midget accordion to a flugel horn. Frontman Michael Slattery's emotional vocals conjure up visions of Leonard Cohen; like Cohen, his lyrics delve deep into the fragmented lives of the lonely, the heartbroken, and the plain old weird. If Shoulders were an item of clothing instead of a band, they'd be a dirty overcoat with a half of bourbon in one pocket and a slim volume of verse in the other.

They don't fit a definable category, which probably explains why they've been unsigned until Musidisc - that haunt of the weird and nearly always wonderful - took them on. Trashman Shoes is a psychedelic cabaret review all the way through - imaginative, inventive, odd, astoundingly addictive and a gamble you should take. **SM**



STREETWALKERS
Vicious But Fair - Plus
SEE FOR MILES SEECD 352

● Without the efforts of enthusiastic companies like See For Miles bands like Streetwalkers would be condemned forever as nostalgia for the thirty-somethings. Streetwalkers deserve their second airing if only because of Roger Chapman. He, along with guitarist and keyboards player Charlie Whitney, were the surviving members of Family, a band with wider acclaim, but similarly dominated by Chapman's distinctive voice. It can go from the delicately melodic and frail right through to a fearsome roar that makes Michael Bolton sound like a choirboy with a cold. What we have here is the majority of the last album *Vicious But Fair* with four tracks from each of the previous two, *Yes*, some are a little dated, but with Chapman's 'beer and fags' voice and Whitney's guitar style the basics come across with just the right amount of sleaze and sheer energy to show a good many Nineties Rock bands just how well it can be done. **CB**

Rock

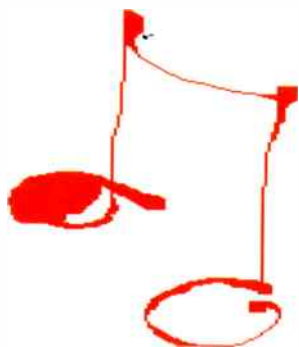


that's all monstrous guitar attacks over equally vast rhythmic juggernauts that make the best efforts of pioneers like Blue Oyster cult or Motorhead seem positively wimpy by comparison.

The whole thing's given extra colour and texture by sporadic attacks of sampled verbal madness of the sort that's tantalisingly familiar yet impossible to pin down as to source. If I have a reservation it's strictly in the vocal department: the vox are restricted to the terminal throat-cancer style associated with the Death Metal sub-genre. This makes them not only impossible to understand but also more than a little samey. There is, for example, a totally hair-raising re-interpretation of the old Stones' chestnut 'Sympathy for the Devil' that's totally unrecognisable either musically or vocally. That said, it does epitomise an aura of incipient lurking evil in a way that makes even the original seem rather milk-soppy and insipid. The title, by the way, comes from a poem by that old reprobate Charles Bukowski; somehow that says it all: this is music for damaged brains, potent, anarchic, really wild general!

A re-definition of teen angst from Texas, Momus less anguished than before and a few carvings from The Stone Roses vaults.

Giovanni Dadomo



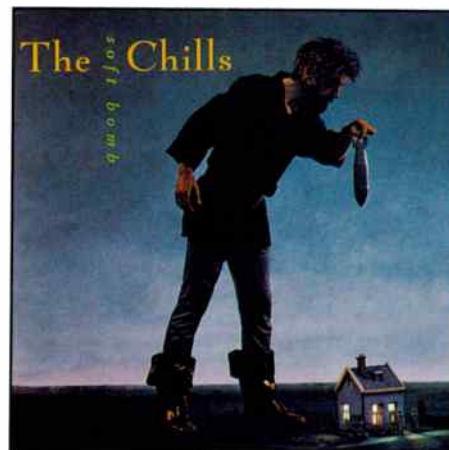
SKREW
Burning in Water, Drowning in Flame
DEVOTION DVN15

● Summer and the heat thereof may be just a dim memory when these words and thine eyes meet, but I'll guarantee nothing hotter is likely to hit your ears and all points in between than this wicked, wicked slab of pure unalloyed THRUMMMMM. Yes indeedly, Skrew (nice tasteful nomenclature, wot, Vicar?) are Heavy Metal writ very large indeed. In fact, I'd venture to say there hasn't been a more invigoratingly aggressive, nerve-blisteringly ugly piece of music released in several seasons. This is the music maladjusted teenage Terminators and Robocops might make or dance to, a modern tech update of every disaffected howl of teen angst from Link Wray to The Stooges to Motorhead, Big Black and . . . ah, you know the picture, make your own list. But do investigate this state-of-the-art re-definition of everything that is/was great about all eras of Punk Rock, from Genesis to Armageddon.

Skrew is the basic brainchild of singer/guitarist Adam Grossman and fellow axe psycho Danny Lohner. They hail from Austin, Texas, a place I've tended to associate with mellow, stoned cowboy types like Doug Sahm and Augie Meyers. But this is another, darker side to Austin, obviously, one

THE CHILLS
Soft Bomb
SLASH/LONDON 828 322 2

● New Zealand's Chills - a flexible aggregation revolving around the singing/composing talents of mainman founder Martin Phillips, have been treading vinyl since 1980. Their previous LP Submarine Bells was a turntable regular in my homestead and the latest episode in the continuing saga looks like it'll be following suit



quite comfortably. In a nutshell, The Chills' music is most likely to appeal to the sort produced by Robin Hitchcock or Julian Cope. It's obvious from the start that the late, great, unredeemably bombed-out Syd Barrett is a major influence on the current recording, with its dissolving chord structures, plaintive post-folk

voicings and watery keyboard tonings. Phillips, it turns out, is a long-term believer in Rock'n'Roll martyrs, and Nick Drake and Bryan Wilson are among the others who get melodic/verbal nods of the head as playing time goes by. He even managed to import sometime Bryan Wilson collaborator Van Dyke Parks for the intriguing orchestrations of 'Water Wolves', which sounds like the soundtrack for an un-made Forties Hitchcock thriller about mental instability. Amidst the proper songs themselves are various reprised songlets (the title cut mutates throughout the spaces in between, for example) all of which adds up to a beguilingly concocted song-cycle - catch the VDP reference, vinyl junkies? - for the end of the current millenium. Quirky but nice.

**MOMUS
Voyager
CREATION CRE LP 113
(Available on LP)**

● Momus, aka one-man-studio band Nick Curry have been around for the proverbial donkey's years now, but this latest recording under the Momus banner is a far cry from the murky anguished Left Bank chansonnier stuff one's tended to associate them with in the past. Instead, this is perkily modern pop with a touch (and perhaps even at times a touch too much) of the Pet Shop Boys - the vocals are almost uniformly chirpy in that fey, teasing schoolboy-with-a-world-of-experience



way that Neil Tennant's made so much his own in the past few years, while the music is a clever plundering of Seventies Soul tropes intermingled with more modernistic feels that makes for a very wholesome - not to say danceable - mod pop soup. From the opening 'Cibachrome Blue', a floridly perky slab of tommorrowland pop, it's evident that Curry/Momus is connected to the current popculture mainframe (that he's studied his Wm. Gibson and Cyberpunk pals there's no doubt), whilst cuts like 'Virtual Reality' and the

chart-destined 'Summer Holiday 1999' and 'Conquistador' hammer the point home in a manner both gentle and fetching. For old fans there are still touches of the darker, subtler side of Momus, witness the all-but-subterranean vocal cuts on songs like 'Voyager' and 'Conquistador' with its all but unrecognisable samples of classic Seventies dancefloor Soul, circa Shaft and Superfly. An altogether pleasant concoction, by turns blatantly obvious and subtly teasing. Momus,



like Black before them, could still be chart contenders of no small magnitude, but either/or, they remain worthy of your attention.



**THE STONE ROSES
Turns into Stone
SILVERTONE ORE C 521 1992**

● Manchester's finest jingle-janglers have been working on their second album slightly longer than it takes your average statue to grow a beard; in fact, they make even the most legendary procrastinators (Stevie Wonder, please take note) look like hot stuff. But meanwhile, who could possibly blame erstwhile record labelmeisters Silvertone for issuing this amalgam of A, B, and no-sides? Granted this is the sort of formative, growing up-with-mirror-and-tennis-racket-pretending-you're-Roger McGuinn's-only-Mancunian-bastard-son stuff, but it's fascinating all the same. Collectors and die-hards will probably have paid untold fortunes for all or most of the contents herein, from early single toppers like 'Elephant Stone', 'Fool's Gold' or 'What's the World Waiting For', not to mention dustier sarcophagus scrapings like 'Simone' and 'One Love'. But for the rest of us Stoney-come-lately's this vaultside anthology will no doubt help fill in the spaces between thumb-twiddles until the SR's deign to give us a new release - if ever.

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Simon Hopkins

**Musicians tell
drummer jokes the
way children crack on
about elephants.
But is it fair?**

PETER ERSKINE
Sweet Soul
BMG/NOVUS PD90616

● Old muso joke: "What do you call someone who hangs out with musicians? A drummer." A tad unfair perhaps, but a fairly accurate index of many people's view of the drummer's creative lot. Despite an absolutely central role in pretty much all commercial music (the missing link, as it were, between Disco, Jazz and Hardcore) the general view of the drummer is that at best he (or, indeed, she; better watch my P's and Q's on that one in a world with Sheila E in it) is a necessary nuisance and at worst the one musician in a band who can truly wreak havoc with your precious music: cock up the tempo, destroy all sense of dynamics, and, of course, render everything else inaudible.

All of which flies in the face of heaps of evidence to the contrary. To name some notable, but far from isolated, examples... L. Grant Hart, drummer with pioneering American post-punk outfit Husker Du, and the author of all their most "songy" songs (arguably Bob Mould's never written such fine vehicles for his own voice). The late, great Art Blakey, revolutionary hard bop drummer, but even more importantly, leader of a group which turned into a virtual Jazz Academy, providing an early platform

for generations of players.

Which is an awfully long way round to introduce a most likely destined-to-be-overlooked album by drummer, composer and sometime bandleader Peter Erskine, but then, everything needs a context.

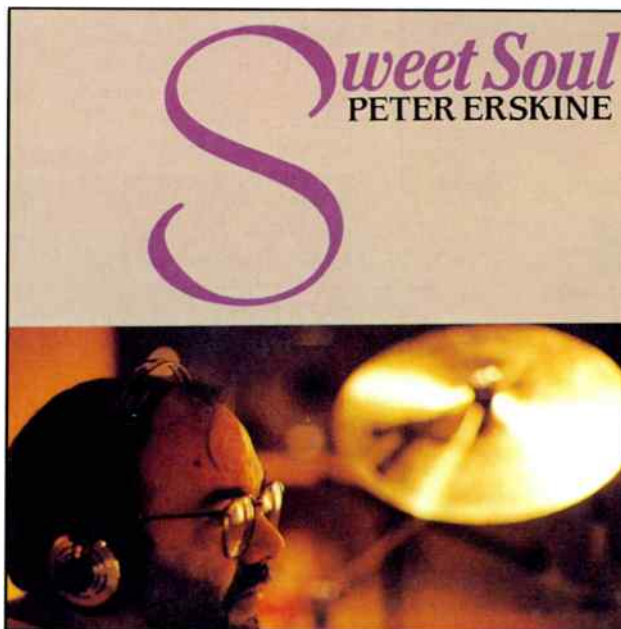
All that aside, Erskine was drummer in the most popular line-up of the most popular of all US fusion bands, soprano/tenor saxophonist Wayne Shorter and keyboardist Joe Zawinul's Weather Report. As such he was one in a whole line of superb drummers that included, among others, Omar Hakim, Chester Thompson and Alphonse Mouzon. Nonetheless, Erskine was always overshadowed in the band by the huge, looming presence of master bassist and ultra-extrovert/arrogant (delete as personal preference dictates) Jacob Pastorius; but whereas Hakim played a central, indeed dominant role in the next line-up of the band, Erskine wasn't really a star. Which is criminal; on many albums through the Eighties Erskine showed himself to be by turns swinging, spacey, hard, driving, on the beat, behind it, around it - he's the absolute

associate Vince Mendoza on keyboards, the ever-growing tenorist Joe Lovano, trumpeter Randy Brecker, saxist Bob Mintzer, and so on: a gathering of contemporary fusion notables which gives you an idea of what this music sounds like.

When the whole Jazz-Rock explosion finally imploded at the end of the good ol' self-indulgent Seventies, it split up, broadly speaking, into three factions: the flamboyant, technocratic stuff which always borders on the anodyne (hence its "fuzak" monicker) c.f. Chick Corea's Eighties bands with fusion young guns like drummer Dave Weckl and guitarist Scott Henderson; the hybridized anarchic, sonically extreme music that followed in the wake of Miles Davis' mutoid-fusion Seventies groups, the music of Last Exit, Material and the like; and the sort of thoughtful, very vaguely Jazz-Rock you'll hear on Sweet Soul.

Even when the band rock out on, say, 'Press Enter' and Erskine's own 'To Be or Not to Be' there's a degree of caution about the playing that stops it being truly ferocious, even with

Scofield's typically skew-whiff bebop lines spiralling all over the shop. It's also typical of Scofield that he sounds better, more reaching here than on his own great Blue Note solo album. Elsewhere there's a beautiful rendition of 'Sweet Soul' from Bass Desires' debut album with stunning warm, almost homely horn arrangements making up for the lack of Bill Frisell's pseudo-pedal steel as heard on the original. Perhaps most tellingly of all, there's Erskine's drum solo, but - "Is It Art?" Most drummers would have at



master of rubato playing. The most versatile and virtuosic jazz drummer of the Eighties. High points: two ECM LPs with double bassist Marc Johnson's Bass Desires (comily named but a fine forum for guitarist Bill Frisell and John Scofield to lock horns); Jan Garbarek's Star with the Norwegian at his most Omette-like; and his own early Eighties eponymously-titled debut, with standout performances from tenorist Mike Brecker at his most ferocious.

Sweet Soul, then, offers a high degree of promise and on the whole delivers. The album features several different line-ups, and some of the stars here include Scofield, long-time

least a few bars of a song to frame their solo, but Erskine doesn't need it. His soloing is sufficiently song-like in itself, so that the piece overall is as balanced, reflective a statement as a Bill Evans' piano solo. A genuine musical haiku (i.e. it's short too).

There are a few weak moments: a meandering, throwaway version of Dave Brubeck's 'In Your Own Sweet Way' for instance. But on the whole there is a very satisfying piece of work, or "collection of music" to use Erskine's own description. His sleeve notes are as thoughtful as the music they explore; no barriers broken, no trails blazed, but a lot of music thoroughly well played, in every way.



PAUL BLEY QUINTET
Barrage
ESP DISK ESP 1008

● As promised last month, more stuff from the cult Sixties New York label ESP Disk. "The artists alone decide what you will hear on ESP!" proclaimed the LP sleeves back then, and that pretty much served as a manifesto for the label, whose output ranged from 'New Thing' trailblazers like Albert Ayler (we reviewed his seminal, apocalyptic Spiritual Unity last month), Ornette Coleman and Archie Shepp, through legendary schizo-big band leader Sun Ra (twenty years later he would end up, albeit fleetingly, on another cult label, the UK's own Blast First, and hence be a labelmate to US grunge rockers Sonic Youth and The Butthole Surfers, arguably his true spiritual children) to cult psychedelic rockers Pearls Before Swine.

Which might seem a strange forum for pianist Paul Bley, if one knows only some of his oeuvre. For in many ways Bley has become the true successor to Bill Evans. Hear his recently reissued 1961 set with the Jimmy Giuffre 3, or (twenty years on) his beautiful quartet records with Frisell, baritone saxist John Surman and drummer Paul Motian (himself a former Evans sideman) and one will hear moments of anger, but overall these sessions show a player - and composer - of introspection.

Whereas Barrage lives up to its title. This is music worthy of ESP; a music of blistering rage, bursting at the seams with anarchic energy. The band - Marshall Allen (alto sax), Dewey Johnson (trumpet), Milford Graves (percussion), Eddie Gomez (bass - another Evans sideman) - is one of the great line-ups of Free Jazz, and they storm mercilessly through a set of songs penned by Bley's then wife Carla. Only one, somewhat parsimonious, note of caution: there's less than thirty minutes of music on this

CD, which wouldn't have been a problem when the album was released, but might peeve if you'd forked out thirteen quid and weren't prepared; as for whether you can take more than half an hour of this stuff, well, that's another question.

PAUL BLEY
Changing Hands

JUSTIN TIME
JUST 40-2

● Over two decades later, Bley in solo concert in his native Montreal. And playing hugely different music. Comparisons with Keith Jarrett and

even Keith Tippett are inevitable, but Bley retains his own unique voice, by turns elegaic, mournful, and occasionally shot through with huge energy. Hard going for some perhaps, but a very rewarding listen, nonetheless.



even Keith Tippett are inevitable, but Bley retains his own unique voice, by turns elegaic, mournful, and occasionally shot through with huge energy. Hard going for some perhaps, but a very rewarding listen, nonetheless.



BARRE PHILLIPS
Three Day Moon
ECM ECM 1123

● Last month I reviewed the re-issue of bassist Phillips' Mountainscapes; Three Day Moon took the electronic approach even further, with, once again, Dieter Feichtner on synthesizer, and with Terje Rypdal on guitar

synthesizer. Former Shakti member Trilok Gurtu percusses. The sound of this band remains stunning even now; we've all grown used to the sound of far, far more advanced electronic instrumentation, but seldom does one hear music quite this arid or ascetic. And all rounded out with an (admittedly somewhat hokey) Asian C&W jam. According to Steve Lake's ever-excellent sleeve notes, one American rock hack described the album as "Zen jamming of the sort the Grateful Dead would be doing if they'd grown up from 'Dark star' ". Which sums it up pretty neatly, really. Highly recommended.



JOACHIM KUHN/WALTER QUINTUS
Get Up Early
AMBIENCE AMB3

● An intriguing release, and more only-tangentially-jazz than many reviewed here. The German Kuhn is a fine improvising pianist and a stalwart of the European scene. He's released a clutch of stunning solo albums which easily veer between the avant-garde and the more conventional, consonant approach of, say, a Keith Jarrett. He's also fronted electric groups which been solidly in the European Jazz-Rock tradition of Terje Rypdal et al.

On Get Up Early Kuhn plays purely solo piano throughout about an hour of part written, part improvised material. But... While he was doing this, producer Walter Quintus was upstairs at the digital soundboard, constantly altering the sound of Kuhn's piano, in real time, often to unidentifiable degrees; the sound was then passed back down to the pianist who would - again, in real time - accompany himself. The result is, essentially, a duo improvisation on a grand scale, "Acid Classical, a kind of psychedelic chamber music" according to former Kuhn sideman Mark Nauseef's sleeve notes. It's also highly enjoyable; not nearly so experimental as one might expect, a sort of thinking man's improvised Mike Oldfield.

Jazz

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**JOHANNES BRAHMS
Symphony No2 in D Major
Op73/Academic Festival
Overture Op80**

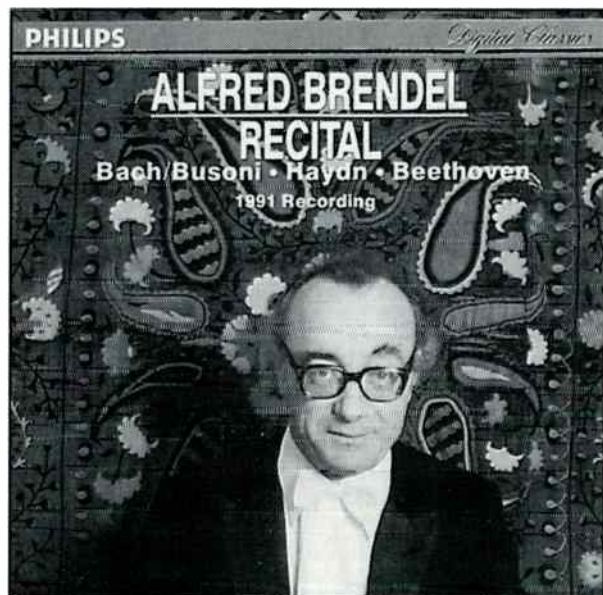
Berlin Philharmonic Orchestra;
conductor, Claudio Abbado
**DEUTSCHE GRAMMOPHON 437 008-2
(ADD/57.30)**

● How do you take your Brahms? Rugged, in the manner of Klemperer? Noble, as with Boult? Brisk and dramatic, as Nørrington offers in his recent period instrument cycle? Or perhaps ripely eloquent in the mould of Bruno Walter? The Second Symphony is offered on record in all of these styles, and more - I should not overlook Jochum's warmly expressive performance.

But if, for you, the most important and satisfying element of this work is its lyricism, then Abbado's 1970 Berlin version is the one to have in your collection. It was by far the best of the Brahms recordings he made around that time and has just been reissued as part of DG's 'Abbado Edition', marking a twenty-five year association between the Italian-born conductor and the famous 'yellow label'.

It is a carefully-shaped performance, notable for the clarity of the inner detail (who said Brahms's scoring was muddy?) and its seamless flow. Abbado's firm grasp of the structure is matched by the playing of the Berliners, full of the exquisite phrasing, articulation and tonal opulence which became the BPO's hallmark under Karajan's tutelage. I would venture that this is the most beautifully-played of the Brahms Seconds currently available. It is also wonderfully well recorded, in Berlin's Jesus-Christus-Kirche, with a natural warmth and balance often absent from the recordings the orchestra made with Karajan in this period.

For some, Abbado's view of Brahms will be just too poetic, too smooth-surfaced; and it is true there are stronger, more challenging versions. The romantic side of the work, though, has seldom been better characterized and few will fail to be won over by the radiance of the playing here. The symphony comes coupled with a striking performance of the Academic Festival Overture. Along with the Mendelssohn, Schubert and Mahler issues (to be reviewed next month) this has to be judged one of the 'plums' of this celebratory series.



**JOHANN SEBASTIAN BACH
(transcribed Ferruccio
Busoni)**

Organ chorale prelude 'Nun komm
der Heiden Heiland BWV659

LUDWIG VAN BEETHOVEN

Piano Sonata No31 in A flat Major Op110

JOSEPH HAYDN

Piano Sonata in G minor Hob. XVI:44/

Piano Sonata in C minor Hob. XVI:20

Alfred Brendel, piano

PHILIPS 432 760-2 (DDD/64.06)

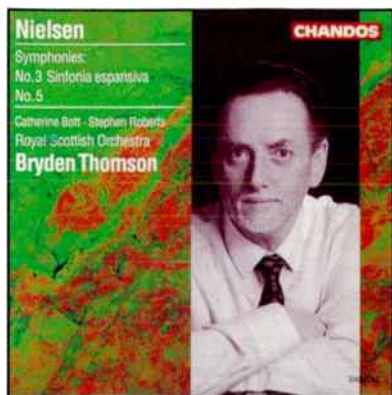
● The origin of this recording - Manchester's Royal Northern College of Music in July 1991 - would suggest that it comes from a live recital, though there is nothing in the notes to suggest this and, if there was an audience, it is miraculously quiet. The sound, I should add, is excellent: crystal clear, with fullness and beauty of tone and striking presence - a product of Philips' 20-bit system, I wonder? Whatever, the whole production is exemplary.

The programme is an intriguing one: a diligently respectful Busoni transcription of a Bach chorale from the Weimar period (1708-17); the penultimate of Beethoven's piano sonatas; and two splendid sonatas by Haydn, works in which over the years Brendel has been incomparable.

The fifty-two authenticated Haydn piano sonatas are usually judged among his lesser works and, while this assessment may be strictly accurate, it does overlook the undisputed qualities of works such as the C minor recorded here, whose first movement is as weighty and expressive as any in early- and mid-period Beethoven. The two-movement G minor sonata is more modest in its aims but no less rewarding for that. As ever, Brendel proves a most persuasive advocate for this neglected area of Haydn's output.

The Beethoven finds Brendel at his most authoritative and commanding. As few others, he evinces a grasp of the complex structure of this often improvisatory-sounding work, especially in the myriad ideas of the third movement. It is a combination of musicianship, experience and insight that, as with the Haydn, produces Beethoven playing of the highest order. First impressions suggest this is a recital which will yield more and more with each hearing.

Artist-led would be the record-industry's summing up of this batch of reviews, where the music - though important - is sublimated to the individual talents of performers such as the clarinettist Emma Johnson, the pianist Alfred Brendel, and the saxophonist John Harle. Two conductors also leave their individual mark: Abbado in Brahms and - somewhat surprisingly - Boulez in Stravinsky. Again.



CARL NIELSEN
Symphony No 3 Op2 (FS60)
(Sinfonia Espansiva)
Symphony No 5 Op50 (FS9)
 Royal Scottish Orchestra; conductor,
 Bryden Thomson
CHANDOS CHAN906 (DDD/I.30)

● Just eleven years separate these two symphonies, yet they are worlds apart in substance and temperament. They were, though, eleven significant years in this century, 1911 to 1922. The earliest of the two, the *Sinfonia Espansiva*, is a work of breezy exuberance and youthful optimism; light shines into every corner and the themes have a sweep that carries all before them. Tensions are quickly resolved and the finale is unbridled joy.

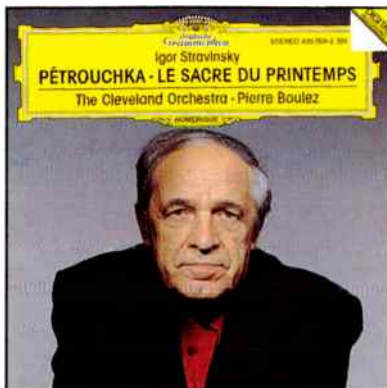
In the post-war world of the Fifth Symphony, however, it is clear that the accepted order of the preceding decade has broken down, musically as well as socially. Optimism has been replaced by uncertainty and unrest. As Robert Simpson puts it in his matchless commentary on Nielsen's music: "Here is man's conflict, in which his progressive, constructive instincts are at war with other elements that face him with indifference or downright hostility."

In the Fifth, that hostility comes from a deliberately cacophonous and intrusive snare drum. Nielsen instructs its player to set out to disrupt the flow of the music as much as possible; it is one of the most extraordinary effects in music - one which sent many of the audience at a performance in Stockholm scurrying from the hall. Even now, when played with the right degree of venom and menace, it is a terrifying fusillade. The second part of the Symphony brings a resolution of the conflict, though the swagger of the *Sinfonia Espansiva* is conspicuous by its absence; an underlying disquiet remains.

As this description might suggest, the Fifth is not an easy work to bring off well, yet it is the most successful performance of the two here. Bryden Thomson has a firm grasp of what is at times an unorthodox structure and the interpretation evinces a deep understanding of the work's implications. The first movement, especially, unfolds with great conviction and the Scottish orchestra is in top form.

The *Sinfonia Espansiva*, on the other hand, lacks some of the brio that others bring to the work, Chung on BIS, for

example, or Blomstedt on Decca, although once again the playing and recording are first-class. There must be praise, too, for Catherine Bott and Stephen Roberts, vocal soloists in the Andante Pastorale second movement, and overall the coupling is a generous one. Yet, despite this cogent interpretation of the Fifth, I am not persuaded that this is an essential addition to any collection of the Nielsen symphonies. Chung and Blomstedt are preferable, although neither is wholly convincing in the Fifth. The definitive version of what a fellow Nielsen enthusiast once argued was the single most important symphony composed this century is still awaited.



IGOR STRAVINSKY *Le Sacre du Printemps* (The Rite of Spring)/*Petrouchka*
 The Cleveland Orchestra; conductor,
 Pierre Boulez
DEUTSCHE GRAMMOPHON 435 769-2
(DDD/68.32)

● In the Sixties, the name of Pierre Boulez was inseparable from the music of Stravinsky and he made memorable recordings of all the Diaghilev ballets for CBS with, as here, the Cleveland Orchestra. The 1969 *Rite of Spring* held its own against a welter of competition for many years. It's intriguing, therefore, to find him choosing to re-record both this and *Petrouchka*. Has his view of them changed radically over two decades? Not greatly, in the case of *Petrouchka*, which receives a performance more efficient than exciting and missing some of the colour and fantasy that Rattle, for example, finds in his outstanding version for EMI.

But *The Rite of Spring* is another matter. Although poles apart both as personalities and as musicians, Boulez here reminds me of Bernstein in Mahler: so at one with the music, the score so deeply ingrained, so well understood, he can afford to take risks and spring surprises. The result - especially in the second part, 'The Sacrifice', is electrifying.

Familiarity, and run-of-the-mill performances such as that at this summer's Proms have rather dulled the impact of Stravinsky's epoch-making evocation of Pagan Russia. Boulez seems determined to restore the mystery and the menace to the work, to remind us of its truly primeval and barbarous

nature. Perhaps he felt the time had come to desanitize the *Rite of Spring*. If so, he has succeeded, not least by emphasising that this music is - above all - about rhythm. The result makes many other versions sound positively flaccid.

The Cleveland Orchestra gives its all, and the recording pulls no punches either: clean to the point of clinical, crisply detailed and with an awesome dynamic range. However, this is much more than a sonic showpiece. Rather, it is arguably the most provocative and the most - literally - sensational interpretation of the *Rite of Spring* to appear for many years, though you would never believe that from the gloomy portrait of Pierre Boulez that graces the sleeve!



ENCORES
 Various works for clarinet, piano and harp; Emma Johnson, clarinet; Julius Drake, piano; Skaila Kanga, harp
ASV CD DCA800 (DDD/68.01)

● After coming to prominence by winning the 'Young Musician of the Year' competition a while back, clarinettist Emma Johnson has become one of the brightest stars of British music. She has successfully embraced the full range of the clarinet repertoire, and added to it by commissioning a concerto from Michael Berkeley, first performed in 1991. Her performances of the Crusell concertos have been revelatory, and the coupling of the Stanford and Finzi concertos is in a class of its own. ASV must be rather pleased that it had the foresight to obtain Emma Johnson's exclusive services soon after her 1984 competition success.

This latest recording for the label comes into the 'showcase' category but has considerably more to offer than others of that ilk. The choice of music is nicely balanced: there are no jarring changes of style, yet variety a-plenty. Most importantly, Emma Johnson has the chance to display every facet of her playing, from the honeyed lyricism of Paul Reade's suite from his music to the 'Victorian Kitchen Garden' to the fizz and sparkle of Gershwin's 'Three Preludes' and the vitality of Leo Weiner's 'Two Movements', original pieces both but unmistakably based on Hungarian folk rhythms. As elsewhere, pleasure comes not just from Emma Johnson's remarkable technique, but from the palette of colours she produces from the instrument.

Overall, the programme is a judicious mix of the familiar, the less-than-familiar and some pleasant discoveries: I could have lived without another version of the 'Flight of the Bumblebee' but was delighted to come across Paul Harvey's witty Etude on Gershwin's 'It ain't necessarily so'. I'm sure you'll recognise the themes of Arthur Benjamin's 'Jamaican Rumba' and Granados's 'Danza Espanola

No5', and most of those arranged by Messrs Biassi and Giampieri in their Fantasia on themes from Verdi's 'Rigoletto'. There are also short pieces by Mozart, Ravel and the extravagantly-named Maria Theresa von Paradis. Mozart also provides the source for a glorious set of variations by Beethoven, those he based on 'La ci darem la mano' from 'Don Giovanni'.

Emma Johnson's collaborators on

this most enjoyable of recitals are the pianist Julius Drake and the harpist Skaila Kanga and their contributions merit the highest praise, especially that of Skaila Kanga, whose talents I have admired on other recordings and who surely warrants a 'showcase' recording of her own. Credits for the sound go to producer Andrew Keener, and engineer Martin Haskell, as ever a guarantee of the highest standards.

RECORD OF THE MONTH

Although it has become the totem of jazz, the saxophone has been little exploited by 'serious' composers since its development by the Belgian instrument maker, Adolphe Sax, in the 1840's. My Oxford Dictionary of Music says, rather snootily, "The [saxophone] family has occasionally received recognition from serious orchestral composers," adding that there are no less than twelve varieties of the instrument but that only three are in common use: the soprano, alto and tenor saxophones, as I'm sure you are aware. Perhaps those "serious orchestral composers" have been deterred by the saxophone's pre-eminence in the field of jazz, but that did not preclude Vaughan Williams, for one, using the instrument most effectively in his 'Masque for Dancing', 'Job', or Ibert from writing his delicious Concertino. The neglect seems a pity when you consider the saxophone's potential for expression and virtuosity, as well as its special tonal colours and characteristics. However, this new Argo issue, featuring the talents of John Harle, may go some way to redeeming the situation; it certainly deserves to.

GAVIN BRYARS
The Green Ray
MICHAEL NYMAN *Where the Bee Dances*
MIKE WESTBROOK *Bean Rows and Blues Shots*
 John Harle, saxophone; Bournemouth Sinfonietta, conductor Ivor Bolton
ARGO 433 847-2 (DDD/69.34)

Although the term appears in none of the titles, these three works are all essentially saxophone concertos of various hues, and all commissioned - to their enormous credit - by the Bournemouth Sinfonietta. Credit is also due to Decca and producer, Andrew Cornall: a disc of three contemporary concertos would always be a risky venture let alone in these hard-pressed times.

However, records aren't bought for the worthiness of their concept and it is pleasing to report that the end result fully justifies the efforts that must have been made involved in getting this recording off the ground.

It could, I daresay, be categorized as a 'crossover' issue, given Mike Westbrook's and Gavin Bryars' jazz roots, although the

French horn and solo violin as well as saxophone, this is quite a magical work. If Gavin Bryars set out to express the mystical quality of that 'Green Ray', then he has completely succeeded.

With its energy and insidiously attractive themes, Michael Nyman's 'Where the Bee Dances' is probably the most appealing work here. I enjoyed it immensely, revealing in its rhythmic complexities. The title is primarily derived from the circular orientation dances which a bee performs to communicate the location of a food source; but it also owes something to the music which Nyman composed for Peter Greenaway's film, 'Prospero's Books' and to his setting of 'Where the bee sucks', which is quoted in places in this concerto.

Here, other facets of John Harle's playing come to the fore, not least his dexterity in coping with a wide and rapidly-changing variety of tempos. There is similar pleasure in hearing him meet the demands of Mike Westbrook's three-movement 'Bean Rows and 'Blues Shots'. As the

name implies, this is a work inspired by the twelve-bar Blues (which Westbrook metamorphoses into fifteen, eighteen and twenty-seven bar versions to produce some cracking dialogues between soloist and orchestra). Traditional Blues devices are used to good effect, but the music is far from being mere pastiche. John Harle's note most accurately describes it as a "collision" between jazz and orchestral music, although if that suggests a dissonant mess I should quickly correct the impression; 'Bean Rows and Blues Shots' is wholly coherent and, like the other works here, rewardingly accessible.

John Harle receives first-rate support from the Bournemouth Sinfonietta, from whose ranks drummer Peter Fairclough deserves special mention for his contribution to 'Bean Rows and Blues Shots', and the recording has been superbly engineered by John Dunkerley. Refreshing, original - and recommended.



term tends to suggest a kind of artificially-forced hybrid which none of the works remotely is. Each, naturally, exploits the wide range of John Harle's virtuosity: in Bryars' 'The Green Ray' it is his ability to play long expressive passages. The Green Ray? An atmospheric phenomenon which occurs at sunset in certain latitudes and became the basis of a romantic novel by Jules Verne. Bryars himself experienced this strange light, which occurs momentarily as the sun touches the horizon, in Southern California. That, the plot of Verne's novel, and the old musical traditions of the West coast of Scotland where the book was set, inspired Bryars to this eloquent and often poignant music.

The work is played without a break but falls into easily-recognised sections through its changes of tempo and texture. Throughout, the solo playing of John Harle ebbs and flows hauntingly and with fluency and poetry. With its subtle but effective use of orchestral colour, its coda made up of simultaneous 'laments' for cor anglais,

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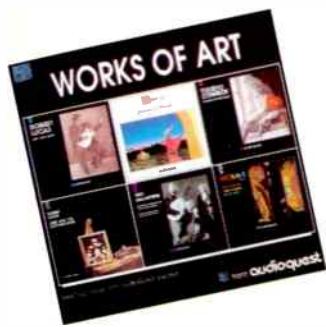
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SONGS

It may not look like it from the outside, but many hi-fi products are constantly evolving, imperceptibly moving forward. Although some companies wave their improvements like a flag, others just continue to make them in the background.

There are a few names that have remained constant in my system, despite some serious competition. Both the Pink Triangle Anniversary turntable and the John Shearne Phase One amplifier have stood the test of time, but I have recently had the opportunity to sample the latest versions of these two products: changes and refinements are readily apparent.

Such improvements are not just confined to the upper bracket. This month's review of the Arcam Alpha+ shows that manufacturers are continually refining and developing their craft at a variety of price points.

Since I first received a Pink Triangle Anniversary turntable, I have grown accustomed to its idiosyncrasies. It is a remarkable turntable, but one that, like a fine wine, is uneasy in travelling and needs to be used with respect.

My own Natural Ash Anniversary was delivered some months after the review of the turntable in September 1991; I had to use a factory demonstrator in the interim period. During that time, I found some minor niggling sins of omission. While the turntable was fundamentally sound, many people used it with balanced connectors, but there was no provision for fitting earth tags and the Flexi-link phono socket board had an annoying habit of coming loose, as it was screwed into bare wood.

Subtle but Significant

When my own finally arrived, it was clear that I was not the only person to have noticed such niggles. The Flexi-link board now has two little earthing tags sitting under the phono sockets and there are little brass bushes for the screws to support this section.

It was the subtle, but significant, changes under the mirrored top plate that surprised me. The Aerolam subchassis, loosely finished in red before, was now more complete and finished in a grey powdercoat to match the rest of the underside of the

turntable. Also, the cables from the motor to the power supply had been correctly dressed and carefully laid out. These were only little touches, but ones that showed that there was some development taking place.

Recently, however, there have been rumours of a battery power supply and other modifications for the Anniversary in the pipeline. The latest samples are fitted with a bearing that is slightly improved, together with a number of other, minor changes.

I wanted to try the new battery power supply, but also

felt that I should try the new bearing, as I was concerned that I had damaged my own transporting the turntable. The modification took place in two stages, the first being the battery upgrade to the power supply.

When the new one came back from the Pink factory, apart from the sheer added weight of the lead-acid batteries, I immediately noticed the improvements to the circuit board. Today's Anniversary PSU uses CAD/CAM designed circuit boards, together with a far better DC reference system than the original circuit.

My listening room has two significant problems that are almost insurmountable. The first is the dynamics of the comparatively small room itself, that have been immeasurably improved by judicious use of RoomTunes. Unfortunately, the second problem is a poor mains supply, with ageing supply wiring that fluctuates with the vagaries of household demand. As the general public switch on their early evening television viewing, I find the sound quality of the system drops dramatically.

Having nearly forty hours of battery supply on tap has transformed the sound quality of the system in a way that no other component could



Feedback from Alan Sircom

sircom's circuits

achieve, I feel. It has drastically improved upon the Anniversary's stability of pitch and soundstage, especially when ploughing through heavily modulated passages.

The next stage was the improvements to the bearing and other minor modifications to the turntable, bringing it up to current specifications. Each change in itself is only a subtle refinement of the Pink turntable. As such, it is unlikely that an existing Anniversary owner would need to look at the latest upgrades, but it is still refreshing to know that they are still working on what is fast becoming the classic turntable of the Nineties.

Refined John Shearne

Improvements to the John Shearne Phase One amplifier have been just as fundamental. Since its introduction, it has been gradually refined to overcome any early criticisms. The first was a change to the wiring loom in the preamplifier to overcome crosstalk. Following from this, it was found that the preamplifier sounded better without the headphone amplifier in circuit at all, so the headphone option was dropped altogether.

However, one of the greatest changes came when the preamplifier design was slightly modified to give a more

accurate frequency response. This comparatively simple change, which will be available free of charge to all existing John Shearne Phase One owners in this country, transformed the sound of the pre/power combination fundamentally. Out went the 'valve-like' warmth, to be replaced by harmony, life and dynamics.

When people have commented on the valve-like properties of the John Shearne amplifier, it was due in part to a slight veiling over the neutrality of the preamplifier. With the new frequency response tailoring, the system

retains the smoothness and grace of the earlier design, yet has a clarity and depth that is unique to solid state.

In the past, I have felt the Phase One preamplifier to be inferior to the Pink Triangle Pip II that I currently use. With the new modifications to the Phase One moves into the Pip's arena. It is not as detailed or as transparent as the Pip and it lacks the vice-like control the Pip has over the power amplifier, yet the Phase One pre and power combine together beautifully, sounding more dynamic and less dry than the Pip in the same system.

Finally, the latest upgrade to the John Shearne pre-amplifier involves a change to the moving coil stage. The latest option is a high quality internal step-up transformer, similar to a scaled down version of EAR's The Head. Once again, this adds control and refinement to the sound, pushing the amplifier into a still higher league.

Both companies plan on further refinements to their products as they become apparent. This continual development shows that neither is content to rest upon its laurels, but are also not prepared to abandon their existing customers with revamped 'Mk II' versions ●

This month, we offer a complete system for the new-comer to hi-fi. Instead of an aspirational single product, useful for those who already have a quality system, we felt that it was time to give away a whole system for the beginner.

In our new budget section at the rear of the magazine, this month we have recommended a number of systems. One of the most successful consisted of the Denon DCD-890 Compact Disc player, Harman-Kardon HK 6150 amplifier and Celestion One loudspeakers, on their own stands.

A perfect introduction to hi-fi, this system is topped off with an Alphason New Concept R35 equipment table, a Strata CD shelf - even a pair of QED Incon interconnects and a ten metre pack of QED 79-Strand cable. All you need to get it running is two mains plugs, a little time and a CD!

Each component has been selected to sound clear and detailed, yet without sacrificing any musical excitement. The Denon DCD-890 uses twenty-bit, eight times oversampling technology, similar to their most expensive players, while the high-current Harman-Kardon HK

6150 amplifier design strongly grips the bass cone of the new Ipswich-built Celestion One loudspeaker; this is truly a marriage made in heaven.

Such a system, with all the extras, would normally cost around £700, but it can be yours for the price of a stamp. . .

Please send your completed competition entries, to be received by 27th November 1992, to the following address:

Starter System Competition, Hi-Fi World Magazine, 64 Castellain Road, Maida Vale, LONDON W9 1EX.

We will endeavour to publish the results in the February issue. Audio Publishing Ltd. reserve the right to publish such entries or parts of entries as the company sees fit. No correspondence may be entered into as regards this competition and the Editor's decision is final. Employees of all companies involved or their dealers may not enter.

**PROAC
RESPONSE ONE 'S'
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We had a variety of witty answers to our ProAc advertising slogan competition. A number of replies were notable, such as H.G. Bennett of Winchester's "The Response will be sweeter from a One 'S' tweeter" or "Tyler made to suit your system: Naturally!" by Kay Gosden of London SE18. Our thanks go to all those who entered the competition.

Finally, however, we agreed upon: "My wife wanted smaller speakers. I wanted the Albert Hall. We settled for both." from Damon Evison, of Maidenhead. Congratulations to Mr. Evison, who is now the proud owner of a pair of ProAc Response One 'S' loudspeakers.

STARTER SYSTEM COMPETITION ENTRY FORM

Please tick the box next to the answer that you think is correct:

1. What kind of chip technology is used in the Denon's DCD-890 Compact Disc player?

- One bit, twenty times oversampling Two bit, eight times oversampling
 Sixteen bit, twelve times undersampling Twenty bit, eight times oversampling

2. The Harman-Kardon 6150 amplifier is -

- A high current design Multi-channel, AV-ready
 Built from recycled Tonka Toys Designed using directly heated triode transistors

3. Where are Celestion Ones built?

- Iffey Ilchester
 Ipswich Immingham

4. What are Alphason's equipment supports called?

- New Design New Concept
 New Faces New Style

5. What is the name of QED's interconnect?

- Incar Increase
 Incon Inky

Tie Breaker (obligatory): This system would normally cost over £700. Think of an inventive, legal and printable way to spend the £700 you might save by winning this competition, then put it down on paper in not more than twenty words.

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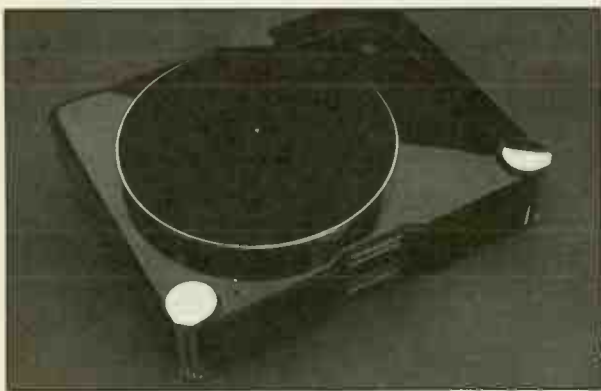
competition

The Sound Organisation London

● Just when you thought that record players were dead, Sound Organisation introduce not one, but two models from major manufacturers.

By the time of the Penta Show (mid Sept) we expect to have both models on demonstration with delivery times of around 10 - 14 days.

It is our view, that in terms of musical performance, both these players offer substantial improvements over the existing crop of top players. If your interest lies in vinyl and you want your record collection to realise it's full potential, we invite you to contact us for information.



● **The Touraj Moghaddam Signature:**

The ultimate Roksan. The TMS takes many of the design ideas of the Xerxes and follows them to their ultimate realisation. The unique three tier construction gives the player tremendous isolation and provides great support for the arm and cartridge of your choice. The player is powered by an external DS1 or DS4 power supply, both of which can also be used to power the ArtaXerxes phono amplifier if fitted.

**Price: £2500.00 player only.
£695.00 DS1, £495.00 DS4**



● **The SME Model 20A:**

Based closely on the Model 30A this new player takes advantage of SME's superb new computerised manufacturing facility to build a smaller lighter version of the player at a fraction of the cost. Performance is very similar to the 30A in many areas and it is clear that the 20A is a player of outstanding value for money.

**Price: £2495.00 player only.
£3495.00 including a Series V arm.**

- Available for demonstration will be;
Cartridges: *Lyra Clavis & Parnassus, Koetsu Urushi. Audio-Technica ART1 and Kiseki PHS*
Dedicated phono stages: *AudioResearch PH1, LFD, Michell ISO and Roksan ArtaXerxes.*
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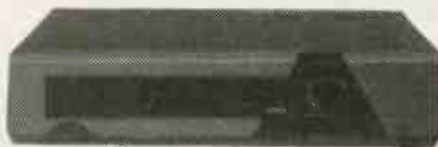
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 Please ask for details or our current list
 Agencies include: Audio Research, Apogee, Air Tangent, Koetsu, Krell, Magneplanar, PS Audio, Sonus Faber, Audio Technica, Goldring, Marantz, Micromega, Ortofon, Rogers, SD Acoustics, Stax, Thorens, Wharfedale, Kimber, Sennheiser, Slate Audio, Target, QED, van den Hul, NAD, Nakamichi, SME, JPW, Revox, Dual, Monitor Audio, Pioneer, Proceed, Onix, Teac, Rotel, T.D.L., Ruark, Acoustic Energy, Audio Alchemy, Deltec, Musical Fidelity, Accuphase, Basis, Wadia, Theta, Sequerra.

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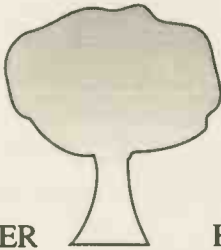
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World favourites

Hi-Fi World's revamped, comprehensive, selection of preferred products out of those we have reviewed in the last eighteen months, with the issue in which the test appeared.

COMPACT DISC PLAYERS

SONY CDP-497	£160	Superb starter CD. Packed with facilities.	Aug 92
DENON DCD-580	£180	Advanced Interpolative 20-bit based player. Rather 'grunty' and rough-edged, but with a good sense of rhythm and fun.	Dec 91
TECHNICS SL-PG500	£200	MASH player. Simply one of the finest CD players on the market, packed with life and detail. Astonishing value.	Aug 92
MISSION DAD5	£300	Bitstream based player. Very even handed, with forceful bass. Some lack of spaciousness.	May 92
PIONEER PD-8700	£300	Single-bit player, with 'stable-platter' CD turntable. Fast and pacy, with good dynamic range. Soon to be replaced with 'Legato Link' version.	Dec 91
ROTEL RCD-965BX	£300	Bitstream based player. Calm, open and sophisticated performer.	Oct 91
PIONEER PD-9700	£400	Advance on the PD-8700 listed above. Very smooth and sophisticated sound, tonally even. Well built.	May 92
ARCAM ALPHA	£420	Offers a warm, full-bodied sound with a big, rich bass.	May 91
CREEK CD60	£500	16-bit player. Excellent rhythmic properties and a superb bass performance.	Apr 92
CARY CAD-855	£900	16-bit Rotel player, with Cary-designed valve output stage. Packed with ambience and musicality.	Feb 92
MARANTZ CD-94 II	£900	16-bit player. Superbly built, with deep bass and extremely full instrumental colour.	Feb 92
SONY CDP-X77ES	£1000	Low-bit player. Very clean, smooth and analytical. Well built, but lacks enthusiasm.	Feb 92
MICROMEGA SOLO	£1350	Philips Bitstream chipset, with distinctive transport mechanism. Very light and musical, but with a deep, well controlled bass.	May 92
NAIM CDI	£1598	Single box, 16-bit player. Close to the two box CDS, very disc dependent, has vital tingle factor.	Apr 92
TEAC X-1	£2300	Superb 20-bit player. Convincing, idiosyncratic and characterful. Has plenty of flair.	Jun 92
NAIM CDS	£2937	Two box, sixteen bit player. De rigeur for Naim-based systems. Musically informative, has both punch and delicacy.	Sep 91

COMPACT DISC TRANSPORTS

ARCAM DELTA 170.3	£650	Smooth. Draws the listener into the performance. Improves on all the strengths of the 170.	Jul 92
TEAC P-500	£650	Can be too restrained for some tastes, but subtle and highly detailed.	Feb 92
MERIDIAN 602	£1500	Well built, near silent in operation. Strong sound, but tends to blandness with the wrong DAC. Matches 606 DAC.	Mar 91
MICROMEGA DUO	£1745	CD-ROM based transport. Defines refinement and air, but without sacrificing impact.	Nov 91

DIGITAL TO ANALOGUE CONVERTERS

QED DIGIT	£125	Based on Philips Bitstream. Excellent value, with no rough edges. Co-axial input for CD only.	May 92
MICROMEGA MICRODAC	£299	Philips Bitstream-based. Typical Micromega sound, very musical and refined, lacks the cutting edge of detail.	Mar 92
MISSION DAC 5	£299	DAC7 based. Clean, forward mid-range, capable of portraying real subtleties. Bass lacks firmness.	Jul 92
ARCAM BLACK BOX 3	£360	Fine sounding DAC. Now looking a bit tired against stiff opposition.	May 91
AUDIO ALCHEMY DIGITAL DECODING ENGINE	£376	Tiny Philips Bitstream-based DAC. Very broad and smooth presentation.	Feb 92
SUGDEN SDA-1	£650	16-bit Philips based. A wide open window for the transport to flow through. Very neutral.	Jun 92
AUDIOLAB 8000DAC	£695	Philips Bitstream-based. Well built and flexible. Typical Audiolab sound, very silent and neutral.	Jan 92
MERIDIAN 606	£1221	New DAC7 version. Rather laid back, but also easy going and possessed of a very natural sound.	Jan 92

TURNTABLES

SYSTEMDEK IIX-900 (NO ARM)	£190	Suspended-chassis turntable, easy to set up. Surprisingly natural sound, if not as detailed as some. Suits Rega, Moth and Helius arms.	Aug 91
PROJECT 2	£245	Czech built turntable with much to offer above the Systemdeks and Regas. Very coherent.	May 92
REGA PLANAR 3	£250	Built to last. Transparent and lucid, although can sound bass light. Sets the standard to beat.	Aug 91
THORENS TD166/VI/UK	£270	Fitted with Rega RB 250 arm. Good basic deck, with tweakability.	Jun 92
MICHELL MYCRO	£397	(with RB300 arm, £539) Falling between the Syncro and the Gyrodec, the Mycro has superb mid-band clarity and poise.	Apr 92
PINK TRIANGLE	£449	Neutral sounding turntable with excellent soundstaging and decent bass. Best with a Linn, Rega or Roksan arm. Improved GTi version also available.	May 91
LITTLE PINK THING	£550	(with arm) Isn't tripped up by unsettling music, the Radius acts a good mid-price turntable.	Nov 91
ROKSAN RADIUS	£650	Arm-less Thorens, good match for Rega RB-300 or Naim ARO. Easy to use turntable that gets very close to the Linn LP12.	Apr 91
THORENS TD-3001BC	£676	Terrific soundstaging properties, good bass and a neutral performance that considerably improves upon the LPT.	Jun 91
PINK TRIANGLE EXPORT	£699	Similar to the Pink Triangle, the two-motor Valdi is an expressive performer, best suited to Audio Innovations equipment.	Jul 91
VOYD VALDI	£785	Highly analytical and exciting turntable. Can be almost CD-like in its presentation.	May 92
ROKSAN XERXES	£1200	Very neutral turntable, but with a lot of magic. Excellent imagery and detail. A natural partner to the SME V.	Sep 91/May 92
PT ANNIVERSARY			

TO NEARMS

MORCH DP-6	£665	'Unipivot plus' tonearm. Plays music with a silken and rich quality. Perfect match for the Da Capo cartridge.	Jul 92
SME SERIES IV	£828	Scaled down version of the legendary SME Series V. A precision measuring instrument only bettered by the V.	Mar 92
SME SERIES V	£1232	A masterpiece of precision engineering, with a confident sound.	Sep 91/May 92

CARTRIDGES

GOLDRING 1012	£45	Excellent value. Well balanced performer, rich and full without warmth. Very spacious and clear.	Apr 91
ORTOFON MC15	£100	Moving coil cartridge at moving magnet price. Has a tight grip on rhythm.	Jun 92
ROKSAN CORUS BLACK	£110	Moving magnet cartridge, based on Goldring design. Exciting and detailed, with great speed.	Sep 91/May 92
SHURE VST-V	£150	One of the finest moving magnets currently available. Excellent tracker.	Jul 92
GOLDRING ELITE	£200	British made moving coil. Good value, smooth and detailed, but can sound a trifle brittle at times.	Apr 92
GOLDRING EXCEL	£499	British made high-end m-c. Refined and lyrical presentation, slightly dull at times.	Oct 91
LYRA LYDIAN	£500	Scan-Tech designed moving coil cartridge. Magical sound, even better nude!	Aug 92
MORCH DA CAPO	£500	Scan-Tech designed moving coil cartridge. Musical and accurate, without any flaw.	Feb 92/May 92
AUDIONOTE IO	£1295	Very low output cartridge, with high silver content. Needs step-up transformer. Very musical, can show up how poor most cartridges are.	Nov 91

CASSETTE RECORDERS

TECHNICS RS-BX404	£130	Terrific value and good sound for the money.	Sep 91
TECHNICS RS-BX606	£170	Three head deck. Superb value, capable of seeing off much more expensive machines.	Nov 91
SONY TC-K570	£200	Three head deck. Difficult to tune tapes, but prerecorded tapes reproduce with clarity; excels with premium tapes.	Feb 92
SONY TC-K677ES	£240	One of the first low-cost three head decks. Can be grainy and slightly bright, but makes for stable recordings and playback.	Sep 91
JVC TD-V541	£280	Three head deck. Good for both recording and playback, especially of prerecorded tapes. Easy to use.	Dec 91
DENON DRS-810	£300	Drawer loading cassette - just like CD. Sweet sounding, but a bit expensive.	Jan 92
NAKAMICHI			
CASSETTE DECK 2	£350	Makes fine recordings with metal tape. Excellent with pre recorded tapes. One of the finest two head machines about.	Mar 91
CASSETTE DECK 1.5	£500	Scaled down version of the Cassette Deck 1, without rivals at the price.	Jan 92
CASSETTE DECK 1	£600	In the light of the 1.5, this fails to be such good value, but still a sound three head deck.	Apr 91
PIONEER D-500	£600	Very smooth sounding DAT deck, but still slightly coarser than the original source.	Apr 92
TEAC V8000S	£699	Dolby 'S' deck. Easy to use. Very stable sound, with instrumental textures close to perfect.	Jun 92
ARCAM DELTA 100	£850	Dolby 'S' deck. Excellent sound quality, close to the original source. The best Dolby 'S' deck around.	Apr 92
NAKAMICHI CR-7	£1500	No 'S', but auto tape tuning that copes with anything. Probably the best analogue recorded sound available.	Aug 92

TUNERS

DENON TU-260L	£110	Excellent budget AM/FM tuner. Easy to operate, good all-rounder with a fine sound.	Mar 92
NAD 4225	£160	Warm sounding, but detailed budget AM/FM tuner. AM poor, looks dated.	Jun 92
AURA TU-50	£230	Superb FM-only tuner. Produces a delightful, three-dimensional sound. A cracker	May 92
YAMAHA TX-950	£260	Fine all-rounder, with a good AM section.	Jul 92
KENWOOD KT-7020	£270	Silky smooth sound, but very insensitive and needs a good aerial.	Feb 92
MUSICAL FIDELITY TI Mk II	£270	Sweet, delightful FM performance. Distinctive sound, lags behind on insight and can be too warm.	Oct 92
ARCAM DELTA 80	£340	AM/FM analogue tuner. Realistic sound quality, but slightly insensitive.	Jan 92
NAIM NAT-02	£853	Little box, big money, dead good. Try and find better unless it's a...	May 91
NAIM NAT-01	£1377	The best tuner currently available. All else is mere artifice. If you want better radio reception, go and live in the BBC's studio.	Mar 92

INTEGRATED AMPLIFIERS

NAD 3020i	£150	Budget classic, although its crown has slipped a bit of late. Typical warm NAD sound.	Aug 91
HARMAN-KARDON HK6150	£159	Good sounding starter amplifier. Great dynamic range. Excellent bass.	Jun 92
DENON PMA-350	£170	Packs a lot of punch for the money. Phono stage lags behind the line inputs.	Mar 91
PIONEER A300	£180	Slimmed down A-400. Poor phono stage, bit brash, but exciting and glossy.	Apr 91
SUGDEN A25B	£203	Surprisingly warm and well rounded for the price. Worth seeking out.	Dec 91
ARCAM ALPHA 3	£200	Lean and lively, with an astonishing amount of detail. Excellent line stages.	Oct 91

MISSION CYRUS ONE	£200	An excellent all-round performer. Equally good on disc or line stages.	Mar 91
CREEK CAS 4140 S2	£230	Bit soft and rounded, but with a pleasant character. Easy on the ear.	Nov 91
PIONEER A-400	£240	The amplifier that shook up the UK hi-fi industry. Very hi-fi sounding, but can sound good with high-end equipment.	Nov 91
AURA EVOLUTION VA-100	£270	Full of refinement, although not the best measuring amplifier around.	Jul 92
ION OBELISK 100	£299	Plenty of detail and ambience. Good imagery but not the warmest sound.	May 92
MISSION CYRUS 2	£380	Best with PSX power supply (£300). More powerful, dynamic and well balanced than almost any of its price rivals.	May 92
AUDIOLAB 8000A	£430	Very neutral and superbly built. Good bass, great imagery, but can be sterile.	Apr 92
SUGDEN A48B	£460	Genre performer, but never masks the music with warmth. Tonally very even.	Apr 92
AMC CVT-3030	£500	Valve hybrid amplifier. Has valve and transistor virtues in a reasonably priced package.	Aug 92
AUDIO INNOVS. SERIES 500	£990	Sweet sounding valve design. Good looking, but a little system dependent.	May 91
AUDIONOTE OTO	£1250	12w valve amplifier. More in tune with music than hi-fi. Superb dynamic range.	Jun 92
TUBE TECHNOLOGY UNISYS	£1299	Superbly built chrome valve amplifier. Pacey and musical.	Aug 92
COPLAND CTA-401	£1495	Solidly built Swedish valve amplifier. Very refined and unfatiguing sound.	Feb 92

PREAMPLIFIERS

NAD 1000	£180	Wonderful value. Relaxed, smooth and easy on the ear. Best with 2100 power amps.	Jun 91
QUAD 34	£336	Civilised, smooth and unintrusive. Not especially transparent, but relaxing and built to last. Clever tone controls.	Jun 91
AUDIO INNOVS. SERIES 200	£349	Valve preamplifier. Good value, rather colored but very dynamic. Best with Innovations equipment.	May 92
AUDIOLAB 8000C	£375	Superbly made solid state pre, without flaw. Clean sounding, if a touch sterile. Excellent all-rounder.	Jun 91
CROFT SUPER MICRO A	£649	Valve preamp. Great mid-band, Good soundstaging properties, a bit warm & euphonic.	Oct 91
MICHELL ARGO+ISO	£687/£393	(+£155 for optional Hera PSU) Pure detail, incisiveness and the beauty of the highest of high end, at a median price, especially with the Hera power supplies. Line-level only, hence an Iso required for vinyl replay.	Oct 91/Jul 92
CONCORDANT EXCELSIOR	£900	Valve preamplifier with MM phono + 2 line stages. Magical and realistic sound quality, deep soundstage. Superb for recordings.	Dec 91
JOHN SHEARNE PHASE ONE	£1099	Attractive preamplifier with matching power amplifier, valve-like lucidity and sweetness. Suits neutral equipment.	Aug 91
ALCHEMIST FREYA	£1150	Line level preamplifier, with distinctive styling. Detailed and commanding sounding, may sound too bright in some systems.	Oct 91
LINN KAIRN	£1295	Remote control preamplifier. Flexible, but can sound too forward. Best suited to Linn equipment.	Aug 91
FINESTRA	£1399	Very transparent op-amp based pre, which features absolute phase integrity in design to produce superb imagery.	Feb 92
E.A.R. G88	£5246	Exceptionally solidly built valve pre, with a 'bolted down' sound to match. Can sound awesome.	Nov 91

POWER AMPLIFIERS

NAD 2100	£290	Matches 1000 pre above. Powerful (150 watts), yet relaxing sound with big bass. Easy to bridge by adding another 2100. Very good value.	Jun 91
QUAD 306	£395	50 watt stereo solid state amplifier, well suited to the ESL-63 loudspeakers. Beautifully built, smooth sound, but can lack bass and transparency.	Jun 91
CONCORDANT EXULTANT	£500	Modified Quad II mono amplifiers. Colder sounding than the original. Good value. Good match with Excelsior preamp.	Jan 92
AUDIOLAB 8000P	£545	Powerful solid state stereo power amplifier. Clean, natural sound with a slick styling to match. Very well made.	Jun 91
CROFT SERIES 5	£548	Stereo 25 watt valve amplifier. Can be bridged. Rich, warm sounding. Good with ProAc loudspeakers.	Oct 91
QUAD 606	£570	100 watt stereo solid state amp. Very smooth and civilised. Similar to 306, but with more power and deeper bass.	Jun 91
LECTERN	£699	50watt solid state power amplifier, designed to match the Finestra. Superbly transparent.	Feb 92
MF P180/CRPS	£799/£499	Stonky power amplifiers. Powerful and refined, especially with CRPS supply.	May 91/Jul 91
JOHN SHEARNE PHASE ONE	£1199	Matching power amplifier to Phase One preamp above. Attractive finish, sweet sound.	Aug 91
AUDIOLAB 8000M	£1190	150 watt solid state monoblocks. Typical Audiolab look, build and sound; crisp and clear but can also be clinical.	Sep 91
ART AUDIO TEMPO	£1398	20 watt triode monoblocks. Attractive looking, vibrant sounding, ambient and subtle.	Dec 91
ALCHEMIST GENESIS	£1400	100 watt valve monoblocks. Powerful sound. Very cable dependent but with plenty of dynamic range.	Oct 91
AUDIO INNOVS. SERIES 1000	£1499	50 watt valve monoblocks. Great looks, powerful sound. Shows just how loud fifty watts are!	May 92
ART AUDIO MAESTRO	£1927	Pentode/Triode switchable valve monoblocks. Beautiful looking, sweet and involving.	Jun 91
E.A.R. 549	£4372	Massive 200watt valve monoblocks, designed for studio use. Awesome sound can be too intense for some, but can produce uncanny solidity of images.	Nov 91
MUSICAL FIDELITY SA-470	£6000	Massive powerhouse that appears to have no limits whatsoever (unlike those who try to lift it).	Jun 91

LOUDSPEAKERS

GOODMANS MAXIM 3	£110	Excellent budget small box. Forward sound, without undue box coloration.	May 92
MISSION 761i	£169	Not a perfect loudspeaker, but is full of bass and a lot of fun and entertainment for the money.	Feb 92
MISSION 780	£180	Not without flaws, but the accent is on the music. Good small design.	Sep 91
B&W DM610	£200	Very competent and musical. Loads of life and energy.	Sep 91
ROGERS LS2a2	£209	So far the most correct loudspeaker we have discovered at the price. Sweet and even-natured. A bargain.	May 92
HEYBROOK HBI Mk III	£249	Powerful, efficient loudspeakers. Loads of welly, loads of bass, but smewhat unrefined.	Apr 91
TANNOY 609	£250	Cheapest Dual Concentric loudspeaker in the range. Fast and fun, but occasionally a bit unsubtle.	Jan 92
NAD 8100	£300	Fine floorstanding loudspeaker that goes deep and loud. Terrific sense of fun.	Aug 91
EPOS ES1 I	£330	Two way reflex loudspeaker with a civilised but giant-killing sound quality. Excellent imagery.	Apr 91/Jan 92
TRIANGLE COMETE	£375	Highly efficient small box loudspeaker with a superb mid-band. Great for valve amplification.	Apr 92
WILMSLOW FOCCUS	£400	Kit loudspeaker, based around DynAudio drivers. Very transparent and detailed for the price.	Feb 92
KEF 101/2	£495	The baby of the KEF Reference range. Very system dependent.	May 91
CELESTION 100	£499	Two way box, with metal dome tweeter. Need powerful amplifier and careful positioning, but has insight and good tonal accuracy.	Dec 91
NEAT PETITE	£525	Baby two-way. Tight, fast, great stereo and good dynamics. Few little boxes come close.	Aug 91
PENTACHORD	£534	(£1059 with subwoofer) Finished in real wood, these Bendor-based units are superbly transparent. With the sub-woofer, they go deep too.	May 91
PROAC STUDIO I MK II	£612	Two-way reflex loudspeaker. Easy to listen to and well-balanced, although somewhat colored.	Aug 91/Jan 92
KEF Q90	£649	Uni-Q design with ABR. Efficient, dynamic and capable of going very loud indeed.	Jan 92
REL STADIUM SUBWOOFER	£695	Mono, self-powered subwoofer that works! Very flat frequency response.	Jun 92
B&W MATRIX 805	£795	High quality small monitor loudspeaker. Detailed and fast and capable of playing very loud. Used at Abbey Road.	Jan 90
AUDIOPLAN KONTRAPUNKT	£799	Small box loudspeaker. Very smooth and sophisticated sound, great with a valve amplifier.	Apr 92/May 92
AUDIO NOTE AN-J	£799	(£999 for silver wired version) High efficiency loudspeakers using paper cones. Good soundstaging with a very convincing, natural sound. Derivative of Snell design.	Jun 91
HEYBROOK SEXTET	£899	Revealing, lucid floorstandings. Not smooth, but tight and fast-paced. Need careful partnering.	Oct 91/Feb 92
PROAC RESPONSE ONE 'S'	£918	Excellent small box design. Can convey the spirit, drive and passion in music in a small room.	Jul 92
KEF 103/4	£995	Capable of showing up every detail and defect in hi-fi or recording, the 103/4s image well and go very loud indeed.	Oct 91
MAGNEPLANAR MG1.4	£1190	Electro-magnetic planar design. Needs long room. Can create an open, relaxed and easy musical performance. Lacks detail.	May 91
APOGEE CENTAUR MINOR	£1200	Hybrid ribbon design. Great imaging and detail, good value for panel fans.	Jul 92
ATC SCM-20	£1388	True monitor loudspeaker. Requires powerful, high quality amplifier but virtually indestructable and full of high speed insight. Could be too intense for some listeners.	Jan 91
CELESTION 7005E	£1399	Small box, carved from Aerolam. Excellent imagery, transparency and detail. Needs power and careful positioning.	Mar 92
TDL STUDIO 4	£1499	Need a large room, but can move a lot of air. Best with organ music, the 4's can sound impressive, awesome and frightening.	Jul 91
DYNAUDIO CONTOUR I.8	£1589	Floorstanding two way ABR design. Highly detailed, studio monitor sound. Need a big power amplifier.	May 92
PENTACOLUMN	£1795	Active floorstanding loudspeaker using Bendor metal drivers. Best with valve amplification on treble. Stunning imagery, excellent detail. Speakers that excell at everything.	Dec 91
QUAD ESL-63	£2072	(Pro version, £2240) Legendary electrostatic loudspeakers. Can lack bass, dynamic range and volume but have detail and imagery impossible to better.	Apr 91
TANNOY GRFM	£3500	Giant horn loudspeakers. Capable of awesome sound. Need good valve amplification.	Jul 92
NAIM DBL	£6127	Huge active loudspeakers, capable of producing immense sound pressure levels. Not for the squeamish.	Mar 91
MERIDIAN D6000	£7500	Meridian's statement in active loudspeaker systems. Effortless power and dynamics, but can sound bright.	Aug 91

MISCELLANEOUS

AUDIOPLAN DIGITENNA	£55	High-tech coaxial cable, for CD to DAC connection. Highly focussed sound.	Jul 92
AUDIOPLAN MUSICABLE	£VARIOUS	Superb, high quality cables that represent the finest in European cable.	Mar 92/May 92
BEYER DT41 I	£54	Excellent 'studio' quality headphones. Deep bass, powerful sound, if a bit splashy at times.	Jun 92
CELESTION DLP 600	£349	Digital signal processor for the Celestion 600 series loudspeakers, sounds like a £400 upgrade.	Jun 92
FRANCINSTEIN	£79	CD stereo enhancer, which adds crosstalk to make the sound more 'analogue'.	Jan 92
FURUKAWA FD-11 CABLE	£85	Coaxial cable, for use between CD and amplifier. Good quality, utilitarian cable. Safe choice, easy sounding.	Jan 92
FURUKAWA 7N PC-OCC	£900/£350	per mono metre. Very expensive cables. Highly detailed, sounds like an equipment upgrade.	Jul 92
KONTAK	£22	Space age contact cleaner. Upgrades your system at a single bound.	Mar 91
LASERGUIDE	£15	Coating for a CD surface. Is said to improve clarity, focus and spaciousness.	Dec 91
MANA TABLES	£VARIOUS	Unique glass and L-section frame supports that can transform a system.	May 91/Jul 91/Feb 92
SONY ICF-SW7600	£150	Superb 'world' radio. Good reception, simple to use, even has a clock!	Aug 91
SONY WALKMAN WM-DD33	£90	Simple to use, high-quality playback only Walkman. Excellent, stable sound quality.	Aug 91
SONY WALKMAN WM-D6	£260	The famous 'Pro' Walkman. One of the finest cassette recorders at any price, but portable. Superb value, if a little 'touchy' at times.	Mar 91
SONY WALKMAN TCD-D3	£500	Better known as the 'DATMAN', this small, sophisticated DAT portable is a technological wonder.	Aug 91
TECHNICS SL-XP700	£200	Portable CD player. The thinnest and most stylish of the breed, just happens to sound the best.	Nov 91
TDK NF-C09	£10	Designed to lessen Radio Frequency Interference in cables. Works too!	Feb 92

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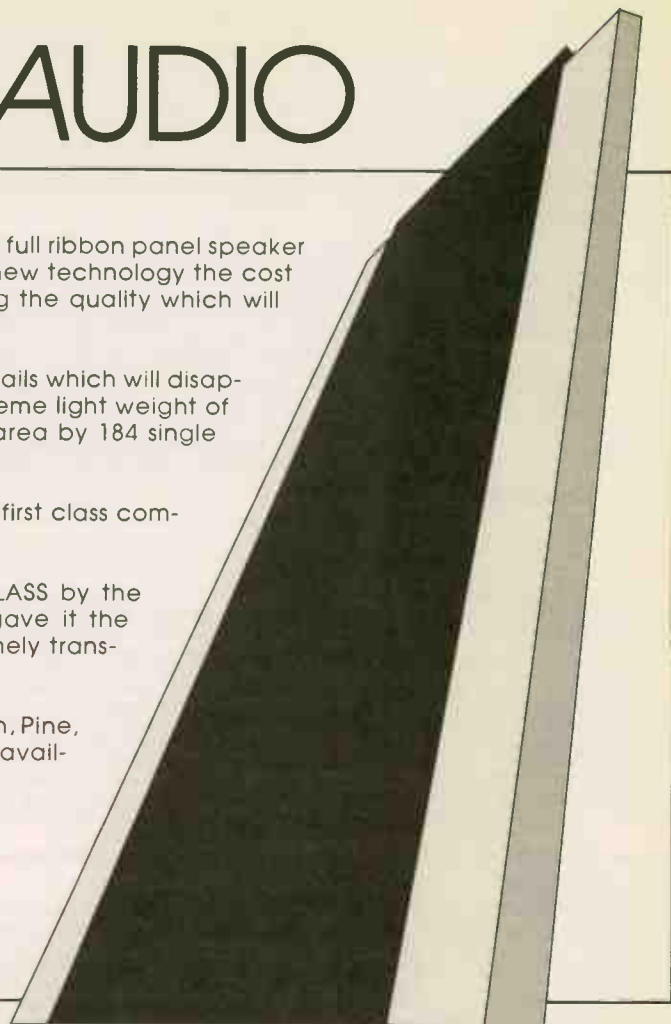
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New items in stock include the AMC CVT Integrated 30 watt per channel Hybrid valve amplifier, the Audio Innovation 1000 valve monobox, the Micromega and Wadia 8 Transports which sound superb through the AVIDAC, a real bargain a £150

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Starter Packs

Buying on a budget? Dominic Baker chooses four starter systems and explains how to set them running.



From now on we'll be spicing up the rear section of Hi-Fi World with the addition of budget orientated reviews and queries. This issue plays host to The World Favourite Budget Systems and also a budget Q&A section.

Mounting competition between manufacturers eager to sell during these recessionary times has boosted interest in 'affordable' audio equipment. Here we have assembled four of our favourite budget CD systems, all costing around the £500 price mark, yet using the best separates. This is preceded by a brief description of how to make sure that once your system is home you understand the basic ideas behind setting it up.

LOUDSPEAKER POSITION

Loudspeakers are strongly influenced by their position in a room and for this reason experimentation can bring about a complete change in character. A simple demonstration of this can be carried out by placing your loudspeakers on the floor in the corner of the room. The sound they produce will be muddled and boomy with very heavy bass. Now try moving them into the centre of the room about one metre apart. Stereo separation will be compromised by their proximity to each other and they will sound thin and bright, but very clear. This little experiment demonstrates extremes. In practice a compromise between excessive bass and excessive 'clarity' is made to provide the most neutral and natural sounding result.

The way I position loudspeakers is to start with them well into the room, say five feet in and three from the side wall on a suitable pair of stands. Next I move the speakers back in a diagonal line towards their respective corners at about six inches a time until a respectable amount of bass reinforcement from the walls is present. Now it becomes a bit of a juggling act with smaller movements of say an inch at a time to find the point where there is the correct balance of bass without compromising clarity. Some prefer a slightly cleaner sound at the expense of losing some bass; some hold bass extension a higher priority and can live with the minor loss of detail.

CABLES!!

'Oh no, not again' as the plant from the 'Hitch Hikers' Guide to the Galaxy uttered as it fell towards earth. Cables have been flogged so many times by the Hi-Fi press that I cringe at the thought of having to mention them again. For any of those who have been absent from the planet long enough to have missed the various cable articles that have littered magazines for the last decade, a few words are necessary.

The theory goes something like this. Your system can only be as good as its weakest link, so go and spend £300 on each interconnect and £100 per metre for loudspeaker cable.

This is a bit O.T.T., but a good quality cable can ensure that information is not unnecessarily lost. At the budget level, loudspeaker cable such as QED 79 strand

and Mission solid core or stranded are perfectly adequate. For interconnects QED again make a good, reasonably priced cable, as do the Chord Company. You'll find that even a budget system, albeit a good one such as those we have assembled, should display a cleaner and more precise sound with good cables.

What you must never do is use something like bell wire to connect up hi-fi loudspeakers. Only the other day Heybrook related the story to us of a man who rang up to complain that his new Sextets didn't sound very good. It turned out that he'd used bell wire with them - and they are notoriously system sensitive. Biwiring with proper cable gave him the results he expected.

RECOMMENDED SYSTEMS

We have put together four of the best from currently available separates. Each has its own set of strengths, providing something for all (good) tastes and styles of music.

All of the separates are readily available through hi-fi retailers. All too often, obscure limited-production items not commonly available are recommended. If they are too much trouble to track down the budding audiophile can quickly get dispirited and may buy a midi system. Our advice is - don't you dare!

These represent the state-of-the-budget-art in one way or other and offer a level of performance greater than has ever been available before at this price level we feel. In this respect, there has never been a better time to buy inexpensive hi-fi.



SYSTEM 1

This is my personal favourite: it sounds better than a poorly matched system costing twice as much! It is equally suited to both classical and acoustic popular music, having a sense of timing and rhythm which is exemplary at this introductory price level.

The Denon DCD890 and the Harman Kardon HK6150 do a superb job of first extracting the information from the disc and then amplifying it without infecting the signal with any nasties. This ensures that a clean, detailed signal is passed to the Celestion 1's which know exactly how to handle such information with finesse and refinement.

I found that the Celestions were best positioned on solid stands rather than the open-frame variety and placed, toed-in, at about two and a half feet from the rear and two feet from the side walls respectively (this is a rough guide line only and will vary to a certain extent



from room to room).

In this configuration they sounded open and free from any bass boom, being able to stop and start individual notes with speed and accuracy.

SYSTEM 2

Many budget systems are criticised for the poor treatment of frequency extremes, having vague bass and being devoid of treble extension. This is certainly not the case with the Sony CDP-497, NAD3020i, Goodmans Maxim 3 system. The bass is full and admirably extended for the minute proportions of the loudspeakers. It is not the deepest bass from a miniature but what there is, is handled with a strong degree of confidence. Treble was clear and precise yet free from any grain or other such nasties.

Also commendable about this system was the way it played music in an informative and very fluent manner. This enables listeners to enjoy the music and its detail whilst being relaxed by the performance. The baby Goodmans are fast but not hard, with pin point imagery, as would be expected from a miniature that closely mimics an ideal point source. This keeps you alert and interested,



as does its larger than life sound.

They do have a limited loudness capability - when driven hard the Maxims tend to shout and the fact that there are two units rather than one point source in each box becomes more apparent, but there really is no need to drive the cones out of the box as they do everything you could ask for up to the point of overdrive.

SYSTEM 3

This system comprises the Yamaha CDX-660, the Denon PMA350 and the Tannoy 603. Unfortunately the Yamaha is one of those players that doesn't instantly impress on first audition and many listeners will be misled by its presentation. However, if you were to live with this player for any length of time, then with a similarly priced rival, you would immediately realize just how much information it was uncovering - and probably demand it back!

The Denon and Tannoys do an excellent job of taking the neutrality and precision of the Yamaha through to the listener - they do add a little of their own character on the way, but it benefits the system as a whole. This character is one with a firm and funky bass coupled with a silk - smooth overall presentation, making the system ideal for Reggae or Jazz. Put together, these components offer a mellow quality, letting music flow



out rather than being forced out. It is not a system best described as being 'exciting', but it begs to be listened to so that it can show off the level it can resolve.

The Tannoys are best sited on stands or a rigid shelf and pointed to fire directly down the room, which is how they image best.

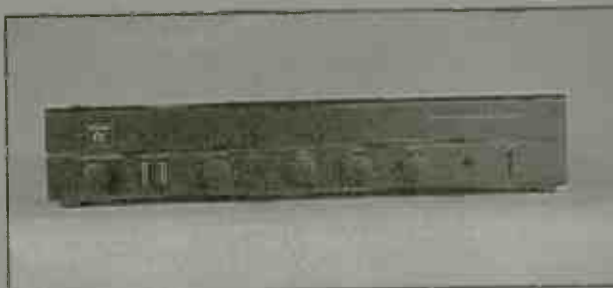
SYSTEM 4

This is the fun system of the group: the NAD 5420 CD player with its deep powerful bass and easy going top, the Arcam Alpha 3 amplifier having both power and control and the Mission 760's which love to be thrashed. This is not a licence to destroy them, but they do enjoy power.

Partly for the above reasons, and partly because of the way it stops and starts with such precise timing, this system is ideally suited to powerfully dynamic Rock or electronic music.

The speakers could best be described as 'digital sounding', although this does not imply that they are not musical as they have a sweet mid and treble.

Image quality was very good - possibly due to the vice-like control the amplifier has, eliminating any overhang which would otherwise tend to blur the soundstage.



The Missions can easily be accommodated on a bookshelf, although in these circumstances their bass output may be too pronounced.

This system demands to be played loud and you'll quickly reach maximum neighbour irritation level - but it's so much fun doing so.

SILVER SOUNDS

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SILVER SOUNDS 12/2 and 12/3

Reference Imports,
Pineridge, Theobalds
Green, Sandy Cross,
Heathfield, East sussex
TN1 8BS
Tel: (0435) 868 004

Two thoroughly spiffing cables by all accounts. Both use matching 12-gauge conductors made of multi-strand silver-plated OF copper and insulated with oodles of first rate PTFE. Both versions are very tightly wound to minimise microphony and both are screened with a silver-plated braid before being attired with a white PTFE jacket.

The cheaper 12/2 sounds similar to the DNM in many respects, particularly with its sense of space, articulation and subtle detailing. It's a little sweeter through the midband but slightly scratchy through the upper octaves. Another very natural but dynamic performer that elicited a strong reaction.

Meanwhile the 12/3 ver-

sion is easily recognised by its retractable Ensemble phonos, a socket-friendly version of the Neutrik plugs used by Moth and Chord. The 12/3 also uses an extra 12-gauge conductor for the signal path, bringing resistance down to Cogan-hall levels but bumping-up the capacitance to 385pF.

Once again, the 12/3 appeared very open, transparent and quickly detailed. However, this version was preferred for its more integrated performance. Worth the extra £35 just to get rid of this faintly scratchy quality. Heartily recommended.

Test Results

Inductance	0.52/0.30uH
Capacitance	186.3/384.7pF
Resistance	16/11 mohm
Leakage	>350/>350Mohm
Q-Factor (@ 1kHz)	>100/>100
Resonant Frequency	16.214.8MHz
Series Bandpass	4.9/5.8kHz
Price (1m terminated pair)	£95/£130

SPEAKER CABLES

SILVER SOUNDS 12/2

Reference Imports,
Pineridge, Theobalds
Green, Sandy Cross,
Heathfield, East sussex TN1
8BS
Tel: (0435) 868 004

After storming through our interconnect sessions, Silver Sounds was no less triumphant in the speaker stakes. Top-billing was given to 12/2, so called because its pair of conductors amount to 12-gauge. Inside each Teflon-coated conductor there are 19 silver-plated OF-copper strands though, judging by its high 915pF capacitance, each of these filaments must be coated with a light insulating layer.

So, in common with Audio Note's top models, it's reasonable to assume that 12/2 is a genuine Litz cable. Furthermore, 12/2 is also one of the very few speaker leads to be equipped with a braided screen, grounded, on this occasion, at the 'amp-end'. Meanwhile even the light outer jacket is ex-

truded from top quality white Teflon.

Classy conductors and a classy dielectric add up to what our listeners determined was 'a very classy cable'. Tonally accurate and exquisitely detailed, 12/2 opens a very transparent 'window' on the sound. Transients are crystal-clear, free of graininess and smearing just as vocals are rid of sibilance. We simply failed to ascribe 12/2 any intrusive 'character': a superb result and worth every penny of its £30 per metre.

Test Results

Inductance	2.85uH
Capacitance	915.4pF
Resistance	65.5mohm
Leakage	115Mohm
Q-Factor (@ 1kHz)	>100
Resonant Frequency	3.12 MHz
Series Bandpass	3.66kHz
Power Loss	0.071dB
Damping Factor	122.1
Price (5m pair)	£300

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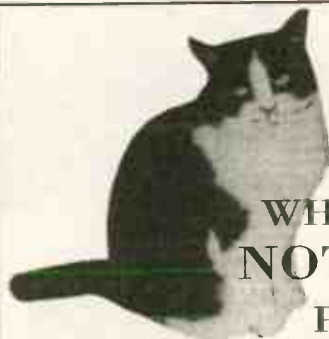
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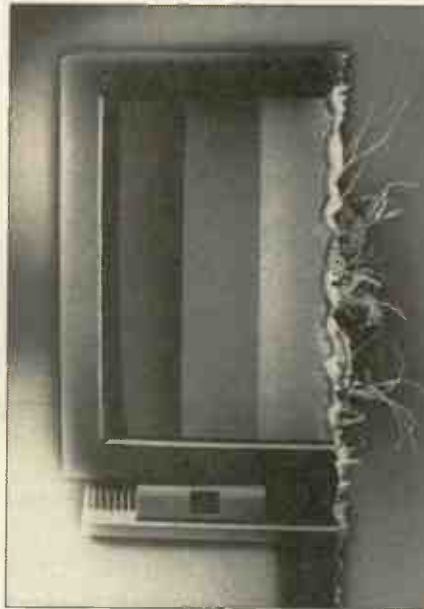
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FIRST STEPS

My system comprises the following: a Technics SLPJ25 CD player; Technics SFG55AL tuner; Dual CS430 turntable with Audio Technica AT95E cartridge; Cambridge Audio CT50 cassette deck; NAD 3225PE Amplifier and Goodmans HIM110 loudspeakers.

Looking at the above equipment, what would be your first step at upgrading, first taking into account that I only use the turntable to play my old LP's with CD as the main source?

I have a budget of around £300. Also, why have you never reviewed the HIM110's, which I find rather pleasing. Is it worth mounting these on stands or cones? Also would I notice any difference using better interconnects, if so which ones?

**Stephen Geeves,
Brixton,
London.**

You couldn't go far wrong adding a NAD5420 CD player and a pair of Maxim 3's or Celestion 1's to your current system, but if you intend to follow a path up the ladder of audiophilia then I would suggest that your first venture should consist of replacing your amplifier and buying your loudspeakers some stands.

Stands are very important to the correct operation of a loudspeaker. If the enclosure is able to move in any way, the drive unit's forward motion will produce a similar but smaller backward reaction movement



of the box. This serves to 'cancel' some of the cone's excursion, thus limiting power, bass response and precision.

Good CD players at around the £300 mark are few and far between, but the Mission DAD5 is certainly worth a listen.

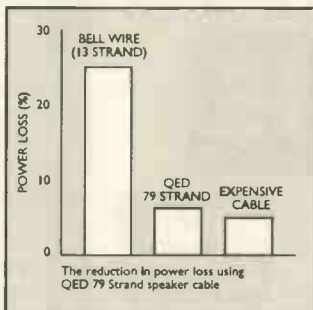
At a later date it will be beneficial to replace first the loudspeakers, followed by the amplifier. You should be thinking along the lines of Rogers LS2a2 or B&W 610 loudspeakers followed by a Cyrus I or Sugden A25B.

The law of diminishing returns applies strongly to cables and at this level I would

BUDGET QUERIES



recommend going no further than QED or the Chord Company's excellent range of cables. With both of these a



The advantage of QED loudspeaker cable.

worthwhile improvement will be obtained without spending excessive amounts of hard earned cash. **DB**

EXCITING BUT HARSH

My system consists of a Denon 860 CD player, a Pioneer A400 amp and Cyrus 781 Loudspeak-

ers bi-wired with a combination of Linn K20 and Audioquest F14 cable.

The equipment is mounted in an oak shelved cabinet on Arcam Sorbothane feet, and the speakers on Target HS16 stands. I am using the cheapest Audioquest interconnect.

I find the system very exciting, with good bass and clarity, but having lived with the system for a year I sometimes find the vocals harsh and difficult to listen to for a long period of time. There is also some problem with sibilance and I also suspect that the soundstage is not as good as it could be.

Is there any cheap solution

or should I be looking to upgrade my CD - player can you suggest a few I should audition that would be compatible with my other equipment, and that would retain the good points of my system? Would a mid-priced DAC be a better idea?

**V. G. Bullimore,
Cromer,
Norfolk.**

A look at the response curves of the other Denon models around at the time of the DCD860 suggests that it may have a lift in its treble response and thus may be accountable for the harshness you are experiencing in your system. The CD player is also the weakest link in your system which inevitably you will want to replace. However by experimenting further with interconnects and loudspeaker cables you may find a cheap solution for the time being. Even if this only satisfies you for a few months, when you do come to upgrade your CD player you will already have high quality audio cables through which the replacement CD can breathe.

I would recommend going for a solid core silver-plated cable as these tend to have a smoother, sweeter treble response than even the higher purity copper cables.

When you do decide it is necessary to change your CD player two avenues are open to you. The first being your own suggestion of adding an external DAC to your existing DCD 860. This player has a reasonable transport and would certainly benefit from a convertor such as QED's Digit which is surprisingly good value for money, or perhaps Micromega's Microdac. Having purchased one of the above, a later second stage to the source upgrade would be to add a dedicated CD transport. This again will bring about very worthwhile improvements enabling the outboard DAC to perform to its full potential.

The second path to take is to do away with your Denon

altogether and go straight for a new player. The Arcam Alpha springs to mind at once, this being a warm and fairly laid back player complete with a solid, clean sounding bass and a well focused mid-range that should complement your system extremely well.

Other models worth a listen are the Mission DAD5 and the new Musical Fidelity player, although I expect that neither of these will transform your system in quite the same way as the Arcam. **DB**

QUIET TAPE

Last year I bought a system comprising Rega 3 with Elys, Cyrus I, Yamaha KX330 and Infinity Reference 10's. I am relatively happy with it but find that when I tape from record or other source the tape is quite a bit quieter than the original source, however high I have the record level. Also, I find that if I move the Listen switch on the amp the tape record level changes, being highest on the source I am recording from.

Is this normal? Also, is it possible/advisable to change the leads from the Rega to the amp and if so can you make any suggestions?

I'm also thinking of making a kit speaker such as the IPL A2. Would they fit in with the rest of my system?

**James Varcoe,
(Address withheld.)**

Our records show Yamaha cassette decks typically give 350mV output at 0VU. As we have found in the past, when switching to a source with this output level volume will fall. In comparison, CD gives 2V output - no less than +15dB louder. You wouldn't be able to make up this difference by increasing record level, nor should you do so of course, since record level is limited by the tape and the tape head.

It would appear that there is no problem, just greatly differing output levels.

However, we are a bit baffled by your assertion that the level is highest when you have the Listen and Record switches on the same input. After conferring with Mission about your tape recording problems they pointed out that when you purchased the amplifier it came with a two year warranty. Therefore, if you return it to the Hi-Fi dealer from whom it was bought, Mission will be glad to sort out any problems, if they exist.

Continued from page 113



On your question of changing the turntable leads. Yes, it is possible, but no it certainly is not advisable for you to try it yourself. A few companies will do this for you, offering higher quality cable and an improvement in sound, Lynwood Audio being one of them, but at a price comparable to that of a new arm.

We have not yet heard the IPL A2 loudspeakers but judging by the units used I would expect it to have a clean and detailed top end owing to the ribbon tweeter and a quite hard firm bass quality, being tuneful and tight. If I am correct in my judgement they should suit your system well. However, please do not buy them on what I have said alone. These are only educated predictions about the sound they may produce and I would suggest that you try to borrow a demo pair from IPL before committing yourself. **DB**

NOVICE

My hi-fi consists of a Pioneer A443 amp, Aiwa XC-002 CD, Aiwa AD F700 tape, Aiwa AD WX333 tape, Denon TU260L tuner and Marantz EQ55 I graphic and TTI 85 record deck. My speakers are a set of Mission 763s and a set of Pioneer CS995s.

I would like to upgrade my system as I am not entirely happy with the sound of it. Do you have any suggestions as to how I could beef it up a bit without spending too much money? Would good quality cables make much of a difference or should I just start from scratch.

I am happy enough with the Aiwa ADF700, the Denon tuner and my Mission loudspeakers and would like to hold on to these if possible.

Also, could you tell me where I could get a reasonably priced outside FM aerial for my Denon as I think this may improve my reception a bit.

As you can probably tell, I am a total novice and I would really be very grateful for any advice you could give me.

Hugh Gregory,
County Antrim,
N. Ireland.

I notice you own a graphic equalizer. This is a cardinal sin amongst audiophiles for a very simple reason: they will make your system sound worse than it really is. The reasoning goes something like this. Every additional circuit, cable, switch, filter etc. that the signal has to go through before it reaches the loudspeakers will add its own additional percentage of distortion to that initially clean signal. The result is loss of information, clarity and a general loss in quality as the signal passes through the system. For this reason many hi-fi manufacturers have taken simplicity to the extreme with no more than a volume control and a selector switch directing the signal through the amplifier. So basically the message is to keep it as simple as possible.

Using high quality cables in your system will make a

there appears to be a hilly region, hence the presence of the Carnmoney Hill relay station right behind you (i.e. North), which transmits at just 20watts. We might be wrong: Carnmoney hill at this low power might be a local 'fill-in' transmitter serving a small dead spot, which you may or may not be in.

Look at the local aerials. If they point North, we're right; if they point South West then powerful Divis is your local transmitter. Being but a few miles from Divis you'll need only a two or three element aerial, possibly in the loft, to get a strong signal. Carnmoney Hill might be more difficult, unless it is very close. With a bit of research you should be able to work out what size of aerial is needed and which way to point it, or you could get an aerial erector in. **DB**



difference, but I suspect it will be a more subtle change than the one you are looking for. I would strongly suggest ringing a hi-fi dealer with the view to taking your Mission 763s along to a demonstration. Here, a number of CD players and amplifiers could be compared until you find the system that best suits your own personal taste. As a rough guide-line, CD players like the Sony CDP-491 and the excellent Technics SL-PG500 should be auditioned with amplifiers like the Harman Kardon 6150, Mission Cyrus I or Denon PMA-350.

These can all be fine tuned with high quality interconnect and loudspeaker cables from the Chord Company and Monster until the system is sounding at its best.

Our maps tell us that between you and the nearby Divis transmitter (250kW)

FRUSTRATED AUDIOPHILE

I am writing to you as a person who would like to be an audiophile but cannot afford to be one. I really enjoy Hi-Fi World but unfortunately I feel frustrated while reading about other people's systems and have to lock away my credit card for fear of losing myself!

My meagre system consists of a Philips CD371 CD player, a TEAC A-X75 amplifier and a pair of JBL TLX-9GI speakers. I recently bought a TEAC T-X3000 tuner on your recommendation and am very pleased with it. I also splashed out on some expensive (by my standards!) speaker cable and interconnects and was pleasantly surprised, even relieved, that I noticed a difference.

While I am very pleased with my sound, I find that the more I read, the more I look for faults in

my system. I wonder, while reading your letters, is there a point where one stops listening to the music and begins listening to the system? I am wary of upgrading for fear of hearing no appreciable difference, having spent my hundreds of hard earned pounds.

You never review JBL speakers. Is there anything wrong with them?

Donagh McInerney,
Dublin,
Republic of Ireland.

It is a good point that many people seem more interested in the hi-fi than the music they are playing on it. To illustrate this I will mention one particular gentleman I have met who is the proud owner of in excess of £3000 worth of state-of-the-art equipment and a record collection of seven albums.

Luckily for you it is us, the reviewers, who have the daunting (?) task of listening to hi-fi all day, so that the readers can go and buy something that will let them hear the music.

You will get more enjoyment out of your system playing the new CD you've just purchased, than the majority of people who write in more concerned about which piece of hi-fi to buy next than whose album should be next on their list.

An upgrade to your system would improve it, enabling more of your favourite music to be heard, but until you can comfortably afford to do so, stick to enlarging your CD collection and entering our competitions.

Remember that the best things come to those who wait! **DB**

But, if you don't want to wait, a simple yet inexpensive improvement would be to ensure the Teac is getting a strong enough signal from the aerial. If you hear hiss behind the main stations, it needs it. You'll be surprised at how much a tuner improves in sound quality.

JBL professional speakers are excellent, but the budget models are less successful. Listen to a pair of Mission 760i or 761i speakers next; they'll give you solid bass but a smoother and more integrated sound over the rest of the range. And don't worry about enjoying music! **NK**

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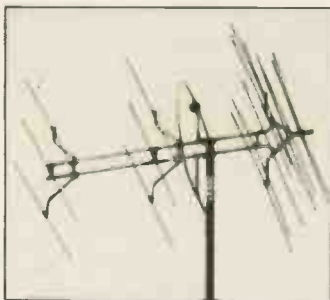
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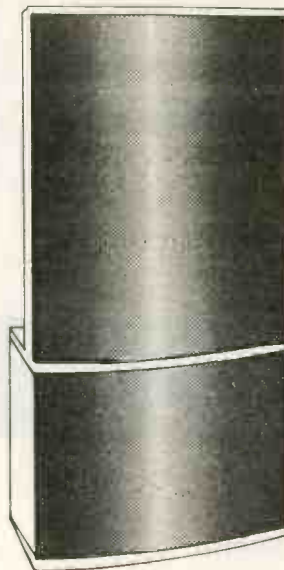
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not parted easily from their speakers
when looking for an upgrade path. If

you like the sound they give where can you go for improvement? Up to now there hasn't been much on offer, but Gradient (the Finnish distributors for Quad) have come up with a sub-woofer system (model SW63) to give extra bass extension that many ESL 63 owners would regard as the only real shortcoming of the speaker. If you want to know more you don't need to take our word for it, just read on for independent opinion.

HI-FI NEWS - MARCH 1992 said in conclusion....

The Gradient woofer has not transformed the ESL 63 - rather it has released it from restrictions determined by a need to make the standard speaker a full-range device. With the SW63 the electrostatic blossoms into a true high end speaker of such integrity and ability that no sensible criticisms are worth voicing. This is a most graceful performer which again shows the fundamental quality of Peter Walker's marvellous creation. It comes strongly recommended.

I can think of no better upgrade path for a '63 owner with ambitions, while as an all-in-one purchase the high review rating equally applies.

TESTIMONIALS FROM SATISFIED OWNERS

Dr. Robson of Manchester

"Put simply, the Gradient sub woofers improve the sound of the Quad ESL 63's... the bass is perfectly integrated and the crossover point is not audible."

Mr. Davidson of Co. Durham

"It really is a delight to listen to this combination of ESL 63's and SW 63's. The music seems to be more solid and I find the imaging properties of the Quads are enhanced. The extended bass is a boon when listening to large orchestral and organ works, yet the treble is clearer. Altogether a most successful marriage."

Mr. Tyler of Basingstoke

"With the SW 63's raising the Quad ESL 63's some 15 inches from the floor, the effect is to create an excellent tonal balance with a truly authoritative firm bass combined with an opening up of the sound which is wholly beneficial... the results are really beyond criticism over a whole range of material."

Mr. Hastings of Oxfordshire

"The subwoofers and crossover have clearly been designed by somebody who knew and loved the ESL 63's. The upgrade is more sympathetic to the original than any previous attempts... the speed and dynamics of the system as a whole should open up a new market for Quad among lovers of pop music and jazz."

Demonstrations are available by appointment - so come and listen for yourself! A full literature pack is available on request.

(K.J. West One are sole U.K. distributors for the Gradient SW 63 Subwoofer System which is authorised by Quad as an acceptable add-on to the ESL 63 System)



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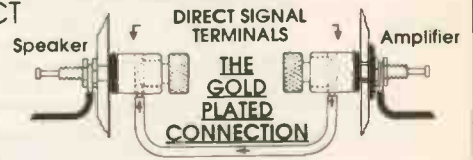
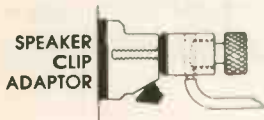
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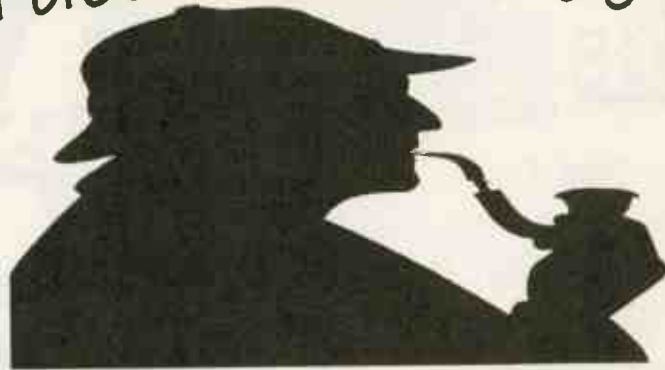
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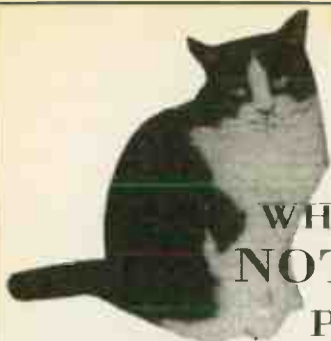
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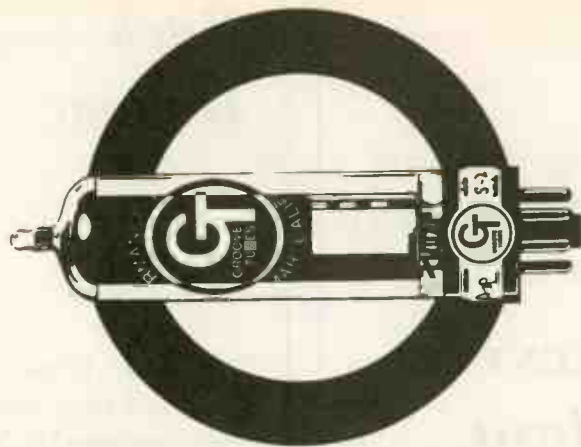
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DM600 High Fidelity July 1991:

"DM600. Five stars out of five for sound quality ... the DM600s delivered a meaty wallop ... soundstage is crisply focused, their sense of timing is spot-on. These are energetic, dynamic speakers, and they'll go very loud without distorting ... their clarity is never lost."

DM600 Complete CD & Hi-fi Buyer Sept 1991 Best Buy:

"The result is one of the most detailed musically 'alive' small speakers around ... In short, the DM600 is a winner and can move right to the top of the class ... a certain 'best buy' and something for its rivals to think about."

DM610 What Hi-fi Sept 1991:

"... raw honesty and clarity ... Dynamics were forcefully presented and bass depth and power were equally excellent ... the 610 does have good timing ... the DM610 is a finely engineered product and well worth the very reasonable price demanded ..."

DM610 Hi-fi World Sept 1991:

"... The B&W's overall balance of virtues places it well ahead of the field. Strengths are its articulate and confident delivery, excellent finish and deep, tactile bass ... by unanimous consent the clear winner. ... Track after track we couldn't catch them out. Their combination of refinement, energy, life and articulation seemed to get the best out of every kind of music we played ... B&W have done their sums and got them right in a fairly spectacular fashion."

DM620 Hi-fi Choice May 1991 Best Buy:

"... remarkably well balanced and surprisingly smooth ... an impressive performer in many ways ... unusually well focused stereo ... a fine cost-effective all-round performer with wide general appeal."

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