We have decided to offer a range of the most popular component sizes used on the Audio Note amplifiers to the discerning "do-it-yourself" amplifier constructor. The components include specially made valve bases, paper or wire, silver caps, copper & silver caps, electrolytic capacitors, non-polarized electrolytic capacitors, film capacitors, silver foil signal capacitors, and various other useful bits and bobs for upgrading old or existing amplifier designs.

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If you have any questions, we are happy to help. Our service is second to none. Please do not send a US$ 10.00 bill will do, please do not send any books which contain information relevant to future projects around, then we shall be happy to provide you with a circuit pack containing good circuits. If you would like some suggestions to base a future project on, then we shall be happy to provide you with a circuit pack containing good circuits.

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We do not give any further technical information on our output transformers, as we do not wish to see them as a technical instrument. We are happy to accept any inquiries which come to light or as a result of our many years of experience. We do not condone the use of UL tapes, as we do not wish to see them as a technical instrument. We are happy to accept any inquiries which come to light or as a result of our many years of experience.

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black gate capacitors are extremely solid and reliable, and are especially sensitive to supply voltage and load, and are therefore the ideal choice for use in high quality amplifiers. They are available in black or red, but the black version is recommended for use in high voltage circuits. The red version is available for use in low voltage circuits.

transport capacitors are used in high quality amplifiers, and are available in black or red. The black version is recommended for use in high voltage circuits, while the red version is available for use in low voltage circuits.

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If you are worried about buying an album as a gift for someone, in case they already have it, try this special high quality audiophile recording from Chesky. The Collection contains 16 tracks of various artists including classics from John Pizzarelli, Laverne Butler and the Westminster Choir. A great introduction to the broad range of music featured on Chesky Records at an amazing £9.50.

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Hi-Fi WORLD INTERCONNECTS AND SCREENED MAINS CABLES.
As it’s Christmas, and we know what an expensive time of year it can be, we’ve decided to slash the price of our own interconnects and Campaign Audio Design’s screened mains cables by 20%. We can afford to do this for one month only, so get your orders in by the 1st January ’94 and save a fortune.

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We can not guarantee delivery before Christmas due to the postal rush and limited availability of some products advertised. All offers are subject to availability, please phone 071 266 0461 for further details.
Christmas, of course, is a time for turkeys, and they aren't all of the plucked and roasted variety. So, to guide you through the present-buying frenzy which accompanies Christmas, we've compiled a supplement full to bursting with Christmas gift ideas for your loved ones, or even yourself!

THE PUZZLES PAGE 5
It's right here. Bone up on all the best names in hi-fi, with our word-search and crossword. Can you find more than thirty words?

INTERCONNECTS 7
Everything you ever wanted to know about the best cables to connect your components. Which are copper, which silver? What colours do they come in, and are they suitable for use in place of tinsel on the tree?

LOUDSPEAKER CABLES 9
What's what in the way of connecting your system and speakers. Find out which cable does what for your system's sound, and which cables are suitable for weaving together into streamers for decorating the hall for that all-important impromptu Christmas party!

CD, RECORD AND TAPE CLEANERS 10
Eventually, the hectic party season will be over, and the time will come to assess and rectify the damage to your beloved software.

Don't despair! We have a page of the very best cleaners available to bring your records, tapes, and CDs back from the brink, no matter what they've been used for during the revelry.

HEADPHONES TEST 13
Yes, winter's here. You can tell by the way everybody puts away their in-ear headphones and gets out the bigger 'earwarmer' type to stop their ears freezing while they boogie down the street. We review a few of the latest pairs from Sennheiser and Beyer, and there's also a pair of cordless 'phones from Vwanco.

EQUIPMENT STANDS 14
Is your hi-fi shivering with the winter's chill? Or is it just suffering from vibration? Any vibration can compromise the performance of your system, so we've got a few words to say on the subject of equipment isolation, and what's worthwhile in the market at the moment.

Hi-Fi World's Christmas Crossword

ACROSS
1. First among Cambridgeshire amplifiers and CD players. (5)
4. Big name, big amps, from the forbidden planet. (5)
7. Where you might go for tools to build a kit loudspeaker. (3)
9. See 3 down. (2)
10. Thirteen could be dangerous, but one is essential for a hi-fi system. (3)
11. No sound? Try changing to this position. (2)
12. A new acoustic dimension. (3)
14. A little thing, but their own. (4)
15. This company may employ old technology, but its employees travel to work by tube, alcohol free. (2)
16. Mike will never be without a paddle while designing amplifiers, tuners and DACs. (5)

DOWN
1. Type of music developed and recorded by a man who's had a dose of salts after watching a Python film. (7)
2. Founded by Sidney, now seen on the LS 0300 loudspeakers. (2)
3. A man who signs up the band, or, alternatively, the U.S. company that created a legend. (2)
5. At least one needed for serious listening, especially if made by Tim de Paravicini. (3)
6. English power to the Scot's turntable. (5)
8. A Huntingdon hi-fi company, much longer-lived than the early surround-sound system which shared its name. (4)
9. The record company that began with a fabulous core of four. (5)
11. See 11 across. (2)
13. No need to telegraph to Leeds for accessories or cartridges from this company. (2)

Hi-Fi World's Christmas Crossword

S O U N D S T A G E X S M E V D R
T R E B L E T S P G O O D M A N S
U T Z P R E S E N C E T E R A O T
R O C K E F S M R R T A E I U N C
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M I S S I O N A I M I A N T O I N
H L G J W F H G T N B T M A A C A
R M U S I C A L C A G R R Y S A L
T D K S R D S E H A L C L I X L O
S H U R E P G A R R A D I O F G
A E S O T E R I C M G V H W N D U
H I F I W O R L D M A G A Z I N E
Well, that's partly true, it is one of the best products around but as for expensive, well - that's just not us. At the Chord Company we like to offer value for money and that means not bumping up the price to cover slinky packs and expensive marketing. We believe in quality and service and by quality we mean something that SOUNDS right, not something that just looks expensive. That's why - we didn't wait for the single European market, we've sold to the single world market for the past seven years exporting worldwide. Send off the coupon below for a full list of suppliers or call us, you will find us helpful and receptive.

To obtain the best from any hi-fi the connections between the components play an important part. We specialise in Hi-Fi and Audio Visual connections. We can also tailor-make any cable to your requirements. Our products are British made - hand built - to a high standard - fully guaranteed - reliable - using quality components. We are consistently recommended and used by leading British manufacturers and Hi-Fi dealers. All these things imply that it is the best product around and the most expensive.

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2) Monster Interlink 400 £39.95
For the more serious audiophile, but still one with a budget to adhere to. This cable is constructed from two cores, one for high and one for low frequencies. Very good value.
Tel: 0908 317101

3) Naim NA-06 Interconnect £44.69
Standard 5-pin DIN terminated interconnects especially for use with Naim amplifiers.
Tel: 0122 332266

4) Naim Snake Interconnect £44.65
A much thicker and higher quality version of the standard interconnect, an ideal upgrade for those with Naim systems.

5) Campaign Audio Design Connoisseur S £28
Campaign Audio Design have a huge range of excellent cables at very reasonable prices. This one is a high quality screened silver plated copper cable and offers superb value.
Tel: 0222 719401

6) Linn Analogue Interconnect £38/1.2m length
Flexible and directional, Linn’s analogue interconnect offers excellent value for money, even in a non-Linn based system.
Tel: 041 6445111

7) The Chord Company from £25
These are a cheap upgrade to supplied “patch chords”. The Chord Co. will make up any cable to order.
Tel: 0122 331674

8) Furukawa PCOCC £95/0.8m length
A long time favourite of ours, but recent price increase compromises value. Worth seeking out, but likely to become extinct shortly.

9) Oreille VIS IC100 £19.95/0.8m length
This is a very flexible oxygen free cable with gold plated phono plugs. It has a clean sound with an open treble.
Tel: 081 8109388

10) XL0 Reference £215
These brightly coloured directional interconnects give a well focused and detailed sound that justifies the price.
Tel: 0602 284147

11) van den Hul The First £179.99
van den Hul’s first ‘metal free cable’ using Linear Structured Carbon signal wire. The absence of metal in the signal path gives a smooth and detailed sound.

12) Monster Interlink 200 £19.95
This is intended to be a cheap, but high quality alternative to the standard “patch chords” supplied with equipment. It is a balanced construction cable with 24K gold plated phono plugs.

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Stocking fitters from £15 - £275, as recommended by Dominic Baker.
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(1) van den Hul Snowline £3.49/m
Snowline is a stranded cable in a white flexible casing with a smooth and refined sound.
Tel: 0622 721636

(2) van den Hul The Clearwater £4.99/m
This very pretty halogen free cable is flexible and has a wide centre strip allowing it to be tucked in place.

(3) van den Hul CS I 22 £3.49/m
A mucky cream colour, this cable has a powerful bass and a bright treble.

(4) van den Hul D352 £14.99/m
252 strands of silver plated oxygen free cable make this a very high specification cable. A sweet treble and clear midrange characterize it.

(5) van den Hul Snowtrack £2.99/m
Snowtrack is a bi-wire version of Snowline, with a pair of conductors for bass and a pair for treble.

(6) Ortofon SPK100 £5.50/m
Even though this is the bottom of the range Ortofon 'speaker cable it still features 260 strands of six-9s copper.
Tel: 0573 8998949

(7) QUAD QLSFZ £3.50/m
Quad's first ever cable is a copper stranded affair with a sensible price tag - would you expect anything else from Quad? Its flat profile allows it to be hidden under carpets.

(8) Kelvin Audio Cables K80 £1.20/m
80 strands of 0.2mm high grade copper are used in the construction of K80. It is a good upgrade from the thinner cable supplied with equipment.
Tel: 0355 226522

(9) Ortofon SPK300 £7.50/m
The top of the range cable from Ortofon uses 7x13 strand cores of 99.9999% copper which are enamelled to prevent oxidation. A powerful soldering iron is required to melt the enamel before they can be soldered to plugs.

(10) Ortofon SPK100 £5/m
This is a bi-wire speaker cable using SPK100 on the outside for the treble and 390 strands of 99.9999% pure copper for the bass. It has an even tonal balance making it ideal for well sorted systems.

(11) Kelvin Audio Cables K120 £2.40/m
56 strands of high quality heavy gauge copper give this cable a heavy bass, ideal for budget systems.

(12) Kelvin Audio Cables K19 £4/m
This is a heavy, high current cable with an electric blue sleeving. Should add some weight to bass light systems.

(13) Nairn Loudspeaker Cable £4.35/m + £1.85 each for dual banana plugs.
A must for Naim amplifiers.
Tel: 0722 332266

(14) XLO Reference Type 6 £124/m + £50 termination charge.
A stiff cable that needs heavy terminals to hold it in place. Powerful and open sound with excellent focus.
Tel: 0602 284147

(15) Monster XP £1.50/m
The thin, flat cross section makes this cable ideal for those who want their cables to be hidden out of sight. It has a light and open sound.
Tel: 0908 317707

(16) Campaign Audio Design SCL1000 £8/m, SCL500 £4/m + £1.95 each for plugs.
These two cables are intended to be used together, the thinner one for the treble and the thicker for the bass. Both are constructed using silver plated copper.
Tel: 0222 774001

(17) Monster Powerline 2+ £153/m
Powerline 2+ could easily be mistaken for a hosepipe. Although it has a massive cross section, it is quite flexible and gives bass real slam and dynamics.
So - all ready for the spring cleaning? It ought to be a regular chore - funny how a hi-fi New Man's housework is never done. Nary a duff accessory here and all well worth a quick missive to the chap in a red suit and a white pom-pom on his hat.

CD CLEANERS

AUDIO-TECHNICA AT6708 CD LENS CLEANER
PRICE £16.25
A neat little device, basically a CD with a ring of tiny brushes round the inner circumference. A drop of liquid from the brush in the fluid bottle is transferred to one marked with an arrow on the disc, which is then inserted into the drawer of the CD player. Press Play, and Bob's your uncle.

At least, mostly. I had no difficulty with it on CD4, CD9 and an old top-loader, but Rotels appear not to appreciate it for some reason. Otherwise, it does what it claims, which is a boon for smokers and those who have CD players with hidden laser heads which are otherwise uncleanable.

Only one snag, apart from the one already mentioned; I didn't put the cap back on the bottle firmly enough and spilt half the liquid. By the way, it plays a few bars of a guitar arrangement of 'Yesterday' while it works, a considerable improvement on the original MOR nasty. That is, on most players, or unless you turn the sound off.

AUDIOQUEST LASERGUIDE
PRICE £14.95
Not a CD cleaner, but a treatment. I was turned on to this, despite considerable initial scepticism, by Bill Lowe of AudioQuest a couple of Penta Shows ago. Used sparingly, sprayed onto a lint-free cloth and then rubbed radially over a CD it does add a degree of clarity and 'cooler' definition to the sound. Some discs treated two years ago have shown no appreciable deterioration or damage - one is used regularly as a test disc for used in Scotland Yard's files. The result was indeed a cleaner-edged sound. Though no-one in their right minds would use a CD as a jam sandwich, as suggested when they first came on the market, a liberal sun-dried application of sugary coffee, alcohol and cigarette ash proved more tasking. It required two cleans and a further polish with a duster, even then leaving marks and some radial scratches behind. Moral: have a Sober CD Replacer standing by at the party before anything as bad as that happens.

RECORD CLEANERS

AUDIO-TECHNICA AT6012 RECORD CLEANING KIT
PRICE £10.50
Comprising an elegantly-shaped plastic holder with a curved velvet pad and a bottle of cleaning fluid, Audio-Technica's Record Cleaning Kit surprised me. For years I've resolutely stuck to a dry carbon-fibre brush. This, however is a good deal more effective than the velvet dusters record shops used to sell when vinyl meant music and not floor coverings. A gentle rocking motion as it's swept over the record really does lift off the dust. With a couple of drops of fluid through the filler holes in the handgrip of the Sonic Broom (honest, it's printed on the side!) a particularly dusty copy of The Orb responded well to treatment. Far fewer crackles and pops gave the LP a much more pristine and refreshed, slightly brighter and clearer sound. It can be used dry, a good idea for all but stubborn marks.

The only drawback was that one dry twirl round the LP cleaned the outer edge more effectively than the inner tracks. Two or three goes are required sometimes, but this new broom swept cleaner than I would have believed. Unfortunately it looks set to join other...
vinyl-related species in the great Jurassic Park in the sky, in the not-too-distant future.

PIXALL MARK II RECORD CLEANER
PRICE £10.75 (REFILL £2.75)
I must have been one of the original purchasers of a Pixall, so long ago I can't remember when. Since the first version it's become more trendy black plastic, the roller of sticky tape (bearing a close relationship to masking tape) less fat. It now comes with a drop-down rest so it doesn't glue itself to the sideboard when you put it down. It clings to the vinyl with some ferocity, which means a record cannot be cleaned while on the turntable, but that means dust and dog hairs stay stuck to the sticky tape equally firmly.

Stylistic Cleaners
Before we abandon vinyl like the record shops, there will be a short silence to mourn the demise of the most effective stylus cleaner around. This was the electronic affair - a gently vibrating pad on which the stylus was placed. Alas, though Audio-Technica intended to re-introduce it in October, it appears that the tooling cannot be re-made. Anyone who has a spare one - Goldring also made one, but this too is now defunct - can now probably expect to sell it for its weight in gold - be warned!

Cassette Deck Cleaners
MILTY MAGNETT IX CASSette DE-MAGNETIZER
PRICE £9.99
One of the regular chores involved in using a cassette deck should be de-magnetizing the heads after every thirty hours or so, but it's one few people take on regularly. As a cassette is played, the heads build up a magnetic charge which interferes with their ability to 'read' the tape. The most noticeable effect is a loss of high frequencies and an increase in background noise - something too many cassette owners take for granted as natural wear and tear.

Inside a standard clear plastic cassette shell the Magnet IX fits in a watch-battery powered electronic circuit which delivers a 1kHz DC signal to the head. It's essential - since most cassette decks these days are microprocessor controlled and must be powered up to function - that either the amplifier or the cassette deck's own volume output must be turned down, or it will be 'speaker frying' time.

What can be said except that the Milty demagnetizer works! On a Nakamichi BX2, lately used a good deal, transients on a Metal tape recording emerged cleaner, with more sparkle. Noise was certainly reduced, allowing the recorded ambience to show through more, and allow the individual performers a little more space and air. A red LED shows it's working - it takes a fraction of a second - and Stop should be pressed after you see the Record Level swoop up to the top of the display and back down again. Highly recommended, but for one snag. If you have a discrete three-head player, this design will only demagnetize the playback head. For these users there is still no alternative but the hand-held 'gun' type which is becoming increasingly difficult to find - and expensive.

MILTY TRIPLE A AUTOMATIC CASSETTE DECK CLEANING SYSTEM
PRICE £6.50 (TWO REPLACEMENT CARTRIDGES AND BOTTLE OF CLEANING FLUID £3.99)
A neat device enclosing red plastic gears and wheels in a standard clear plastic cassette shell which waggles two sprung felt pads which are shaped to sweep over the curved profile of the erase and record heads. Static pads clean capstan and pinch wheels, a drop of the supplied cleaning fluid squeezed over each pad.

No wonder a mechanical arrangement like this is called a 'gear train'. It chunter along making a noise just like an early locomotive on the Stockton and Darlington railway. It takes around ten to twenty seconds to clean the heads and rollers, but it tempts the child in everyone to watch it trundling round rather longer. It cleaned my two-head Nakamichi very effectively, including the capstan wheel, which after applying Milty's Locomotion Number One looked brand new. Although the felt pads looked distinctly grubby after only two passes, the replacement mechanism including pads is economical. At this price, a real bargain.

Again, alas, there's one snag. This device won't clean the record head on discrete three-head decks. Like the demagnetizer, it's for two-head decks or ones where the record/playback heads are 'siamesed', i.e. merged together in one block. For those with discrete three-head players it's back to the old manual cotton-bud and finger method. A good example of which is . . .

TDK HEAD CLEANING KIT CK-A1
PRICE £5.50
Nothing mechanical about this system, just old-fashioned elbow-grease. Two generously-sized (by comparison with the Milty Triple A) bottles of cleaning fluid are supplied along with fifteen cotton buds. One fluid is for cleaning the heads and metal parts, the other for the rubber pinch wheels.

A squirt of liquid, a gentle rubbing motion, and it's surprising how much muck comes off both heads, but more especially the pinch wheel, even after only a few hours of tape usage. The effects of proper head cleaning are not dissimilar to de-magnetization and the two should be done in tandem. A sparking head means - or should - a sparking treble.

TDK's cotton buds have a pointed tip for the more inaccessible parts at one end and a rounded tip at the other. Ideally, one should be used for the heads and another for the pinch wheel to avoid the fluids being applied wrongly. The pack allows for seven-and-a-half operations, though the fluid bottles do last for a good year or so in my experience. Replacement buds come from the local chemist.
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Naturally.

HD 580
Top of the range dynamic headphone using new duofol diaphragm which virtually eliminates sound colouration.

HD 320
Part of the new generation of dynamic hi-fi stereo headphones, the HD 320 has ergonomic styling with a sound quality that is designed to optimise transparency and clarity, whilst ensuring a strong bass definition.

HD 560 II
"A detailed and open headphone with the ability to recreate the power and depth in a piece of music." Hi-Fi Choice Oct 91.

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It's no coincidence that Sennheiser headphones are acclaimed again and again in the hi-fi press.
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With accurate, detailed response and rich pure tone, recreate the eloquence of the instruments, the vitality of the vocals. Whatever your taste in music you'll appreciate the transparent natural sound quality, balanced by a wide dynamic range.
Now prove it. Try out our headphones for yourself.
You'll be convinced. Naturally.

HD 340
A headphone which produces a roomy and detailed sound whilst incorporating high quality in its design making it lightweight and comfortable to wear.

SENNHEISER

Sennheiser UK Ltd, Freepost, Loudwater, High Wycombe, Buckinghamshire, HP10 8BR. Telephone 0628 850811. Fax 0628 850958
On Steve Earl's 'Copperhead Road' album, relaxing, a good after-work wind down.

They have no than conventional 'speakers I suppose. They seem to drive your ears so much better than a pair of loudspeakers, in a similar way that horns drive a room better than conventional 'speakers I suppose.

The general character of the '320s is soft and undemanding with a heavy bass and a slightly thick sound. They have no real speed or upper mid punch, but are relaxing, a good after-work wind down.

On Steve Earl's 'Copperhead Road' album, the title track's methodic drum line was allowed to linger a little too long, decaying slowly in comparison to the shorter crack normally played. I initially found the treble a little dull, but turning the bass down to -3 on the Audiolab gave a much more even balance, and the mid and treble a better chance to compete.

With the Lemon Trees the light bass on the recording suited the '320s much better, in fact the bass prominence of the 'phones helped balance the recording, giving it a bit of 'welly', if not attack. The bass still needed attenuating, but to not to the same extent, and the vocal harmonies came across beautifully.

We have decided to take a look at four new pairs of headphones on the market ranging from £40 to £120 (a small price to pay to silence those relatives who insist on listening to Christmas singles throughout the festive season).

**Sennheiser HD320 £39.95**

The HD320s are modern, stylish looking headphones constructed from strong grey plastic with bright red foam stripes visible from the side. The cable is connected to one side only, which I have always preferred; much less likely to tangle those relatives who insist on listening to Christmas singles throughout the festive season.

**Beyerdynamic DT 331 £49.95**

Beyer's latest 'phones are open designs with large circular ear cushions. These are normally more comfortable than those that rest directly on the ear, which can make listening hot and uncomfortable. I initially found them a little dull, but turning the bass down to -3 on the Audiolab gave a much more even balance, and the mid and treble a better chance to compete.

With the Lemon Trees the light bass on the recording suited the '320s much better, in fact the bass prominence of the 'phones helped balance the recording, giving it a bit of 'welly', if not attack. The bass still needed attenuating, but to not to the same extent, and the vocal harmonies came across beautifully.

**Beyerdynamic DT 431 £69.95**

The DT 431s are a crisp and detailed sounding pair of headphones. They are lively and punchy to listen to with plenty of slam and attack. On 'Copperhead Road' they played the bass drum with more snap than the cheaper Sennheisers, and with the Lemon Trees they were clearer and gave an impression of a wider, more spacious soundstage. In fact they were good enough to reveal the crudity of the mix on 'Child of Love' which has a haphazardly panned keyboard effect throughout it. The only gripe would be the slightly sharp treble; this gives a clear, well focused sound, but can become a bit too much with some albums.

**Vivanco IR 9001 S £119.19**

These are infra-red headphones, ones that receive music from a transmitter. The transmitter is plugged into a headphone socket and powered up with a small plug-in power supply. The headphones have an infra-red receiver and are powered by two AA size batteries which fit into small capsules by each ear.

The Vivanco's claim to have a range of 10m and a usable transmission angle of 110 degrees. However in practice the signal bounces around a room, and I found that I could actually stand behind the transmitter and still receive the signal clearly.

However the signal is 'line-of-sight' only, so even within 10m it can't be received from behind a door. Even so, I found them incredibly useful. If you are reading, or just sitting back and relaxing, you can lift a cup of coffee to your mouth without getting tangled up and scolded.

The sound quality of the Vivancos wasn't especially spectacular, having a similar balance to that of the Sennheisers. But what you are paying for here is convenience, and they certainly steal that award.

Tel: 0273 479411

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**Ear Warmers**

Dominic Baker goes back to his roots, and enjoys auditioning four new pairs of headphones.

I've always liked music played through headphones, in fact as a teenager I listened to nothing else but a Sony Walkman Pro through a pair of Sennheiser HD40s. They have the ability to really show what a stereo signal is capable of, sounds can go through or around your head in a way that no loudspeaker system could ever match.

Perhaps my fascination with headphones is what eventually led me to Quad's electrostatics, as they are the only 'speaker that rest directly on the ear, which can be helpful to those who find listening hot and uncomfortable. Beyer claim a high spec. for both of their new headphones, including oxygen-free cable and gold plated jacks.

**Beyer's latest 'phones are open designs with large circular ear cushions. These are normally more comfortable than those that rest directly on the ear, which can make listening hot and uncomfortable. Beyer claim a high spec. for both of their new headphones, including oxygen-free cable and gold plated jacks.**

**The DT 33 Is are a crisp and detailed sounding pair of headphones. They are lively and punchy to listen to with plenty of slam and attack. On 'Copperhead Road' they played the bass drum with more snap than the cheaper Sennheisers, and with the Lemon Trees they were clearer and gave an impression of a wider, more expansive soundstage. In fact they were good enough to reveal the crudity of the mix on 'Child of Love' which has a haphazardly panned keyboard effect throughout it. The only gripe would be the slightly sharp treble; this gives a clear, well focused sound, but can become a bit too much with some albums.**

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STANDING FIRM

Equipment stands not only keep a system tidy and off the floor, but they improve its performance as well. Loudspeaker stands hold a 'speaker firm in relation to the room, allowing it to more efficiently transfer its energy into sound. And equipment racks prevent any vibration that may cause tracking problems with CD players or record decks. So if you're fed up with the mess on the floor, try some of the following supports.

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'Speaker stands provide solid support for the 'speakers, and should be given precedence over other equipment supports. They allow the 'speakers to function properly, improving both bass definition and midrange clarity. Box colourations are also reduced by the stand sinking energy into the floor.
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APOLLO ARIA
Apollo’s Aria system, on first sight, appears to be a standard, four leg, equipment shelf with either MDF or tinted glass shelves. However, on closer inspection it turns out to be an extremely versatile modular system offering three different width shelves. The three different shelves can be inter-linked together sharing a common upright between them. So a wide Garrard 401 could be placed next to a narrow mid- system and a normal sized TV/video, all on the same rack.
If you are looking to save space, have equipment that varies in size, and want something stylish, the Apollo Aria is ideal. The Aria system is available from most good hi-fi dealers.
Tel: 021 5205070

AUDIOPHILE BASE SYSTEM
More expensive, but more comprehensive, is the Audiophile Base equipment rack. The Audiophile system uses a modular tripod stand, complete with six useful cable guides which separate mains and signal cables, and special Sorbothane isolated shelves. The Base isolation shelves can also be added to any existing equipment rack as an upgrade to the standard supplied shelves.
The stand is sold as separate modules which lock together, costing £65 for the basic starter module, and then £50 for each 120mm unit thereafter, £55 for a 170mm unit, and £60 for a 270mm unit. A five-shelf rack will cost £265 without the Base isolation platforms. Two sizes of isolation platforms are available, 430x360mm at £65 and 525x425mm for £90.
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Eric Braithwaite positions himself in front of Sugden's new A21a Class A amplifier, and takes off his flat 'at to its civilized performance.

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Following the success of their single-box CD player, Orelle have now launched the CD-10T transport, with DA-180 DAC, all for less than £1400. Dominic Todd checks it out.

TECHNICS SL-PG340A 50
A good CD player need not be expensive; this £150 player didn't disgrace itself in front of Simon Cooke's critical ear.

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QUAD SUPPLEMENT

Banded to this issue you will find something free that you can't get with any other magazine: a QUAD Supplement. Contents include:

- A review of QUAD's latest remote-control 66 system, stylish enough to grace any home.
- How to set up and use the legendary QUAD electrostatic loudspeakers.
- Practical advice on the classic QUAD 11/22 valve pre and power amplifiers.

MUSIC

Our guide to some of the best new releases

ROCK RECORD OF THE MONTH:
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Is it a tuner? Or is it a new pair of loudspeakers you need to complete your system? All you have to do is answer our simple questions, complete the ditty, and six of you have the chance to win either the highly acclaimed NAD 402 amplifier, or a pair of Mission 760i SE loudspeakers.
NAD 302. European Amplifier of the Year '93-'94

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CASTLE HOWARD
The Castle Howard is a new floor-standing loudspeaker, based on the 'quarter-wave' design principle employed in their Winchester and Chester loudspeakers. The 'quarter wave' loading employs a folded, tapered tube to enhance the bass output. The Howard is reputed to go below 35Hz, using two 150mm bass/midrange units, and one 25mm metal dome tweeter. It also boasts a sensitivity of 90dB/VV/m, impedance of 8ohms, and a price tag of £1000 for standard wood veneer finishes, with rosewood and yew coming in at £1100.

Castle Acoustics Ltd. Park Mill, Shortbank Road, Skipton, North Yorkshire BD23 2TT. Tel: 0756 795335

TUBES IN SYNERGY
Those of you who get an attack of nostalgia at the idea of Dan Dare's unending struggle with the Mekon might like to know about Tube Technology's latest amplifier. The new Synergy might look like something that's fallen out of a Flash Gordon film, but it has, as they say, 'all mod. cons.' and comes in two versions. The Synergy I is a 150watt stereo integrated amplifier with remote control and on-board bias control. It is a dual mono design, and takes up to five line level inputs. The price for this miracle of post-Rutherford styling is £3800. It will also be available as a 150watt stereo power amplifier, the Synergy II, price to be announced.

Tube Technology, Hatch Farm, Chertsey Road, Addlestone, Surrey KT15 2EH. Tel: 0932 850361

PLUMBING
REL have introduced two new active sub-woofer systems, for those of you who aim to plumb the depths of your collection. The 'Strata' contains a single 25cm driver in a 40litre box to cover a frequency range of 20-120Hz. It costs £499. The 'Studio' is slightly larger, using two 26cm drivers in a 120litre cabinet to produce 12-100Hz frequencies. The 'Studio' costs £899.

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

KEF QUEUE UP
The Q70 is KEF's latest loudspeaker addition to their Q range, which employs two 160mm bass drivers and a 160mm 'Uni-Q' midrange/HF unit in a 1050mm tall cabinet. Available in grey or black ash vinyl finishes, the Q70s cost £699 per pair.

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THE PATH TO RIGHTEOUSNESS
- or, at least, sonic superiority, may have just been made a little easier by Path Group, who have brought out two additions to their Ixos range of cables. Their new Silver Bullet is a Teflon-insulated silver-plated oxygen-free copper interconnect with gold-plated phono plugs, retailing at £80 per metre for a stereo pair.

Path have also launched Digital Interconnect, a 75ohm oxygen-free copper interconnect cable, well dressed in a polyethylene foam insulation and a natty Teflon jacket. The price for this miracle of sartorial elegance is £20.

Path Premier, another Path Group company, have also come up with some interconnects called the Kontak Link — after their famous electrical contact cleaner — comprising the £49.95 per metre Link 505 digital interconnect and the £89.95 per metre Link 502 silver clad oxygen-free copper interconnect cable.

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

SONIC LINK GO GREEN AND CRIMSON
- but not from envy or embarrassment, they've just launched a couple of new interconnects. Sonic Link Green is a 75ohm coaxial interconnect made from silver-plated copper with PTFE insulation, costing £50 per metre run, fitted with gold-plated phons.

The Crimson is a solid core copper interconnect, with silver plated cores and, again, PTFE insulation. It costs £49 per metre stereo pair, with gold-plated phons.

Sonic Link will terminate both with rhodium-plated phone plugs, for a £20 premium.

Sonic Link, Derwent Business Centre, Clarke St., Derby DE1 2BU. Tel: 0332 674929

THE WORLD'S MOST DANGEROUS INTERCONNECT!
The name K2 may strike fear and awe into the hearts of the mountaineers among you, but Kelvin Audio Cables have something a little more relaxed in mind, with their new K2 interconnect. The only 'arduous' task, selecting the appropriate cable from listening tests, has already been taken care of by Kelvin, who have the copper cable produced in the U.K. to their own specification.

Price for the K2 is £25 per metre stereo pair with gold-plated plugs, and £50 with Neutrik Profi Professional plugs.

Kelvin Audio Cables, 2a Gardenhall, East Kilbride G75 8SP. Tel: 03552 26522

MUSIC LINK
Yeah, we've all been there. You're throwing the year's crucial party, and somebody mentions an essential track that you don't have! What do you do?

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You'll have to keep the party going while you wait for delivery, though. MusicLink aims for delivery from stock within three days, and out-of-stock item delivery within ten days.

MusicLink. Tel: 081 812 0812

ROTEL AMPLIFIER FOR AUDIOPHILES
Gamepath have announced the launch of a new 'audiophile' amplifier from Rotel, the RA960BX2, priced at £300. This, as the name suggests, is an upgraded version of their RA960BX amplifier. The new version comes with added vitamins and minerals in the form of polypropylene capacitors replacing the standard ones used in key signal coupling and negative feedback circuitry. The phono stage also uses passive high frequency and active low frequency equalization for greater sonic integrity.

NEW GROUND COVERED BY INFINITY
The new Kappa 6.1i and 7.1i speakers from Infinity are here. Both are three-way designs incorporating an injection moulded graphite (carbon, to its friends) woofer, polyelastomer midrange unit and Infinity's electromagnetic induction tweeter in rounded triangular section cabinets. The 6.1i retails at £995 and the 7.1i for £1195 per pair.

Infinity have also launched their Micro II satellite 'speaker' system, retailing at £399.95. The satellites each house a 4.5in. polypropylene woofer and a 0.5in. tweeter in an 8in. tall, 5.5in. diameter cylindrical cabinet, while the complementary subwoofer fills in the lower frequencies with two 6.5in. polypropylene drive units.
Because we thought about it. Deeply. Our R&D people spend their lives immersed in speaker design – but never out of their depth.

Bathtime operatics may have inspired the SIXES concept, first seen in the original successful SIXES. You see, four-square walls generate standing waves which boost ‘boom’. Fine for resonant renditions of ‘Nessun Dorma’, but fatal to accurate musical reproduction.

Similarly, since sharp edges cause sound diffractions, playing havoc with frequency response and believable stereo imaging, our six-sided cabinets adopt a more oblique approach.

The quest for colour-free sound is unceasing. The senior members of the new SIXES family feature our Dual Concentric sound sources, whilst all models incorporate contoured moulded bass cones, low-weight and stiff for agile yet powerful bass response. And tweeters with gold-anodised domes, ensuring treble clarity and smoothness.

To read more about the new SIXES – write today or phone 0236 420199. But for the absolute truth, all you have to do is to listen.

There’s just one reason why the new SIXES loudspeakers look and sound as they do.
MICRODOT

The latest idea from America to help you keep hold of your hard-won, expensive, hi-fi, is the Microdot, which bears the owner's personal registration number to make it instantly identifiable. Made from Mylar and reputed to be impervious to detergents, oils, solvents, and fading, as well as being able to bond to almost any surface for a claimed one hundred years. The only way for a thief to remove the dot is by mechanical grinding of the surface it is stuck to, which will destroy the value of the goods. That, of course, is if the thief can find the little widget, because a mylar Microdot is about as big as a full stop (like this one). That means that it is all but invisible, and small enough to hide under a screw-head or almost anywhere.

A kit containing 150 coded Microdots costs £69.99, and five year's subscription to the Instant Action Recovery Service, to enable you to recover stolen coded goods costs £75.00.

Microtech Suite 227, 2 Old Brompton Road, G.B. London SW7 3DQ. Tel: 071 413 9529

COMPACT DISC EXHIBITION

By the time you read this copy of Hi-Fi World, the Design Museum will be almost ready to take down its exhibition of CD jewel case artwork, and other imaginative solutions to the problem of how to make a flimsy plastic box look as good as those old LP covers from days of yore. So hurry! You only have until the end of March to see it.

Review Gallery Display, The Design Museum, Butler's Wharf, London SE1 2YD Tel: 071 403 6933

CERWIN VEGA

If you've always called these 'speakers Cerwin Vague, think again. Their new VS line of 'speakers is reputed to give tight and fast (but LOUD) bass. They are also claiming serious sensitivity, with the least sensitive of the VS range, the 'small' £249.99 two-way VS8, rated at 94dB, 1dB less than the 'medium' three-way VS10 at £349.99. The 'large' VS12 'speaker offers 97dB sensitivity from a three-way design costing £549.99, and the three-way VS15 claims a thoroughly awesome 102dB, and a £699.99 price tag to match.

Cerwin Vega, CSE Unit 9, Centre Park Holdings, The Airfield, Tockwith, Yorks. Y05 8QF. Tel: 0423 359054

WORTH BREAKING THE LAW FOR

Perfect Pitch Music's new Light Metal II loudspeakers were so desirable that thieves thought it worth a considerable amount of effort to manoeuvre the 1 metre high loudspeakers through the newly broken side window of a Vauxhall Cavalier! So delighted with their new £2,600 wonders (probably destined for a life on the end of a £99 low-fi) the thieves were kind enough to leave blood on the broken glass of the car window to express their gratitude. How thoughtful!

If you have any information that may help Perfect Pitch Music locate their loudspeakers, please contact:

Perfect Pitch Music, Hanworth Trading Est. Hampton Road West, Feltham, Middx. TW13 6DH. Tel: 081 893 8662

MISSION 780 SE

A first impression by Dominic Baker

The latest Mission loudspeaker to get the SE treatment is the popular 780. In this guise it now sports chunky knurled gold plated binding posts, and both an uprated crossover and internal wiring. The premium for these upgrades is £39, taking the retail price up to £239, which places them directly against TDL's excellent RTL 2s, our current £250 favourite. As with the majority of Mission loudspeakers the 780 SEs are designed to be used in close proximity to a rear wall or on a bookshelf. Placed on rigid stands and about 10cm from a rear wall the 780 SEs give a balanced and powerful sound.

The latest Mission loudspeakers the 780 SEs are designed to be used in close proximity to a rear wall or on a bookshelf. Placed on rigid stands and about 10cm from a rear wall the 780 SEs give a balanced and powerful sound.

The bass is a little deeper than that of the 760i SEs, but retains their excellent solidity and punch - giving the new 780s a similarly enthusiastic sound. But, like the 760i SEs, they exaggerated sibilance on the Lemon Trees' Open Book album and began grating with PJ Harvey's Dry. In this respect, they don't measure up to the refinement of TDL's RTL 2s.

An open and clear midrange did justice to Kim Deal on The Breeders' POD, but through the Missions, this sounded just a little heavy and closed in. The 'speakers did an admirable job of filling the room, but image detail was vague.

What they do offer is a big and enjoyable sound. They go slightly deeper than the 760i SEs and will handle more power before becoming uncomfortable, but don't offer quite the same value for money. If you like the 'Mission sound', and like it louder and deeper than the 760i SEs can manage, the 780 SEs may be just the 'speaker for you.

**** Frequency Response

<table>
<thead>
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<tr>
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**** Impedance

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ACOUSTIC ENERGY
AEGIS MODEL 2

Dominic Baker and Eric Braithwaite take a look at Acoustic Energy's first floorstander - the Aegis Model 2.

SOUND QUALITY
I was expecting a slightly richer, more powerful bass from the Aegis Model 2s than that of the smaller Model 1s, plus a little more excitement. At normal listening levels though, the Model 2s appeared almost reluctant to get themselves involved. However, their exceptionally clean - squeaky clean - sound made me sure that there was still some mileage in them.

Winding the volume up to levels that I've never reached before produced some interesting results. The extra 45 degrees around the volume scale didn't produce a proportionately louder sound, but the extra power added expression and energy to the Model 2s sound.

At these high levels they became more enjoyable; the bass filled out, sounding less dry and over damped, and the mid-range started to get away from the box. They don't image particularly well, and have a limited soundstage, but are comfortable to listen to at high levels and give the impression of a clean and undistorted performance.

ERIC ON CLASSICAL
Tight, lean and dry and a tad too close to being almost light-weight were my inescapable first impressions. The first three have been hallmarks of Acoustic Energy designs in any case, but the lasting feeling playing orchestral music was of one of the smaller earlier AE designs parked on top of an additional box. Better for Mozart's piano concertos with the ECO than the VP0 and Mahler.

Separating size from bass slam needs a mental re-adjustment. Heavy piano work - Mussorgsky's Pictures in the piano scoring - came across tidily but too neatly swept, bottom notes acceptable, but lacking impact. Dutoit and the Montreal orchestra's Three-Cornered Hat, however, showed up a few places where the tonal quality could have been less dry and lean, particularly in some too-ethereal piccolo and flute, while percussion also came off the scales a bit slimmer than the size of this box would suggest.

MEASURED PERFORMANCE
Like the smaller Aegis 1s, the 2s have a very even and well-mannered frequency response. There is a small dip in the crossover region, but this will tend to fill in in the far field, i.e. back at the listening position. There is also a lift in the upper bass which should add some subjective speed.

Overall impedance measured 12.80, suggesting the Model 2s shouldn't take much current to drive. But they have extremely low sensitivity, measured at 82dB, which means a powerful amplifier will be needed to get the best from them.

The impedance curve shows the Model 2s to be quite reactive, which coupled with their low sensitivity means that a strong amplifier will be needed. I'd recommend at least 100 watts for good results. DB

Frequency Response

Impedance

More in line with the smaller speakers in this range, the Model 2s did possess the same knack of re-creating acoustic space, but needed a fair whack at the watts for the sound to shoulder the speaker boxes aside to give a real impression of a wide orchestral stage.
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**XLO/PRO Type 600 Loudspeaker cable £24 per meter**
Multiple solid core speaker cable with an extremely low 62 pF/m line capacitance and very low line resistance. The signal conductors are of a diameter chosen to minimise skin effects, and are woven in a proprietary pattern to minimise frequency related phase shifts.

**XLO/PRO Type 1000 AC power cable £36 per meter**
Heavy duty power cable, double shielded and double grounded US patented design actually improves sonic performance (I don’t know why, either but it does and the difference is not subtle!)

**XLO Internal hook up wire**
For amps and speakers. Also the new range

Read Alan Sircom’s review in the December 1992 issue of Hi-Fi World and call Wollaton Audio 0602 284147 for more details.
So, what makes a great British loudspeaker? Is it real wood veneers, specially made and selected drive units, years of research and development or just that they are tailored to a ‘British sound’ which, to be more specific, was defined by the B.B.C. Whatever it is, here are four of the best examples of the breed, all different in character, but all engineered for what their designers perceive to be accuracy and honesty of presentation first and foremost.

All four of the loudspeakers chosen for this group have been carefully designed and constructed from high quality materials. A couple use drive units specially designed and manufactured in house which, considering the relatively small size of the companies involved, shows a real commitment to quality engineering. Those that don’t make their own drivers either carefully select and specify them, or have them custom-made to their own requirements. You won’t find a single standard off-the-shelf driver in any of these ‘speakers.

And this is partly what you are paying for, a quality engineered product with that important little extra attention to fine detail that elevates these loudspeakers from the commonplace to the refined. Competing with rivals is usually not the issue; pursuing perfection in areas considered important by the designer is. This specialist approach yields loudspeakers that are unique in character, more so than computer designed, mass produced types based upon standard parts. Critical listeners are likely to prefer one or other above all else - hence this test. Here are four excellent loudspeakers, but each excels in its own area. There should be a loudspeaker here for everyone, one that will provide years of enjoyment.

The four loudspeakers chosen are, in ascending order of price: TDL’s new RTL 3s which use a truncated transmission line for deep bass and good sensitivity; ProAc’s Studio 100s which, as the name suggests, are primarily an accurate and revealing monitor loudspeaker; Rogers’ LS8a/2s, a floorstander designed to give an open and enjoyably musical sound in a domestic environment; Spendor’s SP2/3s, again a monitor, but with the emphasis on midband neutrality and transparency.

All four are brand new on the market; the chances are that you won’t have read about them before. They represent the state-of-the-art in British loudspeaker engineering under the £1000 price barrier. They set the standard that others have to live up to, and this makes them an important and influential group of loudspeakers. They were measured in-house and reviewed by myself, Dominic Baker, and by Eric Braithwaite. All of us review dynamic loudspeakers and are well acquainted with the best around. We also both possess and use Quad electrostatics, which provide a firm quality benchmark. It is against this background that our observations are made. We were impressed by this group of loudspeakers; your ideal loudspeaker may be found here.
PROAC STUDIO 100

ProAc's Studio 100s are the latest incarnation of the Studio 1s, directly replacing the Mk1 version. Although very similar from the outside, several improvements have been made to help reduce colouration, increase subjective speed and improve their soundstaging and imaging qualities.

These changes start with the cabinet which now uses MDF of differing thickness for the front and rear baffles to that used on the sides and top. This helps break up the resonances associated with panel thickness. The crossover has also been revised to accommodate a new tweeter, ProAc taking the opportunity to fit twin binding posts for bi-wiring and upgrade the wire to higher quality oxygen-free multi-strand copper at the same time.

The new tweeter is made by SEAS to ProAc's specification and now has a ferrofluid of different viscosity to give it a smoother response. It is offset to one side of the baffle, so the Studio 100s come as a 'handed' pair, to be positioned so that the tweeters are on the inside. Treble radiated toward the listener is less affected by surface reflections from the narrowed baffle and image quality is improved - well that's the theory.

The paper bass unit is specified by ProAc and made by Scanspeak to a very high standard. It has remained unchanged from the one used in the Studio 1 Mk1s, but the improved crossover and cabinet construction better let its strengths show. It has a soft fibrous texture, well damped and less likely to produce a hard sound from undamped breakup.

The Studio 100s supplied for this test came in a gorgeous, solid-looking rosewood veneer, an extra raising the price tag to a little under £770. Standard finishes at £699 include walnut, black, oak, mahogany and teak, while yew can be had for a similar price to the rosewood.

The Studio 100s were used on a heavy pair of Target R2 stands and as recommended, best results were obtained in free space, about 3ft from the side wall and 2ft from the rear giving a balanced sound with good bass depth and a clean midrange. Any further back and the bass could become a little coloured and ponderous, so bookshelves are definitely out.

SOUND QUALITY

The ProAcs have a bright and lively treble which gives them an energetic balance. Fortunately, the treble is of good quality; ProAc's tweeter reveals fine detail and differences in texture clearly and clearly, without becoming confused. If you've got it, flaunt it, and that's certainly what the Studio 100s do. Some may find them a little too bright but in fact, if anything, I found the ProAcs a welcome change from so many other speakers because of their ability to resolve treble detail and image well.

I suspect that the combination of a good quality tweeter, a slightly accentuated treble and the offset all contribute to this speaker's imaging. I'm amazed that more manufacturers choose not to 'hand' their loudspeakers. It improves imaging without affecting any other area of performance.

The new Studio 100s are very dynamic loudspeakers; they reveal dynamic contrasts, or changes in level, without softening or compressing them. If a vocalist comes in a little too loud on their microphone, the '100s tell you about it. This makes them a lively, communicative 'speaker to listen to. It's exactly what you'd expect a top quality studio monitor to sound like - analytical.

The improved cabinets make a big difference. Now the sound has become more open in comparison to the original Studio 1 Mk1s and it is completely free from the cabinet. REM's 'Talk About The Passion' demonstrated the smooth, almost unnoticeable crossover between the two drive units. Bass lines were also handled very well, the plucked bass guitar strings on 'Sitting Still' having a good, solid and clean kick to them.

Bass extension was respectable for the small size of the 100s, but it was nothing like as extended as that of the larger TDLs. All the same, for all but church organ fans, the 100s should be fine.

ERIC ON CLASSICAL

Drier in the lower mid-range than previous ProAcs, as I recall, the Studio 100s had a good balance of strengths. A wide dynamic range and very respectable tonal colour had Mozart and the ECO very much in dance mode. A tendency to a too 'squeaky clean' treble - on top violin notes and piccolos in de Falla's Three Comered Hat - while observable, was suppressed short of blackboard-scraping fierceness the way the ProAc presented.

Barenboim's piano - and his ECO - in the Mozart piece would encourage lengthy listening. It was extremely pleasant throughout, though the piano was a little small in scale.

Orchestrally speaking, the Studio 100s presented an engaging and accurate variety of tonal colour, with clear, well-defined, solo and sectional images and a well-developed, slightly forward soundstage, albeit a trifle short on depth. These speakers were simply delightful, unphased by tough recordings, and an absolute pleasure to listen to.

CONCLUSION

The Studio 100s do a remarkable job of creating a live acoustic around instruments and performers. The whole atmosphere of the recording comes through to give a detailed and natural sounding performance. They come close to the Spendor's, exceptional clarity in the midband, but offer a brighter, more lively balance with fine, bass drive.

ProAc, Professional Acoustics, 130 - 132 Thirsk Road, Borehamwood, Herts. WD6 5BA Tel. 081 207 1150

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Frequency Response

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<tr>
<th>Frequency (Hz)</th>
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<tbody>
<tr>
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<td>86dB</td>
<td>11Ω</td>
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Sensitivity: 86dB
Impedance: 11Ω
Spendor's SP2/3s are large, reflex loaded, stand mounting speakers. They look a little dated, with their chubby proportions, black cloth grilles and teak veneer, but are the latest version of the long standing SP2. This is a well engineered, traditional design relying on the strengths of high quality drive units, crossover and solid cabinet construction. For years the SP2s have been a popular monitor for professional and domestic applications.

The tweeter is a specially selected version of the popular Scanpeak D2010 fabric dome which finds its way into many of the more up-market, quality British loudspeakers, being too expensive and esoteric for mass manufacture. It is renowned for its sweet, open sound and smooth response. This unit passes over at 3kHz to a 200mm clear homopolymer polypropylene bass unit specially made in-house by Spendor which makes the SP2/3s unique. It is hand doped to give it a neutral and smooth sound and pairs are matched to within 0,5dB for consistency.

The 7-element crossover uses high quality components throughout and is connected directly to the two sets of chunky binding posts at the rear to facilitate bi-wiring, which is advisable for best results.

Finding stands for the SP2/3s is not a particularly easy task as they are quite large, but I found that Target's HJ 15/3s were ideal for the job. These are a heavy-weight, three-leg design. Something of at least similar proportions should be used with the SP2/3s to give them a solid foundation.

The SP2/3s have a dry and quite light bass quality which means that they give their best close up to a rear wall. I found that when positioned about a foot away from the wall and toed in towards the listener, the SP2s gave the most neutral balance and good stage length and width.

**SOUND QUALITY**

Spendor's special high quality bass unit gives the SP2/3s an unusually open and clear midrange that projects well beyond the confines of the box. It is here that these speakers excel. A good midrange is vital if the tonal colours of a violin are to be accurately portrayed, or the character and emotion of vocals revealed. The midband was nearly as neutral and uncoloured as that of Quad's 63s, sharing a similar ability to focus sharply on detail and reveal it to the listener.

As with the smaller S20s in the Jan '94 issue, the SP2/3s did not image particularly well. It was enough to give a good indication of the positioning of artists, but without the pin-point accuracy that some designs can exhibit. Toing them in filled the centre of the stage to give a more solid image.

Using CD, and the recent 'MTV live' release of 10,000 Maniacs, the 2P3s' pushed Natalie Merchant's voice out into the room in an almost over-emphasised fashion. The mid is forward, but then it is so good that you want it to be, and this kind of midrange lift gives a sense of openness and extra detail when compared to a 'flatter' loudspeaker: it certainly did the trick on The The's Mind Bomb with the snare drum on 'Armageddon Days' fast and crisp, leading the way for the rest of the instruments to follow. This track also displayed the excellent sense of rhythm and timing SP2/3s; although the bass unit is large and quite heavy it doesn't hang about, giving plenty of insight into bass playing techniques.

The soundstage created by these speakers was not as expansive as the best, but it was well focused, giving a deep and solid image to lead performers. The fluid midband and sweet treble give an accurate and uncoloured sound to strings: they pushed out of the boxes with a free and breathy sound, 'Kingdom of Rain', on the same The The album, with its gentle combination of female vocals and acoustic guitar backed by drums and bass, had a lovely tactile quality to it, the music flowing lucidly out of the SP2s. The small fabric dome of the tweeter gave a reasonably detailed performance, but it lacked some of the excitement or energy of bigger soft domes. It was not quite so engaging.

**ERIC ON CLASSICAL**

This speaker is for analogue lovers, since early-instrument (digital) Haydn on Sony had a too-sweet tone, as did Bronfman's piano, which was rather against the grain, since it is really more brutal-sounding. On the other hand, the Mozart Concertos had what can only be described as a splendid overall orchestral tonal colour. Then, it is an analogue recording... The SP2/3 was something of a smoothly, unfuddled and very tidy with a beautifully (literally) integrated mid-range and treble. Not, however, for those who like brasher and brisker pieces. Even Mozart can 'swing', and the Spendors lacked a little pace, low notes being apparently reluctant to leave the reflex port unless given a sharp push.

However beguiling in sound quality, the 'concert-hall' balance, where the soundstage is rather diffuse, appeared to be in evidence again. I've nothing against this per se, but while it makes for a relaxed stress-free listening session, many recordings rely on sharper and more precise imagery than the Spendors reproduced to make their effect.

**CONCLUSION**

Give the SP2s a solid bass line to follow and they grip quite well - down to a point. They get so far down and then bass output rolls off fast. The result is a light and dry bass quality, but one that is clear and tuneful, integrating extremely well with the treble. This gives the SP2s a very smooth presentation - one you can continue to appreciate - that makes them enjoyable to listen to for hours. They are the most expensive speakers in this small group, but have qualities that make them well worth an audition. Whilst they may not be everybody's cup of tea, I spent many hours pleasurably listening to them.

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<thead>
<tr>
<th>Cable Type</th>
<th>Description</th>
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<tr>
<td>SPK 100</td>
<td>Twin-core white cable, each core with 130 copper strands (total 260 strands).</td>
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<tr>
<td>SPK 200</td>
<td>Triple-core grey cable for bi-wiring with twin-core treble (260 strands) and 3-core bass (390 strands).</td>
</tr>
<tr>
<td>SPK 300</td>
<td>7-core blue cable having 13 strands per core (each strand laminated). Requires soldering.</td>
</tr>
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Eric Braithwaite, Assistant Editor, Hi-Fi World, March 1993.

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<th>LIMITED QUANTITY</th>
<th>DEDICATED STANDS</th>
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<tr>
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<td>£99 (plus VAT)</td>
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What Hi-Fi? July, 1993

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CALLAS from UKD
ROGERS LS8a/2

The Rogers LS8a/2s have the most conservative image of the four models in this report. It appears that little effort has been put into their styling - and it certainly makes no attempt to appeal to a younger audience in the way, say, Mission would. If they could be finished, their quality of craftsmanship is excellent and the materials used good and strong.

The LS8a/2s are designed, as with all Rogers loudspeakers, to be used with the grilles in place. A brighter balance can be obtained with them removed, but it is smoother when left in place. The whole Rogers LS range of loudspeakers has been improved. They are now fitted with a single pair of loudspeaker terminals rather than the bi-wire ones that used to be fitted. But this cost saving has enabled higher quality components to be used in the crossover, including a special polypropylene capacitor in the treble which should improve clarity. The increase in performance was considered far greater than that gained by bi-wiring, and as not everyone chooses to bi-wire their loudspeakers, of greater worth to their customers.

As do the other manufacturers in this group, Rogers make their own bass/midrange unit. The 205mm polypropylene driver used has been developed and refined by Rogers over many years and is certainly very professionally made. This unit is carefully controlled to make the crossover simple, indeed it uses only four components to roll the midband off and the tweeter in at 3kHz. The tweeter itself is a 19mm aluminium dome selected for its smooth response and directional characteristics. Although I normally tend to shy away from metal domes, preferring the sweetness of fabric, this unit, once run in, gave an open and smooth sound without becoming sharp or coarse.

The bass of the LS8a/2s is quite dry and fast enough to stay out of trouble, even with them pushed back to within a foot of the rear wall. Lateral and vertical dispersion of the Rogers is very good which, combined with unexceptional imaging, allows them to be loosely positioned and still give good results over a large listening area - a plus on the Wife Factor Scale.

SOUND QUALITY

The LS8a/2s have a fast and bouncy sound, full of energy, contrary to what you would expect from their rather staid styling. The years of development that have gone into Rogers' unique bass/midrange driver have certainly paid off, it gives a smooth, detailed and neutral sound, but this unit is also energetic in its portrayal of music.

The metal dome tweeter is instantly recognisable and does make the crossover point a little more obvious than some, but it is still one of the best metal domes I've heard. Even when cymbals were hit hard repeatedly the treble remained free of the resonant rattles and sharpnesses that so many lesser metal domes suffer.

These speakers have a very similar balance to the Heybrook Quartets, with a big, bouncy, enjoyable presentation and a slightly boxy bass which adds a pleasant springiness. With the Lemon Trees, vocal harmonies were pushed forwards out of the box and the light tuneful bass lines played with energetic enthusiasm. A little sibilance was evident, but then this album does tend to highlight the problem in 'speakers, and it never became annoying.

Rogers' LS8a/2s have a large sound that fills the room from corner to corner. The soundstage at the centre was not particularly wide or deep, but the sound from the 'speakers was so full that I hardly noticed. The image within the soundstage was reasonably focused, but hardly noticed. The image within the soundstage was reasonably focused, but not enough to precisely locate instruments. As mentioned above though, they do project over a wide angle, so the sound stays balanced over a large area of the room.

Bass output was not particularly deep for the cabinet size, but it was good enough in quality for me to be able to follow bass lines, which had a crisp, clean presentation. The Lemonheads' Come on Feel album was given some much needed life and excitement; it even became quite enjoyable. The Rogers coped particularly well with the frantic playing on 'Down About It', managing to keep the notes on time and in rhythm.

ERIC ON CLASSICAL

Most speakers, faced with Shlomo Mintz's 'Pagani Variations', give the impression he's falling over his fingers in the breathless rush to fit in all the notes. The Rogers caught them all, though at the cost of a little 'metal dome' grain in the violin tone. The driver Rogers now use is adept in the midrange, and quite rhythmic.

There are some evident sonic compromises, with low strings showing a degree of warmth and roundness - plucked double bass, in fact, being a little plumy Top notes - whether a soprano's or a piccolo's - were nicely bright, with a spot of grittiness in the violins proving acceptable since it appeared in surprisingly small doses for a metal dome tweeter.

Overall, the LS8a/2s produced a splendid feel for the size and scale of an orchestra, with good dynamics and a wide dynamic range. A sizeable box, they needed the volume turned up and a lot of space between them and the listener, or they could sound, on first hearing, unwarrantedly dull. Cranked up, they could dance.

CONCLUSION

The Rogers LS8a/2s offer a big and enjoyable sound of room filling proportions and never give anything but a musical and interesting performance. They don't image particularly well and the metal dome does make itself known, but neither of these flaws particularly detract from what the LS8a/2s do right - play music.

Rogers, Swistone Electronics, 310 Commonside East, Mitcham, Surrey, CR4 1HX
Tel. 081 640 2172

**Frequency Response**

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<tr>
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TDL RTL 3

As suggested in the set-up instructions, placement is not particularly crucial. There's a lot of bass welly wherever you put them. I settled on a position about 2ft from my rear wall; in this position I found the bass had real slam and attack.

**SOUND QUALITY**

The bass of the TDLs was very good, and in many ways I preferred it to the more expensive full-transmission-line 'Studio' series which have a little too much bass for my taste. The TDL 3s displayed even and well controlled bass that went low and stayed tuneful almost all the time. A little box colouration was noticeable when a really strong fundamental played at high volume came through, but under most conditions this blemish was not obvious.

Although the TDLs do have, by far, the deepest bass of all the loudspeakers tested in this group, it remained balanced at all times. Even with The Beloved's Happiness album, with its strong electronic bass line and slightly recessed midband, the TDL 3s still managed to give a smooth and even performance without thickening in the bass. There was also plenty of punch in the lower mid to give the music speed and slam.

We found with the RTL 2s tested in the Dec '93 issue that their treble could be a little too strong. The addition of a second bass/mid unit in the '3s has increased midrange output, making for a better overall balance that came across as a more polite and refined sound. Still, the tweeter is not a particularly sweet and open-sounding device, but it didn't disgrace itself either. Even with The Breeders' 'Cannonball' from their Last Splash album the rather splashy cymbals failed to provoke the TDLs into displaying any unpleasant sharpness.

The midrange of the RTL 3s was clear, open and managed to create a large soundstage for musicians to play within. They weren't positioned with quite the same degree of accuracy that the Studio 100s could manage, but nonetheless, image detail and atmosphere were conveyed well enough for all but the most critical of listeners.

Radio 1's 'Live in Concert' recording of Lone Justice gave the TDLs something to chew on; they did so and spat out a large and powerful rock concert in response. Only on some of Maria McKee's more powerful vocals was a trace of chesty colouration made known. But this minor complaint paled into insignificance against the scale of the performance.

**ERIC ON CLASSICAL**

Notes below Middle C on solo piano were splendidly firm, detailed and crisp. On Mussorgsky's 'Pictures', as on Mozart's Piano Concertos K466 and 491 played by Barenboim and the ECO, the piano, however, displayed a somewhat boxy midrange.

Affecting brass, too, this afflicted the horns in Tafelmusik's Haydn with some near-cracked notes which certainly aren't. String tone was mostly pleasantly soft, with warm double-basses and a woody cello tone, but the authentic violins on this Sony 20-bit recording are more astringent.

The RTL 3s produced a good sensation of depth and breadth - with ears on the tweeter axis - the whole reminiscent of a concert-hall performance. Nothing wrong with that, but it did mean the TDLs opted out of some engineers' efforts at precision images, since all recordings were treated to this effect.

**CONCLUSION**

At only £400 the RTL 3s are superb value for money, offering a truly full-range presence. They are not a loudspeaker for bass freaks, but they do accurately resolve low frequency content in music which many other loudspeakers fail to find. Possibly not quite subtle enough for demanding classical listeners, these speakers are everything the 'live Rock' fan could ask for.

TDL Electronics Ltd.,
Unit 2,
Pilot Trading Estate,
High Wycombe,
Bucks. HP12 3AB
Tel. 0494 41191

---

**Frequency Response**

- Flat and well extended frequency response: the RTL 3s should have a deep and powerful bass.

**Sensitivity**

89dB

**Impedance**

5.8 Ohms

**Impedance**

- Smooth impedance curve - the TDL/RTL 3s are a mainly resistive load.
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Stands, Room Placement and Cables

Dominic Baker takes six steps to getting the best results from loudspeakers.

So, you made a decision and went for it: you take the new 'speakers out of their boxes, wire them up and press Play. Ugh - they didn't sound like that in the shop's demo room. Don't despair: Buying them was only half the job, getting them to sing is the real art. Here are six steps that should help you set up your 'speakers and get the best from them.

1. Run them in. Most loudspeakers needed a good 24 hours to run in properly. The Spendors weren't really sounding at their best for a week though, so beware. Running a pair of loudspeakers in is easy; just put a CD on repeat or use the radio and leave them for at least 24 hours. You should be able to hear them become sweeter in the treble and freer in the midband and bass with time.

As a general rule 'speakers such as the Spendors with their stiff, thick, rubber drive unit surround will take longer to run in than those with a thin foam surround, like that of the ProAcs. It is best to run in the loudspeakers before any fine tuning with cables, stands and positioning is attempted, because they can change character so much that your initial set-up has to be revised.

2. Use 'speaker stands. If the loudspeakers are not floorstanders, or designed for bookshelves, they will need stands. A proper stand should hold them rigidly in relation to the floor. If the cabinet is allowed to move at all, its effect will be to cancel some of the information produced by the drive units. There is little point paying good money for a high quality loudspeaker and then compromising its performance in this area.

As a general rule, high mass stands add weight and authority to the bass end of a loudspeaker and open-frame types give a clearer and more open midband. There are plenty of heavyweights around to choose from, but you have to pay a lot to beat either Target's Hj I 5/3s or R2s for smaller 'speakers. The best open stands, by quite a margin in my opinion, are those supplied by either Heybrook or Epos. These are both four- leg stands with numerous cables to choose from, costing for example, to blast d.c. through a speaker. With an average sensitivity loudspeaker (85dB) around 30-40 watts minimum is best: 90dB is very sensitive and will need just 10 watts minimum. Between this and 86dB, around 20 watts is fine, but in all instances beware of thrashing the amplifier too hard - it won't do it any harm, but sound quality will suffer.

3. Positioning the loudspeakers. Most manufacturers provide a rough guide-line to positioning in their instructions, but a lot depends upon your listening room. Basically the walls of a room are used to reinforce bass output. The technique is to start quite far out and move back towards the walls, increasing the amount of bass reinforcement. You should be able to find a position where the midband sounds clear and open and bass output is balanced in level. Obviously what 'balanced' means will depend upon individual listener's taste, but pushing them back into the corners too far will compromise the midband.

Most loudspeakers perform best toed in towards the listener, which helps fill out the centre image. However, some tweeters are designed to be listened to off-axis, the Tonigen ribbon and KEF's Uni-Q drive units being two such examples, and some are best listened to off-axis anyway! Chesky's Jazz Samplers are excellent tools for helping out here with their image, stage depth, width and LEDR test, which helps to locate objects within your room that may be responsible for reflections.

4. Use good cables. Loudspeaker cables have a large effect on the final performance of your system. A reasonable rule to follow is that around 10-15% of the cost of your 'speakers should be spent on cable. There are numerous cables to choose from, costing from a few pence up to a few hundred pounds per metre.

Light, stranded copper cables tend to be best suited to supplying the treble unit of a bi-wired system. The fine strands give a detailed and, providing the copper is high quality, smooth sound. Thicker stranded cables and solid core works best in the bass, where extra current handling capacity is needed. Silver plated copper and solid silver cables are an exception. These are good all-rounders, having the bulk required for current-hungry bass frequencies and the sweet smooth sound of silver for the treble.

For use with the four 'speakers tested I would recommend Ortofon SPK200 at £5/m as one of the most neutral sounding and best value-for-money cables for bi-wiring. It uses very high purity (99.9999% pure) copper, with fine strands for the treble and thicker ones for the bass. It also comes terminated with excellent gold plated phono plugs.

If you prefer not to bother with bi-wiring, or your 'speakers don't allow it, try either Ortofon's slightly more expensive SPK300 (£7.50/m) or one of the many silver-plated copper cables around.

5. Run in the 'speaker cables. This may seem a strange thing to do, but many solid core cables take time to bed in. When the strands of a cable are twisted together the crystals that make up its structure are stressed. The gentle heating effect provided when music current passes through the cables relaxes the crystals and after a few days gives a smoother better focused sound. Obviously the effect varies greatly from cable to cable. Fine stranded copper will take less time to settle than a thick, solid core will.

6. Use the right amplifier. With transistor amps insufficient power can do more damage than having too much. A 20 watt amplifier struggling to drive a pair of loudspeakers will be generating a lot of distortion. This heats up the voice coils of the treble units and may eventually cause damage.

However, when a loudspeaker is being over-driven by a clean, powerful amp, a sharp crack will often be heard as a warning to back off. Unfortunately, knowing this alarms users, some manufacturers make certain this useful form of warning cannot occur. Then the coil will overheat and may burn out.

With valve amplifiers it's a slightly different story. Valve amplifiers clip very softly and it is difficult to know when you are driving them too hard. But they do not tend to damage a loudspeaker as much as a transistor amp., being unable, for example, to blast d.c. through a speaker. With an average sensitivity loudspeaker (85dB) around 30-40 watts minimum is best: 90dB is very sensitive and will need just 10 watts minimum. Between this and 86dB, around 20 watts is fine, but in all instances beware of thrashing the amplifier too hard - it won't do it any harm, but sound quality will suffer.
Eric Braithwaite enters the ring with Townshend's latest turntable, the Rock III and finds that it packs quite a punch.

Max Townshend told me some months ago that his new turntable was going to be more 'affordable' than the famous Rock Reference of a few years ago. In a flash of inspiration I started privately calling it the Arkansas. ( 'Little Rock'? ) Alas, in reality it's simply Rock III.

To be accurate, this £799 motor unit - it is supplied without a lid or tonearm, though provision can be made for Linn-type arms, Rega or SMEs - is Son of Rock out of Seismic Sink. Anyone who has known either will see the resemblance. The base is a tray with three adjustable feet - like the Sink. Above is the main chassis of damped 3mm steel isolated and suspended on a kind of pneumatic inner tube - like the Sink. Elite Rock reminiscences are invoked by the Townshend trough, a curved 'drinking trough' filled with viscous silicone fluid in which a spindle attached to an outrigger bolted to the headshell sits. Townshend has long been an advocate of damping a tonearm at the headshell rather than the pivot end, and there are enough owners of Rocks and Rock References to support the theory wholeheartedly.

If to some extent the original Rock involved a rethink on the ways a turntable functions, then using the Rock III also involves a spot of re-training. The trough is swung out, the LP placed on the platter, the clamp screwed down on the threaded spindle, the trough swung over the LP, the arm slid down onto the record. In practice this takes less time to do than describe, however slowly it seems. If nothing else, it adds a little extra ritual to what Daniel Schaar of Micromega referred to as the 'ceremony' attendant on playing vinyl in an interview with Hi-Fi World a while ago.

The new Rock's fundamental ability is to trot canter or gallop along with the music precisely as required. Its sheer rhythmical deftness is a joy to hear. It pulls off that rare high-end trick of announcing that musicians are playing together in perfect time. It has the knack of rounding them out into three-dimensional beings, and is one of the best sources I know (including the few CD players and DACs that manage it) at reproducing acoustical space in a recording. If you want a flavour of Abbey Road No 1 Studio off an EMI recording, the Rock III fills the room with its signature. As they say, I've been there, heard it.

It isn't just expansive studio space, either, that the Rock III recreates in the living room. One of the fascinating aspects of the journey of rediscovery that attends all record playing on a top turntable, even in this jaded digital age, is to hear clearly the different acoustic in which solo instruments had been recorded. As with all good replay sources, however, this insight never detracts from the whole performance. The Rock holds music together as though it's been shrink-wrapped.

In some ways, its 'togetherness' is
disconcerting. At times, particularly with some Rock or Pop recordings, there appeared to be a degree of lateral spatial compression. This is not a turntable that is kind and forgiving to either half-baked mixing decks or mishandled and compressed mixes. Stadium rock-like early U2-sounds as though it's in a stadium, but P. J. Harvey's 'Rid of Me' sounded like AM radio, and I felt well out of it after just a couple of tracks.

This first impression took a knock with classical orchestral recordings which burgeoned out into the room beyond the speakers in all possible directions. When the Rock is doing, in mean the same thing that the original ad is focusing individual images extremely tightly with bodies of air and space around them. The backing vocals on Lou Reed's 'Walk on the Wild Side' simply strode right into the room, the apparent physical scale of the piano was somewhat shrunken compared to what I'm used to hearing, but so precise was the image it was practically measurable. Where the chassis construction, damping and the trough are obviously playing a role, the other differences the Rock III managed to separate. What the Rock is doing, in much the same way as though it's in a studio, but P. J. Harvey's 'Rid of Me' budded out into the room beyond and the trough was going to have no difficulty in reproducing bass notes down into the thirties (of Hertz) with perfect control. The upper end, however, was marred by comparison, but while this recording was made, Decca's Neumann lathe was much more confident at the lower frequency extremes than the upper ones and the Rock simply refused to enhance the top end.

Cartridges, thanks to the troughs, tracked like trains. They also strongly display their own strengths and weaknesses: cheap and cheerful needles need not apply. I worked with a £15 Ortofon MC-5 Super and a £250 Credo moving-coil from Switzerland as well as a somewhat-worldly Korea Black whose wear the Rock had bare, listening loudly. Even with the budget Rega RB500 supplied with my turntable, all the virtues of the Rock kept coming through. The bass stayed firm and strong with - everyone says it, but it's true. CD-like clarity, the mid-range sharp, the rhythms fast, string tone sweet. I've heard a give over different turntables in the same price bracket - with poorer arms - more than a run for their money in these terms, but it does not need to be approached without preconceptions. It rewires some of the 'suitable guiding rules; it changes the way you listen to LPs'.

The other essential difference: the Townshend Trough. Originally cast metal, the new version looks much the same, but is moulded plastic. Filled to within a millimetre or two of the lip with silicone fluid, a spindle attached to an outrigger arm from the headshell applies damping at the stylus tracks the groove. This holds the arm firm and dampens the arm/cartridge resonance, typically 10Hz. Intriguingly, my ESL-63s provided a convincing demonstration that this works, reproducing an impure violin from one turntable, and a notably purer one from the Rock III.

Levelling is provided through three adjustable feet and a built-in spirit level. The motor is the 24-pole synchronous Airpak used by a number of other turntable manufacturers.

Positioned accessibly outside the rim of the platter. The main platter is cast and turned acrylic, which sits on an aluminium and brass sub-platter which carries the belt.
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Daytime Tel No.
Temporarily adopting a Yorkshire accent, Eric Braithwaite 'ad a reet grand time wi' Sugden's new Class A integrated amp fray Heckmondwike.

To avoid accusations of partiality or favouritism towards all things Yorkshire, including the Sugden A21a amplifier reviewed here, please accept that I have become a naturalised Southerner for the duration of this review. Aw reet? Sorry. Okay, what?

At £639, plus an extra sixty if you want the optional plug-in moving-magnet or moving-coil disc stage, the A21a is a purler. Oops, wrong dialect; I mean it's jolly good. It's also jolly warm - but I mean in the heat its side fins give off, not tonally. For those who believe Class A equals warm and woolly sound, the A21a is an invitation to take a running jump off Brighton pier... or what's left of it.

Oh, let's drop this southern stuff; it has more pitfalls than I bargained for! Suffice it to say you'd have to go a long way further than the end of Southport pier (and that is a long way, and the wrong county, but never mind) to find a Class A sound like this for under a grand: sharp, crisp, deep, tight, and with images you could cut out with a pair of scissors like the people who do silhouettes on the front, er, promenade. Or whatever they call it down here.

Heat was associated with the A21a in more ways than one. Engrossed happily in John Scofield's What We Do album, I was roused from the last track by the neighbours to tell me a copious amount of smoke was issuing from my kitchen window. Pausing only to extinguish my dinner (Southern English; proper English, 'supper') I returned, my enthusiasm for the way the Sugden played jazz undampened.

Scofield tends to be a bit enthusiastic with the fuzzbox at times and the A21a rather ran away with his enthusiasm, the only time I felt the Sugden lost its grip, making his electric guitar spread laterally a
bit thickly and sounding somewhat confused and even messy. It had to be backed off more than I would have liked on a couple of tracks. But Levano's sax acquired that true brass-necked sound that even high-end amplifiers sometimes struggle with. Pan-potted across the soundstage though Bill Stewart's drumming is, all the individual elements were clean as shot silk, from snare drums to bass to paradiddles and stick-work. Percussion is so often problematic in sound reproduction: you hear 'drums', but the Sugden differentiates, saying 'snare', 'rimshot', 'brush'. Cymbals - but it's a minor quibble - had a very slight splashiness, some of the extended upper harmonics, I suspect, not having quite the same freedom of the rest.

There's nothing quite like a good tune, and the Sugden has a splendid feel for rhythm in a way that involves the viscera. A couple of hours of Mozart's Piano Concertos, topped up with Beethoven's Eighth had me singing along and batting my arms about like a demented orangutan. This is an amplifier that re-creates a musical performance without faltering over a beat and draws the listener in, so passing time becomes irrelevant.

Both Sugden's digital and analogue designs are close cousins; they each have the knack of surrounding and interleaving an orchestra with space, air, and best of all, the illusion that live players are breathing, blowing and bowing naturally. Giuliani's guitar concertos on Philips had a naturalness of tone and enveloping acoustical space - let alone wonderfully vivacious guitar from Pepe Romero and rich orchestral tone - totally without the degree of artifice that says 'recording'. Sugden's develop their electronics with live DAT master recordings - jazz recorded in Holland and orchestras and choirs in the Concertgebouw in Amsterdam - and believe me, it shows. Whatever is played through the A21a is invested with flesh, blood and lungs. And where delicacy is called for in Lontano's recording of Villa-Lobos finely textured choral pieces, or the extraordinary and difficult textures of his Quatuor (flute, alto sax, celeste, harp and female voices, would you believe) it sorted them with aplomb.

The same vividness and clarity comes through with rock, as well. Midnight Oil's 'Drums of Thunder' rocketed into the room, grunge guitar positively smoking, fingers dripping broken nails and blood. I had to take a second look at my ESL-63s to check they were wearing spikes and not Doc Marten's. There was so much flexible muscle behind Soul Asylum, pace along with Gloria Estefan's 'Mi Tierra' with sparkling clean-cut instruments and, above all, powerful but mobile bass, I dropped any intellectual pretence and rocked happily. Wildly, even. It doesn't matter whether it's the kazoo at the beginning of The Goats' 'Do The Digs Dug' or Willie Nelson's vocals, performers and band members step out crisply and firmly into the room, leaving the speakers behind,
Kiss my Aura, Dora
Frank Zappa, '74

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turning the electronics invisible. Ragga, rap, balladry - it's all grist to the Class A mill. If love is a drug, the A2 la's music-making is the equivalent of an illegal substance with a hell of a kick. You don't want to come down. Nirvana? Play 'em and you're in it coming down, however, to mundane considerations, what the new Sugden offers for source-laden users is sufficient but slightly limiting. No tone controls, but volume and centrally-detented balance knobs, with a mono button which is good to see for old fogies who play mono recordings once in a while; a rotary source selector for four inputs (five if you have the phono version) and a tape deck with a monitor button.

Gold-plated sockets and binding posts finish it all off, with the fascia and metalwork thick-gauge and substantially built. I am glad to see the top plate secured with Allen bolts instead of the rattly metal tags on the cheaper amplifiers. The controls are more solid and firmer to the touch, too. It all exudes quality, if not being the last word in elegance: this amplifier won't make it into the Design Museum, but it feels better value for money than a good deal of the competition. What a pity the instruction manual looks as though it was done on a cheap duplicator though. Still, up there where the wind blows, they spend their pennies on the important things - like the sound and the metal.

Briefly, for those who have antique wotsits that play round black things, Sugden's disc stage is well up to scratch, with a firm, tight soundstage and a very fluent - though tad more laid-back - sound. Mozart's Bassoon Concerto on vinyl had plenty of atmosphere, air, depth and a slightly contracted width by comparison, but excellent tonal balance, a very good orchestral picture, the same vividness, liveliness and ability to flow with the music that characterised the line inputs. Ditto with Robert Plant and others, too; a similar sharply etched detail to CD, crisp and brisk attack, fine, clear, accurate vocals. It was only lacking some of the remarkably strong (green) wello that CD had on offer. It lacks sufficient gain for some high-output - well, not that high - moving-coils, but is extremely lucid and very quiet.

Yorkshiremen are a dour lot, what with the Wars of the Roses, Commonwealth cricket teams and the antics of a pair of Dukes of York not giving us (ahem, them) much to grin about. But the Sugden would maintain a smile on the sunniest face. Mankind cannot live on bread alone (especially if it's been flamed by mistake) but the A2 la staved off my hunger for anything but more music until well into the early hours. It must be twenty years or more since Sugden produced the first-ever Class A transistor amplifier; the A2 la is a worthy successor. Neow then, ah reckon ah were a bit 'asty; can ah 'ave mi passport back?外

**MEASURED PERFORMANCE**

Like most Class A amps, the A2 la has limited output and should not be camed if it is to give its best. I measured 24watts per channel, a value that remains constant irrespective of whether one or both channels are loaded. It's an interesting feature of Class A that they have greater immunity to dynamic power supply loading than conventional amplifiers because, in effect, both channels are running flat out all the time. This amplifier consumed 84watts from the mains when idling; had the figure been less than 50watts it couldn't have been pure Class A.

Power fell to 14watts into 4ohms with a steady sine wave test signal (little like music), but current limiting occurred, or so it appeared. Consequently, I applied a true burst signal to better simulate music. This showed the A2 la gives 24watts into 8ohms and 36 watts into 4ohms, if it clips only occasionally with music. Pushed into excessive clipping, it may well start to limit. However, I used this amplifier with Heybrook Sextets, which at 86dB are not especially efficient, and I did deliberately push it really hard at times; it never shut down or went funny on me. Yes, I did like its sound a lot; good Class As are excellent. I would describe this one as unusually crisp and clear, very 'solid' and with incredibly firm, controlled bass. It has a tight, forceful sound, but this will be more fully described elsewhere.

On CD, frequency response reached down to 6Hz, allowing the A2 la to reproduce subsonics. However, it is band limited at high frequencies, hitting just 31kHz (-1dB) at certain volume control positions. This meant that high frequency output starts to roll off at 10kHz and is -0.5dB down at 20kHz. I did hear this initially in the amplifier's basic tonal balance, but it has such innately bright, clear and strongly- etched treble that after acclimatisation I became unaware of this.

Channel separation was good and hiss low, but at 1.5mV there was a little hum. This again is attributable to Class A working, the power supply reservoirs being heavily discharged all the time. A chime is the best answer, but at 1.5mV this hum won't be noticeable unless really efficient speakers (better than around 95dB) are used. All the same, an upper limit of 1mV hum output is still advisable.

Distortion was mainly second harmonic in nature, which is subjectively innocuous. It measured around 0.01% in the midband, rising to 0.03% at 10kHz. Distortion increased toward full output, reaching around 0.2% at -1dB below clipping. Run within its limits, the amplifier is a low distortion design.

Sugden have incorporated a warp filter into the disc stage, which rolls off bass below 30Hz (-1dB). An attenuation of -9dB or so at 10Hz is enough to be useful. Across the audio band, equalisation was accurate, staying well within 1dB limits. Sensitivity was fine at 3mV and overload high at 200mV. The input load measured 47kΩ with 220pF in parallel.

Noise measured -77dB and the equivalent input noise was 0.42µV, both low values. So the A2 la is quiet on disc. Sugden have engineered the disc stages well. The A2 la is well designed, being correct right down to the finest details. It sounds pretty amazing too. NK

**TEST RESULTS**

| Power | 24watts |
| CD/Imer/aux. | 6Hz-31kHz |
| Separation | 62dB |
| Noise | -93dB |
| Distortion | 0.01% |
| Sensitivity | 150mV |
| dc offset | 4.5mV |
| Disc | 62dB |
| Frequency response | 30Hz-30kHz |
| Separation | 45dB |
| Noise | -77dB |
| Distortion | 0.01% |
| Sensitivity | 3mV |
| Overload | 200mV |
| Input R/C | 47k/200pF |

**Distortion**

| 0.1% |
| 0.1% |
| 0.1% |

At 10kHz, just 0.03% distortion, second harmonic only.

**Whatever is played through the A2 la is invested with flesh, blood and lungs**

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GETTING THE BEST FROM CASSETTE

Noel Keywood, excited by the arrival of Sony's new £330 TC-K61 IS Dolby S deck, decides to look at the competitors it will have to face.

Quite what sort of recording medium you choose to buy depends very much upon your particular requirements. Here are my own very personal views and advice.

Most enthusiasts appear to treat cassette as a recording medium, understandably preferring LP or CD for quality replay. I have a reasonably large collection of commercially pre-recorded tapes that I play alongside CD and LP. They're bought mainly for Walkman use, but since they contain music I don't have on LP or CD, they get played seriously at home, on a Nakamichi ZX-9. This machine, and its more automated successor, the CR-7E, define what can be done with cassette and they are quite breathtaking in their sound.

Not everyone shares my enthusiasm for tape though. Most people, I believe, use cassette mainly for recording off radio, and for putting LP or CD on to tape for a car player or personal stereo. Their priority will be recording quality alone, and since metal tapes account for just 0.7% of the total tape market, with chrome taking about 26% and ferric the rest, it looks like chrome has it for representing the upper end of the quality recording market.

With this in mind, here are three cassette decks aimed at that quality market. Sony's new TC-K61 IS offers Dolby S for an incredibly low £330. The Yamaha KX-650 with three heads and Play Trim represents one of the best £260 decks and the Nakamichi DR-2 is included as a 'control' at around £500.
The KX-650 hasn't got a powered door, nor slick feeling controls, but it does have a great range of useful features and, best of all, it's available at something of a bargain price: £260. For this you get a dual-capstan tape transport mechanism for good speed stability, three heads (record, replay and erase), variable bias for matching-in blank tapes and, unusually, Play Trim, used to bannish dullness or the muffled sound that so commonly afflicts pre-recorded tapes.

That's a fine range of primary features and facilities, yet the KX-650 has a relatively uncluttered fascia and, even though the transport buttons are a little small, I found the deck easy to comprehend and use. To make tape handling easy Yamaha have fitted an interesting dual-speed fast wind ability in both forward and reverse, allowing the deck to go from fast local search to very fast end-to-end reeling.

Yamaha fit a long record level display that lights yellow up to 0VU and red above. But where Sony put 0VU peak record level high at the IEC tape flux, Yamaha place theirs no less than 5dB lower down at the traditional level of -3dB below Dolby flux. So recording to 0VU on the Yamaha results in a considerably hisser recording and in truth there is enough leeway to take recording levels right up +9 or so with good metal tapes.

Bias adjust works with all three tape types: ferrics, chrome and metals. The influence upon frequency response with metal tapes was small, but still enough to tune them in. The final frequency response of the KX-650 was very flat right up to 20kHz, even with ferrics, our tests showed, so it can deliver tonally balanced recordings with any tape brand or type.

**SOUND QUALITY**

Play Trim fulfilled its promise with pre-recorded tapes, livering dull recordings and taming a few that were too bright, from Madonna and John Fogerty to name two. I found that generally bass was light and lacked impact, but the midband and treble regions were quite well handled, some top end muddle and loss of definition being obvious against my reference Nakamichi XZ-9. In spite of these effects though, the KX-650 proved better at handling pre-recorded tapes than most; it was able to banish their dullness, sharpening images in particular.

Recordings on TDK MA metal tape came over well. Taking music peaks up to +6 I could detect only a little background coarseness to vocals, some of that slightly harsh 'grey' colouration that typifies cassette, plus a slight loss of bass impact and power. Otherwise, with Dolby B the KX-650 made correctly balanced recordings on metal tape, with just a trace of background hiss being audible, but absolutely no hum or motor drone. This was a fine performance, musical dynamics coming across virtually unhindered.

TDK SA-X chrome tape turned in excellent results with Dolby B engaged. Recording to +3 on peaks, hiss was nearly inaudible from this extremely quiet chrome. However, chrome do tend to overload at frequency extremes when pushed a bit and I did notice some added 'politeness', due to rounding of treble and bass dynamics. I find classical benefits most from SA-X, the lush strings from Rachmaninov's Piano Concerto Opus No 3 sounding smooth and relatively free from graininess.

Some extra bass slam appeared with TDK AR ferric tape (+4 peaks), but at the expense of some treble muddle. Bias had to be backed off quite a lot to get this tape into correct tonal balance, but AR delivers a beautifully smooth, easy sound and is a fine general purpose tape. It worked well on the Yamaha.

**CONCLUSION**

At £260 Yamaha's KX-650 is the least expensive of the three, yet offers a fine range of primary features and facilities. It does well all-round, an ability that eludes most cassette decks. Most have one or two significant weaknesses; the KX-650 has only minor blemishes. It's worth auditioning.
SONY TC-K611S

We winkled this one out of a friendly hi-fi dealer. “They’re selling as fast as we can get them in - and we can’t get enough,” he told us, “so don’t damage it.” One hour later I had our TC-K611S on the bench, top cover open and with a host of wires connected up; it was in for analysis, but not post-mortem; this deck is very alive. It’s rumoured to be a DCC spoiler, put out by Sony at a silly price - £330 for a cassette deck equipped with every gadget possible, including Dolby S. Was it as hot as rumour would have it? Or are the eager hordes being deceived?

Comparison with a good three-head deck like the Denon DRM-710 puts the 611 in a different light. The Denon costs £260; yet it has a complex and expensive dual-capstan transport. Sony’s TC-K611 I would seem to have a plenty wide enough price differential (+£70) to pay for the inclusion of Dolby S and a powered door, since powered doors haven’t commanded much of a price premium to date.

It’s easy to use too. Even operation of the bias and rec. level calibration system on the fluorescent display was pretty self-evident. Tapes can be tuned in seconds and adjusting bias affects all three tape types equally, an unusual, but useful property; many decks will not tune in metals. A music search system detects silent gaps and worked well, even in reverse where these things often fail. The measured performance was good in most areas too.

SOUND QUALITY

Quality cassette decks are best used with good metal tapes. With TDK MA and bias at the median or ‘zero’ position I noticed some upper midrange emphasis from the 611, which gave a light and forward sound. With bias advanced (raised) to around 3 o’clock the tonal balance of recordings well matched that of the original. Using +5 as an absolute maximum for music peaks I found that hiss was inaudible with Dolby S and barely audible with Dolby B.

After some careful tuning of bias and record level the TC-K611S produced some excellent recordings with TDK MA and Maxell Vertex (expensive), coming close at times to my own Nakamichi ZX-9 reference and the DR-2. The Naks were cleaner sounding and recorded +5dB higher, no less. But the Sony never seemed to get into trouble anywhere. It offers a natural tonal balance and recordings with fine dynamics.

It was with one of my favourite budget tapes, TDK AR, that the Sony excelled. Its combination of good head, high treble overload ceiling due to low-ish bias/Dolby SX Pro and Dolby S really transformed this quality ferric by largely eliminating the treble messiness and softness indicative of treble overload (Dolby S has an overload prevention system). Transients sounded strong and the music coherent; bass quality was well maintained too.

Performance with pre-recorded tapes was less impressive. Every one I played sounded dull and warm unless Dolby B was switched out. Whilst Sony have correctly adjusted head azimuth, in line with Dolby recommendations, they’ve got replay equalisation wrong, which is a bit silly considering Nakamichi showed Japanese industry how to get this parameter right a long time ago.

The single-capstan transport was just adequate to provide steady pitch with sustained piano notes. I did occasionally become aware of a slightly ‘cracked’ pitch on Ashkenazy’s lightly held sustains, but not blatant slurring, wowing or pitch changing. There was a slight increase in tempo from raised speed, but I am not especially sensitive to absolute pitch. More trained ears could well object to the +1.4% speed error.

CONCLUSION

My conclusion is that the eager hordes are getting a bargain with the TC-K611. It has all the necessary gadgets, including the ability to match and tune in all tapes easily and quickly. It’s easy to use and it delivers superb recordings with ferric, chrome or metal tapes. Only with pre-recorded does it conspicuously bomb out - they sounded as muffled as ever.

HEAD OVERLOAD

The head overload levels were respectable. TDK MA gives +3 MOL315 in the midband and -2 at 10kHz. Since Sony have put Ovu high, right up at IEC 0dB flux, music peaks can be taken to around +4 on the record level indicator when using metal tape, but around +2 with ferrics and chrome.

Overall, this deck measured well, except for its replay equalisation which should have been more accurate. NK

TEST RESULTS

REPLAY (pre-recorded tapes)
Frequency response (-2dB) 30Hz-16kHz
Speed accuracy +1.4%
Hiss (70uS, Dolby out) -59dB

RECORDING (blank tapes)
Frequency response (IEC Primary Refs.)
- ferric (IEC I) 9Hz-20kHz
- chrome (IEC II) 9Hz-20kHz
- metal (IEC IV) 9Hz-20kHz

Separation (1kHz) -51dB
Distortion (315Hz) 1%
Hiss (70uS, Dolby out) -56dB
Speed variations (DIN total) 0.08%
Flutter energy (3-3.13kHz) -29dB
MOL/SAT (IEC Refs) 315/10k
IEC I (ferric) 3dB-6dB
IEC II (chrome) 1dB-5dB
IEC IV (metal) 3dB-2dB

Frequency Response
Treble emphasis
50Hz 20kHz

Speed Stability
0dB -40dB
80dB 2570

MEASUREMENTS

Frequency response was flat-ish to 20kHz with ferric, chrome and metal tapes - a fine result. Our response analysis shows a small +0.1dB treble lift with metal (IEC IV Primary Reference Tape) with bias set at its centre ‘median’ position; it will add some brightness to recordings. The head has an especially level bass response too, reaching low - right down to 9Hz (-2dB). With whatever tape you use, the Sony gives a 20Hz-20kHz response within tight 1dB limits, which is a superb result.

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Overall, this deck measured well, except for its replay equalisation which should have been more accurate. NK
Nakamichi is always a shock after other cassette decks - they seem a world removed, able to conjure up a sound from cassette that seems almost unreal by everyday standards.

There are good reasons: Nakamichi make their own discrete heads, rather than buy in standard Canon or TDK off-the-shelf types. Their design is specialised, possessing unique features like complex head location and adjustment mechanisms, a tape pressure lifter-pad to lessen modulation noise and special tape guidance.

**SOUND QUALITY**

My view is that Nakamichi magic really starts with their least expensive three-head, dual capstan, model which in the current range is the DR-2. I reviewed this model in our March '93 issue. The 'magic is an uncanny ability to pull singers and instruments out of the somewhat flat and papery sound of cassette and put them out on to a credible stereo stage. I use a variety of badly duplicated, but musically enjoyable, cassettes to check for this ability, most of which are dull and can be unintelligible on poorly set up machines.

Roy Orbison's Mystery Girl album is one, where Orbison's drawl combines with a body and his voice some clarity the DR-2. Against the Sony TC-K611S included. Against the Sony TC-K611S, the DR-2 more than holds its own when recording, unless you judge recording quality mainly by hiss level. Using Maxell Vertex metal tape with Dolby B, the DR-2 gives a subtly enhanced sound, with extra low frequency body, yet it has the smoothest and most natural treble possible from cassette, plus a superbly open and well defined midband. Whilst the Sony, with its single-capstan transport and conventional head, couldn't reach the high overall standard of reproduction of the DR-2, it was quieter, due to Dolby S; the DR-2 exhibited a slight background hiss with Dolby B.

The Nakamichi, like the Sony, possesses a near-miraculous ability to raise a budget ferric tape, TDK AR, up to metal standard quality, banishing treble saturation (magnetic overload) and the muddle and smearing it produces. Bass distortion and overload also plummet to negligible levels, something that ensures correct Dolby tracking and a bright, clear sound from prerecorded tapes.

The dual-capstan transport worked well, suppressing flutter successfully, and wow satisfactorily. The DR-2 is a Nakamichi through and through - which means different and better, NK.

**MEASURED PERFORMANCE**

The DR-2 hit +8.5dB record level on metal tape (TDK MA-XG), higher than any other cassette deck available by many dB. On ordinary metal tape, like TDK MA, it manages +6 and on ferrics and chromes +3.5dB - all these value higher than normal.

The DR-2 makes exceptionally hiss free recordings as a result. Even budget ferrics like TDK AR sound like metal tape, because of the high treble overload value (SAT10k) of -4dB this deck achieves, without the aid of Dolby HX Pro.

Replay response measured flat to about 4kHz, then it dips just slightly (-0.5dB), before rising to peak by +2dB at 20kHz, something that ensures correct Dolby tracking and a bright, clear sound from prerecorded tapes.

**TEST RESULTS**

**RECORDING (blank tapes)**

Frequency response (IEC Primary Refs.)
- ferric (IECI) 20Hz-20kHz
- chrome (IECII) 20Hz-20kHz
- metal (IECIV) 20Hz-20kHz

Distortion (315Hz) 0.3%

Hiss (70uS, Dolby out) -61dB

**REPLAY (pre-recorded tapes)**

Frequency response (-2dB) 50Hz-20kHz

Distortion

Frequency response (-2dB) 50Hz-20kHz

Hiss (70uS, Dolby out) -56dB

Speed variations (DIN total) 0.08%

Flutter energy (-3.1kHz-32dB)

- MOL/SAT (IEC Refs) 315/10k
- IEC L (ferric) 3.5dB/4dB
- IECII (chrome) 3.5dB/5dB
- IECIV (metal) 6dB/0.5dB

**CONCLUSION**

The DR-2 sets standards all round. It doesn't really have weaknesses, only strengths. My reacquaintance with it showed me what an impressive piece of engineering this recorder is and what a
CONCLUSION

Is it best to buy a new-fangled digital DCC recorder, or a steam-driven cassette machine turbo'd by Dolby S? Or MiniDisc? Or nothing, in the hope that CD-R will be the answer? The situation has become complicated by the many options available:

Here are my own views, based on using, testing and listening to cassettes for years, as well as testing and using DCC, MD and DAT. Unlike most audio journalists it seems, I actually enjoy listening to cassettes, mainly because I enjoy music on the move - in a train or plane.

Listening to recordings on Sony's TC-K611S Dolby S deck reminded me how decent cassette can be made to sound, but swapping over to my own Nakamichi ZX-9 reinforced the point that plenty more can be had from this medium. But what you choose may well depend upon your own priorities, as well as software costs - because they really can be the joker in the pack.

DIGITAL OR ANALOGUE?

Even though the cleverest part of Philips' Digital Compact Cassette (DCC) tape system is its low manufacturing costs, the music business has decided to slap a premium price of £14.99 onto pre- recorded tapes. The same problem affects MD, but space restrictions don't allow me to go into detail about that.

DCC and MD overcome their poor, due to the need for time-consuming tape compilation. Currently, neither DCC nor MD are doing well, and after the fitfulness and relative failure of DAT due to high prices, the outlook isn't good for the current crop of digital media.

Both the consumer electronics industry and the music business want to kill off cassette, because CD has shown them they can make more profit from less critical digital media. All the same, cassette decks and blank tapes, which come from Japan, remain inexpensive at around the £1.49 - £3.30 (TDK MA) region. Pre-recorded cassettes come from the music business and now cost £8.99, which is steep, but overall cassette remains easy to use and cheaper than any other recording medium.

Dolby S encoded tapes are not yet common in the shops. I couldn't find any in Our Price or Virgin in fact. Although our press releases tell us that a few classicals from BMG are S-encoded these days. So cassette continues to suffer from poor pre-recorded sound quality, something both DCC and MD overcome.

CASSETTE

With so little interest in DCC, MD or DAT, it isn't surprising that Sony can sell all the TC-K611S they ship into Britain, since most people understandably treat cassette as a recording medium, preferring LP or CD for quality replay. Pre-recorded prices are not an issue to anyone just wanting to make home recordings. And the recording quality of the Sony deck was excellent, right up with that of a more expensive Nakamichi DR-2. However, whether your priority is making good recordings, or getting the best from commercially pre-recorded tapes, the replay characteristics of a tape recorder are important. You can only make compatible recordings, ones that will play properly on your car player for example, if certain critical replay parameters are absolutely right - and this is where cassette becomes a very difficult technology, one that most manufacturers don't get right.

The solution is to buy a deck that is very carefully designed to replay pre-recorded tapes properly and make standard recordings that will transfer to other players. The Nakamichi DR-2 excels in this respect. Most recorders, including the £260 Yamaha KX-560 and the £330 Sony TC-K611S tested here have replay amplifiers that make pre-recorded tapes sound dull. You might say "so what, I never buy them". Trouble is, as a direct result of this, both recorders will make non-standard recordings that won't sound good on other players.

The Dolby S recordings the Sony TC-K611S put onto ferric tape were impressive when replayed on the Sony, but few car players or personal stereos have S expansion systems. This is the difference between the £330 Sony and the Nakamichi. The Sony's recordings won't transfer as well, which may or may not bother you depending upon what you want the machine for.

Yamaha's KX-650 might have been poorly adjusted at the factory, but it still remains an interesting possible choice of recorder, because it has Play Trim. It was a good all-rounder, but it lacks the sparkle of the Sony or Nakamichi.

To make a final choice, try and get a demo at a dealer's. Ask to hear these machines, armed with a good quality pre-recorded tape or two. Try EMI XR, tapes, since in my experience their general alignment and equalisation seems better than most.

In a nutshell, Sony's TC-K611S is superb value for anyone wanting to make home recordings that will be replayed primarily on the Sony. If the recordings are to be transferred to other players, then the Nakamichi costs better with Dolby S.

World Radio History

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BACK TO THE FUTURE

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HI-FI WORLD FEBRUARY 1994
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SYSTEM TUNING
You and I are music lovers and hi-fi owners. However getting more music for your pound involves a different strategy if you live in a different part of the world. So it is, also, with technical problems.

I returned to Israel after an absence of five years with my hi-fi comprising Rotel RCD 965BX Linn LK1, Linn 280, Linn Sara 'speakers, Linn interconnects and cables. My pre-amp immediately developed a habit of losing the signal momentarily, not catastrophic, but annoying. A telephone call to Linn in Scotland had them send me a PCB for me to replace. Trouble struck again. Linn happily obliged with another free PCB even though my pre-amp is over 4 years old with an expired guarantee, unfortunately Murphy's Law proved right again and in my desperation I wrote a letter to Mr Tiefenbrun complaining about my problem. Hey presto! Behind every cloud is a silver lining. I was sent a Dirak power supply (free again) to account for the bad local mains.

Many thanks Linn for the wonderful service that puts customer satisfaction first. I wonder how many customers consider after-sales service when buying not inexpensive hi-fi.

Meanwhile my Rotel CD player was proving a bit anaemic musically and I decided to risk the Russ Andrews upgrade therapy. The parts cost me £80 approx. Fitting in Israel cost £120 (R. Andrews do it all for a cheap £120) the parts included Kimber Mains Cable, high quality power supply and analogue stage. I also decided to re-connect the main circuit board to the RCA socket using high quality Monitor PC cable (available locally). On top of the laser lens I installed a replaceable spatial filter which reduces jitter by reducing the lens aperture (Address: Laser Illusions Inc., 4504 Concorde Place, Lisle, IL 60532 U.S.A. Enclose $50 note with your order stating make of CD player).

A local dealer also demonstrated the superiority of Audio Quest cables and interconnects, so I bought the Crystal speaker cable and the Emerald interconnect (the latter cost me £120 versus £180 in the U.K. He cut the Emerald and fitted special plugs to fit my Linn sockets (DIN Type) and I fitted the shorter lengths between CD player and pre-amp, and also pre to power.

At each stage I got an overall improvement and not a different sound. Singers now pushed air through their lungs, removed their hands from their mouths and ceased shouting while performing. Musicians were given equal preference and interfered less with each other. They concentrated on playing their instruments clearly and cleanly, at their own pace and tempo. If one were to ask any of them what tune the other played, they could easily remember, so could I!

What is needed is a little returns policy!
DIY GADGETS
Your magazine comes as a welcome change to the mainstream, passive equipment review driven formats of others. Even the once more review driven formats of mainstream, passive equipment are full of tweaky bits - how can I decide between your own banana plugs and own mains cable and other types of non-hardware experimentation, golden ears, and an endless love of musical expression.

Nicolas Vassiliades
Israel.

DIY DAC
DIY project upgrading the power supply of a particular amplifier or turntable, it would only appeal to those few who actually owned such equipment. The designs we do are not just knocked together, they take hours and hours of intensive engineering to ensure that they offer the very best performance for the price. So in some ways this time would be wasted if the end design only appealed to a minority. Your suggestion of a DIY DAC is one we have seriously discussed, and we

continued on page 47...
Eric Braithwaite listens to a valve pre- and power-amp combination from Audio Innovations, and emerges glowing with pleasure.

For my part, I've no prejudices either way. I can butter a MOSFET for breakfast as happily as an EL34. In other words, I can live with the Audio Innovations LI valve line pre-amplifier and the 800 power amplifier as easily as a Michell Alecto or Conrad-Johnson Motif from the transistor stable.

Speaking of butter, a whole dairy farm wouldn't melt in the LI/800's mouth. It's synergy in action, and delectable at that. A full-cream mid-range, good churning bass and a treble sweet as buttermilk. All that, and exposed glowing EL34 valves on the 800 that make it look like Sellafield or Cap de la Hague at night. A pentode design, it offers an adequate 25 watts with separate 4ohm and 8ohm taps for loudspeaker matching. The LI, with only a single ECC82 under its cage, is a bit of a glow-worm by comparison - if the room has any lights on, it takes close inspection to check it's working.

A line level pre-amplifier, so vinyl users will need a phono stage, the LI is fairly minimalist. Four inputs, including tape monitor, are crammed on to the back panel along with a toggle switch to change the output level to suit non-AL power amplifiers and an IEC mains socket. A second toggle switch grounds the chassis while decoupling the circuit ground, a neat device to avoid hum loops with an earthed power amplifier. Three controls on the front offer power on, volume and source selection. The whole is encased between four pillars, in Audio Innovation's now standard styling, and covered by a cage.

The 800 - perhaps it should be the 849 since that is what it costs in Royal Mint money - not only adds a couple of degrees to the central heating, but it warms up instruments in the lower register, like cellos, bassoons and double basses too. Not, mercifully, overmuch. Plucked strings down at the bottom end or col legno bowing are a delight to hear, not just from their tangible quality, but also because the bloom is far from overdone. Strings, woodwind and brass alike are extremely well-controlled. There is just a tinge of pink in the spectacles, but it doesn't distort the vision.

Vision, by the way, is what the LI pre-amplifier has a-plenty. At £299, this tiny affair is a show-stealer. To check its claimed universality it was wired into a stereo Alecto and thence to ESL-63s. It was a revelation, confounding any prejudices about what you could expect for this price.

Listening to Panufnik's Violin Concerto first on Radio 3 and then on the CD, the quality of detail and downnight smoothness of sound throughout was fully the equal of anything twice the price. Crisp sound, stable imagery, vivid and vivacious throughout. Decent depth, too, and with a splendidly spacious and broad soundstage. I had practically no reservations at all, apart from feeling that central images were a little over-expanded, and suspecting a degree of bitterness in violin tone. The LI is strong rhythmically. Rachmaninov's Symphonic Dances were, as they should be, more dance than symphony, with a spring-like step.

Alone - I'll come back to this later - the power amplifier is relatively less successful, but wire it to the pre and they work hand in glove. The silk lining, as it were, was provided by van den Hul's The Second carbon-fibre interconnect. It's a bit outrageous, costing nearly a quarter of the price of the power amplifier, but the better the cable, the better the synergy.

Between the two, there is a noticeable broadening of the soundstage, a graceful flow to the music and consistently delicate detail. Star performers here were Karajan's Berlin recording of Mozart's Great Mass in C minor K427 and the Boul/LPO recordings of Handel's Organ Concertos. The Berlin orchestra was grandiose, Handelian in scale (Beecham-Handelian, that is) lush in sound, broad in scope and splendidly atmospheric. Janet Perry and Barbara Hendrix could have done with a little more tonal colour and the top end could have had a little more power; there was a feeling that the shading and dynamic changes between piano and pianissimo or...
forte and mezzoforte were a bit beyond the 800, though grand climaxes were handled without stumbling. Dynamic headroom, however, does sound as though it's limited by comparison either with the EAR 834 or Copland designs. By comparison with the mid-range clarity, there is a trace of bass wooliness, but this is relative. My mental comparison for true-as-a-die squeaky-clean bass is the EAR 834 valve integrated, which is truly exceptional and weighs-in in the same price bracket as the Audio Innovations combination. A woodenness of tone and a degree of hollowness were perceptible.

The Series 800/III amplifier is a popular cost effective design that forms many people's introduction to valves. What you have to bear in mind is that valve amps are innately more expensive to make than solid state types, so although these units might look expensive, in the valve world they have to be viewed as budget designs.

Power output measured 24 watts with one or both channels driven, due to Class A working, and the power amplifier moved smoothly into clipping, as only well designed valve amplifiers can. Distortion levels were not low, however, at low or high volumes, the saving grace being that at ordinary music levels second harmonic predominated. Since this is an innocuous sounding harmonic I wouldn't expect the 800/III to sound anything other than smooth when not playing too loud. However, it produced extended harmonics measuring 1.6% in total -1dB below maximum output (clipping), which for an EL34 design with feedback is on the high side. Whilst valve amps should not be expected to produce vanishing levels of distortion, neither must they veer too far the other way either, something the 800/III gets close to doing.

The output transformers just manage to swing full output at 40Hz, but they start to flag below this frequency. It's an adequate performance, but still budget league. Audio Innovations do not include a low frequency filter, so subsonics will pass through and saturate the cores if an LP preamp that amplifies warp signals, like the Kinshaw tested in this issue, is used with it. Absence of a high pass filter allows the small-signal response to extend down to 6Hz; the high frequency limit is 30kHz (-1dB).

The power amp had some hiss on its output (-84/-88dB), but little hum. However, I would not expect either to be easily audible, except when close to the speakers, unless very sensitive loudspeakers are used (i.e. more than 90dB/watt). The preamp and power amp in combination were very sensitive, needing just 200mV for full output, or just 70mV with High output selected at the back of the preamp. This makes them capable of matching just about any source around, including a Troughline tuner.

In its measured performance the 800/III is satisfactory, but exceptional. I would urge caution with LP, since the output transformers are not protected against warp signals. Otherwise, this combination works well enough, offering newcomers an affordable introduction to the valve sound.
Dominic Todd prays silence for his appreciation of Orelle's new CD-10T and DA-180 two-box CD player.

You might be forgiven for thinking that, with a name like Orelle, this particular company has to be French. In fact, it is a British firm that has, until now, kept a low profile in this country and tended to concentrate on exports.

The entry level CD-160 was tested in our December issue, and received a rather lukewarm review which, after listening to the player, I'd agree with. However, the two-box CD-10T and DA-180 combination tested here is a completely different kettle of fish; a real force to be reckoned with in the fifteen hundred pound sector. The price of £1400 is quite reasonable for a two-box player, especially when one considers the full and carefully chosen spec.

Central to the DA-180 DAC's performance is a rather unusual DA convertor. Rather than utilising one of the many Philips-based chipsets, as Orelle do in their cheaper models, an uncommon (and more expensive than usual) Analogue Devices AD1864N chip has been incorporated. This 18-bit device offers eight times over-sampling, and is used in conjunction with Yamaha and Toshiba chips that handle filtering and automatic switching between different sampling rates. Twin transformers (a toroidal for the analogue circuitry and a cheaper frame type for the digital), are supplied. The circuit board has been well planned with much use being made of symmetrical board layout for even signal paths on both channels. Ceramic op-amps and a high quality double layered board also go to prove that much time and thought has gone into designing this DAC. Switching for two co-axial and one Toslink input from the front panel completes a competent spec. More's the pity then, that the DA-180 looks so ordinary. There's very little to actually criticise, except for the awkwardly recessed power button, but against competition from the likes of Micromega, Kinshaw and Select Systems' Dacula the styling is rather bland. Yet the finish isn't quite up to the understated looks of Quad and Linn equipment, either.

The sheer size of the CD-10T transport is the first thing to strike the user. It's big enough to dwarf many a VCR. This generosity is carried through to the large display panel, which in fact houses an LCD display only about a third the size. When the light is in the right place, one can see right through to the circuitry which is of dubious aesthetic value on a machine costing this much. The buttons are laid out neatly enough, but are rather flimsy in operation. The whole effect reminds me of an upmarket version of NAD; even the matt grey front panel bears a certain resemblance. However, as with NAD, Orelle appear to spend money on what matters. Namely, the internal gubbins.

A Philips CDM-4 transport is a little disappointing at the price (although apparently it was chosen on performance rather than cost grounds). But pure silver internal wiring and a mechanically isolated PSU more than make up for this. The isolated Power Supply Unit is particularly interesting and consists of a transformer placed upon a suspension of foam and springs, and then grounded outside the casing via a sharp spike. Also supplied with the package is a high quality silver interconnect cable with decent phono plugs.

After a couple of hours' warming up, what first struck me about the combination was how like a good analogue system it sounded. The sound had true depth and a fluidity that was noticeable when comparing the Orelle with a Kinshaw and Dacula. In comparison, the two young upstarts sounded rather stilted; the music didn't seem to flow.

With Kate Bush's new album The Red Shoes, although the poor recording and mixing skills were shown up in the form of confusion and deliberate compression, there was a lack of 'glare' that has blighted many a multi-bit player in the past. Although vocals weren't quite as smooth and refined as the best one-bit machines, the Orelle never resorted to
grain and harshness in an attempt to extract detail. But fine detail wasn’t glossed over in the quest for this natural and highly listenable sound. Playing the CD though a Lumley Stereo 70 amplifier and Ruark Broadword ‘speakers realised every nuance of Leonard Cohen’s pitiful sighs and groans. You could almost hear him ‘tighten up my gut’.

Yet you don’t have to be plunged into the depths of depression by Leonard Cohen to appreciate the Orelle’s sensitivity to music. On something more upbeat like ‘The Invisible Man’ from Elvis Costello’s Punch The Clock album, the fluent qualities of the machine were evident once again. The lower frequencies were deep, sustained and infrequently punchy and rhythmical. The bass never made itself obvious by lagging ponderously behind the rest of the music, or by drowning out detail in the midrange. One complaint I had was that Costello’s voice wasn’t projected out of the mix quite as much as I’d like. This was especially disappointing after I’d heard the depth of soundstage that the Orelles are capable of with Cohen. Having said that, the rest of the instruments were well separated and contained within a broad soundstage.

The first track of Mary Black’s Collection disc has a wonderful introduction where the bass unexpectedly reaches right down to shelf-rattling proportions for a brief moment. On the wrong system it would go by unnoticed, yet with the right speakers and amplifier, a CD player like the Orelle really does show the listener how much more is obtainable from CD than lightweight (in build and sound quality) budget machines. It wasn’t only the low frequency performance that impressed, either. Mary Black’s vocals were smooth and beguiling, yet free from compression in the higher frequencies that can catch equipment out.

Certainly, many of the Orelles’ competitors can match its performance thus far, but what made the CD-10 and DA180 special was their ability to really involve the listener. One got the impression, listening to Mary Black, that this is how the music sounded, unforced, natural and simply oozing atmosphere.

If there is a downside to the sonic side of things, then it would have to be with large scale classical music. Whilst being perfectly respectable, it comes as something of a disappointment that it is simply respectable and no more. Against certain one-bit and Crystal DAC-based machines, background noise was more noticeable on quiet passages, and when orchestral movements became especially complex, a slight confusion set in. Do bear in mind, though, that this is only when placed against a few highly revered machines that often are a good deal more expensive than the Orelle. The sound-stage width and depth, and the sheer cohesion of the music still impressed.

By now you’ve probably guessed that I rather liked the Orelle, and you’d be right. I can’t imagine anyone who purchases the machines being disappointed; unless they are a design freak or button reveller. What makes the Orelle’s performance all the more satisfying is that it simply isn’t expected from such a bland package using technology that isn’t exactly at the cutting edge. It just goes to show that excellent results can be achieved through careful design and utilisation of existing technology.

If you’re like me, still unconvinced of CD’s domination over vinyl, then this is a player that goes some way to prove that, as with vinyl, there is more available from silver discs than we may have otherwise suspected. For this reason, the Orelles also act as a good diploma, showing why not all CD players sound the same, and prove the old adage that you can’t judge a book by its cover.

Orelle CD-10T £799
Orelle DA-180 £599
Orelle Hi-Fi, Unit II, I-MEX House, 6 Wadsworth Road, Perivale, Middx. UB6 7JD Tel: 081 810 9388

---

**MEASURED PERFORMANCE**

A modest beauty of Orelle’s DA-180, at least its measured performance terms, is an honest and looking frequency response. This is probably due to the monitoring and in the matching of the various components that make up the complete system. However, because the trend is not a bad one towards high frequencies it suggests results should result in a warm and pleasant sound.

The Orelle CD-10T is physically smaller and lighter (in build and sound quality) than most CD players. However, it has a slightly higher price tag. The Orelle DA-180 is also a bit larger and heavier than the CD-10T. The Orelle DA-180 is capable of with Cohen. Having said that, the rest of the instruments were well separated and contained within a broad soundstage.

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**TEST RESULTS**

**Frequency Response**

- Lumpy response by today’s standards

**Distortion**

- High distortion mainly odd order

---

**Orelle DA-180 special was their ability to really involve the listener. One got the impression, listening to Mary Black, that this is how the music sounded, unforced, natural and simply oozing atmosphere.**
Face it...you probably already suspect that your cables aren't doing justice to your hi-fi system.

But, the problem is, how do you choose the right cables to bring out the best in your system? Especially when you have to go to a dealer and audition them on a different system and in a room with different acoustics from your own.

Now, there's an easier way. Those nice people at AudioQuest have come up with a solution that allows you to try out a whole host of their interconnect and speaker cables, in the comfort of your own home.

Is this what your cables are doing to the sound of your hi-fi?

What Hi-Fi? magazine's Trisha Mitchell-Vargas took up the challenge to see how much she could improve her system - without changing any of the components. She concluded: "It's like listening to different equipment. The improvement is enormous; the sound is more cohesive, more worthwhile." (What Hi-Fi?, October 1993.)

To make sure you're getting the best from your system, all you have to do is pop into your local participating dealer and borrow an AudioQuest Home Demonstration Kit for a few days. (As you'd expect, the dealer may need you to provide some form of security.) The Kit contains full instructions for a home audition. Then, sit back and listen to your favourite music using different combinations of the AudioQuest cables, to see which gets the most noticeable improvement in sound quality from your system. We believe you'll be so impressed that you'll rush straight back to your dealer and buy them!

Of course, you may find that your existing cables are perfectly adequate. In which case, simply return the Demonstration Kit to your dealer - there's no further obligation. At least then you'll be sure that the sound you're getting from your system is everything it could be.

To find out how, and where, to reserve your AudioQuest Home Demonstration Kit, telephone Arcam or write to Alasdair Patrick at the address below.

AudioQuest
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Arcam, Pembroke Avenue, Waterbeach, Cambridge, CB5 9PB
Tel: (0223) 440 964. Fax: (0223) 863 384.

Arcam is the sole UK distributor for AudioQuest.
hope to have a project running later in '94.

As for the modification of Linn's Kans I spoke to Linn and they said that if you have had problems finding a Linn dealer who will carry out the modifications for you, try the Australian Distributor. You need to speak to -

Jim Tate
RPM Audio Imports
306 Unley Rd
Hyde Park
Adelaide
SA 5061
Tel: 61 827 7922.

If he can't help, then Linn said that they could arrange for your Kans to be shipped back to Scotland, where they would carry out the modifications and test the speakers before returning them.

However, if you want to try and do the modification yourself, this is how to remove the drivers:

1. Remove the fixing bolts around the bass unit.
2. Tap slightly larger diameter bolts into the drive unit's fixing holes, just enough to get a good grip on the chassis.
3. Make sure that the tweeter and cabinet are well protected.
4. Use a pair of pliers or mole grips to pull the unit out. A little brute force is needed for this - but not too much. I would suggest that you pull firmly on each of the four fixings in turn until the drive unit starts to break away from the glue.

Obviously if you damage the 'speakers you will have to purchase a new bass unit, but if a little care is exercised there should be no problem.

Townshend tell us that their address change is the reason you probably have had no reply to your requests for oil. It is available ex-stock for £8.00, carriage to Australia being £9. They also list Trough fluid, £8; Rock Belt, £12; Rock Reference belt £21; Mklill clamps (£5s all Rock Ils) £42 (all prices include VAT, which can be claimed back). Their address is -

Townshend Audio Ltd.,
Tim's Boatyard,
Timsway,
Staines,
Middlesex TV18 3JY
England.
Tel: (0784) 455866
Fax: (0784) 455044

Good luck! DB

SECOND OPINION

Early in the year I wrote to you asking your advice on an upgrade path for my Garrard 401/SME 3009/AKG P8ES combination (plus CD player recommendations). In the intervening period before your reply I had the opportunity of purchasing a 'mint' secondhand SME V arm which proved to be one of your recommendations, your reply however recommended scrapping the old AKG P8ES. Before using the arm I decided to get the unit checked out by SME and I made arrangements to take it to their service department in Steyning, and while talking to them asked their opinion of a short list of suitable cartridges.

Their reply was surprising in that some of their recommendations agreed with yours. However, their main comment was that I should be better to get in touch with Mr Len Gregory of Croydon who specialised in rebuilding cartridges and in particular the AKG.

This I did and after spending an enjoyable couple of hours with Mr Gregory, talking and listening to records, I was impressed with his products.

The end result is an exciting unit of 401/SMEV/re-built AKG P8ES combination (plus CD player recommendations). In the intervening period before your reply I had the opportunity of purchasing a 'mint' secondhand SME V arm which proved to be one of your recommendations, your reply however recommended scrapping the old AKG P8ES. Before using the arm I decided to get the unit checked out by SME and I made arrangements to take it to their service department in Steyning, and while talking to them asked their opinion of a short list of suitable cartridges.

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This I did and after spending an enjoyable couple of hours with Mr Gregory, talking and listening to records old and new, was very impressed with his products.

The end result is an exciting unit of 401/SMEV/re-built AKG supported on a Mana reference type wall shelf. The sound is very CD like in the best sense, i.e. very little background noise, great detail and depth of soundstage, but without the CD disadvantages.

I hope you will mention the efforts of Mr Gregory who I feel deserves great praise for his efforts, and the only point of disagreement with your recommendations would be the 'scrap the AKG' bit.

Many thanks again for your help and the enjoyment and information many of your readers get from a real unbiased hi-fi magazine.

D H Lines
Benfleet,
Essex.

I'm glad that you had such knowledgeable and helpful experiences - and that we were wrong! Our's was the minimum hassle route. We can recommend items offering the very best sound, like Tim de Paravicini's Troughline valve stereo decoder, for example, but the need for pilot tone phase alignment complicates matters horribly, meaning that although the item is one of the best, this may not coincide with your experience, whereupon we'll receive a stiff letter of complaint. Len 'the cartridge man' has put a lot of effort into AKGs and as a result you doubtless have one of the best LP setups possible. NK

MORE RUMBLE

I was interested to read the piece in your October issue by Haden Boardman concerning rumble on the Garrard 401. Many years ago I purchased this turntable, with the SME plinth and the SME pickup arm, for what was then a very considerable sum of money. I was somewhat amused to see me out.

When I was much younger, the mainstay of the hi-fi world was tracks, or during exceptionally quiet passages of music. I still have the same set-up, though with several changes of cartridge. As I am now getting long in the tooth, and increasingly cloth-eared due to presbyacusis, I am sure it will see me out.

I hope you will mention the efforts of Mr Gregory who I feel deserves great praise for his efforts, and the only point of disagreement with your recommendations would be the 'scrap the AKG' bit.

Many thanks again for your help and the enjoyment and information many of your readers get from a real unbiased hi-fi magazine.

Good luck! DB
Noel Keywood and Simon Cooke are intrigued by the 'Affairs' of Denon's new TU-580RD tuner, but is it really what they are looking for?

The wavebands are filling rapidly with new stations. Reggae from Willesden pounds out of our workshop as Nick, resident engineer, builds valve amplifiers. It's good reggae too, some of these stations may be small 'community' operations, but they can be a welcome alternative to standard fare. After all, didn't Rankin' Miss P prove so popular that even the BBC ended up convinced and took her on?

Crowded airwaves have placed an emphasis on tuners with plenty of presets. I filled twelve in an instant on NAD's wonderful new 402: Denon's new TU-580RD has no fewer than thirty that can be freely allocated to VHF/FM or to medium wave (no long wave). So it has plenty of room on board for storing myriads of stations.

It has plenty of other extras, including remote control for armchair station hopping and Radio Data System (RDS) for well - messages. I've yet to discover the real value of RDS in a domestic receiver, partly because it isn't yet being fully utilised by radio stations, and partly because those that need it most use it least. Recognising Sunrise radio is more of a problem than Radio 1, yet the latter will inevitably identify itself on RDS, whilst the former won't. Perhaps time will alter this. RDS certainly seems to have a lot to offer, even if its use currently demands arcane knowledge of radio engineering gobbledegook, such as Enhanced Other Networks, plus a sharp cultural understanding of the differences between Pop, Rock, Easy listening, Light and Serious Classical and such like. There's a button on the receiver which your TU-580RD will change stations automatically as you move into a reception area, that's proving very useful in the car of course. What you can't do at home with it, which is more heartening and handy remote control facilities which mean it's a welcome alternative to standard fare. After all, didn't Rankin' Miss P prove so popular that even the BBC ended up convinced and took her on?

Apart from that, the Denon coped admirably with the upper 'fast' bass and midrange frequencies, and extended its repertoire well into the treble.
Even Leslie Nielsen's curiously rounded tone was properly represented by the Denon, and a delight to hear away from the battle of overrung 'Naked Gun' or 'Police Squad' soundtracks.

The Denon was rather good with smaller musical arrangements, although the lack of bass - common with so many tuners - was a big disappointment with the selection of dance, rock and reggae on offer when I was listening. It can be really disheartening to hear a dirty, gutwrenching bass line reduced to the sort of muffled slap provided for just about every tuner available today, the Denon, unfortunately, included.

As I said then, the Denon coped admirably with the fast upper bass and midrange frequencies, and extended its repertoire well into the treble. It only fell down with high transients, such as cymbals and smaller cymbals, which had a tendency to buzz, rather than ring. A commendable performance all round.

Larger works, on the other hand, gave the Denon quite a bit of trouble, as the stage became something of a vague wash of instrumentation. Time and again, with classical orchestral works, the separation of instruments left a lot to be desired, and this lack of definition caused the orchestras - especially the Berlin Philharmonic - for some unknown reason, to sound as though they weren't interested in playing.

Returning to what the Denon does best, vocals and backing music, there's an advert for cars which spoofs 'The Hitchhiker's Guide to the Galaxy' being broadcast on Capital at the moment. Since hearing this on my tuner at home, I've spent a while wondering whether the narrator really is Simon Jones - or somebody else - doing a bad impersonation of Simon Jones (as the Rook). Here, the Denon - from first syllable to last - left me in no doubt. Whoever it is, it ain't Jones.

Overall, then, the Denon is an excellent tuner within its own limits, and if you don't ask too much more of a tuner than that it has a nice touch with rock and jazz, finesse and atmosphere with the spoken word, and a bit of reading matter on the display, this could well be the tuner for you. If you demand an imposing sweep of sound from Radio 3 or Classic FM, then I'm afraid you'll be disappointed. There are better tuners out there for orchestral music, but I don't know of any with RDS. If you want an RDS tuner, make sure you audition this one.

**MEASURED PERFORMANCE**

To date the RDS tuners I have measured have been hissy. Whether this is due to RDS directly, or more likely due to the need to make cost savings at the expense of performance to include it at all, I don't know. Whatever, Denon's TU-580RD reverses the trend by incorporating RDS whilst at the same time being quieter than the norm, with -75dB hiss level from a signal of 1.25mV or more from the aerial.

That's low enough to mean tuner generated hiss will be inaudible in use, providing a good aerial is used. Perfectionists only then need note that a lot of material broadcast is taped and will hiss in any case. Live studio recordings usually reveal the truth though, as do news broadcasts.

Wide stereo channel separation and very low distortion were achieved, the distortion analysis showing that minuscule amounts of second and third harmonic predominated: Pilot tone (19kHz) and subcarrier (38kHz) were well suppressed, yet the filter affects audio frequency response little, as the response analysis shows. This reveals a flat characteristic right up to 16kHz, free from upward or downward trends, suggesting tonal neutrality.

Like so many modern tuners the Denon has selectable wide/narrow IF bandwidth. 'Wide' should give lowest distortion and widest channel separation, at the expense of selectivity (the ability to sort out stations). However, as usual, differences between Wide and Narrow were inconsequential in my view. These days, high selectivity (Narrow) doesn't compromise measured performance, so there's little apparent point in offering Wide-IF. In truth, I suspect a truly wide-IF tuner (like a Leak Troubeline) does possess sonic benefits, but then selectivity falls to 60dB or less, too low for Japanese engineers to accept I suspect. The Denon hits 70dB in Wide, but around 93dB in Narrow. In use, few people will notice any difference in performance between the two I suspect.

The signal strength indicator was similarly a little redundant. It has no fewer than eight sections, but they all light up when a gnat coughs, showing maximum with just eighty millivolts of a volt, when a signal from the aerial fifteen times stronger than this is needed for best results.

However, perhaps with remote control and RDS, the TU-580RD has enough useful features not to really need more. Denon tuners usually manage to offer a high enough standard of sound quality to maintain a good and deserved reputation in the marketplace. This one measured well enough to be able to maintain it.

**TUNER TEST RESULTS**

<table>
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<th>Frequency response</th>
<th>5Hz-16kHz</th>
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<tr>
<td>Hiss (CCIR)</td>
<td>-75dB</td>
<td></td>
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<tr>
<td>Signal for minimum hiss</td>
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<td></td>
</tr>
<tr>
<td>Selectivity (at 0.4MHz)</td>
<td>69/93dB</td>
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<td>Sensitivity</td>
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<td>20µV</td>
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**signal strength meter**

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<td>7</td>
<td>63</td>
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<td>8</td>
<td>80</td>
</tr>
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**Denon TU-580RD**

**Hayden Laboratories, Chiltern Hill, Chalfont St. Peter, Bucks SL9 9UG.**

Tel. 0753 888447
Simon Cooke takes a liking to Technics' latest budget SL-PG340A CD player, but has reservations about the facilities it provides.

It must be said that compact disc players around the £150 price point generally fail to inspire reviewers to the heights of rapture. Manufacturing costs are pared back to the minimum on these players, and it has a tendency to show in the reproduction of the music, which is often coarse and irritating, rather than easy on the ear.

Despite the necessity of low production costs, to keep the retail price acceptable and competitive, the Japanese hold fast to the belief that facilities sell hi-fi. Judging from their market presence, I have to admit that they must be right, and while the Technics SL-PG340A is not brim full of gadgetry - it doesn't even have a remote control - it isn't exactly a paragon of minimalism, either.

Apart from the usual CD facilities, such as random play, a numerical keypad to facilitate track access and a headphone socket with volume control, there are also facilities for editing onto tape: peak level search, tape length select (or you can key in your own time limit), auto fade at a selected time, and it will even store editing information for editing several CDs onto tape. More than that, the edit functions can be set to automatic when a Technics tape deck is used, and if you have a separate Technics receiver, you can remote control the SL-PG340A CD player via that. Now ain't that grand!

Just bear with me a minute while I go over that again. This is a budget CD player, for which you need a Technics receiver to use a remote control that comes as standard with almost every other player on the market. So, effectively, that's a CD, tuner, and amplifier. Then, naturally, you'll buy their tape deck so that you can use all of those - useful, but surely not that useful - record functions and have a matching system. My, but that's got the lower end of the separates market sewn up, hasn't it?

To tell the truth, though, I was that cynical about this player before I'd heard it, but I did wonder whether I was being unjust once I started listening. Want to know why? Read on.

Sitting down under a cloud of cynicism and despondency at Matsushita Corporation’s marketing strategy, I put on a little esoteric double bass music, which suited my mood. The strings welled forwards out of the speakers and engulfed me in a sound which was big and easy, but not too full. I had a feeling that this machine was hiding real guts and muscle, but that it had chosen not to display it all, just yet.

Perhaps the strings did not quite have the detail and musicality of more expensive players, but the Technics certainly displayed more in this field than any similarly-priced player I know. There's a selection of sounds on the double bass CD which are made by bowing close to, or below, the bridge of the bass. More expensive players would have resolved enough information for the listener to identify the instrument from these unbasslike sounds, but the Technics could not. It still managed to resolve the actual mechanics of the bowing exceptionally well, however, and the weight and heft of the bass line left remarkably little to be desired. Bass drums also reproduced well, with a real slam.

Moving up into the midrange, the tones became even cleaner than they had been in the bass. All instruments and vocals were well produced, and although the overall impression was of a slightly over-hard presentation - like a four-minute egg - to quibble about this in a machine of this price would be churlish. With the treble came a slight...
The strings welled forwards out of the ‘speakers and engulfed me in a sound which was big and easy, but not too full. I had a feeling that this machine was hiding real guts and muscle, but that it had chosen not to display it all, just yet.’
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...continued from page 47

home-built valve amplifiers, with heavy and lumpy transformers on metal chassis. (I still have a Williamson, tucked away in a cupboard.) Then came transistors, printed circuits, IC chips and plastic boxes. Now it seems that the latest thing is home-built valve amplifiers, with heavy and lumpy transformers on metal chassis. It seems the wheel has come full-circle. The main difference is the price. I would think £700 is a bit steep for an amplifier kit, even by 1993 standards.

Derek P. Winks
London.

We do two power amplifier kits at the moment, the K5881 at £395 and the 300B at £750. The 300B is not just a simple, conventional amplifier kit. It is a very special and original design using the best components to get the most from the 300B valve. There are various other 300B push-pull amplifiers on the market as fully built products, but I don't know of any that retail for less than £2000. And I would be surprised if the transformers they are using match the performance of ours.

Similarly a manufactured version of the K5881 is not available even at twice the price. Our kits offer exceptionally good value for money and offer enthusiasts the chance to build an amplifier that they would otherwise never be able to afford.

DB

Kits now and "then" (i.e. circa 1950/60s) are quite different in their philosophy, and in their manufacturing problems. When valve amps reigned, a kit was usually a cheap way of building what was commonplace. This is still the general perception of the role of a kit, but it doesn't apply to ours, nor Audio Innovation's.

Whilst the absence of labour charges makes our kits less expensive than built product, the fact that they use the best components, sourced from what is now just a handful of manufacturers, inevitably pushes costs up. Try finding four 22µF polypropylene power supply smoothing capacitors in a commercial amplifier, for example. They were specially ordered and the batch took ten weeks to manufacture. Items of their quality, expense and specification were not, I can assure you, used in the past.

We see our kits mainly as an opportunity to build something that provides a lot of pleasure, both in the building and in the listening afterwards. Having spent our adult lives doing just this, we do it from our hearts. The gratifying thing is that others get as much enjoyment from it too - electric shocks and all! Quite what the magic is, even we're not sure, but since our DIY draws a strong response from around the world, it is pretty fundamental - and it sure as hell beats watching TV all night! NK

VINYL LOVERS' LAMENT

My friend and I who have been audio enthusiasts for 20 years wish to register our disappointment and not a little disgust regarding our visits to both the recent Hi-Fi Shows, Heathrow and Live '93. We both own Linn turntables, Naim amps & Rogers/Spendor speakers. We do not own CD players of which we are unimpressed, as we have been able to have for several days loans of players such as Naim, Meridian and Marantz. The main reason being that it was utterly impossible to become involved with the music compared with vinyl.

However, having been titivated by Hi-Fi magazines regarding valve amplification, our quest was to hear what they sounded like when fronted by a good turntable. We were aghast when we discovered only three turntables were on show, and only one with valve amplification, which indeed sounded fine. Where were all the turntable specialists? Had they given up in the face of CD? And why did the amplifier and speaker specialists only play CD machines when a good turntable alongside would have shown them to their full potential? Indeed Naim didn't even have a Linn, stating that they now had nothing to do with them, anyway it would give them "too much hassle" to set up. What about their Aro arm or separate power supply? Were they rather afraid that the Linn would show up the shortcomings of their precious CD player? Even Linn appears to have given up. Their CD machine was sited on a rack with all their amps, and their LP's were sited on one side, on a wall shelf attached to a wooden wall (With the lid on!) It sounded awful! Eventually we came away utterly disillusioned. We felt that we had been swept under the carpet and totally ignored. In ending, we believe that Dominic Baker got it right in the October issue "Convenience now appears to rate higher than quality". L. J. Reed Welling, Kent.

PS: When having a conversation with a staff member of a CD company (White T-Shirt logo an' all!) comparing CD and Vinyl, he was nodding his head in a rather bemused manner and when I had finished, he said: "Ah! but it doesn't have a repeat button!" Groan...

Quite a trek for you, but well worth it if you are into vinyl and valves, is the Chesterfield hi-fi show. The number of manufacturers is limited, this being a small specialist event, but the majority of systems are vinyl sourced. When I went up in mid April earlier this year there were turntables from Nottingham Analogue, Roksan, Origin Live, Avondale Audio, etc and valve amps from Concordant, GT Audio, Groove Tubes, etc. The organisers promise that the '94 show will be even bigger, so it should be worth a visit. DB

BATTLE OF THE TAPES
There has been some discussion recently about cassette vs. DAT vs. DCC as recording media.

May I muddy the waters a little further, by telling you of a recent experiment? I have tried recording some excerpts from CDs onto, firstly, true chrome tape using a good quality cassette deck with Dolby B type NR, and secondly, the same pieces onto the Hi-Fi VHS medium, using an appropriate grade of videotape.

I discovered, when I compared the recordings with the originals, that the VHS copies sounded "closer to the original" than the cassette copies; in particular, they were able to accommodate a greater dynamic range and gave a better rendition of the highest frequencies.

It seems that Hi-Fi VHS is rarely mentioned in magazines as a viable alternative to compact cassette, DAT or DCC. Have you any comment?

David Smith
Bletchley, Beds.

I have also tried recording music onto videos, with similar initial success. But what I quickly discovered was that for the same money that a stereo video costs, you can go and buy a three head Nakamichi. This, when used with good chrome tapes, has far better bass depth, dynamics and a clearer treble.

I agree, however, that there is potential for video tape based machines to give superb subjective results, but I doubt if we will ever see hi-fi videos due to the inconvenient size of the tapes, they don't exactly lend themselves to personal stereos or in car audio do they? DB
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My view has long been that conventional electrical measurements do not, except in one or two cases, correlate at all with our listening experience. Measurement is fine for telling whether something works, or to make it work, but it is pretty useless in saying how it will sound.

I'm in a fairly unique position here because, for a living, I measure and listen to hi-fi products all day long. This has been going on for some time now and all I have learnt is that there is something - something big - eluding me on this subject. How can it be that among amplifiers which distort, some sound awful, whilst others sound superb? How is it we apparently can't easily hear large distortions in electrical measurements, but we certainly can detect minute ones in CD players? Why is it that loudspeakers that should, according to theory, image well, may not, whilst others that look all wrong in their design, image well? In audio, nothing quite seems to fit conventional theory, something that is deeply puzzling. It also suggests that conventional theory is very strong, or, more accurately, inappropriate. Linear electrical measurements do not assess or describe sound quality.

Over the last few years in particular I have come to the view that the brain and ear rely on clues, or triggers, more than than progressive effects and that the sounds that stimulate it are often deeply complex. Here's one of my favourite examples.

Testing a pickup cartridge, watching its distortion behaviour on a high speed digital analyser and listening to the test tone, I note that as recorded level on a disc rises, so does distortion - to many percent. Yet the tone I am listening to remains a tone, fairly clean except for some slight change in timbre and quality. Suddenly, the cartridge starts to mistrack. My ear/brain hears something entirely different - not a tone, but a buzz. This to me, is a different sound altogether, yet the analyser shows that whilst the harmonics are jumping up and down more, there hasn't apparently been an equivalently large change in distortion.

The answer here lies, I believe, in the fact that I am not hearing the distortion, so much as the modulation of the distortion, something quite different. If this is the case, then we need to be measuring not the steady state harmonic distortion produced by hi-fi products, but the way it is modulated by music signals. Or perhaps it is the way distortion products change with level.

So whilst your stereo valve amplifier isn't one of my favourite examples, it has a peak which we perceive generally as a strengthening of reality. A peak is in the box, commonly have a sound 'forward' as it were. The arrival of Sensaura defies our ability to locate a sound, so subjectively eliminating the speaker as an apparent source. The sound therefore becomes detached from its true source - a fascinating way of seeing the phenomenon.

And there's more. Richard Brice explained that their OM 3D system can produce sounds behind a listener. This surely is magic? To an engineer it is. An engineer will analyse, from measurement, and a standard amplitude/phase model of the conditions and attempt to repeat them through signal processing.

Reflections from Noel Keywood

kaleidoscope

This, Richard Brice told me, has been done and it works - until you move your head. Then you immediately realise, because head movement wrecks the necessary phase relationships, that the sound is coming from in front, not from behind.

Now for another fascinating and equally surprising fact. We rely on our shoulders to work out the height of a sound! As a sound source rises, reflections from the shoulders to the ears change phase relative to direct sound. The brain instantly assesses azimuth from this, Dr Alastair Sibbald told me. So whilst your stereo loudspeakers remain firmly planted on the floor, sound from them can be made to appear to rise upward; EMI have a helicopter recording to prove it.

The arrival of Sensaura will, I hope, cause the whole hi-fi industry to question what it is trying to achieve. In future we may be faced with some surprising developments based on this new understanding. I just hope the cheap transistor amplifier that sounds like a valve amplifier isn't one of them.
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IN THE MARCH ISSUE

Planting daffs in the garden and perhaps an aerial on the roof will have to wait, until the snow has cleared. In the depths of winter Hi-Fi World's March issue looks at less strenuous matters.

DPA TEN TWENTY FOUR DAC
Aiming at the peak in digital convertors, DPA have abandoned chipsets, instead designing their own digital convertor. The first ever review of this radical new, gold plated, copper clad CD convertor will appear in our March issue. Don’t miss it!

BATTERY POWERED DA CAPO CONVERTOR
Britain’s other amazing CD convertor, the Pink Triangle Da Capo, now with added battery power and a host of special, plug-in filters. We look at one of the strongest performers in the market, to see whether the new additions keep it at the top.

HEYBROOK INTEGRA
Not averse to scaling lofty peaks in sound quality, Heybrook have another stab at the amplifier market with the new Integra. Will it bring them the same success as their loudspeakers?

BUDGET MOVING COIL CARTRIDGES
Is it worth upgrading to an inexpensive moving coil cartridge, one that won’t whip up some chilly financial winds? We measure and listen to interesting designs from Glanz, Denon, Goldring and Ortofon.

NAD 602 CASSETTE DECK
NAD demonstrate their skills and ingenuity on a new cassette deck - the 602. Fitted with Play Trim, we test this new model thoroughly to see whether NAD can climb past the Japanese when it comes to cassette.

B&W620i
A new floorstanding loudspeaker from B&W that keeps to the lower slopes in its price, but tries to rise above rivals in other areas. Giving 90.5dB for just 1 watt when we tested it, will the 620i be our choice for high quality low power amps, like the Sugden A2.1a reviewed in this issue?

DIY SUPPLEMENT No7 - APRIL ISSUE!
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I must admit that I was a little dubious when I heard that the Kinshaw Phono Centre was the product of a frustrated enthusiast. Home-designed products can often be well, a little hit or miss, shall we say. A design that proved a success in prototype form may well be found simply uneconomical to manufacture or greatly impaired once mass produced. Yet once in a while, a product like the Kinshaw PC comes along that does not simply compete with the major manufacturers, but raises the stakes.

Electronics engineer Peter Hawkins considers that there is a gaping hole in the market for a phono stage that offers truly low level background noise. Not content with making do or modifying an existing phono stage, he designed and built his own from scratch. It's to the credit of Hawkins' friends and the professionals consulted that a manufactured version made it onto the market. Without encouragement it could still have been the sole preserve of one man. Swapping my own home-built phono amp for the Kinshaw I set out to see what all the fuss has been about, and what makes the PC so special.

The slick, yet understated boxes give nothing away. The phono stage and outboard power supply, now occupy narrow 'Naim width' cases that consist of a black acrylic front with a grey powder-coated steel wrap. Subtle green and white logos set the design off to create a classy and unobtrusive product.

What makes the Kinshaw special, though, is what's inside. The component standard is of a high quality throughout, which no doubt plays a large part in keeping noise to a minimum. The power supply shows intelligent design too. A toroidal transformer is fed via a mains filter, and the ripple free design also makes use of a RF filtered output for further noise reduction. Gold phono sockets and good quality, thick cable (especially the insulated mains cable which is as thick as a finger) neatly finish off a well thought out and professional design.

The selectable cartridge impedance adjustment (on MC and MM), really appealed to me. One of the downfalls of phono stages such as the Michell Iso, is that not only are you restricted to Moving Coil, but impedance is now factory set to suit a specific cartridge. Fine when you first buy the amp, but not so convenient should you decide to upgrade or change cartridge brands in the future.

To call the 'Kinshaw dynamic' would be the understatement of the year. Half way through Sting's 'An Englishman in New York', the bass takes a break only to be replaced by drummer, Manu Katche, beating the drum kit to within an inch of its life. This particular section had a similar effect on my Celestion SL600s, whose woofer cones seemed close to leaping out of their cages. Quite a feat for a speaker of such a low sensitivity, driven by nothing more exotic than a Pioneer A-400.

The point is, that the Kinshaw's performance was so impressive that it had the effect of making the A-400 sound like over £1000's worth of esoteric kit. Rather than simply listening...
to a new phono stage, it was like listening to a whole new amplifier. Dynamics weren't the only part of the music to flourish either. The PC had incredible depth. Depth that you only normally get from four-figure CD players. In short, I've never heard a mid-priced phono stage go so low and yet remain controlled and articulate.

Fleetwood Mac's 'Rumours' proved similarly dynamic and punchy, but by the same token, it wasn't quite as smooth as I was expecting. A slight harshness crept in on the vocals, and female vocals in particular seemed slightly recessed towards the rear of the soundstage. Having said that, this is being supercritical, and is only really made noticeable by the sheer depth given to lower frequencies. This was also offset by the introduction of 'The Chain' with its vivid strumming banjo and excellent definition and attack on drums. Again, the lack of background noise meant that just the right sense of tension could be created from the quiet 'BBC Grand Prix' section with its solo bass guitar.

In the light of such an involving performance, the soundstage fell a little flat. Imaging between the speakers was quite a lot came from the extremities of the soundstage. Although this is hardly a serious flaw, it does come as something of a disappointment when the rest of the sound proved to be of a first class standard. Once again though, it's something one actually has to listen for, and in the context of simply listening for pleasure it went almost unnoticed.

With Acoustic Alchemy's 'Red Dust and Spanish Lace', a trace of harshness and forwardness came through. On the plus side, the sound was fast, lively, and rhythmical, the Kinshaw portraying instruments as though they were live in the room. The instruments didn't have quite as much space as I'd have liked, but the guitar and bass were bubbling with such life and vibrancy that the tapping foot and nodding head proved this wasn't going to get in the way of my enjoyment.

Finally, Rocking Jimmy’s 'By The Light Of The Moon' was firmly secured in place under the record clamp. This would prove a test for the Kinshaw, as the recording can sound rather veiled, but ultimately has that unmistakable 'live' sound. I sat back to be blasted by a raucous and rowdy ear bashing that had the cat tearing down the door. Yet, after letting the cat out, I didn't act upon my initial reaction and reach for the volume control, but instead found myself sitting down and revelling in the presence and intensity of the vocals.

It wouldn't be idle hype to say that I found the Kinshaw phono stage a revelation. Indeed, it made me rethink the importance of a phono stage to a good quality vinyl system. Several amps I've tried costing between £500-£2000 simply couldn't match the £780 combination of A-400 and Kinshaw.

Needless to say, when mated to someserious amplification (notably valve) the results were truly staggering. Yet the real shock comes to those with amps such as the A-400 which don't have a particularly good phono stage to begin with. Such is the contrast that you'll wonder how you ever managed without it. And returning to the system without it can bring about serious withdrawal symptoms, as I'll testify. Complaints to offset the superlatives are few and far between. Harshness in the upper-mid can occasionally tarnish an otherwise refined performance, and the soundstage is a little compressed in terms of width. Other than that: it's dynamic, rhythmical, detailed, fast, quiet, fluent, has superb depth and bass control, solid imaginary, and above all is musically involving. And I want one! Recomended with platinum stars on it.

**I found the Kinshaw phono stage a revelation.**

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<table>
<thead>
<tr>
<th>MEASURED PERFORMANCE</th>
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<tr>
<td>In places this disc pre-amp has an impressive performance, but then when you use top grade off-the-shelf integrated circuits, it isn't too difficult. In other places it departs from sensible and well tried industry standard rules of thumb.</td>
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<tr>
<td>The most unusual feature was a moving magnet input sensitivity of 10mV for 1V out. This will work with all pre-amplifier/power-amplifier arrangements - but only just. It's barely enough to drive an insensitve power amp (e.g. Quad II, EARS19) through a passive pre-amp, for example; volume will need to be turned right up to maximum.</td>
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<tr>
<td>With an active pre-amp having a 300mV input sensitivity, or a passive/unity-gain pre-amp like our own, feeding a sensitive power amplifier (like our own K5881), the Kinshaw won't demand that volume is turned right up, as it will with amplifiers of lower sensitivity.</td>
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<tr>
<td>It's usual to make MC sensitivity ten times that of MM. Kinshaw's is thirty times greater. It will suit very low output MCs.</td>
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<tr>
<td>Frequency response has been made ultra-wideband at 6Hz-136kHz. However, that means the IEC 5180µS warp filter time constant has not been included. You do get very deep bass from extending gain down to 6Hz, but with reflex loudspeakers you also get a lot of cone flap from warps.</td>
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<tr>
<td>This head amp is well built but it has some weaknesses. Used with reflex speakers and compliant MM cartridges, cone flap will occur. Used with MC cartridges, some hiss will be audible.</td>
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<th>MM</th>
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<tr>
<td>Frequency response: 6Hz-136kHz</td>
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<tr>
<td>Separation: 61dB</td>
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<td>Noise: -94dB</td>
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<tr>
<td>Distortion: 0.005%</td>
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<tr>
<td>Sensitivity: 10mV</td>
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<td>Overload: 100mV</td>
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<td>Input R/C: 47V/100pF</td>
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<th>MC</th>
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<tr>
<td>Frequency response: 6Hz-136kHz</td>
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<tr>
<td>Separation: 51dB</td>
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<tr>
<td>Noise: -70dB</td>
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<tr>
<td>Distortion: 0.006%</td>
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<tr>
<td>Sensitivity: 0.3mV</td>
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<tr>
<td>Overload: 3mV</td>
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<tr>
<td>Input R/C: 25/30/100R</td>
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**Distortion**

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<th>5%</th>
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<td>No measurable distortion</td>
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**Tone**

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<td>No measurable distortion</td>
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Why do interconnects sound different? I've frequently experienced the sonic effects of reconnecting my hi-fi equipment with different cables and I've read many theories to explain these differences. The question I want to consider this month is: is it really necessary to journey to the edges of our understanding in order to explain these effects? In some cases the causes are quite simple.

Most signal cables are of the coaxial type. This means that both conductors, the signal carrier and the earth return, lie about a common axis - hence the term co-axial. Almost without exception the outer conductor is formed of a fine wire braid which encloses the inner conductor. This conductor may be solid or formed from many smaller wires. The conductors are separated from each other by an insulating material known as a dielectric.

"Serious" audiophile cables are manufactured with two inner conductors twisted together. The overall braid of the cable functions as an electromagnetic shield only and carries no signal current. For this reason the braid screen is often only grounded at one end of the cable.

Many claims are made for the apparent audible signatures of different cables, but I have come to believe that the dominant "cable effect" is capacitance. It is the size of the cable and nature of the dielectric that determine the capacitance per metre of any cable, so cable construction affects the sound.

So does this mean I think all cables sound the same? Most certainly not. Although I do believe there is no such thing as the "sound" of a cable, it is certainly possible for a change of cable type to bring about a noticeable change in a system's performance, because of the effect each cable has on the circuit overloads. This shows how heavy cable capacitance can affect sound quality and the subjective outcome. Many people believe heavy capacitance dulls the sound, but in many cases - this one included - it results in brightness.

As you can see, cable capacitance causes many subtle and varied effects in a hi-fi set-up and accounts for many more audible effects than is often believed. This leads me to offer a few rules when choosing cables.

Remember, when you choose interconnects, that capacitance is the parameter most worth seeking out in manufacturer's (or review) information and that low capacitance is the property that least upsets all surrounding circuits.

In your own system, try to audition a cable in one of three categories; high, medium and low capacitance. Remember too, that whilst passive control-units will lose top-end when used with a high capacitance cable, active pre-amplifiers will also be effected, and that may well be altering the sound in one of the subtle ways I have described.

The distortion occurs at high signal levels when the valve moves into overload as a result of the output circuit's inability to discharge the cable capacitance (via its cathode load) as effectively as it can charge the cable capacitance (via its forward conductance). The upshot is asymmetrical waveform distortion where the rising edge of a symmetrical signal is much faster than the falling edge.

Subjectively this causes a glassy, muddled sound as the circuit overloads. This shows how heavy cable capacitance can affect sound quality and the subjective outcome. Many people believe heavy capacitance dulls the sound, but in many cases - this one included - it results in brightness.

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The message here must be: don't use high capacitance cables with passive pre-amps. The same general advice cannot be applied to active pre-amps because they invariably have a low output impedance, but then being active they also have other problems.

Contrary to popular belief, employing an active pre-amp does not guarantee immunity from cable capacitance effects. For instance, many solid-state output circuits are susceptible to considerable response peaking (and even sometimes incipient instability) due to capacitive loading. I have observed this effect many times in both consumer and professional audio equipment and the audible results are, mostly, unpleasant.

Valve output stages can suffer as well. Loaded with a large capacitive load, all sorts of unwanted effects start to occur. Take, for example, the classic single-ended triode cathode-follower circuit. This type of circuit is prone to a particularly nasty form of asymmetric slew-rate limiting when heavily loaded by cable capacitance.

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Whatever your aspirations.
A hi-fi can range from £159 for the Samsung PCD-730 portable "ghetto-blastzer" to £1,000 for a Dolby Pro Logic Midi system from Sony." wrote a journalist in The Independent last week. It's not only hi-fi that's suffering in the recession, but investigative journalism as well! Unwilling to pick up a telephone to a local hi-fi dealer, who could have told him otherwise and provided a free demonstration too, the writer instead appears to have decided to base his article around a couple of midi-system brochures from some Japanese manufacturers.

If, with all the resources available to him, and some small input of effort, this journalist can't find real hi-fi, then how can we expect the general public to be made aware of it? Even these middle class, educated readers of The Independent who had all along suspected that something better than Samsung or Sony existed, perhaps from a glimpse in a shop window, have just had their hopes destroyed. Hi-fi is a midi-system and a British hi-fi is a midi-system with a pair of British loudspeakers!

The writer even swallows the notion that Dolby Pro Logic is all about hi-fi, and even his understanding of it or surround sound appears dubious. I'm not asking for national newspaper articles on Yohinos, electrostatic loudspeakers, or even valve amplifiers, but at least budget British hi-fi separates should have got a mention.

For the various systems that he mentions in the article, all midi or mini systems, there is a brief assessment of sound quality for each. The £159 Samsung gets an 'average', the £1100 Sony 'superb', the £1000 Technics SC-CH 950 'good'. This does not help the non-enthusiast at all, who could only draw the conclusion that for £800-900 more than the Samsung you get something which sounds 'good' or even 'superb' as opposed to 'average'. How does the sound improve? Is there more bass, does it go louder, does it sound clearer? A simple subjective description may have helped the readers to understand a little more about what you get for all that extra cash, and a dealer could again have provided an unbiased view. Then some readers may have been persuaded to go in to their local hi-fi shop and have a listen - who knows?

The music press have also been showing an interest in hi-fi recently, although their coverage has been more enlightened and even entertaining. Vox have run features on valve amplifiers and Q magazine on equipment tables, to name but two esoteric subjects. This is commendable, and their use of known writers from the industry gives the articles credibility.

Recently Vox have run an interview with Ivor Tiefenbrun of Linn. This company has taken a very different direction over the last few years. Linn now aim their equipment at the completely non-technical customer who wants the best sound in their home, saying that they can no longer be supported by the primitive, hobbyist market of years past.

What Linn have done is to develop a range of hi-fi separates all in the same size and style casework. A system can be linked up to be fully remote controlled, offer all the case of use of a Japanese midi system, yet give true high fidelity reproduction. It's a nice idea, and Linn have set advertitising these systems outside of the normal hi-fi circle to attract the average man on the street, albeit with a few grand worth of disposable income, into British hi-fi. And no doubt they will have some success with this marketing approach, being able to offer a serious alternative to the midi system that sounds better, is reliable and widely available.

"British hi-fi is a midi-system with a pair of British loudspeakers!" Half the battle in all this is to remove current preconceptions that most people have about hi-fi. Not only the one about a £1000 midi system being the best hi-fi available, but about a British hi-fi system being a collection of odd shaped and randomly styled boxes that look unattractive in the home. Or about valve amplifiers being unreliable, or that an 80watt amplifier is better than a 30watt amplifier. Hopefully anyone reading this will have long ago disposed of such thoughts.

Hi-fi isn't just for determined hobbyists. Everybody enjoys music and everyone can hear the difference between a midi system and a quality hi-fi if they are given the chance. Fortunately, the majority of specialist hi-fi dealers are more than willing to demonstrate the difference, some even stock a couple of midi systems especially for this purpose - or for those who can't be persuaded to part with their graphic equaliser.

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Dominic Baker

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<td>£167</td>
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<td>Force 4</td>
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<td>Force 8</td>
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All kits are available in Plus and Basic forms.
With Christmas over and pockets suitably empty, now may not seem like a good time to be buying hi-fi. If this is the case and someone forgot about that Yoshino amp with Atlantis MCI speakers you’d been promised, fear not, because there are literally thousands of tweaks that can transform your hi-fi, and you can have fun too. The secret is not to dive in at the deep end and commit major surgery as it could end in tears (and disqualification from manufacturers’ warranties). The beauty of it is that of things, yet there’s also plenty to attend to on the electrical side. If you’re like me and end up with more dry joints than an orthopaedics operations list when soldering, fear not, because none of these involve the slightest hiss of a soldering iron. Most, in fact, are alarmingly simple. The first is to fit a high surgery), the lid and base. Attaching Blu-Tuck, or better still strips of Sorbothane, to those parts of the lid that come into contact with the chassis and front panel, should have some benefit. This can be extended to the whole of the inside surface, although a square foot of Sorbothane isn’t cheap. It does work though, as a simple tap on the lid will prove. A dull thud should replace a hollow sounding “twang”.

The general principles of isolation are rigidity and damping, utilising a selection of materials that are beneficial at damping particular resonances. After much experimenting I found one of the best materials to be humble bubble wrap! Sandwich a sheet of large-bubble wrap between a piece of glass or marble and medite. Attach spikes and then place four pieces of Sorbothane underneath the CDs feet, and you’ll have one of the best isolators in the business! A deeper, tighter bass and improved imaging will prove. A dull thud should replace a hollow sounding “twang”. The first is to fit a high

Fair Views

- from Dominic Todd, our man in Scarborough

unisolated unit try placing a piece of high density foam or Sorbothane underneath the transformer, and then bolting it down firmly.

Well there you have it. By no means the definitive tweaking guide but, if all are carried out, a concoction that’s bound to prove that there’s life in the old dog yet. You may even find that these simple tweaks whet your appetite for something a little more adventurous, like building a World Audio Design valve amp. But at the end of the day, as well as having a couple of evening’s fun with a large sheet of Sorbothane(!), the tweaks should have the effect of making you want to sit and listen to your CD collection for longer. And that, after all, is what it’s all about.

**WARNING**

Any modifications made, are done so at your own risk. Your manufacturer’s guarantee may be affected. Dangerous voltages exist within any electrical product. If you would like to try these tweaks, but are unsure about doing so yourself, contact a qualified service engineer at your local hi-fi dealer.

**HI-FI WORLD FEBRUARY 1994 65**
WIN A NAD402 TUNER

COMPETITION ENTRY FORM

1) To which tuner did Noel Keywood compare the NAD 402 in his review?
   - Denon TU-580RD
   - Technics ST-GT550
   - Audiolab 8000T
   - Leak Troughline

2) What wave bands does the NAD 402 tuner offer?
   - FM only
   - FM and AM
   - FM and SW
   - AM only

3) What kind of design is used in the Mission 760i SE loudspeakers?
   - Two way infinite baffle
   - Three way reflex
   - Two way reflex
   - Reflex transmission line

4) Who reviewed the Mission loudspeakers?
   - Noel Keywood
   - Dominic Todd
   - Dominic Baker
   - Eric Braithwaite

5) What price are the Mission 760i SE loudspeakers?
   - £170 per pair
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   - £140 per pair

THE TIEBREAKER (Obligatory)

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these Missions are the best 'speakers I've found
because

Please complete one tiebreaker ONLY in less than thirty words.
Address it to:

NAD/Mission Competition
Hi-Fi World Magazine,
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London W9 1EX

In the event of more than one entrant submitting all the correct answers, the winner will be decided by the Editor from the tie-breaker. We will endeavour to publish the result in the April 1994 issue.

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

No employees of Mission Electronics Ltd, NAD Marketing Ltd, or Audio Publishing Ltd may enter.

NAIM/EPOS SYSTEM WINNER NOVEMBER ISSUE COMPETITION

There was a great response to our November issue competition, and we spent quite a while laughing and groaning at the entries. The eventual winner was Mr D J Desmond of Crewe, Cheshire, who has undoubtedly earned the envy of all the other entrants. Happy listening Mr Desmond!
We are now offering back issues of Hi-Fi World. Unfortunately, all issues prior to September 1991 are completely sold out, but subsequent issues are available for £2.00 including postage and packaging. Issues with Compact Discs (Oct.'91) are now available for £2.00.

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So we come at last to the much-anticipated Guns 'n' Roses punk rock covers album, a disc which by the group's own admission includes some of their - ergh! - seminal influences from the era when they were nowt but peach-fuzzed eager adolescents looking for the proverbial kiss.

Now, you may disagree with me (not to mention a few million others) but I happen to believe Axl Rose & Co are one of the cracker bands of the decade, probably the only contenders to the Greatest Rock 'n' Roll Band In The World tag previously held by the likes of the Stones (indisputable), The Who (arguable) and U2 (discuss) etcetera, etcetera, to quote that late great rocker Yul 'The Original Skinhead' Brynner.

So here are Guns 'n' Roses eschewing their ready-made and hit-proven formulae to play a set of old chestnuts just for the fun of it, the sort of things all bands play to warm up - favourite songs they all love and which bind them together, so to speak.

All the more surprising therefore that the set - sorry, album - should open with 'Since I Don't Have You', a regular Fifties-style slab of quasi Doo-Wop whose heartfelt vocalising and poignant piano are suitably spiced up and dragged into the Nineties by Slash's distinctive
GRAM PARSONS
GP / Grievous Angel
REPRISE 7599 26108 2

That great American genius Lenny Bruce spoke the truth when he commented that there's nothing sadder than an ageing hipster: by extension it's just as true that there are few things more sad than a hip phrase that's long past its sell by date. In these days of anything goes catholic sensibilities in most popular music (we'll forget Mr. Blobby ta very much) the term 'country rock', just sounds corny, a supermarket heading at best. But when Gram Parsons turned former popster -foke-psychedelics The Byrds in the cowboy direction with the evergreen 'Sweetheart Of The Rodeo' in 1969 it was as extraordinary in its way (and just as heretical) as Bob Dylan choosing to electrify his guitar and get a backing band - and thereby divide his fans into vociferous pro and anti camps - a few years previously.

Parsons' is the classic rock n' roll tragedy in almost too many ways to count - like Hendrix, Joplin, Morrison and others - he died of chemical self-abuse while still in his Twenties. And if his mark was made slowly - via the Byrds, the Flying Burrito Brothers and these two extraordinary solo LP's - his influence has been long and lasting. The Stones discussed making him a full-time member way back when, and since his untimely death he's been hailed by everyone from Elvis Costello to Evan Dando and everyone in between.

There's no point (and far from enough space, as usual) in going into details here but that's unnecessary anyway as GP's history is faithfully recorded in the booklet that accompanies this budget re-issue of his genius at its purest and truest. Released in 1973 and posthumously the following year, 'GP' and 'Grievous Angel' united Parsons' frail but hugely emotive vocals with the pure hot ice of Emmylou Harris. It was a pairing as magical and resonant as that of Lennon and McCartney or Don and Phil Everly. Plus, starting with master guitarist James Burton, Parsons used a brilliant selection of musicians who'd made their name backing Elvis Presley in his glory days. This, accompanied by the man's almost alarming ease with a diamond tune and fascinating lyrics, is the reason for the continuing fuss, and Parsons' perennial influence on successive generations of musicians and fans.

Here are aching songs of love and loss, 'Cry One More Time', the classic 'Love Hurts' revisited. 'We'll Sweep Out The Ashes In The Morning' et al. Here is joy unconfined, 'I Can't Dance', the wry 'Cash On The Barrelhead' while the likes of 'She' and 'The New Soft Shoe' are just too sublime for mere words to even attempt to do them justice. No-one who truly loves music can fail to be touched, moved, exalted by this remarkable and tragic young man's work. For my part, I just feel honoured to have been on the same planet at roughly the same time. It has enriched my life for almost twenty years and every time I rediscover it I'm moved to that special place way beyond words. Twenty years after his death 'GP' and 'Grievous Angel' are still two records everyone should own, period.

MUDHONEY
Five Dollar Bob's Mock Cooter Stew
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After Nirvana, what? I'd say the answer to that particular question is a fairly even split between Dinosaur Jr and the outfit currently being considered. Mudhoney are between long-players at the time of writing, so this sturdy and admirably 'nasty' electric soup is more than enough to keep the converted happy - even qui sait - to add to the flock.

Certainly there are strong influences at work here: Iggy's ever-present, give or take a song, but in between the obvious there are signs that Mudhoney have had earfuls of other stuff too. Notably the Fall, Bo Diddley, early Stones and 172,309 other artists whose sound crossed my mind while I was enjoying this fine and feisty recording from one of America's hottest pop agglomerations. All done between 9.30 and 10.15pm says the sleeve. Fancy a roll in the mud, honey?
THE SOFT BOYS
The Soft Boys 1976-1981
RYKODISC 10234135

Robyn Hitchcock seems finally to be crossing that sometimes huge border between cult figure and star in the US. It's been a helluva long haul but that he's as worthy as they come is more than evident on this double collection featuring his original combo, The Soft Boys.

Emerging at the same time as punk but totally at variance with the sounds of the times - much as the now celebrated Velvet Underground were in their day - the group were a late addition to Britain's grand and eccentric strand of psychedelia. Certainly Hitchcock had (and has) more in common with Kevin Ayers and Syd Barrett than Siouxsie, Rotten et al.

Sadly their records were largely overlooked at the time and the band never progressed beyond the pub/small club stage. And, as is so often the case with these things, passing time's made not a jot of difference to the weird power and glory of Hitchcock's oddball collision of madcap lyrics (Hitchcock then was really big on crustaceans for some reason) allied to strong melodies and playing that nearly always fit perfectly with what the band were trying to do.

Catch the sturdily Dylanish 'Kingdom Of Love', the sublimely catchy 'Underwater Moonlight', the wryly bitter 'Insanely Jealous Of You' and a good score of other beautifully ragged glories.

An extensive history comes with the package and there are rarities galore. Proof positive that great music always transcends fashion, this is not to be missed.

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Telekon/I. Assassin:
BEGA 154

Only a total Gary Numan nut, an obsessive completist - or a reviewer - would sit through practically the whole of Mr Webb's prolific output in one sitting. But Beggars Banquet has just reissued the lot in double-CD sets, from the first demo tapes right the way through. In some ways, I prefer him as semi-Punk rocker; the early stuff has a raw energy that's worth hearing. Interesting to hear how proper studio sessions cleaned it up. Only in one sense - despite the pretence at poesie concrete there are some elliptical lines about dark-comer encounters and the bottom-of-the-psyche desires he liked to lay bare.

Though the somewhat hagiographical sleeve-note writer makes a good case for Numan's innovativeness in developing synthesizer music (and where would we be now without it?), I still reckon his love affair with the Moog overtook his musical invention; too many samey intros, too many of the same chords. Credit where credit's due, it's no more shaky than M. Jarre can be, and it can be quite revealing. I was a fan of M Factor, as well, and in Telekon and elsewhere there are Bowie-ish (as in Low and 'V2 Schneider') foretastes as well as precursors of Techno and the current run of sampling bands.

I still reckon the ones after his early podgy-androgyny period, post Tubeaway Army, like I, Assassin and Wamors are two to keep, where the music is fleshed out with saxes, more drums and even viola: too much Moog sends me into a blue funk - a kind of Moog Indigo. Well worth reviving, especially as this set really is complete, including singles, B-sides and out-takes - but not to be taken all at once!
British composers dominate this month, about fifteen of them at a rough count. The music ranges from the fifteenth century to the twentieth, and even the performers are largely from this country, including one of our finest pianists in works by one of Hungary's greatest keyboard masters. There is a surprise package, however, if something recorded over four decades ago can still qualify as such.

Malcolm Arnold
String Quartet No. 1 Op23/String Quartet No. 2 Op118
The McCapra Quartet
CHANDOS CHAN9112 (DDD/45.48)

For many composers, the disciplined austerity and intimacy of the string quartet has proved the vehicle best suited to expressing the most profound and searching thoughts. Malcolm Arnold has bared his soul just twice in the quartet medium—his musical development is fully mapped out in his symphonies—but what extraordinary, even revelatory works they are. Incredibly, this is their first recording, which is sadly reflective of the ambivalence with which Arnold’s music has been regarded in the upper echelons of British music-making. All credit to the young McCapra Quartet, and to Chandos, for at last supplying the opportunity to explore these succinct distillations of the composer’s psyche.

The difficulty is that too many commentators still assess Malcolm Arnold as a gifted lightweight and it is true that he has been responsible for some of the most tuneful and entertaining music written in recent years. Why that should lead to his more serious music being hugely undervalued is incomprehensible. No one dismisses Shostakovich because he, like Arnold, wrote music for the cinema.

The First String Quartet, composed in 1949, paints a bleak landscape, exploiting the most astringent sonorities of the quartet. The influence of Bartok is apparent from the outset, but Arnold does not ape the style of the Hungarian. These are his own ideas and his own means of deploying them. The scherzo is typically pungent and the elaborate counterpoint of the last movement cannot suppress the composer’s humorous side, as he despatches a delicious little tune to dance between the instruments. The work ends gently, quietly, almost like a dying breath.

It was nearly thirty years before Arnold returned to the quartet medium. The Second String Quartet was first performed in 1976 and is a work where the composer lets his ideas have full rein.

The result is idiosyncratic, enigmatic, but—as in all of Arnold’s music—admirably crafted. In the second movement, for example, after a rhapsodic solo, the first violin sets off on a quasi-Irish jig, only to be sternly interrupted by the rest of the quartet. The free spirit of the composer encountering the crude prejudices of the establishment? Perhaps. And why the chorale-like benediction slap in the middle of the slow movement? Then there are the melodic transformations of the first and last movement, bringing a benign radiance to troubled turbulence. Whatever, this is not the music of a ‘lightweight’.

The performances of the two quartets are both technically assured and brimming with enthusiasm and understanding; clearly, with Fiona McCapra and her partners we have another very fine British chamber ensemble. The recording is vivid and very resonant, in the Chandos manner, but I detected no blurring of detail and the ‘bite’ on the strings entirely suits the mood of the music. The string quartet can be as sweet as you want, or as sour, and Malcolm Arnold is not afraid to exploit these two expressive extremes.

Erno Dohnányi
Four Rhapsodies Op11/Three Pieces Op23/Pastorale/Four Pieces Op2
Martin Roscoe, piano
ASV CD DCA 863 (DDD/75.50)

Erno Dohnányi, also known as Ernst von Dohnányi, was born in Bratislava, in...
When it comes to recordings of British music, the first record labels that spring to mind are Decca, EMI, Lynta and — more recently — Chándos and Hyperion. CBS of America would probably be placed well down the list. Yet it is the CBS library which the label's new owners, Sony Classical, have trawled for their 'British Pageant' series and with more success than might generally be anticipated. There is a surprisingly idiomatic mid-seventies performance of Elgar’s Violin Concerto from Pinchas Zukerman; more Elgar from Daniel Barenboim; and further violin concertos by Walton and Maxwell Davies. Other CDs offer music by Britten and Delius and there are two compilations embracing Dowland and Purcell along with Bax and Walton.

One recording, however, stands out even above Zukerman’s Elgar. It offers two of Vaughan Williams’ ‘middle-period’ symphonies (and, I would argue, his two greatest symphonies) and the Tallis Fantasia, a work whose quality always transcends its popularity. Even after countless hearings, this work retains its power and mystery, and — as the recording here illustrates — its scope for different dimensions of interpretation.

Aside from its musical stature, this issue also has considerable historical importance. It offers the first-ever recording of the Sixth Symphony and — surprise, surprise — it is neither by an English orchestra nor conducted by an Englishman.

Ralph Vaughan Williams
Symphony No. 4 in F minor* /Fantasia on a Theme by Thomas Tallis* /Symphony No. 6 in E minor.
Strings of the New York Philharmonic; New York Philharmonic Orchestra.
Conductors: Dimitri Mitropoulos*, Leopold Stokowski.

Sony Classical British Pageant SMK58933 (ADD/75.09)

More than any other work by Vaughan Williams, the Tallis Fantasia has held a fascination for foreign conductors. I still treasure a stirring performance by Constantin Silvestri recorded in Winchester Cathedral. Even Herbet von Karajan, in his EMI days, was persuaded to record the piece and the result still stands the test of time. Now, out of the old CBS vaults, emerges this thrilling interpretation by the strings of the New York Philharmonic under Dimitri Mitropoulos. It dates from March 1958, yet the sound has a remarkable richness and freshness; none of the sumptuous beauty of Vaughan Williams’ scoring is lost.

Mitropoulos’ reading emerges as one of the most intense and passionate performances of Vaughan Williams’ music — it is not a peculiarly British national quality of Vaughan Williams’ music — it is not a peculiarly British idiom; Mitropoulos also reinforces the essential character of the work, which characterises its third movement. The finale, with its bluster and swagger, and the recording has a restricted range of sound, the playing of the NYPO is less disciplined here than for Mitropoulos seven years later and, like the Fourth, begins violently, even brutally. Vaughan Williams admonished those who saw literal references to the recently-experienced horrors of war in the work, especially in the strange, unearthly soundscape of the last movement. It was all too easy to perceive its eerie stillness — the movement never rises above pp — as a representation of a land devastated by nuclear attack.

The composer used a quotation from Shakespeare’s Tempest to provide a clue to his intentions: “We are such stuff as dreams are made on, and our little life is rounded by a sleep”.

It will come as a surprise to those who — like me — were convinced that Sir Adrian Boult conducted the premiere of Vaughan William’s Sixth Symphony on February 21, 1949, by Leopold Stokowski. The playing of the NYPO is less disciplined here than for Mitropoulos seven years later and the recording has a restricted range (although, again, the transfer emphasises its virtues). Stokowski is less incisive, less revelatory in the Sixth than Mitropoulos in the Fourth, but the performance offers more than historical value.

Congratulations, therefore, to Sony Classical for resuscitating these valuable recordings, and cleaning them up so successfully. Makes you wonder what other treasures are tucked away in the old CBS tape vault.

what is now Slovakia but — in 1877 — was part of Hungary. His pianistic talents were swift to emerge and, at the age of twelve, he was playing Beethoven’s Fourth Piano Concerto under the baton of no less than Hans Richter. He was also a gifted teacher and held a post at the Berlin Conservatory for ten years between 1906 and 1915, when he returned to Budapest. There he founded an orchestra and was responsible for introducing Hungarian audiences to the music of Debussy and of his fellow-countrymen, Bartok and Kodaly.

In his own music, however, Dohnanyi was a conservative. Some Hungarian commentators saw him as the natural successor to Liszt and, as a pianist, he probably merited that accolade, but as a composer, he emerges as more temperamentally attuned to Brahms and the arch-dinosaur of romanticism, Rachmaninoff. He even appears to have shared, in some measure, Rachmaninoff's...
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The Choirbook, which is still held by the College, once consisted of ninety-three works by twenty-six composers. Around fifty-six of the compositions have survived to supply a fascinating and often very beautiful picture of choral compositional technique in the pre-Elizabethan period.

In 1440, the cult of the Virgin Mary still maintained its grip and it was unsurprising that Henry VI dedicated his new college to this 'flower of all virginity'. Consequently, much of the music in the Choirbook is written in her honour; there are, for example, no less than twenty-four settings of the Magnificent and fifteen of the antiphon Salve Regina, one of each of which is recorded here. Yet, alongside these devoutly spiritual texts, we encounter a work such as Robert Fayrfax's Most Clear of Colour which speaks of 'her bounty, beauty and womanhood' and is clearly espousing a more secular ideal of feminine perfection.

Fayrfax, along with John Browne, is the most notable of the composers represented here; others are Hugh Kelly, the Scot, John Nesbett, and the inevitable 'anon'. Series editor, John Milsom, has chosen the works well, opening and closing the programme with two of the most splendid pieces which would have been performed only on special occasions: Kelly's richly sonorous setting of Gaude Flore Virginali and Brown's B- part 0 Maria Salvatoris Mater. Kelly, especially, underlines the joyfulness of his chosen text with a brilliant interplay of rhythms within a luminous texture. It is one of the musical jewels of its period.

The recording, made in St. Bartholomew's Church, Oxford, strikes me as ideally balanced and convincingly atmospheric, allowing the listener to become immersed in the sound and readily transported back five centuries in time and, culturally, into another realm altogether. Of course, the glorious singing of the men's and women's voices of The Sixteen makes an immeasurable contribution, as does Harry Christophers' direction, bringing out all the colour and fervour of this music.

ELIZABETHAN AND JACOBEAN CONSORT MUSIC
Songs and instrumental pieces by Brade, Byrd, Campion, Coleman, Holborne, Jenkins, Lauder, Lupo, Maynard, Melvill, Morley and anon
Catherine Bott, soprano; Michael George, baritone; New London Consort; director, Philip Pickett
LINN RECORDS CKD011 (DDD/58.28)

Following up his first recording for Linn Records (Music from the time of Columbus), Philip Pickett now explores the treasure-house of English secular music from the sixteenth and seventeenth centuries. It was a period which saw a remarkable flowering of talent, beginning with William Byrd and extending through the likes of Jenkins, Bull, Morley and Campion to Purcell. The seeds in this English musical garden were Italian, both vocally and instrumentally (as eloquently demonstrated by Brade's splendid Coral, with its rich solo writing for violin, memorably played here by Pavlo Beznosiuk).

But if the idiom was Italian, the substance was thoroughly anglicised with the use of popular English folk tunes; one of the best-known, still to be heard at folk festivals everywhere, 'Now is the Month of Maying', supplies an appropriately lively opening to the New London Consort's programme. Delicately-spun musical and vocal dialogues, usually romantic trysts between nymphs and shepherds, contrast with the more earthly broadside ballads which enjoyed wide currency by being printed on single sheets and sold at a penny a time.

Consort music evolved out of the simple lute song, with the solo instrument being replaced by a group - or 'consort' - of viols. This became known as the 'whole consort'; where a variety of instruments was employed - as here - the name given was 'broken consort', and what a delicious instrumental palette it offers, with the combination of violin, recorder, cittern, lute, bandora and viol. Here, a selection of almans, galliards and pavans gives a glimpse of the glories contained in this music, and the playing is wonderfully sympathetic. As are the vocal contributions of Catherine Bott and Michael George. The former's soprano is especially seductive, with its combination of grace, lightness, poise and enchanting innocence. And how entertainingly Catherine Bott colours the tongue-in-cheek lyric of 'Mother Watkins' Ale.' The twenty vocal and instrumental pieces on this CD have been well-chosen, the result a well-rounded and enjoyable introduction to this highly-productive period in English music. The recording, made in the Temple Church, maintains the high production values of previous Linn recordings and the presentation of the booklet is first-rate, reproducing some delightful drawings by Inigo Jones, giving full texts - and being blessed with legible typography!

THE FLOWER OF ALL VIRGINITY
Music from the Eton Choirbook, Vol. IV
The Sixteen; director, Harry Christophers
COLLINS CLASSICS 13952 (DDD/62.52)

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drums. Beyond criticism, beyond history, Kind Of Blue is the sort of Sgt Pepper-Love Supreme-Pet Sounds-Electric Ladyland record that no listener should be without. So don’t be.

The funny thing about Miles Davis was that despite making records that even non-jazz people not only own but love, he spent a good half-decade making music which even the jazz establishment forgets - and at its peril. A Tribute To Jack Johnson got forgotten partially because it was the soundtrack to a documentary film, and partially because it helped spawn jazz-rock (a monster to the critical consensus; expect dissidence here, though). But along with Bitches Brew and In A Silent Way, this 1970 release helped Davis kick into a period of involvement with electric music at least as important and satisfying as any other of the half-dozen or so jazz movements he’d been involved with, or, indeed, had created.

Two long tracks, relatively straightforward static rock grooves, accommodate some magnificent soloing: John McLaughlin beginning to show signs of the blistering attack destined to make him a guitar god; Steve Grossman spinning a fine web on soprano saxophone; Herbie Hancock turning in (to these ears, at any rate) some of the best playing of his entire thirty-year career (and with one of the coolest organ sounds ever); and Davis’ trumpet the ice-cold answer-rebuff to the everyday-rock of its surroundings.

Someone at Sony UK is to be congratulated for letting this album finally see a domestic British release, the horrific ‘Columbia Jazz Contemporary Masters’ motif and generic turd-brown border on the CD sleeve notwithstanding. Recorded live in Tokyo in the February of 1975, Agharta (along with the other live double LP Pangaea, recorded the same day) is

where Jack Johnson (and even, to be honest, Kind Of Blue) inevitably led. Davis’ fascination with funk (especially Sly Stone), rock (Hendrix) and contemporary composition (particularly the architectural and mystical abstractions of Stockhausen) had melded into this.

The band on this record - as integrated and yet as psychedelic as any that jazz ever laid claim to - is at critical mass, truly teetering on the apocalypse. Jazz-rock - and Agharta really is jazz-rock, if much else besides - is traditionally dismissed as anodyne. But Agharta, along with the rest of the trumpeter’s 70s output - Pangaea, Dark Magus, On the Corner, Live Evil and so on - is like no other ever recorded. A music begging to be discovered: help it out.

Derek Bailey
Duo and Trio Improvisation
DIW DIW358

Originally released on the defunct Jap label Kitty, now available on CD-only import (and, er, expensive at that), Duo and Trio Improvisation features British improvising guitarist Bailey in various collisions with Japanese fellow-travellers: altoist Kacro Abe, tenor-altist Mototeru Tagaki, drummer Toshi Tsuchitori, bassist Motoharu Yoshizawa and the phenomenal trumpeter Toshinori Kondo, whose wah-wah and distortion drenched playing with his own group IMA has often threatened to follow in the footsteps of Agharta-period Miles. Those of you new to Bailey’s abstract playing - his is a style shorn of all pulse,
much unserious as hyper-serious, a sound world where the everyday and the bizarre collide, with magical consequences, and to encounter it for the first time is to come across an enchanted forest, complete with gingerbread house. For you lucky people who already have some idea of what Boredoms have in store, rest assured, this is one band that hasn't mellowed with age. 'Wow II' is their best yet.

Simon Cooke

Boredoms

Wow 2

AVANT AVAN026

- The connections to the kind of jazz that I care about, the other Simon, writes about, are pretty tangential here; regular readers shouldn't have a problem with that, of course. Boredoms is one of Japan's strangest musical exports, and that takes some doing, believe me. And for more on enramt Jap culture read the Derek Bailey review elsewhere this month. Melding punk, free jazz, metal, non-idiomatic improv, musical non-sequitur, bizarre and impenetrable-anonymous presentation/stage-show/LP sleeves/titles, they're the perfect summation of Japan's frenetic cut-up, taste-bypass aesthetic.

There have been connections with New York's new jazz scourge-hero John Zorn, and not just aesthetically. Singer Yarnamoto Eye, performer of the most excellent 'blabbermouth' vocals, has been a regular guest member of Zorn's group Naked City since their 1990 splatter soundtrack-trash metal masterpiece 'Torture Garden'. The band now appear on Zorn's own Avant label, with the altoist-collagist himself in the producer's chair. I envy anyone who comes to this band for the first time - theirs is a unique world, not so
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If you would like to build your own cabinets we are also offering a drive unit pack that comprises two tweeters and two woofers, modified and tested.

**KS881 KIT **

**£395**

Designed for long life, low running costs and excellent sound quality, KS881 is sensitive enough to be used with a simple passive pre-amp, or our own line-drive pre-amp, and it matches modern loudspeakers well. There is a choke-regulated power supply and the channels can be paralleled to turn it into a 40W monoblock if desired.

KS881 costs just £395 as a kit of parts and £595 fully built from our own build service. The U.K./Europe version has a 240/220V transformer but 120/110V can be supplied as an alternative - see Overseas details on Order Form.

**VALVE LINE LEVEL PRE-AMPLIFIER**

**£295**

We now have finished the design of a super high quality chassis for the line level pre-amp. It is constructed from heavy gauge steel with an aluminium anodised and polished front panel. This new chassis comes with the complete kit of parts necessary to build the valve line level pre-amp.

The components are all high quality and include a special screened toroidal transformer, Military Spec. Russian valves, Alps potentiometer, metal film resistors, polypropylene signal capacitors, silver plated copper wire etc.

**KLS2 LOUDSPEAKER**

Satin Black/Mahogany Veneer

Drive Unit Pack

**£295/£345**

**£145**
This is a specialised amplifier based on the highly linear 300B triode valve. Tim de Paravicini designed it - including the massive transformers - for minimum distortion without overall feedback. If you want feedback (tertiary or overall), it can be applied without difficulty.

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

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

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

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


**SPECIFICATION**

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

**DEMONSTRATIONS!!**

By the time you read this we hope to have our KS881 20W transformers in all, weighing 1.2kgs.

1. Mains (1 off) Secondary: 0-360, 6 x 5V, 1 x 6.3V. Primary 220/240 or 110/120 - please state which on order form. Drop through fixing.
2. Output (2 off) Designed for low distortion and broad load compatibility from the 300B. Cores with centre-hole fixing to avoid corner flux concentrations; laminations of thin and best quality grain orientated silicon steel. Output tapped 4Ω, 8Ω and 16Ω. Drop through fixing.
3. Choke For smoothing of the H.T. line to provide best sound quality, a 5H choke that fixes under the chassis. Frame mounting.

**KS881 (20W CLASS A) TRANSFORMERS £220**

There are four transformers in all, weighing 1.2kgs.

1. Mains (1 off) Secondary: 0-360, 6 x 5V, 1 x 6.3V. Primary 220/240 or 110/120 - please state which on order form. Drop through fixing.
2. Output (2 off) These transformers use high quality materials, laminations of thin and best quality grain orientated silicon steel. Output tapped 4Ω, 8Ω and 16Ω. Drop through fixing.
3. Choke For smoothing of the H.T. line to provide best sound quality, a 5H choke that fixes under the chassis. Frame mounting.

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

There are seven transformers in all, weighing 3.5kgs (31lbs)

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

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

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

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

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

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

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

PLEASE PHONE FOR DETAILS OF THE FORTHCOMING 4W SINGLE-ENDED VALVE AMPLIFIER AND
PHONO HEAD AMP KIT.

DESCRIPTION

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NAME: ________________________________ I enclose cheque/postal order for £ ________________
made payable to World Audio designs Ltd.

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HI FI WORLD FEBRUARY 1994
SPECIAL MAIL ORDER

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

HI-FI WORLD SOLID SILVER CABLE £139.95/1 M PAIR.

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

HI-FI WORLD SILVER PLATED COPPER INTERCONNECTS £69.95/1 M PAIR.

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

RECORD STORAGE CUBE £42 EACH

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

6 CUBES FOR THE PRICE OF FIVE £210.00
8 CUBES FOR THE PRICE OF SEVEN! £294.00

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
RHODIUM-PLATED SURE-LOC BANANA PLUGS £18.95
GOLD-PLATED SPEAKER CABLE CONNECTORS £10.00

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

RCA PHONO PLUGS (4) £15.50

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

BANANA PLUGS (4) £8.00

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

1 M WITH IEC PLUG £19.20
1 M FIGURE 8 PLUG £15.75
1 M 4-WAY BLOCK £31.95
**Hi-Fi World**

**AUDIO ACCESSORIES**

**AUDIO-TECHNICA RECORD CLEANING SYSTEM**
Removes both dirt and static; a tiny amount of cleaning agent in the handle removes fingerprints, oil and film, while a pad lifts off dust. Pad brush and fluid are supplied.

**AUDIO-TECHNICA RECORD CLEANING SYSTEM** £10.50

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

**CD LENS CLEANER** £16.25

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

**KONTAK** £19.00

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

**DRY STYLUS CLEANER** £1.95

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

**GOLDRING EXSTATIC MAT** £7.50

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

**EXSTATIC CARBON FIBRE CLEANER** £9.75

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

**BUG AUDIO** £59.99

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

**SOUND SWIVEL** £49.95
**LASAWAY GREEN PEN**
When red laser light hits the reflective surface of a CD, some of it can be scattered off the edges of the disc, causing optical interference. Applying this green coating, formulated by Japanese company Mitsubishi, to the inner and outer edges of the CD reduces this interference, improving sound quality.

**ANTI-STATIC RECORD SLEEVES**
Translucent sleeves, treated to reduce static and dust attraction, supplied in packs of fifty. They will fit inside ordinary printed inners.

**LP SLEEVES (50) PRICE £7.50**

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

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

**MILTY TRIPLE A**  £6.50

**MILTY MAGNET IX**  £10.50

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**HI-FI WORLD SPECIAL AUDIO ACCESSORIES ORDER FORM**

Please send me:

- Audio Technica CD Lens cleaner .................................................. £16.25 each
- Audio Technica Green CD Ring Stabilizers ................................ £6.50 (Pack of 5)
- Audio Technica Record Cleaning System ........................................ £10.50
- Automatic CD Cleaner .................................................................. £21.95
- Bug Audio Biasebug ..................................................................... £59.99
- CD sound swivel .......................................................................... £49.95
- Gold plated 4mm plugs ................................................................ £8.00 (4)
- Goldring Exostatic Mat ................................................................. £7.50
- Goldring Super Exostatic Carbon Fibre Disc Cleaner ................... £9.95
- HFW Silver Plated Copper Interconnects (1m pair) ...................... £69.95
- Hi-Fi World Dry Stylus Cleaner .................................................... £19.95 per sheet
- Hi-Fi World Solid Silver Interconnects (1m pair) ......................... £139.95
- Kontak cleaning fluid .................................................................... £19.00 each
- Lasaway Green Pen ....................................................................... £8.50 each
- Laserguide ..................................................................................... £14.95
- Michell Gold-Plated Side Entry Banana Plugs (4) ....................... £10.00
- Michell Gold-Plated Speaker Cable Connectors ........................... £10.00
- Michell Gold-Plated Sure-Loc Banana Plugs (4) ......................... £14.95
- Michell Rhodium-Plated Sure-Loc Banana Plugs (4) ................. £18.95
- Milty Magnet IX ........................................................................... £10.50
- Milty Triple A ............................................................................... £6.50
- Nagaoka Anti-static record sleeves ............................................. £7.50 (50)
- ONI Stylus Cleaning Kit ................................................................. £2.50
- Pixel Piaki Record Cleaner ............................................................ £10.75 each
- Pixel refill roller ............................................................................ £2.75 each
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- Screened Mains Cable With 8 Plug (1m) ....................................... £15.75
- Screened Mains Cable With IEC Plug (1m) ................................. £19.20
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Name: ..........................................................................................................

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

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

HI-FI WORLD,
64 Castellain Road,
Maida Vale,
London W9 1EX.

Credit Card Orders
Telephone 071-266 0461
24 hour Mail Order Answerphone

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94 HI-FI WORLD FEBRUARY 1994
Astonishing Revelations

The Unisis has that remarkable ability to win audiophile’s hearts throughout the World. It’s fast open dynamic yet delicate character captivates the listener in a wealth of musical delight.

The ability to reveal this level of detail, is dependent upon correct circuit design. At the heart of the circuit is of course the tube. For an astonishing reveal of detail we are proud to announce

The Gold Aero Unisis

MANUFACTURERS OF HIGH QUALITY VALVE AMPLIFICATION
For further information on Gold Aero Tubes and Tube Technology products, please contact us.
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Tel: 0932 850361  Fax: 0932 850354

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Turntable Repair and Record Cleaning Service.

A new improved version of our original design concept of a stable platform effectively isolated from any musical or vibrational feedback, and incorporating a unique and effective suspension system to provide optimum turntable damping and isolation for ultimate performance.

The exterior plinth materials is 28mm ash or oak, with heavily reinforced corner bracing and massive internal pier to accommodate the unique suspension system within the main plinth body.

Full service facilities for Garrard including 301/401, using genuine or re-manufactured parts in our new dedicated workshops. This service also for many other including Thorens. Other hi-fi repaired/services supplied.

New 301/401 Damper rings Dramatically reduce ringing of platter.
£5.00 per pair including p/p.

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- THIS STRANGE EFFECT
- ROBERT CALVERT
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- THE BEST OF BOBBY CHARLES
- SHALL TOWN TALK
- EDDIE COCHRAN
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- THE JETS
- JERRY LEE LEWIS
- THE TRANSPORTERS
- ASHES AND DIAMONDS
- AIRS AND GRACES
- WE D THINGS
- THE ROCK 'N' ROLL YEARS
- STEELEMAN
- TOMMY STEELE & THE
- SANDIE SHAW
- THE EP COLLECTION VOL II
- THE EP COLLECTION VOL I
- THE KINKS
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- THE KINKS
- THE EARLY YEARS
- THE OTHER SIDE OF THE EP COLLECTION
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- THE CRICKETS
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- SMALL TOWN TALK
- THE BEST OF CARAVAN
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- PLAIN CAPERS
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- RIGHT OF PASSAGE
- JOHN KILPATRICK
- PLAN OPER
- PETER BELLAMY
- THE TRANSPORTERS
- RICHARD THOMPSON
- STREET THOMAS
- MARTIN CARTH & DAVE SWARBRICK
- SON AND BONE
- TERRY ALLEN
- LUBBOCK (ON EVERYTHING)
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- STRANGLE
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- GAUGHAN (CD ONLY)
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- HUEY LEWIS
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- MAVERS
- PATRICK STREET
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- RORY BLOCK
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- A CHANGE IN THE WEATHER
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- THE LAST WORD £11.99 CD
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- MARTIN CARTH AND DAVE SWARBRICK
- LIFE AND LUV
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- FOR THE LOVE
- SUGAR RAY & THE BLUE TONES
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- OTIS CLAY
- SOUL MAN (CD)
- Bulseye CDs £11.99
- ROUNDERS CDs
- OTIS CLAY
- I'LL TREAT YOU RIGHT
- LEADBELLY
- MIDNIGHT SPECIAL
- TOM RUSSELL
- HUMPHREY DEAKER
- IRIS DEMENT
- INFAMOUS ANGEL
- MISSISSIPPI JOHN HURT
- AVALON BLUES 1963
- WORRIED BLUES 1963
- AARON NEVILLE
- MY GREATEST GIP
- DUKE ROBILLARD & THE PLEASURE KINGS
- TOO HARD TO HANDLE
- DUKE ROBILLARD
- YOU GOT ME
- SWING
- ROCKIN' BLUES
- RORY BLOCK
- HOUSE OF HEARTS
- BEST BLUES & ORIGINALS VOL I
- BEST BLUES & ORIGINALS VOL II
- RHINESTONES & STEEL STRINGS
- I'VE GOT A ROCK IN MY SOUL
- BLUE HORIZON
- HIGH HEeled BLUES
- JOHNNIE COPELAND
- WHERE THE RAIN STARTS FALLIN

Four excellent test CDs recommended by Hi-Fi World for sound quality and sound checking. Both Chesky jazz sampler CDs provide a wide selection of listening tests and music for audiophiles. Volume 2 includes 17 new tests including height tests, dynamic drum tests and many many more. Well worth having in your collection.

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- SOMEONE TO LOVE
- ALL MY LIFE
- RORY BLOCK
- ART IN A WOMAN
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- IRMA THOMAS
- LUV - SIMPLY THE BEST
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- JUNE TABOR
- ANGEL TIGER
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- THE OYSTER BAND
- STEP OUTSIDE £6.99 CD
- LITTLE ROCK TO LEIPZIG
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- ANI'T NOTHING BUT A HOUSE
- JOHNNY ADAMS
- SINGS DOC POMUS - THE Real Me
- WITH DR. JOHN/DUKE ROBILLARD
- IRMA THOMAS
- REBIRTH BRASS BAND
- FEEL LIKE FUNKIN' IT UP
- SOLOMON BURKE
- SOUL ALIVE
- NATHAN & THE ZYDECO CHA CHAS
- YOUR MAMA DON'T KNOW
- Rounder CDs £11.99

- MUNCH
- CHARLES BROWN
- SOMEONE TO LOVE
- ALL MY LIFE
- RORY BLOCK
- ART IN A WOMAN
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Oh, Oh, Oh, those post Christmas blues, nothing but holiday ads on the t.v so we may as well curl up in front of a warm hi-fi. As Frank Zappa has just passed away it would be fitting to get out the re-mastered CDs and give them a blast through the Orelle DAC, a truly superb example of multi-bit sound. On a softer note we are doing dems with the Dacula and Francenstein, a CD combination for Vinyl lovers. Our favourite amps are still the Albarry PP1 and the Alchemist Kraken, the latter seems to get the Cabasse speakers to really sing! Choosing the right amp AND speakers is the hardest and most important aspect to musical enjoyment. So many well reviewed amps sound poor with an unsuitable choice of speakers (and vice-versa). In the budget area the Rotel Discrete CD players are most agreeably musical and NAD has a real good cheapie in the new 501 CD player at £180! On a final note we have one pair of ex-dem QUAD FREDs in brown at a very reasonable 25% off, plus our ever changing selection of used equipment.
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- Special lists of the NOS items, which is available on request. Our opinion quite uncomplimentary to the quality level of real Audio Amplification if the vast majority of other makes of metal film resistors, which are slightly magnetic (as are the vast majority of other makes of metal film resistors). But antennas are small, therefore, you may want to start your project with less overall cost. And for this purpose we can offer the following basic grid code picture values, so be prepared to wait if a value is not available. There is long delivery on all non-magnetic and cost £ 2 06 each for all specialist items, which covers most on this list. If demand is sufficient, supply will rectify itself. Unfortunately the manufacturers have decided to withdraw the if 1. 5 volt v. other values. For the market for the future, we have formulated a special list for the very best results.

- Some are given as Watt/height/Depth, where depth is the depth of the coil and width is the length of the core.

- The best solder v. m., tin does not contaminate the function which over time becomes species restriction. (used in all our transformers from the GAKU-ON, OTO  to the GAKU-ON and M7Tube Audio Notes facility in Tokyo, Japan)

- We do not give any further technical information on our output transformers, as we do not have access to any technical details of the components. Our products are designed to create a good environment for the production of our quality level 3 (the MEISHU/P3) no-feedback triode amplifiers.
We are developing a range of complete kits, to give those who have the ability, but do not have the time to develop a project from the ground up, as to speak. In order to give them the best possible quality - one in which the kit will be good basic circuits, with no null-power supplies and components.

**Kits One.**

Based around the popular famous 1000 directly heated triode, we see this kit as the introduction to real Audio Amplification, as it covers all the important aspects of design: sensitivity, Single-ended, Non-Fedback, Class A, Decoupled Transformers to become a member of this exclusive club of amplifiers.

**Kits Two.**

Kit Two features a 2 x 5881 pentode running in parallel Single-ended mode, sending 30 watts to 7560 Ohms. The output stage, stereo chassis, and 6SL7GT input stage are a highly functional design, with no null-power supplies, components and chassis as Kit One.

**Price £750.00 incl. vat, which includes all valves (but also 2 x 5881 tested) but not post/packaging, our UK customers will find £72.00, however £249.00 extra The Kit is available now.

** MAINS TRANSFORMERS**

This range allows us to finish all products, mains transformers are notoriously difficult items to order as the number of permutations of HT and Heater voltages are almost endless. We shall be offering a more comprehensive range of transformers.

<table>
<thead>
<tr>
<th>Primary Voltages</th>
<th>Secondary HT Voltages</th>
<th>Price Ex. UK £</th>
</tr>
</thead>
<tbody>
<tr>
<td>220v 10% 110v</td>
<td>0-230v at 380VA</td>
<td>34.00</td>
</tr>
<tr>
<td>220v 10% 110v</td>
<td>0-230v at 350VA</td>
<td>40.00</td>
</tr>
<tr>
<td>220v 10% 110v</td>
<td>0-230v at 40VA</td>
<td>26.50</td>
</tr>
<tr>
<td>220v 10% 110v</td>
<td>0-230v at 24VA</td>
<td>9.00</td>
</tr>
<tr>
<td>220v 10% 110v</td>
<td>0-230v at 12VA</td>
<td>6.00</td>
</tr>
<tr>
<td>220v 10% 110v</td>
<td>0-230v at 6VA</td>
<td>3.00</td>
</tr>
<tr>
<td>220v 10% 110v</td>
<td>0-230v at 2VA</td>
<td>1.25</td>
</tr>
<tr>
<td>220v 10% 110v</td>
<td>0-230v at 1VA</td>
<td>0.65</td>
</tr>
</tbody>
</table>

**AUDIO NOTE Speaker 8 Wiring Cables.**

Banana plugs, Loom & Plug audiophile Speaker Cables. Speaker Chassis Loudspeaker Terminals. Type Price ex. UK £

<table>
<thead>
<tr>
<th>Type</th>
<th>No of Tags</th>
<th>Height/length</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>AN-479</td>
<td>25 5mm</td>
<td>25mm/65mm</td>
<td>Screw-in bolts</td>
</tr>
<tr>
<td>AN-478</td>
<td>25 5mM</td>
<td>25mm/65mm</td>
<td>Screw-in bolts</td>
</tr>
</tbody>
</table>

**Blackgate Electrolytic Capacitors.**

These are the world's first high voltage electrolytics, to be of a type never before available.

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Type</th>
<th>Suggested Use</th>
<th>Price Ex. UK £</th>
</tr>
</thead>
<tbody>
<tr>
<td>47v</td>
<td>50v</td>
<td>1/2</td>
<td>0.56</td>
</tr>
<tr>
<td>2v</td>
<td>1.5</td>
<td>1/4</td>
<td>0.39</td>
</tr>
<tr>
<td>1v</td>
<td>1/4</td>
<td>1/2</td>
<td>0.19</td>
</tr>
<tr>
<td>0.1v</td>
<td>1/2</td>
<td>1/2</td>
<td>0.04</td>
</tr>
<tr>
<td>10v</td>
<td>1</td>
<td>1</td>
<td>0.02</td>
</tr>
</tbody>
</table>

**CONTROL VALVE COUPLING CABLES.**

Type/Colour code | Construction | Price per meter Ex. UK £
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AN-9 green</td>
<td>symmetrical 6N copper HTz coax 39.50</td>
<td></td>
</tr>
<tr>
<td>AN-A yellow</td>
<td>symmetrical 6N copper HTz coax 39.50</td>
<td></td>
</tr>
<tr>
<td>AN-SP</td>
<td>silver grey symmetrical 9999% silver plated coax 39.50</td>
<td></td>
</tr>
</tbody>
</table>

**Audio Note Complete Kits.**

The $1200, topcover is £ 99.00 extra The Kit One is available now.
COMPACT DISC PLAYERS
SONY CDP-497 £160
DENON DCD 890 £270
CREEK CD60 £500
QUAD 67 £790
SUGDEN SDT 1 £850
NAIM CDI £1598

Superb starter CD Player, packed with facilities.
Exciting and forceful sounding player, but slightly characterful
A new breed of Quad. Remarkable solidity and lacking nothing in verve or excitement.
Airy and spacious with a rare quality of ambience.
Superbly clean and detailed sounding transport when sync-locked to DPA's converters.

COMPACT DISC TRANSPORTS
DPA DIGITAL T-1 £795
MMEGA DUO CD2 £1850

Superbly clean and detailed sounding transport when sync-locked to DPA's converters.

DIGITAL TO ANALOGUE CONVERTERS
QED DIGIT/OPTO £39/169
DPA LITTLE BIT II £450
DPA DACS £450-2K
SUGDEN SDA-1 £650
P. T. ORDINAL £695
MMEGA DUO PRO £1050
DPA PDM ONE III £1280
P. T. DA CAPO £1350

Philips Bistream. Excellent value, with no rough edges. Now with optical input (Opto).
Building on the qualities of the original Little Bit, the 'II' is clear and open.
The current masters of DAC-7, their DACs offer superb performance at a range of prices.
16-bit Philips based. A wide, open window for the transport to flow through.
V. neutral.
Pure sound, smooth and free from hardness. One of the best at any price.
Spacious and dynamic presentation, with a detailed and informative manner.
Less ruthless than, but staggeringly close to, the PDM 2. Two box, DAC-7 affair.
Pink Triangle's own one bit DAC reaches new standards in digital. One of the very best.

TURNTABLES
PROJEKT 2 £245
THORENS TD166 £270
MICHELL MYCRO £397
ROKSAN XERKES £785
P. T. ANNIVERSARY £1200
SME MODEL 20 £2495

Czech built turntable with much to offer. Very coherent.
Fitted with Rega RB 250 arm. Good basic deck, with tweakability.
Inbetween the Synchro and Gyrodeck, the Mycro has superb midband clarity and poise.
Highly analytical and exciting turntable. Can be almost CD like in its presentation.
Very neutral turntable. Excellent imagery and detail. A natural partner for the SME V.
The last great turntable, bettered only by the £11,000 Model 30.

TONEARMS
REGA RB 300 £139
MORCH DP-6 £665
SME 309 £568
SME SERIES V £1232

For Pink Triangles, Michells, Roksans, and Systemdeks. Simple and superb; dynamic with solid bass.
'Unipivot plus' tonearm. Silken and rich quality. Perfect match for the Da Capo cartridge.
Based on IV and V: Aluminium armtube and detachable headshell. High end value for money.
A masterpiece of precision engineering, with a cohesive sound.

CARTRIDGES
GOLDRING 1012 GX £60
GOLDRING 1022 GX £80
SUMIKO BLUE POINT £100
ORTOFON MC15 £100
GOLDRING 1042 £100
SHURE VST-V £150
GOLDRING ELITE £200
MORCH DA CAPO £500

Rounded bass, slightly forward midband, clean transients. A bargain.
Extra degree of dynamic range and speed over the 1012GX.
The blue point casts a romantic charm over all types of music. Robust too.
Moving coil cartridge at a moving magnet price. Has a tight grip on rhythm.
A reference to all other MMs regardless of price.
One of the finest moving magnets currently available. Excellent tracker.
British made moving coil. Good value, smooth and detailed, but can sound brittle at times.
Scan-Tech designed moving coil cartridge. Musical and accurate, without any flaw.

CASSETTE RECORDERS
NAKAMICHI DR2 £500
PIioneer D-500 £600
TEAC V8000S £699

Worth every penny, pushes recordings to the limit and remains unflustered.
Very smooth sounding DAT deck, but still slightly coarser than the original source.
Dolby 'S' deck. Easy to use, very stable sound, with instrumental textures close to perfect.
'Domestic' deck with Nakamichi sound quality, and manual head azimuth adjustment.
No Dolby 'S', but auto tape tuning and motorised head. Astonishing complexity. The Best!
## TUNERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>YAMAHA TX-950</td>
<td>£260</td>
<td>Fine all-rounder, with good AM section.</td>
</tr>
<tr>
<td>HK TU9400</td>
<td>£300</td>
<td>Fairly basic facilities, but sound which beats anything at the price.</td>
</tr>
<tr>
<td>QUAD 66FM</td>
<td>£490</td>
<td>Among the very best in terms of tonal colour and imagery. Remote controllable.</td>
</tr>
<tr>
<td>NAIR N AT 03</td>
<td>£500</td>
<td>Warm and easy sound with a good sense of atmosphere. Excellent value.</td>
</tr>
<tr>
<td>NAIR N AT 01</td>
<td>£1377</td>
<td>The best solid state tuner currently available. If you want better radio, live in the studio!</td>
</tr>
</tbody>
</table>

## INTEGRATED AMPLIFIERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>H/K HK6150</td>
<td>£159</td>
<td>Good sounding starter amplifier. Great dynamic range, excellent bass.</td>
</tr>
<tr>
<td>NAD 302</td>
<td>£160</td>
<td>Lots of insight and detail, but could sound a little rough in the wrong system.</td>
</tr>
<tr>
<td>PIONEER A-300X</td>
<td>£200</td>
<td>Exceptionally sweet mid and treble, plus the superb dynamic range of the A400.</td>
</tr>
<tr>
<td>DENON PMA-350II</td>
<td>£220</td>
<td>Powerful and with deep rhythmic bass drive.</td>
</tr>
<tr>
<td>H/K HK6550</td>
<td>£349</td>
<td>Thoroughly refreshing, tonally neutral amplifier with a realistic price tag.</td>
</tr>
<tr>
<td>AUDIOLAB 8000A</td>
<td>£430</td>
<td>Very neutral and superbly built. Good bass, great imagery, but can be sterile.</td>
</tr>
<tr>
<td>SUGDEN A48B</td>
<td>£460</td>
<td>Gentle performer, but never masks the music with warmth. Only very even.</td>
</tr>
<tr>
<td>AUDIONOTE OTO</td>
<td>£1250</td>
<td>12w Valve amplifier. More in tune with music than hi-fi. Superb dynamic range.</td>
</tr>
<tr>
<td>EAR 834</td>
<td>£1295</td>
<td>Valve integrated amplifier with a sweet, open and detailed sound.</td>
</tr>
</tbody>
</table>

## PRE-AMPLIFIERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. I.SERIES 200</td>
<td>£350</td>
<td>Valve preamplifier. Rather coloured but very dynamic. Best with Innovations equipment.</td>
</tr>
<tr>
<td>A. SYNTH. PASSION</td>
<td>£475</td>
<td>£275 for the kit version. Unrivaled transparecny from a passive pre-amp. Not quite the 50S, but there's still nothing to match it at the price, use with 200S power.</td>
</tr>
<tr>
<td>DPA DSP 200S</td>
<td>£495</td>
<td>Impossible to suggest what more you want.</td>
</tr>
<tr>
<td>MICHELL ISO HR</td>
<td>£850</td>
<td></td>
</tr>
</tbody>
</table>

## POWER AMPLIFIERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUGDEN AU41P</td>
<td>£530</td>
<td>100 Watts of smooth, detailed, full bodied sound. And at a bargain price!</td>
</tr>
<tr>
<td>QUAD 606</td>
<td>£675</td>
<td>140W powerhouse. Smooth and civilized, with the legendary Quad back-up.</td>
</tr>
<tr>
<td>DPA DPA 200S</td>
<td>£750</td>
<td>Not as cold as the 50S, but there's still nothing to match it at the price, use with 200S power.</td>
</tr>
<tr>
<td>MICHELL ALECTO (S)</td>
<td>£1300</td>
<td>Valve like transparency, big warm easy going sound.</td>
</tr>
<tr>
<td>A. I. SER. 100</td>
<td>£1500</td>
<td>Superbly built. Good bass, great imagery, but can be sterile.</td>
</tr>
<tr>
<td>MICHELL ALECTOS</td>
<td>£1800</td>
<td>The Alectos have a lucidity and three dimensional realism that is rarely attained.</td>
</tr>
<tr>
<td>CHORD SPM 1200</td>
<td>£2995</td>
<td>Massively powerful, dynamic and detailed sound. Among the best of solid state.</td>
</tr>
<tr>
<td>E.A.R. YOSHINO</td>
<td>£25,000</td>
<td>Single-ended valve design. Noel is still suffering withdrawal from this product.</td>
</tr>
</tbody>
</table>

## LOUDSPEAKERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CELESTION 1</td>
<td>£99</td>
<td>Low price, compact size, big sound. An exciting all round performer.</td>
</tr>
<tr>
<td>R' ALLAN MINETTEII</td>
<td>£120</td>
<td>Fast and lively sounding, competent bass.</td>
</tr>
<tr>
<td>GLL MAXIM</td>
<td>£120</td>
<td>Replacing the Maxim 3; not as tight in the bass but still one of the best at the price.</td>
</tr>
<tr>
<td>MISSION 760</td>
<td>£120</td>
<td>Detailed, fast, and have bags of rhythm. Ear bashing pleasure.</td>
</tr>
<tr>
<td>TANNOY 603</td>
<td>£125</td>
<td>A rich and smooth blend that offers their best when bi-wired.</td>
</tr>
<tr>
<td>ROGERS LS2a2</td>
<td>£209</td>
<td>So far the most correct speaker we have discovered at the price. Sweet and even natured.</td>
</tr>
<tr>
<td>TRIANGLE COMETE</td>
<td>£375</td>
<td>Highly efficient small-box loudspeaker with a superb mid band. Great for valve amps.</td>
</tr>
<tr>
<td>HARBETH HL-P3</td>
<td>£400</td>
<td>There probably isn't a more neutral sounding design anywhere near the price.</td>
</tr>
<tr>
<td>HIRDOCK QUARTETS5555</td>
<td>£500</td>
<td>Sensitive enough to work with low power valve amps. Fast and detailed sound.</td>
</tr>
<tr>
<td>JPW RUBY1</td>
<td>£620</td>
<td>Metal driver 'speaker with an exciting and lively presentation.</td>
</tr>
<tr>
<td>A. E. AEGIS</td>
<td>£620</td>
<td>Depth and transparency. Fast and lively metal driver loudspeaker.</td>
</tr>
<tr>
<td>REL STADIUM SUB</td>
<td>£695</td>
<td>Mono, self-powered subwoofer that works! Very flat frequency response.</td>
</tr>
<tr>
<td>PROAC RES 1S</td>
<td>£918</td>
<td>Small box design. Can convey the spirit, drive, and passion of music in a small room.</td>
</tr>
<tr>
<td>APOGEE CENTAUR</td>
<td>£1200</td>
<td>Hybrid ribbon design. Great imaging and detail. Good value for panel fans.</td>
</tr>
<tr>
<td>TANNOY GRFM</td>
<td>£3500</td>
<td>Giant loudspeakers. Capable of awesome sound. Need good valve amplification.</td>
</tr>
</tbody>
</table>

## MISCELLANEOUS

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEYER DT111</td>
<td>£54</td>
<td>Excellent 'studio quality' headphones. Deep bass, powerful sound, if a bit splashy at times.</td>
</tr>
<tr>
<td>CELESTION DLP 600</td>
<td>£349</td>
<td>Digital signal processor for the Celestion 600 loudspeakers. Sounds like a £400 upgrade.</td>
</tr>
</tbody>
</table>
Is rather light, due to its lean, dry bass, but it doesn't sound too forward in a well balanced system thanks to very refined treble and good overall clarity. In fact this cable's fast, rhythmically urgent sound is very appealing.

LFD Audio

LFD an affordable high-end alternative for audiophiles worldwide.

"It's a diamond necklace in a world of Plastic- but without a Tiffany price tag."
Eric Baithwaite, Hi-Fi World, Sept. 1992

"Clearly then, these LFD components are of outstanding quality."
Jimmy Hughes, Audiophile, Jan. 1993

For further information on LFD Amplifiers, please fill in your details and return to LFD Audio.

ROOM ACOUSTICS SERVICES
3, Queen Elizabeth Way, BARTON-upon-HUMBER, South Humberside, DN18 6AJ. Tel: (0652) 635523

ROOM ACOUSTICS SERVICES

Please send me full details, and magazine reviews, of the Room Acoustics Services computerised postal consultancy.

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NAME: ________________________________
ADDRESS: ________________________________
POST CODE: ________________________________

ROOM ACOUSTICS SERVICES
3, Queen Elizabeth Way, BARTON-upon-HUMBER, South Humberside, DN18 6AJ. Tel: (0652) 635523

ROOM ACOUSTICS SERVICES

SL SonicLink

Read below the verdict from a recent interconnects supertest in What Hi-Fi? Then visit your local Sonic Link dealer.

Sonic Link Violet £80

Violet cable works well in high quality systems- where information retrieval is a priority. Despite having warmer, faster bass than Pink or Red, it remains exceptionally clear and detailed,

Sonic Link Pink £25

Sonic Link Red £45

Sonic Link Blue £120

Sonic Link Black £150

Verdict

Verdict

Verdict

Verdict

Verdict

This ultra-slim cable looks unconventional and home-brewed, but it does offer a respectably detailed and coherent sound. Pink's tonal balance is rather light, due to its lean, dry bass, but it doesn't sound too forward in a well balanced system thanks to very refined treble and good overall clarity. In fact this cable's fast, rhythmically urgent sound is very appealing.

Verdict

Just like Pink, Red is also skinny, but packs loads of musical information into its slim and modest diameter, recommended as a CD to preamp link, Red is vivdly detailed with a vibrant and lively tonal balance, which is aided and abetted by good dynamic contrast and slick timing. Provides bass with far more substance and weight than the less pricier Pink leads

Verdict

Blue uses Sonic Link’s rhodium platedplugs, which are claimed- and certainly seem able-to out perform the more common gold plated variety. Blue has a very clean and spacious sound that captures low level detail very well. Like the Violet cables though, it can be too revealing for a system.

Verdict

A heavyweight, even by Sonic Link standards, this cable uses silver plated cable and rhodium plugs. Its sound is weighty too, but bass sounds over bloated, slowing lively music right down. We still prefer the cheaper Blue cable, which gives bass lines more injection and flow, resulting in the music seeming faster and better articulated overall.

For further information on LFD Amplifiers, please fill in your details and return to LFD Audio.

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Please send me full details, and magazine reviews, of the Room Acoustics Services computerised postal consultancy.

NAME: ________________________________
ADDRESS: ________________________________
POST CODE: ________________________________
Hart Audio Kits - Your Value for Money to Ultimate Hi-Fi

2 Penylan Mill, Uskwater, Shropshire, England SY11 9AF
Phone Uskwater (0691) 652894

Hart Audio Kits and factory assembled units use the very best audiophile components and circuit designs by the renowned John Linsley Hood to give you unbeatable performance and unbelievable value for money. We have always found that field for easy home construction to professional standards, even in the series were we were using easily assembled printed circuit boards when Heathkit in America were still using tapeboard. Many years of experience and innovation, going back to the early Dinsdale and Bailey days give us in comparable circuit design experience in the needs of the home constructor. The current range of Hart kits is designed to give you the important core components of a system as a basic starting point.


Another masterpiece from the drawing board of John Linsley Hood and another opportunity to give a system a sound performance. for only a few hundred pounds your components are the very best. Modern advanced features, in the hands of the skilled designer, give this amplifier a performance that is really unequalled, not preceded, by the 4 or 5 figure price tag units. As always with a HART kit you have the pleasure of building selected, state of the art equipment, allied to the knowledge that your money has all been spent on quality components, you save all the costs of building and testing, plus the dealers margin on top of that by doing it yourself.

To give an idea of the measures taken to achieve ultimate quality and linearity in this amplifier each of the four output devices is rated from zero to one full watt. As before with our K series kit we have achieved an output power of 13.63 Watts per channel at 1% distortion using our own tests.

K1500 Complete STANDARD Amplifier Kit, two power amplifier channels and one power supply module, direct input passive signal selector stage. Construction Manual and RM1 1 Repair. SPECIAL DISCOUNT PRICE FOR COMPLETE KIT IS ONLY £299.95

K1500 Factory Assembled £329.20

K1450 Complete NEW SLAVE Amplifier Kit, as above but with manual passive input stage.

SPECIAL DISCOUNT PRICE FOR COMPLETE KIT IS ONLY £233.42

K1450 Factory Assembled £252.60

K1100 Complete MONOBLOC Amplifier Kit, consists of all ports for one power amplifier channel and one power supply module and all chassis parts. SPECIAL DISCOUNT PRICE FOR COMPLETE KIT IS ONLY £361.20

A1100 Factory Assembled £399.20

ALL HART kits are designed for easy home construction to the very highest standards, and can be built by anyone of average manual ability. If you are still not convinced how easy it is to build it yourself with a HART kit you can order the Instruction Manual and read for yourself and we will refund the cost when you buy your kit.

PROBABLY THE LAST VINYL PREAMP YOU EVER BUY

For those who like the musical medium the listening pleasure can only be enhanced by using the very best phonograph preamplifier available. The Hart range of phono preamplifiers feature a specially designed phono input circuit topology and are designed by the renowned John Linsley Hood. This circuit features a dectubly superior standard to the normal series feedback circuit system normally used and gives performance that will exceed or at worst equal that given by the best of the mass priced offerings. This range includes units to suit everyone from the occasional user to the serious audiophile. All can be changed to suit moving coil or moving magnet cartridges or the flick of a switch.

K1500 Series. This is an integrated circuit version of the Shunt feedback concept, using so little power that it may be run from batteries. An ideal circuit for this kit since it is very simple to put together and many voltage stages are used.

K1500 Complete Kit With Full Instructions (Battery Powered) £73.76

A1500 Factory Assamblle £118.76

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Just Out Hot Off the Press, the definitive electronics and audio book by the renowned John Linsley Hood. This 350+ page book will give you an unparalled insight into the workings of all types of valve and solid state audio circuits. Learn how to read circuit diagrams and understand amplifiers and how they are designed to give the best sound. The virtues and vices of passive and active components are examined and there are separate sections covering power supplies and the sources of noise and hum.

As one would expect from this writer the history and design of audio amplifier circuitry. They have an extra chapter, which does test and measurement equipment. Consequently this book is an incredible value for the money as 60% of information it contains on the much neglected field of linear, as opposed to digital, electronics. Indeed it must be described as the standard reference for all who, or are interested in, this field.

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1947. Reprinted 1990. 40 Pages. 09624-1918-4. £6.95

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CABLING OLD QUADS

Can you suggest a suitable cable to join an old pair of electrostatics to a pair of Quad II power amps. Hi-Fi dealers don't appear to think that a system such as mine requires any cables with particular qualities. I also use a REL sub-woofer so I don't require the 'statics to provide anything other than a taut bass with an open, clean midband and treble.

Silver plated OFC wire would seem to me to be suitable, what do you think? I find this area of hi-fi particularly confusing.

Donald J. O'Donnell
Edinburgh.

A common view would be that the Quad IIs are so old and their damping factor so low that they don't need special cables. However, that's simplistic. As you'll well know, your system, providing it isn't played loud, will sound sweeter and more natural than much we could cook up today. You are right in thinking its clarity could well be further enhanced by the use of silver plated OFC wire, or even solid silver wire, depending upon the depth of your pocket. We would recommend you try Campaign Audio Design's SCL500. This is £4/mono m, and although it may look thin, is plenty thick enough to handle the power. Also, I'd suggest you consider having the Quad IIs checked over by Quad since those I have owned or tested in the past had deteriorated quite significantly one way or another.

Using a REL subwoofer with the old Quads (dubbed 'Quad 57s' these days) is a sensible choice, but the REL must be very carefully tuned, the procedure being to set all controls at minimum and then notch them up until bass is both tight and at the right level. I mention this because I was harangued about boozy bass from the REL for a good thirty minutes at the Penta show, then the old git walked away, stopped, turned around, came back and started all over again! The REL's great, providing it is tuned properly - and this takes a lot of trial and error without the sort of spectrum analyser I use for an easy life.

Richard Kelly, yes he is still alive despite the rumours, uses a very similar set-up to yours. He uses a REL Stadium and Quads with vintage Leak amplifiers and the sound is really quite breathtaking. The clarity, open mid and top of the Quads combined with the power and control of the REL creates one of the best truly full range systems I have heard. As testimony to the care needed when setting up the REL, he was noted absent from the local for nearly two weeks, the longest absence by Richard for a good many years.

IN A FLAP

I am considering replacing my cartridge which is now 18 months old. At present I use a Denon DL304 mounted in an SME 309. The sound is superb, but there is an awful lot of cone 'flip' which I find alarming. Presumably this is due to an arm/cartridge mismatch.

I am considering going back to my previous cartridge - an Ortofon Quasar, but would appreciate your views. Would the optional SME damper enable me to stay with the Denon and reduce the cone flap or would it just...
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AMPS

<table>
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<th>Vouches with Every CD Marked</th>
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<th>FREE:</th>
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<tr>
<td>1st SPIKE STANDS with all speakers SOLU OHM £119.00</td>
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<td>System Building included</td>
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dampen the sound? Good backing is very important. My other (relevant) equipment is a Michell Gyrodec, Michell Iso (no Hera yet), BBAP100 valve amp and TDL Studio 1s. Room is 18' x 16'. Musical tastes are very broad so I look for a seamless sound. However, with the speakers I use, as tight a bass as possible is helpful. Budget is up to £400.

Alastair McClean
London.

5180μS time constant not so long ago. You have a variety of solutions available.

Return the iso to Michell Engineering and they will modify it to increase the amount of warp filtering applied, helping to lessen cone flap. Their address is -

J.A. Michell Engineering Ltd.,
2 Theobald Street,
Borehamwood,
Herts.
Tel: 081-953-0771

The SME damper will also reduce warp output, without damping the sound. In my experience it makes the sound slightly cleaner and more controlled.

Contact -
SME Ltd.,
Mill Road,
Steyning,
West Sussex BN4 3GY
Tel: 0903-814321

Since feeding subsons through a valve amplifier tends to drive the output trannies into magnetic overload, it is important to prevent such signals being amplified by the system. NK

MERIDIAN - OR VALVES?
Mendian twin processor 200 - 203 DAC 7, Mendian 201 MK3 pre-amp, a pair of Musical fidelity P140s, bi-amped to Mission 753s. Cables are Deltec Co-ax 200-203 Audioquest Quartz Interconnects and Type 4 Speaker Cable. 2 runs to each speaker. The electronics are in an adjacent room to the listening room supplied via its own dedicated rig from the mains fuse board.

All equipment is on dedicated supports. Listening room is 12ft x 11ft x 9ft. Wooden suspended floor, carpeted, behind the speakers hang full length curtains across the width of the room. The speaker spikes sit on screws driven into the floor boards, and six inches away from the rear wall.

My problem is the treble tends to sting when the system is wound-up a bit and the mid range becomes a little blurred. I tend to point the finger at the power amps, would you agree?

I have listened to power amps of various costs and the Meridian 605s seem to fit the bill, but before I make my final purchase I have become interested in the idea of valves. Could you advise on potential alternatives to the Meridian 605s?

I could also go the DIY route, being electrically qualified and somewhat adept. Several other manufacturers. Our current favourite is the Pink Triangle Ordinal, this should give a much smoother treble and a clearer mid range.

Now onto valves. This is altogether a more specialised and fraught area. Good valve amps wipe the floor with solid state - but there are precious few really good ones. To be candid, too many are either adapted application note circuits with sloppily designed output transformers, or they are not really 'hi-fi' designs. By this I mean, many high power fixed-bias and, especially, Class A/B designs where power has been placed above sound quality. This is pointless, since solid-state delivers power better. It is only when optimised for quality that valves are devastating. So don't look at the power rating with valves. I can declare myself completely partial here (!) - I live with our own K588I valve power amplifier out of preference at present. It is a pure Class A amplifier, 20watts per channel, a kit priced at £395 and, in my opinion, one of the best amplifiers you'll ever hear.

continued from page 115...
Audio valves with famous Brand Names of yesteryear such as MULLARD, MOV, GEC, RCA etc., are in very limited supply and their scarcity also makes them very expensive.

We at Chelmer Valve Company however provide high quality alternatives to these old makes. We have over 30 years experience in the supply of electronic valves of all types and during this time have established close ties with factories and sources worldwide.

For high fidelity use we further process valves from these sources using our specially developed facilities. After rigorous testing - including noise, hum, microphony, post burn-in selection and matching as needed - we offer this product as CVC PREMIUM valves.

A selection of the more popular types is listed here.

### Price list & Order Form for CVC PREMIUM Audio Valves

<table>
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<th>PRE-AMP VALVES</th>
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| MATCHING CHARGES *   |            |     |             |
| POST & PACKING       | 3.00       |     |             |

| TOTAL TO PAY         |            |     |             |
| VAT @ 17½%           |            |     |             |

| TOTAL TO PAY         |            |     | e           |

* MATCHING, if required; state valve types & if PAIRS, QUADS or OCTETS - Allow £1.00 per valve for this service.

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Signature
Name
Address
Post Code

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But Audio Innovations make a very good kit in the Classic Stereo 25 (£699) which we liked and has good output transys.

The only real way to make any decision here though is to hear these amplifiers, and others, in direct comparison against The DPA 200S pre/power amplifiers - unusually detailed and musical each other. We have been talking at length to Luigi at Hi-Fi Confidential, a valves man through and through, with enough patience to deal with Tim de Paravicini - and us! He's got a good stock of valve amplifiers on demonstration, as well as solid state, and he should have a demo K5881 and KLP1 pre-amplifier in the shop by the time you read this. Give him a buzz on 071-233-0774 to ask what he has and can demonstrate - or even supply! Being at Victoria, Central London, Hi-Fi Confidential is easy to get to.

NK

DEPOSING THE KINGSDALES

I am in the process of upgrading my system and have purchased an Audiolab 8000A amplifier and an Arcam Alpha CD player. These complement my Thorens TD 150 MK II, RB250 arm and AT110E cartridge, played through Wharfedale Kingsdale Ills speakers.

The speakers are some years old now, inefficient by today's standards, and it is this area which I intend to replace next. I would also like to include a cassette deck in an effort to preserve my considerable record collection by transferring those I play acoustic to classical and opera. The room I listen in is approx. 18' x 12' x10' with no neighbours!

M Robson
Cupar,
Fife.

We've recently been impressed by the £250 TDL RTL2 floorstanding 'speaker, which is capable of projecting a huge sweeping stage, and although you may find it unrefined in your system, its big brother, the RTL3 comes in at £400 and might suit your rock-to-classical and opera taste. Although we haven't tested it in Hi-Fi World, I have heard it and would recommend that you audition this speaker.

The Ruark Templar loudspeaker at £479 is also well worth a listen, being more refined but rather less expansive than the TDLs.

The £260 Denon DRM-710 sounds like the best bet for a cassette deck. That’s really about as cheap as worthwhile three-head decks get. You could go for the Nakamichi DR-3 at £300 instead. It's only got two heads, I'm afraid, but it's a real cracker!

As far as the cartridge is concerned, the Goldring 1022GX is most probably your best bet at £80. Whatever you choose, replace the AT110E; it isn't particularly sweet in the treble. SC

SIGNAL STRENGTH

I read with interest the review on the Technics GT550 tuner, (October issue), and its digital strength meter and hope you will be able to help with a small query.

I have a Sony ST-S370 which also has a digital meter as well as a bar chart. This is hooked up to a five element FM aerial (a bargain at £15 from Tandy), and although there is no background noise and the digital meter reads 64db Radio 4, 50db GLR (other stations fall between these figures), the bar chart will not register full at the highest of these readings.

This is only a small niggle, I know, but more than once I have read about meters on tuners (at this price point), filling up at the merest wisp of a piece of wire, and was wondering if I should try and get more gain from the aerial or leave well alone.

K Ruffell
Wormley,
Herts.
**315 EDGWARE ROAD LONDON W2 1BN**

**MAIL ORDER 071-402-2441**

**RING FOR THE BEST DEALS**

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### TECHNICS

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### AIWA

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<tr>
<th>Model</th>
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<tr>
<td>NSX-360</td>
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### JVC

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<td>VX-1200</td>
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### DENON

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<tr>
<td>M-333M</td>
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### KENWOOD

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<td>KR-V6500</td>
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### CLEARANCE OFFERS

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<td>KD-900</td>
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<td>KD-550</td>
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### HOME CINEMA/AV PRODUCTS

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<tbody>
<tr>
<td>DSP-4415</td>
<td>£199</td>
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### YAMAHA

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<tr>
<td>KX-255</td>
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### KENWOOD MINI SYSTEMS

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<td>KD-900</td>
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</tbody>
</table>

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### HOME THEATRE

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<th>Model</th>
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<tbody>
<tr>
<td>KD-900</td>
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### SONY MINI SYSTEMS

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<th>Model</th>
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<tbody>
<tr>
<td>MHC-7000CD</td>
<td>£335</td>
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### EXTENDED WARRANTY

Up to 5 years extended warranty is available on all Hi-Fi Products including accident damage.
...continued from page 119

PS: Could you suggest an interconnect for this tuner, the rest of system is Musical Fidelity A100 Amp and Tannoy 607 speakers.

Your aerial signal is a little on the low side and you may well get slightly better clarity if it were raised, since on the Sony 50dB represents about 200µV and 64dB 1mV (your tuner uses the IHF 0dB ref of one femtowatt). Ideally, all stations should be 60dB or greater. Since you are situated north of London in Herts, yet you are trying to pick up GLA which is transmitted from Crystal Palace, south London and, I believe, there is a range of hills in the way, I am not surprised the signal is a bit weak.

The usual solution is to get the aerial up as high as possible, commonly by strapping a fifteen foot alloy pole to the chimney and mounting the aerial on top.

Get a fitter to do this, and be sure the chimney is in good condition. Pointing the aerial south toward Crystal Palace will favour GLR at the expense of Radio 4 from Wrotham, south east of you, so equalising signal strengths. Make sure you use a good, low loss downlead. NK

While you are in Tandy picking up your low loss downlead, they do some very good stuff at a reasonable price, grab some of their patch leads with gold plated phono's. These don't cost an arm and a leg, but offer a considerable improvement over the standard patch chords supplied. DB

GOLDRING GL75
I am writing to you to see if you can tell me the date/year of manufacture of a Goldring Lenco record deck (model Number GL75). This was given to me in A1 condition and I would also appreciate it if you could tell me what amplifier would suit this model and what insurance or collector's value it is worth.

Your magazine has most answers to people's enquiries and I hope you can answer my small request.

P Rogers
Bristol, Avon.

The Goldring Lenco GL75 is an old soldier from the early seventies that used idler drive to provide four speeds: 16, 33, 45 and 78rpm, complete with speed adjustment. It had a massy arm that was, I believe, made of brass, fitted with a rigid but heavy plug-in headshell. In its day it was solid and dependable, but hardly advanced. It has little more than nominal value today. NK

PALPABLE
I'm interested in the audio quality described as "palpable" (eg Cello Palette, Ongaku or Audio Innovations, etc). In pursuit of this audio quality, I have purchased a pair of Rogers LS2a loudspeakers (noted for transparency). I am using an Arcam Alpha 3 integrated amplifier and a JVC XL-Z1050 CD player with the LS2as.

Certainly, the LS2as have acclaimed transparency and the Alpha 3 is an established companion, but an increase in palpability is desired. I'm confident of the LS2a's, but uncertain about the Alpha 3's, contribution toward palpability in this context.

I would appreciate your expert recommendations on how to obtain increased palpability from the Roger's LS2as or about any combination of components (£1600 or less) with above average palpability (transparency, imaging or holographic elements, etc)?

Lawrence S. Williams
New York, USA.

Are you really sure that the Arcam is the weak link here? The CD source is a fine machine, but could easily be improved by the addition of - yes, you've guessed it - an outboard DAC. The Select Systems Dacula and DPA Little Bit II mentioned elsewhere in this month's queries will both improve the palpability of your music, and a greater improvement could be had from two DACs at £695, DPA Bigger Bit or Pink Triangle's Ordinal.

The Alpha 3 will probably be due for an upgrade if you use one of the above DACs. The £430 Audiolab 8000A is the next logical step up, or alternatively the £460 Sugden A48B is slightly more friendly-sounding. Another one to go for is the John Shearne Phase 2 at £495, with its valve-like quality, but transistor speed.

If you go for any of those, you might like to upgrade the Rogers to the £400 Harbeth HL-P3, which share many of the Rogers' characteristics, only more so. SC

I would agree with Simon about the CD player, DACs are stepping stones and DACs using the Crystal chipset do seem to have a more palpable sound than most. You could also try the EMF DAC, or if you fancy changing the whole player Quad's CD67 uses the latest CDM-9 transport and Crystal chip all in one neat and stylish box. If you really want good image quality, and an open and spacious sound, there is only one thing for it. Again from Quad, the ESL-63s I suspect are everything you are looking for. At a touch under £2400 they are a little over your budget, but you may be able to find a well looked after second hand or ex-demo pair from a dealer. The Quads are large electrostatic 'speakers with excellent imaging and a completely box free sound; oodles of palpability for you. DB

The HL-P3s have a natural and musical presentation.
Definitive Audio serves a national and international market, conveniently situated within 20 minutes of the M1 (junction 24) and East Midlands International Airport. Definitive Audio is the world-wide distributor of Living Voice horn loaded loudspeaker systems (Air Partner and Trilogy); for UK Distribution of Living Voice horn loaded loudspeaker systems (See full review of Ag @thon in "Statements Hi-Fi Choice", Dec '93). UK distributor of Vicini pressure drive units, mid-range dispersive horns and bass drivers. Selected products from Wyfold, Waddington, Sumiko, Ortofon, Deca, Target, Project, Myth, Kelvin, Townshend, Edison, Audio Alchemy, Kesiki, Musical Fidelity.

### CLEAR • CRYSTAL • SYSTEMS

#### WANTED: EARLY HI-FI

Loudspeakers and Units:
- Tannoy Gold and Red units, LLZ, Lancaster, York, GRF etc.
- Western Electric/Westrex drivers and Cinema speakers.
- Lofwter, Voigt, Axion 80, RCA, Parmeko, Seimens, Vitavox, Lockwood, Altac, Quad, JBL, Dual Concentric units etc.

Turntables:
- Garrard 301, 401, BBC, EMT 927/930
- Thorens TD124 and TD224

Pickup Arms and Heads:
- SME 12' Arms, Ortofon Arms and Heads, FR-64 and FR-66, Decca FFSS, EMT

Valve Amplifiers:
- Dynatron, Quad, McIntosh, Leak, BTH, AEI, Western Electric, Pye, RCA etc.

Valves:
- Audio Valves: DA30, DA60, KT66, KT88, KT77 ECC83, GZ34, PX4, PX25, PPS/400, WE300 etc.

Interesting early Hi-Fi and Valves Bought and Sold.

#### John Petrie-Baker, CLEAR CRYSTAL SYSTEMS

Flat 2, 18 Canfield Gardens, London NW6 3JY
Tel: 071-328 9275 - Fax: 071-833 3008
Mobile: 0831-860499.
THE SPEAKERSTAND

Customer made to suit any loudspeaker. Solid slate, supremely rigid & totally stable. P.O.A.

Ken Kesler, Hi-Fi News/RR, March '99

"Immaculately finished, sublimely rigid, on a par with the best stands I've used."

An astonishing degree of instrumental separation, stable and holographic, with great precision and remarkable poise. The ultimate in high fidelity supports. DAvid Prakel, Hi-Fi Answers, Sept. '89

Superbly finished, the sound quality was considered to be first rate."

Martin Colloms, Hi-Fi News/RR, May '90

"The sound quality when using the Slate Audio stands proved to be a revelation, something special."

Paul Messenger, Hi-Fi Choice, May '91

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

THE FINEST SPEAKER SUPPORTS IN THE WORLD

GARRARD 401/301 PLINTH SYSTEM With 20 years of experience, we are the leading experts on the 401/301. Our solid marble plinths transform these decks into world class beaters.

(Please servicing and fitting) £349 + £25 p/p

THE GLASSMAT A dedicated planer mat for the Garrard 301/401 that also works with all other turntables. Sensational, unbelievable, brilliant! £49.95 + £2 p/p

SME 109/111/11111 With special graphics "Garrard 401 Celebration" £568.39 £660.93 £827.30 £1232.49

THE TURNTABLESLAB Solid slate spiked turntable platform, can be placed anywhere with remarkable results. Size 17" x 14" £175.00

THE TABLESLAB Solid slate shelf which replaces any other shelf normally fitted to equipment racks, dramatically improving your turntable's performance. State size. £125.ca

THE STONESET Spike kit for use with stone, slate or marble only. Fully adjustable. £20.(X

THE SPIKEK1T Specially developed to fit directly to floor standing loudspeakers or any racks, dramatically improving your turntable's performance. State size. £125.ca

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THE TURNTABLESLAB Solid slate spiked turntable platform, can be placed anywhere with remarkable results. Size 17" x 14" £175.00

THE SPIKEK1T Specially developed to fit directly to floor standing loudspeaker...
Tower of strength

DA-180 DAC
RRP £599.00

A true audiophile quality machine, it is suited to all classes of music and with fine performance in the lab, it receives an enthusiastic recommendation.

Hi-Fi News & RR
November 1992

New! Foundation STERLING 18,21 & 24", nothing more secure at the price

Foundation have long been associated with quality, jealously guarding a reputation built over many years. To compromise would be to reduce quality???. But, not every one needs, wants or can afford Rolls Royce quality. So Foundation set out to do the impossible " make a silk purse from a sow's ear, squeeze a quart into a pint pot, give something for nothing!". Enter Sterling, a stand with all the pedigree of 10 years breeding, sporting the same hand finished quality and the durable nylon coating found on £300 worth of Foundation Designer stand. Sterlings are carpet spiked, and use Foundation 'Blu Tack' speaker interface, a filling hole and seal are also part of this new package. At under £60.00 a pair, we believe Sterlings are the bargain of the year.

Check out Foundation Sterlings at your dealer now.

Tower of strength

AV Prologic Separates & Systems
40" Pioneer projection screen on AV Demo

WIDE RANGE OF LASER DISC SOFTWARE
LATEST AMERICAN & BRITISH TITLES

1/2 PRICE LASER DISC PROMOTION NOW ON
Hi-Fi World

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QUAD II Power amplifiers £295.00. Garrard 401 CDW, expressive plinth arm/carridge, mint, £285.00. Quad 44/405 £2 £295.00. Rogers HG88 III integrated valve amplifier £165.00. Jordan Watts Jono loudspeakers £60.00 Tel: 0533 835821.

APOGEE CENTAUR MINORS, as integrated valve amplifier £165.00. Tel: 0737 241345 (Surrey).

arm/cartridge, mint, £285.00. Quad QUAD 11 Power amplifiers £295.00. APOGEE CENTAUR MINORS, as integrated valve amplifier £165.00. Tel: 0737 241345 (Surrey).

Various valve type mains transformers £40.00. Onkyo CD Player DX 2700 £70.

Various valve type mains transformers £40.00. Arcam black box £85.00. SD O.S. speakers with 3 metre lengths Dectec RS cable £375.00. 2 Apollo walls walls stands T 72 £12.00 each. Tel: 0602 303438.

MUSICAL FIDELITY P140 power amplifier, excellent condition £165. Line Karma carridge, old but serviceable. £125 (worth £225 against Klyde). Audiokraft Ruby interconnect 1m pair £25. Tel: 0604 710555 (Northampton).

KEF Q80 Speakers. Customised bases included three months use bargain £120. Would like to part/Ex Audiolab 8000P for Musical Fidelity P180. Tel: 0229 833569.

Linn LP12, black, Valhalla, Itok, little used Karma amplifier, excellent condition £450. Tel: 0222 723054 (even/weekend).

PRIVATE

Hi-Fi World FEBRUARY 1994 125

Tel: 0392 860182 evenings.

Onkyo CD Player DX 2700 £70. All excellent condition. Black with walnut veneer.

Gold phono plugs unused £12.00. Tel: 0484 719804.

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Naim $92. Two box pre-amplifier, with remote, breathtaking quality. Only 12 months old £3,200. Linn/Isobanks, immaculate £1,000 can deliver. Can split, Genuine Sale. Tel: 021 373 9273.

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Sonus FAB MINMA AMATOR + stands £1,300. Martin-Logan Aerius electrostatic hybrid £1,700, Trilogy 949 valve amp 50 wpc £900, AVI 2000 MM mono block amps 150 wpc £600. Tel: 081-531979.

MUSICAL FIDELITY MVT MKI pre-amplifier £370; Rogers LS7c loudspeakers £170; Audionote Tonnearm; Audionote A15 wired £350. Cambridge CD2 compact disc player £300; Moth tonearm £50. Dectec the power, 2 x 45 £each. Around Black Slink £90; Target speaker stands £25; Gordon wall mount stand £20. Tel: 021 373 4406.


AUDIO RESEARCH SPB £600. Single Quad II £150, Leak TL50 £250, rare integrated valved Pioneer £120, Avantco £100, Armstrong £60. Quad 22 £30, Garrard 301 heavy plinth £200. Tel: 0709 555 403.

LINN LP12, Linn, Akito, Rogers LS8A speakers - £600. Rogers LS4A speakers - £450, rare integrated valved £450 each. Around Black Slink £90; Target speaker stands £25; Gordon wall mount stand £20. Tel: 021 373 4406.

PRIVATE

LEHIGH SYMNIN speaker stands £1,300. Martin-Logan Aerius electrostatic hybrid £1,700, Trilogy 949 valve amp 50 wpc £900, AVI 2000 MM mono block amps 150 wpc £600. Tel: 081-531979.

MUSICAL FIDELITY MVT MKI pre-amplifier £370; Rogers LS7c loudspeakers £170; Audionote Tonnearm; Audionote A15 wired £350. Cambridge CD2 compact disc player £300; Moth tonearm £50. Dectec the power, 2 x 45 £each. Around Black Slink £90; Target speaker stands £25; Gordon wall mount stand £20. Tel: 021 373 4406.


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**SELEcTED SYSTEMS**

ASMS01 System only
comprises of
Aiwa XC300 CD player, Sony TAF111
amp, Mordant Short MS10 speakers, 10 metres OED 79 Strain speaker
cable ... £ 329.99

ATM01 System only,
comprises of
Aiwa ADF410 cass/deck, Technics SUV2220
amp, Mission PROSESE speakers, 10 metres
AT524 speaker cable ... £ 299.99

PPBW01 System only,
comprises of
Pioneer PDS801 CD player, Pioneer A400
amp & B&W DM610 speakers, 10 metres
Audio-Quest F14 solid speaker cable ... £19.99

TTBW01 System only, comprises of
Technics SLP740 CD player, Technics STG470 tuner, Technics RS6BX46 cass/deck, B&W DM610
speakers, 10 metres Heco bi-wire speaker cable ... £ 399.99

SSMO1 System only, comprises of
Sony TCX611S cass/deck, Sony TAF442 amp, Mission 761
speakers, 10 metres Mission 200 Strain speaker
cable ... £ 569.99

NNMS01 System only, comprises of
Nakamichi DR3 cass/deck, Nakamichi IA3 amp, Mordant Short
MS30 speakers, 10 metres OED 79 Gold speaker
cable ... £ 629.99

All above systems are suggestions only. If you have any variations in mind
please phone us and we will try to accommodate.

All goods new and boxed, non grey imports, carry full makers
extended guarantees available via domestic and general insurance.

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All systems are very competitively priced. If you can find a better deal
elsewhere tell us and we endeavour to beat. Finance available, written
quotations upon request, APRS variable and competitive.

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**CD PLAYERS**

SUGGESTED UP TO £150 (EXCLUDING OFFERS)

- Aiwa QXQ10 £ 129.99

SUGGESTED £151-£200.00 (EXCLUDING OFFERS)

- Sony TAF315 £ 149.99

SUGGESTED £201-£250.00 (EXCLUDING OFFERS)

- Sony TAF50 £ 159.99

SUGGESTED £251-£300.00 (EXCLUDING OFFERS)

- Sony TAF500 £ 179.99

SUGGESTED £301 and above (EXCLUDING OFFERS)

- Sony TAF5000 £ 199.99

**CASSETTE DECKS**

SUGGESTED UP TO £150 (EXCLUDING OFFERS)

- Aiwa ADF70 £ 99.99

SUGGESTED £151-£200.00 (EXCLUDING OFFERS)

- Sony TC-810 £ 119.99

SUGGESTED £201-£250.00 (EXCLUDING OFFERS)

- Sony TC5 £ 219.99

SUGGESTED £251-£300.00 (EXCLUDING OFFERS)

- Sony TC15 £ 259.99

SUGGESTED £300 and above (EXCLUDING OFFERS)

- Sony TC150 £ 309.99

**AMPLIFIERS**

SUGGESTED UP TO £150 (EXCLUDING OFFERS)

- Sony TAF315 £ 129.99

SUGGESTED £151-£200.00 (EXCLUDING OFFERS)

- Sony TAF50 £ 139.99

SUGGESTED £201-£250.00 (EXCLUDING OFFERS)

- Sony TAF30 £ 149.99

SUGGESTED £251-£300.00 (EXCLUDING OFFERS)

- Sony TAF500 £ 169.99

**LOUDSPEAKERS**

SUGGESTED UP TO £150 (EXCLUDING OFFERS)

- Mission 705 £ 129.99

SUGGESTED £151-£200.00 (EXCLUDING OFFERS)

- Mission 705 £ 149.99

SUGGESTED £201-£250.00 (EXCLUDING OFFERS)

- Mission 705 £ 159.99

SUGGESTED £251-£300.00 (EXCLUDING OFFERS)

- Mission 705 £ 169.99

**SUB-WOOFERS**

SUGGESTED UP TO £500 (EXCLUDING OFFERS)

- B&W DM320 £ 169.99

SUGGESTED £401 and above (EXCLUDING OFFERS)

- B&W DM320 £ 199.99

**DAT/MINI-DISC**

SUGGESTED UP TO £700 (EXCLUDING OFFERS)

- Sony CDP711 £ 129.99

SUGGESTED £151-£200.00 (EXCLUDING OFFERS)

- Sony CDP711 £ 149.99

SUGGESTED £201-£250.00 (EXCLUDING OFFERS)

- Sony CDP711 £ 159.99

SUGGESTED £251-£300.00 (EXCLUDING OFFERS)

- Sony CDP711 £ 169.99

**FREE GIFT GUIDE SUGGESTIONS**

1 – Target TR Speaker stands, or 1m Ruby Interconnect, or Senheisser HD480MkII Headphones, or Tru-Fi £ 50.00 redeemable voucher.

2 – 1m Quinta Interconnect, or Goldring 1042 Cartridges, or Tru-Fi £ 70.00 redeemable voucher.

3 – Audio Technica ATN444 headphones, or 1m Tapaz Interconnect, or Tru-Fi £ 30.00 redeemable voucher.

4 – Bayth Dynamics DT711 headphones, or 0.5m Ruby Interconnect, or Tru-Fi £ 40.00 redeemable voucher.

5 – Senheisser HD480 Classic MkII Headphones, or Goldring 1012XG cartridge, or Tru-Fi £ 60.00 redeemable voucher.

6 – Mission 705 Speakers, or Audio Technica AT05MC MC Cartridges, or Tru-Fi £100.00 redeemable voucher.

7 – Mission 761 Speakers, or Technics SLPG140X1 CD player, or Tru-Fi £200.00 redeemable voucher.

8 – Audio Technica ATH143A Headphones, or Jinho 20” speaker stands, or Tru-Fi £ 200.00 redeemable voucher.

9 – Beyer Dynamic DT870 headphones, or Sony MDS107550 Headphones, or Tru-Fi £80.00 redeemable voucher.

Vouchers offered may be used to finance your purchase from 6-36 months subject to negotiations. Please ring for further details.
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Tel: 0638 741750
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