



Dynavector

COLUMBIA

# Unsung Hero

## Dr Tominari of Dynavector Systems

Interviewed by Roy Gregory

*For most people Japanese hi-fi is limited to midi-systems and massive corporations, whereas in fact Japan has a vibrant and inventive high-end market which we in the West know little or nothing about. But whether we are aware of it or not, it's a market which has had profound effects on our own. The single-ended amplifier / high efficiency speaker movement started many years ago in Japan, reaching us through the likes of Be Yamamura in Italy and Jean Hiraga in France. Likewise, there have always been exclusive Japanese high-end products which have enjoyed near legendary status amongst the gai-jin. Koetsu and Audio Note are the two that spring to mind, and it's no coincidence that Sugano-san and Kondo-san are about the only Japanese high-end designers that most of us know by name.*

*However, there is another, tiny, specialist company which has a track record of consistent innovation and excellence. It too has enjoyed a long and successful association with Western audiophile markets. It too has kept the faith with what many see as redundant technology. And typically, it's done it at lower price levels than the other companies I've mentioned. That company is Dynavector, and its guiding light is Doctor Noburu Tominari.*

**RG. How long have you been making pick-up cartridges, and why do you continue when so many others have stopped?**

**Dr T.** More than 23 years now. It started

as a hobby when I retired from the University. I was always fascinated by cartridges as I feel they have a huge influence over the reproduction of recorded sound. Ten years ago surround sound appeared and although it impressed many people, especially for movie sound, it made no impression on me when it came to reproducing music. On the other hand, many people in Japan have huge collections of CDs and vinyl records at home. Many people listen to music at home but when you come back from the concert you find that the sound is not good - not realistic. I was really worried about this, and the way that the major Japanese companies were ignoring high quality music reproduction for most people. Despite the existence of large stereo music collections they were pouring all their resources into the development of surround sound media. Now music will have to be re-recorded for the new formats, losing the wonderful performances that we already have, making music a poor relation to the technology.

Most audiophiles already have several sources and software to go with them. They don't want to start again with yet another new format, so the marketing effort behind DVD has gone into the home cinema market, concentrating on selling people the extra equipment they need for this, and films rather than music. That is why listening to music is a declining hobby. People buy the new equipment but their old recordings don't sound good on it, and they can't afford to

replace them with new ones. I became convinced that what was required was a system to get better sound from their existing music collections.

So this is why I continue to make better cartridges and also developed Super Stereo (a fascinating variation on surround sound which we will be returning to shortly). For high end listeners who already have good amplifiers and speakers, there is

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a whole legacy of great performances, great conductors, pianists or singers, stretching back nearly one hundred years and just waiting to be enjoyed. We should apply the best technology to their reproduction, but it should be analogue technology because these are analogue recordings. They were recorded in mono or stereo, so why try to replay them with a multi-channel digital system?

But to get the best from these records you need a very high quality cartridge. Working with prototypes ▶

▶ of my latest design I was astonished how good these old records could sound. Much better than a modern CD. Unfortunately, this new cartridge is not as simple as something like an Ortofon. Most high quality cartridges are based on extremely simple structures

time I asked them about constructing one they couldn't understand what I wanted such a large stylus for! But I was convinced that you should use as short and stiff a cantilever as possible. This was quite widely recognised but no one believed that the technology

gemstone cantilevers there is no space, so the armature must be much smaller than normal. Unless we use the fine wire for the coils there will be insufficient windings for a working output level. We did this twenty years ago, and are still the only company who can use such fine wire. Eric Rohmann, who was president of Ortofon until some years ago, even tried to buy one of our machines. Incidentally, you are aware that Ortofon and Grado hold all the patents on moving-coil cartridge designs. Dynavector was the only Japanese company that ever paid the licence fees. (Laughs)



**RG. The first Karat cartridge had a 2.5mm cantilever, but over the years that has shrunk down to 1.7mm.**

**Dr T.** At first when I tried short cantilevers I worked in sapphire or ruby and their resonance dictates a length of 2.5mm. But in Diamond, it is possible to use 1.7mm. We even made a very special product for the US high end market with a cantilever only 1.3mm long, and called the Karat 13D. It was our flagship model and sold nearly 60 pieces in America. The 17D was the first diamond cantilevered cartridge that we made, and the 13D was a very special development of it, using a special body and headshell arrangement.

**RG. The next major development that you produced was the Flux Dumper, which first appeared on the XX1. What does it do?**

**Dr T.** It first appeared on the XX1, but now it is incorporated into all our cartridges. It involves winding a wire around the front yoke of the cartridge. Experiments showed that movement of the coils was generating a voltage in the yoke which in turn effects

developed fifty years ago, and very old fashioned in their use of magnetic materials. Instead I use eight Alnico magnets to create a much more uniform magnetic field. The results of experiments were so impressive to me that I immediately incorporated this technique into a new cartridge, the XV1. One dealer in Japan, as soon as he heard this cartridge immediately said it sounds superior to any DVD or SACD. This cartridge reproduces the air and atmosphere of a recording, even from a very old record, which is absent from digital sources.

**RG. The first Dynavector product I became aware of was the original Karat cartridge, with its solid ruby cantilever. Were you the first person to employ gemstone cantilevers?**

**Dr T.** Absolutely. I get my gemstone cantilevers from Namiki, and the first

**They thought it was impossible but I dared to try it.**

existed to create such a short gemstone cantilever. They thought it was impossible but I dared to try it. It was a very unusual solution at that time. In order to achieve it we had to develop a parallel technique that enabled us to wind incredibly fine wire for the coil. Our wires are only 11 microns in diameter. Every other cartridge uses at least 20 microns.

**RG. Why do the fine wires help you use in using a short cantilever?**

**Dr T.** At the end of the cantilever is the armature. On the very short

► the linearity of the magnetic flux. It is this that makes many poor moving-coil designs sound thin and irritating. By short circuiting the yoke we prevent this happening, which leads to a much smoother and more natural high frequency balance. The effect is quite noticeable, which is why we put a switch on the XX1, so that people could hear the effect.

**RG. What is the relationship between the Te-Kaitora and the XX1?**

**DrT.** The Te-Kaitora is really just a special version of the XX1 made for Mr Denson who distributes Dynavector products in Japan and also builds the Dynavector electronics. It has no body, and uses better magnets and selected parts. And also better quality wires as well.

**RG. I notice that neither the XX1, the Te-Kaitora nor the XV1 use gemstone cantilevers. Why is that?**

**Dr T.** At the moment, the construction of this magnetic assembly used in these cartridges requires a long cantilever.

**Our wires are only 11 microns in diameter. Every other cartridge uses at least 20 microns.**

It would be very difficult to engineer this for a short cantilever, and also very, very expensive.

**RG. I also notice that the output on the XV1 is slightly higher than previous models.**

**Dr T.** Yes. That is to make it easier to use with conventional phono electronics. We have also created

a moving-coil head amp to go with our cartridges, and those from other manufacturers. It is an updated version of a circuit that I first used 20 years ago, but it is improved with modern components from the United States and Japan. The quality of the parts used has a huge influence on the sound quality of phono electronics. 20 years ago I started with the idea of basing the amplification of low output

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moving-coil cartridges on current rather than voltage. Theoretically current amplification is far better than existing hi-fi head amplifiers, which are based on voltage amplification. Unfortunately, 20 years ago the components available were not as

advanced or capable of low noise performance. The development of analogue IC chips has really improved things, especially in terms of signal to noise ratio. So last year I built a new version of the circuit and was amazed by the

improvement in performance. The current version uses only the very best components that I can find.

**RG. And the unit amplifies from low output moving-coil up to moving magnet level?**

**Dr T.** That is correct. You must connect it to an existing moving magnet stage, along with its associated

equalisation. Currently of course, many audiophiles are using line stage pre-amplifiers with no equalisation built in, so I am working on an equalisation circuit which once incorporated into the unit will mean that I can then increase the gain all the way to line level.

Using the PHA-100 the sound of all moving coils is fuller and more natural. Because it presents the cartridge

generator with a dead short it maxi-mises the output current, which in turn leads to a smoother sound with more body. It also works better with very low output cartridges for this reason.

*As mentioned, Dr Tominari has been a source of constant innovation. His use of gemstone cantilevers and the development of the Flux Damper, PHA-100 head amp and the new magnetic structure for the XV1 are only part of the story. We will be reviewing one of his Super Stereo units in the next issue, but by way of an introduction here are two reviews, one of his latest cartridge, the XV1, the other of his long running and eclectic tonearm, the DV 507, along with the ultra rare DV 13D cartridge. You only have to look at these products to appreciate that Dr Tominari is not one to simply accept the status quo. As you will see, it's an attitude that has led him to develop some fascinating and technologically challenging products.*



# The Dynavector DV 507 Tonearm and DV13D Moving-Coil Cartridge

by Roy Gregory

When it comes to hi-fi, weird and wonderful products are nothing new. In fact, hi-fi could have been invented as an outlet to prevent frustrated designers from doing any real damage. (But that was before they discovered massive triodes with driver voltages in excess of 1000 Volts. The best laid plans of mice and men...) Leaving

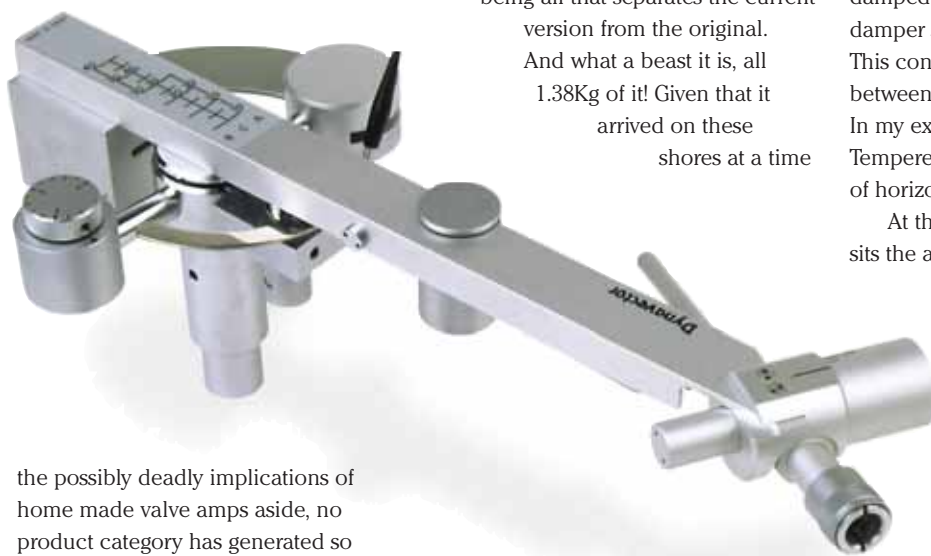
Souther Tri-Quartz, the original Mission 774 and the wooden Grace G714. All were strange, and all of them worked. But the one arm I always hankered after getting my hands on was the monster Dynavector DV505.

Well, I never did, but here's the next best thing, the DV507. In fact, it's damned nearly the same thing, a few refinements and a change of finish being all that separates the current version from the original. And what a beast it is, all 1.38Kg of it! Given that it arrived on these shores at a time

Lateral motion is handled by a massive horizontal I-beam, at the end of which sits a short, vertically pivoted section. The theory is that the much slower lateral excitation of off centre records allows a higher horizontal inertia than the much faster vertical deflections. Taking advantage of this allows a more massive and rigid overall structure. The horizontal resonance is further damped by the massive magnetic damper situated behind the bearing. This consists of a steel arc passing between a pair of powerful magnets. In my experience, only the Well Tempered arms offer more in terms of horizontal damping.

At the business end of the beam sits the angled and dynamically balanced stub assembly, complete with a detachable headshell and its own counterweight. The entire forward assembly is counterbalanced by a large weight which slides on the beam, preventing excessive side loading of the lateral bearings and a corresponding increase in friction.

Whichever way you look at it, the DV507 is an imposing creation. It is also a horrendously (and critics would argue unnecessarily) complex structure. But for me, the attraction lies in the engineering. The vertical bearings are silky smooth, the dial-tracking force is spot-on. The headshell is milled from solid, when other people were using bits of bent metal. You get three different counterweights for the stub arm so that you can



the possibly deadly implications of home made valve amps aside, no product category has generated so many bizarre designs as the tonearm. From the stationary Transcriptor (the platter moved under it!) to the pivoted head-shell on the ultra lightweight Vestigial, the simple act of dragging a rock through a spiral groove seems to have fascinated and exercised some of mankind's more inventive (or just plain wacky) minds. But you know, the really odd thing is that some of the strangest designs have also been some of the best sounding. I should know, I've owned or own most of them: the Eminent Technology and Forcell air-bearing passive linear trackers, the

when the light-weight suspended sub-chassis turntable ruled the roost (the LP12 was the incumbent champ, the even lighter Pink Triangle its nearest challenger), it is perhaps hardly surprising that the massive Dynavector struggled for acceptance. Take its eclectic approach into account and it was only ever destined for cult status.

The guiding principle of the Dynavector arms (there have been three different versions) is the separation of the horizontal and vertical pivots. The DV507 is almost two arms in one.

► optimise it for different cartridges, which along with the general arrangement of headshell and down force makes running multiple cartridges a real possibility. Early arms suffered from a dreadful falling weight bias arrangement, but the 507 has a rotating spring set-up which is easy and repeatable to set. And of course the whole thing would be a waste of time if you couldn't adjust the VTA. The 507 has a simple horizontal bar rotating around the vertical shaft that allows you to crank the arm up and down: unscrew, adjust and retighten. Simplicity itself, and once again, the length of the bar makes repeatable settings a doddle, even if there isn't a scale. This is one completely thought through product.

But the bits that really get me are the incidentals: the tiny magnetic clamp that holds the arm at rest, the simple overhang gauge that works with the headshell to provide perfect alignment (an idea which **didn't** originate with the Graham arm) and the minute, chromed, pin spanner bolts that hold everything together. It's an attention to detail that extends to the DV13D and its integral headshell. The modified cartridge generator with its diminutive 1.3mm cantilever is built into a solid block of aluminium. It's tapped on the sides for the four screws that fasten it to the prongs of the machined headshell, which is massive by today's standards, but must have looked like something from a shipyard back in the mid-eighties. The separate finger lift is bolted in place using the half inch fixings provided for mounting the cartridge into fixed headshells, while flying leads carry the signal to the arm pins. A massive stylus guard is clamped in place with a knurled screw. The whole thing has the kind of mechanical integrity which you'd normally associate with an armoured

vehicle rather than a piece of hi-fi.

Mounting the DV507 was simplicity itself, once you've found a suitable deck (somewhat easier these days, with the resurgence of interest in higher mass and



non-suspended designs). I chose the Clearlight Recovery, and given that few people are likely to have a pre-cut armboard in stock, the excellent mounting instructions and template supplied were a real bonus. The actual arm collar is similar to a Linn arrangement, but screwed down from above rather than bolted up from below. Once installed, and only fixing the arm cable presented any problem at all, the combination of DVs 507 and 13D were impressive indeed. The superb finish and imposing bulk make an impressive contrast to the shiny black top-plate of the Recovery, whose stable foundation was reassuring once it came time to check the alignment and actually cue a record. The sheer bulk of the arm, and the proximity of the beam to the record surface are disconcerting at first, but you soon get used to them. In fact, the only operational blemish

was a persistent drift on the cueing caused by the polished surface of the arm's cueing arc, but you get used to that too.

Now, if you've read this far, you probably want to know how the whole shebang sounds. In a word - solid. The DV 507 brings tremendous solidity and substance to music.

Compared to modern arms it is easy to criticise it for a lack of focus and clarity. The various Gramms and SMEs are obviously more transparent and define instruments in space far more precisely, as well as offering lower levels of colouration. But that is far from the whole story. The DV 507 may not have the clarity and separation of those arms (and make no mistake, if you want to buy one in the UK it will cost around \$2000) but it has something else; coherence. Music flows from the big Dynavector all as a piece. The Corelli *Concerto Grosso* on the fabulous Tacet recording The Tube is played with complete poise and confidence. And as you listen, it dawns on you that although the instruments aren't separated in



space the way they are with the Graham or ClearAudio TQI, their individual contributions are just as readily recognised.

It's almost as if the arm (and cartridge) are separating them tonally rather than spatially, an effect that's underlined by the clearly audible harpsichord continuo. Indeed, with ►

▶ the 13D mounted, the harpsichord's contribution has never been so obvious, or made as much sense.

The coherence and stability extend to the soundstage, which is totally divorced from the speakers, increasing the sense of a complete performance in front of you. Overall, the sound has a tangy shade that

tonearms, at least not in hi-fi terms. However, its relaxed musicality can teach more than a few of them a thing or two. In this respect it reminds me rather of the VPI JMW Memorial arms, with their natural pace and unobstructive view of the performance.

shock or something of a revelation, depending on your point of view. The fact that it still makes a valid musical statement today suggests which it should have been. I for one have thoroughly enjoyed our long awaited introduction. ▶+



adds an almost orangy warmth to the acoustic, adding to the sense of intimacy, especially on female vocals, like the Classic reissue of Billie Holiday's *Lady In Satin* (CS8048). Audiophile spectaculars like the Kari Bremnes album *Norwegian Mood* (ARS EXLP221) reveal the Dynavector combination's limited transparency and slightly constricted dynamic range, but playing real music and mainstream recordings their east confidence and natural expression really came into their own. I also used the arm with the ClearAudio Accurate, but whilst it improved the dynamic range and built on the already impressive bass performance, it lacked the seamless grace of the 13D, and it was Dynavector's cartridge which spent most of the time on duty.

Strictly speaking, the DV507 no longer competes with state of the art

In part that is probably down to the excellent geometric accuracy of the 507 (you'd expect nothing else from such an obviously engineered product), but it also suggests a deep and abiding understanding of the flaws in so much reproduced music. Listening with the Dynavectors went a long way to removing the system from the equation. It wasn't that they were invisible, more that they didn't intrude. It's a trick that the current products haven't forgotten. Twenty years ago, when the accepted benchmark was an SME 111 with a V15-1V, the combination of the 505 and the 13D must have been either a culture

#### TECHNICAL SPECIFICATIONS

Type:	Bi-Axis inertia controlled Dynamic and Magnetically damped tonearm.
Total Length:	306mm
Effective Length:	241mm
Effective Mass:	17g
Cartridge Weight Range:	<20g
Tracking Force:	0 - 3g
Weight:	1380g

Available from - Pear Audio (see page 48)

#### Manufacturer:

Dynavector Systems Ltd  
16-15 Iwamoto-cho  
2-chome  
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Tokyo 101  
Japan  
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Fax. 0081 3862 1650  
Net. [www.dynavector.co.jp](http://www.dynavector.co.jp)

# Dynavector DRT XV-1

by Paul Messenger

I introduced this splendid cartridge in the last edition of Hi-Fi+, after just a short time with the device, and as part of a combination with the very unusual Well Tempered Reference turntable/ tonearm combination.

A couple of months on, now mounted in my familiar Linn LP12/Naim Armageddon/ARO combination, I feel ready to write a proper review.

The DRT XV-1 is Dynavector's latest 'top-of-the-line' model, a low-output moving-coil design costing a considerable sum.

The DRT presumably refers to main man Dr Tominari, who's been guiding the company for the past thirty odd years, but this cartridge's main claim to fame is that it uses Alnico magnets, which is relatively unusual (though not unknown) in this day and age.

Alnico is highly regarded by Far East audiophiles, and is the 'original' permanent magnet material, made from an alloy of Aluminium, Nickel and Cobalt (or similar recipe).

I've long suspected that it refreshes the parts other magnetic materials don't even know about, and this is borne out by my loudspeaker experience. I have two speaker systems based on Alnicos which are in occasional intermittent use: a pair of Spendor BC1s, and a pair of Tannoy Westminster Royal drivers (which I flush-mount into an "infinite baffle" wall). Both these systems have an extraordinary naturalness in the midband which regular ferrite-energised drivers just don't seem to



possess. Would the same X-factor apply to Dynavector's XV-1 cartridge?

Once upon a time, of course, Alnico was the norm, but its 'power-to-weight' ratio isn't that great, and both power and weight are important factors in cartridge design. The XV-1 therefore has a rather modest specific output (0.3mV at 1kHz for 5cm/s) and a distinctly above average weight of 12.5g.

It's a very handsome looking device, with the highly polished and precision built V-shaped micro metalwork clearly on view, including the eight tiny Alnico magnets that set up the fields, with translucent red plastic filling in the gaps. The magnet/yoke/coil structure is much too complex for any simple analysis, but everything on Ser No 51001 looked beautifully put together. Tracking weight is specified as an intelligently conservative 1.8-2.2g, and the stylus profile also avoids extremism.

There's plenty to grab hold of

here, and in that respect the XV-1 is marginally less scary to install than Dynavector's Te-Kaitora, but that totally non-reflective boron rod cantilever still pokes out unprotected into free space, just begging to be carelessly knocked off. Fixing screws also need to be carefully chosen, as they grip into blind tapped holes in the body (not my favourite approach). Once installed, the shape and exposed stylus makes alignment very easy, the fixing hole-to-stylus distance slightly longer than average here. And I actually got to quite like the exposed cantilever, because dust build-up was easily spotted and equally easily removed.

I gave the test discs a quick spin, which is always interesting. The XV-1's basic frequency balance is impeccably smooth and neutral, even through the most difficult top octaves. Although compliance is quoted at a quite low 10cu, this cartridge's fundamental resonance is down around a lowish 7/8Hz in the medium mass ARO arm, presumably due in no small part to the high mass of the cartridge itself. This fundamental resonance has only light damping, which in turn would seem to confirm its particular suitability to a well damped tonearm like the Well Tempered.

Dynavector is promoting its own approach to cartridge head amplification, the DV-PHA-100, operating on current rather than voltage and presumably also





▶ providing a measure of electrical damping, whilst merely providing a boost for connection to a regular moving magnet phono stage. I didn't get hold of it in time for this review, so maybe a follow up is on the cards.

Before getting onto the actual sound, it's worth mentioning that I ran the XV-1 over some of my torture tracks, and it sailed through without any suggestion of mistracking, despite the low stated compliance.

Conventional wisdom has that the turntable has the most effect on the sound, followed by the tonearm, and finally the cartridge. The XV-1 turns conventional wisdom on its head. When I first tried it, in the Well Tempered combination, I was bowled over by the wonderful mid-band transparency and delicacy. Now I've spent time with it in my regular Linn/ARO combo, and once again I'm gobsmacked by that gorgeous midband, and again aware of its rather reticent extreme top and bottom.

The XV-1's character simply dominated, despite the huge differences between the turntable/arms. It's that sort of cartridge, quite unique in character, and utterly beguiling in its way, yet also distinctively different from the norm. On swept sinewave tones, there's almost no difference at all between the measured frequency balance of the XV-1 and my regular Linn Arkiv B, which is quite difficult to believe since these two cartridges have such totally different sonic characters.

The Arkiv is all about slam, drive and drama (not unlike the Clearaudio Discovery), but change over to the Dynavector and all the perspectives shift quite dramatically. Percussive drama immediately seems rather understated, but instead you find yourself caressed by the subtle delicacy, texture and tonality, of a midrange that's beautifully sweet, devoid of harshness or 'glare', and

simply sounds 'more natural' in the way it layers the contributions of different musical strands - not unlike those Alnico speakers I mentioned a few paragraphs back.

Human voice is invariably one of the toughest tests, and here the XV-1 is a real star, sounding comfortably more coherent and transparent, and significantly less coloured than other cartridges I've auditioned recently. Brass is another tough test, which again the XV-1 passes with flying colours. It's particularly 'kind' and strain-free with this sort of presence-rich material, so I regularly found myself playing and enjoying discs at a higher level than usual. I also found myself digging around amongst my classical orchestral - and even operatic - discs, because of the believable textures and lack of congestion on strings and choirs.

The bottom and top end are both rather restrained. You won't get the slam and authority of an Arkiv, or the top end sparkle of a Discovery, and under direct comparison to the latter, the Dynavector's soundstage is perceptibly a little smaller in scale. Does that really matter? I'm honestly not sure. The top end sounds open enough, yet reacts kindly to surface defects, so surface noise isn't a problem. The bottom end sounds weighty enough, but somehow lacks a little drive, which becomes more obvious when dealing with modern synthesised material. The XV-1 is great with Gotterdammerung; rather less so with Exit Planet Dust.

Taken overall, Dynavector's 'retro-vatory' XV-1 is a conspicuous success. Its particular strength-and-weakness profile flies in the face of my normal preferences, and I made no concessions in terms of partnering ancillaries, yet its very real charm and 'natural musicality' completely won me over. It might well be better

served by some tonearm damping, but I haven't encountered any problems with the ARO.

To these ears it sounds quite 'valve-like', with that seductively mellifluous midband, against the crisper but harder 'transistor' type sound, and I suspect that those who already favour thermionics might well be even more enthusiastic over the goodies the XV-1 brings to the party. I guess it must go down as a rather 'extreme' design, inasmuch as it gives results which are quite different from the modern stereotype, yet at the same time it's entirely practical, easygoing and so nice to listen to that I'm not looking forward to giving it back. Not one little bit.



#### TECHNICAL SPECIFICATIONS

Type:	Low Output Moving-Coil
Cantilever:	Boron Rod
Output:	0.3mV
Compliance:	10cu
Weight:	12.5g
Price:	£2500.00

#### Distributor:

Pear Audio  
7 Prospect Place  
Alnmouth  
Northumberland  
NE66-2RL  
Tel. (44)(0)1665 830862  
Fax. (44)(0)1665 830051

#### Manufacturer:

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