



# Asking Questions? Giving Answers!

## The Grand Prix Audio Monaco Turntable

by Roy Gregory

Turntable design has seen little real innovation since the 1980s, with development fastening instead on the refinement of existing approaches – refinement that has followed two basic paths: increasing simplicity and increasing mass. Indeed, the vast majority of record players now offered to the public constitute subtle variations on an extremely basic theme; rigidly coupled plinth systems support heavy platters, belt driven from standalone motors. The more you pay the more you get: more belts, more motors, more mass. Okay, so I'm exaggerating slightly, but the only

really innovative turntables I've seen since the original AR-XA, are the Versa

Dynamics 2.0 air-bearing design and its spiritual descendents, the Rockport record players, culminating in the impressive and vastly expensive Sirius III, complete with a dual-axis air-bearing, zero-contact direct-drive system and vacuum platter, all contained in a massive, active air-suspended and constrained layer plinth. No wonder the purchase price was astronomical.

For us mere mortals such exotic

creations are largely irrelevant, leaving us with a choice of variations on the belt-driven theme – variations that have, in fairness, achieved a high level of performance, given the inherent shortcomings of the approach. Shortcomings? Well – yes. I'm afraid that given the essential dichotomy at the heart of turntable design, a stretchy belt isn't exactly a high-tech response.

The problem facing any turntable



designer is to create a player that revolves at accurate, stable speed and does so quietly (meaning, without excessive mechanical vibration). The trouble is that accurate, stable speed control demands a close-coupled drive system and the motor just happens to be the biggest single source of vibration in the unit. Hence the use of belt-drive, which doesn't just decouple the motor noise, it also helps solve the far thornier issue of real-time variations in speed, through the twin devices of elasticity and slippage. So, far

from subtle changes in motor speed are evened out by the belt into less jagged and intrusive variations. Like I said, it may not be sophisticated, but it is surprisingly effective. So much so that it drove off the commercial threat of direct-drive with comparative ease, despite the latter's clear theoretical benefits. You see, even if you coupled a decent, quiet direct-drive motor to a well-engineered bearing (which actually isn't that difficult) the Achilles heel was the speed control system, which used servos to hunt the correct speed. The end result was arguably a platter that turned constantly too fast or too slow, but most damagingly of all, was constantly changing speed, a subtle distortion the ear detected all too readily. The advantage of a belt drive is that those fluctuations in speed are far more gradual and thus less intrusive.

Turntable designers have responded to these issues by applying inertia: ever-heavier platters or auxiliary fly-wheels. They've also built better and more accurate motor control systems. The problem is that the heavier the platter the more powerful (and thus noisier) the motor has to be and the less capable it is of controlling the system's speed accurately. In fact, if you are not careful the platter starts to drive the motor, a highly undesirable situation! Of course, designers have worked long, hard and with varying levels of success to deal with these problems, but every solution applied has one thing in common; it is ►

▶ trying to ameliorate the effects rather than eliminate the cause – which is the belt itself.

It was against this background of turntable development that Grand Prix Audio set out to apply their proven engineering and materials expertise to the creation of a clean sheet design. Eschewing conventional wisdom and design approaches, they embarked on a fundamental re-examination of the problems of record replay and arrived at a simple (but staggering) conclusion. The single most important aspect of turntable performance should be speed stability, as this defines the accuracy of the pitch information embedded in the record.

Yet existing standards of measurement were wholly inadequate when it came to defining both absolute accuracy and stability. With a background in the high-tech world of car racing, where each design project is very much a team effort and results are measured against an empirical standard, their response was entirely predictable: they assembled a team of engineering partners with the necessary skills, and set out to devise a measurement protocol capable of revealing the effects of the various engineering solutions applied. Having done that they could finally set to work on product development – and what a product they produced.

GPA's Monaco turntable breaks all the analogue rules: it's small where the competition is big, it's direct rather than belt driven and in a world where mass

and quality are seemingly indivisible, it's positively svelte. It's also superbly finished, beautifully executed and reassuringly expensive (should you need the price of your equipment to reassure you as to its quality). To dyed in the wool vinyl addicts of the sort who might consider dropping \$12K on a turntable, that presents quite a challenge. After all, real men don't listen to record players they might actually be able to lift up! But look at the engineering that's gone into the Monaco and it's awfully hard not to be impressed, both by the

to predict the results of its action, thus applying just enough corrective "nudge" to avoid overshoot and re-correction. Thus it doesn't just keep the speed (well) within the under/over limits, any changes are minimal and smooth, rather than sudden or jerky. Perhaps it's better to describe it as maintaining rather than correcting the speed, a notion that gives a better sense of the progressive nature of its action. The result is an incredibly smooth and cog-less drive system. This is a world away from the on-off servos that marred early direct-drive performance. It also avoids or minimizes the kind of cyclic errors that can



attention to detail and the thinking behind it.

Heart of any table is the drive system and having settled on speed stability as the key performance parameter then it was a very short step to direct-drive. Executing that drive system was another matter. The Monaco's motor is based on a 12-pole DC design with a ceramic rotor, originally developed for use in the micro-precision field of IC and chip production. The underside of the platter carries an encoder disc with over 4700 individual lines that are optically read over 4000 times a second, the results being fed to sophisticated DSP control circuitry. Where this differs from most solutions is that rather than simply reading any error and correcting it, the circuit is able

afflict belt drive systems, both through slippage but also concentricity issues with drive pulleys and platters. Any drive system will be prone to error, but the important thing to note here is the nature of those errors and that they vary with different systems, rather like the nature of distortion generated by a valve as opposed to a solid-state amplifier. So whilst belt drives tend to exhibit relatively high levels of cyclic error as well as individual random events, the Monaco's direct drive system virtually eliminates cyclic errors, confining itself to specific random events. Causal linkage is always an attractive but dangerous path, but this lack of cyclic ▶

▶ error and the smearing and rhythmic imprecision that goes with it is exactly what you'll hear when you listen to the Grand Prix 'table.

This complex and highly controllable motor system is in turn built around a sophisticated pressurised oil-bath bearing, in which the platter's rotational action pumps lubricant up the shaft of the bearing, creating a system in which there is zero horizontal contact. The vertical axis is supported by a ceramic ball resting on a proprietary hybrid alloy thrust-plate, coupled to the bearing shaft by a damped support rod, the whole assembly submerged in the oil reservoir. Those surprised by the physical contact maintained in the vertical axis should reflect on designer Alvin Lloyd's reasoning: any fluid, flexible, magnetic or air interface introduced at this point will inevitably introduce a vertical spring rate, which will in turn impact on the reading of vertically encoded information.

This brings us to the final element in the drive system, which is of course the platter, a precision machined magnesium alloy disc coupled to a phosphor-bronze mass ring that both damps the whole and optimally locates its centre of gravity. GPA are reluctant to discuss the surface finish of the platter save to say that it is extremely rigid, thus preventing any vertical deviation of the record and subsequent loss or distortion of vertical amplitude information. In this regard, the low mass, self-damping and extreme rigidity of the magnesium exceeds the performance of all but the most sophisticated and costly composite constructions. Its selection again underlines the emphasis on sound engineering and the appropriate use of materials rather than simple, cost no object extravagance, an approach that informs the entire design of the Monaco.

Taken as a whole, this system has consistently delivered speed accuracy better than 0.002% peak error, measured under the most exacting conditions and with no measurable rumble. This compares to the 0.001% claimed for the

(also direct drive) Sirius III – although no parameters or measurement protocol are published to support that figure. The next best (and rather more relevant) published claim for speed consistency is in the region of 0.005% and that comes from the belt-driven Continuum. But GPA go a stage further, applying a 3-Sigma protocol to the platter itself, rather than the motor, thus eliminating downstream inaccuracy in the drive system and measuring actual speed consistency on a nanosecond by nanosecond basis. This means that no more than three individual instances of speed variation approaching the chosen parameters are acceptable within a thousand samples, a dramatically more accurate standard than the RMS method usually applied. Do the maths and you discover that in practice, it's entirely possible for the Monaco to play an entire 20minute LP side without deviating from its speed by more than 0.002% on a single occasion, confining any speed deviation to far lower levels – an astonishing degree of speed consistency.

Given the inherent accuracy and low noise levels of the table, it's no surprise that GPA were unwilling to compromise concentric accuracy with a peripheral clamp, or risk the noise and variability associated with vacuum clamping. Instead they've opted for a simple screw-down clamp, but use it in conjunction with a soft washer that is placed beneath the disc and compressed by it, thus damping the record. The washers come in three different durometers (or hardnesses) to optimally damp different weight records, another example of the meticulous engineering that's been applied throughout this record player. The end result is a near textbook speed performance from a critically damped platter system whose drive is contained within the lateral dimensions of the platter itself.

The second part of the motor-unit equation is the plinth system, a structure that must deal with the practical questions of accommodating and

levelling the platter and arm, as well as dealing with internal and external sources of vibration. The compact nature of the drive system itself means that the plinth needs to be no bigger than the platter, while GPA's experience with composite structures and mechanical resonance means that the actual shape and construction of the plinth offer a previously impossible range of options. They have chosen to create a double skin structure, it's complex shape moulded in carbon-fibre and accurately integrating all the hard-points necessary for mounting the external elements and drive. This includes a six-bolt fixing for the alloy outrigger arm-board, located near the deck's centre of gravity. The precision machined alloy plate that supports the arm simply slides in horizontally before fixing, allowing the 'table to support tonearms of any length or type, pivoted or parallel tracking, although only one at a time. Alloy? Yes, alloy. Real engineering is about the appropriate use of materials rather than profligate expenditure. The specially selected aluminium serves its purpose perfectly, so why bother with a complex and more costly composite solution of dubious merit?

The void between the two outer skins is filled with a polymer damping compound creating an incredibly rigid, dimensionally accurate, stable and inert structure, representing the second layer in the 'table's defence against both internal and external mechanical resonance. Second? Yes. The first is the oil-bath which is an effective damper for resonance generated within the dynamic elements of the bearing itself. Bolting the bearing sleeve, well and stationary parts of the motor directly to the plinth creates an effective sink for residual energy, which will otherwise simply circulate within the structure.

GPA have eschewed any form of external suspension, instead preferring to rely on users investing in a proper support, an area of course in which the company cut its audio teeth. ▶

► Instead the plinth is supported on three conical alloy feet, each tipped with a large diameter ceramic ball, the ball and socket arrangement allowing the feet to pivot, ensuring a firm footing. One of the feet is fixed in height and this is located immediately beneath the tonearm outrigger to avoid introducing an unwanted element of flexibility or source of vibration at this critical point. The others support the opposite side of the plinth, their balls seated in very finely threaded sockets that allow for precise height adjustment. The underside of each foot is finished off with a thin layer of Sorbothane, again selected to match the weight distribution and mass of the deck. Set up consists of installing the plinth and platter on the feet, levelling the whole and filling the bearing oil bath through ports provided in the label area of the platter with the syringe provided, then sealing them with self-adhesive labels. As well as the syringe you also get a machinist's level, a beautifully executed spanner to fit the levelling sockets, a holder on which to store the compression washers for the platter, and a superbly machined plate to support your tonearm's external termination box (should it have one).

Control is provided by the small external micro-processor unit and this provides on/off, 33 and 45, with a 10-second lag between switch on and full speed at 33. There's also fine pitch control in 0.2% steps, with an illuminated scale showing the current setting. The control unit is fed from a small DC transformer and connected to the 'table via a locking Lemo connector. Once assembled the deck's diminutive proportions will come as something of a shock to audiophiles brought up on the "bigger is better" school of turntable design, although the all-up weight of 18kg and the lightweight platter gives you a fair indication of just how inert the plinth element really is.

I installed the Monaco turntable in two locations, atop the heavy-duty top shelf mounted on my finite element HD-03

rack and also on GPA's own superbly engineered Perspex and carbon-fibre Brooklands wall-shelf, a unit that shares materials and the critically-damped approach of the deck. The deck proved remarkably impervious to differences in support, and subtly greater transparency and focus from the wall shelf could simply reflect its solid mounting compared to the floor standing rack. Either way, the deck performed superbly. Tonearm used was a current Triplanar VIIi, with a range of different cartridges. As previously described, setting the deck up is an object lesson in engineering exactitude with both the tools and the measure available to ensure perfect results easily achieved. Moving it short distances is similarly simple; just make sure that you keep it level to prevent spillage from the oil bath (and having a second pair of hands available to place the feet is a real bonus).

Expectation is a funny thing. Having got the Grand Prix 'table installed, what exactly should you anticipate from this record player, a design that seemingly flies in the face of both current fashion and audiophile dogma? If familiarity breeds contempt then it also creates that expectation, an anticipation of how a record and record player should sound. Well, be warned, the Monaco sounds as different as it looks... Which creates something of a problem for the reviewer; on the one hand comparisons with existing turntables could be construed as negatives, on the other, the flaws and sins of existing players are familiar to readers (as noted above) whereas this design delivers quite a different sonic thumbprint which you've got to identify before you can have any hope of describing it.

So let's start somewhere completely different and look at CD and what its

introduction revealed about record replay. For all its other faults, CD highlighted two major flaws in the performance of turntables: the digital medium offered superior top to bottom linearity and greater overall speed consistency\*. Suddenly, a great many turntables sounded lumpy, bumpy and wobbly as well.

Naturally, analogue designers responded to the situation with improvements of their own. The trouble is, that like a spot on the end of someone's nose, once you notice it your eyes just can't ignore it. You can cover it up but that just hides it, it doesn't cure the problem. Now, whilst there were those who described the thickened and muddled low frequency energy emanating from their record players as audio "truth", once you heard it there was no ignoring the inevitable conclusion that this was the structure of the turntable you were hearing, it's inability to deal with stored energy in a linear fashion, rather than the inherent warmth, weight and roundness of the musical performance. Besides which, just because something isn't "real" or "right", it doesn't mean that it's necessarily nasty or unpleasant. Indeed, carefully managed, this weight and warmth contributes in no small part to the appeal of record replay, adding impact and a feeling of power as well as a cuddly smoothness to the vinyl medium's established strengths of rhythmic flow, musical structure and phrasing – and most important of all – the absence of "process" from the sound. There's also no escaping the fact that most CD players are (for all their technical virtues) more musically intrusive than record players; you hear them working. Turntables might impact the recording more, but you notice them less. Collectively, there's no question that for today's more refined ►

\* Speed consistency isn't the same thing as temporal coherence. CD might not have had rhythmic integrity and its sense of musical ebb and flow suffered as a result, but its pitch security was undeniable and in many cases piano recordings came as both a shock and a revelation to listeners subconsciously inured to constant, subtle speed variation. Of course, a great deal of the rhythmic dislocation was subsequently laid at the door of brutally inadequate digital filter design, but the whole quagmire of up- and over-sampling and the alternative of filterless players is a whole discussion in itself which we'll be looking at shortly.

► record players, the many performance pluses outweigh the negatives.

So where does that leave a solution that in many respects promises the best of both worlds? Greater linearity and speed stability combined with the proven qualities of vinyl replay: Champion, you might think. But there's also the danger that it satisfies the adherents of neither, lacking the habit forming additives of most vinyl systems and the ease of use and software compatibility for those who prefer CD replay. Give a tea drinker a cup of Earl Grey instead of PG Tips and he'll notice the difference,



maybe even the superiority. But if he takes three sugars and you don't put any in the Earl Grey, that's what he'll notice! Or, in other words, technical superiority in and of itself is no good if the baby goes out with the bathwater.

This has been a long (and convoluted) introduction. I've spent a lot of time on the Grand Prix Audio turntable's structure and thinking, and nearly as much setting a scene. Why? Because this deck is genuinely different and understanding its achievements means appreciating how it works and why it is so different.

Quite a build up; so just how does the Monaco sound? Well, like any 'table that depends on the arm and cartridge. With the Monaco it depends more than most. So let's start with the turntable sounding at its best, and later we can discuss the issues around matching other bits to

achieve that performance.

The first thing you'll hear with the Monaco is a startling level of clarity and lack of confusion. The soundstage is wide, wide open and deep, and individual images are beautifully distinct from one another, but this is not the sort of etched, hyper-reality that you get from high-definition, imaging *uber alles* systems. Instead you are presented with a natural, unforced sense of

space and perspective, location and separation, built on the foundation of uncluttered, top to bottom linearity. There is no thickening or smudging at the bottom; there is no excess weight bubbling up to blur the mid-band and flesh out the sound. Instead, instruments and voices are naturally weighted and exist with their own tonality and in their own acoustic space. That's why they separate out so readily.

The natural assumption that goes with this is that the Monaco will sound leaner and less substantial than other decks and to a point that's true. But back to back comparisons (and I've

been exhaustive in this) always end up with the competition sounding rounded, blurred and overweight, the GPA consistently delivering better pitch security, texture and harmonic resolution, not just at low frequencies but across the board. Of the decks on hand the one with the closest spectral balance is the Clearaudio Master Reference, which sounds notably more linear than other decks anyway, yet still fails to match the Monaco. Doesn't the absence of weight rob the deck of impact and musical power? Again, close comparisons to the resident 'tables show that whilst the likes of the Kuzma XL4 and TNT with Rimdrive initially offer greater weight and impact, a more impressive sense of drive, actually, the GPA bests both in terms of musical drama and expressive range, its greater textural palette and dynamic discrimination easily countering the sheer weight of the other decks, often leaving them sounding ponderous and puffed out. Ever watch an athlete at the tail end of a long race, the guy trailing in at the back of the pack? That lack of life, the jump, spring and energy that so obviously propelled the winner; that's what the comparisons brought to mind\*.

Which brings us to the question of speed – or pace. You might think that the GPA will sound fast. It doesn't. Instead it sounds right, and there's a big, big difference. In days of yore, turntable manufacturers would occasionally set their demonstration units to run slightly fast, giving them a lively, crisp and upbeat sound that impresses in a quick A/B dem. The trouble is that the longer you listen the more you notice the hurried, cluttered and congested nature of the sound. The Monaco is the exact ►

\* Interestingly, the Rimdrive has transformed the performance of the TNT by moving it – you guessed it – significantly further towards the type of performance offered by the Monaco. There's also a new power supply coming for the XL4 and it will be interesting to see how that effects things.

▶ opposite. Musical information arrives exactly as, when and where it should, meaning that the impact and drama come from the performance of the players (not the performance of the player – errr, turntable). It's this sense of uncluttered organization that dovetails with the GPA's linearity and even spectral balance to deliver its astonishing clarity and intelligibility. Individual notes are beautifully defined: placement, leading edge, harmonic development and decay. But just as importantly their spacing and the spaces between them become more natural and more apparent, which in turn makes phrasing much more effective and powerful. So, listening to Janis Ian's 'Some People's Lives', the pauses between each line become almost as telling and poignant as the lyrics themselves, adding emphasis to the words but also locking the vocal to the studied pacing and accents of the piano. The end result is a huge increase in the emotional impact and sense of natural delivery on this starkest and simplest of songs. As you add instruments and density to the music and mix, the benefits become even more obvious.

The third leg to this particular performance tripod, a natural extension of what you hear on the Janis Ian track, is the uncanny overall musical coherence. The different parts of a composition, different strands, different instruments, manage to lock together into a coherent – and above all, recognizable – whole. That makes it easy to hear what's going on, so you spend less brain effort on sorting things out and more on enjoying them: which makes for both more involving and relaxed listening. But, in the same way that the clarity and intelligibility depends on the speed consistency, this third quality is inextricably entwined with the other two. It's the inherent balance, the integrity of these interlocking attributes that makes the Monaco what it is – and allows it to do what it does, which is to provide a clear and naturally proportioned musical skeleton. It's up to the arm and cartridge

to put flesh and clothes on the body, to decide on the physique and dress sense if you like, but it's hard to quibble with the foundation provided by the 'table.

Which brings us to the question of partners for the chassis. Of course, providing such a stable platform means that the type of tonearm employed is wide open: gimbal, uni-pivot, even a parallel tracker, the Monaco would suit them all. More importantly, your choice needs to have an even balance top to bottom, because the deck is going to show up any leanings one way or another, and it must – absolutely must – offer record by record VTA adjustment. Okay, so I've been banging the drum on this for a while but hear me out. Anybody who sat in on our demonstrations at RMAF or the Manchester Show should be in no doubt that VTA affects rhythmic integrity and musical flow. Get it wrong and the timing consistency and coherence of the Monaco replay platform will tell you instantly. The music will become stilted, thin, tonally bleached and disjointed if the arm is too high, purposeless, bland and lacking in energy if it's too low. But fear not, the right height is equally clear, making adjustment a doddle. Increasingly, topflight arms are offering this facility so choice is hardly limited and you quickly get accustomed to this being just another part of the record playing ritual.

The deck's self-effacing nature also puts a heavy burden on cartridge choice. At first glance you might be tempted to go for something warm and fulsome, adding familiar body and weight to the overall picture. Fine, if you want the Monaco to sound more like all the other record players out there. Me, I'd rather play to its strengths. So, mounting the Koetsu Urushi Sky Blue (a fine cartridge in the right context) it was made to sound sluggish and overburdened. The Clearaudio Accurate, with its dramatic and colourful "double dipper" balance sounded exaggerated and obvious, while never has the resolution shortfall of the Lyra Scala sounded so apparent when

compared to the Titan i. Indeed, the Titan left its little brother sounding almost clumsy in comparison. So, first priority with your choice of cartridge must be an even top to bottom balance (I'd think that the Benz LP and Dynavector XVI would both score well in this regard). Second is resolution and transparency and here the Titan rules supreme. Adding the Lyra's dexterity, agility and dynamic discrimination to the clarity and composure of the deck brings out the best in the both of them, revealing every last nuance in the playing and enunciation of the performers. You want up close and personal? You got it, but despite the transparency and immediacy, the music is never forced, never fired at you. It's just right there in front of you.

But there's another aspect to this. In many respects your cartridge will sound more like itself than ever before. But a natural extension of that is that the impact and influence of the phono-stage, its matching to the cartridge becomes much, much more significant. The difference between pick-ups was plenty apparent with the Groove Plus, but my preference for the Titan increased dramatically as soon as I put the Connoisseur in the system. So think about your vinyl replay set up as including everything up to the input sockets of your line-stage (including cables) or you'll be limiting the potential performance. The problem with all that clarity and transparency is that it cuts both ways; you hear it when it's there but boy do you notice if it's not. Perhaps the most telling example of this was a brief flirtation with the Ortofon MC7500. The Monaco delivered up all the tonal colours and textures this cartridge is justifiably renowned for, but you could almost hear the Connoisseur running out of steam when it came to gain. Substituting the Groove the results were way better, but the honesty of the deck still made it all too clear that the dynamic range and impact were suffering.

Does that make the Monaco one of those decks that leaves half of your ▶

► record collection unplayable? Actually, it's quite the opposite, but let's look at this in a slightly different way. Instead of checking out its performance with a disc you know, pick something new that you've never played before. Cue it up on your existing deck and play the opening track a couple of times. Now swap to the Monaco and I reckon you'll notice two things: it seems like you can hear twice as much, but also you get into the music, catch its thread and its groove, twice as fast.

articulate, the nuances in the delivery more natural. The paring away of the bass weight revealed patterns and textures that gave the lower registers character and an undulating sophistication lost in the previous pile-driver incarnation. But most telling of all was the way in which the percussion motifs scattered through the track locked into place and defined the rhythm and pace, setting the structure and progress of the piece.

Another "first time" experience? Play a piano disc – and pretty much any one will do. Clearly the Janis Ian is a contender here, but you

the length of the notes and the deck's exceptional speed stability make this a perfect match. But it goes much further than that. It's the clarity and micro-dynamic discrimination, the ability to hold different sounds at different levels separate that allows the Monaco to reveal the full harmonic and structural complexity of the instrument.

Cisco's recent release of the Heifetz *Kreutzer Sonata* underlines this last point perfectly. I've always held a candle for the Martzy reading, finding Heifetz flashy and ostentatious. But the superiority of the Cisco transfer combined with the Monaco reveals a different picture. Yes, Martzy certainly serves the music better; the Heifetz is definitely a Heifetz – if you get my drift. But for the first time I have a 'table that can keep pace with the flashing bow, the cascade of notes



The first phenomenon is easy enough to understand. In some respects you are hearing more because the Monaco is unmasking more information, but what's really going on is that you can make more sense of the whole, that the picture is more complete. As a result you get the second effect, which is down to the music communicating more effectively; you really do understand it better.

The first time I noticed this was on the Jonathan Rice album *Further North* which is a great record, but one with seriously dense bass mixes that tend to dominate proceedings along with the voice. Playing the record for the first time on the TNT I was bowled over by the presence, power and drive. But transferring it to the Monaco the array of instruments, especially the guitars and percussion were freed from the swamp and the carefully crafted mix emerging for the first time. The voice was more distinct, the lyrics more comprehensible and

can pick one almost at random, because most turntables don't actually manage to reproduce anything like the full weight and complexity of a piano. What you'll hear from the Grand Prix will make you realize just what you've been putting up with for so long. The sonorous depth and multiple harmonics it produces in the bass, their clarity and lack of smearing, the sharper attack and unmistakably percussive qualities of the right hand notes, the sense of an instrument, a body, a rack of tensioned wires, the effortless length of the decay, the clear use of the damping pedal; they all contribute to something that's obviously, recognisably, unmistakably a piano. Now listen to almost any other 'table! Of course,

that explode from the Maestro's violin. What is unveiled is a technical *tour de force* of literally breath-taking dimensions. The ability to effortlessly unravel the complex runs and rapid fire salvos brings true appreciation, a clarity and lack of congestion that has more in common with life than our expectations of recordings.

Think now, what that means for other records. The way the Monaco unravels tracks makes it a window on recorded quality – and yes I did mean "recorded" not "recording". What will emerge from your records is the quality of the playing, the artistry of the players. So, 'Jammin' from *Babylon By Bus* becomes an infectious, joyous romp, the agile, mobile bass line driving ►

► things along, Marley on an obvious high and feeding off the audience. Great recording? Not a bit of it – but a great band and a great night! Where many systems struggle to capture the chemistry and frisson of really tight ensemble playing, be it the Wailers or Quarteto Italiano, the Monaco/Titan/Connoisseur chain revelled in it, allowing you, the listener, to do the same. The downside is that the deck will also show up clumsy playing and groups that aren't as tight as they should be, studio work that breaks rather than builds the continuity and flow in a track.

So far I've yet to uncover a significant flaw in the Grand Prix Audio Monaco. On a practical level I'd like a lid and I'd like to be able to mount a second arm. But musically speaking it's weighting of instrumental energy right across the range and especially at high frequencies, its ability to float acoustic bass and drums or accurately capture the speed and tonality of percussion, is very near to life, and only a subtle lack of woodiness to cello and double bass betray it. I'm not even prepared to lay that at the door of the 'table as the other decks I've used with the Titan simply don't resolve low frequency harmonics with anything like the same clarity, so it could be the cartridge. Likewise, you can find decks that conjure a greater sense of acoustic space or simply deliver more wallop. But this deck's deviations from the natural are sufficiently small to be subsumed by taste rather than accuracy. Which is another way of saying that if you want a bigger, bolder and more colourful picture you might well prefer the TNT, greater low-end weight and a more palpable acoustic, then the Kuzma. But whilst you might prefer another deck I suspect you'll find it as hard as me to fault the

Monaco's musical integrity and overall coherence.

More importantly, that sonic integrity reflects the engineering integrity of the design as a whole. It would be easy to hang the performance benefits of this 'table on the hook labelled direct drive, but there's much more to it than that. They're also down to the 'table's ability to generate and dissipate energy and the sophistication of its bearing design and speed controller. No one factor



reigns supreme, they all contribute. In the same way, this isn't about the superiority of direct drive over belt drive: it's about the speed accuracy and consistency of this system, the superiority of this implementation rather than the specific technology employed. The important things are the speed consistency, the physical structure, the materials used and the execution of the design. There's more than one way to build a turntable. Success rests on following your chosen path to its logical extreme, which is exactly what Grand Prix Audio have done – thankfully with equal emphasis on the logic AND the extreme. Indeed, no designer or manufacturer has ever been as frank and open about their 'table's technical achievements or *raison d'être* – as GPA's white paper on the deck will make clear. Read it and you'll see that buying this deck rests on more than just the promise of performance.

So direct-drive might seem like

the star, but even a star needs a supporting cast, and here that cast are also stellar – as is the resultant performance. In many ways this is the most accomplished, convincing and insightful turntable I've used at home. The more I've used it the more I've enjoyed it; the more I've put in, the more I've got out. Will I miss it when it goes? Why don't they make stick on patches for vinyl withdrawal? Of the serious vinyl replay contenders this is by far the most practical. Nor, given

the cost of the competition and the material content and execution involved here, is it extravagantly expensive. It's demanding and rewarding in equal measure and if Grand Prix Audio's Monaco doesn't sound like other turntables maybe, just maybe it sounds like the great 'tables to come.



#### TECHNICAL SPECIFICATIONS

Type:	Direct-drive turntable
Speeds:	33 and 45 RPM, user variable
Speed Accuracy:	Better than 0.002% peak deviation 0.0014% RMS
Wow And Flutter:	Better than 0.002%
Rumble:	Below measurable levels
Tonearm Compatibility:	Universal
Dimensions (WxHxD):	310 x 130 x 390mm (depending on arm mount)
Weight:	18.2kg
Price:	£12000

#### UK Distributor:

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