

VPI Avenger Reference Turntable

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Let me begin this review by noting that the VPI Avenger Reference is part of a steadily growing number of “extreme turntables.” It sells for \$17,000 without an arm, \$20,000 with the JMW 12-3D Reference arm, and \$20,800 with the new VPI “Fat Boy” tonearm. It also sets a standard of sound quality that almost demands that it be equipped with cartridges that cost well over \$1000, and, at that, it still isn’t the most “extreme” turntable in the VPI line. The *ne plus ultra* model is the VPI Titan, which adds another layer of mass and vibration-control and costs \$40,000.

Like almost all true state-of-the-art products in the high end, the Avenger Reference exists for the handful of audiophiles who can afford to test the limits of what an analog front end can do. And like all competing state-of-the-art equipment, it pushes those limits to a point of diminishing returns. VPI makes some great and highly affordable turntables like the Prime Scout, which costs \$2200 complete with a really good VPI tonearm. The Avenger clearly outperforms the Prime Scout, but you pay a lot to get these improvements. Since its whole purpose is to do as little to the sound as possible, it is a bit hard to review the Avenger Reference. It is one thing to talk about subtle colorations; it is another to talk about a subtle lack of them.

The Design

The Avenger may be a remarkably striking visual object, but its form really does provide function. It is a superb turntable that offers a wide range of options to allow it to be tailored to a given audiophile's needs. I asked Mat Weisfeld of VPI to summarize its design goals and he replied that "the goal of the Avenger Reference (Avenger models in general) was to create a high-end sandbox that lets the user experiment with any configuration he likes. Ranging from multiple arms (both VPI and other brands) of any length (we have mounted from 9-14" arms without a problem) to different types of motors (belt drive, rim-drive, magnetic rim-drive) and feet (Signature feet, Avenger Reference Feet, pneumatic air suspension, or third-party feet). The goal was to create a high-end solution that was easy and modular in its upgrade path. You can start at the \$10k Avenger level and upgrade up to the \$20k flavor without any problem, and at your own pace."



VPI Avenger

Unless you have worked with a number of turntables, you may not realize how hard it is to get all of the features that permit the Avenger Reference to be tailored to perform at its best in your particular listening room. Ideally, a turntable has to minimize any form of acoustic breakthrough from room vibrations and rotate the record perfectly without mechanical breakthrough affecting the platter and tonearm. The ability to tailor a turntable to your specific needs is really critical in a high-cost unit, and choosing a configuration specific to your requirements is an area where I'd urge you to talk to VPI, as well as to your dealer. (You might also ask VPI to mount your cartridge if you buy the unit

with its tonearm.)

VPI stressed this combination of performance and flexibility when I talked to Weisfeld about its design features:

- The VPI Avenger chassis is made out of three layers of bonded acrylic/aluminum/acrylic, with damping material between layers. It is locked in by using three steel corner isolation posts and bolts, and has a massive bearing assembly. The corner posts can hold up to three tonearms, and have adjustable machined knobs giving the user the ability to easily raise and lower the height to level the table. The adjustable armboards are made from 6061 aluminum for rigidity and grounding.
- The Avenger uses rim drive instead of belts or direct drive because VPI has found it performs better than any combination of belt drives, and is more reliable than direct-drive systems. VPI has refined this long-proven concept. (Rim drive was used in the classic Thorens turntables, and VPI first tried it in the Super Scoutmaster rim-drive 'table. This unit won Product of the Year from *Stereophile*, and was HP's preferred table for most of his listening.)
- The original rim drive was heavy, hard to move, and hard to adjust. The Avenger, by contrast, uses a rim drive with a sliding machined "V" slide, like that of a lathe. It provides the speed stability of the best direct drives, all the power that is needed, and can be repaired anywhere in the world.
- A new power supply called the ADS is standard on all rim-drive 'tables. It keeps the Avenger's motors fully engaged with the rim drive and easily powers the unit through heavily modulated grooves.
- The platter uses magnetic drive to isolate the platter and record from any rim-drive and motor-drive noise, and to smooth out platter rotation. The slave platter weighs 20 pounds and is driven through magnets by the drive platter, which weighs 10 pounds and is driven by the rim drive. There are six high power magnets near the record label that drive the slave platter from the rotation of the driven platter. This not only isolates but also smooths out the motion of the slave platter, as the magnetic flux between the platters acts as a damper for more fluid motion with less micro-vibrations. The slave platter runs on a 6" long shaft spinning at the driven platter speed, so there is virtually no noise generated by the platter spinning on its inverted bearing shaft.
- The Avenger's tripod base and frame design allows for multiple arm use with no muss or fuss. VPI feels that this capability is required by many audiophiles in an era of super-high-quality mono cartridges, different stereo designs, and different tonearms. The tripod design also allows different feet to be used at different levels of design, from simple isolation to air-suspension floating designs. It allows the changing of feet as new ideas and designs become available, and makes for a smaller footprint for easier installation.

- The 12" tonearm VPI provides for the Avenger is VPI's newest 3D-printed design, the JMW 3D Reference. It has a structure that is so well damped it has less than 1.5dB of resonance in the critical 9–12Hz range. The 3D-printed armtube takes its name from the additive manufacturing (or "3D printing") process used to produce it. This lets 3D manufacturing create a single-piece structure from headshell to rear stub designed and made to provide a totally even mechanical resonance response. The arm is produced in shapes that can't be machined, and wall thickness, shape, and structure can be varied so the resonant character of the arm can be optimized for a device that has to be rigid and yet not resonate. Production is uniform and repeatable in a long string of pieces. The VPI arm is 12" long for very low tracking error, very low distortion, and the best tracking of inner grooves.
- The tonearm base is adjustable to provide VTA/SRA on the fly and allows micro-adjustments of all VPI tonearms installed on the Avenger.

The Setup Challenge

These options do create one problem, although this problem occurs in varying degrees with all turntables and tonearms, and is generally most serious with the best ones. Setup is critical. If you are not experienced, make sure you have a friend or a dealer who is, and that he or she will put real effort into helping you. A certain amount of experimentation and tweaking is almost inevitable, and the proper set-up gear is necessary. One key, if simple, tool is a reliable level (small bubble levels are often erratic, and hard to read).

VPI's manual can take you most of the way, and you are unlikely to have problems if you have any prior experience, but the protractor for adjusting the distance between the tonearm's base and the record spindle in the center of the platter is a bit awkward to use, and so is the cartridge alignment gird at its end. Once again, having VPI, or a serious analog high-end audiophile, or a really experienced dealer set up your cartridge can be critical. With turntables this good, you can hear every tweak or shift in cartridge alignment.



VPI MW 12-3D

I found that the new VPI tonearm that came with the Avenger Plus did a great job of minimizing resonance problems with both moving-coil and moving-iron cartridges. I tried it with the Lyric Clavis, Grado Statement, Ortofon A95, and Soundsmith Sussurro II, and it did very well with all my test records. Its VTA/SRA adjustments also work fine if you want to fine-tune them while you are actually listening, although I am prone to leaving the setting in a good “average” position rather than tweaking for each record.

Some other tonearm set-up features you should be aware of, and that mattered in setting up the Avenger Plus for this review:

- Keep the tonearm set-up height parallel to the record, and use the higher side of the manufacturer’s recommended tracking weight. I’ve found over the years that this preserves the record better, as lighter tracking weights have problems with demanding grooves.
- VPI provides for an anti-skating adjustment, but recommends slightly increasing the tracking weight as a substitute. I’ve played around a lot with such adjustments over the years, and I concur with VPI. Many others don’t. Like all such setting, this is worth exploring for yourself.
- Pay really close attention to the azimuth adjustment instructions. You may find in some cases that you can hear improvements, however, if there is a slight tilt in the tonearm towards either side. A good dealer will use a scope to make sure you get the best possible balance between channels.
- There is a new dual pivot adjustment option for the tonearm. I was doubtful about this at first because I thought there might be excessive friction between the pivot and the thrust pad it slides over, but the dual pivot does help stabilize the arm and ensures slightly more stable sound quality.
- These aspects of setup sound more complicated than they are, but they occur in some form in every good turntable/tonearm. Moreover, once setup is complete you can more or less forget about adjustments. One more tip, however: Keep the turntable power supply away from your phono preamp. It is a higher-power unit and can produce some hum and noise if you seat it too close to high-gain phono electronics.

The “Analog Ritual” Challenge

If you are new to the most demanding analog front ends, I should mention the need to adopt a proper “analog ritual” in playing each side of every record—if you want to get the best results. Every experienced record lover already knows this, and has his own variation on how to prepare the record for play. But, if you’re new to analog—and fortunately more and more younger audiophiles are—be aware that there isn’t a lot of point purchasing this level of turntable, tonearm, and cartridge if you don’t properly prepare the record and record player.

Every variation of the analog ritual requires regular use of a good stylus cleaner. You will also need to use a record cleaner nearly each time you play a given side. A good record brush can be a partial substitute, but playing dirty records will generally create greater

noise and distortion than the differences between good and great turntable setups.

You also need to use a good centerweight, and, in the case of the VPI turntables, the VPI Periphery Ring Clamp that fits over the periphery of the record and clamps it down to the platter. Even if the record appears to be perfectly flat, the Periphery Ring Clamp will slightly improve the tonearm's ability to track, the consistency of the sound, and the coupling between the record, pad, and platter.

All of this “analog ritual” may seem a bit complicated initially, but it only involves a few minutes of activity at most. It preserves your records—as well as getting the best sound out of them—and becomes part of the fun after a day or two. (It also does at least a tiny bit to get you out of the couch-potato status, where you just sit there streaming digital music, holding your remote or iPad on your lap, and do nothing more than twitch your increasingly fat fingers.)

The Sound

The best part is that patient and exacting setup of a truly great turntable like the Avenger Reference—and going through the “analog ritual” necessary to get the best out of it—does pay off in sound quality. Moreover, it allows such a turntable to minimize the impact of room, furniture, and placement, which generally colors the sound of analog front ends.

The Avenger Reference can get excellent sound quality out of your records even under very demanding placement and listening conditions. I normally help minimize room, furniture, and placement problems by keeping my phono gear in a separate “hi-fi equipment porch,” separate from my listening room and speakers. I also place my turntable on a rigid heavy metal table that has spiked feet and rests on a thick carpet and pad placed over a cement floor that is decoupled from the wood floor in my listening room. Aside from a doorway, there is also a brick wall separating my equipment room from my speakers.

All very well for me, but not practical for some 99% of the world's audiophiles. Accordingly, I put the Avenger Reference through something approaching a worst-case test. I placed it and the phono preamp in front of my speakers in my actual listening room during part of my auditioning for this review, and I played my usual annoyingly loud sonic spectaculars at levels where I could feel the resulting sound vibrate the room.

I can't say that the resulting sound and fury had no effect on the Avenger Reference, but the VPI did far better in coping with these worst-case conditions than the other turntables I've tried this test with. (Several clearly vibrated the record and tonearm at peak levels, and in one design the arm actually skipped grooves.) I can't conceive of any real audiophile ever locating and using his turntable in such a way, and the Avenger Reference will never be a DJ unit, but I still feel this test is a “worst-case” demonstration of just how well a 'table can address one of the most critical problems in real-world analog front ends.

I also made far more functional comparisons with the VPI Classic Direct and earlier model of the VPI 3D tonearm I use as my own reference. I've kind of coasted in my own analog setup in recent years because the Classic was so good. In fact, I found over time that it was good enough to consistently convince some of my most dedicated digital audiophile friends that analog LPs could be both a real pleasure and real competitor to even the best digital front ends.

I can't argue with them about the fact that records have more technical limits than digital discs or streaming, although digital has limits as well. Analog tape and analog LP mastering do impose limits in distortion, restrict dynamic range, and alter frequency response. The best turntable/tonearm combination cannot compensate for the fact that the cartridge introduces a significant amount of its own character to the music. But, I have found that when it comes to the actual aesthetic enjoyment of music, a good record and phono front end still have enough merit to win over most dedicated "digiphiles."

This was certainly my experience with the VPI Classic Direct, which costs substantially more than the VPI Avenger Reference and is now custom-made for special order because of the limited supply and complicated build. It proved to be equally true of the VPI Avenger and its new tonearm. You do come much closer to the "silence" of digital with the best "extreme turntables."

The other differences between a very good and a great turntable are subtle. They can't overcome the noise level of the LP, and they are at their best in a dead-quiet room, but the differences are always there. In simple terms, you become aware that you are hearing more of the music. It is cleaner and has more natural life and more natural instrumental detail. The sound is also more consistent, particularly in both softest and loudest passages.

Much does depend on the cartridge, whose colorations impose the most obvious limits to sound quality in a phono front end. A great turntable/tonearm can, however, allow the cartridge to do its best. With proper setup, the Avenger Reference got the best out of both my older Lyra Clavis and Grado Statement cartridges, my brand-new Ortofon A95, and my Soundsmith Sussurro II. Using different cartridges with a turntable and tonearm is a good way to test its neutrality and impact on sound quality, and the new VPI tonearm got more detail and consistent tracking out of the Lyra and Grado that I had previously heard. Equally important, it allowed the new Ortofon A95 and Soundsmith Sussurro II to show just how much progress cartridge designs have made in recent years.

The Ortofon A95 was as smooth as any moving coil I've yet heard, had an excellent soundstage, and a level of depth with really good recordings that I had not heard from other moving-coil designs and frankly did not expect to hear. As my previous reviews have shown. I'm a great fan of the Grado and Soundsmith moving-iron designs, and I have used both as references. The Soundsmith Sussurro II proved to be a major advance over the first Soundsmith Sussurro, which I've used as a reference for several years. It

was notably smoother and more consistent in both tracking and sound quality, had some of the best lower midrange and upper bass I've ever heard, really good upper midrange and treble that preserved the air in good recordings without any touch of hardness, and provided a wide but well-defined soundstage with excellent center-fill and depth.

I have to confess that it was a surprising contest between the Sussurro II and the Ortofon A95, for someone whose taste runs to the smoothness of moving-iron designs. Moving coils have come a long way from the upper-octave problems they had in the past, and both the Sussurro II and the Ortofon A95 were great cartridges. Moreover, they have price tags that only mildly stress the limits of today's market—rather than increase them to not so glorious excess. I will definitely be using the Sussurro II as my new reference, however, and it really helped to have a great tonearm and turntable that allowed me to hear it at its best.

At the same time, analog is analog. No cartridge is ever as accurate in the frequency domain or has as much channel separation and lack of mechanical and electronic distortion as digital. Many audiophiles, however, consciously or unconsciously choose a cartridge that gives them what they feel is a greater musical experience and develops a unique degree of synergy with the rest of their system and listening room.

Most records are cut in ways that compress the sound to some extent and limit the demands on the cartridge. But if you do as much as possible to reduce the background noise and dynamic limits of a really good LP, the resulting music can sound more natural in a home system than a digital recording whose quietest passages may actually be too quiet for listening in many homes and/or too loud in the loudest passages.

Put a record with complex acoustic instruments, silent passages mixed with truly loud demanding ones, and really deep bass on a combination as good as the Avenger Reference, and the sound is not only more musical, it is more involving. A great tonearm and turntable combination also allows you to hear an improvement in the subtler aspects of the soundstage, and more audience detail in recordings of live performances.

This is particularly true with good record surfaces and cartridges that do not have a rise or peak in the upper midrange. I find that such analog combinations also produce more musical results in comparison with the many classical digital recordings that have too much upper-midrange energy. Going for soundstage and imaging detail are fine, but not at the cost of depth, warmth, and natural listening distance from the performance.

I'm not much for loud musical spectacles, or actually enjoying sonic extremes as music. Once again, the cartridge is the most serious limiting factor in playing such records, not the tonearm and turntable; nevertheless, I was still impressed with the Avenger Reference's ability to handle really demanding symphonic peaks, choral music, and the inevitable organ spectacles and bass drum whacks.

My normal tests are recordings of Saint-Saëns Third Symphony and Mahler's *Symphony of a Thousand*, some demanding Bach organ music LPs, demanding percussion records, and some of my daughter's old rock LPs. Once again, the cartridge I choose is a limiting

factor, but the Avenger gave the cartridge as much opportunity as possible. (A brief experiment with the Shure V5MR and its Dynamic Stabilizer made it clear that there was something to be said for high-compliance cartridges with a damping brush, but it also showed how good the Avenger could be in handling such records when the cartridge could more or less cope.)

As for comparisons with other turntables, I was not about to try to arrange a turntable shootout—ask my friends with truly costly competing turntables to somehow move them to my home, or try to move the Avenger Reference to theirs. I could, however, compare it to the Classic Direct, and its overall level of detail and “silence” were competitive and sometimes slightly superior. I would give the Classic Direct a possible—but faint—superiority in tonal consistency, but the difference was problematic. The comparison did again make it clear that the new VPI tonearm in the Avenger Reference was distinctly better than my older one.

Summing Up

Yes, you can get really good analog sound out of VPI's much less expensive alternatives, as well as out of many of its competitors. To go back to a point I made earlier, however, no real audiophile can resist exploring the limits of a turntable like the Avenger Reference if he has the resources to buy one. It really is a great unit, and if you are going to buy a top cartridge and phono preamp, you are going to need a turntable-tonearm combination of this quality to match them.

I also have to say in defense of the Avenger's price that it is a practical exercise in technology and physics. There are some “extreme” turntable designs which seem to be more exercises in high tech than practical units. Don't get me wrong, some much higher *ne plus ultra* competitors are superb, but some aren't. I'd wanted to be sure I could hear real differences—if any—before I paid more and not simply judge by the price tag. I'd also wanted to ensure what I bought was built to last. You can always pay more, but getting more over time can be a different thing.

Specs & Pricing

Wow and flutter: 0.03%

Speed accuracy: 0.04%

Rumble: 82dB down

Dimensions: 27" x 13" x 23"

Weight: 110 lbs.

Price: \$17,000 (\$20,000 with MW 12-3D Reference 'arm)

VPI INDUSTRIES, INC.

77 Cliffwood Ave. #5D

Cliffwood, NJ 07721

(732) 583-6895

info@vpiindustries.com