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The Genesis Record Player

The Record Player by Genesis and VPI is designed for one simple task – spin a record to play music with Absolute Fidelity®. However, this modest mission belies its complexity. The principle of the design is to be “as simple as possible, but no simpler”. Hence, we eschew the “brute force” design of massive weight with huge columns of steel and aluminum, in favor of a more considered approach.

Low Distortion Direct Drive

The chief objective of the Record Player is to rotate a record smoothly without short-term or long-term fluctuations of speed. While short-term fluctuations can be measured in wow and flutter, long-term fluctuations are audible but lack their own quantifications and are far more difficult to address.

To achieve this, we went the simpler route of direct drive; thus eliminating the need to design high-precision pulleys and belts. The direct-drive used on the Record Player is a unique brushless, iron-less, high-torque, ultra-low vibration motor drive system from VPI. To this, we added the Genesis Dynamic Power Delivery System (DPDS) for an ultra-smooth rotation.

The motor uses a unique composite stator with embedded electromagnetic coils instead of the usual wire-wound slotted iron. Thus, the “coginess” that is normally associated with some direct-drive motors is completely eliminated due to the absence of magnetic materials in the stator – much like our experience of using an air-core inductor in a loudspeaker crossover.

The unique zero-feedback drive system from VPI means that there are no long time-scale fluctuations. The DPDS contributes the means to deliver constant and consistent current to the motor drive electronics and absorb the back EMF from the motor.

Combined, these elements give record playback the coveted quality of tape (our reference source).



Vibration Control

The music signal as inscribed in a long play record is tiny – a 3dB change in loudness is represented by a physical difference of about 0.1µm (0.004 mil) in the groove. With this in mind, we looked at the magnitude of vibration control on a completely different dimensional scale.

What was needed was the control of micro-vibrations; not the judder caused by bumping into the Record Player, or the tremor of foot-falls on a badly-constructed floor (those still need to be addressed, just not the focus of this design).

Therefore, we addressed vibration and resonance control from the point of:

1. Stylus/Groove interface
2. Impact of sound waves on the structure
3. Motor (and bearing) generated noise
4. Power supply transformer vibrations



The main component of this vibration control is done using an 11-layer carbon-fiber composite and wood sandwich that we've developed over the past 10 years and used effectively for our loudspeaker cabinets. This is the plinth for the all-important motor/tonerarm interface. The plinth is then spiked to a HMWA platform and this platform is hung from the superstructure with a low-Q low-compliance suspension system.

The Record Player incorporates an integral rack that controls and manages any air-borne and transformer-generated vibration. Rather than being absolutely rigid, the rack has a slight "give" that absorbs and dampens vibrations generated by the various transformers in the power supply or carried through the air.

Structure-borne vibrations (assuming that the floor is adequately engineered) will be primarily vertical in amplitude. The potential frequency that this will occur at is filtered out by the spiked/hung suspension system.

So, when you cue down, there is astonishing lack of vinyl noise when compared to other turntables.

Complete Electrical Isolation

With the proliferation of electronics, computers and digital equipment in the home, there is a lot of pollution on the sine wave of the power supply. This electrical pollution pushes power supplies to work harder to filter out all the noise.

Some power conditioners and many devices shunt this noise to ground, resulting in a noisy ground plane if impedance to Earth is not sufficiently

low. Unfortunately, the system ground can be a backdoor for noise if this is not properly addressed.

A power-conditioning "Juice Box" delivers pure power to the Motor Drive and the Premium Platinum phono stage. It filters the noise pollution on the AC mains by converting this noise to heat and it isolates noise in the ground plane, providing a ground for the tonerarm to dissipate static.

Sometimes, noise can come in from the ground (pin 1) of the XLR output, or if a single-ended preamp is used, from the ground of the RCA connector. Such noise on the signal-ground can travel all the way to the cartridge and be amplified by the phono stage. Thus, the Genesis Premium Platinum phono stage is included in the system to ensure that the care taken in eliminating mechanical and power noise does not get negated by in-coming noise from the ground of the output connector.

Black Box

As a system, the Record Player by Genesis and VPI is designed to be a black-box source of music. It is isolated electrically from the mains power supply, and at the output it is isolated from the system it plays into.

The Record Player delivers electrically the physical representation of the music engraved in the grooves of a record with Absolute Fidelity®.

Specifications

Genesis Advanced Technologies Record Player

Speeds	33 rpm & 45 rpm
Power Supply	110-120V or 220-250V
Dimensions	H 43 1/2" x W 28 1/2" x D 22" H 1105mm x W 724mm x D 559mm
Weight	250 lbs (115 kg)
Finish Options	High Gloss Black and Clear HMWA, Carbon Fiber with exotic wood trim

* Specifications are subject to change without notice

absolute fidelity™