

**RP10**

Turntable



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## INTRODUCTION

The **RP10** has been designed and engineered to achieve outstanding performance. Excellent build quality, reliability and ease of use combine to make a product which, if used correctly, will offer you a lifetime of musical enjoyment.

The **RP10** takes Rega's design philosophy further than ever before. A radical new plinth using custom designed materials, a new tonearm bearing assembly, a 24V low voltage motor controlled by a hand tuned electronic power supply and a custom version of our engineered hub bearing assembly. These are just some of the features of this amazing new turntable designed to extract more music from your vinyl than ever before.

## THE EVOLUTION OF REVOLUTION

Evolution is a well proven and documented process in many areas of our lives. This applies in particular to design engineers and machines. Over the past forty years our cars have become more reliable and economical whilst we take for granted the safety and speed of modern aircraft. Rega is no exception to evolution. Rega's experience and previous achievements allows us to continually develop and produce better products.

The **RP8 & RP10** represents probably the biggest step forward in the evolution of Roy Gandy's turntable design philosophies. Low mass, high rigidity plinths combined with electronically controlled low vibration motors, high flywheel effect platters and lower mass, higher stability tonearms. The **RP10** is the second generation of our "skeletal" design turntables offering groundbreaking levels of performance.

## TURNTABLE DESIGN & MYTHOLOGY

Today there are many approaches to hi-fi design which follow established and informed engineering or electronic principles. Amplifier and loudspeaker design have been well documented over the years with excellent technical publications. These subjects have been based on tried and tested acoustic criteria and many computer software programs now exist that enable a near amateur to design a passable working loudspeaker based on known acoustic and mathematical parameters.

When it comes to turntable design we are limited to a few poorly informed articles describing only very limited aspects of design. This is a subject full of mythology. Designers propose theories that counter the basic laws of physics, use terminology that doesn't actually exist in the engineering world, build products that are more like beautiful sculptures than acoustic reproduction machines and sell items costing tens of thousands of pounds that hardly function as intended and often fail to work at all. For instance, a very common myth is "the heavier the better". Turntable bases weighing tens of kilograms are not uncommon. The reality is that the base actually needs to be as light as possible to prevent unwanted bearing and motor noise being transferred to the turntable or record. Platters also fall under a similar myth with many platter designs becoming so heavy that it is impossible to design a correctly functioning bearing (and some so light that anyone can hear the speed inconsistency). The turntable platter itself needs to be of enough weight to spin at a constant speed within the confines of the chosen bearing and motor drive system. Many amateur designers choose one component in a design and try to achieve an extreme in size, weight and quality. They believe that by taking one theory to its extreme, the design will become "perfect". The reality of all engineering, design (and life) is that perfection is not possible. Based on this reality, Rega's goal has always been to optimise a mixture of numerous "correct compromises" thus bringing the designer nearer to the unachievable goal of perfection.

## DESIGN AND INNOVATION

### SKELETAL PLINTH DESIGN WITH POLYOLEFIN FOAM CORE

Controversially, Rega has always researched methods of producing light but stiff and rigid plinths. The technology is simple: unwanted noise at microscopic levels is developed by the turntable motor and main bearing. The plinth can also pick up airborne vibration from the music. From it's beginning in the 1970's, Rega pioneered the use of a stressed skin structure for the plinth. This uses two layers of phenolic resin with a lightweight particle or fibre board sandwiched between the skins. This technique has been used in many applications where stiff, light structures are needed, such as an aircraft wing or a Formula 1 chassis.

The current revival in turntables has allowed Rega to research and develop higher technology structures for the customer who is happy to pay a little more for higher sound quality. The RP8 & RP10 turntables utilise a unique stressed skin structure produced from thin phenolic skins sandwiching a featherweight, nitrogen expanded, closed cell, polyolefin foam core. This material has been developed exclusively for Rega over a three year period. The RP10 plinth is seven times lighter than the weight of the original Planar 3 plinth. In addition Rega has added even more stiffness in the crucial area between the arm and the main bearing.

## MAGNESIUM AND PHENOLIC - DUAL BRACING

A super lightweight plinth combined with a double brace mounted specifically where the increased rigidity is required (between the tonearm mounting and the main hub bearing) forms a structurally sound, "stressed beam" assembly. This design prevents energy absorption and unwanted resonances which will add unnatural distortions to the music.

The **RPI0** takes our double brace technology to the next level. Not content with an unprecedented stiffness to mass ratio, Rega has obsessively reduced any resonant properties by using two different materials for the new stressed beam. The top layer is magnesium and the bottom layer is phenolic (two of the lightest and stiffest materials available). Incorporating two different materials into the brace structure lowers their ability to pick up unwanted airborne vibrations.

Simply put, different materials have different natural resonances. By using two different materials together, they decrease the natural frequency of each other by self damping.

## CERAMIC PLATTER

The **RPI0** uses a custom ceramic flywheel effect platter. The platter is produced from a ceramic oxide powder which is compressed, fired and diamond cut to ensure perfect accuracy and flatness across the surface. This new platter features a modified construction over the previous P9 version with improved coupling to the sub platter.

## MOTOR

The motor is a high specification, 24V twin phase synchronous unit. It is controlled by Rega's unique and innovative **RPID-PSU** power supply. The motor drives the CNC machined pulley, sub platter and hub-bearing assembly via the twin belt drive. Each motor is individually hand tuned to its own custom power supply in the factory to minimise vibration, motor noise and ensure optimum performance.

## DE-COUPLED OUTER FRAME AND DUST COVER

A common problem for many skeletal design turntables is the inability to incorporate an effective dust cover into the design. We have constructed an outer frame that minimises contact between the inner and outer plinth. The only points of contact are three location devices on the feet which centralises the inner and outer plinths perfectly. This makes set-up extremely easy and allows the use of a dust cover. The RPID can be used without the outer frame if so desired.

## RPID CUSTOM - POWER SUPPLY

The speed and control is achieved by using a new DSP (digital signal processing) generator built upon a high stability crystal. The device will divide the accurate square wave from the crystal to the exact frequency required to turn the platter at the selected speed. The DSP core will also generate a near perfect sinusoidal waveform to power the motor. Factory set vibration and speed adjustments are then made to the power supply to tune the motor for optimal performance.



## **TONEARM**

The RB2000 tonearm is packed with new features pushing the boundaries of tonearm design. As with all Rega tonearms, each one is meticulously hand built by a team of highly skilled technicians. The RB2000 uses improved bearings with each one being hand selected to be an interference fit with the paired spindle matching both the inside and outside diameters. This is a Rega developed method of increasing the amount of detail retrieved from the record surface, designed specifically to maximise performance of the tonearm and cartridge. The entire tonearm structure is designed to have the minimum of mechanical joints whilst using the stiffest materials in all critical areas. The tolerance of the RB2000 tonearm is so tight that no adhesive is used at any point throughout the construction. A brand new low mass, precision engineered, vertical bearing assembly has been manufactured to further compliment the inherent design philosophy of the RP10 turntable. The RB2000 uses the latest award winning Rega arm tube. Each one which is meticulously hand polished (keeping mass to an absolute minimum) and has been completely redesigned to redistribute mass and further reduce stresses and resonances. This advanced design tube increases the stiffness and rigidity of the overall assembly whilst reducing stress on the bearings even further.

## **INTERCONNECTS**

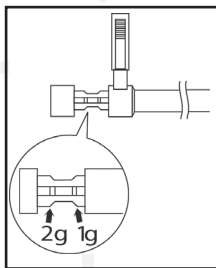
Externally we have fitted a bespoke, Rega designed, low capacitance phono cable which uses an advanced phono plug assembly. This has only two parts to minimise joints and incorporates a twist and clamp design, locking the plug to the terminal. This design increases connectivity and ensures the signal path is kept as clean as possible.

## **IMPORTANT: ALWAYS REMOVE THE CERAMIC PLATTER BEFORE LIFTING OR RELOCATING THE RP10**

Always remove the ceramic platter before locating the RP10 central plinth into the outer frame or when lifting the whole turntable to relocate it. The 'o' rings will not centralise the plinth within the frame if the weight of the platter is present.

### **SETTING UP YOUR RB2000**

With the cartridge mounted correctly and set up using the alignment protractor supplied, ensure that the tracking force control and bias adjustment slider are set to zero. (Pull the bias adjustment fully out to set zero). Slide the balance weight along its shaft until the stylus is "floating" just 1mm clear of the record.

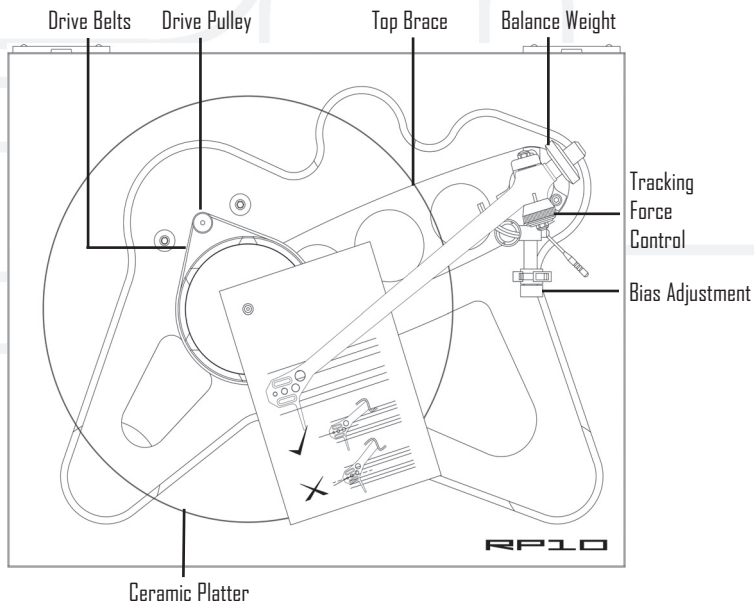


The recommended tracking force can now be applied via the tracking force control shown on page 8. Always use a force which corresponds to the upper limit of the cartridge maker's recommended range. Push the bias adjustment slider to the same number as the tracking force control. For example, a recommended 2.0g tracking force = 2.0 on the bias slider. Note: It is not necessary to use the alignment protractor if the turntable has a factory fitted Rega cartridge.

## SETTING UP AND POSITIONING YOUR RP10 TURNTABLE.

Always take great care when unpacking the turntable. Extra care must be taken if your RP10 is supplied with a cartridge factory fitted so as not to damage the stylus. Place the turntable on a sound and level surface.

The RP10 inner plinth sits within the outer frame, locates and self centralises via three rubber triangulated 'o' rings. Ensure correct alignment and check that the tonearm phono lead assembly and motor lead are clear of the feet and are not contacting the plinth.



## CONNECTING THE RPIO CUSTOM POWER SUPPLY

Connect the XLR interconnect between the **power supply** and the turntable's AC input terminal in the back of the **RPIO PSU**. Switch the mains power on. To minimise the risk of hum pick up by the cartridge, the power supply should be situated as far from the turntable as the interconnect cable will allow.

Push the power button on the front panel to turn the **RPIO PSU** on - When the power supply is switched on, the Rega logo will illuminate RED,

Press the 33rpm button to activate 33rpm or 45rpm to activate 45rpm from the front panel.

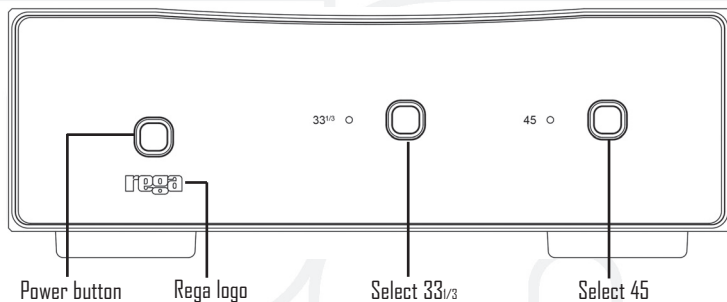
## SPEED PROGRAM AND SPEED ADJUSTMENT (FACTORY SET)

Adjustments on the rear panel are factory set. It is not recommended to attempt any adjustment as each turntable is optimised for peak performance. Attempting to adjust these settings without the correct test equipment could seriously effect the performance of your turntable and could place the drive belts and motor under unnecessary strain.

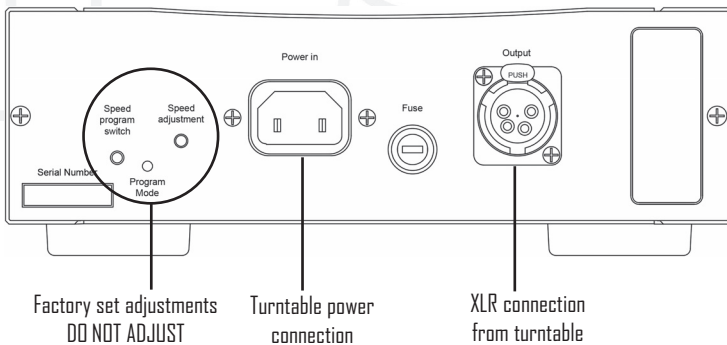
## CONNECTION TO THE AMPLIFIER

The tonearm external phono leads must be connected to your amplifier's phono stage or an independent phono stage such as the Rega Aria switchable MM/MC stage. Connect as follows : Red right channel / Black left channel. If your amplifier does not have an integrated phono stage you will require an external stage (sold separately).

## POWER SUPPLY FRONT PANEL CONTROLS



## REAR PANEL CONNECTIONS



## CARE OF YOUR TURNTABLE

Mount the turntable on a rigid, level surface. Avoid mounting on hollow or heavy cabinets or anything mounted on a flexible wooden floor. The Rega turntable support is the ideal solution fitted with RP10 adaptor cups.

Keeping the lid closed while playing records will prevent dust falling on to the record surface and should make cleaning unnecessary. Depending on the room environment and ambient temperature, playing with the lid open may offer sonic improvements. You can experiment to optimise the performance best suited to your room.

Do not use any record cleaner that works while the record is playing or any cleaners that use water or solvents. If you keep your records stored in their sleeves, avoid touching the playing surfaces and keep all water and fluids away, cleaning should not be necessary. Do not worry about visible dust on the record surface as this is brushed aside by the stylus during play. Dust collected on the stylus can be easily blown away. In general, record cleaning is overdone and one should not believe all the claims made by record cleaner manufacturers.

It is recommended to leave the turntable running during a record playing session. Switch on before the session and only switch off after you have finished.

Do not lift the centre hub out from the main bearing. The bearing is factory assembled with a film of special thick lubricant. If the centre hub is removed this film may be disturbed and the accuracy of the turntable could be affected.

The arm earth (or ground) is automatically connected through the arm cable screening. No other earth method should be necessary.

Do not use any polish on the turntable or lid. To clean, wipe gently with a soft cotton duster (slightly damp only if required).

Rega turntables are designed to optimise performance for music reproduction and therefore no compromises have been made to give quick start times. The normal time taken for full speed to be reached is between 2 and 5 seconds.

Warning: Any attempt to repair or modify the turntable or tonearm by persons other than Rega approved personnel may invalidate the guarantee. Should you experience any problem with your turntable, please contact your Rega dealer.

## TRANSPORTING YOUR RP10

Should you need to transport your **RP10**, to avoid any possible transit damage, the following recommendations must be followed. Remove the balance weight from the tonearm and secure the arm tube in its rest with tape or covered wire. This will ensure no sudden or violent movement is transmitted to the delicate bearings. To remove the platter, hold down the hub centre at the same time as lifting the platter on each side.

**NEVER** place your **RP10** upside-down or on its side. This would allow oil in the hub/bearing assembly to leak and cause speed and/or wear problems. If you have to ship your turntable or use a carrier, save and use ALL of the original packaging.

## OWNERS LOG

(1)  
Owner.....  
Date.....  
Where Purchased.....

(2)  
Owner.....  
Date.....  
Where Purchased.....

(3)  
Owner.....  
Date.....  
Where Purchased.....

(4)  
Owner.....  
Date.....  
Where Purchased.....

(5)  
Owner.....  
Date.....  
Where Purchased.....









Rega Research Ltd, exceptional Hi-Fi designed and made in ENGLAND.