icon Audio

PS2 Pure Valve Phono Pre Amplifier Manual

IMPORTANT!
THIS MANUAL CONTAINS ESSENTIAL HEALTH & SAFETY INFORMATION FOR YOU AND YOUR AMPLIFIER. PLEASE READ & KEEP SAFE AND REFER TO IF NECESSARY

About the PS2

A "High-end" All Valve Phono Pre-Amp

Welcome to the wonderful world of valve phono pre amplifiers. The PS2 is a simplified version of our PS1 phono stage, using a similar audio circuit design.
Our amplifiers have a reputation for excellent performance and reliability following excellent reviews in the Hi Fi press.
After years of customers praise we can confidently predict that you will be astonished with the PS2!
It is well know that for many reasons, valves can sound much better than transistors, this is especially so with vinyl reproduction. Chiefly because:

- The massive overload capability of valves reduces distortion on highly modulated or scratched & worn LPs therefore minimising noise.
- The "warm" sound of valves is particularly suited to the reproduction of music from vinyl.
- The 40db RIAA difference between 20hz and 20khz is easier for valves than transistors.
- Our "passive" design uses no "feedback"
- Our simple design uses "audiophile" components.
- We use "hard wired" "point to point" wiring with no printed circuit board.

There are several "valve phono pre-amps" on the market that are only part valve or only use valves as an output stage; these will not have the colour and vibrancy of valves.
The simplicity of the design means that we were able to avoid the use of printed circuit boards, which are not ideal for valve amplifiers despite their common use.

Although good frequency response, low noise and distortion are important in any hi fi unit, there are several other criteria that are often forgotten. Transistors have a poor overload capability, and the resulting distortion is very unpleasant. The PS2 has a massive overload capability and even then would go into 'soft clipping', which is much more benign and easier on the ear.

The simplicity of the circuit means that there are much fewer components for the signal to pass through, fewer connections and switches, again adding to the purity of sound.

This simplicity also means that we can use higher quality audiophile capacitors and resistors.

The use of popular valves, which are still in production, means that obtaining replacements is easy and inexpensive when necessary. This also means you will be able to change valves yourself and experiment with the different tonal balance of different types.

The final result is an amplifier with excellent characteristics, with an accurate yet smooth and transparent quality.

To get the best out of the PS2 Please read the enclosed notes. We have tried to give you all the basic information you will need. Should you be uncertain about anything contact your dealer, or ourselves.

Final Inspection

This amplifier has been carefully checked, tested and final adjustments made by Icon Audio in Leicester.

It has passed our rigorous listening test and final inspection to assure you of optimum performance and reliability.

To get the best out of your unit and to save time please read this information & keep it to hand for reference

Date ….…./….

Model …….

Amp Serial Number …….

Customer ……

Check amplifier finish	…….	Mains voltage	110 / 240V
Run 6 hour test	…….	IEC Mains Fuse	160ma / 250ma
Check input	…….	UK Plug fuse	2A……
Moving Coil TXs fitted	N/A	Sales invoice	…….
Sound Quality	…….	Credit card receipt	…….
Channel Balance	…….	Customer survey form	…….
Valve Microphony	…….	**Upgrades:**	
Valve Seating	…….	Valves	…….
Hum level left/right	…….	Capacitors	…….
RF Test	…….	Mains lead	N/A
Serial No sticker and recorded	…….	Interconnects	…….

Signed off by …….

Notes:

SET UP GUIDE

1 Unpack unit carefully. Make sure that it is in good condition. It is important that you keep packaging for warranty/service return.

2 Check that the valves are fitted properly. The valves will normally come fitted, so a visual check that they are upright is normally all that is necessary. If not see the section on "valve replacement".

3, Connect to turntable and amplifier.

Making sure that you connect any "ground" leads form the turntable to the post on the rear of the PS2. Otherwise excessive HUM may result.

4 Connect the power cable to your wall supply. Site it away from the turntable to reduce mains noise. If for some reason the welded plug must be removed, please remove fuse and dispose of immediately. (As they can be a danger to children if plugged in). The replacement plug should be wired in the following way Brown to Live terminal, Blue to Neutral terminal and Green/Yellow to Earth terminal.

5 SWITCH ON! The red/blue mains indicator should light up and unit will start working after about 30 seconds. All valves normally have a visible orange glow from the cathode heaters. Full quality will be reached in approx 5 minutes.

6, Moving Magnet or Moving Coil?

The PS2 is MM, due to the size of the unit. Should you require to use with MC pickups our stand alone x10 Moving Coil transformer is an ideal partner. These high quality British made MC transformers will optimise the performance of your PS2. However Hi Fi News reported very good results from HIGH OUTPUT moving coil pickups.

Getting the best from your PS2

Hum problems

Like any phono stage the PS2 will pick up hum from other hi fi and electrical units. This can be minimised by taking care to site the unit away from other equipment.

This is sometimes due to an "earth loop" (too many earths). On the rear of some models the PS2 is an earth or "ground lift" switch, this will help minimise any hum that is due to an "earth loop" (too many earths), try this switch first and leave in the position that gives the minimum hum. Bear in mind subsequent alterations to your system may make it necessary to change this setting. If on initial setting up you are aware of loud hum, you may need to use an interconnect with the screen disconnected at one end. Your dealer or Icon Audio can advise you.

As a rough guide, when set up correctly the hum should be at about the same level as the background noise as you advance the volume on your amp. You dealer or Icon can advise you.

The PS2 is not particularly sensitive to hum in Moving Magnet mode, but this will depend upon the hum field of associated equipment such as amplifiers etc.

Moving Magnet and Moving Coil pickups have a very low output and therefore are more sensitive to hum and noise from adjacent equipment, so it makes sense to spend a little time experimenting in order to find the best site for your PS2, arranging your turntable and cables for least interference. Keep the turntable signal lead away from power cables and other equipment. Some turntables and even CD players etc may have ac motors or power transformers with large horizontal and vertical invisible "hum fields" which may be picked up by the PS2. Gentle re-arrangement whilst switched on may help identify and improve matters.

Most problems associated with hi fi equipment involve connecting leads. Always make sure you have good connections and use good quality interconnects. Your dealer will advise you. Unshielded cables are unsuitable for use with phono pre-amplifiers.

General points

- Some mobile phone 'breakthrough' is normal
- Storage in damp conditions could damage transformers.
- Clean with a damp cloth, with power disconnected. Do not use solvents.
- Keep liquids away from the pre amp.
- Allow about 30 seconds after switching off before switching on again.
- Always switch off and allow about 20 mins discharge time before making any adjustments such as changing valves.
- Do not operate without valves fitted

Connecting Leads

Use good quality connecting leads, which are no longer than they need to be.

Leaving the PS2 switched on

Transistor equipment needs to be left on for a long period to reach its optimum sound. With valves this takes minutes. Therefore there is no advantage in leaving the PS2 switched on when it is not in use. It is using electricity and valves have a finite life, (averaging about 5000 hours or 6000 LPs). Do not switch on and off unnecessarily. From new the PS2 will take about 30 hours before it is "burnt in".

Mono Switch

This has two functions:

1. Much of the noise on modern stereo LPs when they are badly worn, scratched or dirty is "out of phase" which means that when played in mono much of the noise is cancelled out making the listening experience more pleasurable.
2. Early mono LPs have a slightly wider groove which when played with a modern stylus, can generate more noise than would have been originally heard. This also applies to 45 and 78 rpm records (45 rpm records were not normally stereo before about 1970). Also they are likely to have been played on older "non hi fi" equipment and possibly a worn stylus.

Even on a good mono LP the centre image is often unstable as there will always be slight differences between the two groove walls. When the mono switch is used this is 99% the same as using a real mono cartridge. The mono switch will often cancel out the horrible "stereo effect" which was once extensively used to "modernise" the effect of original mono recordings.

As mono recordings were optimised by the engineers to sound at their best from a single point source, in our opinion they often sound better when played through only one speaker, as that is the original sound. Try disconnecting the input to one channel on your amplifier!

Trouble shooting

Hum Problems

The very low output of a pickup cartridge means that it can be prone to hum problems. Although you may hear more noise at a very high listening level, a loud volume should be possible before this becomes a problem. In some situations, "too many earths" may induce hum, in which case try the switch on the rear of the unit as this may solve the problem.

Most turntable/arm combinations have a separate "grounding" lead for the arm. Make sure this is connected to the rear of the PS1. You should also keep amplifiers and other equipment away from the pick up arm (including above and below) and cables.

Amplifier Dead

If the LED or valves do not light up, first check the wall plug fuse (there may not be one outside the UK) there is also a 160mA (250mA USA) mains fuse inside the IEC socket on the rear of the amplifier (with a spare). This should only be replaced by a qualified electrician! (NOTE for electrician: disconnect from supply, allow 30 mins to discharge HT circuit, the fuse cover with a small flat blade screwdriver replace the front fuse with the spare at the rear, replace cover and re-insert mains lead and test Replacements should be 160mA (250mA USA) 'time-lag'. Refer to Icon Audio for further information.

The fuse in the UK mains plug should be a 3 amp fuse, although unlikely, this should be checked if the amplifier fuse is OK.

No sound

Have you selected the right input? Are the connections OK? Is everything switched on? Are the speakers connected?

Valve Replacement

Valve life will depend upon such things as hours of use and number of on/off cycles. A valve may be considered to have come to the end of its life when the sound quality has changed or it has become noisy and microphonic. Ideally you should replace all three at the same time. As a rough guide we would expect about 3000 to 5000 hours per set.

If the unit is working OK it is best left alone. The most common faults are low level hiss and spitting noises, and becoming excessively microphonic.

If one channel is causing concern basic fault finding may be done by swapping the two right hand valves.

All three valves are the same type but the single left hand valve does a different job, so this may also be inter-changed with the other two, and may give improvement as this position has a less critical task.

As the valves are crucial to maintaining the performance and quality, choose them with care.

In order to gain access to the valves you will need a 2.5mm "Allen Key" to remove the valve screening rings. The valves may then be gently pulled out with a slight "rocking" motion. YOU MUST DISCONNECT THE POWER SUPPLY 20 mins BEFOREHAND.

Warning: It is worth noting that this pre amplifier will benefit from the best ECC83 valves. These are unlikely to be "tested, off the shelf", NOS or Second Hand valves, but valves which have been tested and matched in a PS2 to check that they are not noisy or microphonic in the PS2. In the process of testing and commissioning we reject about 15% of valves for this reason. Used valves are unlikely to work well. We have also found some "premium" valves to have no advantage. At the time of writing the EH, Tung Sol, Genelex, SG have been consistently good performers. But feel free to experiment!

Icon Audio are happy to replace valves and check the performance of your amplifier, there are often upgrades available such as the excellent Mundorf capacitors which have a rich expansive warm sound.

A replacement set of valves from Icon Audio will be tested in a PS2 before despatch to ensure ideal sonic performance.

It is essential that only the correct valves are used as similar looking valves have a different pin connection and insertion could result in damage to the amplifier and risk of electric shock. If in any doubt consult your dealer or Icon.

Service: Should you suspect a problem, you should return the unit to your dealer or Icon Audio for a periodic service or return the valves for testing free of charge.

Specifications and Features

- All hand wired point to point
- No printed circuit board to 'colour' sound
- All Triode valves
- 3 x ECC83/12AX7
- Sensitivity: 5mv for 1.6v
- Gain = 320 MM = 50dB
- Load: imp: 47k MM
- Signal to noise level -75db (MM unweighted)
- RIAA Freq response 20hz-20khz +0 - 1db
- No overall feedback used
- Mono switch for mono records
- High quality close tolerance resistors
- LED mains indicator
- Polypropylene audio capacitors (upgradeable)
- Silver PTFE audio cable
- DC supply for valve heaters
- Black Matt or Stainless steel chassis
- 6mm solid alloy side plates
- Gold plated Input terminals
- 220/240 volts 30watts 160mA (250mA USA) time lag fuse
- UK Plug fuse 2A
- C E certified
- 275mmW, 250mmD, 115mmH , 2.47kg
  (Figures in brackets allow for rear connections)
  (Specifications subject to change, errors & omissions excepted 19/02/20)

Designed and developed by David Shaw and Barrie Roberts in Leicester, each pre-amp is carefully checked & tweaked plus any custom modifications added as required before undergoing rigorous tests in all its important static & dynamic parameters. Finally each pre-amp is run to allow the valves to "bed in" for 24hrs to ensure you get the best performance.

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Important

When unpacking and re-packing, please take care not to damage either the power switch on the front panel, or the ground switch on the rear.

The switch stems my be broken if undue force is applied while easing the unit out of the foam packaging, or if you push your hand down the packaging adjacent to the front panel.