

# icon Audio

## PS1 MK II

### 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**

1. About the PS 1 MK II
2. Final inspection
3. Quick set up guide
4. Getting the best from your PS1
5. General points
6. Trouble Shooting
7. Specifications

#### 1. What makes the PS1 MK II so special?

Thank you for purchasing one of our phono pre amplifiers. You now have a uniquely designed and manufactured pure valve phono stage that can produce the rich analogue tones that makes vinyl sound so satisfying. To do this a great deal of care has gone into the design, component selection and production of this amplifier. We are sure that you will hear the difference.

Our amplifiers have a reputation for excellent performance and reliability following excellent reviews in the Hi Fi press.

It's well known that for many reasons, valves can sound much better than transistors, this is especially so with vinyl reproduction. Chiefly because:

- The massive overload headroom of valves prevents distortion on highly modulated or scratched and worn LPs therefore minimising noise and distortion.
- The “warm” sound of valves is particularly suited to the reproduction of music from vinyl.
- The huge 40db RIAA difference between 20hz and 20khz is easier for valves and therefore only needs a simple design.
- Our “passive” RIAA design uses no “feedback” giving a more “vivid” sound compared to the more common “feedback RIAA” designs.
- 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” 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 PS1 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 oversized components, such as 2w 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 PS1 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.

## 2 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***

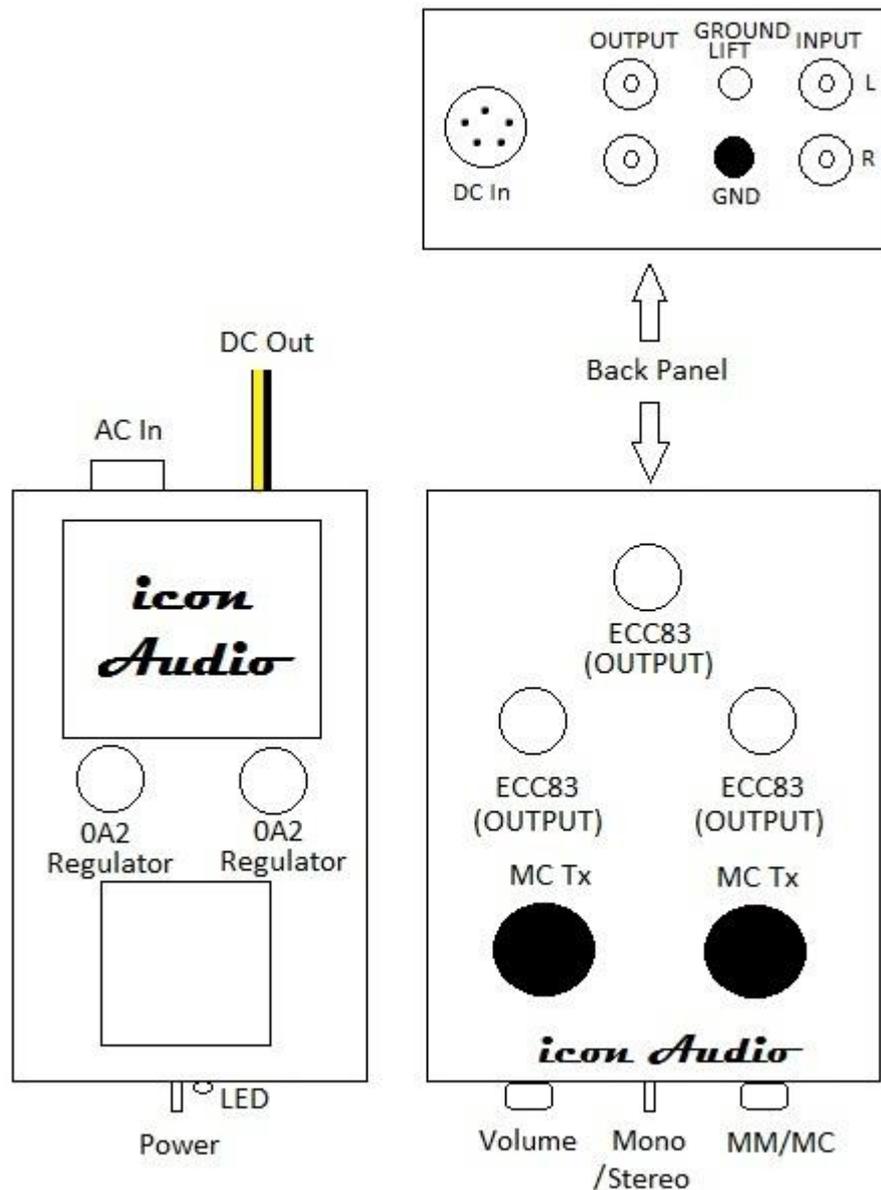
Date ...../...../.....  
Model .....  
Amp Serial Number .....  
Customer .....

Check amplifier finish	.....	Mains voltage	110 / 240V
Run 24 hour test	.....	IEC Mains Fuse	.....A
Check inputs		Sales invoice	.....
Moving Coil TXs fitted	Y/N	Credit card receipt	.....
Sound Quality	.....	Customer survey form	.....
Channel Balance	.....	<b>Upgrades:</b>	
Valve Microphony	.....	Valves	.....
Valve Seating	.....	Capacitors	.....
Hum level left/right	.....	Mains lead	.....
RF Test	.....	Interconnects	.....
Serial No sticker and recorded	.....		

Signed off by .....

Notes:

## LAYOUT



### 3 Quick 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 "changing valves".

**3, Connect the power lead** between the power supply unit and the pre-amp. **Please note the power lead is permanently connected at the power supply unit. Do not attempt to remove it.**

**Please note that the PS1.2 is not compatible with the PSU from the earlier PS1.1 or PS3**

**4, Connect to turntable and amplifier.**

Making sure that you connect the "earth" leads from the turntable to the post on the rear. (if any)

**5 Connect the power supply unit,** And site it away from the preamp. Connect to the mains AC using the

supplied IEC mains lead. 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.

**6 SWITCH ON!** The LED mains indicator should light up and unit will start working after about 15 seconds. All valves should have a visible orange glow from the cathode heaters. Full quality will be reached in 5 minutes.

**7, Moving Magnet or Moving Coil?**

If your PS1 is fitted with the optional x10 step-up transformers (designated by PS1 MC on the rear) you can select between MM and MC by the selector switch on the front. Otherwise the selector should be left in the "MM" position. High output MC pickups

may be used without the MC step-up transformers, but there may be a noise penalty. Or you may choose to use an external step-up device. Moving coil pickups generally give superior performance to MM as records are originally cut with MC cutters. So the two systems are sonically compatible. Our high quality British made transformers will optimise the performance of your PS1.

**The PS1 may be returned to us in the future to have this upgrade fitted (£230.00 @ 04/2011).**

#### **8. Volume**

The PS1 has a high output (1.6v 5mv input) and is capable of driving most power amps directly. However the output may prove to high for most integrated or pre-amps, therefore back off the volume control of the PS1 to get a similar level to CD or radio. This will help with the noise level. Normal position is about "3 o'clock".

### **4 Getting the best from your PS1**

#### **Hum problems**

Like any phono stage the PS1 will pick up hum from other hi fi and electrical units. This can be minimised by taking care to site both the pre-amp and power supply away from both each other and other equipment.

**On the rear of the PS1 is an "earth" or "ground Lift" switch.** This will minimise any hum that is due to an "earth loop" (to many earths). If on initial setting up you are aware of loud hum, try this switch first, and leave in the position that gives the minimum hum. If you do not notice any difference, leave in the "Earth position. Bear in mind that subsequent alterations to your system may make it necessary to change this setting.

**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 PS1 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 Coil requires 10x more gain and therefore is 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 PS1, arranging your turntable and cables for least interference. Keep the turntable signal lead away from power cables and other equipment.

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.

### **5 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 power supply and pre amp.
- Allow about 30 seconds after switching off before switching on again.
- Always switch off and allow about 5 mins discharge time before making any adjustments such as changing valves.
- Do not operate power supply without connecting to the preamp.

#### **Connecting Leads**

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

#### **Leaving the amp 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 PS1 switched on when it is not in use. It is using electricity and valves have a finite life, (averaging about 5000 hours or LPs). Do not switch on and off unnecessarily. From new the PS1 will take about 30 hours before it is "burnt in".

### **6 Trouble shooting**

#### **Amplifier Dead**

If the LEDs or valves do not light up, check the AC mains fuse at the back of the power supply. To gain access, remove the mains lead. The fuse is in a small plastic drawer, which forms part of the socket assembly. To open insert a flat bade screwdriver or similar and prise open. **The fuse in use is the innermost** the outer is a spare. Should the replacement fuse also blow there is a fault. Replacements should be 1 or 2 Amp 'anti-surge' as appropriate.

The fuse in the mains plug (if it has one) 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? Is the correct input selected? (MM or MC). Or MC selected on the MM only version?

#### **UNEXPECTED NOISE**

If you experience unacceptable noise (hissing crackling) etc, this is usually caused by either the Left or Right valves at the front. You can normally prove this by swapping the front valves over Left to Right, in which case the noise will probably follow the valve. Often a noisy valve will work OK as the output valve at the rear. If after swapping the left/right valves over the noise does not move then the PS1 requires service. Your dealer or Icon Audio can assist you with this.

**Icon Audio are happy to replace valves and check to performance of your amplifier free of charge, there are often upgrades available such as the**

*excellent JENSEN paper in oil capacitors which have a rich expansive warm sound.*

We would recommend that you purchase a replacement set of valves from Icon Audio, these will be tested and aged for 24 hours in a PS1 before despatch to ensure the best 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.

#### Valve Replacement

Before removing valves the power supply should be disconnected from the mains for at least 10 mins to allow for any remaining high voltage to dissipate. NEVER USE WITH THE BOTTOM COVERS REMOVED!

You will need a small Allan Key to remove the valve cover rings on the pre amp unit.

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 (degraded) or it has become noisy and or microphonic. Ideally you should replace all three at the same time (keeping the good one for spares). As a rough guide we would expect about 3000 to 7000 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.

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

**Warning:** It is worth noting that this application is very demanding from the ECC83 valves. Therefore valves which are 100% OK in another application may be noisy/microphonic or hum in the PS1. 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 many so called "premium" valves to have no advantage. At the time of writing the JJ ECC83S have been consistently good performers. But feel free to experiment!

## 7 Specifications and Features

- Built in volume control
- Mono switch for best results from mono records
- Choke regulated power supply
- Separate regulated power supply
- All hand wired point to point
- No printed circuit board to 'colour' sound
- Japanese ALPS volume pot.
- All Triode valves
- 3x ECC83
- 2x 0A2 (WY1) regulator valves
- Sensitivity: 5mv for 1.6v (0.5mv MC)
- Gain = 320 MM/50dB (3000 MC/69dB)
- Load: imp: 47k MM = 50dB, 100 ohms MC
- Custom wound MC transformers (option)
- Signal to noise level -75db (MM unweighted)
- RIAA Freq response 20hz-20khz +0 - 1db
- NO feedback used
- High quality close tolerance resistors
- LED mains indicator
- Polypropylene audio capacitors
- Silver PTFE audio cable
- DC supply for valve heaters
- 6mm solid alloy front & rear plates
- Gold plated Input terminals
- 110-120v AC 50/60 Hz 2.0A anti-surge fuse
- 230/240volts 30watts 1.0A anti-surge fuse
- Pre-amp 88mmW, 310mmD, 134mmH , 3.9kg
- PSU 165mmD, 82mmW 80mmH 2.8kg
- C E FCC ROHS certified

(Specifications subject to change, errors & omissions excepted 19/02/20)

Designed and developed by David Shaw 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 stereo/mono switch on the front panel, or the ground switch on the rear.

The switch stems may 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.