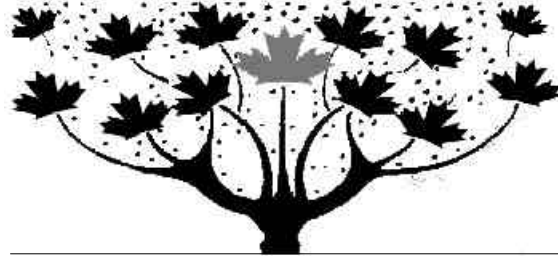


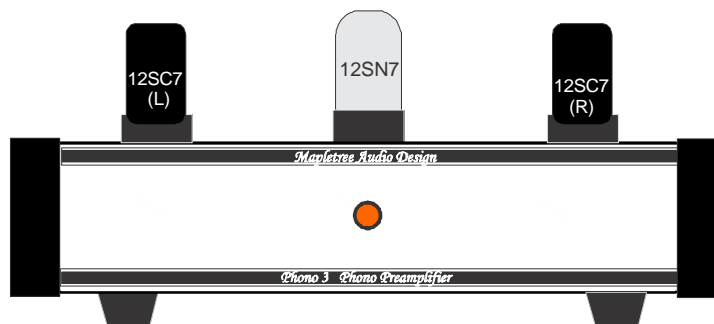
M A P L E T R E E



AUDIO DESIGN

## ***Phono 3 Phono Preamplifier***

### **User's Manual**



Revised Dec. 22/13

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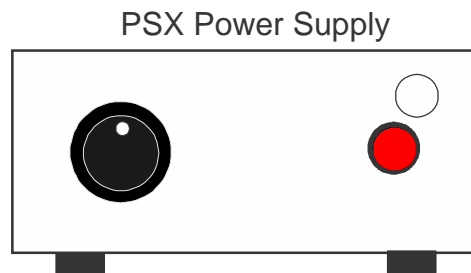
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## **Introduction**

The Mapletree Audio Design *Phono 3 Phono Preamplifier* is part of the modular series of components that includes the *Line 2B* line preamp, the *Ultra 4B* phono/line preamp, the *LR 1* line router, and the *PS 2/2a/X* power supplies. The features of the *Phono 3* include:

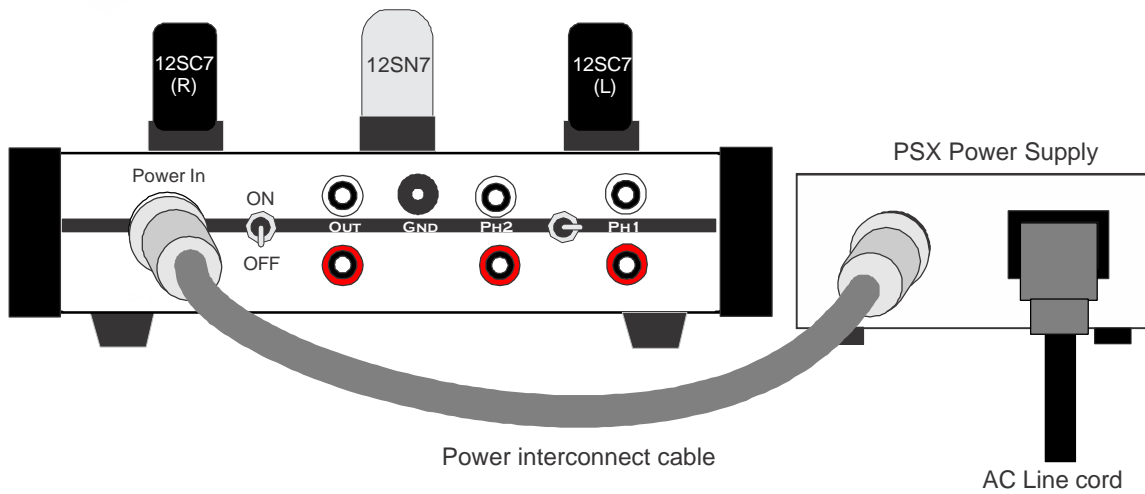
- ? ? Compact chassis layout and separate power *supply for low noise*. The *Phono 3* can share one *PS 2a* power supply with the *Line 2B* preamp if desired.
- ? ? Exclusive use of New Old Stock (NOS) 12SN7 and 12SC7 octal tubes, known for low distortion and musicality.
- ? ? Low output impedance (<2.5K $\Omega$  ).
- ? ? RIAA equalization within 0.5 dB, 50 Hz – 20000 Hz.
- ? ? Use of polypropylene film signal coupling capacitors.
- ? ? 38 dB gain suitable for all MM cartridges when used in conjunction with a line preamp with at least 10 dB gain.
- ? ? Selector switch for two separate phono inputs.

## **PSX Power Supply Connections**

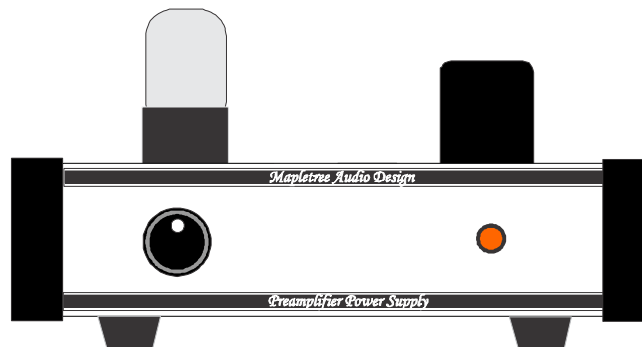


For operation with a separate line preamp or integrated amplifier, the *Phono 3* is supplied with the *PSX* power supply, which provides high voltage (B+) and heater voltage (A+) for the preamp. The physical separation of amplification and power supply units eliminates induced hum originating from power supply circuitry and components. The *PSX* provides 12 VDC at 0.6 A for the tube heaters and 200 VDC at 15 mA for the B+ plate voltage. The preamp and power supply are connected by a special interconnect cable that plugs into the 4-pin sockets on the rear of the two chassis as shown below. The power supply chassis is connected to the AC line ground but is otherwise isolated from the preamp chassis, which is connected to the signal ground. This eliminates the

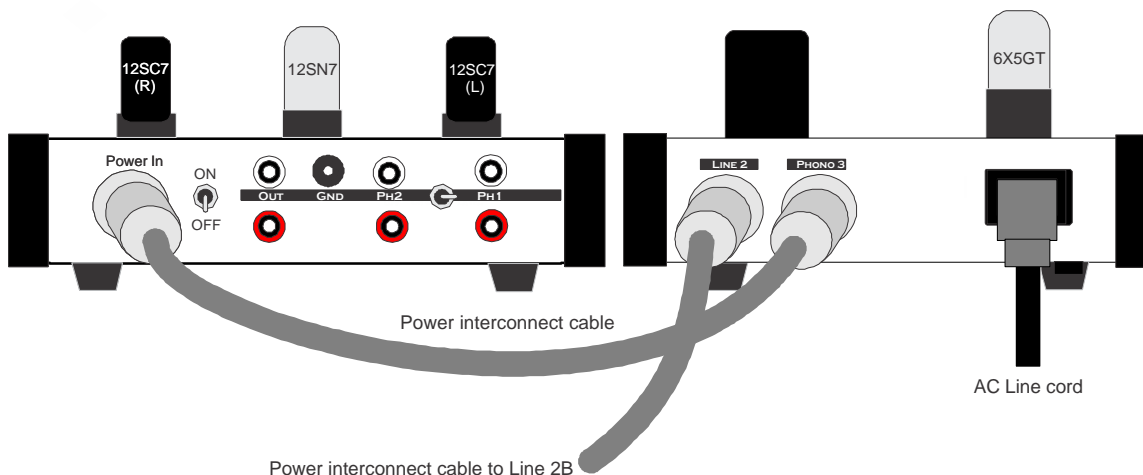
possibility of ground loops forming between the two chassis, through the signal interconnect shield and the ac line ground circuit, which can produce hum.



### **PS 2a Power Supply Connections**



If you purchased your *Phono 3* with the *Line 2B SE* line preamp and are sharing a common power supply, you will be provided with the *PS 2a* power supply. The *PS 2a* power supply provides high voltage (B+) and heater voltage (A) for both the *Line 2B* and *Phono 3* preamps. It differs from the *PS 2* only in providing two power output jacks. The physical separation of amplification and power supply units eliminates induced hum originating from power supply circuitry and components. The *PS 2a* provides 12 VDC (regulated) at 1.2 A for the tube heaters and 200 VDC at 20 mA for the B+ plate voltage. Separate 4-pin jacks are provided for the *Line 2B* and *Phono 3* power connections via special 4-conductor cables. Pin assignments are as follows: Pin 1: B–, Pin 2: B+, Pin 3: A–, Pin 4: A+. In order to prevent a ground loop from forming through the common B– connections (signal ground), the B– feed for the *Phono 3* is isolated from that for the *Line 2* by a series 12 Ohm resistor in the power supply. In practice, either power output jack can be used with either preamp.



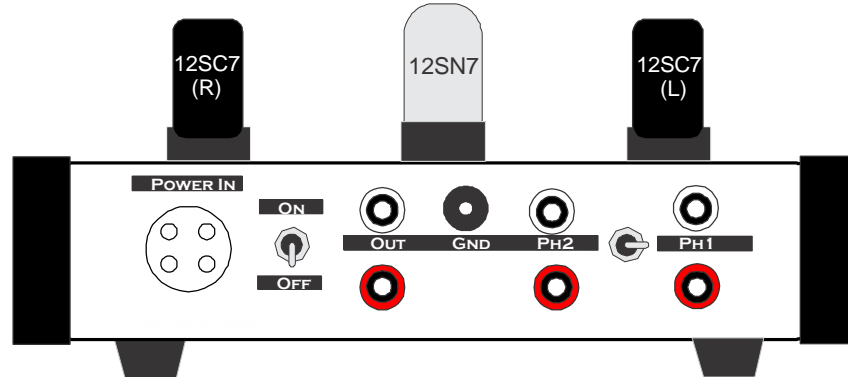
### **Power Supply Operation**

**CAUTION: Do not operate a power supply when it is not connected to a preamp. Damage to components may result from operating the power supply with no load.**

Once the interconnecting power cable(s) are securely attached between the power supply and *Phono 3* and the line cord is plugged in, the ac power switch may be turned on. A separate power switch is located on the rear panel of the *Phono 3*, adjacent to the power input jack. The *Phono 3* can be powered off with this switch, which disables both the plate and heater voltages. Pilot lamps on both the power supply and *Phono 3* chassis indicate that the power supply is on and when power is being supplied to the *Phono 3*. It takes about 30 seconds for the tubes to reach operating temperature ready for use. During operation, it is normal for the power supply chassis to become quite warm to the touch.

The power supply is protected by a 1 A 250 V fast-acting fuse which can be accessed by removing the bottom cover of the power supply. Remove this cover only after powering down for at least 60 sec. Under normal conditions, it should not be necessary to replace the fuse. If power fails to come on, you can check the fuse and replace with a spare if necessary. If the fuse blows a second time, you should not try to operate the unit. Contact Mapletree Audio Design for information regarding service.

## **Input/Output Connections**



RCA jacks are provided for two stereo phono inputs, selectable using the toggle switch located between them, and one stereo output. The centre position of the source selector switch is a mute position. The same ground binding post is used for both inputs. Left channel jacks are uppermost.

## **Tubes**

The vacuum tubes supplied are new-old stock (NOS) and have been pre-tested. A burn-in period of several hours may be needed to achieve the best sonic performance. Tube life should be thousands of hours. Aging tubes may result in a reduced gain in one or both channels or an increase in noise levels. Infrequently, a heater may burn out which is indicated by total loss of sound. Replacement tubes can be obtained from several suppliers in the U. S. and Canada. Some listeners enjoy trying different brands and variants of tubes. The highly regarded 12SX7GT is equivalent to the 12SN7GT.

## **Warranty**

Mapletree Audio Design warrants the materials and workmanship (parts and labor) for a period of 2 years to the original purchaser. Tubes are warranted for 90 days. Electrolytic capacitors are heat sensitive with lifetimes that vary with usage and are not covered by the warranty. Warranty service does not include shipping costs.

### **Phono 3 Specifications**

**RIAA equalization:** 50 Hz–20 kHz  $\pm$  0.5 dB (typically  $\pm$  0.3 dB)

**Gain:** 38 dB  $\pm$  1 dB with 30 k $\Omega$  -  $\pm$  load

**Output impedance (1 kHz):** 2.5 k $\Omega$

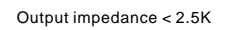
**Input impedance:** 47 k $\Omega$  for both inputs

**Hum and noise at output:** less than 2 mV rms

**Phase:** inverting

**Power requirements (PS 2a or PSX power supply):** 30 W (12 VDC@0.6 A; 200 VDC@10 mA)

## Rev. Dec. 22/13



Power Out  
rear view

## Mapletree Audio Design Preamplifier Power Supply PS 2a

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Rev. Nov 4/13

