

EAR 912

*Designed by
Tim de Paravicini*

OWNER'S MANUAL

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EAR 912

FULL FUNCTION PREAMPLIFIER

Designed by Tim de Paravicini

INTRODUCTION

Thank you for purchasing an EAR 912 preamplifier. You are now the owner of one of the world's finest preamplifiers. We trust that it will give you many years of faithful service and musical pleasure. Please take a few moments to read this manual as it gives useful tips on operation and care of your new amplifier.

TECHNICAL DESCRIPTION

The EAR 912 preamplifier is a fully-featured valve (tube) preamplifier which is designed to cater both for the vinyl lover and the modern multi-source line-level system. It has been designed to offer superb sound quality first and foremost but without any sacrifice in facilities and flexibility.

The dominant feature of the 912, and the one which most clearly distinguishes it from other high-end preamplifiers on the market, is its extensive use of transformer coupling. Designer Tim de Paravicini is known as probably the leading authority on audio-band transformers, and he has used his expertise to the maximum in the 912, designing transformers specially for the task. The moving-coil phono input is of course transformer-coupled with no less than four different taps offering a wide range of impedance matching, while the balanced line inputs and all stage outputs are also coupled through transformers. At the main output, the phono and XLR stages are even fed from individual transformer windings, ensuring freedom from hum loops in systems which employ both balanced and unbalanced connections.

Because the circuits in the 912 have been designed from the start to be transformer coupled, they make full use of the possibilities afforded by transformers. Separate windings for drive and feedback allow very elegant, high performance circuit blocks to be

realised, with carefully optimised headroom and noise at all stages. The attenuation switch which follows the phono stage operates by selecting winding taps, avoiding the problem of variable source impedance that arises when resistors are used to provide signal attenuation.

As you would expect from such a comprehensively featured product, the 912 has a very high quality phono stage compatible with practically any cartridge ever made. It is based on a valve circuit with a unique RIAA equalisation network which gives excellent stability, high headroom, low noise and low distortion and which (like all the circuits in the 912) is single-ended and therefore runs in pure Class A. Moving magnet cartridges connect to the input valve directly, while moving coil types make use of a step-up transformer which provides optimum matching over a range of input impedances.

All inputs (whether balanced or unbalanced) are selected by relays, thus keeping signal paths as short as possible, avoiding potential problems due to long internal wiring looms. A high grade volume control is employed.

The main output circuit is based on a gain block somewhat similar to that used in the phono stage, but of course with lower gain and flat frequency response. The primary of the output transformer is in the anode circuit of the output valve, while two secondaries feed the outputs, one to the unbalanced output sockets and one to the balanced outputs. Note that some manufacturers have boasted of the vast headroom of their output circuits, sometimes capable of output voltages in excess of 20VRMS from a low source impedance. Although this sounds impressive it can have an unfortunate side effect if the preamplifier is accidentally driven to full level (for instance by a loose connector): some power amplifier input stages will be physically damaged by such a high level, requiring expensive repair. There is absolutely no requirement for such high levels, and the 912 has more than enough headroom, with a sufficiently low source impedance to drive cables of enormous length.

The 'Mute' switch is intended to give instant silence without losing the volume setting or the choice of input. This is most useful when listening is temporarily interrupted.

Metering is provided to give a visual indication of signal level, which can help when setting up a system. It also gives some interesting information about the dynamic range of commercial recordings!

Tim de Paravicini has designed this amplifier to give a lifetime of trouble-free performance. All components in the amplifier have been carefully selected to give consistent high performance over a long period.

We hope this instruction booklet will help you enjoy your amplifier to the full.

SETTING UP YOUR AMPLIFIER – MAINS SUPPLY

Your 912 is capable of running off mains supplies from 100 volts to 250 volts. This voltage is pre-selected at the factory for the country of destination. If the adjustment taps do need to be changed, please refer to diagram for further information. If in doubt, contact your local agent.

Yoshino does not normally recommend the use of the various mains 'conditioning' units on the market. The 912, in common with all other Yoshino amplifiers, has been designed to work to full performance on conventional mains supplies, thanks to its in-house designed mains transformer and power supply. The use of 'audiophile' mains cables is also discouraged as many of these have been found to be unsatisfactory from the point of view of long-term safety and reliability.

SETTING UP YOUR AMPLIFIER – MATCHING THE CARTRIDGE

Your 912 is capable of providing optimum amplification for the tiny signal from almost any phono cartridge. However, it is important to be aware of the differences between the various types. Moving magnet (MM) cartridges have a much higher output voltage than moving coil (MC) types but also require a much higher resistance loading to work properly. Please ensure that the switch on the front panel is set correctly.

(An exception to this rule is the case of so-called 'high output moving coil' cartridges, which usually work best when the amplifier is set to the MM position. Even so, some users of such cartridges have reported good results with the MC setting, so feel free to experiment. You cannot do any damage by using the 'wrong' setting).

In addition, to cater for the different characteristics of various moving coil cartridges, the 912 has provision for altering the input matching. This is done from the front panel, using the switch at the top left of the panel to select 3, 6, 12 or 40 ohms nominal matching. As a rule, the value chosen should be close to the impedance of your particular cartridge, which you can find out by consulting the instructions which came with it – or your dealer should be able to tell you. Again, experimenting can do no harm and you may find that a 'wrong' setting actually works well for you.

Please note that unlike previous EAR amplifiers the 912 can accept both cartridge types, MM and MC, on both inputs. All switching is from the front panel and all type, impedance and attenuation settings apply to whichever input is selected.

SETTING UP YOUR AMPLIFIER – LINE INPUTS

The 912 has six line inputs in total, including the tape monitor. Two of the inputs are balanced, but they all have the same sensitivity. This means that any of them is equally suitable for any line-level source (CD player, tuner, analogue or digital recorder, etc). Because of the very low noise, high headroom and high input impedance of the 912, plus its relatively high gain when the volume control is at maximum, compatibility problems with any line-level source, of any type or age, are highly unlikely.

Two problems may very occasionally occur. First, transformer coupling is not forgiving of source components which have a high level of DC (more than a few millivolts) present at their outputs. Such components can only be regarded as faulty and should be repaired at once, but such a faulty may look at first like a fault with the 912. The most obvious symptom would be a serious lack of bass, due to saturation of the transformer core by the DC. If you suspect that one or more of your source components is producing a DC offset at its outputs, have the equipment checked by a qualified technician.

The second possible problem relates to equipment with certain types of ‘pseudo-balanced’ outputs which cannot work properly unless they are connected to a ground referenced input. Because the 912’s balanced inputs are fully floating, such components when connected to it will produce little or no sound and a very odd frequency response. Again, this is not a fault with the 912 and should be rectified at source (or simply use an unbalancing lead to one of the 912’s unbalanced inputs, if this does not result in hum).

SETTING UP YOUR AMPLIFIER – CABLES

Yoshino does not make or market cables and does not endorse any particular brand. In fact the 912, in common with all Yoshino amplifiers, will work with any cables we are aware of. This means that you are completely at liberty to select cables which match your tastes. However, the following guidelines may be helpful.

Interconnect cables should be low capacitance and well screened. High capacitance cables can give a slight subjective treble loss with many source components, while unscreened cables have a greater tendency to pick up interference. Avoid excessively long cables. If interconnects longer than approx. 1ft (30cm) are being used, it is wise to twist the right and left channel cables together to minimise the chance of hum pickup. With screened cables, this will not have any adverse effect on channel separation.

The balanced inputs and outputs of the EAR 912 allow for optimum performance when connected to suitably equipped partnering components (source components and/or power amplifiers). The most important advantage of balanced cables over unbalanced is that over long runs they are much less prone to picking up interference, especially mains hum and they are less likely to introduce unwanted ground connections between equipment which can themselves produce hum. However, be aware that many source components

use an extra stage of amplification to generate the balanced signal from the unbalanced outputs (the 912, with its use of transformers, significantly avoids this problem) and that extra stage may have its own 'sound signature', in some cases making the unbalanced connection preferable. If in any doubt as to which to use, experiment!

When using a balanced connection, make sure that the cables are properly connected 'pin for pin' – i.e. pin 1 at the male end to pin 1 at the female end, and so on. If a supposedly 'balanced' cable has been connected in unbalanced mode for some reason, most of the virtues of balancing will be lost – however this may in practice have little or no audible effect. If one cable of a stereo pair has accidentally been connected 'out of phase' (pin 2 at one and to pin 3 at the other and vice versa) the result will be exactly the same as if one loudspeaker were connected out of phase, with very vague stereo images and mono sounds seeming to come from outside the speakers.

SETTING UP YOUR AMPLIFIER – POSITIONING

The 912 preamplifier is not fussy about positioning. It generates little heat and so does not require much ventilation: we advise that you do not cover it directly, but only an inch or so clearance above it will be plenty to keep temperatures well within safe and comfortable limit. Make sure there is enough depth behind it to ensure that leads are not unduly strained. It is not significantly microphonic.

SETTING UP YOUR AMPLIFIER – WIRING UP

Connect your turntable(s) to the phono inputs, remembering to connect the separate earth wire (if any) to the nearby earth terminal on the 912. Connect your tape deck's output to the 'Tape Monitor' input and other line-level sources to any of the remaining inputs. While you can still remember, it may be a good idea to make a note of which source is connected to which input!

Make sure that your power amplifier is turned off, and that its volume control (if any) is at minimum. Connect the signal leads between it and the 912.

Make sure that all phono and XLR plugs are pushed fully home, and insert the IEC mains plug into the appropriate socket on the back of the 912, being sure to push it fully home.

Press the orange mains switch a couple of times, and make sure it is in the 'out' position, plug the mains lead into the wall outlet socket, turn the volume control fully anti-clockwise and switch on.

The orange power switch will light up and the amplifier will be ready for use in a few seconds. Switch on your power amplifier and give it a few more seconds to warm up and stabilise. Start your turntable/CD player/tape deck, select the appropriate input, and

slowly turn the volume control clockwise, until the required level is reached. Sit down and enjoy the music!

If the orange power switch fails to light, check the IEC plug is pushed fully in the amplifier, and the mains outlet is switch on. If both appear good, then check the mains fuse on the rear panel of the amplifier. Failing that, please contact your Yoshino agent for further advice.

OPERATION – WARMING UP

There has been considerable debate over the question of ‘breaking in’ and ‘warming up’ audio equipment. All Yoshino amplifiers are designed to work to full specification from day one, requiring no more than a few minutes to reach full operating condition. The valves in the 912 reach operating temperature within a minute, and beyond that all that is required is for all capacitors to charge up fully and for all internal voltages to stabilise, which takes less than five minutes. However, very frequent switching on and off of any electronic equipment places some stress on components, particularly in the power supply, and for this reason Yoshino recommends as a general practice that amplifiers should be left on for the duration of a typical evening’s listening. They should be switched off at night to save electricity and to maximise operating life.

CARE AND MAINTENANCE

Your 912 preamplifier needs very little attention. Surfaces should be cleaned with a dry, soft cloth. If any liquids are spilled on it, disconnect the mains, dry the outside thoroughly, and inspect internally for liquid ingress. If there are any signs that liquid has got inside, we recommend that the unit be returned to us (or our authorised service agent) for inspection and, if necessary, repair.

The valves are good for well in excess of 10,000 hours of operation and are likely to last for many years of normal use. They are all the same type, either PCC88 (equivalent to 7DJ8) or ECC88 (equivalent to 6DJ8, 6922 etc.). The only difference between ECC88 and PCC88 is a very small difference in heater voltage, which makes the two types interchangeable in most situation. However, we do advise that any amplifier should use one type or the other, not a mix. Both variants are easily available worldwide, and replacement is a simple matter of unplugging and replugging, the work of moments once the top cover has been removed.

Under no circumstances remove any covers on the amplifier chassis with power still connected. Internal mains voltages are present which are high enough to cause death or serious injury. Yoshino Ltd. cannot be held responsible for any personal injury or damage to equipment due to failure to observe this important and basic safety consideration

EAR 912 PREAMP

SPECIFICATIONS

Inputs:	2 x phono 3 x line level unbalanced (RCA phono connector)
1 Tape Out:	2 x line level balanced (XLR connector) 1 x tape monitor
Line Amp Gain	14dB (reference sensitivity = 775mV for "0"dB V.U. = 3v output
Line Amp	S/Noise = 90dB (1v out ref) Distortion = Less than 0.1% 1KHz 3v out Frequency Response = 20-20KHz + 0-0.3dB Max Output = 6v 600 Ω either output
Phono section	2 inputs both MM or MC
Input Impedance	MM = 47K Ω Overload Margin on phono = 28dB MC Selection = 40 Ω , 12 Ω , 6 Ω , 3 Ω , Gain Settings 3 position 0, -6, 12dB Gain MM= 2.4mv for '0' dB V.U (50dB) MC=0.24, 0.15, 0.1, 0.06mv @ 1KHz (70dB) (73dB) (76dB) (80dB) RIAA Accuracy = \pm 0.2dB, 30Hz – 20KHz S/Noise = 68dB ref 2.4mv unweighted
Power Consumption	30VA (100v, 117v or 230v country dependent)
Weight	13kg
Size	W= 19" Rack, H = 5 $\frac{1}{4}$ ", D= 10 $\frac{1}{2}$ " (48.26cm x 13.3cm x 26.7cm)
Facilities	Tape Monitor Mute Switch Mono/Stereo Switch Input Selector Volume Control Phono 1, Phono 2 MM/MC MC Input impedance switch Function Selector BAL1, BAL2, Phono, CD, Aux1, Aux 2
Front Panel	