

Tenor
Phono1
Ultimate Reference
Phono Stage
Owner's Manual



July 2015

Important Safety Instructions

1. Please read this Owner's Manual for your own safety and the protection of your Tenor equipment.
2. Once you have installed your Tenor equipment, store this Owner's Manual in the travel case or another safe place for future reference.
3. Please heed all warnings and cautions.
4. Please follow all instructions.
5. Do not use this equipment near water or where there might be a chance it could come in contact with water.
6. Clean only with a clean dry cloth. See notes under Care and Maintenance.
7. Do not install near a heat source such as radiators, heat registers, stoves or any other source of heat.
8. Do not defeat the safety purpose of the polarized and/or grounding type plug. A polarized plug has two blades with one slightly wider than the other. A grounding plug includes the third ground prong. In the event the plug provided does not fit your power outlet, consult an electrician for assistance. Failure to do this may result in damage to the equipment and/or possible injury or death.
9. Please protect the power cord from being walked on or pinched, particularly at the wall and at the plug on the rear panel of the equipment.
10. The use of extension cords and/or convenience plugs is not advised due to the power requirements of the equipment.
11. Please mount equipment as specified in User Manual.
12. Please unplug equipment during lightning storms. When not in use for long periods of time unplug the equipment and have a technician remove the rechargeable battery located inside the Phono 1 chassis. The battery must be installed and sufficient time with Phono 1 plugged in to AC to charge the battery before system can be used again.
13. Refer all service of equipment to qualified Tenor personnel. In the event the equipment has been damaged, dropped, exposed to water or foreign objects have entered the cabinet, disconnect immediately from power source and consult a qualified service technician.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE



CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER ALL SERVICING TO QUALIFIED PERSONNEL

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Introduction

Congratulations

Congratulations on the purchase of your new Tenor Phono 1 single chassis/dual mono Ultimate Reference Phono Stage. We are very proud of the extensive engineering, design and craftsmanship in our equipment and are confident that our Phono 1 phono stage will deliver the musical experience of your lifetime.

Safe Set-up Instructions

This Owner's Manual is provided to assist in the unpacking, installation and ongoing care of your Phono 1 phono stage. It is recommended that you take a few minutes to acquaint yourself with the contents of this manual before unpacking.

Design Principles

The passion and desire to attain the most realistic and live musical reproduction of recorded material is a lifetime goal of Tenor. Building on Tenor classics including the internationally acclaimed:

- OTL 15 & 75 Wp & Wi (Output Transformer-Less) amplifiers
- hp150/hp300 first generation Hybrid amplifiers
- 175S Ultimate Reference Stereo Amplifier
- 350M Ultimate Reference Mono Block Amplifier
- 175S Haute Puissance
- 350M Haute Puissance
- Line 1/Phono 1 Ultimate Reference Line Stage Preamplifier

The Phono 1 delivers musicality and transparency beyond all other phono stages.

Tenor's proprietary research in the field of Harmonic Structural Integrity (HSI) is the essence behind each of Tenor's Zero Perceived Distortion products. The Phono 1 is the finest single chassis/dual mono phono stage in the world and is designed to be the perfect match with any of Tenor's amplifiers or preamplifiers.

Precision Crafted, Assembly and Delivery

Each Tenor phono stage is precision crafted in our facility in Montreal, Canada, by master technicians dedicated to exacting standards using only the finest of materials. Rigorous testing, matching and selection of electronic components precedes each custom build, following which, hundreds of hours of burn in ensures complete musical equilibrium prior to calibration and delivery so your purchase will stay within calibration for most of your life. Each Phono 1 is outfitted with a custom travel case which is specially designed to protect the unit during transit. Great care goes into every step to ensure that the Tenor experience is nothing short of magnificent!

Unpacking

Each Phono 1 has been transported to you in its custom travel case which has been specially designed to protect the units during transit anywhere in the world. Given the substantial weight and size of the phono stage, it is suggested that careful attention be given to the following:

Travel Case Lifting Caution!

The phono stage including carrying case has a combined weight of 102.5 lb/46.5 kg.

Travel Case Opening

The travel cases have been custom designed to provide the utmost in protection during transit and storage of the phono stage. An empty case weighs approximately 44 lb/20 Kg. When not in use they should be stored away in a safe and dry location.

The weight of the Tenor Phono 1 is not evenly distributed about the centre axis from front to back which creates a very awkward load, therefore careful attention is required!

Caution should be used in lifting the phono stage out of the lower portion of the travel case to make sure that nothing scratches the beautiful Tenor wood and metal finish. Position the travel case close to the final location by rolling on the travel case wheels. Clear the space of the final location in advance and have two reasonably strong people lift the phono stage upwards out of the travel case until the phono stage is clear of the travel case sides. Special care is needed when installing in a shelving unit due to restrictive access. When sliding the Tenor Phono 1 on a shelf, do not drag on rubber feet but lift enough weight so that rubber feet do not bind when sliding.

List of Items Included with Tenor Phono 1

- 1 Owner's Manual
- 1 Protective Cover
- 1 Kubala-Sosna Emotion Power Cord with country specific AC mains plug
- Package of User Accessible Fuses

Moving Your Phono Stage

Once the Phono 1 has been turned off using the top right button in the display, turn the power off at the rear and let sit for about 10 minutes - to dissipate high voltages. Disconnect all cables and power cords then put them underneath the phono stage in the travel case with connector ends wrapped in a protective material so they do not come in direct contact with the wood or metal finish which can be scratched or marred if care is not taken.

Consult Owner's Manual for reconnecting cables and power cords following a move to ensure nothing is taken for granted. To protect the beautiful metal and woodwork, it is always recommended to use the protective cover and travel case when moving the Tenor Phono 1. The weight of the Phono 1 is not distributed evenly about the centre axis making for a difficult load. It is recommended to have two people to move the Phono 1 safely.

Installation

Considerations

The Tenor Phono 1 needs to be located in a clean, safe and dry environment within close proximity to the AC power mains for the provided 2m AC power cord to connect to the wall and also be close enough for the user supplied interconnects to connect to your preamplifier and turntable/arm combination. Placement on a ventilated open shelf built for audio equipment is of course ideal.

3rd Party Isolation Stands

Mechanical isolation of the main Tenor Phono 1 audio board is achieved with a custom made tuned suspension. All Tenor amplifiers use custom rubber/wood foot combinations to isolate the chassis from externally generated acoustic vibrations transmitted from shelves. Although not necessary, 3rd party isolation stands can be used but do ensure that the units support a 58.5 lb/26.5 kg weight of the Phono 1. Please note that the weight is not evenly distributed about the centre axis from front to back of the Tenor Phono 1 as the balance point is forward of centre - this sometimes affects the stand performance and should be discussed with the stand manufacturer.

Placement

AC power mains should be within reasonable access of the Tenor Phono 1. The Tenor Phono 1 can be ideally installed on an isolated 15 amp circuit @ 1xx Volts (8 Amps @ 2xx Volts) with other source equipment. Sharing common AC power mains for source equipment is recommended as that generally simplifies any potential for ground loops that cause undesirable 50/60 Hz ground loop hum. Special grounding options exist in the Tenor Phono 1 as well as other Tenor amplifiers to mitigate ground loop hum in the event that ground hum poses a problem. See details if necessary.

Ventilation

Ventilation of the Tenor phono stages occurs by natural convection without the need for electric cooling fans. Ventilation slots in the bottom of the chassis and top cover plate allow sufficient cooling under normal operating conditions. It is imperative that these vents be kept clean and unobstructed. **Please note, never stack equipment on top of each other** as the phono stage should have its own shelf with ample ventilation above and below the chassis to operate properly.

It is normal for the top cover panel to get warm especially over the tube audio board of the Phono 1. It is necessary to keep this top cover installed at all times for safety from high voltages. Keep top cover clear at all times to ensure maximum ventilation to allow the proper cooling of internal components including the vacuum tubes. The phono stage sides act as a natural heat sink which provides cooling for the internal output devices. The heat sinks run reasonably cool as long as they are kept clean and unobstructed. Do not operate the Phono 1 in bottom half of their travel cases as this will overheat the unit and void the warranty!

Input Source Component Quality

The reference quality of the Phono 1 phono stage requires your source components to be of similar reference quality in order to achieve maximum fidelity. Any imperfections in the audio signal at the input source will most definitely be noticeable. Alternatively, the best source equipment will allow the Tenor Phono 1 to reproduce sound so real that you will believe that you are really at the concert!

In practice, Tenor phono stages allow most source components to sound their very best, however, the ultimate in sound reproduction is only achieved with the use of the finest digital and/or analogue audio source equipment and cables. Either unbalanced or balanced inputs can be used. The use of sufficiently long interconnect cables allow convenient location of the source equipment away from the amplifiers/speakers and in close proximity to the user for easy access. To achieve maximum fidelity, it is our recommendation that reference quality balanced cables be used however unbalanced cables up to 50ft/15m can be used as well. If the installation has excessive RF and EMI pollution you should always consider balanced cables regardless of length. Over 50ft/15m, balanced cables are necessary.

Generally all source equipment can be powered using a single AC mains circuit thereby minimizing the possibility of ground loop hum. It is recommended that this be a separate circuit from the amplifier(s) but have similar overall grounding topology. In cases where the grounding is not identical and ground loop hum exists, various grounding options in the Phono 1 Programming Setup can mitigate this problem. For severe cases, a balanced interconnect between the amplifier(s) and source equipment will separate the metallic grounds of the two different circuits and minimize any ground loop hum issues not resolvable by the Tenor programmable grounding options.

Preamplifiers

The Tenor Phono 1 is capable of driving virtually any preamplifier with 50 feet (15m) unbalanced RCA or balanced XLR interconnects at lengths up to 200 feet (61 m) with unchanged distortion and noise characteristics! The reproduction of the recorded musical event requires substantial current so we recommend the use of either a Tenor Line 1/Power 1 with 175S stereo or 350M mono block amplifiers with reference quality speakers. Other manufacturers' reference quality equipment will also integrate with the Tenor Phono 1 and benefit from the Tenor Ultimate Reference Phono stage and HSI technology!

Remote Turn On Jack

The Tenor Phono 1 has a 3.5 mm stereo mini phone plug for a 12V communication cable from the Tenor Line 1/Power 1 (or similarly equipped preamplifier) which allows the Tenor Phono 1 to turn on automatically in sequence with other equipment when the Tenor Line 1/Power 1 is powered on. Similarly, turning off the Line 1/Power 1 will turn off the Phono 1 automatically.

Please be mindful of the volume level of the preamplifier when it comes on line especially if you have an automated volume on level. Failure to do so could cause amplifiers and/or speakers to be overdriven and damaged - which would not be covered by the Tenor Warranty.

AC Power Requirements

AC Mains Voltage

Tenor phono stages can be powered using conventional Power Company voltages ranging from 100 Volts to 250 Volts at either 50 or 60 Hz. The voltage for your installation must be specified at the time of ordering so the universal transformer voltage bus can be configured to the correct AC mains cable for your Phono 1 installation.

AC Power Conditioners

The use of power conditioners on the AC power mains feeding the Tenor Phono 1 combination is not normally necessary since the Phono 1 is a complex power supply optimized to meet the needs of the Phono 1 in regard to voltage, current and noise. If a power conditioner is being used it is recommended that it not be shared with the power amplifier(s) as the current requirements of most amplifiers will negatively affect the current available to the Phono 1 and thereby diminish the available power being supplied reduce the fidelity of the overall signal.

Appropriate regional electrical codes and professionals should be consulted regarding any custom electrical configuration beyond the regular domestic wiring of your installation. Damage caused to the Tenor Phono 1 as a result of incorrect wiring is not covered by Warranty.

Stabilizing & Initialization after Power On.

The AC Mains Power switch of your Tenor Phono 1 is located at the left (looking at back directly) rear back plate of the Phono 1 chassis. This switch powers the Tenor Phono 1 so the front top right push button on the Phono 1 display panel can be used to turn the phono stage on or off. The AC Mains Power switch is intended to be left on except when the unit is being stored.

With the rear AC Mains Power ON, a push of the front top right button will initiate a controlled start of the Tenor Phono 1. The Vacuum Florescent Display (VFD) on the front panel will show STABILIZING for 1 minute 40 seconds during which no other control knob or button should be pushed.

Once 1 minute 40 seconds has expired, the VFD will show INITIALIZING followed by the preset configuration of the Phono 1 - which is now on line and ready for use.

The Tenor line 1/Power 1 stabilizing timer is set to 1 minute 45 seconds so the Phono 1 intentionally comes on 5 seconds before the Tenor preamplifier comes on.

The Tenor 175S/350M models of amplifiers come on at just over 2 minutes of warmup.

In summary, the phono stage comes on first, the Line 1/Power 1 follows by 5 seconds and finally the 175S/350M amplifiers follows by 20 seconds.

Please Note: It is advisable for the protection of your amplifier & speakers that the Tenor Line 1/Power 1's ON VOLUME be set to 0 (default) until the amplifiers are on line. Damage caused by the ON VOLUME being set too high is not covered by the Tenor Warranty.

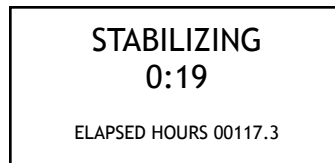
Break-in Period

Various components of the Tenor Phono 1 are burned-in for a period up to 200 hours prior to being assembled. Each Phono 1 is further burned-in at the Tenor factory following assembly for a period of no less than 100 hours thereby allowing each electronic component to stabilize and achieve its optimum electrical and musical equilibrium as a system. Each phono stage is then calibrated to the factory specification and is designed to remain within tolerance for a period up to 10 years or more depending on use and care.

Tube Life

The Tenor Phono 1 is designed to operate within design specifications for a period close to 10,000 hours.

As a typical example, a Tenor Phono 1 used each and every day for 3 hours under normal use will last almost 10 years before it will need a tube refit and calibration. Each time one turns the Phono 1 on an elapsed hours clock is located on the Vacuum Fluorescent Display (VFD), as shown below, during the startup sequence which exhibits the owner's hours total enjoyment to date. Most owners will experience a lifetime of listening pleasure without ever reaching the 10,000-hour maximum. When the 10,000 hours of use has been achieved, the phono stage should be returned to the factory for re-tubing and calibration.



Design Features

Summary of Phono 1 Design Features

1. Custom extruded & machined aluminum chassis provides a stable, rigid base plus the beautiful solid cherry wood face plate, rails and feet enhance the aesthetics and improve vibration control of the system.
2. Microprocessor controlled Vacuum Florescent Display (VFD) & Logic
3. Internal USB software upgrade port
4. High quality polytetrafluroethylene (PTFE) insulation and rhodium plated unbalanced connectors for maximum reliability and low Elector-magnetic Interference (EMI)
5. High quality pro-audio grade gold plated balanced connectors for maximum reliability and low Electro Magnetic Interference (EMI)
6. 2 unbalanced RCA selectable line level inputs
7. 1 balanced XLR line level input
8. 2 unbalanced RCA selectable outputs
9. 1 balanced XLR selectable outputs
10. Balanced inputs/outputs are transformer coupled giving high Common Mode Rejection Ratio (CMRR) for low noise operation with optional pin 1 ground lift to suppress inter-chassis ground loops
11. Individual ground path for left/right channels to increase immunity to ground loops and inter-channel crosstalk
12. 3 position ground selector per channel to equalize ground potentials and minimize system residual noise
13. Input/output audio signal switched concurrently to avoid audio ground mixing/noise summing thereby maximizing signal to noise performance
14. Audio amplification circuits employ New Old Stock (NOS) 2 x 8416 (10,000 hour) & 2 x 6n6p (5,000 hour - optimized for 10,000 hours) high grade select vacuum tubes in pure class A with zero negative feedback delivering ultra-low distortion - thereby maintaining the natural harmonic structure of the audio signal
15. Software selectable Gain levels of 55db to 70 db in 5 db increments
16. <<Z>> Load Compensation of 100Ω to 500Ω in 100Ω increments plus HIGH as well as a Custom Factory setting - available at time of order

17. High current pure class A ultra-low distortion unity gain solid state buffer stages provide isolation from the vacuum tube circuit using discrete transistors rather than ICs - for maximum sonic performance
18. Low output impedance can drive hundreds of feet of interconnect with unchanged distortion and noise characteristics
19. High bandwidth double shielded balancing custom made transformers with ultra-low distortion for balanced inputs/outputs
20. Medical grade low leakage AC inlet module with integrated EMI filter
21. Dual mono independent ground path for left/right channels
22. Oversized custom made ultra-low noise, low-stray magnetic field, dual electrostatic shield power transformers potted in special epoxy resin for noise reduction
23. In-rush current limiters used in conjunction with slow start circuitry to optimize long term reliability of vacuum tubes and electronic components
24. Silver plated copper wires with 600V PTFE insulation used extensively with high quality crimped connectors for long term stability
25. DC supplies individually choke filtered and independently regulated for each channel with oversize low noise DC supplies for amplification stages
26. 12V Control for automatic power on/off controlled by preamplifier.
27. High quality DC interconnects with military grade aluminum connectors provides safe secure power and long term stability
28. Relatively low operating temperature and premium quality printed circuit boards ensure long term reliability and fidelity
29. Power supplies are custom made, hand assembled and intensively tested

Front & Rear Panel

The front panel of the Tenor Phono 1 phono stage is made from the finest selected cherry wood and has been hand finished with 16 coats of clear piano lacquer by local Canadian artisans.



With time the cherry wood will age naturally by showing a somewhat mellow patina - making the phono stage even more beautiful as time passes. The same is also true of the decorative cherry rails on the top of each chassis as well as the wood (and rubber) feet.



Please Note: direct sunlight will cause an overall darkening of the cherry wood. This is normal so if this effect is not desired then protection from direct sunlight is required. Natural aging of the cherry wood is normal and expected so any patina due to this is not covered under warranty.

The metalwork of the Phono 1 phono stage is anodized aluminum that has been precision manufactured and finished by local Canadian artisans. Please review section Care and Maintenance of this manual for further details.

Turning Power ON

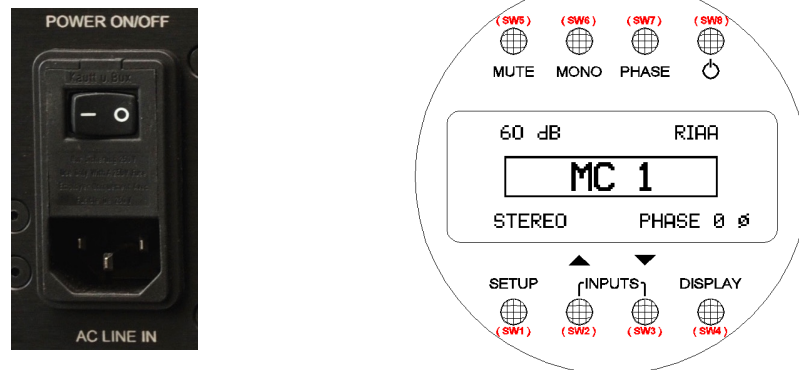
There are two power switches on the Phono 1 phono stage - the AC mains switch at the rear left (looking at the rear of the Phono 1) and the top right button on the front display. The rear switch needs to be ON before the top right button can be used to turn the unit ON or OFF. The rear AC mains switch should be always ON except when equipment is stored.

Before turning the Phono 1 on, connect the moving coil cartridge interconnects to the inputs of the phono stage and then connect the phono stage outputs to the preamplifier.

Following this, you can then attach the power cord to connect the Phono 1 to the AC power mains. This is an appropriate time to double-check all of your connections before the AC mains power is applied by turning the rear switch to on.

Once your connections have been verified, you can now turn on the Phono 1 using the master power switch at the rear. Following this, push the top right front display button. The following picture is provided for identification of the rear AC mains power switch as well as the front ON/OFF (top right) button:

Please Note: Hazardous voltages inside the Tenor Phono 1 are dangerous! Please allow 10 minutes for high voltage to dissipate before opening the Phono 1 chassis. Never open the Phono 1 chassis with the rear switch turned on unless you are an experienced technician.



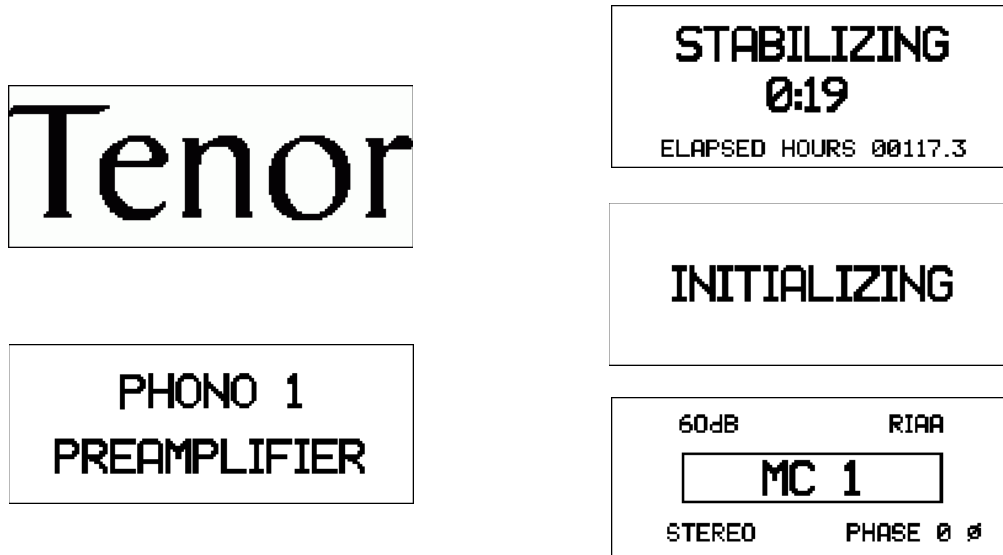
The phono stage is designed to provide near full potential immediately following the 1 minute 40 seconds warm-up and stabilization period. Maximum dynamic headroom and transparency is achieved following about 60 minutes of continued operation when thermal equilibrium is achieved.

Initial Power ON/OFF Screens

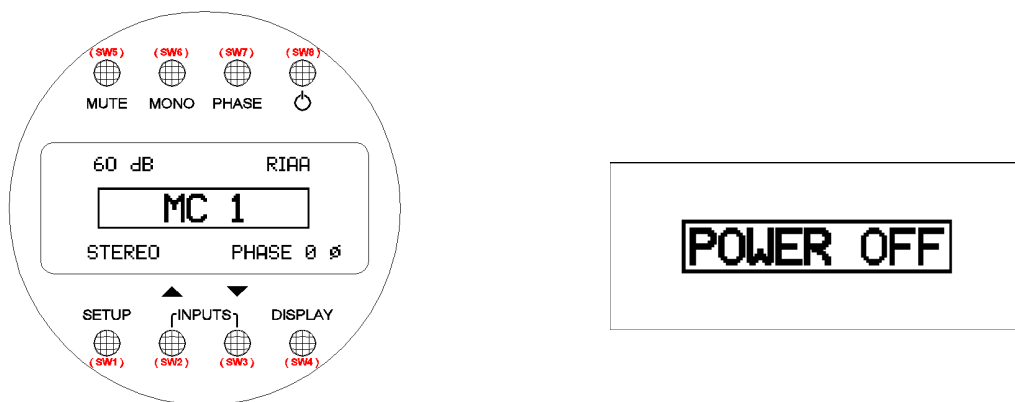
To power up the Phono 1 turn the rear power button labeled LINE POWER to ON.

Pressing any button on the Phono 1 front display will then immediately wake and show screen message of: ON/OFF: PUSH TOP RIGHT BUTTON.

Pushing top right button on display will begin a sequence of events displayed on the Vacuum Florescent Display (VFD) starting with the Tenor logo as follows:

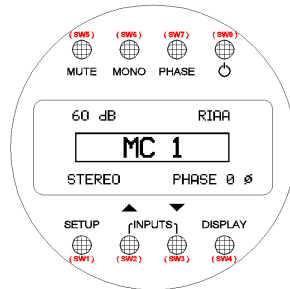


To power off the Phono 1, simply push the top right button to initiate shutdown sequence as follows and you will see the POWER OFF screen in the display:



Please note: the rear Phono 1 power button labeled POWERED ON/OFF should be left in the ON position unless storing, moving or leaving unattended for long periods of time.

Vacuum Florescent Display (VFD) Button Overview



The control of the Phono 1 is simple and straightforward:

1. Touch any button gives instructions to push top right button for power on
2. Push the top right button to turn the Phono 1 ON/OFF
3. Avoid touching any buttons during the ON/OFF power sequence
4. Push SETUP button for programming using multipurpose INPUTS & DISPLAY buttons
5. INPUT buttons change between MC 1, MC 2 & MC 3 (BAL) and can be used to move up or move down the menu when in programming mode
6. Display buttons change between main, logo & blank screen and can be used to enter when in programming mode
7. MUTE button mutes & un-mutes Phono 1 output
8. MONO button switches between Stereo & Mono L+R outputs
9. Phase button selects between 0 degree Phase & 180 degree Phase

After pushing a button the Phono 1 will store selection after a 5 second timeout delay. Similarly if no entry is made for 5 seconds, the menu will time out and return to main screen. To select choice, simply push the DISPLAY button.

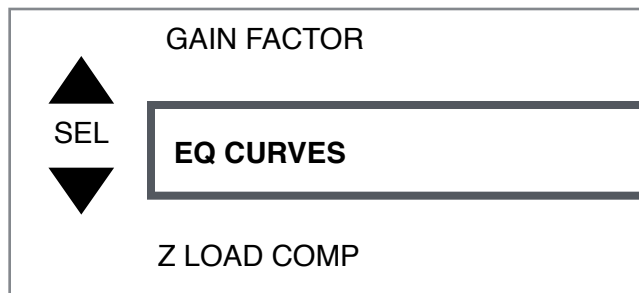
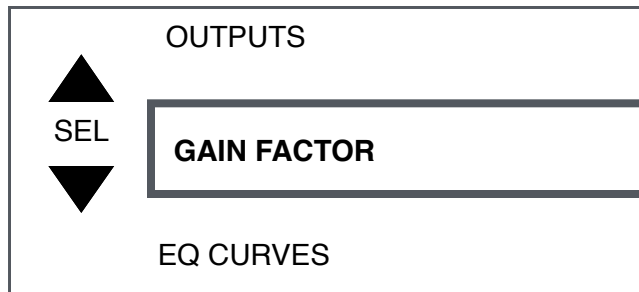
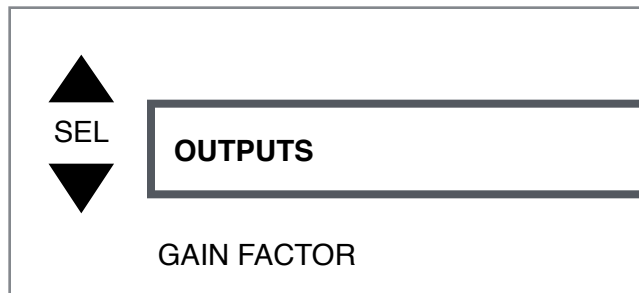
The following shows the unbalanced RCA inputs & outputs as well as the balanced XLR inputs & outputs on the rear panel:

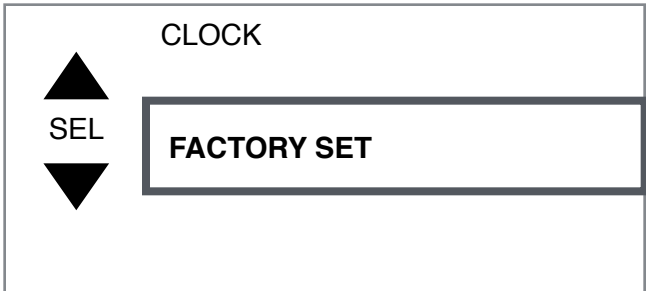
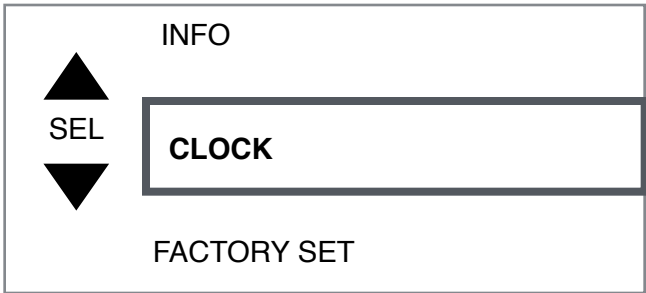
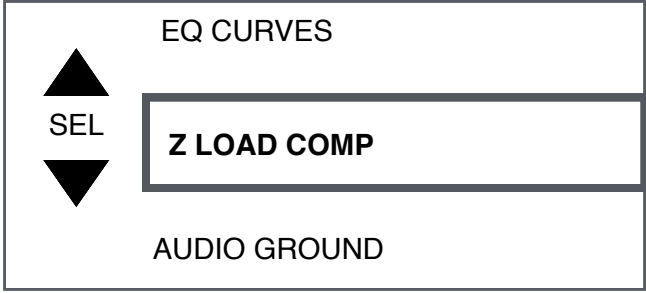


VFD Display Screens & Buttons

SETUP Screens

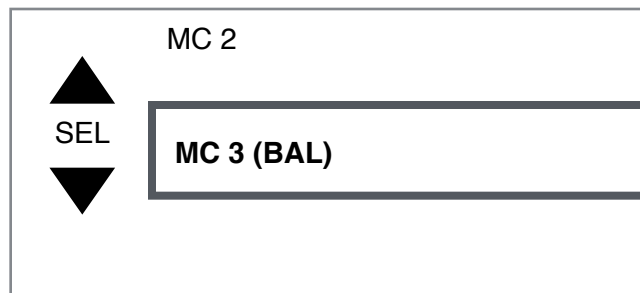
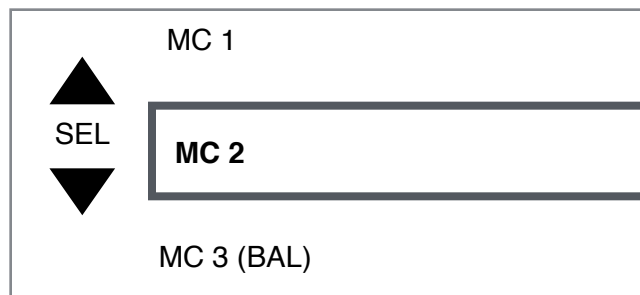
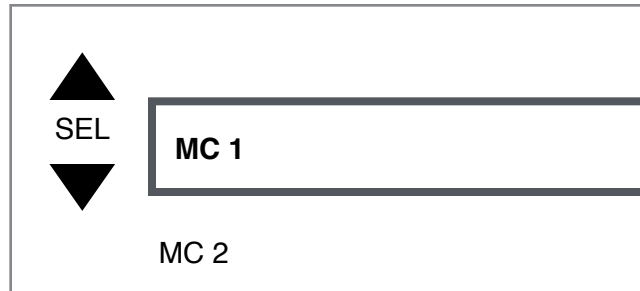
Entering the programming mode of the Phono 1 is achieved by pushing the SETU button and using the dual purpose INPUT buttons to scroll up or down. The Vacuum Florescent Display (VFD) then displays the following screens:





INPUT Buttons

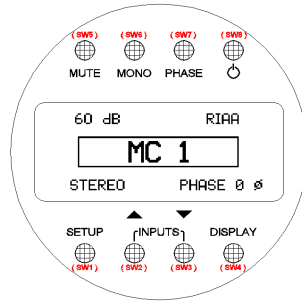
Select the up or down INPUTS button on the front display to move between the following screens which represent the various input selection. MC 1 & MC 2 are both unbalanced single ended RCA inputs. MC 3 (BAL) is balanced XLR input.



Once the appropriate Moving Coil input has been chosen then push the DISPLAY button to enter the choice - or simply let the 5 second default timeout expire - the input in the centre of the screen will be selected automatically.

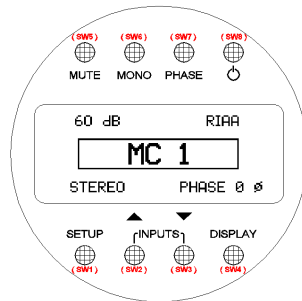
DISPLAY Button

Pushing the DISPLAY button changes the Vacuum Florescent Display (VFD) between Tenor LOGO, MAIN Input Screen (input, RIAA/IEC, stereo/mono,phase) and simply BLANK or turned off. Purists may choose BLANK as digital VFD is turned off completely (after a 5 second time out) following no interaction with the Tenor Phono 1.



MUTE Button

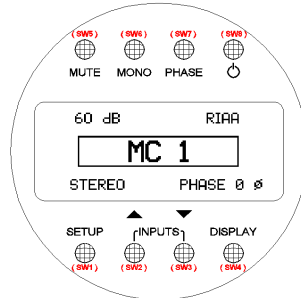
Muting of the output is achieved by pushing the MUTE button of the Phono 1 display when the Tenor Phono 1 is powered on. The display will flash MUTED until the MUTE is pushed again - whereby the mute will be released and the output will operate normally again.



Note: Mute is not a standby in the traditional instrument or PA sense as the Tenor Phono 1 is still fully powered but output is simply muted into your preamplifier. It is not advisable to leave the amplifier in mute when not in use as the tube life will be diminished considerably.

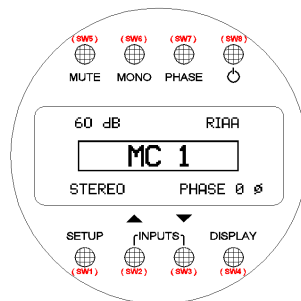
MONO Button

The MONO button provides 2 choices. Pushing the MONO button switches between either STEREO or MONO L+R - which is displayed in the lower left of the main screen:



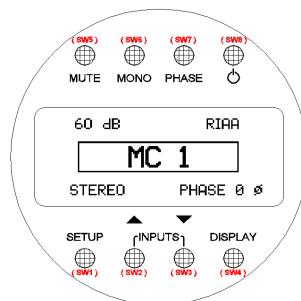
PHASE Button

Pushing the PHASE button changes the absolute phase from 0 degrees to 180 degrees. Most preamplifiers are in fact phase inverting so it is necessary to invert the phase so the speaker output is in phase. This can also be accomplished by reversing the polarity of the speaker wire at the speaker terminals. However, it is also not that uncommon to have out of phase recordings so the PHASE button allows for easy phase reversal.



ON/OFF Button

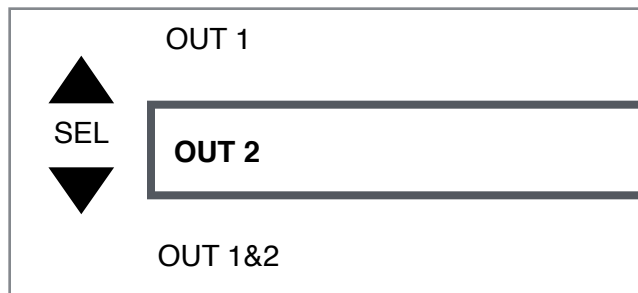
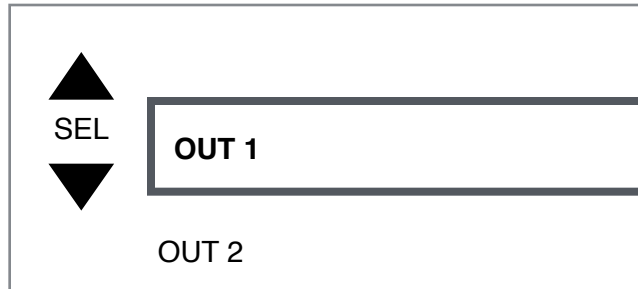
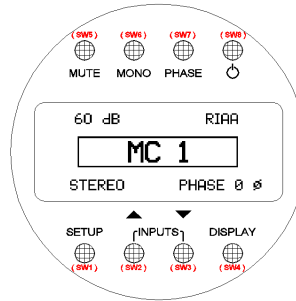
The ON/OFF button turns the Phono 1 ON or OFF when rear power switch in the ON position. If rear switch is in OFF position then the Phono 1 is not powered.

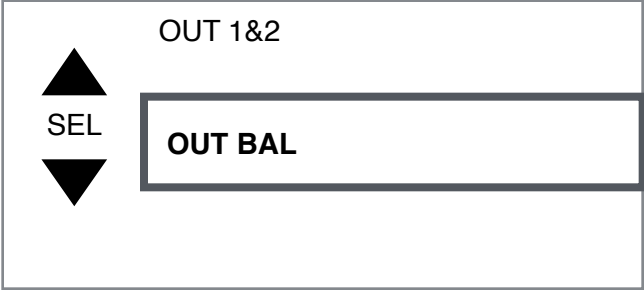
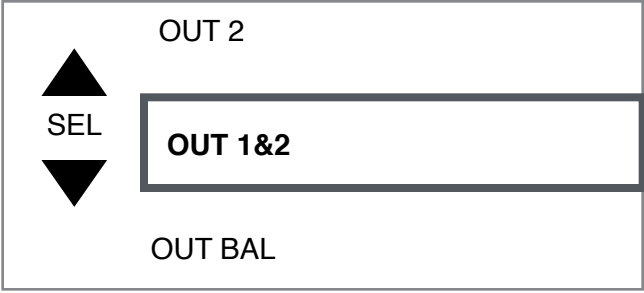


Phono 1 Programming Guide

OUTPUT Selection

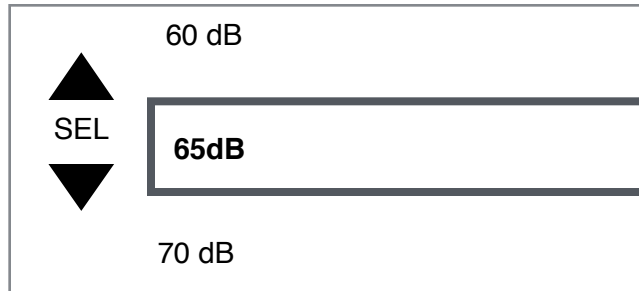
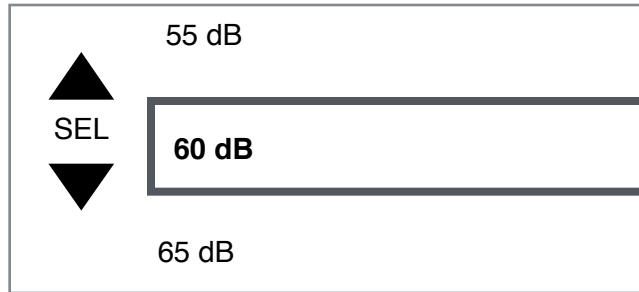
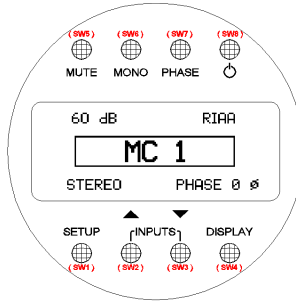
Under SETUP and using INPUT UP & DOWN buttons, choose the OUTPUTS screen by selecting OUTPUTS in the centre box then push the DISPLAY button to enter. OUTPUT 1 & 2 are unbalanced single ended RCA. You can select them individually or combined. OUTPUT BAL is balanced XLR.

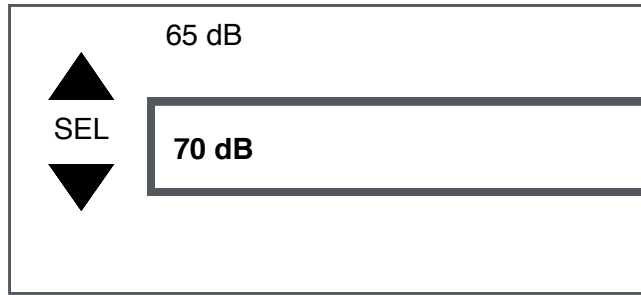




GAIN FACTOR Selection

Under SETUP and using INPUT up and down buttons, choose the GAIN FACTOR option that provides the best gain for your moving cartridge. Typically some experimentation is required between the preamplifier and the phono stage if the preamplifier has an adjustable gain. The Tenor Line 1/Power 1 should be set at HIGH gain but may have to be changed to NORMAL gain depending on the gain selected in the Phono 1. Centre the GAIN FACTOR screen and push DISPLAY button to enter selection.





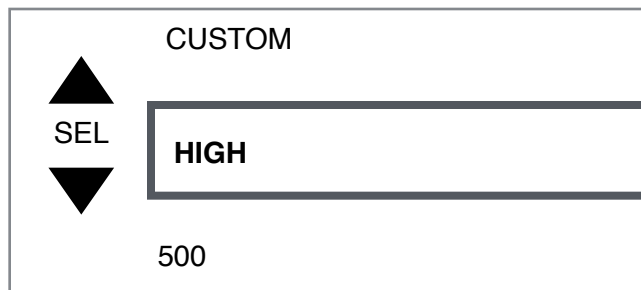
EQ CURVES Selection

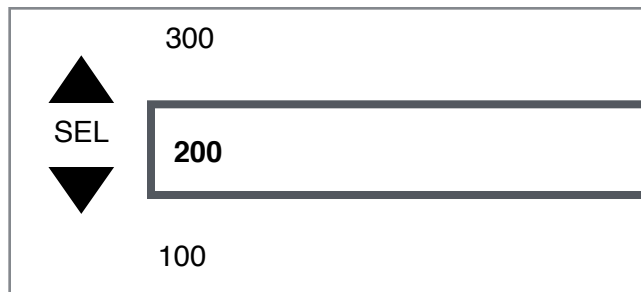
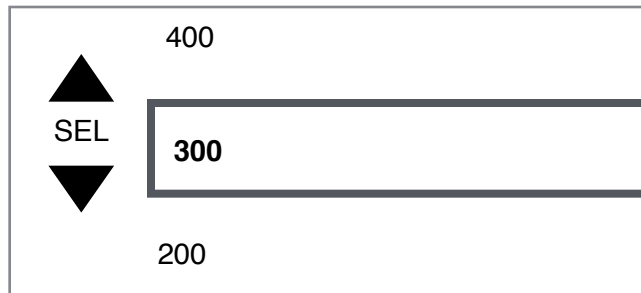
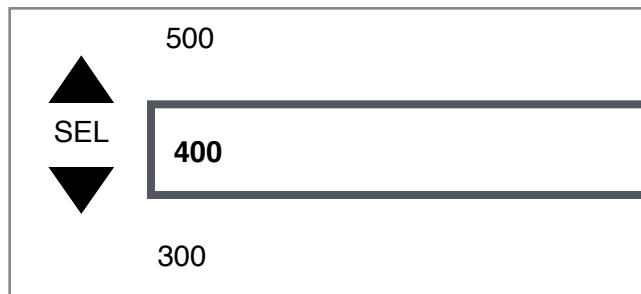
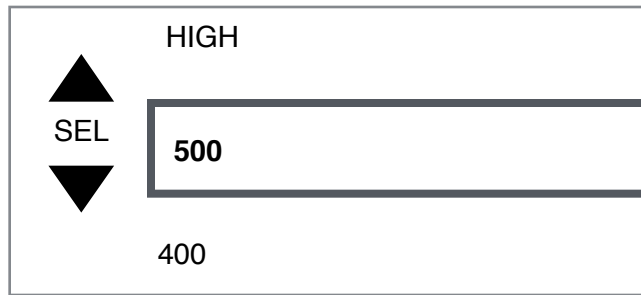
Under SETUP and using INPUT up and down buttons, centre the EQ CURVES screen then push DISPLAY button to enter. Select either RIAA (de facto global standard since 1954) or IEC (RIAA amended in 1972 but not universally adopted) based on your records actual EQ CURVE requirement.



<<Z>> LOAD COMP Selection

Under SETUP and using INPUT up and down buttons, choose the <<Z>> LOAD COMP option to add resistive load as specified by the cartridge manufacturer. Often manufacturers specification for cartridges are simply recommendations so some experimentation is often warranted.



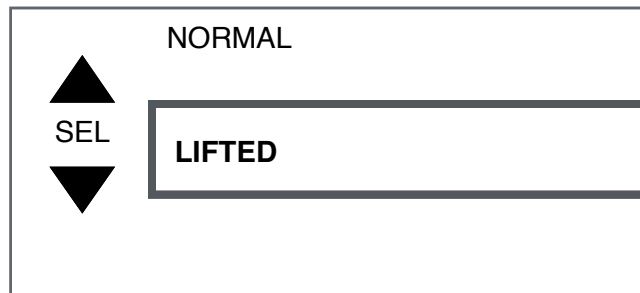
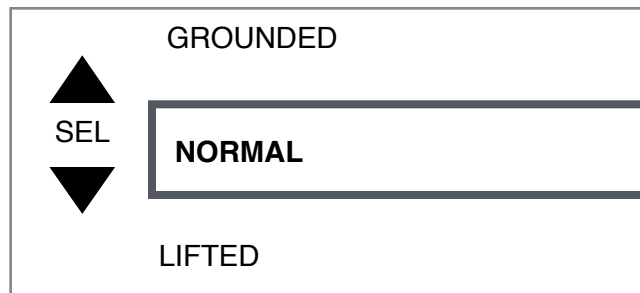


AUDIO GROUND Selection

Ground hum can be a chronic problem on any system using non-Tenor equipment. Generally ground hum is caused by stray voltages being injected into the grounding system by equipment not insulated properly and those stray voltages work their way through other equipment to get to a proper ground and as a result get amplified in the signal path.

The Tenor Phono 1 offers 3 settings for grounding to assist in alleviating ground problems. NORMAL is the audio circuit grounded through a resistor to convert stray voltages into heat and is the best alternative. GROUNDED is direct to ground and LIFTED is isolated from ground. Should ground hum exist from other equipment, try all 3 options to determine the least amount of hum. Should additional action be required, go to the preamplifier and amplifier to try grounding options available with each. The Tenor Line 1/Power 1 and all models of Tenor amplifiers have several similar grounding options available to isolate this problem.

Under SETUP and using INPUT up and down buttons, choose the audio ground option that provides the least amount of ground hum.



INFO Selection

Under SETUP and using INPUT up and down buttons, choose the INFO option to review the following information on the Phono 1.

- Date of Manufacture
- Serial No.
- Firmware
- Firmware Date
- AC Line Voltage
- AC Fuse
- Last Time Used
- Elapsed Time
- Current Time & Date
- Unit Country

Please note that this is read only and only Tenor can alter this data when it is being serviced.

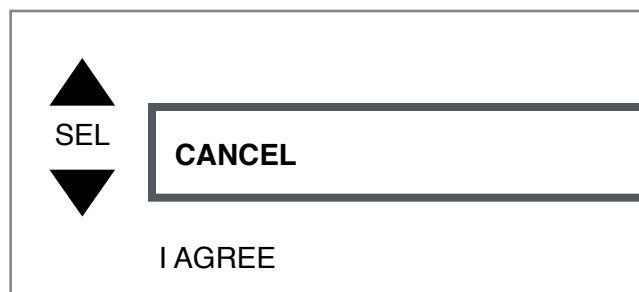
CLOCK Selection

Under SETUP and using INPUT up and down buttons, choose the CLOCK option to enter the following time parameters:

- YEAR
- MONTH
- DAY
- HOUR
- MINUTE
- SECOND
- SETCLOCK

FACTORY SET Selection

Under SETUP and using INPUT up and down buttons, choose the FACTORY SET option to return the Phono 1 to factory settings. Selecting I AGREE enters to new parameters. Select CANCEL to cancel reset.



Troubleshooting Overview

Phono 1 Warnings/Cautions/Fuses/Triggers

Refer to the rear panel of your Phono 1 for Warnings, Cautions, Fuse types and Triggers for powering ON/OFF remotely.



Phono 1 - No Power

Generally when the Phono 1 is plugged into AC Mains and the rear power switch is ON you will see blue lights glowing through the top plate air cutouts. If you do not see these blue lights then you should verify that the the rear power switch is on and that the power cord is firmly seated in the Phono 1 and at the wall. You should double check that the AC power mains receptacle at the wall is functioning properly. When you touch any button your should see the message ON/OFF: PUSH TOP RIGHT BUTTON. Upon seeing that you will also have blue lights inside as mentioned above. Pushing the top right button will initiate the power sequence. Extra fuses are also provided to replace the fuse integrated into the ON/OFF button on the rear panel - should they be needed.

Ground Hum

Ground hum is a common problem when multiple AC mains sources are used. Ideally, all of the source equipment should be plugged into the same circuit so they all share the same grounding characteristics thereby negating your possibility for ground loops and the associated annoying 50 Hz/60 Hz hum. If the source equipment does not share all of the same ground, you could end up with ground loop noise. If you do, please rearrange your AC mains, if possible, to be on a single circuit.

Amplifiers typically have their own grounding which is often different than that of the source equipment. With mono blocks using separate AC mains supplies in addition to your source equipment AC mains, it is probable that you will need to use the ground lifts of the Phono 1/Power1 as well as the ground lifts of your amplifiers.

The Phono 1 has grounding options to remedy a ground loop problem on either balanced or unbalanced connections and are selectable for left, right or both channels. Tenor amplifiers also have sophisticated grounding options available, which can be used to help solve a ground hum problem. Please consult the Phono 1 Programming Operation of this user manual as well as your amplifier manual to resolve any ground hum problems. Do not be concerned about having lifts the same.

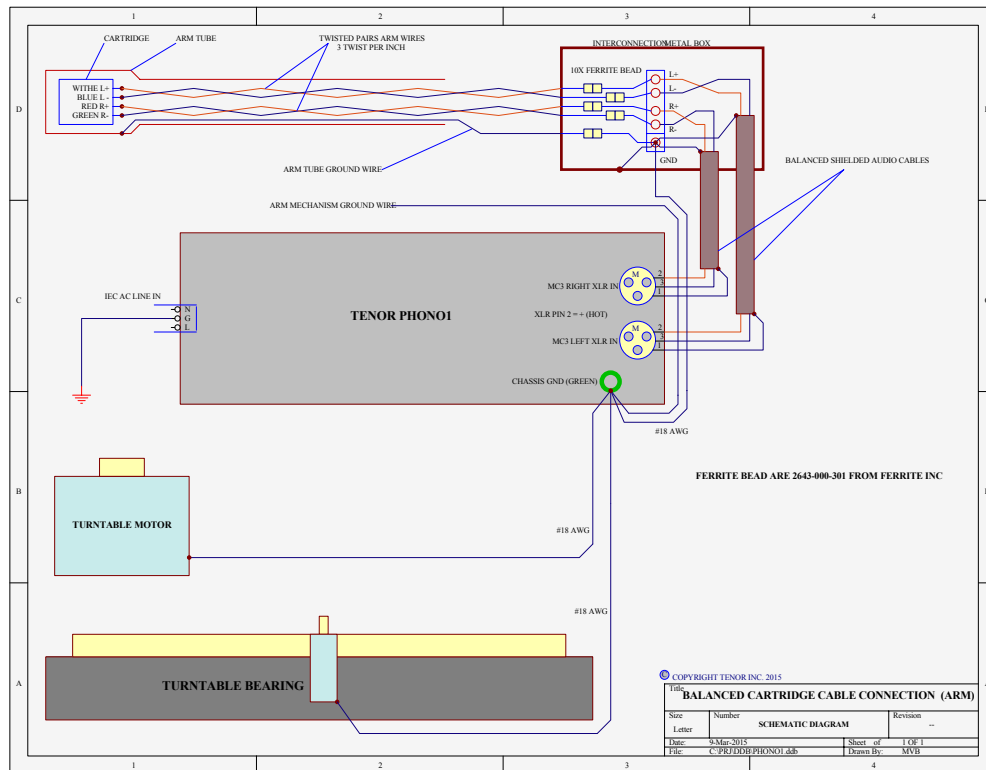
Balanced Moving Coil Cartridge Cable Connection (Arm)

Typically the connection of the Moving Coil Cartridge is unbalanced RCA and in most cases provides exceptional noise and response characteristics.

Balanced connection of a Moving Coil Cartridge to the Balanced XLR input of the Tenor Phono 1 are transformer coupled giving high Common Mode Rejection Ratio (CNRR) for the lowest noise operation and the ultimate in fidelity.

The following is provided to illustrate the typical connection of a Moving Coil Cartridge to the turntable and Tenor 1 phono stage in balanced XLR mode.

Most Moving Coil Cartridges by nature are balanced so one simply needs to know the wiring harness schematic to take full advantage of the low noise floor principles of a balanced connection.



Care and Maintenance

Wood Faceplate and Top Rails

The hand lacquered Wood Faceplate and Top Rails of the Phono 1 require very little maintenance. Should they become marked with fingerprints, a polish used for fine furniture can be used but only if applied to a soft cloth and then rubbed on the wood. Spraying polish directly on the wood may contaminate the electrical components inside and could void the Warranty. Keep out of direct sunlight if at all possible as the cherry wood will darken substantially.

Metal Chassis and Top Plate

The Metal Chassis and Top Plate need very little care other than dusting from time to time. Do not use spray wax or dusting liquid as it may contaminate the electrical components inside and could void your Warranty. Dusting with a soft brush is recommended.

Electrical Connections on Rear Plate

From time to time it is good to disconnect and reconnect your cables at the rear to improve any degradation due to normal electrical oxidization. Make sure your amplifier is turned off when you do this and that you disconnect then reconnect each connector one at a time to avoid any mix up.

Audio Board (Vacuum Tubes)

The Audio Board is home to all of the Vacuum Tubes in the Tenor Phono 1. Every tube is matched and calibrated in the circuit so unless you are specifically directed by Tenor to alter these tubes they should never be touched except by trained Tenor service technicians. Each tube has been selected for its optimum electrical characteristics and the entire circuit has been calibrated for these specific tubes. Any alteration of the tubes may cause the Tenor Phono 1 to be out of specification and any failure as a result would not be covered by Warranty.

Tenor Phono 1 Specifications

Phono stage Type.....	Single Chassis/Dual Mono
EQ Curves.....	Passive RIAA & IEC
RIAA Precision.....	20 Hz - 20KHz +/- 0.1dB
Voltage Gain.....	55dB - 70dB (selectable in 5dB increments)
Rated Input*.....	12V rms Single Ended or Balanced
Maximum Output*.....	25V rms Single Ended or Balanced
Nominal Output@.....	2V rms Single Ended or Balanced
S/N Ratio Reference.....	<-87 dBA @ 70 dB Gain
Channel Separation*.....	<-90dBA
Frequency Response.....	2-100KHz*
Bandwidth Response.....	1-1MHz*
THD + Noise*.....	< 0.02%
Load Impedance.....	100Ω, 200Ω, 300Ω, 400Ω, 500Ω, HIGH, CUSTOM
Output Impedance*.....	10Ω Single Ended / 100Ω Balanced
Global Negative Feedback.....	Zero
Balanced Input Pin Configuration.....	1: Ground, 2: Positive, 3: Negative
Input Tubes (per Channel).....	2 x NOS 8416 & 2 x 6n6p
Soft Start.....	1 Minute 40 Seconds
Sequential Remote Turn On.....	12 V Mini-Phone Plug
Cooling.....	Natural Convection
Microphonic Isolation.....	Suspended Audio Board/Tube Vibration Control
Fuses Phono 1.....	1
Maximum Power Consumption during Operation.....	75 Watts
Maximum Power Consumption during Standby.....	<1 Watt
Supply Voltage Factory Set.....	100 to 250VAC, 50/60 Hz
AC Mains Input.....	15A IEC Detachable Power Cord
Weight Phono 1.....	58.5 lb/26.5 kg
Shipping Weight Phono 1.....	102.5 lb/46.5 kg
Dimensions Phono 1.....	19.5in W x 19.5in D x 9.5in H / 495 mm W x 495mm D x 241mm H
Dimensions Shipping.....	24.5in W x 26.5in D x 12.5in H / 622 mm W x 673mm D x 318mm H

* : @ 120V AC @ 1kHz & 2V rms input

Tenor Inc. reserves the right to make improvements without notice that may result in specification changes

Warranty

Tenor Inc. Canada warrants the Tenor Phono 1 to be free from defects in materials or workmanship for a period of 5 years from the date of the original purchase provided the phono stage is registered with Tenor Inc. Canada within 90 days of the purchase date and there is valid proof of purchase from an authorized Tenor Inc. Canada dealer or distributor. If the Tenor phono stage is not registered within 90 days of the purchase date then the warranty will be limited to only 1 year with a valid proof of purchase from an authorized Tenor Inc. Canada dealer or distributor.

Following the receipt of your registration and upon successful validation that your amplifier has been purchased from an authorized Tenor Inc. Canada dealer or distributor, you will receive a custom plate for mounting on the back of each amplifier which shows the amplifier has been purchased from an authorized dealer or distributor and has been custom made for you. This plate must be affixed to the back of the amplifier for the warranty to be valid. Any Phono 1 phono stage returned to Tenor Inc. Canada without this custom plate affixed will have its Warranty revoked.

Vacuum tubes are guaranteed for 10,000 hours or 5 years from the original purchase date - whichever comes first. If the warranty has not been registered within 90 days then the tubes will only be warranted for 1 year regardless of hours of use.

Should the Tenor Phono 1 be defective during the Warranty period, Tenor Inc. Canada will elect at its sole discretion to either repair or replace the unit free of charge.

Prior Authorization and a Return Authorization Number (RAN) are mandatory for Tenor Inc. Canada to undertake any service under the aforementioned Warranty.

Transportation costs and insurance costs for shipment to/from Tenor Inc.'s Canadian Service Facility for Warranty repair are the responsibility of the owner.

The use of Vacuum tubes not supplied by Tenor Inc. Canada will void the Warranty.

Attempting to repair or modify Tenor Phono 1 phono stage will void the Warranty.

Missing or altered serial numbers automatically void the Warranty.

Product Registration

To ensure your amplifier is covered by the Tenor Inc. Canada 5 year warranty, it is mandatory that you register with Tenor Inc. Canada by mail or email within 90 days of purchase and provide us with all of the following information:

Model Number: _____

Serial Number of Phono 1: _____

Date of Purchase: _____

Dealer and/or Distributor's Trade Name & Contact Name:

Dealer and/or Distributor's Phone Number: _____

Dealer and/or Distributor's Email Address: _____

Dealer and/or Distributor's Address:

Your Name (will be engraved on custom plate):

Your Phone Number: _____

Your Email Address: _____

Your Address:

Failure to provide any of the above information will void your warranty registration.

Tenor Contact Information

Before returning your amplifier to Tenor Inc. Canada, it is necessary to receive a Return Authorization Number (RAN) as stated in Warranty Conditions.

A RAN will be issued by contacting Tenor Inc. Canada and describing the nature of your service request using either email or phone as follows:

Tenor Inc. Canada Service Email: service@tenoraudio.com

Tenor Inc. Canada Service Phone Number: 705 717 1705

Once you have received a RAN, you can ship your phono stages to the following address with the RAN marked clearly on the outside of the shipping cases (Please note that shipping costs and insurance door to door including customs are the responsibility of the shipper):

Tenor Inc.
1001 Lenoir, Suite A-209
Montreal, PQ,
Canada, H4C 2Z6

Phone Number is 514 933-6035

Other contact information is as follows:

Web Site is: www.tenoraudio.com

Sales Email: sales@tenoraudio.com

Owner's Notes