

# THÖRESS

## *Parametric Phono Equalizer Series*



### INSTRUCTION MANUAL

Thank you for purchasing a phono preamplifier from our Parametric Phono Equalizer Series. This exceptionally versatile tube phono equalizer ("Entzerrer") hand-made in Germany allows vinyl playback using the complete variety of phono equalization curves, and provides subtle tone control facilities to compensate for sound degrading artifacts which may have been introduced during the recording or the cutting process of a given record. Thanks to the extremely versatile tone control facilities, the Enhancer will allow you to listen much more deeply into the grooves of any kind of record than with a common phono preamplifier restricted to RIAA de-emphasis, while offering the utmost refinement in sonic presentation. This unique state-of-the-art device will easily measure up to the expectations of even the most critical and experienced music enthusiast or professional user.

#### INPUTS AND VERSIONS

Our Parametric Phono Equalizer is available in 5 versions to suit all kinds of stereophonic and monophonic cartridges in terms of input sensitivity (gain) and load. Each version provides six inputs labelled with P1 to P6. One version is dedicated to mono reproduction only. In addition to the tone control function provided by the stereophonic versions, the mono model is specifically designed to also cover all possible de-emphasis curves associated with 78 rpm records. Note that the version 3, 4 and 5 allow to "mix" two different cartridge types without precautions, a feature that is not available with our Full Function Preamp. The stereophonic versions are as follows:

Version 1:

This version provides exceptionally high phono stage gain and customizable cartridge loading so that the inputs P1 to P6 are suitable for low-output MC cartridges. Cartridge loading is achieved by means of standard axial lead resistors soldered to tags adjacent to the phono jacks. See the relevant chapter for more details on this topic.

Version 2:

Here all six inputs P1 to P6 provide medium gain suitable for medium-output MC or MI cartridges. Each input is loaded at 47K.

Version 3:

P1 to P5 are high gain inputs suitable for low-output MC cartridges with customizable cartridge loading, while P6 is a medium gain input loaded at 47K to suit medium output MC or MI cartridges. This version is probably the most suitable for the all-round music lover.

Version 4:

P1 is a high gain input for low-output MC cartridges with customizable cartridge loading. The remaining five inputs P2 to P6 are medium-gain inputs loaded at 47K to suit medium-output MC or MI cartridges.

On any (stereo) input suitable for low-output MC cartridges, a dual-coil low-output dedicated mono MC cartridge can be used without restriction. Examples of this kind of cartridges and detailed explanations concerning phono cartridges and vinyl reproduction in general can be found in the relevant chapter below.

**It is possible to mix stereophonic and dual-coil dedicated mono low-output MC cartridges on any of the (stereophonic) high gain phono inputs of version 1 and 3 of the Enhancer without further adaptations.**

However, if a single-coil low-output (mono) MC cartridge is to be used on a stereophonic (high gain) phono input and it is intended to implement dual-speaker mono, precautions must be taken to "double" the mono signal in such way as to avoid hum. Please see the relevant chapter below for more details on using such cartridges. Single-coil low-output MC cartridges are currently made by Miyajima Lab Japan, all models of which are monoflexible. It should be pointed out, that any omniflexible dedicated (microgroove) mono cartridge is able to read out stereo grooves (without harming the grooves) and is able to convert the separated signals from the two channels (coded into one single groove) back into a consistent mono signal. Interestingly, the "monophonized" version of a stereophonic record obtained by tracking this particular record with a high grade omniflexible mono cartridge can sound very appealing. Of course, MC cartridges may be used on any medium-gain input of version 2 to 4 with the aid of an external step-up transformer. Moreover, these medium-gain inputs are particularly suitable for ordinary MM cartridges as they present a 47K load.

Besides these stereophonic versions the Enhancer can be ordered in a fifth version dedicated to mono reproduction only as follows.

#### THE SINGLE CHANNEL TRUE MONO VERSION

Though only one single channel can be processed with this version of the enhancer, each of the six inputs P1 to P6 is fitted with two individual jacks to allow for the use of conventional stereophonic tonearm cables. The respective active jack of each pair of input jacks is marked red. The output is wired to a pair of jacks connected in parallel to conveniently double the mono signal at this point for dual-speaker-mono-listening.

**Please Note that the Single Channel Mono Enhancer is designed to cover all possible de-emphasis curves associated with 78 rpm records, in addition to the tone control functions provided by the stereophonic versions.**

Three high gain inputs P1, P2 and P3 suitable for cartridges of low-output MC type are provided (and allow for customizable loading). Any modern omniflexible low-output

dual-coil dedicated mono MC cartridge can be used on these inputs without restrictions. Indeed, even a common stereophonic low-output MC cartridge can be successfully "abused" for mono reproduction by using these inputs in view of the general remarks on cartridges made below. In both cases only one coil of the MC generator will be effectively used for amplification, the other coil being merely "parked" on the corresponding inactive jack, and thus receiving the correct loading and proper ground connection to shield the corresponding leads of the tonearm cable. Of course "vintage style" monoflexible single-coil low-output (dedicated mono) MC cartridges such as the Miyajima Lab Premium Mono can be used equally well on these inputs, in which case it is advisable to use only the right-hot and right-ground leads of the (stereophonic) tonearm cable for wiring the cartridge to the active input jack (marked red), whereas left-hot and left-ground should left disconnected in the headshell.

The remaining three inputs P3, P4 and P5 of the Mono Enhancer provide medium gain to suit medium-output MC or MI cartridges and are particularly suitable for ordinary MM cartridges as they present a 47K load to the cartridge. Examples of such cartridges are:

EMT TMD25 (1.05mV - omniflexible - still in production),  
Ortofon Mono CG25 (1.5mV – monoflexible) or Mono CG65 (1.5mV - 78 rpm),  
Ortofon Mono GM MKII (3mV – still in production – omniflexible),  
Audio Technica AT65 MM (4mV - 78 rpm records).

Again, common stereophonic medium-output MC or MI cartridges can be "abused" for mono reproduction (only one coil of the MC generator effectively used for amplification) in view of the general remarks on cartridges made below.

## STEREOPHONIC AND MONOPHONIC CARTRIDGES

Early microgroove records carry a mono signal written into laterally excited triangular spiral grooves of constant depth. It is well known that, by contrast, the grooves of later Stereo records had two signals more or less sharply separated from each other coded laterally and vertically into the groove while also varying the depth of the groove relative to the record surface. Thus:

**In order to faithfully read stereo grooves the cartridge needs to be fitted with an omniflexible stylus, which is one with compliance in all directions !**

The early microgrooves were originally meant to be tracked by spherical sapphire or diamond tips with 25 microns tip radius mounted to a monoflexible very low compliance cantilever exciting a piezoelectric, moving coil or other type of electric generator built into a cartridge. A monoflexible stylus has (near) zero vertical compliance and is therefore suitable for tracking mono grooves only. If one of these cartridges ("pick-up heads") are accidentally used on a stereophonic record, it will instantly destroy its grooves.

**Be warned - monoflexible cartridges can seriously harm stereo grooves !**

Well known examples of high grade monoflexibl single-coil MC cartridges are the classic Ortofon Mono CG25 (1.5mV) and the EMT model OMD25 (currently went out of production). These cartridges will be an obvious choice, when the aim is to build a vintage Hi-Fi setup for "authentic" mono playback, but they cause excessive record and stylus wear due to their spherical diamond profiles (especially when combined with vintage tonearms without anti-skating devices) and tracking weight in excess of 4 grams. Their use is therefore questionable when maximum sound quality and preservation of valuable records is the main goal. Nevertheless the sonic presentation of these old style cartridges is amazingly good (even when judged by today's standards) and are admittedly in a certain way quite appropriate for mono reproduction - at least as long as a tone control device such as our Enhancer is out of reach. The dedicated mono cartridge series made by Miyajima Lab Japan are examples of recently developed devices of the above kind.

Stereophonic grooves are mono compatible in a threefold sense. First, a stereophonic cutting head produces a laterally excited groove of constant depth when fed by identical signals on both channels. Compared to the later "second-generation microgroove" standard, this groove is slightly narrower than the older microgroove spiral. The groove standards for the "narrow" second-generation microgroove records specify 17 microns for the tip radius of a spherical diamond for tracking.

Since then more elaborate diamond profiles (elliptical, bi-elliptical (Shibata), line contact, micro ridge, paratrace, Gyger, van-den-Hul etc.) have been developed from the simple 17 micron spherical tip in order to reduce tracking distortion and improve tracking ability, especially at the upper end of the audio band, all of which more or less replicate the sharp spike of a record cutting head. These new profiles also greatly reduce record and stylus wear (whilst lowering tracking weight) by increasing the contact area between the diamond spike and the groove walls. Of course these diamond tips are much more difficult to produce and need to be fitted onto the cantilever with great precision. But cartridges employing such elaborated diamond tips in general have a more focused, fluent and more detailed sonic presentation than cartridges with simple spherical diamonds.

Secondly, stereophonic grooves are mono compatible in the sense that any omniflexible dedicated microgroove mono cartridge is able to read the stereo grooves (without groove damage) and convert the separated signals from the two channels (coded laterally AND vertically into the stereo groove) back into a consistent mono signal. Hereby only lateral movements of the stylus will be converted into audio output. Finally, any stereophonic cartridge is able to read both early and second-generation monophonic microgrooves faithfully and will output two identical signals on both channels - although its omniflexible stylus will "experience" only lateral movements within the mono groove (except for vertical groove imperfections warp, damage or groove dirt) which will enter the signal as additional groove noise and/or subsonic artifacts. The following general comments regarding the relation between groove type and stylus tip radius apply to all cartridge types:

**Any omniflexible cartridge tipped with a 25 micron spherical diamond is able to faithfully track narrow second-generation microgrooves (possibly with reduced tracking ability), though this type of diamond tip was originally intended to be used for tracking early microgrooves.**

**A cartridge tipped with a 17 micron spherical diamond (or one of its derivatives) is able to faithfully track early microgrooves (theoretically with increased tracking ability), though this type of diamond tip was originally intended to be used to track second-generation microgrooves.**

**A common high class stereophonic cartridge using a stylus with a modern profile is most suitable for faithful mono reproduction of both early and second-generation microgroove mono records, and will be very likely to be sonically superior to a dedicated mono cartridge which utilizes only a simple 25 or 17 micron spherical diamond (despite the fact this seems not to be generally accepted !). However, it will tend to produce slightly more groove noise than a dedicated mono cartridge.**

The majority of currently produced dedicated mono cartridges are of the moving coil type, carry omniflexible styluses and possess a dual-coil mono generator assembly. Some of them tipped with 25 micron or 17 micron spherical diamonds while others are fitted with more elaborate diamond profiles such as line contact or micro ridge. In fact, the finest dedicated mono cartridges are derivatives of high grade stereophonic low-output moving coil cartridges and differ in their internal construction from the corresponding stereophonic variants only in that the generator coils are arranged in parallel to the record surface to suit lateral-monaural reading. (In rare cases, these cartridges have, in addition, decreased compliance in the vertical direction). This is to ensure that the signal can be kept free of disturbances due to (unwanted) residual vertical stylus movements, with a reduction in effective groove noise as a welcome side effect.

**The signal generator of a dedicated mono cartridge ignores residual vertical stylus movements and it is mainly this feature which makes a dedicated mono cartridge to be preferred over a stereo cartridge for mono reproduction, providing both units are state-of-the-art devices.**

Examples of omniflexible dual-coil dedicated mono MC cartridges are:  
Audio Technica AT33-Mono (0.35mV),  
Lyra Dorian Mono (0.25mV), Lyra Helikon Mono (0.25mV),  
Dynavector DV-1s-Mono (0.25mV).

**Where cost is not an issue, the Dynavector and the Lyra are the best choices and thus highly recommended to ensure that full benefits are gained from our Enhancer. Recall, these devices can be used on high gain inputs of any version (including the stereophonic versions) of the Enhancer without further adaptation, as they feature dual-coil designs.**

## 78 rpm RECORDS

The groove coding of 78 rpm records is similar to the coding on early microgrooves (laterally excited triangular spiral grooves of a constant depth) except that the corresponding grooves (called normal grooves) are considerably wider than early or second-generation microgrooves and (the last-generation of) 78 rpm records should be tracked with cartridges like the Ortofon Mono CG65 or with low cost (stereophonic) MM cartridges (re)tipped with spherical diamonds with a tip radius as large as 65 microns (the Audio Technica AT65 for instance).

## INPUTS, OUTPUTS AND CARTRIDGE LOADING

Each high gain input of the Enhancer, suitable for low-output MC cartridges, allows for customized cartridge loading by means of (standard axial leads) resistors soldered to tags adjacent to the phono jacks. These values are factory preset to 100 Ohms, a value that is suitable for most low impedance low-output MC cartridges. Other resistor values can be preset on request, and these values can be changed by the user whenever it is required.

**Please note that the factory preset MC load resistor values are printed on the rim of the rear panel for reference.**

Importantly, the output resistance of the Enhancer is low enough to drive long interconnect cables and power amplifiers with input impedances as low as 10,000 ohms without compromising sound quality. Moreover, enough amplification is provided by the Enhancer to drive our F2A11 Integrated Amp directly (without additional line amplification) - provided the speaker efficiency is sufficiently high and the cartridges used on any MC or MM level input outputs of more than 0.25mV or 1mV respectively.

**Providing the speaker efficiency is sufficiently high and cartridges with reasonably high output have been chosen, the Enhancer is able to drive our F2A11 Integrated Amp without additional line amplification !**

**Please note that any stereophonic version of the Enhancer can be equipped with three output jacks for the right channel to allow for proper signal doubling, as described below, if a single-coil (mono) cartridge is used on a stereophonic phono input for dual-speaker mono reproduction.**

## USING SINGLE-COIL (MONO) CARTRIDGES ON STEREOPHONIC EQUIPMENT

When both inputs of a stereophonic phono preamplifier are wired to a single-coil generator cartridge in attempt to create signal doubling for dual-speaker mono listening, it is impossible to avoid a conductive connection between "left ground" and "right ground" of the preamplifier and, as a result, unwanted hum ground loops are formed.

**Single-coil (mono) cartridges will cause residual hum due to ground loops when they are wired to feed both inputs of a stereophonic preamplifier (with non-symmetrical circuitry) so as to double the signal for dual-speaker-mono listening !**

To overcome this problem, the stereophonic versions of the Enhancer can be equipped with three paralleled output jacks for the right channel on request. This allows signal doubling at the point of output rather than attempting to accomplish this earlier in the signal path. This is achieved in the following manner:

One of the three paralleled output jacks forms a stereophonic pair with the jack for the left channel output and can be connected in the usual manner to a stereophonic input. Use the remaining two jacks of the paralleled triple to connect the right channel of the Enhancer to the right and to the left channel of an extra line input (reserved for playing single-coil cartridges). If this particular line input is selected, a doubled signal will obviously be obtained in the system. Such are the adaptations necessary on the outputs of the enhancer to bring the system into dual-speaker-mono mode.

**Note, a doubled version of the right channel rather than a proper stereophonic signal will be reproduced by the system in dual-speaker-mono mode if a stereophonic source is (accidentally) switched active.**

The adjustments required to creating a dedicated single-coil input on the Enhancer itself are as follows. On this particular input only the right channel should be fed by the (single-coil) cartridge via a customized monophonic tonearm cable, while the inactive left input should be short circuited directly at the jack with the help of a RCA plug internally soldered to suit this purpose. If a monophonic tonearm cable is not at hand, a conventional stereophonic tonearm cable can be used equally well (with both plugs inserted into the respective jacks), in which case shorting the inactive left input can be conveniently accomplished at the very end of the left lead of the tonearm cable by shorting the respective "left hot" and "left ground" pins of the headshell. If the tonearm is equipped with free leads the desired conductive connection can be easily formed by taping the ends of the respective tonearm leads firmly together.

These comments apply in particular to omniflexible single-coil mono MC cartridges such as the Denon DL102 or the Ortofon Mono-GM. The DL102 was especially designed to convert stereophonic records into mono for medium wave broadcasting and employs a true lateral mono generator, whereas the Mono-GM seems to be merely a pseudo-mono cartridge in the sense that it has the coils of a SPU style stereo generator internally wired to form a single-coil with its two leads soldered to two pairs of paralleled terminals. This observation holds for all MM cartridges claimed to be monophonic, such as the Ortofon OM10-Mono.

## SETUP

To set up the preamplifier, proceed as follows:

1. Do not connect the Enhancer to the mains. Remove the top plate from the amplifier case and place all tubes into their sockets very carefully. Note, the tube heaters of the tubes are connected in series and fed from a constant current source. Thus, none of the tubes will glow/operate unless all tubes have been installed into their respective sockets to form a "closed chain". Take care to tighten the screws properly when closing the amplifier case to ensure a conductive connection of the plate to the case, as:

**Improper grounding of the top (or bottom) plate may result in hum !**

2. Set the main power switch (adjacent to the power inlet) to the ON position.

**It is advisable to power off the phono preamp at the power inlet mains switch when the unit will not be used for a certain period of time !**

Prior to placing the Phono Enhancer into its final position in the rack, shelf or platform (further advice concerning preamplifier placement will be given below), bring the ground lift switch to position "1" in order to ground the preamplifier. To overcome hum due to ground loops which typically occur when more than one amplifier within the system has an internal (or external) connection of the circuit zero to mains ground it may be necessary to interrupt this ground connection. This can be done by setting the ground lift switch to the "0" position.

**Use the ground lift switch to overcome hum due to ground loops !**

3. Switch off all amplifiers and other powered devices which are part of the setup.  
4. Make sure that the front power switch of the preamplifier is in the "Aus" (off) position and all tone control knobs rest in the RIAA position.  
5. Now bring the Enhancer into its final position and connect all the cartridges you want to use to suitable phono inputs. Do not forget to connect the ground leads of the respective tonearm cables to one of the ground terminals adjacent to the phono jacks. Detailed explanations concerning phono cartridges can be found above.  
6. Connect the output of the Enhancer to the input of the line or integrated amplifier that is to be used. Note that, any stereophonic version of the Enhancer can be equipped with three output jacks for the right channel to allow for proper signal doubling (in the way described in the relevant chapter) if a single-coil (mono) cartridge is to be used on a stereophonic phono input for dual-speaker mono listening.

**If our Full Function Preamplifier is used for line amplification it is advisable to connect the Enhancer to the input HP (rather than to CD1 or CD2) for optimal sonic results !**

7. Now the phono preamp can be connected to the mains and switched on.



8. Next power up the line amp.
9. Finally, after a delay of about one minute, the power amp(s) can be switched on.
10. Now enjoy listening to records and use the tone control knobs by following the instructions given below to enhance the sound whenever this is felt necessary.

**Always switch on the preamplifiers first, then switch on the power amp(s) with a delay of not less than one minute !**

**Never switch the preamplifiers on or off when the power amplifier is powered on.**

**When powering off the system, always switch off the power amplifier(s) first, then switch off the line and phono preamplifiers observing a delay of not less than 30 seconds.**

**Never switch on the preamplifier unless all tubes have been placed into their sockets.**

**Never pull a tube out of its socket while the preamplifier is switched on.**

### TONE CONTROL

The tone control features of the Enhancer allow adjustment of the de-emphasis curve parameters within wide limits via 3 rotary switches for the bass, the mid-bass and the treble region of the audio band respectively. As a result, very effective tone control facilities can be obtained without the use of any additional clumsy conventional tone control circuitry, in accordance with our puristic approach. In practice, these extremely versatile tone controls prove to have a much stronger impact in restoring a satisfactory overall tonal balance of a given record than simply adjusting the phono de-emphasis to suit the record company and the vintage of the record. It is well known that tone control is especially beneficial for the reproduction of early monophonic records. Interestingly, most early stereophonic records and even poorly produced modern records also gain considerably from these features.

To determine which "tone control pattern" provides the most satisfactory tonal balance for a given record, proceed as follows:

#### 1. Getting the mid-bass de-emphasis parameter right

Listen carefully for a while to the record with all tone control knobs in the RIAA position. If a certain sharpness in the sonic presentation can be observed, the "Bass-Mittelton" (mid-bass) knob should be set to a lower position. Lowering the position of this knob will give the sound a smoother and warmer characteristic. On the other hand, switching this knob upwards will increase the sonic presence until the sharpest and most vivid characteristic will be reached in the RIAA position. In all stereophonic versions of the Enhancer 6 positions are allowed for this knob.

**Determining the optimal position for the mid-bass knob is a crucial part of the sound enhancing procedure.**

In the Single Channel Mono Version of our Phono Enhancer 6 additional positions are provided for this knob (thus 12 positions in total) to also cover all de-emphasis curves for 78 rpm records - each of which has a sharper sound characteristic than the RIAA position. The majority of 78 rpm records have been cut without treble emphasis and thus will be likely to sound best with the treble switch in the "flach" (flat) position.

2. Adjusting the bass knob

Lowering the position of this knob will initiate subtle bass boosting and will accordingly give the sound more volume and impact and will help to smooth out any sharpness possibly left in the sound image after step one has been taken. This effect will be more pronounced the lower the chosen position of the mid-bass knob. Thus a record which is very thin sounding with knobs in the RIAA position will likely sound more appealing when both the mid-bass and the bass knob are set to low positions. As early monophonic and stereophonic records were often cut heavily at the low end of the audio band, this bass boosting facility is very effective in restoring the original sound image of an old recording session.

3. Using the treble knob

Finally, attention should be directed to the knob labelled "Höhen" (treble). This knob acts in a very similar manner as the treble knob of a conventional "bass-and-treble" tone control, but its effect is much more subtle. Turning this knob clockwise upwards will, step by step, make the sound brighter, until the brightest presentation will be reached in the "flat" position. The RIAA position is associated with the darkest sound. The majority of early mono records (especially those with a classical music programme) suffer from severe treble cut and will strongly benefit from this treble boost facility thanks to the outstanding way it is implemented in our Phono Enhancer. It should be noted again that the majority of 78 rpm records have been cut without treble emphasis and thus will likely sound best with the treble switch in position "flach" (flat). Also, it is not at all uncommon that many very early microgroove mono records will sound just right with the treble knob in the "flat" position as well. Unfortunately, as an unwanted side effect of treble boosting, groove noise may become more clearly audible and sound quality must occasionally be sacrificed to a certain degree in order to keep the groove noise floor at an acceptable level (especially when the record in question is in very poor condition). In view of this observation...

**Record cleaning should be considered as a crucial activity for all lovers of early vinyl who wish to obtain the full benefits from the Phono Enhancer.**

Accordingly, some hints regarding effective record cleaning are given at the end of the manual.

#### 4. Record the final knob settings

After all three adjustment steps have been taken, the knob positions established so far should be recorded as a temporary result. These settings should now be critically checked and reconsidered by switching the tone control knobs one or two steps upwards and downwards from the previous optimum and by reevaluating the corresponding sound images. Once a final decision upon the optimal knob settings has been made, the result might be written on the inner record sleeve for reference.

#### AMPLIFIER PLACEMENT AND HUM

It should be pointed out that...

**Thanks to an outstanding circuit topology, amplification of the phono signal is purely active without the aid of step-up transformers on any input of any version.**

The Phono Enhancer is consequently an extremely sensitive device. Much care has been taken in arranging each aspect of the internal construction, including wiring techniques, to achieve an extraordinary signal-to-noise ratio, even though the power transformer is built-in. However, stray electro-magnetic fields produced by the power transformers of other electronic devices positioned in the vicinity of the preamplifier may introduce hum into the phono preamplifier and can seriously deteriorate the signal-to-noise performance.

**Power transformers of other electronic devices positioned in the vicinity of the preamplifier can seriously deteriorate the signal-to-noise performance by introducing hum.**

Therefore, the preamplifier needs careful and considered placement for optimal performance.

#### TURNTABLE DECOUPLING AND LOW-END CUT-OFF FREQUENCY

Coupling capacitor values between the amplifier stages of our Phono Enhancer have been carefully chosen to give a very low cut-off frequency so as not to compromise frequency and phase response at the low end of the audio band, whilst providing a certain amount of attenuation of subsonic artifacts. Considering the puristic concept of the preamplifier circuitry, the use of (steep) active subsonic filters cannot be tolerated. Therefore, care is needed to avoid unwanted subsonic frequencies from entering the signal if, for instance, the turntable is poorly decoupled from the rack and/or there is a mismatch between the tonearm and the phono cartridge (i.e. if the resonant frequency is too low).

#### TUBE QUALITY AND SIGNAL-TO-NOISE RATIO

The Enhancer is equipped with “new old stock” tubes carefully tested to meet tight specifications, They are hand-picked for low microphony and low noise. The Stereo versions of the Enhancer are equipped with five tubes, one PCC88, two 12SN7GT and

two PC86, whereas in the single channel mono version one PCC88 one 12SN7GT and one PC86 are in service. The use of tubes with questionable parameters or of low-quality will lead to inferior sound quality and/or a decreased signal-to-noise ratio (i.e. increased pink-noise and higher sensitivity to microphony). In extreme cases, damage within the circuit may occur ! It is therefore strongly advised to use only the carefully tested tubes supplied by the manufacturer. When the amplifier is to be equipped with “fresh” tubes, proceed as follows:

1. Carefully clean the tube pins with a dry brush.
2. Spray a few drops of highly viscous oil (such as Ballistol) on a cotton-tip.
3. Then use the tip to apply a thin oil film onto the contact pins.

Tubes handled this way will move in and out of the sockets more easily and will help to increase the life expectancy of the tube sockets.

**The use of tubes of questionable quality may lead to an inferior signal-to-noise ratio and degraded sound quality.**

**Always remove all tubes from their sockets and put them in their original transport box before shipping or transporting the amplifier.**

**Never switch on the preamplifier until all tubes have been placed into their sockets. Never pull a tube out of its socket while the preamplifier is switched on.**

**Never pull a tube out of its socket while it is still hot.**

#### POWER INLET AND FUSE

The THÖRESS Phono Enhancer draws a current of 0.7 or 0.35 amperes from the 120 or 230 volt mains respectively. It is equipped with exactly one fuse rated at 1/0.5 amperes, located in the fuse-case next to the power inlet. Occasionally, the fuse may blow at the moment the amplifier is switched on, due to the current spikes drawn by the power transformer in this instant. Should this problem arise more regularly it may be advisable to use a fuse with slightly higher current rating. However, if fuses with larger current ratings still blow regularly the amplifier should be returned to the factory for inspection.

**It is advisable to power off the phono preamp at the power inlet mains switch when the unit will not be used for a certain period of time !**

#### A NOTE ON EFFECTIVE RECORD CLEANING

It has been pointed out earlier that as an unwanted side effect of treble boosting often necessary to enhance the sound of monophonic records, groove noise may become more clearly audible. To counter this unwanted side effect, thorough record cleaning becomes far more important for any vinyl lover wishing to exploit the full benefits to be gained from using our Phono Enhancer.

At the THÖRESS factory we clean records by letting them rotate (at 1 rpm) in the tank of an industrial grade ultrasonic cleaner filled with demineralized water and a few drops of concentrated dish cleaning liquid for at least half an hour. For best results it is advisable to use a cleaner with an integrated heater programmed for 45 degrees Celsius. After this procedure, the records are vacuumed on a conventional record cleaning machine such as the Nitty Gritty. The gifted DIY hobbyist will be able to build the device needed for rotating (up to 3) records through the cleaner bath with the aid of a barbecue motor. Our cleaning method will be found far superior to any other conventional cleaning method. Any residual groove noise still experienced with records treated in this way will be due to imperfections of the grooves and not to groove dirt. Do not hesitate to email us if you require more details regarding this cleaning method.



# THÖRESS...

*A Tribute to Professional Equipment from  
the Golden Age of the Electronic Tube !*

