

TA400


TA400-5


TA300


TA200


TA100

# TRACE ACOUSTIC OWNERS MANUAL

TRACE ACOUSTIC

ENGLISH

Intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION: Risk of electrical shock — DO NOT OPEN!
CAUTION: To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

**WARNING: To prevent electrical shock or fire hazard, this apparatus should not be exposed to rain or moisture, and objects filled with liquids, such as vases, should not be placed on this apparatus. Before using this apparatus, read the operating guide for further warnings.**

ESPAÑOL

Este símbolo tiene el propósito, de alertar al usuario de la presencia de “(voltaje) peligroso” sin aislamiento dentro de la caja del producto y que puede tener una magnitud suficiente como para constituir riesgo de descarga eléctrica.

Este símbolo tiene el propósito de alertar al usario de la presencia de instruccones importantes sobre la operación y mantenimiento en la información que viene con el producto.

PRECAUCION: Riesgo de descarga eléctrica ¡NO ABRIR!
PRECAUCION: Para disminuír el riesgo de descarga eléctrica, no abra la cubierta. No hay piezas útiles dentro. Deje todo mantenimiento en manos del personal técnico cualificado.

**ADVERTENCIA: Para prevenir choque electrico o riesgo de incendios, este aparato no se debe exponer a la lluvia o a la humedad. Los objetos llenos de liquidos, como los floreros, no se deben colocar encima de este aparato. Antes de usar este aparato, lea la guia de funcionamiento para otras advertencias.**

FRANÇAIS

Ce symbole est utilisé dans ce manuel pour indiquer à l’utilisateur la présence d’une tension dangereuse pouvant être d’amplitude suffisante pour constituer un risque de choc électrique.

Ce symbole est utilisé dans ce manuel pour indiquer à l’utilisateur qu’il ou qu’elle trouvera d’importantes instructions concernant l’utilisation et l’entretien de l’appareil dans le paragraphe signalé.

ATTENTION: Risques de choc électrique — NE PAS OUVRIR!
ATTENTION: Afin de réduire le risque de choc électrique, ne pas enlever le couvercle. Il ne se trouve à l’intérieur aucune pièce pouvant être reparée par l’utilisateur. Confiez l’entretien et la réparation de l’appareil à un réparateur Peavey agréé.

**AVIS: Dans le but de reduire les risques d’incendie ou de decharge electrique, cet appareil ne doit pas etre expose a la pluie ou a l’humidite et aucun objet rempli de liquide, tel qu’un vase, ne doit etre pose sur celui-ci. Avant d’utiliser de cet appareil, lisez attentivement le guide fonctionnant pour avertissements supplémentaires.**

DEUTSCH

Dieses Symbol soll den Anwender vor unisolierten gefährlichen Spannungen innerhalb des Gehäuses warnen, die von Ausreichender Stärke sind, um einen elektrischen Schlag verursachen zu können.

Dieses Symbol soll den Benutzer auf wichtige Instruktionen in der Bedienungsanleitung aufmerksam machen, die Handhabung und Wartung des Produkts betreffen.

VORSICHT: Risiko — Elektrischer Schlag! Nicht öffnen!
VORSICHT: Um das Risiko eines elektrischen Schlages zu vermeiden, nicht die Abdeckung enfernen. Es befinden sich keine Teile darin, die vom Anwender repariert werden könnten. Reparaturen nur von qualifiziertem Fachpersonal durchführen lassen.

**WARNUNG: Um elektrischen Schlag oder Brandgefahr zu verhindern, sollte dieser Apparat nicht Regen oder Feuchtigkeit ausgesetzt werden und Gegenstände mit Flüssigkeiten gefuellt, wie Vasen, nicht auf diesen Apparat gesetzt werden. Bevor dieser Apparat verwendet wird, lesen Sie bitte den Funktionsführer für weitere Warnungen.**

ITALIANO

Atto ad avvisare l’utente in merito alla presenza “voltaggio pericoloso” non isolato all’interno della scatola del prodotto che potrebbe avere una magnitudo sufficiente a costituire un rischio di scossa elettrica per le persone.

Atto ad avvisare l’utente in merito alla presenza di istruzioni operative e di assistenza importanti (manutenzione) nel libretto che accompagna il prodotto.

ATTENZIONE: Rischio di scossa elettrica — NON APRIRE!

ATTENZIONE: per ridurre il rischio di scossa elettrica, non rimuovere il coperchio. Non vi sono parti utili all’utente all’interno. Fare riferimento a personale addetto qualificato.

AVVERTENZA: per prevenire il rischio di scossa o il rischio di incendio, questo apparecchio non dovrebbe essere esposto a pioggia o umidità, e oggetti riempiti con liquidi, come vasi, non dovrebbero essere posizionati sopra questo apparecchio. Prima di usare questo apparecchio, leggere la guida operativa per ulteriori informazioni.

PORTUGUÊS

Destinado a alertar o usuário da presença de “voltagem perigosa” não isolada dentro do receptáculo do produto que pode ser de magnitude suficiente para constituir um risco de choque elétrico a pessoas.

Destinado a alertar o usuário da presença de instruções importantes de operação e manutenção (conserto) na literatura que acompanha o produto.

**CUIDADO:** Risco de choque elétrico — NÃO ABRA!

**CUIDADO:** Para evitar o risco de choque elétrico, não remova a cobertura. Contém peças não reparáveis pelo usuário. Entregue todos os consertos apenas a pessoal qualificado.

**ADVERTÊNCIA:** Para evitar choques elétricos ou perigo de incêndio, este aparelho não deve ser exposto à chuva ou umidade e objetos cheios de líquidos, tais como vasos, não devem ser colocados sobre ele. Antes de usar este aparelho, leia o guia de operação para mais advertências.

---

日本語

三角形内带有箭头闪电状符号意在敬告用户，表明产品内部有非绝缘的“危险电压”存在，而且具有足以致人触电的危险。

三角形内的感叹号意在警告用户，表明与机器的操作和维护（维修）有关的重要说明。

**警告**：触电危险—勿打开！
**警告**：为了避免触电危险，请勿打开机壳。机内无用户可以维修的部件。需要维修时，请与指定的专业维修人员联系。

**警告：为了避免触电或火灾危险，请勿将本机置于雨中或潮湿之处。请勿将装满液体的物体，例如花瓶等置于本机之上。使用本机之前，请仔细阅读本操作说明书中的安全说明。**

---

FINNISH

Tarkoitettu kiinnittämään käyttäjän huomio sellaiseen eristämättömään vaaralliseen jännitteeseen tuotteen kotelossa, joka saattaa olla riittävän suuri aiheuttaakseen sähköiskuvaaran.

Tarkoitettu kiinnittämään käyttäjän huomio tärkeisiin käyttö- ja huolto-ohjeisiin tuotteen mukana seuraavassa ohjeistuksessa.

**VAROITUS:** Sähköiskun vaara — ÄLÄ AVAA!

**VAROITUS:** Sähköiskuvaaran vuoksi älä poista kantta. Ei sisällä käyttäjän huollettavissa olevia osia. Huoltaminen tulee jättää pätevän huoltohenkilöstön tehtäväksi.

**VAARA:** Sähköiskun tai tulipalon vaaran estämiseksi tätä laitetta ei saa altistaa sateelle tai kosteudelle, eikä sen päälle saa asettaa nesteellä täytettyjä esineitä, kuten maljakoita. Ennen laitteen käyttöä lue muut varoitukset käyttöohjeesta.

---

SWEDISH

Är avsedd att varna användaren för förekomsten av oisolerad ”farlig spänning” inom produktens hölje som kan vara av tillräcklig nivå för att personer ska riskera elektrisk stöt.

Är avsedd att uppmärksamma användaren på förekomsten av viktiga handhavande- och underhållsinstruktioner (service) i den litteratur som medföljer produkten.

**OBSERVERA:** Risk för elektrisk stöt – ÖPPNA INTE!

**OBSERVERA:** För att minska risken för elektrisk stöt, avlägsna inte höljet. Inga delar inuti kan underhållas av användaren. Låt kvalificerad servicepersonal sköta servicen.

**VARNING:** För att förebygga elektrisk stöt eller brandrisk bör apparaten inte utsättas för regn eller fukt, och föremål fyllda med vätskor, såsom vaser, bör inte placeras på denna apparat. Läs bruksanvisningen för ytterligare varningar innan denna apparat används.

# IMPORTANT SAFETY INSTRUCTIONS

**WARNING:** When using electrical products, basic cautions should always be followed, including the following:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding plug. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point they exit from the apparatus.
11. Only use attachments/accessories provided by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Never break off the ground pin. Write for our free booklet "Shock Hazard and Grounding." Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
16. If this product is to be mounted in an equipment rack, rear support should be provided.
17. Note for UK only: If the colors of the wires in the mains lead of this unit do not correspond with the terminals in your plug, proceed as follows:

    a) The wire that is colored green and yellow must be connected to the terminal that is marked by the letter E, the earth symbol, colored green or colored green and yellow.

    b) The wire that is colored blue must be connected to the terminal that is marked with the letter N or the color black.

    c) The wire that is colored brown must be connected to the terminal that is marked with the letter L or the color red.
18. This electrical apparatus should not be exposed to dripping or splashing and care should be taken not to place objects containing liquids, such as vases, upon the apparatus.
19. The on/off switch in this unit does not break both sides of the primary mains. Hazardous energy can be present inside the chassis when the on/off switch is in the off position. The mains plug or appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.
20. Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:

| Duration Per Day In Hours | Sound Level dBA, Slow Response |
|---|---|
| 8 | 90 |
| 6 | 92 |
| 4 | 95 |
| 3 | 97 |
| 2 | 100 |
| 1 1/2 | 102 |
| 1 | 105 |
| 1/2 | 110 |
| 1/4 or less | 115 |

According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Ear plugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

## SAVE THESE INSTRUCTIONS!

# English

## TRACE ACOUSTIC AMPLIFICATION

Congratulations on your purchase of a Trace Acoustic amplifier. Our experience in design and quality of manufacturing will ensure that you will be able to rely on this product to deliver the solid professional sound you deserve, whether in the studio, on stage, rehearsal room or at home.

This Trace Acoustic range is the latest evolution of a line of products that were always known for their sophisticated features, high quality construction, reliability and use of state of the art technology. Many of the original ideas have become industry standards and are included within this range, however, around these are even more features to inspire musicians and create the music that they want to hear.

High quality parts have been used throughout. In keeping with traditional Trace Elliot bass amplifiers, the GAIN and MASTER controls use parts that have 'detents' to give a professional feel. All tone and EQ controls have a centre 'detent' so the user can tell where the 'flat' setting is, and the NOTCH controls are smooth to enable the user to fine tune the notch frequency.

All the switchable features on these amplifiers are split into two types: pre-set and performance.

➢ Pre-set functions are those which will be set at the start and are unlikely to be changed again during a performance. These all use latching type switches which means they have an 'in' and an 'out' setting and will click when changing settings.

➢ Performance functions are those which it is likely the user will want to switch on or off throughout a performance. These all use non-latching type switches which ultimately control FETs to switch the particular function on or off. The switching is extremely quiet and therefore will not be heard during a performance. These switches do not click when pressed and only need to be pressed lightly to operate. In all cases the inbuilt LED for that function will be lit/unlit as it is switched. These functions are also conveniently footswitchable using the supplied footcontroller.

**Caution:** Please look over this guide and read any caution or warning statement found within. Following these warnings is crucial to your personal safety and the safety of your Trace Acoustic amplifier.

## QUICK START

This section is for people who are either too excited or too impatient to read the whole manual before using their new Trace Acoustic. Please at least read this first section thoroughly and return to the rest of the manual later, lest you don't get the full potential out of your new amplifier.

(1) Once you unpack your Trace Acoustic, check the **POWER** switch on the rear is in the **'0'** (off) position then connect the power cord and plug into a mains socket supplying the proper ac line voltage for your unit.

(2) Turn the **NOTCH** and **MASTER** controls to the minimum, fully anticlockwise position. Set the **GAIN** and all the EQ controls, **LO-TRIM, HI-TRIM** and **GRAPHIC EQUALIZER**, to the half way position. On the **EQ** controls this can easily be determined by the centre detent.

(3) Connect the footcontroller **(AFC-6)** to the **EXTERNAL CONTROL** socket on the rear panel using the eight-pin DIN cable.

(4) Plug your instrument into **Ch1-INPUT** on the front panel using a high quality shielded instrument cable.

(5) Flip the power switch on the rear to the **"1"** (on) position to turn the unit on.

(6) Set your instrument to your normal settings and while striking a string gradually turn up the **MASTER** control. Set this at the approximate desired playing volume.

(7) Now try adjusting the **GAIN** control between playing. While doing this observe the level indication LED above the control. When the LED is lit green then there is adequate gain to drive the rest of the preamp. If you continue to turn up you'll find the LED will start to be lit orange, this means that preamp compression is occurring. Do not worry, this is intended to prevent any unwanted distortion and also to smooth out the dynamics for a more consistent volume. More on this in the 'IN DEPTH GUIDE'.

(8) You will notice that the unit will have defaulted to a setting of everything off except a little reverb. You can now make adjustments to the **GAIN, EQ** and **EFFECTS** controls to achieve the desired sound. For more information on **EFFECTS** go to the section in the 'IN DEPTH GUIDE'.

(9) Make music! Feel free to turn on and off the other features on the unit, either by the footcontroller or the front panel, and make adjustments to the other controls to get an idea of the flexibility of the unit.

**CAUTION: Please avoid pressing the "+V" switch unless the section on this in the manual has been read fully and that this feature is really needed. If this switch it lit red then, unless it's needed, press the switch to turn it off as it causes unnecessary power consumption.**

**Never have this switched on if a normal mono type ¼" jack plug is inserted into the INPUT on this channel.**

## IN DEPTH GUIDE

Well done! The very fact that you are reading this section means that you are serious about getting the most out of your Trace Acoustic amplifier. Although fundamentally easy to use, this guide will hopefully explain the features of your amplifier in a way that will unlock all sorts of sonic potential that may have otherwise remained hidden.

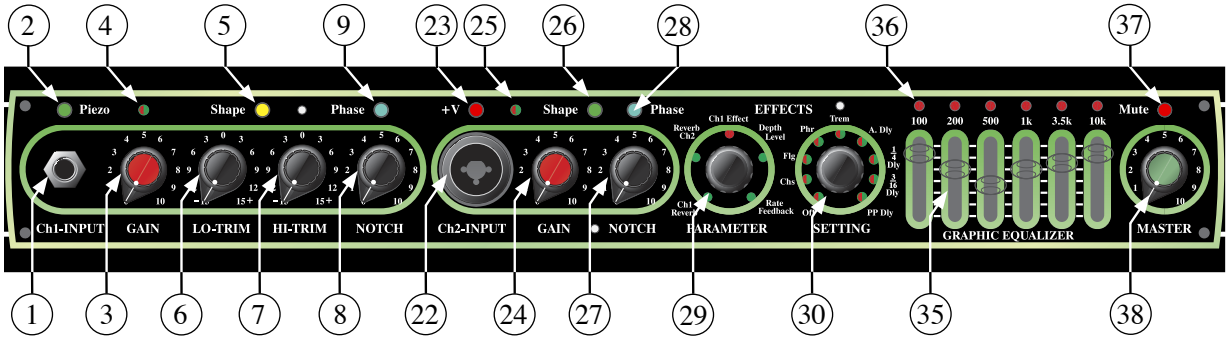
This operating guide covers the features of all the contemporary Trace Acoustic range of amplifiers.

Where a specific model is shown in brackets, e.g. (TA400), then this applies only to that product.

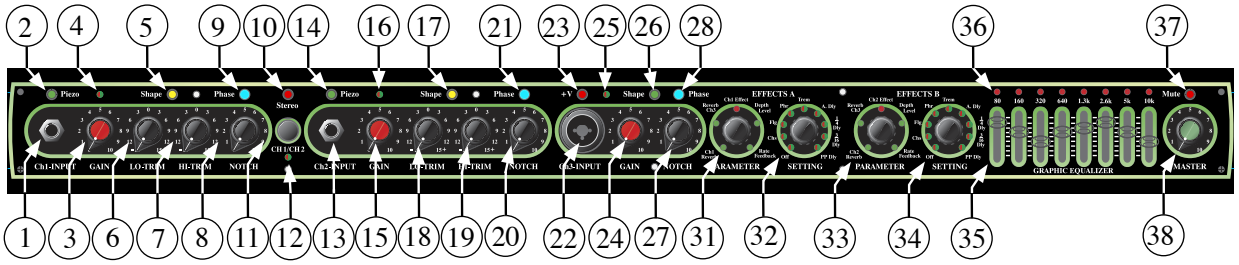
The feature being explained is shown in 'quotation' marks, the type of control is shown after. If there are any terms you do not fully understand then please refer to the Glossary of Terms at the back of this manual.

### FRONT PANEL

**TA100 / TA200 / TA300 Front Control Panel**




**TA400 Front Control Panel**




There are two different front panels used for the range. Aesthetically they are very similar and they share many features. Basically the **TA100, TA200** and **TA300** front panels have two channels, an **EFFECTS** section, 6 band **GRAPHIC EQUALIZER** and **MASTER** control, whereas the TA400 preamp has three channels, two **EFFECTS** sections, 8 band **GRAPHIC EQUALIZER** and **MASTER** control.

### IN-BUILT COMPRESSORS

A very important new feature is that all channels have in-built, studio quality, *compressors*. These are a '*soft-knee*' compressor with '*adaptive attack and release times*', that have been specially designed to work well with acoustic instruments.

These were added for two main reasons. Firstly, because they remove any chance of clipping distortion from occurring in the preamps; this means it keeps the sound of your instrument clean. Secondly, because a subtle amount of compression can sound very nice and help to bring out the instrument in a mix. Sound engineers often add compression to acoustic guitar in recordings for exactly this reason. However, due to the simple operation of these amplifiers, the user doesn't need to be a sound engineer to use the compressors. Instead the user merely needs to adjust the **GAIN** control to set the amount of compression as desired. More on this below.

Any channel that is not being used should have the **GAIN** control set to '**0**', to reduce any noise.

**Ch1 (*All models*)**

This is Channel 1, the main instrument channel with the most control over the sound and effects. For the majority of users this will be the most commonly used channel.

**(1) 'INPUT' ¼" JACK SOCKET**

This is to connect to the ¼" jack lead from your instrument.

This is a TRS type socket meaning that it has separate connections for the 'tip' and 'ring' of the jack. If a standard 'mono' type jack lead is used then this will simply send the signal to the rest of Channel 1 as normal.

However, if a stereo/dual output guitar is used with a TRS lead, then the 'tip' signal will be routed through Channel 1 and the 'ring' signal will be automatically routed to Channel 2 (and Channel 3 on TA400), therefore keeping the two signals separated and enabling the user to process them separately by using the controls on the other channel(s) as well.

Connecting anything into the other channel(s) will automatically override the Channel 1 ring signal.

(See Block Diagrams for more information)

**(2) 'PIEZO' SWITCH & LED**

This switch has two functions; to set the *sensitivity* and the *impedance* of the **INPUT** stage.

In the out position (LED unlit) it is set for normal sensitivity and impedance (100kΩ).

The in position (with green LED lit) is the '**Piezo**' setting for higher sensitivity and very high impedance (>10MΩ).

The difference in sensitivity is 10dB. Actual sensitivity is dependent on the **GAIN** control.

Generally, this switch should be set to the unlit out position for *active* instruments; and pressed in, with the green LED lit, for instruments just using a *piezo* pickup without a separate preamp. However it can also be used as a preset 10dB boost if more gain is required on an active instrument.

**(3) 'GAIN' ROTARY CONTROL**

**(4) SIGNAL LEVEL LED**

The **GAIN** control is for setting the volume level of Channel 1 and also, if turned up, will increase the amount of compression applied in the input stage by intentionally pushing the signal level over the compressor *threshold*.

The signal level indication LED is included to help the user to determine where to set the **GAIN** control:

➢ Unlit means that there is either no signal or the signal is very low

➢ Lit green means that signal is present, below *threshold* and therefore remains un-compressed.

➢ Lit orange means that high signal is present, above *threshold* and compression is occurring.

➢ Lit red means that very high signal is present and clipping distortion may be occurring. In practise this should never happen due to the in-built compressors preventing this.

As mentioned before, the in-built compressor is included to stop unwanted distortion, however this can also be a very useful tool for controlling the *dynamic range* as follows:-

➢ If the user wants a natural sound, with minimal compression, then they should adjust the **GAIN** control so that, most of the time when playing, the LED is lit green, and only when they are striking the loudest notes should the LED occasionally go orange. Therefore only slight compression is applied on the loudest peaks and the natural full *dynamic range* is preserved. This also ensures an adequate signal level is being sent through the rest of the amplifier for a good *signal to noise ratio*.

➢ However, if the user wants to give the instrument more presence and clarity in the mix, by turning up **GAIN** further so that the LED is lit orange more often, the signal level will be pushed over *threshold* meaning that more compression is being applied and the *dynamic range* is being more tightly controlled. The specific **GAIN** setting will be down to the personal preference of the user. Players usually find that a tasteful amount of compression can really smooth out the sound and actually make certain parts seem easier to play, as it requires less physical effort to be heard consistently within a mix.

➢ Of course the user may also wish to use extreme, high **GAIN**, settings, where the compression is on most of the time. This is when compression becomes more of an effect. This may be useful for solos and for adding sustain. However, some of the natural acoustic qualities will be altered due to the extreme limiting of the dynamic range.

We can only suggest that the user experiments with different amounts of compression, to hear and feel what works best for their application. If you prefer not to use it then simply set **GAIN** lower and **MASTER** higher.

**(5) 'SHAPE' SWITCH & LED**

This switches in the 'Mid Pre-Shape' circuit. When activated, the yellow LED is lit. It can also be switched on and off using the AFC-6 footcontroller.

The actual effect of this circuit is to boost the low and high frequencies and to cut the mid frequencies giving an instant alternative EQ sound, which emphasizes different harmonics. It can be used to help make some pickups (especially lower quality) sound more natural or to switch different sounds during a performance. One example is to use the **Shape** setting when accompanying a vocalist; the mid cut allows the voice to come through more. Then switch to the normal, flat setting, for solo work.

**(6) 'LO-TRIM' ROTARY CONTROL**

**(7) 'HI-TRIM' ROTARY CONTROL**

These are for fine adjustment of the low and high frequencies respectively, on Channel 1. They can be thought of as similar to Bass and Treble. Use these in conjunction with the Shape function to fine tune the tone of your instrument as desired.

If both controls are at their middle position (when the '*detent*' is felt) and **Shape** is off, then the frequency response through the preamp is flat.

Turning up the **LO-TRIM** will produce more body in the tone but may also increase the likelihood of feedback. Therefore backing off also helps to keep feedback at bay.

**(8) 'NOTCH' ROTARY CONTROL**

**(9) 'PHASE' SWITCH & LED**

These are for help in controlling acoustic and microphonic *feedback*.

**NOTCH** controls the frequency of a tight *bandwidth notch filter*. This reduces the volume of a specific small range of frequencies depending on where it's set.

If playing at fairly low volumes, where feedback is not a problem, then this control should be set at the minimum setting. This is so low that it will not affect the tone of your instrument.

At higher volumes, especially if close to the amp, it is common for acoustic instruments to start to self-oscillate which causes the body and/or lower strings to vibrate. In these circumstances gradually turn the **NOTCH** control up until the offending vibration starts to die away. This has basically tuned the frequency of the notch filter to the frequency of vibration. Due to the notch filter having a very tight bandwidth, this will have minimal effect on the rest of your tone.

Different settings, instruments and standing/sitting at different distances from the amp will have an effect on where this control needs to be set. With practise the user will be able to locate the correct frequency with ease.

Once the **NOTCH** has been set then the **Phase** switch can also be used when feedback occurs. Pressing this merely flips the phase of this channel 180 degrees and in most cases will null the offending frequency and cause the feedback to die away.

When the phase is reversed then the LED in the switch will be lit blue. This can also be switched by using the footcontroller. This is particularly useful as the performer can have the footswitch on the floor in front of them and can switch the phase without needing to stop playing. They can also continue to do this again and again throughout a performance if they find they have feedback problems in other keys and/or chord positions.

It should be pointed out that although these features will help to control feedback, and therefore allow a louder performance volume than otherwise, there will become a point at which the volume and/or proximity to the amp will result in feedback being difficult to control. Careful use of the EQ will further help (see **GRAPHIC EQUALIZER** section).

Points 10 to 21 are for TA400's only, skip to point 22 for other models.

**TA400's have an additional instrument channel that can be used in several ways explained below:-**

**(10) 'STEREO' SWITCH AND LED**

**(11) 'CH1/CH2' SWITCH**

**(12) 'CH1/CH2' STATUS LED**

These two switches set how Channel 1 and Channel 2 are routed and the LED's show the status.

The **Stereo** switch will switch between *normal mode*, where either Channel 1 and Channel 2 is switched on; and *stereo mode*, indicated by the red LED, where both Channel and Channel 2 are switched on and routed separately throughout the rest of the amplifier to the speakers.

In ***normal mode*** pressing the **CH1/CH2** switch will switch between Channel 1 and Channel 2.

This means that a different instrument can be plugged into each channel and easily switched over during a performance.

Alternatively, one instrument can be plugged into **Ch1-INPUT** and then be switched between the two channels. Obviously then each channel can have different gain, EQ and effects settings which are also switched.

The **CH1/CH2** LED will be lit green when Channel 1 is being used and orange when Channel 2 is being used.

The switching of this function can also be operated from the AFC-6 footcontroller.

In ***stereo mode***, with both channels switched on, the **CH1/CH2** switch will operate as a gain boost, therefore enabling two different levels of volume and/or compression on both channels. In this mode the LED will be unlit if boost is off and red if boost is on. Again, the switching of this function can also be operated from the AFC-6 footcontroller. ***Stereo mode*** allows the connection of a different signal into each of the two channels. They can each have their own preamp settings, then Channel 1 will be routed through **EFFECTS A**, eventually coming out of the (stage) left speakers; and Channel 2 through **EFFECTS B**, eventually coming out of the (stage) right speakers.

Alternatively, a mono source can even be used in ***stereo mode***. Connect just into **Ch1-INPUT** and the signal will be automatically passed though both preamps and **EFFECTS** sections, again keeping channel separation through to the speakers.

A third option in ***stereo mode*** is if a stereo signal using a TRS jack plug is sent into **Ch1-INPUT**. In this case the two signals will be automatically split between Channel 1 and Channel 2 and routed separately through the rest of the amplifier as mentioned above.

Whichever configuration is used, amazing stereo psychoacoustic effects can be achieved in this ***stereo mode*** by experimenting with different preamp and effects settings on each channel!

**Ch2 (TA400 only)**

**This is Channel 2, the additional channel on TA400's for an alternative sound, an additional instrument or for stereo use.**

**(13) 'INPUT' ¼" JACK SOCKET**

This is to connect to the 1/4" jack lead from an instrument.

Use this if you either: wish to switch to another instrument during a performance without needing to unplug cables; or, in ***stereo mode***, to insert the other side of the stereo signal. Channel separation integrity will be retained throughout the whole amplifier.

With nothing inserted into this socket, the circuitry automatically configures itself so that either the 'tip' or 'ring' signal from Channel 1 can also be routed to Channel 2, then switched on or off (***normal mode***) or mixed together (***stereo mode***).

Connecting anything into Channel 2 will automatically override anything from Channel 1.

(See Block Diagrams for more information)

**(14) 'PIEZO' SWITCH & LED**

This switch has the same function for Channel 2 as the **Piezo** switch for Channel 1.

For more information on this, please refer to point 2 earlier in this manual.

**(15) 'GAIN' ROTARY CONTROL**

**(16) SIGNAL LEVEL LED**

These are for Channel 2 and work in the same way as those on Channel 1.

For more information on these, please refer to points 3 and 4 earlier in this manual.

**(17) 'SHAPE' SWITCH & LED**

This switches in the 'Mid Pre-Shape' circuit on Channel 2.

For more information on this, please refer to point 5 earlier in this manual.

**(18) 'LO-TRIM' ROTARY CONTROL**

**(19) 'HI-TRIM' ROTARY CONTROL**

These are for Channel 2 and work in the same way as those on Channel 1.

For more information on these, please refer to points 6 and 7 earlier in this manual.

**(20) 'NOTCH' ROTARY CONTROL**

**(21) 'PHASE' SWITCH & LED**

These are for Channel 2 and work in the same way as those on Channel 1.

For more information on these, please refer to points 8 and 9 earlier in this manual.

**End of TA400 only section.**

**Ch2** (***TA100/200/300***) or **Ch3** (***TA400***)

This is a channel for use with a microphone or low impedance instrument. It has less controls and effects than Channel 1, therefore can be thought of as a purer channel with less processing.

**(22) 'INPUT' COMBINATION XLR / ¼" JACK SOCKET**

This is a dual purpose connector that can accept either a male XLR or ¼" jack plug.

The XLR input is a very low impedance, mixing desk type, *balanced* input stage, with plenty of extra gain. Use this for vocal microphones or for microphones set up on or near instruments.

This has an internal switching contact, to automatically switch between XLR and ¼" jack, therefore please ensure that a good quality XLR microphone cable is used where the shield/barrel of the XLR is connected to pin 1.

If you experience a situation where there is no signal from using the XLR socket then please refer to the Help section below.

The ¼" jack input is an input stage for use with an *active* instrument.

This is a TRS type socket meaning that it has separate connections for the 'tip' and 'ring' of the jack. If a standard 'mono' type jack lead is used then this will simply send the signal through the rest of the channel as normal.

However, if a stereo/dual output guitar is used with a TRS type lead, then the 'tip' signal will be routed through this channel and the 'ring' signal will be automatically routed to **Channel 1**, therefore keeping the two signals separated and enabling the user to process them separately by using the controls on both channels.

Connecting anything into **Ch1-INPUT** will override the 'ring' signal from this channel.

(See Block Diagrams for more information)

**(23) '+V' SWITCH AND RED LED**

Pressing this switch activates the dual-voltage, *phantom power* circuits. The actual voltage is dependant on which socket is being used. When it is on, the switch LED should be lit red.

IMPORTANT: If this does not need to be on, then please keep it off, as it may cause unnecessary current draw.

**Never have this switched on if a normal mono type ¼" jack plug is inserted into this INPUT.**

The times when this should be used are:-

➢ If a *condenser* type microphone is used in the XLR part of the socket. In this case +48V *phantom power* will be applied to pins 2 and 3 of the XLR.

➢ If an instrument is used where it's own preamp can be powered by the ring of it's TRS jack. In this case +9V will be applied to the ring of the TRS ¼" jack socket.

Obviously, for this to work a TRS type lead MUST be used between the amplifier and the instrument.

DO NOT USE A MONO JACK WITH THIS TURNED ON.

A maximum current draw of 0.25A (250mA) is available. When this is exceeded the red LED in the +**V** switch will dim progressively until it is no longer lit. Any instances of excessive current should be avoided and removed.

**(24) 'GAIN' ROTARY CONTROL**

**(25) SIGNAL LEVEL LED**

These work in the same way as those on Channel 1.

The in-built compressor will be very useful for preventing clipping and smoothing dynamics whether this channel is used for vocals or another instrument.

For more information on this, please refer to points 3 and 4 earlier in this manual.

**(26) 'SHAPE' SWITCH & LED**

This switches in the 'Mid Pre-Shape' circuit on this channel.

For more information on this, please refer to point 5 earlier in this manual.

On this channel it is a *preset* function therefore not footswitchable. The LED is green when on.

**(27) 'NOTCH' ROTARY CONTROL**

**(28) 'PHASE' SWITCH & LED**

These work in the same way as those on Channel 1.

For more information on this, please refer to points 8 and 9 earlier in this manual.

## EFFECTS (ALL MODELS)

**(29) 'PARAMETER' ROTARY ENCODER AND PUSH SWITCH**

**(30) 'SETTING' ROTARY ENCODER AND PUSH SWITCH**

These are for controlling internal ***DSP*** effects for the two channels as shown around the **PARAMETER** encoder.

Different levels of reverb can be applied to each channel, and the instrument channel(s) can also have one of 8 different *modulation* or *delay* effects added, as shown around the **SETTING** encoder.

➢ Turning the **PARAMETER** encoder will select which parameter is to be adjusted.

➢ Turning the **SETTING** encoder will then adjust the setting of the specific parameter.

➢ The setting of each encoder is shown by the ring of LEDs around each control knob.

Also…

➢ Pressing the **PARAMETER** encoder will turn the Effects On and Off.

➢ Pressing the **SETTING** encoder will set the *tap tempo* if a *delay* effect is being used.

➢ Both these functions can also be controlled from the AFC-6 footcontroller.

**EFFECTS OFF:**

The default mode is 'Effects Off'. However, even in this mode separate levels of reverb can be applied to either channel.

Simply set the **PARAMETER** encoder to either of the **'Reverb'** settings (clockwise from bottom, the first two green LEDs) and then adjust **SETTING** to change the reverb level for that specific channel. The level is shown by the green LEDs around the **SETTING** control knob.

You will find that in this mode the **PARAMETER** encoder will not allow selection of any other parameters.

**EFFECTS ON:**

To switch to 'Effects On', either press the **PARAMETER** encoder or the **EFFECTS** switch on the AFC-6 footcontroller. When the effects are on this will be indicated by the red LED above the **PARAMETER** encoder either flashing, or being fully lit. Now the **PARAMETER** encoder can select any of the five LEDs around the control knob, including setting new reverb levels for either channel.

Turning the encoder so that the red **'Ch1 Effect'** LED is fully lit (not flashing) will now also turn on one of the red LEDs around the **SETTING** encoder. This shows which effect is turned on, the choices are:-

- ➢ **Off** (No effect, just different reverb levels available)
- ➢ **Chs** (Stereo Chorus – Modulation effect)
- ➢ **Flg** (Stereo Flanger – Modulation effect)
- ➢ **Phr** (Phaser – Modulation effect)
- ➢ **Trem** (Tremolo – Modulation effect)
- ➢ **A. Dly** (Analogue Delay simulation)
- ➢ **¼ Dly** (¼ note Mono Digital Delay)
- ➢ **3/16 Dly** (3/16th note Mono Digital Delay)
- ➢ **PP Dly** (Stereo Ping Pong Delay – Repeats bounce between left and right channels)

Simply turn the **SETTING** encoder so the red LED lights up next to the effect that you want to use.

The requested effect will instantly load using either the default settings or the settings most recently used.

**EFFECTS SETTINGS:**

Obviously it's one thing offering these effects but no doubt you'll want to change the specific settings for each. To do this, turn the **PARAMETER** encoder to light up one of the next two green LEDs; **'Depth Level'** or **'Rate Feedback'**, then the green LEDs around the **SETTING** encoder will show the current setting.

➢ With ***'Depth Level'*** lit, **SETTING** will show the ***depth*** of Modulation, or ***level*** of Delay.

➢ With ***'Rate Feedback'*** lit, **SETTING** will show the ***rate*** of Modulation, or ***feedback*** for Delay.

To change these just turn the **SETTING** encoder to where you want it to be and this will be stored for that effect.

**DELAY TIMES:**

The actual Delay times can be set by tapping either the **SETTING** encoder or the **TA**P switch on the AFC-6 footcontroller.

For increased accuracy, the *tap tempo* will be set by averaging the time between 2 to 4 taps. On most Delay effects the actual delay time will be reset to the new *tap tempo*. Therefore if you tap in time with the tempo of the music then the repeats will also be in the same time. The only one that's slightly different is **3/16 Dly**. On this the delay time will be reset to 75% of the *tap tempo*. Therefore if you tap in time with the tempo of the music in ¼ notes (crotchets) then the repeats will come out as 3/16ths (dotted quavers). This makes it easy to produce fast arpeggios and rhythms that also are in time with the music, albeit syncopated.

Once a *tap tempo* is set you will notice that, when the **Ch1 Effect** LED is flashing, it will be in time. *Tap tempo* will only be set if the Delay effects are turned on, otherwise it will be ignored.

The maximum delay time available is 1100ms (1.1 seconds).

**STORED SETTINGS:**

Any changes made to the individual effects will be automatically stored for use even when the unit is turned off.

Therefore it's possible to have different preset delay times and modulation rates on each of the delay or modulation effects respectively and recall them during a performance.

If you wish to go back to the original factory default settings then simply press the **SETTING** encoder when powering up.

## EFFECTS A AND EFFECTS B (TA400 ONLY)

**(31) 'PARAMETER' ROTARY ENCODER AND PUSH SWITCH**

**(32) 'SETTING' ROTARY ENCODER AND PUSH SWITCH**

These are for controlling the internal DSP effects for Channel 1 and Channel 3.

**(33) 'PARAMETER' ROTARY ENCODER AND PUSH SWITCH**

**(34) 'SETTING' ROTARY ENCODER AND PUSH SWITCH**

These are for controlling the internal DSP effects for Channel 2 and Channel 3.

The **PARAMETER** and **SETTING** encoders for each DSP section work in the same way as described previously. For more information on these, please refer to points 29 and 30 earlier in this manual.

The main difference on the TA400's is that they have two DSP EFFECTS sections included, so that different effects can be applied to different channels and then recalled as they are switched.

➢ Channel 1 is routed through **EFFECTS A**.

➢ Channel 2 is routed through **EFFECTS B**.

➢ Channel 3 is routed through the reverb sections of both **EFFECTS A** and **EFFECTS B**, therefore either/both can be used depending on whether Channel 1 or/and Channel 2 is switched on.

(See Block Diagrams for more information)

When switching between Channel 1 and Channel 2, the associated effects sections will automatically be switched as well. This means that changing the *tap tempo* on one DSP will not overwrite the *tap tempo* of the other DSP, therefore allowing different delay times to be set on each.

**CHANNEL 3 REVERB:**

As mentioned before, Channel 3 is routed through both DSP reverb sections. As Channel 1 / Channel 2 switching also switches between **EFFECTS A** and **EFFECTS B**, then it is possible to set up different reverb levels for Channel 3, depending on whether Channel 1 is selected or Channel 2. Either or both DSP sections can be used to apply reverb to Channel 3 regardless of mode, but be aware of which of the other channels is on as well.

In ***normal mode*** the left and right outputs of each DSP section are mixed together for an overall stereo effects signal.

In ***stereo mode*** only the right channel of **EFFECTS A** and left channel of **EFFECTS B** are used. This is to retain Channel 1 and Channel 2 separation throughout the whole amplifier.

## MASTER SECTION

**(35) 'GRAPHIC EQUALIZER' SLIDERS**

All models feature a master **GRAPHIC EQUALIZER**.

TA100 / TA200 / TA300 all have 6 Bands of EQ (100Hz, 200Hz, 500Hz, 1kHz, 3.5kHz, 10kHz)

TA400 models have 8 Bands of EQ (80Hz, 160Hz, 320Hz, 640Hz, 1.3kHz, 2.6kHz, 5kHz, 10kHz)

This can be used for further tone control, for equalizing the amplifier to counteract the room characteristics and also for help in controlling feedback.

With the controls all set at their mid *'detent'* position, no change is made to the signal. Moving a slider up will progressively increase, or 'boost', the frequencies centred around the frequency marked above the slider. Moving a slider down will progressively decrease, or 'cut', the frequencies.

Due to the flexibility and massive cut and boost available, it is important to know how to get the best from the circuit.

➢ Do not boost or cut all frequency bands. This will have the same effect as increasing or decreasing the overall volume level without affecting the tonal characteristic of the sound.

➢ Do not use excessive bottom (80Hz / 100Hz) boost as this will make acoustic feedback more difficult to control.

➢ Do not use excessive top (10Hz) boost, as this will add mostly hiss to the sound.

**(36) FREQUENCY LOCATION SYSTEM LEDS**

Above each slider is a red LED for the Feedback Location System.

This is a very quick way to determine where the problem frequencies are that can cause feedback. Basically LEDs will be lit according to what is the dominant frequency. When feedback occurs this will be shown by one of the LEDs being lit even when nothing else is being played. To get control over the problematic frequency simply pull down the slider that corresponds to the lit LED, by an amount that stops the feedback.

**(37) 'MUTE' SWITCH AND LED**

Pressing this switch will mute all outputs except for the **TUNER** output. Therefore this turns off the signals sent to the **DI OUTPUTS** as well as the power stage and speakers. The red LED will flash when Mute is selected. It can also be operated using the AFC-6 footcontroller.

The **Mute** function is useful for preventing unwanted noise between songs, when changing instruments or, if a tuner is connected to the **TUNER** output, for tuning up silently without needing to make adjustments to any other controls. The signal level indicators remain active when in mute so it is possible to change instruments and set up the **GAIN** silently without turning the **MASTER** to zero and therefore risk forgetting the setting.

**(38) 'MASTER' ROTARY CONTROL**

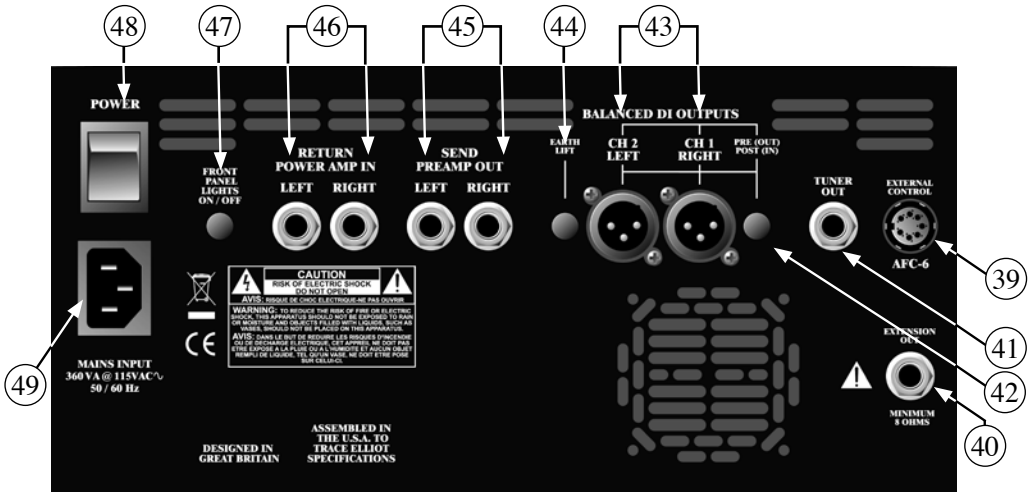
This sets the signal level sent to the **PREAMP OUT** sockets and the power output stages. It should be set at **"0"** when switching on the amplifier and then turned up to the desired playing volume. The actual power level produced from the amplifier will be dependent on the input signal and the settings of the other controls. Therefore **"5"** does not necessarily mean 'half power'.

Once set for a performance it can be left alone and the **Mute** function can be used to turn the signal off between songs or sets.

The **MASTER** control does not have an effect on the signal level from the **DI OUTPUTS**, so adjusting this will not affect the level sent to a mixing desk.

We recommend turning the **MASTER** control to **"0"** at the end of a session, before switching off.

**REAR PANEL**




**(39) 'EXTERNAL CONTROL' / 'AFC-6' 8 PIN DIN SOCKET**

This socket is for connecting to the 6-function Acoustic Foot Controller - AFC-6. If used, it should be connected before the unit is switched on.

**USING THE AFC-6 ACOUSTIC FOOT CONTROLLER WITH TA100, TA200 AND TA300**

The AFC-6 enables the user to control the following:

➢ **BOOST** This switches in a useful 10dB gain boost on Channel 1 only.

➢ **SHAPE** This switches the **Shape** function on Channel 1 only.

➢ **PHASE** This switches the **Phase** function on both Channel 1 and Channel 2.

➢ **EFFECTS** This switches the DSP effects on and off.

➢ **TAP** This is for setting the *tap tempo* when a *delay* effect is used.

➢ **MUTE** This switches the **Mute** function. This will flash red when the amplifier is muted.

**SYNCHRONIZATION OF THE LEDS**

The LEDs for **BOOST, SHAPE, EFFECTS** and **MUTE** will all be synchronized with the functions and LEDs on the amplifier front panel, whether they are operated from the footswitch or the amplifier.

The LED for **PHASE** will also be synchronized if just switched from the AFC-6.

However, as **Phase** can be also set individually for each channel, if either of these are switched on the front panel then this will not necessarily correspond to the footswitch LED, but the footswitch will continue to toggle the functions on and off when operated.

The front panel LEDs will always show the actual setting.

**USING THE AFC-6 ACOUSTIC FOOT CONTROLLER WITH TA400**

The AFC-6 enables the user to control the following:

➢ **CHANNEL** In ***normal mode*** this switches between Channel 1 and Channel 2 with LED red.

or

➢ **BOOST** In ***stereo mode*** this switches in a 10dB gain boost on Channel 1 and Channel 2.

➢ **SHAPE** This switches the **Shape** function on Channel 1 and Channel 2.

➢ **PHASE** This switches the **Phase** function on Channel 1, Channel 2 and Channel 3.

➢ **EFFECTS** This switches the DSP effects on and off.

➢ **TAP** This is for setting the *tap tempo* when a *delay* effect is used.

➢ **MUTE** This switches the **Mute** function. This will flash red when the amplifier is muted.

**SYNCHRONIZATION OF THE LEDS**

The LEDs for **CHANNEL/BOOST** and **MUTE** will be synchronized with the functions and LEDs on the amplifier, whether they are operated from the footswitch or the amplifier.

The LEDs for **SHAPE, PHASE** and **EFFECTS** will also be synchronized if just switched from the AFC-6.

However, as these can be also set individually for each channel, if they are switched on the front panel then this will not necessarily correspond to the footswitch LED, but the footswitch will continue to toggle the functions on and off when operated. The front panel LEDs will always show the actual setting.

**(40) 'EXTENSION OUT' ¼" JACK SOCKET (*TA300* ONLY)**

This is for connecting to an extension speaker cabinet for more volume. An extra 100W of output power is available. The extension cabinet should have an *impedance* of 8 ohms.

If used, the connection should be made before mains power is applied to the unit.

Some of the cabinets that we have tried and we know work well for this application are the 1028H, 1518c and 1048H cabinets from the Trace Elliot bass range.

**(41) 'TUNER' ¼" JACK SOCKET**

This is an output for connecting to a tuner. The signal here is a mix of the input signal of all channels before any processing has been applied.

Simply connect a ¼" jack lead from this socket to a tuner and you will be able to tune up easily any time without any degradation to the tone. To tune up quietly use the **Mute** function.

**(42) 'PRE / POST' SWITCH**

This determines which signals are sent to the **BALANCED DI OUTPUTS**.

In the **PRE (OUT)** position, the unprocessed, dry signal from the instrument and microphone channels are sent separately as shown. On TA400's Channel 1 and 2 are mixed and Channel 3 is separate.

In the **POST (IN)** position, the processed, effected **LEFT** and **RIGHT** signals are sent. This is after the preamps, compressors, effects and EQ, but before the **MASTER** control. Therefore, any sound shaping that is applied within the amplifier will be heard on the **DI OUTPUTS** as well.

Neither setting will be affected by adjustments to the **MASTER** control, so turning up on stage will not overload the mixing desk once it is set. All outputs will be muted if the **Mute** function is used.

Different applications will determine which setting to use. For a pure acoustic sound or if it is necessary to keep the channels independent, then the **PRE (OUT)** setting should be used. Alternatively, if all the internal processing is required then the **POST (IN) LEFT** and **RIGHT** should be used. If in doubt choose this as the sound will be basically the same as the sound heard from the speakers.

**(43) 'BALANCED DI OUTPUTS' XLR SOCKETS**

The XLR sockets are low impedance *balanced* outputs for connecting direct to a stage box or mixer for live or studio use. They give the engineer a strong, clean signal without any overspill from other instruments.

The sockets are wired as normal: pin 1 = Ground, pin 2 = Signal +, pin 3 = Signal -

**(44) 'EARTH LIFT' SWITCH**

Pressing this switch in will disconnect the earth/ground connection from pin 1 on the DI output XLR socket.

Usually this should be left in the 'out' position however there may be certain situations when connecting from the DI socket(s) to another device that a hum is produced due to an *earth/ground loop*. If this happens then pressing the **EARTH LIFT** switch in should eliminate the problem.

**(45) 'SEND / PREAMP OUT' ¼" JACK SOCKETS 'LEFT' & 'RIGHT'**

These are *unbalanced jack* outputs that can be used to send the outputs of the preamp section to another piece of equipment, such as a power amplifier, mixing desk or recording device. Or they can be used along with the **'RETURN / POWER AMP IN'** sockets as a stereo effects loop. The actual level is dependent

on the setting on the **MASTER** control, which means that if these outputs are used to expand the system with extra power amps and speakers, then the overall volume can still be set by a single control.

**(46) 'RETURN / POWER AMP IN' ¼" JACK SOCKETS 'LEFT' & 'RIGHT'**

These are *unbalanced* jack inputs that can be used for direct connection to the stereo power output section. Inserting a jack plug will break the internal connection between preamp and power amp.

**(47) 'FRONT PANEL LIGHTS ON/OFF' SWITCH**

This literally turns the back lighting of the front panel on or off.

This does not affect the brightness of the function status LEDs.

**(48) POWER SWITCH**

Once the whole system has been set up, set this to the "1" (on) position to apply mains power. The switch will be illuminated green when the unit is on. Switch to the "0" (off) position at the end of normal use before any of the system is disconnected.

**(49) IEC SOCKET**

This is to connect the supplied IEC mains power cord. The mains voltage that the specific unit is built to accept is marked on the rear panel. Before applying mains power please ensure that it is the correct voltage.

## HELP

If you experience problems with your Trace Acoustic unit please check the following before contacting an authorized Trace Elliot dealer, distributor or service centre.

| SYMPTOM | CHECK |
|---|---|
| Unit does not power up: | Is the IEC mains cord correctly connected? Try a different IEC mains cord. |
| Unit powers up but no sound: | Check all connecting leads. |
| Signal level LEDs do not light: | Check instrument leads and battery if applicable. |
| Signal level LEDs light but no sound: | Is **MASTER** turned above '1'. Is **Mute** selected? Is anything connected to **RETURN / POWER AMP IN ?** |
| Distorted signal: | Is battery in instrument OK? With **GAIN** at **'0'** does the signal level LED light red? If so, reduce the signal level going into the amplifier. |
| No signal when using XLR mic input: | Check the XLR cable, shield should be connected to pin 1. Try pressing **+V**. If this works then use like this for now but repair XLR cable for future use. |
| Lots of acoustic feedback: | Check the sections on **NOTCH, Phase** and **GRAPHIC EQUALIZER.** Decrease the amount of low frequencies. Increase the distance between instrument and amplifier. |

# GLOSSARY OF TERMS

| | |
|---|---|
| **active** | With regard to a musical instrument, one that has some kind of on-board preamp, usually easily determined by it having a battery inside. |
| **adaptive attack & release** | The attack and release times automatically adjust, i.e. 'adapt', to the transients and frequencies of the audio signal. |
| **attack** | With regard to compressors, the time it takes to react to an audio signal once it has exceeded the threshold level. |
| **balanced** | A professional audio connection that has a pair of opposite phase signals as well a ground. These are usually lower in noise and hum than unbalanced. |
| **bandwidth** | The width of a range of frequencies that are heard or used. |
| **compressor** | An electronic circuit for reducing the dynamic range of an audio signal. |
| **condenser** | A type of high quality microphone. They usually require phantom power. |
| **delay** | An audio effect used for producing an echo or multiple echoes. |
| **detent** | The central or multiple positions felt on some rotary controls or sliders. |
| **dynamic range** | The difference between the quietest and loudest sounds experienced. |
| **DI** | Direct Interface. Direct cable connection from an amplifier to other audio device. |
| **dry** | A signal that is unprocessed, i.e. no EQ or effects have been applied. |
| **DSP** | Digital Signal Processor, in this case used for producing sound effects. |
| **EQ** | Equalizer. Circuit for modifying the frequency response of an audio signal. |
| **feedback** | Oscillation that occurs between an amplifier and instrument or microphone. Also, a control for the amount of echoes that are heard on a delay effect. |
| **FET** | Field Effect Transistor. A type of transistor that can be configured to be used as a very quiet switch for audio signals. |
| **hard-knee** | Compression that is applied with a fixed ratio once the signal level exceeds the threshold. Can sound abrupt and unnatural. Alternative is soft-knee. |
| **ground loop** | A condition that often occurs when more than one electrical devices are connected together. This usually shows itself as an audible hum. |
| **impedance** | Regarding the input of an amplifier, the load it presents to the input signal. Alternatively, the load a speaker presents to the output of a power amplifier. |
| **LED** | Light Emitting Diode. A small electronic light used for indication. |
| **modulation** | With regards to audio effects, one that has a regular pulsating change of pitch, volume or other timbre of some kind. e.g. Chorus, Flanger, Phaser, Tremolo. |
| **notch filter** | A circuit that filters out a very small range of frequencies. |
| **passive** | With regard to a musical instrument, one that does not have any form of on-board preamp, usually easily determined by it not having a battery inside. |
| **piezo** | Piezoelectric sensor. A device often used for musical instrument pickups. If used passively, without a preamp, they have a very high output impedance. |
| **phantom power** | A method of powering one audio device from another through an audio cable. Usually refers to +48V for powering condenser microphones. |
| **release** | The time it takes for a compressor to stop applying compression after a signal has decayed under the threshold level. |
| **ring** | The additional middle connection on a TRS jack plug, not on a TS jack plug. |

| | |
|---|---|
| **sensitivity** | With regard to the input of an amplifier, the level of input signal required to achieve full signal swing. |
| **signal to noise ratio** | The difference between the wanted sound/audio and the background noise. |
| **sleeve** | The normal ground connection on a TS or TRS jack plug. |
| **soft-knee** | Compression that is applied gradually with an increasing ratio after exceeding the threshold. Often smoother sounding than the hard-knee alternative. |
| **tap tempo** | This is literally the tempo of the taps applied to a switch to set the delay time. |
| **threshold** | On a compressor, the signal level above which compression is applied. |
| **tip** | The normal signal connection on the end of a TS or TRS jack plug. |
| **TRS** | Tip Ring Sleeve. A type of jack plug with three connections rather than two. |
| **TS** | Tip Sleeve. The more common type of jack plug with two connections. |
| **unbalanced** | An audio connection with one signal conductor and one ground. Often uses TS (mono) type jack connectors. |
| **XLR** | A three conductor type connector used for professional audio applications. The three connections are usually a balanced pair plus a ground. |


*Features and specifications are subject to change without notice.*

**Trace Elliot • Hwy. 5022 Hwy. 493 North • Meridian, MS 39305**
**Tel: (601) 486-2255 • Fax: (601) 486-1156 • www.traceelliot.us**