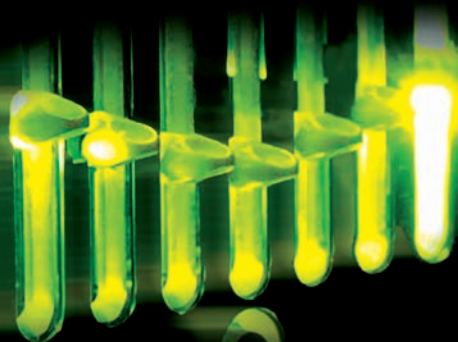


**TRACE
ELLIOT**



AH1200-12



AH600-12



AH600-7



1210



1215



715x



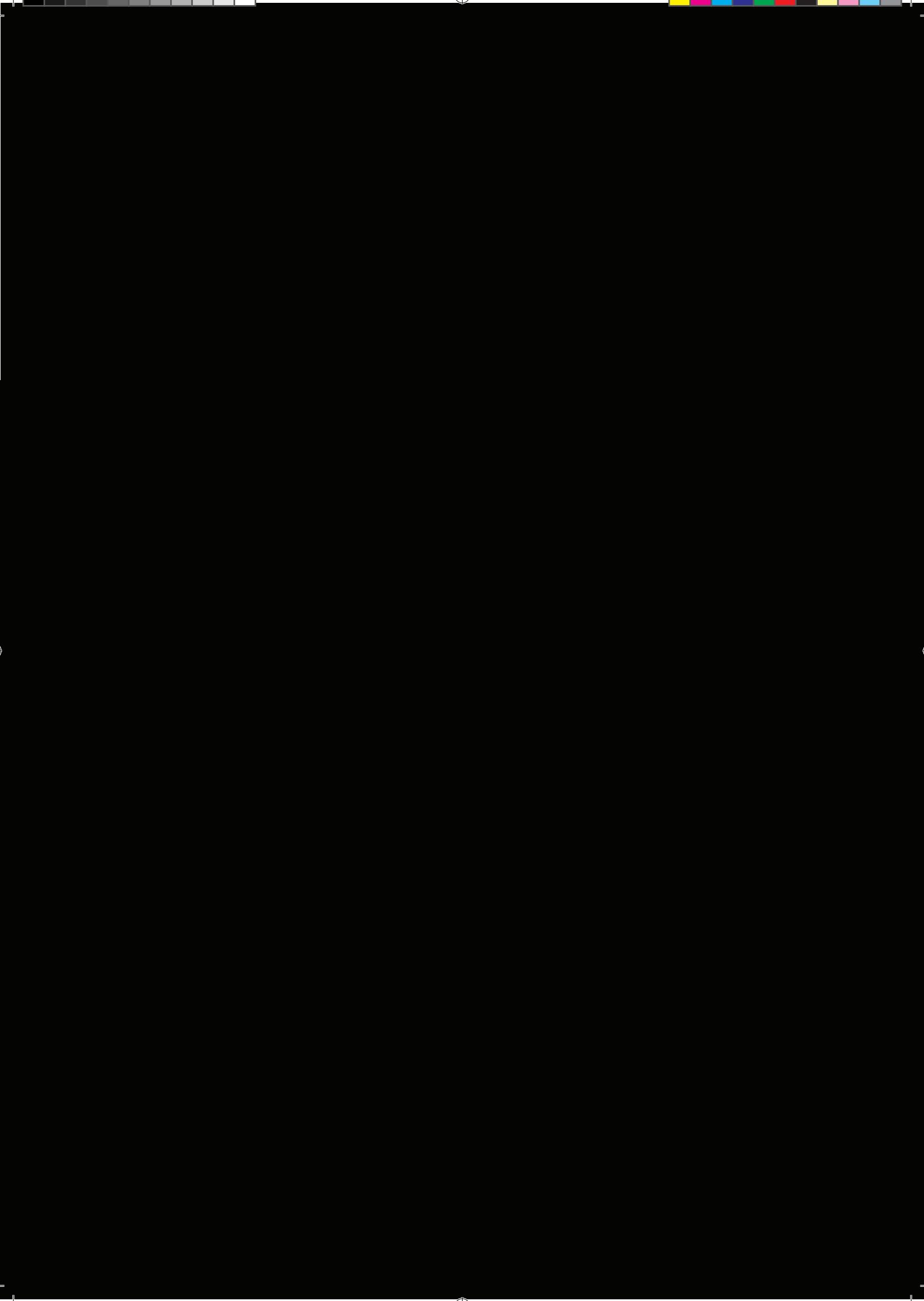
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7 BAND & 12 BAND
OWNERS MANUAL



AMPLIFICATION

**TRACE
ELLIOT**





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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, do not expose this appliance to rain or moisture. Before using this appliance, read the operating guide for further warnings.



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 usuario de la presencia de instrucciones importantes sobre la operación y mantenimiento en la información que viene con el producto.

PRECAUCION: Riesgo de descarga eléctrica ¡NO ABRIR!

PRECAUCION: Para disminuir 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 evitar descargas eléctricas o peligro de incendio, no deje expuesto a la lluvia o humedad este aparato. Antes de usar este aparato, lea más advertencias en la guía de operación.



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 réparée par l'utilisateur. Confiez l'entretien et la réparation de l'appareil à un réparateur Peavey agréé.

AVERTISSEMENT: Afin de prévenir les risques de décharge électrique ou de feu, n'exposez pas cet appareil à la pluie ou à l'humidité. Avant d'utiliser cet appareil, lisez attentivement les avertissements supplémentaires de ce manuel.



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 entfernen. Es befinden sich keine Teile darin, die vom Anwender repariert werden könnten. Reparaturen nur von qualifiziertem Fachpersonal durchführen lassen.

ACHTUNG: Um einen elektrischen Schlag oder Feuergefahr zu vermeiden, sollte dieses Gerät nicht dem Regen oder Feuchtigkeit ausgesetzt werden. Vor Inbetriebnahme unbedingt die Bedienungsanleitung lesen.

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. 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 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 ELLIOT AMPLIFICATION

Congratulations on your purchase of a Trace Elliot product. 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 or on stage.

This Trace Elliot range is the latest evolution of a line of products that were always known for their sophisticated features, high quality construction, use of state of the art technology and reliability. 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 to create the music that they want to hear.

The range features two types of preamp simply called *12 Band* and *7 Band*. This refers to the number of frequency bands of control within the graphic equalizer. There are several differences between the two preamp sections which are outlined below. In addition to the preamp, different models have different rear panel features, different power levels and, in the case of the combos, different speaker configurations.

High quality parts have been used throughout. In keeping with traditional Trace Elliot amplifiers, the INPUT GAIN and OUTPUT LEVEL controls use parts that have 'detents' to give a professional feel.

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. The front panel switch does not click when pressed and only needs to be pressed lightly to operate. In all cases the appropriate LED for that function will be lit/unlit as it is switched. All these functions are also conveniently footswitchable using the supplied footcontroller.

When a part of the circuitry is switched off then that particular part is completely bypassed, retaining signal integrity. Also, correct signal phase is maintained from all outputs regardless of which functions are switched on or off.

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

BASIC COMPARISON OF REATURES:

	7 Band	12 Band
LED level indication	Yes	Yes
HI / LO sensitivity switch	Yes	Yes
TUNER OUT	Yes	Yes
PRE SHAPE circuit	Yes	Yes
DI OUTPUT on front	Yes	No
VALVE DRIVE circuit	No	Yes
7 BAND GRAPHIC EQUALIZER	Yes	No
12 BAND GRAPHIC EQUALIZER	No	Yes
COMPRESSOR	Yes	No
DUAL BAND COMPRESSOR	No	Yes
SERIES EFFECTS LOOP	Yes	No
MULTI OPTION EFFECTS LOOP	No	Yes
DI OUTPUTS on rear	No	Yes
MUTE switch	Yes	Yes
4 function footcontroller	Yes	No
6 function footcontroller	No	Yes
Brightness Control for front panel	Yes	Yes

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 Elliot. 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 Elliot, plug the power cord into the socket on the rear panel and connect to a mains socket supplying the proper AC line voltage for your unit. This is located on the rear of the unit, near the mains inlet and power switch.
- (2) If your unit is an amplifier head (e.g. AH600-7, AH1200-12, etc.) then connect the speaker output to your speaker cabinet(s). (More information on this is provided in the Owner's Guide for the cabinet).
- (3) Turn the OUTPUT LEVEL control to the "0" position.
- (4) Connect the footcontroller (included) to the EXTERNAL CONTROL socket on the rear panel using the eight-pin DIN cable (included).
- (5) Plug your instrument into the INPUT on the front panel using a high quality shielded instrument cable and turn the INPUT GAIN control to the "0" position.
- (6) Flip the power switch on the rear to the "ON" position to turn the unit on.
- (7) Set your instrument to your normal settings and while striking a string hard turn up the INPUT GAIN gradually. While doing this observe the level indication LEDs above the control. When the red LED starts to be lit, turn the INPUT GAIN control back one or two clicks so that it only lights up very occasionally.

(8) Now gradually turn up the OUTPUT LEVEL control. Do this slowly to avoid any sudden level changes that could damage your hearing; these are loud amps! Set this at the desired playing volume.

(9) You will notice that the unit will have defaulted to a setting of everything off except the PRE SHAPE circuit. This is so that whenever the unit is turned on it will power up with a good basic tone.

(10) 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. While making adjustments keep an eye on the level indication LEDs; some extreme settings of the Graphic Equalizer will increase the signal level into clip, if this happens simply re-adjust the INPUT GAIN control as mentioned above.

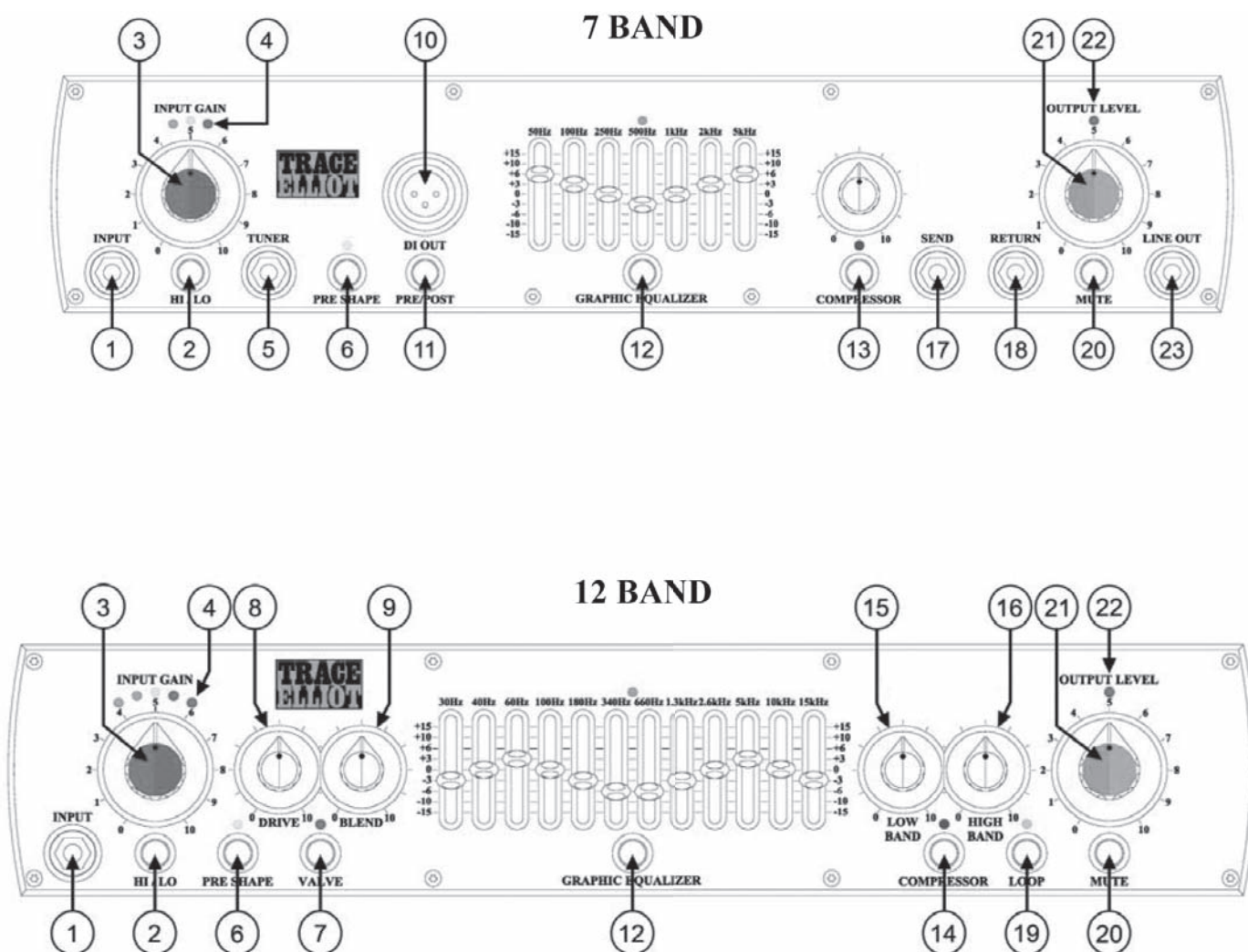
IN DEPTH GUIDE

Well done! The very fact that you are reading this section means that you are serious about getting the most out of your Trace Elliot 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 12 Band and 7 Band range of amplifiers. If a feature is only applicable to particular units then these are shown in brackets next to the heading. Therefore, if **(12 Band)** is shown, this section applies to all 12 Band products and not to any 7 Band products.

Where a specific model is shown in brackets, e.g. **(AH1200-12)**, then this applies only to that product. The feature being explained is shown in upper case, the type of control is shown in lower case. If there are any terms you do not fully understand then please refer to the glossary at the back of this manual.

FRONT PANEL



There are two different front panels used for the range. Aesthetically they are very similar, however closer inspection shows there are several differences. The 7 BAND has all its primary features on the front, with very little on the rear, whereas the 12 BAND has many of its features moved to the rear to make space for other features on the front. Basically the operation is very simple. The signal flow runs from left to right through the functions on the front panel. The status of each function is clearly shown by the corresponding controls and LEDs, which also match the LEDs on the footcontroller.

(1) INPUT socket

This is to connect the 1/4" jack lead from your instrument. Alternatively, if any effect units are being used before the amplifier then the output from the last unit is connected here. When the INPUT is not in use the amplifier is automatically muted to prevent any unwanted noise.

Experience has shown us that not all 1/4" jack plugs are made equal, therefore, we recommend the use of only high quality 1/4" jack leads for best sonic performance and reliable connection.

(2) HI / LO switch

This switch has two functions; to set the sensitivity and the impedance of the INPUT stage. In the out position it is set HI for high sensitivity and high impedance (1M Ω). The in position is the LO setting for lower sensitivity and lower impedance (100K Ω).

The difference in sensitivity is 10dB. Actual sensitivity is dependent on the setting of the INPUT GAIN control.

Generally, this switch should be set to HI for passive instruments, which are usually high impedance and have lower outputs, and LO for active instruments (those with batteries built in), which are low impedance and often have higher outputs. However, either can be used as long as the INPUT GAIN is set correctly.

(3) INPUT GAIN rotary control

This is to set the gain of the input stage of the amplifier. The setting of this control is the single most important on the whole unit, hence why the control knob has a red cap.

(4) Signal level LEDs

The level indication LEDs are included to help the user set the INPUT GAIN control. The circuitry monitors several strategic points throughout the preamp to determine if clipping (distortion) is occurring.

The 7 Band units have 3 LEDs; green, yellow and red. Green will be lit for very low signal levels, yellow will also come on when higher levels are present, and the red will be lit when the level is clipping or close to clipping.

The 12 Band units have 5 LEDs. An extra green LED shows low to medium signal levels and the additional red LED is a peak indicator that remains lit for a few seconds, even if the signal has dropped in level. This is to show where clipping is occurring momentarily and might otherwise be missed.

Ideally, the INPUT GAIN control should be set as high as possible with the red LED(s) only lighting very occasionally when playing the instrument at its hardest.

The basic procedure is as follows:-

- 1) Set the OUTPUT LEVEL to 0. Connect your instrument to the INPUT.
- 2) Set the HI / LO switch as appropriate for the particular bass being used.
- 3) Set the Volume control on the instrument to maximum.
- 4) Play the instrument as hard as it would be played during the performance.
- 5) While playing gradually turn up the INPUT GAIN.
- 6) The LEDs will begin to light up starting from the left.
- 7) Continue to turn up the INPUT GAIN until the (first) red LED is momentarily lit on the hardest strokes, then back off slightly one or two clicks on the control.

If an active bass is being used with the HI / LO switch set to LO and the INPUT GAIN control is turned fully clockwise without the red LED lighting at all, then switch to HI and follow the same procedure. This is because not all active basses have high enough outputs to require the LO setting to be used.

While making adjustments to the rest of the controls keep an eye on the level indication LEDs. Some extreme settings of the graphic equalizer will increase the signal level into clip. If this happens simply readjust the INPUT GAIN control as mentioned above.

(5) TUNER socket (7 Band)

This is an output for connecting to a tuner. It is a buffered version of the input signal. Simply connect a 1/4" jack lead from this to a tuner and you will be able to tune up easily at any time without degradation to the tone. The signal from this socket is present all at times regardless of any other settings including MUTE.

(6) PRE SHAPE switch

This activates the circuit for the classic Trace Elliot 'Mid Pre-Shape' that all users of previous Trace Elliot graphic style amplifiers will recognise immediately. As it is our 'signature sound', these amplifiers are designed to default to this setting when initially turned on. When this is activated the yellow LED is lit.

The actual effect of this circuit is to boost the low and high frequencies (55Hz and 2kHz to 5kHz respectively) and to cut the mid frequencies (centred around 400Hz), giving an instant, clearly defined, punchy sound. It can be switched on and off using the front panel switch and also from the footcontroller. Both have a yellow LED to show its status.

(7) VALVE switch (12 Band)

This switches the VALVE circuit on or off.

(8) DRIVE rotary control (12 Band)

This sets the signal level that is sent into the VALVE circuit.

(9) BLEND rotary control (12 Band)

This controls the mix between the normal sound and the sound from the valve.

The VALVE section uses both halves of an ECC83/12AX7 *thermionic valve* and is configured to be in parallel with the normal signal.

Low settings of the DRIVE control will remain basically clean but with valve warmth added due to the harmonics generated by the valve. Higher settings will drive the valve harder and will result in overdrive sounds being created.

The BLEND control can then be used to literally blend together the two parallel signals to achieve the desired effect. With the BLEND control fully anti-clockwise only the normal signal will be present; turning clockwise will reduce the normal signal and increase the valve sound until, with the control fully clockwise, only the valve sound is present. This means that in all positions, other than maximum and minimum, the sound of the valve is blended together with the normal, clean signal which prevents the bottom end losing definition.

By using the two controls a wide range of valve sounds can be dialled in, from vintage warmth to heavy overdrive. Bear in mind this is not simulation, this is a real valve doing a real job. We recommend experimenting with both the PRE SHAPE and GRAPHIC EQ in various settings while the VALVE circuit is switched on. With PRE SHAPE selected and a low to medium amount of DRIVE, the sound takes on the character of a vintage valve bass amp due to ‘shaping’ the signal before the valve. With higher DRIVE settings the tone often benefits from some sound ‘sculpting’ by the GRAPHIC, a little boost in the high mids helps the attack.

Also the COMPRESSOR can be used to further shape the tone. The HIGH BAND is of particular use when lots of overdrive is being produced due to the extra high frequency content in the sound.

Basically, this is a very versatile circuit that can produce various valve tones, from demurely subtle to wantonly filthy! Experiment and enjoy.

Once a particular sound is found, the user can switch to the normal, clean sound and back again by pressing the associated switch on the front panel or by using the footcontroller, both of which have a red LED to show its status.

Please note: to drive the valve hardest the INPUT GAIN control needs to be set correctly as described above.

(10) DI OUT XLR socket (7 Band)

This is a low impedance balanced output for connecting direct to a stage box or mixer for live or studio use. It gives the engineer a strong, clean signal without any overspill from other instruments. The XLR socket is wired as normal: pin 1 = Ground, pin 2 = Signal +, pin 3 = Signal – (An ‘Earth Lift’ switch is featured on the rear panel - see below).

(11) PRE/POST switch (7 Band)

This switches the signal that appears at the DI OUT from PRE with the switch out, to POST with the switch in.

PRE is before any EQ is applied, therefore a higher level, buffered, version of the input signal. POST is after the EQ, COMPRESSOR and effects loop, but before the OUTPUT LEVEL control. Therefore, any sound shaping that is applied within the amplifier will be heard on the DI signal as well. Different applications will determine different settings. If in doubt choose POST as this will be basically the same sound that will be heard from the cabinet / combo speakers.

Both settings should have similar general output levels. Neither will be affected by adjustments to the OUTPUT LEVEL, so turning up on stage will not overload the mixing desk once it is set. In either setting the output will be muted if the MUTE function is used.

(12) GRAPHIC EQUALIZER switch & sliders

When switched on the GRAPHIC EQUALIZER will be inserted into the signal chain. The green LED above the sliders shows its status. It can be switched on and off using the front panel switch and also from the footcontroller.

The graphic equalizer is the centre piece, both functionally and quite literally, of a traditional Trace Elliot amplifier, so much so that the actual name for each part of the range is derived from the number of frequency bands within each one, i.e. 7 Band and 12 Band. Both types are very powerful tools for controlling the tone of your instrument. The design of a Trace Elliot graphic equalizer is very different from a standard sound reinforcement EQ. 15dB of cut or boost is available for each band, but instead of being spread mathematically over the frequency range they have been set at carefully selected frequencies of particular use for bass guitar.

Therefore, there is more control in the lower frequencies. Another difference is that each slider controls a much wider frequency range than normally found. These design differences are in common with traditional Trace Elliot amplifiers and are part of the sound.

With the controls all set at 0dB (their mid 'click' 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 (30Hz to 40Hz) boost on the graphic unless your speakers can handle it. Very few speaker systems are capable of handling frequencies as low as 30Hz and 40Hz with any degree of efficiency. Boosting at 30Hz, for instance, will not add to the perceived amount of bottom end in the sound, it will only make your speakers flap to no useful effect. In fact, boosting at 100Hz or 180Hz will have the apparent effect of adding far more bottom end than boosting at 30Hz, 40Hz or even 60Hz. The 30Hz slider has been provided on the 12 Band to allow precise tailoring at very low frequencies. This slider should be used to cut (not boost) the 30Hz to a level that allows the speaker system to work at its maximum efficiency.

Do not use excessive top (10Hz to 15kHz) boost, this will add mostly hiss to the sound as there is very little signal output at this frequency from a bass.

Try to keep the graphic sliders balanced around 0dB and in a smooth flowing curve from one slider to the next, and remember that after adjusting the graphic you may need to re-set the INPUT GAIN.

The fundamental frequency range of a regular, 4-string bass guitar is from 41.2Hz (bottom E string) to around 392Hz (two octaves up on the G string) - not a very wide range. Obviously a lot of harmonics are produced when playing and these can extend up to 5kHz and more.

The attack portion of the note also produces other high frequencies when the string is first struck. This attack can be emphasised by boosting the top end. However, because of the fairly small range of frequencies from a bass, by top end we mean between 2.5kHz and 5kHz. You will find that by boosting at 5kHz the attack will be emphasised, whereas boosting at 1.3kHz and 2.6kHz will bring out the harmonics in the note. Above this frequency range you will find it is better not to boost the signal as this will mainly emphasise any hiss present.

If the VALVE circuit on a 12 Band unit is used at quite high DRIVE settings, you will find the GRAPHIC EQ extremely useful in shaping the overall tone due to having far more precise control than a simple bass, middle, treble arrangement found on many other amplifiers.

(13) COMPRESSOR switch and rotary control (7 Band)

Pressing this switch will add the COMPRESSOR to the signal chain. The blue LED above the switch shows its status. It can also be switched on and off using the supplied footcontroller. The rotary control adjusts the amount of compression applied to the signal; the further clockwise the control is set, the more the dynamic range will be squeezed.

The compressor in the 7 Band series uses studio quality, dedicated dynamics controller integrated circuits and has been specifically designed for bass guitar due to the common problems often experienced when using a normal, single band compressor in this application.

With a standard compressor, the transition from non-compressed to compressed, i.e. crossing the *threshold*, can often be abrupt and unnatural sounding, especially at high *ratio* settings. Also, the normal pre-set *attack* and *release* times always have to be a compromise between having it work fast enough to catch rapidly changing signal levels (i.e. transients such as slapping techniques) or too fast which can cause low frequency distortion.

To tackle these issues, the compressor on the 7 Band range has been designed as a *soft-knee* compressor with programme dependant *adaptive* attack and *release* times.

□ *Soft-knee* means that, above the threshold, compression is applied gradually, with the ratio increasing as the input level goes up. The result is a smoother sounding compression than the normal *hard-knee* type.

□ *Adaptive attack* and *release* means that these settings are automatically and constantly adjusted by the circuitry depending on what is being played. It will adjust to be slow to prevent distortion at low frequencies and then readjust to be fast to catch transients. It enables a bass player to switch between various playing styles such as finger style, slapping or plectrum, and the compressor will self-adjust its attack and release times accordingly.

The simple single control makes setting the desired amount of compression easy as it is effectively controlling the *threshold*, *ratio* and *make-up* gain simultaneously. This is considerably less complicated than setting up a studio compressor from scratch as most of the hard work has been done by our engineers and incorporated into the circuitry.

The circuit has been tuned so there should be little nominal signal level difference when switching the COMPRESSOR on and off, however this is dependant on the correct setting of the INPUT GAIN control. If you find that the level increases too much when switching the COMPRESSOR on, then slightly turn up the INPUT GAIN. The opposite applies if the compressed sound is too low.

Compression is good for generally controlling the *dynamic range* and preventing distortion, and also as an effect. It sounds great for slapping techniques, for making harmonics more prominent, and for fattening up grooves or smoothing out notes in a run.

Please be aware that due to the nature of any compression circuit that then adds make-up gain to bring the nominal level up, dialling in high levels of compression will increase high frequency hiss between notes. This is not hiss added by the compressor circuit, but hiss that is already present in the signal and then being amplified. However, as this is only really noticeable when not actually playing, if high levels of compression are desired it is possible to prevent the noise from being heard too much by using the footcontroller to turn off the compression or muting the signal when nothing is being played.

(14) COMPRESSOR switch (12 Band)

Pressing the switch will add the *dual band* COMPRESSOR to the signal chain. The blue LED above the switch shows its status. It can also be switched on and off using the supplied footcontroller.

(15) LOW BAND rotary control (12 Band)

This adjusts the amount of compression applied to the low frequencies in the signal; the further clockwise the control is set, the more the dynamic range of the low end will be squeezed.

(16) HIGH BAND rotary control (12 Band)

This adjusts the amount of compression applied to the high frequencies in the signal; the further clockwise the control is set, the more the dynamic range of the high end will be squeezed.

The compressor section of the 12 Band series uses two separate studio quality, dedicated dynamics controller integrated circuits, and has been specifically designed for bass guitar due to the common problems often experienced when using a normal, single band, compressor in this application.

With a standard compressor, the transition from non-compressed to compressed, i.e. crossing the *threshold*, can often be abrupt and unnatural sounding, especially at high *ratio* settings. Also the normal pre-set *attack* and *release* times always have to be a compromise between having it work fast enough to catch rapidly changing signal levels (i.e. transients such as slapping techniques) or too fast which can cause low frequency distortion.

To tackle these issues, the compressor on the 12 Band range has been designed as a *dual band, soft-knee* compressor, with different attack and release times pre-set for each of the high or low bands, and separate controls for the user to set the amount of compression applied to each band.

Dual band means that the signal is split into the high and low frequencies, each of which then goes through separate compression circuits before being reconstructed.

The amount of compression of each band can be set by adjusting the LOW BAND and HIGH BAND controls. This is similar to the sophisticated type of compression that is used for *mastering* whole tracks to prevent unwanted *pumping* and breathing effects.

Soft-knee means that, above the threshold, compression is applied gradually, with the ratio increasing as the input level goes up. The result is a smoother sounding compression than the normal *hard-knee* type.

Different attack and release times are pre-set for each band so that the low band works slow enough to prevent distortion at low frequencies and the high band works fast enough to catch transients.

The simple single control for each band makes setting the desired amount of compression easy as it is effectively controlling the *threshold*, *ratio* and *make-up gain* simultaneously.

This is considerably less complicated than setting up a studio compressor from scratch as most of the hard work has been done by our engineers and incorporated into the circuitry.

The circuit has been tuned so there should be little nominal signal level difference when switching the COMPRESSOR on and off, however, this is dependent on the correct setting of the INPUT GAIN control. If you find that the level increases too much when switching the COMPRESSOR on then slightly turn up the INPUT GAIN. The opposite applies if the compressed sound is too low.

In this application a dual band compressor has several uses. If used solely for controlling the dynamic range, it enables the bass player to switch between various playing styles, such as finger style, slapping or plectrum. The circuit will compress as directed without distortion to the bottom end, or transients taking hold of the whole signal level and causing *pumping*, which is very obtrusive on bass guitar.

Applying compression to just the low band will fatten up the bottom end without losing the attack characteristics. It is a less processed sound than full range compression and works well in controlling the low frequencies, allowing higher volumes without stressing power amps or speakers. It can also help to add definition to notes within a run without loss of the attack dynamics.

Compression applied to the high band will directly effect the attack portion of the note and should be used carefully. However, even extreme settings can produce some interesting effects for both slapping and fretless techniques and will help to make harmonics jump out in the mix.

If the VALVE drive circuit is being used at high settings then the high band compressor can be used to control and smooth out the overdrive produced resulting in quite a processed, produced sound.

Experimentation with many different settings of the compressor will help to get the most out of it.

Please be aware that due to the nature of any compression circuit that then adds make-up gain to bring the nominal level up, dialling in high levels of compression will increase high frequency hiss between notes. This is not added by the compressor circuit, but is hiss that is already present in the signal and is then being amplified. However, as this is only really noticeable when not actually playing, if high levels of compression are desired it is possible to prevent the noise from being heard too much by using the footcontroller to turn off the compression or mute the signal when nothing is being played.

(17) SEND socket (7 Band)

This is a 1/4" jack socket for connecting to the input of effects units.

(18) RETURN socket (7 Band)

This is a 1/4" jack socket for connecting to the output of effects units.

The effects loop on the 7 Band range is an easy to use, *unity gain*, series effects loop. The user can simply connect effects units between the SEND and RETURN sockets and the effect will be applied to the whole signal. The normal bypass on each effect unit can still be used to turn the effect on and off during a performance.

The nominal level has been set to -10dBV to be able to drive most commonly used effects units. If the effects units have their own level controls, please ensure these are set correctly to prevent distortion occurring anywhere in the overall system.

(19) LOOP switch (12 Band)

Pressing the switch adds the EFFECTS LOOPS in to the signal chain. Its status is shown by the orange LED and it can also be controlled by the footcontroller.

All the connections for EFFECTS LOOPS are on the rear panel. See below for a full description.

(20) MUTE switch

Pressing this switch will mute all outputs, (speaker, line and DI) except for the TUNER output. Its status is shown by the red LED above the OUTPUT LEVEL control which will flash when MUTE is selected. It can also be operated using the 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 basses and set up the INPUT LEVEL silently without turning the OUTPUT LEVEL to zero and therefore risk forgetting the setting.

(21) OUTPUT LEVEL rotary control

This sets the signal level sent to the power output stage and the LINE OUT(s). It should be set at "0" when switching on the amplifier and turned up to the desired playing volume slowly to avoid any sudden level changes that could damage your hearing.

The actual power level produced from the amplifier will be dependent on the input signal and the settings of the other controls.

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.

We also recommend turning the OUTPUT LEVEL control to '0' at the end of a session, before switching off.

(22) Multi-purpose red LED above OUTPUT LEVEL

This LED has several functions. Firstly, it will flash on and off if the MUTE function is selected. It will also light momentarily if maximum output from the power stage is reached.

It also functions as a general protection warning light, illuminating if any of the following conditions occur: power amp over-temperature protection, short-circuit protection, over-current protection. If this LED remains lit please refer to the HELP section at the back of this manual.

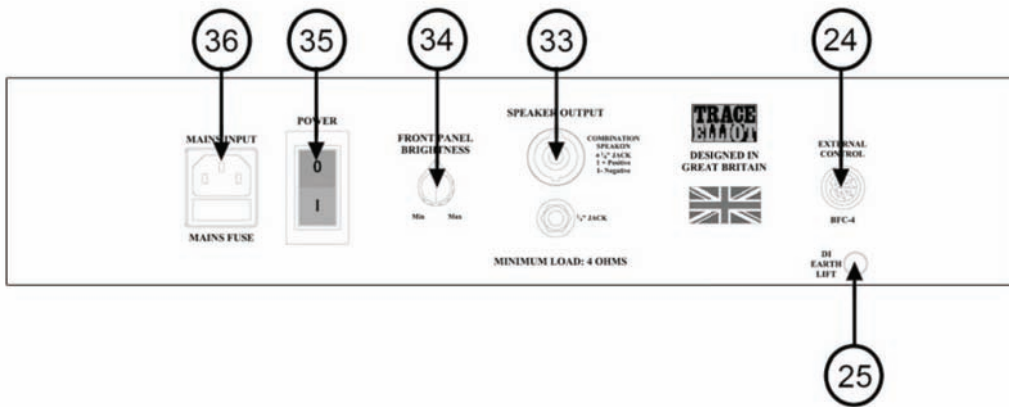
(23) LINE OUT socket (7 Band)

This is an unbalanced jack output that can be used to send the output of the preamp section to another piece of equipment, such as a power amplifier, mixing desk or recording device.

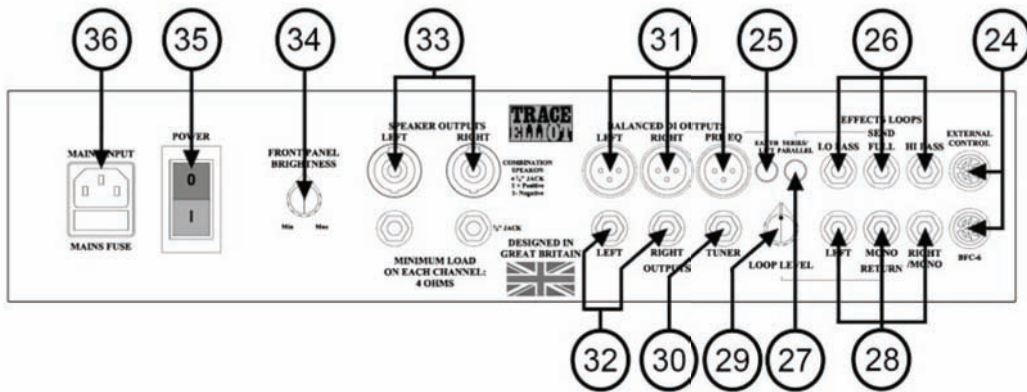
The actual level is dependent on the setting on the OUTPUT LEVEL control, which means that if it is used to expand the system with extra power amps and speakers, then the overall volume can still be set by a single control.

REAR PANEL

7 BAND



12 BAND



N.B. Within the 7 Band and 12 Band ranges the rear panels may vary slightly from those shown above.

(24) EXTERNAL CONTROL 8 pin DIN socket(s) – BFC-4 (7Band), BFC-6 (12 Band)

The socket(s) are for connecting to the footcontroller supplied with the unit. It should be connected before the unit is switched on. Please ensure that the lead is inserted firmly and securely into the sockets on both the amplifier and the footcontroller.

7 Band units are supplied with a 4-function footcontroller (BFC-4) that enables the user to control PRE-SHAPE, GRAPHIC, COMPRESSOR and MUTE.

The 12 Band units are supplied with a 6-function footcontroller (BFC-6) that enables the user to control PRE-SHAPE, VALVE, GRAPHIC, COMPRESSOR, LOOP and MUTE.

The LEDs on both footcontrollers all correspond in colour and function to those on the front panel.

If a footcontroller is disconnected from the amplifier while it is on and then reconnected, it may display different settings to the front panel.

To re-synchronize the switching simply turn the unit off for 5 seconds and then back on. Both the amplifier and footcontroller will power up in the normal default state of PRE-SHAPE on, all other functions off.

The 12 Band units have been designed with two EXTERNAL CONTROL sockets. These make it possible to use two footcontrollers, either of which can control the amplifier. This is useful if performing on a large stage where each footcontroller can be placed in a different location for the performer's convenience. Alternatively, one of the controllers could be placed on stage as normal and the other placed at the side of the stage to enable a technician to control the musician's amplifier if necessary. Again, this is useful on particularly large stages. Another use for both sockets is if two amplifiers are being used. In this scenario the two amplifiers can be controlled by one footcontroller by connecting the spare EXTERNAL CONTROL socket on the first unit to one of the sockets on the second.

(25) DI EARTH LIFT switch

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

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.

EFFECTS LOOPS (12 Band)

(26) SEND – LO PASS, FULL, HI PASS sockets (12 Band)

These are all SEND outputs within the EFFECTS LOOPS section and are active at all times.

The FULL SEND will output the full frequency range of the signal. The LO PASS SEND will output only the low frequencies and the HI PASS SEND will output only the high frequencies. The filters have been designed so that when the LO PASS and HI PASS signals are reconstructed they will be identical in both frequency response and phase.

(27) SERIES / PARALLEL switch (12 Band)

This configures the effects loops to be either SERIES, with the **switch in** where the whole signal passes through the effects loop, out of the sends and back in the returns, or PARALLEL with the **switch out**, where the signal is split, one part going through the effects loop and the other, *dry*, signal being unprocessed and mixed in with the effected signal. The PARALLEL setting ensures that a part of the overall signal remains pure and unaffected.

If the PARALLEL setting is chosen it is recommended that the dry signal in the effects unit is turned to minimum if accessible.

(28) RETURN – LEFT, MONO, RIGHT/MONO sockets (12 Band)

These are all RETURN inputs within the EFFECTS LOOPS section.

- The MONO socket will route the signal through both channels of the rest of the preamp.
- The LEFT socket will route the signal to the left channel.
- The RIGHT/MONO socket will route the signal to the right channel if the LEFT socket is also in use, or it will route the signal through both channels, i.e. in mono, if the LEFT socket is not used.

(29) LOOP LEVEL rotary control (12 Band)

This sets the *overall level of the signal while the LOOP is on*. Therefore, if the LOOP is not selected this has no effect, but when the LOOP is selected this is a very important control for balancing the levels.

The control has been calibrated so that if a simple loop is set up, SERIES, FULL RANGE, MONO, then with the control at the 12 o'clock setting there will be *unity gain* when switching the LOOP on and off. Turning the control anti-clockwise will reduce the level when LOOP is selected, clockwise will increase the level. If the LOOP is selected and the LOOP LEVEL is at "0" then there will be no output. A wide range of level is available due to the many permutations of effects configuration. If in any doubt, set this to the 12 o'clock setting and then adjust either way to balance the level with the dry signal.

The EFFECTS LOOPS section is a highly sophisticated design with multiple sends, returns and other controls that allow myriad combinations of connection to external devices and, therefore, all sorts of sonic potential.

The nominal level has been set to -10dBV to be able to work with most commonly used effects units. If the effects units have their own level controls please make sure these are set correctly to prevent distortion occurring anywhere in the overall system.

Effects themselves aren't to everyone's taste, but that doesn't mean this feature won't be useful. These features have been designed for use as anything from a simple boost function to a means to connect to multiple different external devices.

Here are some suggested uses/configurations, some using effects and others not:-

Volume Boost: simply set the LOOP for PARALLEL setting and turn up the LOOP LEVEL. Switching the LOOP in will give up to 6dB of boost. Useful for solos.

Simple Full Range Series Loop: connect FULL SEND to input of effects unit, MONO RETURN to output of effects unit, switch to SERIES with LOOP LEVEL at 12 o'clock. Switching the LOOP in will route the signal through the effects unit at unity gain.

Stereo Loop with Chorus on high frequencies: connect HI PASS SEND to input of Chorus unit, connect LEFT and RIGHT RETURNS to outputs of Chorus unit. Set dry signal on Chorus unit to minimum. Switch to PARALLEL and set LOOP LEVEL to 12 o'clock. Switching LOOP on will apply stereo Chorus to the upper frequencies while keeping the low end mono and clear. Similar set up can be used for Flanging, Phasing, etc.

Improved Octaver triggering: connect LO PASS SEND to input of Octaver, connect MONO RETURN to output of Octaver. Set dry signal on Octaver to minimum. Switch to PARALLEL with LOOP LEVEL at 12 o'clock. Switching LOOP on will add the Octaver effect as expected but as the signal being sent to it has far less harmonics the Octaver will be able to produce a clearer more stable tone.

Stereo Chorus on high frequencies, Octaver on low: connect both pedals as per the last two configurations. Switching LOOP on will add both effects in parallel therefore enabling both to work without interfering the other.

□ **Overdrive/Distortion just on high frequencies:** connect HI PASS SEND to input of Overdrive/Distortion unit, connect MONO RETURN to output of Overdrive/Distortion unit. Switch to PARALLEL, LOOP LEVEL to 12 o'clock. Set effect as desired. Switching LOOP on will apply Overdrive/Distortion to the upper frequencies while keeping the low end clear.

□ **Envelope Filters:** try using an envelope filter triggered from the HI PASS SEND, try again triggered from the LO PASS SEND, this will produce different results. Got two envelope filters? Try triggering one from HI PASS, the other from LO PASS, bring their outputs back into LEFT and RIGHT and set one to filter up the other to filter down, weird enough? Now switch on the VALVE drive circuit to really give them something to get their teeth into!

□ **Inserting external audio source:** connect outputs of external unit (synth, CD, sequencer, drum machine, etc.) into LEFT and RIGHT RETURN. Set to PARALLEL with the LOOP LEVEL at 12 o'clock. Switching the LOOP on will mix the external audio source with the bass signal. Use the output level on the external source to balance the two.

□ **Effects Loop as a crossover (requires unit with two power amplifiers):** connect patch leads from HI SEND to RIGHT RETURN and LO SEND to LEFT RETURN. Set to SERIES with LOOP LEVEL at 12 o'clock. With LOOP selected all left outputs will produce the low frequencies, all right outputs the high frequencies.

□ **Triggering of external devices such as synth:** connect the LO PASS SEND to input of device to be triggered. Signal will be present at all times and will have high frequency content removed therefore making it easier for the external device to determine the fundamental frequency.

These are just a few ways in which the EFFECTS LOOPS connections can be used. The configurations are only limited by the equipment that is available and your imagination.

Stereo/Mono?

The 12 Band preamp is stereo from the EFFECTS LOOPS through to the LINE OUTS. Units with two output stages (e.g. AH1200-12) remain stereo through to the speaker outputs. Units with one output stage (e.g. 1215, 1210) have the two channels mixed into mono at the final preamp stage. Therefore although the signal from the speaker output will be mono, the DI and LINE OUTs retain stereo separation for recording or sound reinforcement purposes.

(30) TUNER socket (12 Band)

This is an output for connecting to a tuner. The signal here is a buffered version of the input signal before any processing has been applied. Simply connect a 1/4" 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. (As the actual level is determined by the INPUT GAIN, if you wish to tune up silently use the MUTE function, which mutes all outputs except TUNER, rather than adjusting the INPUT GAIN.)

(31) BALANCED DI OUTPUTS – LEFT, RIGHT, PRE EQ XLR sockets (12 Band)

These are separate low impedance balanced outputs for connecting direct to a stage box or mixer for live or studio use. This gives the engineer a strong, clean signal without any overspill from other instruments. The XLR socket is wired as normal: pin 1 = Ground, pin 2 = Signal +, pin 3 = Signal –

The PRE EQ output is taken before any EQ is applied, therefore a higher level, buffered, version of the input signal. The LEFT and RIGHT outputs are taken after the PRE SHAPE, VALVE, GRAPHIC, COMPRESSOR and EFFECTS LOOPS, but before the OUTPUT LEVEL control.

Therefore, any sound shaping that is applied within the amplifier will be heard on the DI signal as well. Both settings should have similar general signal levels.

Neither will be affected by adjustments to the OUTPUT LEVEL 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 output(s) to use. For a pure bass sound at all times the PRE EQ should be used. Alternatively, if all the internal processing is required then the LEFT and/or RIGHT should be used. If in doubt choose these as the sound will be basically the same as the sound heard from the cabinet/combo speakers. If you are not using any stereo effects then it will only be necessary to use either LEFT or RIGHT as both will produce the same signal.

There may also be some occasions when it is desirable to use all outputs. This is particularly useful when recording as it allows both the dry and processed signals to be recorded at the same time on to separate channels. These can then be switched between or even mixed together at later stages of the recording session. As they are fundamentally the same performance they will track seamlessly in pitch and phrasing.


(32) OUTPUTS – LEFT & RIGHT sockets (12 Band)

These are unbalanced 1/4" jack outputs that can be used to send the output of the preamp section to another piece of equipment, such as a power amplifier, mixing desk or recording device. The actual level is dependant on the setting on the OUTPUT LEVEL control which means that if these sockets are used to expand the system with extra power amps and speakers, then the overall volume can still be set by a single control.

(33) SPEAKER OUTPUT(S)

All units feature Neutrik© Combination Speakon© and 1/4" jack sockets and most feature an additional 1/4" jack socket depending on the specific model. (The 715 combo only has the Combination Speakon© socket so that the internal speaker must be disconnected to be able to connect to an extension cabinet). Units with two power stages (e.g. AH1200-12) have separate speaker outputs for the LEFT and RIGHT channels.

These sockets are for connecting to speaker cabinets. Connections should be made before mains power is applied to the unit.

 When connecting to a speaker cabinet we recommend that the Speakon© socket is used in preference to the 1/4" jack as it provides a far superior connection. 1/4" jack sockets have been added merely for the user's convenience when it is absolutely necessary to use them. Please ensure that if a jack lead is used that it is definitely a speaker cable rather than in instrument cable; the two are very different and should not be mixed for either application. If two extension cabinets are used with 1/4" jack leads we recommend that each cabinet is connected back to the amplifier separately instead of using the LINK socket on the cabinet. This will halve the current that each lead carries and provide a better connection.

Trace Elliot amplifiers are designed to deliver their rated RMS output power into 4 ohm speaker loads. Therefore each amplifier can drive 1x 4 ohm cabinet or 2x 8 ohm cabinets (in parallel).

Driving a single 8 ohm load will deliver between 50% and 60% of the rated power. Never connect your amplifier to a speaker load lower than the rated 4 ohms. This will result in over heating of the amplifier and it shutting down into protect mode.

Please refer to the specification sheet for your cabinet for more information on its use.

(34) FRONT PANEL BRIGHTNESS rotary control

This literally controls the brightness of the back lighting on the front panel. Fully anti-clockwise will turn it completely off. This does not affect the brightness of the small status LEDs.

The back lighting is produced by state of the art, high powered LEDs positioned behind the Perspex (plexi-glass) part of the front panel and gives the familiar green glow of Trace Elliot amplifiers on stage. LEDs have been used as they do not produce any electronic noise or hum that could be detrimental to the sound.

The control has been included to enable users to set the BRIGHTNESS to their taste and also to turn the back lighting off completely in situations where it would be undesirable.

(35) POWER switch



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

(36) IEC socket and fuse holder

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.



For your safety we recommend that you use the mains cord provided. Other mains cords may contain lower value fuses that could blow at high volume and shut down the amplifier thereby spoiling a performance.

The fuse tray within the IEC socket contains the mains fuse. If replaced it must be with the same type and rating as marked on the rear panel. Failure to do so may render the unit unsafe and invalidate the warranty. If the fuse repeatedly blows then consult your authorised Trace Elliot dealer, or a qualified service engineer.

ADDITIONAL INFORMATION

POWER AMPLIFIERS

The power amplifier sections within these Trace Elliot products are high efficiency advanced designs. They are designed to withstand rigorous use and include protection for over-temperature, over-current and short-circuits.

Although designed to run comparatively cool, the high power versions do contain fans. These blow cool air from the outside across critical components and back out through the vents. Therefore, the vents on the front and rear or sides of these units should not be obscured. Please bear this in mind if you intend to rack-mount or flight-case your amplifier.

ANTI-CLIPPING CIRCUIT

To prevent prolonged power amplifier clipping which, apart from sounding highly offensive, is the easiest way to destroy speakers, the power amp sections are immediately preceded with a two-stage circuit to control the signal level from the preamp. The rear panel of each amplifier will show two RMS power ratings, one for transients and the other for steady-state signals. The circuit is inactive until the power level reaches the lower rating. At this point the first stage of signal amplitude control is applied. This works like a fairly slow compressor that is relatively unobtrusive and will gently control the signal level to keep it from clipping the power stage. To catch transients, a second stage is applied at the higher power level. Between the two stages the signal level is controlled to keep clipping to a minimum without the circuit being too audible in affecting dynamics. The 12 Band products incorporate a valve as part of this circuit.

COMBOS

Various combinations of preamp, power amp and speaker configurations are available within the range. The particular combination of your unit will be marked on the front panel.

All the amplifier sections are designed to deliver their full rated power into 4 ohms. Therefore a combo fitted with a 4 ohm internal speaker will deliver the full power into its own enclosure. Although capable of driving extension cabinets, the connections on the rear mean that the user has to disconnect the internal speaker before connecting to an extension cabinet.

Combos fitted with an 8 ohm internal speaker will deliver approximately 50% – 60% of the rated power into their own enclosure. Connecting to an 8 ohm extension cabinet will bring the overall impedance down to 4 ohms and will therefore deliver 100% of the rated power. The connections on the rear of these combos allow an extension cabinet to be connected while keeping the internal speaker connected. This arrangement is ideal for using the combo on its own at rehearsals, recording sessions and smaller gigs, then connecting an extension cabinet, such as a 1518 or 1028H, to give more power when required at larger gigs.

Combos fitted with switchable high frequency horn attenuation (e.g. 715X, 1215, 1210) benefit from the user being able to set the horn on full, half or disconnected. The setting will depend on playing and music styles, preamp settings and personal choice.

On 12 Band units, when using the VALVE drive at high DRIVE settings it is advisable to experiment with the setting of the horn attenuation. Generally for more traditional warm or overdriven bass tones the horn should be set low or off.

HELP

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

Symptom

Check

Unit does not power up

**IEC mains cord is correctly connected.
Fuse in IEC inlet is OK.
Fuse in IEC mains cord is OK.**

Unit powers up but no sound

All connecting leads.

Signal level LEDs do not light

Instrument leads and battery if applicable.

Signal level LEDs light but no sound

**OUTPUT LEVEL is turned above '1'.
Is MUTE or LOOP selected? If so,
turn off.
Leads in Effects Loop (7 Band).**

**No signal when LOOP selected (12 Band)
LOOP LEVEL is turned up.**

**Is it set SERIES? Set to PARALLEL.

Connecting leads in LOOP.
External devices used in LOOP.**

Unwanted distorted signal

**Is INPUT GAIN set correctly? Reset.
Is GRAPHIC set too extreme?
Is battery in instrument OK?**

General purpose protection LED on

Check Speaker wiring.

Is it overheating?

Ensure vents are clear.

SUGGESTED SETTINGS

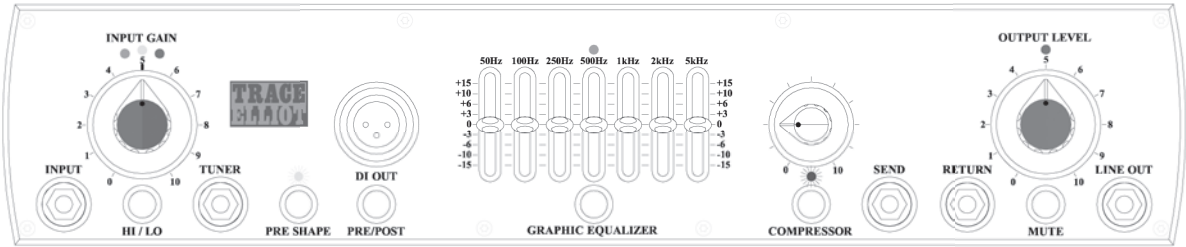
Below are some suggested settings that should give you a starting point in developing your own sounds.
 There are three for 7 Band however the basic settings of the first three can be applied to the 12 Band as well.
 Please feel free to try these but then experiment, the more you get used to the features the quicker you'll be able to find sounds you want.
 LEDs are shown as lit if that function should be turned on.

Notes:

- 1 Set up INPUT GAIN correctly for you particular bass as described earlier in the manual.
- 2 If the red level indicator LED lights up reduce the INPUT GAIN.
- 3 The OUTPUT LEVEL should be used to raise or lower the overall volume once the rest of the controls have been set.
- 4 Did we mention setting the INPUT GAIN control correctly? Check it again after you've adjusted the EQ.

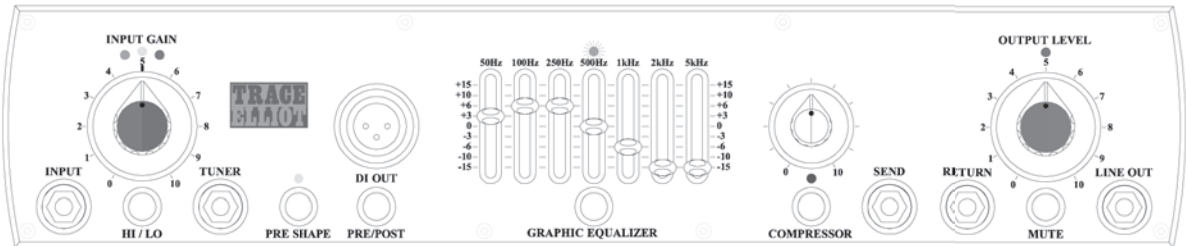
Classic Trace

PRE SHAPE on
 COMPRESSOR low



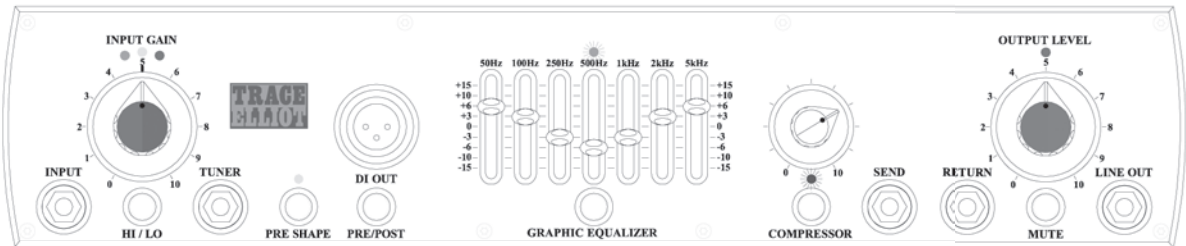
Big Bottom

GRAPHIC on
 Low boost, highs rolled off



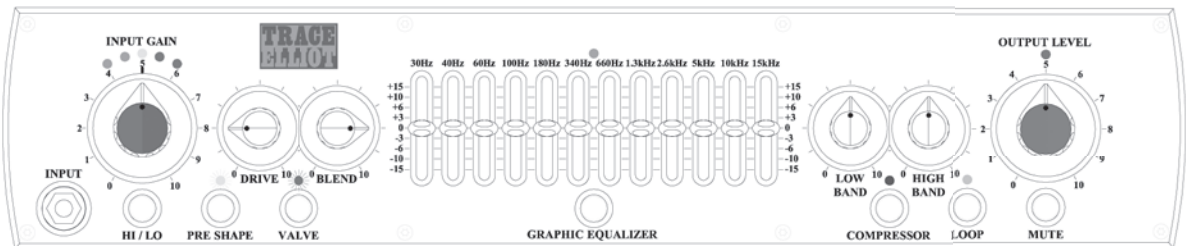
Squashed Funk

GRAPHIC on, set as shown
 COMPRESSOR on high



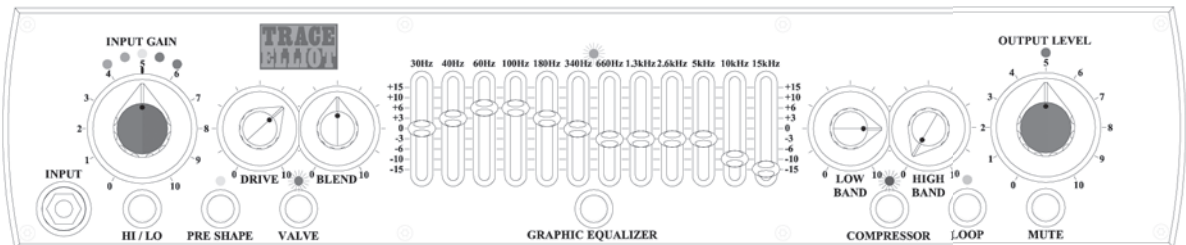
Old Style Warmth

PRE SHAPE on
 VALVE on, DRIVE low



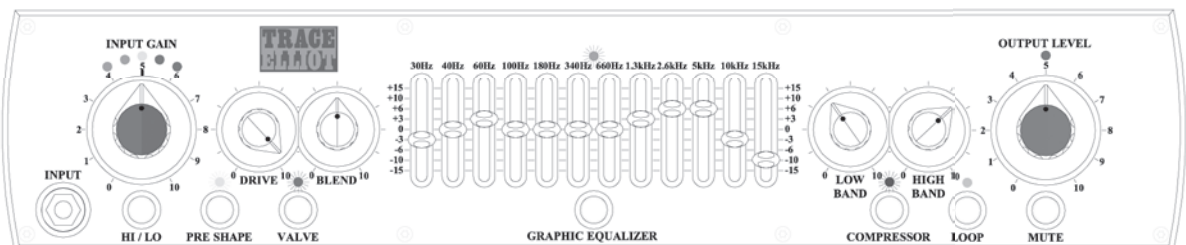
Lo Fat

VALVE & GRAPHIC on
 LOW COMPRESSION

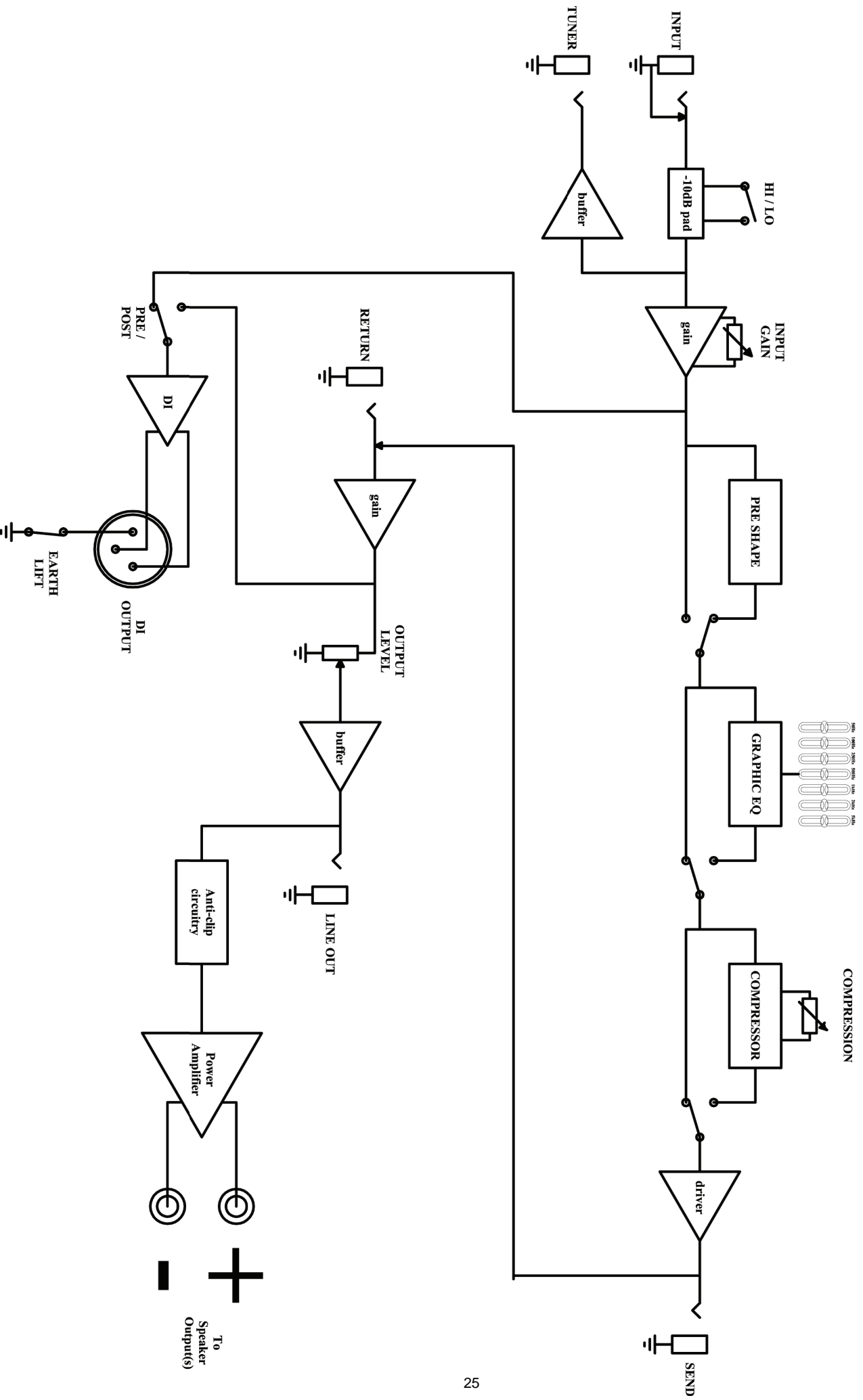


Hysterical

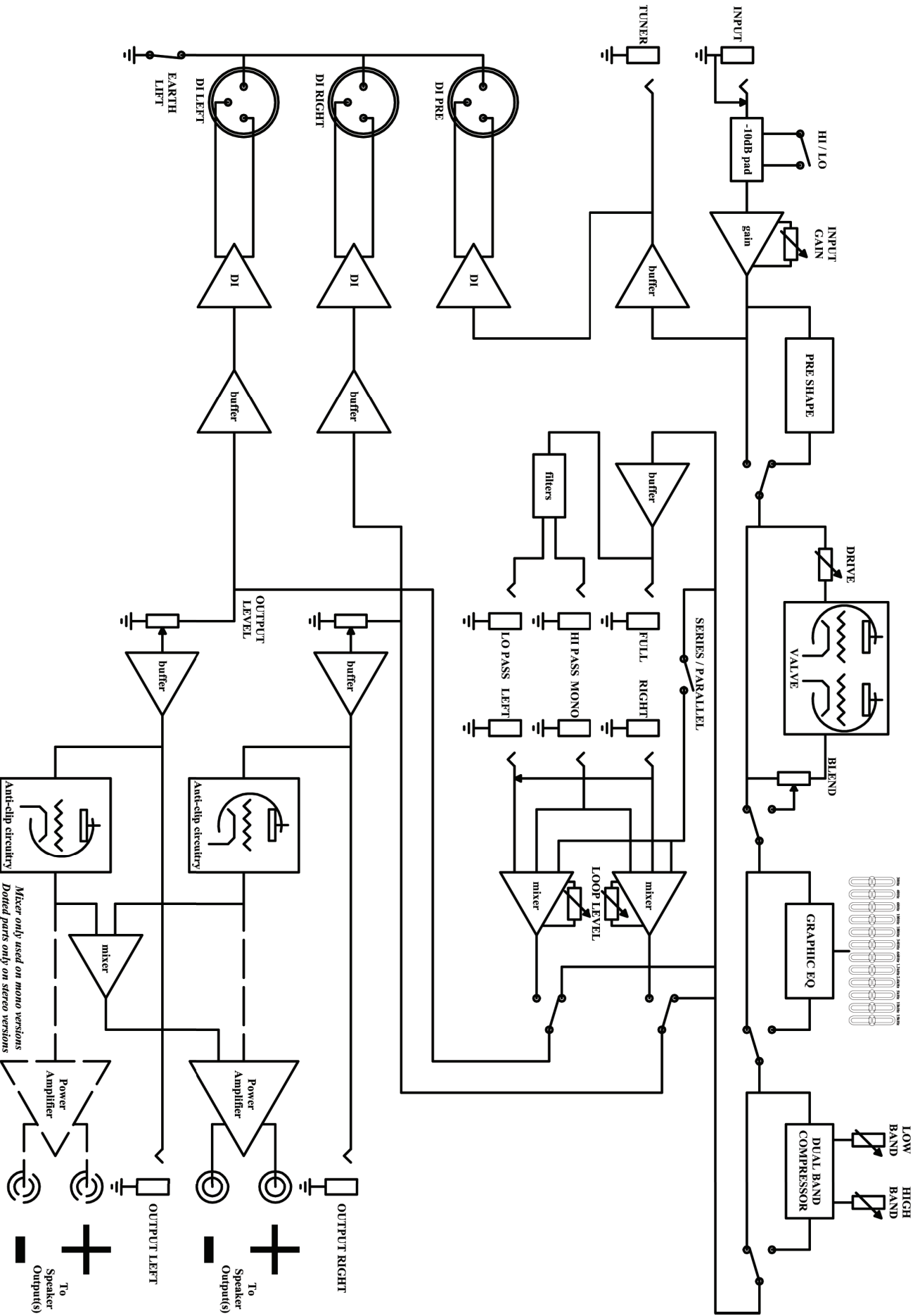
PRE SHAPE, VALVE
 GRAPHIC &
 COMPRESSION!



7 BAND BLOCK DIAGRAM - Basic signal flow



12 BAND BLOCK DIAGRAM - Basic Signal flow



SPECIFICATIONS

<i>Specifications</i>	<i>7 Band</i>	<i>12 Band</i>
INPUT sensitivity		
HI	77.5mV RMS (-20dBu)	
LO	245mV RMS (-10dBu)	
INPUT impedance		
HI	1M Ω	
LO	100k Ω	
PRE SHAPE Frequency Response	+6dB @ 50 Hz. - 12dB @ 400Hz. +6dB @ 5kHz Slope = 6dB/octave	
GRAPHIC EQUALIZER	+/- 15dB at 7 frequencies	+/- 15dB at 12 frequencies
COMPRESSOR	Single band, soft knee, with adaptive attack and release times	Dual band, soft knee, with specifically set attack and release times per band.
EFFECTS SEND(S)		
Load impedance	1K Ω or greater	
Nominal Output Level	-10dBV, 0.3VRMS	
EFFECTS RETURN(S)		
Impedance	100k Ω	
Nominal input level	-10dBV, 0.3VRMS	
TUNER OUT level	Instrument level via buffer	Nominal -10dBV, 0.3VRMS
LINE OUT(S)		
Load Impedance	1K Ω or greater	
Level with OUTPUT LEVEL on 5	0dBu, 0.775VRMS	
DI OUTPUT(S)		
Load impedance	600 Ω or greater	
Nominal Output Level	0dBu, 0.775VRMS	
EXTERNAL CONTROL	4 function footcontroller	6 function footcontroller
VALVES	n/a	2 x ECC83/12AX7 Double Triode DC filament supply
HUM & NOISE	Greater than 80dB below rated power	
FREQUENCY RESPONSE	+/-3dB, 20Hz-25kHz	
POWER AMPLIFIER		
Protection	Current limit protection, thermal protection, anti-clip protection	
Minimum Load	4 Ω , for full rated output power	
Power Output at 8 Ω	Approx 60% of rated power	
SUPPLY VOLTAGE	Local nominal mains voltage (230/120/100) +/- 10%	
ACCESSORIES	IEC lead, protective cover, footcontroller, owners manual	

COMBO ENCLOSURE SPECIFICATIONS

	<i>715</i>	<i>715x</i>	<i>1215</i>	<i>1210</i>
<i>Combo Enclosure Specifications:-</i>				
Transducer Complement:	1 x 15" + Horn	1 x 15" + Horn	1 x 15" + Horn	2 x 10" + Horn
Maximum Output Power	450W	600W	600W	600W
Internal Speaker Power Handling:	300WRMS	500WRMS	500WRMS	400WRMS
Nominal Impedance:	4Ω	8Ω	8Ω	8Ω
Frequency Response:	40Hz – 15kHz	35Hz – 15kHz	35Hz – 15kHz	35Hz - 15kHz
Sound Pressure Level 1W, 1m	99dB	100dB	100dB	100dB
Cabinet Tuning Frequency:	42Hz	42Hz	42Hz	40Hz
Crossover Frequency (internal passive):	n/a	5kHz	5kHz	5kHz
Controls:	-	Horn switch	Horn switch	Horn switch
Enclosure Materials & Finish	90% Poplar Ply, 10% MDF, Black vinyl covering, metal hardware			
Individual Woofer Spec:-				
Power rating	300W	500W	500W	200W
Sensitivity	98dB	100dB	100dB	97dB
Voice coil diameter	2 ½" (64mm)	3" (76mm)	3" (76mm)	2" (51mm)
Magnet Weight	1.4kg / 50oz	2.2kg / 77oz	2.2kg / 77oz	1.2kg / 42oz
Cone material	Kevlar® impregnated paper			
Horn Type	Ceramic Tweeter	Phenolic horn loaded dome tweeter		

DIMENSIONS & WEIGHTS

<i>Dimensions & Weights</i>	<i>Width</i>		<i>Height</i>		<i>Depth</i>		<i>Weight</i>	
	mm	inches	mm	inches	mm	inches	kg	lbs
715	491	19.3	623	24.5	335	13.2	28	62
715x	615	24.2	623	24.5	335	13.2	36	79
1215	615	24.2	623	24.5	335	13.2	38	83
1210	615	24.2	623	24.5	335	13.2	40	87
AH600-7	491	19.3	158	6.2	335	13.2	15	33
AH600-12	491	19.3	158	6.2	335	13.2	17	37
AH1200-12	491	19.3	158	6.2	435	17.1	22	48

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 frequencies and transients 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.
buffered	A buffer circuit is one which electronically isolates one part of the circuit from another and produces a low impedance version of the input signal. Simple but very useful.
DI	Direct Inject. Direct cable connection between an amplifier and stage box/mixer/PA.
dry	A signal that is unprocessed, i.e. no effects have been applied.
dual band compressor	Effectively two separate compressors, one that works on the high frequencies and one that works on low.
EQ	Equalizer or Equalization. Device that can modify the frequency response of an audio signal.
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 that signal level exceeds the threshold. Can sound abrupt and unnatural.
impedance	With regard to 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 level indication and function status.
make-up gain	Gain added after a compressor to bring the nominal level up to approximately the same as before the compressor.
mastering	The final part of the recording process where, amongst other things, multi-band compression is used to optimize clarity, punch and dynamic range.
parallel	Either when a signal is split and routed down two separate paths before being re-combined, or when speakers are connected + to + and - to -. Opposite of series.

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.
pumping and breathing	When a compressor is set to extreme settings and noticeable shifts in volume are caused by transients as the compressor can't keep up.
ratio	Ratio between change in normal signal (in dB) and change in compressed signal (in dB). 10:1 means for 10dB increase of the normal signal there will be 1dB of increase in the compressed signal.
release	The time it takes for a compressor to stop applying compression after a signal has decayed to be less than the Threshold.
sensitivity	With regard to the input of an amplifier, the level of input signal required to achieve maximum signal swing within the unit. High sensitivity means even small signals will reach full swing, low sensitivity means larger signals are accepted before clip.
series	Either when the whole signal is routed through a device or part of a circuit, or when speakers are connected + to -. Opposite of parallel.
soft-knee	Compression that is applied gradually with an increasing ratio after exceeding the threshold. Often smoother sounding.
thermionic valve	A century old electronic device superseded by modern technology in nearly every area of electronics, notably not audio, where many of us still love the little glowy things. Usually contained within an air tight glass tube, hence also called 'vacuum tube'.
threshold	The signal level above which compression is applied.
unity gain	Gain of one, i.e. the signal is neither amplified nor attenuated and remains the same level.





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