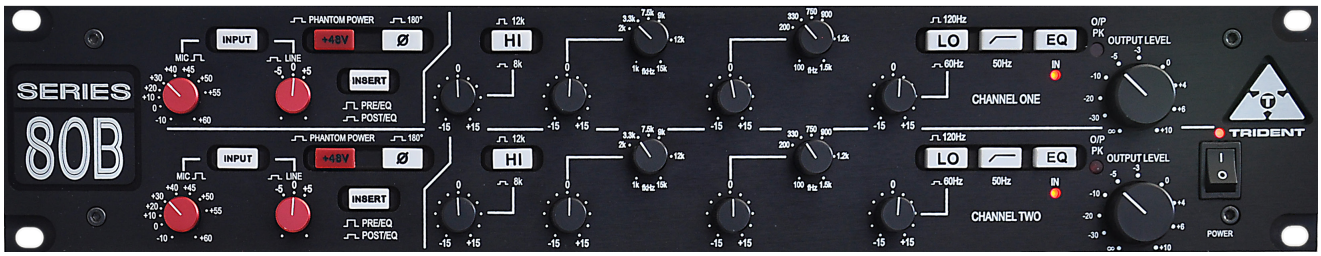
TRIDENT®

DUAL MICROPHONE PREAMPLIFIER AND EQUALISER



SERIES 80B®

Dual Channel Strip

OWNERS MANUAL

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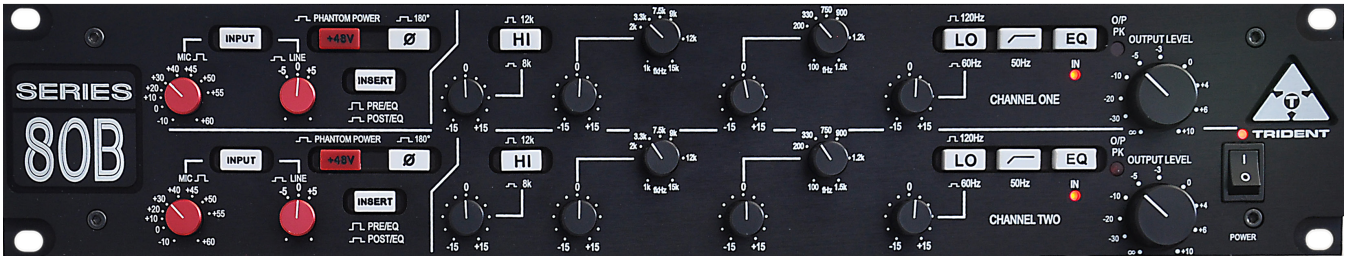


Overview

The **Series 80B**® is a two-channel rack-mountable version of the legendary Series 80B console. Comprising two independent channels, each with a microphone/line amplifier and The Series 80B is a two channel rack-mountable version of the legendary Series 80B console. it is designed to process incoming signals from a microphone or line-level instrument and output them to a recording device, such as a digital audio workstation or analog multitrack tape recorder.

The Series 80B rack unit is derived from the legendary Series 80B Consoles designed by Trident Audio Developments in the late 1970s. It incorporates an exact replica of the mic preamp and equalizer design that gave the original console its unique sound. These consoles have been used to record just about every major artist in the past three decades, including Elton John, Dire Straits, David Bowie, Rod Stewart, and Stevie Wonder to name but a few. More recently they have been used to record artists such as Radiohead and Pavarotti.

The Trident Audio Developments Series 80B rack unit brings with it a historic pedigree and is offered at a price that is now affordable to all studios and home recordists.

The sound and the circuitry of the consoles used to record countless hit records.

In the late ’70s, Trident Audio developed a new series of recording consoles to update Trident’s sound for a new generation of musical talent. The result was the Trident Series 80, the sound of which quickly became a favorite among the top artists. The Series 80B doesn’t just capture the sound of these legendary consoles, it is the exact same painstakingly re-created circuitry.

Equipped with preamps that are great for both microphones and outboard gear.

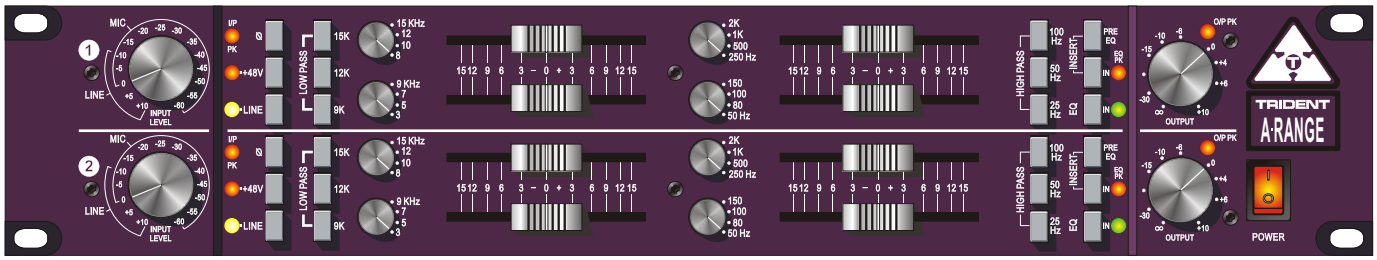
True to the original design the 80B channel strip incorporates transformer-coupled microphone preamps designed to achieve professional results from a wide range of sources. This is why the Series 80 consoles originally were built to handle signal levels from -60dBu to +15dBu. Despite its extreme gain range, the Series 80B preamp sounds amazingly smooth, accommodating a wide range of input levels with a frequency response that extends to above 20kHz – all with near-theoretical-minimum noise performance. It’s the kind of sound quality that’s inspired many engineers and artists to create better-sounding music.

The Series 80B iconic 4-band equalizer lets you tune your sound to perfection.

The Series 80B rack comes equipped with one of Trident’s most sought-after 4-band equalizers. Loaded with frequency-switchable high and low shelving sections, as well as sweepable low-mid and high-mid bands and a switchable 50Hz, 12dB per octave filter, the Series 80B gives you an exceptional degree of control over your sound. The Series 80B’s highly resonant Q peaks are particularly favored by many top engineers for tuning instrument tones. There’s no limit to what you can create with this classic channel strip in your rig!

Trident Series 80B Features:

The original discrete, transistor-balanced circuitry developed in the late ’70s for the Trident Series 80 recording consoles Balanced inputs and outputs ensure the highest sound quality Independent preamplifiers that are perfect for both microphones and line-level sources Switchable 48-volt phantom power available on both preamps 4-band equalizers with classic Series 80 console resonance Selectable pre-/post-EQ insert point lets you incorporate your outboard gear wherever you want it in the signal path LED peak meter lets you keep an eye on your overall gain to prevent distortion



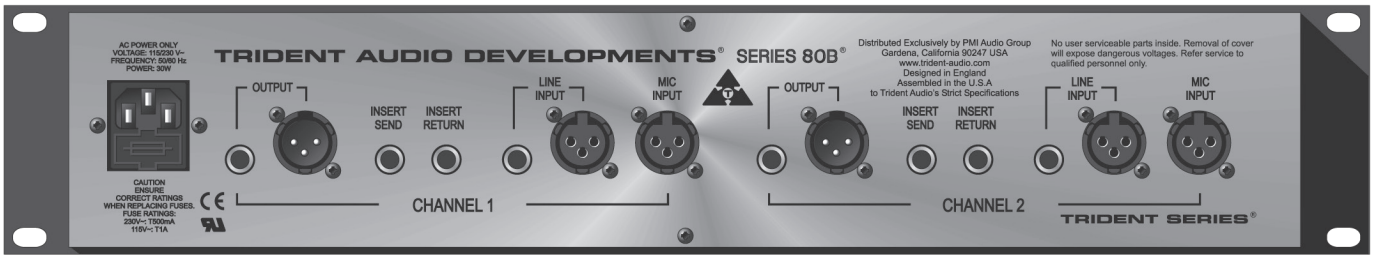
The **Series 80B**® is a 2-channel rack-mountable version of the legendary Series 80B console. Comprising two independent channels, each with a microphone/line amplifier and four band equaliser, it is designed to process incoming signals from a microphone or line level instrument and output to a recording device, such as a digital audio workstation or analog multi-track tape recorder.

Mains powered, with 48 volt phantom power independently switchable for the two channels, the 80B operates as a complete stand-alone unit offering two channels of high quality audio processing.

In keeping with the functionality of the Trident Series 80 console, each 'channel strip' of this rack unit features insert points, phase reverse (which operates on both microphone and line inputs) and an output level control with peak signal indication.

All inputs and outputs are balanced so that maximum signal integrity and high output levels are assured with minimum distortion.

The Series 80B® rack provides a pristine signal path of exceptional quality, for subtle control of the audio path, or to give extra punch and dynamics to a lacklustre signal. Whatever the application, the Series 80B® will deliver that signature sound for which the Trident Consoles are so highly regarded.



Connecting The Unit

The rear panel of the unit provides both XLR and 1/4" jack inputs for the line input and output of each channel while a separate XLR is provided for the microphone input. The insert sends and returns are balanced 1/4" jacks. The XLR connectors use the standard industry convention of pin 1 ground, pin 2 positive and pin 3 negative. The jacks are tip-positive, ring-negative and sleeve ground. For unbalanced use, connect the ring to the sleeve.

When connecting a microphone, set the input level control for each channel to minimum, with the phantom power '+48V' switch off. The microphone input is designed to accept the signal from low impedance, balanced microphones of either dynamic, ribbon or condenser types. The line input is designed to accept balanced or un-balanced, line level audio signals. Mic or Line input is selected via the front panel 'Input' switch. The outputs from each channel are low impedance and designed to operate with long cable runs without signal degradation.

A standard IEC mains inlet is provided for AC mains power. Operating voltage of either 120 or 240 volts is selectable by rotating the fuse holder incorporated into the mains inlet socket

Input Section

The input section of the Series 80B rack is designed specifically for professional audio applications. It consists of a very high quality transformer-coupled microphone amplifier and a separate electronically balanced levels is accommodated, adjustment of the gain is extremely smooth, particularly at high signal a wide range of input levels with a frequency response that extends to above 40kHz. Naturally, best results will be achieved using a high quality condenser microphone.

The microphone amplifier will however also bring out the best in either a dynamic or ribbon microphone. The combination of high gain with low noise is particularly useful when working with ribbon line input amplifier.

The microphone amplifier is of a unique design that is able to handle signal levels from -60dBu to as high as +15dBu without the use of a separate pad switch. Even though such a wide range of signal levels where other designs tend to have cramped level adjustment at the end of the control. In addition, it exhibits near theoretical minimum noise figures, has an extremely fast transient response and accommodates microphones as most models have an inherently low output level.

When connecting a microphone, set the 'Mic' gain control to its minimum position (fully anticlockwise) and the 'Output Level' control to its '0' position. The 'Input' switch should not be pressed in. If required, engage the '+48V' phantom power whilst the 'Mic' gain control is at minimum. Allow up to 30 seconds for the microphone to reach its normal operating level and advance the 'Mic' gain control until a suitable level is achieved at the output of the unit. The 'O/P Peak' LED signal indicator is located above and to the left of the output level control. It is designed to light when a signal level of +10dB occurs at the output stage. This provides plenty of overload margin as the rack unit is capable of very high output levels (up to +26dBm into a balanced load). By setting the level as described above, adequate headroom is maintained and there should be no danger of overloading following equipment.

The phase (polarity) reverse switch is employed when phase interference occurs between multiple microphones. Such interference results when microphones, at various placements, pick up the same sound source at slightly different times. When the output of the microphones combine, cancellation occurs at certain frequencies. This effect is known as comb filtering. Switching the polarity on one microphone may serve to minimise this effect.

To set up the for a line level signal, depress the 'Input' switch and adjust the 'Line' gain control to its midway position, with the 'Output Level' control set to '0'. Avoid selecting the +48V phantom power in the 'Line' mode, as this will cause a loud noise when the phase reverse switch is operated. At its midway position in Line mode, the unit is designed to give unity, or '0dB' gain. This makes for an easy reference point when using line level inputs and a detent is provided at the centre point of the gain control for this purpose. As described above, the 'Output Level' control and LED indicator is used to set an appropriate level through the unit.

Equalizer

The **Series 80B**® rack incorporates a classic four band equaliser which is identical to that employed in the Trident Series 80 console. It consists of frequency-switchable high and low pass shelving sections, coupled with two swept low and high mid range bands and a switchable 50Hz, 12dB per octave filter. Both swept midranges have been carefully chosen for maximum effect on music programme and a good degree of overlap is provided.

For those not familiar with the difference between a shelving and peaking equaliser, the differences are as follows. A shelving equaliser boosts (or attenuates) all frequencies equally, above or below a certain point. The frequency specified for a shelving equaliser circuit is usually at the point where it effectively reaches its 'shelf' state. A 'high shelf' EQ boosts/cuts high frequencies and a 'low shelf' type boosts/cuts low frequencies. This type of circuit is very popular in hi-fi systems but is also actually highly musical, when applied in a recording environment. In contrast, a peaking equaliser is one that, as its name implies, has a centre frequency that is boosted or attenuated more than others. The frequency range over which it reaches its peak and then falls down is known as the bandwidth (or 'Q'). Because this type of design reaches a peak and then falls away, it is possible with this type of circuit to 'home in' on particular frequencies and make adjustments without affecting those around them. This can be particularly useful when working with instruments such as bass guitars and snare drums. By incorporating both shelving and peaking equalisers into the design of the Series 80B®, it is possible to get the best of both types of design.

Operating the Equalizer

Set the input level in accordance with the procedures detailed in the 'Input Section' section of this manual. Begin with all boost/cut controls - those with centre detents, set to their mid way ('0') positions. Adjust the low and high mid frequency sweep controls to their minimum positions (fully anticlockwise). The 50Hz high pass 'Filter' switch should be in the out position. Set the frequency select switches controlling the high and low shelving sections, to 120Hz and 12kHz respectively. Lastly, set the 'EQ' switch to the 'in' position (the associated LED will illuminate).

Rotation of the high frequency shelving control in a clockwise direction emphasises high frequencies, while turning the control in an anti-clockwise direction from centre attenuates high frequencies. Operating the 'frequency select' switch in the high frequency section introduces a subtle change of emphasis to the affected high frequencies, as the shelving 'knee' is changed from 12kHz to 8kHz. Likewise, rotating the low frequency shelving control in a clockwise direction will emphasise low frequencies, while turning the control in an anti-clockwise direction from centre attenuates low frequencies. Adjusting the 'frequency select' switch in the low section introduces a subtle change of emphasis on the affected low frequencies by altering the shelving point from 120Hzdown to 60Hz.

The 'low mid' and 'high mid' equaliser sections are peaking filters. Adjustment of their parameters is achieved by use of the (center-detented) boost/cut knob and its associated frequency sweep knob. (The relation between each pair of controls is denoted by a white line on the front panel connecting the two together). Boost or cut of a given frequency is performed by moving that control from its centre detent position: clockwise for boost, anti-clockwise to cut. The frequency to be boosted or cut is selected by the frequency sweep control knob. The range of frequencies of the 'low mid' control extends from 100Hz up to 1.5kHz. For the 'high mid' sweep, the frequency range begins at 1kHz (overlapping with the low mid section) and continues up to 15kHz.

Finally, selecting the 'Filter' switch introduces a smooth, 50Hz, 12dB/octave roll-off to effectively eliminate 'rumble' caused by, among other things, someone's feet moving about near a microphone stand, nearby traffic noise and AC systems.

The amount of boost (accentuation) or cut (attenuation) that is applied to the audio signal is entirely dependent on the programme content and it is not our intention to advise on this. Application of equalisation is a very subjective matter and is best learned by experiment. The equaliser bypass switch 'EQ' is a useful facility for comparing the signal before and after the application of equalisation.

No Power

Ensure the unit is selected for the correct mains voltage via the selector incorporated in the mains inlet socket on the back of the unit. Check the fuse (also in the mains inlet socket) if the unit has been powered with the wrong voltage.

Check there is a mains supply reaching the unit.

The microphone doesn't work

Is it connected to the correct input on the back of the unit?

Is the '+48V' phantom power switched on (for condenser microphones)?

Is the input selected to Mic ('LINE' switch not depressed)?

Make sure the 'Input Level' rotary switch is turned up.

The line input doesn't work

Is it connected to the correct input on the back of the unit?

Is the input selected to 'LINE' (LED illuminated)?

Make sure the 'Input Level' rotary switch is set to '0'.

The equaliser doesn't work

Is the 'EQ' switch selected to 'IN' (LED illuminated)?

Trident Series 80B Technical Specifications

Input Impedance:	
Microphone:	1.2k ohm transformer balanced
Line:	15k ohm electronically balanced
Output Impedance:	<100 ohm electronically balanced
Gain:	
Microphone:	-15dB to +60dB
Line:	-15dB to +10dB
Noise:	
Microphone:	<-128dBu ref 150 ohm (20Hz-20kHz)
Line:	<-85dBu (EQ In, 20Hz-20kHz)
Maximum Levels:	
Mic Input:	+24dBu at all frequencies
Line Input:	+24dBu at all frequencies
Distortion:	
Mic Input:	<0.05% T.H.D. (-50dBu input, +4dBu output)
Line Input:	<0.05% T.H.D. (+4dBu input, +4dBu output)
Frequency Response:	
Mic Input:	±1dB 20Hz to 20kHz
Line Input	±1dB 20Hz to 20kHz
Nominal Operating Level:	+4dBu
Peak LED Threshold:	+10dBu

In accordance with our policy of continuing product improvement, we reserve the right to alter specifications without prior notice.

Trident Series 80B Notes

Important Safety Information

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

The lightning flash with arrowhead symbol, within an equilateral triangle, is 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.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO AVOID FIRE OR ELECTRIC SHOCK HAZARD, DO NOT EXPOSE THIS APPARATUS TO WATER, RAIN OR MOISTURE.

NOTE — This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION — *Le présent appareil numérique n’émet pas de bruits radioélectriques dépassant las limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le réglement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.*

These limits are designed to provide reasonable protection against harmful interference in a commercial/residential installation respectively. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by any combination of the following measures: (1) Relocate or reorient the receiving antenna (2) Increase the separation between the equipment and the receiver (3) Plug the equipment into an outlet on a circuit different from that to which the receiver is connected (4) Consult your dealer or experienced radio/television technician for additional assistance.

CAUTION — Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Important Safety Instructions

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water. Do not expose to drips or splashes. Do not place any objects filled with liquids, such as vases, on the apparatus.

6. Clean only with dry cloth.

7. Do not block any ventilation openings. Do not install this apparatus in a confined space such as a book case or similar unit. Install only in racks designed for the purpose and in accordance with manufacturers’ 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 prong. The wide blade or the third prong are 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 where they exit from the apparatus.

11. Only use attachments and accessories specified 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. Apparatus designed with Class-I construction must be connected to a mains socket outlet with a protective earthing connection (the third grounding prong).

16. This apparatus may be equipped with a single-pole, rocker-style AC mains power switch. If so this switch is located on the front panel and should remain readily accessible to the user.

17. The manufacturer reserves the right to change the technical specification of the product without prior notice.

Statement of RoHS Compliance

PMI Audio Group manufactures complete electronic products which are covered by the European Union's "Removal of Hazardous Substances" directive 2002/95/EC (RoHS). This directive seeks to eliminate toxic substances from the manufacturing process, such that when equipment is disposed of at the end of its life cycle, the materials it contains do not contaminate the environment and pose health risks. Banned substances are lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and poly-brominated diphenyl ethers (PBDE). Lead is used together with tin in solder connections to reduce the melting point of solder. Lead-free solder requires higher soldering temperatures which in turn places greater thermal stress on components.

PMI Audio Group takes seriously its obligations under the RoHS directive and insists that its factories use only components that are certified RoHS compliant, as well as lead-free solder. In a very few cases the necessary components may not yet be available to the world market but we work continuously to eliminate any such exceptions at the earliest opportunity. Our printed Circuit Boards (PCB's) and all soldered joints have been lead-free since 2005.

Statement of WEEE Policy

PMI Audio Group manufactures many complete electronic products which are covered by the European Union's "Waste Electric and Electronic Equipment" directive 2002/96/EC (WEEE). This directive seeks to ensure that waste electric and electronic equipment is disposed of in an environmentally responsible manner, at the end of its life cycle. PMI Audio Group takes seriously its obligations under this directive to take back WEEE-affected products and, from 13th August 2005, will mark all such products with the crossed-out wheeled bin symbol.

Business to Business products: PMI Audio Group will cost-neutrally take back WEEE-affected electric and electronic equipment in this category, from 1st January 2006. PMI Audio Group will work with disposal and recycling partners working within the EU. The waste electric and electronic equipment can then be turned over to a disposal and recycling companies in the countries concerned.

Business to Customer products: emerging electric and electronic equipment will be disposed of by local authorities' collection systems.

Dual Use products: this equipment will be disposed of by local authorities' collection systems.

Trident Series 80B Warranty Information

Tident Audio Developments Limited Warranty Statement

The following outlines the warranty periods for The Trident 78 Analogue console. All extended coverage is based on the timely registration of said products within the 30 days of purchase to the original purchaser from the date of Proof Of Purchase. Proof of purchase is the original Bill Of Sale or Sales Invoice from an authorized dealer.

Inquire about extended warranty.

Trident Audio Developments is covered by a limited warranty against defects in materials and workmanship (parts and labor) for a period of Two (2) Years from the date the unit is sold to the Dealer or original purchaser only.

Receive an additional free year warranty covering parts and labor with the registration of your console!

Acceptable registration is met by filling out online the warranty registration, along with a copy of the original sales receipt as proof of the original date of purchase. **http://www.tridentaudiodevelopments.com/product-registration/**

The terms and conditions of this limited warranty are:

1. The warranty applies to Trident Audio Developments purchased from Trident Audio or authorized Trident Audio dealers. The authorized dealers of Trident Audio products are listed at each brands websites, or on the main page at www.tridentaudiodevelopments.com

2. The warranty covers any defects in materials and workmanship, and is limited to the repair or replacement of the original registered product. In its sole discretion, Trident Audio may either repair or replace the product with a product of the same model, or replace the product with a new model of a similar specification, when the same model is no longer available.

3. The warranty does not cover any of the following: damage caused by the user; spillages or moisture damage; neglect, abuse or misuse, including but not limited to the failure to use the products for its normal purpose in accordance with the manufacturer's instructions for use, failure to properly maintain the product in ac-cordance with the manufacturer's instructions, and/or the failure to use the prod-ucts in accordance with the manufacturer's specifications; normal wear and tear; use of products with incompatible or faulty equipment; unauthorized modifications; repairs conducted by unauthorized persons or service center's; the model and/or serial number being altered, removed or made illegible; accidents; or acts of God or any cause beyond the control of Trident Audio. It does not cover damage caused by connecting to improper power voltage supply, cosmetic defects, such as paint finish, and general wear and tear, as well as certain consumables not covered under warranty such as fuses, meter bulbs and component shelf life on pots, faders and switches. Products sold in AS IN condition are not covered.

4. The warranty is applicable to the original purchaser throughout the warranty period as stated above or until original owner resells product. If a unit is received for warranty repair, and after complete examination and testing, no problem is found with the unit, customer will be charged for time labor plus return shipping costs, presuming initial user error falsely caused the unit to be determined faulty.

5. The warranty does not affect any statutory rights the original purchaser may have in accordance with the law applicable in the jurisdiction where the product was purchased, or any rights the original purchaser may have against the author-ized dealer pursuant to their original purchase agree-ment. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state, and or country to country.

6. Any claim pursuant to this warranty from the date of purchase of any Trident Audio Developments product must be returned, together with the original proof of purchase, to the authorized Trident Audio reseller that sold the product, or to the Trident Audio service center in either the USA or the UK. All returns to Trident Audio, Trident Audio UK or any Trident Audio Service Center must be in the original packing, accompanied by the issued Repair Authorisation, and must be shipped to the address specified on the Return Authorisation via insured freight at the customer's own expense. Factory original packaging can be ordered from Trident Audio, Inc. Customer will be charged for new factory original packaging if customer fails to ship product to Trident Audio in the original factory packaging. Trident Audio will not pay for express or overnite delivery.

7. Once the product has been received, the authorized Trident Audio service center will assess the warranty claim and arrange to either repair or replace in accordance with the warranty procedure prescribed by Trident Audio for their authorized service center network. The warranty replacement will be conducted by the authorized Trident Audio service center as promptly as possible and within a reasonable time from the date of submission of the warranty claim. In all circumstances, a claimant under this warranty will be liable for all costs in delivering their Trident Audio brand product to the authorized service center for war-ranty replacement and for all costs in collecting the repaired/replacement Trident Audio product from that authorized Trident Audio service center. Trident Audio service center may waive the cost of return shipping after full inspection to determine cause of warranty.

8. Trident Audio will not accept any warranty replacement without the original proof or purchase of the Trident Audio product, and without the registration of the Trident Audio product within 30 days of purchase by mail, or online. It is the original purchaser's responsibility to keep the original proof or purchase safe at all times, as Trident Audio is not obliged to provide a replacement of the original proof or purchase.

9. The warrantor assumes no liability for property damage or any other incidental or consequential damage whatsoever which may result from failure of this product.

10. A Trident Audio product that was not purchased through an authorized and legitimate sales channel is considered "Grey Market". Warranties for Trident Audio Products purchased outside the USA will be covered by Trident Audio UK for that specific country or region, or by local Trident Audio distributors. Trident Audio product originally sold to the USA market and consequently resold overseas forfeits its warranty. American Trident Audio Dealers are forbidden to export Trident Audio Products. Non-American deal-ers are forbidden to export to the USA. "Grey Market" purchases are not covered by any warranty. In the case that a Trident Audio Product must be returned, it should be returned to the original place of purchase, or the Trident Audio factory, with proper return authorisation. Returns from outside the USA, customer shall adhere to specific shipping, customs, and commercial invoicing instructions given with the Return Authorisation. Trident Audio will not be responsible for transportation costs or customs fees related to any importation or re-exportation charges whatsoever.

11. Trident Audio shall not be liable for damages in excess of the purchase price of the Trident Audio product arising out of the use or inability to use the Trident Audio product insofar as allowed to be disclaimed by law in the jurisdiction where the Trident Audio product was purchased.

Governing Laws
If the purchaser acquired a Trident Series 80B originating from the Trident Audio USA office direct, or through any Authorized US or European Authorized Dealer, then any order or contract to which these terms and conditions apply and all matters arising there under shall be construed according to and governed by the Laws of The State of California, United States.

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