

# CHANDLER LIMITED® TG2-500 PRE AMP USER MANUAL



# TG2-500 Pre Amp

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## **INTRODUCTION**

### **TG2-500 Pre Amp**

Thank you for purchasing the Chandler Limited TG2-500 Pre Amp module, you now own a piece of EMI/Abbey Road Studios official equipment.

The TG2-500 Pre Amp inherits from Chandler Limited's TG2 Pre Amp, and draws its heritage from the rare EMI TG12428 pre-amp found in the historic EMI/Abbey Road Studios TG12345 recording consoles and TG12410 transfer desks of the late '60s and early '70s.

The TG2-500 Pre Amp is a 100% discrete transistor circuit, using the same custom wound transformers as their TG series rack-mount counterparts.

The TG2-500 Pre Amp delivers the legendary TG sound to the 500 Series format, with greater flexibility over the original equipment.

The TG2-500 Pre Amp, accompanied by the TG Opto compressor and TG12345 MKIV equalizer form a complete TG channel strip for the 500 Series format.

Your Chandler Limited TG2-500 Pre Amp has been carefully crafted and built by hand at Chandler Limited's factory in Shell Rock IA, U.S.A., using through-hole components for, the ultimate analog experience.

At Chandler Limited we are proud of our American made products and we hope you like them!

Please feel free to call our shop anytime for help or questions.

Phone: (319) 885-4200.

## **History**

Conceived from meetings in 1967 between Abbey Road and EMI's Central Research Laboratories teams, the EMI TG12345 Mark I desk ushered in a sea of change in sound and flexibility at Abbey Road Studios.

Installed in Abbey Road's Studio Two in November 1968 and making its debut on an 8-track recording by the Shadows, the new transistorized desk marked a departure from the earlier REDD valve consoles.

The EMI TG12345 desks were greatly expanded over their REDD predecessors and the first of the large format consoles to feature a compressor/limiter on every microphone and group cassette channel.

The EMI TG12345 desk helped shape the sound of the Beatles' final album, "Abbey Road," which was markedly richer sounding to that of the band's earlier work. The sonic qualities of classics like "Here Comes the Sun," "Come Together" and "Something" would have been very different without the EMI TG12345.

The desk encountered many revisions throughout the '70s and became the main recording console used throughout the studios until 1983. The EMI TG12345 console Marks I-IV were used on everything from Pink Floyd's "The Dark Side of the Moon" and "Wish You Were Here" to John Lennon's "Plastic Ono Band," George Harrison's "All Things Must Pass," to epic film scores including Raiders of the Lost Ark.

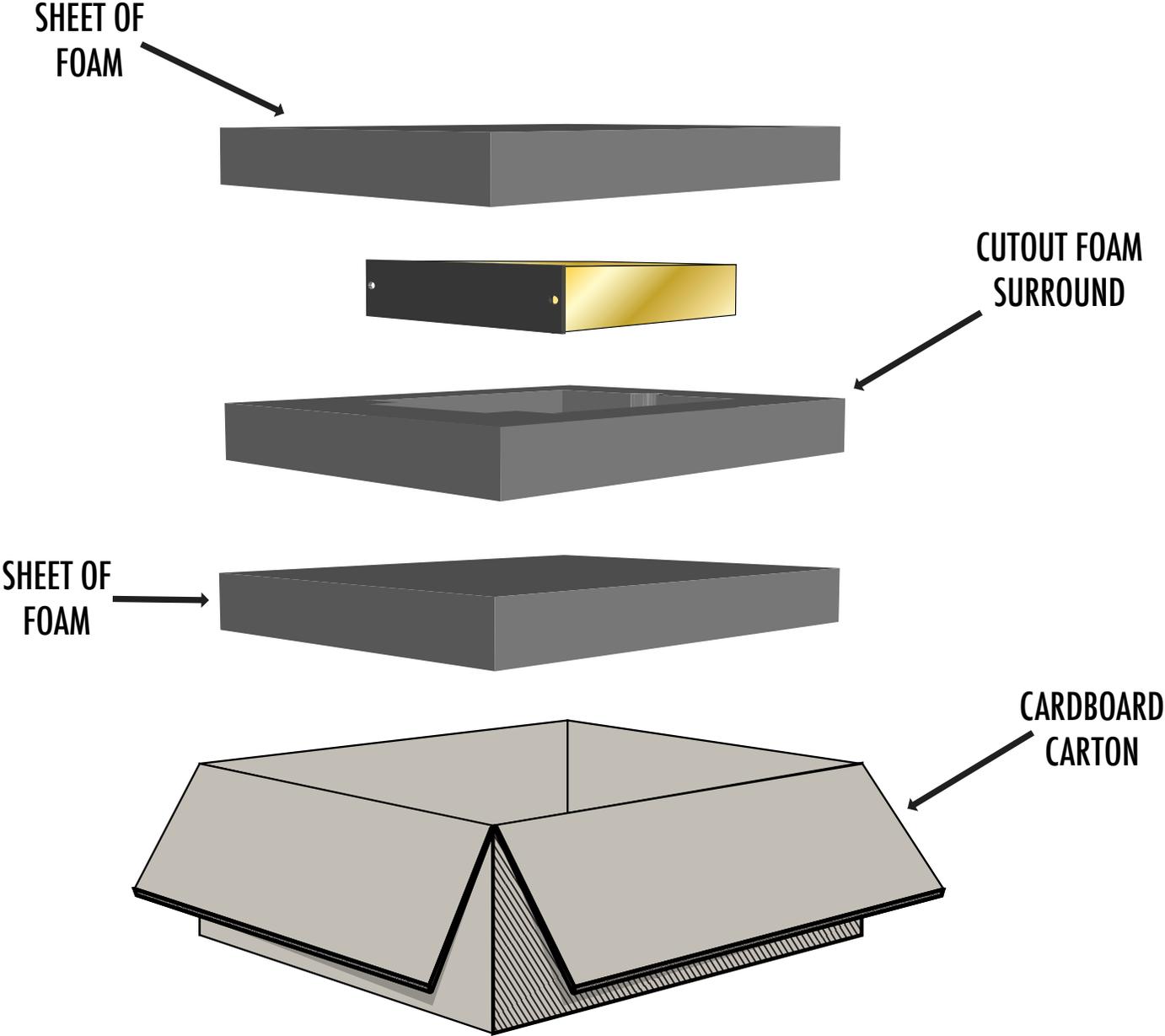


OFFICIAL  
EQUIPMENT

# SHIPMENT AND STORAGE

## Packaging

This packaging has been designed specifically for Chandler Limited equipment. The cardboard carton and foam provide protection for shipment and storage. Please retain the container and associated materials for future use.



# **INSTALLATION**

## **Enclosure Compatibility**

Developed by API®, the 500 Series format is a widely accepted standard, and many rack enclosure options are available from third-party manufacturers; however, their build and power section design may vary.

The TG2-500 is a single space mono unit, and adheres to the 500 Series format standard. The TG2-500 has no known issues with existing format conforming rack enclosures.

**Recommendation:** We recommend using a 500 Series rack enclosure with an external power supply, such as the API® 500V with L200 power supply.

**Note:** For all BAE racks, we recommend adding a wire from Earth to power supply common. In many cases, hum can be avoided and Earth to common is standard procedure on most electronic equipment.

## **Power**

The TG2-500 is powered by means of the selected 500 Series format rack enclosure, purchased separately. The TG2-500 module design adheres to the API® 500 Series format current draw specification (+130/-130 mA), and is as follows:

+16 volts power rail = +95 mA\*

-16 volts power rail = -70 mA\*

\*Maximum current draw as measured when in bypass.

**Warning:** Never install or remove a 500 Series module while the rack enclosure is powered on.

## **Audio Input & Output Connections**

The TG2-500 audio connections are transformer balanced and wired pin 2 hot. Audio input and output connectivity jacks will be provided by the host 500 Series rack enclosure.

## OPERATING INSTRUCTIONS

The TG2-500 Pre Amp is a recreation of the rare EMI TG12428 amplifier circuit, and reimagined for use in the modern studio environment.



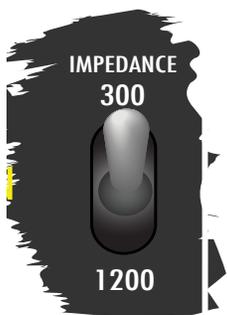
### Mic/Line

The TG2-500 pre-amplifier accepts microphone or line level input signals. The appropriate operating level may be set by means of the *Mic/Line* toggle switch.

When using the pre-amplifier with microphones, position the switch upward to *Mic*.

When supplying line level signals from a recording device, converters or interface, or other external equipment, position the switch to *Line*.

**Tip:** Sending line level source into the pre-amp is a great way to further process material by adding the rich harmonic texture available from this historic circuit; use a pair of TG2-500s on the mix bus!



### Impedance

Provision has been made for input impedance adjustment by means of the *Impedance* toggle switch; two settings are available: 300 or 1200 ohms.

In some circumstances, adjustment of the pre-amplifier's input impedance may be necessary to better accommodate a given microphone.

If a microphone's output impedance is equal to or less than 300 ohms, position the switch upwards to 300; conversely, if the output impedance is greater than 300 ohms, place the switch downwards for 1200.

**Note:** When running the preamp in *Line* level mode, be sure to place the impedance switch downwards for 1200 ohms.

**Tip:** When pairing a microphone with a pre-amplifier, while technically proper not to exceed the pre-amp's input impedance (i.e. less ohms into more ohms), sometimes rules are meant to be broken. Inserting a microphone (with a higher output impedance) into a lower ohms setting may yield surprising results.

## Coarse Gain

This rotary switch provides 7 steps of input gain of, 5 dB each, offering a selectable range between +20 dB and +50 dB. Use the *Coarse Gain* control to set the initial input gain of the pre-amplifier section.



## Fine Gain

This control provides continuous gain trim of +/-10 dB; used in conjunction with Coarse Gain, a maximum of +60 dB gain may be achieved.

When gain staging, begin with the *Fine Gain* control set to middle (0), and adjust the Coarse Gain control to the approximate gain required. With Coarse Gain set, then adjust the Fine Gain control to trim the overall input +/-10 dB as needed.



**Tip:** Fine Gain can be used as a great way to dial-in pre-amplifier coloration; experiment by sweeping across the control range while listening to the results.

**Historical note:** The separate switched Coarse Gain and continuous Fine Gain control-set was how gain staging was achieved on historic TG console *Microphone Cassettes*.

## Output

The *Output* control is continuous, acting as a fader would on a mixing console. Use this control to trim the overall output level of the pre-amp to a recording device, converter or interface, or to regulate level sent into following equipment, such as the TG Opto or TGI2345 MKIV EQ.

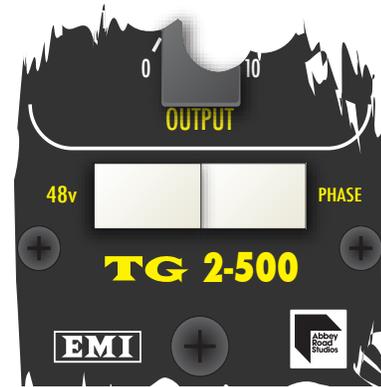


**Note:** When setting input gain sensitivity, begin with the *Output* control set fully clockwise (10) for unity level, adjust anticlockwise as needed so as not to clip the targeted device's input.

**Tip:** If extra coloration or harmonic distortion is desired, this may be achieved by means of overdriving the pre-amp input stage as follows- begin with the *Output* control lower, adjust *Coarse Gain* considerably higher, and tune *Fine Gain* to satisfaction.

## Utility Cluster

At the bottom of the TG2-500 Pre Amp faceplate exists two utility push-button switches labeled as follows: *48v* and *Phase*.



### 48v

Provision is made for 48 volts phantom powering of condenser microphones, should they require it. Phantom power may be enabled by setting the push-button switch labeled *48v* to the inward position, use only for microphones that require it.

**Warning:** Only engage or disengage phantom power while a microphone is connected to the pre amplifier. Disconnecting a microphone while phantom power is on may cause damage to equipment downstream. Never use phantom power with ribbon microphones. Do not enable phantom power when a line level device is connected at the pre-amp input XLR connector.

### Phase

The push-button switch labeled *Phase*, when set to the inward position, transposes the pre-amp input XLR leads, therefore reversing polarity of the incoming signal by 180°. This facility may be useful in multi-microphone scenarios, when a microphone is not ideally placed, a cable is wired incorrectly, or source material is out of phase.

## **SERVICE**

### **United States**

Prior to sending in equipment for repair, please contact our shop at the number below. We will assist you in troubleshooting, and if needed, we will issue an RMA# to return the equipment for service.

### **Send Repairs To:**

Chandler Limited, Inc.

Attention: Repairs

222 S. Cherry St.

PO Box 38 (if sending via the postal service)

Shell Rock IA 50670

Phone: (319) 885-4200

Email: [support@chandlerlimited.com](mailto:support@chandlerlimited.com)

### **International**

Repair of Chandler Limited products purchased, outside of the United States, is provided by local or regional authorized Chandler Limited distributors. To obtain service or repairs, please contact your local dealer or regional distributor for further instruction.

Visit [chandlerlimited.com](http://chandlerlimited.com) for a list of authorized [International Distributors](#).

## **CE CERTIFICATION**

Chandler Limited declares under its sole responsibility that all products manufactured by them are in compliance with Electromagnetic Compatibility (EMC) Directive 2014/30/EU; Standards: EN55103-1:2009+A1:2012; EN55103-2:2009; EN55013:2013 and Low Voltage Directive (LVD) 2014/35/EU; Standards: EN60065:2002+A1:2006+A11:2008+A2:2010+A12:2011.

## **PRODUCT LIMITED WARRANTY**

During the first year from the date of the original purchase, this product is warranted to be free from defects in materials and workmanship under normal use, service and maintenance. This warranty applies to the original purchaser and is subject to the following terms and conditions:

**What Is Covered:** The product's components as originally installed by the manufacturer that are defective in materials or workmanship under normal use, service and maintenance.

**What Is Not Covered By This Warranty:** This warranty does not extend to or cover:

1. Any defect due to the negligence of others; failure to install, operate or maintain the product properly; unreasonable use; accidents; alteration; use of unauthorized or non-standardized parts; acts of God; theft; vandalism; electrical malfunctions (i.e., resulting from power surges, shorted or overloaded circuits, etc.), use of any power source other than supplied by manufacturer; repair by anyone other than an authorized Chandler Limited representative; or damage resulting from improper packing or mishandling by a shipper.
2. Normal wear and tear of parts.
3. Shipping, handling, packaging and delivery costs of the product.

**Who Is Covered:** The original purchaser.

**Repair During The First Year:** During the first year, all defective product components that are covered by this Limited Warranty will be repaired free of charge including parts and labor. The purchaser will pay shipping costs AND a \$35 handling fee per unit.

**What You Must Do for Warranty Service (in the United States):** If you live in the United States and your product was purchased through a U.S. Dealer, please contact your dealer OR call 319-885-4200 or e-mail [support@chandlerlimited.com](mailto:support@chandlerlimited.com).

**What You Must Do for Warranty Service (outside of the United States):** For warranty service if you live outside of the United States, please contact the dealer where you purchased the product.

Any products returned to Chandler Limited for repair should include: (1) complete description of the problem; (2) name, address, phone number, fax number, and/or e-mail address; (3) receipt of original purchase; (4) power supply and all accessories and cables. The purchaser is responsible for the shipping costs to and from Chandler Limited. Chandler Limited is not responsible for damage resulting from improper packing and/or mishandling by a shipper.

If sent by UPS or Federal Express, ship to: Chandler Limited, 222 South Cherry Street, Shell Rock IA 50670

If sent by Postal Service, ship to: Chandler Limited, PO Box 38, Shell Rock IA 50670

The foregoing expresses Chandler Limited's obligations and liabilities with respect to the quality of the product, its components and accessories. All other warranties, express or implied, including the warranties of merchantability or fitness for a particular purpose are disclaimed. Chandler Limited shall not be liable for the loss or use of the product, its components and accessories, inconvenience, loss or any other damages, direct or consequences arising out of the use of, or inability to use the product or its components or damages resulting from or attributable to defects in the products or its components. No one other than Chandler Limited has authority to extend or modify the terms of this limited warranty in any manner whatsoever.

## **DISCLAIMER OF WARRANTY**

EXCEPT FOR THE FOREGOING WARRANTIES, CHANDLER LIMITED HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY AND/OR ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND/OR ANY WARRANTY WITH REGARD TO ANY CLAIM OF INFRINGEMENT THAT MAY BE PROVIDED IN SECTION 2-312(3) OF THE UNIFORM COMMERCIAL CODE AND/OR IN ANY OTHER COMPARABLE STATE STATUTE.

## **LIMITATION OF LIABILITY**

THE LIABILITY OF CHANDLER LIMITED, IF ANY, AND PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR DAMAGES FOR ANY CLAIM OF ANY KIND WHATSOEVER, REGARDLESS OF THE LEGAL THEORY AND WHETHER ARISING IN TORT OR CONTRACT, SHALL NOT BE GREATER THAN THE ACTUAL PURCHASE PRICE OF THE PRODUCT WITH RESPECT TO WHICH SUCH CLAIM IS MADE. IN NO EVENT SHALL CHANDLER LIMITED BE LIABLE TO PURCHASER FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION, REIMBURSEMENT OR DAMAGES ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS OR FOR ANY OTHER REASON WHATSOEVER.