

CHANDLER LIMITED® TG OPTO USER MANUAL



TG OPTO

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INTRODUCTION

TG Opto

Thank you for purchasing the Chandler Limited TG Opto compressor module, you now own a piece of EMI/Abbey Road Studios official equipment.

The TG Opto, inherits from Chandler Limited's TG Microphone Cassette and TGI and Zener Limiters, and draws its heritage from the compressors found in the historic EMI/Abbey Road Studios TG12345 recording consoles and TG12410 transfer desks of the late '60s and '70s.

The TG Opto 500 Series compressor module delivers legendary TG sound to the 500 Series format, with greater flexibility over the original equipment.

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

Your Chandler Limited TG Opto 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.

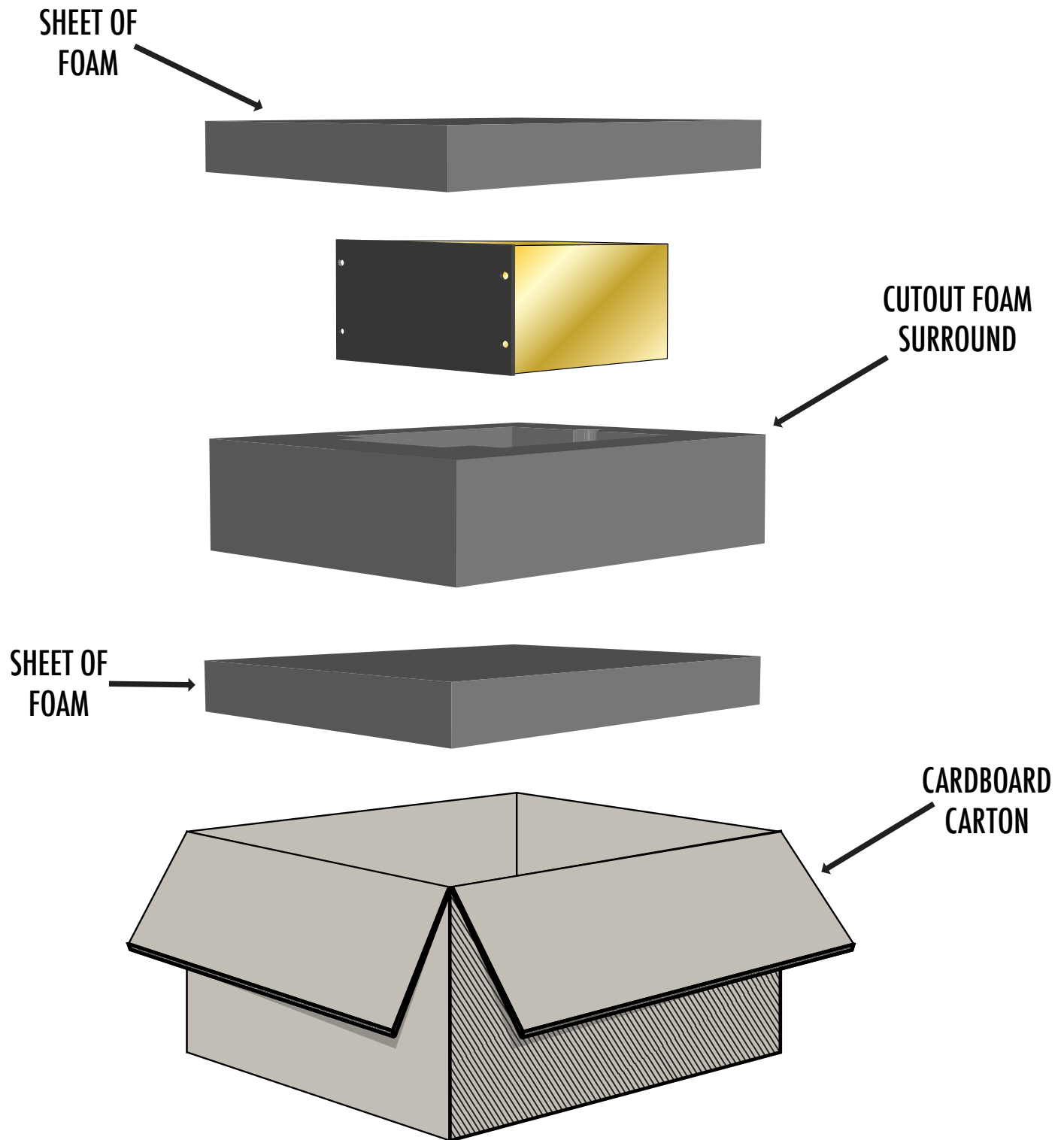


OFFICIAL
EQUIPMENT

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

+16 volts power rail = +100 mA*

-16 volts power rail = -100 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 TG Opto audio connections are wired pin 2 hot. Audio input and output connectivity jacks will be provided by the host 500 Series rack enclosure.

STEREO APPLICATION

While the TG Opto is a non-linkable mono compressor, a pair of the units may be applied to stereo programme material; however, due to the variation in components, stereo operation of unmatched units may not be optimal.

If stereo operation is a must, you may attempt to align the units in true old-school fashion by way of a test tone. However, keep in mind that due to variations between components, final landing positions of the controls may differ between the units; this is both normal and valid.

Note: We do not offer matched pairs of the TG Opto Compressor. However, if you intend to purchase a pair for stereo programme applications, please ask your dealer to inform us, and we will try to find two that are reasonably close.

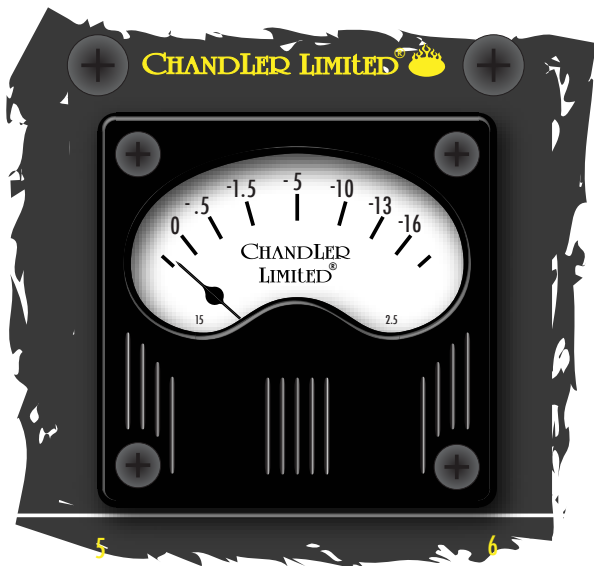
OPERATING INSTRUCTIONS

It is little known that EMI technical engineers experimented with *opto* detection in their compression circuits. The *TG Opto* is an *opto* adaptation of Chandler Limited's TGI Limiter, a recreation of the limiters found in the historic EMI TG12345 recording consoles and TG12410 transfer desks of the late '60s and '70s.

Historically referred to as a *level back-off* system, in a modern context, the TG Opto compressor should be considered a dynamic range reducer, that is- it attenuates transient peaks while simultaneously amplifying quieter signals.

Meter

Provision has been made for visual monitoring of the overall amount of compression applied to programme material by means of a *gain reduction* type meter.



The gain reduction meter's faceplate is labeled across a range from: 0-16 dB; however, beyond 16 exists a further 8 decibels.

The more programme material is compressed the further the meter's needle will deflect to the right or into greater values.

Tip: The meter's ballistics, represented by the rate of the needle's movement, can be used as a guide to visualize both the speed of compression onset and recovery from compressed conditions to normal level.

Input

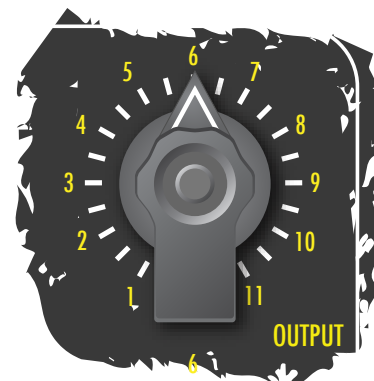
The *Input* control is continuous and used to set the desired degree of compression, a setting of 0 is least and -10 is maximum potential reduction.



Note: The TG Opto *Input* control works in the same manner as implemented on the TGI and Zener Limiters.

Output

Provision is made for makeup gain by means of the compressor's *Output* control. This control is continuous and used to return compressed programme to level; anticlockwise rotation is less makeup gain.



Note: The more compressed programme is, the louder the processed material may appear, thus necessitating reduction of the compressor's *Output* control.

Attack

This is a continuous control and is used to set the speed at which compression is onset; a setting of *I* is fastest and *///* is slowest.



Historical note: EMI limiters including the: RSI14 tube limiter, RSI24 Compressor, RSI68 Zener prototype, TGI2345 recording console limiters, and TGI2410 transfer desk limiters, had fixed attack.

Release

This is a continuous control and is used to set the recovery time from compressed conditions to the inactive state gain level; a setting of *I* is fastest and *///* is slowest.



Historical note: EMI limiters including the: RSI14 tube limiter, RSI24 Compressor, RSI68 Zener prototype, TGI2345 recording console limiters, and TGI2410 transfer desk limiters, had six fixed recovery (release) times.

Knee

The TG Opto provides two compression knee types: Sharp and Rounded.



Sharp knee

Sharp is equivalent to limit mode on the TGI and Zener Limiters, and is considered hard. When the Knee switch is set to *Sharp*, compression will be full ratio.

Tip: Sharp knees are often employed to control transient peaks, while increasing overall programme level.

Historical note: On historic EMI TG limiters, *Limit* mode was intended to mimic the curve of the studio's Fairchild 660 units.

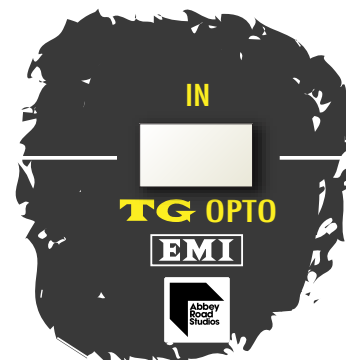
Rounded knee

Rounded is a soft type knee. The traditional soft knee is one in which when triggered, onset of the compression ratio is gradual; however, the soft knee implementation on the TGI Opto functions independently from ratio.

Tip: Rounded or soft knees are great in scenarios where compression is required to be less obvious, such as vocals and other melodic programme.

In

When the TG Opto's *IN* push-button switch is set inward, the compressor is active, conversely, when positioned outward, it is removed from the audio path or fully bypassed.



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

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 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.

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.

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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.