

Chandler Limited® RS124 Compressor User Manual





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

The Chandler Limited RS124 Compressor is a recreation of the rare EMI / Abbey Road Studios RS124, and reimagined for the modern era. The Chandler Limited RS124 is a mono tube compressor, and incorporates an extended feature set over the original equipment.

Each historic Abbey Road Studios' RS124 compressor is unique in more ways than one, and Chandler Limited's incarnation of the equipment includes the three favorite original units still in use at the historic studios, in one device for the first time.

Your Chandler Limited RS124 Compressor has been carefully crafted and built by hand at Chandler Limited 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

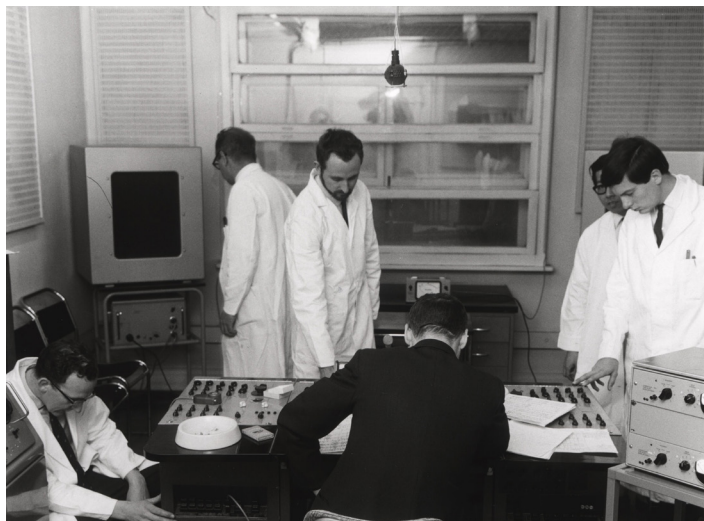
HISTORY

First designed in 1960 by Abbey Road Head of Technical Bill Livy, Deputy Head Len Page and seasoned EMI Audio Designer Mike Bachelor, the EMI RS124 compressor is one of the most coveted pieces of recording gear ever developed.

During the late 1950's, EMI acquired Altec 436B compressors, and soon realized the units were insufficient for critical recording applications. Livy, Page and Bachelor worked to modify the Altecs to meet their standards and ultimately ended up designing an entirely new compressor in the process, the EMI RS124.

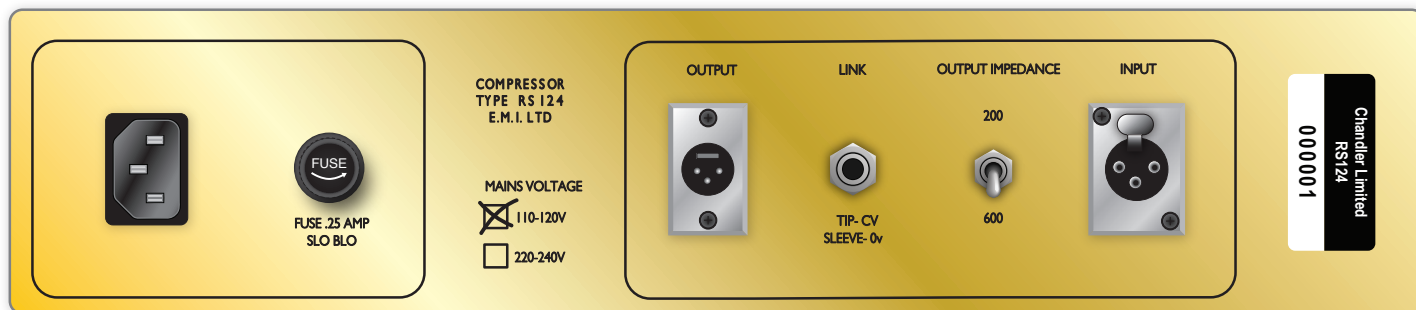
The RS124 was popular with Abbey Road Studios' engineers. The RS124 added its unique character to single instruments, rhythm busses and entire mixes. So integral to the recording, mixing, and mastering process, a pair can be seen in almost every control room photo in Abbey Road during the 60s period.

Still in use today at Abbey Road Studios, and most recognized for its use at virtually every Beatles session, the RS124's true inner-workings have remained an enigma, until now.



OFFICIAL

EQUIPMENT



CONNECTIVITY

POWER

The Chandler Limited RS124 Compressor features an internal power supply. Connection is made using the supplied IEC power cable. Power is preset internally to operate at either 120V or 220V.

INPUT/OUTPUT

On the rear panel of the RS124 compressor exists two XLR jacks (wired pin 2 hot), one for input, and the other for output. Both input and output connections are +4, transformer balanced.

Output impedance is 600/200ohms switchable, both offer tonal and gain differences. The 600ohms setting is more amenable to the modern studio environment. The 200ohms impedance setting was Abbey Road Studios' standard.

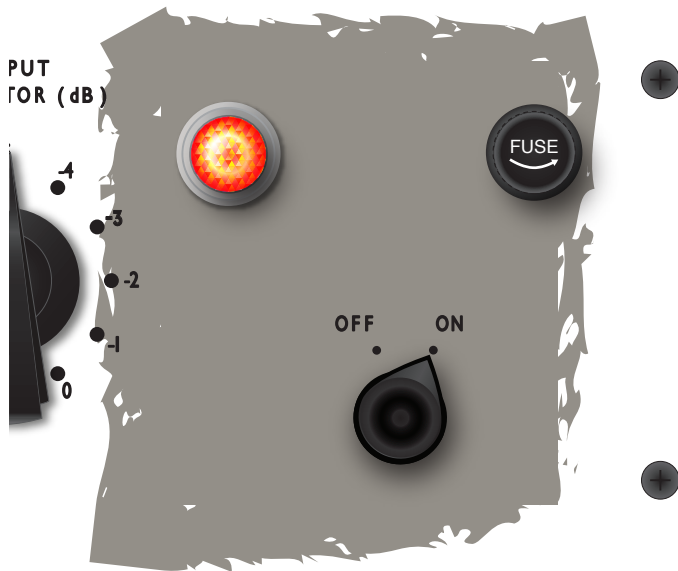
STEREO LINK

Provision has been made for stereo linking of two RS124 Compressors via a standard $\frac{1}{4}$ " cable, by means of using the female $\frac{1}{4}$ " connector available on the rear of the unit.

When linked to a second RS124, the devices are controlled by which ever of the two control voltages is instantaneously the greater.

While under stereo linked conditions, each compressor's control-set are managed independently.

NOTE: When using the RS124 on a mono source or independently of a second unit, be sure to remove any link cable as to not cause undesired influence of one another.



ON/OFF

Cycling power to the RS124 is achieved by turning the ON/OFF power switch (located far right of the front panel) to the desired position. When the RS124 is powered on, the jewel light on the front panel will illuminate.



BAL.

STOP: The balance feature is preset at the factory and should not need to be adjusted.

In any "push/pull" amplifier, one side pushes waveform, while the other side

pulls it in an equal fashion. Over time, the "push/pull" balance may become irregular, and as a result, unwanted artifacts will occur in the audio. This is common to most tube based compressors, including the RS124.

When the "push/pull" circuit becomes unbalanced, it may exhibit subtle rumbling or distortion and modulation of the source signal; this is more noticeable at quiet sections of music, and low frequencies.

Located at the far left of the front panel is the "BAL." control-set, a circuit re-balancing utility. If the RS124 is suspected of having become unbalanced, simply depress the silver colored momentary switch. This action will induce a ticking sound heard in the monitors. Use a small flathead screw driver and slowly adjust the trim pot (located above the "BAL." label) back and forth across the range, until the ticking sound is barely audible; the ticking sound will not fully disappear. Once the ticking sound is at its minimum audible level, re-balancing of the RS124 has been achieved.

HISTORIC NOTE: Early versions of the EMI / Abbey Road Studios RS124 did not have front panel "BAL." functionality. As a result when the circuit became unbalanced, the compressor would have to be pulled during the session and rebalanced by Abbey Road technical staff. This was scenario was cumbersome, and the resultant session interruption not ideal.

Abbey Road engineer Len Page had a proverbial 'Light-Bulb' moment, coming up with an ingenious modification.

A small balancing circuit "BAL." including a neon bulb, momentary switch, and trim pot was added to the RS124. When the momentary switch was activated, a ticking sound was sent to both amplifiers, with one being phase reversed. If the circuit in a balanced state, the ticking would be canceled out. Otherwise, the engineer would adjust the trim pot until the audible ticking was virtually removed. This allowed for convenient in-session rebalancing of the compressor by the recording engineer in a matter of seconds.



INPUT CONTROL

The "INPUT CONTROL" is variable*, and allows adjustment of input signals applied at the XLR input connector on the rear of the compressor. The "INPUT CONTROL" is labeled 0 to 10 from left to right.

The RS124 is a variable transconductance compression circuit. Clockwise adjustment of the "INPUT CONTROL" simultaneously raises incoming signal level, while lowering the compressor's threshold and increasing the amount of compression applied to the source material.

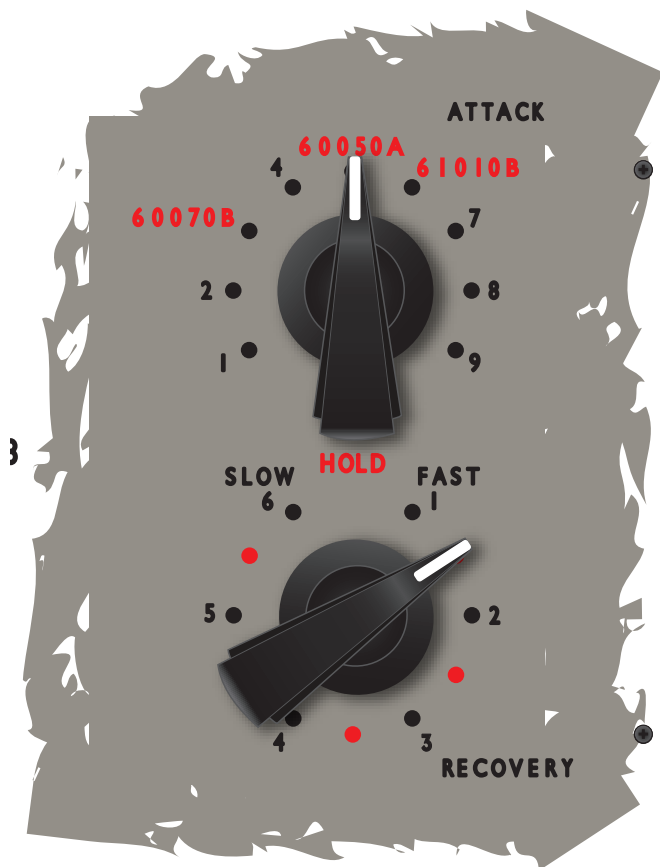
Counterclockwise rotation of the "INPUT CONTROL" simultaneously reduces incoming input level, while raising the threshold and lowering the amount of compression applied to the source material.

*NOTE: If switched input control is desired, it can be pre-ordered at time of purchase for an additional fee from an authorized Chandler Limited dealer.

OUTPUT ATTENUATOR (dB)

The 'OUTPUT ATTENUATOR (dB)' control is variable*, use this control to lower the overall output level of the RS124. Rotation in a counterclockwise motion from right to left, beginning at 0 and continuing to -10 will attenuate the output signal of the RS124 to the desired level.

*NOTE: If a switched output attenuation control is desired, it can be pre-ordered at time of purchase for an additional fee from an authorized Chandler Limited dealer.



ATTACK

Chandler Limited's RS124 Compressor provides adjustable attack time via the stepped switch, labeled "ATTACK", a feature not available on historic units.

There are nine attack time settings available, the fastest setting is achieved at the far left position labeled "1", each subsequent position is slower.

The Chandler Limited RS124 includes three favorite historic RS124 compressors still in use at Abbey Road Studios today, in a single unit for the first time ever.

Included amongst the nine attack options are three positions marked in red. These red colored settings reflect the serial numbers (60070B, 60050A, and 61010B) of historic RS124s. To dial up one of Abbey Road's favorite historic RS124s, simply set the "ATTACK" switch to the desired serial number.

HISTORIC NOTE: Each historic RS124 was unique, exhibiting its own character and personality, variances between units were

enough so that Abbey Road engineers would request a specific serial numbered unit depending upon the source material it was to be applied to. Furthermore, historic EMI/Abbey Road Studios RS124s featured a fixed attack time, i.e. the attack timing was hardwired internally to a set time constant. Overall, not all RS124s shared the same values

RECOVERY

"RECOVERY" is an eleven position stepped switch which controls the compression release time.

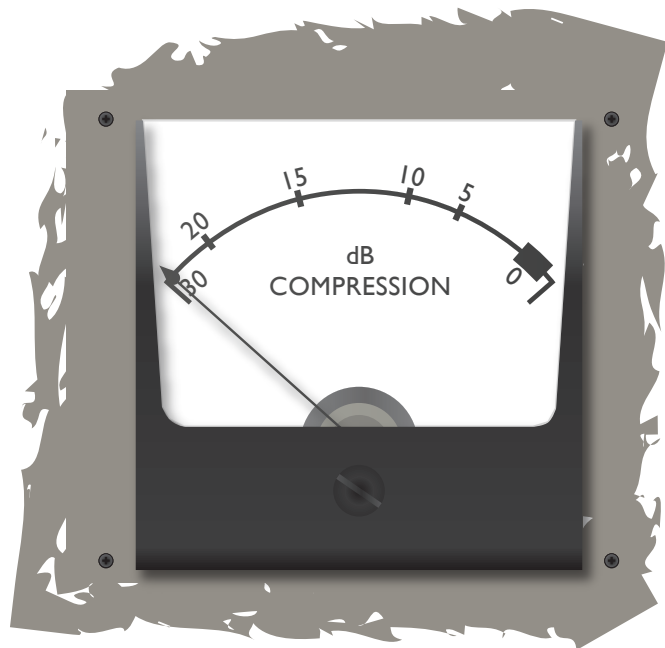
The "RECOVERY" switch provides six recovery or release time options, starting left to right and from slowest (6) to fastest (1), including five identical "HOLD" positions denoted by red colored ellipses.

Adjusting the "RECOVERY" switch to any of the "HOLD" positions, will keep the source signal compressed to the most recently processed peak level.

HISTORIC NOTE: The "HOLD" feature was an ingenious way to prime or preset the compression level of the incoming signal as a way to overcome potential processing issues.

During mastering, to prevent abrupt compression onset at the beginning of a track, Abbey Road engineers would roll tape forward to the highest peak level and set the RS124 to the nearest available "HOLD" position from the desired "RECOVERY" setting. Now with the compression level held or preset, the engineer would rewind the tape and begin from the top of the track, and any artifact of initial compression onset was removed.

Another use of the "HOLD" facility was to prevent level in-rush when there was a precipitous drop in level during quiet passages of a track below the compression threshold. Here again, engineers would switch the "RECOVERY" control to the nearest "HOLD" position until the quiet passage had passed, before setting it back to the previous release value.



METER

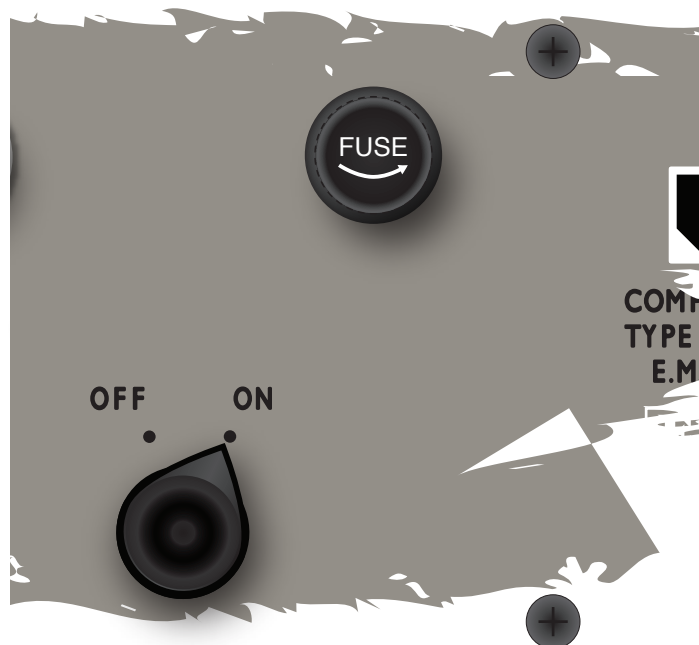
The Chandler Limited RS124 features compression level monitoring facilities via the large 'db COMPRESSION' meter located at center of the front panel.

The 'db COMPRESSION' meter illustrates the amount of compression applied to the incoming signal, and is labeled right to left, 0 to 30db.

When compression is induced, the 'db COMPRESSION' meter's needle will move from right to left, indicating the amount of gain reduction applied to the source signal.

NOTE: The meter will move faster or slower depending upon attack and recovery time settings. However, the meter is analog and ultimately slow in nature, as a result the amount of compression applied to the source signal may be greater than visibly observed.

NOTE: The vintage RS124 and new version RS124 as well as the Altec 436, have an unregulated power supply. Because of this design there can be some variation in the resting place of the meter's needle, this is normal. For example, if your AC voltage is a bit high, the meter may rise slightly above the meter's thick black zero bar.



SUPERFUSE

Available on the far right of the RS124 front panel, exists what appears to be a fuse cap, it is not, it's a switch!

This switch disguised as a fuse cap, is a feature dubbed the 'Superfuse'.

Turning the switch to the left will activate 'SuperFuse' mode and the RS124 power jewel light becomes brighter indicating the feature has been engaged.

What is 'Superfuse' mode?

While we will not divulge the inner-workings of this special feature, it does change the personality of RS124 to become faster and more aggressive overall. When activated, the source material may become more lively and appearing to jump out of the monitors. WARNING- "Superfuse" is addicting!

MAINTENANCE

TUBES

From time to time, replacing vacuum tubes may be necessary. The RS124 compressor requires three vacuum tubes: 6BC8, 6CG7, and 6AL5.

WARNING: HIGH VOLTAGES are present! Before replacing any tubes, please power off the unit, disconnect the power cable and wait 5 minutes for the voltage to discharge.

FUSE

On the rear of the unit exists a circuit protection fuse. If fuse replacement is required, cycle the power switch to 'OFF', and use a 250mA Slow-blow type.

U.S. SERVICE

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

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 SERVICE

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, except expendables defined as vacuum tubes and meter or badge lamps, which are covered by a lesser warranty period as set forth below.

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 for non-expendables: 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 all shipping costs AND a \$35 handling fee per unit.

Repair During The First 90 Days for expendables: During the first 90 days, all defective expendables (vacuum tubes and meter or badge lamps) that are covered by this Limited Warranty will be replaced or repaired free of charge including parts and labor. The purchaser will pay all shipping costs and a \$35.00 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 email 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

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