



Abbey Road Saturator

User Guide



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Introduction

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Abbey Road Saturator

Saturation brings warmth and life to an instrument or track. It can come in the form of pleasing harmonics in a drum or vocal or as full-blown console distortion that makes a synth, bass, or guitar part 'sing' in the mix. Abbey Road Saturator delivers a unique saturation sound, along with creative flexibility, by combining two classic EMI tools: a compander and console saturation chains.

Companders were initially designed to reduce noise in telecommunications. They compress a signal before transmission and expand it on the receiving end. In 1962, building on this technology, EMI Central Research Laboratories patented a tape noise-reduction system called the TG12321. The first generation of pop engineers quickly discovered that using the encode-only part of the process results in a beautiful-sounding high frequency emphasis that adds air and excitement to any track and helps instruments cut through the mix—a secret weapon in the studio. Pioneering Abbey Road engineers, including Peter Bown and Geoff Emerick, came to be known as fans of using the TG12321 in this unusual way. A similar top-end enhancement effect was later achieved with the “Dolby A Trick,” which became extremely popular throughout the '70s and '80s. Abbey Road Saturator uses this single-end compander process to excite the signal before it's sent to the saturator.

The Abbey Road Saturator precisely emulates the original TG12321 unit fed into the REDD or TG desks for an excited saturation effect. These two console chains have very different saturation behaviors, so the choice between them is very important in building the saturation effect. Two EQ panels control the signal that's hitting the compander. Pre-compander EQ can be adjusted to control the signal hitting the compander, and post-Saturation EQ can be adjusted to mold the final color.

Abbey Road Saturator is simple to use, yet it provides all the control you need to create elegant saturation and distortion, from subtle harmonic enhancement to powerful distortion effects.



Components



Mono Component



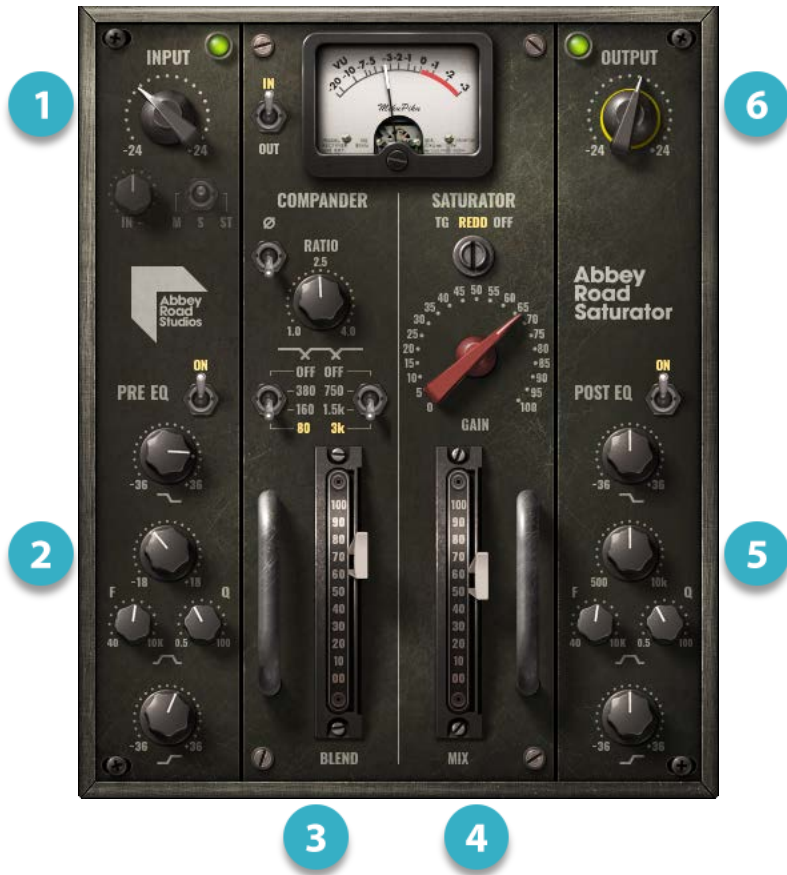
Stereo Component

There are two Abbey Road Saturator components: mono and stereo.

Their interfaces are identical, except that the input section of the mono component does not have an active stereo input selector.



Processing Sections



1	Input	Adjusts input level and sets which channel will be used for distortion processing (stereo component only).
2	Pre EQ	Low/mid/high filters before compander/saturator
3	Compander	At low ratios, it adds soft clipping at low frequencies. High ratios result in soft clipping at higher frequencies.
4	Saturator	Lower gain settings yield harmonic distortion with clean headroom. As gain increases, results range from gentle clipping to full crunch.
5	Post EQ	Final EQ before output
6	Output	Sets output level

Signal flow through the plugin is: Input→Pre EQ→Compander→Saturator→Post EQ→Output



Controls

Input



INPUT GAIN CONTROL

Sets the plugin's input gain. You can, alternatively, adjust the input gain from the DAW, but this will result in a somewhat different sound. Use the adjacent VU meter for adjustments.

Range: -24 dB to +24 dB

Default: 0 dB

INPUT PEAK LEVEL LIGHT

A LED above the knob indicates input peak level. When the LED is blank, input gain is probably too low for the plugin to work properly. Green or yellow indicate an appropriate level and red shows input clipping. It is very unlikely that the plugin will clip internally, but the input level will influence performance. You may achieve desirable results by clipping the input—try it.

STEREO MODE

Sets how a stereo signal will be processed:

- In **Stereo** mode, the entire stereo image is together.
- In **M** mode, the middle of the stereo image is distorted. Sides are not processed.
- In **S** mode, the sides of the stereo image are distorted. The middle is not processed.

MID OR SIDE MODE INPUT LEVEL CONTROL

When the Input section is set to Middle (M) or Side (S), this knob controls the input level of the M or S signal, independent of the plugin input. When Stereo input is selected, this control is inactive.

Range: -24 dB to +24 dB

Default: 0 dB



Pre EQ

This module is a three-band EQ that filters the signal before it enters the compander.

PRE-EQ SECTION ON/OFF

Bypasses the Pre EQ section.



FILTERS

Low Shelf

Gain: -36 dB to +36 dB, Default: 0 dB

Frequency: 200 Hz

Bell

Gain: -18 dB to +18 dB; Default: 0 dB

Freq: 40 Hz to 10,000 Hz; Default 740 Hz

Q: 0.5 to 100; Default 4.05

High Shelf

Gain: -36 dB to +36 dB, Default: 0 dB

Frequency: 2550 Hz

Compander



The compander compresses the Pre EQ signal, passes it through low-pass and high-pass filters, and then expands it. This excites the signal and provides control over how different frequencies are distorted based on the compander ratio.

PHASE

Reverses the phase of the compander module. It tends to change the effect from “pulling” to “pushing.” It can result in a significant change in character, depending on the program material.

RATIO

Ratio sets which frequencies will be compressed and enhanced. Lower settings result in more low-frequency sounds being soft clipped and compressed. With higher settings, higher frequencies are affected, and results range from gentle clipping to crunching.

Range: 1.0 to 4.0

Default: 2.0



HI PASS AND LOW PASS FILTERS

Sets the bandpass range of the compander.

Ranges: High pass: 80 Hz, 160 Hz, 380 Hz; default: 80 Hz

Low pass: 750 Hz, 1.5 kHz, 3 kHz; default: 3 kHz

The default settings provide the maximum compander bandwidth.

COMPANDER BLEND

Sets the mix between the compander and the input signal.

Range: 0 (input signal) to 100 (compander output)

Saturator



This section creates controllable saturation, modeled after the signal flow of two very different mixing consoles from EMI, both of which became bread-and-butter consoles at Abbey Road.

The **EMI REDD 17** is a valve mixing desk, first developed at Abbey Road in the 1950s. Its saturation sound is typically edgy and aggressive.

The **EMI TG12345**, introduced in 1969, was the first solid state mixing console designed by EMI for Abbey Road Studios. It saturates with a rounder, often warmer sound.

The differences between the saturation sound of the REDD valve-based consoles and the transistorized TG consoles are significant. Experimenting between these two saturation types is an essential part of creating a saturation sound. And remember that saturation behavior is very content dependent.

You can also turn the Saturator **Off** altogether.

To hear the effect of the saturator alone, switch off the Pre-EQ section and set the mix of the compander to zero. Set the saturator mix to 100% wet.



CONSOLE TYPE

Selects which console model signal flow to use to create saturation.

Range: TG, REDD, Off; Default: TG

GAIN

Sets the amount of saturation that will be generated from the selected console. The behavior of the Gain control varies depending on the setting:

Value (approximate)	Effect
0–50	Increasing amount of harmonic distortion with clean headroom.
50–100	Initially, gentle clipping, increasing to a full crunch effect.

Range: 0 to 100; default: 50

MIX

Sets the mix of the overall processed signal.

Range: 0 (dry) to 100 (processed signal)

Post EQ

This module is a three-band EQ that filters the signal after all processing, before the output section. Use this to sculpt the final sound.



FILTERS

Low Shelf

Gain: -36 dB to +36 dB, Default: 0 dB

Frequency: 200 Hz

Bell

Gain: -18 dB to +18 dB; Default: 0 dB

Freq: 40 Hz to 10,000 Hz; Default 740 Hz

Q: 0.5 to 100; Default 4.05

High Shelf

Gain: -36 dB to +36 dB, Default: 0 dB

Frequency: 2550 Hz



OUTPUT



Sets output level of the plugin. An output limiter is set to -0.9 dB, so the signal will not clip at the DAW, but heavy limiting will affect the sound. The LED next to the knob is a limiter activity indicator.

Range: -24 dB to +24 dB

Meters



Input or output gain is displayed on a single VU meter. Use the switch on the left to select a source. In the stereo component, the meter displays the louder of the left and right channels.

HEADROOM ADJUST

Click on the headroom adjustment screw at the bottom of the meter to calibrate the VU meter to the DAW's reference level.

When, for example, headroom is set to “18,” then a -18 dBFS reference tone will equal 0 dB VU on the meter.

Range: 8 dB to 24 dB

Excluding Selected Frequencies from Distortion Processing

You can use the Pre EQ and Post EQ controls together to remove certain frequencies from distortion processing. This is most commonly used to leave low frequencies largely untouched, usually to maintain the color and robustness of the bass or to prevent the bottom end of the distortion from becoming muddy. The idea is to use the Pre EQ to strip away the frequencies you want to remove from the signal so that they don't pass through the compander and saturator, and then use the Post EQ to recover the same frequencies after processing.

1. Raise the Pre EQ low shelf value until you remove most of the low frequency sound you want to protect.
2. Set the Post EQ to approximately the same value, but opposite, of as the Pre EQ. The selected frequencies will remain unaffected while the rest of the signal will be distorted.
3. Adjust both controls to get the color of the output to closely match that of the input.



WaveSystem Toolbar

Use the bar at the top of the plugin to save and load presets, compare settings, undo and redo steps, and resize the plugin. To learn more, click the icon at the upper-right corner of the window and open the WaveSystem Guide.

