NEOLD U17 Compressor Effect Plugin Instruction Manual

U17 Manual

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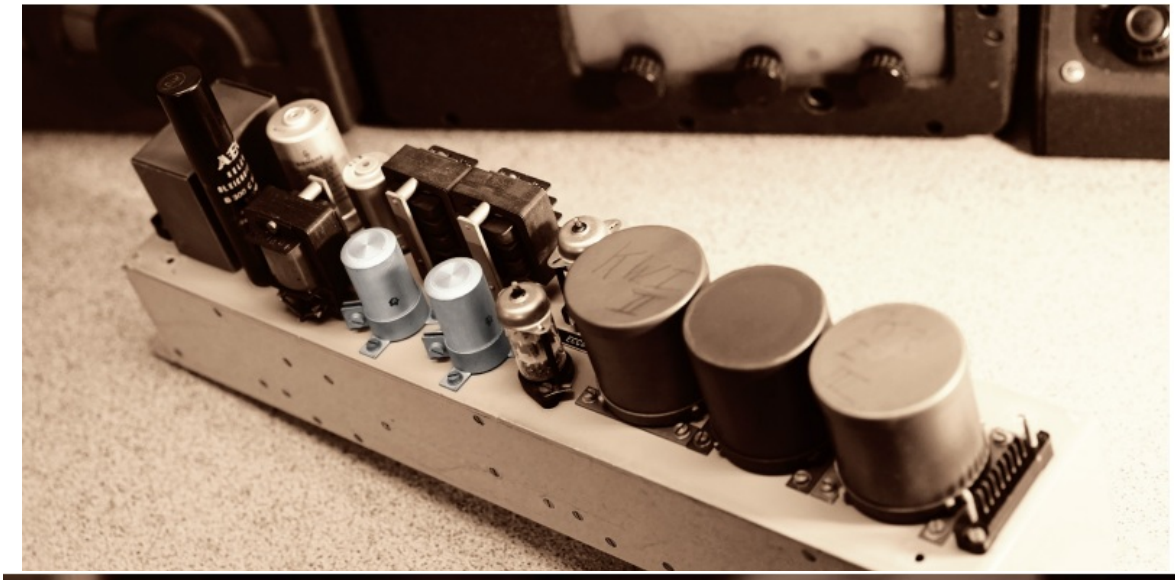
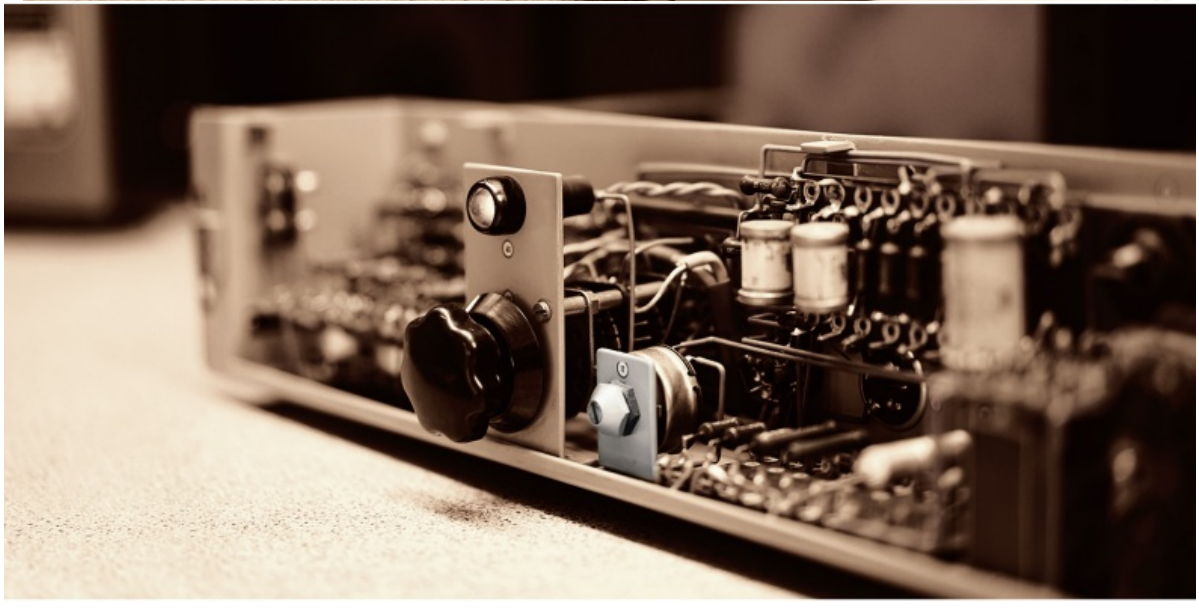
THE SECRET COMPRESSOR

In 1954, a truly unique compressor appeared on the scene: the U17. Built by Allgemeine Telefon-Fabrik in Hamburg for the NWDR broadcasting network, only a few dozen units of this exemplary analog masterpiece were manufactured, making this gem one of the rarest compressors ever built.



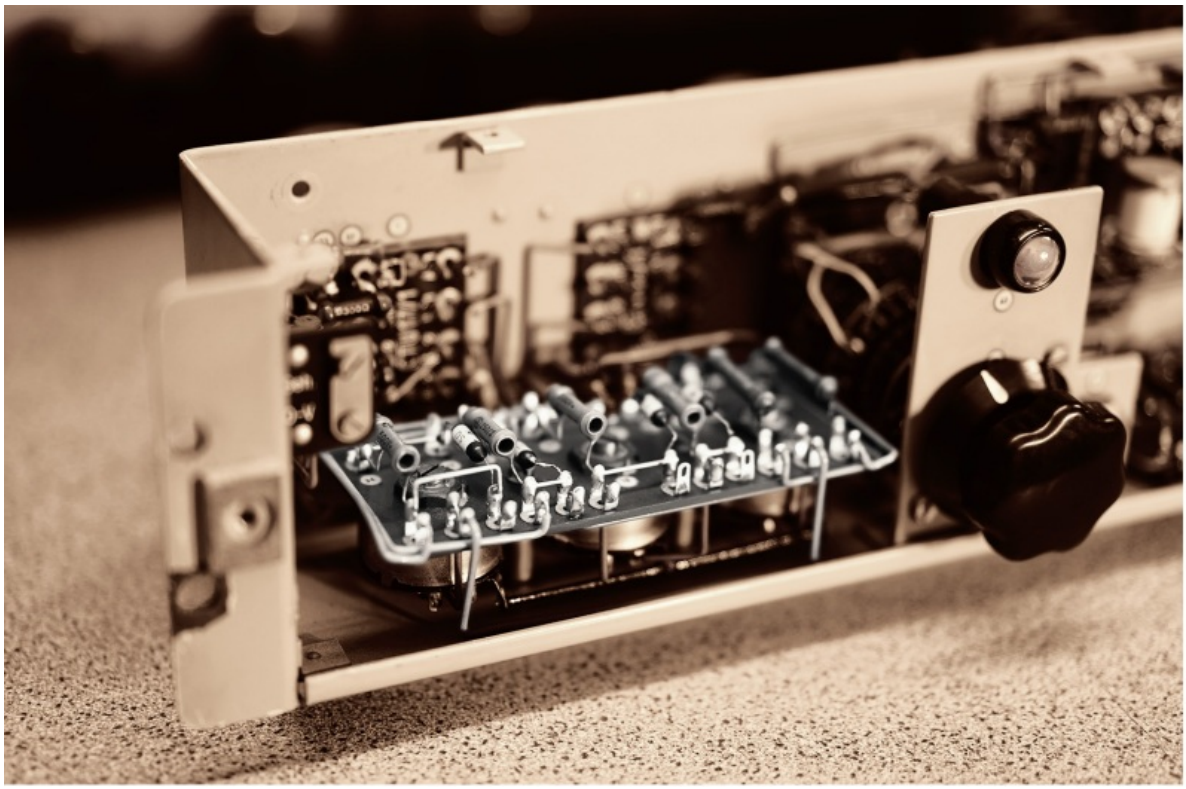


CROSSING BRIDGES

The U17 combines a solid-state diode bridge using Germanium crystal semiconductors with all-tube and massive transformer-coupled amplification. Best of both worlds! The original hardware was intended to provide gentle and unobtrusive compression, and the plugin offers just that in the most beautiful way… but it also adds a couple of serious setscrews, mutating the gentleman into a veritable two-face.

DIGNIFIED POWER

A discrete soft clipping stage adds pleasant coloration while taming heavy transients before entering the actual compressor, which can blend from gentle and transparent to straight and aggressive operation with its powerful Torque control. In fact, the U17 combines everything we love about the golden era of analog design with a very modern and experienced approach to dynamics processing.



DIODES

The U17 circuit employs six DS62 Germanium crystal diodes. Four of them are wired in a bridge configuration to implement the floating gain reduction circuit which was also used in later units like the U276 or the iconic 33609. This design was introduced in the early 1950s when remote cut-off tubes were the only other option for achieving clean voltage-controlled amplification.

TUBES

The audio amplifier, as well as the sidechain driver, feature an ECC81 double triode, which is strapped in a clever negative feedback configuration in both cases to allow for maximum linearity… the U17 was a broadcast device designed to improve the SNR in AM transmission paths after all. While the plugin is based on this beautiful topology, it also offers powerful ways of spicing compression up with additional grit and harmonic distortion.

TRANSFORMERS

The U17 includes plenty of custom iron: Audio and sidechain are tapped from the input transformer. The second ECC81 stage of the sidechain amp is loaded by a major choke and drives into another iron that feeds the envelope and time constant generator. An interstage transformer drives the audio amp, completed by an output transformer coupled with another choke.

QUICK START

1. **Meter**

   Its main function is to visualize the intensity and speed of the gain reduction process, but it can also show the input or output level instead.

2. **Clipper**

   This section allows to tame incoming transients and achieve a louder signal before even getting the compressor involved. You can also set where in the spectrum the effect should be focused, so the soft clipper can be used both as a dynamics tool and as a sound shaper.

3. **Compressor**

   The fully compensated input gain essentially controls the operating point (threshold) of the compressor, while Torque modifies the knee and ratio of the compression curve at the same time.

   Here you can also set the time constants or enable individual auto modes for attack and release, and continuously blend the detectors from unlinked to linked operations.

4. **Filter**

   A tilt-style sidechain filter that allows to focus compression on the energy of specific frequency ranges, with controls for blending from low pass via completely flat to a high pass filter and for setting the tilt point. It is completed by a switchable sidechain listen, and monitor.

5. **Mixer,**

   This section is for blending the processed and unprocessed signals, adapting the output volume, and switching the plugin on or off.

1. Shows either input level, gain reduction or output level (meter screw changes mode).
2. Controls the amount of soft clipping/saturation introduced by the tube amplifier.
3. Defines where in the frequency spectrum Density processing is focused.
4. Blends between unlinked dual-mono and linked stereo operation.
5. Sets the amount of level-compensated gain entering the compressor (threshold).
6. Adjusts the attack time of the compressor. Fully clockwise enables auto mode.

7. Tunes the release time. Fully clockwise engages individual auto release mode.
8. Toggles between monitoring the program audio and the sidechain signal path.
9. Modifies the knee and ratio of the compression curve at the same time.
10. Crossfades the sidechain filter from low pass via completely flat (=Off) to high pass.
11. Increases or decreases the tilt point frequency of the sidechain filter.
12. Mixes the dry and processed signals for onboard parallel saturation/compression.
13. Amplifies or attenuates the output level, implemented as linear, clean gain.
14. Engages or bypasses the entire signal processing chain.

PARAMETERS

Meter
The VU meter displays either input level, gain reduction or output level in dB. Its mode can be changed with the black screw at the bottom of the housing. The reference point is 0 VU = -14 dBFS.
Density
The Density stage is located in front of the actual compressor. It controls the amount of additional clipping/saturation introduced by the dual-stage ECC81 amplifier. Besides adding pleasant coloration it also allows taming heavy transients before entering the compressor stage.
Emphasis
The Emphasis knob controls where in the spectrum the Density processing is applied. Turning the knob clockwise shifts saturation more towards the high end of the spectrum, whereas counterclockwise yields more processing in the lows. The Emphasis filter is neutral (linear) in the 12 o'clock position.
Detector
The Detector knob seamlessly blends between unlinked (U) dual-mono and linked (L) stereo operation. It is only available on stereo tracks.
Input
This control sets the amount of gain applied to the signal after the clipper stage before it enters the compressor. The input gain is fully compensated, so it essentially controls the threshold of the compressor.

Attack
& Release These two knobs set the time constants, which have been carefully selected to allow for a wide range of compression behaviors, i.e. anything from transparent and smooth to aggressive, gritty, and pumping. The fully clockwise position (red dot) will put the respective time constant into auto mode.
Monitor
Clicking this lamp allows monitoring of the filtered sidechain signal instead of the default program material. This makes it easy to dial in suitable settings for Shape and Frequency by ear. In addition, the sidechain monitor can

also be used to check external keying signals routed into the U17 via the DAW.

Torque

blends from gentle and transparent to straight and aggressive operation. This function essentially controls how much the compressor “grabs” your transients by modifying the knee and ratio of the compression curve, diving deeply into negative ratios if desired. The default setting (20%) corresponds to the characteristic of the original hardware.

Shape & Frequency

These two controls build a tilt-style sidechain filter which allows to focus compression on the energy of specific frequency ranges. The Frequency knob sets the tilt point, while the Shape allows crossfading from low pass via completely flat (=Off) to a high pass filter.

Mix

This knob blends between the dry (D) and the wet (W) signals and therefore provides instant on-board parallel saturation/compression.

Output

This control provides linear/clean gain applied to the output signal within a range from -24 to +24 dB, which allows accurate manual level compensation.

Power

Clicking on the power switch or lamp engages or bypasses the entire plugin.

External Sidechain

The sidechain of the U17 can be fed with an external key signal.

Click the keyhole icon on the right side of the upper toolbar to control the compressor with any signal you have routed into the U17 via your DAW (not available in some DAWs/plugin formats).

Basic Workflow

Soft clip/saturate with Density and Emphasis.

Compress with Input, Torque, Attack, Release.

Tweak sidechain with Shape and Frequency.

Finish off by adjusting Output and Mix.

System Requirements & Supported Platforms Installation, Activation, Authorization, FAQs

TOOLBARS

1. This icon provides a master bypass function for the entire plugin.

2. Undo/Redo offers up to 32 steps of your recent settings. Just go back and forth.
3. Four individual preset banks can also be automated in your DAW.
4. Copy and paste current settings to/from the clipboard or reset current settings to default.
5. Click the keyhole icon to trigger compression with any signal routed in via your DAW.
6. Opens GUI preferences (set interface size and quality).
7. Clicking the Plugin Alliance logo will send you to the PA website via your web browser.
8. This icon will guide you to the Plugin Alliance Store via your web browser.
9. Brings up the activation dialog for authorizing plugin licenses for your devices.
10. Here you will find the manual (which requires a PDF reader installed) and other useful info.

Version 1.0

Documents / Resources

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