

**«MOLOT»
COMPRESSOR**

Operation Manual

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CONTENTS

1 INTRODUCTION.....	3
1.1 Item purpose.....	3
1.2 Existing analogs.....	3
1.3 Extended capabilities.....	3
1.4 Software compatibility.....	4
2 ITEM INSTALLATION.....	5
2.1 Installation for Microsoft Windows operating system.....	5
2.2 Installation for Mac OS X operating system.....	5
3 ITEM USAGE.....	6
3.1 Plugging.....	6
3.2 Controls and indication.....	6
3.3 Adjustments.....	8
3.3.1 Step 1. Choose the operation mode.....	8
3.3.2 Step 2. Set up dynamic range compression ratio.....	10
3.3.3 Step 3. Set up softness of compressor character.....	10
3.3.4 Step 4. Set up compressor threshold.....	11
3.3.5 Step 5. Set up high-pass filter for side chain signal.....	11
3.3.6 Step 6. Set up attack mode.....	12
3.3.7 Step 7. Set up attack time.....	13
3.3.8 Step 8. Set up release time.....	13
3.3.9 Step 9. Set up output signal level.....	14
3.3.10 Step 10. Set up limiter threshold.....	14
3.3.11 Step 11. Set up dry signal amount.....	15
3.3.12 Step 12. Mid-frequencies correction.....	15
3.3.13 Step 13. Set up oversampling mode.....	16
3.4 Extended compressor tuning.....	17
3.4.1 Set up «Input» signal level.....	17
3.4.2 Set up «Lim.» limiter insert point.....	17
3.4.3 Set up «Sat.» output signal saturation.....	17
3.4.4 «Bypass».....	19
3.4.5 Set up «Render» parameter.....	19
3.4.6 Set up «Dither» parameter.....	19
Appendix 1. Specifications.....	20
Appendix 2. Standart presets.....	25
Appendix 3. Informational.....	26
Appendix 4. Gallery.....	27

1 INTRODUCTION

1.1 ITEM PURPOSE

«МОЛОТ» is stereo and mono audio signal dynamic range compressor implemented in VST format.

«МОЛОТ» compressor is generally designed for use on groups of instruments («busses») due to special optimal sounding characteristics and due to relatively high CPU load, which limits the number of compressor instances. Nonetheless the compressor can also be successfully used on separate audio tracks.

«МОЛОТ» compressor has distinctive sound allowing its usage not only for technical purpose of dynamic range compression but also for artistic sound coloration, which happens due to usage of saturation with even harmonics, dithering that gives effect of «air» and oversampling with non-linear phase response that gives effect of «depth». All these above-listed features can optionally be switched off.

1.2 EXISTING ANALOGS

«МОЛОТ» compressor is not an emulation of any hardware or software compressor. But in usage cases listed below audible results can be compared to the following well-known compressors:

- 1) for drum buss: *Neve 33609*;
- 2) for lead vocal: *Tube-Tech CL 1B*;
- 3) for master buss: *Fairchild 670*.

1.3 EXTENDED CAPABILITIES

«МОЛОТ» compressor besides main dynamic range compression module also contains limiting module («limiter»), which allows controlling peaks passing through the compressor, mid-range equalizer module doing ISO 226 curves equalization¹ and input signal or gain reduction VU-meter with lamp indicator for limiter operation control. «МОЛОТ» compressor has adjustable high-pass filter for side chain signal, also supports «parallel» compression and M/S operational mode.

¹ Normal equal-loudness-level contours - ISO 226:2003 Acoustics <http://www.sengpielaudio.com/Acoustics226-2003.pdf>

1.4 SOFTWARE COMPATIBILITY

«Молот» compressor exists in the following versions:

- 1) VST Windows x86 version (CPU with SSE2 support required);
- 2) VST Windows x64 version;
- 3) VST Mac OS X 32-bit version.

There's also AU Mac OS X port without graphical interface from an independent developer.

When «Молот» compressor is used on Mac OS X with «FXPansion VST to RTAS Adapter²» and «FXPansion VST-AU Adapter» the problems related to GUI and host application crash can occur. There're no known problems with Windows version of «FXPansion VST to RTAS Adapter».

When «Молот» compressor is used on Mac OS X some host applications have problems with mouse wheel usage for knobs rotation. For Windows version the plug-in window must be active so that knobs rotation with mouse wheel is possible.

² FXPansion - VST to RTAS Adapter v2.0 <http://www.fxpanion.com/index.php?page=15>

2 ITEM INSTALLATION

2.1 INSTALLATION FOR MICROSOFT WINDOWS OPERATING SYSTEM

To install «Молот» compressor on Microsoft Windows operating system just copy Molot.dll file from zip-format setup archive to VstPlugins directory (c:\VstPlugins, c:\Program Files\Steinberg\VstPlugins, or another³).

2.2 INSTALLATION FOR MAC OS X OPERATING SYSTEM

To install «Молот» compressor on Mac OS X operating system just copy Molot.vst directory from dmg-format setup archive to /Library/Audio/Plug-Ins/VST directory on system drive.

³ See also HKEY_LOCAL_MACHINE\SOFTWARE\VST in registry editor.

3 ITEM USAGE

3.1 PLUGGING

To insert «Молот» compressor into effects chain of channel or buss use regular way customary for your host application. The position of the compressor insert in relation to other effects depends on a given situation. For example for live-recorded track channel (with already solved phase problems) it's recommended to use the following effects sequence:

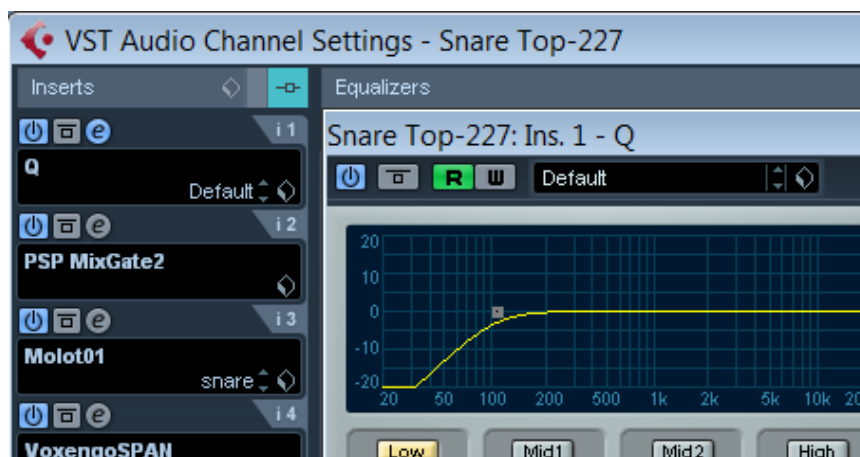
- 1) trim plug-in (optional);
- 2) gate plug-in (optional);
- 3) «Молот» compressor.

Trim plug-in provides the following abilities:

- 1) high-pass filter to suppress spurious low-frequency content (bass and bass drum tracks are the exceptions);
- 2) parametric equalizer to suppress extraneous frequencies that occurred due to recording imperfection (optional);
- 3) the correction (trimming) of average signal level to 0 dBVU for effective and uniform headroom usage.

You can use regular host application equalizer as trim plug-in.

Gate plug-in is used to exclude outside signals spill in the main signal because the dynamic range compression should increase signal-to-noise ratio. The dynamic range expander can be used instead of a gate plug-in.



Pic 1. Snare effect chain fragment

3.2 CONTROLS AND INDICATION

For «Молот» compressor appearance see image 2.



Fig 2. «Молот» compressor appearance

The numbered elements on the image are: 1 — side chain high-pass (SC HP) filter control; 2 — SC HP switch; 3 — VU or gain reduction meter; 4 — limiter indicator lamp; 5 — limiter threshold control; 6 — attack time control; 7 — attack mode switch; 8 — meter reading mode switch; 9 — mid-frequencies equalizer control; 10 — compressor release time control; 11 — compressor threshold control; 12 — output signal level control; 13 — operation mode switch; 14 — dynamic range compression ratio control; 15 — compressor characteristic softness control; 16 — dry signal amount control; 17 — oversampling mode switch; 18 — extended parameters button; 19 — interface language button.

After switching the interface language by pressing button 19 the labels are changed as shown on pic 3.

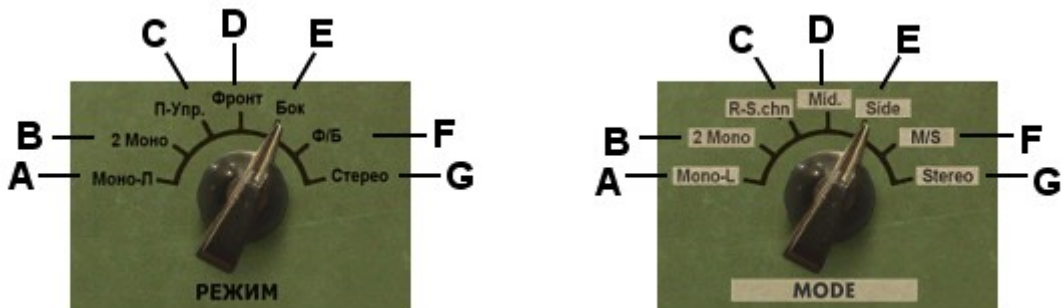


Pic 3. «Молот» compressor appearance with localized labels

3.3 ADJUSTMENTS

3.3.1 Step 1. Choose the operation mode

Before starting it's required to define the compressor operation mode. The mode can be selected by switch 13.



Pic 4. Compressor operation mode switch

The modes labeled by letters on the image are: A — mono mode; B — double mono mode; C — mono mode with external side chain signal; D — mid channel mode; E — side channel mode; F — M/S mode; G — linked stereo mode.

In *mono* mode the left channel of the incoming signal feeds the input of compressor. The mode is recommended for use on mono track channels.

In *double mono* mode there're two independent compressors with identical settings used. One compressor is used for left channel and the other for right channel. In this mode meter shows average value for both compressors and indicator lamp shows maximum value of both compressors. This mode is recommended for use on busses with wide stereo double track made from two mono channels. When applied to a regular stereo signal the stereo image disbalance may occur.

In mono mode with *external side chain* signal the left channel of incoming signal feeds the input of compressor and the right channel of incoming signal is used as compressor control channel. The right channel doesn't influence other modules of the compressor except the main module of dynamic range compression. This mode is recommended for use on a specially created buss where left channel contains instrument suppressing by an instrument in the right channel. The signal from the right channel doesn't reach the output of the compressor⁴. Such a mode usually used to suppress bass by bass drum kick.

In *mid* channel mode incoming stereo signal is encoded into M/S format and only M-component is processed. For S-component of the signal only oversampling is used to match phase shift between the signal components. This mode is used as a special effect for stereo signal.

In *side* channel mode incoming stereo signal is encoded into M/S format and only S-component is processed. For M-component of the signal only oversampling is used to match phase shift between the signal components. Saturation is not applied for S-channel processing. This mode is used as a special effect for stereo signal.

In *M/S* mode input stereo signal is encoded into M/S format, then both signal components are processed by two compressors and maximum gain reduction of both compressors is used. Both limiter modules work independently. Saturation is not applied for S-channel processing. This mode is used as a special effect for stereo signal.

In linked *stereo* mode two compressors are connected with one another in the way that average gain reduction of both compressors is used. For both limiters the maximum limiting amount is used. As opposed to M/S mode where stereo image «shrinks» to the center at the time of the compressor operation, linked stereo mode has an effect of the «wall» steadily moving forward and backwards. Linked stereo mode is recommended for use as the base mode for stereo tracks and busses.

⁴ Thus it should be done using dry signal amount control for this working mode.

3.3.2 Step 2. Set up dynamic range compression ratio

The compression ratio adjustment depends on the goal. Parameter can be adjusted by control 14.



Pic 5. Dynamic range ratio control

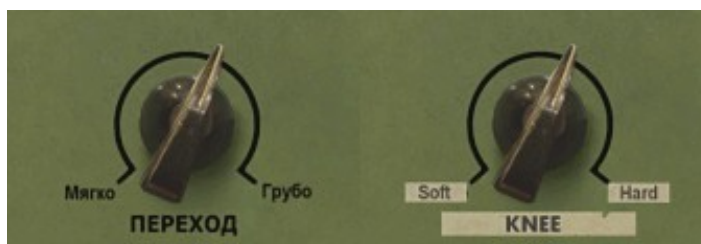
Parameter adjustment depends on the goal:

- 1) for obvious change of instrument's sound and increase of an instrument sustain use maximum value;
- 2) to influence the character of a percussive sound use 4:1 value;
- 3) to slightly increase sound density use 2:1 value;
- 4) for inconspicuous sound impact use minimum value.

The maximum parameter value conforms to «infinity to one» ratio. The parameter has linear scale. In the beginning of the work a bit greater value of the parameter probably should be set to make compression operation more noticeable. After the end of attack and release adjustment a decrease in the parameter value may be required with listening control.

3.3.3 Step 3. Set up softness of compressor character

Setting up the softness of compressor character affects the knee of compressor. In musical sense it allows to make compressor operate softer or harder. The parameter can be set by control 15.



Pic 6. The softness of compressor characteristics control

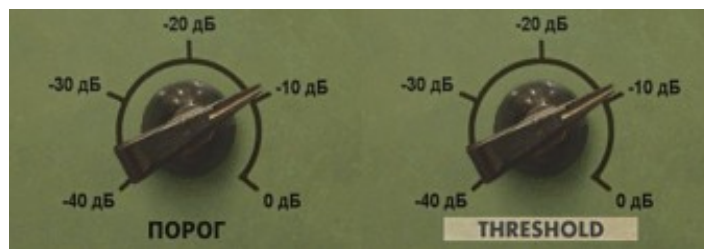
When this parameter is at its minimum value the compressor starts to apply gain reduction on the incoming signal when it's far from reaching the threshold level, which allows making the start of gain reduction to be inconspicuous. With this parameter at its maximum value the compressor on the contrary slightly levels the signal up for the short time, which allows emphasizing the start of gain reduction (that can be seen well on the meter in «GR» mode).

Parameter adjustment depends on the goal:

- 1) for inconspicuous or soft compressor operation use the minimum value;
- 2) to emphasize attack of signal (transient shaping) use the maximum value;
- 3) in other cases use the control position close to the center.

3.3.4 Step 4. Set up compressor threshold

Setting up the compressor threshold depends on the characteristics of the incoming signal and the desired effect. The parameter can be set by control 11. The scale of the control is linear and shown in dB units.



Pic 7. Compressor threshold control

When the goal of compressor usage is signal peaks suppression, VU meter can be used to simplify adjustment. Switch meter 3 to «Input» mode by turning switch 8, then see the value of VU-meter on signal peaks, then set compressor threshold control to value a bit above the metered peak value.

When the goal of compressor usage is a little increase in sound density, GR meter can be used to simplify adjustment. Switch meter to «GR» mode, then do slow threshold parameter decrease until the meter starts showing $-2... -3$ dB of gain reduction for signal peaks. For any other goals it's recommended to tune compressor threshold parameter by ear.

In the beginning of the work it's recommended to set threshold value slightly below target mark to better hear the compressor operation. After the end of attack and release adjustment it's necessary to achieve the right sound by listening and performing slight threshold parameter increase.

In maximum control position (0 dB) the compressor will affect the signal anyway because «Молот» is a soft-knee compressor.

3.3.5 Step 5. Set up high-pass filter for side chain signal

The spectrum of a good balanced musical signal has a pink noise likeness. It means the signal has low frequencies level higher than high frequencies level. As «Молот» compressor is not a multi-band compressor it starts to change signal level mostly from low frequency instruments like bass drum and bass, which is not always desirable. That's why the side chain

signal used to control the compressor has a filter allowing low frequencies suppression. This filter can be turned on by switch 2 and frequency of the filter can be tuned by control 1.



Pic 8. Side chain signal high-pass filter switch and control

When high-pass filter is turned off the side chain signal is all the same being processed by shelf-filter having characteristics optimized specifically for master-buss usage (see image 22).

These are preferred settings for side chain high-pass filter:

- 1) for master-buss: off;
- 2) for most tracks (vocal, guitars, drums): from 100 Hz to 150 Hz;
- 3) for bass: from 150 Hz to 200 Hz;
- 4) for compressor operation effect increase: below 100 Hz.

Filter settings can be controlled using the meter. Start parameter changing from 40 Hz and slowly make it higher while arrow on the meter starts to move in sync with the dynamics of the played track.

3.3.6 Step 6. Set up attack mode

«Молот» compressor has two different attack modes: «alpha» and «sigma» that have distinctive sound. Attack mode parameter can be set by switch 7.



Pic 9. Attack mode switch

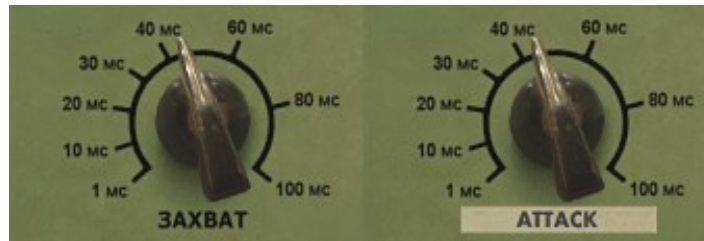
In «alpha» mode when control signal reaches threshold the compressor immediately and very fast starts to lower the signal level slowing down by exponential law. In «sigma» mode the compressor in the same situation starts gain reduction very slowly thus most attack of the signal passes through. The curve of signal level change in this mode is similar to σ -function and due to that this mode is also called «sigmoid». Parameter adjustment depends on the goal:

- 1) to suppress signal peaks use «alpha» mode;
- 2) to emphasize the attack of signal (transient shaping) use «sigma» mode;

- 3) to keep sound as transparent as possible use «sigma» mode.

3.3.7 Step 7. Set up attack time

Attack time determines the time it takes for the compressor to change the signal level down to the value calculated using compression ratio. Attack time parameter can be set by control 6. The scale of this control is linear and marked in milliseconds.



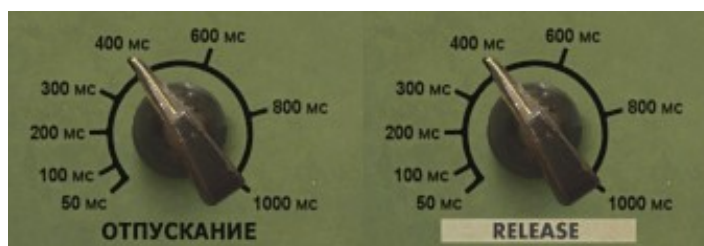
Pic 10. Attack time control

Parameter adjustment depends on the goal:

- 1) to suppress signal peaks use the smallest value (1 ms);
- 2) to emphasize signal attack use adjustment by listening and slowly changing value down from 30 ms;
- 3) for inconspicuous signal level control use the maximum value;
- 4) to keep sound as transparent as possible use values greater than 10 ms.

3.3.8 Step 8. Set up release time

Release time determines the time interval for the compressor to restore signal level. Release time parameter can be set by control 10. The scale of control is linear and marked in milliseconds.



Pic 11. Release time control

Parameter adjustment depends on the goal:

- 1) to make the compressor operate in a “musical” way use adjustment by listening and slowly changing the value down from 300 ms until the compressor begins to stop gain reduction slightly earlier, a bit before being triggered by the next burst in the signal;
- 2) for straightforward peak suppression use minimal value;
- 3) in case of compressor operation being too subtle use values greater than 500 ms;

- 4) to keep the sound as transparent as possible avoid values below 100 ms.

After attack and release time parameter are set it should be necessary to reduce the compressor influence on the signal to make sound to sit in a mix. This can be achieved by selective change of the following: reducing dynamic range ratio parameter, increasing compressor threshold, and making small adjustments of compressor characteristic parameters. Alternate way to reduce the influence of compressor on the signal is using dry signal mixing (see step 12).

3.3.9 Step 9. Set up output signal level

The result of compressor operation is reduction of the signal gain. As a matter of convenience when comparing the sound with and without compressor and in order to also make the sound more powerful it's necessary to level up the signal output using the control 12.



Pic 12. Output signal level control

Output signal level control also can be used to change the balance when using dry signal mixing (see step 12).

3.3.10 Step 10. Set up limiter threshold

If long attack time or «sigma» mode is used, the compressor can let the signal peak through more than it would be desired. To control peaks passing through there's a limiting module («limiter») in the compressor output chain. Limiter was designed to process peaks only, so it doesn't sound good when constant limiting is occurring. The limiter threshold parameter can be set by the control 5. Limiting operation is indicated by indicator lamp 4.



Pic 13. Limiter light indicator and control

Limiter adjustment can be done by the indicator lamp. Slowly decrease the limiter threshold until the indicator lamp lights up on percussive elements of the sound. Do further

threshold decrease listening to signal dynamics change and sound distortions. It is recommended to not allow the indicator lamp light constantly.

When the limiter is used it is necessary to know the following:

- 1) built-in limiter is not a brick wall limiter and has its own attack time during which it may let the peak of a signal pass through (see appendix 1);
- 2) built-in limiter doesn't sound satisfactory when oversampling is turned off;
- 3) by default built-in limiter is plugged in before output signal level control (see 3.4.2. «Set up limiter plug point»).

3.3.11 Step 11. Set up dry signal amount

«Молот» compressor allows usage of «parallel compression» by mixing the processed wet signal with unprocessed dry one. Due to peculiarities of its internal architecture it can't achieve such sound density as classic «parallel compression». The effect of dry mix used is like compression ratio being decreased but with the following exception: saturation and limiting amount is also decreased. Thus usage of dry signal mixing is an alternate way to reduce the influence of compressor on a signal. Dry signal amount parameter can be set by control 16. This control has linear scale. Leftmost knob position corresponds to 100% of wet signal and the rightmost knob position corresponds to 1% of processed wet signal and 99% of unprocessed dry signal.



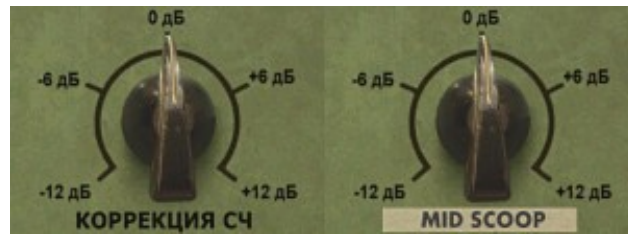
Pic 14. Dry signal amount control

The output signal level control is plugged in before dry signal mixing control so output signal level control may be used to change the balance between wet and dry signals. Dry signal amount control also has influence on mid-frequencies correction (see step 12).

3.3.12 Step 12. Mid-frequencies correction

If the compressor is being used in a right way then an even sounding is achieved for both front and backside elements without the first «jumping» forward and «disappearance» of the latter behind louder elements. The built-in mid-frequencies equalizer is based on mid-frequency range equal loudness curves design (see image 19) and can be used as another tool to position

instruments, with ability to highlight backside elements or to add a bit density to frontal elements and move them back at the same time. Equalizer can be tuned by control 9.



Pic 15. Mid-frequencies correction control

Built-in mid-frequencies equalizer has the following qualities:

- 1) the equalizer is turned off in the middle control position (Ctrl + click);
- 2) the equalizer should be used carefully on group busses because its nonlinear phase response can cause a noticeable lost of definition;
- 3) if dry signal mixing is used, the reverse equalizer response applied to dry signal, which can allow achieving some artistic effects.

3.3.13 Step 13. Set up oversampling mode

Once the compressor starts sounding as desired the last step is to adjust the sound quality. Oversampling allows to process sound signal with sample rate N times greater than the input signal has, which leads to enhancement of the sound quality. As a drawback the compressor starts to consume CPU N times greater as well. The value of N can be set using switch 17. The recommended value of N is 4. For the value of 1 the oversampling is not used.



Pic 16. Oversampling mode control

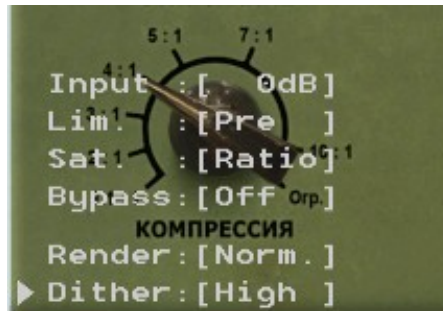
Oversampling mode can be tuned by listening to changes in the sound quality and decrementing the parameter at the same time. But it's also acceptable to use the following simple rules:

- 1) if «alpha» mode or short attack time values were used, $N \geq 2$;
- 2) if saturation appends distinct audible harmonics, $N \geq 4$;
- 3) if the limiter was used, $N \geq 2$;
- 4) if the limiter operates often, $N \geq 4$;
- 5) if the compressor is used on busses or lead instruments, $N \geq 4$.

The final value of N may be also a compromise between CPU load and sound quality, see 3.4.5 «Set up render parameters».

3.4 EXTENDED COMPRESSOR TUNING

If all steps above didn't help to reach desirable sound let's advance to using compressor extended parameters that can be brought to sight with button 18.



Pic 17. Extended compressor controls shown up

Values can be changed by left or right mouse button click.

3.4.1 Set up «Input» signal level

«Input» parameter changes the level of compressor incoming signal by a given value. If trim plug-in was not used and the incoming signal level is high the sound might get distorted. In this case it's necessary to decrease the level of incoming signal. On the contrary if distorted sound is preferred this effect can be amplified by turning the incoming signal level up.

Attention! The signal processing in compressor has finite dynamic range limit. If signal level is above +15 dBFS the digital clipping can occur. In case of digital clipping the version string in the top left corner of the window becomes red.

3.4.2 Set up «Lim.» limiter insert point

«Lim.» parameter determines the insert point of the limiting module within the compressor signal processing chain:

- «Pre» — (default) the limiter is plugged in after compressor, after saturator, before equalizer, before output signal level control, before dry signal mix control (see image 18);
- «Post» — the limiter is plugged in after compressor, saturator, equalizer, output signal level and dry signal mix control (e.g. at the end of the chain);
- «Off» — the limiter is disabled.

3.4.3 Set up «Sat.» output signal saturation

«Молот» compressor has a built-in saturator module used to help peak suppression and to give sound a character. The saturator module is plugged in just after the compressor module (see

image 18). To simplify adjustment saturator threshold parameter is linked to compression ratio parameter in the following way: the more compression ratio is used the higher is the amount of saturation applied.

But if the saturation amount is too much the output signal may sound distorted. To avoid it the saturator module can be switched off but for the price of loss of «Молот» compressor sound character at the same time. That's why before turning saturator module off it's recommended to try the following steps:

1. If compressor is used to process sound of an instrument, it's recommended to not listen to the instrument on solo but rather in the mix context. In many music styles distortion helps an instrument to better sit in the mix⁵⁶.
2. If it didn't help, change oversampling parameter up to 4x. Distortion can become more pleasant and acceptable.
3. If it didn't help, check the level of incoming signal. The recommended input level is 0 dBVU. The level can also be adjusted by trim plug-in (see also 3.4.1 «Set up input signal level»).
4. If it didn't help, try to slightly decrease compression ratio, which will also decrease saturation level.
5. If it didn't help, try to set parameter «Sat.» to «On» instead of «Ratio».
6. If it didn't help, the last resort is to set parameter «Sat.» to «Off».

Here's a list of saturator modes controlled by «Sat.» parameter:

- «Ratio» — (default) on minimum ratio value the saturation threshold is +6 dBFS, on maximum ratio value: 0 dBFS and for values between the threshold it's changing by linear law;
- «On» — saturator threshold is +12 dBFS;
- «Off» — saturator is off.

Attention! If input signal on saturator module exceeds the threshold by +5.5 dB digital clipping occurs! In case of digital clipping the version string in the top left corner of the window becomes red.

Attention! Usage of saturator may introduce small DC offset. If the compressor is being used for mastering it's necessary to remove DC offset after the compressor with DC offset remover.

⁵ See also Charles Dye – Mix it Like a Record.

⁶ See also Andy Vax – "Answers" video tutorial

3.4.4 «Bypass»

«Bypass» parameter allows bypassing all sound processing including oversampling. The parameter can be used to compare the sound with compressor on and off.

- «Off» — (default) the compressor works as usual;
- «On» — the signal from the input of compressor comes to the output of compressor with no processing.

If compressor input is fed by zero signal during two time intervals of release time (or attack time if it's greater) the compressor automatically goes into «sleep» mode in which it doesn't consume CPU cycles. The compressor automatically leaves «sleep» mode if input signal occurs, this doesn't cause any defects in sound.

3.4.5 Set up «Render» parameter

«Render» parameter can be used to set alternate oversampling value at the time of rendering the project:

- «Off» — (default) oversampling set by oversampling control is used;
- «8x» — on project rendering oversampling parameter automatically goes to 8x.

3.4.6 Set up «Dither» parameter

«Dither» parameter controls dithering:

- «High» — (20-bit dithering) adds «air» to the sound and creates a feel of analog device;
- «Low» — (24-bit dithering) use it if there're other plug-ins with dithering in the signal chain (because combining multiple dithering algorithms sometimes can cause unpleasant sound coloration).

APPENDIX 1. SPECIFICATIONS

Supported sample rates: 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz.

Latency: 2 samples;

CPU load (Athlon 2.7 GHz):

- preset «Default»: 5%;
- preset «Kick»: 3%;
- preset «Bass»: 1%;
- preset «Vocal 1»: 3%;
- preset «DRUM BUSS»: 6%;
- preset «Master BUSS»: 5%;
- preset «premaster»: 12%.

Oversampling: polynomial, anti-aliasing filter Butterworth 2nd order.

Dithering: white noise, square distribution.

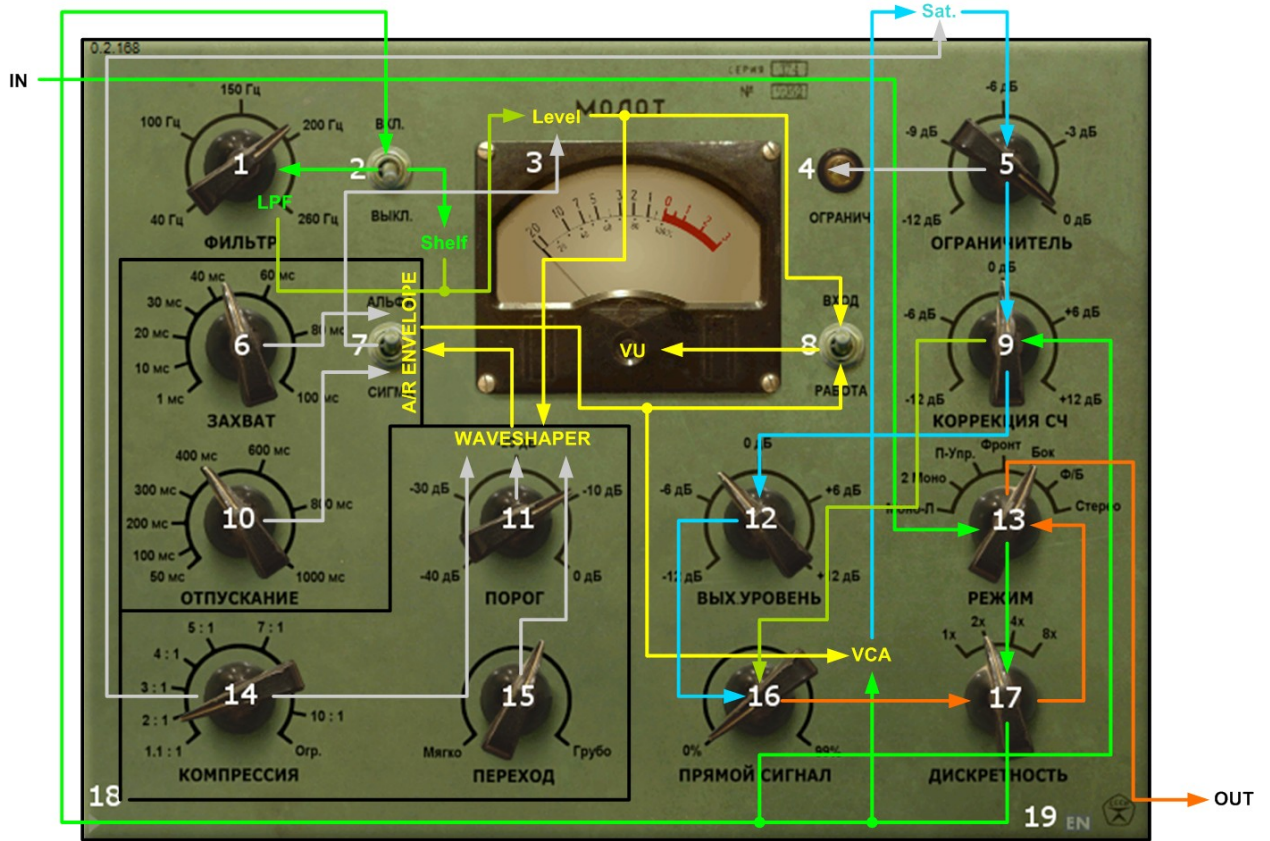
VU-meter calibration: $-12 \text{ dBFS} = 0 \text{ dBVU}$ ⁷, 300 ms from 0 to 99.9% and back.

Limiter: attack 200 μs , release from 400 μs to 1 s, attack hold 200 μs , release change time 100 ms, look-ahead 2 samples.

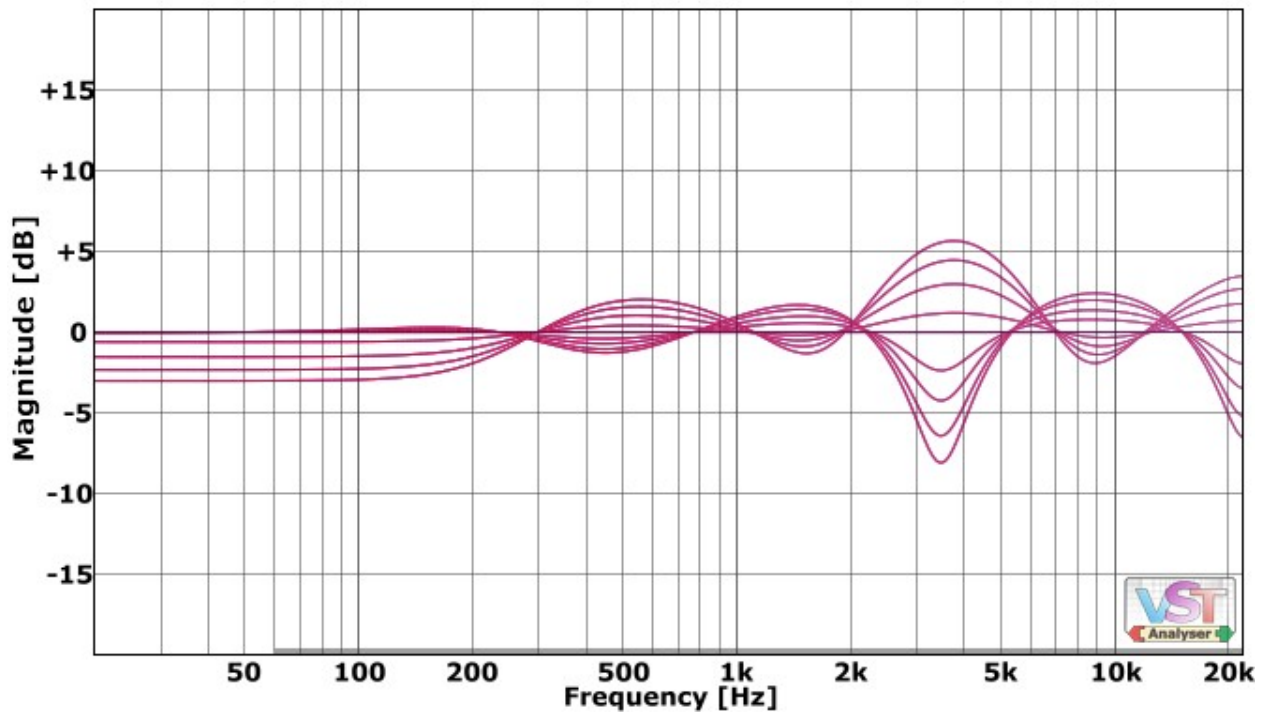
Equalizer: low-shelf $\sim 300\text{-}330 \text{ Hz}$, peak EQ $\sim 1.4\text{-}1.6 \text{ kHz}$, $\sim 3.4\text{-}3.6 \text{ kHz}$, 8.2 kHz.

Saturation: polynomial 8th order.

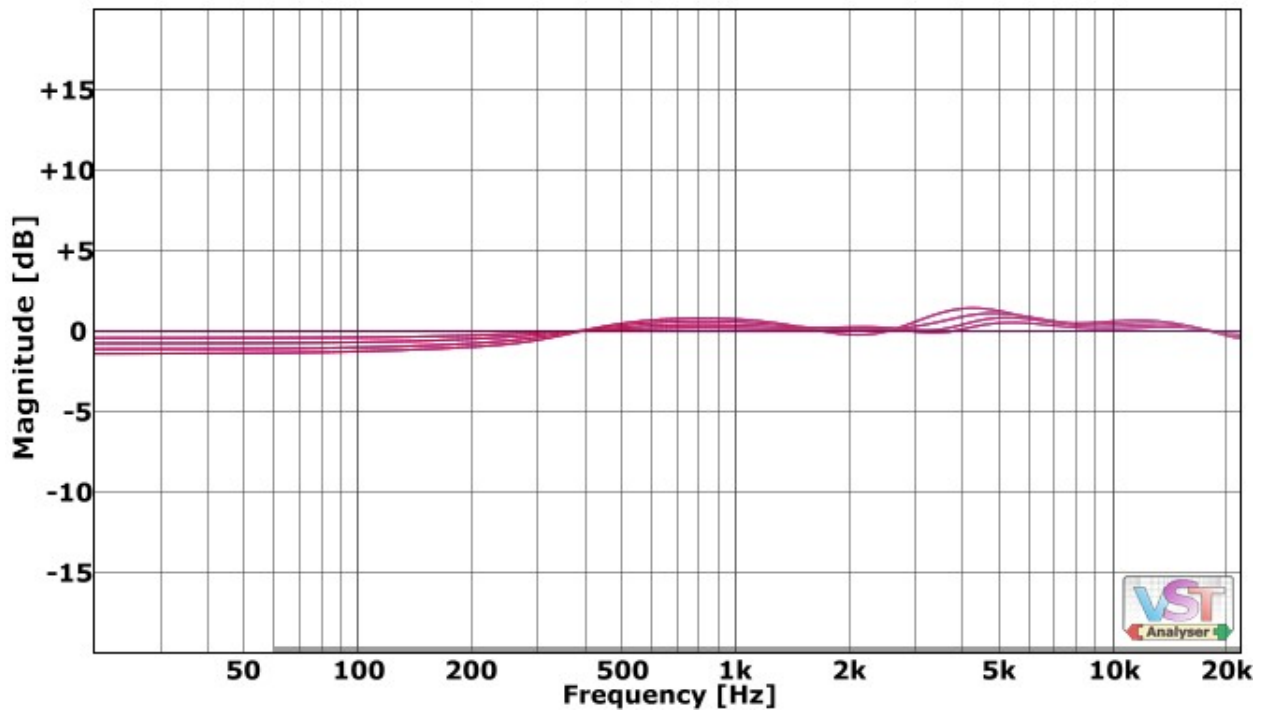
⁷ There're plans to change to -18 dBFS



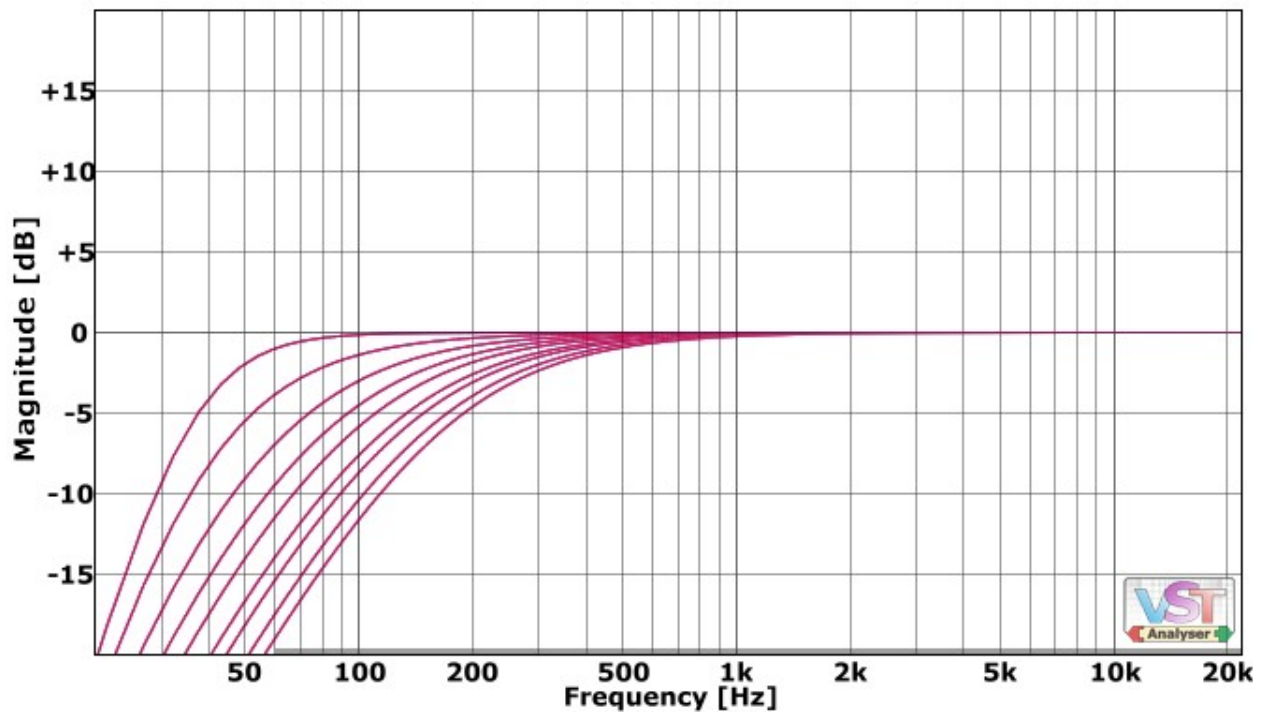
Pic 18. Simplified functional diagram of «Молот» compressor



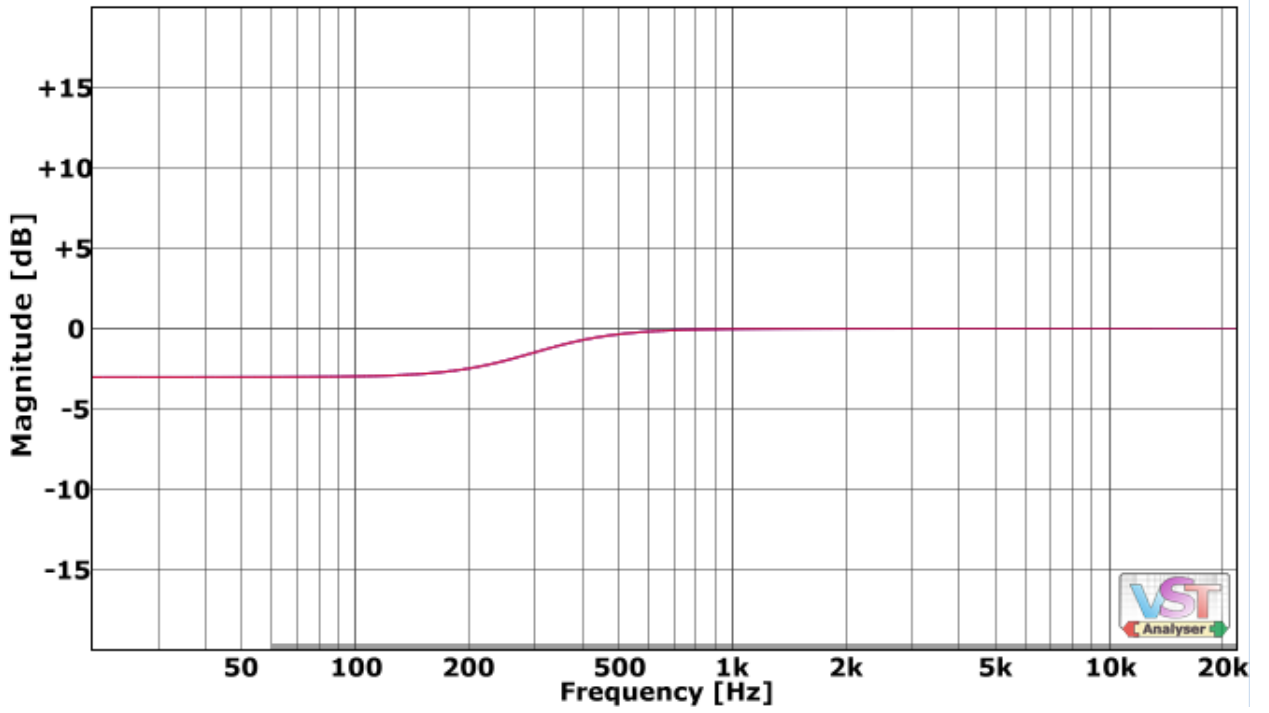
Pic 19. Frequency responses of mid-frequencies equalizer



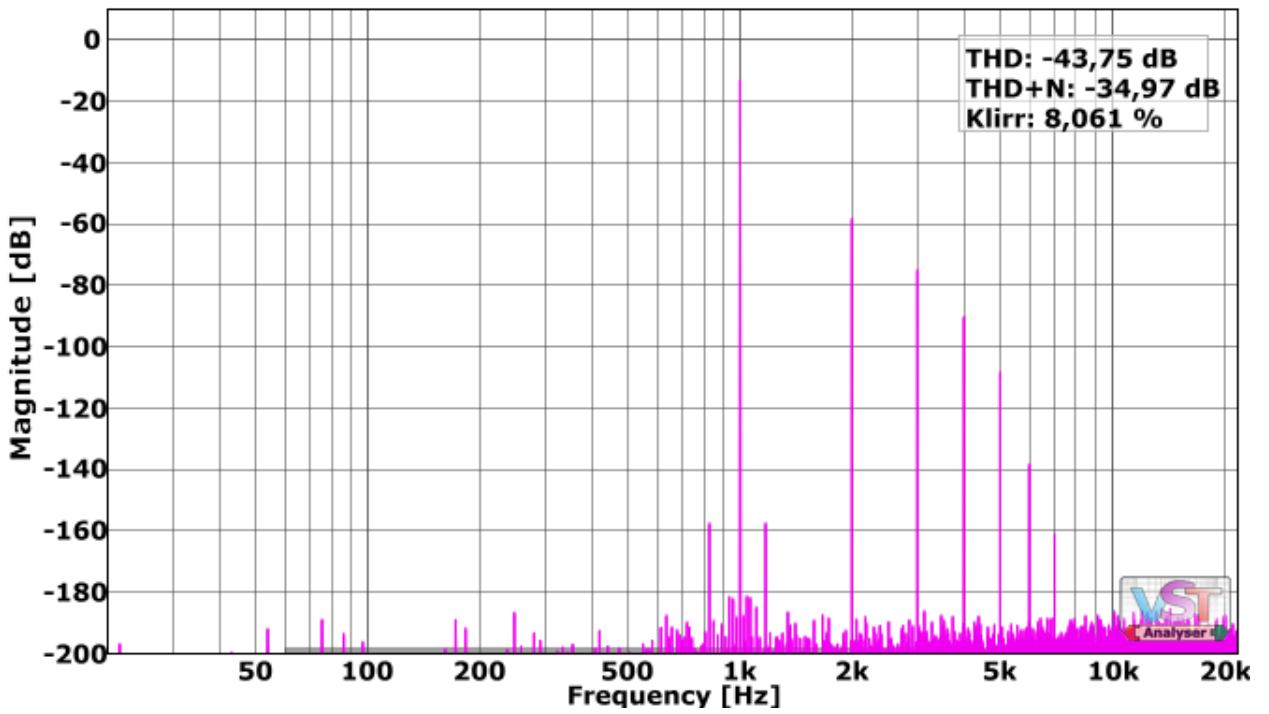
Pic 20. Frequency responses of mid-frequencies equalizer with dry mixing



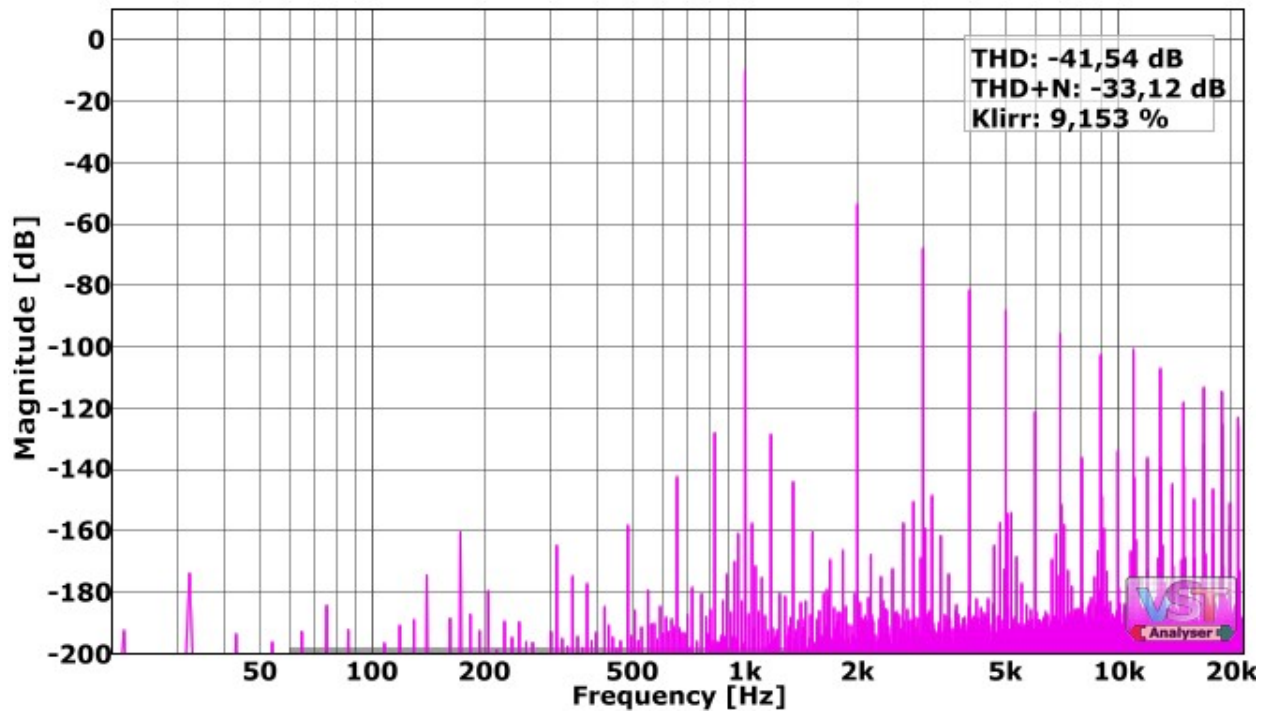
Pic 21. Side chain low-pass filter frequency responses



Pic 22. Side chain shelf filter frequency response with high-pass filter turned off



Pic 23. Intermodulation and harmonic distortions on «Default» preset



Pic 24. Intermodulation and harmonic distortions on «Master BUSS» preset

APPENDIX 2. STANDART PRESETS

«МОЛОТ» compressor includes 16 standard presets:

- **Default** — recommended for use on stereo busses as a start preset;
- kick — bass drum;
- snare — snare (threshold tuning is needed);
- overheads — drum kit overheads;
- room — stereo pair from drum kit room;
- **DRUM BUSS** — drum buss (recommended to use);
- bass — rock bass guitar (has obvious saturation);
- vocal (ins.1) — the main vocal preset (one more compressor in chain is recommended);
- vocal (ins.2) — for drastic effect use second instance of «МОЛОТ» in vocal chain with this preset;
- back vocal — back vocals and vocal doubles;
- funky dbl.guitars — guitar stereo double-track with funk-style strumming;
- solo guitar — solo guitar;
- acoustic guitar — acoustic guitar accords strumming;
- keyboards — synthesizer stereo output;
- **Master BUSS** — master buss analog coloration (recommended to use);
- premaster — an attempt to use «МОЛОТ» as a maximizer.

APPENDIX 3. INFORMATIONAL

The right of limited responsibility. The developer doesn't assume responsibility of any kind for losses caused to the consumer as consequence of this item failure in the process of its usage.

Thanks to:

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Christian Budde — <http://www.savioursofsoul.de/Christian/> — for VST Plugin Analyzer;

Bayan — for English translation correction;

All who did donations, — for help!

All who did comments on the site, — for comments!

Next steps of work:

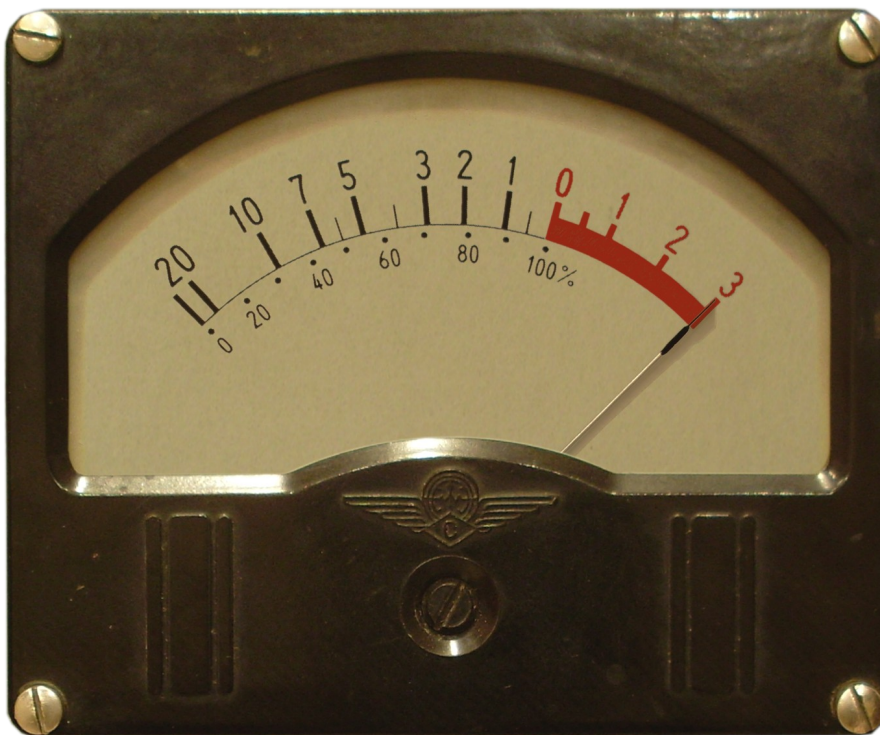
«Молот»: small fixes (VU-meter calibration, RMS-mode, small attack/release mode, back-panel draw, stereo side chain, output parameter numeric values, default preset edit etc.), solving Mac problems.

The development of new plug-in (mastering limiter/clipper).

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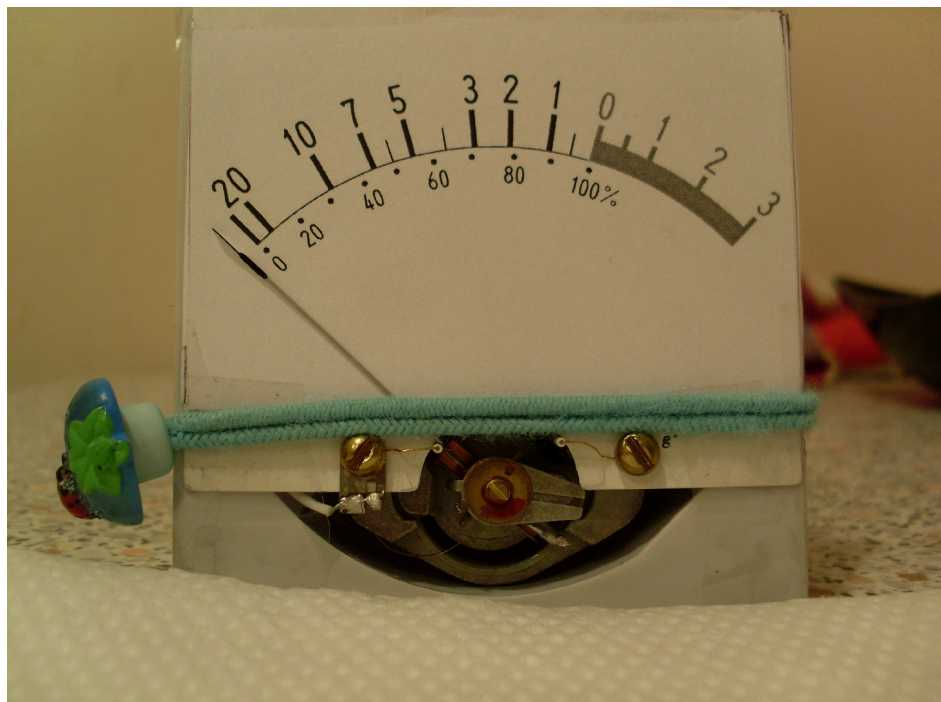
APPENDIX 4. GALLERY



Pic 25. Knob model



Pic 26. Knob animation fragment



Pic 27. Meter scale model

