Custom Tremolos

General Information

The name says it all- this is a set of custom-made tremolo effects. The most basic tremolo effect is simply an LFO modulating the level. Many hardware effects that have been marketed as 'tremolo' over the years also included some form of filtering action that enhanced the effect, and these do too. In some cases the 'extra element' can be added in (or taken out) to your taste. Each of these programs were sampled from a different piece of solid-state hardware (with a wide variety), using Lynx Aurora 8.

The method for achieving the actual volume modulation was simple- at some point in each sampled chain, a gain control (either an input or output gain) was sampled at different positions. Then Nebula's internal LFO system is used to provide the modulation between those positions. It's simple, but this is how tremolo works. The structural design of these effects, on the other hand, is much more complex than most Nebula programs. That's because these are also dynamic. For every point along the tremolo's up and down level modulation, you will get different results depending on your input level. This makes for a very deep, analog-sounding effect, but it also costs more CPU than standard preamp/EQ/console programs. The 'extra element' was always sampled from hardware and is something different in each case. This is where the real variety in the set comes from.

The value of this set comes from the facts that:

◆ Although the basic idea is simple, it hasn't been done yet.
◆ Taking it beyond the basic idea, each of these were made with some kind of subtle or not-so-subtle trick to give a different sound to each tremolo effect. The end result is usually that different types of filtering are also modulated along with the volume, but in some cases things like the distortion/harmonic content, the dynamic range, and even a psuedo-stereo effect's depth is modulated. In some cases you have control over how much of these 'extra elements' you want mixed into the final effect.
◆ There is a wide variety of sounds, because of the previous point, and because of the variety of hardware used. Two of these were even sampled differently, to produce 'auto-pan' effects.
◆ The LFO in Nebula can actually be tricky for a developer to incorporate into a program, and get it working exactly as wanted. A lot of work has gone into how it behaves here, and as a result the user has a lot of control over it. Different presets offer different LFO shapes and behaviors (such as quantize to host tempo with phase shift control).

- These will be among the best and most analog-sounding tremolo effects you are going to hear in your DAW.
- There is an extra batch of presets that disable the LFO so you can modulate the level manually, or with any modulation/automation ability that your host allows. These could be used to get tempo synch tremolo effects if your host is capable, or any number of more experimental things could be done here.

Installation

Just copy the .n2p files to your Nebula 'Programs' folder, and the .n2v files to the 'Vectors' folder.

Controls

The controls are always consistent with which slider/knob they will be assigned to in Nebula, so this should make using these programs with any kind of external midi controller easier, because you can audition the different effects quickly and always have the same control setup.

Rate- This controls the LFO speed. This will always be assigned to the 1st control, except with the manual programs where the 1st control is 'level'.

Level- This control only exists in the manual programs. It's always the 1st control.

Vari- This control only shows up in some of the effects. It introduces an 'extra element' that was modulated along with the volume level during sampling. What it actually adds is different depending on the effect, so it is described in more detail for each effect that uses it, in the following section. This will always be the 2nd control. If there is no vari, the 2nd control will do nothing, with the exception of the 'Dir' control explained next.

Dir- Only in the Helios programs that use LFO. It changes the direction that the panning effect moves in. 2nd control.

Depth- This adjusts the depth of the level modulation, along with the modulation of any 'extra element' behavior that a program may have, such as a filter cutoff point moving back and forth, or an EQ band going up/down in level. If you turn this all the way down, you have no tremolo effect. All the way up is full tremolo. This will always be the 3rd control.

Trim- Since these are all dynamic effects also, trim allows you to quickly adjust the input level going into the effect, and hear the different results you can get. Always the 6th control.

Dist- The common Nebula 'drive' control. Cupwise effects usually rename it to 'dist' since it's really just a mixer control to directly adjust the level of the harmonic content generated by the effect. Always control #7.

Smooth- Since these are 'time variant' programs, this will have a very noticeable effect on the sound. It smooths transitions. This control works with the manual programs also. Always control #8.

Organization

There are several different 'presets' for each effect. Every effect but one offers two different kernel amounts/options. Use the lower amount to save some CPU. The programs will all be found in the 'TMV' (time variant) category in Nebula. From there, the 44.1khz set will be found in 'CT*', and the 96khz set in the 'CT' sub-category. Then the manual programs will be found in 'MAN'.

The preset name tells you which shape is used. To save space in the preset list, I had to remove the various LFO shape presets for the lesser kernel versions of each effect, otherwise the preset list would just be too big to display on any monitor, which makes navigating the list much more tedious. So for the lower kernel options you only have the sine shape. You can directly change the LFO shape yourself by going into 'edit', then 'LFO', and selecting the shape for LFO1. Changing the shape here will be saved with a host project, but won't permanently overwrite the Nebula preset (unless you click save in Nebula), it's just like making an adjustment to the main controls like Rate and Depth.

Program Specific Descriptions

Each effect has a unique number and name, to help you remember any particular favorites you may find. These descriptions tell a little about how each was made, and describe any information about the controls that may be specific to a program. Some of these are 'stereo' effects, and others are 'mono' effects. The mono programs won't turn your stereo input into a mono signal, it's just that they apply an identical effect to each channel (because only one channel was sampled in the hardware setup).

1 – Spring-Heeled Jack

A cheap Audio Technica DJ-style crossfade mixer was used. The output level slider was used to create the tremolo effect. The unit has a mic input with a tone control that acts as a 'tilt' EQ. One end tilts the spectrum towards treble, the other towards bass, and this was used as the 'extra element' for this effect. As the volume level goes up and down, the tilt eq goes back and forth. **The vari control for this effect** determines how much of the tilt EQ you hear in the final sound. At '0' you only get the tremolo (and here the signal went into the mixer through main channel ins, not the mic in), at '100' you get tremolo + the full tilt EQ modulation effect (from the mic input). This is a stereo effect.

2 – Ming the Merciless

This one used a Urie 565T and a loose potentiometer that was taken from an old tube radio. The tremolo comes from the pot, which came before the Urie. The Urei is used for the 'extra element', which came from it's high/low pass filters. As the tremolo goes down, the filters both sweep inward. So, more low bass and high treble is cut as the volume drops. There is no vari control here, so the amount of the filter behavior you hear is not adjustable, but it's fairly subtle anyway. This one is mono. This one only offers a 4k version, because it just didn't produce that much distortion.

3 – Professor Plum

This one used an old Bogen solid-state PA amplifier. The tremolo comes from it's output gain control. The unit has a 5-band graphic EQ, and a 'compressor' knob. Both were used as an 'extra element' for the effect. As the tremolo goes down, so does the 3 middle bands of the EQ, creating a 'smiley' curve at the lowest point. The compressor control was only slightly used and probably didn't really effect the end result too much. No vari control. Mono.

4 – Hurdy Gurdy Man

Used an old University Sound solid-state PA amplifier. Input gain used for tremolo. Unit has a simple bass/treble EQ control. Each contribute to the 'extra element' of this one. As tremolo goes down, the bass/treble goes down (the knobs act as simple shelf filters basically). This leaves the mids, so it's like the opposite of a smiley EQ curve. Mono.

5 – Continental Op

This one used an old Ross brand solid-state combo police scanner/radio. A nice FM transmitter was used to send the signal to the radio, and the radio's output slider was used for the tremolo. The scanner/radio has a switch that selects

'low' or 'high' mode, and really all it does is cut highs when put in 'low' mode. This was used for the 'extra element'. **When the vari control** is at '0', the switch was always kept on 'high', so all you get is the tremolo. When vari is at '100', there is a crossfade between high and low modes (it was achieved by mixing the two together in 'post' which was very tedious) during the tremolo. As volume level goes down with tremolo, 'low' mode fades in, so essentially what happens is that highs are cut as tremolo goes down. Mono.

6 – PSR B1913+16
This one is actually an 'auto-pan' effect. An Akai consumer reel-to-reel tape deck was used. The input gains were used for the effect, and as one side is going down, the other is coming up. They are perfectly opposite of each other (180° phase difference). NO tape was used here, just the amps from the unit. Obviously this is a stereo effect.

7 – Helios
A very rare B.I.C. T4m cassette tape deck was used for this stereo effect. No tape was used here, just the amps from the unit. I call this one a 'tremolopan', because it's mid-way between a tremolo and an auto-pan (it's probably less than 90° phase difference between the channels). Input gains were used for the tremolo. Basically what you get is the effect that one channel's tremolo is 'chasing' the other. It almost sounds like a rotating speaker effect. You do have an extra control not found elsewhere: DIR. **DIR switches direction**. This wouldn't really matter with any of the others because you wouldn't notice it. Here you will. '0' goes one way, '1' goes the other. This one doesn't offer all of the various LFO shapes, for technical reasons relating to how it was made.

8 – Cap'm Ahab
A Studio Projects VTB-1 preamp was used. The pre has been modified, with op-amp and tube upgrades which actually make it sound pretty nice. On the unit, the tube uses a 'starved plate' setup which you can adjust with a 'tube blend' knob. This was used for the 'extra element' here. The output gain was used for the tremolo, and as the level goes down, the tube blend level goes up. So at lower levels with the tremolo, there should be more harmonics (it's subtle). Mono.

9 – Koris Barloff
Two Aphex 661 compressors were used here (in stereo setup). One slaved to the other. The output controls created the tremolo. As the tremolo goes down, there is more compression. There is little to no compression at tremolo's highest

point (full volume), and almost complete compression of all sampled dynamic steps at tremolo's lowest point. Also, at highest point the output level is driving the tube stage the most, so there should be more harmonics then, for higher input levels (the units have tubes in starved plate setup, but their effect will be subtle). Further still, the comps' low cut filter for their internal sidechains was switched on. If a compressor is sampled like this, it causes the bass to not be compressed when everything else would. These compressors have some controls to allow the user to prevent highs from being compressed, and those controls were used here also. The end result of these things is that as the tremolo goes down, dynamic steps get more and more compressed, except for both the low bass and high treble. Lastly, the units have buttons which activate some kind of low frequency enhancement, and these were turned on. I think it shifts the phase of the bass range somehow (I do often prefer it switched on). Stereo.

10 — kltpzyxM
Stereo effect. Tascam 122 mk3 cassette deck used (it actually has very nice, clean amps in it). The deck's output control produced the tremolo effect. **The vari control** introduces another element, which is a pair of MXR 117 flanger pedals. If vari is at '0', you get a basic tremolo effect that did not include the pedals at all in the sampling, just the deck. At '100', the pedals came before the deck. Their LFO was disabled, so they just produced fixed comb-filtering. They were 'tuned' to try to create a psuedo-stereo effect, so that the teeth of each comb would 'interlock' more often than they overlap. This widens the stereo image some, and even creates a noticeable stereo output from a mono input. At the highest point of the tremolo you have full resonance ('regen' control on the pedals) on the combs, and as it goes down the resonance goes down also. On top of that, as the tremolo goes down the pedals' effect is faded out. This was achieved by tediously cross-fading the samples taken with the pedals with the ones taken without them. The end result should be that at the highest volume levels on the tremolo the stereo image gets wider, then as the tremolo goes down the stereo image collapses. This behavior can be mixed in with the vari control, to taste.

General Usage Tips/Ideas:

- If you decide to directly switch the LFO shape yourself (by going into 'edit', then the 'LFO' page), you may notice a few quirks. One is that where I have presets called 'rampU' and 'rampD' for upward and downward ramps, respectively, the actual shape they use is the opposite of what they are. This is because I sampled them 'backwards', so the highest level that the LFO can ever hit is actually the quietest level on the tremolo.

- Another 'quirk' has to do with the 'Helios' presets. As I already mentioned, this one was sampled differently from the others. The 'main' LFO shape for it is the triangle- this one gives you what I had in mind when sampling it. If you look at the actual shape that the 'triangle' preset uses, though, it's a ramp. It's not really a hugely complex subject, but it might be beyond my ability to explain it in a simple way. You can trust me on the fact that either an upward or downward ramp WILL result in the same behavior you would normally get with a triangle shape. If you pick shapes like sine or triangle for this one, they will come out differently than you would expect, which is why I didn't make presets using those.

- Don't forget about the trim control! The hardware sampled here was all solid-state stuff, but trim seems to still have a lot of influence in some cases. As always, you need to be careful with it (if you boost it too far it can get nasty in a bad way).

- If you drive these things with too hot of an input, you will get nasty results, which is true of any program used in Nebula.

- The two programs that do some form of panning effect, rather than just being tremolos like the others, have asterisks in their program names. If you remember this, it should help them stand out whenever you want some autopanning.

V1.1 – use this version number to keep track of updates. If the manual posted at my site has a higher version number than the one you have, your set probably isn't up to date.

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Thanks:

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Giancarlo, Enrique – and everyone involved in advancing Nebula in all ways.
www.acustica-audio.com

All of my supporters! Especially those who help me out a little further by telling others about my stuff (which helps me to be able to continue putting out new things). Cupwise FX is a small operation and I need all the help I can get in terms of financial support, in order to continue doing this. I think my prices are set relatively low. So if you like my stuff and get some good use out of it, consider giving it an honest review or comment somewhere, or just let your friends know about it. **I don't want to ever include any form of copy protection with my stuff, so please, don't share these programs with others.** Consider how you would feel if the fruits of your labor were shared freely rather than you being compensated for them. Contrary to what some people seem to think, making Nebula programs is NOT just a simple matter of 'running some tones through some hardware', especially not for things that are more complex, such as these tremolo programs.