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Oil-Can Delay (#p2808)

by **Digital Larry** » Thu Aug 04, 2016 9:33 pm

Here's the idea of an oil-can delay. It uses a drum which is insulating but has a conductive outer surface. It runs through a reservoir of oil and a brush contact connected to a voltage amplifier from the input writes electrons onto the surface which are picked up by another brush on the other side of the drum. So the delay time is related to the angular displacement of the brushes and the RPM. For example if the brushes are 180 degrees apart, and it's going 60 RPM (1 rev/second) then that is a 500 msec delay. $t \text{ (seconds)} = (\text{angle}/360) * 60/\text{RPM} = \text{angle} / (6 * \text{RPM})$. Faster the RPM, the shorter the delay.

Next there is a wobble (LFO chorus) due to the drum being off center. The rate of this corresponds to the RPM or revs per second. Faster the RPM, the faster the chorus LFO.

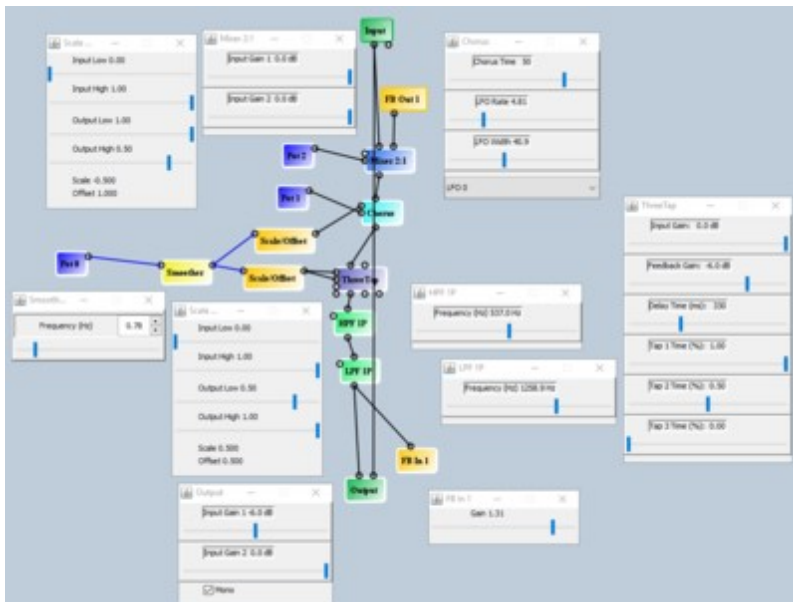
So we need an inverse relationship between chorus rate and delay time from one pot which controls the delay time setting. This you can see from the inverted scale going to the chorus block lfo rate input from pot1 which also goes through a smoother. The net effect of changing the scale/offset blocks (or the delay max time, or the chorus LFO max rate) is to change the angular displacement of the read and write brushes. If the specifics are important, figure it out but you can get different sounds by changing these ratios. Interestingly, the "size" of the drum makes no difference.

I used the multi-tap delay block because supposedly some oil can delays had two heads, but I'm not sure.

Pot0 = delay time/lfo rate (limited range setting, try making it longer if you like)

Pot1 = chorus width

Pot2 = feedback



(./download/file.php?id=161&mode=view)

Attachments

[oil-can-delay.zip](#) (./download/file.php?id=160)

(4.56 KiB) Downloaded 180 times

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Re: Oil-Can Delay (#p2809)

by **Digital Larry** » Sat Aug 06, 2016 10:49 am

Another thing I didn't initially consider is that in order to be realistic, the angle should be less than 360 degrees. So that would mean that since

delay t (seconds) = angle / (6 * RPM).

RPM (LFO rate) = angle / (6 * delay)

For a delay time of 500 milliseconds, if angle = 350 degrees, LFO rate will be 350/(6 * 0.5) or 13.33 RPM, or 13.33/60=0.22 Hz

For a delay time of 500 milliseconds, if angle = 180 degrees, LFO rate will be 180/(6 * 0.5) or 60 RPM, or 1 Hz

If angle is 90 degrees, LFO = 0.50 Hz at 500 msec. If you decrease the delay time to 100 msec then the LFO goes to 2.5 Hz.

If you turn up the regeneration you will start to hear some cool modulation-synced with delay sounds.

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Re: Oil-Can Delay (#p2814)

by **matthewseffects** » Tue Aug 16, 2016 4:18 pm

Nice! Is that feedback block a custom one? not seeing it in my list on build 998

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Re: Oil-Can Delay (#p2815)

by **Digital Larry** » Wed Aug 17, 2016 9:53 am

Loop...Add is the way to add a feedback block pair. Don't ask me why it's all over there by itself. Ok, it's because I drop in 2 blocks which is special code.

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