Replifex Primer

 So I've revisited the Replifex more in depth and remember some things that are unclear in the manual other than by looking at the block diagram. It's far more complex than I remember, which is kinda nice because that just means more sounds to find!

* The best explanation is the block diagram so I'll try my best to describe, though it's a bit confusing to say the least.

- I did my best to make sure everything was correct and to explain and reiterate the best I could. This is not an attempt to explain everything, but only the basic idea of the signal flow and give an idea what can be done. The manual does a great job but I would have liked more signal flow explanation.

- Best results will come from ample experimenting and pounding your head against the block diagrams for awhile.

- One thing I noticed was the menu order doesn't correlate with the signal path compared to the block diagrams' signal chain. The block diagram signal flow, not the menu order, is the way the signal is actually flowing.
- Per the block diagram it's going; Hush> Comp> Eq> Speaker Sim> Volume> Trem (pre-verb)> Pitch> phaser> flanger/chorus > delay> reverb >autopan> trem (post-reverb), simplistically. Not a big deal but good to know.

-This unit is filled with parallel mix processing too.

* Trying more in depth to explain I'll dive right in; There is some redundancy.

- I'm staying with the "classic configuration" block diagram for all this.

- The main analog L/R inputs go to the outputs which are controlled in the mixer menu via the Left/Right Dir parameters in pre-hush mode, and it stays analog. - In post hush mode these control the "intial digital direct signal chain" output, which can also carry the initial chain of effects in the signal as well, unlike the analog signal in pre-hush mode (which is strictly the analog direct output signals).
- When in post-hush mode the main difference is that the analog direct is switched out.
- The "digital direct"input signal is always active and the analog direct is always parallel to everything if in pre-hush mode. In post-hush the analog direct is deactivated and the digital direct's main output is activated.
- When in pre-hush mode the direct levels in the mixer control the analog direct output levels, and when in post-hush they change function and control the initial digital direct chain output level instead. They don't control the initial digital direct chain output level into any blocks other than autopan (direct setting) or Tremolo (post-reverb) and only if they're switched in. Other than that it goes straight to the d/a converter and to the outputs.

- You're either in pre-hush or post-hush mode at any given time.

To re-reiterate a little;
- Post-hush is the "digital direct" signal only. Like a "normal" processor. It's the Main analog L/R inputs summed to mono then sent through an A/D converter. (digital direct signal only, rather than both analog and digital simultaneously which is pre-hush mode. Post-hush is an all digital signal path. Pre-hush is analog with the ability to blend and mix digital in with it
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Continuing...
- From the a/d converter there's an initial in-series digital chain that goes; Hush> Compressor> Eq> Speaker Simulator> Volume (from the mixer section)> Tremolo (pre-reverb). This is the main "initial digital direct" signal chain. At least that's what I call it because there needs to be a distinction. ((((((((((((this works well in post hush mode with a preamp if wanting to eq, compress gate the preamp etc, otherwise to have unaffected preamp tone use pre-hush mode, but then be aware using eq etc from this chain will only affect the digital mix)

 - This is what the manual is normally referring to as the "direct" signal. This is the digital direct chain which will always be feeding and blending with the effects and dir<>eff parameters in the mixer menu and at several other splits from this single point. (See block diagram)
- It splits several times and feeds the: phaser, chorus, flanger dir<>eff mixers individually, the pitch block, a parallel split at the same point before feeding the pitch block, the source-2 parameter in the delay section, twice more to the Reverbs eff<>dir, and once more to the auto-pan-direct block.

- One split feeds an entire series signal chain which goes; Pitch> Phaser> Chorus/Flanger which then feed voice-1 and voice-2 outputs into the mix of the source 1/2 mix parameter in the delay block.
- Along the way the dir<>eff mixers for phaser,chorus/flanger are inserted between the pitch and phaser (for the phaser dir<>eff) and between the phaser and chorus/flanger (for the chorus/flanger dir<>eff)
- If neither chorus or flanger is switched in, then the voice-1 in the delay block (which is always source-1) passes the "digital direct" signal chain, which is everything before it up to that point in the series chain (effects with dir<>eff mix's for phase, chorus, flanger included). The level and pan control in each block are not included in these however. More on that later.

- This same series-chains' phase, chorus/flange dir<>eff parameters are a 0 to 100% scale of how much of the initial digital-direct signal chain AND any previous effects in the chain including the other dir <> eff effects signals are input to the effect blocks. It's blending the "initial digital direct signal chain" with the current "digital direct series effects chain" containing any modulation effects.

-- So adding those in the chain it now looks like; digital direct chain> Pitch> Phs Dir<>eff > phaser> Chorus/Flanger Dir<>eff > chorus/flanger > voices 1/2 > delay source 1/2 mix as assigned in the delay block.
- Be aware, Source1 is always voice 1 and source 2 is selectable between voice-2 or the "initial digital direct signal chain" tapped from the original source after the tremolo (pre-reverb).
- The source-1 setting (voice-1) is the digital direct series effect chain with effects and the mixed results of the previous dir<>eff settings minus voice-2. Source 2 is the same but minus voice-1 The flanger dir<>eff is only operational if flanger block is on (even if chorus is switched out too). The reverb one comes later down the line.

- Source 1/2 are then blended as desired, summed to mono, and input to the delay blocks' high-pass filter and then actually delayed with two available delays. More on delay later.
- IT's important to keep in mind that the dir<>eff parameters' blend for each effect will contain whatever effects before it that are switched In and any related previous dir<>eff mix's as well. They control the amount of digital direct signal chain up to that point that is being input to the individual effects block itself. They are also in series in the chain but are actually blending the ratio of the "initial digital direct chain" along with the effect itself, so a setting of 50 is essentially parallel. A zero setting can be used to block the chain from entering a certain effect for instance, allowing only the initial digital direct signal to pass into the effect block.

- Now, going all the way back to where it splits several times there's another split off the "initial digital direct chain" that runs parallel to the begnining of the first splits' series chain before the pitch block, except this split runs parallel and simultaneously to all the above series chain including in parallel to the dir<>eff mixes in the mixer section.
 - This is where the level and pan controls come in. They only operate when the effects block is turned on, unlike the dir<>eff parameters.
- This allows you to run a parallel mix with level and pan of the effects alongside the digital series effect chain and related dir<>eff parameters mix simultaneously.
 - It takes whatever blend you've created in the series/dir<>eff chain and taps off that as the source for the parallel processing position, post effect.
- The exception to this is the pitch block which taps the signal before the phs dir<>eff parameter. It's level/pan controls only the shifted signal. The pitch block gets its' input from an initial digital direct signal split.
- The phaser and chorus/flanger take their parallel signals after their respective effects blocks while the digital direct chain is still pre dir<>eff parameters from that same tremolo(pre-reverb) split way back at the beginning.

- Be aware the entire signal chain of the dir<>eff mixers are functional regardless if the effect is switched in or not (with potential exception of chorus/flanger). It goes; pitch block > PHS dir<>eff >Phaser block> chorus/flanger dir<>eff (only one of which works at a timedepending which is switched in. If none are switched in the chorus dir<>eff is functional and flanger is not > then reverb dir<>eff near the end of the signal path after the delay,

- Also anything using the level/pan controls, please note that the pan controls of anything also being run into the delay block or the reverbs eff/dly mix are effectively not working because the delays' panning takes over as master panning after it summed to mono at it's input, but this doesn't mean the effects' pans aren't actually working. This becomes apparent if you turn the delay off and return to that mix. Depending on levels one can dominate the other. It can be tricky to dial in. Blend to taste.

- The level and pan controls in the modulation blocks control the digital direct effects chain signal regardless of pre/post hush mode, and only work when the effect is switched in. However, the dir<>eff parameters in the mixer are always active and affecting the digital direct signal.
- The effect still works and processes signal with the level all the way down in pre/hush mode too so you can run dry analog path in parallel with digital effects (pre-hush mode) as an option in this manner.

 - So for example if you want the the entire pitch shifted signal to be affected by the chorus you'd need to have both the phaser and chorus dir<>eff parameters set to 100. This way 100% of the digital direct series signal (which also contains the pitch shifted signal) will be input to the chorus block.
- This gets a bit confusing but for instance, using the previous example if you wanted to also have in parallel the pitch block be panned hard right and independent you could just pan it right and raise the level to taste. This will result in 100% of the pitch shifted signal being processed by the chorus and also in parallel at the same time and blended panned right via another direct tap.

- The overall parallel mixes of the level/pan parameters from the pitch, phaser, chorus/flanger blocks are sent through the effects<>dly mix parameter in the reverb section (not to be confused with the dir<>eff) via a parallel split and the result is parallel mixed with the delay outputs level/pan 1/2 of the delay section. Be aware anything in this Eff<>Dly mix of the reverb section will be summed to dual mono. Left and right signals will be there but in dual mono. The block diagram kinda makes it look like it stays stereo but it doesn't. This is only true for this parameter, the rest of the parallel chain will stay stereo. If you put it at 100 and turn the delay master level down but leave the tap levels up you can isolate it. It sounds like wet early reflections of both signals summed to mono. Changing the source parameter doing this can be interesting too.
- The Delay master level stereo signal is then sent to the parallel out mix buss with everything else. To reiterate, this delay master signal is from the series chain. It's tapped before the eff<>dly reverb parameter and added with the parallel output chain. The reverb eff<>dly parameter is tapping from the parallel effects chain after the modulation but before the delay parallel mix output/pan signals and also tapping from the delay level/pan 1/2 outputs simultaneously.

The reverbs dir<>eff parameter in the mixer section takes a tap off the eff<>delay mix output signal in series to continue the series digital direct effects chain then once again taps off the "intial digital direct chain". The reverb level in the reverb block is then parallel mixed with all the other mixes.
- After that everything is fed into the Effect level parameter in the mixer acting as the master effect level control being fed to the effect-only-routing of the auto pan location function which is blended with the direct-routing function of the auto pan if selecting dir-only or both for auto pan location parameter. After that it goes through the tremolo post-reverb (if switched in) and through the d/a converter and to the analog outputs.
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Minor stuff to keep in mind (scrap notes)

- Anything going into the delay is summed to mono. The delay panning then takes over. The only way to seperate the panning with the modulation effects being processed by delay other than with the delay is to use it's level and pan controls of the digital direct signal (parallel processing) with the levels turned up, afaik.
- The pitch is controlling only the shifted level.
- The delays" l/r taps vol/pan being mixed in the reverbs' eff/dly mix is going to be summed to dual summed mono. The effects stay stereo but just not in this portion of the reverb (including the stereo effects in the delay s1/s2 are summed too). The stereo image is contained within the parallel mix's.

Minor stuff to keep in mind (scrap notes) continued...

- The digital direct signal chain makes a great preamp shaping strip when in post-hush mode, otherwise in pre-hush it only affects the effects and digital direct signals which is nice if running a preamp being because you can have your analog unaffected preamp tone in parallel if you don't want it touched. What's great is this is on a per preset basis.

- The initial digital direct series chain goes to the series effects chain and the inserted dir<>eff mixes via multiple splits which blend and sum to mono in a series fashion.
- The effects blocks volume and pan run parallel to the combined digital direct effect series chain and tap the point right after each effect block with exception of pitch block which is strictly the shifted digital direct signal. These controls only work when the effect is on.

- This unit will require a lot of experimenting and thought energy to get the most out of it but it's worth it. Super versatile and sounds great without killing your tone.

Other stuff:

- Attached are legible scans of both configuration diagrams and also parameter pages from the manual I modified. Use these to record preset settings.
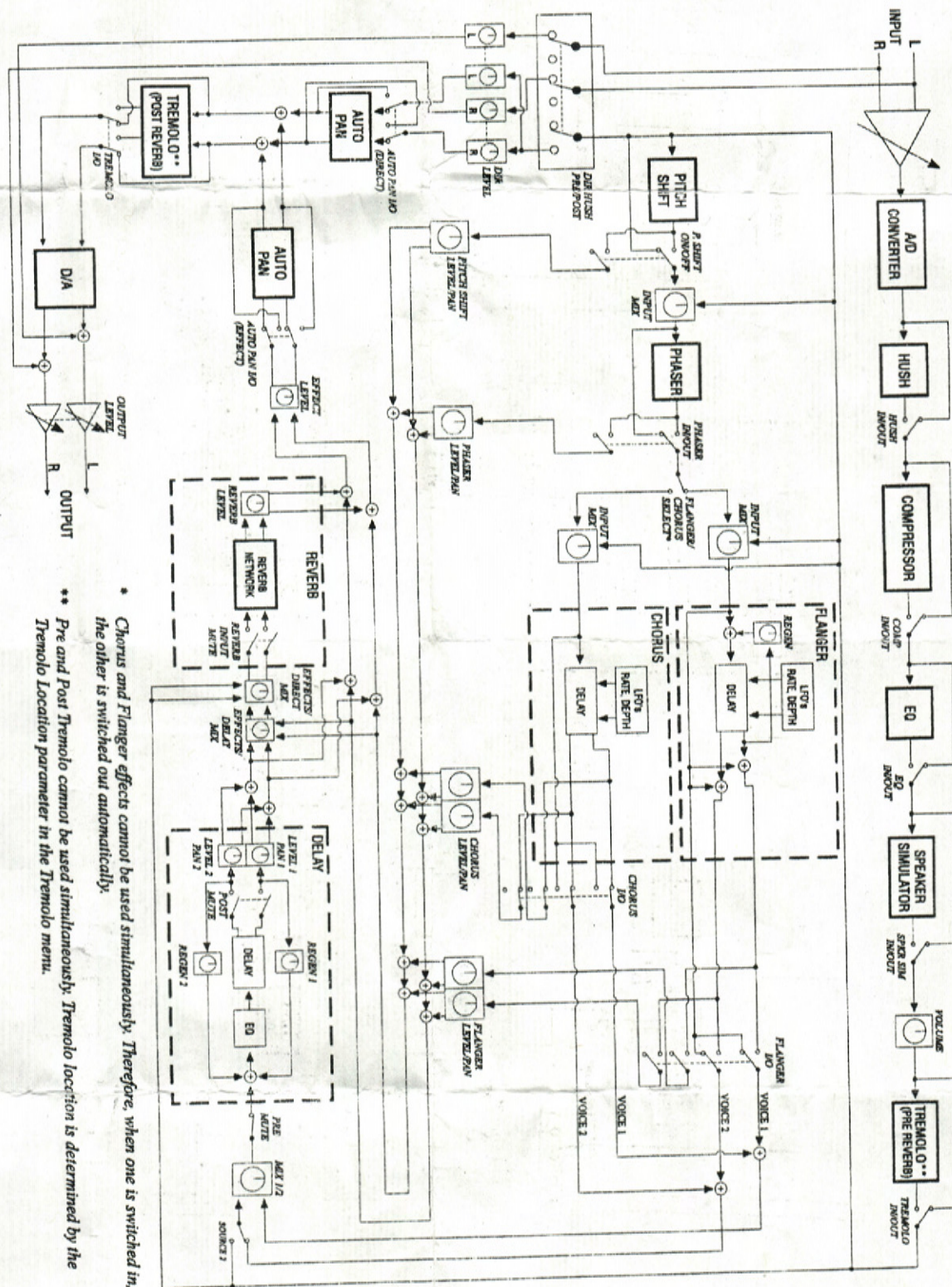- I added the columns to the right. Here's a quick breakdown;
- "Stored Value" is obviously what the stored value is.
- "Initial Value" is whatever you want it to be. For example if you always recal that preset in a bypassed state or use a realtime control etc then the parameter may not intially be the same as the stored value. It's more of a reminder tab of what the parameter value should be upon recall.
- CC# and Upper and Lower value are for any parameter that use continuous control within that preset.
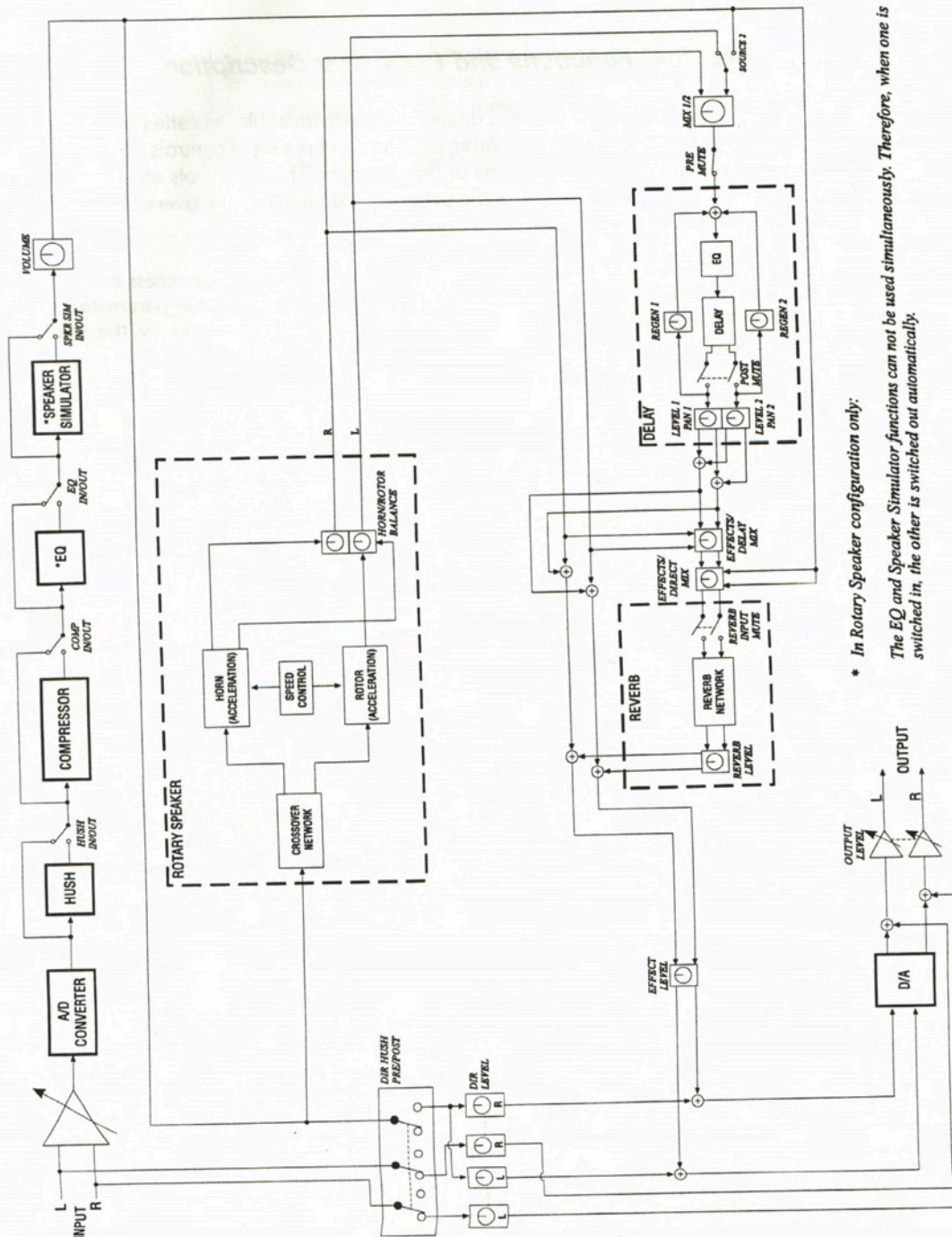
- NOTES-

Classic Configuration
Block Diagram

Rotary Configuration
Block Diagram

* In Rotary Speaker configuration only:

The EQ and Speaker Simulator functions can not be used simultaneously. Therefore, when one is switched in, the other is switched out automatically.