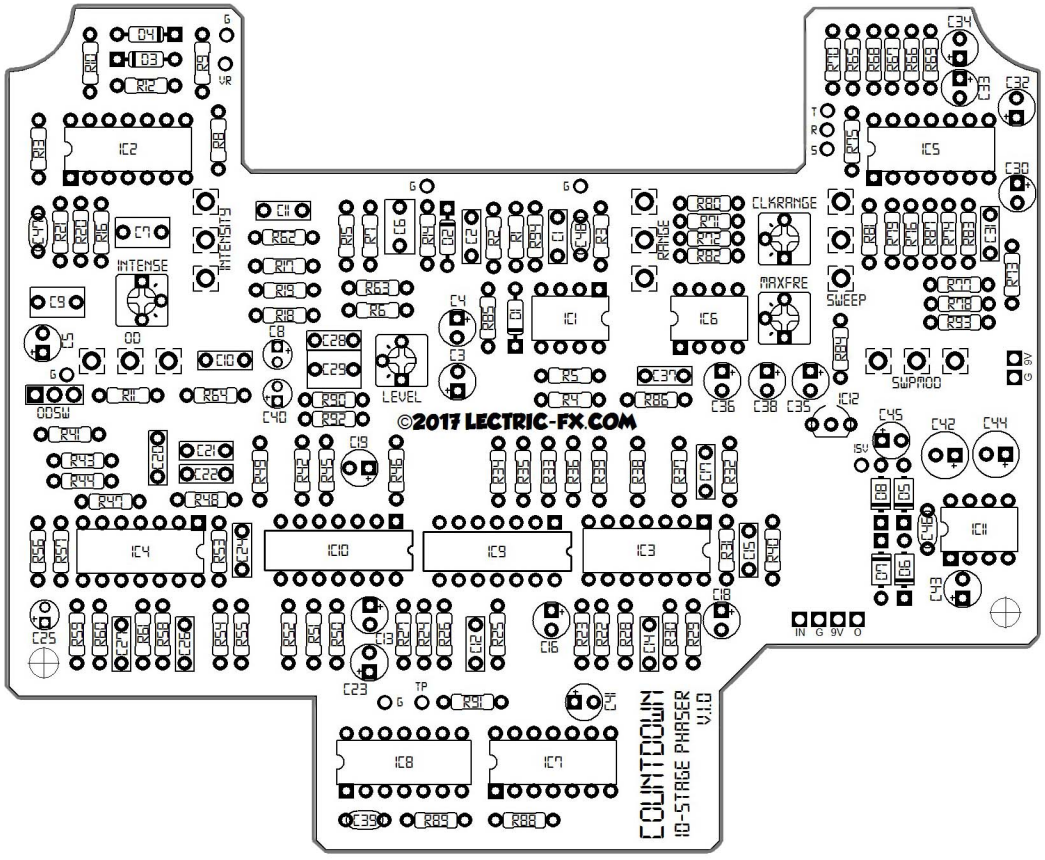
COUNTDOWN

V. 1.0 10-STAGE PHASER 05/22/2017



The Countdown Phaser is a re-creation of the vintage A/DA Final Phase introduced in 1979, which is slightly different than the reissue. It's a versatile phaser that includes a Sweep Modulation control that introduces a 2nd LFO sweep pattern on top of the first, so that different sounds can be achieved such as vibrato or syncopated beats. The effect also includes a footswitchable opamp distortion that is controlled by a single knob.
The LECTRIC-FX version of this vintage effect has been adapted for true bypass. It also features an on-board charge pump & regulator so that it can be run at 15V from a standard 9V power supply.

This is actually a pretty straightforward build, but it has a LOT of components. Make sure you're organized with your parts layout to avoid mistakes/troubleshooting later on. Set up will require a multi-meter capable of reading frequencies of 1MHz.

CONTROLS:

SWEEP RATE- Controls the speed of the phase shifting.

SWEEP MODULATION- A 2nd overlaid varaible oscillation that provides a variety of effects.

RANGE- Defines the range of the automatic controls, *Sweep Rate* and *Sweep Modulation*.

INTENSITY- Increases or decreases the amount of feedback put back into the signal. Here you can get the "hollow pipe" sound.

OD- Active when the OD switch is on. Adds distortion to the signal.

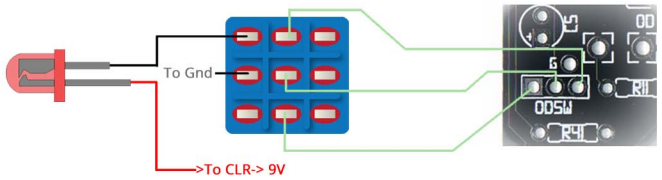
Bill of Materials:

Click **here** for BOM. This link takes you to a google sheet. You can sort by the parts value column to assist you in obtaining your "shopping list ."

Build Notes:

Not much to say here. The bill of materials is quite large, but the build itself is not complicated.
You could make sure the values of R65 & R66 are in spec, since having those correct will come into play during set up.
The OD stomp switch can either be DPDT or 3DPT unless for some reason you don't want an LED indicator for it, in which case SPDT can be used. The bypass stomp for the main effect is a standard true bypass 3DPT.
I haven't used the following switch wiring diagram yet, but I think this should work.

OD Switch Diagram



You'll notice on the drill template there's a space provided for optional third phone jack. This is for expression pedal usage. A standard non-switching stereo jack should be used here, & it should be wired to the TRS pads.

Setup Procedure:

For set up, you'll need a multimeter capable of reading up to 1MHz frequencies (or other suitable tool) and unless you have a 0-5V "CV" expression pedal* you will need to install sockets in the T,R & S pads on the board. Conversely, you could run wires from the T,R & S pads to a breadboard and perform the procedure there. Just be aware that if you're going to install the expression jack later, you will probably need to de-solder the sockets to install wires. I mention this because I know some do not enjoy removing sockets.

Begin by checking the voltage at the T pad, it should read approximately 5V, if it's more than ~0.5V either way, check the values of R65 & R66.

Now, set the intensity, width, rate & modulate all CCW (overdrive is inconsequential) and place a jumper between the R & T pads.
Probe the test point provided (TP) on the board with your multimeter set to the Hz setting and begin adjusting the MAXFRE trimmer until you read 35kHz.

Then, remove the jumper from the R & T pads and place it in the sockets between the R & S pads.

Now Probe the test point again and adjust the CLKRANGE trim until you read 650kHz.

The MAXFRE & CLKRANGE trims are very interactive so you will need to keep switching the jumper between the R & T, then R & S pads and adjusting the corresponding trimmer until you have a low frequency of 35kHz and a high frequency of 650kHz**.

* If you have a 0-5V expression pedal and plan to install the expression jack, when asked to switch the jumper in the set up procedure, just set the expression pedal to the other extreme.
**Without access to an original 70s unit and the original set up procedure not being available we've had to take an educated guess as to the correct clock frequency range, if you're confident in your abilities, feel free to experiment but if the bottom frequency is set too low you will get clock whine and noise.

You have now set up the clock portion of the countdown phaser and can move on to the intensity trimmer, simply put the width and intensity fully CW and set the rate to the midpoint and adjust the intensity trimmer to just before the point of oscillation.

The level trimmer allows you to adjust the output level from a slight cut to slight boost, set it to match your bypass level.

That's all there is to it! We hope you enjoy your new phaser. :)

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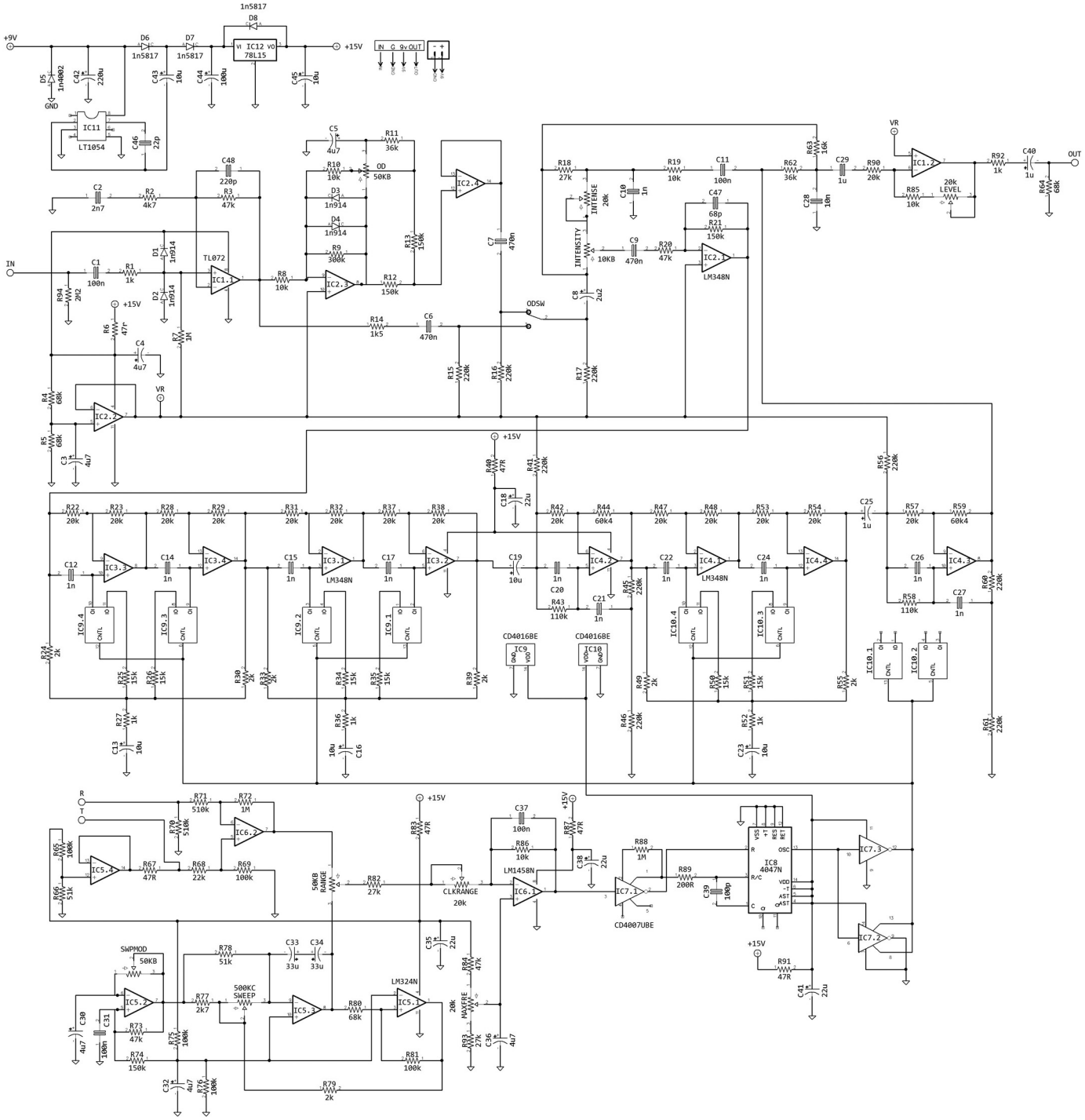

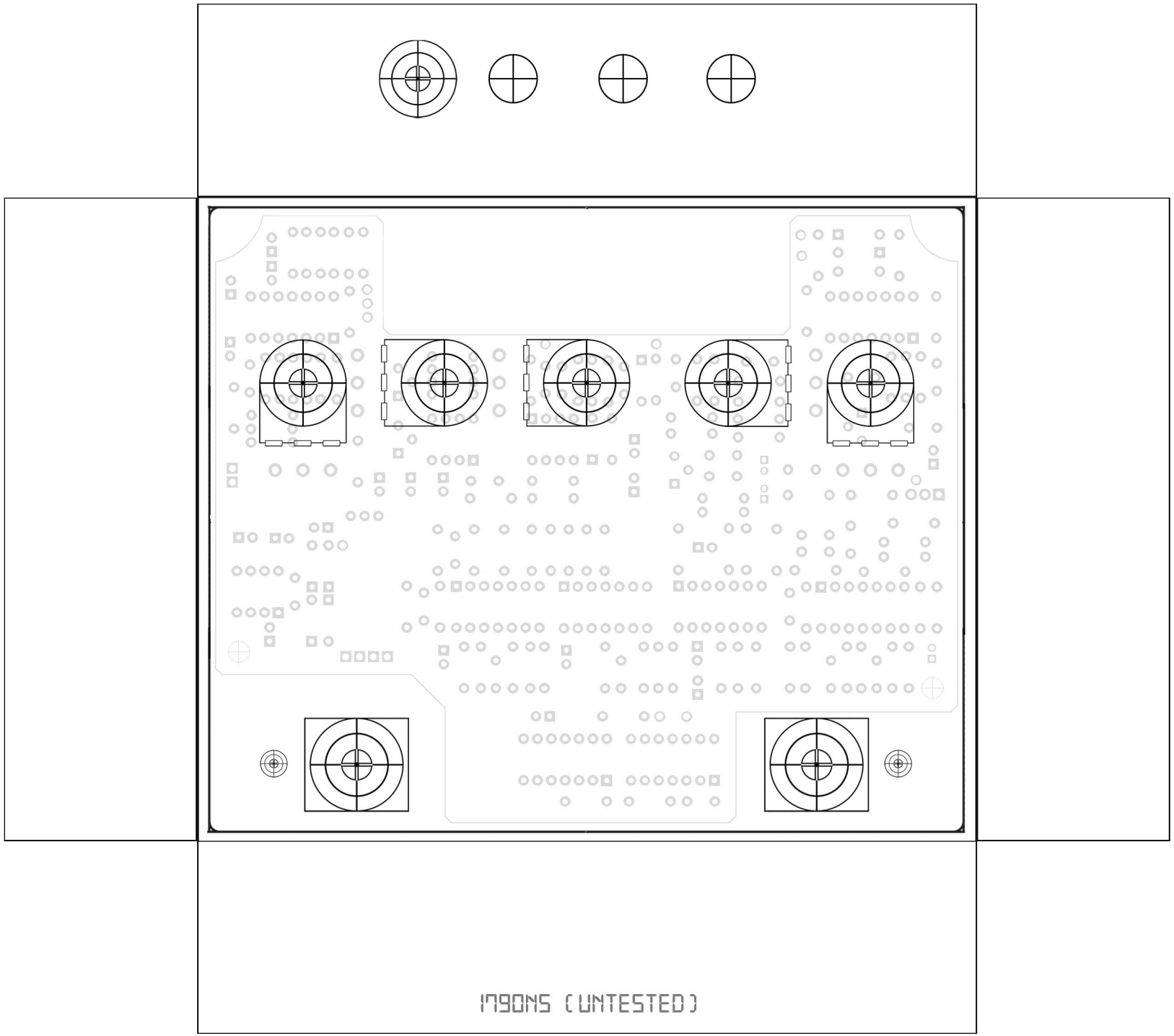
1N90N5 (UNTESTED)