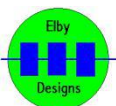




Odysseus

Construction Guide
Version 0.1
PCB Revision V0.2

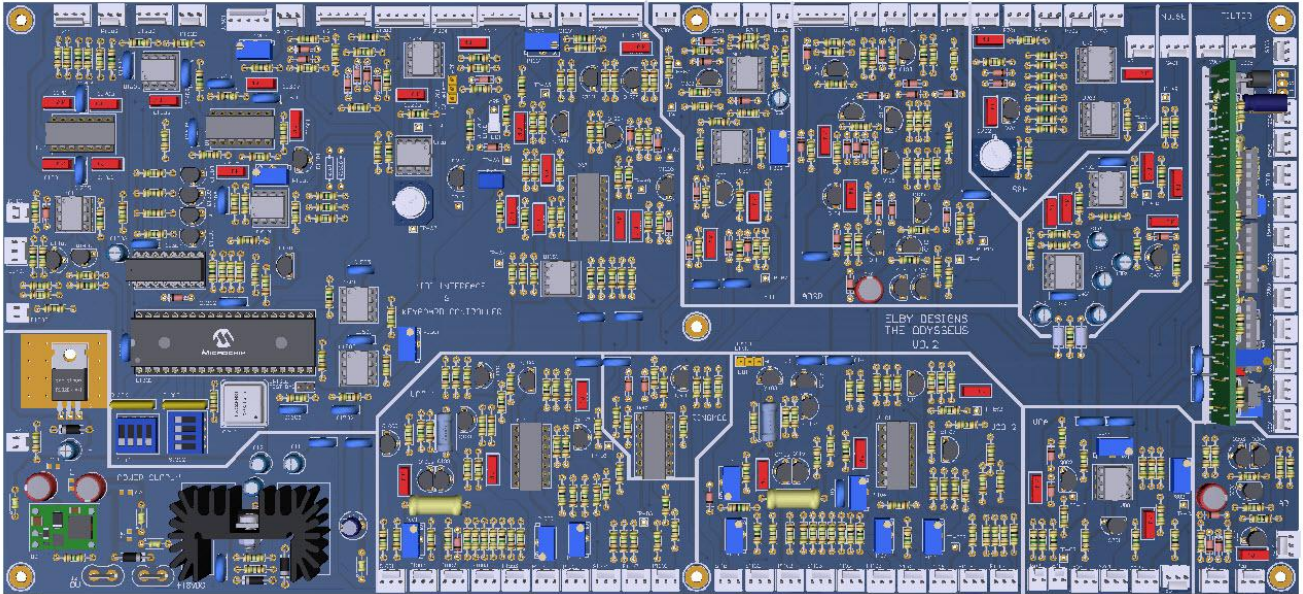
October 9, 2020



Odysseus Build Guide

Main PCB Assembly ([3D Model](#))

Refer to the [General Construction Notes](#) for general assembly notes.



Install all components as per the [Main PCB Overlay](#) with the exception of Q702, Q1202 and R1614.

Chicklet 1 PCB Assembly ([3D Model](#))

Populate the 2x chicklet-1 PCBs as per the [PCB Overlay](#)

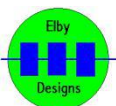
Install the chicklet1 assemblies in to positions Q702 and Q1202

Chicklet 2 PCB Assembly ([3D Model](#))

Populate the 1x chicklet-2 PCB as per the [Chicklet-2 PCB Overlay](#)

Chicklet-2 needs to be wired to several pads on the Main PCB. Refer to the [Main PCB Overlay](#) and the [Chicklet-2 PCB Overlay](#) for the location of the connections X1 thru X7.

Connections X5, X6 & X7 on the Main PCB should be made to the underside of the PCB at the points indicated on J1602 and P1603.



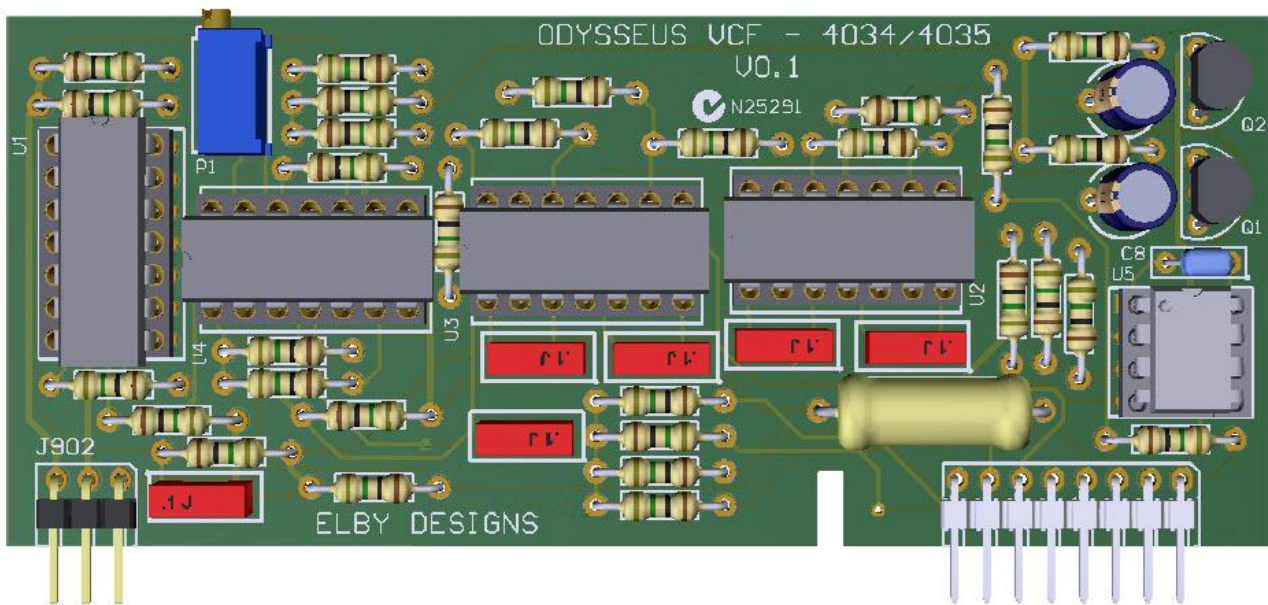
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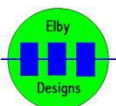
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Filter PCB Assembly ([3D Model](#))

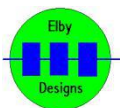


Populate the Filter PCB as per the [PCB overlay](#)



Odysseus Build Guide

Monitor TP-A2
Fit JP101
Adjust P301 for 10.667V
Remove Jumper



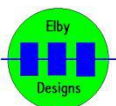
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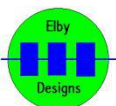
Odyssey Build Guide

Reference	Trimmer	Trim Procedure
P1008	VCO 1 50% PULSE	<ol style="list-style-type: none"> 1. Put the [TRANSPPOSE] switch in the normal position 2. Set [PWM DEPTH] to minimum 3. Set [PULSE WIDTH] to '5' 4. Depress a key in the middle of the keyboard 5. Monitor TP-B51 with an oscilloscope 6. Adjust VCO1 COARSE FREQUENCY to display one complete cycle 7. Adjust the 50% PULSE WIDTH trimmer until the duty-cycle is 50%
P1006	VCO 1 CALIBRATE	<ol style="list-style-type: none"> 1. Monitor TP-B51 with either an oscilloscope or frequency counter 2. Set the COARSE FREQUENCY to minimum 3. Set the FINE FREQUENCY to it's exact centre point 4. Press low `C` on the keyboard 5. Adjust VCO CAL for a 65.406Hz 50mSec period or 20Hz.
P1001	VCO 1 V/OCT	<ol style="list-style-type: none"> 1. Set the VCO Range switch to KYBD ON 2. Monitor TP-5 with a frequency counter 3. Press low `C` on the keyboard 4. Adjust VCO1 COARSE FREQUENCY for exactly 100Hz 5. Press high `C` on the keyboard 6. Adjust VCO1 V/OCT trimmer for exactly 800Hz 7. Repeat steps 3 to 6 until the frequency is correct on low `C` and high `C`



Odysseus Build Guide

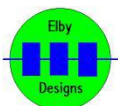
P1107	VCO 2 CALIBRATE	<ol style="list-style-type: none"> 1. Monitor TP-5 with either an oscilloscope or frequency counter 2. Set the COARSE FREQUENCY to minimum 3. Set the FINE FREQUENCY to it's exact centre point 4. Press low `C` on the keyboard 5. Adjust VCO CAL for 65.406Hz 6. 7. a 50mSec period or 20Hz.
P1101	VCO 2 V/OCT	<ol style="list-style-type: none"> 1. Set the VCO Range switch to KYBD ON 2. Monitor TP-5 with a frequency counter 3. Press low `C` on the keyboard 4. Adjust VCO1 COARSE FREQUENCY for exactly 100Hz 5. Press high `C` on the keyboard 6. Adjust VCO2 V/OCT trimmer for exactly 800Hz 7. Repeat steps 3 to 6 until the frequency is correct on low `C` and high `C`
P1104	2 ND VOICE V/OCT	Press low `C` on the keyboard
P1109	VCO 2 50% PULSE	<ol style="list-style-type: none"> 1. Put the [TRANSPPOSE] switch in the normal position 2. Set [PWM DEPTH] to minimum 3. Set [PULSE WIDTH] to `5` 4. Set [VCO 1 SYNC] off 5. Depress a key in the middle of the keyboard 6. Monitor TP-B52 with an oscilloscope 7. Adjust VCO1 COARSE FREQUENCY to display one complete cycle 8. Adjust the 50% PULSE WIDTH trimmer until the duty-cycle is 50%



Odysseus Build Guide

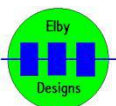
3.3

Reference	Trimmer	Trim Procedure
P1201	TRANSPOSE	<ol style="list-style-type: none">1. Set the following knobs at maximum: Mixer VCO 1, VCF FREQUENCY, and VCA GAIN.2. Set all other pots to minimum.3. Put the TRANSPOSE switch to NORMAL.4. Press low `C' on the keyboard.5. Connect a frequency counter to the HIGH OUTPUT of the Odysseus.6. Adjust the VCO 1 COARSE FREQUENCY and FUNE TUNE knobs to 100Hz.7. Put the TRANSPOSE switch in to the UP 2 OCT position.8. Adjust the TRANSPOSE trimmer for exactly 400Hz
P1203	PITCH BEND	<ol style="list-style-type: none">1. Set the following knobs at maximum: Mixer VCO 1, VCF FREQUENCY, and VCA GAIN.2. Set all other pots to minimum.3. Put the TRANSPOSE switch to NORMAL.4. Put the PITCH BEND knob to its CENTRE position.5. Press low `C' on the keyboard.6. Adjust the VCO 1 COARSE FREQUENCY and FUNE TUNE knobs to 100Hz.7. Turn the PITCH BEND knob fully CLOCKWISE.8. Adjust the PITCH BEND trimmer for exactly 200Hz



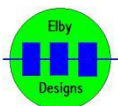
Odysseus Build Guide

P913	VCF BAL	<ol style="list-style-type: none">1. Set the following knobs to maximum: VCA GAIN and LFO FREQUENCY2. Put the ADSR 'DECAY' knob at the $\frac{1}{4}$ position.3. Put the switches UP4. Monitor the HIGH OUTPUT of the Odysseus with an oscilloscope set to about 500mV per division. Adjust the VCF BAL trimmer for the minimum amplitude signal
P908	VCF CUTOFF	<ol style="list-style-type: none">1. Turn the VCF RESONANCE knob to maximum.2. Turn all other knobs to minimum.3. Monitor... with on oscilloscope or frequency counter.4. Adjust the VCF CUTOFF trimmer for a 62.5mS period or 16Hz.
P907	VCF V/OCT	<ol style="list-style-type: none">1. Turn the following knobs to maximum: VCF RESONANCE, VCA GAIN and VCF KYBD CV.2. Turn all other knobs to minimum.3. Monitor the HIGH OUTPUT with a frequency counter.4. Press low 'C' on the keyboard.5. Adjust the VCF FREQUENCY for 100Hz.6. Press high 'C' on the keyboard7. Adjust the VCF V/OCT trimmer for 800Hz8. Repeat steps 3 through 7 until the frequency of the VCF is correct on low 'C' and high 'C'.



Odysseus Build Guide

P805	VCA GAIN	<ol style="list-style-type: none">1. Turn the following knobs to maximum: VCO 1 `SQUARE WAVE' in the AUDIO MIXER, VCF FREQUENCY and VCA GAIN2. Put all other knobs to minimum3. Monitor the HIGH OUTPUT with an oscilloscope Adjust the VCA GAIN trimmer so that the amplitude of the observed waveform is 2Vp-p
P802	VCA CVR	<ol style="list-style-type: none">1. Set the following knobs to maximum: VCA `ADSR' and LFO FREQUENCY2. Set the ADSR `DECAY' knob to about 2.53. Set all the other knobs to minimum4. Put the 3 switches under ADSR to the DOWN position4. Monitor the HIGH OUTPUT with an oscilloscope (set to about 0.5V per division)5. Adjust the VCA CVR trimmer for the minimum amplitude signal



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