

CAT

Legendary Duophonic Analog Synthesizer with Dual VCOs, 4 Mixable Waveforms, External Signal Processor, 16-Voice Poly Chain, and Eurorack Format



User Support Bulletin

Introduction

The unit is carefully calibrated at the factory. The performance may change over time or due to environmental changes, and the following recalibration procedures can be used to bring it back to its factory settings. If you do not feel comfortable doing these calibrations, then we recommend they are done by an experienced audio service technician. This is especially true for those units that need to be opened to gain access to voltage test points and calibration potentiometers.

CAUTION: Incorrect calibration or damage to the delicate adjustment potentiometers may lead to the unit becoming inoperable.

Note: Although re-calibration will not invalidate the warranty, any damage caused during re-calibration may invalidate the warranty.

Equipment required

1. Small insulated trimmer screwdriver.
2. Small Phillips screwdriver.
3. A flat sheet of cardboard or another insulator as wide as the unit. (This will help prevent damage to the top panel when it is inverted and resting on the bottom chassis).
4. Digital DC Voltmeter with a scale that can display accurately to 0.001 V.
5. Guitar tuner
6. An external MIDI keyboard of at least 6 octaves including A1 and A7.
7. MIDI cable.
8. Pair of headphones or a sound system to monitor the main output.

Important Note:

Leave the unit turned on for approximately 30 minutes. This will allow the circuits time to warm up and the components and performance to stabilize with temperature. Without this warm-up time, the calibrations will be inaccurate.

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Preparation

STEP 1 Follow all steps in the order in which they are presented.

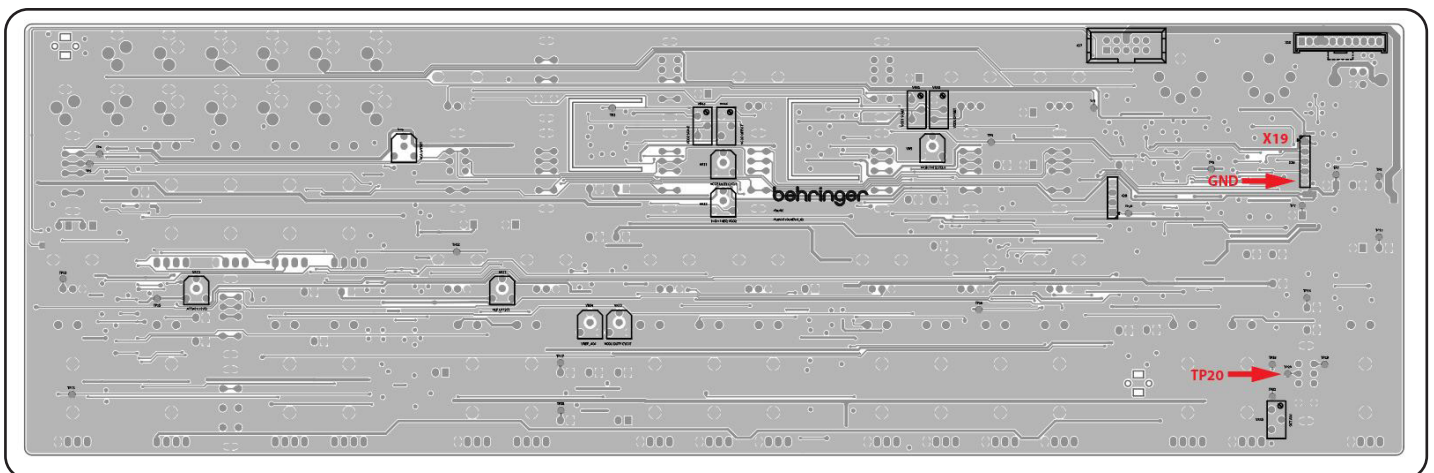
STEP 2 Remove all cables and connections to the unit.

STEP 3 Remove the 8 screws holding the top panel to the chassis.

STEP 4 Turn over the top panel to gain access to the bottom surface of the printed circuit board (pcb). Be careful not to strain the ribbon cables. Use the cardboard to protect the top panel.

Caution:

Make sure that the circuit board is not touching any bare metal that may cause a short circuit and damage the unit. Do not touch the circuit board while the unit is powered up.



STEP 5 Carefully connect the power and turn on the synthesizer.

STEP 6 Leave the unit turned on for approximately 30 minutes.

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Calibration Procedure

Oscillator Calibration using a guitar tuner:

The positions of knobs and switches are shown in red on Figure 1.

Connect a guitar tuner to the rear panel main 1/4" output.

Please pay special attention to the FREQUENCY knobs of VCO1 and VCO2.

Note that a pitch within 2 to 3 cents of the target frequency should be fine.

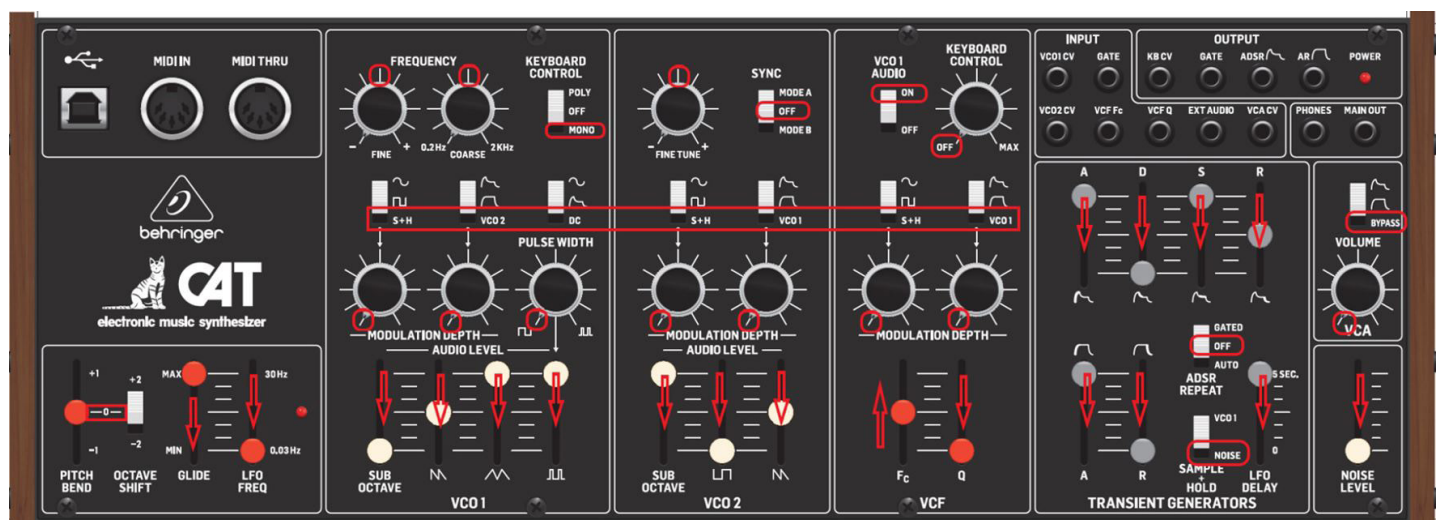


Figure 1

VCO1 Calibration

STEP 1 Turn on the VCO1 SAW fader.

STEP 2 On your external keyboard, press the A2 key and adjust the VCO1 OFFSET trimmer (VR42 on the bottom side) while observing the guitar tuner display (A2-110Hz) (See figure 2 below).

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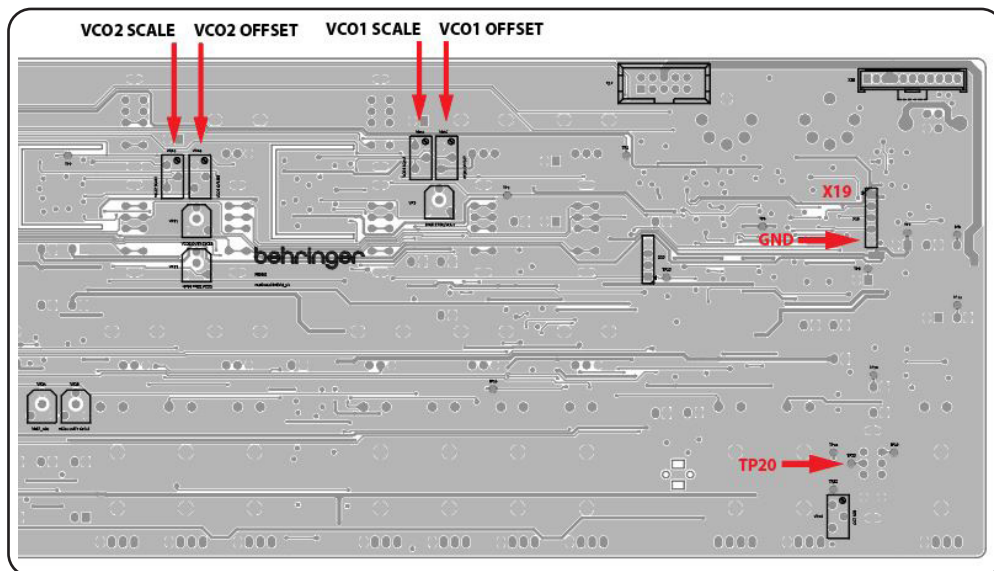


Figure 2

- STEP 3** On your external keyboard, press the A5 key and adjust the VCO1 SCALE trimmer (VR41 on the bottom side) while observing the tuner display (A5-880Hz).
- STEP 4** Repeat steps 2 and 3 above until both notes are correct in the display. This may need to be repeated several times to get right.
- STEP 5** Turn off the VCO1 SAW fader.

VCO2 Calibration

- STEP 1** Turn on the VCO2 SAW fader.
- STEP 2** On your external keyboard, press the A2 key and adjust the VCO2 OFFSET trimmer (VR44 on the bottom side) while observing the tuner display (A2-110Hz).
- STEP 3** On your external keyboard, press the A5 key and adjust the VCO2 SCALE trimmer (VR43 on the bottom side) while observing the tuner display (A5-880Hz).

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STEP 4 Repeat steps 2 and 3 above until both notes are correct in the display. This may need to be repeated several times to get right.

STEP 5 Turn off the VCO2 SAW fader.

OCTAVE Calibration (factory mode)

This calibration is done after the oscillator calibration. The positions of knobs and switches are shown in red on Figure 1.

STEP 1 Set the Digital Voltmeter to measure a range below 10 VDC.

STEP 2 Locate the test points TP20 and GND on the bottom side. Set the position of the front panel OCTAVE SHIFT to -2.

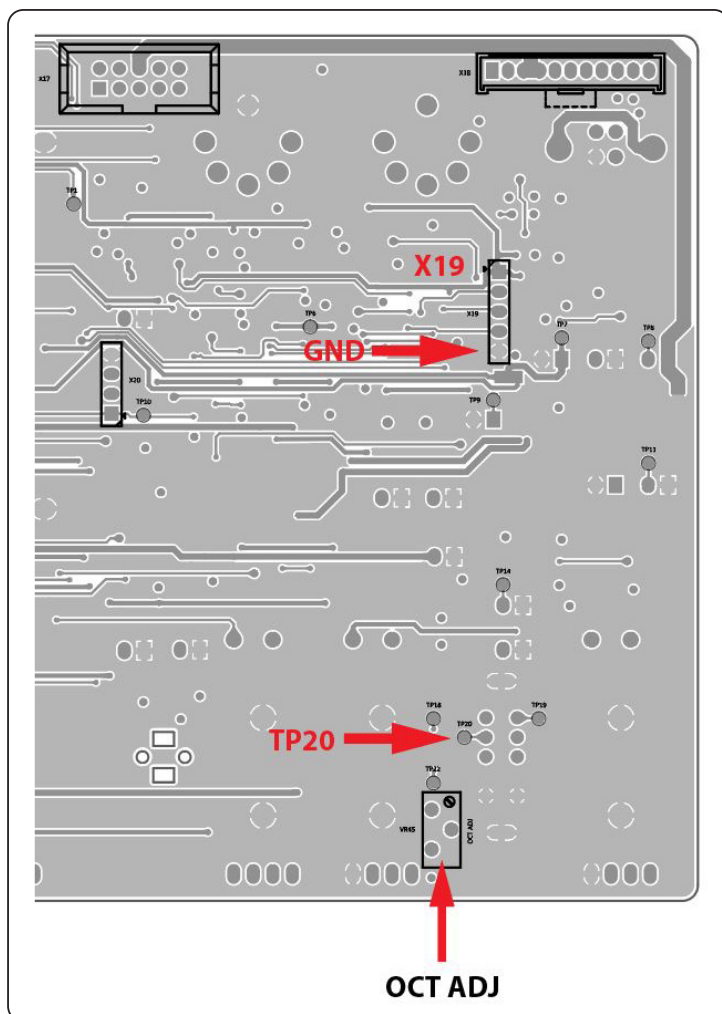


Figure 3

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**STEP
3**

Connect the positive probe of your voltmeter to TP20 (shown in figure 3).

**STEP
4**

Connect the negative probe of your voltmeter to GND (shown in figure 3).

**STEP
5**

Measure the output voltage. It should read +2.000 V (+/-0.5mV).

**STEP
6**

If not, then adjust the OCT ADJ potentiometer (VR45) until the measured output voltage is +2.000 V (+/-0.5mV).

OCTAVE Calibration (user mode)

This calibration is done after the oscillator calibration. The positions of knobs and switches are shown in red on Figure 1. Connect a guitar tuner to the rear panel main 1/4" output.

**STEP
1**

Turn on the VCO1 SAW fader.

**STEP
2**

Set the position of the front panel OCTAVE SHIFT to -2. On your external keyboard, press the A4 key and adjust the FREQUENCY knobs of VCO1 while observing the tuner display (A4 with OCTAVE SHIFT at -2: 110Hz).

**STEP
3**

Set the position of OCTAVE SHIFT to +2, observe the tuner display (A4 with OCTAVE SHIFT at +2: 1760Hz). If not, then adjust the OCT ADJ potentiometer (VR45 on the bottom side) until the frequency is correct.

**STEP
4**

Turn off the power and unplug the power connector.

**STEP
5**

Make sure the internal connections are still correctly inserted and secured.

**STEP
6**

Refit the top panel back into the bottom chassis and secure with all the screws.

End of Procedure