

MINIMOOG TUNING PROCEDURE



TUNING PROCEDURE, SECOND VERSION
TUNING PROCEDURE, THIRD VERSION



TUNING SCALE/RANGE CALIBRATION

WARNING

This procedure will expose the user to hazardous voltages. Proceed with caution. If you are in any way uncomfortable with this procedure, then take the unit to a qualified repair shop. I am providing this for information only and the user assumes all risks.

This procedure requires a strobe tuner or a frequency counter.

You can calibrate the oscillator with or without the rear cover intact. There are access holes for the trimpots, but not all of them. It is also possible that you have a older Minimoog with a newer oscillator board, and only the access holes for the older oscillator board.

These instructions are laid out for calibration without the rear cover, so you should keep the Minimoog in a stable environment, IE away from drafts because abrupt changes in temperature will affect your calibration.

For instruction on removing the rear cover, refer to the Power Supply

CALIBRATION SECTION

- 1) Apply power to the Minimoog and allow a 30 minute warmup period.
- 2) Connect the tuner or counter to the HIGH MAIN OUTPUT jack.

There are two large boards as you face the rear of the Minimoog. The board on the right is the oscillator board. The board on the left is the Filter board.

A440

- 3) Observe the Filter board. The trimpot on the bottom left hand side is the A440 trimpot. Turn on the A440 switch on the front panel and adjust this trimpot for 440hz.
- 4) Turn off the A440 switch on the front panel.

At this point, we are ready to calibrate the Oscillators. There were three versions of the oscillator boards.

The first version was originally installed in Minimoogs up to approximately serial #1300 and were entirely discrete, but is mentioned nowhere in the service manual. I do not have schematics for it, and I do not know what it looks like. I cannot verify if this calibration will apply to this oscillator board version. It is pretty likely that most of these boards may have already been upgraded to newer versions. If you have a Minimoog that is under #1300 and you are not sure which board you have, you will need schematics and a qualified repair shop to tell you which board it is.

The second version is more common and was installed in Minimoogs below serial #10175, beyond that the third version (the temperature stabilized board) was installed in Minimoogs serial #10175 and up. Older Minimoogs may have their original boards replaced with the third version.

- 5) With the cover off, observe the Oscillator board. On the right side of the board, there will be a matrix of trimpots. If you see two columns of three trimpots, you have the second version. If you see four columns of three trimpots, you have the third version.

TUNING PROCEDURE, SECOND VERSION

This is the board that is in my Minimoog. I modified the procedure slightly because it tunes it better.

The arrangement of the trimpots is as follows: each row pertains to each oscillator, the top is OSC1, middle is OSC2, bottom is OSC3. The trimpot on the right is RANGE, the one on the left is SCALE. Near the bottom is a lone trimpot, this is the OCTAVE trimpot.

Only the RANGE and SCALE trimpots are accessible through the access holes on the rear cover.

- 6) Set the front panel controls as follows:

TUNE=0
GLIDE=0
PITCH WHEEL=CENTER (detent)
MOD WHEEL=OFF

OSCILLATORS

OSCILLATOR MOD=OFF
OSC 3 CONTROL=ON
ALL OSC RANGE SWITCHES=2
ALL OSC WAVEFORMS=RAMP
OSC 2 RANGE=0
OSC 3 RANGE=0

MIXER

ALL OSC MIXER VOLUME=5
NOISE/EXT IN=OFF

FILTER

FILTER MODULATION=OFF
KEYBOARD CONTROL 1=OFF
KEYBOARD CONTROL 2=OFF
CUTOFF FREQUENCY=(+)5
EMPHASIS=0
AMOUNT OF CONTOUR=0

CONTOURS

ATTACK=1M
DECAY=1M
SUSTAIN=10

MAIN OUTPUT VOLUME=5
MAIN OUTPUT=ON

OSC1

- 7) Turn on OSC1 in the mixer on the front panel. All other switches in the mixer should be OFF.
- 8) Hold down the HIGH A key and adjust OSC1 RANGE trimpot for 3520hz.
- 9) Hold down the LOW A key and adjust OSC1 SCALE trimpot for 440hz.
- 10) Repeat steps 8 and 9 until no further adjustment is necessary.

The remaining adjustments can be done without the tuner or counter. You can monitor the Minimoog with headphones or an amp.

OCTAVE

- 11) Hold down the LOW A key.
- 12) Turn on A440 on the front panel.
- 13) Adjust the front panel TUNE for unison.
- 14) Change the OSC1 RANGE switch on the front panel to 16.
- 15) Press the HIGH A key.
- 16) Adjust the OCTAVE trimpot for unison.
- 17) Set the OSC1 RANGE switch back to 2 and turn off A440.

OSC2

- 18) Turn on OSC1 and OSC2 in the mixer on the front panel. All other switches in the mixer should be OFF.
- 19) Hold down the HIGH A key and adjust OSC2 RANGE trimpot for unison.
- 20) Hold down the LOW A key and adjust OSC2 SCALE trimpot for unison.
- 21) Repeat steps 19 and 20 until no further adjustment is necessary.

OSC3

- 22) Turn on OSC1 and OSC3 in the mixer on the front panel. All other switches in the mixer should be OFF.
- 23) Hold down the HIGH A key and adjust OSC3 RANGE trimpot for unison.
- 24) Hold down the LOW A key and adjust OSC3 SCALE trimpot for unison.
- 25) Repeat steps 23 and 24 until no further adjustment is necessary.

You're done! Reinstall the rear cover and enjoy!

TUNING PROCEDURE, THIRD VERSION

I have never owned a Minimoog with this board, so I am just copying the procedure from the manual.

The arrangement of the trimpots is as follows: each row pertains to each oscillator, the top is OSC1, middle is OSC2, bottom is OSC3. From the right, the 1st trimpot is SHIFT (also known as RANGE), the next is OCTAVE, the next is SCALE, and the fourth is HI END.

Only the SHIFT, OCTAVE, and SCALE trimpots are accessible through the access holes on the rear cover. If the Minimoog is below serial #10175 and you have the third version board, there may or may not be new access holes drilled out for OCTAVE.

26) Set the front panel controls as follows:

TUNE=0
GLIDE=0
PITCH WHEEL=CENTER (detent)
MOD WHEEL=OFF

OSCILLATORS

OSCILLATOR MOD=OFF
OSC 3 CONTROL=ON
ALL OSC RANGE SWITCHES=16
ALL OSC WAVEFORMS=RAMP
OSC 2 RANGE=0
OSC 3 RANGE=0

MIXER

ALL OSC MIXER VOLUME=7
NOISE/EXT IN=OFF

FILTER

FILTER MODULATION=OFF
KEYBOARD CONTROL 1=OFF
KEYBOARD CONTROL 2=OFF
CUTOFF FREQUENCY=(+)5
EMPHASIS=0
AMOUNT OF CONTOUR=0

CONTOURS

ATTACK=1M
DECAY=1M
SUSTAIN=10

MAIN OUTPUT VOLUME=10
MAIN OUTPUT=ON

SCALE

OSCx=OSC1, OSC2, or OSC3

- 27) Turn on OSCx in the mixer on the front panel.
All other switches in the mixer should be OFF.
- 28) Change OSCx RANGE switch on the front panel to 16.
- 29) Hold down the LOW A key and adjust OSCx SHIFT trimpot for 55hz.
- 30) Hold down the HIGH A key and adjust OSCx SCALE trimpot for 440hz.
- 31) Repeat steps 29 and 30 until no further adjustment is necessary.

repeat for each oscillator

HI END

OSCx=OSC1, OSC2, or OSC3

- 32) Turn on OSCx in the mixer on the front panel.
All other switches in the mixer should be OFF.
- 33) Change OSCx RANGE switch on the front panel to 2.
- 34) Hold down the LOW A key and adjust OSCx SHIFT trimpot for 440hz.
- 35) Hold down the HIGH A key and adjust OSCx HI END trimpot for 3520hz.
- 36) Repeat steps 34 and 35 until no further adjustment is necessary.

repeat for each oscillator

- 37) Repeat SCALE (steps 27-31) and HI END sections (steps 32-36) until no further adjustment is necessary.

OCTAVE

OSCx=OSC1, OSC2, or OSC3

- 38) Turn on OSCx in the mixer on the front panel.
All other switches in the mixer should be OFF.
- 39) Change OSCx RANGE switch on the front panel to 32.
- 40) Hold down the HIGH A key and adjust OSCx SHIFT trimpot for 220hz.
- 41) Change OSCx RANGE switch on the front panel to 2.
- 42) Hold down the HIGH A key and adjust OSCx OCTAVE trimpot for 3520hz.
- 43) Repeat steps 39 through 42 until no further adjustment is necessary.

repeat for each oscillator

SHIFT

OSC_x=OSC1, OSC2, or OSC3

- 44) Turn on OSC_x in the mixer on the front panel.
All other switches in the mixer should be OFF.
- 45) Change OSC_x RANGE switch on the front panel to 16.
- 46) Hold down the HIGH A key and adjust OSC_x SHIFT trimpot for 440hz.

repeat for each oscillator

You're done! Reinstall the rear cover and enjoy!