



# PIGTRONIX

## Mothership 2

### User's Guide



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# 1. Welcome to The Mothership 2

Welcome to the realm of Pigtronix! The Mothership 2 pedal is a pitch-tracking, 3-voice analog synthesizer featuring portamento and oscillator sync. This instrument is capable of tracking both guitar and bass guitar as well as keyboards, vocals, horns, drums and virtually any other monophonic sound source.

While the Mothership 2 will track only one note at a time, it tracks that one note very well. The Mothership 2's pitch recognition system controls triangle, square, and sine wave (sub octave) voices, that can be combined to output a huge variety of analog synthesizer tones. These voices can be animated using the on-board Glide (portamento) and Sync functions as well as the external Expression / CV input jack.

In keeping with Pigtronix tradition, the controls on the Mothership 2 have been tuned to provide the fattest possible tone and the widest range of musical possibilities. The Mothership 2 was born out of a passion for analog synthesis and versatile, expressive musical effects; it is built to last and designed to inspire.

## **Thank You**

The Mothership 2 represents a decade of continuous R&D involving some of the top minds in the audio industry. We hope that this pedal will provide you with years of creative satisfaction. Pigtronix would like to formally thank the following individuals for their help in creating the Mothership 2: Thomas Elliott, Nick Cote, Cyril Lance, Howard Davis, Ben Artes, Ray Heasman, Steve Turnidge, David Buchter, Andy Pitcher, Fischer Mao, Vernon Reid, Doug Wimbish, Fredrick Thordendal and Teddy Kumpel.

—Dave Koltai 7/2017

## 1.1 Safety Precautions

The safety precautions listed below are intended to ensure your safety whenever you use the Mothership 2.

**NEVER OPEN THE CASE** - Never try to separate the two pieces of the chassis from one another and/or modify the equipment. Opening this device will effectively void the warranty.

**STOP USE IN CASE OF PROBLEM** - Stop using the equipment if ever you should notice smoke or a strange odor coming from it.

**AVOID HIGH TEMPERATURES & HEAT BUILD UP** - Never cover the power supply with cloth or other objects. Built up heat creates a danger of equipment deformation and fire. Do not expose the Mothership 2 to direct sunlight, heating devices, or other extreme temperatures.

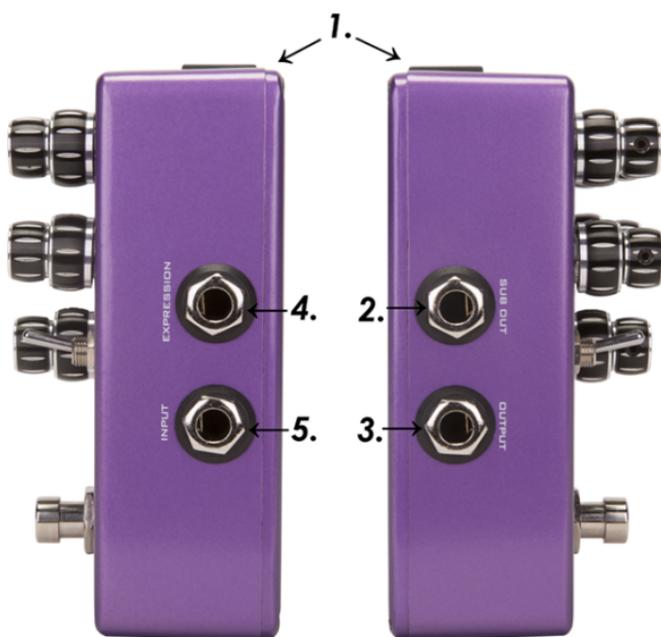
**USE SPECIFIED POWER ADAPTER ONLY** - Be sure to use only the 18-Volt DC 300mA Adapter that came with your Pigtronix Mothership 2.

**DO NOT EXPOSE TO WATER/BEER** - To reduce the risk of fire or electric shock, do not expose your Mothership 2 to rain or moisture. If water gets inside the unit, turn off the power.

## 2. Anatomy and Functions

### 2.1 The Interface

#### Jacks



1. **DC 18V** - Mothership 2 requires 18VDC power @ 300mA using a 2.1mm connector with negative tip polarity.
2. **SUB OUT** - The SUB jack is an auxiliary output for low fre-

quency content created by the Sub Octave voice. When using the SUB OUT jack, the Sub Octave voice will be removed from the main output

**WARNING:** *The SUB OUT should only be sent to an audio system that can handle significant amounts of low frequency content.*

3. **OUTPUT** - Effect output. Plug in your amp, mixer, or DI box here.
4. **EXPRESSION** - This is the TRS (Stereo) 20K expression pedal input for pitch bend. A TS (Mono) cable can also be used to inject control voltage (CV) signals into the Mothership 2 to the pitch of the VCO (triangle wave) and  (square wave) voices.

**Note:** *When the SYNC function is turned on, the expression pedal sweeps through the overtones that result from slaving the VCO to the pitch tracking system.*

5. **INPUT** - Effect input. Plug in your instrument here.

## Knobs and Switches



6. **ENGAGE** - This footswitch turns the entire Mothership 2 on and off. When the engage light is turned on, the Mothership 2 is active. The Mothership 2 is a true bypass pedal.

7. **□** and **SUB**

**□** - This knob determines the volume of the square wave voice.

**SUB** - This knob determines the volume of the sub-octave voice. This is a sine wave that always follows an octave below the fundamental pitch of your input signal.

8. **CLEAN** and **VCO**

**CLEAN** - This knob determines the volume of your clean signal voice.

**VCO** - This knob determines the volume of the voltage controlled oscillator (VCO) voice. The VCO voice is a triangle wave.

9. **OUT** and **GLIDE**

**OUT** - This knob determines the master output volume of all your blended voices.

**GLIDE** - This knob determines the rate of portamento. This is heard as the time it takes for the VCO and Square Wave voices to move from one note to another.

**Note:** *Turning the GLIDE control fully counter-clockwise will disable the portamento function, providing the fastest, most accurate pitch-tracking.*

**Note:** *When the SYNC function is turned on, the Glide function sweeps through the overtones that result from slaving the VCO to the pitch tracking system. Turning the GLIDE control fully clockwise will result in the most dramatic effect.*

10. **DYNAMICS** and **TUNE**

**DYNAMICS** - This knob determines how closely the envelope of the voices respond to how hard you play.

**TUNE** - This knob determines the fine-tuning of the VCO and **□** (square wave) voices.

11. **SYNC** - This toggle turns on the SYNC feature when in the down position. The SYNC feature can be controlled using the TIMBRE and SWEEP knobs in conjunction to make a wide range of analog synthesizer tones.

The SYNC feature slaves the VCO and  (square wave) voices to the Sub Octave voice. This allows for the VCO and (square wave) voices to be used as an overtone to the sub-octave.

**Note:** *The SYNC function can be modulated by the on-board Glide function as well as the external expression pedal / CV input.*

12. **TIMBRE and SWEEP** - These two controls are ONLY in available when the SYNC feature is ON.

**TIMBRE** - This knob determines the texture of your SYNC effected waveform. The TIMBRE knob controls how much the master waveform offsets the slaved voices

**SWEEP** - This knob determines the pitch of your overtone.

The SWEEP knob controls the pitch of the VCO and  (square wave) voices. This acts as a tunable harmonic tracking the pitch of your input signal.

13. **The TUNE Switch** The TUNE toggle switch selects the tuning range of the VCO and  (square wave) voices, fine tuned by the TUNE knob.
  - a. **OCTAVE** - In the top position, the TUNE knob range is set an octave above the pitch of your input when the fine tune knob is set to 12:00.
  - b. **MANUAL** - In the middle position, the TUNE knob ranges from a major 3rd, to a minor 6th fifth above the pitch of your input. The manual mode is calibrated to produce a perfect 5th when the fine tune knob is set to 12:00.
  - c. **UNISON** - In the bottom position, the TUNE knob range is set to the same pitch as your input when the fine tune knob is set to 12:00.

## 3. Getting Started

### 3.1 Basic Hook Up

1. Unpack your Mothership 2 and place it on a flat, stable surface.
2. **Make sure you are using the 18-Volt DC (negative center) power supply that came with your Pigtronix Mothership 2.**
3. Plug the power cord into the 18VDC jack on the back of the Mothership 2 and then plug the power adaptor into an electrical socket.

The Mothership 2 is now powered up. To turn the device off, unplug it from the wall or turn off the power going to the 18VDC supply.

We recommend that you do not leave your Mothership 2 powered up for long periods of time when it is not in use.

4. Plug your instrument into the INPUT jack and plug your amplifier into the OUTPUT jack.

### 3.2 Guided Tour

The following steps guide you through the sonic palette of the Mothership 2 and show you how to get at the range of tones that it has to offer.

1. Set all of the controls fully counter-clockwise, and set each toggle in the up position. Make sure the LED is off. The Mothership 2 is in bypass mode. Play your instrument and make sure a clean sound is passing through the pedal.

2. Turn the OUT, CLEAN,  (square wave), VCO, TUNE and DYNAMICS knobs up to 12:00. Click the Engage footswitch to turn the Mothership 2 on. The blue LED should come on.
3. Play the highest string on your instrument and adjust the TUNE control so that the pitch of the VCO is an octave above the pitch of the clean signal. Once it is in tune, play your instrument in all registers.
4. Explore the OCTAVE, MANUAL, and UNISON modes.
5. Now turn the CLEAN and  (square wave) knobs all the way down to hear the VCO (triangle wave) voice by itself.
6. Explore the range of the DYNAMICS knob. Adjusting the DYNAMICS will control how closely the changes in your input volume affect the volume of the VCO.
7. Turn the  (square wave) knob to 12:00 to hear the square wave signal which has more harmonic content than the VCO (triangle wave).
8. Turn up the GLIDE knob to 11:00 to hear the portamento effect. Explore the range of the GLIDE knob.
9. Turn up the SUB knob to 12:00 to hear the sub-octave sine wave.  
**Note:** *Not all amplifiers can reproduce the extreme low end of the Pigtronix SUB voice. If you are having trouble hearing the sub octave in your amp, run the SUB OUT jack to a bass rig to truly rock the house.*
10. Turn the SYNC toggle down to activate SYNC mode. Explore the range of the TIMBRE knob to hear the various synthesizer textures. Explore the range of the SWEEP knob to hear the different possible overtones.
11. Vary the mix of the VCO and  (square wave) voices to explore the differences between a triangle wave and a square wave as an overtone.

### 3.3 Expression

1. Plug in a TRS 20K expression pedal into the EXPRESSION jack.
2. With SYNC mode off, heel down on the expression pedal will match the pitch set by the TUNE knob. With SYNC mode on, heel down on the expression pedal will match the pitch set by the SWEEP knob.
3. Rock the expression pedal forward to explore the range of pitch. When fully toe down, the synthesizer will reach its maximum pitch.

## 4. Pigtronix Limited Warranty

Your Pigtronix effect pedal comes with a 1-year limited warranty on parts and workmanship. During the warranty period we will repair or replace, at our option, defective parts or pedals free of charge, and return them to the owner. Warranty service does not include damaged, modified, or misused pedals and such pedals will be subject to a standard repair charge.

What you must do: First, contact us directly via email and describe the problem to us. If the problem cannot be resolved we will have you send the pedal directly to us for servicing.

How to contact us for warranty service:

Email: [tech@pigtronix.com](mailto:tech@pigtronix.com)

Phone: 631-331-PIGS (7447)

Warranty Limitations: This warranty does not cover defects resulting from improper or unreasonable use, accident, unauthorized tampering or modifications; and, warranty shall be considered void if Mothership 2 chassis has been opened. Please consult the instructions and warnings in this manual for proper use. Warranty is only valid if your Mothership 2 has been properly registered within 30 days of original