



This Changes Everything<sup>SM</sup>

# User's Guide

Thanks for purchasing The Moog Guitar. Its invention by Paul Vo is the result of years of research and technical breakthroughs, some of which would not have been possible even a few short years ago. This may be your first Moog instrument and we hope you will find that it meets the definition of a Bob Moog product; superior quality, an investment that will give back to you more, much more than you put into it, and an inspiration to the creative process.

Thanks for placing your trust in Moog Music.

Mike Adams  
President  
Moog Music Inc.

## Introduction

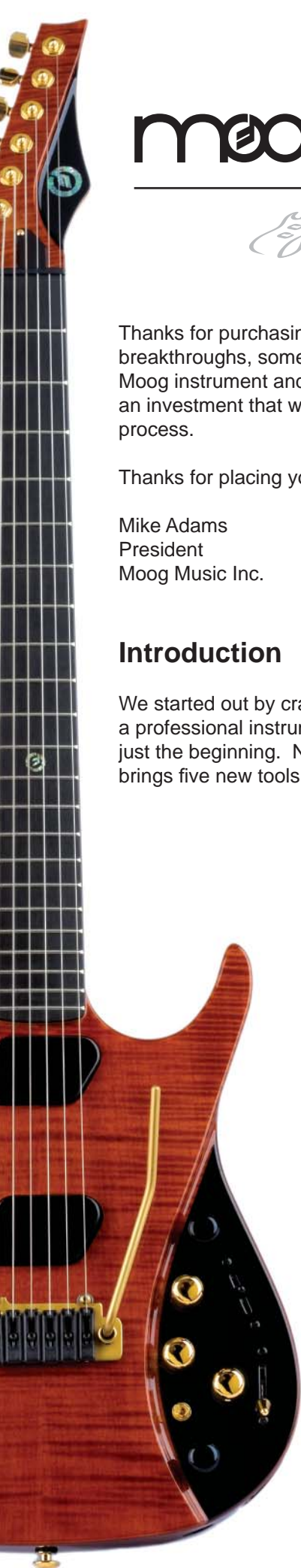
We started out by crafting a great guitar. The "Moog" name could not go on just any guitar. The guitar had to be a professional instrument of the highest quality. Of course, simply placing our name on a great instrument was just the beginning. Next, and in the tradition of Bob as a musician's toolmaker, we created an instrument that brings five new tools to the fingertips of the guitarist:

1. Infinite, powerful, and controllable sustain on every string at every fret position.
2. Rich, sweet and clean harmonics shifting and evolving under your control.
3. Controlled sustain - sustains the notes you want to sustain and mutes the strings you want muted. No special playing technique is needed. Plays smooth and easy.
4. Powerful muting of the strings opens up a whole new world of punchy staccato - the Moog Guitar is suddenly a completely new instrument!
5. Overlaid with each of the above, the player controls the famous Moog ladder filter - switch it in or leave it out; dial in resonance and control the cut-off frequency with the control pedal.

It's easy to get started, the learning curve is minimal. An experienced guitarist can begin crafting new and previously unimaginable soundscapes in just the first few minutes. However, there is much to discover over time because the Moog Guitar makes many new things possible.

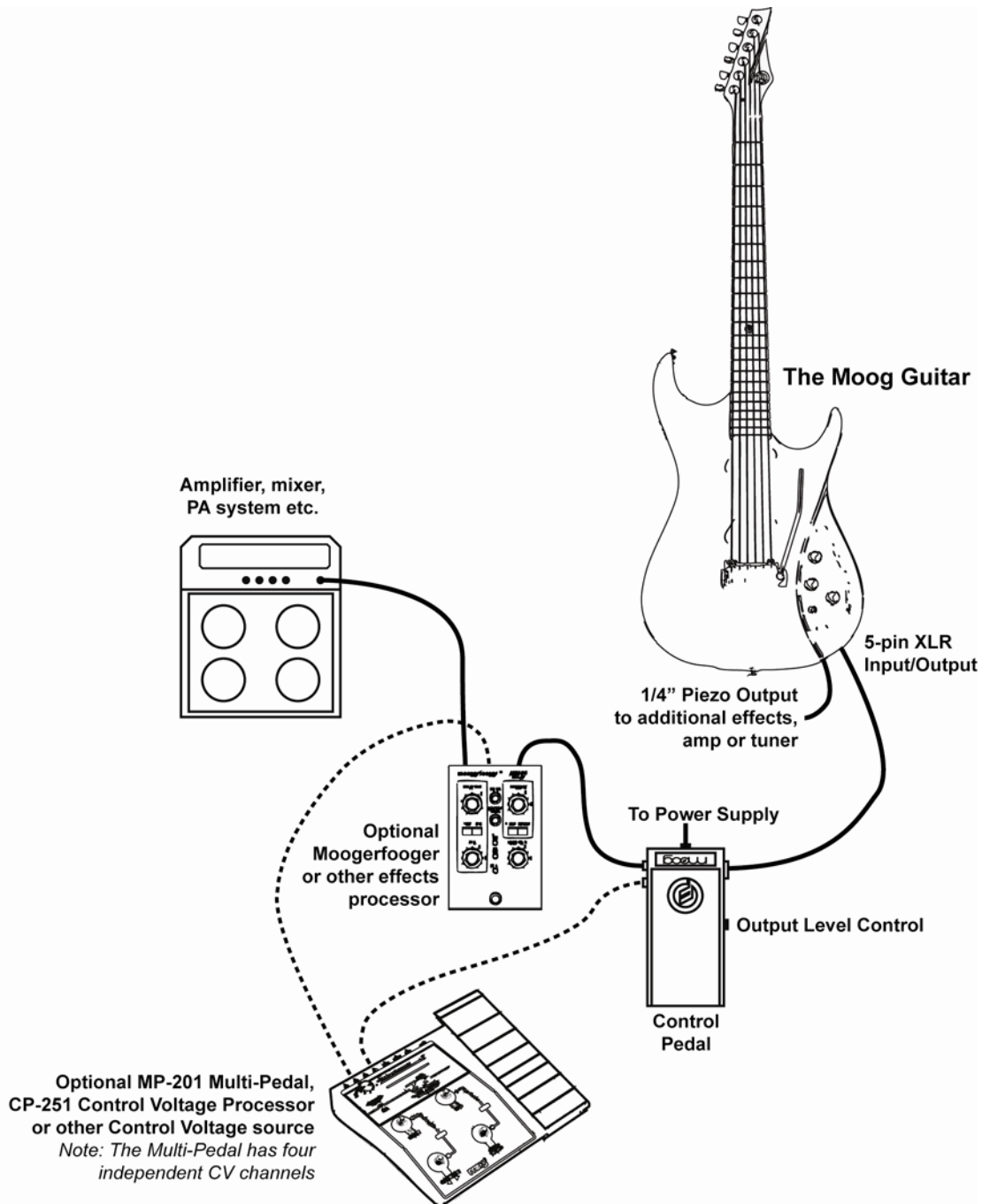
We encourage you to initially turn off your amplifier and just listen to the strings and feel their vibration. It is enlightening. We've found this is the best first step to really connecting with this instrument.

A strong aspect of our design philosophy was that the Moog electronics should work together with the basic nature of the guitar rather than overwhelming it. Your instrument is real, not virtual. That means each guitar has its own unique heart and character that can never be completely defined. It awaits your creativity.



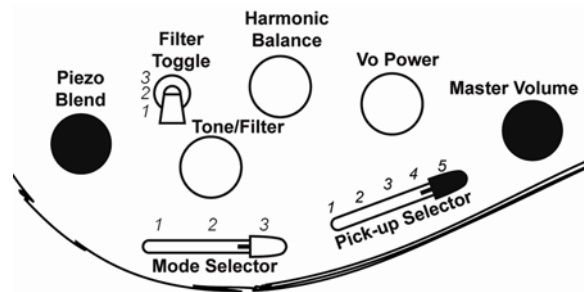
## Connection

The following diagram shows a typical connection setup for The Moog Guitar. The effects processor and control voltage source are optional. As with any Moog product, experimentation is richly rewarded.



Note: Once the Moog Guitar is powered, it takes approximately 30 seconds for the Moog electronics to activate

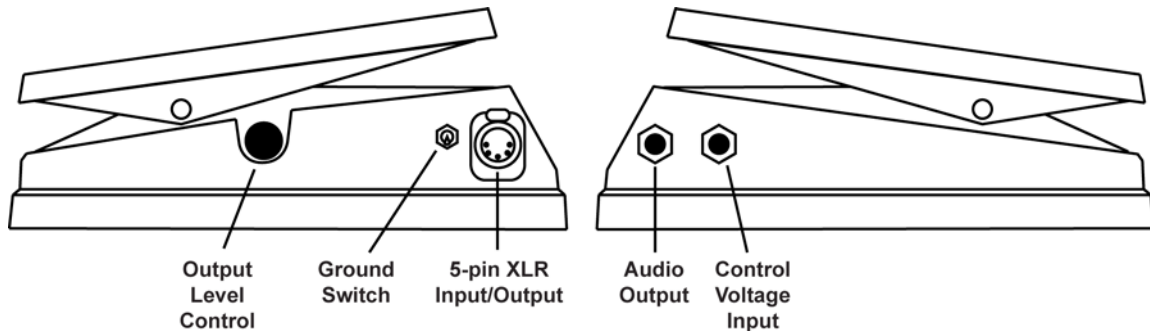
## Controls



Switches					
	Position 1	Position 2	Position 3	Position 4	Position 5
<b>PICK-UP SELECTOR</b>	Piezo	Bridge	Out of Phase	In Phase	Neck
<b>FILTER TOGGLE</b>	Tone	Articulated Moog Filter	Moog Filter	n/a	n/a
<b>MODE SELECTOR</b>	Mute	Controlled Sustain	Full Sustain	n/a	n/a

Knobs				
		Full Clockwise	Full CCW	Comments
<b>MASTER VOLUME</b>		Full volume	No volume	Controls overall volume of Moog pick-ups and piezo output
<b>VO POWER</b>		Full Vo Power	No Vo Power	Turn fully CCW when playing as a normal guitar
<b>HARMONIC BALANCE</b>		Neck pick-up only	Bridge pick-up only	In center detent position, Vo Power is equal on neck and bridge pick-up. When the Filter Toggle switch is in the TONE position, HARMONIC BALANCE is set by Control Pedal and knob has no effect.
<b>PIEZO BLEND</b>		The output signal is 100% from the neck and/or bridge pick-up, via the pickup selector switch.	The output signal is 100% from the piezo pick-ups, but still passes through the Moog filter.	Sets a blend of the piezo and magnetic pickups.
<b>TONE/FILTER</b>	<i>SWITCH POSITION 1 Tone</i>	Emphasizes treble frequencies.	Emphasizes bass frequencies.	Controls either the basic guitar tone or Moog filter resonance, depending on the FILTER TOGGLE switch position.  The Moog Guitar's tone control offers a wider range than the tone controls found on many other guitars. This can result in reduced volume at full CCW settings.
	<i>SWITCH POSITION 2 Articulated Filter</i>	Full resonance.	No resonance.	High resonance settings emphasize the frequencies near the cutoff frequency. This results in a rich, "wet" sound.
	<i>SWITCH POSITION 3 Moog Filter</i>	Full resonance.	No resonance.	

## Control Pedal



**Audio Output** – Connect to your amplifier, effects pedal, P.A. etc.

**Output Level Control** – Adjusts the output level of The Moog Guitar from zero to approximately line level. Mid-position is the suggested starting point.

**Ground Switch** – The Moog Guitar is designed to be hum-free when used with properly grounded equipment. If hum is experienced, check the entire rig to make sure equipment is properly connected to earth ground. If hum is still present, the Ground Switch may resolve it.

**Caution: Safe wiring practices and national electrical codes mandate that every piece of equipment be connected to a proper earth ground to prevent potentially lethal electrical shocks. If you experience hum with the Moog Guitar, check your entire rig to make sure all equipment is properly connected to earth ground. If not, have your AC wiring updated by a qualified, licensed technician.**

**Control Voltage (CV) Input** – Bob Moog's concept of voltage control has been incorporated into The Moog Guitar. In this implementation, a control voltage routed to the Control Voltage Input will modulate whatever function the Control Pedal is currently affecting. If the Control Pedal is affecting the cutoff frequency, this control voltage will have a dramatic effect on the filter in The Moog Guitar.

The effect of the CV Input and control Pedal position are additive. The maximum CV modulation occurs with the Control Pedal in the heel position.

If the Control Pedal is controlling the Harmonic Blend, the CV Input requires time to overcome the inertia of the strings. Therefore, a slowly changing CV signal will yield more noticeable results.

## Exploring the Moog Guitar

This section provides suggestions for exploring the many innovations of The Moog Guitar. They are just starting points and many other expressive variations are possible. You may find that while maximum Vo Power is useful for illustrating many of the innovations, setting it to a lesser amount provides a result more suited to your playing situation. Use these examples as a starting point and explore!

Basic Starting Position						
Vo Power	Master Volume	Piezo Blend	Tone/Filter	Filter Toggle	Harmonic Bal.	Control Pedal
Full Clockwise	Full Clockwise	Approx. 50%	Full Clockwise	Tone (Pos. 1)	N/A	Midway

**Full Sustain Mode** – Place the *Mode Selector Switch* in *Full Sustain* position (position #3). Adjust the *Vo Power Knob* for maximum power. Place the *Filter Toggle Switch* into the tone position. Strum a full six-stringed chord. All notes sustain clearly and powerfully. You can also hold a chord with your left hand and tap new notes on the fretboard with your right.

**Mute Mode** – Place the *Mode Selector Switch* in *Mute* position (position #1). Adjust the *Vo Power Knob* for maximum power. Place the *Filter Toggle Switch* into the *tone* position. Set the *Control Pedal* midway between heel and toe. Play individual notes, intervals or chords (high on the neck sounds particularly nice). Notes are physically muted, resulting in more staccato timbres. The instrument actually feels different! Great for traditional blues, world music and beyond.

**Controlled Sustain Mode** - Place the *Mode Selector* switch in *Controlled Sustain* position (position #2). Adjust the *Vo Power Knob* for maximum power. Play single note lines or several strings at once.

In *Controlled Sustain Mode* several tests are applied to bias a string either towards being muted or being driven. Deliberately played strings cross an amplitude threshold that varies according to a proprietary algorithm. The strings are not either "on" or "off"; it does not work like that. Everything is gradual. A tendency towards sounding louder is "rewarded" with more energy; a tendency towards being muted is encouraged with active muting, resulting in a more natural feeling playing experience.

The muting is not absolute; The Moog Guitar will still allow sympathetic vibrations when they are strongly related to the basic pitch of the played string or strings; resulting in a very natural feel. With *Controlled Sustain*, it's about as easy to govern the strings in the presence of strong sustain as it is to play an ordinary guitar that doesn't have sustain.

**Harmonic Blends** – Set *Mode Selector* switch to *Full Sustain*. Place *Filter Toggle Switch* into the tone position. Strum and hold a chord, then slowly move the foot pedal from heel to toe position and back.

During *Harmonic Blends*, one pick-up supplies sustaining energy while the other attempts to mute the strings. The pedal pans the sustaining and muting energy between the neck and bridge pick-ups. This results in natural, shifting harmonic overtones that are actually occurring on the strings.

Filter Modes Starting Position
Use same starting position as above except Filter Toggle is now in position 2 or 3.
Note: Harmonic Blend is now controlled by the Harmonic Balance knob. Maximum Sustain and Mute will occur at the center detent position.

**Moog Filter** – Set the *Filter Toggle Switch* to *Moog Filter* (position 3). Set the *Mode Selector Switch* to *Full Sustain*. Place the *Control Pedal* into heel position. Strum and hold a chord. Move the *Control Pedal* towards the toe position. The *Control Pedal* controls the cutoff frequency of the Moog Filter, much like a sophisticated wah-wah pedal. In this mode, the *Tone/Filter* knob controls the filter resonance.

Change the *Filter Toggle Switch* to *Articulated Moog Filter*. The articulated filter now modulates the cutoff frequency of the filter for each string based on the dynamics of that string; much like a hex envelope follower. The pedal sets the start frequency of the articulation. In this mode, the *Tone/Filter Knob* controls the filter resonance. Play in any mode. The articulated filter can also be used to provide a unique vocal-like quality to melodic phrasing.

The Moog Filter cutoff frequency can also be controlled by an external *Control Voltage* signal (0-5V). This signal can come from an MP-201 Multi Pedal, a CP-251 Control Voltage Processor, Etherwave® Plus Theremin or any other equipment capable of generating suitable control voltages.

A great application is to synchronize the Multi Pedal's on board LFO (through MIDI Clock Sync) to a laptop or drum machine rhythm track and then to use that LFO to modulate the filter cutoff frequency.

## Strings

String Sets							
	Gauging	First-E	Second-B	Third-G	Fourth-D	Fifth-A	Sixth-E
<i>Light</i>	<b>9-46</b>	009	011	016	026	036	046
<i>Medium</i>	<b>10-52</b>	010	013	017	030	042	052
<i>Heavy</i>	<b>11-52</b>	011	014	018	030	044	052

The Moog Guitar works best with Moog Guitar Strings because they have a high steel content and are properly insulated from the bridge. This combination favors the unique electromagnetic interaction of the Moog pickups. Using ordinary strings will work but sustain and muting will be weaker, noisier and less stable.

Moog strings are required for the proper operation of the Moog Guitar. You should always use Moog Strings, however in an emergency, GHS "Infinity Steel" (best), GHS "Super Steels", or D'Addario "ProSteels" strings would work, but not quite as well as Moog Strings. You can use an ordinary string in an emergency if you have nothing else, but you will not be able to play at full Vo power.

Players have their favorite strings, presumably because they sound the best on their existing instrument. *The Moog Guitar will sound the best with Moog Guitar Strings.*

**Note: When replacing your guitar strings, it is important to carefully snip off any curled ends of the strings prior to pulling them through. After installing new strings, tighten the locking mechanism on the tuning pegs.**

**When changing strings, please be careful not to drop anything, (especially anything electrically conductive), into the string access opening in the rear cavity cover. Such debris may damage the Moog electronics!**

## Setting up and Adjusting the Moog Guitar

Your Moog Guitar has been set up at our facility by an experienced luthier who understands how the new capabilities of your instrument are affected by the guitar's set up. We strongly suggest that you play your Moog Guitar for a while with no alterations - even though you may be used to a different set-up on your other guitars. You may find that as you experience your instrument the differences become more acceptable or even preferred.

Adjusting the pickups: The high end is closer to the strings to compensate for the smaller mass of string. The pickups may be raised or lowered using the three screws under each pickup at the back of the guitar. The tripod of screws allows adjustment of both height and orientation. **Caution: These screws are nylon. Turning them against strong resistance may damage the screw heads and the screw threads.** The available range of pickup adjustment is about ¼" at the maximum. **We strongly recommend you refrain from adjusting your pickups.**

## Intonation and String Height

Moog recommends that these adjustments are performed by an experienced person and with the proper precision tools. The string saddles must be adjusted with caution - note especially that **the center screw that locks the saddle to the bridge MUST be loosened before an individual saddle height is adjusted or you may break the saddle.**

## Accessories

Moog Music provides many accessories for the Moog Guitar; from genuine Moog Guitar strings for optimum sound and playability, to controllers and effects processors to propel your sonic explorations even further. **Visit your Moog Guitar dealer or [www.mooguitar.com](http://www.mooguitar.com) for more information or to order.**

## CV Controllers, Processors and Moogerfooger Effects Pedals

The CV (Control Voltage) Input on the Moog Guitar Control Pedal opens the door to an unlimited sonic landscape and Moog Music's *CV Controllers and Processors* harness that potential. *Moogerfoogers* are analog effects pedals, equally at home on the floor, the desktop or in a rack mount. Their warm, all-analog sound and extensive CV implementation makes them the perfect complement to the Moog Guitar. To top it off, they're made to be over-driven!

<b>MP-201 Multi-Pedal</b>	<i>Programmable 4 channel Foot Pedal Controller - On-board LFO - MIDI Sync &amp; Tap Tempo - 4 Analog CV Outputs - MIDI In, Out &amp; USB (MIDI over USB) - Animates the Moog Guitar's Filter - Sync LFO Filter Modulation to Master MIDI Clock</i>
<b>CP-251 CV Processor</b>	<i>Collection of Classic Modular Synthesizer Circuits - Designed by Bob Moog - Generate, Modify, Combine &amp; Distribute Control Voltages - Create Simple or Complex CV patches - Control the Moog Guitar Filter - Uncontaminated by the digital world!</i>
<b>MF-101 Low-Pass Filter</b>	<i>The Classic Moog Ladder Filter – Rich and Resonant – Add a Moog Filter to Piezo Out</i>
<b>MF-102 Ring Mod</b>	<i>Subtle Tremolos to Clangorous, Metallic Overtones – Built-In LFO</i>
<b>MF-103 Phaser</b>	<i>Selectable 6 or 12 Stage – Auxiliary Out for Stereo Phasing – Extremely Wide Range</i>
<b>MF-104Z Analog Delay</b>	<i>1,000ms of Warm, Controllable Analog Delay – External Loop for Additional Processing</i>
<b>MF-105 MuRF</b>	<i>Multiple Resonance Filter Array – Sequenced Filtering – MF-105B Bass Version Too!</i>
<b>MF-107 FreqBox</b>	<i>Audio Modulated Oscillator – Brings Analog Synthesis Hard Sync to the Guitar</i>
<b>Etherwave Plus Theremin</b>	<i>A Theremin that is also a CV controller; allowing gestural control of the Moog Guitar's filter and Harmonic Blends</i>