



OWNER'S MANUAL

CUB II SERIES

Bad Cat Cub II Series Amplifier

Owner's Manual

Welcome to the Bad Cat Family of Amplifiers

Congratulations and thank you for purchasing a professional tube amplifier from Bad Cat. As with all Bad Cat products, your amplifier is designed from the ground up to provide the very best tones possible in a rugged, reliable package. Each one of our pro quality models is constructed with Bad Cat's commitment to making the highest quality, hand-made, American-made amplifiers.

Caution

With a little care and caution, your Bad Cat amplifier should provide you with years of trouble-free operation and enjoyment. Please avoid damp areas and moisture during operation of the amp and in storage. This includes placement of beverages near or on the amp that could spill into the amp's chassis. Liquids can easily damage tubes, switches and other parts. Immediately disconnect the amp from power source should a spill occur and dry the amp thoroughly prior to switching on the amp again. Drying may require the complete removal of the chassis from the cabinet and the removal of the tubes for cleaning. Avoid tipping the amp, using it in unbalanced positions, or lifting it unassisted to awkward heights. A little common sense will go a long way in making sure the amp does what it's supposed to do: provide you with dependable operation and great tone on a consistent basis.

Grounding

Please check thoroughly that the ground tip on the power cord plug is connected to true ground prior to operation of your Bad Cat amp. Using unfamiliar junction boxes can cause potentially dangerous floating grounds. Please do not cut or defeat the ground tip.

Operation

If this is your first all-tube amplifier. Please become familiar with a few issues that differentiate your amp from solid-state or hybrid amp products. Only a few precautions are required but they will insure that you will get the most of your new all-tube amplifier. Vacuum tubes are "old world" thermal devices that require more attention than transistors, but that's the reason they sound so much sweeter and more musical than integrated circuits and other solid-state components. A little heads-up on following points will ensure maximum performance from your Bad Cat amp.

Operation (continued)

1. Place the amp at least 6 inches away from any wall or obstacle to provide good ventilation around the amp. Good airflow around the amp will go a long way in preventing the amp from overheating, especially the tubes. Do not place covers, clothing, or any other materials on or in the amp that can obstruct the free venting of the chassis to the outside air. Trapped heat in the chassis may cause a condition known as *thermal runaway*. To put it simply, to warm or cook the tubes is good, to heat-cycle or fry the tubes is extremely dangerous and will also shorten the life of the tubes considerably.
2. Vacuum tubes will last longer and sound more musical when they are allowed to warm up prior to introducing an input signal from your guitar. A full flow of electrons through the cathode can only be achieved when the tube is heated. This requires some time. Please allow at least a minute of warm-up time before playing through the amp.
3. Avoid long idle periods with no input signal. The vacuum tubes prefer a signal load. When taking a break between practice sessions or in between sets of a performance, use the standby switch to leave it on standby or turn off the amp.
4. Avoid unverified impedance loads. In other words, do not clip on or otherwise attach additional speakers unless you know the system impedance. Tube amplifiers are very sensitive to speaker impedance matching. This is due to the relationship between the internal resistances of the output transformer, the output power tubes and the load that is required to drive them. Unbalanced loads can cause destructive self-oscillation; the transformer and the tubes may actually burn out. This is not covered by our warranty.

With proper impedance matching, multiple speaker configurations will work fine. If you are not familiar with "Ohm's Law", please consult with a dealer or a qualified amplifier technician. Do not attempt to operate the amp if you cannot verify system impedance after connecting the speakers. Never operate your Bad Cat amp at 2 ohms or less.

5. Avoid unapproved "Power Soak" devices or attenuators as these can shorten the life of your power tubes considerably. Attenuators burn out tubes prematurely because they require the power tubes to overwork continuously. Also, please note that power tubes are best replaced as a matched full set whenever any of them fail.

Maintenance

Your Bad Cat amp is a professional instrument that does not require much in maintenance. Use a clean dry cloth to wipe cabinet as required but avoid solvents of any type as they may tarnish or discolor the vinyl. If you're going to store the amp with a cover, please allow the tubes to cool before covering the amp. A cover cloth or vinyl amp cover will prevent dust buildup in the amp.

Maintenance (continued)

Weak or dull tones from your amp may indicate that the tubes are old or tired and need replacement. The tubes in your amp are like tires on your car. They do wear out. If you notice change in tone and tactile response from the amp, it's most likely that the power tubes need to be replaced. As advised earlier in this manual, replacement should only be done in complete matched sets. Preamp tubes will last much longer than power tubes, but these should also be checked occasionally. Preamp tubes tend to go micro-phonic and also produce undesired results when old or not working properly.

Preamp Section

The Cub II features a unique preamp section that offers a wide-range of clean and overdrive tones favored by discriminating guitarists. This is a single-channel amplifier that offers more tone shaping options than many other single-channel amplifiers. Please feel free to experiment with the Bad Cat's unique tone shaping circuits via the Focused and Spectrum toggle switch, the responsive EQ and Cut knobs. Coupled with your guitar's volume and tone controls and the unique attack and touch of your own playing style, the Cub II should be able to provide you with a wide variety of sounds to meet the requirements of various performance situations.

The Cub II can operate in two modes: a non Master-Volume mode with the Master knob toggle in and a Master Volume mode with the Master knob toggle out. This allows you to push the power section to the fullest and get the full harmonic saturation of the power tubes working hard. But if you need to get distortion at a lower volume level, you can engage the master toggle and use the Volume as a gain control and control the overall volume with the Master knob.

FRONT PANEL

Input Jacks

Input jack 1 is the normal input. Input jack 2 is padded down 3 decibels and is recommended for more headroom when using high-output pickups. But if you want more gain at low volume levels, high-output pickups through the input jack 1 will allow the amp to overdrive "faster" (i.e., the volume level lower). It is also possible to switch between the two inputs or use both inputs concurrently using a "Y" cable or an A/B/Y box to extend the tonal possibilities of the amp, but in most cases you will find that either input will work fine depending on the type of pickups you are using. It's best to experiment with both inputs to find out which sounds best to your ears with your guitar(s) and pickups.

Volume

The first knob on the left when you face the amp's front panel is the volume control when in the non Master-Volume mode. In the Master-Volume mode with the Master toggle "In", the Volume acts as a gain knob for overdrive and distortion sounds.

FRONT PANEL (continued)

Tone

This is a 5-position knob used for instant access to your favorite sounds. Turn it clockwise for increasingly darker, thicker tones. Turning the knob counterclockwise gives you more treble and bite. The 5-position switch gives you a distinct advantage in being able to recreate the tone you want time after time.

Tone Switch

This switch gives you the option of using the 5-position tone knob above or using the bass and treble knobs that follow. Switch in the up position gives you the 5-position knob. Switch in the down position gives you the bass and treble knob. The amp uses either the 5-position or the bass and treble knobs for tone; they are not used in conjunction with one another.

Bass

This active EQ circuit boosts or cuts the bass frequencies. You will notice that this control has a much wider range of control compared to bass controls on most other guitar amplifiers. It should also be noted that it interacts with the Treble control to truly provide a wide range of tones.

Treble

This active Treble EQ circuit boosts or cuts carefully selected treble frequencies that are critical to a great guitar tone. You will notice some dramatic tonal shifts by going from around noon on the knob setting to around 2-3 o'clock. Combine this with the active Bass circuit to dial in just the right amount of balance of firm clear lows and sweet yet cutting highs.

Reverb

The reverb circuit is a completely new Bad Cat design that adds spatial dimension to the tone produced by the amp. Incorporating the very best 3-spring reverb tank with newly designed reverb tone circuit, the reverb can go from subtle classic spring reverb effects to rollicking surf reverb to cavernous hall-like setting with a simple twist of this knob. This reverb circuit was carefully designed to be useful across the entire sweep of the reverb range. It adds a wide range of spatial effects that you just can't duplicate with pedals and digital effects processors.

Cut

This knob works like a "Presence" control found on many tube amplifiers but the control works opposite from traditional "Presence" controls. Turning the knob clockwise will cut the highs, darkening the overall sound. Turning the knob counterclockwise will add more highs and high-mids, significantly brightening the overall sound. It's yet another tone-shaping function on the Cub II that with careful tweaking in conjunction with the active Treble and Bass controls, gives you a range of sounds from a single-channel amp unmatched in this industry.

FRONT PANEL (continued)

Master

The Master knob controls the overall output of the Cub II *only* when the Master switch is pushed “In”. Then the Volume knob acts as a gain control and you can control the overall loudness with the Master knob.

In/Out Switch

This switch activates and deactivates the master volume. When the switch is “In” the Master knob now controls the overall output level of the amp. When the switch is “Out” the Master knob is now out of the circuit and does not affect the amp.

Standby Switch

Leave this switch off when turning on the amp and let the amp warm up for a full minute before turning this switch on. It’s best to let tubes warm up before playing. Also, turn the Standby switch off when you will not be playing for awhile (for example, breaks in between sets of your performances, etc.).

On/Off Switch

This switch turns the amp on or off.

REAR PANEL

A/C Plug

Plug your amp’s power cord in here first, then to the wall.

Fuse Holder

This is the main fuse holder. Please only use the fuse as specified on the amp.

Reverb Footswitch Jack

This is the footswitch jack to turn the reverb on or off. You can use any conventional shielded cable latching on/off footswitch with this jack.

Main Speaker Jack

This jack is connected to the speaker in the combo. Do not unplug when operating the amp.

BACK PANEL (continued)

Extension Speaker Jack

This jack can be used to add an external speaker cabinet in addition to the internal speakers on the Cub II. Since this situation can create impedance mismatches that can damage the output transformer you should avoid using this function!

Impedance Selector Switch

This switch is to select the impedance load of the output. The Cub II comes with two 8Ω speakers wired in parallel. Therefore, the total load is 4Ω (common load divided by the number of common loads). Leave this switch at 4Ω.

TROUBLE SHOOTING

Your new Bad Cat amplifier designed for many years of professional trouble free operation. Common sense will tell you that if you notice any severe abnormalities in operation like burning smell, smoke, etc.; you need to shut down the amp *immediately*. Always consult your Bad Cat dealer if you are unsure of the problems that you are dealing with; i.e., take your amp to where you purchased it.

No Power

Check the power source from the wall first. Make sure the power cord is properly seated at both ends. If there is still no power, check the fuse and replace if necessary with the correct rating only.

Weak Output Level

Verify the signal output from your instrument first. Check guitar's controls and that the cables are working properly. Also, check any effects pedals that may be connected in between the guitar and the amplifier.

Adverse Sounds-Hum, Whistle, Loss of Dynamics, Feedback, Howling

Check loudspeaker cones, frayed guitar cables, controls on your instrument, the guitar's pickups and any other devices that may be connected to your amplifier such as effects pedals or rack processors. Some of these devices are "amplifiers" in their own right with gain and boosted volume levels and they may cause hissing and unwanted feedback if set too high in front of the amp.

Adverse Sounds (continued)

Shut down the amp and check the tubes. Wait for the amp to cool down. Remove the back panel of the amplifier. **Avoid handling hot tubes as they can cause sever burns.** Check the larger output power tubes first by carefully removing the tube shields or loosening the clamps, and then unseat the tubes from their sockets but note from which socket you removed the tubes. Inspect the integrity of the filaments in the tubes. If one or more of these tubes are bad, you will need to replace the entire set of the power tubes. If all the tubes are OK, you can eliminate the adverse sounds by swapping the location of these tubes. If this fails to fix the problem, you may need to replace the entire set of power tubes with a new matched set. Use of inferior quality (untested and no-rated) tubes may cause damage to your amplifier.

You should also check the preamp tubes, especially the first input stage tube (far right if you're looking at the amp from the back). Micro-phonics (feedback noise that cannot be controlled by turning down the volume pot on you guitar) indicates a bad preamp tube(s). You may want to swap the position of preamp tubes to see if this will fix the micro-phonics problem. Preamp tubes can go bad without warning but can also last many years without any problem whatsoever.

As you can see when handling tubes, they are sensitive, fragile and somewhat prone to inconsistencies. Please handle your amp with care when transporting it. Although your Bad Cat amp is sturdily built and designed to take years of rugged use, the tubes are not. It's always a good idea to keep extra tubes (both preamp and output power tubes) handy, especially for performance situations. An overwhelming majority of minor problems on tube amps are tube-related and it's just a matter of swapping one or more out to have your amp performing like brand new again.

Limited Warranty

Bad Cat amplifiers are guaranteed to be free of defective materials and workmanship for a period of 5 years from the purchase date to the original owner. This warranty, though, does not cover bulbs, vacuum tubes and loudspeakers, which are guaranteed for 90 days from date of purchase. This limited warranty does not cover abuse, drops, acts of God, mismatch of voltage applications or any application outside of guitar amplification, nor factory-unauthorized modifications. Only a Bad Cat authorized service center or dealer can perform repairs to maintain warranty validity.

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CUB IIR

