Speaker Out
This jack is adding an extension speaker cabinet to be used with the internal speaker of the Tone Cat. The internal speaker runs at 8 ohms for a single 12 or 4 ohms for a 2x12 and is parallel with the extension speaker jack.

Speaker Impedance
On a combo this rotary selector knob comes set at 8 ohms for a single 12 or 4 ohms for a 2x12. The selector knob can select between 4, 8 and 16 ohms. Check Ohm's Law if using an additional extension cabinet to select the right ohm setting. Example: 8 ohms + 8 ohms = 4 ohm setting.
On a head, please be sure to select the proper ohms to match your cabinet.

Speaker Phase Switch
This switch changes the phase of your amp's speakers. When the amp is played by itself, either position will sound good, but slightly different. Here is another case where a little experimentation is worthwhile to find what is right for you. This switch becomes very important, though, when the amp is used in conjunction with another amp in a dual amp setup. If the speaker in the two amps are set "out of phase" with each other your tone could be weakened considerably. So when you're running the amp simultaneously with another amp, be sure to check this switch to see if one position or the other is giving you a better result.

TROUBLESHOOTING

Your new Bad Cat amplifier is 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
ICheck 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 many 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. 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 severe 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 sockets 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 (unrated) 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). Microphonics (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 microphonics 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.

IMPORTANT!
FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:
WATER AND MOISTURE: Appliance should not be used near water (near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
POWER SOURCES: The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.
GROUNDING OR POLARIZATION: Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.
POWER CORD PROTECTION: Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
SERVICING: The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
FUSING: If your unit is equipped with a fuse receptacle, replace only with the same type fuse. Refer to replacement text on the unit for correct fuse type.

LIMITED LIFETIME WARRANTY

Bad Cat Amplifiers warrantees our amps and cabs against workmanship or defect for life. The warrantee does not cover tubes or cosmetic damage, or wear and tear or abuse. This warrantee is transferable. Lifetime transferable warranty is only for North American sales. Please see your local dealer and distributor for warranty information. Modifying or altering the amp in any way voids the warrantee. Shipping to and from the warranty repair center is the responsibility of the customer.

We have a new Lifetime Warranty on all new amps leaving the factory. We are extending the Lifetime Warranty to all of our pre acquisition amps for $249. Simply send the unit back to us and we will have one our technicians go through it from the ground up. And to top it all off, we will pay for the shipping back to you. For more information please contact us at sales@badcatamps.com or directly at 800-730-0966.
When RETURNING merchandise to the factory, you must call for a return authorization number.

HELP SECTION
1) AMP WILL NOT TURN ON
Check the power to the amp. Check for tripped circuit breakers, unplugged extension cords or power-strip switches that may be turned off. Check the fuse. If a dark brownish color or no wire can be seen within the glass tube, then replace. The amp may be perfectly fine but occasionally a fuse may blow because of high AC voltage surges. After the fuse has been replaced with the proper Slow Blow value and if the fuse fails again, the amp will require servicing.
2) NO OUTPUT with POWER light ON
Tubes damaged in shipping will be the primary reason for your amp to not function properly. Please give us a call to help guide you through this simple repair.
3) KEEP YOUR AMP LOOKING NEW
Use a damp cloth to wipe the controls on the front & rear chassis panels. Wipe the black vinyl covering with a damp cloth.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL!
THIS UNIT CONTAINS HIGH VOLTAGE INSIDE!

Bad Cat
TUBE AMPLIFIERS USA

PHONE 800.730.0966
FAX 714.630.0106
INFO@BADCATAMPS.COM
WWW.BADCATAMPS.COM
140 Technology Drive Suite 500, Irvine CA 92618
BAD CAT HOLDINGS LLC. USA

Bad Cat
TUBE AMPLIFIERS USA

Operating Manual

TREM CAT 30

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-built, 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.

Last updated: July 30, 2013

SINGLE CHANNEL, 30 WATT, EL84

Start with the rich chime of the EF86 side of a Black Cat 30. Add lush reverb and pulsating tremolo and you have one of the finest single channel amps ever made. A 4 - EL84 30 watt power platform running in Class A provides the engine. The Trem Cat is a Guitar Player magazine Editors' Award winner and perhaps our most versatile single channel amp.

The tone circuit is truly unique and affords unparalleled control over your tone shaping. There are two basic tonal options available. First, our five
position tone cap selector and our standard bass and treble tone stack. The selector switch is the key to dialing in your sound. Position one bypasses the tone stack altogether and feels like you are plugged strait into your output section. Position two activates the five way tone selector. Allowing you five choices of tone caps and affording great control over the bottom end and thickness. Position three moves you over to the bass and treble controls.
Here the amp has more of a scooped hi-fi type of feel. Lastly, position four engages both the selector and the bass and treble controls.
Between the cut control which adds high end sparkle, near infinite tone shaping can be had here.

A master volume that can be switched out of the circuit along with a half power
switch insures that you can get to any level of gain at just about any volume level.

ELECTRONICS
Power: 30/15-Watt Class A
Channels: 1
Controls: Volume, Tone, Select, Bass, Treble, Speed, Depth, Reverb, Cut, Master

HARDWARE
Available Configuration: Head, 1x12 Combo or 2x12 Combo
Cabinet Material: Head - Italian Poplar, Combos - 13 Ply Baltic Birch
Speaker Description: 12" Proprietary Bad Cat Celestion Speaker
Impedance: Selectable 4, 8, 16 ohms
Power Tubes: 4 - EL84's
Pre-Amp Tubes: 1 - EF86, 4 - 12AX7's
Rectifier Tube: 1 - GZ34

FOR YOUR RECORDS, YOU MAY WISH TO RECORD THE FOLLOWING INFORMATION.

SERIAL NO._____ **INVOICE DATE**_____

TREM CAT 30

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 the following points will ensure maximum performance from your Bad Cat amp.

1. Place the amp at least 6 inches away from any wall or obstacle to provide adequate 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 from the cathode can only be achieved when the tube is heated. This requires some time. Please allow at least one minute of warm-up time before playing through the amp.

3. Avoid long idle periods with no input signal. The vacuum tubes prefer to see a signal present. When taking a break between practice sessions or in between sets of a performance, use the standby switch or turn off the amp.

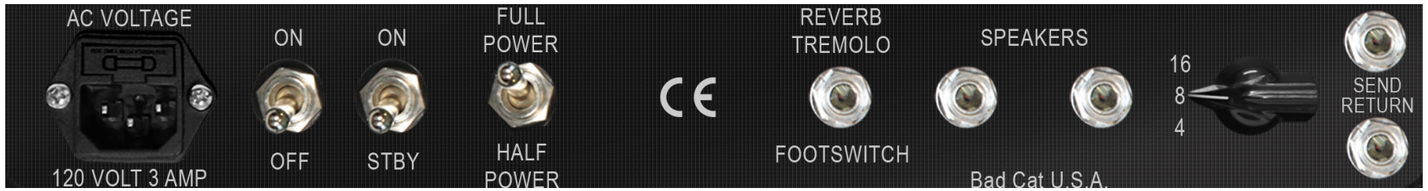
4. Avoid unverified impedance loads. In other words, do not clip on or otherwise attach additional speakers unless you know the system impedance. Tube amplifiers are very sensitive to speaker impedance matching. This is due to the relationship between the internal resistances of the output transformer, the output power tubes and the load that is required to drive them. Unbalanced loads can cause destructive arcing; the transformer and the tubes may actually burn themselves 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 that are not recommended by Bad Cat as they 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.

Front Panel Controls

Rear Panel Controls



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 you guitar(s) and pickups.

Volume
The first knob on the left when you face the amp's front panel is the volume control. This is the input stage where the preamp tubes first "see" the guitar signal and goes through the first phase of amplification. In the non-master volume mode (with the master switch on off), the volume knob controls the overall volume level. This is recommended for accomplished guitarists in a performance situation as this will allow for the best power tube dynamics and touch sensitivity. You can crank up the volume and use the guitar's volume pot and your picking attack to get varying degrees of clean and overdrive sounds.
In the master volume mode (with the master switch turned on), the volume control knob will act as a gain control. Turning the knob clockwise will give you more input gain, compression and preamp tube saturation. The overall volume (i.e., the loudness) of the amp can now be controlled with the master knob on the far right of the front panel. This mode is recommended if you need overdrive and distortion tones at a low volume level for playing in small clubs, rehearsing with the band in a garage or practicing at home without shaking walls.

Tone
The 5-way tone knob has been carefully tailored to cover the most critical frequencies in the electric guitar's sonic range. Each setting of this rotary knob affects the most important midrange frequencies that provide body, warmth, bite and punch in your guitar tone. When the rotary knob is set at the most counter clockwise setting, the amp provides the most cut and brightness. As you turn the knob clockwise, the tone gets fatter with more low-midrange emphasis, adding body and warmth. Although the differences are subtle between the 5 different settings, you will find this knob most helpful in dialing in the right sound that will fit in with your band's mix. Experiment to your heart's delight and find the setting that works the best for you!

Select
This knob highlights the unique tone-shaping feature of the Trem Cat. This knob allows you to select between the 5-way rotary Tone knob and the active Bass and Treble controls right of the Select knob. What this Select knob gives you is unparalleled control in dialing in your final tone or finding tone or finding various tonal textures from the amp. With the Select knob set at far left (counterclockwise), you completely bypass both EQ circuits. This is as pure as an amp tone can get. It will be as though you are wired directly to the speaker. The next setting to the right selects the 5-way rotary Tone knob. The one after that to the right selects the Bass and Treble controls. Finally, the far right setting on the Select knob combines both the 5-way rotary Tone knob and the active Bass and Treble controls. This far right setting will give you the most flexibility and the ability to fine-range of great sounds that you can pull out of this amp using these controls.

Bass, Treble
This EQ layout is sometimes referred to as a "tone boost" or "treble boost" circuit. The Bass and Treble controls are highly interactive. Within their individual frequency ranges, they act as mini-amps to actually boost or reduce their frequency range by as much as 12 db; to actually provide more or less frequency components than what is available from the input instrument. Experiment with their settings to learn how tonal shapes can vary greatly with just minor adjustment to either EQ knob. Combined with the 5-way rotary Tone knob using the Select knob, you will be able to dial in a myriad of superb Class-A guitar tones as well as nail perfect "Holy Grail" tone that you could call your very own!

Tremolo Speed
A first in a Bad Cat amp, the tremolo is a classic modulation effect that can be used in a subtle or extreme manner.
This knob adjusts the speed of the tremolo modulation effect. Tremolo is a fluctuation of the volume level and this knob can fine-tune the speed to the tempo of the song that you are playing. The speed of the tremolo speed is increased as you turn this knob clockwise.

Tremolo Hi-Lo Switch
This toggle switch allows you to select between fast (Hi) and slow (Lo) speeds for the tremolo effect. Once you select the basic speed with this switch, you can fine-tune the speed with the Speed knob.

Tremolo Depth
This knob adjusts the depth of the tremolo effect. It can also be viewed an "intensity" control although the knob actually works on a different principle. The tremolo effect's perceived intensity will increase as you turn this knob clockwise.

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. Turning the knob clockwise will add more highs and high-mids, significantly brightening the overall sound. Turning the knob counterclockwise will cut the highs, darkening the overall sound-hence the Cut moniker for this control. The Cut knob works at the power section of the amplifier's signal chain and is ideal to use to fine-tune the amp's sound depending on the room you are playing in. Use the extensive EQ circuits in this amp to dial in your tone, and then use the Cut to adjust the sound depending on the playing situation.

Master
As mentioned earlier, the Master knob is only active when the Master switch on the far right of the front panel is switch to "In". When switched to "Out", only the Volume control is active to adjust the overall volume of the amp and the master runs at full gain.

Master In/Out Switch
This switch engages or disengages the Master knob.

BACK PANEL

A/C Plug
Plug your amp's power cord in here first, then to the wall.

On/Off Switch
This switch turns the amp on or off.

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 to Standby when you will not be playing for a while (for example, breaks in between sets of your performances, etc.).

Half-Power Switch
This switch turns off a pair of power tubes to lower the output to half of the rated 30 watts. Still, it should be noted that this would not lower the volume by half. It will give you less headroom, allowing you to overdrive the amp at a lower volume, but the amp will still be about 70% as loud as when you have this switch on at full power.

Tremolo/Reverb Footswitch
Any simple double ¼" plug-in footswitch will work for on/off control of the Tremolo and Reverb effects on the Trem Cat. The Reverb level needs to be controlled manually via the knob on the front panel. The footswitch function only turns both effects on and off.

Send and Return Jacks
Connect the output of the send jack to the input of your effects device. Connect the output of your effect and to the Return jack of the loop. The Send can also serve as a Line Out to drive external processors in a wet/dry/wet rig.