



E-300T
All-Tube Bass Guitar Amplifier
Operation Manual

EDEN
THE LEADER IN BASS AMPLIFICATION.

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FOREWORD

Congratulations on the purchase of your new Eden E-300T all-tube Integrated Amplifier System. All of us at Eden are totally committed to providing you with the very best bass guitar systems in their class. Our goals are to offer you the outstanding performance quality of a top-notch, professional bass amplification system at a reasonable price point, and to make the most musical and reliable Bass amplifiers available. This manual will cover all domestic and international versions of the E-300T.

The E-300T was designed for those who love the great vintage tone and gentle acoustic color of the old tube amplifiers. It has been built with modern construction techniques and reliable printed circuits by people who care about sound and quality.

You have purchased what we feel is one of the finest bass amplifiers in the world. This rack mountable package houses modular circuits made with superior components and designed for years of trouble-free service.

The PCB design allows quick repair in the field should such a need arise. Just as a skilled craftsman needs good quality tools that won't let him down on the job, so does a good musician. We hope you enjoy the tool we've created. Have fun; play low!

Please read this manual in its entirety before operating your new amplifier. Failure to do so could result in misuse or damage. We've taken the time to write it, which was a lot longer than the time it will take for you to read it. Help us help you by taking a few moments to learn how to properly use your new amp. You'll be glad you did!

Please complete for your records:

Date of Purchase: _____

Model: _____

Serial Number: _____

Dealer: _____

CAUTION!

Your ears are your most important piece of equipment. Unfortunately, they cannot be replaced as easily as your other gear. Please take the following warning seriously.

This product, when used in combination with loudspeakers and/or additional amplification may be capable of producing sound levels that could cause permanent hearing loss. DO NOT operate at high volume levels or at a level that is uncomfortable. If you experience any discomfort or ringing in the ears or suspect hearing loss, you should consult an audiologist.

Thank you for your purchase of an Eden bass guitar product. This unit has been designed and constructed to give you years of trouble-free service.

Please take the time to review this manual and to send in your warranty registration card.

FRONT PANEL FEATURES

Input Jack – Designed to accept a standard ¼” mono phone plug. Plug your bass in here. Use an instrument cable. Do NOT use a speaker cable.

-10dB Input Pad – If your bass’s signal is too hot, engage this switch to pad your input signal by 10dB. This is especially useful for instruments with active electronics. The pad is in use when the indicator light is ON.

Gain Control – This sets the channel gain for the system and lets you match the output level of your instrument to the amplifier. In the Overdrive mode the Gain Control setting determines the amount of overdrive available.

Overdrive Switch – This switch shifts the amplifier into an ultra-high gain mode, suitable for a wide range of sound textures – from clean to fat and all the way to saturated – with exact control throughout the entire range. This works in conjunction with the Input Gain control. The higher the Input Gain control is set, the more overdrive can be generated. This function is also on the foot switch. The overdrive is engaged when the indicator light is ON.

Tone Controls – Listen to your amplifier’s tone before tweaking any knobs, OK? We’ve designed the E-300T to sound great even when all tone controls are set flat. If, however, you want to tailor your sound, these three knobs and one switch are the place to do it.

Bass – Set at 30Hz, use this control to decrease/increase the amount of low end.

Mid – The voice of the bass guitar is in the Mids, so don’t cut too much here, or the audience won’t hear you. In fact, you might not even hear yourself well if you cut too much here.

Mid Shift Switch – The two most important frequency centers for bass guitar are 500Hz and 2.2KHz. We gave you this switch so you could choose between them, instead of having only one setting. You’re welcome.

Master Level Control – This controls the final drive to the amplifier. Use this to control your stage level. About mid point on the control should be normal for most playing situations.

Standby Switch – Places the amp in Standby mode, so you don't have to turn your amp off during breaks.

Master Power Switch – Turns the amp on and off.

BACK PANEL FEATURES

AC Power Inlet – This is the main AC connection point. It is an IEC type inlet.

Fuse Carrier – Unscrew the cap to remove and replace the fuse. Replace the fuse only with the same type and size as the original.

Speaker Output Connectors – Connect the loudspeaker here. Connect the speaker before turning on the amplifier. Do not disconnect the speaker while the power is on.

IMPORTANT NOTE: Do NOT use your E-300T without a speaker load. Doing so will cause damage. Running this amp without a speaker load is a VERY BAD THING. Don't do it. Ever. Remember, this is a vacuum tube amplifier, not a solid state amplifier.

Speaker Impedance Selector – This switch should be selected to match the impedance of the enclosure. Note: **This should be done with the Amplifier turned OFF.**

Tube Biasing Section – Here's where you adjust the bias of each tube. We'll go into this in detail later in the manual.

Tuner Output – This provides a full-time output for connection to a tuner.

Direct Recording Output – The direct recording output is fully balanced and has the ground lifted as the standard configuration.

Footswitch Out – Connect the Footswitch here. Duh. ...

Cooling System – This unit uses a continuous flow cooling system that is always in operation when the amplifier is on.

IMPORTANT NOTE: Excessive heat is a Very Bad Thing and can result in severe damage to your amplifier. DO NOT bypass or disconnect any part of your thermal safety system. Doing so will immediately void your warranty!

Output Tubes – Your unit comes from the factory set up and fully run in for KT-88 type output tubes. Replacement tubes that match your output tubes are available from the factory.

FOOTSWITCH FEATURES

Overdrive – Duplicates the Overdrive switch on the front panel.

Mute – Mutes all outputs except the Tuner Out.

OPERATING INSTRUCTIONS

Mechanical and Thermal Issues – During operation, your amplifier should always be placed away from sources of moisture or heat. Care should be taken not to obstruct the ventilation holes on the unit. The integral rack ears can be used to install your amplifier in a conventional equipment rack for protection during transportation.

Electrical Connection – The E-300T requires at least 15 Amps of correctly wired alternating current for proper operation. Providing less than 15 Amps of power may result in poor amplifier performance and bad tone, so it's probably not a good idea to plug all of your band's gear into a single wall outlet.

Connections – All instrument-level input connections (everything but the speakers) should be made with high quality shielded cables. The use of speaker cables for input connections will result in excess noise. Speaker connections should be made with high quality 16 gauge or heavier unshielded speaker cables. We recommend 10 or 12 gauge cables. **The use of shielded line or instrument cables for speaker connections can damage your amplifier.** The speaker cable should be as short as possible.

REPEAT IMPORTANT NOTE: Do NOT use your E-300T without a speaker load. Doing so will cause damage. Running this amp without a speaker load is a VERY BAD THING. Don't do it. Ever.

INITIAL SET UP

As bassists, each of us has in our head a concept of our perfect sound. Eden amplifiers are designed to help you easily achieve the sound you hear inside you. However, it's a multi-step process as explained below.

In order to ensure the ultimate in tone, it's important to follow the procedure outlined below. Don't skip steps; don't jump around. Yes, this may take a minute or two, but the work is well worth it. Once they've done it a few times, most users can do it time and again in about a minute.

IMPORTANT NOTE: Before you plug in your unit for the first time, please do the following things. First, turn the power switch to the OFF position. Check the back of your unit for the correct voltage notation for your county of operation. Confirm that the Speaker Impedance selector switch is in the proper position. **AND CONNECT A SPEAKER TO THE AMPLIFIER.**

VERY IMPORTANT NOTE: Before turning on your amplifier, check the impedance selector to ensure it is in proper position (4 or 8 Ω). Operating your amplifier in the wrong position can makes things catch fire and go BOOM! This is NOT a good thing. Check the switch. Now.

Once you've ensured correct voltage, set the Master Volume control to minimum (fully counter-clockwise). Set the tone controls to the center position (12:00 or 0). Set the Input Gain control to the minimum (fully counter-clockwise). This will set your amplifier up flat. Next, plug in the power cord to the AC inlet on the back of the unit. Use only a safe, grounded receptacle for proper operation at the correct voltage for your country. Double check to make certain your amplifier is set for the correct voltage in your country, and for proper speaker impedance. Confirm that there is a speaker connected to the amplifier.

Turn On – Once you've completed the steps above, you can plug in your bass and turn on the unit (plug it in first, ok?) and let's get started. Turn the Mains switch to ON. Wait approximately 30 seconds to one minute and then turn Standby switch to ON. We recommend turning your system on with the Master Volume control set to its minimum position. This will prevent any unexpected signal from being sent to your speakers.

Setting Your Level – Remember, begin with the Input Gain and Master Volume completely OFF – fully counter-clockwise. All EQ should be set flat, that is, at 12:00 – straight up.

Turn the Master Volume up to approximately 10:00 (on a clock face). While playing your lowest note (or loudest), slowly turn the Input Gain up until you achieve the level of grit you want. If you want more serious overdrive, engage the Overdrive using the footswitch or the switch on the front panel of the amplifier.

Once you have properly set your Input Gain, turn the Master Volume up to a comfortable listening level and proceed with the rest of the setup process. You may need to adjust your Input Gain at this point.

SETTING YOUR EQ

The frequencies that you'll need to boost or cut are dependent upon your instrument, playing style, speaker cabinets, and venue. Extreme settings of boost or cut are unlikely to be necessary or helpful. We encourage you to experiment with different settings to obtain the sound you desire.

Using the EQ Controls – Before you begin to twiddle knobs, let's talk about a few things. Excessive boosting of one or more EQ frequencies may cause an overload in the EQ section. If EQ clipping occurs, you can either decrease the boost or decrease the Input Gain. Remember, too, that our EQ controls are active, and are meant to turn both ways – not just UP! This means that you can enhance a certain frequency spectrum either by boosting that frequency or by cutting the adjacent frequencies. This latter method has the advantage of maximizing potential headroom.

If possible, step well forward of your rig to get a better idea of how you will sound in the room. You may be surprised at how different you sound once you step away from the speakers.

Setting Bass and Treble – OK, now it's time to set the EQ, beginning with the Bass and Treble controls. These controls cover a fairly broad frequency spectrum and a little goes a long way. Adjust these controls up or down as needed. We suggest playing a few notes in various areas of the neck so you can hear what your adjustments have done across the fretboard.

Setting the Mids – As previously mentioned, you have two choices for the Mid control: 500Hz and 2.2KHz. Which one you prefer will be a matter of taste and of the style of music you play. For instance, boosting 500Hz will give a fretless bass a more vocal quality. Boosting 2.2KHz will add an aggressive bite to your tone, especially when playing with a pick. This is great for Rock players. On the other hand, some may want to tame the top end of their tone, in which case, cutting a click or two at 2.2KHz (as well as a click or two off the Treble) will create a more rounded, smooth tone.

Final Settings – Once you've set your tone controls to taste, you may want to adjust the Input Gain (and possibly the Overdrive) to achieve the amount of grit you want. Finally, set the Master Volume to the appropriate playing level.

A FEW TECHNICAL THINGS TO REMEMBER

Clipping = Bad – Yes, tube amps get their sound from overdriving the tubes, both in the preamp section and the power amp. However, some people want less overdrive in their sound. If you find yourself running out of amplifier headroom, you can cut a little in the lower frequencies, which require the most power from your amp.

Frequency Oddities – Two areas are a frequent source of frustration for bassists trying to achieve their sound: frequency masking and frequency enhancement. Frequency masking occurs when other instruments (particularly cymbals and electric guitars) obscure the important upper harmonic content of your sound. As a result, you find that the EQ settings that were so perfect at home lack definition in a live setting. On the other hand, the stage settings that worked so well sound harsh and/or thin in the absence of other instruments.

Frequency enhancement results from cabinet placement and room acoustics. A cabinet placed on the floor will have the lower frequencies boosted by about 3 db. Placement against a wall adds another 3 db. A corner adds 3 db more. Consequently you may find a surprising boominess to your sound. Certain qualities in the room itself can also enhance the lower frequencies, further contributing to this problem. Frequently this effect is more noticeable in the audience than it is on stage. Compensating for it may result in a stage sound that may seem a little thin. However the sound is actually quite full out in front.

NOTE; Remember, you can't equalize out major physical room anomalies. If things sound really weird where you are, try moving your rig a few feet and see if that helps. This may be particularly helpful on saggy stages that bounce like a drum head. (*The propellerhead term for this is "diaphragmatic."* So says David. – LB)

YOU'RE DONE. GO PLAY.

There you have it: a quick and easy process to help you get the perfect tone from your Eden amplifier. As previously mentioned, it may take a few extra minutes the first few times you go through this, especially if you take the time to experiment with all the knobs and switches, which we highly recommend.

We are confident that the time you spend getting to know your new friend is an important investment, one that will pay off immeasurably in **Great Bass Tone**. And, after all, that's why you bought an Eden, right?

OTHER CONSIDERATIONS

Suggested Speaker Systems – Your speaker system should be chosen to accommodate the characteristics of your amplifier and your predominant application. If you will generally be using two cabinets, they should both be 8 Ohm models so their combined impedance will be 4 ohms. If you are uncertain about your future needs, always go with the 8 Ohm speaker option so that you can add another speaker later if you need to. In general, adding more speakers will give you a greater volume increase than adding a few more watts.

Using the E-300T Without Speakers -This amplifier is NOT designed to be used safely without the loud speaker plugged in. Doing so will cause serious damage to your amplifier. We keep saying this because it is so important.

MAINTENANCE

Your Eden amplifier has been designed to require minimal routine maintenance. Attention to the following areas will ensure optimum performance of your amplifier. We're serious. Don't blow this off, OK?

Tube Maintenance – Tubes wear out. It's just the nature of the beast. So it's a good idea to occasionally check that all tubes are operating normally. If this is your first tube amp, it's a good idea to look at the power tubes the first few times you operate your E-300T. This will give you an indication of how they look when operating correctly.

If you ever see one or more tubes glowing a different color, it's time to replace your tubes. For example, if a tube is glowing red, this means the tube has failed completely. If this ever happens, immediately shut down the amplifier and replace the bad tubes.

REMEMBER: Tubes are electro-mechanical devices and can fail due to excessive shock or vibration. If you drop your amplifier, don't be surprised if the tubes are damaged.

Biassing the Power Tubes – What is bias? Simply put, it is a circuit inside the power amplifier section that controls the "idle current" that flows through the power tubes. This is kind of like the idle speed on a car, only different. For each amplifier and the tubes it is running, there is an optimum setting where the amplifier is running hot enough to keep it from distorting but not too hot to cause excessive wear and overheating. Make sense?

Why don't all amplifiers have bias or idle current adjustments? Well, most do but biasing typically involves removing the amp chassis from the box, exposing you to very dangerous high voltage. Special test equipment and knowledge of amp circuits and tubes is also needed. This is not a skill most musicians possess and they shouldn't need to.

We don't think you should need an engineering degree simply to perform basic maintenance on your amplifier. See, that's why we have David.... he's the Ubergeek around here. The rest of us just want to play bass. We're just sayin'....

Anyway.... All power tubes are different.

Please read the following instructions on how to use this Very Cool Feature. The E-300T takes the danger and mystery out of bias and puts it safely into the users hands.

To adjust bias, you will need a decent quality digital voltmeter capable of measuring in the 100 millivolts DC range. This is a very basic type of meter available at any electronic supply house or Radio Shack. (In France, it's Le Shaq du Radio; in Spain, El Shak del Radio.) They typically cost anywhere from \$10 to \$25, or less than the cost of one bias adjustment from your local amp tech.

You will also need a small, flat blade screwdriver to turn the adjustment control.

- 1) The amp should be on and have warmed up for at least five minutes, with Standby in the "ON" position.
- 2) Turn the meter on and set for reading DC millivolts. Consult the meter instructions for how to do this properly. Since all meters are different it is extremely important that you thoroughly understand what you are looking at on the meter display.
- 3) Insert the Black (Negative) meter lead into the panel hole labeled "COMMON".
- 4) Insert the Red (Positive) meter lead into the panel hole marked "TEST POINT 5". The Test Points run from TP5 to TP10.
- 5) You typically will observe a reading of approximately 20mVDC (20 millivolts DC). Some meters may read .020 volts. Be sure you understand what your meter is telling you.

6) With your screwdriver, turn the “BIAS ADJUST” control to obtain the proper reading of 20m VDC.

7) Next, move the red meter lead to the hole labeled TEST POINT 6. Confirm that the reading for this tube is also 20m VDC. Readjust if needed to get both tubes into the proper range of readings.

8) Repeat Step 7 for each tube in the set. Adjust as needed.

9) After completing the adjustments, allow at least 5 minutes for the tubes to warm up and stabilize. Then recheck and readjust if needed.

Important Note: With brand new tubes, it is an excellent idea to check bias settings about a week after initial setup. During initial break-in period, tube bias has a nasty habit of changing slightly. Rechecking your bias settings will ensure that your amp will operate in peak condition.

Contact Point Cleaning – One of the weakest links in most bass amplification systems are the solderless connection points where instruments, speaker cabinets, effects, and other devices are connected to the amplifier. (The most vulnerable of these types of connection is the jack on your instrument). In addition to contamination from airborne pollutants, these points are frequently assaulted by connectors that have picked up debris from dirty stages, cases, etc.

This contamination can result in poor contact as well as poor tone, and we all know that bad tone is a **Very Bad Thing**. These points should be cleaned regularly with a cotton swab soaked in denatured alcohol or a commercially available de-oxidant. Frequent cleaning of the plugs on your cords is also recommended.

Dust Removal – You should periodically inspect the ventilation openings on the front and back of the unit to ensure that they have not become blocked by accumulated dust. Vacuum the openings to remove any dust buildup. Dust bunnies are definitely not cool.

The Magic Smoke – Few people realize just how much magic goes into creating Great Bass Tone. It isn't something you normally need worry about. Just have fun and leave all that to us. However – *and this is very important* – if you ever release the Magic Smoke from your amplifier this is indeed a **Very Bad Thing**, perhaps the worst thing you can do. If you see any smoke (Magic or otherwise) coming out of your amplifier, immediately turn it off and seek the services of a qualified magician... uhm, we mean... technician. **DO NOT continue to use the amplifier in this condition.**

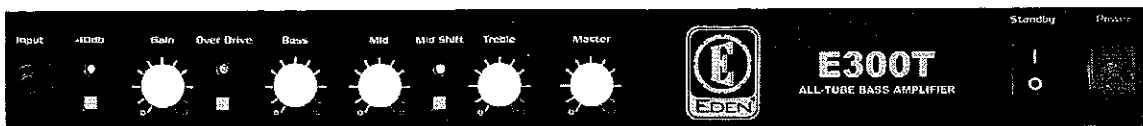
Learn More – If you'd like to learn more about your amplifier (or about our company and its activities), we invite you to visit our website – www.eden-electronics.com. There you'll find articles to help you better understand our products and the technical stuff some people find so interesting. You'll also find our FAQ (Frequently Asked Questions) file, which is updated regularly.

While you're there, check out our on-line forum. There you can meet hundreds of other Edenites who'll be glad to help you with any questions you may have about our gear. Not to brag too much, but we think our forum is a **Really Neat Thing**, filled with **Really Neat People**. We're pretty sure you'll think so, too.

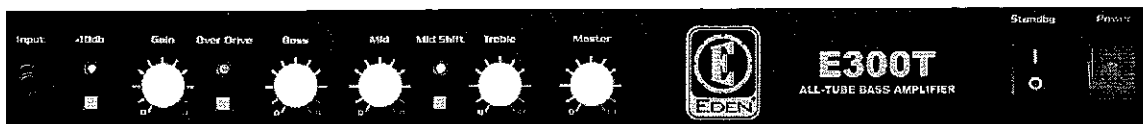
Service – In the event of amplifier malfunction, or questions about your unit's operating features that aren't answered in this manual or on our website, you should contact your Dealer. Once you and your dealer have determined it's definitely a malfunction (and not an operator error) you must call our Customer Service Department and **obtain a Return Merchandise Authorization (RMA)**. We WILL NOT accept any gear sent without an RMA, so save the time and money by calling first, ok?

IMPORTANT NOTE: Your amplifier (everything but the tubes) is covered by a two year Warranty. The tubes are covered by a 90-day warranty. Read the Warranty card for full details. We use the highest quality tubes we can possibly obtain. In general, if a tube is bad, it will fail long before the 90-warranty runs out.

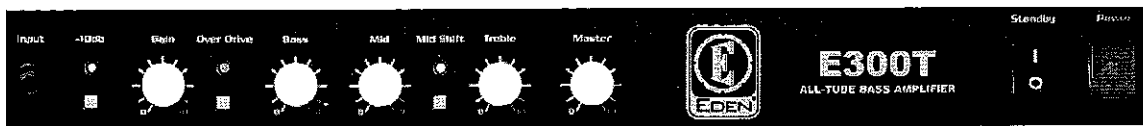
My Favorite Settings



Setting 1



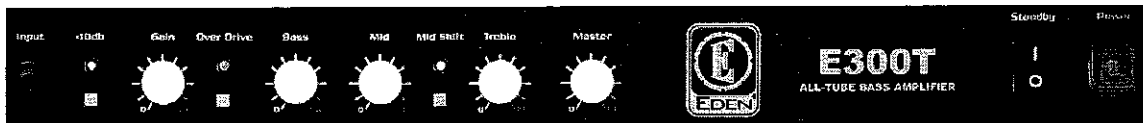
Setting 2



Setting 3



Setting 4



Setting 5

Please call the USM Customer Service Dept. at:
1-800-USSOUND (1-800-877-6863)
When you hear the voice prompt, Press 1 on your phone's keypad.

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Eden

Never Compromise

Note for those who care: This manual was written by David (Eden) Nordschow, Eden's Chief Propellerhead & Master of All Things Technical, and Lane Baldwin, Eden's Special Projects Coordinator (Many Other Functions) Any grammar errors are David and Lane's fault, as are the attempts at humor. Please don't blame anyone else for any weirdness, as we were warned several times Really