User Manual Diezel Einstein Amplifier

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Chapter One: Safety and Warranty

1.1 Safety warnings

We would like to stress the importance of the following points, for reasons ofyour personal safety, product longevity and product liability.

Do not use the Amplifier in or near wet locations

Do not store the Amplifier in damp or wet locations

Do not operate the Amplifier on voltages other than those designated on the rear panel of the amplifier.

Do not open the panels of the amplifier. No user serviceable parts inside.Your Einstein operates on very high internal voltages, which may still bepresent after the Amplifier has been turned off and disconnected for awhile.

Do not use the Amplifier for anything other than its designed purpose: To Amplify Electric Guitar Signals

Do not use fuses other than those intended and specified for the Amplifier

Do not use 2-conductor extension cords or anything other than 3-polegrounded outlets for this appliance. Your life may depend on it!

Please observe the following points when transporting your Einstein:

Einstein is a tube-powered amplifier; therefore it is sensitive to shock especiallyafter playing the amplifier for a while. Please store and transport your amplifiergently and try to avoid extreme temperatures, which might produce condensation,resulting in moisture on internal components. Usually a 60 Minute acclimatizationperiod is sufficient to ensure safe operation.The amplifier should be stored in a controlled environment, and it should betransported in a suitable flight case. Make sure the amplifier gets transported in itsnormal operating position, not upside down or on its side.The Einstein's design incorporates a very potent power amplifier. It is configuredto deliver satisfying guitar tones at most volume levels. In its normal operationalvolume level (75-80dB) it will provide beautiful tones with very little coloration.For reasons of your own safety, please do not run the amplifier above these levelsfor extended periods of time without wearing a hearing protection. Hearing Lossis a long-term ailment, and is not normally curable.

1.2 Warranty

5 years to the original owner with proof of purchase. Power Tubes and Pre Amp tubes are covered for 3 months to the original owner. The amps will be tracked via both Diezel USA and Diezel Germany recorded sales beginning 1/20/2009. ALL REPAIR WORK MUST BE DONE BY A DIEZEL CERTIFIED TECHNICIAN. Not following this procedure will VOID WARRANTY. This will ensure the the original owner and us at Diezel Amplification that the work is done correctly and that there is knowledge of what is going on out there with each amp. To any second owners or more, there is no warranty coverage nor is a warranty transferable. (This policy is no different then before). Of course we at Diezel are happy to serve people who purchase their amplifier on the used market should your amp ever need servicing. Parts and labor charges will occur for our work on your amplifier as usual.

If you purchased your amp before 1/20/2009 you are categorized under the same guidelines as when you purchased your amp (Lifetime warranty for the original owner, 1 year transferrable warranty).

Chapter Two: Using Your Einstein

2.1 Mains Connections, Power and Standby

2.1.1 Mains/Connection to Power Outlet

Please make sure that both switches (Power and Standby) are in the off positionbefore connecting to the mains circuit. Verify line voltage before connecting thepower cord. Never start Einstein without connecting speakers to the properterminals. (See 3.2.5)

2.1.2 Power up, Warm up, Standby off

First, turn the Power switch to on (facing up). The indicator light will turn on.This starts the tube heating process. After about 40 seconds, the tubes should besufficiently heated for normal operation. Your Einstein is then ready for operationand the standby switch can be turned to "run" (also facing up). Prematureactivation of the standby switch will lead to unnecessary tube stress andsubsequent reduction of the power tube's life span.

2.1.3 Power Tube Caution

Tubes are electronic components that function only with vacuum intact and undervery high operating temperatures. Each tube has one or more heating filaments,much like a light bulb. These filaments heat up the anode of the tube. If youswitch the standby switch to the "run" position before these anodes have reachedtheir operating temperature (when the anode surfaces are not heated evenly), thiscauses undue stress to the tubes and their related components inside the amp.Always give the amp its much needed warm-up time, even if musical inspirationhits you with a full force.

2.1.4 Operating Temperature

It will take a little more time after warm-up until everything inside the amp isworking in sync and to its fullest potential. A trained ear will notice a slightlywarmer tone and better complexity in tone after playing the amp for a short while.It's like stretching before exercising.

2.1.5 Power Tube Life

The power tubes of your amplifier are subjected to a certain aging process. Oncesigns of aging, such as unreliability or unusual noise, are detected, we suggest thatyou replace all power tubes at once. Matched tube sets age relatively evenly, soour experience suggests. This means that if one goes, the others are not far frommeeting the same fate.The aging process manifests itself by a depletion of a thin layer of wolfram on theanodes. This can take

anywhere from 6 month to 3 years, depending on theamount of use of the amplifier.

Chapter Three: Peripheral Connections

3.1 Front Panel Connections

3.1.1 The input jack ("IN") receives your Electric Guitar signal by means of a shieldedguitar cord with 1/4" mono style plug.

Your guitar cord is an important part of your signal chain and its quality andconstruction type clearly affect the overall tone of your rig. Try and buy the bestquality guitar cord that you can or want to afford. Call us if you have doubts andneed recommendations. This is where the smart "weak link" comment comes in.

3.1.2 Cable ABC

Some cords and cables sound very neutral; others color the sound spectrum and/orattenuate high frequencies due to capacitance inside the wire and the shield. Whatare we talking about? OK. A capacitor is used in electronic crossovers, amongstother things, to divide low and high frequencies. Capacitance in a cable cuts yourguitar's high end to a certain degree. Generally, the longer of a cord you use, themore of the cord's inherent characteristics will be audible.

3.1.3 Cable Selection

In certain circumstances, it is desirable to match a guitar cord to a specificinstrument. One may use the otherwise undesirable qualities of a cord to one'sadvantage, if one has the time and patience to experiment with different cords andguitars. This should be done while playing with your band, or while recording.Sometimes it is difficult to tell a component's true advantages until it is used inthe right context.A guitar that has very piercing highs could theoretically be tamed down somewhatby using a long guitar cord that offers some high-end attenuation.The loops of your Einstein send signals at higher levels and impedances, whichmakes this section of wiring less sensitive. You should still use reliable and goodquality wiring for all loops.

3.2 Rear Panel Connections

3.2.1 Send/Return Loop

The system consists of 2 separate Loops. It allows creation of effects path ineither serial or parallel configurations. The individual channel volume controlsdetermine the signal strength at the send jacks. The range is ... to +10dB. Theoutput impedance is 4.7 kΩ. To use the Send/Return Loops, connect the "Send" tothe "return" or "input" or "in" of the effects unit. Be sure

to adjust the input levelof the effects unit to the amplifiers level. Most effects units have led bar or otherlevel control devices. The Output of the effects unit must be connected to one ofthe return jacks, parallel,, or serial. If you use the parallel return, then the signalcan be mixed to the original signal via the rear panel mounted "Volume" control.

3.2.2 Parallel or Serial

Which is better for you? Read on.There are 2 ways to handle effects signals. The serial loop interrupts the signalpath of the Einstein and the signal is sent to the processor, becomes processed,then sent back to the serial return into the power amp. Digital effects units oftendigitize this signal once received, then process the signal, convert it back toanalog, then send it to the amp. This is called ADA (analog digital analog)conversion. It is necessary for digital effects units digitize your guitar signal sothat the processor can read and understand signal. Your tubes, however, need ananalog signal to operate, so the processor converts the signal back to analogbefore it goes back to the amp. Generally, even in highest quality effectsprocessors, this causes a change in the original signal, typically a loss of tonalityand warmth, also noticeable as a "harder" sound. When you use the serial loop foran effects unit like this, then your signal will have been ADA converted at leastonce. Tone junkies and vintage freaks alike will more than likely have hivesdeveloping by now. But - as always, there is a better way. Use the Parallel loopand the Volume control in the rear determines how much effect signal is beingadded to the original signal, which now still flows through the amplifier. There isalways an analog connection between the send and return jacks; a parallel loop!Important: You must set the mix control on the effects unit to 100% wet when using the parallel loop. Otherwise there will be nasty phasing problems resultingin unsatisfactory tone. The signal portion that is unaffected by the mix control inthe effects unit would reach the amplifier at a different time due to the cabling,and cause phasing cancellations.

3.2.3 Top 5 Reasons for dynamic losses in the effects loop

Many different factors can be responsible for loss of dynamics, aside from thosementioned in 3.2.2 (ADA conversion). A vital point that often leads to frustrationis a maladjusted output level of an effects unit. If the output level is too high, thenit will cause unwanted distortion in the power amp. If it is too low, then the rig
will not sound punchy and might get lost in the band sound. When used in the serial loop, the output of the effects unit determines the ultimate drive signal strength of the power amp. The output level should be matched to give the best possible sound with all channels without over driving the power amp section. (Unless this is desired for power amp distortion) Headroom adjustments of 10% are usually sufficient.

3.2.4 Compensated Out

A frequency corrected signal will leave this jack if you connect it to a mixer orrecording device. Use it to quietly compose or send an auxiliary signal to aconsole etc. Always make sure that your amp is hooked to either a speaker or a load (i.e. THD HotPlate).

3.2.5 Speaker Connections

Einstein has 5 speaker jacks. 1 for a 16Ohm load, 2 for 2 16Ohm loads or 1 8Ohm load, and 2 for 2 8 Ohm loads or 1 4 Ohm load. Confusing? Oh yes! Just do what it says on the jacks, and you'll be fine

Chapter Four: Two Pre-Amplifiers

4.1 Pre-Amplifiers and their Jobs

The Diezel Einstein comes equipped with 2 different and totally independentpreamps. This allows the artist to play through nearly all musical-styles withouthaving to make major changes to his/her amplifier. The preamps are voiced todeliver the most wanted guitar tone flavors: Clean, Crunch, Heavy, Lead. Thisdesign concept delivers stellar guitar sounds with excellent playability, warmdynamics and razor sharp equalization possibilities. The tone controls work in anunusually wide range, so a little adjustment does quite a lot. As with so manythings, less is often more.We suggest you start exploring the channels with all controls set to 12:00 o'clock,and the master volume just slightly cracked open. (To avoid hearing damage)

4.1.1 Channel One (low to medium gain)

Clean Tone is a very sensitive subject, because there are so many different ideason how a clean amp should sound like. Clean tonal textures require much higherdynamic range than distorted sounds. From hard and percussive sounds to soft,warm, and blossoming tone. Einstein was designed to offer as many of the cleanvarieties as possible. Your choice of guitars and pickups will have a large part inthis equation.
Channel one has three modes, selectable by a toggle switch near the channel onegain knob. The modes pre-select different gain stages in the pre-amp, allowingthis channel to span the range from extreme clean to a heavy crunch. A player thatdoes not require a clean channel can use these modes for alternate distortionsounds.

4.1.2 Channel Two (high gain)

This channel is voiced for single notes, or for very heavy and massive rhythmguitar. Due to its slight midrange accent and very high gain, it possesses a goodpunch, will play with ease, and gain authority to rule any stage, or studio. The"less is often more" rule applies here also.

4.2 Pre-amplifier Tubes

The pre-amps are equipped with 12AX7 tubes in all positions. The pre-amp tubesare not designed to produce high power output. Therefore, their life expectancy ismuch higher than that of the power amplifier tubes.This is not to undermine their utter importance in overall sound and response ofthe amplifier. Also, annoying defects like crackling noises and low dynamics aredirectly related to defective pre-amp tubes. Like all other tubes, 12AX7 tubescome in many different gain stages, and offer a wide variety of tonal behavior.Our choice for production was made to ensure a wide variety of tones, with lownoise and good reliability.

4.2.1 Microphonics and Bad Noises

The overall performance of pre-amp tubes is easily influenced by externalmechanical factors. Malfunction in these external components will manifestthemselves by a sudden, high-pitched feedback sound. The input stage isespecially suspect to these phenomena. If one encounters microphonic tubebehavior, then the first tube should be checked as a rule. Pre-Amplifier tubes canalso cause a hum or other bad noises, like crackling or ticking.

Chapter Five: Power Amplifier

5.1 Tone and Volume of the Power Amplifier

5.1.1 Master Volume

As the name suggests, this controls the overall, volume of the amplifier. There is also a second, selectable master volume control, which allows volume adjustments via remote control device while playing.

5.1.2 Presence

The presence knob controls frequencies over 3kHz. Treble is produced anddispersed in a very small beam from the speaker, so be sure to position yourself inthe projection area of the speaker when making adjustments.

5.1.3 Deep

The Deep Control is an active bass control contrary to conventional bass controls.It controls the frequencies around 120Hz without influencing the overall dynamicrange of the power amplifier. Diezel Co. is not responsible for disintegratingspeaker cabinets.

5.2 Power Amplifier Tubes

5.2.1 Function

As the name suggests, the power amp section is the part of the amplifier thatproduces output power, measured in watts. Preamp signals are sent to the poweramp(s), which amplifies this signal to a level that is acceptable for loudspeakers.Guitar amplifiers utilize several different types of power amps, which differ inoutput power and tone. We chose the tube type power amplifier for its tried andtrue performance and familiar tonal behavior.

5.2.2 Selection

Diezel Co. installs the most reliable and best sounding tubes that are currently available in sufficient quantities. So it is possible that tube brand and tube typewill change during production. You can fine-tune your Einstein by having different type and brands of tubes installed, however, it is imperative that the amp is biased properly. Einstein utilizes 4 power tubes, organized in 2 pairs with dual bias possibility. This allows use of 2 different pairs of power tubes, either the same or the different types.

5.2.3 Life Span

Power tubes last 1 to 3 years, depending on care, volume and frequency of use ofthe amplifier. If you use your amp only once a month, then the tubes will lastmuch longer. Really. We have heard tubes that are over 10 years old, but it wasnot a good thing. Tubes age very slowly; slow enough for the artist to get used tothe changing tone. To keep things fresh, and to keep your tube dealer in business,we recommend re-tubing, cleaning and biasing once a year if the amp is usedfrequently.

Chapter Six: Layout of Controls

6.1 Manual Channel Selection

The 2 channels of the Einstein can be selected manually by activating the selectswitch for either channel. Alternatively, a foot switch can be connected toremotely control the channel selection.

6.2 Master 2 On/Off

Master 2 can be used for all channels, and can also be remotely controlled via theincluded foot switch. This allows instant volume boost, or cut, without fiddlingwith the amp. Once adjusted to suit your needs for the gig, it's a thing of purebeauty. You can select the Master 2 function via the Diezel 2-button foot switch.Actually, you can also use a readily available single button foot switch with a 1/4"connector.

6.3 Channels

- Channel One

Control perimeters include Gain, Volume, Treble, Mid, and Bass. A 3-positiontoggle switch selects preset gain modes.

- Channel Two

Control perimeters include Gain, Volume, Treble, Mid, and Bass. This channelcan be selected via the toggle switch, or via the Diezel 2-button foot switch.

6.4 Effects Mix control Rear panelThis control determines the amount of effect signal in the parallel loop

Chapter Seven: Maintenance and Cleaning

7.1 Cleaning

Never use anything wet to clean the amplifier, any amplifier. Usually, it issufficient to wipe down the outside of the amp with a slightly moist cleaning rag. Do not use abrasive cleaning chemicals. Sometimes a vacuum cleaner can be usedto remove dust and dirt from nooks and crevices. Do not remove the chassis from the housing to clean the amp; the inside of your amp carries dangerous Voltages.

7.2 Care

Be gentle with this Amplifier. Any mechanical shocks, extreme temperaturechanges, damp environments, and other extreme conditions (dust, wind) cansubstantially shorten tube life. In some cases, even the amplifier life.Do not block the air circulation grilles in the front and in the back of the amp. Donot push the amp right up against objects that would interfere with its normalairflow. The top of the amplifier might get warm after a prolonged use; this isnormal, but will melt your ice cream and definitely ruin your beer. Never putbeverages on top of the amp where they could spill and flow inside the amplifier.Will you rue the loss of your beverage first or the loss of your amplifier?

7.3 Tube Change

Tube changes are only to be performed by authorized service personnel. If powertubes with different values than the stock tubes are to be installed, then theamplifier must be re-biased before operation can be resumed. The amplifier uses atwo circuit bias system. It is quick and easy to accomplish biasing but werecommend that you refer to trained professionals to attempt this procedure.

The Diezel Company wishes to express their gratitude and congratulate you on your decision to purchase the Diezel Einstein Amplifier.