

Diezel Big MaX Manual



Table of Contents

Chapter One: Safety

1.1 Safety Warnings

Chapter Two: Using your Big Max

2.1 Mains Connections, power and Standby

2.1.1 Mains/connect to power outlet

2.1.2 Power up, Warm up, Standby off

2.1.3 Power tube caution

2.1.4 Operating Temperature

2.1.5 Power Tube Information

Chapter Three: Peripheral Connections

3.1 Front Panel Connections

3.1.1 Signal In

3.1.2 Connection Information

3.1.3 Cable Selection

3.2 Rear Panel Connections

3.2.1 Send/Return Loop

3.2.2 Reasons for Dynamic Losses in the Effects Loop

3.2.3 Speaker Connections

Chapter Four: The Pre-Amplifier

4.1 Pre-Amplifier Duties

4.1.1 Input Low

4.1.2 Input High

4.2 Pre-Amplifier Tubes

4.2.1 Noise and Microphonics

Chapter Five: Power Amplifier

5.1 Tone and Volume of the Power Amplifier

5.1.1 Master Volume

5.1.2 Presence

5.1.3 Deep

5.2 Power Amplifier Tubes

5.2.1 Function

5.2.2 Selection

5.2.3 Life Span

Chapter Six: Maintenance and Cleaning

6.1 Cleaning

6.2 Care

6.3 Tube Change

Chapter One: Safety

1.1 Safety warnings

We would like to stress the importance of the following points, for reasons of your 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 Big Max operates on very high internal voltages, which may still be present after the Amplifier has been turned off and disconnected for a while.

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 Big Max:

Big Max is a tube-powered amplifier; therefore it is sensitive to shock especially after playing the amplifier for a while. Please store and transport your amplifier gently and try to avoid extreme temperatures, which might produce condensation, resulting in moisture on internal components. Usually a 60 Minute acclimatization period is sufficient to ensure safe operation. The amplifier should be stored in a controlled environment, and it should be transported in a suitable flight case. Make sure the amplifier gets transported in its normal operating position, not upside down or on its side. The Big Max design incorporates a very potent power amplifier. It is configured to deliver satisfying guitar tones at most volume levels. In its normal operational volume 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 levels for extended periods of time without wearing a hearing protection. Hearing Loss is a long-term ailment and is not normally curable.

Chapter Two: Using Your Big Max

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 position before connecting to the mains circuit. Verify line voltage before connecting the power cord. Never start Big Max without connecting speakers to the proper terminals. (See 3.2.3)

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 be sufficiently heated for normal operation. Your Big Max is then ready for operation and the standby switch can be turned to "run" (also facing up). Premature activation of the standby switch will lead to unnecessary tube stress and subsequent 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 under very 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 you switch the standby switch to the "run" position before these anodes have reached their operating temperature (when the anode surfaces are not heated evenly), this causes 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 inspiration hits 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 is working in sync and to its fullest potential. A trained ear will notice a slightly warmer 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. Once signs of aging, such as unreliability or unusual noise, are detected, we suggest that you replace all power tubes at once. Matched tube sets age relatively evenly, so our experience suggests. This means that if one goes, the others are not far from meeting the same fate. The aging process manifests itself by a depletion of a thin layer of wolfram on the anodes. This can take anywhere from 6 months to 3 years, depending on the amount of use of the amplifier.

Chapter Three: Peripheral Connections

3.1 Front Panel Connections



3.1.1 Input Jacks

The input jacks receive your Electric Guitar signal by means of a shielded guitar cord with 1/4" mono style plug.

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

3.1.2 Cable ABC

Some cords and cables sound very neutral; others colour the sound spectrum and/or attenuate high frequencies due to capacitance inside the wire and the shield. What are we talking about? OK. A capacitor is used in electronic crossovers, amongst other things, to divide low and high frequencies. Capacitance in a cable cuts your guitar's high end to a certain degree. Generally, the longer of a cord you use, the more 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 specific instrument. One may use the otherwise undesirable qualities of a cord to one's advantage, if one has the time and patience to experiment with different cords and guitars. 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 in the right context. A guitar that has very piercing highs could theoretically be tamed down somewhat by using a long guitar cord that offers some high-end attenuation. The loops of your Big Max send signals at higher levels and impedances, which makes this section of wiring less sensitive. You should still use reliable and good quality wiring for the loop.

3.2 Rear Panel Connections



3.2.1 Send/Return Loop

The system consists of a series loop. The individual channel volume controls determine the signal strength at the send jack. The range is ... to +10dB. The output impedance is 4.7 k Ω . To use the Send/Return Loop, connect the "Send" to the "return" or "input" or "in" of the effects unit. Be sure to adjust the input level of the effects unit to the amplifiers level. Most effects units have led bar or other level control devices. The output of the effects unit must be connected to the return jack.

3.2.2 Top 5 Reasons for dynamic losses in the effects loop

Many different factors can be responsible for loss of dynamics, aside from those mentioned (ADA conversion). A vital point that often leads to frustrations a maladjusted output level of an effects unit. If the output level is too high, the unit 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 without over driving the power amp section.

3.2.3 Speaker Connections

Big Max 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.

Some examples: The speaker out jacks are wired in parallel, so a single 16 Ohm cab goes into the 16 Ohm out. Two 16 Ohm cabs go into the two 8 Ohm speaker outs (in parallel 2 16 Ohm cabs result 8 Ohm overall impedance). Two 4 Ohm cabinets go into the 2 8 Ohm outs (you've guessed it, two 8 Ohm cabs result 4 Ohm overall impedance).

Chapter Four: The two Inputs

4.1 Pre-Amplifiers and their Jobs

The Diezel Big Max comes equipped with 2 different inputs. This allows the artist to play through nearly all musical-styles without having to make major changes to his/her amplifier. The preamp is voiced to deliver the most wanted guitar tone flavour: Clean, Crunch, Heavy, Lead. This design concept delivers stellar guitar sounds with excellent playability, warm dynamics and razor sharp equalization possibilities. The tone controls work in an unusually wide range, so a little adjustment does quite a lot. As with so many things, less is often more. We suggest you start with all controls set to 12:00 o'clock, and the master volume just slightly cracked open. (To avoid hearing damage)

4.1.1 Input Low (clean to medium gain)

Clean Tone is a very sensitive subject, because there are so many different ideas on how a clean amp should sound like. Clean tonal textures require much higher dynamic range than distorted sounds. From hard and percussive sounds to soft, warm, and blossoming tone. Big Max was designed to offer as many of the clean varieties as possible. Your choice of guitars and pickups will have a large part in this equation.

4.1.2 Input High (low to high gain)

This input is voiced for single notes, or for very heavy and massive rhythm guitar. Due to its slight midrange accent and very high gain, it possesses a good punch, 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-amp is equipped with 12AX7 tubes in all positions. The pre-amp tubes are not designed to produce high power output. Therefore, their life expectancy is much higher than that of the power amplifier tubes. This is not to undermine their utter importance in overall sound and response of the amplifier. Also, annoying defects like crackling noises and low dynamics are directly related to defective pre-amp tubes. Like all other tubes, 12AX7 tubes come in many different gain stages and offer a wide variety of tonal behaviour. Our choice for production was made to ensure a wide variety of tones, with low noise and good reliability.

4.2.1 Microphonics and Bad Noises

The overall performance of pre-amp tubes is easily influenced by external mechanical factors. Malfunction in these external components will manifest themselves by a sudden, high-pitched feedback sound. The input stage is especially suspect to these phenomena. If one encounters microphonic tube behaviour, then the first tube should be checked as a rule. Pre-Amplifier tubes can also 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

As the name suggests, this controls the overall, volume of the amplifier.

5.1.2 Presence

The presence knob controls frequencies over 3kHz. Treble is produced and dispersed in a very small beam from the speaker, so be sure to position yourself in the 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 90 Hz without influencing the overall dynamic range of the power amplifier. Diezel Co. is not responsible for disintegrating speaker cabinets.

5.2 Power Amplifier Tubes

5.2.1 Function

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

5.2.2 Selection

Diezel Co. installs the most reliable and best sounding tubes that are currently available in sufficient quantities. It is possible that tube brand and tube type will change during production. Big Max utilizes 2 power tubes.

5.2.3 Life Span

Power tubes last 1 to 5 years, depending on care, volume and frequency of use of the amplifier. If you use your amp only once a month, then the tubes will last much longer. Really. We have heard tubes that are over 10 years old, but it was not a good thing. Tubes age very slowly; slow enough for the artist to get used to the 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 used frequently.

Chapter Six: Maintenance and Cleaning

6.1 Cleaning

Never use anything wet to clean the amplifier, any amplifier. Usually, it is sufficient 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 used to 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.

6.2 Care

Be gentle with this Amplifier. Any mechanical shocks, extreme temperature changes, damp environments, and other extreme conditions (dust, wind) can substantially 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. Do not push the amp right up against objects that would interfere with its normal airflow. The top of the amplifier might get warm after a prolonged use; this is normal but will melt your ice cream and definitely ruin your beer. Never put beverages on top of the amp where they could spill and flow inside the amplifier.

6.3 Tube Change

Tube changes are only to be performed by authorized service personnel. If power tubes with different values than the stock tubes are to be installed, then the amplifier must be re-biased before operation can be resumed. The amplifier uses a no circuit bias system. It is quick and easy to accomplish biasing but we commend 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 Big Max Amplifier.