

**RED NOTE amplification**

**MODEL Xi Custom MKII**

**OWNERS MANUAL**



## **GENERAL CHARACTERISTICS**

Model Xi Custom MKII is a 50 watt, mono channel all tube high end amplifier, point to point wired, with reverb, Triode/Pentode switching and headphone output.

The amplifier uses selectable gain structure switches to allow users dial harmonically complex clean and overdrives sounds. No matter the output level of the guitar pick ups, it will accommodate both single coils or humbuckers. This feature makes the amplifier tremendously versatile, ranging from crystal clear sounds to fat and intense radical overdrive ones

## **SWITCHING THE AMPLIFIER ON AND OFF**

Power Switch – This switch activates the filament circuit.

Standby Switch – This switch activates the high voltages to the tubes (B+)

To operate the amplifier, first switch on the filament circuit, wait for 30 seconds until the tubes warm up and then activate the standby switch. Reverse the sequence for switching the amplifier off Following this procedure will extend tube life

Standby switch is also useful during short breaks; using it instead of switching the power off will also extend the tube life

Please be sure the amplifier is connected to the speaker and the Headphone/Speaker selector located at the rear panel is in speaker position otherwise the signal is muted and routed to the headphone amplifier

## FRONT PANEL CONTROLS



**Input jack** - Input jack give access to channel

**Drive** - This switch in the "off" position (defeat) introduces an attenuator between gain blocks in the signal path. It's useful to control the output of guitar pick ups. If an absolute clean sound is needed is recommended to leave it in the off position

**Gain** - This potentiometer controls the gain and works together with the "drive" and "boost" switches allowing fine tuning the exact amount of clean and overdrive sounds relative to "master volume"

**Boost** - When this switch in the "on" position, not only maximizes the gain stages, but introduces also a HPF, so the bass content of the signal will be reduced and keep under control the undesirable intermodulation distortion and grid rectification typical of extreme overdrive settings . If massive distortion is required then "drive" and "boost" has to be in the "on" position along with high settings in the "gain" potentiometer

**Treble** - Turning up or down the potentiometer controls the amount of treble signal

**Middle** - Turning up or down the potentiometer controls the amount of middle and presence

**Bass** - Turning up or down the potentiometer controls the amount of bass

**Thick** - This switch changes the behaviour of the tone stack making the sound fatter, it's very useful for lead works or power chords

**Volume** - This potentiometer controls the signal feeding the power amp and balances the channel gain relative volume

**Reverb** - This controls the amount of Reverb to the mix stage

**Triode/Pentode Switch** - This switch changes the operation of the output tubes, in Pentode mode amplifier delivers full 50 watt output with a tight sound with big dynamics, in triode mode the amp delivers half the power (25W) with a rounder warmer sound.

## REAR PANEL CONTROLS



**Main Fuse** - This fuse protects the power transformer primary and the value is 3A/250V Slow- Blown type. Please it is very important to change the fuse with the same type and value. Failing to do that will invalidate the warranty

**AC Receptacle** - Plug the power chord to the receptacle and be sure that the mains has a reliable ground connection. This is imperative for both personal safety and to keep the noise of the amplifier at minimums

**HT Fuse** - HT fuse protects the output transformer and other sensitive components in the event of an output tube short. If a tube fails the fuse will blow protecting expensive parts of the circuit. Fuse value is 500mA/250V. Using greater values will invalidate the warranty

**Power Switch (on/off)** - This switch activates the filament circuit.

**Standby Switch (Standby/operate)** - This switch activates the high voltages to the tubes (B+)

To operate the amplifier, first switch on the filament circuit, wait for 30 seconds until the tubes warm up and then activate the standby switch. Reverse the sequence for switching the amplifier off Following this procedure will extend tube life

Standby switch is also useful during short breaks; using it instead of switching the power off will also extend the tube life

Please be sure the amplifier is connected to the speaker and the Headphone/Speaker selector located at the rear panel is in speaker position otherwise the signal is muted and routed to the headphone amplifier

**External speaker** – This mono 1/4" jack is for external speaker cabinets. Its parallel connected to 8 Ohm combo internal speaker.

**Speaker impedance** – This switch selects the output transformer impedance tap.

*Note about speaker loads.*

*Please connect the correct load to the amplifier. The internal and external speaker combination has to be the same as indicated by the speaker selector switch. If you cannot match the impedance try to combine impedances so the total load will be always greater than the indicated by the impedance selector switch; in this case you will have a different response from the amplifier but you will not harm it*

If the external speaker is

8 Ohm, then the net impedance will be – 4 Ohm - Selector position – 4 ohm

16 Ohm, then the net impedance will be – 5,3 Ohm selector position – 4 Ohm

4 Ohm, then the net impedance will be – 2,6 Ohm **WARNING DO NOT CONNECT.** Such load combination is too low for both 4 and 8 Ohm

position. If you want to use a 4 Ohm external speaker system please disconnect the internal speaker and switch the selector to 4 Ohm

**Headphone jack** – This stereo 1/4" jack output is for dynamic headphones,

Headphone/speaker switch – This high quality mini switch mutes the power amp so you can use the amplifier with your headphones.

## **MAINTENANCE MANUAL**

Although not complicated, maintenance in tube amplifiers it is not completely free:

- 1) Tube replacement
- 2) Bias adjustment

### Tube replacement

Tubes wear, that is the price you have to pay for great tone. There are 8 tubes in your amplifier.

Position, type and function are as follows:

- V1 ECC83 – channel first and second gain stage
- V2 ECC83 – channel third gain stage and tone stack cathode follower
- V3 ECC83 – channel fourth gain stage
- V4 ECC81 – Phase inverter
- V5 ECC81 – Reverb tank driver
- V6 ECC83 – Reverb recovery/mix amplifier
- V7 6L6GC – Power amp positive cycle (matched pair)
- V8 6L6GC – Power amp negative cycle (matched pair)

## MINIATURE DUAL TRIODES

V1,V2,V3,V4,V5,V6 – Are noval dual triodes, No adjustment is necessary when changing any of these tubes. All dual triode are self bias

Dual triodes had to be substituted when:

Having more than 2.000 hours of use

Evident malfunction of the tube such microphonic noise or other problems

## POWER AMP PENTODES

V7,V8 are power pentodes. Power pentodes need bias adjustment when substituted. ALWAYS USE MATCHED TUBES of the same type

What is bias?:

Bias is the most critic voltage in the amplifier

It is a negative voltage applied to the tube. This negative voltage controls current flow through the tube and sets his operating point. Bias set incorrectly with too much negative voltage applied to the grid can degrade sound quality delivering lots of crossover distortion (non musical distortion). The inverse situation is even worst: making the grid voltage less negative tube draws too much current and can damage the amplifier

## **BIAS ADJUSTEMENT**

*WARNING! Setting bias incorrectly can damage the amplifier and it is not covered by the warranty*

Who can set the bias?

Setting the bias can be done if:

1) You are a qualified technician

2) You are an advanced user with a good knowledge about tube amplifiers.

If you don't know nothing about amplifiers, please refer to a qualified technician. Remember that a wrong set bias can make your amplifier sound bad and/or damage it.

The bias has to be checked when:

1) New power tubes are installed

2) A change in sound is perceived due to tube wear.

Tools needed:

Special bias adjustment cable (supplied)

Digital multi-meter

Screwdriver

Procedure:

**MATCHED TUBES ARE IMPERATIVE**

Connect amplifier

Pentode/ Triode switch in Pentode mode

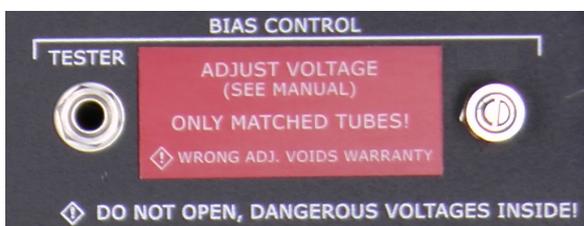
No input signal

Insert jack in the TESTER monitor jack located in rear panel next to headphones jack

Connect Digital multi-meter through special cable supplied

Set the voltmeter to read DC mV in 2V range

Adjust bias potentiometer until you read 800mV +/- 5% (0,8V DC)



Red Note Tube amps

[www.red-note.net](http://www.red-note.net)