



®



Instrument Amplifier

V 1.0

Operations Manual

For Mantis Jr™ (head/combo)

Fuchs Audio Technology

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A Note From Andy,

First of all, *Thank You* for purchasing a Fuchs Audio Mantis Jr [™] amplifier!

The Mantis Jr was designed as part of our highly successful Casino Series but for the harder edged rock and metal player. The Mantis Jr series is available from 4-watts through 100 watts, to fill the need for a wide range of power levels having classic rock "voicing" similar to a vintage Marshall[™] or Trainwreck[™] style amps. Each Mantis Jr is precision handmade by myself and the staff at Fuchs Audio, built to extremely high standards of excellence using the highest quality components. With over two decades experience in the service, manufacturing, and design of tube audio/music equipment, we at Fuchs Audio are extremely proud of the quality and tremendous musicality of our products.

Please read this manual carefully. Although the Mantis Jr [™] was created to be a simple amplifier to operate it will perform to its fullest glory by your full understanding of the contents of this manual.

Feel free to call or e-mail us (we prefer emails!) with comments & questions about your Fuchs amp or just to find out what's new here at Fuchs Audio.

Lastly, I recommend checking out our new web site: www.fuchsaudiotechnology.com, for product/user updates, cool links and other info benefiting our customers.

Sincerely,

Andy Fuchs

President

Fuchs Audio Technology®

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Mantis Jr manual Rev 1.0



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Mantis Jr Rev 1.0

1 Introduction to the Fuchs Audio Mantis Jr™ Amplifier



Representing a new direction for Fuchs Audio Technology, the Mantis Jr™ brings the high build quality and awesome tones people expect of Fuchs products, to a new more affordable price range. The Mantis Jr is based on a dual 12AX7 preamp stage and a push pull output stage with power levels from 4- through 100 watts. Unlike other amps in this price range, the Lucky 7™ has a full compliment of extremely flexible tone controls. A surprising amount of clean headroom is available before the output stage begins distorting with a sweet yet cutting rock edge. Voiced like its siblings, the Train 45™ and our Blackjack 21 amps, the Mantis Jr™ has a classic rock voice similar to a vintage Marshall™ or Trainwreck™ style amp. It provides a cutting rock edge, yet filled with harmonic richness and chime. The circuit design also is "attenuator friendly". (*see below) The Mantis Jr™ and its sibling the Blackjack 21™ have a preamp stage designed to allow clean-to-mean from the guitar volume control.

The chassis (like all Fuchs products) is aircraft grade aluminum; our internal construction is mixed PC board and hard wired. On the Casino series amps, the preamp tubes and power supply circuitry are on the circuit card, while the power tubes and transformer are mounted on the chassis. A detachable power cord is standard. By using single point grounding, the amp is quiet and free of hum at all operating levels.

A single input and single ¼" output jack are provided.

Features:

- ¾" solid wood cabinet with durable tolex covering.
- Anodized aluminum chassis with long lasting silk-screened labeling
- Heavy duty Cliff brand jacks. Solid metal-shaft Alpha potentiometers.
- Ultra-long-life neon pilot lamp and heavy duty AC power switch.
- Simple user adjustable fixed output tube bias.

Specifications:

Size: 8" tall 10.5 inches deep 19" wide.

Weight 10-lbs.

Tube compliment: 3 X 12AX7 preamp tubes. Power tubes depend on amp power rating: 2 X 6SN7 for 4-watt. 2 x 6V6 for 20 watt, 2 x EL34 for 50 Watt and 4 x EL-34 for 100-W versions.

Power output: 4, 20, 50 or 100 watts into 4-8-16-ohms.

Input Impedance -1Meg.

"Trainwreck" is a registered trademark of Ken Fischer

2 Please read before powering up your Fuchs Amp.

Please see Panel Diagrams in next section **3** for assistance.

- 1) Inspect to make sure power & pre-amp tubes are intact & snugly seated in their sockets.
- 2) Make certain a speaker (load) is plugged into speaker input jack on the back of the amplifier. Failure to have a speaker connected to the amp will result in damage to the output tubes! Your amp is supplied with both 4, 8 & 16 ohm impedance speaker input jacks, select the one closest or matched to your speaker(s) impedance.
- 3) Reduce Front panel GAIN controls to moderate low level.
- 4) Install instrument cable from guitar into front panel INPUT
- 5) Be sure both POWER switch (front panel) is in DOWN position.
- 6) Install power cord to amplifier (AC POWER IN) and to AC power source.
- 7) POWER UP amplifier by: 1) flipping POWER switch UP. Allow at least 30 seconds to 1 minute for tubes to heat up. Then switch rear panel standby switch to “operate” position.
- 8) The Amplifier is now fully on and ready to use. Feel free to adjust all controls as you see fit.

3 Diagrams of FRONT & REAR Panels, Tube Bias Diagram

Front Panel



Rear Panel



4 Front Panel Controls, inputs & Their Functions

Input Jack:

Input jack is a 1/4" phone plug, designed for 1-Meg impedance, guitar-level signal. This input will readily accept pedals/effects without any loss in performance. Pedals/effects input is also inserted to this input in series with your guitar.

Gain Controls:

The gain control sets the overall gain/volume for each channel of the amplifier. Channel one is a lower gain channel. By adding the footswitchable boost, channel one has increased gain for greater amounts of distortion. Channel Two is the higher gain channel and without the boost, the gain level is roughly equal to the gain of channel one with boost. Adding boost to channel two switches the channel to highest gain available. Through a unique hybrid tube/FET boost circuit, this gain is obtained at a much lower noise floor than amps with similar gain.

High Control:

Adjust the high control to taste, it controls adjusts the high frequency spectrum of your Mantis Jr.

Mid Control:

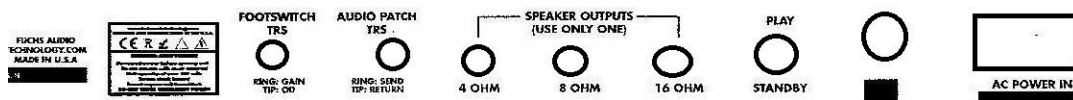
Adjust the Mid control to taste, it controls adjusts the mid frequency spectrum of your Mantis Jr.

Low Control: Adjust the Low control to taste, it adjusts the low frequency spectrum of your Mantis Jr.

There are no “correct” Gain settings, finding the desired tone setting depends on the guitars/pickups used, as well as your own personal tastes. This amplifier works in unison with your guitar volume to control the nature of the clean/overdrive tones.

By pulling the Channel one Master (or using the footswitch) you can switch between channels. Each channel has it’s own master volume control. The accent and thrust controls operate on the high and low frequency ranges respectively, and operate in the power stage for increased tonal range. Accent adds brightness and bite, which thrust adjusts the damping and level of lows for drop tunings and speaker cabinets with limited low frequency output.

5 REAR Panel Controls, inputs/outputs



AC power cord input:

Using the supplied 120vac power cord. Connect to AC POWER IN on the amplifier and to AC power source.

AC power Fuse:

This fuse protects the amplifier if any malfunction occurs. Use **ONLY** stock fuse rating as supplied by factory.

Speaker inputs (1 ea-4, 8 and 16 ohms):

(You must have a speaker load inputted to the amplifier before powering on!) Each (1-4 ohm, 1-8 ohm) input optimizes the amplifier for either 4 or 8 ohm speaker impedance. Connect using a ¼” phone plug to an outboard speaker cabinet. If you have a Combo amplifier, connect to the combo speaker with supplied wire/¼” jack.

Footswitch Jack: This is a TRS (stereo style) plug which controls channel switching (tip) and boost (ring). These are DC control voltages so a remote amp switcher that simply closes a latching circuit to activate the function. The footswitch supplied with the amp is a dual LED style footswitch and we do not recommend the use of any other footswitch with the amp.

Audio Patch: This is also a TRS (stereo style) jack. The tip (in this case) is the power amp input. Using a standard mono ¼” jack you can insert a signal into the power amp for external inputs. To use this as a loop jack, you will need to obtain an “insert cable” which is easily available and converts a single stereo plug to two mono plugs. The ring connection is the send and the tip connection would be the return. Simply connect an external line level device (reverb, echo, delay) input and outputs to this point.

6 Biasing power tubes & other technical info

High Internal voltages inside this amplifier can cause harm or Death!

Output tube Bias Setting:

Each tube is factory set for proper operation. The 6SN7 (4-watt version) is biased to 5 mv per test point. There are 4 adjustments (one per tube) which should be set with a DC voltage meter. The 20-Watt version uses 2 6V6 tubes, and each tube is set using its respective trimmer to 20 millivolts (20-ma) per tube. EL-34's in the 50 or 100-W version are set to 40 mv per tube. There is one trimmer on the pc board for each tube bias. Bias is measured at the test points on the board to ground and set to listed voltages. This should be set with the amp cold, then reset after the amp has run for about an hour. Use a reliable digital voltmeter for these settings.

DISCLAIMER: There are exposed Internal high-voltages in this amplifier. Do not attempt to service, repair or conduct tube biasing unless you are qualified to do so. Please contact Fuchs Audio beforehand with questions in this regard. Fuchs Audio takes no responsibility or shall be held liable for any personal harm caused or damage to this amplifier as a result of unauthorized service, repair or internal adjustments made to this amplifier.



7 Warranty Information

The Fuchs Audio Technology-Amplifier Warranty

Fuchs Audio Technology® guarantees our products to be free from defective workmanship or material failure for a period of FIVE years (tubes excluded) from date of new purchase to the original purchaser. This does not apply to Fuchs amplifiers that have been tampered with, damaged by shipping carriers, reverse engineered, or modified. Your warranty form/information must be returned to Fuchs Audio Technology® within 30 days of purchase, or your warranty will not be in effect. Fuchs Audio Technology® reserves the right to suspend or terminate the above warranty at our sole discretion, should damage from any of the above limitations and or exclusions be detected upon examination.

Keep the information on this page for your records.

Please use our online warranty form on our webpage !

FUCHS MODEL : _____

SERIAL NUMBER: _____

OPTIONS INCLUDED: _____

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WARRANTY REGISTRATION FORM

This completed form must be returned to Fuchs Audio Technology within 30 days of purchase along with a copy of your receipt from your authorized dealer.

Please fill in all requested information on this form so we may register you for future warranty repairs or future upgrades, should they become available.

Purchasers Name: _____

Address: _____

City: _____ **State:** _____ **Zip:** _____ **Country:** _____

Phone Number: _____ **E-Mail address:** _____

Model: _____ **Serial Number:** _____

Date of Purchase: _____

Dealer Name: _____

Comments: _____