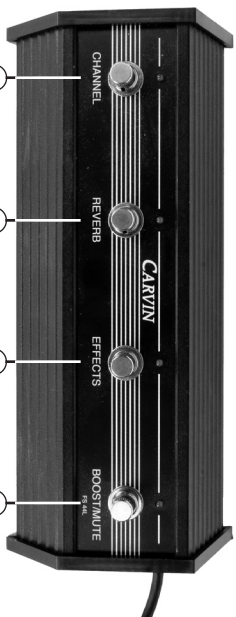


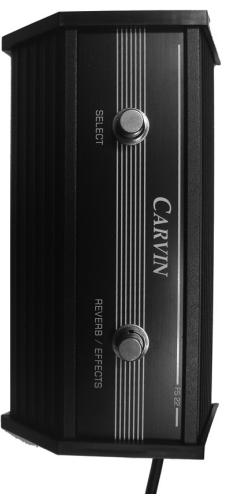
## FS-44L FUNCTIONS AND LED'S



| SWITCH         | LED ON    | LED OFF    |
|----------------|-----------|------------|
| A. CHANNEL     | LEAD      | RHYTHM     |
| B. REVERB      | REVERB ON | REVERB OFF |
| C. EFFECTS     | LOOP ON   | LOOP OFF   |
| D. BOOST mode* | BOOST ON  | BOOST OFF  |
|                | AMP ON    | AMP MUTED  |

\* BOOST or MUTE MODE is changed with the "FS BOOST" switch on the front panel of the amp.

## FS-22 FUNCTIONS



| SWITCH | FUNCTION               |
|--------|------------------------|
| SELECT | LEAD / RHYTHM          |
| REVERB | REVERB ON / REVERB OFF |

## X-212B combo (two 12" speakers)



## CARVIN ENGINEERING DATA

### X-100B TUBE GUITAR AMP

### OPERATING MANUAL



X-100B head

Congratulations on your purchase of your X100B series IV tube amplifier. Carvin has been building tube guitar amplifiers since 1949. Spend time with your new amp and get to know its many sounds. You'll discover why many creative guitarists have chosen the X100B to achieve their sound.

#### HISTORY OF THE X-100B

The X-100B holds a place dear in the hearts of guitar amp aficionados. The X100B series tube amps were a mainstay on many arena stages and MTV videos throughout the 1980's. Artists such as Frank Zappa, Craig Chaquico with Jefferson Starship, Warrant, Warren Cucurullo with Missing Persons, and Steve Vai all played X100B amps. Frank Zappa raved about the Clean channel on this amp. Steve Vai recorded a song called "Blue Powder" (available on his first solo release *Flexible*) featuring the X100B. As a tribute to the original X100B amps, the new Series IV is badged with the vintage Carvin logo.

#### DESIGN OVERVIEW

The circuitry of the X-100B allows several layers of control over the dynamics and tone of the amp from the input jack to the speaker output.

#### PREAMP

Great sounds start with a great preamp. The glassy clean sounds of the Rhythm channel sparkle even more in the Bright setting. The Lead channel Drive control is combined with a Hi Gain switch for highly selective control over the 12AX7 tube overdrive.

#### ZONE CONTROLS

The BASS, MID, TREBLE, and PRESENCE use active circuits to create a wide range of cut or boost from each control.

#### 5-BAND MASTER EQ

The X-100B features a five band graphic EQ that is assignable to the Lead or Rhythm channel. An extreme amount of control is available here, allowing you to define your sound in a way not available on most amps.

#### SWITCHABLE EFFECT LOOP

The X-100B features a switching effect loop for true bypass of effects.

#### CUSTOM REVERB

The X-100B reverb is custom designed for a full, natural sound. The "long tail" switching system turns off only the send to let the reverb to decay without being cut off.

#### POWER AMP CONTROL

The RMS POWER switch not only reduces maximum output, but also lets you drive the power amp into saturation at lower volumes while using all four tubes.

#### GIVE YOURSELF A BOOST OR KEEP IT QUIET

The Master volume control can be configured as a variable volume Boost, available by footswitch. When engaged, it will boost your amp's output by up to 9dB for solos or any time you need to stand out in the mix. The footswitch will MUTE the amp in Master mode, allowing you to switch guitars quietly.

**RECEIVING INSPECTION**—read before getting started  
**INSPECT YOUR AMP FOR DAMAGE** which may have occurred during shipping. If damage is found, please notify the shipping company and CARVIN immediately.  
**SAVE THE CARTON & ALL PACKING MATERIALS.** In the event you have to re-ship your unit, always use the original carton and packing material. This will provide the best possible protection during shipment. CARVIN and the shipping company are not liable for any damage caused by improper packing.

**SAVE YOUR INVOICE.** It will be required for warranty service if needed in the future.  
**SHIPMENT SHORTAGE.** If you find items missing, they may have been shipped separately. Please allow several days for the rest of your order to arrive before inquiring.  
**RECORD THE SERIAL NUMBER** on the enclosed warranty card or below on this manual for your records. Keep your portion of the card and return the portion with your name and comments to us.

#### 6L6 POWER TUBES

Your amp is equipped with 6L6 power tubes because of their powerful output and responsive tone. The characteristics of these power tubes respond to the wide dynamic range of guitar playing. If you play soft the tubes remain clean and if you increase your attack they respond accordingly.

#### HIGH IMPEDANCE GUITAR INPUT

Carvin has long known about the effects of miss-loading a guitar pickup, which can cause high frequency loss. The X100B guards against this loss with its high input impedance. We also considered the capacitance of the average shielded guitar cable which can reduce the high frequency response of your guitar pickups. Careful component layout and lead placement control oscillations and noise without extra capacitance in the circuit, allowing shimmering highs to be reproduced faithfully.

#### MODEL X100B AMP SPECIFICATIONS:

|  |   |
|--|---|
| RMS Power:   | 100, 50 or 25 watts, switchable   |
| Output Impedance:                                  | 4, 8 or 16ohm, switchable   |
| Input Impedance:                                   | 220,000 ohms  |
| Tone Controls:                                     | BASS, MID, TREBLE, PRESENCE   |
| Graphic EQ:  | 5-band, 18dB boost/or cut   |
| Channels:  | 2—switchable  |
| Ch 1 Sensitivity:                                  | 1mV for clipping  |
| Ch 2 Sensitivity:                                  | 16mV for full output  |
| FS44L: channel, reverb, effect loop and boost/mute |   |
| FS22: channel, reverb                              |   |
| Power Amp Tubes:                                   | 3—12AX7's (dual stage)<br>1.5 VAC @ 100 watts RMS   |
| USA Model:   | 4—6L6GC (8851)'s (power pentode), switchable to EL34's  |
| Export Model:                                      | 120VAC, 300VA<br>6A, slow blow fuse, 5x20mm   |
| Cabinet Size:                                      | 230VAC, 300VA<br>3A, slow blow fuse, 5x20mm<br>Head: 24.25"W x 10.5"H x 9.5"D   |
| Cabinet:   | Combo: 26"W x 17.5"H x 10.25"D  |
| Net Weight:  | Multi-ply hardwood  |
| Warranty:  | 35 lbs (head), .58 lbs (combo)  |
| Options:   | One Year<br>Made in USA<br>-CV3200 (head) or CV3212 (combo) cover<br>-FS44L footswitch - 4 function<br>-FS22 footswitch - channel and reverb<br>-GX4121 or GX412B (matching 4x12" speaker cabinets) |

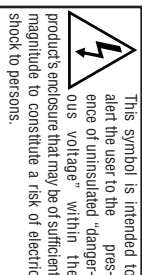
# CARVIN

12340 World Trade Drive, San Diego, CA 92128  
 (800) 854-2235 www.carvin.com

For your records, you may wish to record the following information.

Serial No. \_\_\_\_\_ Invoice Date \_\_\_\_\_

This symbol is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.



**CAUTION**  
 RISK OF ELECTRIC SHOCK  
 DO NOT OPEN

This symbol is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the appliance.



#### IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

**WATER AND MOISTURE:** Appliance should not be used near water (near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

**POWER SOURCES:** The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.

**GROUNDING OR POLARIZATION:** Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

**POWER CORD PROTECTION:** Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

**SERVICING:** The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

**FUSING:** If your unit is equipped with a fuse replaceable, replace only with the same type fuse. Refer to replacement text on the unit for correct fuse type.

#### SAFETY INSTRUCTIONS (EUROPEAN)

The conductors in the AC power cord are colored in accordance with the following code:  
 GREEN & YELLOW—Earth BLUE—Neutral BROWN—Live  
 U.K. MAIN PLUG WARNING: A modified main plug that has been cut off from the cord is unsafe. NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAIN PLUG INTO A POWER SOCKET.



**CAUTION**  
 RISK OF ELECTRIC SHOCK

**REFER SERVICING TO QUALIFIED SERVICE PERSONNEL! THIS UNIT CONTAINS HIGH VOLTAGE INSIDE!**

#### LIMITED WARRANTY

Your Carvin product is warranted against failure for ONE YEAR unless otherwise stated. Vacuum tubes are guaranteed for 90 days. Carvin will service and supply all parts at no charge to the customer providing the unit is under warranty. Shipping costs are the responsibility of the customer. CARVIN DOES NOT PAY FOR PARTS OR SERVICING OTHER THAN OUR OWN. A COPY OF THE ORIGINAL INVOICE IS REQUIRED TO VERIFY YOUR WARRANTY. Carvin assumes no responsibility for horn drivers or speakers damaged by this unit. This warranty does not cover, and no liability is assumed, for damage due to: natural disasters, accidents, abuse, loss of parts, lack of reasonable care, incorrect use, or failure to follow instructions. This warranty is in lieu of all other warranties, expressed or implied. No representative or person is authorized to represent or assume for Carvin any liability in connection with the sale or servicing of Carvin products. CARVIN SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. When RETURNING merchandise to the factory, you must call for a return authorization number. If your unit is out of warranty, you will be charged the current FLAT RATE for parts and labor to bring your unit up to factory specifications. Visit [www.carvinservice.com](http://www.carvinservice.com).

#### HELP SECTION

- 1) AMP WILL NOT TURN ON  
 Check the power to the amp. Check for tripped circuit breakers, unplugged extension cords or power-strip switches that may be turned off. Check the fuse. If a dark brownish color or no wire can be seen within the glass tube, then replace. The amp may be perfectly fine but occasionally a fuse may blow because of high AC voltage surges. After the fuse has been replaced with the proper Slow Blow value and if the fuse fails again, the amp will require servicing.
- 2) NO OUTPUT with POWER light ON  
 Tubes damaged in shipping will be the primary reason for your amp to not function properly. Please give us a call to help guide you through this simple repair.
- 3) KEEP YOUR AMP LOOKING NEW  
 Use a damp cloth to wipe the controls on the front & rear chassis panels. Wipe the black vinyl covering with a damp cloth.

**REFER SERVICING TO QUALIFIED SERVICE PERSONNEL! THIS UNIT CONTAINS HIGH VOLTAGE INSIDE!**

# CARVIN

12340 World Trade Drive, San Diego, CA 92128  
 (800) 854-2235 www.carvin.com

## X100B front & rear panel controls

### GETTING STARTED QUICKLY

If you are like most players, you probably want to plug in your new amp and get playing right away. You can read the rest of the manual later to learn the finer points of operating your amp. In order to get started you will need your X-100B amp, a 120 (or 230) AC grounded power outlet, your instrument, and a standard guitar cord. If you have the X-100B head version you will also need a speaker cord and speaker cabinet.

Plug in your speaker and set the "SPEAKER OHMS" switch to match your speaker. If you have the FS44L footswitch, plug it into the rear 5-pin "FS44L" footswitch jack. Or, if you have the FS22 footswitch, plug it into the rear 1/4 inch "FS22" footswitch jack. Turn all volume controls off. With the amp turned off, you may then plug it into the proper AC voltage.

Now, plug in your guitar and turn the POWER (1 / 0) switch to ON ( 1 ). Wait 60 seconds or more for the tubes to warm up, then turn the STANDBY switch to OPERATE. The amp will be ready to play in a few seconds. Gradually raise the channel volume and master volume controls and re-adjust the tone controls to your liking. Please call if you feel your amp is malfunctioning. Occasionally tubes are damaged in shipping.

### FRONT PANEL

#### 1. POWER SWITCH ( 1 / 0 )

The POWER switch is to be utilized as the master ON/OFF ( 1 / 0 ) switch. One of the two large RED LED's near the LEAD or RHYTHM controls will illuminate to indicate the power is ON.

#### 2. STANDBY / OPERATE SWITCH

After turning the POWER switch ON, wait 60 seconds or more for the tubes to warm up - then turn on the STANDBY switch to OPERATE. When turning the amp OFF, first turn the switch to STANDBY, then shut off the POWER switch. Use the STANDBY switch if you are taking a break. This turns the high voltage off, increasing the life of your power tubes while keeping the power and preamp tube filaments on for immediate use.

#### 3. EQ ASSIGNMENT SWITCH (LEAD/RHY)

Use this switch to select which channel (LEAD or RHYTHM) is shaped by the GRAPHIC EQ.

#### 4. GRAPHIC EQUALIZER

The GRAPHIC EQ is a powerful sound shaping tool. Each fader controls up to 18dB of boost (slide up) or cut (slide down) for each of the 5 frequency ranges labeled underneath.

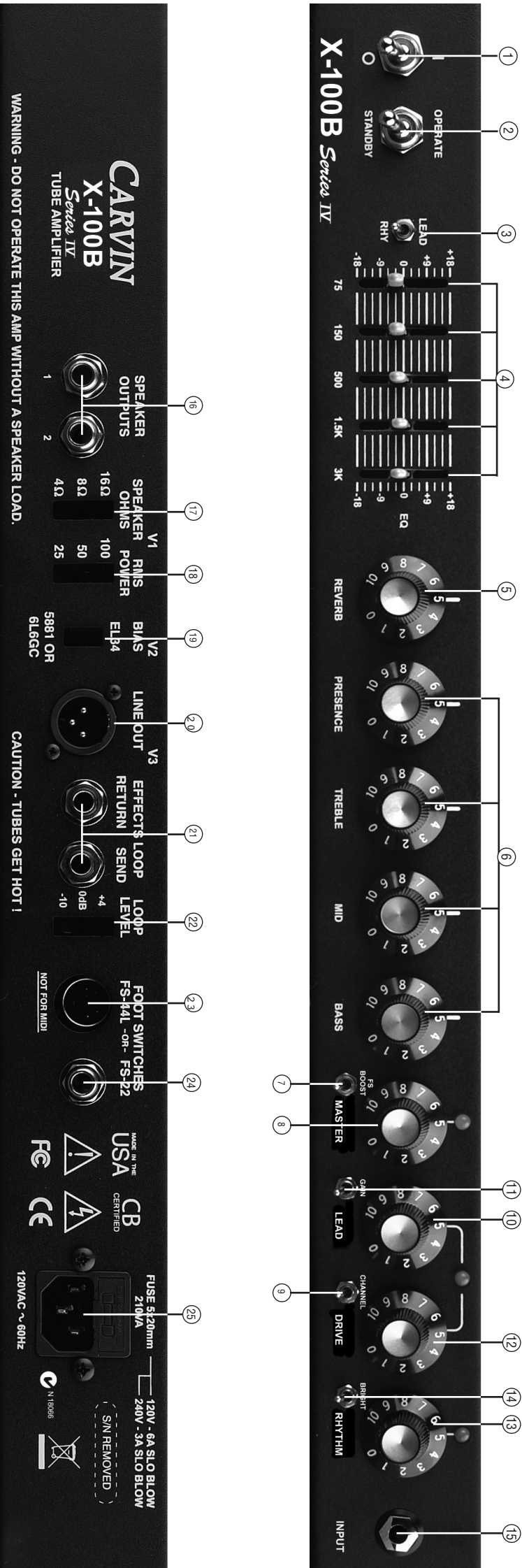
Select the channel to be EQ'd with the EQ ASSIGNMENT switch (#3), LEAD or RHYTHM.

#### 5. REVERB CONTROL

The X-100B has been custom designed with a lush, natural sounding reverb system. Adjust the amount of reverb with the REVERB control. Reverb can be turned off by remote footswitch. Only the send is turned off to allow the end of the reverb to decay without being cut off.

#### 6. ACTIVE TONE CONTROLS

To start, set the BASS, MID & TREBLE controls at their center (5) position. These controls are to be set according to the type of sound you want. For added clarity, the PRESENCE controls only the highest guitar harmonics in the 5kHz-10kHz range. Careful adjustment with the TREBLE control makes this feature even more useful.



### SPEAKER OHMS SWITCH IMPEDANCE CHART

| SPEAKER COMBINATION            | OHMS RESULT | SWITCH SETTING |
|--------------------------------|-------------|----------------|
| 16 ohms & 16ohms               | 8           | 8              |
| 8 ohms & 8 ohms                | 4           | 4              |
| 8 ohms & 16 ohms*              | 5.33        | 4*             |
| 16 ohms & 4 ohms* (DO NOT USE) | 3.2         | 4*             |
| 8 ohms & 4 ohms (DO NOT USE)   | 2.6         | DO NOT USE     |
| 4 ohms & 4 ohms (DO NOT USE)   | 2           | DO NOT USE     |

\* Use CAUTION with these combinations.

When using 2 speakers with different impedances, more power will go to the speaker with the smaller impedance.

Ideal use of the 8 & 16 ohm combination would be a 16ohm 2x12" cab and an 8ohm 4x12" cab.

If your speaker cabinet has a selector switch this can help you match the impedance.

### 25. AC POWER & FUSE

The detachable AC POWER CORD supplied is designed to operate with one type of voltage (the European 230V export model uses a CEE-7 plug cord set). Check the rear power cord label for the proper voltage. Make sure the cord is securely inserted into the back of the unit. Plug the cord into a grounded "3" prong" power source. No attempt should ever be made to defeat or use the amp without the ground connected.

The FUSE is located within the AC power cord receptacle. If the amp does not turn on, unplug the amp and check the fuse, AC power connection, your speaker connection and all tubes. Replace the fuse only with the same size and type.

### 5X20MM, 6A SLO-BLOW (3A SLOW BLOW FOR 240VAC)

If no problem is found and the fuse still blows, your amp may need service.

#### HELP SECTION

##### A) FEEDBACK FROM THE LEAD CHANNEL

The X-100B may feedback when the VOLUME, DRIVE, TREBLE and PRESENCE are turned all the way up. Like other high-gain tube amps, this is normal. To help control feedback and noise, reduce the DRIVE control, or move the guitar to the side or away from the speakers.

##### B) TUBE REPLACEMENT GUIDE

It is not uncommon for tubes to malfunction during shipping. If your amp is not working properly, please call or refer to the following replacement guide.

- 1) The 12AX7A preamp tubes are the smaller of the two kinds of tubes, and are located in the following order on your chassis: V1, V2, V3. To start with, V1 is located closest to the guitar input, near the output transformer. Replace the tubes if your amp does not work or sounds muddy or dull. V1 is the input tube and affects both channels. V2 is the main overdrive tube. Replace V3 if no output is heard when putting a signal through the effect return.
- 2) If there is no output after replacing the preamp tubes, or if the fuse blows, try replacing the EL34 output tubes. The amp should be rebased after replacing the output tubes.
- 3) If the amp stops working and the fuse is blown, turn the amp off and try replacing the power tubes. One of these tubes may have a short.

### 7. FS BOOST SWITCH

This switch changes how the MASTER volume control works. With this switch OFF, the MASTER control works normally. In the FS BOOST position, the volume of the amp is set to maximum and the volume of the amp will be set by the RHYTHM or LEAD controls only. (see below for more)

#### 8. MASTER VOLUME / BOOST LEVEL

FS BOOST switch OFF (DOWN): Use the MASTER to change the overall volume level for the amp when the FS BOOST switch is OFF. The FS44L can mute the amp output while changing guitars or for quiet passages in the music when the guitar is not played. The red LED over the MASTER will turn OFF when the amp is MUTED by the footswitch.

FS BOOST switch ON (UP): The MASTER is bypassed, and the volume of the amp is controlled only by the RHYTHM and LEAD settings. The MASTER control is used to set an overall volume boost of up to 9dB, activated by the FS44L footswitch. The red LED over the MASTER will indicate the BOOST is ON. Try using the FS BOOST with the RMS POWER feature! (#18)

#### 9. CHANNEL SWITCH

In the DOWN position, the RHYTHM channel is selected for open, clean sounds with lots of headroom. In the UP position, the LEAD channel is selected for overdriven sounds with tube harmonics and sustain. The channel can also be changed by footswitch. Leave the switch in the UP position when using the footswitch. The LEDs near the LEAD or RHYTHM controls indicate which channel is selected.

#### 10. LEAD VOLUME

When the LEAD channel is active, the volume is adjusted with the LEAD control.

### 11. GAIN SWITCH

The GAIN switch changes the gain structure of the LEAD channel: OFF (DOWN) - with the DRIVE control, go from a bluesy/breakup to a dynamic crunch overdrive. GAIN (UP) - increases the amount of drive available, allowing thick distortion harmonics.

#### 12. DRIVE CONTROL

As the DRIVE is turned up, tube harmonics and sustain are increased. The GAIN switch (#11) also affects the drive.

For textured harmonics with mild tube overdrive, turn the DRIVE control below "4". For increased harmonics and more tube saturation, set the control between 4 & 6. For full blown distortion turn on the GAIN switch and set the DRIVE control between 7 and 10 (your guitar volume should be turned all the way up).

The amount of overdrive you can get from the amp is also affected by the pickups in your guitar. Output levels vary from model to model, and single coil pickups generally have less output than dual coil humbuckers.

Because the X-100B has been "Hot Rodded" with so much gain, you may encounter feedback. If feedback is a problem, reduce the DRIVE or move the guitar to the side or away from the speaker(s).

#### 13. RHYTHM VOLUME

When the RHYTHM channel is active, the volume is adjusted with the RHYTHM control.

14. BRIGHT SWITCH The BRIGHT switch adds high end to the preamp, inviting high frequencies to ring out more easily.

#### 15. GUITAR INPUT

A standard 1/4" input jack feeds the signal from your guitar to the amp. Use a professional quality guitar cord no longer than 25 feet. Typical cable capacitance should be under 50pF—the longer the cord, the greater the capacitance (you can measure this with a capacitance meter). A long cable with high capacitance will reduce the overall treble response from your pickups.

### REAR PANEL

#### 16. SPEAKER OUTPUT JACKS

Two 1/4" SPEAKER JACKS are featured to operate several speaker systems at the same time. Calculate the total speaker impedance based on parallel wiring as the speaker jacks are wired in parallel. Select the IMPEDANCE SWITCH for the correct impedance.

#### 17. SPEAKER OHMS (IMPEDANCE) SWITCH

The IMPEDANCE SWITCH offers the selection of 4 ohm, 8 ohm or 16 ohm to match your speaker system. The correct setting for two 16 ohm speakers or cabinets would be 8 ohms. The correct setting for two 8 ohm speakers or cabinets would be 4 ohms. Select the proper impedance. (see IMPEDANCE CHART at the top of this page)

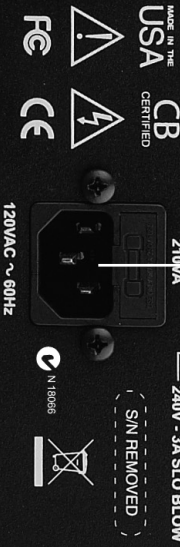
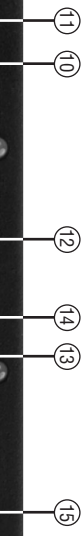
#### 18. RMS POWER SWITCH

The 3-position RMS POWER switch reduces the 100watt output of the amp down to 50 or 25 watts, while still using all four output tubes. Lower settings will allow the great sound and *feel* of the tube power amp being overdriven, but at lower volume levels. For maximum output power and headroom set the switch to 100watts. For early power amp saturation move this switch to 50watts. Setting this switch to 25watts can change the sound dramatically if desired, by turning up the MASTER or using the FS BOOST (#7) to produce even more power amp overdrive!

#### 19. POWER TUBE BIAS SWITCH

If you desire to change power tubes, you may do so by selecting the external BIAS switch to the EL34 position on the rear panel. Be sure that this switch is set to the proper position or excessive heat will damage your tubes. The amp should be re-biased when replacing the output tubes.

\* CAUTION! - The presence of high voltage inside tube amps can cause death or serious injury!



#### 20. LINE OUT

The LINE OUT jack is a fully balanced XLR output for connecting to power amps or mixers without the need for a direct box. All power amp dynamics are captured in this signal, including the RMS POWER setting. The output level is more than adequate to drive any professional mixer or power amp. A speaker load must be connected at all times while using the amp.

#### 21. EFFECTS LOOP

The EFFECTS LOOP is a standard *series* loop. This means it sends all signals through your processor. To use the EFFECTS LOOP, plug the INPUT of your effects into the SEND jack and the OUTPUT of your effects into the RETURN jack. Use shielded cables, not speaker cables. Adjust the processor's MIX setting to your liking. If your processor has a "Direct signal ON/OFF" setting, it is usually better to turn it ON.

#### 22. LOOP LEVEL

The LOOP LEVEL switch allows the X-100B to accommodate a variety of devices. If the input of your processor is being overloaded, use a lower setting. If you are getting excess noise from your processor, try the 0 or +4 setting. 0dB is typical for most applications.

#### 23. FS44L FOOTSWITCH JACK

Use only the Carvin FS44L (recommended) or Carvin FS44. Other footswitches will not work.

\* DO NOT use MIDI devices in this jack! \*

#### 24. FS22 FOOTSWITCH JACK

The switches on the FS22 footswitch control the channel selection and reverb. Most foot pedals with 2 switches, a stereo cord and plug will work. However, Carvin's FS22 is recommended