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# CARVIN

## ***Pro Bass***

**Amplifiers and Preamps**

**OPERATION MANUAL**

Manual 96-00500  
Revision 2.0

*Covers the Following Models*  
***PB15, PB150, PB300C, PB300 & PB500***

**1155 Industrial Ave. Escondido, CA 92029**  
**(800)854-2235**

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# CONTENTS

<b>Section</b>	<b>Description</b>	<b>Page</b>
<b>1</b>	<b>Your New Pro Bass</b>	
	Table of Contents	1-1
	Receiving Inspection	1-2
	For the New Owner	1-3
<b>2</b>	<b>Quick Start Up</b>	
	Quick Start Up	2-1
<b>3</b>	<b>Detail Control Descriptions</b>	
	Front Control Diagrams	3-1
	Front Control Description	3-2
	Rear Control Diagrams	3-3
	Rear Control Description	3-4
<b>4</b>	<b>Understanding the Pro Bass</b>	
	The Pro Bass Design	4-1
	Noise Gate	4-1
	Variable Compressor	4-2
	Electronic Crossover	4-2
	Bi-Amping	4-2
	The Mudcutter Circuits	4-3
<b>5</b>	<b>Model / Hookup Configurations</b>	
	PB300	5-1
	PB15, PB500	5-2
<b>6</b>	<b>Specifications</b>	
	PB-15, PB300, PB300C & PB 500	6-1
<b>7</b>	<b>Service and Technical Information</b>	
	Schematic Diagrams	7
	Wiring Diagrams	
<b>8</b>	<b>Warranty</b>	
	Warranty and Service Information	8-1

## Receiving Inspection

**INSPECT YOUR PRO BASS FOR ANY DAMAGE** which may have occurred during shipping. If any damage is found, notify the shipping company and call CARVIN immediately.

**SAVE THE CARTON & ALL PACKING MATERIALS.** In the event you have to reship your amp, always use the original carton and packing material. This will provide the best possible protection for your unit 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 servicing of your unit. Always check your invoice against the items you have received.

**SHIPMENT SHORTAGE.** If you find items missing, it may be that they were shipped separately. Please allow several days for the rest of your order to arrive before inquiring. If you determine (after allowing an appropriate amount of time) you have not received all the items you ordered, please call CARVIN.

## For the New Owner

Congratulations on your selection of CARVIN products: "The Professional's Choice." Your new Pro Bass amp demonstrates CARVIN's commitment to producing the highest quality & most sophisticated engineering in the audio industry today. Its wide acceptance and use by industry professionals illustrates the basis for CARVIN's recognition as "The Professional's Choice."

Since their conception, the Pro Bass amplifiers have offered advantages for the bass guitar player in both performance and features. Whether you purchased a single 15" Bass Combo amp, full 4-10 and single 18" Bass Stack, or the PB15 Bass Preamp and FET Amp combination, you will find powerful solutions for your bass requirements.

The Carvin Pro-Bass amplifiers are the apex of advanced bass rigs. Every aspect of their design is specifically targeted to the needs of critical players who require studio grade equalizers and signal processing. The Pro-Bass is "studio ready" with built in processing (noise gate, compressor and equalization) specifically tailored to the bass guitar. These signal processors have been engineered for maximum performance.

Professionalism can only be measured by the results people achieve through their effort and knowledge. It is not something that automatically happens when buying a new or more sophisticated product. Rather, it's what you do with the equipment and how well you do it that ultimately makes the point. We are certain your new Pro Bass will deliver the performance necessary for you to achieve solid results, and ultimately attain a high degree of professional gain and enjoyment.

To compliment your new amp and help you acquire that knowledge, we've included this manual. All of the information you need to be up and running is right here! You'll find using this manual easy and convenient. We've attempted to present the technical aspects of your new Pro Bass accurately and in "plain English". But, if you have any questions that are not answered here, please call us on our toll free number. Our sales staff is well versed in the technical aspects of our products and are waiting to assist you with any questions you may have. We wish to ensure your complete satisfaction and enjoyment with your new Pro Bass.

If you would like to comment on features or performance of your new Pro Bass, please feel free to contact us. Comments from our customers help us improve and further develop our products and our business. We sincerely welcome any comments or ideas you may have.

Please send in the warranty card. It will allow us to better understand how you are using our equipment while keeping a ready reference for our files. Sending in the warranty card also helps us to mail out literature and information that may be of interest to you as a professional musician. Let us know where you are so we can keep in touch!

In this manual there are plenty of diagrams and descriptions to aid you in understanding your new Pro Bass. So, with this manual in hand you hold the key to proper operation of your new Pro Bass, and to achieve truly professional results.

May you have many years of enjoyment, success, and fun with your new CARVIN Pro Bass!

**Carvin's national toll free number: 800-854-2235**



## Quick Start Up

If you're like most new owners, you're probably in a hurry to use your new bass amp. Here are some brief instructions to get you started. With the amp unplugged, turn the unit off and complete the following procedures:

### 1) CONNECTING AC POWER

- Check and change if necessary the rear AC Voltage Switch to the proper voltage. On some models a switch may not be found, instead pull out the Fuse Holder (built into the AC cord receptacle) and turn it over to the proper voltage as seen on the holder—this automatically switches the voltage and the fuse to the proper voltage and fuse value. On units with an AC voltage switch, change the fuse as necessary (fuse values are listed on the rear panel). See section 3—rear panel.
- Use only a grounded (3 prong) power outlet to prevent a shock hazard. This provides the quietest and safest method of operation.

### 2) CONNECTING SPEAKERS (except PB15)

- **PB300:** Use either or both of the two speakers jacks on the rear panel.
- **PB500:** Use any of the four 1/4" speaker jacks on the rear panel (two for the Right and two for the Left amps) Each amp is controlled by the "Bi-amp" switch on the rear panel. When the switch is off, both amps receive the normal preamp signal. When the switch is on, the LOW frequencies are delivered to the "B" amp—controlled by the NORMAL volume control and the HI frequencies are delivered to the "A" amp—control by the NORMAL and "HI" level controls. See section 4 "Bi-amping".

Be sure the "Bridging" switch is turned off for now. See section 3 item number 5 on how to "Bridge" your speakers.

Use only non shielded Heavy-Duty 16 guage speaker cables.

### 3) CONNECTING THE BASS GUITAR

- Use a high quality shielded audio cable. Plug your instrument into the "HI" input jack. For high output or "Active" pickups, use the "LO" input jack which is 6dB less in overall gain.

### 4) TURNING YOUR AMP ON

- Adjust the "Volume" and "HI LEVEL" controls to the off position.
- Adjust the "EQ" tone controls— "BASS, MID and TREBLE" and the "5 Band Graphic EQ" to their center neutral position.
- Switch the "DEEP" and "BRIGHT" to the off—out position.
- Adjust the "SUSTAIN" and "THRESHOLD" to the off position.
- Turn your amp on and adjust the "Volume" level up. Remember to turn your Bass up too.
- Spend time with your new Pro Bass amp. NOTE: Just like any highly modified amp, be conservative with adjustments or you may dial in extremes that may sound unpleasant.

### 5) The "PROTECT" CIRCUIT

- The "PROTECT" Circuits have three protect functions. It's important that these functions be understood. Some Pro Bass models have a "PROTECT" LED to indicate when the protect circuit has been activated.
  - a) The first protection mode is against shorted speaker outputs. If the speaker outputs should ever short while a signal is present at the output, the "Protect" relay will politely disengage the speakers from the output section of the power amp protecting the amp from any damage.
  - b) The second protection mode detects any excess load (current) that may be drawn from the speaker outputs. The Pro Bass is designed to give its full rated power into 4Ω (8Ω bridged on the PB500) without the Protect relay engaging. Even 2Ω loads can be used safely at less than full power. However, the "Protect" relay will engage when the amp is driven hard and loaded less than its 4Ω rating.
  - c) The third protection mode is temperature related. The "Protect" relay will come on if the amp approaches its maximum operating temperature. This protect mode may be caused by 1) blocked fan vents, 2) excessively warm air going into the fan vents (if rack mounted, be sure the rack is properly vented with cool air), or 3) the amp is driven hard below its rated speaker impedance.

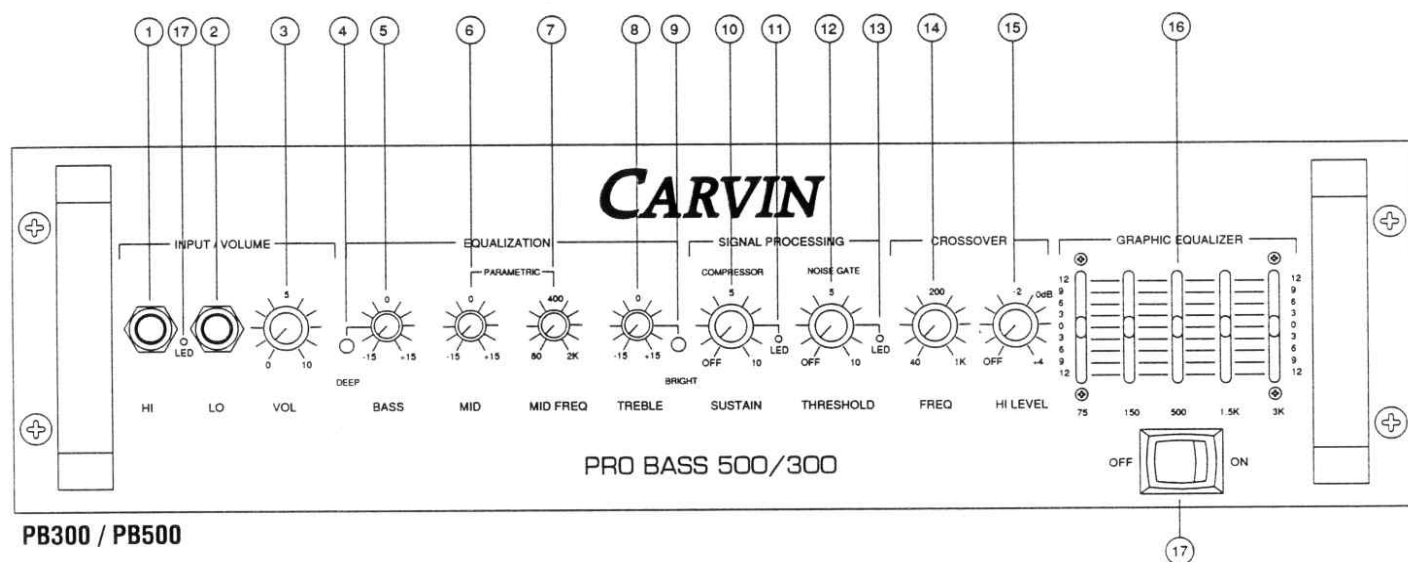
### 6) RESETTING THE "PROTECT" CIRCUIT

- a) If the amp stops functioning when the power light is on, the amp is probably in one of the 3 protect modes just listed. If this is the case, simply turn the amp off—wait for 3 seconds—and turn the amp back on again to play. Check the conditions that may have existed to prevent the protect mode from engaging again.
- b) If the amp goes into the protect mode because of higher than normal operation temperature, turn the amp off—wait for to 3 seconds and turn the amp back on. If the speakers do not come back on, than you know that it is protecting from higher than normal operating temperatures. If this is the cause, leave the amp on and wait for the fan to cool the amp down. This generally takes about 3 to 5 minutes. At that time turn the amp back off—wait for 3 seconds and turn it back on and the amp is ready to function. It's important to know that if your amp should ever go into a "Protect Mode" it does not harm your amp in any way. In fact, your amp was checked in the "Protect Mode" several times before its was shipped as part of Carvin's quality assurance program.

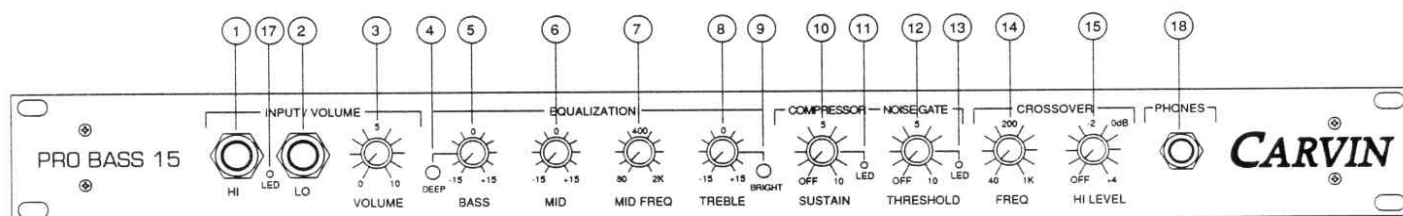




# Front Panel Features



PB300 / PB500



PB15

# Front Panel Features

## 1. HI INPUT JACK

This is the input normally used with bass guitars which have conventional high impedance pickups. The HI input has a high input impedance and high gain and is designed to accept normal instrument level inputs.

## 2. LO INPUT JACK

The LO input is provided to allow the Pro Bass to take full advantage of low impedance instruments and instruments with higher ("line level") outputs such as "Active" guitars. This input has 6 dB less gain and a lower input impedance than the HI input. The HI and the LO inputs can be used simultaneously without any adverse loading or interaction between the two sources.

## 3. VOLUME CONTROL

The Volume control adjusts the overall loudness of the amp at the speaker outputs line output, crossover outputs, and at the headphones jack. This control has no effect on the signal level at the effects loop and does not affect compressor or noise gate settings. Set the volume at minimum

## 4. DEEP BASS

Depressing this switch activates an equalizer which provides 10 dB at 40Hz of boost in the low bass range.

## 5. BASS CONTROL

The Bass control (along with the Treble control) provides overall shaping of the total spectrum. The action of this control has been carefully matched to the response of the bass guitar and provides the player with powerful control over the frequency range most critical to the sound of the instrument. Setting the Bass control to "O" results in uncolored (flat) bass response.

## 6. MID CONTROL (Level)

The Mid control provides boosting or cutting action at a relatively narrow band of frequencies. The center of the frequency band is determined by the setting of the Mid Freq control (next paragraph). A good way to use the Mid EQ is to first boost the Mid control all the way and sweep the Mid Freq control to find the frequency (pitch) range that you want to modify. Then, once you have found the frequency range you wish to adjust set the Mid control to provide the amount of boost or cut that you want. The parametric midrange EQ is a powerful sound shaping tool that usually requires some experimentation and ear training before you get the best results. Use the Mid controls to "fine tune" the sound of your bass after you have established the overall tone with the Bass and Treble controls. Setting the Mid control to "O" results in uncolored "flat" mid response regardless of the setting of the Mid Freq control.

## 7. MID FREQUENCY (Adjustment)

This control works in conjunction with the Mid control. When the Mid control is set to "O" the Mid Frequency control will appear to have no effect. This is normal behavior. A very wide frequency range of 4 1/2 octaves (80 Hz to 2kHz) has been provided on the midrange equalizer to allow tone shaping of the bass guitar anywhere from the low bass to the upper midrange. Try boosting the Mid control all the way and sweeping the Mid Freq control from end to end to learn the range of frequencies which this equalizer can adjust.

## 8. TREBLE CONTROL

Use the Treble control (along with the Bass control) to provide overall shaping of the tonal spectrum. The Treble control in the Pro Bass has been specially designed to amplify the very high harmonics only—not the mid highs that sound unpleasant.

## 9. BRIGHT SWITCH

When this switch is depressed the upper treble range is increased by 10 dB at 8kHz. This can provide good high frequency compensation for many popular 15" and 18" loudspeakers when they are used full range. Using the Bright switch while boosting the Treble control allows radically bright sounds from the bass with any speaker system.

## 10. SUSTAIN CONTROL (Compressor)

Raise the Sustain control to turn on the compressor. Because the compressor acts by turning down the volume on the louder notes you may need to increase the Volume setting to keep the same loudness you had with the compressor turned off (See THE COMPRESSOR in section 4).

## 11. COMPRESSOR LED (Indicator)

The compressor LED comes on as you play to indicate that compression (gain reduction) is occurring. Higher sustain control settings provide more compression which the LED indicates by staying on longer when a note is played. Your instruments volume control will also determine the amount of compressor action.

## 12. NOISE GATE (Threshold Control )

Raise the Threshold control to turn on the noise gate. Set the control just high enough to cut the noise when not playing. (See THE NOISE GATE in section 4).

## 13. NOISE GATE LED (Indicator)

The green LED comes on to indicate that the noise gate is muting the amp. Your instrument's volume control will also affect the noise gate's threshold.

## 14. FREQ. (Crossover)

This control sets the crossover frequency of the built in crossover anywhere over the range from 40Hz to 1000Hz. When not used for bi-amping, the crossover can be used as a 40Hz subsonic filter. (SEE THE CROSSOVER in section 4).

## 15. HI LEVEL CONTROL (Crossover Output)

When you are using a bi-amped speaker system the Hi Level control is used to balance the volume of the high range speaker against the volume of the low range speaker. When you are not bi-amping set this control at OdB. (SEE BI-AMPING in section 4).

## 16. GRAPHIC EQUALIZER —except PB15

The 5 band Graphic Equalizer in the Pro Bass provides a wide degree of tonal flexibility. To properly use the Graphic EQ (equalizer), set all sliders to their center position. With the sliders at this position, there is no effect on the audio signal. When you raise the slider above the center position, you boost levels in a narrow frequency band. If you lower the slider below the center, you are subtracting levels. When using these sliders, think of them as volume controls that can add or subtract tones in narrow frequency bands. When the optional FS-36 Footswitch is used with the Pro Bass, the "EFF 2" switch will turn the Graphic EQ on and off so that a preset tonal change is instantly available during a performance. When the footswitch is not connected the Graphic EQ is "on".

*Frequency:* The 75 Hz slider is for deep sub bass level adjustments, the 150 Hz is for higher bass adjustments, the 500 and 1.5K Hz are for mid and higher mid tone adjustments, the 3K Hz is for mid treble adjustments.

*Adjusting:* It is recommended that all sliders be set in their center position before equalizing your tone. If you raise or lower all sliders at the same time, the EQ will act more like a volume control because you are effecting most frequencies. Be careful with your adjustments, because you are effecting the overall sound as well.

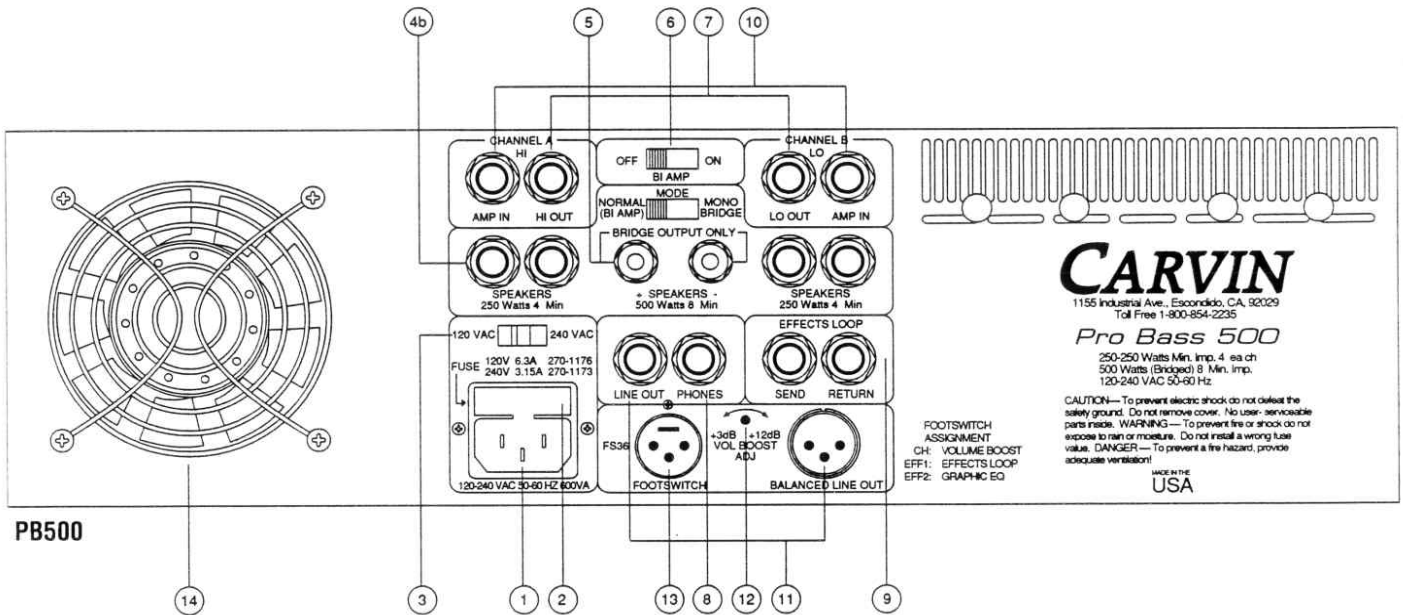
## 17. POWER ON/OFF SWITCH

A red LED located between the input jacks indicates when the amp is on.

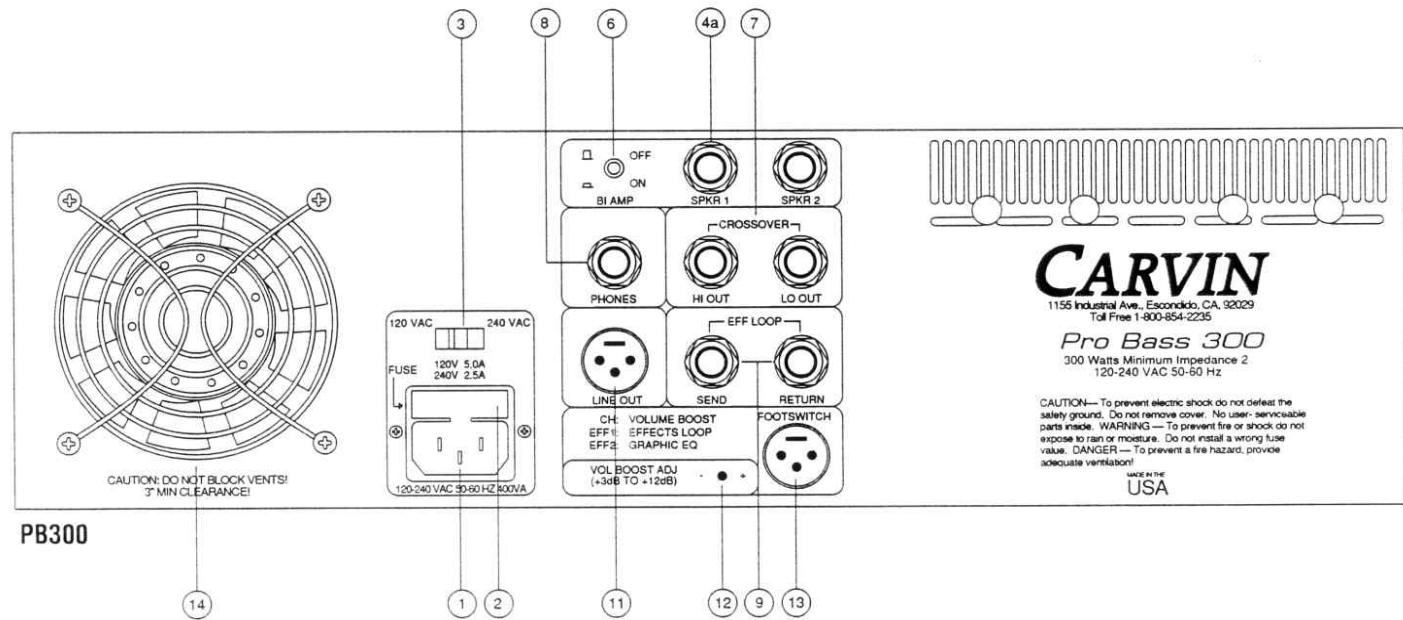
## 18. HEADPHONES

The headphone jack for the PB15 is located on the front panel. For the PB300 and the PB500, it's located on the rear panel. This is a mono output with both right and left sides receiving the same signals. Use a high quality headset with an impedance greater than 100Ω.

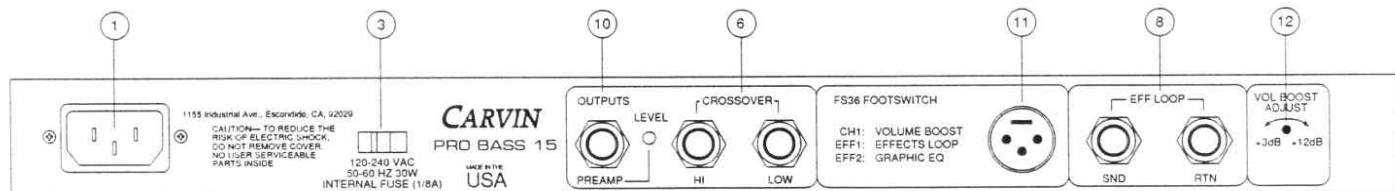
# Rear Panel Features



PB500



PB300



PB15

# Rear Panel Features

## 1. AC LINE CORD

The Pro Bass employs a heavy duty removable grounded AC cord and should only be plugged into a grounded "3 prong" power outlet. If a grounded outlet is not available, the amp should not be used. For safety, no attempt should ever be made to defeat the ground pin of the AC line cord.

## 2. AC LINE FUSE

The Pro Bass fuse is built into the AC receptacle socket—marked by an arrow on the rear panel pointing to the receptacle. The fuse can be changed by removing the AC cord and wedging a slot-head screwdriver under the top to pull out the fuse holder. Once out, the fuse can be replaced (there is room for a spare fuse in the tunnel). 120 volt fuses are available from Radio Shack: Part No 270-1175 for a 5 Amp slow-blow fuse for 120 volt use and 2.5 Amp for 220 volt use. Use slow-blow 5 x 20mm fuses only. The fuse for the PB15 is internal. Remove the top cover for easy access.

## 3. 120/240 SWITCH

Check and change if necessary the rear AC Voltage Switch to the proper voltage. If a switch is not found, than pull out the Fuse Holder (built into the AC cord receptacle) and turn it over to the proper voltage as seen on the holder reading right side up ( $\frac{120V}{100Hz}$ )—this automatically switches the voltage and the fuse to the proper voltage and fuse value. On units with an AC Voltages Switch, change the fuse as necessary (fuse values are listed on the rear panel).

### 4a. PB300 SPEAKER CONNECTIONS

The PB300 incorporates two 1/4" speaker jacks. Both jacks are wired in parallel. The total minimum speaker impedance is 2 $\Omega$ .

### 4b. PB500 SPEAKER CONNECTIONS (Normal)

The PB500 incorporates two speaker jacks per amp for a total of four speakers jacks. Both power amps are driven from the same pre amp signal (except when the Bi-Amp switch has been selected to Bi-amping). The minimum speaker impedance per jack pair (amp) is 4 $\Omega$ .

## 5. PB500 SPEAKER CONNECTIONS (Bridged)

The dual power amps on the PB500 can be "Bridged" together to create one large amp. When Bridged, the minimum impedance becomes 8 $\Omega$ . Any load below 8 $\Omega$  is not recommended. To Bridge the PB500, turn the amp off. A special cable from your 8 $\Omega$  speaker system must be made with bare wires at the amp end. Carefully connect these to the large BINDING POSTS below the MODE switch. Note the positive and negative Binding Posts for proper phasing to the speaker. Now move the MODE switch to the MONO "BRIDGE" position. You are now ready to turn the amp on and play. These wires carry high current. Be sure they do not fray and short. CAUTION: The high output power from bridging will damage speaker(s) if not carefully used.

## 6. BI-AMP SWITCH

PB300 model: Depressing the BI-AMP switch puts the amp in the bi-amp mode and connects the HI output of the crossover to the internal power amp. The external amp is than connected to the LO output jacks.

PB500 model: To Bi Amp move the BI AMP switch to ON. The HI LEVEL (hi frequencies) control now feeds amp A and the VOLUME control (low frequencies) feeds amp B. When the BI AMP switch is turned OFF both A and B amps receive the same signal from the preamp.

## 7. CROSSOVER HI & LOW OUTPUT JACKS

These outputs follow the settings of the CROSSOVER FREQ, VOLUME and HI LEVEL controls regardless of the position of the Bi Amp switch. Use these jacks to drive additional power amps.

## 8. HEADPHONES

The headphone connector for the PB300 and the PB500, it's located on the rear panel. This is a mono output with both right and left sides receiving the same signals. Use a high quality headset with an impedance greater than 100 $\Omega$ .

## 9. EFFECT LOOP (SND & RTN JACKS)

In order to connect an external effects unit into the Pro Bass first patch the signal from

the EFF SND jack into the input of the effects unit and then patch the output of the effects unit back into the EFF RTN jack. Use the EFF 1 switch on the FS-36 footswitch (optional) to switch the external effects unit in and out of the signal path. When the footswitch is not connected the effects loop does not function.

## 10. PB500 AMP IN JACKS

The PB500 features separate A and B LINE IN jacks. When used, the input from the Pro Bass preamp is interrupted permitting you to use just the power amp(s). These jacks are useful for Stereo Effects returns. Using the LINE OUT jack to drive the stereo effects device and you return into the A and B power amps for stereo output.

## 11. LINE OUTPUT JACK

The LINE OUTPUT jack can be used to drive a stereo effects device or connected to a mixer for recording or for sound reinforcement. This output follows the Volume control but is not affected by the crossover. The balanced XLR connector can be used for live stage or recording. The PB500 features an additional 1/4" line out connector.

## 12. VOL BOOST ADJ

The volume boost adjust control is a function of the (CH) footswitch that permits a volume change when depressing the switch. The factory setting is a 6 dB change. Using a small screwdriver you can adjust this change from 3 to 12 dB. Some models require the top cover to be removed and the adjustment made through a hole located on the PC card.

## 13. FOOTSWITCH

Connect the optional FS-36 lighted footswitch. The assignment of the footswitch functions is as follows: CHANNEL: Volume Boost On/Off, EFF 1: Effects Loop On/Off, EFF 2: Graphic EQ—except PB15.

## 14. COOLING FAN

The fan is designed to run continually to cool the Pro Bass. Be careful not to block the air around the grill—fan area. If you are having Temp/Protect problems or if the incoming air is too hot, the "Protect" relay will disengage the speakers. See "Quick Set Up"

## Pro Bass Design

The Pro Bass is a natural to use. Just step up, plug your bass in and raise the volume. Your bass lines are instantly produced through the most advanced amplifier you've ever heard. The Bass Control action is just right, giving you powerful control over the pitch range most critical to your sound. If your speaker is a little shy in the deep bass, then press the Deep switch to restore the balance. A special "mud cutter" circuit gives you a good "neutral" sound to start with so you will usually need only minor EQ adjustments. If your current amp has the kind of "middle" control where it's hard to hear the difference between "0" and "10" then you will especially appreciate our new parametric Mid EQ with its wide range frequency control. We've even contoured the Treble control and Bright switch for a range of action especially suited to the bass guitar. With the active tone coloring controls on the Pro Bass you'll never complain about the lack of EQ action. This amp puts YOU in control of your sound.

Many bass players who have tried "pedal box" compressors have been disappointed by the audible "breathing" and "pumping" side effects that result from the crude circuits often employed in these boxes. The fact is, high quality compressors such as those used in recording studios) are virtually inaudible when used properly. But you may ask, who wants an "effect" that can't be heard? You do! The benefits of carefully applied compression includes increased sustain, loudness leveling, and increased loudness before overdriving your amp. The compressor designed into the Pro Bass provides all the benefits of studio quality compression without the annoying "sound effects" kind of action you may associate with pedal box compressors. (See "COMPRESSOR")

Another design goal for this bass amp was that the preamp output be of such excellent quality that no further processing would be needed for professional recording. In order to meet this goal a noise gate was essential. If you have never used a noise gate you can simply think of it as a processor that automatically turns down the volume whenever you are not playing. As soon as you start playing again it instantly turns the volume back up. This eliminates any hum or buzz from your instrument when you are not playing and during brief pauses in your playing. Since the only time you really notice the noise from most instruments is during silent periods, a noise gate has the effect of making the instrument "noise free." Noise gates are almost always used on the bass in professional recording studios, so a noise gate was a must for the Pro Bass. One control sets the threshold and an LED indicates when the amp is "gated" off. Finally your live sound can be as noise free as your studio recordings. (See "NOISE GATE")

## Special Features

### • THE COMPRESSOR

CARVIN's "one knob" compressor is extremely simple to operate and provides all the benefits of studio quality compression without all the knob tweaking. That's because it was designed for bass players rather than recording engineers. We have carefully selected compression parameters which provide excellent results with the bass so that you can concentrate on your music! Use the compressor to level out your volume and increase sustain. Because this is a quality compressor its action will not be obvious. As an experiment to learn how the compressor works, try alternating between very loud and very soft notes, first with the Sustain control "off", and then with it on "10" so that you can hear how the compressor is leveling out the loud and soft passages. Note that with the Sustain control at maximum, the loudness difference between the very loud and the very soft notes is greatly reduced. This is the volume leveling or "dynamics compression" effect of the compressor. Note also how the compressor will maintain the volume of a single note which is held for a long time. In this case we perceive the leveling action of the compressor as increasing the sustain of the note. For recording you will find that the compressor makes it much easier to set record levels and also allows for higher average recording levels.

With the Sustain control set at "off" the compressor is defeated and the LED does not illuminate. As you raise the Sustain control the LED will begin to light in response to louder notes which indicates that the compressor is becoming active. Raising the sustain control higher will cause greater compressor action which the LED indicates by coming on sooner and staying on longer. Use the LED as an indication of how much compression is occurring. When the LED is on the compressor is acting to maintain a relatively constant volume from your bass. Note that the volume control on your bass will act like a remote Sustain control. Lowering the volume control on your bass will reduce the compression action and raising it will result in more compression.

#### • THE NOISE GATE

Raise the THRESHOLD control to activate the noise gate. With your instrument's volume at maximum and the strings muted, raise the control until the noise from the instrument is gated off and the green LED illuminates. As you begin playing you will hear your instrument's noise return as the noise gate returns the volume to normal. But notice that as soon as you pause, the noise gate will reduce the volume so that the background noise from the instrument (or any effect used in the effects loop) is not heard. The noise tends to be inaudible while you play because the bass notes cover up or "mask" the background noise. The net result is that the noise gate eliminates the usual background noise from your bass. We recommend that you use the noise gate whenever you use your amp and especially in the recording studio. Now your stage sound can be as clean as your studio sound!

The green threshold LED comes on to indicate that the noise gate has gated off (turned down) the amp. It will light whenever the input signal level falls below the gating threshold level set by the Threshold control. As soon as you play a note, the gate opens to pass the music signal through the amp. Other than cutting out the noise, the noise gate has no audible effect on the music signal. You may notice a burst of noise when you tap your strings while using the noise gate. This is normal action for any noise gate. The noise gate is not creating any noise of its own it is merely gating on in response to the signal from your instrument and then quickly gating off. A potential problem with any noise gate is that it can cut off weak notes or the ends of long sustained notes if the threshold is set too high. This is especially true if you have set the threshold with the volume on your instrument at maximum and then later reduce the instrument's volume setting. If you take care to set the THRESHOLD control only high enough to effectively cut out the noise, then you should have no problems.

## The Electronic Crossover

### BI-AMPING

In recent years many bass players have discovered the advantages of loudspeaker bi-amplification. Bi-amping allows the player to independently control the bass and treble range of his instrument beyond the normal EQ controls of a preamp. Speakers designed for a specific frequency range can be utilized to a greater advantage. And, the use of a separate power amp for each frequency range also increases the acoustic output from a Biamped system.

A bi-amped system requires the following components:

1. An active crossover —included in all Pro Bass models
2. A power amp for the hi-range speaker (included in all models)
3. A power amp for the low-range speaker —must add an amp for the PB300 (included in the PB500)
4. A high range speaker system
5. A low range speaker system
6. Appropriate interconnect cables

### BI-AMPING THE PB300

When the Bi-amp switch is depressed, the "HI" output of the crossover feeds the internal power amp and the "LOW" output is available at the rear panel to feed an external power amp to complete the bi-amplified speaker system.

### BI-AMPING THE PB500

To Bi-amp, switch the rear Bi-amp switched "ON". Set the FREQ control to the desired crossover frequency.

The "LOW" frequencies from the crossover are fed into the B amp and are controlled by the "VOLUME" control.

The "HI" frequencies from the crossover are fed into the A amp and are controlled by the "HI" LEVEL control—balance with the low frequencies.

Plug the appropriate Treble and Bass speakers into the corresponding A and B amps.

- **SUBSONIC FILTER or SPECIAL EFFECTS**

Use your electronic crossover for special effects or to save power from subsonic frequencies. A 40Hz subsonic filter is highly recommended for high sound level applications as this prevents amplifier power from being wasted on subsonic signals and reduces loudspeaker cone travel to allow the speaker to handle more audio power. The net result is that the subsonic filter can greatly reduce distortion from the power amp/speaker combination when extremely high sound levels are required. If you are in a situation where you need more sound level than your amp/speaker combination will normally provide then sweeping the Freq control higher than the 40Hz setting will allow you to trade some low bass response for even higher sound levels before distortion occurs. Some unique tonal effects can be obtained by sweeping the Freq control higher and working with the tone controls. Experiment!

Turn the rear BI-AMP on. Turn the front FREQ. control to the minimum 40 Hz position. Now adjust your level by both the VOL and HI LEVEL controls. Your speaker(s) should be plugged into the A amp.

## Pre Amp Equalizer

### THE "MUDCUTTER" CIRCUIT

Recording engineers have long known that when the bass guitar is connected directly to the recording console and auditioned through an accurate monitoring system it tends to sound "muddy". If you've ever played your bass directly through your hi-fi system you will recognize the sound. At CARVIN we discovered the reason for this undesirable coloration while studying the energy spectrum that is produced by the bass. Using sophisticated spectrum analyzers, we carefully plotted long term averages of the energy from the bass guitar and found that there is a pronounced accumulation of energy in the mid-bass region. This is the same region of the spectrum which corresponds to a "muddy" sound when it is overemphasized. In response to this discovery, we created a special filter which was designed to mirror the energy peak we were observing and flatten out the energy spectrum from the instrument. The results were very impressive! When the bass was auditioned through the new circuit, the "muddy" sound was gone and we were left with a clean natural sounding bass guitar. When players were allowed to switch the new circuit in or out they consistently preferred the clear, uncolored sound of the "mudcutter" circuit. It came as no surprise to realize that the action of our new circuit was basically the same corrective action that recording engineers were applying in the studio to get the clean, punchy bass sounds you hear on popular hit songs.





# Model / Hookup Configurations

## PB300 HEAD & SPEAKER SYSTEM(S)

The PB300 head incorporates one power amp. You may plug any 2Ω, 4Ω or 8Ω speaker into the two speaker output jacks. The maximum capacity is four 8Ω speakers Y into two jacks for 2Ω or from one jack for a total minimum impedance of 2Ω. By adding an additional power amp, you may use the electronic crossover for Bi-Amping.

## PB500 HEAD & SPEAKER SYSTEM(S)

The PB500 head incorporates two power amps. Plugging one 4Ω speaker system into the A amp will net you 1/2 of its rated power. Plug a second 4Ω speaker system into the B amp will give you its full rated power. Or, you may want to plug two 8Ω speaker systems into each A and B side for a total 4Ω load to each power amp.

- **NORMAL FULL RANGE:** Weather using a single 15" speaker system or a full stack (four 10's and one 15" or 18" speakers) you will find the PB500 tone circuits offer an extended range and high power without having to Bi-Amp.

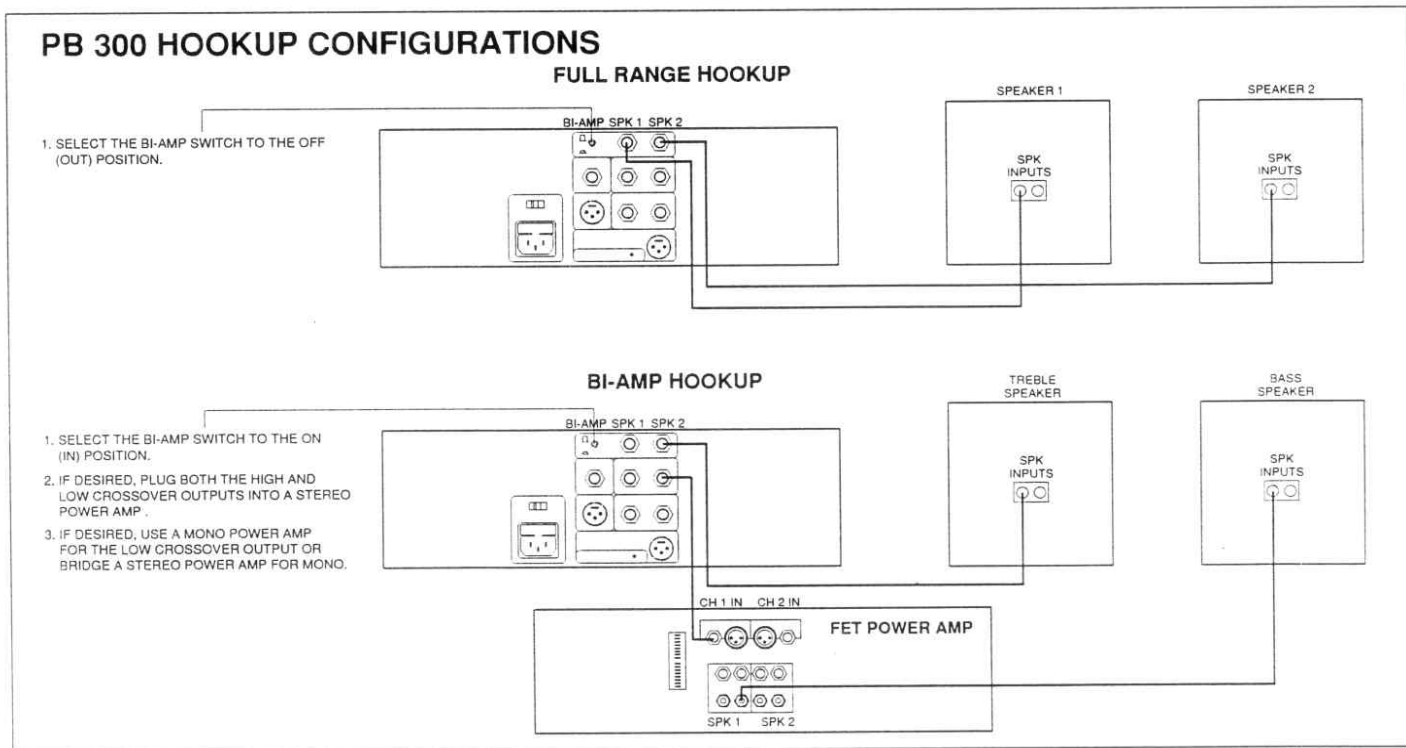
Carvin's V410T enclosures feature a tweeter for added upper bass harmonics. When adjusting your treble, stand 45° off axis to the side of your speakers for the true average response of your speaker system.

- **BI-AMPING:** Discussed in Section 4 in this manual.
- **BRIDGING** for twice the 8 ohm power, discussed elsewhere in this manual. (CAUTION - May result in potential speaker damage).

## PB15 & FET POWER AMP

Remove the units from their cartons and install into the C10 cabinet using the supplied screws and washers. Remove the feet from the PB15 and FET power amp.

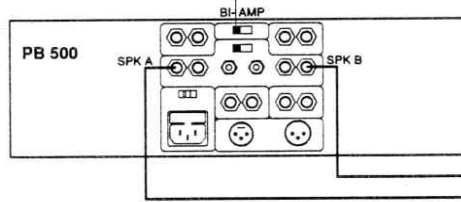
- **NORMAL FULL RANGE:** Connect one 1/4" cable from the PB15 PRE-AMP OUTPUT to the FET Amp A or B Inputs. You can use the built in Y adapter in the FET amp's "Professional Accessory Group" by turning the #1 of S1 and S2 to the right or "on" position—91 models or later. Set the rear PB15 output trim LEVEL to match your desired range for the front volume controls on the PB15.
- **BI-AMPING:** Connect two 1/4" cables from the HI and LO outputs of the PB15 to the A and B inputs of the FET amp. The FET volume controls should be turned up full. Control the levels from the PB15 - use the VOLUME for the Bass and Treble frequencies - use the HI LEVEL for the desired Treble matching.
- To **BRIDGE** the FET Amp for twice the 8 ohm power, see the FET power amp manual (CAUTION-may result in potential speaker damage).



# PB 500 HOOKUP CONFIGURATIONS

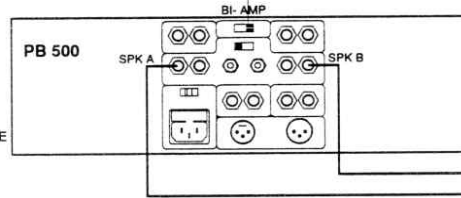
## FULL RANGE HOOKUP

1. SET THE BI-AMP SWITCH TO THE OFF POSITION.



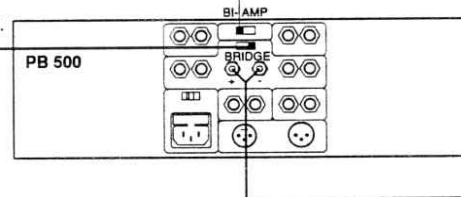
## BI-AMP HOOKUP

1. SET THE BI-AMP SWITCH TO THE ON POSITION.
2. SET THE CROSSOVER FREQUENCY AT 200Hz. RE-ADJUST TO YOUR PREFERENCE.
3. USE NORMAL VOLUME FOR BOTH LOW & HIGH LEVELS. USE HIGH LEVEL TO SET AND BALANCE TREBLE SPEAKER.



## MONO "BRIDGED" HOOKUP

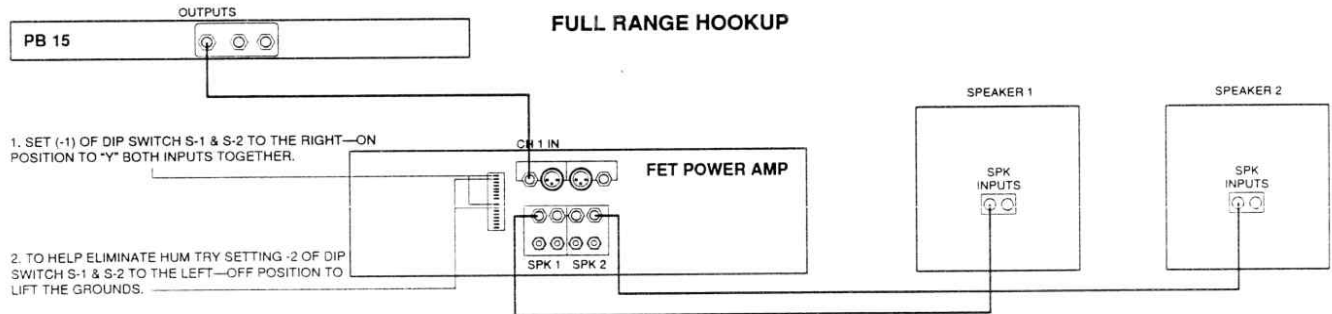
1. SET THE BI-AMP SWITCH TO THE OFF POSITION.
2. SET THE MODE SWITCH TO THE MONO BRIDGE POSITION.
3. USE A SPEAKER SYSTEM WITH A MINIMUM SPEAKER IMPEDANCE OF 8 OHMS. CAUTION: HIGH POWER COULD DAMAGE SPEAKERS.



# PB 15 / POWER AMP HOOKUP CONFIGURATIONS

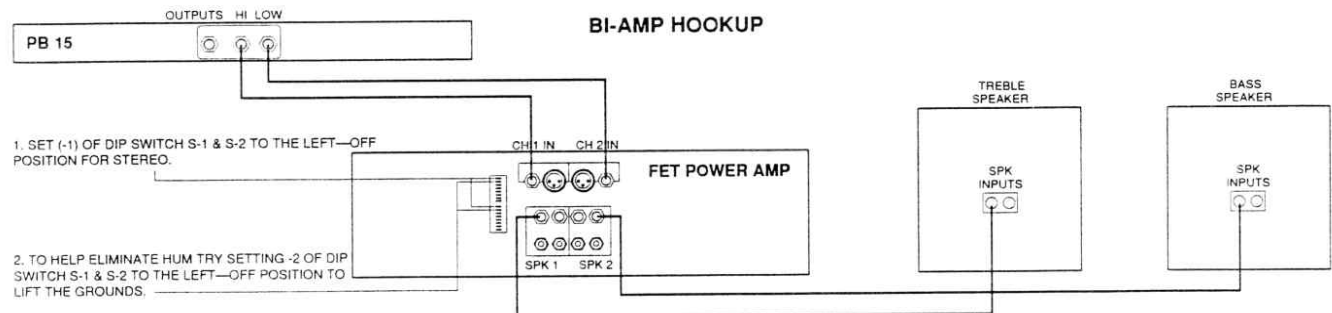
## FULL RANGE HOOKUP

1. SET (-1) OF DIP SWITCH S-1 & S-2 TO THE RIGHT—ON POSITION TO "Y" BOTH INPUTS TOGETHER.
2. TO HELP ELIMINATE HUM TRY SETTING -2 OF DIP SWITCH S-1 & S-2 TO THE LEFT—OFF POSITION TO LIFT THE GROUNDS.



## BI-AMP HOOKUP

1. SET (-1) OF DIP SWITCH S-1 & S-2 TO THE LEFT—OFF POSITION FOR STEREO.
2. TO HELP ELIMINATE HUM TRY SETTING -2 OF DIP SWITCH S-1 & S-2 TO THE LEFT—OFF POSITION TO LIFT THE GROUNDS.



## PB15 Preamp Specifications

Frequency Response	20 to 20k Hz $\pm 1$ dB
THD	0.05% 20 to 20k Hz
Input Impedance	1 Megohms (Hi) 39k ohms (Lo)
Maximum Input Level before clipping	Hi Jack: 1.3Vrms Lo Jack: 4.5Vrms
Input Sensitivity	30mV for 4Vrms output
EQ Tone Controls—Bass	$\pm 15$ dB shelving below 200 Hz
Deep Switch	+10 dB @ 40 Hz
Mid (level)	$\pm 9$ dB
Mid Freq	80 Hz to 2k Hz—sweepable
Treble	$\pm 15$ dB peak/dip at 10K Hz
Bright Switch	+10 dB @ 5K Hz
Graphic EQ Freq.	75, 150, 500, 1.5k & 3k Hz $\pm 18$ dB
Compressor (Sustain)	3:1 up to 20 dB compression. Attack time: 200 $\mu$ s
Noise Gate (Threshold)	30 dB quieting: Release time: 300m Sec
Electronic Crossover Level	Hi and Lo Freq. line outputs: +18 dBV into 600 $\Omega$ unbal.
Electronic Crossover Freq	12 dB/oct derived constant voltage—40 Hz to 1k Hz sweepable
Effects Loop	Normalized to 0dB for both send and return
Line Outputs	+18 dBV 600 $\Omega$ unbal. +24 dBV 600 $\Omega$ bal. XLR
Headphone	+18 dBV into 600 $\Omega$ per side.
Power Requirements	120/240 VAC 50-60 Hz
Fuse	120V: 1 Amp. 240V: 0.5 Amp—AGC type
Dimensions	19"W x 10"D x 1.75"H
Shipping Wt	10 lbs

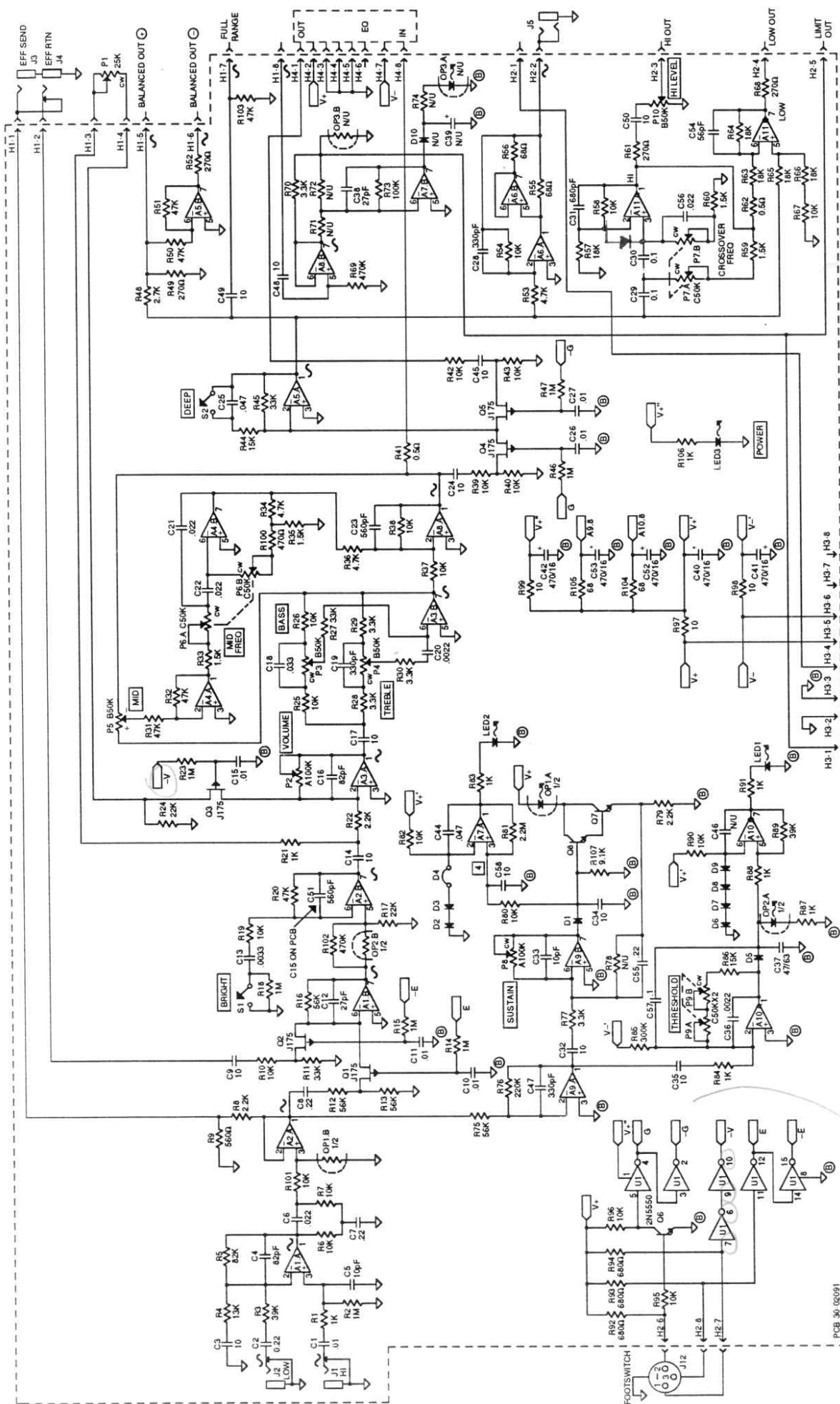
## PB300 Head and PB300C Combo Amp Specifications

Power Output	8 $\Omega$ : 150w, 4 $\Omega$ : 200w and 2 $\Omega$ 300w
Frequency Response	20 to 20k Hz $\pm 1.5$ dB
THD	0.1% 20 to 20k Hz at full power
PB300C Speaker	PS15C 400 watt bass speaker
Input Impedance	1 Megohms (Hi) 39k ohms (Lo)
Maximum Input Level before clipping	Hi Jack: 1.3Vrms Lo Jack: 4.5Vrms
Input Sensitivity	30mV for full power
EQ Tone Controls—Bass	$\pm 15$ dB shelving below 200 Hz
Deep Switch	+10 dB @ 40 Hz
Mid (level)	$\pm 9$ dB
Mid Freq	80 Hz to 2k Hz—sweepable
Treble	$\pm 15$ dB peak/dip at 10K Hz
Bright Switch	+10 dB @ 5K HZ
Graphic EQ Freq.	75, 150, 500, 1.5k & 3k Hz $\pm 18$ dB
Compressor (Sustain)	3:1 up to 20 dB compression. Attack time: 200 $\mu$ s
Noise Gate (Threshold)	30 dB quieting: Release time: 300m Sec
Electronic Crossover Level	Hi and Lo Freq. line outputs: +18 dBV into 600 $\Omega$ unbal.
Electronic Crossover Freq	12 dB/oct derived constant voltage—40 Hz to 1k Hz sweepable
Effects Loop	Normalized to 0dB for both send and return
Line Outputs	+18 dBV 600 $\Omega$ unbal. +24 dBV 600 $\Omega$ bal. XLR
Headphone	+18 dBV into 600 $\Omega$ per side (mono).
Power Requirements	120/240 VAC 50-60 Hz
Fuse	120V: 5 Amp. 240V: 2.5 Amp—slow-blow 5x20mm
Dimensions—PB300	21"W x 12"D x 8.25"H Shipping Wt: 38 lbs
PB300C with 15" speaker	21"W x 12"D x 25.5" H Shipping Wt: 70 lbs

## PB500 Head Specifications

Power Output Per Channel	8 $\Omega$ : 170w, 4 $\Omega$ : 250w Bridged: 500w @ 8 $\Omega$
Frequency Response	20 to 20k Hz $\pm 1.5$ dB
THD	0.1% 20 to 20k Hz $\pm 1$ dB at full power
Input Impedance	1 Megohms (Hi) 39k ohms (Lo)
Maximum Input Level before clipping	Hi Jack: 1.3Vrms Lo Jack: 4.5Vrms
Input Sensitivity	30mV for full power
EQ Tone Controls—Bass	$\pm 15$ dB shelving below 200 Hz
Deep Switch	+10 dB @ 40 Hz
Mid (level)	$\pm 9$ dB
Mid Freq	80 Hz to 2k Hz—sweepable
Treble	$\pm 15$ dB peak/dip at 10K Hz
Bright Switch	+10 dB @ 5K HZ
Graphic EQ Freq.	75, 150, 500, 1.5k & 3k Hz $\pm 18$ dB
Compressor (Sustain)	3:1 up to 20 dB compression. Attack time: 200 $\mu$ s
Noise Gate (Threshold)	30 dB quieting: Release time: 300m Sec
Electronic Crossover Level	Hi and Lo Freq. line outputs: +18 dBV into 600 $\Omega$ unbal.
Electronic Crossover Freq	12 dB/oct derived constant voltage—40 Hz to 1k Hz sweepable
Effects Loop	Normalized to 0dB for both send and return
Line Outputs	+18 dBV 600 $\Omega$ unbal. +24 dBV 600 $\Omega$ bal. XLR
Headphone	+18 dBV into 600 $\Omega$ per side (mono).
Power Requirements	120/240 VAC 50-60 Hz
Fuse	120V: 5 Amp. 240V: 2.5 Amp—slow-blow 5x20mm
Dimensions	21"W x 12"D x 8.25"H Shipping Wt: 38 lbs





1155 INDUSTRIAL AVE.  
ESCONDIDO, CA 92029  
PAC 747-2965

**CARVIN**

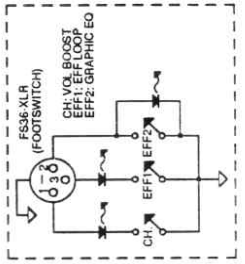
PRO BASS PRE-AMP  
PCB SCHEMATIC

DRAWN BY: C. MCEIVEN DATE: 1 FEB 90  
APPROVED: *[Signature]* DATE: *[Signature]*

PCB NO. 30-02091 REV. D  
ASSEMBLY NO. 80-02091 FR V. G  
REVISION BY: C. MCEIVEN DATE: 6 DEC 90

LAST USED LIST		
SYM	30-02091	Not Assigned
A	11	
C	58	43
D	10	
H	4	
J	2	12
LED	3	
OP	3	
P	10	1
O	8	
R	107	
S	2	
U	1	

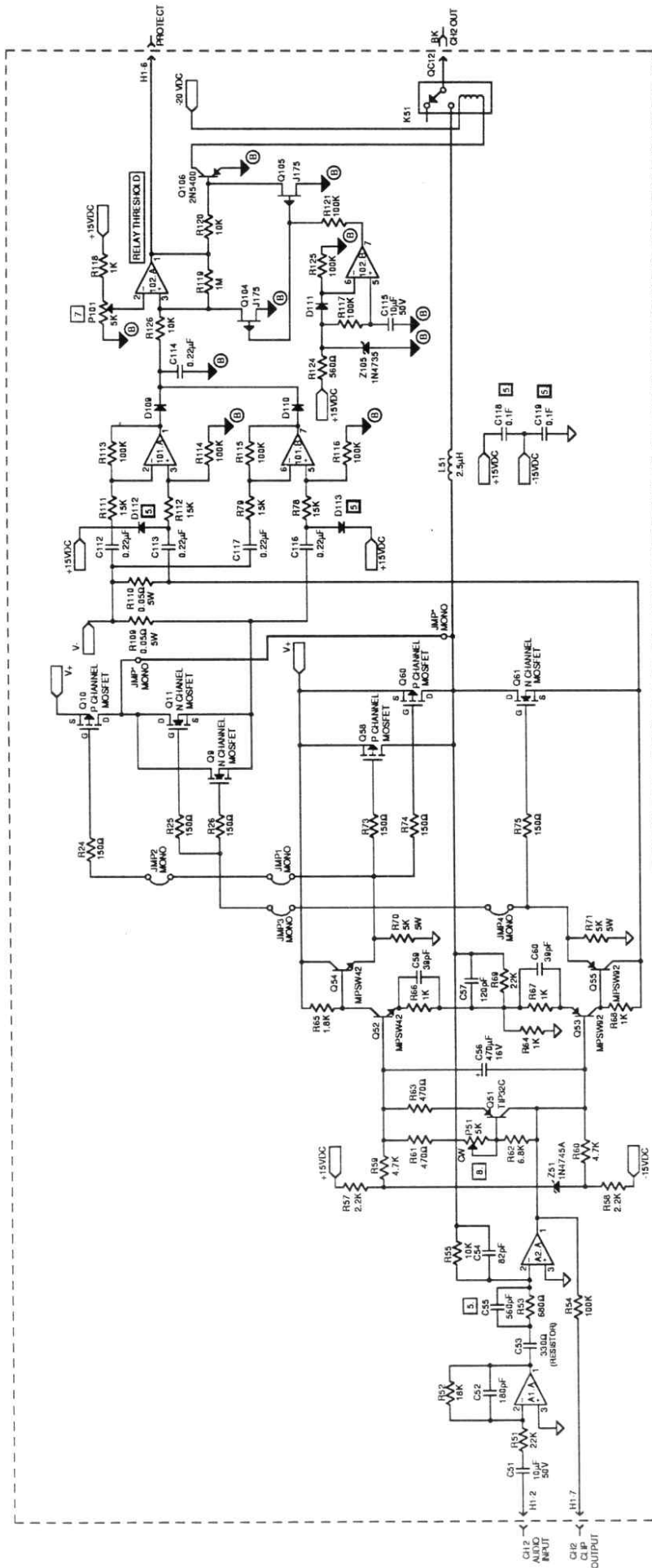
MODEL	PWR1 XTRM	PWR1 MOD
PR500	15-5000A	80-1402A
PR300	15-20071	80-02018
PR15	15-00428	80-02154



PCB 30 02091

- 1 CAPACITOR C58 IS A SECONDARY OPERATION. SOLDERED TO R80 AND A NEARBY VIA
- 3 (B) GROUND IS NOISY GND AND (A) GROUND IS LOW NOISE SIGNAL GND.
- 2 U1 IS: CD4049B
- 1 ALL DIODES ARE TO BE 1N4003.
- NOTES: UNLESS OTHERWISE SPECIFIED





**CARVIN**  
 1155 INDUSTRIAL AVE.  
 ESCONCADO, CA 92029  
 (619) 441-7110  
 FAX 747-9665

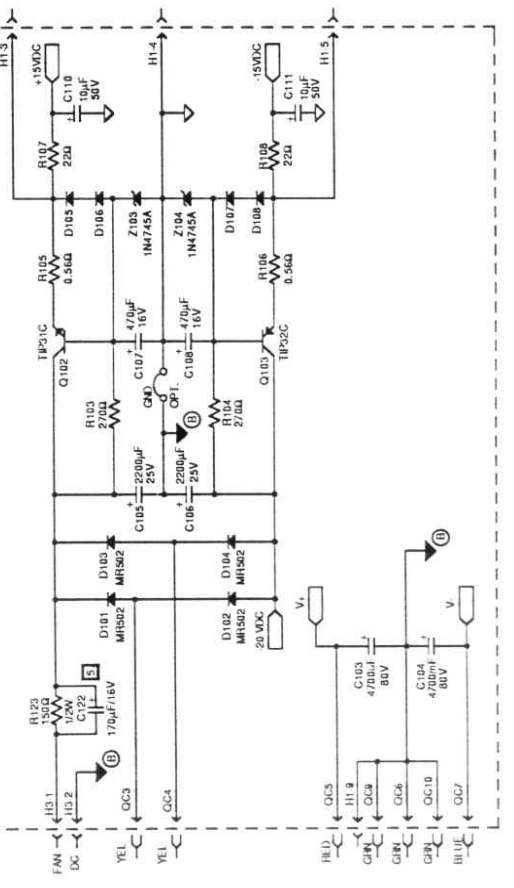
**PRO BASS 300  
 300W MONO  
 POWER MODULE**

DRAWN BY: C. McEUIEN    DATE: 15JAN90  
 APPROVED: *John P. McEuen*    DATE:  
 PCB NO. 30-10028    REV. D  
 ASSY. NO. 80 05018    REV. F  
 REVISION BY: CFM    DATE: 17OCT90

- ③ THERMISTOR MUST BE IN CONTACT WITH HEATSINK.  
 ⑦ ADJUST P1/P51 FOR 6mV (±0.2mV) DROP ACROSS R109/R110 RESPECTIVELY UNIT WARM, 120 VAC LINE.  
 ⑧ ADJUST P101 FOR 9.50 Vdc (±0.1 Vdc) AT PIN 2 OF A102.  
 ⑨ ADDED AS SECONDARY OPERATION.  
 4. A101 AND A102 ARE 4558 TYPE OP AMPS.  
 5. A1 AND A2 ARE MC33078 OP AMPS.  
 2. ALL DIODES ARE 1N4003 (EXCEPT AS NOTED).  
 1. ALL CAPACITORS IN MICROFARADS (EXCEPT AS NOTED).  
 NOTES: UNLESS OTHERWISE SPECIFIED

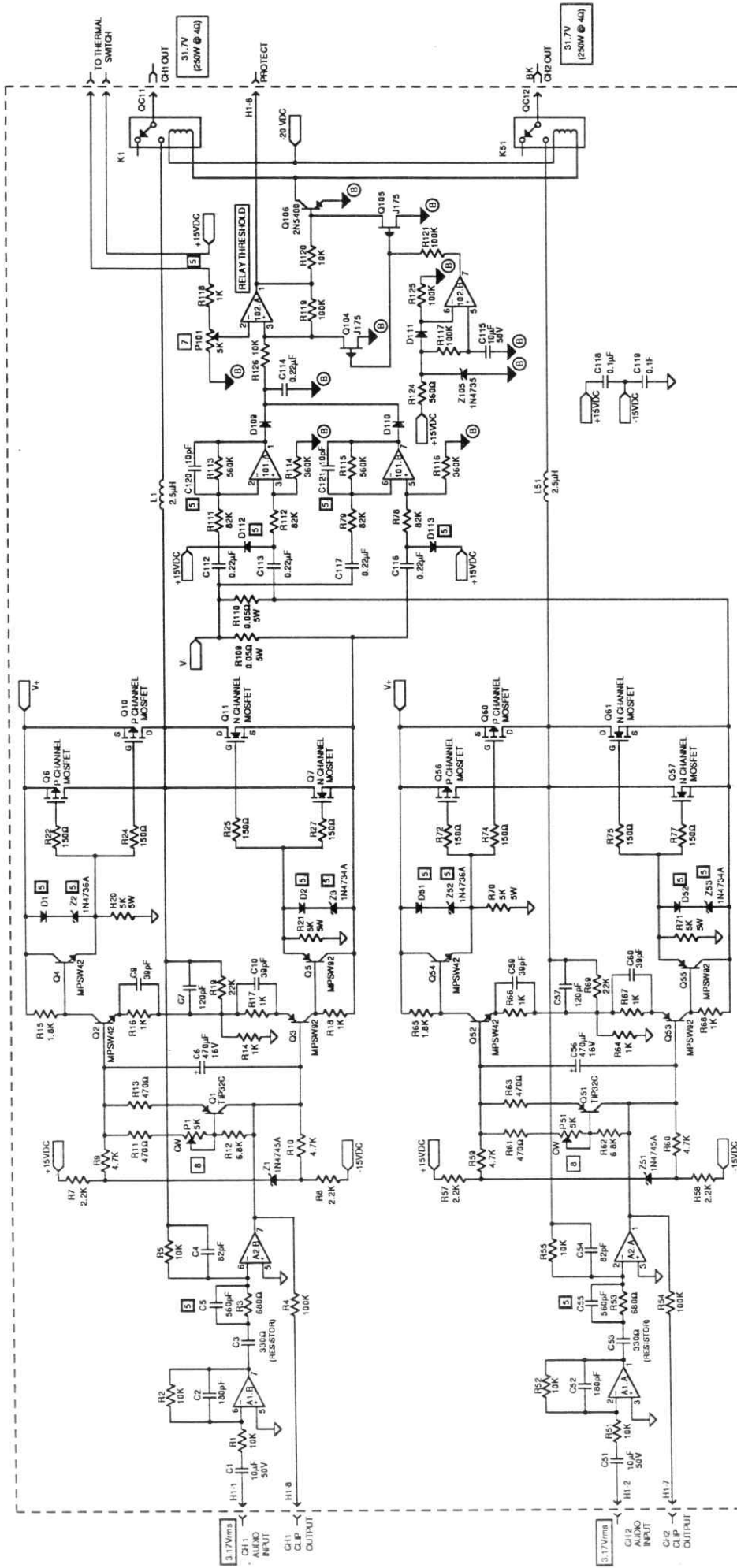
**LAST USED LIST**

Desig	Ch.1	1-50	Ch.2	51-100	Sys.	101-200
A	2	-	-	-	-	102
C	10	68	122	-	-	-
D	-	52	-	-	-	-
H	-	-	3	-	-	-
JMP	1	2	-	-	-	-
K	1	51	-	-	-	-
L	1	51	-	-	-	191
P	1	51	-	-	-	106
O	11	61	-	-	-	14
OC	-	-	78	126	-	-
R	28	-	-	-	-	101
T	-	-	-	-	-	105
Z	-	-	-	-	-	-









**CARVIN**  
 1155 INDUSTRIAL AVE  
 ESCONCADO, CA 92628  
 (619) 747-1710  
 FAX 747-9065

**PRO BASS 500  
 500W STEREO  
 POWER MODULE**

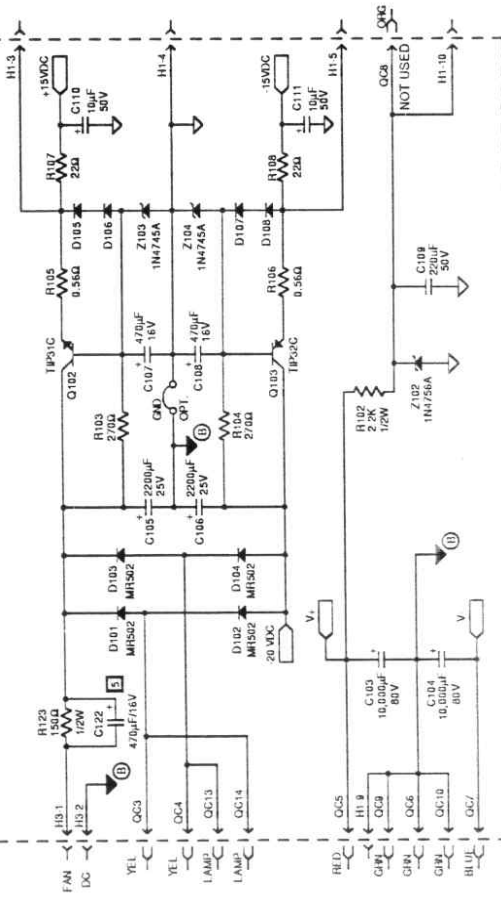
DRAWN BY: C. MCEUEN    DATE: 15JAN90  
 APPROVED: *John P. Kelly*    DATE: 2/28/90

PCB NO. 30-10028    REV. D  
 ASSY. NO. 80-05028    REV. H  
 REVISED BY: CFM    DATE: 30CT90

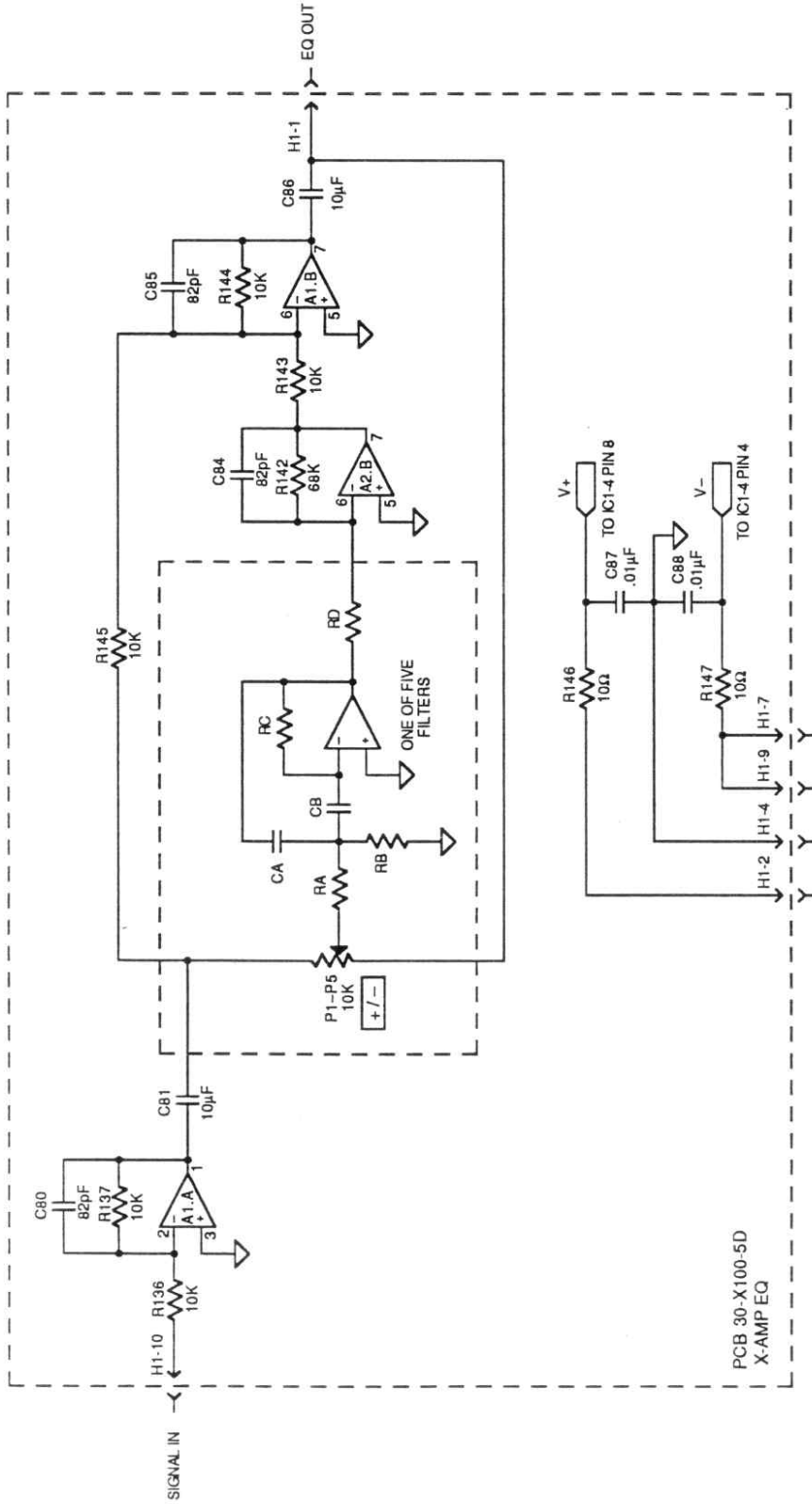
- ADJUST P1/P51 FOR 6mV (10.2mV) DROP ACROSS R10/R110 RESPECTIVELY UNIT WARM, 120 VAC LINE (16A PEAK).
- ADJUST P101 FOR 4.00 Vdc (10.00 Vdc) AT A102 PIN 2 (16A PEAK).
- ADDED AS SECONDARY OPERATION.
- A101 AND A102 ARE 4558 TYPE OP AMPS.
- A1 AND A2 ARE MC33078 OP AMPS.
- ALL DIODES ARE 1N4003 (EXCEPT AS NOTED).
- ALL CAPACITORS IN MICROFARADS (EXCEPT AS NOTED).
- NOTES: UNLESS OTHERWISE SPECIFIED

**LAST USED LIST**

Design.	Ch.1	1-50	Ch.2	51-100	Sys.	101-200
A	2	-	-	-	122	-
C	10	60	82	113	-	-
H	2	92	-	-	-	-
JMP	1	2	-	-	-	-
K	1	51	-	-	-	-
L	1	51	-	-	-	-
P	1	51	-	-	101	-
OC	11	61	-	-	106	-
Q	-	-	-	-	14	-
R	29	79	-	-	126	-
T	-	-	-	-	101	-
Z	3	53	-	-	105	-







MODEL NO:  
X-50B, X-60,  
X-100B

FREQ	X	RA(X)	RB(X)	RC(X)	RD(X)	CA(X)	CB(X)	OP AMP
3KHz	75	24K	24K	4.7K	5.6K	.0022	.0022	A2.A
1.5KHz	150	5.6K	5.6K	12K	5.6K	.022	.022	A3.A
500Hz	500	15K	15K	33K	5.6K	.022	.022	A3.B
150Hz	15	33K	33K	7.5K	5.6K	.22	.22	A4.B
75Hz	3	9.1K	9.1K	18K	4.7K	.22	.22	A4.A

MODEL NO:  
XV112, XV212  
PB300, PB500

FREQ	X	RA(X)	RB(X)	RC(X)	RD(X)	CA(X)	CB(X)	OP AMP
75Hz	75	9.1K	9.1K	18K	4.7K	.22	.22	A2.A
150Hz	150	3.3K	3.3K	7.5K	5.6K	.22	.22	A3.A
500Hz	500	15K	15K	33K	5.6K	.022	.022	A3.B
1.5KHz	15	5.6K	5.6K	12K	5.6K	.022	.022	A4.B
3KHz	3	24K	24K	47K	5.6K	.0022	.0022	A4.A

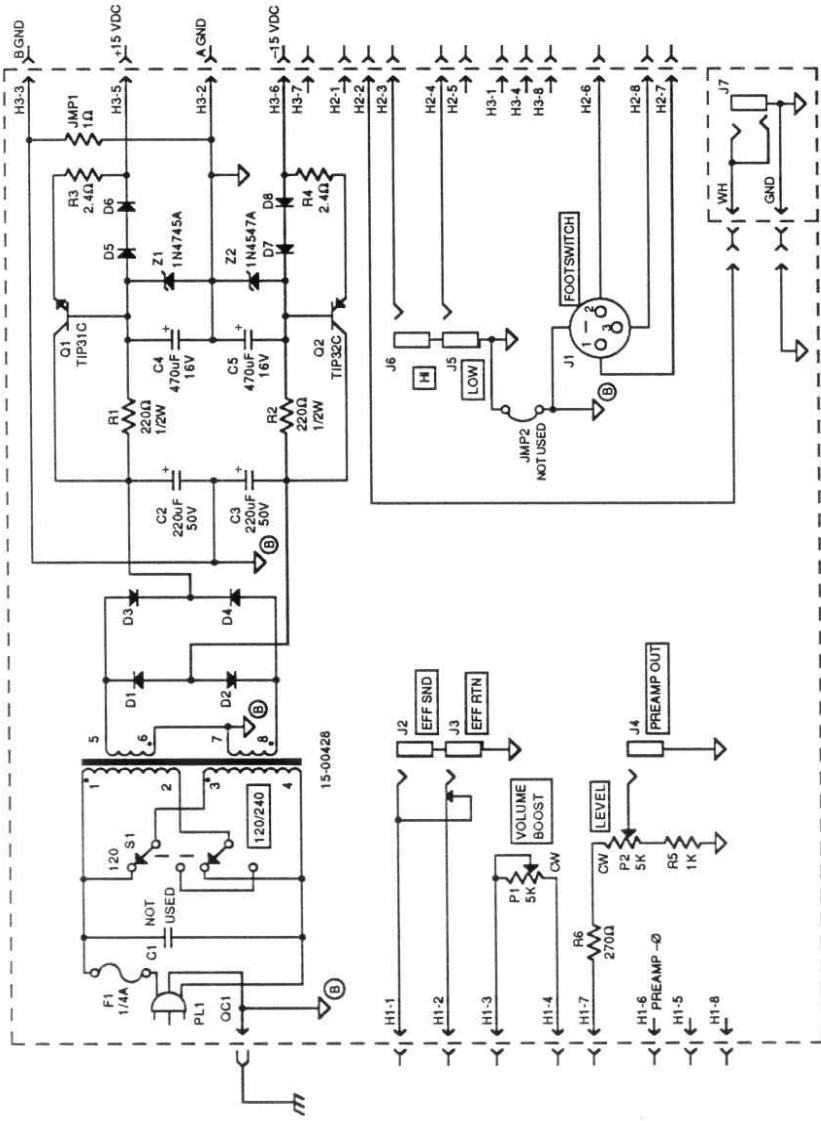
**CARVIN**  
1155 INDUSTRIAL AVE.  
ESCONDIDO, CA 92029  
(619) 747-1710  
FAX 747-3065

**5 BAND GRAPHIC EQ**

DRAWN BY: C. MCEUEN DATE: 11SEP90  
APPROVED: *[Signature]* DATE: *[Signature]*  
PCB: 30-X100-5 REV: D  
ASSY: 80-X100-5 REV: -  
REVISED BY: CFM DATE:

- NOTES: UNLESS OTHERWISE INDICATED
1. ALL DIODES ARE TYPE 1N4003.
  2. ALL RESISTORS IN OHMS, 25W.
  3. ALL CAPACITORS IN µF.
  4. ALL OP AMPS ARE TYPE 4558.





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 1155 INDUSTRIAL AVE.  
 ESCONDIDO, CA 92029  
 (619) 747-1710  
 FAX 747-9065

**PRO BASS 15**  
**POWER SUPPLY/CONNECT**

DRAWN BY: C. McEUEEN    DATE: 19JUL89  
 APPROVED: *[Signature]*    DATE: 7/28/90  
 PCB NO.: 30-02154    REV: -  
 ASSY. NO.: 80-02154    REV: A  
 REVISED BY: C. McEUEEN    DATE: 24JAN90

LAST SCHEMATIC UPDATE:

**LAST USED LIST**

Desig.	
C	5
D	8
F	1
H	3
J	7
P	2
PL	1
Q	1
R	7
S	1
Z	2

- 2. ALL DIODES ARE 1N4003 (EXCEPT AS NOTED).
  - 1. ALL CAPACITORS IN MICROFARADS (EXCEPT AS NOTED).
- NOTES: UNLESS OTHERWISE SPECIFIED



## Warranty and Service Information

You may use our specialized service department to repair your Pro Bass amp. Call us Toll-Free 800-854-2235 for your Service number so we will anticipate your shipment. Put the Service Number on the carton and be sure to include a full description of every problem when returning your unit. Pack the amp in its original carton using all its packing material and return it by UPS pre-paid. Units with physical damage, missing parts, or damage from improper service are not serviceable.

### • CALL BEFORE RETURNING

If in doubt about a malfunction, please call our service department (toll-free) and we will help you determine if your unit is defective to avoid costly shipping.

### • REPAIRS UNDER WARRANTY(1Year)

1. There is no charge for service under warranty. However, shipping is to be paid both ways by the customer.
2. Include a copy of the original invoice to verify your warranty along with a full description of the problem(s).
3. Allow approximately 10 days for servicing.
4. Include a check for return shipping charges (see the CARVIN catalog for current shipping rates).
5. Speaker Systems: If you require a loudspeaker repair, you should remove the defective component (speaker) to save shipping charges.
6. To avoid damage, ship only in the original carton.

### • REPAIRS OUT OF WARRANTY

1. After your warranty has expired, call us for the current flat rate charge which includes parts, labor and testing to bring your unit up to factory specifications.
2. The return shipping charge will be listed in the current CARVIN catalog.
3. You may include your check (after you have called for your service & shipping quote) to avoid COD charges.
4. Allow approximately 10 days for repair and testing, plus shipping time.
5. To avoid damage, ship only in the original carton (save your carton).

### • SERVICING IN YOUR AREA

You may select your own service center or have your own qualified technician work on the unit at your own expense. This will not void the warranty unless damage was done because of improper servicing. Under the ONE YEAR WARRANTY, Carvin will ship parts pre-paid to you or your technician providing that the defective part(s) are first returned for our inspection. If you do not have a qualified service person, we ask that you do not involve yourself in servicing the unit.

### LIMITED WARRANTY

Your Carvin Professional Series Product is guaranteed against failure for ONE YEAR. Carvin will service the unit and supply all parts at no charge to the customer providing the unit is under warranty.

**CARVIN WILL NOT PAY FOR PARTS OR SERVICING OTHER THAN OUR OWN.**

This warranty is extended to the original purchaser only and is not transferable. THIS WARRANTY DOES NOT INCLUDE FAILURES CAUSED BY INCORRECT USE, INADEQUATE CARE OF THE UNIT, OR NATURAL DISASTERS. A COPY OF THE ORIGINAL INVOICE IS REQUIRED TO VERIFY YOUR WARRANTY.

Carvin takes no responsibility for any horn driver or speaker damaged by this unit. 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. No liability is assumed for damage due to accident, abuse, lack of reasonable care, loss of parts, or failure to follow Carvin's directions. CARVIN SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

*In the interest of creating new products and improving existing ones, Carvin is continually researching the latest state of the art audio design methods, and modern packaging and production techniques. Thus, Carvin reserves the right to make changes in its products and specifications without notice or obligation.*

**Toll Free 800-854-2235**

**CARVIN**

1155 Industrial Ave.

Escondido, CA 92029







