



Thank you for choosing **PPI** audio equipment. Now, HANG ON! **PPI** products are engineered and manufactured to deliver a wild ride of performance, sound quality, and reliability. This **PPI** product reflects our commitment to offer you versatility and quality for years of incredible power and listening enjoyment!

### **SERVICE**

Do not attempt to service **PPI** products yourself. Performing exploratory surgery on your audio equipment yourself will void the warranty. All parts of your **PPI** gear have been built to our specifications. These parts are not made available to any unauthorized **PPI** dealer nor are they for sale. Our goal is to make sure that your **PPI** product will always perform as good as the day it was purchased. Contact your authorized **PPI** dealer about obtaining any warranty service through **PPI**. (See Warranty inside back cover.)

### **CAUTION!**

The extended use of a high powered audio system may result in hearing loss or damage. While **PPI** systems are capable of "Concert Level" volumes, they are also designed for you to enjoy at more reasonable levels all of the creative expressions made by musicians. Please stay seated while driving and observe all local sound ordinances.



## Features

- Stereo/Mono 1/3 Octave Equalizer
- 30 Center Controls with  $\pm 12\text{dB}$  gain
- Balanced Differential Input Stage
- Input Attenuation Switch
- Mono/Stereo Switch
- Defeat Switch
- Gold RCA input and output connectors
- PWM Power Supply
- Designed and Handcrafted in the USA

## Specifications

● Signal-to-Noise Ratio	>102dB
● Total Harmonic Distortion (1KHz, 1VRMS)	0.017%
● Boost/Cut Range	$\pm 12\text{dB}$
● Maximum Input Voltage (EQ Defeated)	4Vrms
● Maximum Output Voltage	8Vrms
● Supply Voltage	11-15 VDC
● Frequency Centers	25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 126Hz, 156Hz, 200Hz, 250Hz, 320Hz, 400Hz, 500Hz, 635Hz, 800Hz, 1KHz, 1.27KHz, 1.6KHz, 2KHz, 2.5KHz, 3.2KHz, 4KHz, 5KHz, 6.4KHz, 8KHz, 10KHz, 12.8KHz, 16KHz, 20KHz
● Dimensions	7.500"L 7.875"W 1.000"H

## Mounting

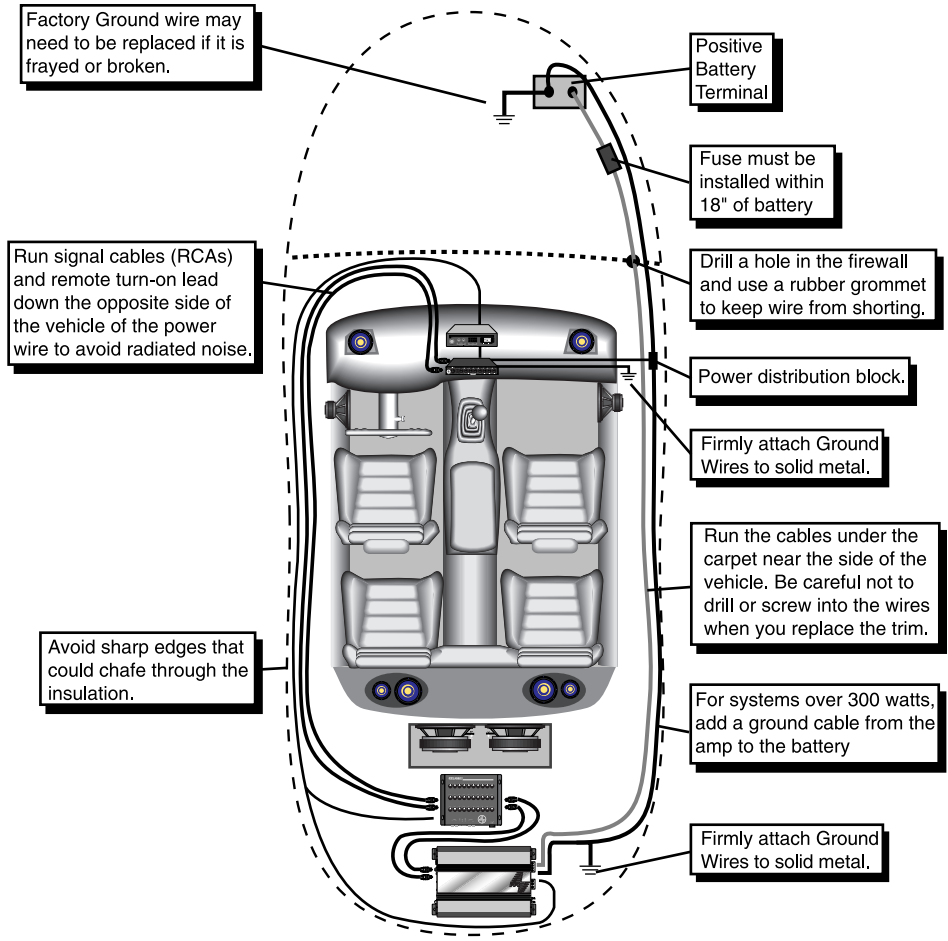
To prevent damage to the equalizer while driving, mount it in a secure place. Choosing the appropriate location will depend upon your vehicle and the complexity of your system design. Typical mounting locations include the trunk and passenger compartment (floor or under seat). Never mount the equalizer in a location that would subject it to immersion or exposure to water.

Once a location has been chosen, securely mount the **PPI-EQ-31** with four mounting screws. Be Careful! Inspect the area underneath to be sure you are not drilling into wires, brake or fuel lines, etc. that could be damaged by the drill bit or screws.

Holes for mounting screws



# Wiring



● *Before beginning, disconnect the negative (-) terminal of the battery prior to working on the positive (+) terminal to prevent a short to ground. This is important, unless you want to spend the rest of your life with a nickname like "Sparky," or "Smokey." Reconnect the negative terminal only after all connections have been made.*

## Wiring

The next step is to connect the Power, Ground, and Remote wires to your **PPI-EQ31**. The power wire should run from the mounting location through the vehicle to the battery or power distribution block. Avoid sharp corners, creases, and sharp body parts. When passing through any metal wall (i.e. firewall etc.), a grommet must be used to prevent the wire from chaffing and shorting to ground.

The ground wire should be of the same gauge as the power wire. As a rule of thumb, use as short a length of wire as possible.

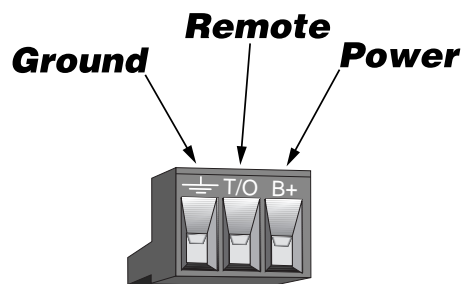
Find a location near the equalizer that is metal (the floor is ideal) and clean an area about the size of a quarter to bare metal. Drill a pilot hole in the middle of this area. Be Careful! Inspect the area underneath to be sure you are not drilling into wires, brake or fuel lines, etc. Terminate the wire with a ring connector and attach it to the bare metal using a #8 sheet

metal screw and washer (not supplied). We suggest crimping and/or soldering this connection. After the connection is complete, coat the area with silicone or some similar material to prevent rust from developing.

Finally, the remote wire needs to run to the power antenna (or amplifier remote) lead of the head unit. This wire supplies a 12 volt signal to the **PPI-EQ31** when the main system is activated.

Once you have routed the power, ground, and remote wires through the vehicle, it is time to connect the wires to the **PPI-EQ31**. Be sure that you have not reconnected the ground cable to the negative post of the battery.

Cut off excess wire and, using wire strippers, strip the power, ground and remote cables about 1/8 inch. Locate the power, ground, and remote **PowerLock** connector (supplied). On the top of the connector are three slotted screws. With a small flat-bladed screwdriver, loosen the screws before attempting to insert the cables. After you have inserted the stripped end of each cable into the connector, secure it by tightening the associated screw. Check that each connection is tight. If the wires are secure, the connector may be plugged into the **PPI-EQ31**.



# Functions

- 1. Input**  
Connect RCA cables from your head unit here.
- 2. -12 dB**  
Push this switch in to accept high level RCA inputs (up to 8 volts) or direct speaker lead inputs from common grounded (not high powered) headunits.
- 3. Mono**  
Push this switch IN to send left input to both channels of the EQ-31 for Mono operation. Leave the switch out for stereo operation.
- 4. Defeat**  
Push this switch IN to bypass the EQ-31
- 5. Output**  
Connect RCA cables to your Preamp, Crossover or Amplifier here.
- 6. Power/Remote**  
After connecting Ground, Remote, and Power wires plug in the **PowerLock** connector here.



## System Tuning

The **PPI-EQ-31** Equalizer puts an incredible amount of control in your hands. Correctly adjusted, it can solve many of the problems you will encounter along your road to perfect sound. Incorrectly adjusted, it can cause just as many problems. By following these guidelines, you will avoid common pitfalls in system tuning and get your sound quickly dialed in. We recommend that you use a Real Time Analyzer (RTA) to speed things up, but it is possible to tune your system without it.

### NOTE:

If you are using a Real Time Analyzer (RTA), Start Here.  
If not, go to step 7.

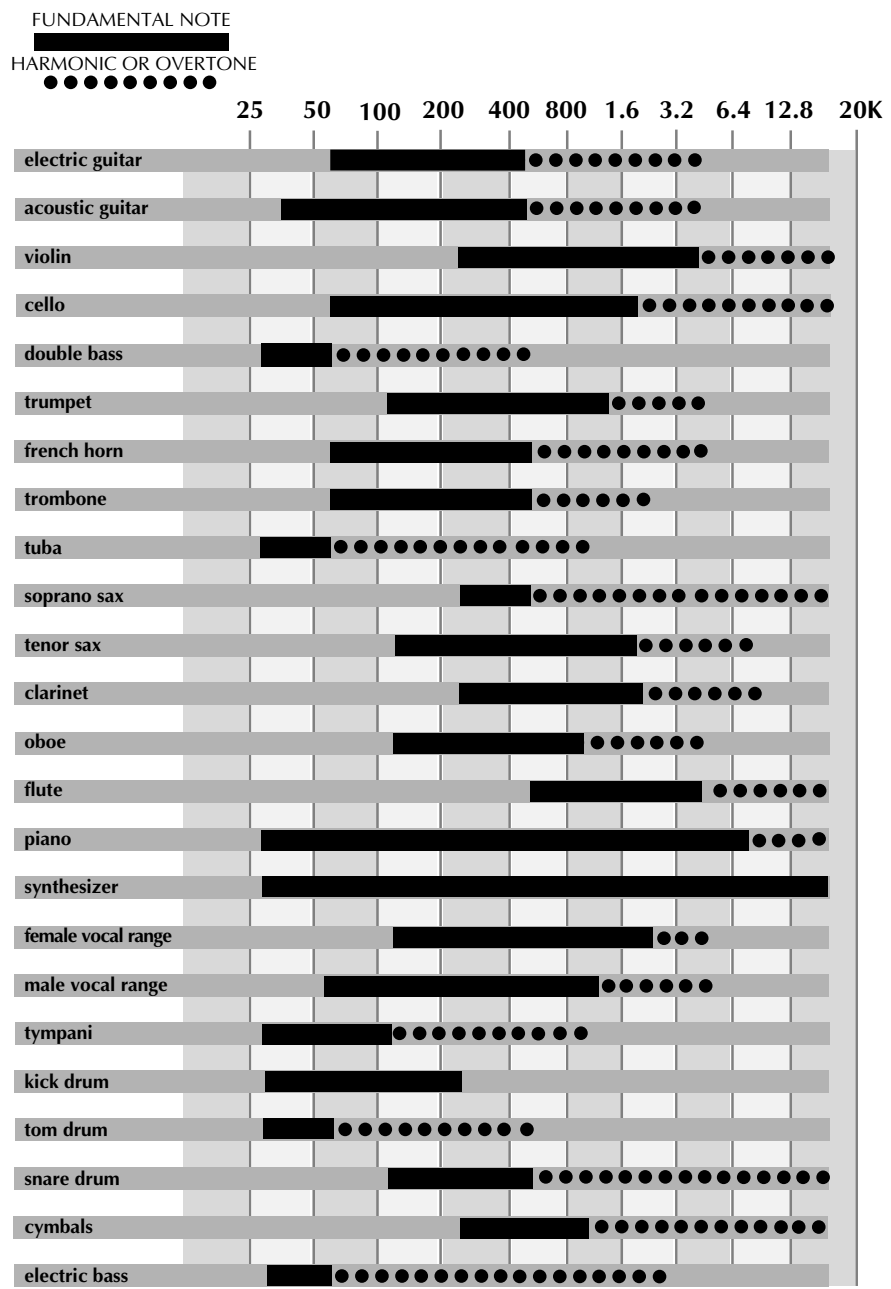
- 1) The first step is to locate a suitable source of “pink noise.” A good choice would be the current IASCA competition reference disc. Also, some RTAs have a built-in pink noise source. Ideally, the pink noise should play through your head unit, allowing you to compensate for any frequency response changes caused by it, or anything else, before the amplifiers.
- 2) Next, place the microphone from the RTA in the driver’s seat at approximately head level. Initially, set the analyzer to read at 3dB per step, and set the speed of the RTA’s readout to “medium.” Turn on your system and start the pink noise. Raise or lower the volume until you can see all (or most) of your frequency response on the RTA scale (a little above or below is OK). Make sure all of the equalizer’s frequency controls are at zero and look at the RTA screen.
- 3) You are trying to achieve a target frequency response, or “curve” that reflects your preference. You might think that a perfectly straight line would be best, but it really doesn’t sound very good. Instead, shoot for a curve that starts about 9dB up at the low frequencies (25Hz to about 100Hz) dropping gently to 0dB in the midrange (250Hz to 3KHZ), then dropping gently to -9dB at 16KHZ and 20KHz.

## System Tuning

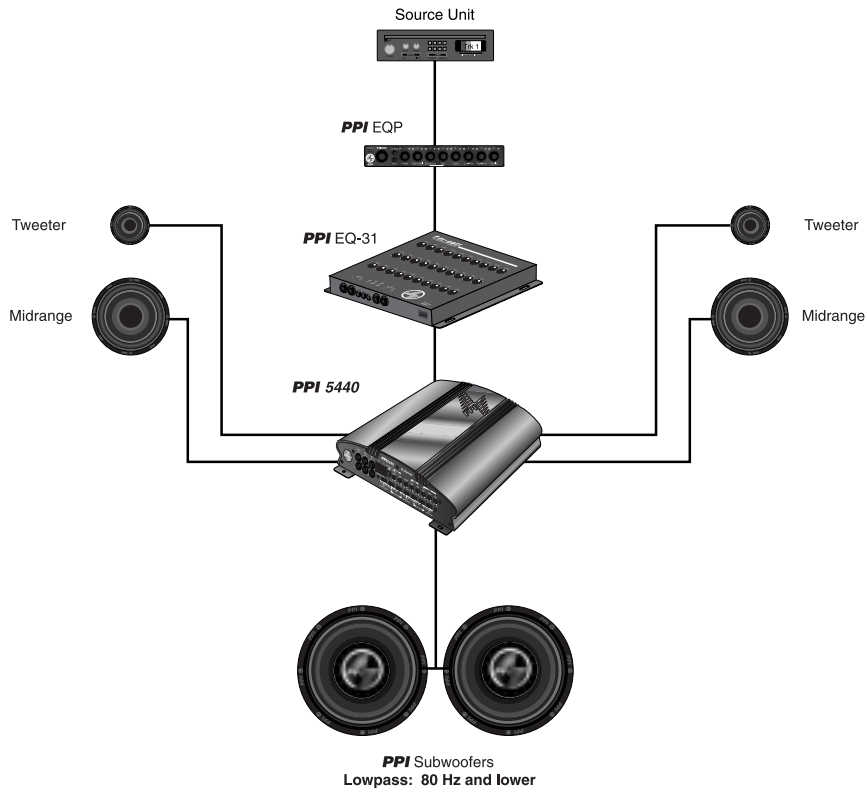
- 4) If electronic crossovers are used, any large frequency sections corresponding to your crossover points that are low or high should be brought in line using crossover level controls or amp gain adjustments, not with the equalizer.
- 5) Beginning at either the lowest or the highest frequency, adjust the control on the **PPI-EQ-31** that corresponds to a large peak or dip on the RTA display until it moves into line with adjacent frequencies. Move to the next frequency and repeat until you run out of frequencies to adjust. Try to remove the peaks before filling the dips. Periodically, while you are making adjustments, compare the new curve you are making to the system in an unequalized state by using the defeat switch on the Input Endplate of the control panel. This allows you to compare your original starting point to the present state of equalization in the system.
- 6) Play your favorite music. If the sound isn't what you're looking for, go back to the pink noise and smoothly adjust your curve for more bass, less midrange or whatever you think will correct the sound. Remember that this is your system don't let someone else tell you how it should sound! When the sound is close to what you want, move to step 8.
- 7) Play several different music tracks. If you hear an instrument or voice, or other sound that is too loud, find the sound on the chart on page 9. This will give you clues as to what frequencies need to be adjusted on the **PPI-EQ-31**. (If you have already tuned using an RTA, this step is icing on the cake.)



# Frequency Distribution



# System Diagram





# Troubleshooting



**NO SOUND** Is the LED lit?

**YES**

Check Input cables for signal by connecting them to the next component in line.

**NO**

Check Power and Remote turn-on wire for voltage. Make sure Ground wire is secure.

**ANY SOUND NOW?**

**YES**

Problem is in the Equalizer. See your local Authorized **PPI** Dealer or call 1-800-62**POWER**.

**NO**

Problem is elsewhere in the system. Check head unit and amplifiers.

## SOUND IN ONE CHANNEL ONLY

Check Balance control.  
Reverse left and right RCA outputs.

**SOUND IS NOW IN**

**OPPOSITE CHANNEL**

Reverse RCA inputs

**SAME CHANNEL**

Problem is in the amplifier, speakers or associated wiring of the silent channel.

**SOUND IS NOW IN**

**OPPOSITE CHANNEL**

Reverse RCAs at head unit

**SAME CHANNEL**

Problem is in the Equalizer. See your local Authorized **PPI** Dealer or call 1-800-62**POWER**

**SOUND IS NOW IN**

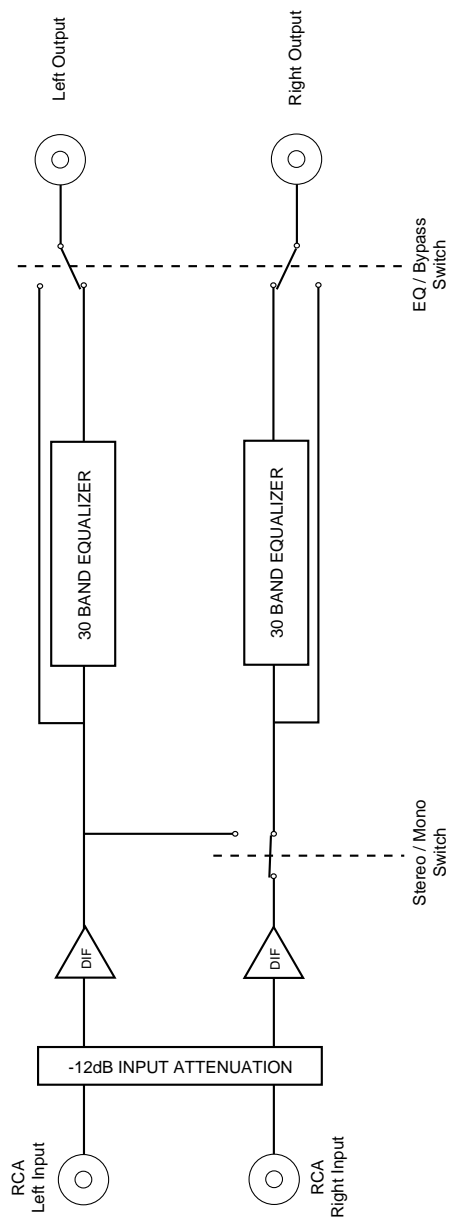
**OPPOSITE CHANNEL**

Problem is in the head unit

**SAME CHANNEL**

Problem is in the RCA cables

# Block Diagram



## 3-Year Limited U.S.A. Warranty

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. PrecisionPower, Inc. (PPI) warrants its products to be free from defects in materials and workmanship under normal use and service for a period of three (3) years from the date of original purchase when the unit is installed by an Authorized Dealer. Non-Authorized Dealer installed products carry a one (1) year parts and ninety (90) days labor limited warranty. The extent and conditions of Limited Warranty are as follows:

1. Authorized Dealer Installed Products: PPI will either repair or replace at no charge, to the original purchaser, any unit which PPI's examination discloses to be defective and under warranty, provided the defect occurs within three (3) years from the date of original purchase when the unit is installed by an Authorized Dealer and the product is returned immediately to PPI. This warranty is not transferable.
2. Non-Authorized Dealer Installed Products: PPI will either repair or replace at no charge, to the original purchaser, any unit which PPI's examination discloses to be defective and under warranty, provided the defect occurs within ninety (90) days from the date of purchase and the product is returned immediately to PPI. Warranty claims beyond ninety (90) days for Non-Authorized Dealer Installed Products will be for parts only and will extend for one (1) year from the date of purchase. This warranty is not transferable.
3. The date of purchase and proof of Authorized Dealer Installation of a PPI product must be established by an original sales receipt which must accompany the article being returned for warranty work.
4. This warranty shall NOT apply to any PPI product found to have the original factory serial number removed or defaced. All products received (by PPI) for in warranty or out of warranty repair, with their original serial numbers removed or defaced, will NOT be repaired and will be returned to sender, freight collect. Refer to original packaging for the serial number of your component speakers.
5. The provisions of this warranty shall not apply to any PPI product used for a purpose for which it is not designed, which has been repaired or altered in any way, or which has been connected, installed, or adjusted other than in accordance with the instructions furnished in PPI's owner's manual. Nor shall this warranty apply to any part which has been subject to misuse, neglect, or accident.
6. PPI does not authorize any other persons to assume any other liability in connection with its products. THIS WARRANTY IS THE ONLY EXPRESS WARRANTY MADE BY PRECISIONPOWER APPLICABLE TO ITS PRODUCTS. ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO PRECISIONPOWER PRODUCTS IS LIMITED IN DURATION TO THE DURATION OF THIS LIMITED WARRANTY. PRECISIONPOWER SHALL NOT BE LIABLE FOR THE INCIDENTAL, CONSEQUENTIAL, OR COMMERCIAL DAMAGES RESULTING FROM THE BREACH OF THIS WRITTEN WARRANTY. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts; so the above limitations or exclusions may not apply to you.
7. Your product will be serviced on an in-warranty basis within the warranty period for the correction of warranted defects. If improper operation of your PPI product should occur, contact your Authorized Dealer for assistance with the return and factory repair of your PPI product. If an Authorized Dealer is not available, return the unit including your name, telephone number, return address, a copy of your sales receipt, and a description of the problem to:

Precision**Power**, Inc.  
Service Department  
4829 S. 38th Street  
Phoenix, AZ 85040-2964

TO RETURN PPI PRODUCTS OUT OF WARRANTY: Return the unit, postage prepaid, in the original protective carton. Please include a description of the problem and, if desired, a request for an estimate of repair costs. Unless a request for an estimate is included, the unit will be repaired as necessary. Please contact PPI Customer Service at 1-800-62-POWER for questions concerning out of warranty repair charges. Repaired unit will be returned with an itemized statement, C.O.D.