Thank you for choosing *PPI* audio epuipment. 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

- 3-Way Variable Crossover with RCA Outputs
- *QBASS™* Bass Boost
- Balanced Differential Input Circuit
- Speaker Lead High Level Inputs
- High Voltage Input Capability
- Gold Plated RCA, Speaker and Power Connectors
- Mixed Mono/Stereo Operation

Block Diagram

- Power Bandwidth:. . . . . 7Hz to 80kHz
- Signal to Noise Ratio: . . . . . 105 dB
- Total Harmonic Distortion:. 05%
- Input Sensitivity: . . . . . 100mV to 12V
- Input Impedance: . . . . . 10k Ohms
- Load Impedance (Stereo): . . . 2 Ohms to 8 Ohms
- Load Impedance (Bridge): . . . 4 Ohms to 8 Ohms
- Supply Voltage: . . . . . 10V to 15V
- Damping Factor:. . . . . >300
- Slew Rate: . . . . . >45V/µs
- *QBASS™* Equalization: . . . . . Up to +12db Boost @ 40Hz

Dimensions

- *PPI2120* . . . . . L: 180mm/7.09”
  W: 256mm/10.08”
  H: 62mm/2.44”
- *PPI2240* . . . . . L: 215mm/8.46”
  W: 256mm/10.08”
  H: 62mm/2.44”
- *PPI2360* . . . . . L: 285mm/11.22”
  W: 256mm/10.08”
  H: 62mm/2.44”

Continuous Power Output

PPI2120	30W x 2 Channels	@ 4 Ohms
	60W x 2 Channels	@ 2 Ohms
	120W x 1 Channel	@ 4 Ohms Bridged
PPI2240	60W x 2 Channels	@ 4 Ohms
	120W x 2 Channels	@ 2 Ohms
	240W x 1 Channel	@ 4 Ohms Bridged
PPI2360	90W x 2 Channels	@ 4 Ohms
	180W x 2 Channels	@ 2 Ohms
	360W x 1 Channel	@ 4 Ohms Bridged

Crossover Settings

- *PPI2120* Variable 12db/Octave FULL/HPF/LPF 20-5kHz
  Selectable FULL/HPF/LPF RCA Output
- *PPI2240* Variable 12db/Octave FULL/HPF/LPF 20-5kHz
  Selectable FULL/HPF/LPF RCA Output
- *PPI2360* Variable 12db/Octave FULL/HPF/LPF 20-5kHz
  Selectable FULL/HPF/LPF RCA Output

Fuse Requirements

- *PPI2120* Maximum Fuse Rating: 20 Amp
- *PPI2240* Maximum Fuse Rating: 40 Amp
- *PPI2360* Maximum Fuse Rating: 60 Amp

Wiring

The information below is a basic formula you can use to determine current draw. A 50% amplifier efficiency rating is used as an average. Your new *PPI* amplifier is more efficient than most amplifiers, so others will probably be less. This formula is only a guideline. Using wire of a larger gauge can only improve the current transfer of your system. **Do not use smaller gauge wire.**

Total 4-Ohm rate RMS output x 2 = Total Input Wattage
Total Input Wattage/Supply Voltage = Current Draw (in Amps)

Example: Your *PPI2360* has 2 channels @ 90 watts per channel RMS into 4 Ohms (90 x 2 = 180). You would use the formula below:

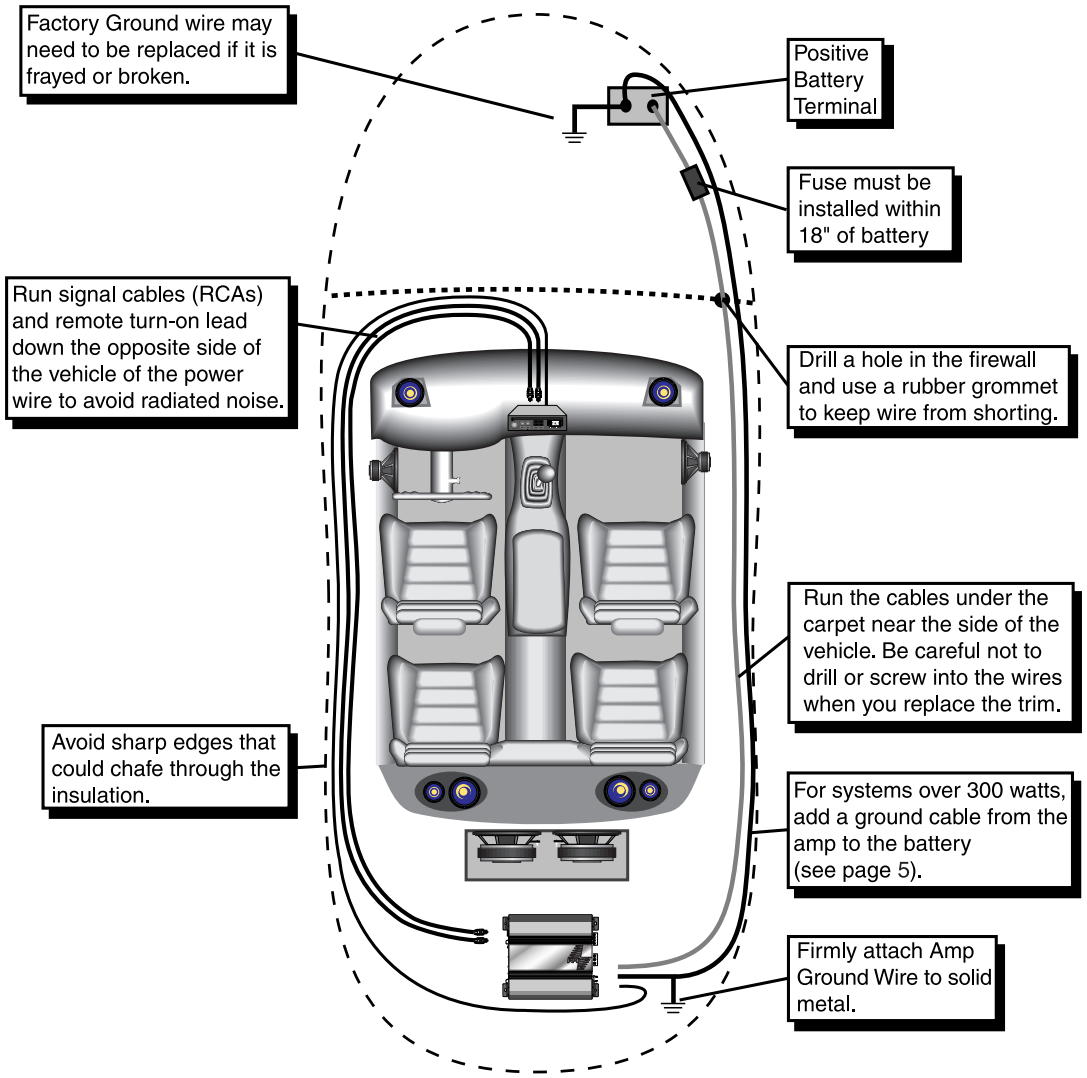
180W x 2 = 360W/12.5V = 28 Amps Total Current Draw

Recommended Minimum Gauge

Total Current Draw	Length of Wire to Run (in Feet)							
(in Amps)	<3	<7	<10	<13	<17	<20	<22	<28
0 - 20	14	12	12	10	10	8	8	8
20 -35	12	10	8	8	6	6	8	4
35 -50	10	8	8	6	6	4	4	4
50 - 65	8	8	6	4	4	4	4	2
65 - 85	6	6	4	4	2	2	2	0
85 - 105	6	6	4	2	2	2	2	0
105 - 125	4	4	4	2	2	0	0	0
125 - 150	2	2	2	2	0	0	0	0

Note: The ground wire should be the same size as the power wire.

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.*

- *You will need to install an in-line fuse or circuit breaker in the power wire within 18” of the battery. This fuse or circuit breaker protects your vehicle from fire in case the power wire shorts to the vehicle body.*

Wiring

Remote Turn-on

Your head unit should have a lead marked ‘remote’ or ‘ power antenna’ which will be used to turn on your amplifier. Extend this lead through your vehicle along with your RCA signal wires. Strip 1/4 inch of the insulation off the wire and insert the end into the corresponding terminal on the amplifier.

Grounding

Locate an area near the amplifier(s) that is metal and clean an area about the size of a quarter to bare metal. Inspect the area around and underneath to be sure you won't drill into wires, brake or fuel lines, etc. Drill a pilot hole in the middle of this area. Terminate the ground wire with a ring connector and attach it to the bare metal using a #8 sheet metal screw and washer or preferably, a bolt, nut and a star washer (not supplied). We suggest crimping and soldering this connection. After the connection is complete, coat the area (on both sides) with silicone or some similar material to prevent rust from developing on the bare metal.

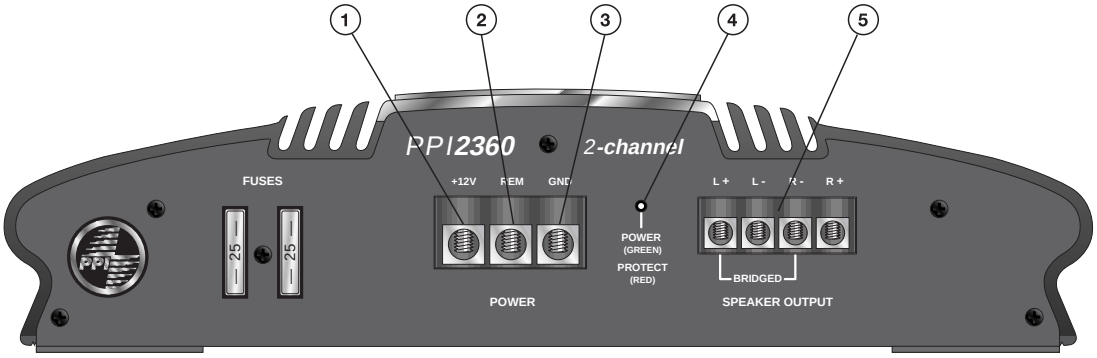
If your grand total current draw is over 50 amps (or total output power is over 300 watts), you should run a ground wire beside your power wire from the battery to the amplifier(s) in addition to your regular ground wire. Keep the ground and power wires as close together as possible, and use the same gauge wire for both. This will ensure that you have a good ground path, and may eliminate such potential problems as engine noise and overheated amplifiers.

Once you have run both the power and ground wires, it's time to connect the cables to the amplifier. Cut off excess wire and, using wire strippers, strip the ends of the power and ground cables approximately 1/4 inch. Locate the power and ground connectors on the amplifier. With a small phillips head screw driver, loosen the screws before to you insert the cables. Insert the wires into the appropriate hole, and tighten the screws. The Power/Ground/Remote will accommodate 8 gauge wire for the *PPI2120, PPI2240,* and the *PPI2360.*

Speaker Wires

Using 16 gauge or larger, run the speaker wires from the amplifier location through the vehicle to the speakers. Observe the same precautions for routing these wires that you followed for running the power and remote turn-on wires. Cut off excess and, using wire strippers, strip 1/4 inch of insulation. Loosen the four outer screws on the top of the connector. Insert the speaker leads into the end. Check to be sure you've maintained proper polarity before securing each wire, and tighten the screws on the amplifier.

Endplate Diagram



1. Battery Power
   Connect the 12-volt constant power cable from the battery here.

2. Remote
   Connect the remote turn on lead from your source unit here. This connection will turn the amplifier on when the source unit is powered up.

3. Ground
   Connect your ground wire here. Make sure you use the same gauge wire as your power cable.

4. Speaker Terminals
   Insert your speaker cable here. Insert speaker wire into Left (+) and Right (-) for bridging.

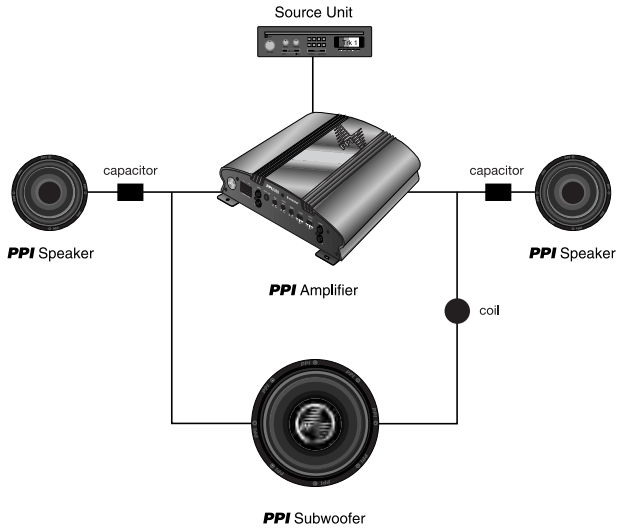
5. Power LED
   The LED will light up “GREEN” when the amplifier is powered on and “RED” when it goes into protection.

Bridging

All *PPI* amplifiers are capable of being bridged into a 4-Ohm mono output without switches or bridging modules.

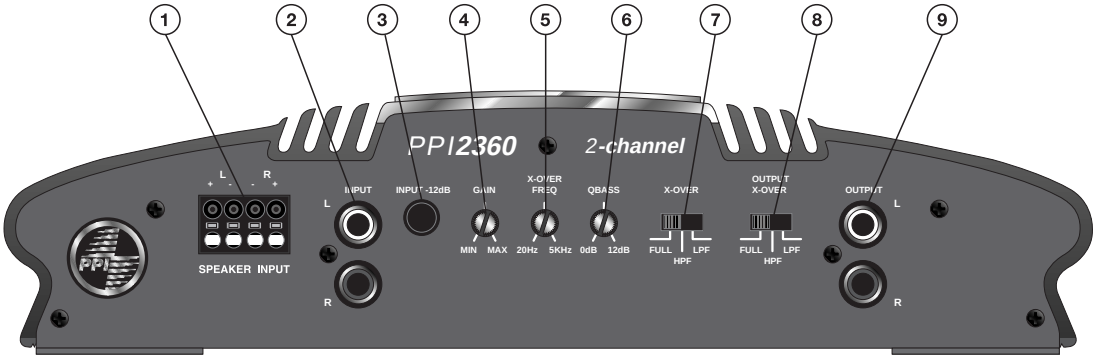
You can achieve this mono channel by using the Left positive (+) speaker connection and Right negative (-) speaker connection.

Mixed Mono Wiring



Your new *PPI* amplifier offers you the flexibility of mixed mono operation. This means you can operate each pair of channels in both stereo and mono mode at the same time. This is accomplished by using highpass filters (capacitors) on the higher frequency stereo channels, and a lowpass filter (coil) on the subwoofers. The frequencies of the chosen highpass and low-pass filters must not overlap (allow the mids and highs to play the same music as the subs) or the impedance the amplifier sees at those frequencies will be cut in half possibly causing it to go into protection.
When wiring the the amplifier for mixed mono operation, wire the mid/high range speakers in the normal speaker connections on the amplifier. Make sure they have a bass blocker (capacitor) in line to stop low frequencies playing through them. The subwoofer must be wired into a bridged mode. In the speaker terminal on the amplifier, use the Left positive (+) speaker connection and the Right negative (-) speaker connection. Make sure that you have wired in a lowpass filter (coil) to stop high frequencies from playing through your subwoofer.

Endplate Diagram



1. Speaker Input
   Plug in speaker cables here when RCA cables are not available.
2. RCA Input
   Plug in the RCA cables from the source unit or *PPI* signal processor here.
3. Input -12db
   Push this switch “IN” when using Speaker Inputs, or when RCA level is over 5V.
4. Gain Control
   Use this control to match the output level of the head unit to the amplifier. (See System Adjustments on page 9.)
5. X-Over Freq
   Select the desired crossover frequency here. The detented control moves clockwise from 20Hz to 5kHz. Use the chart on page 15 to select the desired crossover frequency.
6. QBASS™ Control
   Select the desired boost by turning the control clockwise from 0-12dB.
7. X-Over
   Select the desired crossover setting, FULL/HPF/LPF for the speaker outputs.
8. Output X-Over
   Select the desired crossover setting, FULL/HPF/LPF for the RCA outputs.
9. RCA Outputs
   Plug in the RCA cables here to send signal to a second amplifier. This output can be Full Range, High Pass or Low Pass according to the Output X-Over Switch.

System Adjustments

1. Adjust all amplifier input gain controls to just above minimum sensitivity (fully counterclockwise).

2. Using the cleanest source (CD), with music playing turn up the head unit until you can hear the music begin to distort. Now turn it down a bit until you cannot hear the distortion.

3. Increase the Amplifier gain (clockwise) until the onset of audible distortion. Then decrease the gain to the point just before the distortion starts. This setting minimizes background noise and prevents overload.

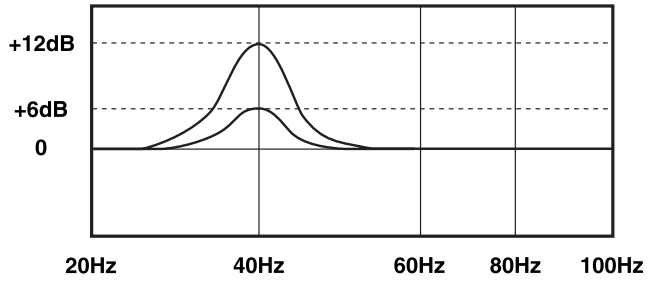
4. Repeat step 3 for any remaining amplifiers in the system.

Crossover Settings

Your new *PPI* amplifier has one two-way built-in crossover. By using the ‘X-OVER’ switch on your amplifiers endplate, you are able to select either full range, high pass or low pass (FULL/HPF/LPF) for your ‘Speaker Output’. Using the ‘X-OVER FREQ’ control select the desired crossover frequency, 20Hz to 5kHz. Now it’s time to set the ‘OUTPUT X-OVER’ as FULL/HPF/LPF. The ‘OUTPUT’ will be whatever frequency you selected on the ‘X-OVER FREQ’ and either FULL/HPF/LPF depending on where you set the ‘OUTPUT X-OVER’.

QBASS™

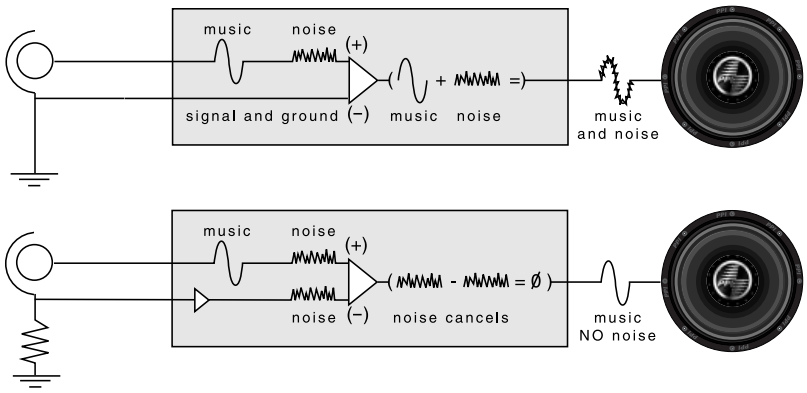
For extra BOOM from your system, we've developed the *QBASS™* bass control circuit. The *QBASS™* control is located to the left of the crossover switches and allows you to add up to 12dB of boost centered at 40Hz by rotating the control clockwise.



CAUTION! *QBASS™* should only be used in systems with strong subwoofers. 12dB is a lot of bass boost and could damage full range speakers.

Balanced Differential Inputs

This circuitry is capable of eliminating noise radiated into your signal cables by up to 40dB. This is equivalent to a noise reduction of approximately one hundred times what the noise level would be without this circuitry. It provides all the benefits of a true 'balanced' line without the need of any special cables (see diagram below). This type of input works with any conventional RCA cable.



Troubleshooting

NO SOUND Is the LED lit?

YES

NO

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

WHAT COLOR ?

RED

Protection is engaged. See below.

GREEN

Substitute RCA inputs with another source, and connect a known good speaker to one channel.

STILL NO SOUND - See your Authorized ***PPI*** Dealer or Call 1-800-62***POWER***

SOUND IN ONE CHANNEL ONLY

Reverse left and right speaker connections.

SOUND IS NOW IN

OPPOSITE CHANNEL

Reverse RCA inputs

SAME CHANNEL

Problem is in the speaker or speaker wire of the silent channel.

SOUND IS NOW IN

OPPOSITE CHANNEL

Reverse RCAs at head unit

SAME CHANNEL

Problem is in the Amplifier.
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

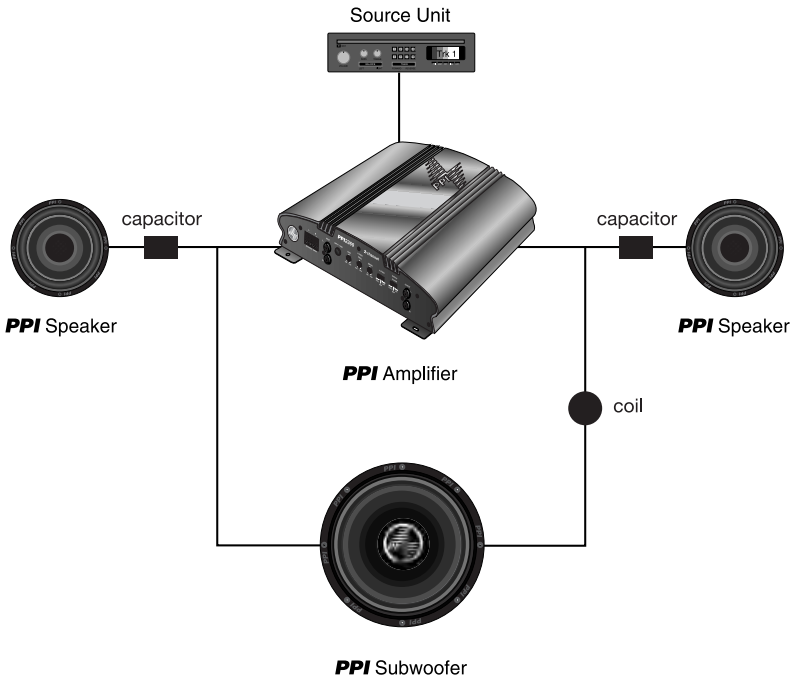
Problem is in the RCA cables

AMPLIFIER SHUTS OFF

Short Circuit Protection engaged: The amplifier will turn off and try to come back on immediately. The amplifier will cycle like this indefinitely, with "blips" of sound each time. If this is the case, check your speakers and wiring for low impedance and short circuits.

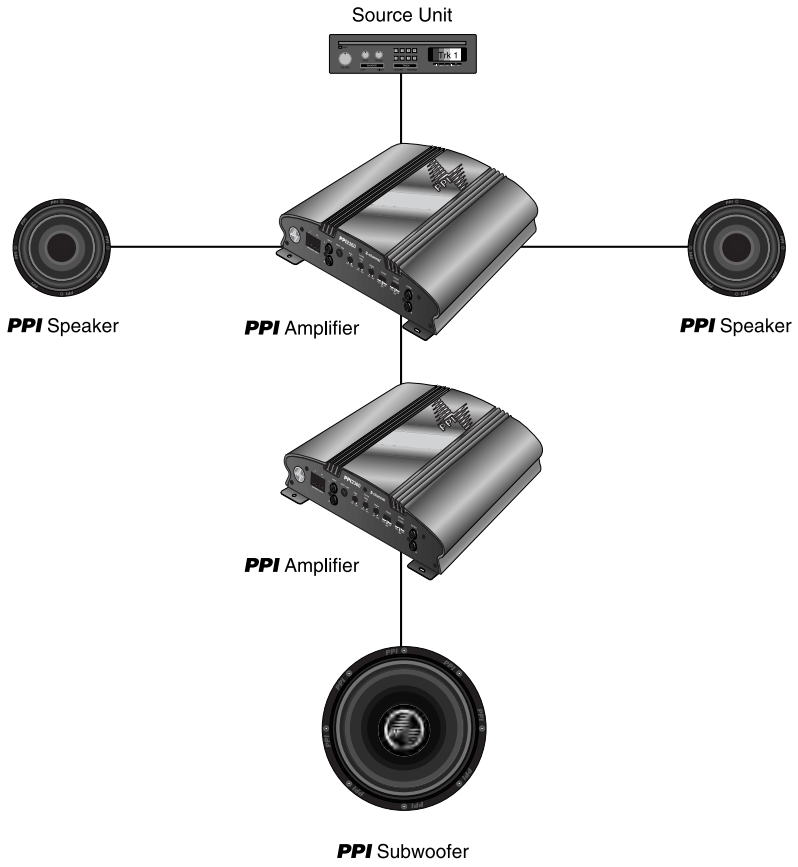
Thermal Protection engaged: The amplifier will turn off and several minutes later will come back on. In this case, ensure that there is nothing blocking the normal convective airflow of the amplifier. No obstruction should be within 2" of the amplifier on all sides.

System Diagram



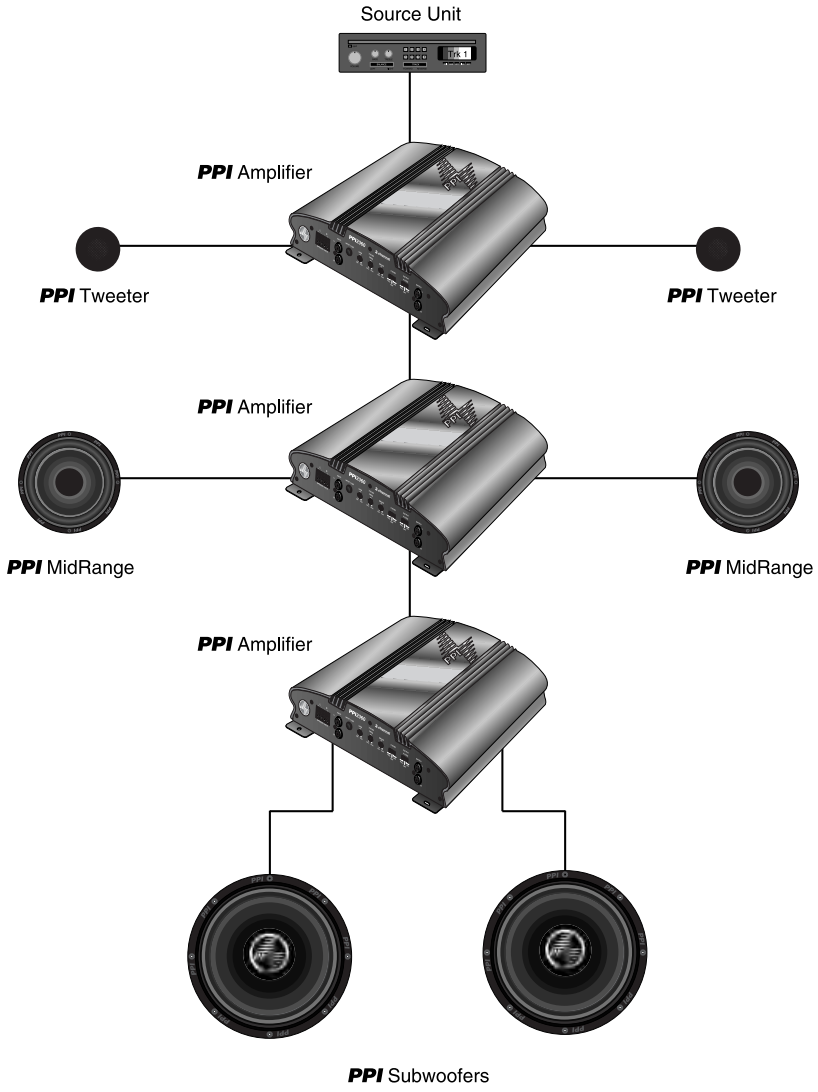
System One

System Diagram



System Two

System Diagram



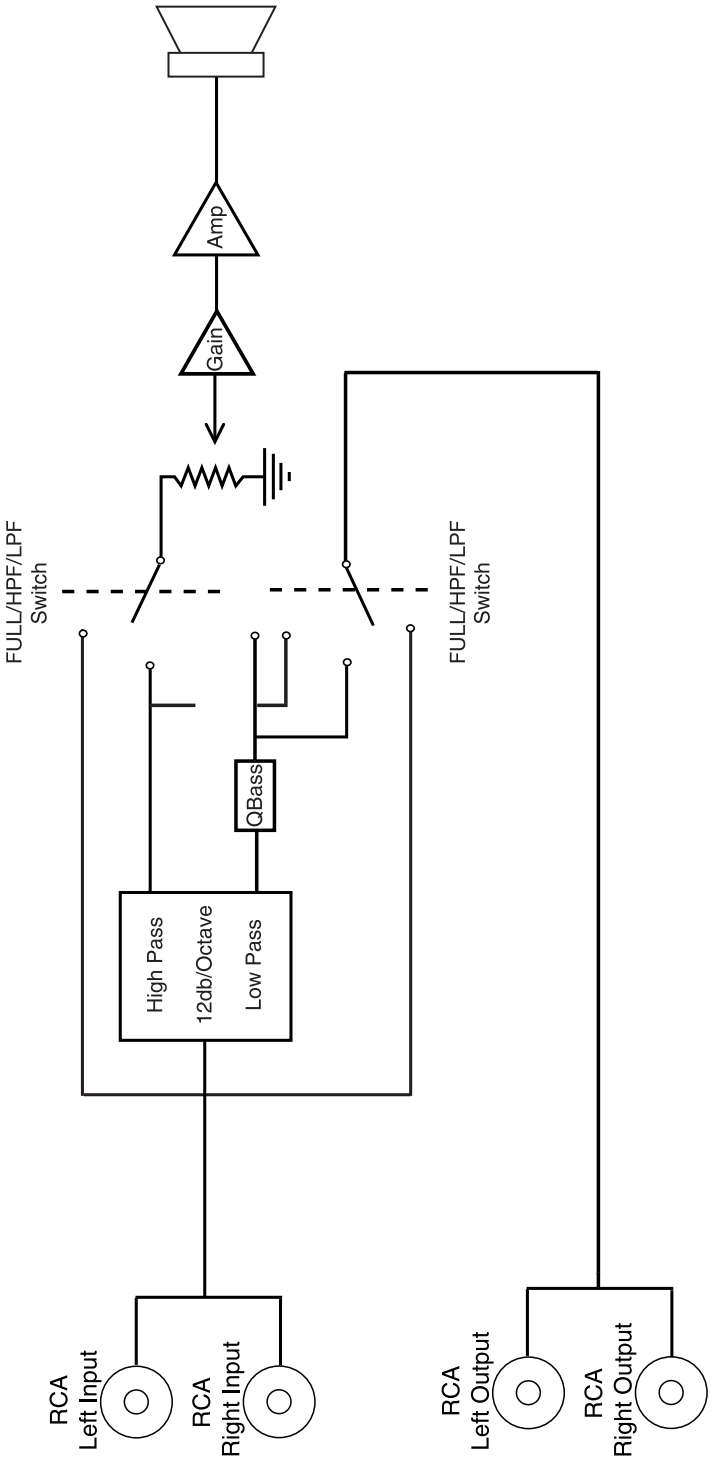
System Three

Frequency Chart

Consistent with PPI's commitment to continuous product improvements, changes have been made to the crossover section of your new PPI amplifier. The controls are now detented for improved performance. Each "click"counted from the full counterclockwise position corresponds to a specific frequency. Refer to this chart for set up instructions.

DETENT	XOVER FREQ
1	20 Hz
2	21 Hz
3	21 Hz
4	21.5 Hz
5	22 Hz
6	23 Hz
7	24.5 Hz
8	26 Hz
9	27.5 Hz
10	30 Hz
11	32 Hz
12	35 Hz
13	39 Hz
14	43 Hz
15	49 Hz
16	56 Hz
17	64 Hz
18	73 Hz
19	80 Hz
20	88 Hz
21	100 Hz
22	114 Hz
23	134 Hz
24	160 Hz
25	196 Hz
26	260 Hz
27	320 Hz
28	368 Hz
29	432 Hz
30	496 Hz
31	608 Hz
32	752 Hz
33	864 Hz
34	1008 Hz
35	1200 Hz
36	1488 Hz
37	1952 Hz
38	2816 Hz
39	4512Hz
40	4944 Hz
41	5000 Hz

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:

PrecisionPower, 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.