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AQUATIC AV[®]

products with a watertight reputation

AD500.4 4/3/2 CHANNEL AMPLIFIER (AD504)

OWNER'S/INSTALLATION MANUAL



IP67

SHOCKWAVE
TECHNOLOGY

**! PLEASE READ THIS INSTALLATION GUIDE BEFORE
INSTALLATION AND OPERATION !**

IF YOU HAVE ANY QUESTIONS, VISIT SUPPORT.AQUATICAV.COM
OR YOUR NEAREST AUTHORIZED DEALER.

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Congratulations on your purchase of an Aquatic AV AD500.4 4/3/2 Channel Amplifier. It has been designed, engineered and manufactured to bring you the highest level of performance and quality. Thank you for making Aquatic AV your choice for marine audio equipment!

1.1 Using Your Amplifier

Working Safely With Your Battery

Disconnect the negative battery terminal before doing any electrical work. Always disconnect the negative (-) battery post first, followed by the positive (+). When it's time go back together, connect the positive (+) post first, followed by the negative (-). This can minimize the chance of sparks and voltage spikes.

Grounding

Always use the shortest length of ground wire possible between chassis ground and the amplifier. Never use a ground wire longer than the one we provide.

The ground wire and power wire are equally important; if either one of them is compromised, the amplifier's performance will degrade or cease to function.

Fuses

Always install a master fuse within 12" of the battery for any additional equipment added to your installation's electrical system. The mini-fuse installed on the main amplifier only protects the internal circuitry, not the wiring. In the event of a short, failure to install a fuse near the battery can cause damage to your electrical system or the possibility of fire.

Speaker Polarity

The way speaker wires are marked for polarity (+/-) varies from brand to brand. Some manufacturers use the stripe as positive (+), while others use the stripe as negative (-). Be sure to check the documentation of each component you're dealing with before making connections.

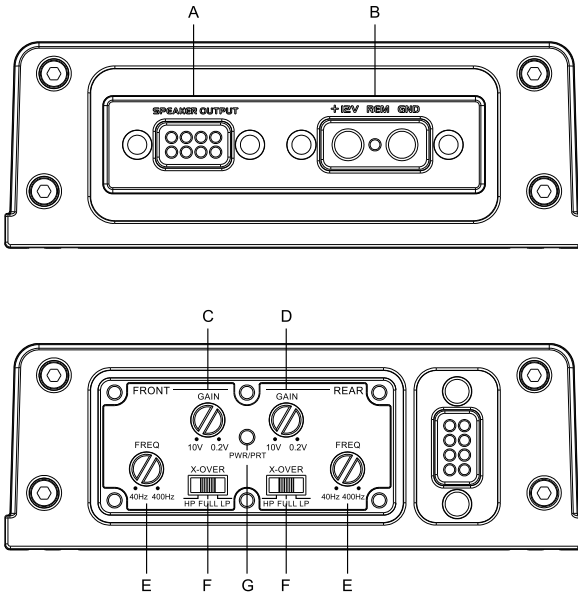
Cutting Cables

Always route wires and cables safely, avoid sharp edges and burrs along the way. Use wire loom when possible. Check for proper length to both termination points, knowing where each component mounts, before you cut anything.

Mounting

Mount the amplifier away from water/mud at all times and in a good ventilated area with good air flow. Do not mount in engine compartment. Mount amplifier securely. Be careful not to drill into fuel line, electrical or mechanical areas when mounting. Do not run wires under the vehicle or vessel, this could be very dangerous with severe damage.

1.2 Front Plate



- A.** Speaker output cable
- B.** Power input cable
- C.** Front Gain Control
- D.** Rear Gain Control
- E.** Variable Frequency Control (40 ~ 400Hz)
- F.** Crossover Switch
HPF: High Pass Filter; LPF: Low Pass Filter;
FULL: Full Range
- G.** Power/Protect LED
Blue color means working status; Red color means
protect status

1.3 Shockwave Technology

Aquatic AV's Shockwave Technology brings together outstanding sound quality, high performance characteristics and unprecedented reliability into a single amplifier.

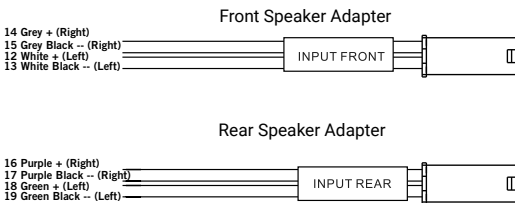
Protected against water and dust with an Ingress Protection rating of IP67 means you can literally hose down our Shockwave Technology amplifiers thanks to a number of unique features exclusive to Aquatic AV.

Conformal coated circuit boards protect the smallest components from any humidity or atmospheric moisture. Custom molded grommets around cable extrusions and gaskets between all meeting points eliminate any chance of water or dust intrusion. Aluminium and stainless steel are used in chassis construction eliminating any risk of rust or corrosion.

Designed to support the widest variety of applications, Shockwave Technology amplifiers operate both 4ohm and 2ohm speaker configurations.

Shockwave Technology incorporates Digital IC's with specially designed low-noise circuitry to produce high-quality, true sound reproduction from any source. This technology also reduces unwanted EMI (Electromagnetic Interference), which can cause noise in your audio system.

Using gold plated RCA's and high quality connectors ensures the best possible listening experience. There is also a speaker level input for those that do not provide RCA's. To use our amplifier with the Harley-Davidson Factory Radio, you will need to use the Molex connector with the speaker wires, provided in the kit.



Digital amplifiers are much more efficient than traditional amplifiers; producing less heat, lowering power consumption, reducing strain on batteries and charging systems.

Shockwave Technology amplifiers combine all these features into a single, compact unit and when compared with the competition, still make considerable reductions in both size and weight!

Aquatic AV's Shockwave Technology is the sensible amplifier solution for wet, dusty or harsh environments.

2.1 Contents

When first unpacking your new amplifier, please check first that the package contains all the items below. If something is missing, contact the store where you purchased the product.

- 4-channel amplifier
- Two (2) Output cable with connector
- Four (4) stainless steel mounting screws
- Four (4) mounting brackets with hardware included
- Two (2) Cables for RCA input
- Two (2) Cables for the Speaker Level
- Owner's Manual

2.2 Key Features

- Maximum Power: 4 x 150W (2 Ohms) or 4 x 100W (4 Ohms)
- Bridged Power 2 x 300W (4 Ohms)
- Power and Protection LED
- Line Inputs
- Bridgeable/Trimode Operation
- Variable Gain Controls (200mV to 10V)
- Variable Low Pass Crossover & Fixed High Pass Crossover
- Up to +18dB Variable Bass Boost
- PCB with Conformal Coating
- Waterproof IP67
- Hardwired Input/Output and Speaker Cables
- Signal-to-Noise Ratio: 90dB

Aquatic AV understands that amplifiers are placed in many different kinds of installations, so we have included an input sensitivity control to help you integrate the amplifier into your system regardless of the nature of your input source and features both high pass and low pass crossovers.

Aquatic AV marine amplifiers are constructed using a special corrosion resistant coating on the printed circuit board to prevent damage from the high humidity.

In order to prevent the intrusion of water into the amplifier enclosure, we have provided the connections at the end of the waterproof wires/cables, and tightly grommited the wires as they pass through the end panels. An additional important and unique component is the rubber pad which seals all control openings.

2.3 Troubleshooting

Problem	Cause	Solution
It doesn't sound right	Speaker connected to the wrong output	Refer to page 7-9 of this owner manual
	Control panel settings are wrong	Refer to page 7-9 of this owner manual
Amplifier doesn't turn on	Controller/head unit wasn't turned ON	Did you remember to press and hold the controller's power button for 3-5 seconds?
	Poor connection integrity	Check "+12V" and "Ground" leads for pinched wires; ensure tight connections.
Balance Reversed	Speaker Wire L & R Reversed	Correct Speaker Wire Orientation
Output Distorted	NR/Audio player Volume Set Too High	Lower NR /Audio player Volume
	Amplifier Gain set too High	Lower Amplifier Gain (SENS)
Whining or ticking noise while the engine is ON	The amplifier is picking up alternator or radiated noise	Move the audio cables away from the power wires
		Turn Down input gain (SENS)
		Check the alternator and/ or voltage regulator. Test for weak battery or add water to the battery.

NOTE: For an easier installation process when you purchase an amplifier for Harley Davidson® motorcycles, we suggest also buying one of Aquatic AV's Amplifier Mounting Kits. These kits are available in the following models:

- *Road Glide Amplifier Mounting Bracket Kit (1998-2013)*
- *Batwing Amplifier Mounting Bracket Kit (1998-2013)*
- *Road Glide Amplifier Mounting Bracket Kit 2015+*
- *Batwing Amplifier Mounting Bracket Kit 2014+*

3.1 Installation Precautions

Before you drill or cut any holes, investigate your ATV or boat layout very carefully. Take special care when you work near the gas tank, fuel lines, hydraulic lines and electrical wiring. Aquatic AV suggests you have a professional install the amplifier. Never operate the amplifier when it is unmounted. Attach all audio system components securely within the amplifier to prevent damage especially in an accident.

Do not mount this amplifier in a way in which the wire connections are unprotected, in a pinched condition, in contact with any metal surfaces or likely to be damaged by nearby objects.

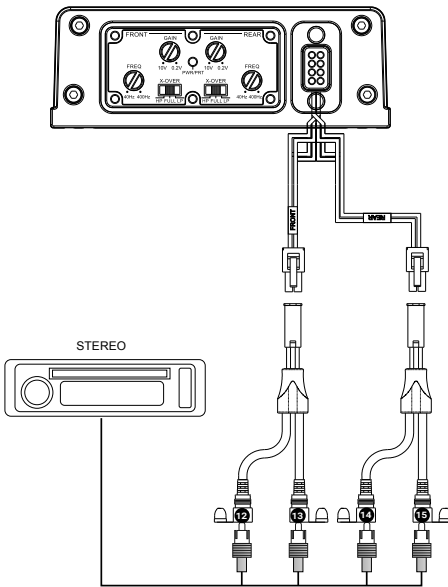
Before making or breaking power connections in your system, disconnect the battery. Confirm that your head unit or other equipment is turned off while connecting the input jacks and speaker terminals.

If you need to replace the power fuse, replace it only with a fuse identical to that supplied with the amplifier. Using a fuse of a different type or rating may result in damage to your audio system or your amplifier which is not covered by the manufacturer's warranty.

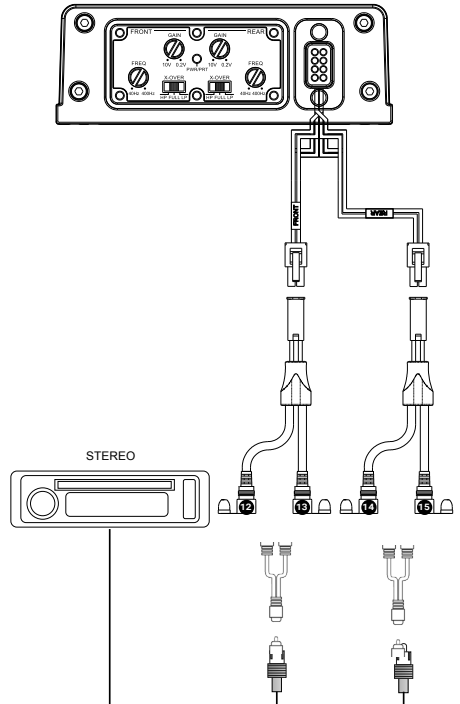
4.1 Head Unit with RCA Outputs

The AD500.4 amplifier requires all four RCA inputs to be connected to provide correct operation. When the amplifier is used in conjunction with a stereo source where only two RCA outputs are available, please use RCA 'Y-connectors' to allow all four inputs to be connected. Always use high-quality RCA cables for best audio performance.

Stereo with 4 x RCA Outputs (Front & Rear)



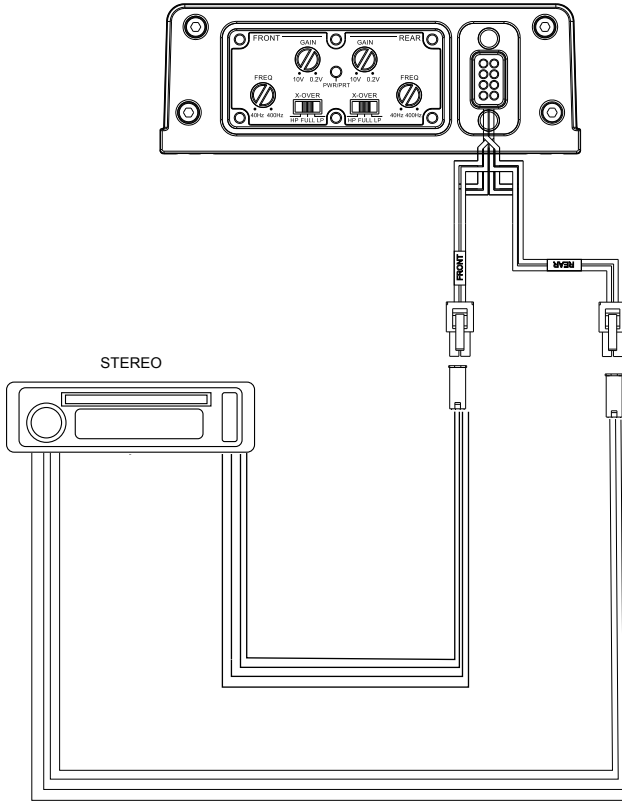
Stereo with 2 x RCA Outputs (Left & Right)

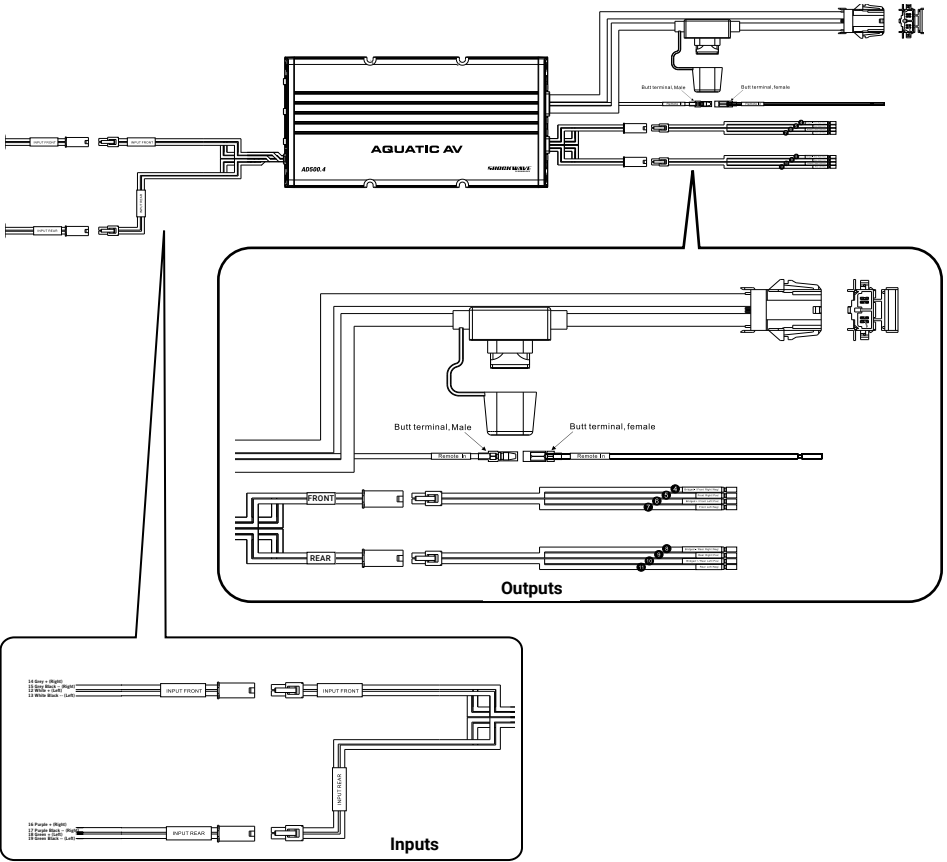


12	FRONT Left RCA White Input
13	FRONT Right RCA Red Input
14	REAR Left RCA White Input
15	REAR Right RCA Red Input

4.2 Speaker Wiring

This will be used if the customer will use our amplifier with the Stock Harley Radio or with the head unit which does not have RCA outputs.





POWER

1	GND 8 AWG BLACK
2	+12V 8 AWG RED
3	TRIGGER 16 AWG BLUE

SPEAKER OUTPUT

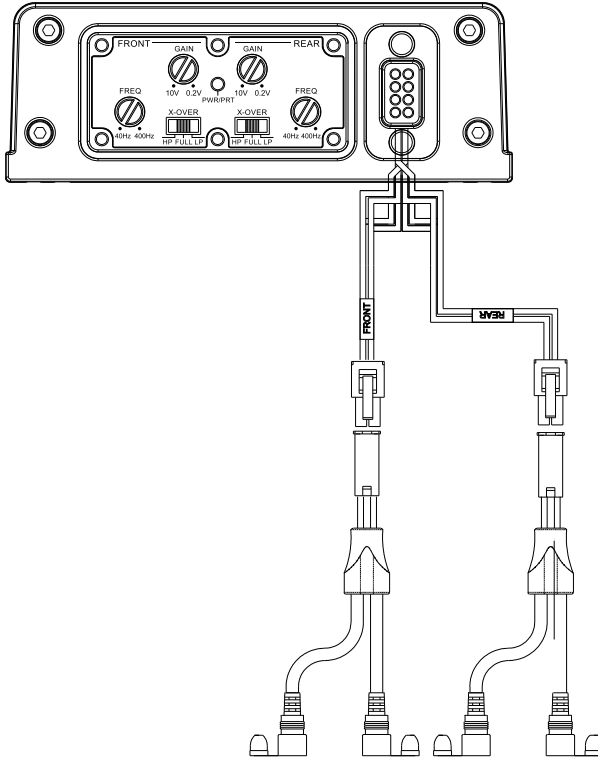
4	FRONT RIGHT (NEG) 16 AWG GREY/BLACK
5	FRONT RIGHT (POS) 16 AWG GREY
6	FRONT LEFT (POS) 16 AWG WHITE
7	FRONT LEFT (NEG) 16 AWG WHITE/BLACK
8	REAR RIGHT (NEG) 16 AWG PURPLE/BLACK
9	REAR RIGHT (POS) 16 AWG PURPLE
10	REAR LEFT (POS) 16 AWG GREEN
11	REAR LEFT (NEG) 16 AWG GREEN/BLACK

SPEAKER HIGH LEVEL INPUT

12	FRONT LEFT (POS) WHITE
13	FRONT LEFT (NEG) WHITE/BLACK
14	FRONT RIGHT (POS) GREY
15	FRONT RIGHT (NEG) GREY/BLACK
16	REAR RIGHT (POS) PURPLE
17	REAR RIGHT (NEG) PURPLE/BLACK
18	REAR LEFT (POS) GREEN
19	REAR LEFT (NEG) GREEN BLACK

5.1 Input Settings

Adjust both gain controls. Turn the stereo to 75%, then adjust the 0.2V gains frequency upward when the music gets loud and turn it down when the music is not clear. This will keep your system working well and protect your equipment.

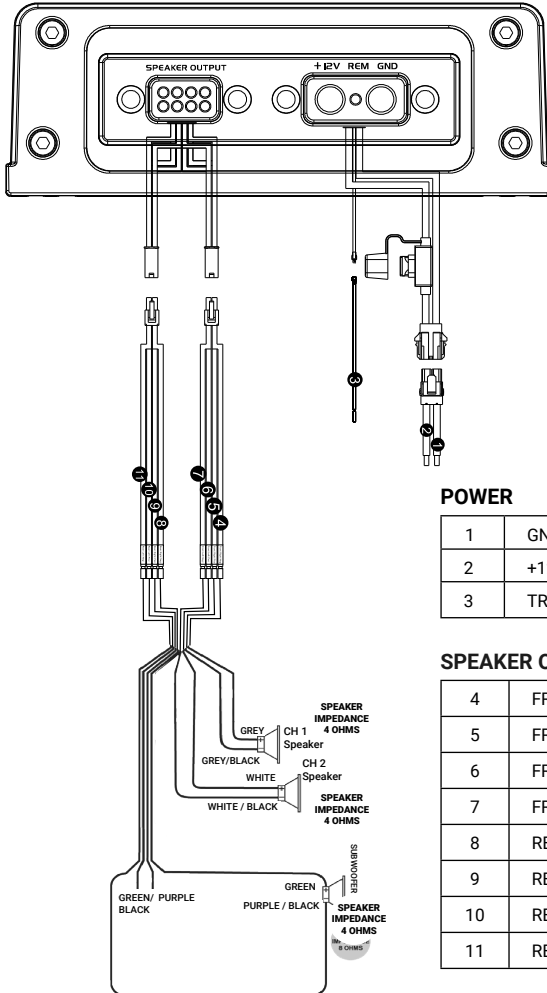


NOTE: Make sure the polarity to each speaker is correct! If not your speakers will be out of phase and the output will have a loss of bass and the sound will not be good.

3 Channel/Bridge Mode operation allows you to connect this amplifier to one pair of main speakers on channels 1 & 2, plus a subwoofer on output channels 3 & 4. The main speakers will operate in STEREO while the subwoofer simultaneously operates in MONO.

To set the amplifier to run in this mode, put the crossover switch in the FULL position.

6.1 Power & Speaker Wiring



POWER

1	GND 8 AWG BLACK
2	+12V 8 AWG RED
3	TRIGGER 16 AWG BLUE

SPEAKER OUTPUT

4	FRONT RIGHT (NEG) 16 AWG GREY/BLACK
5	FRONT RIGHT (POS) 16 AWG GREY
6	FRONT LEFT (POS) 16 AWG WHITE
7	FRONT LEFT (NEG) 16 AWG WHITE/BLACK
8	REAR RIGHT (NEG) 16 AWG PURPLE/BLACK
9	REAR RIGHT (POS) 16 AWG PURPLE
10	REAR LEFT (POS) 16 AWG GREEN
11	REAR LEFT (NEG) 16 AWG GREEN/BLACK

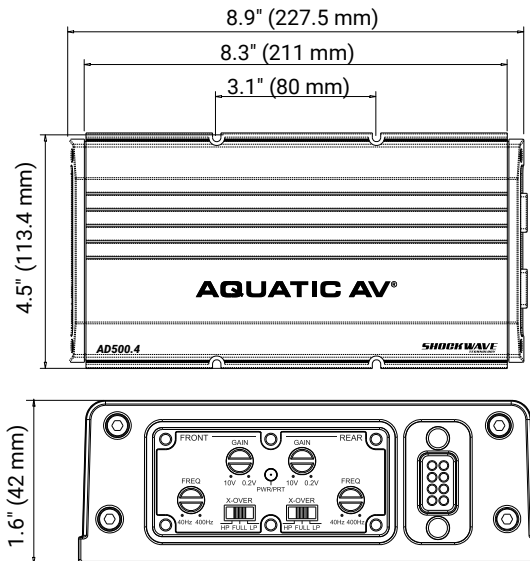
NOTE: Green, black and purple wires will not be connected.

⚠ WARNING: Always insulate the wire when not in use. Otherwise, it can cause a short circuit. Also do not use the speaker wires or RCA cable near power wires to avoid interference.

7.1 Specifications

Type: 4-channel amplifier
Dimensions (l x w x h): 8.9 x 4.5 x 1.6" (227.5 x 113.4 x 42 mm)
Waterproof: IP67
Overload Protection: Yes
Input Channels: 4xRCA, 4 speaker level input
Output Channels: 4/3/2
Output Impedence (nominal): 4 Ohms / 2 Ohms
Power Output (RMS) @ 2 Ohms:600W (4 x150W)
Power Output (RMS) @ 4 Ohms:400W (4 x100W)
THD @ 4 Ohms, 100W: 1%
THD @ 4 Ohms, 50W: 0.05%
THD (Bridged), 300W: 1%
Frequency Response: 20Hz ~ 20kHz
High Pass/Low Pass Cross-Over
Frequency: 40Hz ~ 400Hz
Input Sensitivity0.2 - 10V
Operating Voltage 9V - 16V DC
Additional FeaturesShockwave Technology

7.2 Dimensions



8.1 Gain Controls

These are very important to the quality of the sound you receive from your stereo input. Stereos or source units range with different outputs. We want to match the output to your amplifier as close as possible so you can achieve the ultimate sound performance.

Your amplifier can adjust from 0.2V to 10V input. Place your gain controls down to 0.2V to start.

First turn your source (stereo) up to about 75% of the maximum volume. Then play some music you are familiar with. The sound at first may be very low. Then start rotating the gain control for the front and rear channels up toward 10V slowly you will get to a point where the music should sound very good to your ear. After that point the music can still get louder but you do not want it to get too loud and distort the sound. This can also damage your equipment and speakers.

When the music starts distorting, please lower the volume level. You might be overdriving the speakers and it may damage them. Aquatic AV suggests you get the music as loud as you need without distortion and reduce the gain by 10% to keep your system safe.

8.2 Crossovers

Adjust the crossover points to the current setting needed. By doing this you send the right information to each speaker so they can perform well. This also protects the speaker from damage or abuse.

- HP - High Pass Filter is set for high frequencies and cuts out low frequencies such as bass
- LP - Low Pass Filter is set for low frequencies and eliminates high frequencies such as cymbals.
- Full - Full Range gives you all the frequencies.

There are two frequency settings that you can adjust for the front and rear channels. These are adjusted after you set the crossover settings.

If you are not familiar with these settings consult a local dealer. By having the setting set at the correct point you will extend the life of your system and achieve ultimate performance.

8.3 Power/Protect LED

When the PWR/PRT LED is blue the amplifier is working properly. If the LED turns red the amplifier goes into protection mode. If the LED is red you have to trouble shoot your system to see if there are any damaged wires, speakers or short circuit. Make sure your Ohm load is not below 2 Ohms.

Aquatic AV offers a limited warranty of our products on the following terms:

Length of warranty

2 years on audio systems, electronics, speakers, and accessories (receipt required). Register your device through the Aquatic AV app. Available to download on the App Store and Google Play Store.

Coverage

This warranty covers only the original purchaser of an Aquatic AV product purchased from an authorized Aquatic AV dealer. In order to receive service, the purchaser must provide Aquatic AV with a copy of the receipt stating the customer name, dealer name, product purchased and date of purchase.

Defective products

Products found to be defective during the warranty period will be repaired or replaced (with a product deemed to be equivalent) at Aquatic AV's discretion.

What is not covered

- Damage caused by accident, abuse, improper operations or theft.
- Any cost or expense related to the removal or reinstallation of product.
- Service performed by anyone other than an authorized Aquatic AV service center.
- Any product with the serial number or tamper labels defaced, altered, or removed.
- Subsequent damage to other components.
- Any product not purchased from an authorized Aquatic AV dealer.

Limit on implied warranties

Any implied warranties including warranties of fitness for use and merchantability are limited in duration to the period of the express warranty set forth above. Some states do not allow limitations on the length of an implied warranty, so this limitation may not apply. No person is authorized to assume for Aquatic AV any other liability in connection with the sale of the product.

How to obtain service

You must obtain a return material authorization number (RMA) to return any product to Aquatic AV. You are responsible for shipping charges of returned products to Aquatic AV.

Please record the model and serial number[s] of your equipment in the space provided below as your permanent record and will assist us with your factory warranty coverage. These numbers can be found on the rear of the speaker.

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