



**CLASS D AMPLIFIER**

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DM500, DM1000, D4, D5.500, D5.1000

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**OWNER'S MANUAL**

# INTRODUCTION

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Thank you for purchasing a **DD Audio** amplifier. **DD Audio** amplifiers are painstakingly designed to provide years of high-performance listening pleasure. To achieve optimum performance we suggest you have your amplifier installed by an Authorized **DD Audio** Dealer. It is also highly recommended that you read this Owner's Manual to familiarize yourself with the many features of your amplifier.

The D Series contains full range multi-channel amplifiers, monoblock amplifiers and hybrid amplifiers (full range multi-channel + monoblock). These amps are engineered for multiple applications including low frequency and full range car audio reinforcement. Designed with the goal of being the best amps on the market for the everyday enthusiast, the D Series will be the soul of your audio system delivering clean, powerful audio from a true stock electrical system. These amps feature compact chassis, strong power, logical controls and efficient design. No shortcuts were taken when deciding on the internal components and feature sets. Our engineers paid extremely close attention to every stage of the D-Series circuit design; and utilized high speed controller chipsets, efficient power devices, precise thermal management and the latest in IC technology. We hope you enjoy using this **DD Audio** product, and if you have any questions regarding setup or installation, please contact the **DD Audio** technical support team.

# WARNING

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**DD Audio** amps are built to play at high volumes beyond what your ears can safely handle for extended periods of time. Prolonged exposure to excessively high volume can cause permanent damage to your hearing.



In addition, operation of a motor vehicle while listening to audio equipment at high volume levels may impair your ability to hear external sounds such as: horns, warning signals, or emergency vehicles; thus, constituting to a potential traffic hazard. You may also find your state has laws governing the volume of an audio system in a car. Please be aware of all local and state laws in your area. So, be smart, and behave yourself... As much as possible.

## D SERIES DESIGN FEATURES:

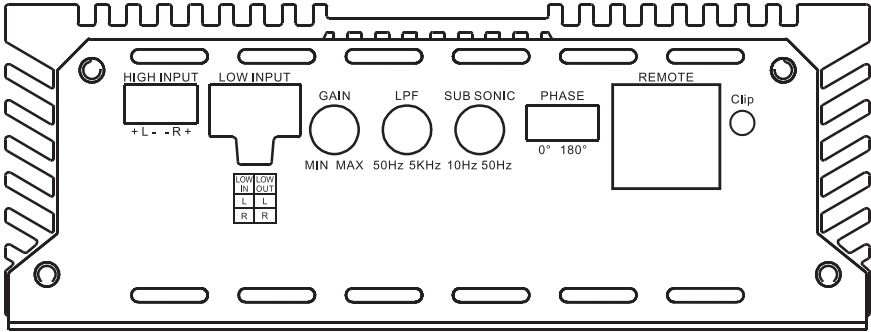
- **MOSFET POWER SUPPLY AMPLIFIER**
- **4 GAUGE POWER TERMINALS**
- **DOUBLE SIDED THROUGH HOLE PCB**
- **CONFORMAL COATED PCB**
- **VARIABLE 24d/Oct. CROSSOVERS**
- **OUTPUT CLIPPING LIMITER**
- **PASS-THROUGH OUTPUT (DM500, DM1000, D4)**
- **REMOTE SUBWOOFER CONTROL (DM500, DM1000, D5.500, D5.1000)**
- **HIGH-LEVEL INPUT SUMMING (D4, D5.500, D5.1000)**
- **HIGH-LEVEL INPUT SIGNAL SENSE TURN ON**
- **INPUT MODE SWITCH (D4, D5.500, D5.1000)**
- **3-WAY PROTECTION: CLIPPING LIMITER, SPEAKER SHORT, THERMAL**

# TECHNICAL SPECIFICATIONS

	DM500	DM1000	D4	D5.500	D5.1000
Test Voltage 14.4V					
Channels	1	1	4	5	5
Continuous Wattage					
40hm			90x4 / 240x2	(CH1~4) 90x4/240x2	(CH1~4) 90x4/240x2
20hm			120x4	(CH1~4) 120x4	(CH1~4) 120x4
10hm	500x1	1000x1		(CH5) 500x1	(CH5) 1000x1
Max Current Draw	45A	90A	45A	85A	130A
Frequency Response	10Hz~5KHz	10Hz~5KHz	20Hz~20KHz	10Hz~20KHz	10Hz~20KHz
S/N Ratio	>80dB	>80dB	>80dB	>80dB	>80dB
THD	<0.45%	<0.5%	<0.3%	<0.2%	<0.25%
RCA Input Voltage Sensitivity	200mV~6V	200mV~6V	200mV~6V	200mV~6V	200mV~6V
Hi-Level Input Limit	16V(64W)	16V(64W)	16V(64W)	16V(64W)	16V(64W)
Pass-Through Preamp Output	Yes	Yes	Yes	No	No
Remote Subwoofer Control	Yes	Yes	No	Yes	Yes
Power Wire Gauge In	4	4	4	4	4
Speaker Wire Gauge Out	12	12	12	12	12
Dimensions: in	8x5x2in	12x5x2in	9x5x2in	12x5x2in	16.68x5x2in
Dimensions: mm	203x125x47mm	303x125x47mm	233x125x47mm	303x125x47mm	373x125x47mm

# CONTROL AND CONNECTION FOR MONOBLOCK AMPLIFIERS (DM500, DM1000)

## PRE-AMP PANEL



### HIGH INPUT:

Used for connecting high-level or speaker level source signal cables to the amplifier. HIGH INPUT has signal sense turn-on which will turn the amplifier on and off with the presence or absence of audio signal.

### LOW INPUT:

Used for connecting RCA preamp signal cables from the source unit to the amplifier.

### GAIN:

Matches the output voltage of the source signal to the amplifier's input section.

### LPF:

Controls the low pass cutoff point for the speaker outputs.

### SUBSONIC:

Controls the high pass cutoff point for the speaker outputs to eliminate

extremely low frequencies that can waste amplifier power and cause damage to your subwoofers.

### PHASE:

Determines whether the output signal has the same phase or the opposite phase of the input signal.

### REMOTE:

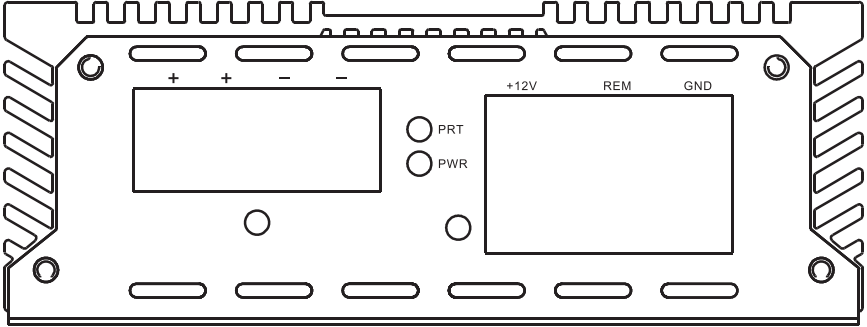
This port is for connecting the remote subwoofer control.

### CLIP:

This LED indicates when clipping is present while playing source material. If the CLIP LED is flashing it also indicates the clip limiter is engaging. At this point it is suggested to adjust the amplifiers gain level until the CLIP LED is only flashing on peak bass notes. The clip limiter protection can be overdriven resulting in possible damage to your speakers and/or the amplifier.

# CONTROL AND CONNECTION FOR MONOBLOCK AMPLIFIERS (DM500, DM1000)

## POWER PANEL



### SPEAKER OUTPUT

#### TERMINALS:

Connect to the speaker's + and - terminals. Minimum suggested speaker cable size is 12 gauge. Mono amplifiers have two + and two - terminals for easier connection of multiple speaker cables. Minimum impedance is 1 ohm.

#### PRT LED:

Indicates a general malfunction due to speaker short, faulty connection or thermal protection.

#### PWR LED:

Indicates the amplifier is grounded, and receiving +12V and REM power.

#### +12V:

Connect to a fused positive cable (+12V) from the battery. Minimum power cable size is 4 gauge.

#### REM:

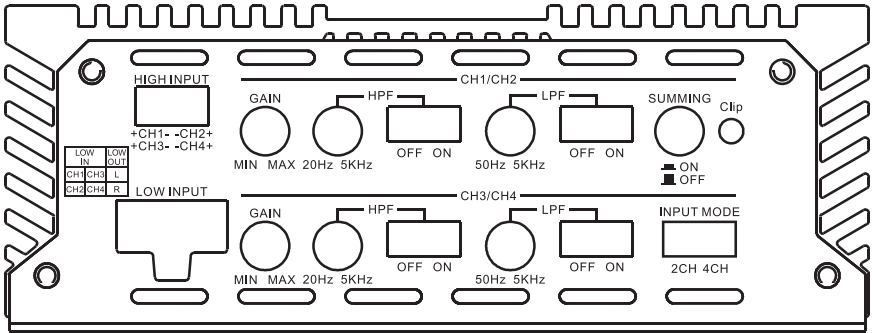
Connect to a switched +12V cable. REM connection isn't necessary when using the HIGH INPUT.

#### GND:

Connect to a ground wire going directly to the chassis of your vehicle. Minimum cable size is 4 gauge.

# CONTROL AND CONNECTION FOR FULL RANGE MULTI CHANNEL AMPLIFIERS (D4)

## PRE-AMP PANEL



### HIGH INPUT:

Used for connecting high-level or speaker level source signal cables to the amplifier. HIGH INPUT has signal sense turn-on which will turn the amplifier on and off with the presence or absence of audio signal.

### LOW INPUT:

Used for connecting RCA preamp signal cables from the source unit to the amplifier.

### SUMMING:

When in the ON position this button combines the High-Level inputs when integrating into OEM systems, where partial frequency band signals are provided, to create a full range pre-amp signal. To use the input summing feature set INPUT MODE to 4CH.

### GAIN:

Matches the output voltage of the source signal to the amplifier's input section.

### HPF:

Controls the high pass cutoff point for the speaker outputs.

HPF selector switch determines whether HPF is OFF or ON. In the OFF position, the HPF will have no effect. In the ON position, it will only allow the frequencies above the setting on HPF to play.

### LPF:

Controls the low pass point for the speaker outputs. LPF selector switch determines whether the LPF is OFF or ON. In the OFF position, the LPF will have no effect. In the ON position, it will only allow the frequencies below the setting on LPF to play.

### (BPF):

If both the HPF and LPF are set to the ON position you will be able to set up a bandpass filter.

### CLIP:

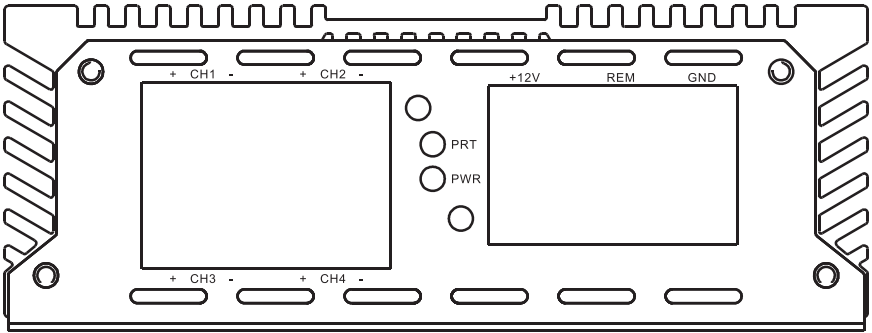
This LED indicates when clipping is present while playing source material. If the CLIP LED is flashing it also indicates clip limiter is engaging. At this point it is suggested to adjust the amplifiers gain level until the CLIP LED is only flashing on peak bass notes. The clip limiter can be overdriven resulting in possible damage to your speakers and/or the amplifier.

### INPUT MODE:

Switches low-level RCA inputs to match the number of source unit signal outputs available. When switched to 2CH mode all output channels will be powered with only 2 channels of low-level signal. When switched to 4CH mode all low-level inputs will be independent.

# CONTROL AND CONNECTION FOR FULL RANGE MULTI CHANNEL AMPLIFIERS (D4)

## POWER PANEL



### **SPEAKER OUTPUT TERMINALS:**

Connect to the speaker's + and - terminals. Minimum suggested speaker cable size is 12 gauge.

### **PRT LED:**

Indicates a general malfunction due to speaker short, faulty connection or thermal protection.

### **PWR LED:**

Indicates the amplifier is grounded, and receiving +12V and REM power.

### **+12V:**

Connect to a fused positive cable (+12V) from the battery. Minimum power cable size is 4 gauge.

### **REM:**

Connect to a switched +12V cable. REM connection isn't necessary when using the HIGH INPUT.

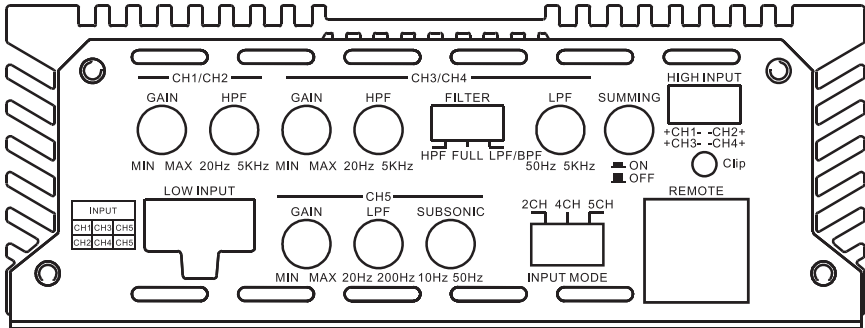
### **GND:**

Connect to a ground wire going directly to the chassis of your vehicle. Minimum cable size is 4 gauge.



# CONTROL AND CONNECTION FOR 5 CHANNEL HYBRID FULL RANGE MULTI CHANNEL + MONOBLOCK AMPLIFIERS (D5.500, D5.1000)

## PRE-AMP PANEL



### HIGH INPUT:

Used for connecting high-level or speaker level source signal cables to the amplifier. HIGH INPUT has signal sense turn-on which will turn the amplifier on and off with the presence or absence of audio signal.

### LOW INPUT:

Used for connecting RCA preamp signal cables from the source unit to the amplifier.

### SUMMING:

When in the ON position this button combines the High-Level inputs when integrating into OEM systems, where partial frequency band signals are provided, to create a full range pre-amp signal. To use the input summing feature set INPUT MODE to 4CH.

### GAIN:

Matches the output voltage of the source signal to the amplifier's input section.

### FILTER:

Selects the filter mode HPF, FULL, LPF/BPF for CH3/CH4. When in LPF/BPF mode both the HPF and LPF filters will be active to create a band pass filter.

### HPF:

Controls the high pass cutoff point for the speaker outputs.

### LPF:

Controls the low pass point for the speaker outputs.

### SUBSONIC:

Controls the high pass cutoff point for the speaker outputs to eliminate extremely low frequencies that can waste amplifier power and cause damage to your subwoofers.

### REMOTE:

This port is for connecting the remote subwoofer control. This controls only the channel 5 on 5 channel models.

### CLIP:

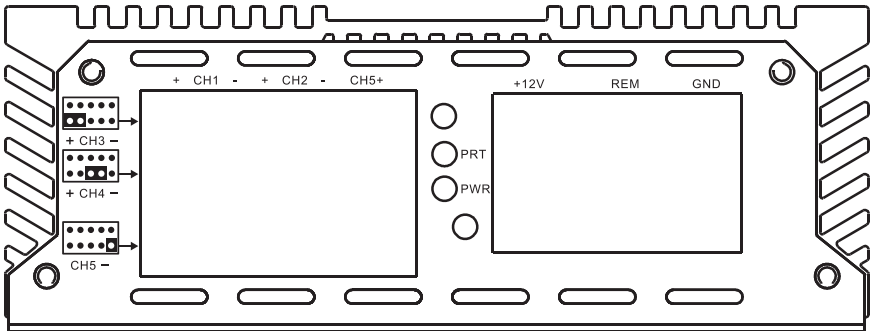
This LED indicates when clipping is present while playing source material. If the CLIP LED is flashing it also indicates clip limiter is engaging. At this point it is suggested to adjust the amplifiers gain level until the CLIP LED is only flashing on peak bass notes. The clip limiter can be overdriven resulting in possible damage to your speakers and/or the amplifier.

### INPUT MODE:

Switches low-level RCA inputs and high-level inputs to match the number of source signal outputs available. When switched to 2CH Mode all output channels will be powered with only 2 channels of source signal. When switched to 4CH Mode all output channels will be powered with only 4 channels of source signal. In 5CH mode all low-level inputs will be independent. To use the input summing feature set input mode to 4CH.

# CONTROL AND CONNECTION FOR 5 CHANNEL HYBRID FULL RANGE MULTI CHANNEL + MONOBLOCK AMPLIFIERS (D5.500, D5.1000)

## POWER PANEL



### SPEAKER OUTPUT TERMINALS:

Connect to the speaker's + and - terminals. Minimum suggested speaker cable size is 12 gauge.

### PRT LED:

Indicates a general malfunction due to speaker short, faulty connection or thermal protection.

### PWR LED:

Indicates the amplifier is grounded, and receiving +12V and REM power.

### +12V:

Connect to a fused positive cable (+12V) from the battery. Minimum power cable size is 4 gauge.

### REM:

Connect to a switched +12V cable. REM connection isn't necessary when using the HIGH INPUT.

### GND:

Connect to a ground wire going directly to the chassis of your vehicle. Minimum cable size is 4 gauge.

## MOUNTING YOUR AMPLIFIER

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- Mount your amplifier in a dry, well-ventilated environment.
- Before mounting the amplifier be sure the mounting location and screw placement will not present a hazard to any cables, wiring, fuel lines, fuel tanks, hydraulic lines or other vehicle systems or components.
- Securely mount the amplifier using appropriate hardware so that it does not come loose in the event of a collision or a sudden jolt to the vehicle.
- Do not mount the amplifier to any area that may have excessive vibration (like the subwoofer box).
- Take into consideration your vehicle's safety equipment (air bags, seat belt systems, ABS brake systems, etc.) and avoid interfering with such equipment.

## POWERING YOUR AMPLIFIER

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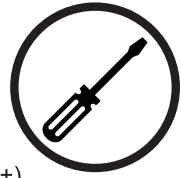
Make sure your vehicle's charging system is adequate for the amplifier you're installing. Amplifiers don't make power, they simply convert the current and voltage you give them into wattage. If your charging system is insufficient, your amp will not produce its full rated output. If the current or voltage supply drops too low, even for milliseconds, damage can be caused resulting in amplifier failure. This type of failure is not considered a manufacturer's defect. The addition of even a small amplifier will increase the demand on your charging system. If you are unsure or have questions about your charging system, have it tested by a professional technician to determine its capability.



# INSTALLATION

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1. Disconnect the negative cable from the car battery.
2. Due to the power requirements of the Amplifier, the +12V connection should be made directly to the positive (+) terminal of battery. For safety measures, install an in-line fuse holder (not included) as close to the battery's positive (+) terminal as possible. The fuse ampere rating should not exceed the total value of the amplifier's rated maximum current draw. If the fuse is further than 18 inches (wire length) from the battery you should re-evaluate the wire and fuse placement.



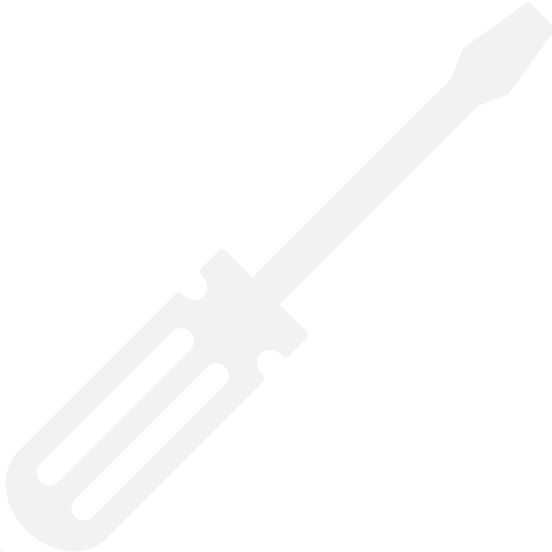
Run the power wire from the battery to the amplifier. To avoid a potential short to the body and a possible fire, this cable should never be ran outside of the vehicle. You will also need to make sure no trim screws or sharp body metal will penetrate the power cable shielding. Don't install the fuse yet. This will be the last thing you do.

3. Connect the ground wire directly to the chassis of your vehicle. The grounding location should be made on metal as close to the amplifier as possible. Remove all paint, sound deadener, etc. from the area of grounding connection. Do not use seat belt bolts for grounding. It is advisable to test the ground with an ohmmeter. Test between the grounding point and the negative battery cable to insure a good low resistance connection (<0.5 Ohm).
4. Run the REM Turn-On wire from the an ignition controlled +12V source. This will turn "ON" the amplifier remotely when the vehicle's stereo is turned "ON". NOTE IF YOUR RADIO DOES NOT HAVE A +12 VOLT OUTPUT LEAD WHEN THE RADIO IS TURNED ON, THE AMPLIFIER CAN BE CONNECTED TO AN ACCESSORY CIRCUIT IN THE VEHICLE THAT IS LIVE WHEN THE KEY IS "ON".
5. Run the RCA cables if they will be used for the application or make your high-level signal connections.
5. Run the speaker wire to the speakers. It is advised that you leave some extra wire at this point. You can "clean it up" later.
6. Connect the power and ground to the amplifier. Make sure the polarity (+ and -) is correct to avoid damaging the amplifier. Only after this step should you install the fuse at the battery.
7. Connect the remote wire from the head unit to the amplifier. At this time you should turn on the amp and make sure it turns on properly and does not go into protect.

## INSTALLATION *(continued)*

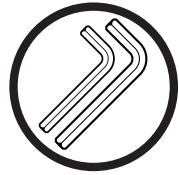
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8. Turn the amp off and connect the speaker wire to the amp. Pay attention to the polarity (+ and-). If hooked up incorrectly it can cause poor sound due to phasing issues.
9. Connect the RCA cables or high-level harness to the amp.
10. Double check the amplifier controls to verify they are set correctly for your system.
11. Now you can turn on the system and begin the fine tuning process. Turn the amp gain all the way down. Turn the head unit volume to somewhere around 75%.
12. Now you can tune the amp. Take your time and make only one adjustment at a time. It may take some time to get the system fully adjusted. During this time the amp is drawing current from the battery. You should check the battery voltage from time to time and re-charge it if it gets low. Battery voltage can affect the way the amplifier performs.
13. You may have to do some slight re-tuning at a later date if you are installing new speakers at the same time as the amp due to the speakers breaking in.



## TROUBLESHOOTING:

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### NO POWER

- Check GND connection.
- Check voltage at the amplifier's +12V and REM terminals.
- Check fuses.

### NO SOUND ( NO OUTPUT )

- Check all cable routing for shorts or faulty connections,
- Check speakers to verify they are in proper operating condition.

### PROTECTION

- Possible causes overheat( thermal ), short.
- If the amplifier shuts down due to overheating, it will automatically return to normal. operation once the amplifier temperature drops below the thermal shutoff temperature. Make sure there is proper airflow with no obstructions around the amplifier to avoid further.
- Thermal protection. In some cases an external fan may be required to keep the amplifier temperature below the thermal protect level.
- The D-Series working voltage is 9V - 15V. When voltage is lower than 8.5V or higher than 16V the amplifiers will not operate correctly.

### DISTORTION

- Check speaker cables for reverse polarity of one channel.

### POOR BASS RESPONSE

- Check speaker cables for reverse polarity of one channel.

## TROUBLESHOOTING *(continued)*:

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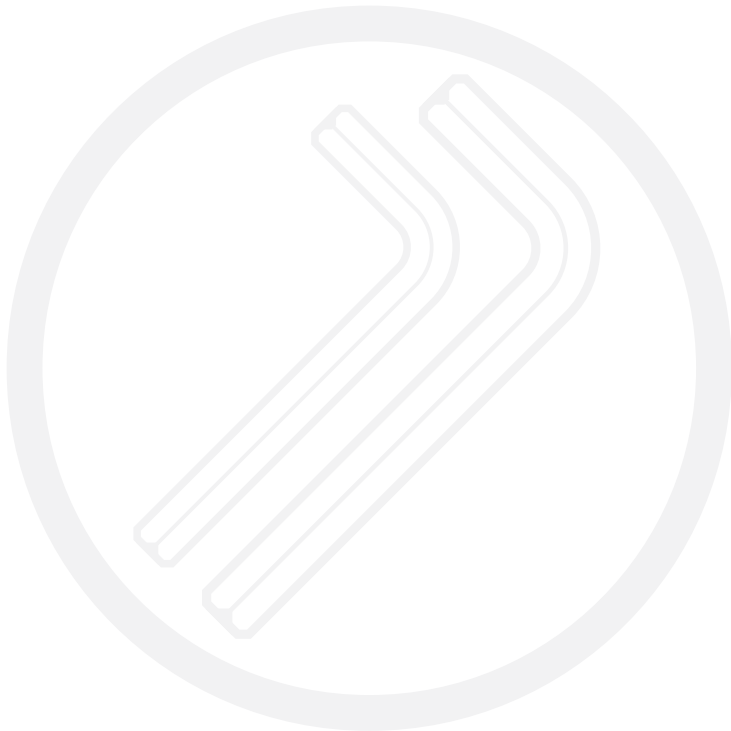
### BUZZING SOUND

- Check the amplifier and headunit ground connections.
- Check RCA cable connections and possibly replace RCA cables with better noise shielded cable or reroute RCA cables away from power cables.

### WHINING NOISE

- Engine noise can be caused by poor grounding of amplifiers, headunits, signal processors, battery or alternator. If you can remove the signal cables from the amplifier and the noise goes away the sound is not being generated by your amplifier, but by an external grounding issue.

If you have any questions regarding setup, installation or warranty please contact the DD Audio technical support team by email at [ddtech@ddaudio.com](mailto:ddtech@ddaudio.com) or by phone at **(405) 239-2800**.



DD  
AUDIO

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