

Model 2200 M-Block Power Amplifier



Owner's Manual

Version 1.0

Please Read First



CAUTION: To reduce the risk of electric shock, do not remove the cover (or back). No user serviceable parts inside. Refer to qualified personnel.

WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating maintenance (servicing) instructions in the literature accompanying the appliance.

Precautions

Verify The Line Voltage

Your new amplifier has been factory configured for 120 (+/- 3%) volt AC lines. Connecting the amplifier to a line voltage other than that for which it is intended can create a safety and fire hazard, and may damage the amplifier. If you have any questions about the voltage requirements for your specific model, or about the line voltage in your area, contact Outlaw Audio before plugging the unit into a wall outlet.

Verify AC Circuit Capacity

The high power output of your Outlaw amplifier may require heavy power draw under full load conditions. To insure proper performance, and to avoid potential safety hazards, we recommend that it be connected to a minimum 20 Amp capacity circuit. Connecting multiple amplifiers to the same circuit, or connecting it to a circuit used by other heavy power devices, such as air conditioners, may cause circuit breakers to trip.

NOTE: It is always a good idea to avoid using any audio or video equipment on the same AC circuit as equipment with motors, such as air conditioners or refrigerators. This will lessen the possibility of power variation and electrical start-up noise affecting your sound system.

Extension Cords and Power Strips

We do not recommend that extension cords be used with this product unless they are of sufficient gauge to pass the necessary current during full load conditions. Most inexpensive extension cords are not capable of such high-current loads.

Similarly, should you use a power strip, surge protector or any type of AC power line conditioning equipment, make certain that it is also able to handle the high current loads this product will produce.

Handle the AC Power Cord Gently

When disconnecting the power cord from an AC outlet, always pull the plug, never pull the cord. If you do not intend to use the amplifier for any considerable length of time, disconnect the plug from the AC outlet. If the power cord is replaced, make certain that it is of similar gauge. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on them. Damaged power cords should be replaced immediately with cords meeting factory specifications.

Wiring

Cables that are run inside of walls should have the appropriate markings to indicate compliance with, and listing by the UL, CSA or other standards required by the UL, CSA, NEC or your local building. Questions about cables inside of walls should be referred to a qualified customer installer, or a licensed electrician or low-voltage contractor.

Installation Location

To assure proper operation and to avoid the potential for safety hazards, place the unit on a firm and level surface capable of supporting 20 pounds or more. When placing the amplifier on a shelf, be certain that the shelf and any mounting hardware can support the weight of the amplifier and any additional items in the equipment rack, or on the shelf.

When positioning the amplifier in its final location, make certain that it has adequate ventilation on all sides, as well as on the top and bottom. In particular, it is a good idea to provide at least two or three inches of room above the amplifier for air circulation. DO NOT place CDs, DVDs, videotapes, owner's manuals, or other paper on top of, or beneath, the unit, or in-between multiple amplifiers in a stack. This will block airflow, causing heat build-up, degraded performance, and may create a possible fire hazard.

If the unit is to be enclosed in a cabinet or rack, make certain there is adequate air circulation. Sufficient ventilation should be provided so that hot air may exit, and cool air may enter the cabinet. In some instances, a small cooling fan may be required to insure adequate airflow through the cabinet. If you are in doubt as to the ventilation requirements for your specific installation, please contact us. Also, do not place the amplifier directly on a carpeted surface, as this will inhibit airflow underneath as well as create a potential fire hazard.

Avoid installation in humid locations, in extremely hot or cold locations, or in areas that are exposed to direct sunlight or space heating equipment.

Loudspeaker Ratings

Your Outlaw Power Amplifier has adequate power to drive most loudspeakers without producing any distortion. Most modern speakers are rated at four to eight ohms nominal impedance, but within some frequency ranges, the impedance may drop to two ohms. The Outlaw is designed with ample power reserves to protect you from experiencing any problems at these low impedances unless you demand excessively high volume levels.

Due to the high power output capability of your power amplifier, it is important that it not be used with speakers not capable of handling the amplifier's power output. Before using the amplifier for the first time, make certain that your speakers are capable of handling its rated power output, at the impedance rating of your speakers. Outlaw Audio is not responsible for damage to any speaker system or other component that is caused by using products whose power rating is lower than that of the amplifier.

Do Not Open The Cabinet

There are no user serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your guarantee. If water or any metal object, such as a paper clip, coin or a staple, accidentally falls inside the unit, disconnect it from the AC power source immediately, and contact Outlaw Audio for further instructions.

IMPORTANT SAFETY NOTE

Before connecting a new component such as power amplifier to your audio or home theater system it is always good practice to make certain that all components are turned off, and preferably unplugged from their AC power source. Many modern electronics products feature automatic turn-on circuits that may be activated during an installation, causing the potential for damage to electronic components and/or speakers. Such damage is not covered by product warranties and Outlaw Audio specifically disclaims responsibility for any such damage.

For Future Reference

Record your amplifier's serial number and date of purchase here. It is found on the back panel.

Serial Number _____

Date of Purchase _____

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Model 2200 M-Block Power Amplifier

Welcome to the Outlaw Family! With your purchase of a Model 2200 M-Block Amplifier you have become part of a unique, worldwide community of audio-philes and home theater enthusiasts. With one or more Model 2200 amplifiers you have the option to add power and flexibility to your system for a wide range of applications, such as; adding rear surround channels to a new 7.1 system, powering passive subwoofers, enabling bi-amp speaker configurations, powering multi-zone/multi-room speakers and much more.

The Model 2200 is compact, yet powerful, delivering 200 watts at eight ohms (20Hz–20KHz, >0.05%THD). Thanks to a unique circuit design and a heavy-duty power supply with a horizontally oriented toroidal transformer, the Model 2200 operates without a fan despite the deep power reserves.

Since the Model 2200 will often be used in multiple unit systems, a variety of power control options are provided. In addition to a standard power on/off switch, the Model 2200 may be operated from the external trigger control of compatible products such as the Outlaw Model 990. Both in and out trigger jacks are provided so that the control signal may be cascaded. For systems where an external trigger is not available, the Model 2200's music sense circuitry is available for automatic turn-on whenever an audio signal is present.

In order to fully enjoy the performance of your amplifier, please take a few minutes to read this owner's manual. It contains important information that will help you to make certain that the amplifier is properly configured for operation with the rest of the equipment in your system.

Once again, welcome to the Outlaw family!

Features

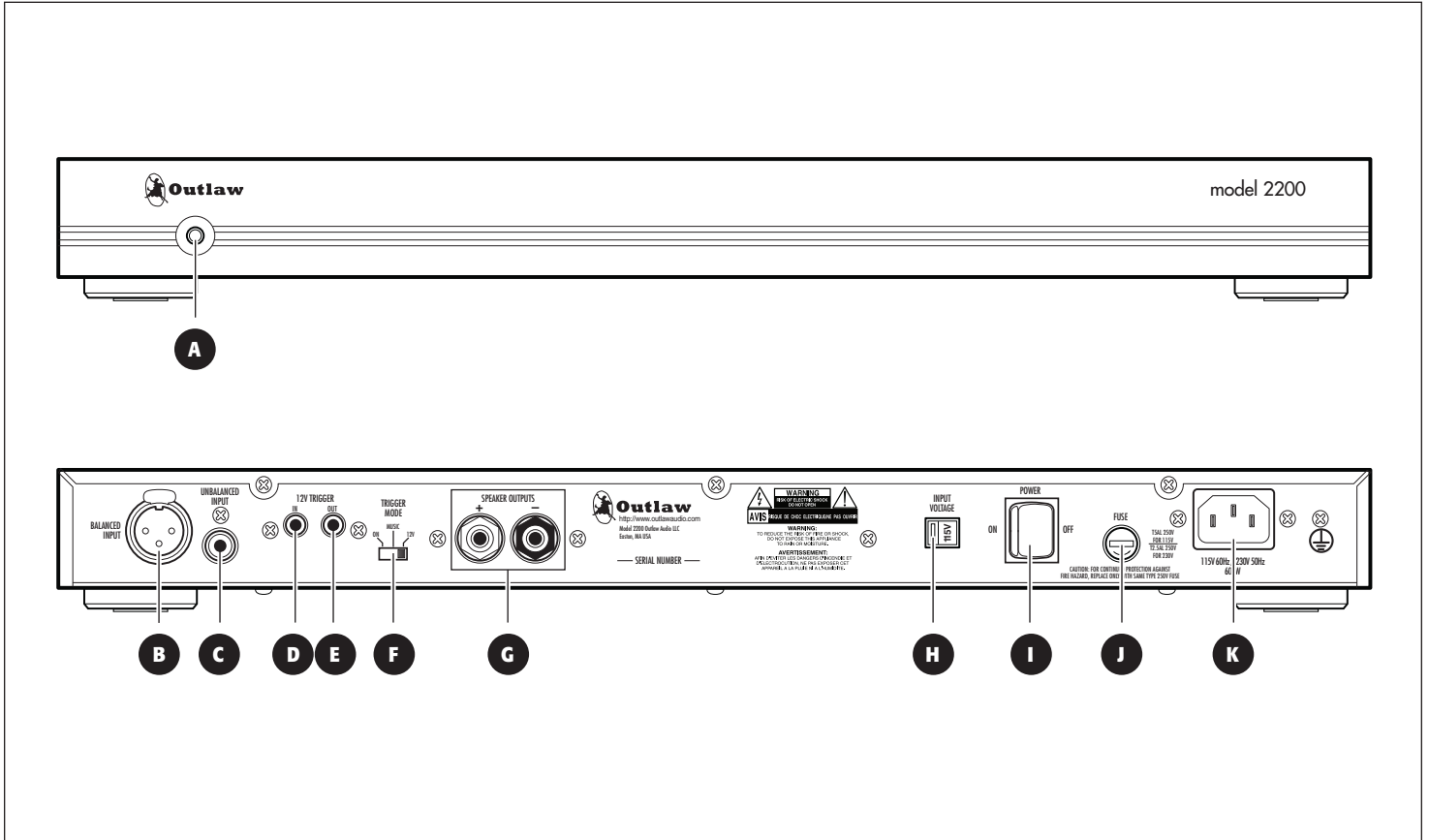
- High-power M-Block amplifier
- Unique dual-topology circuit design
- Music Sense circuitry and low voltage trigger connection for automatic turn-on
- Five-way binding posts accommodate large gauge speaker cable
- Fan-free convection cooling
- Efficient power supply with toroidal transformer
- Removable IEC power cord

Unpacking

The carton and packing materials used in shipping your new amplifier were specially designed to cushion it from the shocks and vibration of shipping. We strongly suggest that you save the carton and packing materials to use if you move, or if the unit ever needs to be shipped back to us for any reason.

To minimize the size of the carton in storage, you may wish to flatten it by carefully opening the top and bottom flaps and folding the carton flat. Other cardboard inserts may be stored in the same manner. Packing materials that cannot be collapsed should be saved along with the carton in a plastic bag.

Front Panel and Rear Panel



A The front panel LED indicator has three modes:

Amber: Indicates the Model 2200 is connected to an AC power source and the rear-panel Main Power switch is turned on. When the indicator is amber, the unit is in the Standby mode and is ready to turn on when a control signal is received at the trigger jack or from the music sense circuitry.

Green: Indicates the Model 2200 is on and operational.

Red: Indicates the Model 2200 is in Protect mode. Turn the unit off and check for the source of the condition that caused the overload. This may be a shorted speaker lead or other similar condition. In the event of repeated appearance of the red LED you may have a chronic system failure with either the Model 2200 or another component in your system. In this case disconnect the Model 2200 from AC power and the rest of your system and consult Outlaw Audio's Customer Service Department for assistance.

B Balanced Input jack

Connect this jack to the output of a source equipped with balanced outputs. This is a professional-style connection that carries the plus and minus audio signal separately from the ground signal. This arrangement automatically cancels out any noise that enters the cable connecting the source to the Model 2200.

C Unbalanced Input jack

Connect this jack to the output of the source used to feed the Model 2200.

Note: When connecting a source to the Model 2200, use either the balanced or unbalanced connector, but not both. Also, remember that if the Trigger Mode switch is turned to Music, the Model 2200 will turn on whenever an audio source is present at this jack.

D Trigger Input Jack

Connect this jack to the trigger output jack of a compatible product such as an Outlaw Audio Processor or Receiver that is capable of providing a 6-volt to 35-volt control signal at turn-on. When the Trigger Mode switch is set to the 12 Volt position, the Model 2200 will turn on when the control signal is present.

E Trigger Output Jack

When more than one Model 2200 is used in an system, this jack may be used to pass the low voltage control signal through to the Trigger Input Jack of an additional Model 2200.

Note: Connecting more than two Model 2200s to a single source controller may overload the system and is not recommended. If you wish to automatically turn on more than two Model 2200 units, we recommend the use of either the music sense circuitry or an externally powered relay controller. Contact Outlaw Audio Customer Service for more information on using the Model 2200 in multiple unit systems to avoid damage to your processor, receiver or controller.

F Trigger Mode Switch

This three-position switch determines the method by which the Model 2200 will be placed in the active, or ON, position:

- When the switch is in the far right position, under the word “ON,” the unit will be turned on when the Main Power Switch is turned on.
- When the switch is in the middle position, under the word “MUSIC,” the unit will automatically turn on when an audio signal is present at the Input Jacks. The unit will automatically turn off when the signal is no longer present.
- When the switch is in the far left position, under the “12V” indication, the unit will automatically turn on when a 6-volt to 35-volt signal is applied to the Trigger Input Jack. The unit will turn off shortly after that signal is removed.

G Speaker Output Jacks

These jacks provide the amplified power signal for connection to your speaker.

H Input Voltage Switch

This switch selects the power AC input voltage for the Model 2200, depending on the AC power system used in your area.

IMPORTANT NOTE: Do not make any change to this switch setting unless the ac power cord is removed from the unit so that the amplifier is totally disconnected from any ac power source.

I AC Power Switch

Turn this switch to the ON position to operate the Model 2200.

J Fuse

This fuse is used to protect the power supply only and is NOT part of the speaker protection circuitry. If you suspect that the fuse has blown, first disconnect the Model 2200 from the AC power source by removing the power cord, and then correct the condition that lead to the blown fuse.

IMPORTANT NOTE: The replacement fuse should have the proper rating for the voltage setting in use and must be of the correct type. Consult the data printed on the amplifier's rear panel for fuse information.

If the fuse blows repeatedly, discontinue use of the product and contact Outlaw Audio Customer Service for further assistance.

K AC Power Cord Receptacle

Connect the AC power cord supplied with the unit to this receptacle, and connect the power cord plug to an AC outlet.

IMPORTANT NOTE: A replacement power cord must be equal to the cord supplied with the unit.

Installation and Configuration

SAFETY NOTE: When making connections between any source components such as A/V Receivers, surround processors or multi-room controllers and the Model 2200, or when making any connections to speakers, be certain that both the source device and the Model 2200 are turned off. To ensure that there will be no unwanted signal transients that can damage equipment or speakers, it is always best to unplug all equipment before making any connections. Modern electronic products often have a “standby” mode that may be activated even though they product may appear to be turned off.

Power Control Connections

The Model 2200 features a built-in remote turn on system that will automatically turn on the amplifier in one of two ways. Depending on your specific application, the unit may also be turned on manually using the Rear Panel AC Power Switch, or automatically via sensing of either an input source or a low voltage trigger signal. For manual operation, no special installation is required. For automatic turn-on, follow the instructions below for the chosen method.

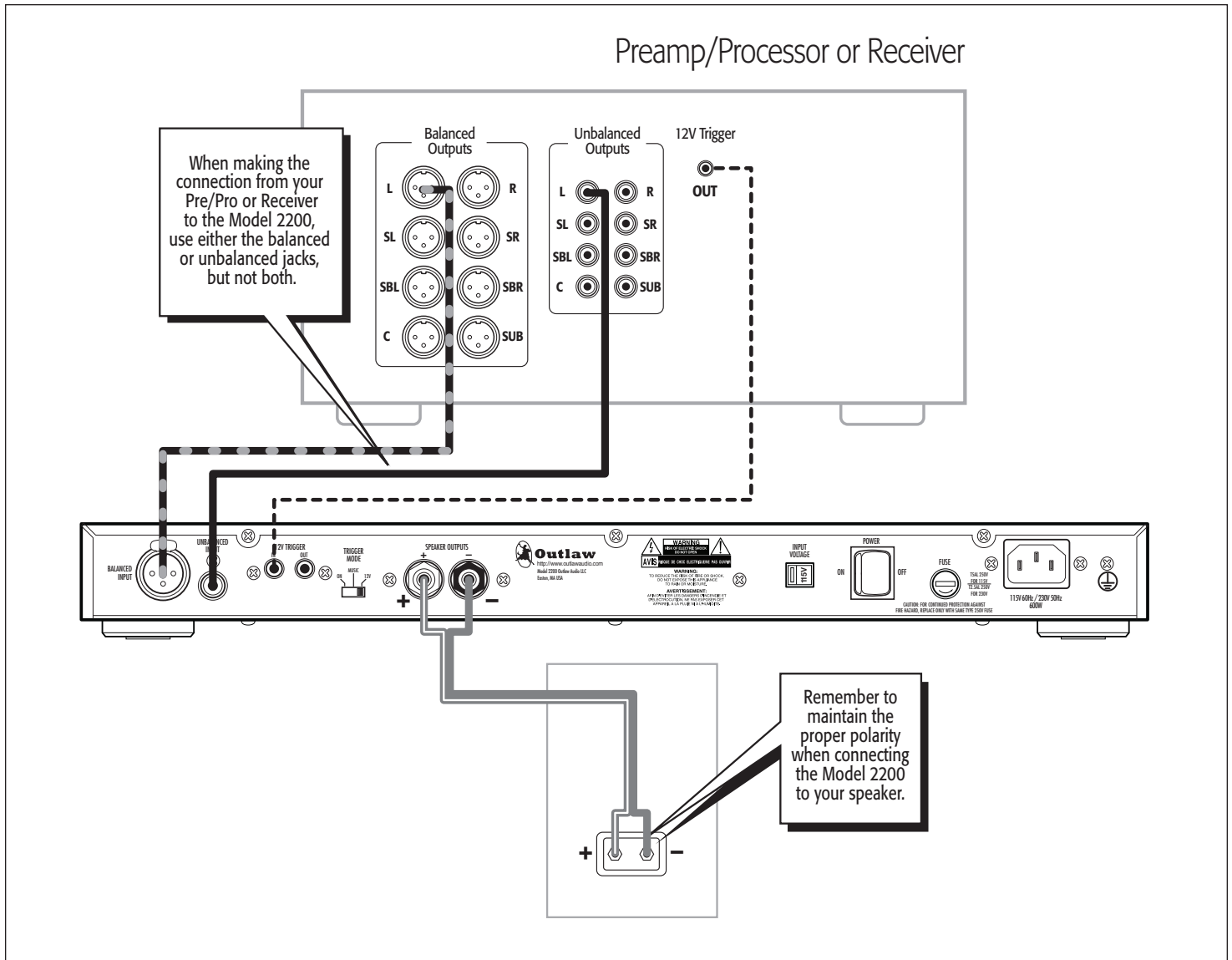
Remote Turn-On From An External Device Using The Low Voltage Trigger

To configure the Model 2200 so that it turns on automatically in response to a low voltage trigger signal, follow these steps:

1. Place the Trigger Power Control Mode Switch **F** in the far right position, so that the switch is under the words “12 VOLT”
2. To trigger the amplifier from a device such as a surround processor, A/V Receiver or multi-room controller with a built-in trigger jack, connect one end of a cable with a 3.5mm mono mini-plug to the Trigger Jack **D** on the Model 2200. Connect the other end to a matching jack on the device that will provide a 6 to 35 volt signal when the unit is to be turned on.
3. If the source controller does not have a trigger jack, you may use the music sense option to automatically turn on the Model 2200, however, you may also use the trigger switch if the source controller has a switched AC Accessory outlet. If that is the configuration you wish to use, purchase a small AC to DC power converter, as typically used to replace the batteries in portable electronics devices. Select a model that is capable of delivering 6 to 35 volts DC, and make certain that one of the “tips” provided with the unit is a 3.5mm mini-plug. Plug the transformer end of the converter into the switched AC output on the source product, and connect the 3.5mm mini-plug to the Trigger Jack **D**.
4. Press the Power Switch **I** in so that it is engaged, and note that the Standby Indicator **A** will light for the channel pairs selected for trigger control operation.

When the source control unit providing the power is turned on, the Model 2200 will automatically turn on. When the source unit is turned off, the Model 2200 will return to the standby mode.

Model 2200 Connection Diagram



Remote Turn-On Using Music Sense

To configure the Model 2200 so that it will automatically turn on when the amplifier is receiving an audio signal, follow these steps:

- Connect the audio input as normal to either the Balanced Input Jack **B** or Unbalanced Input Jack **C**.
- Turn the Trigger Mode Switch **F** so that it is in the center position under the word "Music."
- Make sure the AC Power Switch **I** is turned on. The front panel LED will turn amber, indicating that the unit is in the Standby mode, awaiting a signal that will activate the operational mode.

In this configuration, the Model 2200 will automatically turn on whenever it is receiving an audio input signal. The unit will return to the standby mode a few minutes after the audio signal stops.

Speaker Wire Connections

It is always best to connect the amplifier to your speakers using high quality cable. The Model 2200 is equipped with five-way binding post terminals that accept bare wire, spade lugs or banana type plugs when they are permitted by local safety agencies. Once you have located the proper speaker terminals for the type of output configuration in use, connect your speakers using the following guidelines.

To assure that the high quality signals produced by your Model 2200 are carried to your speakers without loss of clarity or resolution, we recommend that you use high quality speaker cable. Many brands of cables are available, your choice may be influenced by a number of factors; i.e.: the distance between your speakers and the amplifier; the type of speakers you use; personal preferences; and other factors.

Regardless of the brand or type of cable selected, we recommend using a cable constructed of fine, multi-strand copper with a gauge of 14 or larger. Remember, that in specifying cable, the lower the number, the thicker the cable.

Cables with a gauge of 16 may be used for short runs of less than ten feet. We do not recommend that you use any cables with an AWG equivalent of 18 or higher due to the power loss and degradation in performance that will occur.

Cables that are run inside walls should have the appropriate markings in indicate listing with UL, CSA or other testing agency standards. Questions about cables inside walls should be referred to a qualified installer or a licensed electrical contractor who is familiar with the NEC and/or the applicable local building codes in your area.

If bare wire is used for the connections, strip approximately 1/2 inch to 3/4 inch (20mm) of insulation from the end of each wire and carefully twist the strands of each conductor together. Be careful not to cut the individual strands or twist them off; for optimal performance, all strands must be used.

Then, loosen the knobs of the speaker output terminals, far enough so that the pass-through hole is revealed. Note that one conductor of the speaker cable will have no markings, and the other will have a red line, brand name markings, a black thread, or some other positive indication. Follow the proper connection instructions for your system with regard to which terminals are used so that proper system polarity is maintained by connecting the positive (usually red) terminal on the speaker to the positive terminal on the Model 2200 and the negative (almost always black) terminal on the speaker to the black negative terminal on the Model 2200. After the connections are made, twist the cap back so that the connection is secured, but do not over tighten or use tools, as this may break the delicate wire strands and decrease system performance.

If you are using spade lugs, connect them to the wire using the manufacturer's instructions, and then loosen the caps on the speaker terminals. Place lugs between the plastic cap and the back of the terminal, as if it were a horseshoe on the game's post. Again, remember to observe proper polarity. Tighten with your fingers to obtain a positive contact.

When banana plugs are permitted, connections may be made by simply inserting the jack affixed to your speaker wire into the hole provided on the rear of the colored screw caps on the binding posts. Before using banana type jacks make certain that the plastic screw caps are firmly tightened down by turning them in a counter clockwise direction until they are snug against the chassis. This will ensure that the maximum surface area of the plug is in contact with the jack. Be certain to observe proper polarity.

Finally, run the cables to the speaker locations. Where possible, it is recommended that the length of cable connecting any pair of speakers is identical even though one speaker may be physically closer to the amplifier than the other. Do not coil any excess cable, as this may become an inductor that creates frequency response variations in your system.

Note: While most speaker manufacturers adhere to an industry convention of using black terminals for negative and red ones for positive, some manufacturers may vary from this configuration. To ensure proper phase connections, and optimal performance, consult the identification plate on your speaker terminals, or the speaker's manual to verify polarity. If you do not know the polarity of your speaker, ask your dealer or installer of advice before proceeding, or consult the speaker's manufacturer.

As a general rule, always avoid running input signal or speaker wire connections in parallel with each other, or with AC power cords. This can result in undesired hum or other interference that will greatly degrade signal performance.

Audio Signal Connections

Connections with RCA type plugs:

When making connections with the "RCA" type plugs on interconnect cables, make certain to gently, but firmly insert them into the jacks marked Unbalanced Input **C** on the back of the Model 2200. Loose connections can cause intermittent sound and may damage your speakers. The barrel assembly of some high quality RCA plugs may be very tight, and it is important to ensure a proper connection between the interconnect cable and the input jack.

Connections with XLR (Balanced) audio type plugs:

When making connections with "XLR" type plugs on balanced interconnect cables, make certain to gently, but firmly insert them into the jacks marked Balanced Input **B** on the back of the Model 2200. Loose connections can cause intermittent sound and may damage your speakers.

When releasing an XLR connector from an input jack, press the "plate" style tab on the input jack (male end of cable) and pull the interconnect straight out. When releasing an XLR connector from an output jack, press the "button" style tab on the XLR connector (female end of cable) and pull the interconnect straight out.

Note: Unlike "turbine" style RCA cables, twisting the interconnect will damage the cable and input jack on your amplifier.

AC Power Connection

The final step in the installation of the Model 2200 is to connect the power cord. First, connect the female end of the cord into the AC Power Receptacle **K** on the rear panel. Once the cord has been firmly connected to the Model 200, insert the plug end into an AC power outlet.

Safety Notes

- Due to the current draw of the Model 2200, DO NOT connect the power cord to the accessory outlet of an audio/video component.
- Should the power cord become lost or damaged, be certain to replace it with a replacement that meets or exceeds the original specifications. Use of power cords with insufficient capacity, such as those used with computers or office equipment, may create a safety hazard.

Operation

Operation of the Model 2200 is simple. In normal use there are no controls to adjust once the installation is complete.

After all connections have been made to the amplifier's inputs and speaker terminals have been made, and the AC power cord has been connected, the way in which the unit turns on is determined by the setting for the Trigger Mode Switch **F**. Depending on the setting, as described on page 5, the amplifier will turn on in one of these three ways:

- When the Trigger Mode Switch **F** is set to the left, in the "On" position, the Model 2200 will turn on when the AC Power Switch **I** is turned on. Use the switch to turn the Model 2200 off when your finished listening.
- When the Trigger Mode Switch **F** is set in the center, in the "Music" position, the AC Power Switch **I** should be turned ON to place the Model 2200 in the Standby Mode. The unit will automatically turn on whenever an audio signal is present. The unit will return to the Standby mode a few minutes after the audio signal is removed.
- When the Trigger Mode Switch **F** is set to the right, in the "12V" position, the AC Power Switch **I** should be turned ON to place the Model 2200 in the Standby Mode. The unit will automatically turn on when a low voltage signal is present at the Trigger Jack **D** and return to the Standby Mode when the host product's trigger signal is removed.

As a general rule, it is always a good idea to turn on your amplifier LAST. This avoids the possibility of any turn on pops or transients from other equipment being amplified and sent to your speakers where they may cause damage. Always start with a low volume level on your receiver, controller or preamp to avoid damage to your speakers.

SAFETY NOTE: To prevent unintended operation, remember to turn the unit completely off when it will not be used for an extended period of time. This is done by turning the AC Power Switch OFF and noting that the front panel LED indicator goes off. This will prevent the automatic turn on circuits from accidentally turning the amplifier on during your absence.

Note: There are no output level controls on the Model 2200, as the level is determined by the signal received from your source device. We recommend that after installing a new amplifier such as the Model 2200 that you always re-calibrate your system to ensure that the system levels match at all speaker locations.

Care and Maintenance

Cleaning

When the unit becomes dirty, wipe it with a clean, soft, dry cloth. If necessary, first wipe the surface with a soft cloth slightly dampened with mild soapy water, then with a fresh cloth dampened with clean water. Wipe dry immediately with a dry cloth. NEVER use benzene, thinner, alcohol or any other volatile cleaning agent. Do not use abrasive cleaners, as they may damage the finish of the metal parts. Avoid spraying insecticide, waxes, polishing agents, or any aerosol product near the unit.

Troubleshooting

Your Outlaw M-Block Amplifier is designed for trouble free operation. If you follow the instructions in this manual you should enjoy many years of high quality listening enjoyment. However, as with any sophisticated electronic device, there may be occasional problems upon initial installation, or during the life of the unit. The items on this list are a brief guide to the minor problems that you may be able to correct yourself. If these solutions do not rectify a problem, or if the problem persists, contact us for assistance.

Protection Circuitry

In the event that the amplifier senses a shorted speaker wire, DC voltage on an input connection, or thermal overload that could potentially cause damage to the unit or to your speakers, it will automatically shut down.

If this should happen, first check all speaker wire connections, both at the speakers themselves and at the speaker terminals on the back of the Model 2200 to make certain that none of the strands from the "positive" terminal touch

Troubleshooting Guide

Problem

Solutions

Amplifier will not turn on

Master Power Switch turned off (No power light LED).
Turn on Master Power Switch.

Amplifier will not turn on

Remote trigger cable not properly connected.
Verify connection of trigger cable at both ends.

Amplifier turns on, but no audio is heard

Input plug not connected properly or is loose.
Check input connection.

No audio

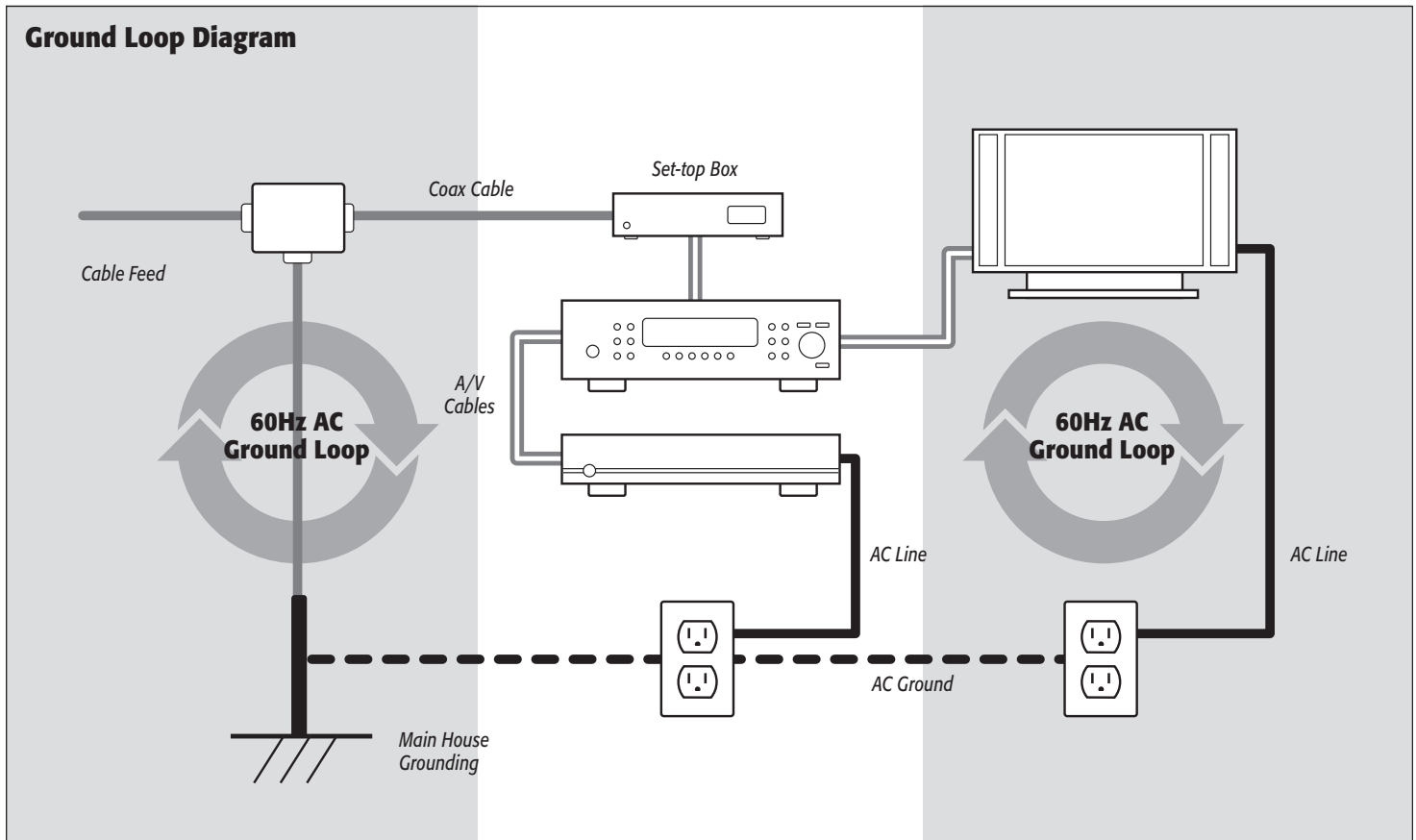
Speaker not connected properly.
Check speaker connections at amp and speaker

Audio levels differ from other channels in the system

Improper settings or output levels from the processor or controller.
Check the settings on your preamp, processor or controller.

Audio plays, then cuts off

Amplifier shorted.
Check speaker connections for short circuit at amp and speaker.



those from the “negative” terminal. Even a few stray wire strands can cause the unit to go into the protection mode.

After checking all speaker connections, turn the unit back on. If it continues to turn off, check your speakers to verify that they are operating properly. If all other potential sources of trouble check out properly, contact Outlaw Audio for further assistance and information.

Fuse Replacement

The fuse on the Model 2200’s rear panel protects the unit’s power supply from problems and is not part of the audio circuit. If you suspect that a malfunction of the unit is caused by a blown fuse, be certain to replace it with an identical type. Should the fuse continue to blow, discontinue use of the Model 2200 and disconnect it from both AC Power and all source components. Contact Outlaw Audio for service information.

Outlaw Service Information

The Model 2200 does not contain any user serviceable parts. If you suspect a problem that may require service assistance, contact us via e-mail at information@outlawaudio.com, or by phone at 866-OUTLAWS (688-5297).

It is important that an authorized service agent carry out any repairs. This will ensure proper service and preserve the protection of your Limited Warranty. Keep your sales slip or receipt in a safe place with this manual so that it will be available to verify the purchase date should you experience a problem covered by our warranty.

A Few Words About Hum and Noise

Audible hum, or a discernable low frequency noise, is one of the most common problems in audio/video systems. This hum, which may be present even when the volume is at a low level or when the power is off, is usually caused by a problem known as a “ground loop.” A ground loop occurs when there is a difference in ground voltages between two or more components that are connected electrically. This, in turn, creates multiple current paths and causes the low-level noise, or hum.

The growing sophistication of home theater systems, and the increased number of components used to create these systems has dramatically increased the potential for the possibility of ground loops. While it is natural to suspect that the components in your system are the cause of the hum, in many cases the cause may be due to other conditions. In particular, cable TV connections from outside the house have become a major source of hum.

In most cases, one of the following suggestions should help you to solve a hum problem in your system. Please try these steps in the sequence shown, proceeding from one step to the next if the prior suggestion does not eliminate the problem.

Potential Ground Loops in a Complex A/V System

Suggestion #1:

To determine if a cable TV connection is responsible for the hum, first turn all components off. Disconnect the cable TV feed to your system at the first place where it connects to your components. Alternatively, disconnect the cable TV

wire where it is connected at the wall outlet. Turn your system back on, and listen if the hum has disappeared. If removing the cable TV feed has eliminated the hum, you will need to insert a Ground Loop Isolator before reconnecting the cable TV feed, or contact your cable TV operator to see if they can better isolate your cable feed.

Suggestion #2:

Turn off all components in your system, and then disconnect the input cables at the amplifier. Turn the amplifier back on, and see if the hum is still present. If the hum disappears, the fault may be in the input cables used. Try replacing them with cables that have better shielding, and make certain that the input cables are not running on top of any AC power cords. Change the cables one at a time to determine if one, or all cables is responsive. If the hum disappears when the input cables are disconnected, but returns after the cables are changed and the system re-connected, the problem may be caused by your processor, receiver or preamplifier.

Suggestion #3:

Poor grounding of the electrical system in your home may also cause ground loop problems, particularly when there are multiple components with three prong, grounded, power cords. Try unplugging these components one at a time, and see if one or all of them is causing the problem. The ultimate solution to this type of problem is to re-wire your house with an isolated, star-type grounding configuration. We recognize, however, that this may be impractical and expensive. In some cases, the use of an approved AC Power Isolation Transformer of sufficient capacity may solve this problem.

Warning: if you suspect that the grounding system in your home's electrical wiring is causing the hum problem, it is important that you do not make any changes to the wiring yourself. Only a licensed electrician should make any changes to household wiring, and they must be made in full compliance with all local building, safety and electrical codes.

Suggestion #4:

Faulty earth grounds may also cause hum in your home's electrical system. In the past, cold water pipes were often used for the earth ground, so it is important to make sure that your ground connection is still valid and has not become loose or corroded. The cold water pipe method may no longer be valid in some locations due to requirements that the water meter be isolated from the water mains with a length of PVC pipe, thus interrupting the ground circuit. The safest, and most reliable, approach may be to provide your own ground. This can be accomplished by having a licensed electrician drive at least five feet of copper-jacketed steel grounding rod into the earth, and using that for your grounding connection.

Suggestion #5:

If you have hum in your video display device (bars that roll up through image at 12-14 second intervals), this may be related to hum you also experience in your audio system. The previous suggestion tips may help with this also. If not, try isolating the ground in the projectors video signal cable with a base-band video isolation transformer, such as the Jensen VB-1BB.

If the hum persists after all of the above suggestions have been tried, contact the Outlaw Audio customer service department for assistance.

Specifications

Power Output	200 watts @ 8 ohms, 20 Hz 20 kHz, >0.05% THD 300 watts @ 4 ohms, 20 Hz 20 kHz, >0.05% THD
THD Signal to Noise	100 dB (un-weighted)
Trigger Input	6-35V DC 4mA
Operating Mode	Class G/AB
Input Impedance	>10K Ohms
Gain	+27dB (1.7V sensitivity) for full output
Input Connectors	RCA Jack, XLR Jack
Output Connectors	Five-Way binding posts
Power Consumption	600 watts maximum; <3 watts standby
Weight	18 pounds /8.165 Kg.
Dimensions (H/W/D)	1.5" x 17" x 11.5"/40mm x 430 mm x 330 mm

All features and specifications are subject to change without notice or liability to upgrade existing units.

Outlaw Audio and the Outlaw Audio logo are registered trademarks of Outlaw Audio, LLC.

The Outlaw Audio 30-Day Satisfaction Guarantee

This product is guaranteed to satisfy all your needs for a high performance power amplifier. If for any reason, you are not completely satisfied with it, please contact us at 866-OUTLAWS (688-5297) within 30 days of receipt of the unit and you will receive a return authorization.

Please save all of your packing material in that the amplifier is heavy and can get damaged in shipping without proper protection. We recommend that you keep the packing (even after 30 days) so that if you ever move, the

unit will be adequately protected.

If you decide to return the amplifier, the only cost you will be responsible for is the shipping charge to return it to us. When your amplifier arrives, we will inspect it to insure that it was shipped back to us in original condition. Upon satisfactory inspection, we will issue a full credit for your original purchase price plus your original outbound freight cost at standard ground shipping rate.

Outlaw Audio Limited Warranty

This warranty protects the owner of the Outlaw Model 2200 Power Amplifier (the PRODUCT) for five (5) years from the date of purchase.

This warranty covers all defects in material and workmanship with the following specific exceptions. These are:

- Damage caused by improper installation or adjustment
- Damage caused by connection to AC power outside of the specified range
- Damage caused by accident, unreasonable use or neglect
- Damage from failure to follow instructions contained in this Owner's Manual
- Damage from the performance of repairs by someone not authorized by Outlaw Audio
- Any unit on which the serial number has been effaced, modified, or removed
- Damage occurring during shipment (Consult the carrier for claims due to shipping damage)
- Units which have been altered or modified in design, appearance or construction

This warranty covers only the actual defects within the PRODUCT itself. IT DOES NOT cover costs of installation in (or removal from) a fixed installation, or normal set-up, claims based on any misrepresentation by the seller, or performance variations resulting from installation related circumstances such as signal quality, AC power or incompatibilities with speakers and/or other system components.

During the warranty period, Outlaw Audio will, at its option, either repair the defect, or replace the defective product, or the defective parts, or components thereof at no charge to the owner for parts and labor covered by this warranty. If necessary repairs are not covered by this warranty, or if a unit is examined which is not in need of repair, you will be charged for the repairs and/or the examination. If non-warranted repairs are needed, we will notify you of the estimated cost and ask for your authorization to perform said repairs.

You must pay shipping charges incurred in getting your Product to the factory. We will pay the return shipping charges if the repairs are covered by the warranty. Please save the original shipping cartons, as the unit MUST be returned in the original carton and packing.

(Replacement cartons are available at a modest charge.)

If your product needs service, please call Outlaw Audio at 866-OUTLAWS (688-5297).

You will need to present the original bill of sale to establish the date of purchase. In the event that the proof of purchase cannot be established with the original receipt, the warranty period shall be determined by the earliest date of manufacture shown on the unit, provided that the serial number label has not been altered in any manner, or by our records relating to that serial number.

In the event that you wish to return your Outlaw amplifier back to us, for any reason, please call to arrange for a Return Authorization Number. This will ensure that your problem is discussed with a service technician who will determine if there is a quick solution to your problem.

Outlaw Audio shall not be liable for, or in anyway responsible for, incidental or consequential damages of any kind. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion of incidental or consequential damages. Therefore, the limitations and exclusions stated herein may not apply to you. This warranty gives you specific legal rights; and you may also have other rights, which may vary from state to state.

THERE ARE NO WARRANTIES GIVEN BY OUTLAW AUDIO, WHICH EXTEND BEYOND THE DESCRIPTION GIVEN HEREIN. ANY IMPLIED WARRANTIES OF FITNESS FOR PURPOSE SOLD, MERCHANTABILITY, DESCRIPTION, QUALITY OR ANY OTHER MATTERS ARE LIMITED TO THE TERMS OF THE EXPRESSED LIMITED WARRANTY STATED HEREIN.

Products are sold on the basis of specifications applicable at the time of sales. Outlaw Audio shall have no obligation to modify products once they have been sold.

This warranty is applicable only in the United States.

For applicability in other countries, please call Outlaw Audio.



