

Model 7900

Seven-Channel 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 power amplifier has been factory configured for 2 x 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 power amplifier may require heavy power draw under full load conditions. To insure proper performance, and to avoid potential safety hazards, we recommend that each power cord should be connected to an outlet that is on a separate branch supply. Connecting both power cords to the same supply circuit may create a fire hazard and cause breakers to trip. Connecting the power cords to circuits used by other heavy devices such as air conditioners may also create a fire hazard and cause 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 Cords Gently

When disconnecting the power cords 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 a 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 150 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 six 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. A cooling fan is recommended 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.

Model Number _____

Serial Number _____

Date of Purchase _____

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Model 7900 Seven-Channel Power Amplifier

Congratulations! As the owner of an Outlaw Audio Multi-Channel Power Amplifier, you are in possession of a unique product. Designed and manufactured in the United States, it has been meticulously constructed to deliver the best possible sonic performance. This manual covers the Model 7900 Seven-Channel Fully Balanced Power Amplifier. We welcome you as a member of our Outlaw band, and hope that your new amplifier brings many years of enjoyable listening to your music or home theater system.

In order to receive the maximum enjoyment from your new amplifier, please take a few minutes to read this manual. This important information will help you make certain that the amplifier is properly configured for operation with the rest of the equipment in your system. This brief investment of time will provide major dividends by making certain that your amplifier is properly installed and optimized for the specifics of your installation.

If you have any questions about this product, its installation or operation, please contact us via e-mail at customerservice@outlawaudio.com or via telephone at 866-OUTLAWS (688-5297).

Features

Your new Fully-Balanced, Differential Multi-Channel Amplifier is a state-of-the-art, high performance audio component built utilizing totally complementary circuitry from input to output. The high current power supply is driven by custom-designed, dual torrodial transformers with multiple windings for each channel. Each output module has 24 discrete output devices, 36,000 µF total filter capacitance and employs an advanced Opto-coupled protection circuit. Heat management is provided not by noisy fans, but by custom-designed heatsinks for each channel.

The Model 7900's differential design virtually eliminates cross talk, through a technology known as "common mode rejection". Compared to single-ended designs, the Model 7900 requires half the rail voltage for a given power allowing for increased transient performance. In addition, with a slew rate nearly double that of a comparable single-ended amp, the utmost control over transients is maintained ensuring distortion free performance. The result: an amplifier that remains unequivocally true to the source material.

Input selection occurs automatically as the Model 7900 includes an auto sensing circuit to determine which Input (XLR or RCA), by channel, is being used. XLR cables provide a fully balanced signal path from Input to output and the Model 7900's RCA Inputs utilize a "semi-balanced" design, which provide a cleaner signal path than traditional RCA connections.

Unpacking

The carton and packing materials used in shipping your new amplifier were specially designed to cushion it from the shocks and vibration of transportation. 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. 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.

Your new amplifier has been engineered using heavy-duty materials for high reliability and weighs a considerable amount (115 pounds). This substantial weight requires that you pay special attention to the unpacking and installation of the unit. It is recommended that someone help you remove the unit from its carton and place it in the proper location.

Model 7900 Rear Panel

A Unbalanced Audio Inputs

Use the Unbalanced INPUT jacks to connect the RCA outputs of a surround processor, preamplifier, AV receiver with RCA pre-out connections, DVD player with discrete five channel outputs, or HDTV product with built-in surround decoder. (see this page)

B Ground Terminal

Use this terminal to connect a ground wire between your power amplifier and pre-amp processor. (see page 7)

C Remote Trigger Input

Use the REMOTE TRIGGER jack to connect to a compatible processor or other product with a 3-24 VDC output. (see page 7)

D Balanced Audio Inputs

Use the Balanced INPUT jacks to connect the XLR (balanced) outputs of a surround processor, preamplifier or AV receiver with XLR preout connections. (see this page)

E Product Serial Number

Write this number in the space provided on page 2 for future reference.

F Speaker Outputs

Use the OUTPUT binding posts to connect the amplifier to your speakers. (see this page)

G Dual Master Power Switches

Turn the current to the amplifier on or off. (see page 7)

H AC Inputs

Use the included power cords to connect your amplifier to an AC power source. (see page 7)

IMPORTANT NOTE: The Model 7900 requires dual power cord connections to separate, dedicated circuits rated for a minimum of 15A each in order to deliver its rated output. There may be times that the use of an extension cord is necessary. The unit is supplied with two 15A power cords which employ 14 gauge wire. Make sure the extension cord(s) are also made from 14 gauge wire and keep the run(s) as short as possible. For runs over 10 feet, 12 gauge cord should be used.

Connecting Your Amplifier

When making connections between any source components and the amplifier, or when making connections to any speaker, be certain that both the input devices and the amplifier are turned off. To assure 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 which supplies power to the unit even though it may appear to be turned off.

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" on the back of the Model 7900. 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" on the back of the Model 7900. These connectors will lock in place with a click when inserted properly. Loose connections can cause intermittent sound and may damage your speakers.

IMPORTANT NOTE: 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. Twisting an XLR interconnect will damage the cable and input jack on your amplifier.

Speaker Connections

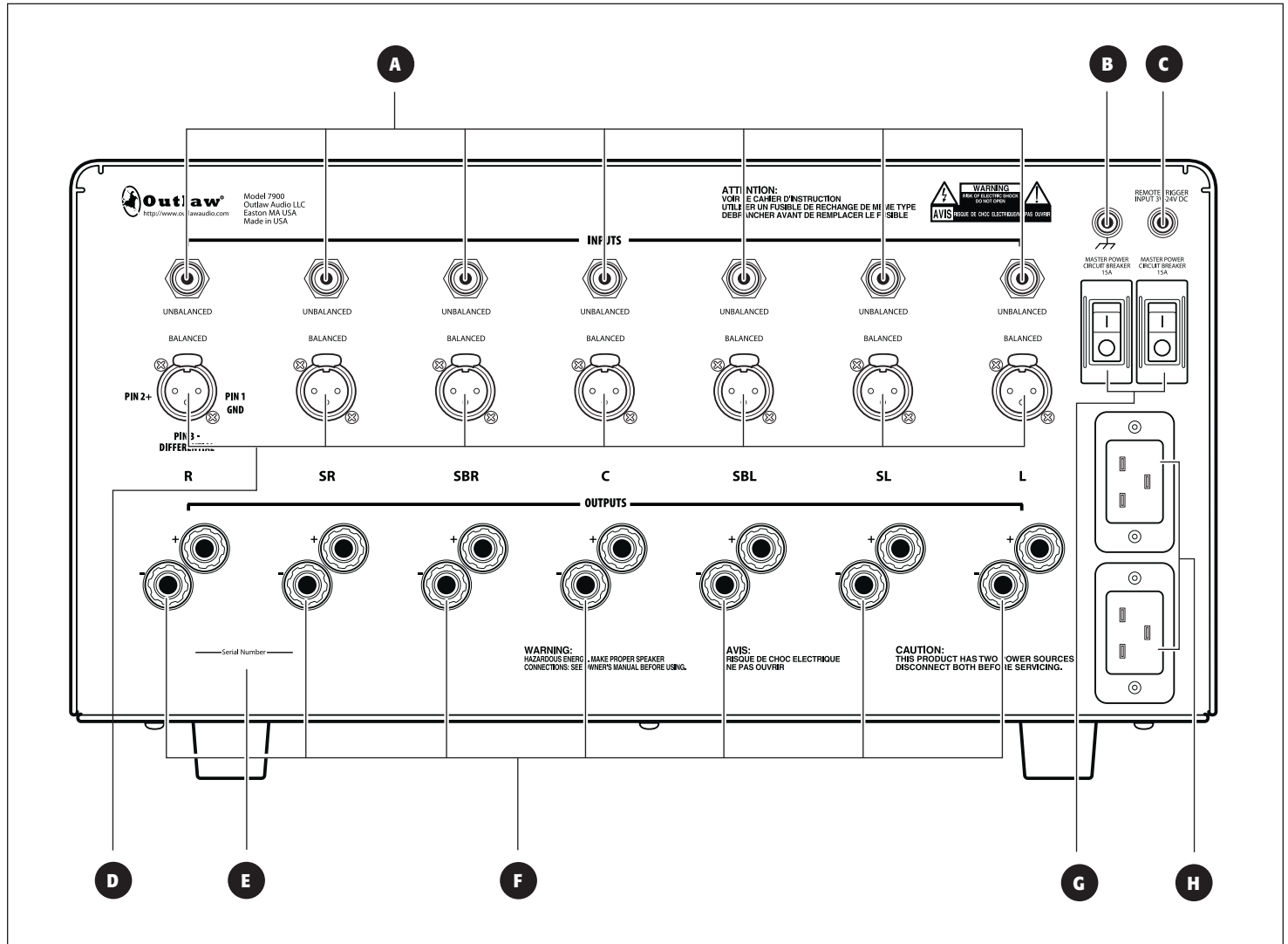
To assure that the high quality signals produced by your Outlaw amplifier are carried to your speakers without loss of clarity or resolution, we recommend that you use high quality speaker wire. Many brands of wire are available; the distance between your speakers and the amplifier, the type of speakers you use, personal preferences, or other factors may influence your choice.

Regardless of the brand or type of speaker wire selected, we recommend that wire constructed of fine, multi-strand copper with a gauge of 12 to 14 awg be used. A wire gauge of 12 awg should be used for runs longer than 10 feet. We do not recommend that you use any wires higher than 14 gauge due to the power loss and degradation in performance that will occur.

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.

Correct polarity connections are important to maintain proper speaker phasing. When speaker phasing is correct, all speakers move in and out at the same time, assuring accurate imaging of the program material. Out-of-phase connections mean that some speaker cones will be moving in, while others move out. This will

Model 7900 Rear Panel



cause indistinct or confused imaging, and muddled and cloudy sounds. To avoid incorrect phasing or polarity, be certain to use cable that has distinct markings, colors, stripes, wording, or grooves on each side of the speaker cable.

IMPORTANT NOTE: Make sure the negative (–) speaker output is NOT connected to signal or chassis ground anywhere in your system. Damage to the power amplifier may result. The speaker outputs on your amplifier are true balanced outputs. Both the (–) and (+) terminals are active outputs. Connecting either of these terminals to anything else will activate the amplifier's protection circuits and may cause damage.

Some subwoofers have separate inputs for left and right speaker connections. If you use these, make sure the (–) inputs are NOT connected together. If they are, use only one set of inputs (left or right).

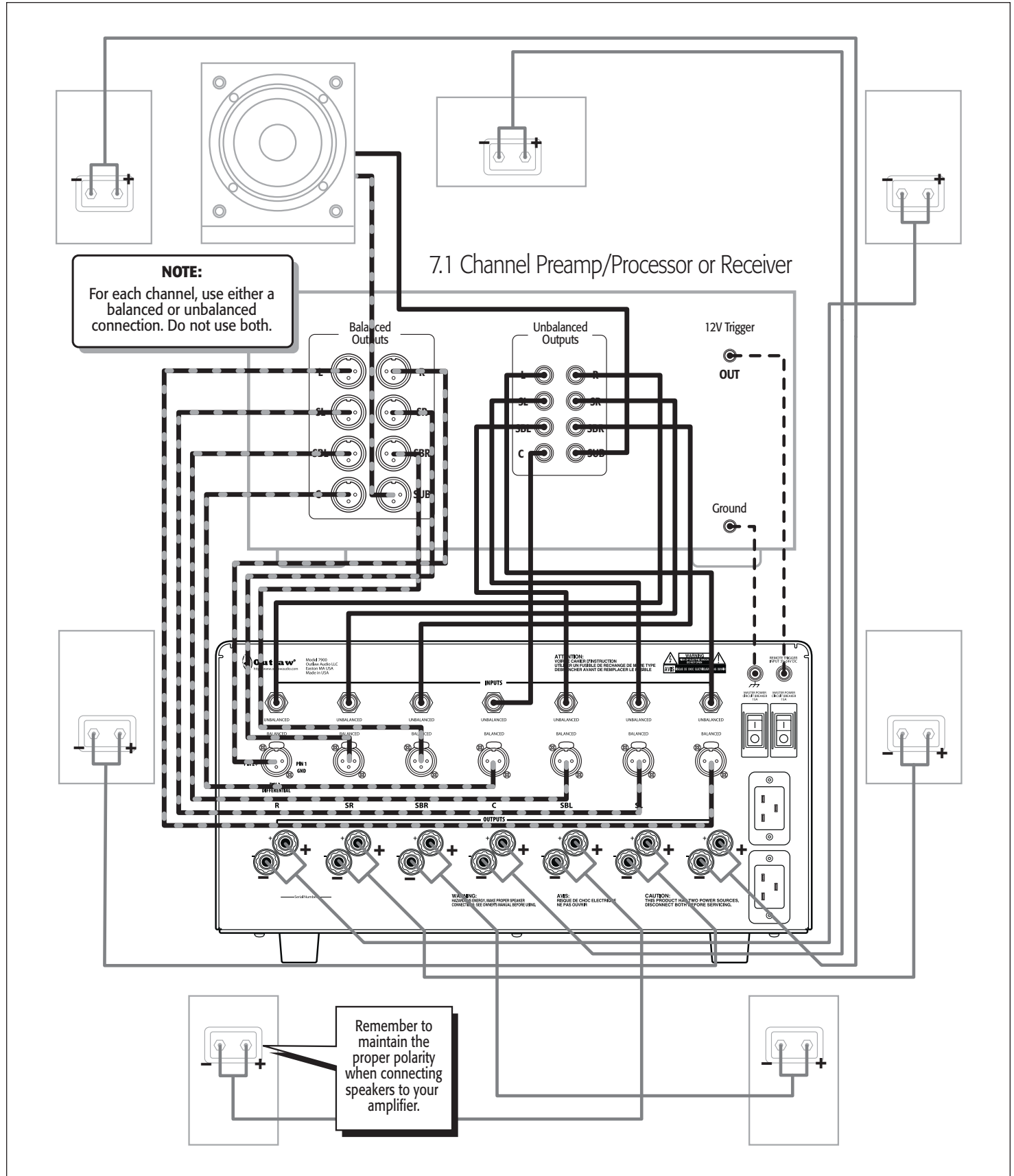
When making connections to the amp and speakers, adhere to a consistent pattern of using one side of the wire to the red terminals and the other side to the black terminals. When using cable with markings on one side

only, traditional convention is to consider the marked side of the wire as the red, or positive (+) connection, and the non-marked side as the black or negative (–) connection.

Next, loosen the knobs of the amplifier's speaker output terminals, far enough so that the pass through hole is revealed. Note that one conductor of the speaker cable should have no markings, and the other should have a red line, brand name markings, a colored thread, or some other positive indication. Follow the proper connection instructions for your system with regard to which terminals are used. Once 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 speaker 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. Be sure to observe proper polarity, using the appropriate speaker hook-up icons for your system's configuration. Using your fingers, tighten to obtain a positive contact.

Model 7900 Rear Panel Connections



When using banana plugs, 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 clockwise direction until they are snug against the chassis. This will insure that the maximum surface area of the plug is in contact with the jack. Be certain to observe proper polarity.

Run the cables to the speaker locations. It is recommended that the length of wire connecting any pair of speakers be similar. For example, make certain that the wire length connecting the left and right front, or the left and right rear (surround) speakers are similar in length, 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.

Finally, connect the wires to the speakers, again being certain to observe proper polarity. Remember to connect your negative, or black wire, to the matching terminal on the speaker. The positive, or red wire should be connected to the matching terminal on the speaker.

NOTE: While most speaker manufacturers adhere to an industry convention of using red terminals for positive connections and black terminals for negative, some manufacturers may vary from this configuration. To assure 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, consult the speaker's manufacturer for further information.

Ground Wire Connection

Your Outlaw amplifier features a ground terminal to help reduce the likelihood of ground loop potential issues between components in your system. First, connect a thin gauge wire (20-24 gauge speaker wire is sufficient) to the Model 7900's ground terminal. Connect the other end of your ground wire to the back of your pre-amp processor's ground terminal (not the one supplied for your phono stage). In the event that your processor does not have a dedicated ground terminal, you will need to use one of the chassis screws on its rear panel.

In these instances, it may be necessary to scratch some of the paint away behind the chassis screw in order to provide a path to ground.

Power Control Connections

Your Outlaw amplifier features a built-in remote turn-on system that will automatically switch the amplifier on when another device in the system is switched up.

Remote Turn-On Using Products Equipped With a 12 Volt Trigger Jack

Press the front panel power switch on the amplifier so that it is in the ON position. Then, using an accessory cable with a 3.5mm mono mini-plug on each end, connect the trigger-output jack on the rear of the source device to the trigger input jack on the back panel of the amplifier. When these connections are made, the amplifier will automatically turn on whenever the triggering device is turned on.

Remote Turn on Using External AC to DC Power Converter

If your processor or receiver does not have a dedicated trigger jack, it is still possible to activate the unit for automatic turn on when a Switched Outlet is available on the rear of the source device. To control the amplifier in this fashion you will need a small AC to DC power converter, capable of delivering a 3 to 24 volt 5mA DC signal. The DC voltage should terminate in a standard 3.5mm type mini plug. This type of converter may be obtained as a Power Adapter from many electronics retailers.

When installing, press the Main Power Switch on the front panel of the amplifier in so that it is in the ON position. Plug the AC adapter into a switched outlet that will be activated when you wish to have the amplifier turn on. This may be the switched outlet at the rear of an AV receiver or other audio equipment. Connect the 3.5mm mini-plug from the adapter to the trigger-input jack on the back panel of the amplifier. The amplifier will now turn on and off automatically, based on the status of the controlling device.

Power Connection

Once all audio and system connections have been made, connect the supplied power cords to the amplifier first, and then connect them to separate AC outlets. Please make certain that the amplifier is turned off and that the device connected to the remote trigger input is off when connecting the power cord and plugging it into an AC outlet. Do not use extension cords, outlet power strips, surge protectors or power conditioners unless they are capable of handling the current draw of the Model 7900.

NOTE: In order to meet full rated output, the Model 7900's power cables must be connected to two different branches of your electrical system (i.e. two separate circuits). Failure to do so will limit the Model 7900's overall power output capability and can lead to tripped circuit breakers.

CAUTION: Do not plug the Model 7900 into the Switched Accessory outlet of another device! These outlets are intended for use with low current draw products, such as tuners, CD players or cassette decks. These switched outlets cannot handle the high current draw of a power amplifier. Using these outlets for a power amplifier is a significant safety hazard.

IMPORTANT NOTE: The Model 7900 eliminates turn-on power surges by employing an improved power controller which delays full start-up about 25 seconds, allowing the unit to stabilize properly. Do not attempt to play audio until the unit is ready and the power indicator light turns blue.

If multiple amplifiers are connected on the same circuit, there will be insufficient power available for full-power operation. This may create a fire hazard and cause mains breakers to trip. If you are using multiple amplifiers, make sure they are connected to their own circuit.

Amplifier Operation

After all connections have been made, you are ready for listening. First, turn on the source components and processor in your system. Adjust your controller or preamp to a low volume level to avoid damage to your speakers. Next, push the two Master Power switches on the back of the amplifier to the on position. It is always a good idea to turn on your amplifier LAST. This avoids the possibility of any pops or transients from other equipment being amplified and sent to your speakers where they may cause damage.

Manual On

To turn the amplifier on manually, press the front panel Power/Standby button. After approximately 25 seconds, the unit will power up and the indicator light will change to blue. This delay is intentional, and protects your speakers from damage while the amplifier stabilizes. You may also hear a relay click during start up. This is also normal.

To turn the unit off, press the Power/Standby button again. The indicator light will change to orange.

Automatic On

Make certain that the connection to the processor, or other controlling device is correct, as shown on page 5. Whenever the controlling device is turned on, the amplifier will automatically turn on after a short pause. This pause is intentional, and it protects your speakers from damage while the amplifier stabilizes. You may also hear a relay click as during start up. This is also normal.

To turn off your amplifier, simply turn off the unit that feeds the amplifier its audio signals. The amplifier will automatically go into standby mode and the indicator light will change to orange.

Output Settings

All volume and level adjustments are made at your preamp, controller or surround processor. To assure proper sound field imaging, it is always a good idea to re-set the output levels of the channels on your processor when using the amplifier for the first time. The circuitry in your new amplifier may be different from your previous one, and by checking the output levels you will make certain that the processor, amplifier and speakers are properly matched.

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 abrasive cleaners or a volatile cleaning agent, such as benzene, thinner, or alcohol. Avoid spraying insecticide, waxes, polishing agents, or any aerosol product near the unit.

WARNING: To prevent shock hazard, always make sure to turn the Master Power switches off when using liquid near the amplifier.

When You Are Away

If you will not be using your home theater system for an extended period of time, it is always a good idea to turn the unit off using the Power Switch on the rear panel of the amplifier.

Troubleshooting

Your Outlaw Multi-Channel 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

Your Outlaw Audio Amplifier uses advanced protection circuitry that does not require fuses. In the event that the amplifier senses a shorted speaker wire, DC voltage on an input connection or when thermal overload creates a condition that could potentially cause damage to the unit or to your speakers, the Model 7900 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 7900 to make certain that none of the strands from any channel touch another channel, and that none of the strands from a "positive" terminal touch those from a "negative" terminal. Even a few stray wire strands can cause the unit to go into the protection mode. Also, check the system to ensure the negative (–) speaker outputs are not connected together and are not connected to ground.

Now 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.

Outlaw Service Information

The Model 7900 does not contain any user serviceable parts. If you suspect a problem that may require service assistance, contact us at customerservice@outlawaudio.com, or by phone at 866-OUTLAWA (688-5292).

It is important that only an authorized service agent carry out any repairs. This will assure 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. Hum, which may be present even at low volume levels or when the power is off, is usually caused by a problem known as "ground loops". 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.

Troubleshooting Guide

Problem

Solutions

Amplifier will not turn on

Master Power Switches turned off (No power light LED):
Turn on both Master Power Switches.

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

Amplifier turns on, but no audio from one or more channels

Input plugs not connected to proper jack or are loose:
Check input connections.

Speakers not connected properly:
Check speaker connections at amp and speaker.

One or both of the AC power cords are not receiving power:
Ensure both power cords have power. The amplifier is actually two power amplifiers in one—a 3ch amplifier and a 4ch amplifier. One cord powers the 3ch amp and the other cord powers the 4-ch amp. Two power controllers are used so these operate independently. If one breaker (on the unit) is tripped or if there is no power for one cord, a group of channels will be down. Depending on which has power, either 3 channels will be lost or 4 channels will be lost. The standby/on led will be dimmer than for normal operation, but this may not be readily noticed.

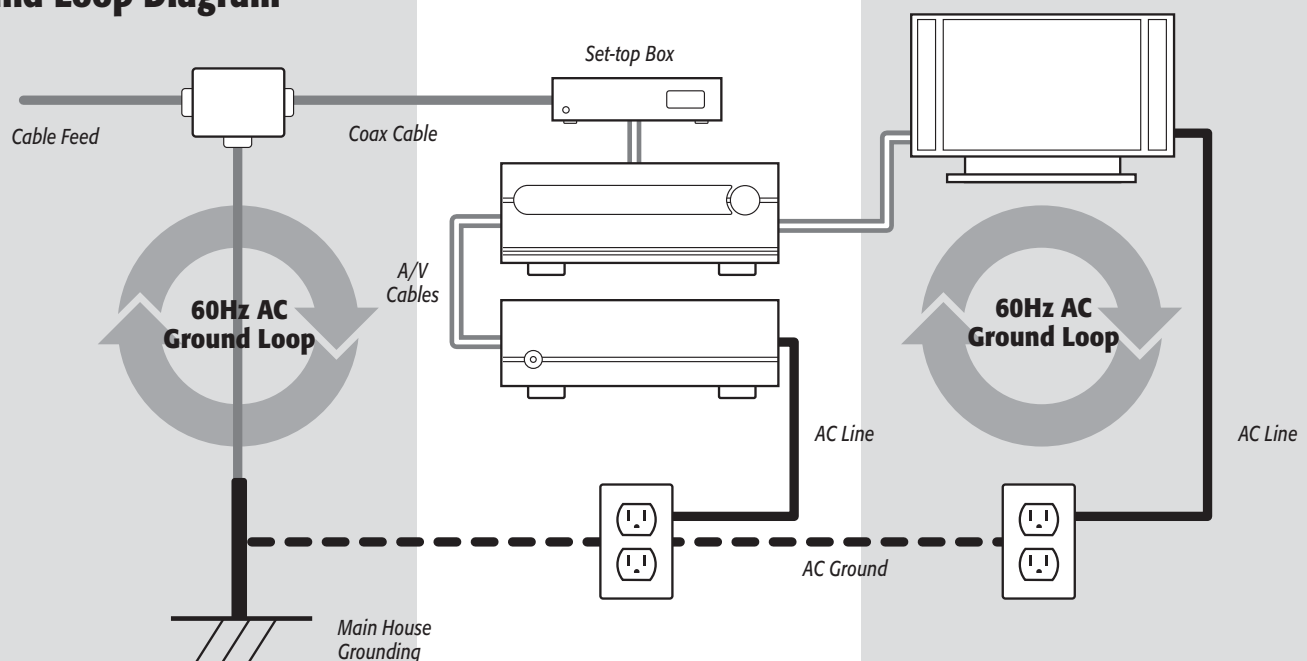
Audio levels differ

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.

Ground Loop Diagram



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 check 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, then disconnect the input cables at the amplifier. Turn the amplifier back on. If the hum disappears, the fault may be in the input cables used. Try reconnecting each cable separately to determine if one or more of them is responsible for the hum. Replace any suspect cable. Make sure that the cables are not running next to any AC power cords and are properly shielded. If the hum returns after the cables are tested and/or changed and 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 the image at 12-14 second intervals), it may be related to the hum you are also experiencing in your audio system. The previous suggestions may also help with this. If not, try isolating the ground in the display's 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.

Model 7900 Specifications

Power Output	7 x 300 watts @ 8 ohms, FTC: 20 - 20kHz, 0.05% THD, All Channels Driven
Frequency Response	20Hz -20kHz +/- 0.1dB at rated output
Total Harmonic Distortion (THD)	Less than 0.05% at rated output, all frequencies, less than 0.005% at 1 kHz
Intermodulation Distortion (IMD)	Less than 0.03% from 250mV to full rated FTC power
Power Bandwidth	5Hz - >100kHz +0/-3dB
Damping Factor	Greater than 400 from 10Hz to 400Hz
Crosstalk	Greater than -100dB from 20Hz to 20KHz
Gain (XLR and RCA)	Voltage gain of 28dB
Slew Rate	50v/Microsecond
Input Impedance	> 10k ohms
Input Sensitivity	1.95 Volts for Full Rated Output
Remote Trigger Voltage	3 - 24 Volts DC at 5mA or greater
Dimensions	(HxWxD): 9.5" x 17.2" x 19.5"
Weight	145 lbs
Power Requirements	2 x115VAC, +/- 3%, 60Hz 1440 watts x 2 = 2880 watts maximum

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 since 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.

Outlaw Audio Limited Warranty

This warranty protects the owner of the Outlaw Model 7900 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 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
- Units that 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) or 866-OUTLAWA (688-5292).

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 insure 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, in any way responsible for, any 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 that 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 North America.

For applicability in other countries, please call Outlaw Audio.



