

Model 12
Mono Power Amplifier
Owner's Manual

Introduction

Welcome to the Jeff Rowland Design Group "family" and congratulations on your purchase of what is unquestionably one of the world's finest audio power amplifiers. **With** its combination of features such as numerous function control and interconnect possibilities, precision electronic circuitry, and accurately machined chassis components throughout, your Model 12 Mono Power Amplifier will offer you many years of musically satisfying enjoyment. Please take a few minutes to read the remainder of this Owner's Manual before proceeding with the installation of the amplifier. A thorough understanding of the operational features will allow you to gain the maximum performance and ease of use for which this amplifier was designed. Please note that your Model 12 Mono Amplifier serial number begins with the letter "F." This number is recorded below and is also located on the rear panel of the chassis. Please include this number with any correspondence regarding your Model 12 Mono Power Amplifier. It has been my joy to create an audio component of enduring value that reflects a higher ideal of musical and artistic expression. It is my hope that these qualities will enrich your experience of ownership.

Enjoy the music!

Jeff Rowland

President

Jeff Rowland Design Group

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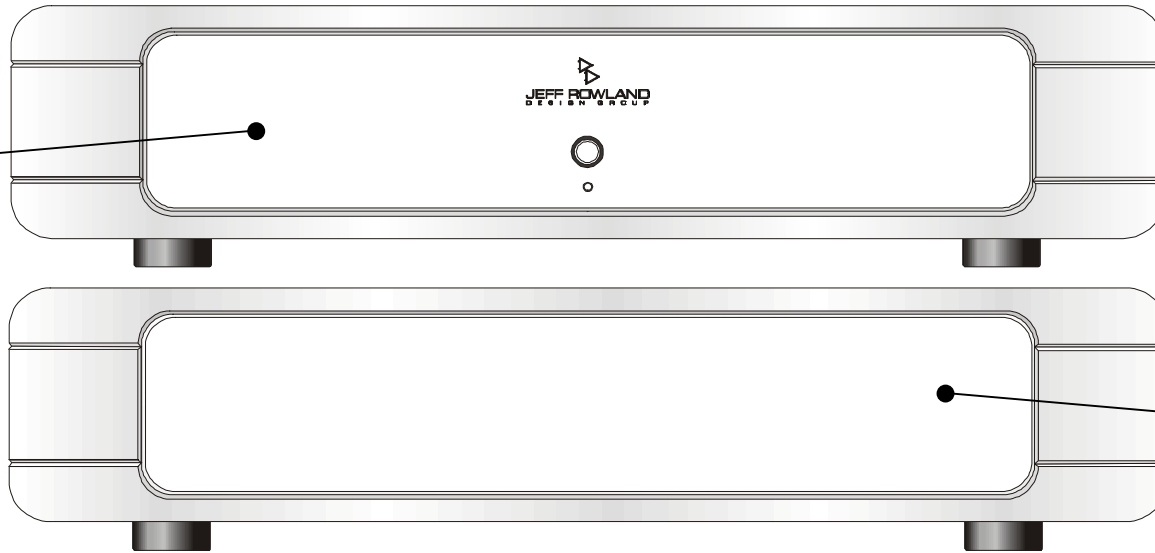
Web: www.jeffrowland.com

Product Features

- XLR input connectors for balanced (Differential Mode™) system configuration.
- RCA input connectors for unbalanced system configurations.
- Selectable overall gain of 26 or 32 dB.
- User selectable switching between balanced and unbalanced connections.
- 12V remote ON/OFF power switching connector.
- Automatic temperature stabilizing circuitry maintains constant operating temperature.
- CE approved speaker output connectors requiring no tools for tight connections.
- Separate power supply featuring 2nd generation high-speed switch mode circuit design.
- Parallel Balanced Input capability for multiple amplifier connection in high current demand situations.
- Automatic bias adjustment maintains optimal bias setting regardless of source material or loudspeaker load.
- Standby power condition reduces warm-up time.
- Fail-safe operation provided by user-resettable thermal circuit breakers located on power supply rear panel.
- Quiet, transient-free operation during power and function mode switching.
- Automatic input muting under anomalous input or output operating conditions.
- Fully-balanced Differential Mode™ circuit topology implemented from input to output.
- Low resonance, structurally integrated chassis constructed of precision-machined aircraft grade aluminum.

Contents

Model 12
Amplifier
Section



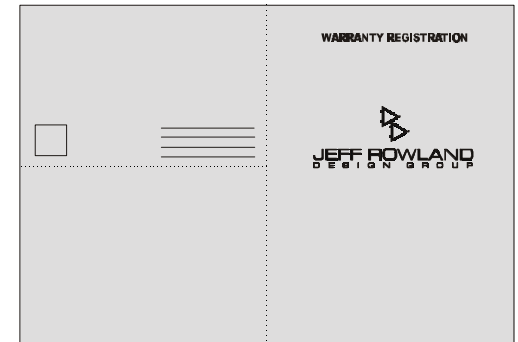
Model 12
Power
Supply



DC Power
Supply Cable



AC Power Cable



Warranty Card

Initial Inspection

Inspect the shipping container for damage. If the shipping container, packing material, amplifier, or accessories are damaged or missing, notify your dealer and the shipper (if a claim is to be made) immediately. **Note:** *Many shippers require notification and inspection within twenty-four hours of delivery to ascertain the nature of damages incurred.*

Your Model 12 Mono Power Amplifier has undergone extensive performance evaluations, listening tests, quality control inspections, and a minimum seventy-two hour burn-in period prior to shipment and should therefore be in perfect operating condition upon receipt. If the amplifier does not operate correctly, please notify your dealer immediately.

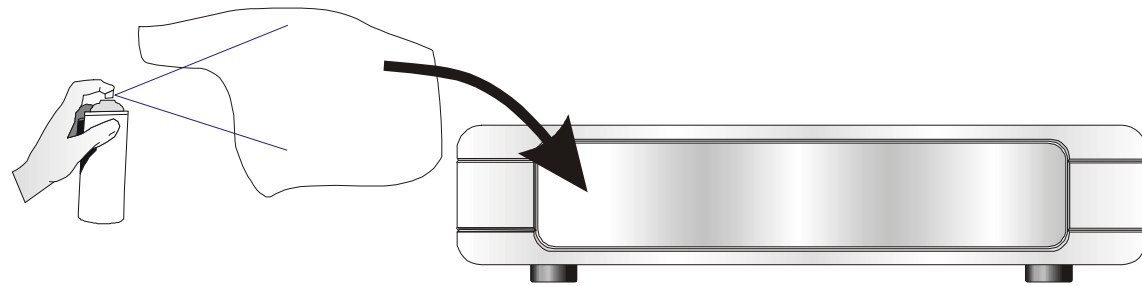
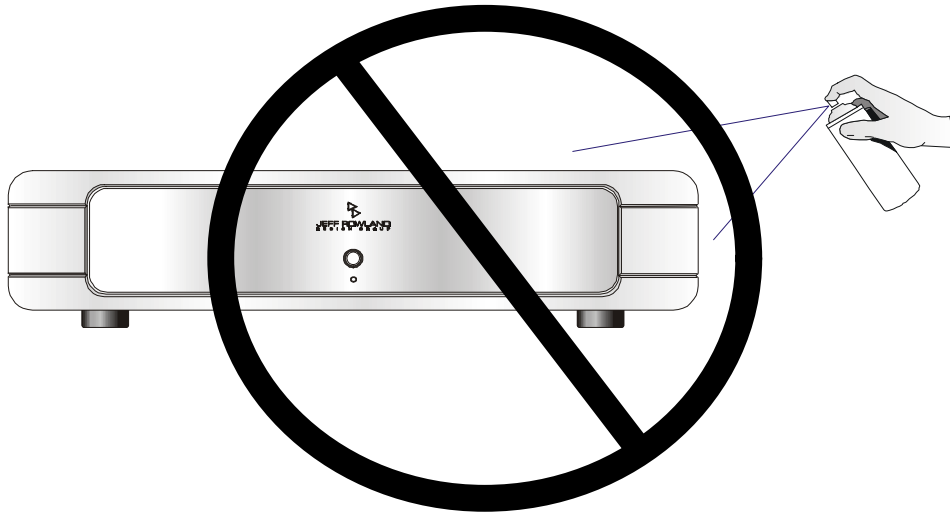
We strongly suggest that you save all packing materials. If the amplifier is to be returned to your dealer or Jeff Rowland Design Group, the original packing materials must be used for shipment to avoid damage. Neither Jeff Rowland Design Group nor the shipper can be held responsible for damages incurred during transit if the original factory packing is not used. All factory returns require that Jeff Rowland Design Group issue a Return Authorization (RA) number prior to shipment.

Contents

Ensure that all of the auxiliary components listed below are enclosed within the accessory box. Refer to the diagrams illustrated above and verify the components included.

- 1 One AC Power Cable
- 2 One DC Power Supply Cable
- 3 One Warranty Card (In some countries, warranties are provided by the respective importer.)

Care, Cleaning, and Maintenance



Care

The Model 12 Mono Power Amplifier is finely constructed from pieces of solid aluminum. The surface of the unit is cut in a unique process that uses a diamond tipped blade. This process was refined over many years to produce an artistic and attractive finish. The front, top, bottom and side panels are then finished with fine automobile polyurethane clear coat after a light anodizing to preserve the clarity of the finish and are not raw or exposed metal.

Because the surface is not finished in the typical fashion of most audio and video equipment, there are a few rules that must be kept in mind when cleaning the equipment.

- Please allow the unit to cure for 6 months before attempting to clean it. This will prevent small scratches from marring the surface before the surface coating has had a chance to harden completely.
- The top cover, sides, and bottom cover can all be cleaned with a soft cotton cloth (such as an optical lens cleaning cloth or fine furniture polishing rag) dampened with plain water. Water should be applied directly to the cloth and not the chassis. If a mark has been left on the chassis, do not use any type of abrasive or chemical cleaner to remove the mark. A very mild plastic or glass cleaner that does not contain ammonia should be tried only as a last resort. Please contact the factory before trying any type of cleanser on the chassis other than water to clean the unit.
- The front panel of the unit should never be cleaned with anything other than a very soft cotton cloth and plain water or fine oil-

based furniture wax or polish. Because of the fine finish of the front panel, small scratches from the use of any other agent to clean the front panel will become very visible. Again, the water or polish should be applied to the cloth, not the chassis.

If you have any questions about the treatment or cleaning of your Model 12 amplifier, please contact your dealer or the Jeff Rowland Design Group factory before attempting to clean the chassis. The use of a cleanser or abrasive to clean the chassis that has not been approved by the factory will almost certainly damage the finish and will not be covered under warranty.

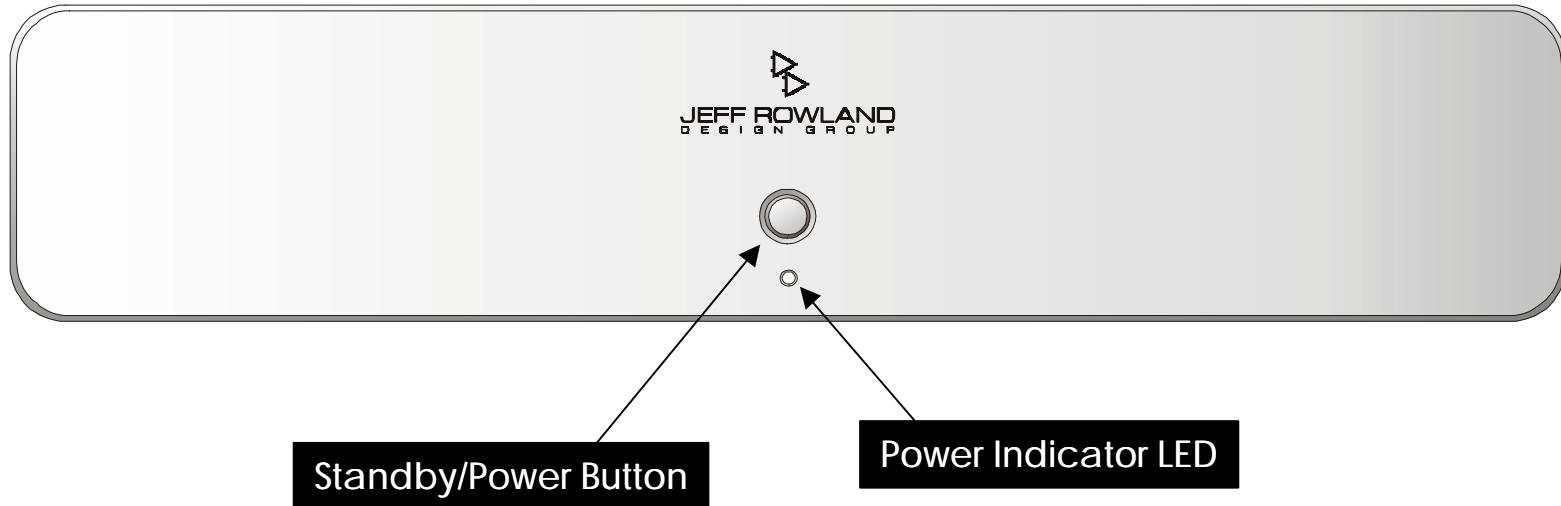
Maintenance

All Jeff Rowland Design Group products are designed to provide a lifetime of enjoyment and listening pleasure. The chassis is sealed to prevent dust from entering and the interior of the chassis should not need cleaning during the lifetime of the product. All internal circuitry is self-adjusting or stable so no adjustments or maintenance of any kind should be necessary over a lifetime of normal operation.

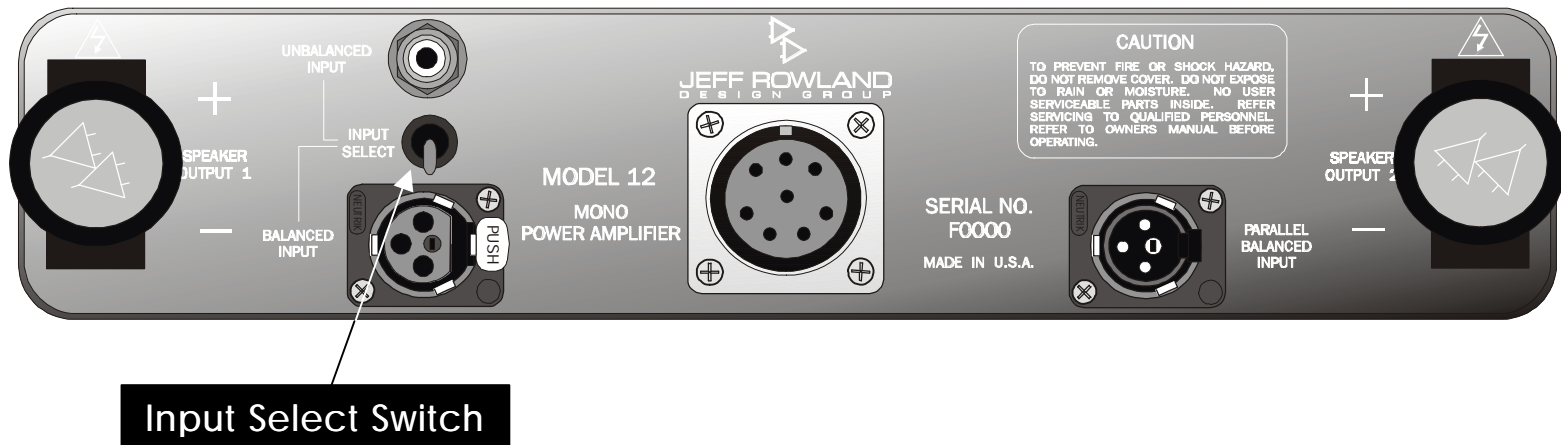
If the amplifier is ever in need of service, updating, or upgrading, it should only be returned to an authorized repair facility or technician for servicing. It is not recommended that the customer attempt to disassemble or repair the unit and doing so may void your warranty.

Amplifier Front and Rear Panel Function Controls

Amplifier Front Panel



Amplifier Rear Panel



Amplifier Front and Rear Panel Function Controls

Before attempting any system interconnection, please familiarize yourself with the front and rear panel controls of the Model 12 Mono Power Amplifier. The descriptions below refer to the diagrams above.

Front Panel

- 1 **FRONT PANEL STANDBY/POWER BUTTON:** Press this button to operate the amplifier. Press again to place the amplifier in Standby mode. The small orange POWER INDICATOR LED will illuminate when the amplifier is operational. When the POWER INDICATOR LED is not illuminated, all amplifier inputs are muted and internal circuitry reverts to power-saving (Standby) mode. Anomalous operating conditions will place the amplifier in Standby mode and will prevent the amplifier from being switched back on again until such a condition is eliminated.

To avoid spurious noises, the amplifier should never be turned on if the inputs on the rear panel are not connected.

Note: All ON/OFF power switching should be initiated *ONLY* with this button. The amplifier should never be disconnected from AC power without first placing the amplifier in Standby mode.

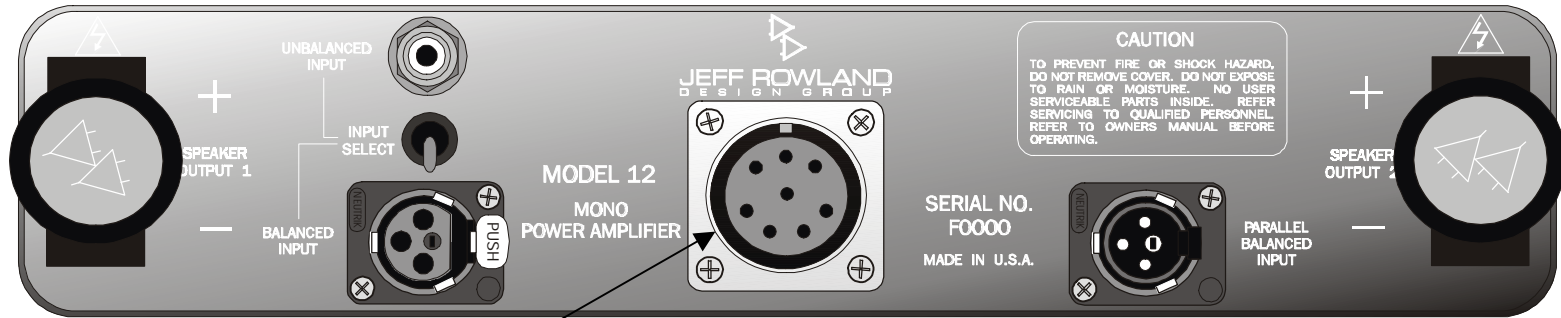
Rear Panel

(Note: If desired, the switch described below can be switched while the amplifier is operational and playing music.)

- 1 **INPUT SELECT SWITCH:** This switch selects either the unbalanced RCA inputs or the balanced XLR inputs. **Note:** When the RCA position is selected, pin 2 of the XLR is shorted to pin 1.

Rear Panel Power Connections

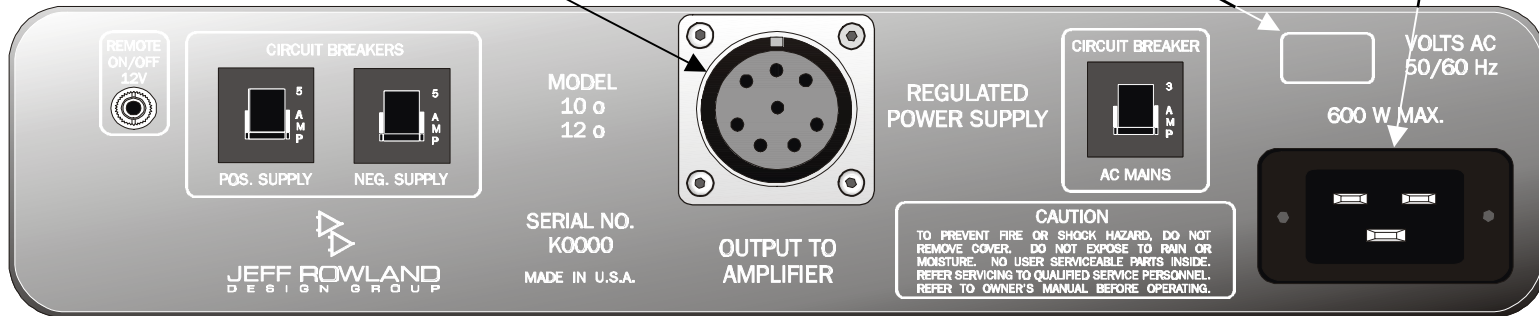
Amplifier Rear Panel



DC Power Supply Cable Connector

Volts AC Indicator

AC Power Cable Connector



Power Supply Rear Panel

Installation

Locate the amplifier as close as possible to its final installation point. Allow access to the rear panel for making connections.

The Model 12 Mono Power Amplifier is convection cooled, eliminating the need for fan or forced-air cooling. When operating, the chassis should have at least two (2) inches of air space around the heatsink areas. Multiple chassis can be stacked vertically, facilitating an upward flow of warm air currents throughout the vertical heatsink areas. This upward flow must not be blocked or recirculated around the chassis if proper cooling is to be maintained.

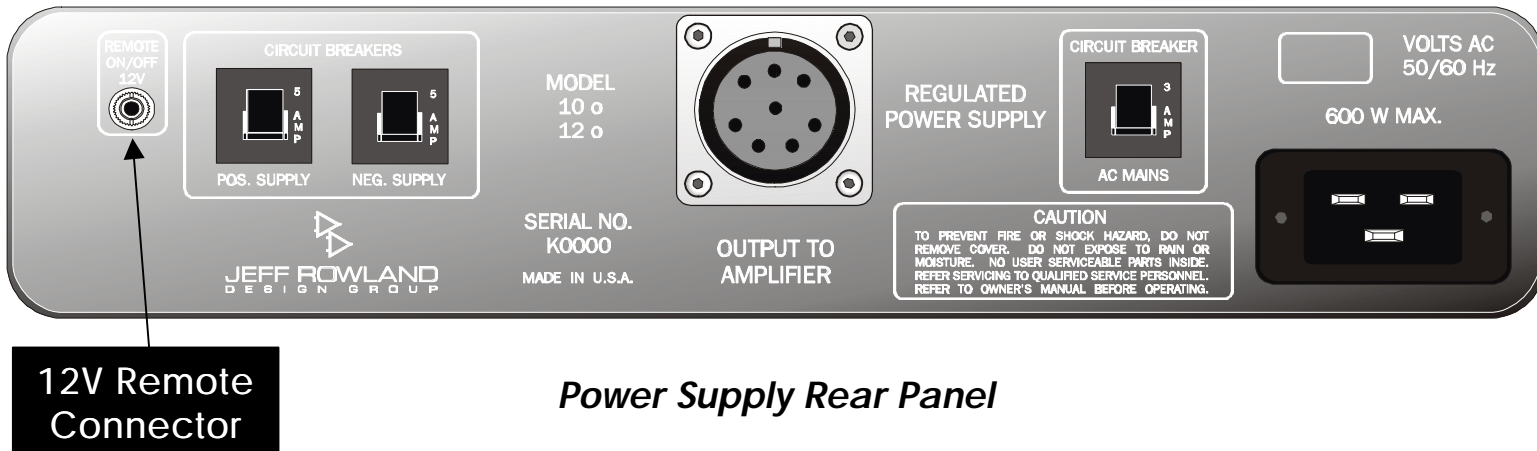
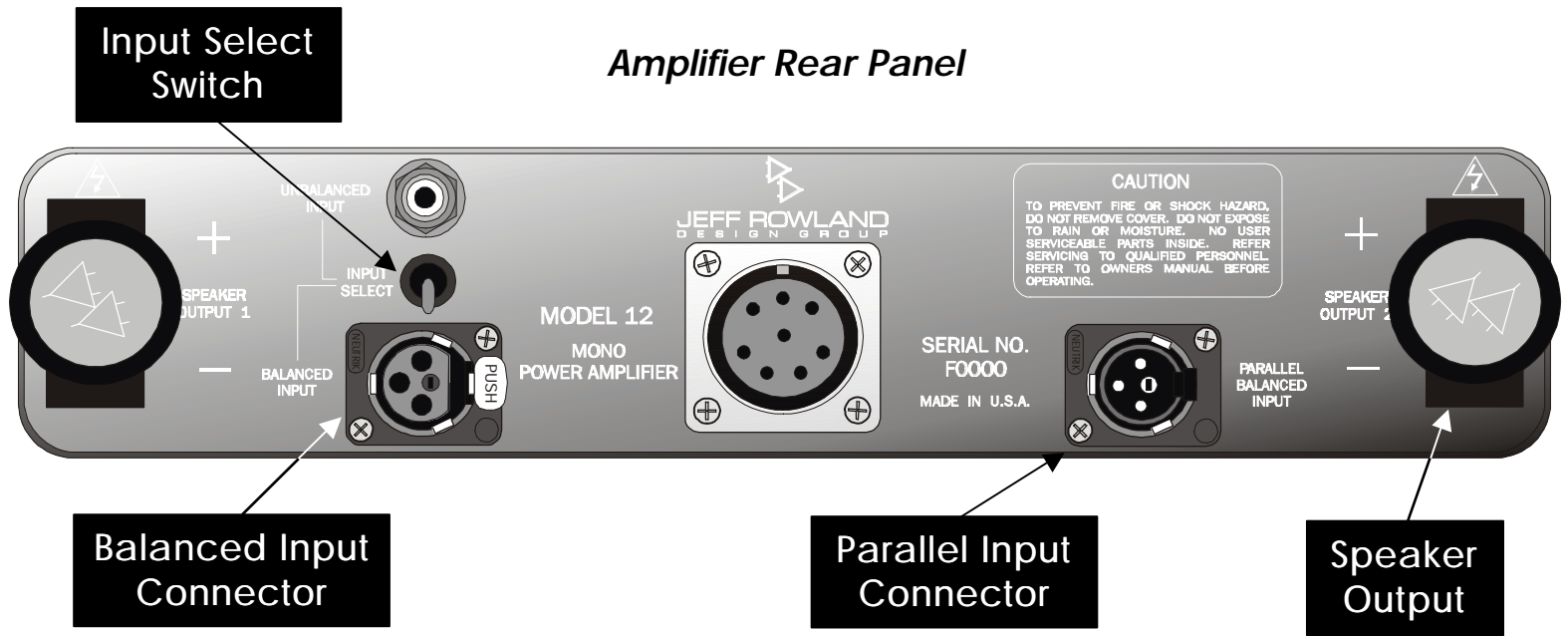
Rear Panel Power Connections

Important: Please strictly follow the steps in order as outlined below before operating your Model 12 Mono Power Amplifier.

- 1 Verify that the VOLTS AC input identified on the rear panel near the AC input socket is the same as the AC mains voltage in your area. If the voltage does not match, do *not* connect the amplifier to AC power and contact your dealer immediately.
- 2 Install the DC Power Supply Cable between the power supply and the amplifier section. There is a slot cut in the edge of the connector on each end of the cable, and this slot should be aligned to face up. Use the knurled ring on the connector to secure the cable to both the power supply and the amplifier.
- 3 Verify that the AC MAINS CIRCUIT BREAKER and the POSITIVE and NEGATIVE SUPPLY CIRCUIT BREAKERS are closed.
- 4 Install the AC Power Cable between the amplifier and your AC mains outlet.

Note: *If the amplifier is to be moved to another location, always place the unit in Standby mode before disconnecting the AC power cable from the AC mains wall outlet.*

Signal Connections and Remote



Signal Connections and Remote

The Model 12 Mono Power Amplifier offers unprecedented compatibility with associated audio components. When Connecting or disconnecting speaker or interconnect cables, it is necessary to place the amplifier in Standby mode (orange POWER INDICATOR LED on the front panel OFF).

- 1 If you are using balanced XLR interconnects from your preamplifier or source component, position the INPUT SELECT switch to BALANCED INPUT. If you are using unbalanced RCA interconnects, position the INPUT SELECT switch to UNBALANCED INPUT.
- 2 Connect your interconnect cable to one input – either BALANCED INPUT or UNBALANCED INPUT.
- 3 The PARALLEL BALANCED INPUT connector is for secondary components requiring a parallel input signal. The output from this connector is identical to the signal at the BALANCED INPUT. This connector should be used for applications such as driving a secondary amplifier for bi- or tri-amplification purposes or a powered subwoofer. *For parallel connection instructions, please see the following two pages of this manual.*
Note: *This connection should not be used with balanced XLR to unbalanced RCA adaptors, as it will nullify the balanced audio signal throughout the entire audio chain, including source components.*
- 4 A slight mechanical click may be heard when the balanced XLR interconnect cables are correctly installed and locked. The unlocking tab (located on the input connector and labeled "PUSH") must be pressed to disconnect the XLR interconnect cable from the amplifier.
- 5 Unscrew the knob that secures the speaker output connector on for the SPEAKER OUTPUT and pull the securing block out far enough to allow access to the binding posts. Install the positive

(usually red) loudspeaker cable spade terminal to the positive (+) binding post and the negative spade terminal (usually black) to the negative (-) binding post. Secure the loudspeaker connection by tightening the knob securely with your fingers.

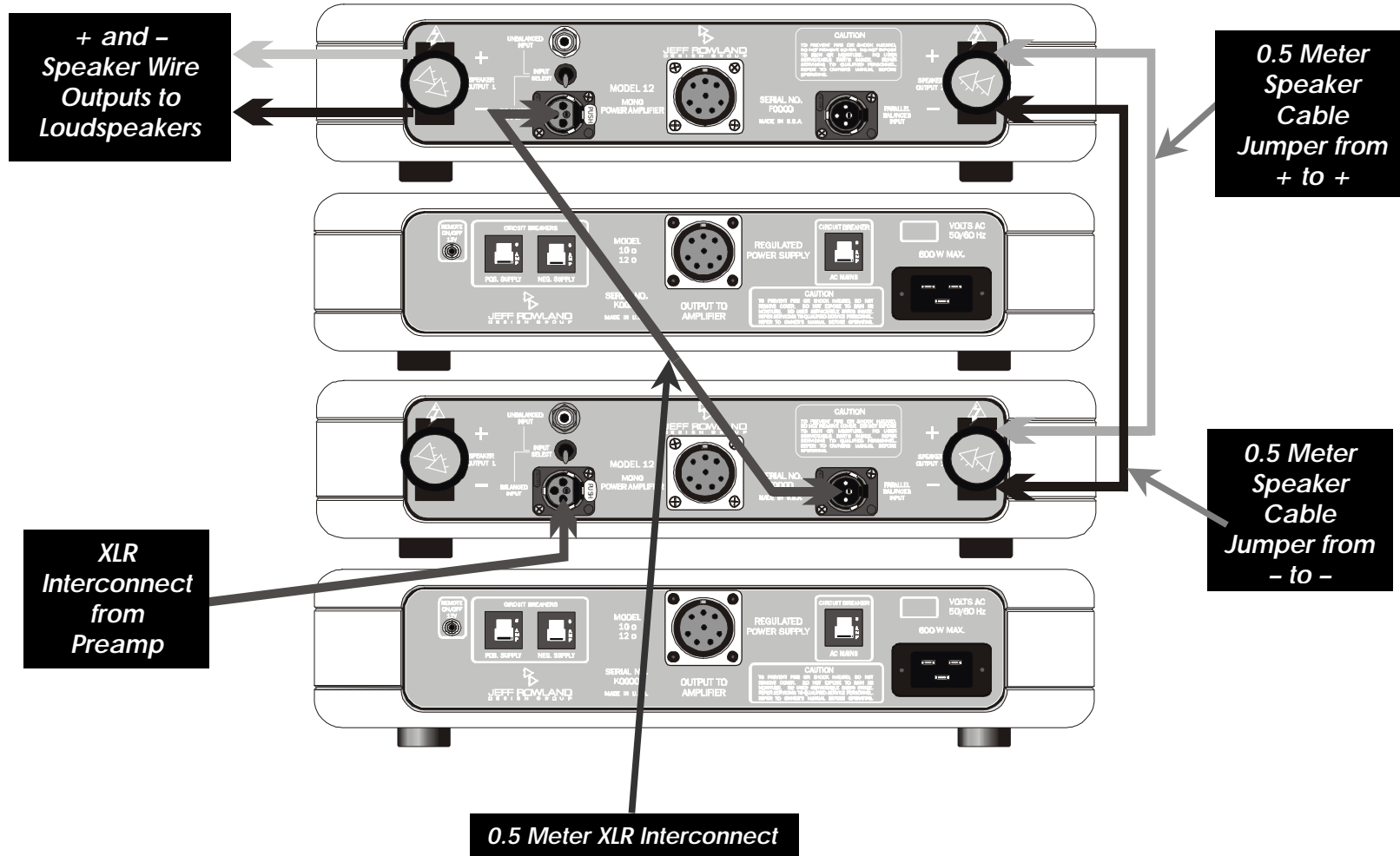


Warning: *Both positive and negative outputs are electrically active with respect to chassis and/or system ground potential. Therefore, this amplifier cannot be used in certain loudspeaker switching configurations, such as those used in retail demonstrations. Failure to avoid these precautions can result in damage to the amplifier and will void the warranty.*

12V Remote

- 1 A 12V REMOTE ON/OFF mini-plug connector is provided on the rear panel of the power supply for remotely switching the amplifier between Operational and Standby modes. The connections on this connector parallel the electrical contacts of the FRONT PANEL STANDBY/POWER button. When connected to another component with the proper circuitry, the amplifier can be turned ON and OFF remotely. Please contact your dealer for further information about this feature.

Parallel Connection Diagram



Parallel Connection Instructions

The Model 12 Mono Power Amplifier provides 200 watts of audio output power, sufficient to drive nearly any loudspeaker. In a few instances, there may be a need for more output current in order to drive a very low impedance or current demanding loudspeaker. The Model 12 Mono Power Amplifier offers a unique solution for owners of the Model 12 who feel that they need more power or would like to increase the sound quality of their audio system: parallel connection of multiple amplifiers. Operating multiple pairs of Jeff Rowland Design Group Model 12 Mono Power Amplifiers in parallel will improve sound quality and:

- Provide greater current output capability to increase the amount of amperage available at any given time to meet loudspeaker current demands. Assuming that a loudspeaker will draw large amounts of current for a particular output level, the amplifiers will have no problem delivering what is asked of them.
- Parallel configuration of the amplifiers means that a greater number of output devices are used. As the number of output devices is increased, the portion of the audio signal that each device is responsible for passing is decreased, meaning that each device has less work to do. This results in better sound quality.

A greater number of Model 12 Mono Power Amplifiers can be paralleled for increased current capabilities and sound quality. In situations and systems where parallel connection of amplifiers is desired, an additional balanced interconnect and an output jumper will have to be obtained to connect the inputs and outputs of each amplifier. These jumpers should be sourced from the manufacturer of your loudspeaker cables. To ensure that the cables have been properly constructed and will provide optimal performance, please contact your loudspeaker cable dealer or manufacturer about having a set of jumpers manufactured to the specifications of Jeff Rowland Design Group. We will gladly provide the instructions or a pattern for any necessary cables.

The example given in the illustration above is based on a standard set-up of two pairs of amplifiers, and the cable lengths may vary depending on the installation and set-up of your system. It is also possible to connect more than two pairs of Model 12 amplifiers for further increased current capability and sound quality. In these instances, you should contact your dealer to obtain the proper instructions for system set up and connection. Please also keep in mind that the shorter the length of audio cable, the better the sound quality from the system.

Internal Function Controls

Overall Gain

The overall gain of the Model 12 Mono Power Amplifier can be adjusted between 26 dB and 32 dB. The setting from the factory is 26 dB, which is adequate for the majority of applications, though in a small number of situations involving low efficiency systems the higher gain setting may be necessary. There is no sonic difference between the two settings.

Because of the potentially dangerous voltages inside of the chassis, it is recommended that you contact your dealer for information regarding the overall gain setting adjustments. **Note:** *Do not attempt to disassemble the chassis of the amplifier and adjust the gain without explicit instructions from your dealer or Jeff Rowland Design Group.*

DC Protection System

The Model 12 Mono Power Amplifier can produce high power levels that, without well-designed protection circuitry, could damage your loudspeakers and is equipped with a circuit that protects the amplifier from DC current emitted by source components. This system also prevents amplification of DC currents that can damage your loudspeakers.

Do not alter the settings of the DC protection circuit, as this will disable the ability of the amplifier to protect your loudspeakers! These settings are for production and testing purposes only. *Because of the potentially dangerous voltages inside the chassis, do not attempt to disassemble the amplifier.*

Model 12 Mono Power Amplifier Specifications

Output Power:

Continuous RMS watts

@ 8 ohms

200 watts

@ 4 ohms

350 watts

Power Bandwidth:

DC to 160 kHz, -3 dB

Slew Rate:

30 volts/microsecond

THD + Noise:

< .008%

Damping Factor:

> 100, 20 to 20 kHz

Gain (1 watt, 8 ohms):

User Selectable Internal Jumper,
26 dB or 32 dB

Input Impedance:

40k ohms

Common Mode

Rejection Ratio:

> 80 dB, 20 – 20 kHz

Absolute Phase:

Phase-Inverted

Power Consumption:

100 watts idle, 530 watts maximum
Driven at Full Output Power

Inputs:

User Selectable,
Balanced XLR
Unbalanced RCA

Outputs:

One Pair Binding Posts

Amplifier Section Dimensions:

17.5" W x 11.7" D x 3.1" H
44.5cm W x 33.5cm D x 6.5cm H

Amplifier Section Weight:

30 lbs.
13.4 kg

Power Supply Dimensions:

17.5" W x 11.7" D x 3.1" H
44.5cm W x 33.5cm D x 6.5cm H

Power Supply Weight:

32 lbs.
14.3 kg

Shipping Dimensions:

24" W x 22" D x 13" H
61cm W x 56cm D x 33cm H

Shipping Weight:

73 lbs.
32.6 kg

Basic Troubleshooting

A summary of fault conditions and their causes and remedies are listed below.

The Model 12 Mono Power Amplifier can produce high power levels that, without well-designed protection circuitry, could damage loudspeakers. Therefore, most fault conditions will result in the Model 12 reverting into Standby Mode.

Condition:	Cause:	Remedy:
Front panel POWER INDICATOR LED does not illuminate after pressing POWER/STANDBY BUTTON, amplifier does not operate normally:	Incorrect power connections, incorrect speaker connections, or circuit breaker must be reset.	Reset circuit breaker, review Installation and Rear Panel Connections section of Owner's Manual.
	Abnormal Operation of the Model 12 internal circuitry.	Contact your dealer immediately.
FRONT PANEL STANDBY/POWER button reverts to Standby Mode during listening but can be returned to normal operation:	Excessive sub-sonic or DC signals produced by source components.	Repair or replace source component. Identify and correct abnormal conditions such as low frequency rumble and/or acoustic feedback caused by phono playback (if applicable).
	Severe clipping of amplifier circuitry.	Reduce volume slightly or use higher efficiency loudspeakers.
AC MAINS CIRCUIT BREAKER switches OFF or will not remain ON:	AC mains voltage too high for amplifier.	Consult your dealer immediately to have the amplifier reconfigured for the proper AC mains voltage.
	Abnormal operation of amplifier internal circuitry.	Contact your dealer immediately.
50/60 Hz buzz noise in loudspeakers:	Ground loop condition created between components in system.	Use balanced system configuration if possible.
		Inspect interconnect cables for poor connection or termination.

Additional Information

If you have any additional questions regarding the installation or operation of the Model 12 Mono Power Amplifier, please contact your authorized Jeff Rowland Design Group dealer or check the Jeff Rowland Design Group web site at <http://www.jeffrowland.com>.

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