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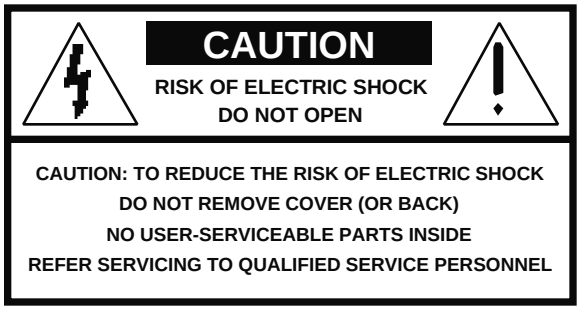
BY PHOENIX GOLD



pt1250/pt1800/pt2400

Professional Stereo Power Amplifier

Safety Information





The lightning flash with arrowhead symbol 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 electric shock to persons.



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

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Introduction

Congratulations on your purchase of a new Carver Professional Power Amplifier. It is backed by state-of-the-art engineering and manufacturing techniques to bring you the best in quality craftsmanship and reliable performance. The pt1250, pt1800 and, pt2400 are specially designed for pro touring applications. Their rugged construction and low profile make it ideal for sustaining the abuses of the road with reliability and space-saving economy. The pt1250 is rated at 625 watts per channel into 4 ohms and 465 watts per channel into 8 ohms. The pt1800 is rated at 900 watts per channel into 4 ohms and 600 watts per channel into 8 ohms. The pt2400 is rated at 1200 watts per channel into 4 ohms and 750 watts per channel into 8 ohms. The sophisticated protection circuits designed into this amplifier will protect your system should an unexpected fault occur. They also protect the amplifier from excessive temperature, continuous current limiting and shorted outputs. The balanced input uses a high quality, high common-mode rejection differential amplifier for exceptional hum and noise rejection. The sequencing feature on the pt1800 and pt2400 allows a rack of amplifiers to be powered up from a remote location. The daisy-chain connection scheme causes each amplifier to turn on in sequence, preventing the large in-rush current that can occur when an entire rack of amplifiers is turned on simultaneously. This power amplifier was designed and manufactured by people with a lifetime commitment to providing the world's finest components for music and sound reproduction. Thanks for placing your confidence in Carver Professional. We know your amplifier will provide many years of dependable service and reliable sound reproduction.

Unpacking and Paperwork

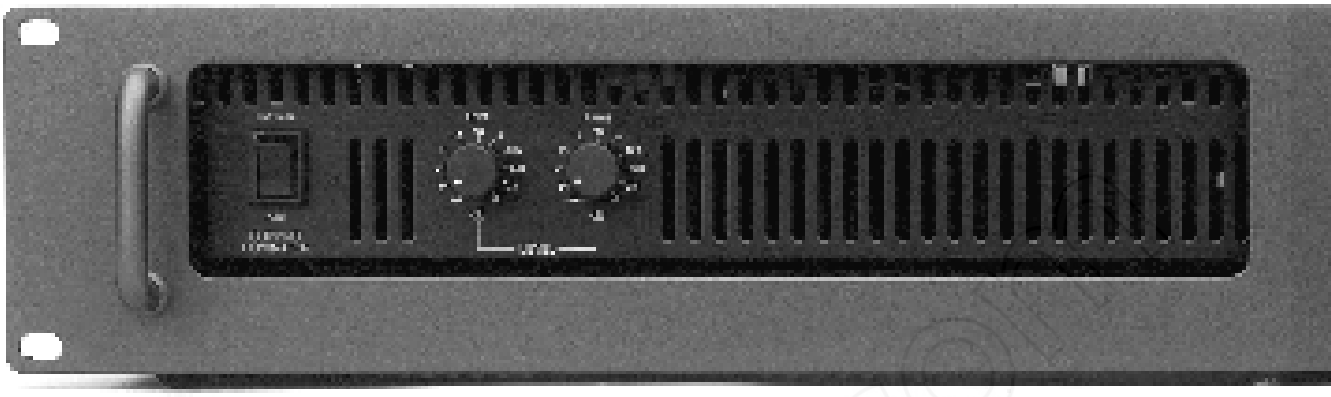
Carefully unpack the amplifier and keep the original carton and packing materials for future moving, shipment or long-term storage. After opening the box, please check for any visible signs of damage that were not apparent from the outside of the box. If you do encounter what appears to be concealed damage, please consult your Carver Professional Dealer before installing the unit.

Important Paperwork

Make sure to save your sales receipt. Your receipt is extremely important to establish the duration of your Limited Warranty, and for insurance purposes. Next, make a note of the serial number which is located on the back of the amplifier. Record it in the space provided below for convenient reference.

Model:_____ pt1250 _____ pt1 00 _____ pt2400
Serial Number:_____
Purchased at:_____
Date:_____

Finally, take a moment to fill out and return the Warranty Registration Card packed with the amplifier and return it to Carver Professional. This will allow us to keep you informed about new products as they become available.



pt1250

FEATURES

- features
- 465W per channel into 8 ohms
  625W per channel into 4 ohms
- XLR and 1/4” TRS input connectors
- Accepts balanced or unbalanced lines
- Heavy-duty 5-way speaker binding posts
- Independent CH 1 and CH 2 Level Controls with 11 detented positions
- Internally configurable for Parallel Mono mode for single channel low impedance operation
- Highly efficient Pulse Width Modulated (PWM) power supply
- High-efficiency linear tracking output design
- Dual-stage slow power-up
- High power to weight ratio
  (1250 watts/11 pounds)
- Independent CH 1/CH 2 protection circuits will instantaneously activate if one of the following fault conditions is detected:
  - Excessive High Frequency
  - Over Temperature
  - Short Circuit
  - D.C. Offset
- Additional protection circuitry includes:
  - Clipping Eliminator
  - AC Line Fuse
- Power Connected/Standby indicator
- 7 LED display per channel, including Power Ready and Clip/Protect indicators
- 2-speed switchable Fan cooled
- 70-volt stereo direct drive operation





SPECIFICATIONS

- features

Continuous Average Output Power, both channels driven: 465 watts per channel into 8 ohms from 20Hz to 20kHz, with no more than 0.5% THD; 625 watts per channel into 4 ohms from 20Hz to 20kHz, with no more than 0.5% THD

Parallel-mono operation: 100 watts into 4 ohms from 20Hz to 20kHz, with no more than 0.5% THD
70-volt stereo: 600 watts per channel
70-volt parallel mono: 750 watts

Frequency Response: 20Hz to 20kHz (±0, -0.5 dB)

Damping Factor: >200

Input Impedance: 15 kilohms unbalanced, each leg to ground 30 kilohms balanced

Sensitivity: 1.5 Vrms for rated power into 4 ohms

Gain: 32 dB (± 0.5 dB)

Input Overload: +15 dBu

THD: <0.5%

IM Distortion: <0.1%

Signal-to-Noise Ratio: >105dB, weighted, ref. to rated power into 4 ohms

Slew Rate: 25V / µS

CMRR: >70dB @ 1kHz

Power Consumption: 1200W full power

Power Requirements: 120V AC / 60Hz (USA and Canada) Other voltages as required for export

Fusing: 10 amp slo-blo (120V / 60Hz) 5 amp slo-blo (230V / 50Hz)

Display: 7 LED indicators per channel 1 green READY, 5 yellow SIGNAL, 1 red CLIP / PROTECT

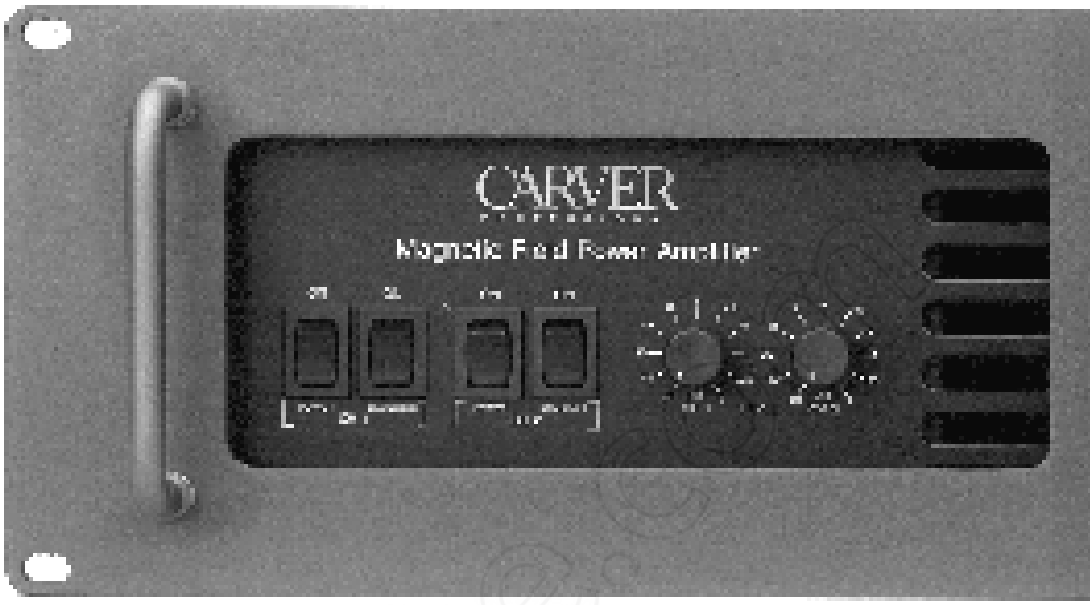
Size (H x W x D): 3.50” (2U) x 19” x 10.25” 89mm x 483mm x 273mm

Net Weight: 11 lbs. (5.0kgs)

Shipping Weight: 15lbs. (6.8kgs)

Due to ongoing research and development, all specifications and features effective 4/96 are subject to change without notice.

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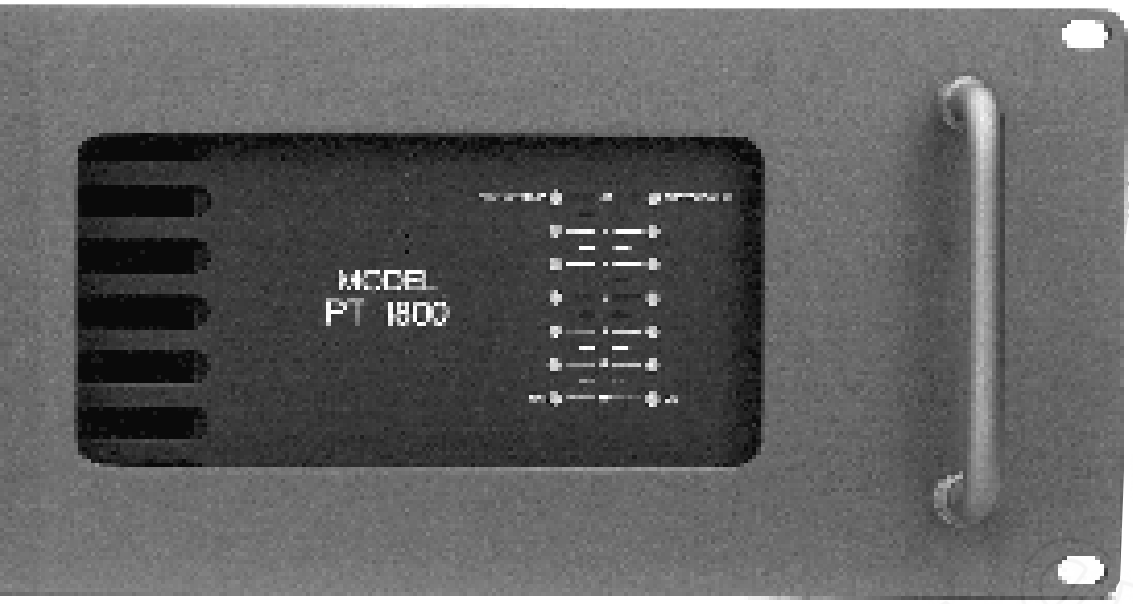
pt1800

FEATURES

- features

- Lightweight- 46 lbs.
- Fully modular dual monaural design (from power switch to AC line cord).
- High efficiency (50% input to output).
- Positive locking detachable dual AC line cords.
- Compact - only 12.75” deep.
- Rugged, quiet, 100 CFM thermally controlled cooling system.
- Compression circuit for long term excessive high frequency signals.
- Remote sequential power on/off feature.
- Clipping eliminator circuit.
- Protection Features:
  - Short circuit
  - Excessive high frequency
  - Thermal
  - Clipping eliminator
  - DC offset
  - Soft start/Input mute
- Separate L/R AC line fuses
- Controls
  - Dual power switches
  - Dual sequence switches
  - Dual 11 detent level controls
  - XLR phasing switch
  - Series mono switch
  - Dual mono switch
  - Clipping eliminator switch
  - Ground lift
- CSA, CE approved





SPECIFICATIONS

Power Output:
Both channels: driven (20Hz-20kHz)

8 ohm/ch.	600 watts
4 ohm/ch.	900 watts
2 ohm/ch.	1100 watt

Power Output: Series mono operation (20Hz-20kHz)

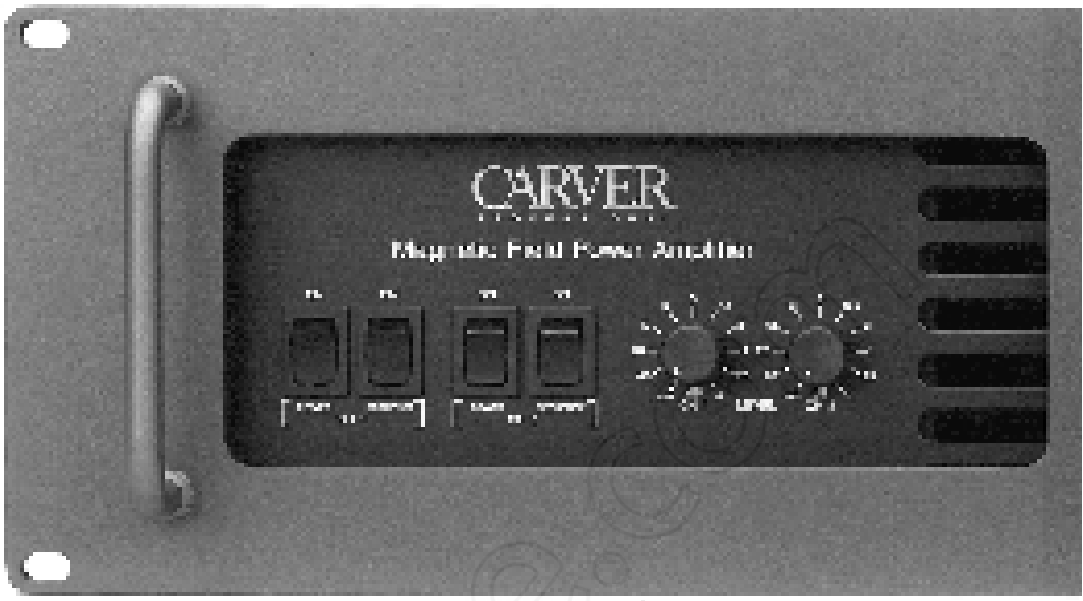
8 ohm	1800 watts
4 ohm	2200 watts

Signal to Noise Ratio: >100dB (from rated power @ 4Ω/A weighted)
Frequency Response: 20Hz to 20kHz ±0.5dB
Channel Seperation: >55db @ 1kHz
Slew Rate: 25V/µs
THD: 4Ω 20-20kHz (at 900W) < 0.5%
IM Distortion: <0.1%
Damping Factor: >200 @ 1kHz
Sensitivity: 1.5 V rms
Gain: 32dB
Input Impedance: 15 Kilohms Unbalanced
30 Kilohms Balanced

CMRR: >70db @ 1kHz
Maximum Current Draw: 30 A (4Ω rated power)
Display: 7 LED indicators per channel, 1 green on, 5 yellow signal, 1 red clip/protect
Cooling: Rear to front w/100 CFM maximum
Connections-
Input: XLR, barrier strip
Output: 5 way binding posts, 2 sets/channel
Size (HxWxD): 5.25” (3u) x 19” x 12.75” (133mm x 483mm x 324mm)
Net Weight: 46lbs. (20.9 Kgs.)
Shipping Wt.: 55lbs. (25 Kgs.)

Due to ongoing research and development, all specifications and features effective 4/96 are subject to change without notice.

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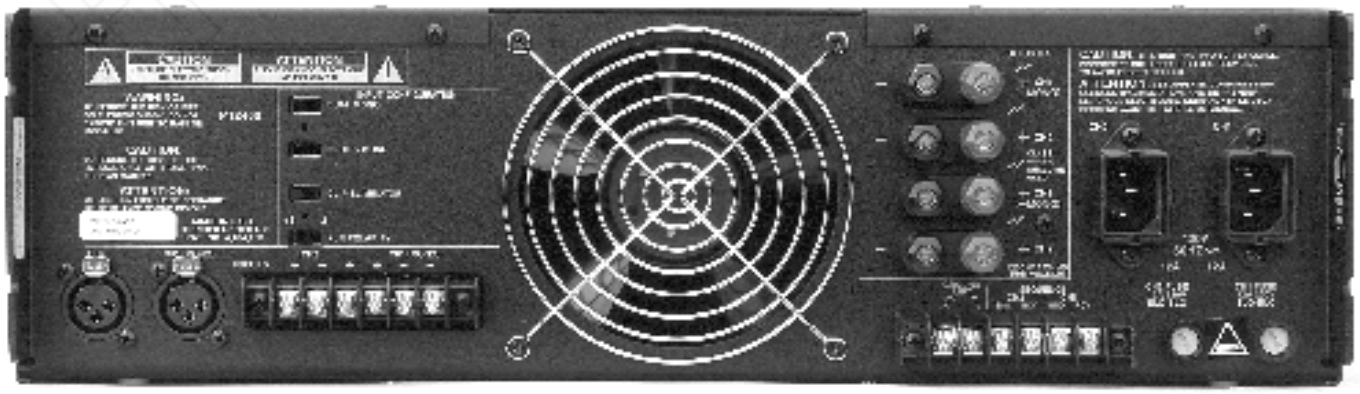


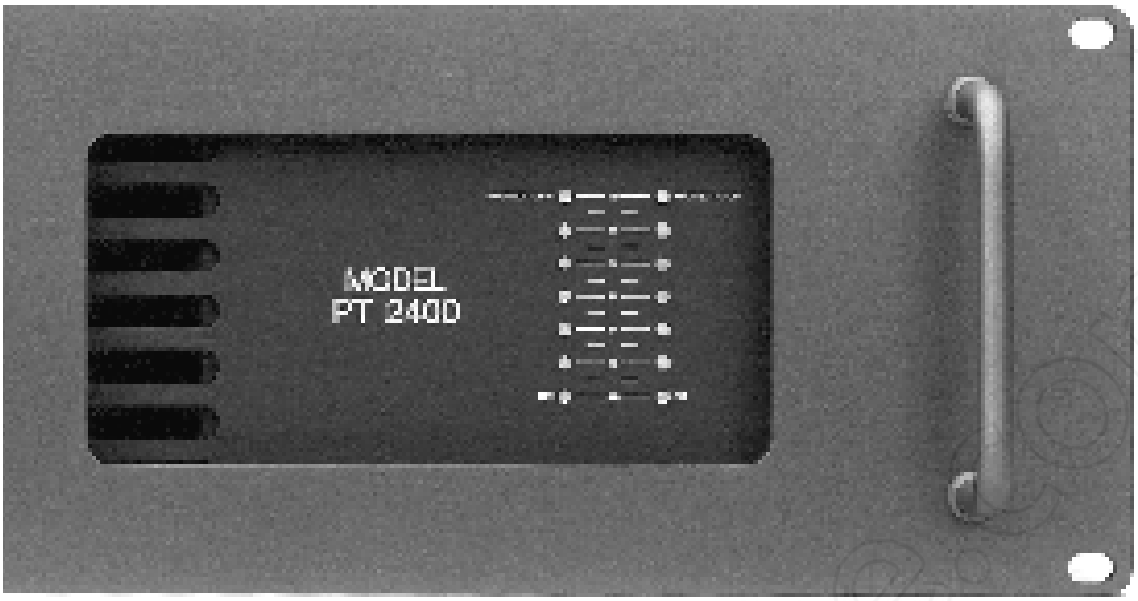
pt2400

FEATURES

- features

- Lightweight- 48 lbs.
- Fully modular dual monaural design (from power switch to AC line cord).
- High efficiency (50% input to output).
- Positive locking detachable dual AC line cords.
- Compact - only 12.75” deep.
- Rugged, quiet, 100 CFM thermally controlled cooling system.
- Compression circuit for long term excessive high frequency signals.
- Remote sequential power on/off feature.
- Clipping eliminator circuit.
- Protection Features:
  - Short circuit
  - Excessive high frequency
  - Thermal
  - Clipping eliminator
  - DC offset
  - Soft start/Input mute
- Separate L/R AC line fuses
- Controls
  - Dual power switches
  - Dual sequence switches
  - Dual 11 detent level controls
  - XLR phasing switch
  - Series mono switch
  - Dual mono switch
  - Clipping eliminator switch
  - Ground lift
- CSA, CE approved





SPECIFICATIONS

Power Output:
Both channels driven (20Hz-20kHz)
8 ohm/ch. 750 watts
4 ohm/ch. 1200 watts
2 ohm/ch. 1500 watts
Power Output: Series mono operation (20Hz-20kHz)
8 ohm 2400 watts
4 ohm 3000 watts

Signal to Noise Ratio: >100dB (from rated power @ 4Ω/A weighted)

Frequency Response: 20Hz to 20kHz ±0.5dB

Channel Seperation: >55db @ 1kHz

Slew Rate: 25V/µs

THD: 4Ω 20-20kHz (at 1200W) < 0.5%

IM Distortion: <0.1%

Damping Factor: >200 @ 1kHz

Sensitivity: 1.5 V rms

Gain: 34dB

Input Impedance: 15 Kilohms Unbalanced
30 Kilohms Balanced

CMRR: >70db @ 1kHz

Maximum Current Draw: 40 A (4Ω rated power)

Display: 7 LED indicators per channel, 1 green on, 5 yellow signal, 1 red clip/protect

Cooling: Rear to front w/100 CFM maximum

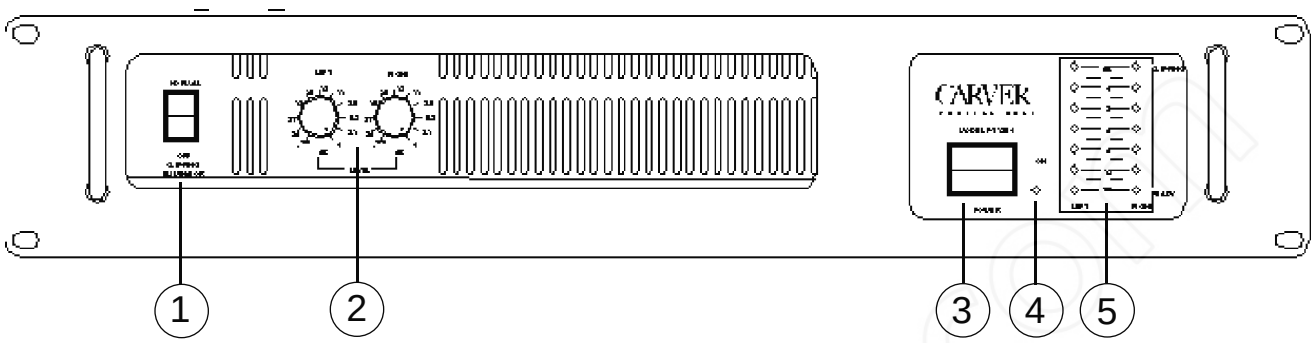
Connections-
Input: XLR, barrier strip
Output: 5-way binding posts, 2 sets/channel

Size (HxWxD): 5.25” (3u) x 19” x 12.75” (133mm x 483mm x 324mm)

Net Weight: 48 lbs. (21.8 Kgs.)

Shipping Weight: 59 lbs. (26.8 Kgs.)

Due to ongoing research and development, all specifications and features effective 4/96 are subject to change without notice.



pt1250
Controls And Functions

1. CLIPPING ELIMINATOR
Pressing this switch turns on the clipping eliminator circuit. In this mode, the amplifier output remains undistorted even when overdriven by 8dB.

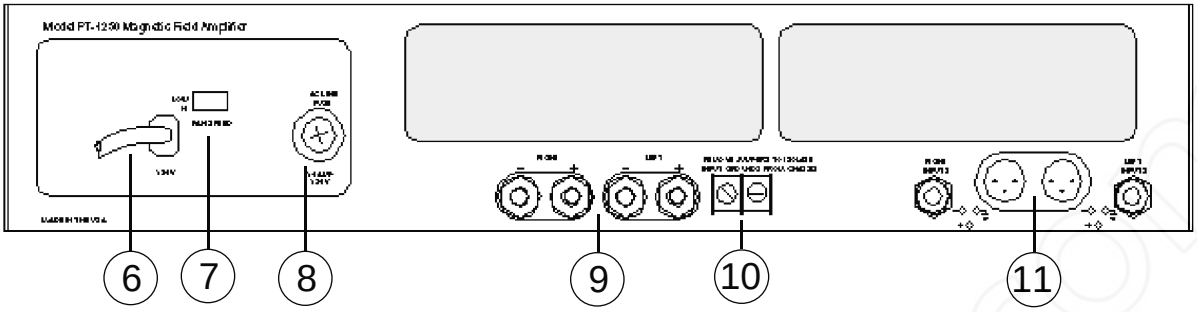
2. LEFT/RIGHT VOLUME CONTROLS
10-step attenuators that adjust the relative output level of the pt1250. The amount of attenuation corresponds to the front-panel marking, in dB. In parallel mono-mode, only the LEFT level control is active.

3. POWER SWITCH
This turns the amplifier on.

4. POWER LED
A red LED that illuminates when the amplifier is on.

5. CH1 / CH2 STATUS INDICATORS
These LEDs display information about the operation of the amplifier.
READY – These LEDs illuminate green when the power is on and the amplifier is ready to operate. The READY LEDs illuminate red when the power switch is first turned on (while the power supply is stabilizing prior to the speaker output relays switching in), or when the amplifier is in protect mode.
SIGNAL – These LEDs illuminate yellow when a signal is present at the Speaker Output jacks to provide an indication of output power relative to full power (0dB).
CLIP/PROTECT – These LEDs illuminate red when the power switch is first turned on, when the output begins to clip, or whenever there is a fault condition detected that causes the output relay(s) to disengage. These fault conditions include excessive DC Offset, excessive heatsink temperature and short circuits at the speaker output(s).

Note: The relays operate independently for each channel. Therefore, it is possible for one channel to operate normally while the other is in “protect” mode.



6. POWER CORD
Connect to a properly configured outlet providing the line voltage specified for your model.

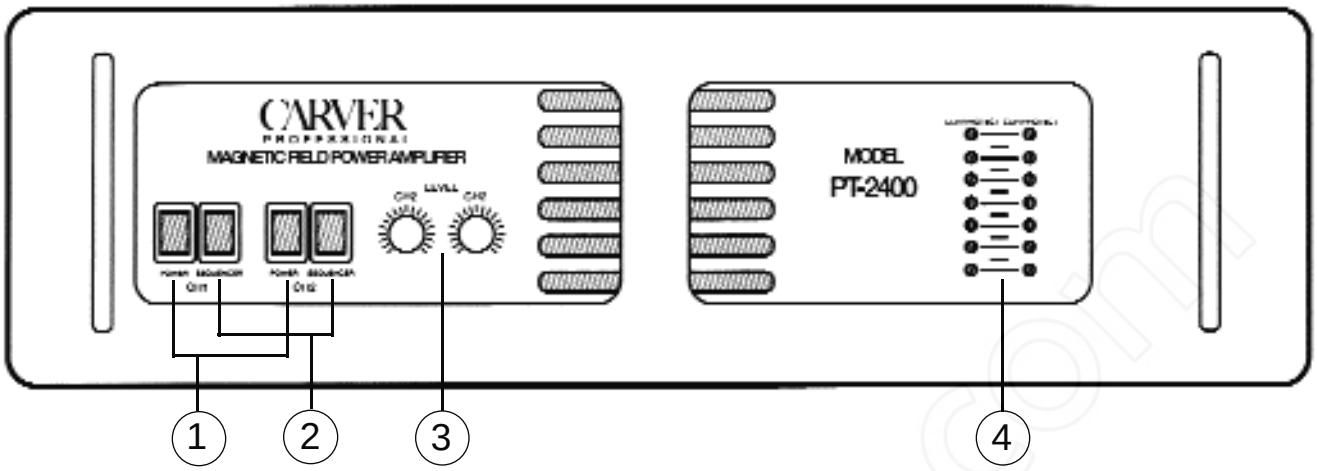
7. FAN SPEED
Push-button switch that sets the idle speed of the cooling fans. For normal usage, use the low-speed position. The fan speed is proportional to the amplifier power output.

8. FUSE
AC power line fuse for the pt1250. *For the 120-volt pt1250, use only one of the following, 10 ampere slo-blo fuses:* Bussman MDA 10-amp, Little Fuse 3AB 10-amp, Schurter SPT (001.2534) 10-amp. For the 230-volt model, use only: Bussman MDA 5-amp, Little Fuse 3AB 5-amp, Schurter SPT (034.5239) 5-amp. Repeated fuse blowing is a sign of internal distress.

9. LEFT/RIGHT SPEAKER OUTPUT
5-way binding posts used to connect the loudspeakers to the amplifier outputs. The red terminal is the signal connection, the black terminal is the signal return connection. The black terminals are internally connected together.

10. GROUND
Barrier strip connections. Removing this jumper isolates the amplifiers power supply ground from the amplifier chassis. This may be necessary to eliminate ground loops in some systems. The amplifier chassis is always connected to the safety ground (line plug ground or green wire) of the power cord. With the jumper removed, the amplifier's circuit ground is connected to the amplifier's chassis ground via a 27-kilohm resistor in parallel with a 0.1-mfd capacitor..

11. INPUTS
Each channel has parallel connected female XLR connectors and 1/4 inch tip-ring-sleeve phone jacks. These are the input connectors for the amplifier. Since the jacks are connected in parallel, the remaining jack can be used as an output when daisy-chaining several amplifier inputs.



Controls And Functions

1. POWER SWITCHES
Channel 1 and Channel 2 power switches independently power up each channel. The slow start up feature of each power supply allows both switches to be pushed simultaneously.

2. SEQUENCE SWITCHES
These switches make it possible to sequentially turn on and off amplifiers in one rack or multiple racks of units. A group of amplifiers can be powered up with the power switch on a designated master amplifier or remotely via a +5 to +15 VDC voltage source. Two sequence switches allow remote power control of Channel 1 and Channel 2 independently.

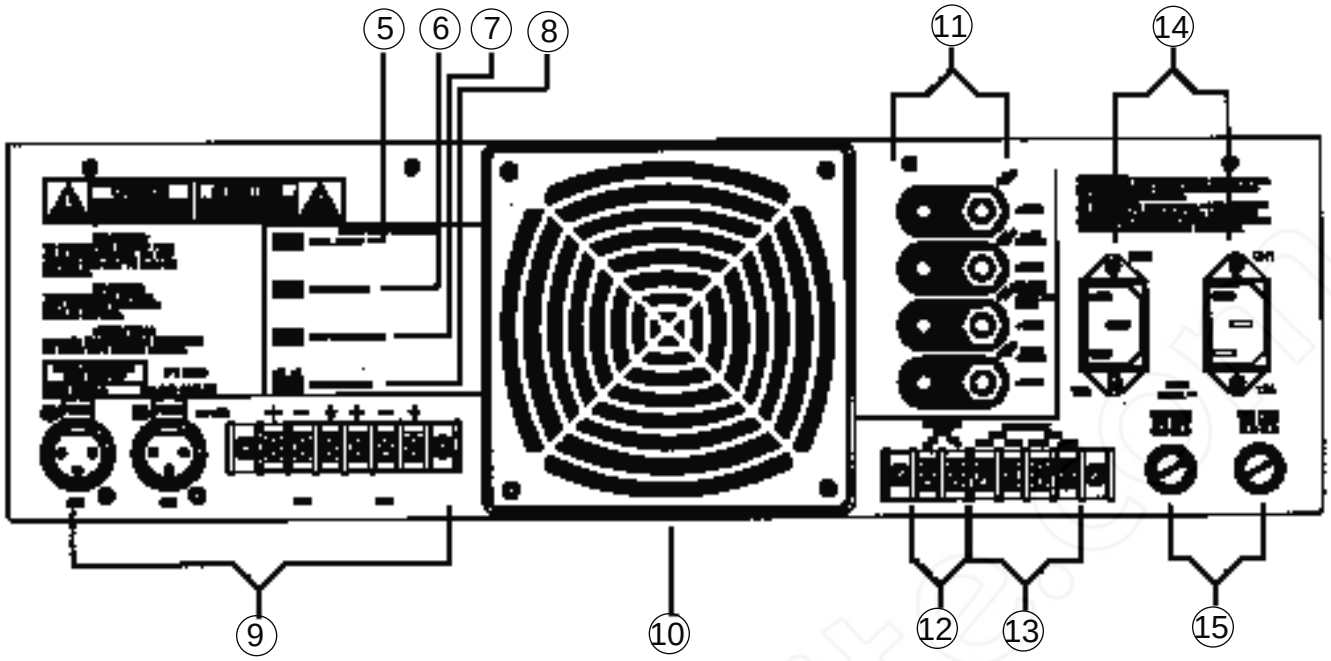
3. LEFT AND RIGHT LEVEL CONTROLS
Eleven-step attenuators adjust the relative output level of the amplifier. The amount of attenuation corresponds to the front panel markings, in dB. For maximum input sensitivity and signal to noise ratio at the input, set level controls for full clockwise rotation.

4. CH1 / CH2 STATUS INDICATORS
These LEDs display information about the operation of the amplifier.
READY – These LEDs illuminate green when the power is on and the amplifier is ready to operate.
SIGNAL – These LEDs illuminate yellow to indicate the output voltage level of the amplifier in dB relative to the maximum output.
CLIP/PROTECT – These LEDs illuminate red to indicate amplifier clipping, excessive high frequency protection, or limiting by the clip eliminator option.

5. DUAL MONO SWITCH
The Dual Mono Switch configures the input to allow both channels to be driven from a mono source via the channel 1 input. NOTE: channel 2 XLR connector may be used to patch to other amplifiers, if parallel connections are made on the barrier block, ie. ch. 1 + connected to ch. 2 + etc.

6. SERIES MONO (BRIDGE) SWITCH
The Series Mono Switch inverts the phase of channel 1, which produces a differential voltage between Channel 1 red (-) binding post and the Channel 2 red (+). Channel 1's XLR and Barrier drive both channels. Minimum load impedance in this configuration is 4 ohms.

7. CLIP ELIMINATOR SWITCH
The Clip Eliminator Switch enables circuitry which senses the onset of clipping and limits the output distortion to approximately 1% for up to 8 dB of overdrive at the input.



8. XLR POLARITY SWITCH
The XLR Polarity Switch conveniently configures both XLR connectors for Pin 3 +, (Pin 2-) or Pin 2 +, (Pin 3-). [the clear security cover can be installed after switches are set.]

9. INPUT CONNECTORS
The pt2400/pt1800 amplifier comes equipped with XLR and Barrier inputs. The XLR connector is wired in parallel with the barrier strip connector on each channel. Channel 1 is used to drive both channels in either mono configuration.

10. FAN FILTER
An expanded foam filter is used to keep dust and airborne debris out of the amplifier's cooling system.

11. OUTPUT BINDING POSTS
Two sets of binding posts for each channel provide a convenient means to connect multiple loudspeaker boxes. The channels alternate vertically and allow the connection of multiple loudspeaker boxes in the Series Mono Bridged configuration.

12. GROUND LIFT TERMINALS
These two connections on the barrier strip are provided to help eliminate noise in systems where ground loops are a problem. For maximum safety during an amplifier fault condition the jumper between chassis and power supply grounds should remain installed. When using the power supply ground terminal for the control voltage common (-) in the power sequencing operation, leave the jumper installed.

13. SEQUENCE TERMINALS
Separate SND (send) and RCV (receive) terminals for each channel allow the amplifier to be sequenced on and off within a system of multiple amplifiers. The two sets of terminals also allow the two channels to be independently turned on and off from a remote location that can provide a +5 to +15 Voltage source. The jumper connected from the SND terminal of Channel 1 to the RCV terminal of Channel 2 must be removed for independent operation.

14. AC POWER CONNECTORS
Two positive locking power cords permit connections to AC distribution systems already pre-wired for 12-15 amps per plug. Dual A.C. power cords facilitate easy installation and removal of the pt2400/pt1800 from the amplifier racks.

15. FUSES
Channel 1 and Channel 2 have independent A.C. line fuses.

pt1250 Installation

Location and General Precautions

Observe the following precautions when choosing a location for your amplifier.

A. Do not expose the unit to rain or moisture. If a fluid or foreign object should enter the unit, disconnect the power plug and contact an authorized dealer or service center. Do not pull out the plug by pulling on the cord; grasp the plug firmly.

B. Protect from heat and allow adequate ventilation. Place away from direct sources of heat, such as heating vents and radiators. All components produce some heat during operation, so make sure that the ventilation holes are not covered and that air is allowed to circulate freely behind, beside and above the unit. Excessive heat is the single greatest source of both short-term and long-term component failure.

Mechanical Considerations

The pt1250 requires two rack space units (3.5") and a depth of 10.75" inside the rack, including the rear supports. Secure the unit mechanically using four screws with washers to prevent marring the front panel. Neoprene rubber washers are a good choice because they grip the screw head and prevent them from backing out when vibrated or transported.

Rear Support for Road Applications

If the pt1250 is rack-mounted and the rack is transported, mechanical support for the rear of the amplifier is required. This could take the form of a shelf across the rear of the amplifier or brackets that engage the rear of the unit. This practice is recommended for all electronic instruments.

Thermal Considerations

When the pt1250 is used free-standing, no thermal considerations are necessary other than keeping the ventilation holes open. If the amplifier is rack-mounted, ensure that adequate ventilation exists in front of and behind the amplifier. When several amplifiers are mounted together in a rack, you may need to provide air inlets from the outside of the rack. The pt1250 is fan cooled. The fan is internally mounted so that it draws air in from the rear and exhausts it out the front. The pt1250 may be stacked directly on top of other amplifiers without spacer panels. If the pt1250 is used with other amplifiers, ensure that the heat output from the other amplifiers doesn't interfere with the ventilation of the pt1250 (or vice versa).

AC Power Considerations

Ensure that the pt1250 is plugged into an outlet capable of supplying the correct voltage specified for your model and enough current to allow full-power operation of all the amplifiers plugged into it. The current demand of a power amplifier varies depending on several factors, including the impedance of the load, the output level of the amplifier, and the crest factor and duty cycle of the program material. Under typical conditions reproducing rock music, with both channels driven into a 4 ohm load to the point where musical peaks are just at the clipping point, the amplifier requires the following average currents:

pt1250: 6.7 amps for 120V versions, 3.5 amps for 230V versions

Magnetic Leakage Considerations

The pt1250 may be mounted without concern for magnetic flux leakage, within the confines of common sense. For example, it's not a good idea to mount any power amplifier near a microphone input transformer or magnetic storage media.

Input Wiring (See page 20 for information on new input module)

The 1/4-inch phone jacks and XLR connectors for the input signal can be used with either unbalanced 2-conductor or balanced 3-conductor cables. Use shielded coaxial cable to conduct the signal from the source (i.e. mixer, equalizer, CD player) to the amplifier. In addition, a ground system strap allows isolating the amplifier circuit ground from the AC line safety ground (green wire). Isolating the grounds may be necessary in some installations to break a ground loop.

This is infinitely preferable to breaking the ground pin off the power cord. The pt1250's XLR connector uses the American wiring convention (pin 3 hot). *Note that the pin 3 of the XLR connector corresponds to the tip connection on the TRS phone jack*. All input connectors are connected in parallel; you can parallel the amplifier inputs by patching an unused input connector to its counterpart on the other channel.

For balanced operation:
1/4-inch phone jack: Use a 3-conductor TRS 1/4" phone plug. The tip of the plug carries the (+, hot, non-inverting) side of the signal, the ring carries the (–, low, inverting) side of the signal and the sleeve is ground. **XLR:** Use a male XLR connector. Pin 2 carries the (+, hot, non-inverting) side of the signal, Pin 3 carries the (–, low, inverting) side of the signal, and Pin 1 is ground.

For unbalanced operation:
1/4-inch phone plug: Use a 2-conductor (Tip-Sleeve) 1/4" phone plug. The tip of the plug carries the signal and the sleeve is ground. The ring connection in the jack is automatically grounded by the sleeve. **XLR:** Pin 2 carries the (+, hot, non-inverting) side of the signal, and Pin 1 is ground. Short Pin 3 to Pin 1 in order to reference the input differential amplifier for the correct gain. **Note:** The gain remains the same regardless of whether the input is balanced or unbalanced. Note: The polarity of the balanced inputs can be reversed by changing four jumpers located on the Input Board.

Output Wiring
Use heavy gauge wire for speaker connections. The greater the distance between the amplifier and the speakers, the larger the diameter the wire should be to minimize power losses across the wire and improve the damping of the speaker. Wire thickness specifications (or gauges) get larger as the wire gets thinner; thus 14-gauge wire is thicker than 16-gauge wire. Use the following as a guide: up to 25 ft. use 16 gauge, up to 40 ft. use 14 gauge, up to 60 ft. use 12 gauge, up to 100 ft. use 10 gauge, up to 150 ft. use 8 gauge, up to 250 ft. use 6 gauge.

This will insure that the resistance of the speaker wire is less than 5% of 4 ohms, resulting in a transmission loss of less than 0.5 dB. The multi-way binding posts can accept spade lug, bare wire or banana connections. Be sure that all the fine strands of the wire are twisted together and contained within the connector. If even one strand is loose and can touch the adjacent terminal, a short circuit may result. Class I (NEC) wiring must be used.

For stereo operation, use the red and black binding posts associated with each channel. Unlike most solid-state amplifiers, the pt1250 can be operated with its output connections paralleled.

CAUTION: Internal jumpers must be moved before this connection or operating mode is allowed. These changes must be made at the Carver Professional factory, or by a qualified service technician.

Only the left input connections and level control are used in parallel mono mode. The minimum load impedance is two ohms or greater. For driving a single load (which may be comprised of one or more speakers connected in series, parallel, or series-parallel), the red binding posts must be wired in parallel (wired together) and the load connected to either red and black binding posts. In either case, ensure that the total load impedance is not lower than that listed in the specifications for the mode of operation that you have selected.

Polarity
Loudspeakers must be connected with consistent polarity for correct phasing between them. Incorrect phasing will do no physical harm, but frequency response will be affected. The key is to make sure that both speakers connected to the speaker terminals are hooked up the same way. Connect (–) at the speaker outputs to (–) on the back of the speaker, and (+) at the speaker outputs to (+) on the back of the speaker.

70V Distribution Systems

The pt1250 has sufficient output voltage capability in stereo mode to drive 70-volt distribution systems without using a step-up transformer at the amplifier. The amplifier delivers 300-watts per channel to the 70-volt system. Transformers are still required at each loudspeaker (as is the case with all 70-volt systems). By re-calculating the tap power ratings on the step-down transformers used at the loudspeaker end, the pt1250 can deliver additional power beyond 300 watts.

Clipping Eliminator

This circuit prevents the input signal from exceeding the point where it would drive the amplifier into hard clipping. It has no effect on the signal until it reaches the point where clipping would occur. The larger the input signal the more the signal is reduced to keep the output just below clipping. The Clipping Eliminator circuitry is inactive when the unit is shipped from the factory, but can be activated with the Clipping Eliminator Switch located on the front panel. **Note:** If the Input Level control(s) are turned down far enough, a sufficiently large input signal can drive the input differential amplifier into clipping. The Clipping Eliminator circuit cannot remedy this kind of clipping. Likewise, it has no effect on clipping that occurs prior to the amplifier inputs (at the mixer or equalizer stage, for example).

pt1800/2400 Installation

Location and General Precautions

Observe the following precautions when choosing a location for your amplifier.

A. Do not expose the unit to rain or moisture. If a fluid or foreign object should enter the unit, disconnect the power plug and contact an authorized dealer or service center. Do not pull out the plug by pulling on the cord; grasp the plug firmly.

B. Protect from heat and allow adequate ventilation. Place away from direct sources of heat, such as heating vents and radiators. All components produce some heat during operation, so make sure that the ventilation holes are not covered and that air is allowed to circulate freely behind, beside and above the unit. Excessive heat is the single greatest source of both short-term and long-term component failure.

Mechanical Considerations

The pt1800 and pt2400 requires three rack space units (5.25”) and a depth of 12.75” inside the rack, including the rear supports. Secure the unit mechanically using four screws with washers to prevent marring the front panel. Neoprene rubber washers are a good choice because they grip the screw head and prevent them from backing out when vibrated or transported.

Rear Support for Road Applications

In portable racks it is mandatory that the rear of the chassis be supported. The amplifier’s rear rack supports are equipped with slots that can be used to support the rear of the chassis.

Thermal Considerations

The amplifier’s heat dissipation is thermally managed by a two speed fan that produces air flow from the back to front. Side vents also move air within the chassis that effectively cool power supply components. It is essential that intake and exhaust areas of the amplifier be kept clear for maximum performance. The pt2400/pt1800 amplifiers may be stacked directly on top of each other without the use of spacer panels. Additional fans may be required in the rack if convection cooled (no fan) amplifiers are used within the same rack as the pt1800/pt2400 amplifiers. Always mount convection cooled amplifiers above the fan cooled amplifiers. Additional fans in the rack will reduce the amount of preheated air entering the fan cooled models.

AC Power Considerations

Ensure that the pt1800/pt2400 is plugged into an outlet capable of supplying the correct voltage specified for your model and enough current to allow full-power operation of all the amplifiers plugged into it. The current demand of a power amplifier varies depending on several factors, including the impedance of the load, the output level of the amplifier, and the crest factor and duty cycle of the program material. Under typical conditions reproducing rock music, with both channels driven into a 4 ohm load to the point where musical peaks are just at the clipping point, the amplifiers require the following average currents:

pt1800: amps for 120V versions, amps for 230V versions

pt2400: amps for 120V versions, amps for 230V versions

Safety Precautions

WARNING: IMPORTANT OPERATING CONSIDERATIONS FOR A.C. POWER SUPPLY CONNECTIONS. VITAL SAFETY INSTRUCTIONS:

The pt2400/pt1800 have two separate A.C. power cords, each supplying power to one amplifier channel. Each connection can draw up to 15 amperes of current, which is the maximum amount that can be supplied by a single 120 volt branch circuit. Therefore, the pt2400/pt1800 require TWO separate, independent branch circuits be provided; one for each A.C. line cord. For a typical installation in a sound system amplifier rack, studio, or broadcast facility, you must be sure that each power cord is plugged into its own branch circuit, just as if you were connecting two individual high-power amplifiers. An electrician will refer to these AC branch circuits as “dedicated circuits”, because the equipment connected to them (that is, each pt2400/pt1800 channel) will draw as much current as the circuit can supply. It follows, then, that no other equipment may be connected to these same circuits because they are already loaded to maximum capacity. The pt2400/pt1800 is not recommended for home installation, because the typical home will not have two separate, dedicated A.C. circuits available in close enough proximity to allow proper connection. If domestic installation is mandatory, a qualified electrician must be called upon to install two dedicated circuits into the location where the pt2400/pt1800 is to be used.

Magnetic Leakage Considerations

If it is necessary to locate the pt1800/pt2400 in the same rack as signal processing equipment, then some consideration must be given to their respective locations. The power amplifiers(s) should be mounted in the bottom of the rack. Space may be required and should be allowed between the amplifier and signal processing equipment. Even though the “Carver Magnetic Field” type power supply actually generates less stray magnetic field at idle than most conventional designs, the stray magnetic field produced at full power output is approximately the same as a conventional power supply design.

Input Wiring

The pt1800/pt2400 have two types of input connections: 3 pin type (XLR) and Barrier. Use the connector most appropriate to your installation. For optimum input performance with respect to noise and common mode rejection, drive the amplifier in the balanced mode configuration. Besides eliminating RFI (radio frequency interference) and EMI (electro-magnetic interference), the balanced configuration allows the signal ground between the signal source and the amplifier to be separated, thereby eliminating a potential ground loop.

Output Wiring

Use heavy gauge wire for speaker connectors. The greater the distance between the amplifier and the speakers, the larger the diameter the wire should be to minimize power loss across the wire and improve damping of the speaker. Wire thickness specifications (or gauges) get larger as the wire gets thinner; thus 14-gauge wire is thicker than 16-gauge wire. Use the following as a guide: up to 25 ft. use 16 gauge, up to 40 ft. use 14 gauge, up to 60 ft. use 12 gauge, up to 100 ft. use 10 gauge, up to 150 ft. use 8 gauge, up to 250 ft. use 6 gauge.

This will insure that the resistance of the speaker wire is less than 5% of 4 ohms, resulting in a transmission loss of less than 0.5 dB. The multi-way binding posts can accept spade lug, bare wire or banana connections. Be sure that all the fine strands of the wire are twisted together and contained within the connector. If even one strand is loose and can touch the adjacent terminal, a short circuit may result. Class I (NEC) wiring must be used. The pt1800/pt2400 has two sets of output connections per channel. They alternate vertically top to bottom Ch.1, Ch.2, Ch.1, Ch.2.

WARNING - Hazardous voltages may be present at the output terminals. Never contact the output terminals while operating the unit.

WARNING - Channel 1 and 2 red binding posts are hot and should never under any circumstances be connected together or directly to ground.

CAUTION - Make sure the total power handling capability of the loudspeakers or test loads are adequate to handle the high output capability of the amplifier. *Carver Professional will not be responsible for blown loudspeakers.* Consult the speaker manufacturer if in doubt.

For minimum noise, do not connect channel 1 and channel 2 loudspeakers return (-) black binding posts together. However, doing so will not harm the amplifier or loudspeakers. Use both sets of binding posts if multiple loudspeakers are to be connected in parallel on one channel. Maintain a minimum of 2 ohms per channel.

Polarity

Loudspeakers must be connected with consistent polarity for phasing between them. Incorrect phasing will do no physical harm, but frequency response will be affected. The key is to make sure that both speakers connected to the speaker terminals are hooked up the same way. Connect (-) at the speaker outputs to (-) on the back of the speaker, and (+) at the speaker outputs to (+) on the back of the speaker.

Dual Mono

Figure 1 shows the rear panel connections for dual mono operation. All selections and connections should be made with the power **OFF**.

Bridged Mono

Figure 2 shows the rear panel connections for mono (bridged) operation. All selections and connections should be made with the power **OFF**.

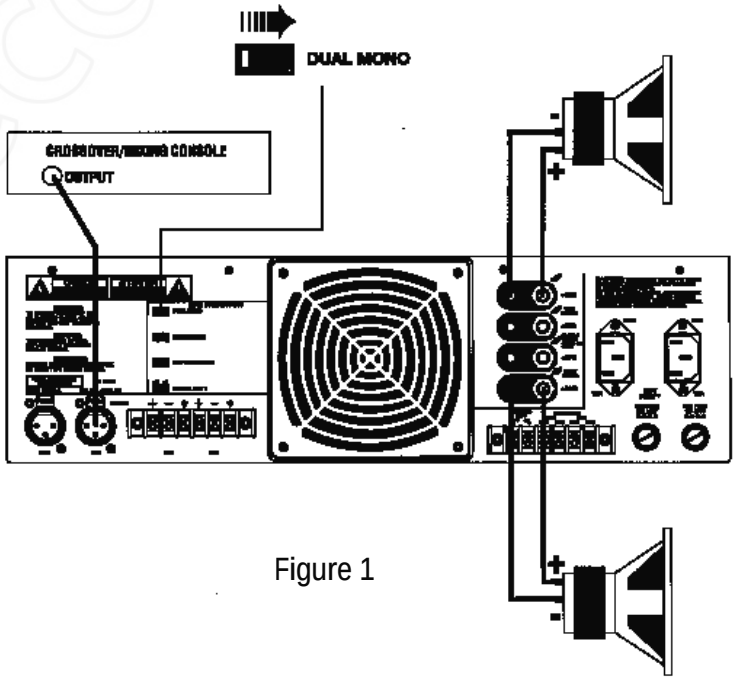


Figure 1

CAUTION: In bridged mono operation, the output connections are actually a balanced output configuration. This means that both output terminals have voltage present (neither one may be grounded).

70 Volt Distribution Systems

The pt2400/pt1800 have the capability of driving a 70 volt distribution system directly without the need for step up transformers. pt2400 in stereo 1200W/channel. pt1800 in stereo 700W/Channel. For minimum wire loss, use appropriate wire size for the length of distance travelled.

Clipping Eliminator

This circuit prevents the input signal from exceeding the point where it would drive the amplifier into hard clipping. It has no effect on the signal until it reaches the point where clipping would occur. The larger the input signal the more the signal is reduced to keep the output just below clipping. The Clipping Eliminator circuitry is inactive when the unit is shipped from the factory, but can be activated with the Clipping Eliminator Switch located on the back panel. **Note:** If the Input Level control(s) are turned down far enough, a sufficiently large input signal can drive the input differential amplifier into clipping. The Clipping Eliminator circuit cannot remedy this kind of clipping. Likewise, it has no effect on clipping that occurs prior to the amplifier inputs (at the mixer or equalizer stage, for example).

Power ON Sequencing

The pt2400/pt1800 have one sequence switch per channel that allows each channel to be powered up in 3 second intervals. The amplifiers power down at a much slower rate which is a function of the power supply decay. In very large systems it is advisable to sequence the amplifiers on and off in groups, with one master control amplifier per group.
The amplifiers come from the factory equipped with a jumper between the SND (send) terminal of channel 1 and the RCV (receive) terminal of channel 2. This programs channel 1 to be turned on first and provide the turn on signal for channel 2. The channel 2 send terminal then connects to the next amplifier's receive terminal. A DC control signal of +10 volts, 5 milliamps applied to the RCV terminal powers up the amplifier channel.

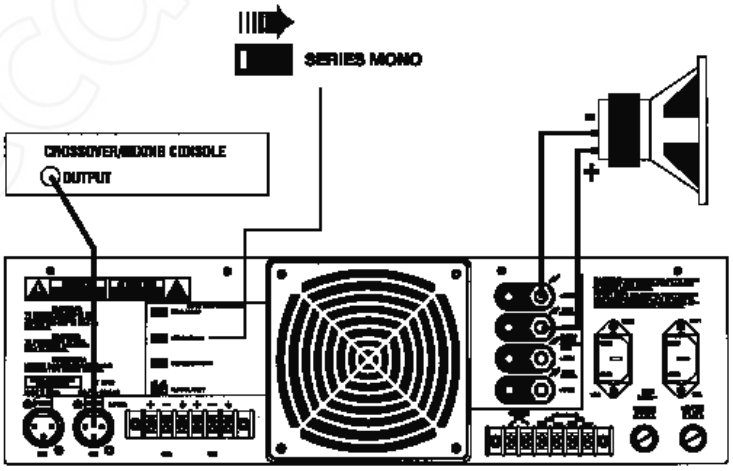


Figure 2

Fig. 3 shows a typical set up in a 3 rack with 3 amplifiers. In this case the top amplifier is the master amplifier. Its channel 1 power switch controls the power up and power down sequence for the whole rack and possibly additional racks. Channel 2 may be used as an optional backup for channel 1. All other amplifiers have power switches turned off and sequence switches turned on.

Each amplifier channel controls the next amplifier channel in succession via an internally generated +11.4 VDC control voltage that is present at the (SND) terminal. In the unlikely event an amplifier should fail, the amplifiers sequenced on after this unit will NOT turn off. The control voltage at the RCV terminal of the failed amplifier will "carry through" the failed amplifier and keep the next amplifier on. Properly operating amplifiers will not be taken out of service in a sequenced configuration by inoperative amplifiers. However, if the master amplifier (channel 1 of the first amplifier) should fail, then the following amplifiers would power down. Therefore, use channel 2 of the first amplifier as a backup to channel 1 by switching on both channel 1 and channel two power switches. Channel 1 of the master amplifier may also be backed up by connecting a +DC control voltage (battery) to it's RCV terminal and ground. The rack shown below may also be turned on by a control voltage received from another rack, or a control voltage from a remote location.

Remote Power Control

The rack shown in Figure 4 may be powered up and powered down from a remote location ie., mixing console or stage position not located near the amplifiers. It is possible to control the amplifiers independently by removing the jumper between channel 1 SND and channel 2 RCV terminals. This allows remote power on/off to an area or zone that a particular channel is assigned to.

Figure 3

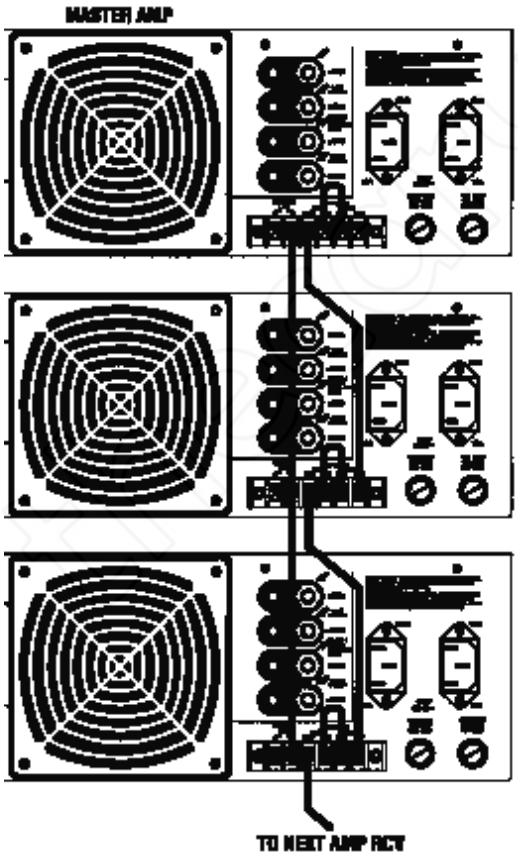
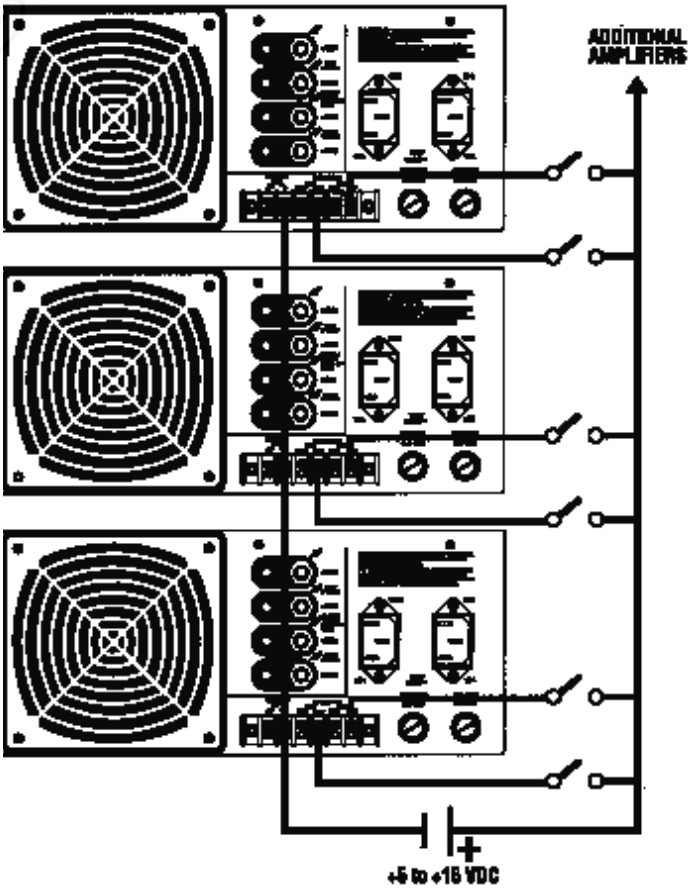


Figure 4



Operating Tips

Using the pt1250/pt1800/pt2400

Once the amplifier has been installed and wired into the system, you are ready to use it. Here are some tips to help you get the most from it.

- Verify that all switches (Stereo / Mono, Clipping Eliminator and Level Defeat) have been set to the mode that you want.
- When you power the system up for the first time (out of the carton), it's a good idea to start with all of the amplifier level controls turned down, then advance them slowly, one at a time, so that you can confirm that each amplifier channel is operating normally.
- Be sure that the Input Level controls are set sufficiently high to allow the preceding device to drive the amplifier to full output. For most installations, this is wide open (fully clockwise).
- Once you have established settings, it is a good idea to mark them down, either on paper, or on pieces of tape or sticky-dots attached to the amplifier's panel.
- In bi-amplified (multi-amp) systems, it is a good idea to start with the low-frequency amplifiers turned off or down, and to check each frequency range from highest to lowest to ensure that each loudspeaker component is operating correctly.

In Case of Difficulty

If you're having trouble or suspect a problem with the pt1250/1800/2400, try some simple troubleshooting before contacting an Authorized Carver Professional Service Center.

No Sound, No Power

This is usually an indication of a power supply problem, either the power line itself or the amplifier's power supply.

1. Amplifier power is switched off.
2. Linecord is disconnected.
3. Poor fit between the plug and AC receptacle.
4. Power off at AC receptacle (check with tester or lamp).
5. The amplifier is plugged into a switched outlet. Verify that the outlet is live.
6. Amplifier fuse has blown. Check and replace fuse.

Power On, Low Output or No Output

Low or no output problems are usually signal-source, bad cable or partial output short circuit related. If the items listed below check out, then the problem may be internal to the pt1250/1800/2400.

1. The Input Level controls are set too low.
2. Move the input connections to another amplifier that you know is working to verify that it is not a source problem.
3. Check the speaker connections. Be sure that there are no small strands of wire touching similar strands coming from the other wire in the cable.
4. Make sure the speakers are functioning correctly.
5. If you are using bridged-mono mode, ensure that the Stereo/Mono switch is set correctly.
6. Use a voltmeter to determine if the power line voltage is dropping excessively when the amplifier is driven hard.

Playback Is Mixed with Hum

1. Check or replace the connecting cables.
2. Make sure that each screw terminal connection is tight.
3. Signal cables may have been routed too closely to AC cables, power transformers, motors or another type of EMI inducing device.
4. Try connecting another source to the power amplifier inputs. If the hum stops, the problem lies with the original source component.

Distortion

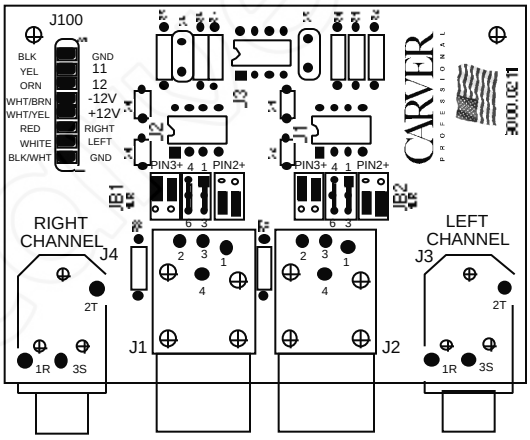
Distortion is usually caused by excessive loss in the input controls (the mixer/equalizer/crossover can't produce enough output), overdriving resulting in output clipping, or current limiting caused by excessively low load impedances.

1. Check the setting of the Input Level controls. If set too low, the preceding piece of equipment may not have sufficien output to overcome the loss.
2. Check the speaker connections and verify that all screw connections are tight and that there are no stray strands of wire to cause short circuits.
3. Verify that the total load impedance presented to the amplifier is within the limits described in this manual for the mode of operation selected.

Care and Service Assistance

Care: Wipe off the pt1250/1800/2400 front panel and chassis from time to time with a soft, dry cloth. If you have something stubborn to remove, use a mild dish soap or detergent sparingly applied to a soft cloth. Don't use alcohol, ammonia, or other strong solvents.
Service Assistance: We suggest that you read the Limited Warranty completely to fully understand your warranty/service coverage. Please promptly complete and return the Warranty Registration Card. Also be sure to save the sales receipt in a safe place. It will be necessary for warranty service. If your CARVER Professional product should require service, you may contact the CARVER Professional Technical Service Department by calling (503) 978-3363 or by writing to us at the Factory address shown below. We will then direct you to the nearest in our national network of Authorized Warranty Service Centers or give you detailed instructions on how to return the product to us for prompt action. If you should have questions or comments, please write to the Factory address given below. Please include the model and serial number of your Carver Professional product, your complete address and a daytime phone number.

I/M pt1250 (Replacement input board for PM 2.0t and pt1250)



● **Improved CMRR >80dB @ 1kHz**

The "NEW" I/M pt1250 resolves some of the common complaints of the pt1250. Redesigned using the SSM2141 op-amp to provide greatly increased CMRR, the I/M pt1250 now attains common mode rejection >80dB @ 1kHz or >70dB @ 20kHz. This allows the use of long input lines in electrically noisy environments without annoying noises becoming part of your program.

● **Flatter broadband frequency response**

The frequency response of the new input board is flat from 20Hz to beyond 200kHz +0, -0.2dB.

● **New grounding scheme eliminates ground loops**

An improved grounding scheme shortens the chassis ground path to millimeters eliminating ground loop problems.

● **New user selectable (pin2) or (pin3) hot**

A jumper on the input board allows the user to select (pin2) or (pin3) as the hot leg of the XLR connector.

Warranty Information

pt1250
pt1800
pt2400

Professional Power Amplifiers: 5 years

WHAT IS COVERED:

THIS WARRANTY COVERS DEFECTS IN MATERIALAND WORKMANSHIP ONLY. This limited Warranty DOES NOT extend to: 1) Damage caused by shipment, 2) damage caused by accident, misuse, abuse, failure to perform owner maintenance, or operation contrary to the instructions in the Carver Professional owner's manual, 3) units on which the serial number has been defaced, modified or removed and 4) damage resulting from modification or attempted repair by any other person than authorized by Carver Professional.

WHAT WE WILL PAY FOR:

Carver Professional will pay all labor and material expenses for items covered under this Limited Warranty. See the next section concerning shipping charges.

WHAT YOU MUST DO TO OBTAIN WARRANTY SERVICE:

In the event your Carver Professional product requires service, contact your Carver Professional authorized dealer/contractor **or** contact Carver Professional (ATTN: Customer Service Dept.) 9300 N. Decatur, Portland, OR 97203 or call the Customer Service Department directly at (503) 978-8510. You will be directed to an Authorized Carver Service Station or receive instructions to ship the unit to the factory. Please save the original shipping carton and packing materials in case shipping is required. **Please do not ship Parcel Post.** Include a complete description of the problem, the associated components and connections, and a copy of the purchase receipt. Initial shipping costs are not paid by Carver Professional. Return shipping costs will be pre-paid if repairs were covered by the scope of this warranty.

YOU MUST RETAIN AND PROVIDE YOUR SALES RECEIPT TO OBTAIN COVERAGE UNDER THIS LIMITED WARRANTY.

The warranty Period begins from the date of first consumer purchase from an Authorized Carver Professional Dealer. LIMITATIONS OF IMPLIED WARRANTIES: All implied warranties for merchantability and fitness for a particular purpose are limited in duration to the warranty period for your product, unless otherwise provided by the state law.

EXCLUSION OF CERTAIN DAMAGES:

In no event shall Carver Professional be liable for property or any other incidental or coincidental damages which may result from the failure of this product. If your Carver Professional product proves defective in material or workmanship, the liability of Carver Professional shall be limited to the repair or replacement, at the option of Carver Professional, of any defective part.

STATE LAWS MAY DIFFER:

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

OTHER IMPORTANT PROVISIONS:

Carver Professional reserves the right to make changes in design and improvements to its products without the responsibility of installing such changes to improvements on products previously sold by Carver Professional. We suggest that you attach your purchase receipt to this Warranty and keep both documents in a safe place. Thank you for your choice of a Carver Professional Amplifier.

NOTE:

The following warranty is exclusive to the United States and its possessions and territories. Please see your Carver Professional dealer or distributor for the correct warranty information in your area or locale.

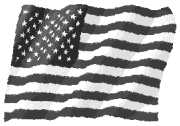
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Made In America

5 Year Warranty

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