



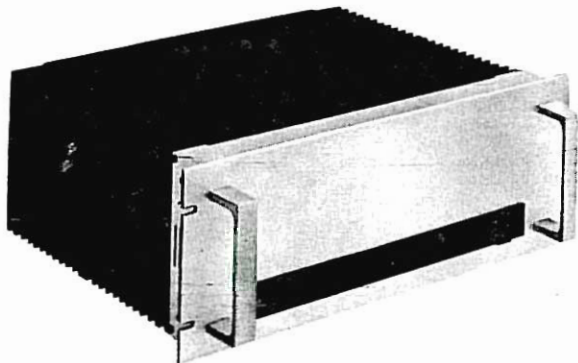
## OWNER'S MANUAL

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# PMF2150B

DUAL CHANNEL POWER AMPLIFIER

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# 2150B specifications

**Rated power:** 200 watts per channel continuous, both channels driven into 8 ohms from 20 Hz to 20,000 Hz at no more than 0.009% THD from 0.25 watts to rated power  
400 watts per channel continuous into 4 ohms.

**Comment:** The FTC requirements for rating amplifier power have a loophole that is not widely understood. The requirement is that amplifiers be run for one hour at one-third power before they are measured. This is the most strenuous level for an amplifier to maintain, and some amplifiers will be shut down by their protection circuits in a matter of seconds. When they are cool enough, they resume operation until the next shutdown. An amplifier could be capable of one-second bursts of power, be shut down for a minute by its protection circuitry, resume operation for another second, shut down again, etc. After 60 hours of this on-off cycle, the amplifier would have accumulated the required hour and pass the FTC test.

The Perreux circuit design and heat dissipation systems that eliminate the need for protection circuits or fans also allow the Perreux to undergo this rigorous test for a solid uninterrupted hour.

**\*Distortion: 0.009% THD and IM.**

**Comment:** FTC requirements are met with measurements made with fixed resistive loads. But since speakers aren't purely resistive, an amplifier's distortion specifications don't indicate what its performance will be with the actual loads presented by speakers. Perreux's distortion measurements hold for any conditions presented by any known speaker. Further, any measurable distortion in the Perreux is second-order harmonics, the least offensive to the ear.

**\*TIM distortion: Unmeasurable.**

**Comment:** Under any test procedures, there is no measurable indication of TIM in the Perreux.

**Bridged power:** More than 600 watts continuous, 20 to 20,000 Hz, into 8 ohms.

**Comment:** Bridging any amplifier, including the Perreux, from stereo to mono to increase its power, will cause phase shifts affecting half its waveform. Also, unlike the unbridged mode, power will not necessarily increase when impedance drops below 8 ohms. Some stereo amplifiers are permanently bridged internally as an inexpensive way to increase rated power at 8 ohms. In the Perreux, neither stereo channel is bridged except by means of the rear panel switch.

Despite the superiority of Perreux switchable bridging circuitry, we recommend bridging only for sub-woofer use or to power the woofer section in a bi-amped system.

**\*Dynamic headroom: 3 dB or greater with music.**

**Comment:** This indicates that the Perreux can provide double its normal power rating to cope with the sharpest musical transients. Without adequate headroom, an amplifier can become unstable under clipping conditions. Perreux amplifiers are intrinsically stable under all dynamic conditions.

When the Perreux is driven into clipping (and this won't be easy), whatever harmonic distortion that does occur is virtually all even-order harmonics. This type of distortion is audibly less irritating than odd-order harmonics and is somewhat responsible for the high esteem in which tube amplifiers are still held.

**Amplifier saturation: 700 watts or greater per channel into 8 ohms.**

**Comment:** This is a new term that describes an amplifier's capability under highly stressed overload conditions. Anyone seeking to drive a modern speaker to concert-hall levels using direct-to-disc or digitally-mastered material is likely to be overdriving his amplifier on transients with high peak signal values. The degree to which an overdriven or clipped amplifier will audibly misbehave depends on such factors as the level, duration and frequency of the clipped signal—and the stability of the amplifier's circuits and the type of protective circuitry (if used).

The Perreux can be expected to remain unconditionally stable during the worst of the conditions mentioned above. As mentioned elsewhere, the Perreux has no protection circuitry (other than a common rail fuses) because it doesn't need any. Beyond that, the Perreux is designed throughout for real-world music-signal conditions, not simply test-bench sine waves. As a result, the amount of output the Perreux is capable of delivering before clipping becomes audible and disturbing is approximately four times its rated power into an 8-ohm load.

**Voltage swing: 164 volts peak to peak per channel**

**Comment:** Loud transients call for a sudden burst of power from the amplifier to drive the speakers. This force is voltage. Peak voltage is a more useful specification than watts when it comes to delivering power to a speaker. The test for power in watts uses a purely resistive load, even though no speaker is purely resistive.

**Maximum current output: 10 amperes continuous per channel, fuse limited.**

**Comment:** Current is the power reserve in the amplifier necessary to deliver the bursts of voltage required by the ever-changing audio signal. With 10 amps continuous current per channel and 164 volts peak to peak, the 2150B can easily meet any challenge music can present to it, whether instantaneous or continuous. To be specific, it can deliver enormous power into low-impedance loads, and also provide great dynamic headroom.

**\*Rise time: Typically less than 1 microsecond.**

**Comment:** A rise time of 1 microsecond is far faster than the duration of any musical transient.

**\*Bandwidth: -0.1 dB from 10 Hz to 3,000,000 Hz at 1 watt**

**Comment:** This spec also calls for understanding as to its significance with music. With extraordinary bandwidth like this, distortion remains low in the audio band, and the damping factor remains good up to the high frequencies.

**\*Phase response: +1° at 20 Hz, -1° at 20,000 Hz**

**Comment:** This exceptional phase accuracy assures that the subtle tonal characteristics and inner structure of the original recording will be maintained. It is also responsible for maintaining proper imaging and the soundstage width and depth.

**\*Open loop frequency response: Greater than 500,000 Hz at 1 watt**

**Comment:** This refers to an amplifier's frequency response before signal correction (such as negative feedback). Open-loop frequency response is important because excessive use of feedback can worsen the performance problems it was meant to correct.

Typically, an amplifier's frequency response starts to roll off within the audio band. By maintaining open-loop frequency response well beyond the audio band, Perreux assures that all in-band audio signals are handled in the same manner. That is with equal signal correction applied to all frequencies. Distortion does not increase with frequency, the damping factor remains high, rise time remains fast, and TIM is not measurable.

All this separates the amplifiers that need large amounts of feedback to correct mediocre design from those amplifiers that are inherently excellent and perform superbly with a minimum amount of signal correction.

**\*Channel separation: 20 Hz to 20,000 Hz, greater than 60 dB**

**Comment:** Another revealing specification. This result comes from Perreux's power supply design (affecting the low end), and the care taken in lead dress and construction (affecting the high end).

**\*Hum and noise: 100 dB below rated output, 20 Hz to 20,000 Hz unweighted**

**Comment:** This is an unweighted figure. Higher figures can be stated with weighting, of course.

**\*Damping factor: Over 500 from 10 to 1,000 Hz.**

**Comment:** Another specification not always provided. One reason perhaps. This spec is important when indicating an amplifier's ability to control the cone behavior of speaker systems that are difficult to drive.

**\*Input sensitivity: 1.5 volts RMS for rated output at 1,000 Hz**

**Comment:** Indicates that any preamplifier can drive this amplifier to full output.

**Input impedance: 10,000 ohms**

**Comment:** Meets international standards for preamplifiers. Minimizes interaction with interconnect cables.

**Dimensions: (WxHxD) 48x18.5x40cm 19x7-1/2x15-1/2" Plus 4 5 cm (1 1/2") for front handles**

**Weight: 22 kg (48 lbs.) net 23.5 kg (52 lbs.) shipping.**

**\*Specifications subject to change without notice.**