

4 Operation

4.1 Precautions

Although your amplifier is well protected from any external faults, we recommend the following precautions be taken for safe operation:

1. When using input sources of uncertain level or any audio components which have not previously been used with your amplifier, always begin with the level controls at a minimum and gradually increase them while monitoring the audio output level to avoid suddenly blasting the loudspeakers.
2. Don't forget that the D-150A II has no turn on delay. Beware of turn-on transients from other equipment ahead of the amp—always turn the amp on last after the other equipment has stabilized.
3. Turn the amplifier off and unplug it from the AC line before replacing the fuse. (The unit must be totally disconnected from the AC power source because the fuse socket is still powered even when the unit is turned off.)
4. Operate the amplifier with the correct fuse (6.25 amp MDX-type for 100 or 120 VAC; 3 amp MDA-type for 200, 220 or 240 VAC).
5. Never drive a transformer-coupled device (such as an electrostatic loudspeaker) or any other device which appears as a low-frequency short (less than 3 ohms) without a series isolating capacitor. Such operation may damage the load and/or needlessly activate the amplifier's VI limiting.
6. Operate the amplifier from AC mains of not more than 10% above the selected line voltage and only the specified line frequency (50, 60 or 400 Hz). Failure to comply with these limits will invalidate the warranty.
7. Never connect the output to a power supply output, battery, or power main. Damage incurred by such a hookup is not covered by the warranty.
8. Do not expose the amplifier to corrosive chemicals such as soft drinks, lye, salt water, etc.
9. Do not tamper with the circuitry. Circuit changes made by unauthorized personnel, or unauthorized circuit modifications, will invalidate the warranty.

4.2 Controls

Independent level controls, a power switch and a power indicator are located on the front panel. Both level controls are used in STEREO mode, but only the Channel 1 control is used in MONO mode. They are used to adjust the desired output level. The amplifier gain is 26 dB as determined by 1% precision resistors in the feedback loop.

The operation mode is switched between STEREO and MONO by the Stereo/Mono switch located on the back panel. Also located on the back panel is an AC line fuse.

In addition to the above essential controls, your high-performance amplifier has an IOC (Input/Output Comparator) indicator for each channel. These red LEDs are located on the front panel above the level controls. They will flash or glow whenever the distortion specifications of the amplifier are being exceeded. (It is normal for them to glow for about one minute after the AC power is turned off.)

4.3 Protection

The D-150A II is protected against all the common hazards which plague high-powered amplifiers, including: shorted, open and mismatched loads; overloaded power supplies; excessive temperature; chain destruction phenomena; input overload damage; and, high frequency overload blowups.

Protection against shorted and low impedance loads is provided by the Signal Programmed Automatic Current Executor (SPACE control). It functions as an automatic current limiter at audio frequencies whose current limiting threshold is dependent on the history of the output signal. Output current causes the threshold to increase. The no-signal threshold is high enough to allow tone bursting (even into 4 ohms) without premature limiting, as is found in some recent products of other manufacturers.

Since the limiter has no instantaneous response to output voltage, flyback transients do not appear in the output when limiting occurs on inductive loads. (Flyback transients are a normal by-product of VI limiting, also called "Energy Limiter," with an inductive load. The amplifier yields to the inductive load which causes the load to emanate a pulse. This returned inductive energy has the opposite polarity or the original pulse—hence the name "flyback" pulse. It results in a rasping, popping distortion which is very irritating.)

Because the current limiter of the D-150A II will not yield to the constant current demands of an inductive load but will sustain them, it is immune to flyback distortion.

Early amplifier designs frequently employed fixed current limiters, reducing flyback transients, but had serious difficulty obtaining reliable low frequency output—especially at full-voltage into 4 ohm loads. In addition, many early designs used fragile epi-base or triple-diffused outputs which mated poorly to the current limiting protection schemes used and resulted in low performance. The D-150A II uses two multiple epitaxial silicon power transistors per channel. Their toughness allows the reliable use of a current limiter. And since the SPACE control adjusts the