Congratulations on your choice of the Boulder 160 Power Amplifier. In order to realize the full sonic potential of this amplifier, we ask that you take a few minutes to read these instructions.

The Boulder 160 is a two stage amplifier with the first being a differential input JFET operational amplifier circuit having 20 dB of voltage gain. This allows the second stage to operate at only 6 dB of gain. Level controls (on most models) are provided between the stages to allow checking the input signal when first connected or patched.

The optimum setting of the level controls is in the "0" (full clockwise) position. This ensures that the first stage will not be near its clipping point. If necessary, up to -3 dB of attenuation may be used without risking audible clipping. Further attenuation should only be used for reduced output level situations such as muting. The clip lights do not indicate first-stage clipping.

The clip lights will start to illuminate somewhat (1-6 dB) before actual clipping occurs depending on the particular loudspeakers used. Therefore, some occasional clip indication at high levels is allowable.

The amplifier is shipped with the differential inputs disabled, since unbalanced mode is most often used. To enable the differential mode, move the jumpers on the PC board from "UNB" to the "BAL" position. NOTE: If the unbalanced Phono inputs are used, the input mode should be left unbalanced by setting the jumpers to the "UNB" position. Alternately, unbalancing may be accomplished by connecting pin 2 (10) of the 3-pin input connector to pin 1 (ground).

The phase of the amplifier is such that a positive-going transition at pin 3 or the phono jack will produce a positive-going transition at the "+" (red) output terminal.

For mono operation, push the rear panel switch so that it stays in the "in" position. Only signals into the left input are used in mono. The left channel red output terminal is now "+", and the right channel red output terminal is now "-". Note the markings on the rear panel.

Because of current-limiting protection circuits, it is not recommended to drive a 4 Ohm (or less) load in mono operation. No further headroom will be available in mono operation (as compared to stereo) into 4 Ohms. Also, the damping ratio is halved in mono operation, which may affect sonic qualities.

For best sonic results, we recommend the use of low characteristic impedance speaker cable. A coaxial type such as Mogami #2477 or #2513 has high distributed capacitance giving impedances lower than 10 ohms. Care should be used when trying this cable on other amplifiers, as the distributed capacitance may cause less stable designs to oscillate.

A termination network of .022uF in series with 10 ohms should be used at the speaker terminals to reduce reflections in the speaker cable. These values really depend on the speaker impedance above 20KHz, but in most instances will work well.

The green indicator light in the circuit breaker will remain steadily on when powered up. A blinking indication shows either a thermal overload (which takes about 2 minutes to reset itself) or loss of mains power to the amplifier. This latter indication will only last about 25 seconds.
1. ACD 100 FOR LEFT, 200 FOR RIGHT - SEE FIG. 6.
NOTES:

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