Dynaco Stereo 80
Basic Stereo Amplifier Kit

MANUFACTURER'S SPECIFICATION

Frequency Response: 10 Hz to 50 kHz ±0.5 dB. **Power Bandwidth (IHF):** 8 Hz to 50 kHz half power output at less than 0.5% total harmonic distortion into an 8-ohm load. **Harmonic Distortion:** Less than 0.5% at any power level up to 40 watts per channel into 8 ohms at any frequency between 20 and 20 kHz. Distortion decreases at lower power levels. **Intermodulation Distortion:** Less than 0.1% at any power level up to 40 watts per channel into 8 ohms with any combination of test frequencies. **Noise:** 90 dB below rated output. **Damping Factor:** Greater than 40 from 20 Hz to 20 kHz. **Separation:** More than 60 dB from 20 Hz to 10 kHz. **Input:** 100k-ohms; 1.3 V for 40 watts output. **Dimensions:** 14" D x 8" W x 4" H. **Weight:** 13 lbs. **Price:** $119.95 (kit); $159.95 (wired).

Neat, compact, and effective, are three words that come to mind when one considers the Dynaco Stereo 80 basic amplifier, available either as a kit or factory-wired, as desired. For the difference in price of $40.00, most audio buffs would prefer to build the kit, since it can be completed easily in less than six hours, largely because the printed-circuit amplifiers are already assembled and tested.

There is relatively little difference in the amplifier circuits of the Stereo 80 and the earlier Stereo 120. Circuit configuration is the same, the output transistors are the same, and the performance—allowing for the difference in maximum power output—is the same. The main difference between the two is that the Stereo 120 uses a regulated power supply so that the supply voltage remains constant over the entire range from no-signal to full-power output, whereas the supply voltage in the Stereo 80 drops as the output power increases. In fact, the manufacturer claims that "if they used an external power supply to maintain constant power-supply voltages, they could rate the Stereo 80 at the same power as the Stereo 120."

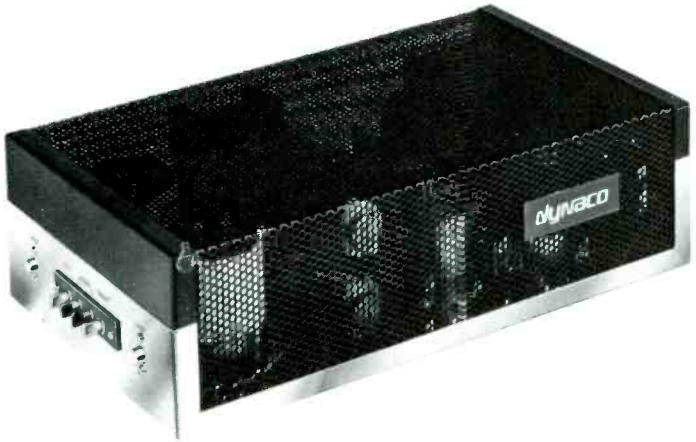
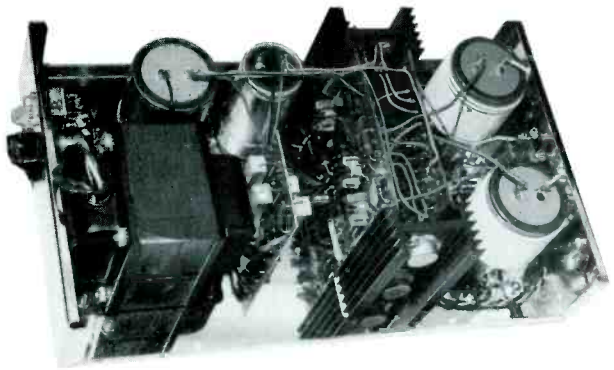


Fig. 1—Dynaco Stereo 80 Power Amplifier Kit.

Circuit Description

The input is fed through a coupling capacitor to a direct-coupled pair of transistors with d.c. feedback from the emitter of the second to the base of the first, providing both stability and linearity. This section drives a complementary-symmetry pair to provide the necessary phase inversion to drive the output transistors in the conventional single-ended push-pull configuration. The complete amplifier except for the output transistors is mounted on a single printed-circuit board for each channel, with the out-



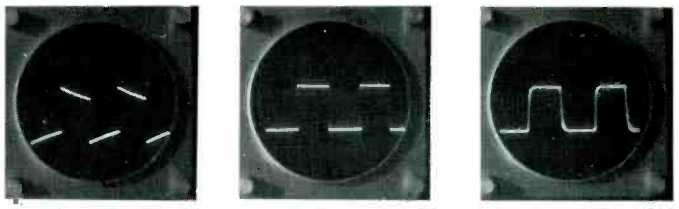


Fig. 2 (above)—Square-wave response of Stereo 80 at 100, 1000, and 18,000 Hz.

Fig. 3 (left)—Interior of Stereo 80 shows neat construction which is easily completed by the kit-builder in about six hours.

put transistors located on a heat sink for each channel. The heat sinks are on opposite sides of the chassis, with the transistor tops facing outward, and grooves in the heat sinks serve to hold the printed-circuit boards in place, resulting in a minimum of work in assembly.

The power supply components—except for the transformer itself—are mounted on a small printed-circuit board which is attached to the "chassis" between the transformer and the amplifier area. The chassis consists of the bottom plate with the ends bent up to serve for the connections, power switch, and fuse, and with a narrow flange bent up along the sides to restrain the perforated metal cover. The chassis/base is chrome plated, and the metal cover is finished in satin black—in all, a net and attractive package.

Coupling to the loudspeaker loads is through 5000-μF capacitors and an r.f. choke which is wound of 16-ga. wire around the capacitors. The chokes measured approximately 3 microhenries in inductance, a value which is commonly used in transistor amplifiers to roll off response in the region above 500 kHz so as to reduce interference and provide absolute stability.

The output terminals are on a strip on the rear apron of the chassis, and are suitably spaced. Terminals are fitted with neat screws which are shaped for easy turning with the fingers and require no tools to make the connections. The inputs are the usual phono jacks, mounted adjacent to the output terminal strip. On the other end are the fuse holder and the power switch, the latter illuminated when power is on. The power transformer has two tapped primaries so as to permit connecting for 100, 120, 220, or 240 volts. This is an especial advantage for those who may wish to use the unit in areas where the supply voltage differs from the usual 117 available in the U.S., or for those who have consistently low line voltages in their areas.

Performance

In all our measurements, we found that the unit performed in accordance with the specifications. And although the specs do not list power outputs at other than the rated 8 ohms, we did measure this parameter. At the rated 8 ohms, we measured an output of 42 watts with both channels operating and a line voltage of 120 and at a THD of 0.5 per cent. At 1 watt, THD reached a much lower value—approximately 0.25 per cent on one channel, and 0.2 on the other. With a 4-ohm load, we measured a maximum output of 25 watts per channel, both operating, at the rated 0.5 per cent THD, and with a 16-ohm load, the maximum output was 14 watts per channel for the same conditions.

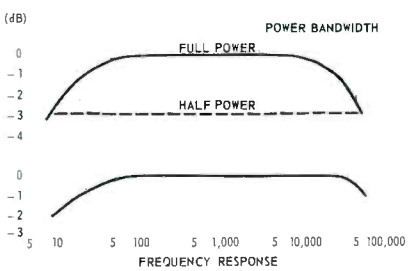


Fig. 4—Curves showing power bandwidth of the Stereo 80, and its frequency response at the 1-watt output level.

Power bandwidth came within specifications—8 Hz to 52 kHz at half power and the same distortion, and separation measured 63 dB with maximum signal on one channel and none on the other. We also measured S/N, and found a figure of 92 dB below rated output. Square-wave response came up to expectations, considering the output coupling capacitor which invariably introduces some slope in the waveforms at the lower frequencies, but as high as 18 kHz, the waveform remained excellent, and indistinguishable from the source. Photos of these responses are shown for 100, 1000, and 18,000 Hz.

The final test of any device in the audio realm is the actual listening, and in this department the Stereo 80 did exceptionally well in comparison with a number of other amplifiers of unquestioned quality. The reproduction had the crispness we have learned to expect from any high-quality solid-state amplifier, and it had the full roundness of tone one likes to hear. Driving the amplifier into admitted overload did generate unpleasant distortion, but the amplifier recovered immediately, and the ears suffered only during the actual overload and not for several seconds afterward. This was more noticeable when observing the output of a 'scope, since one could see the distortion plainly during overload, but immediately the signal was lowered, the waveform came right back to normal. On the whole, the Dynaco Stereo 80 is a rewarding project—one from which you should get some pleasure in building, and one from which you are certain to get a lot of enjoyment from listening.