LOW COST 20 W AUDIO AMPLIFIER

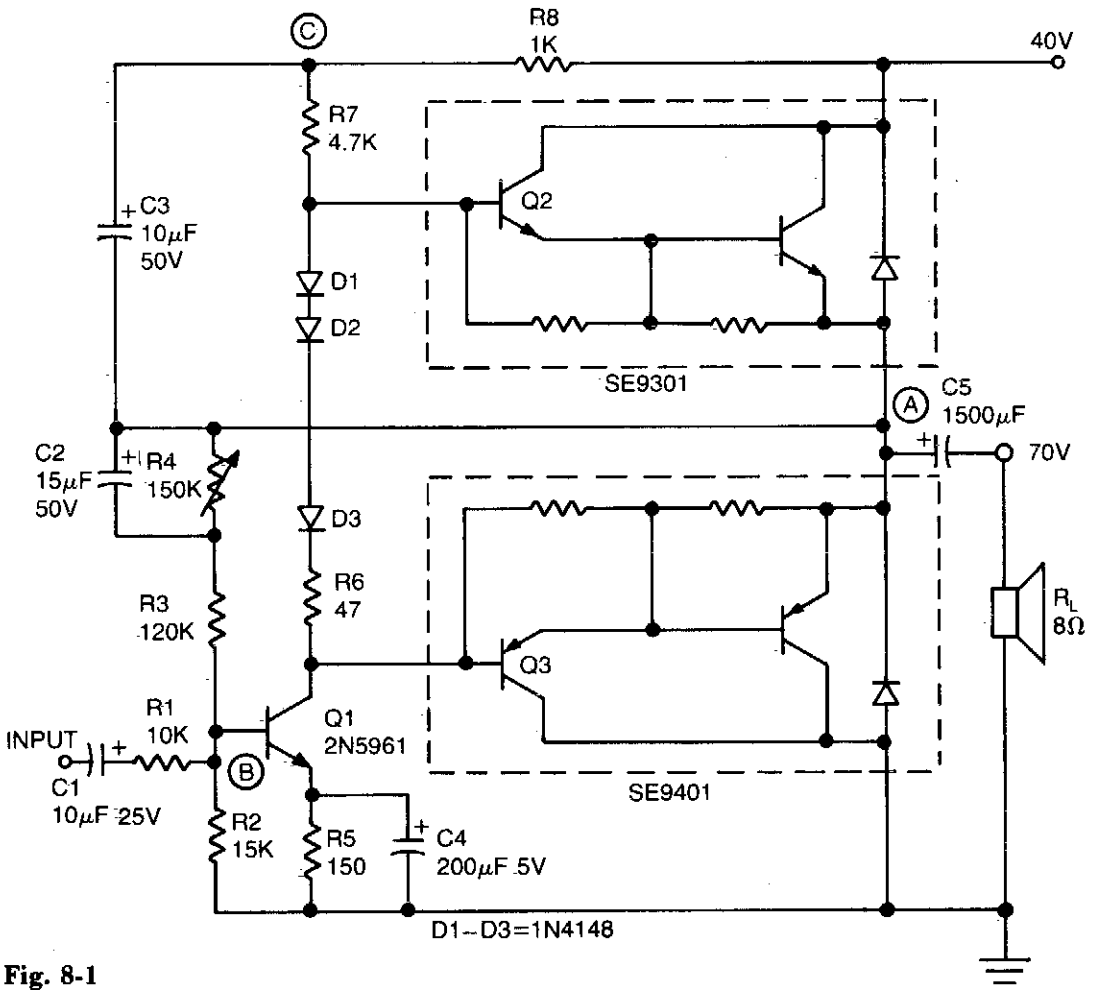

Fig. 8-1

Circuit Notes

This simple inexpensive audio amplifier can be constructed using a couple of TO-220 monolithic Darlington transistors for the push-pull output stage. Frequency response is flat within 1 dB from 30 Hz to 200 kHz with typical harmonic distortion below 0.2%. The amplifier requires only 1.2 V_{rms} for a full 20 W output into an 8 ohm load. Only one other transistor is needed, the TO-92 low-noise high-gain 2N5961 (Q1), to provide voltage gain for driving the output Darlingtons. Its base (point B) is the tie point for ac and dc feedback as well as for the signal input. Input resistance is 10 K. The center voltage at point A is set by adjusting resistor R4. A bootstrap circuit boosts the collector supply voltage of Q1 (point C) to ensure sufficient drive voltage for Q2. This also provides constant voltage across R7, which therefore acts as a current source and, together with diodes D1-D3, reduces low-signal crossover distortion.