



Electronics for Model Railroads

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INCREASING THE VOLUME OF THE DIESEL HORN CIRCUIT

The **CIRCUITRON DH-1** is a low-cost diesel horn simulator that effectively duplicates the 3-chime tone of many common locomotives. The circuit was never designed for concert-hall acoustics, and the small 2" - 2 1/4" speaker provided with the unit is capable of a limited amount of audio output. In the majority of home layouts, the volume level of the stock unit is entirely adequate, but in some cases of large layout size, or high background noise levels, it may be desirable to increase the volume.

The stock components on the **DH-1** limit the audio output to about 1/2 watt, the capacity of the small speaker provided with the unit. Without modifying the circuit, it is possible to realize dramatically increased volume (and much better tone as well) by substituting an efficient, heavy magnet speaker of about 5 1/4" - 6 1/2" diameter. The speaker should be designed for full range reproduction (rather than a woofer or mid-range design), and *must* be properly baffled to realize the full potential. Suitable speakers are available at Radio Shack and any store that sells automotive speakers. You may even have an old low-cost stereo unit or portable "boom-box" that no longer works that might be a good source. The speaker should be rated 8 ohms impedance.

To achieve higher volume levels will require modifying the circuit board or supplying an outboard amplifier. The **CIRCUITRON** factory can change components on the **DH-1** and install a heavy-duty output transistor. This change will yield audio outputs in the 1.5 - 2 watt range, depending upon speaker type and impedance. *CAUTION: The stock speaker should not be used with a modified board.* The cost for this modification is \$15.00 including shipping and handling. A check for the full amount should be included when you return the board to us. You do not need to return the box, pushbutton or speaker.

It is possible to send the **DH-1** output into the input of a standard audio amplifier. Some automotive amps are designed to accept speaker level inputs directly, but home stereo amps generally can not accept the high level output of the stock **DH-1** board without first reducing the amplitude. This may be done by connecting the two outside terminals of a 1000 ohm potentiometer to the [SPEAKER] terminals on the **DH-1** circuit board. Output to your audio amplifier is then taken from the CENTER terminal on the potentiometer and the [-] SPEAKER terminal. Adjust the potentiometer to a level that does not overdrive the input section of the outboard amplifier. Use the amplifier volume control to set your ultimate output level.