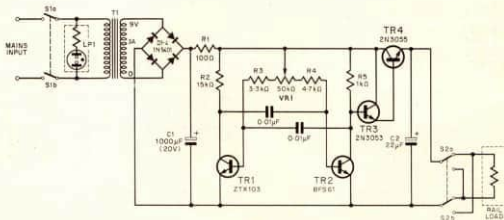


# MODEL TRAIN SPEED CONTROLLER



**Fig. 1**

**T**HE main disadvantage with many model train controllers is that they do not give a linear control of train speed. The following circuit gives a linear control enabling the train's speed to be set anywhere between a very slow pace and full speed (Fig. 1).

Mark-space variation in oscillator output is used to change the power output to the motor. Circuit operation is as follows: T1, the bridge rectifier and C1 provide a smooth d.c.

supply of about 12V to the motor. S2 reverses the train's direction of travel. TR1 and TR2 form an astable multivibrator whose frequency of operation is about 200Hz and whose mark-space ratio is variable from about 1:11 to about 18:1.

The output from TR2 is current amplified by the Darlington pair TR3 and TR4 and applied to C2 and the motor. S2 reverses the train's direction of travel.

R1 serves as a current limiting re-

sistor in the event that the rails are shorted together.

Transistor types and component values are not too critical and the circuit can probably be built up from near value components. Component layout is not critical and the circuit can easily be built on a small piece of Veroboard.

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