Analogue Speedometer

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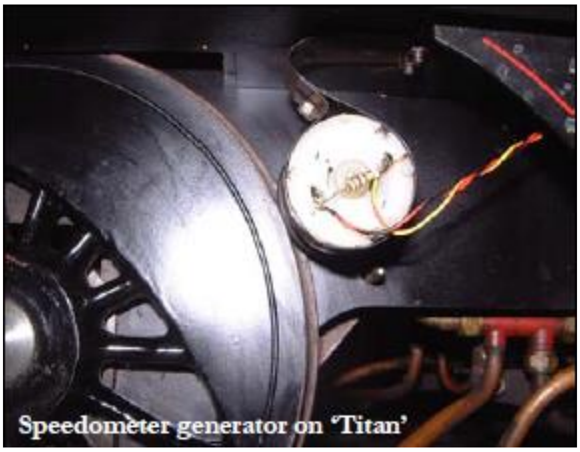
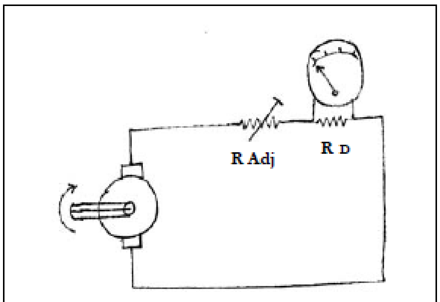
I have in the past used a cycle speedometer on a driving car to keep a check on speed and distance, but I found that viewing a changing digital display was less than ideal. The batteries were always flat when I needed it and a flat battery meant tedious recalibration. An analogue display can be read at a glance and the easiest way to achieve that is to use an electrical generator coupled to the wheels and driving a meter display. Any permanent magnet DC motor will act as a generator with a voltage proportional to speed. On the SECR C class and now on the NER TI, I simply sprung mounted a motor and rubber tyred (O-ring) pulley contacting the rim of the rearmost driver. On the Class 08 shunter it is in contact with an intermediate drive shaft. The best kind of motor to use is one with an ironless rotor – when you spin one with your fingers, you can't feel any cogging.
The pressure on the wheel need only be very light or the rubber tyre and the bearings will suffer.
All that remains is to fit a meter and a suitable resistor in series, which is used to calibrate the indicated speed. For the Class 08 I used a cheap milli-ammeter but on the C class and T1 I used the movement from a tiny indicator (Radiospares) by re-housing it in a brass case with a suitable scale. A resistor fitted in parallel with the meter will damp out any effects of vibration and the series resistor is selected to provide the required calibration.

Speedometer on 'Titan'



Speedometer generator on 'Titan'



Speedometer Circuit