Unknown 2" Green Line Tachometer
Reverse Engineering Report, Rev 1.1
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I received a tiny 2" diameter 8K tachometer to take a look at. It looks a little bit like a small version of a Sun Greenline tach, but there is no manufacturer's mark on it. It has 2 terminals, one marked "+" and one marked "-", and a sticker that says "8 Cylinder Use.".

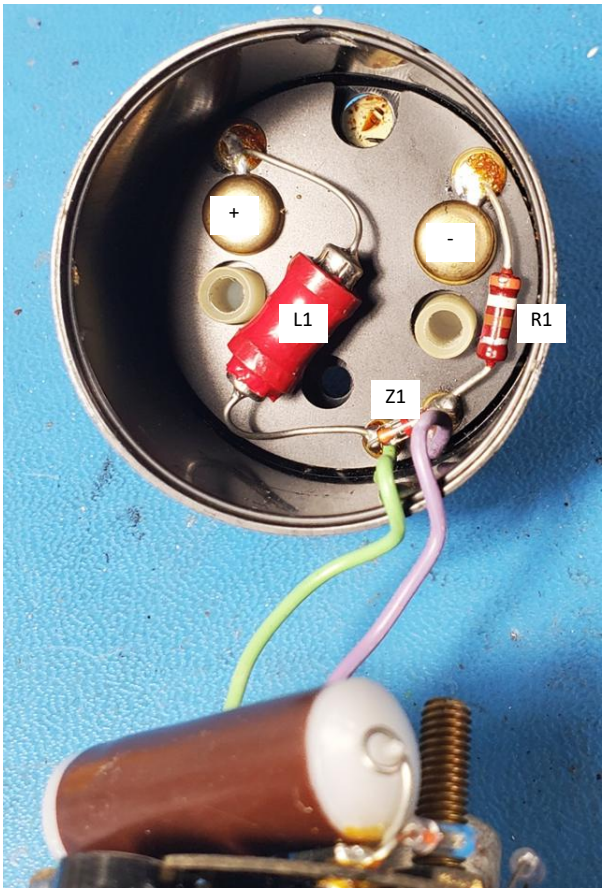
To open up the tachometer, remove the lugs and bulb attached to the terminals.

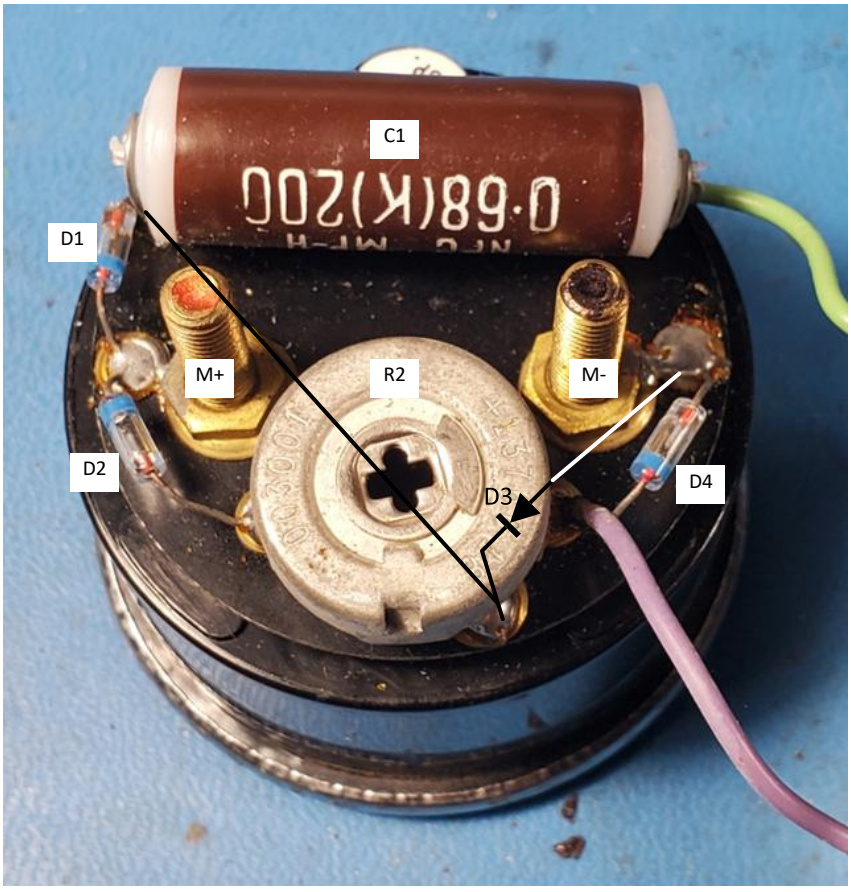






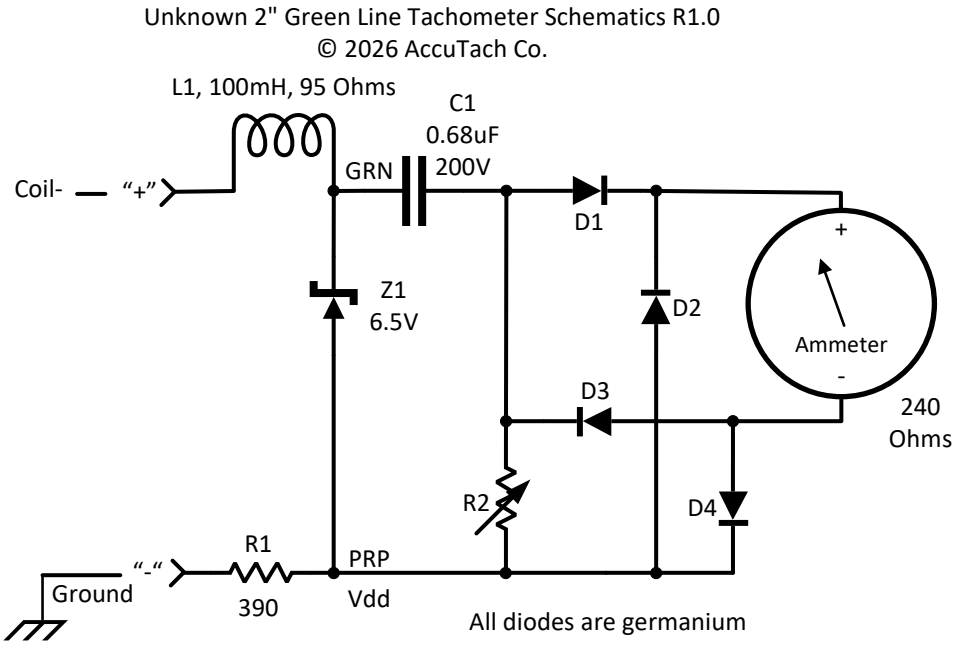
Unscrew the 2 white plastic fasteners that hold the black plastic case back half from the ammeter front of the tachometer. The power supply part of the circuit is inside to the back of the case and the rest is on a circuit board with solder grommets, held to the ammeter studs with nuts. A jumper wire and diode D3 are mounted to the back of the PCB.





Schematics:

The circuit of this unknown tachometer is similar to those used in the Dixco no-transistor tachometers.



Theory of Operation:

When the points are open, battery voltage is on the "+" terminal. Zener diode Z1 sets Vdd on the purple wire to 6.5V below the output of L1. R1 is the current limiting resistor for Z1. Since the other side of C1 goes to Vdd via R2, C1 is charged to 6.5V. When the points close, it drives the left side of C1 to ground. That drives the right side of C1 immediately down to -6.5V, while the meter + terminal is one diode drop below 0V thanks to D2. C1 discharges through the meter with R2 in parallel with the meter. Since R2 acts as a current divider with the ammeter, adjusting it sets the amount of current to flow through the meter with each ignition pulse, calibrating the tachometer.

When the points open again, inductor L1 knocks down the short high voltage spike from the car's coil the C1 begins to charge.