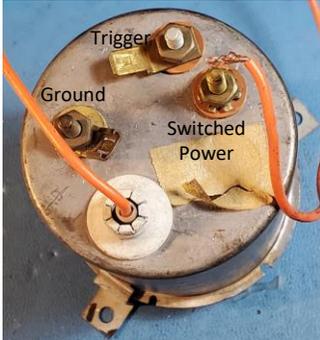


79 Dodge PowerWagon Tachometer  
Reverse Engineering Report  
© AccuTach Co. 2026  
R1.0

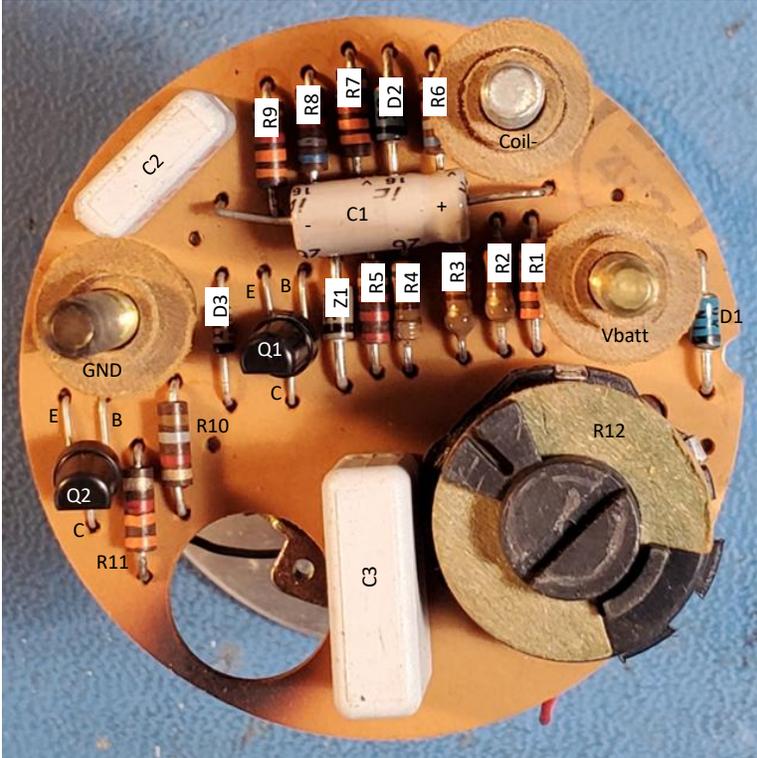
I received a 79 Dodge Power Wagon tachometer to try to repair. It did not look good as the needle would move across the scale as I rotated the tachometer.



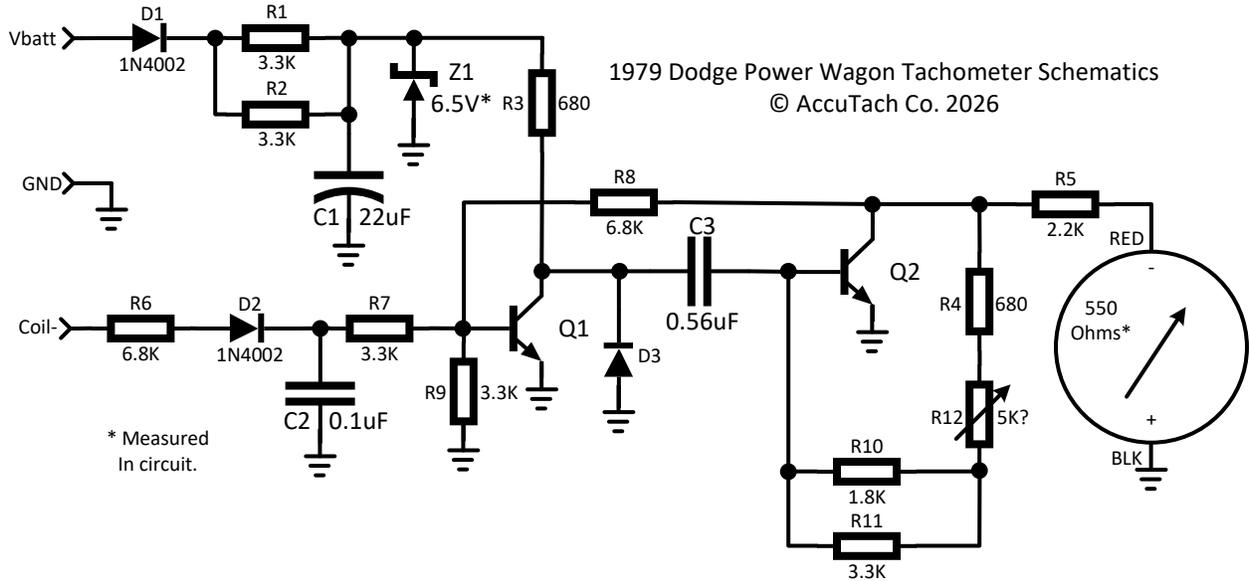
The guts of the tach are removed by removing the nuts and hardware from the 3 terminal studs. The guts then fall out of the cup.



I have labeled the components on the PCB:



## Schematics



## Theory of operation

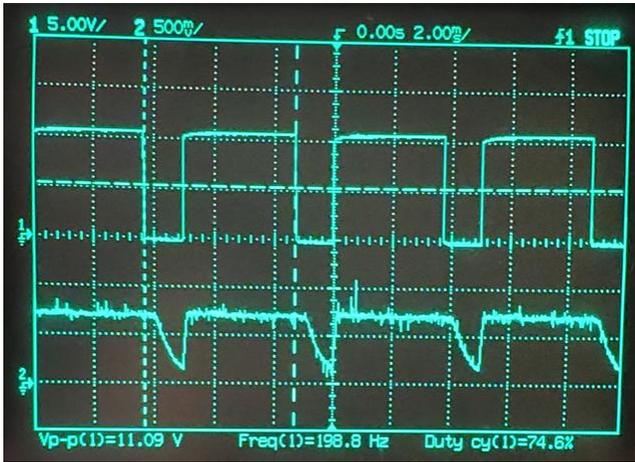
D1 protects the circuit from reverse polarity such as what happens if someone hooks up jumper cables backwards. R1, R2, C1 and Z1 make up a regulated 6.5V power supply for the tachometer circuit.

When the tachometer is not triggered, Q2's base is pulled to ground via the meter, R5, R4, R12, R10 and R11, turning Q2 off. If the points are closed, Q1's base is also closed, turning Q1 off. Q1's collector will go to 6.5V, charging C3 to 6.5V. Once the points open, the coil will pull the base of Q1 up, turning it on. That grounds the collector of Q1, which drives the base of Q2 to negative 6.5V, ensuring it stays off. C3 is discharged through the meter, R10, R11, R12, R4 and R5, deflecting the needle. Once C3 has discharged enough to turn Q2 on, the collector of Q2 grounds the base of Q1 via R8, turning Q1 off again. The meter resistance plus R4, R5 R10-12 and the capacitance of C3 set the time constant of the one-shot that drives the meter.

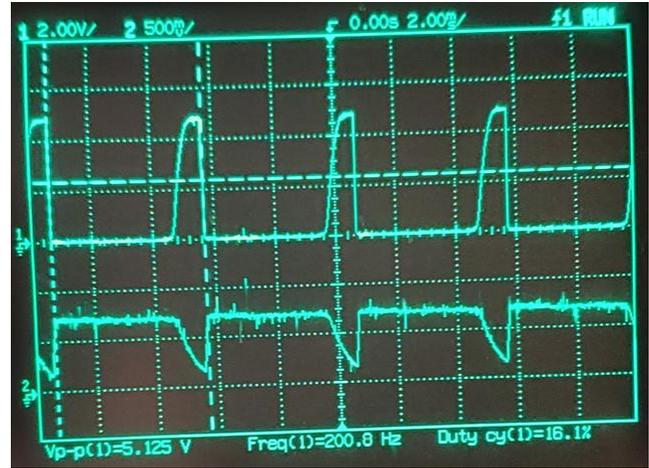
The network of R6, D2, C2, R7 and R9 attenuate and filter the input signal, keeping Q1 safe and cleanly triggered.

I was able to reverse engineer this tachometer to this level because the meter was still electrically intact. However the meter shaft was broken, so the deflection coil would drag on the circular magnetic bar that it traveled around, This prevented the needle from moving freely. This tachometer will be going to Redline Gauge Works to have all of its innards replaced with modern innards.

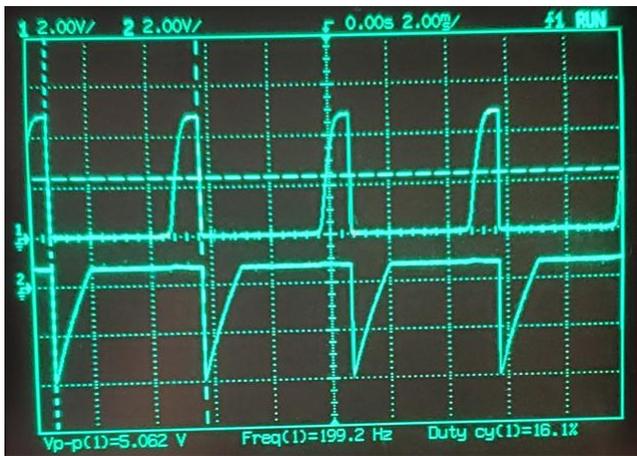
The following page shows scope traces of the bases and collectors of both transistors which should aid in diagnosis of failed Power Wagon tachometers as well as understanding how this circuit works.



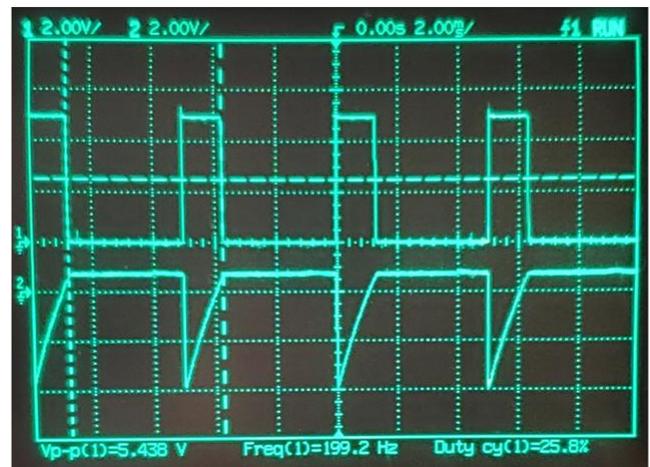
Top Trace: Calibration Signal  
Bottom Trace: Q1 Base



Top Trace: Q1 Collector  
Bottom Trace: Q1 Base



Top Trace: Q1 Collector  
Bottom Trace: Q2 Base



Top Trace: Q2 Collector  
Bottom Trace: Q2 Base