

GM Speedometer Repair Guide

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Hello, thank you for purchasing the Dr.Speedometer GM Speedometer Repair eCourse! I've created this guide to help those who are mechanically inclined and feel that they can perform their speedometer repair themselves but need a simple guide to help them along. I hope you find this course helpful and complete. This guide assumes you already have your instrument cluster out of your vehicle and are ready to disassemble it and perform the repair.

Tools and Parts

Here are the tools you'll need to perform the repair.

1. Soldering Iron
2. Solder
3. Needle nose pliers
4. Pick
5. Solder bulb
6. Pry Tool

Parts:

1. Replacement Stepper Motors -

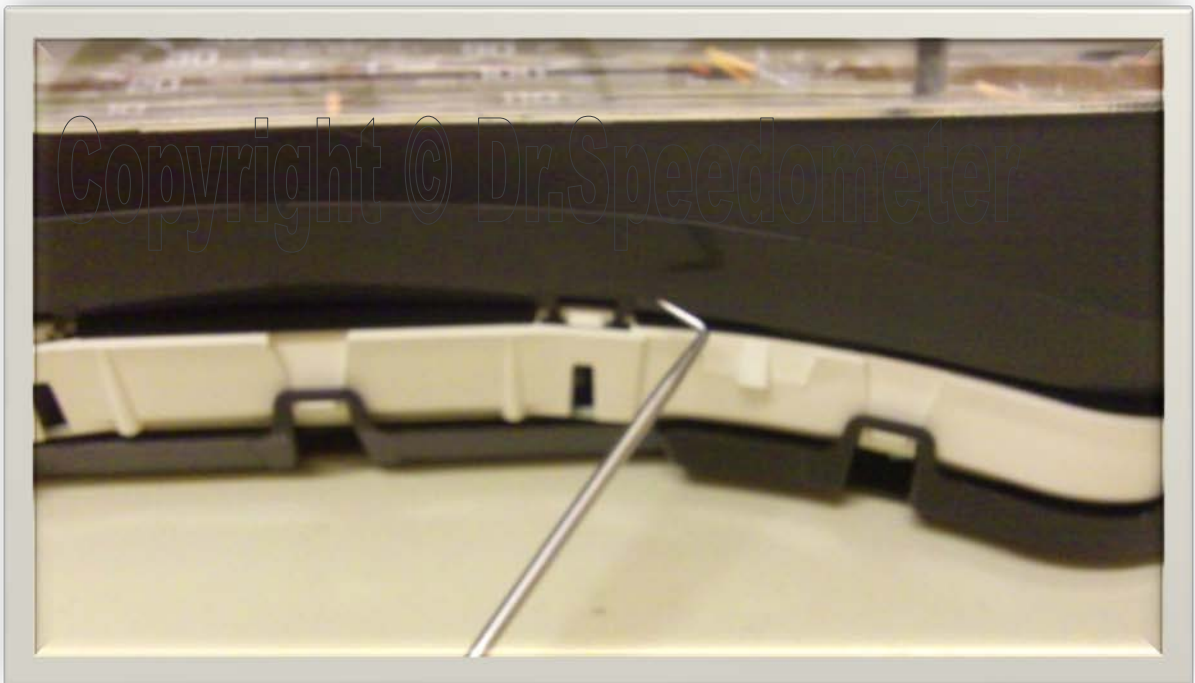


Example speedometer is from a Silverado. Yours may vary in appearance, but the procedure is basically the same for all 03-06 GM instrument clusters.





First, remove the clear plastic lens by gently prying outwards on the black tabs, use the right angle pick.



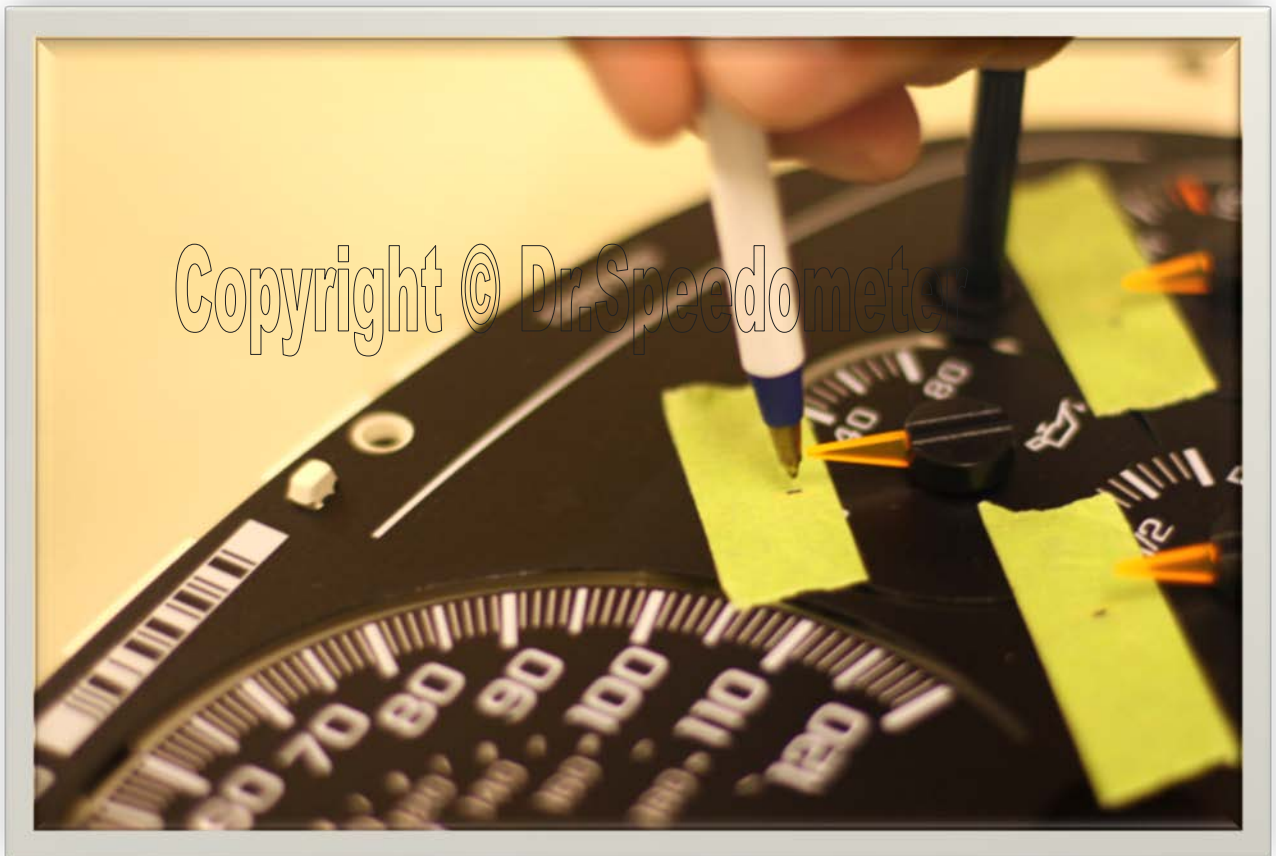
Here's how it looks with the lens removed:



Now tear off several short pieces of low tack masking tape, one for each gauge.



Rotate each needle counter clockwise until they come to their stopping point. Stick the tape to the gauge face plate directly below the needles. Look straight down on each gauge and make a mark directly in line with the tip of the needles. These marks will give you a reference point to set your needles back exactly where they were originally after you replace the stepper motors, ensuring accurate readings upon reinstallation.

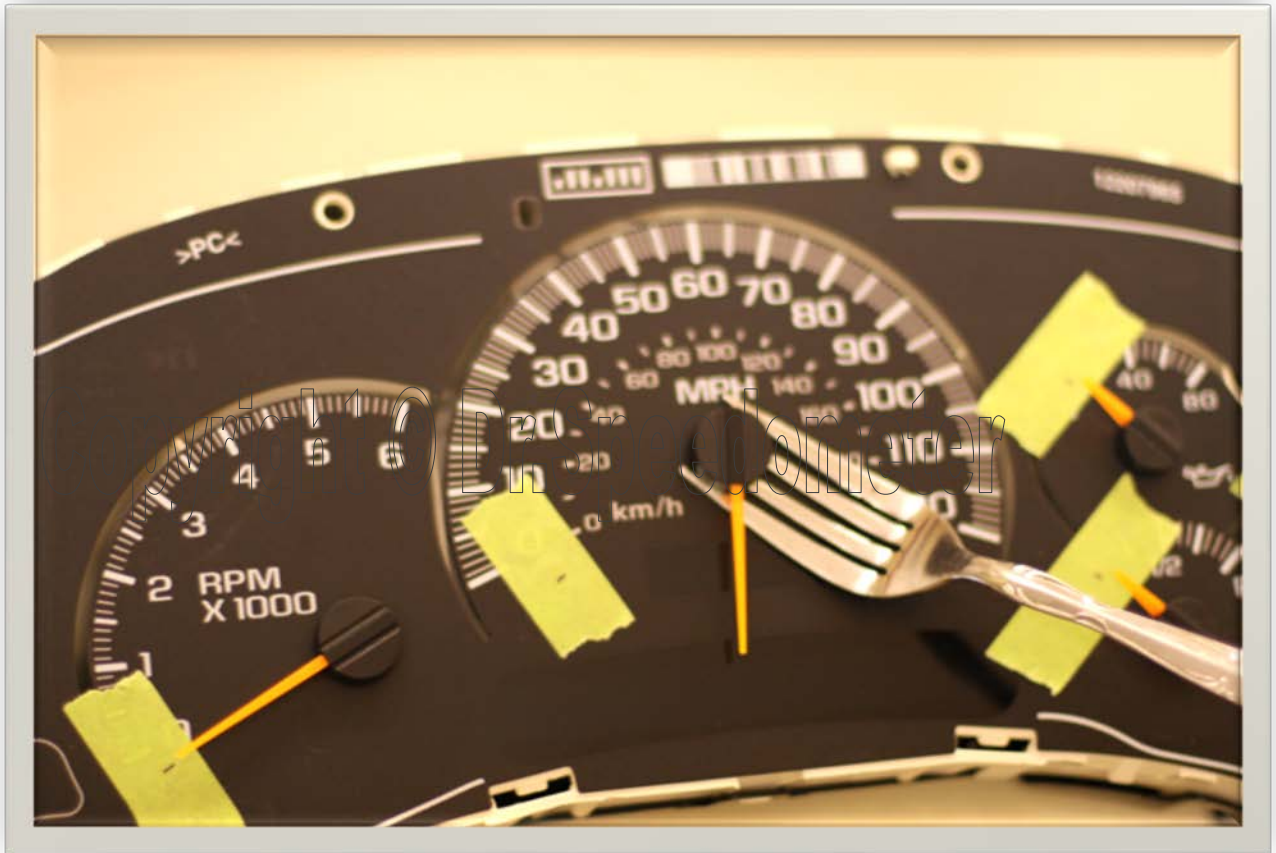




Break each needle loose from the shaft by firmly rotating it counter clockwise a couple inches



Now slide the pry tool under the gauge base being sure the fork tines are going around either side of the shaft. Next, pry upwards on the gauge base by pressing down on the pry tool. Be careful not to scratch your face plate. Pry firmly but slowly and the gauge will slide upwards and off the shaft. Move on to each gauge using the same technique.





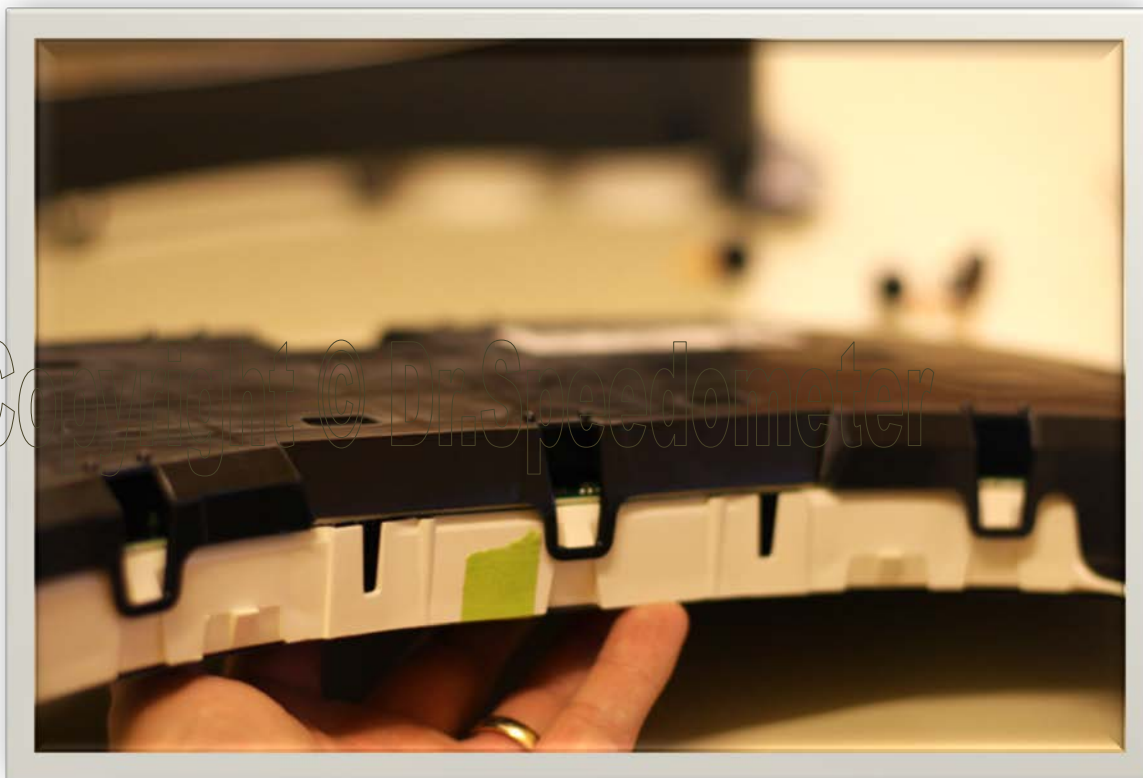


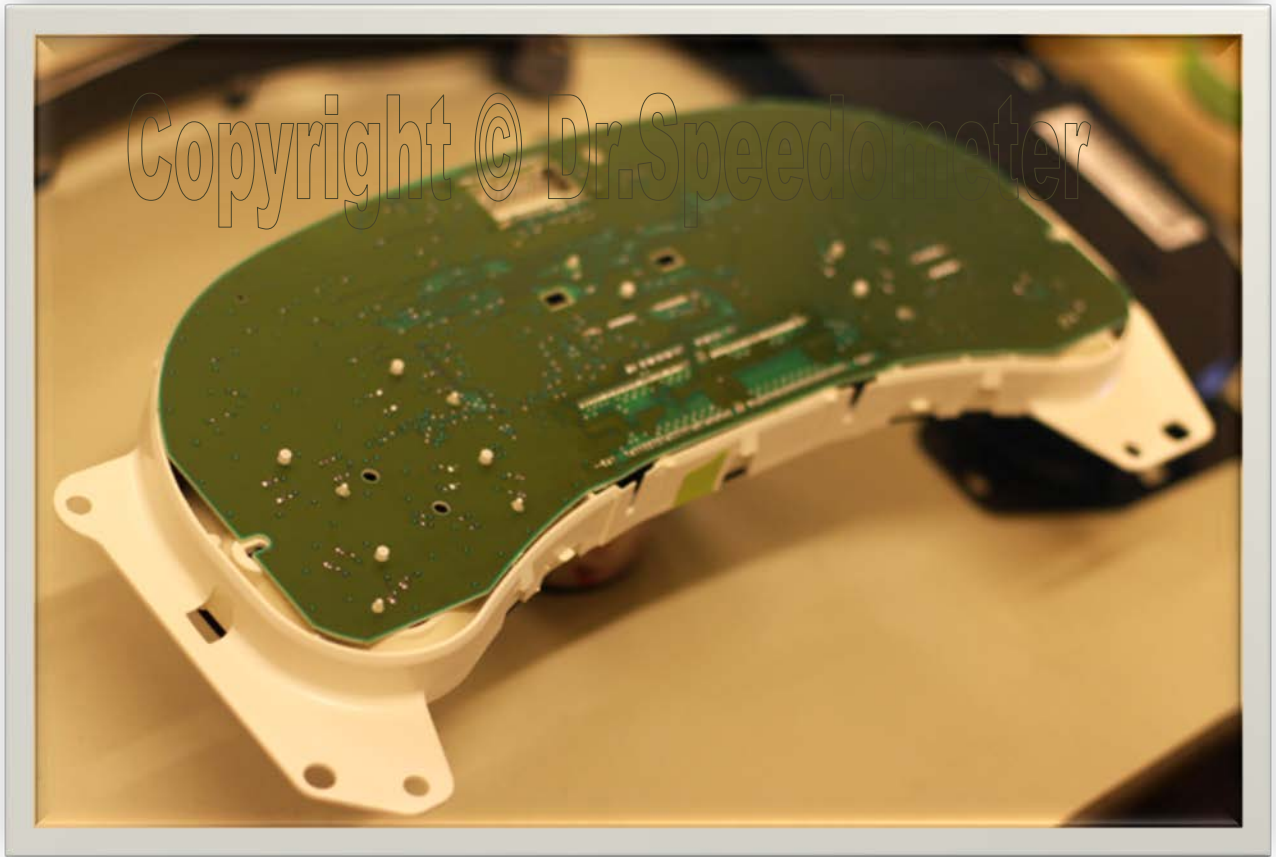






Remove the black back cover from the white inner frame by gently prying outwards on these black tabs:





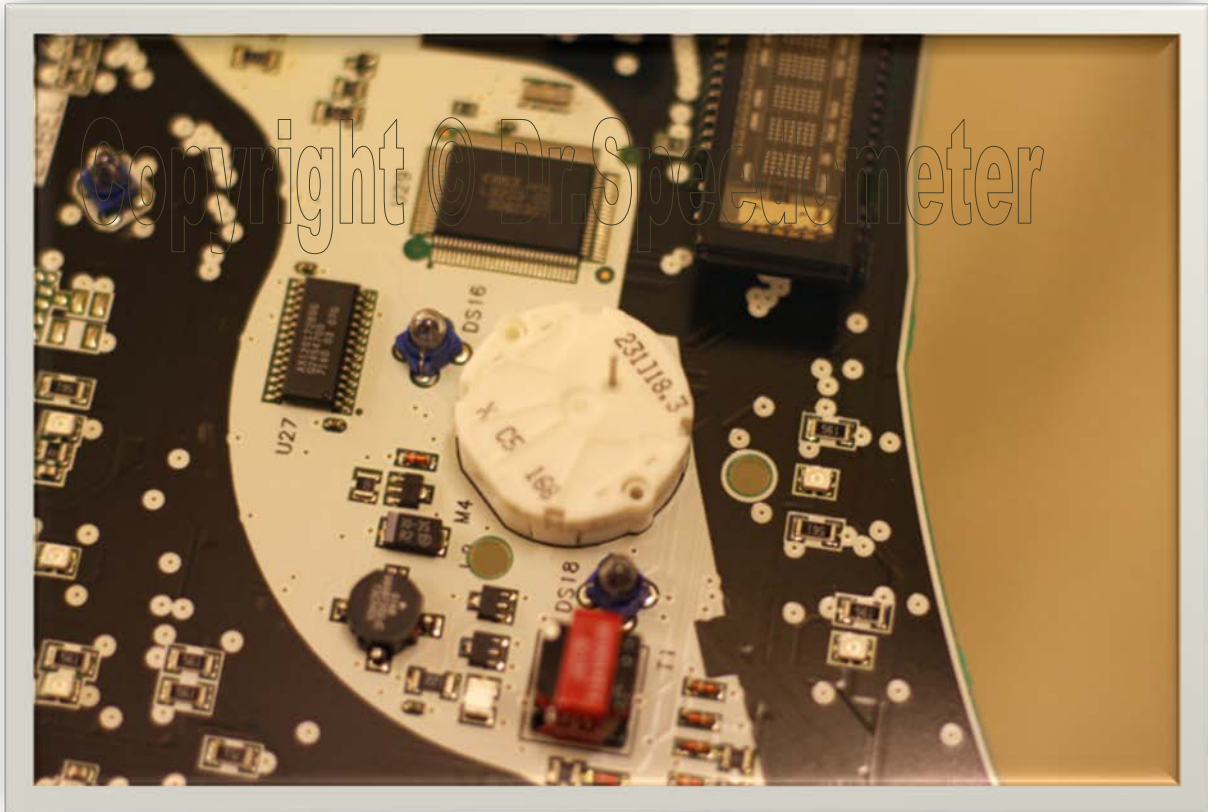
Now remove the circuit board from the white inner frame. It will pull off easily.



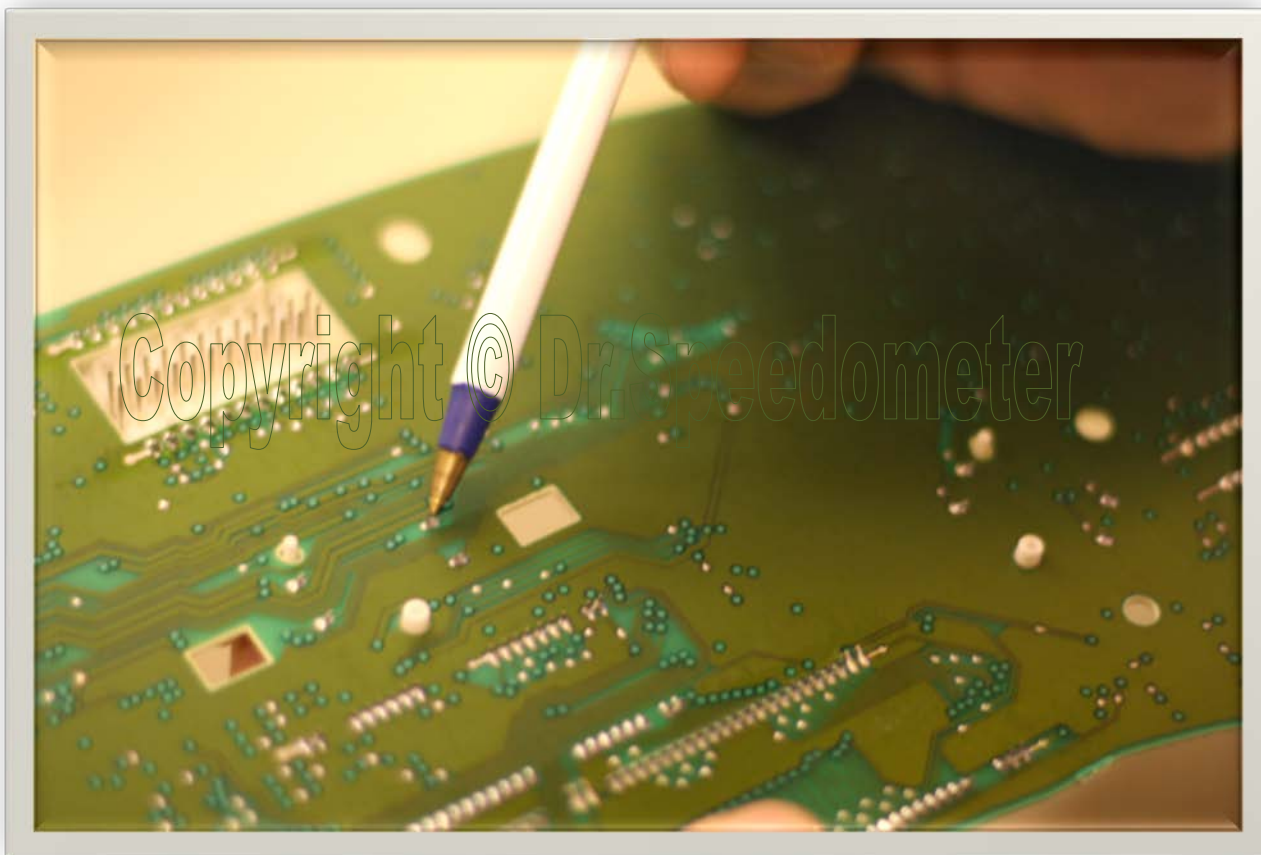
Here you can see the 6 white stepper motors on this Silverado cluster:



Close up of a defective old generation stepper motor. Here you can also see two of the small bulbs that often go out.



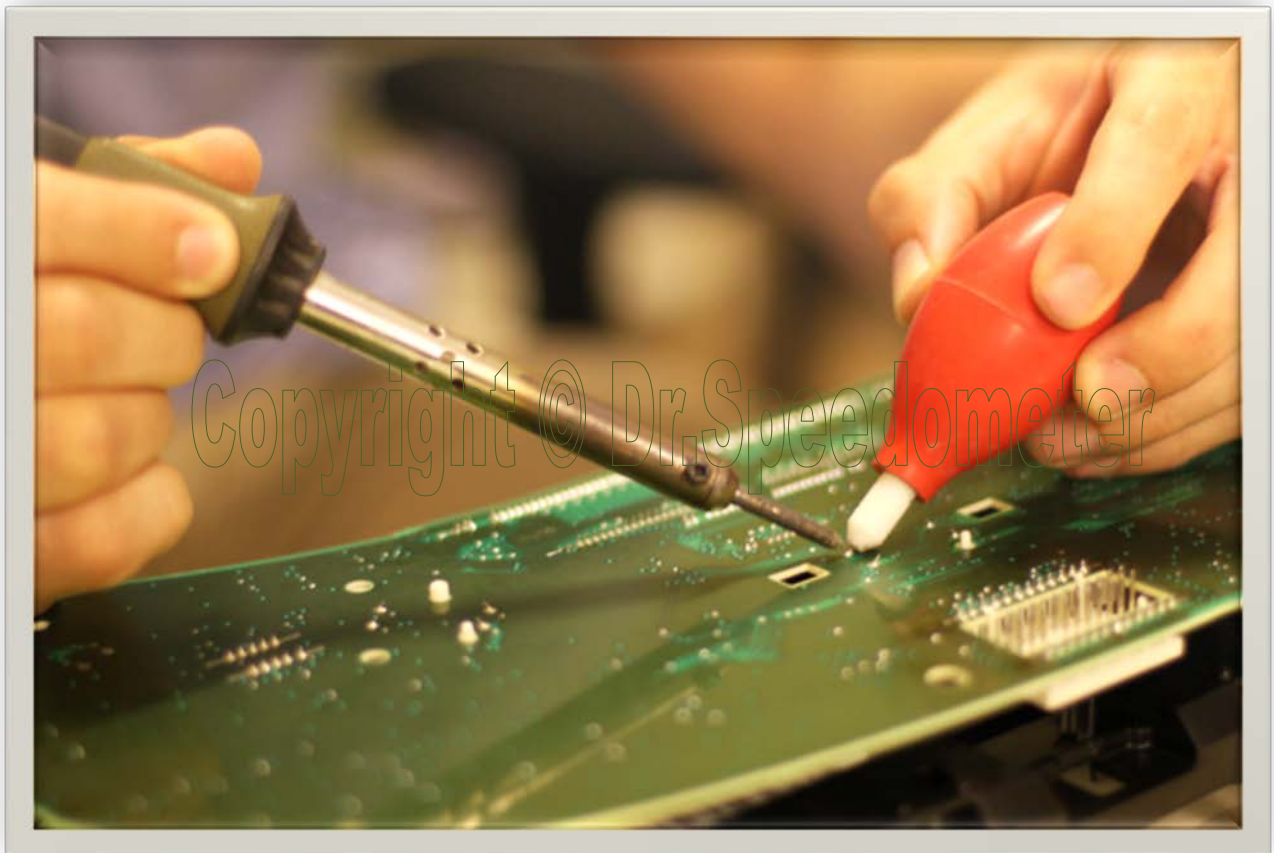
Here I'm pointing to one of the four solder points that each stepper motors has.



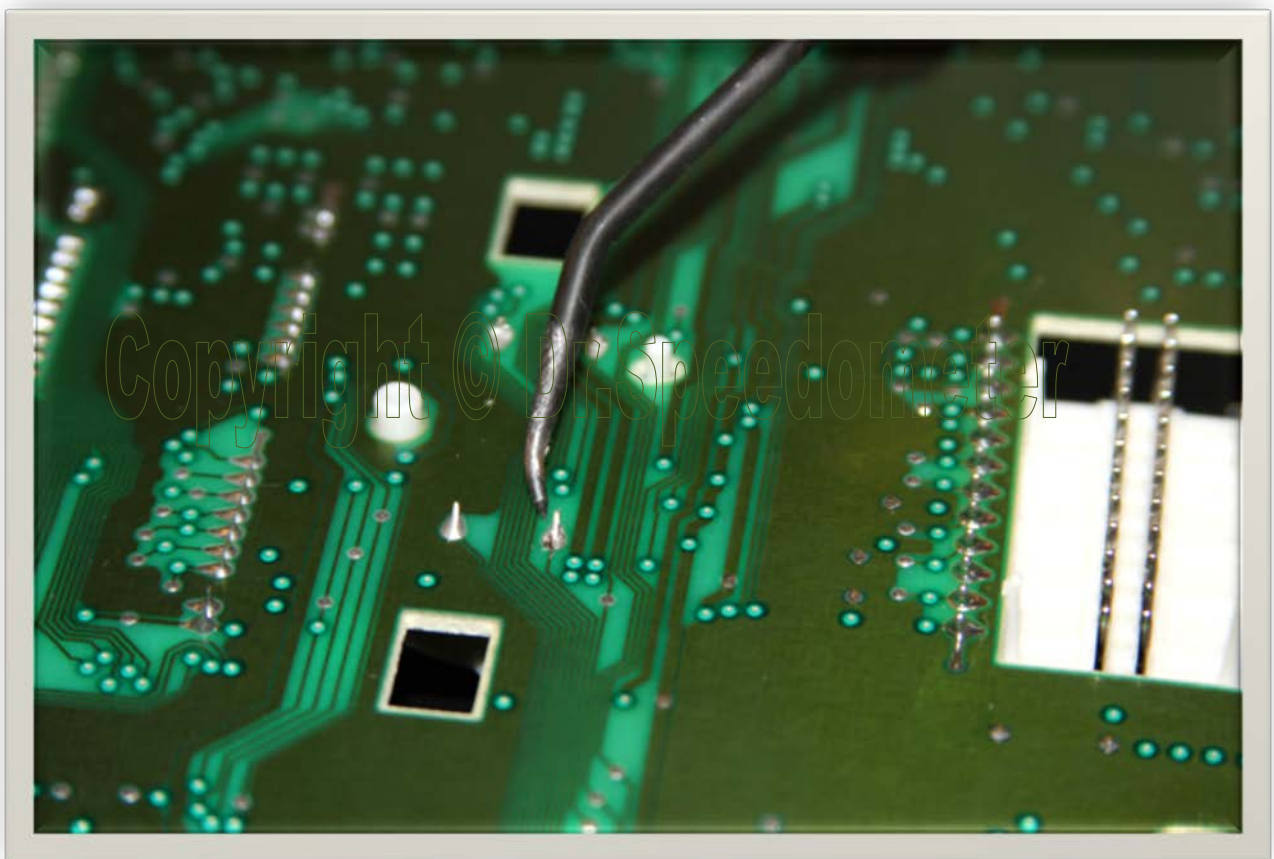
Now melt the solder on one of the solder points, as soon as the solder melts use the solder bulb to quickly suck up the melted solder. This may take a couple tries.

Important Tips:

1. Try not to apply more heat to the board than is necessary to quickly melt the solder.
2. Also, do not touch anything else on the board with the hot iron and
3. Don't let any melted solder drip onto any component leads which could cause a solder bridge and potential cluster failure.



This is how a solder pad will look after removing the solder. The pad to the left has not been desoldered yet:



After removing the solder from all 4 points of the motor straighten the motor's 4 wires using needle nose pliers, this will make it easier to pull the motor off. Now remove the motor from the circuit board by pulling firmly on the motor body being careful not to damage any other components on the circuit board such as the lamps.



Repeat these steps for the remaining stepper motors that you choose to replace.

Now align the plastic posts and the 4 motor wires with the holes in the circuit board and slide the motor onto the board. Because one plastic post is larger than the other each motor can only be installed one way eliminating any worry about installing them backwards. After installing the motors flip the board over and bend the wires over *slightly* to help hold the motors to the circuit board while soldering.



Now solder the motors to the circuit board. Be careful not to drop solder on any of the component leads on the back of the circuit board to prevent a solder bridge which could cause cluster failure.

Place the repaired circuit board back on the white inner frame and snap the black backing in place to hold it all together.



Now reinstall all of your needles in roughly the 12 o'clock position (exact position is not critical.)



Now rotate each needle counter clockwise until it lines up with your mark. If you accidentally go too far simply keep rotating counter clockwise until you get back around to your mark. Next, remove your pieces of tape and reinstall the clear lens.



And now your instrument cluster repair is complete!



Other Resources

Premium “Done For You” Instrument Cluster Repair Service

<http://drspeedometer.com>

Order new instrument cluster stepper motors here

<http://drspeedometer.com/stepper-motors>

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