



[www.OdometerGears.com](http://www.OdometerGears.com)



## Mercedes-Benz Mechanical Odometer Repair

This how to can be used for all mechanical repairs as the only difference will be the removal of the instrument cluster.

<http://www.diesलगiant.com/repairyourodometer.htm>

***The notes below highlighted in yellow are inserted by Odometer Gears. The how to repair and parts that are not highlighted came from and can be purchased through [Diesलगiant.com](http://Diesलगiant.com)***

[Home](#)

[Links to other diesel sites](#)

[Mercedes diesel maintenance tips](#)

**All parts used in these pictorials are available at the [diesel parts for sale page](#)**

### **How to repair your broken odometer**

Quite often I either hear about or see another broken odometer on an old Mercedes. Don't lose heart! The repair can be done by you. There is usually one of 3 reasons why they don't work. So follow along with my pictorial and fix it yourself.

#### **Safety and security tips:**

**Please remember to recycle all your used fluids at an appropriate recycling center. Be mindful to not spill or splash fluids on yourself, others or the ground. Also as a safety tip please remember anytime you are working on, around or under your car, to wear safety glasses and secure the car with wheel stops and approved jack stands!**

To learn how to remove the dash cluster via DVD, check out the [DIY DVD page](#).



**Remove the hush panel under the driver's side dash. There are 3 Phillips screws on the top and 2 plastic Phillips half turn locks, 1 on each lower side.**



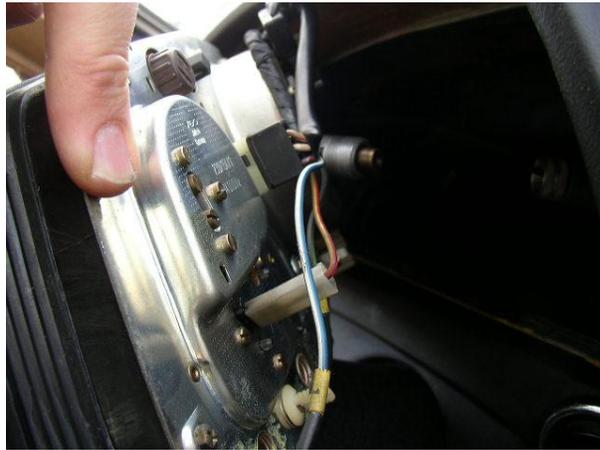
**Reach under the dash and gently pull the odometer cable an inch or 2 through the firewall. This will give you a little more room to get your hand behind the dash cluster when you loosen the cluster.**

**Also I like to push on the dash cluster from behind to aid in removal.**

**This is much easier than using the metal tools on the cluster which can scratch the cluster and tear the sealing gasket.**



**This is why you want some slack on the Speedo cable. The cluster can move forward allowing you to get your hand behind. Remove the oil supply to the gauge with a 10mm wrench.**



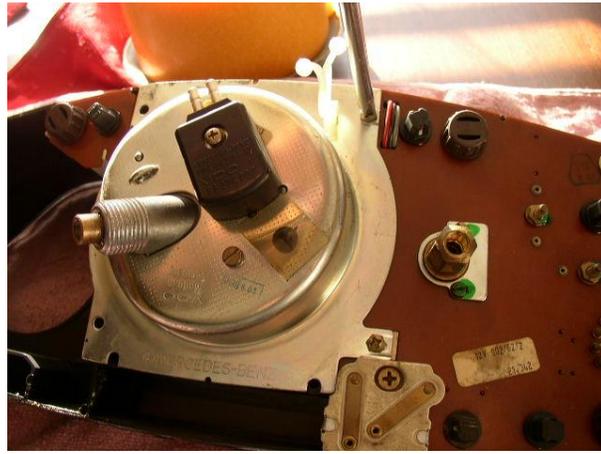
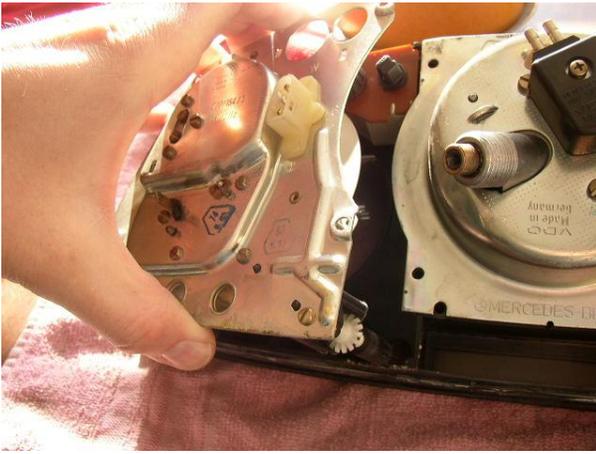
**Disconnect the Speedo cable and remove the clock connection, the seat belt and glow plug connections, Speedo electrical connection, and tach connection.**



**Disconnect the master harness for the gauge cluster. It is usually quite tight so just pull gently straight out, don't rock it side to side. This is the whole harness for the cluster.**



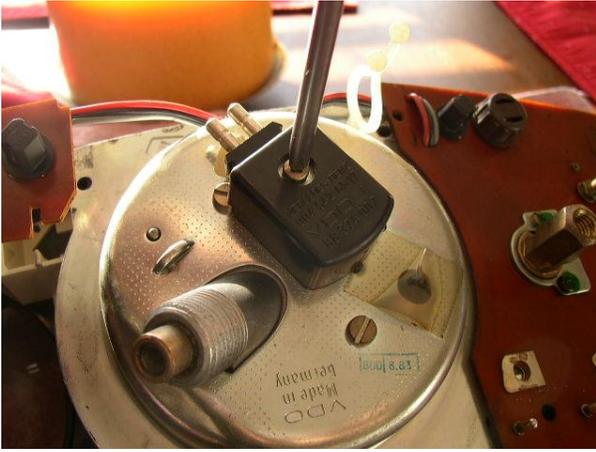
**Take the cluster and put on a clean towel in an area with good lighting. Then remove the 4 screws holding the clock cluster.**



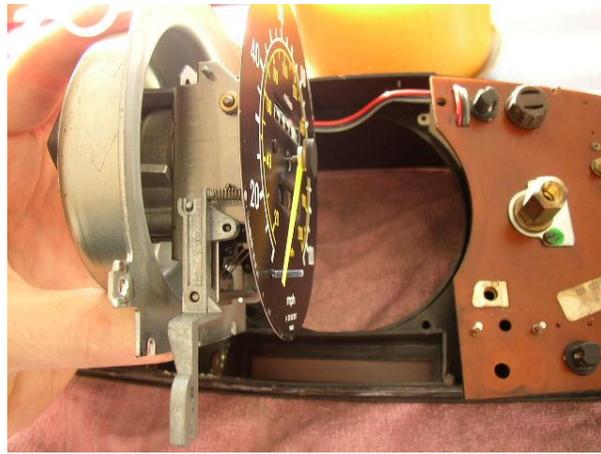
**Gently lift out the clock cluster and set aside. Remove the 2 screws holding the Speedo to the cluster, but do not remove just yet.**



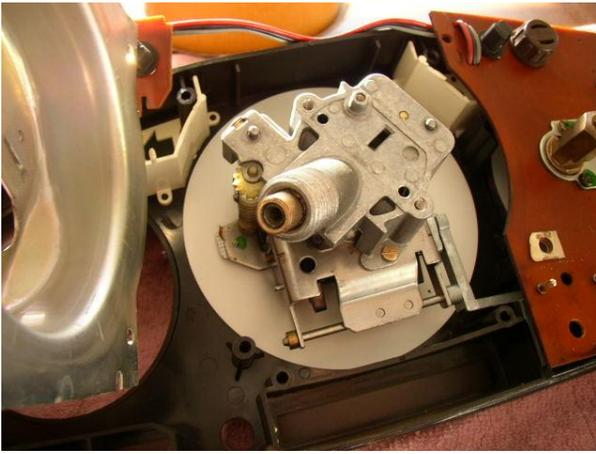
**Remove the 2 screws holding the gauge cluster and the dimmer switch. If your dimmer switch does not work, now would be a great time to replace it.**



**Remove the Speedo electrical box. Then the 2 screws holding the rear of the Speedo.**

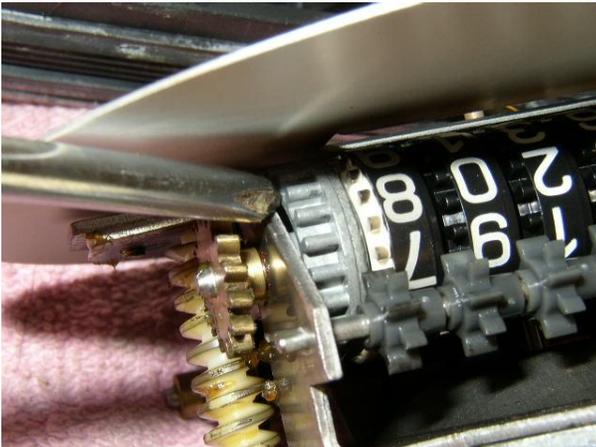


**Gently lift the edge of the gauge cluster closest to the Speedo. Lift out the Speedo and pay close attention to the trip meter reset arm, which is why we lifted up the gauge cluster. This makes it much easier to get the Speedo in and out of the cluster without damaging the reset arm.**



I like to leave the Speedo in the cluster for much of the work just because I can do all the "rear" work without it laying face down, and possibly bending the Speedo gauge needle. These 2 plastic gears are a common place for failure of the odo. They will often strip. Inspect them carefully especially the gear closest to the cable housing inlet. ***If your gear is actually plastic instead of brass be sure to inspect it closely where it mounts on the shaft. There will generally be a very fine crack and this allows the gear to slip on the shaft. You need to know the tooth count the order the correct replacement gear from [OdometerGears.com](http://OdometerGears.com)***

These gears look just fine. The brass gear that rides on the plastic gear can sometimes slip on its shaft, so gently test it with your finger. The brass gear is ok also so there is one more place to look for trouble.....



Ahhh we found the problem! The pot metal gear that the screwdriver is pointing to should NOT be turnable without the entire shaft and numbers advancing. This gear in fact does "slip" on the shaft, hence the numbers

will never advance. This is the hardest of all the gears to replace, but will cost you only your patience, some time and some Loctite. Remove the Speedo head set with these 2 small screws. ***You can also replace the gear with a new designed gear that will not fail or cause any problems if the Loctite happens to get on any of the other gears.***

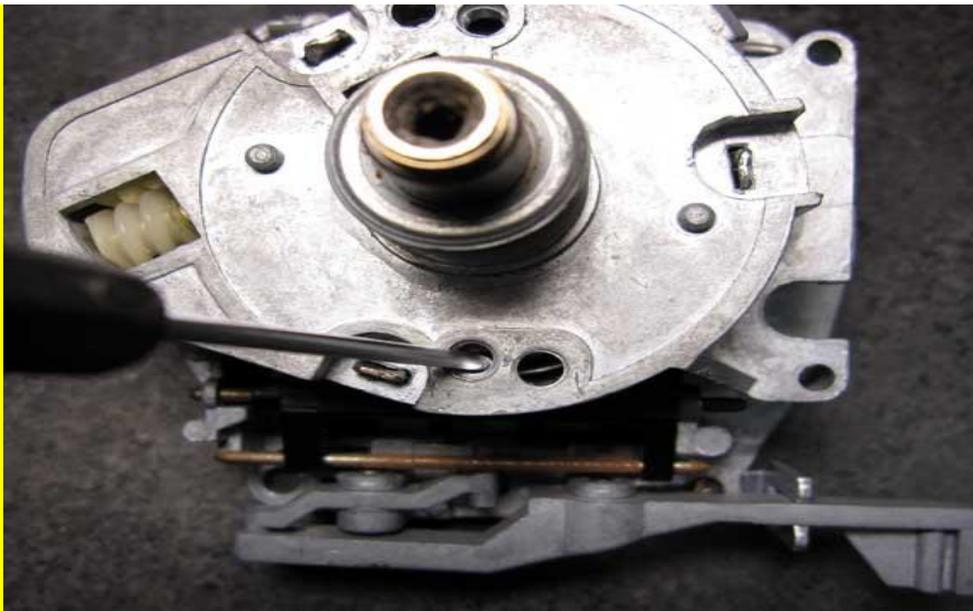
There are three different thickness options for the lead gear; 1/8" or 4.57mm, 3/16" or 5.44, and the final thickness 1/4" or 6.35mm. These sizes are nominal. These are available from [OdometerGears.com](http://OdometerGears.com)

This first way is Odometer Gears preferred way to replace the lead gear.

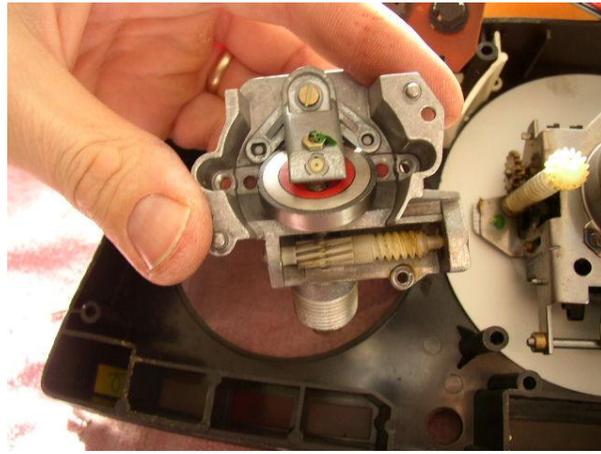
**Speedometer needle removal:**

**DO NOT PRY UP ON THE NEEDLE TO REMOVE!**

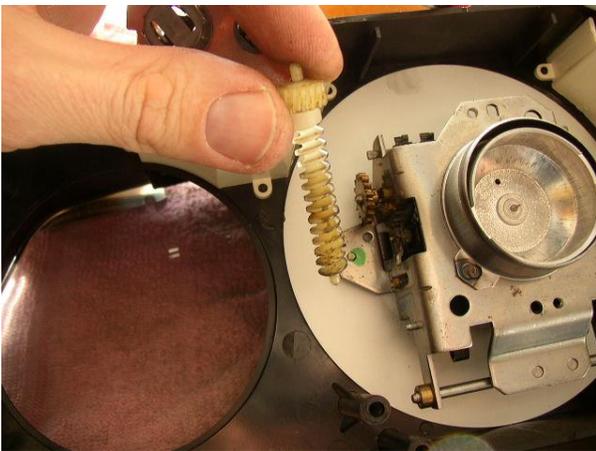
**Cable driven units:** Do not pull straight up or at an angle. Do not put any torque on the shaft. The speedometer needle sits on a needle stop you will need to gently lift the needle above the stop and see where the needle points. Place a small piece of tape at the edge of the speedometer where the needle points to. From the rear of the speedometer install a small standard screwdriver between the speed cup and housing (see picture). This will lock the internal part of the speedometer. Rotate the speedometer needle left to right until the needle comes off.



Once the needle has been removed, remove the two screws that secure the face plate. Gentle start to remove the shaft for the odometer gears only far enough to remove the lead gear. Slide the new gear into place and use a large pair of adjustable pliers or a bench vise and a small socket to press the shaft through the new gear and speedometer housing. Be sure to not install the shaft too tightly as this will bind the odometer numbers and not allow them to turn. If your outer gear was plastic and being replaced as well, use the same method as above to install the new gear. Reinstall the face plate making sure to not over tighten the screws that secure the face plate. These screws just need to be snug and are very easy to damage. If you damage the screws this is something that you will always see and notice. Place the speedometer needle onto the shaft and line up as close to the mark you made earlier. Using your two thumbs gently press the needle straight down until seated. If the needle is not pointing to your mark. Lock the speed cup as before and move the needle in small increments in the direction needed. Unlock the speed cup and see where the needle rests. Do this until you are back on your mark. Gently lift the needle over the needle stop and reinstall in the cluster.



Lift straight up and be careful to grab the vertical plastic gear and set aside. Seen in next pic.



I recommend getting some scotch tape and lay on the numbers so that they don't move.

**If your original outer gear was plastic you can remove it and slide the odometer shaft in the opposite direction of the photos. Remove the shaft just enough to remove the old lead gear. Slide the new gear into place and use a pair of**

**channel lock pliers to press the shaft through the new gear and housing. Be sure to leave a little room so the shaft does not bind. If your outer gear is brass it is best to try and remove it from the shaft and if it cannot be then follow these instructions below. (After the shaft is removed use a large pair of channel lock pliers to install the shaft through the new lead gear. It is easier to accomplish this if the outer gear was removed and the shaft was only slide enough to remove the damaged lead gear. [OdometerGears.com](http://OdometerGears.com) The remainder of this how to is if you want to temporally repair your odometer**

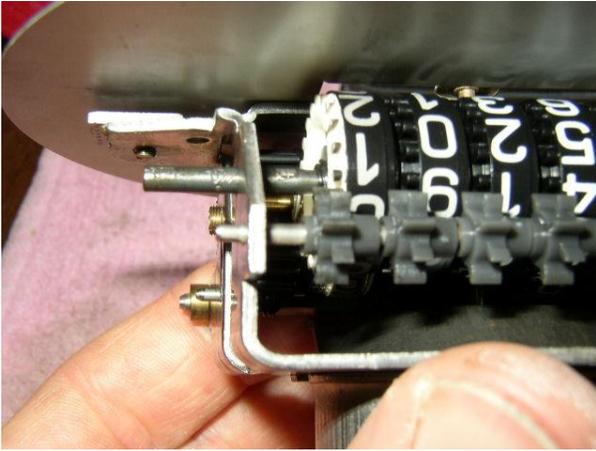
See DieselGiant.com for alternative means of repair which is more difficult then replacing the lead gear and less permanent of a repair.

**Very gently remove the pressed on collar that holds the numbers shaft. Actually you can pry it off or just take some needle nose pliers and pull. To reinstall just take your needle nose pliers and slowly push back on. It is not on with great force to begin with. Please make sure when you reinstall that you leave a little room so the shaft does not bind, i.e. some end play. With the collar on slam tight it will prevent the shaft from turning properly. I got a drill bit the same diameter as the shaft (7/64) to slip in behind, as I was removing the shaft. GO SLOW and CAREFUL. Don't let the drill bit get too far behind the shaft as you are removing, or the gears will get out of phase.**



**With the shaft removed you can see the shinny spot where the pot metal gear was slipping and spinning.**

**Take a flat bladed screwdriver and very hard rough up the area. This will give the gear something to bite on.**



**This is by far the hardest part! Putting the geared shaft back into the number set and getting the pot metal gear back into position. It took me about 1 hour to do it. There is very little clearance and the shaft obviously must be out at the point where the gear is slid back in. This causes the other numbers to move and often fall out.**

**Don't lose focus. It can be done but a steady hand is a must. Also the phase gears you see next to the numbers riding on a second shaft, must also line up in the grooves of the numbers. The large teeth must line up with the large teeth as well as the small teeth must do the same.**



**I resorted to pulling out the numbers and gave it a try on the towel.**

**But only do this after all the assembly is in the Speedo, not on the towel. The reason is the shaft must be taken out again if done on the towel. The 2nd pic shows me lightly separating the space between the pot metal gear and Speedo housing.**



**The finished product installed and working great!**



[www.OdometerGears.com](http://www.OdometerGears.com)