www.OdometerGears.com

Volvo 240 Odometer Gear Replacement

http://www.hyperocity.com/volvo240/volvoodometer.htm

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Please read the first few steps carefully as these are our most common questions we receive after a client has performed a repair and the odometer still does not work.
The reason the original gear or gears have failed is that they are made of urethane and lubricated with petroleum grease. This combination breaks down the urethane into a waxy substance which flakes and breaks away. This will also leave a waxy film and deposits on the shafts, gears, housing and peg on the pods.
* Work smart, meaning have a clean area to work and the proper tools to perform the repair. General tools that will be needed depending on the vehicle are small standard screwdriver, small Phillips screwdriver, assortment of torx drivers, diagonal cutters (dikes), 1/4" socket set are just a few of the items that may be needed.

* No grease is needed with the new gears. Our gears are made using Celcon® which has graphite mixed into the material and does not require any additional lubricant.

* Make sure that you have blown the speedometer and odometer assembly clean with high pressure compressed air. ***Even if you think that you have found all of the broken pieces you still need to perform this step.***

* Wipe the area around the gears, any shaft or shafts that the gears may ride on, the motor shaft and the peg on the pod that the small gear spins on clean, using a clean cloth and rubbing alcohol. Any residue left over from the old gears can allow the new gears to stick and not allow the odometer to work.

* On units that use a gear and pod combination: install the gears into the housing first and then install the motor assembly. Before installing the screws that secure the motor and circuit board use a small standard screw driver and rock the tenths digit of the odometer up and down. This will help to seat the gears into place and allow the motor assembly to seat fully.

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Last Updated: June 5, 2005 *(New Installation Picture and Jeff now sells the 15-tooth Pod!)*

Odometer Repair Information for 1986-1993 240 Speedometers:

Note: If you have a **1980-1985 Volvo 240** with a mechanical speedometer and need repair information, visit **Dave Shannon's site**. If you want to find out where to purchase replacement gears, regardless of your vehicle's year... keep reading!

If your odometer isn't working on your 1986-1993 Volvo 240's (sedan & wagon) electronic speedometer, chances are there is a broken gear in your speedometer head. Don't worry; you aren't the only one having this problem. This is a common failure to the 240 series!

So, what causes this gear to break?
Over time, this "tooth" gear will soften and become brittle. As soon as one tooth gets stripped off (the picture above shows two teeth stripped off), the odometer will not function anymore.

Resetting the odometer when your vehicle is in motion is also another possibility. I would highly recommend to everyone to **never** reset your trip odometer, period. To track your MPG, just keep note of where the trip odometer is when you fill up and subtract.

How does the odometer work?

If you've ever taken apart the speedometer and looked at it, you'll see that's it's a fairly simple design. The small tooth gear sits on top of a pod with a 15-tooth gear. Although possible for this bigger tooth gear to go bad, it is uncommon. However, Jeff does sell this pod with 15-tooth gear in case the regular 25 or 26-tooth gear doesn't fix your odometer.

There is also a small motor that is attached to a circuit board on the side of the speedometer that drives both gears. The small tooth gear goes around the speedometer's clear plastic grooved opening. When the small tooth gear goes around in a circle, it causes the nylon gear's teeth to turn the trip odometer, and when it hits a certain notch in the odometer's digit, it will cause the main odometer to turn. Whew... Got that?

How do I get my odometer working again?

Don't even bother trying to fix your broken tooth gear. You need to get a replacement. Your options are:

1.) Bring your speedometer to a shop ($125-$175+).

Personally, I went this route in 2000. If the shop is reputable, they will replace the motor, replace capacitors, and completely overhaul your speedometer... which is a plus. BUT... When I had mine done, it broke 5000 miles later. I brought it back, and they repaired it again. Well, it broke 500 miles later. After another repair, it broke 100 miles later, I complained, and I finally got my money back.

2.) Search local U-Pull (auto salvage) yards for a replacement gear.

Although this may be the cheapest alternative, it may also be a long, long journey. I've lived in various parts of Florida throughout my life, and I've searched yards from Jacksonville to Miami. When I do find a 1986-1993 240 speedometer head in a car (which is rare), the gear has already been removed. Even when I find a cluster still intact and after I take apart the speedometer head, the tooth gear is already stripped. It took me 2.5 years to find a good gear at a yard.

Here's one thing to keep in mind if you install a used gear, and that is, *"How long will it last?"* A side story... Before I purchased a gear from Jeff, a Brickboarder was gracious enough to send me a good gear. I installed this gear in my car, and it worked for about 100 miles. Then it broke. Used gears may work for 1 mile or 10000+ miles.

3.) **The best alternative is to purchase a replacement tooth gear.**

Don't bother calling speedometer shops or even VDO, the manufacturer of the original speedometer, directly. They won't sell you either the gear or pod!

The solution? Contact Jeff Caplan. He owns an injection molding machine and is selling replacements to the public for a small fraction of what a speedometer shop wants! Within the United States, the tooth gear is $29/shipped (includes USPS Priority Mail) in 2002.

I bought a gear from Jeff in 2002, and it has been working great ever since! If you are interested in purchasing a gear, visit Jeff's website (see banner below). He also makes BMW, Mercedes, and Porsche odometer gears!

For your electronic speedometer, if you aren't sure which 240 odometer gear to buy, select the 25-tooth count gear. Jeff also offers the 15-tooth gear with pod. As I stated earlier, while the gear on the pod can fail, it is uncommon. I recommend purchasing the 25-tooth gear first, and then if you still have problems and double-checked your installation, then consider purchasing the 15-tooth gear pod. You can usually visually tell if your 15-tooth gear pod is defective (i.e., a piece or tooth is missing from it, etc).

When you order a gear, be sure to tell Jeff that Eric referred you to him!

Odometer Repair Instructions:

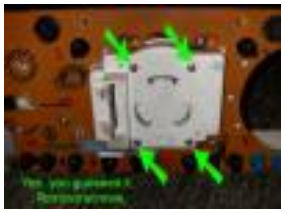
DISCLAIMER: The content posted below is for informational purposes only. If you choose to follow these instructions either in part or in whole, you are doing so at your own risk. If you understand the preceding disclaimer, please continue. If not, please hit the "Back" button your browser's window or click one of the buttons above. Thanks!

Tool checklist:
1.) One (large) Phillips-head screwdriver.
2.) One (small) Phillips-head screwdriver.
3.) One (small) flathead screwdriver.

Estimated Repair Time:
60 minutes (if you have never pulled the cluster before)
25 minutes (if you have)

Step #:	Directions:	Picture: (click to enlarge)
1	Some people prefer disconnecting the negative battery cable before working with wires. There is no wire crimping, splicing, etc. involved with this task. I have pulled my cluster several times	n/a

	without disconnecting the battery and have not run into any problems. However, installing my voltmeter gauge was another story. *Please use your own judgment before continuing.*	
2	Make sure that the steering wheel is centered. While the car is off, move the windshield wiper lever all the way down. Do the same for the turn signal lever.	n/a
3	If your 240 is a 1989 or earlier (without an airbag), I find it easier to remove the cluster if I remove the center part of the steering wheel cover. You should be able to grab it from the top and then pull it towards you. You do not have to disconnect the two horn (black) wires, just let the cover dangle. **This step is *Optional.***	
4	Remove the headlight switch/knob and the same rheostat/dimmer knob. The headlight switch knob might give you a little resistance when you pull it off for the first time, but pull it evenly towards you. Use your car key or a flathead to simply pry/pop off the backing plate. A good spot is right on the bottom of the backing plate. Insert and gently pry down. Pull it off and let it dangle.	
5	After doing step #4, two Phillips head screws will be exposed. Remove these. Be careful not to drop them as they become loose. Pull off the metal bracket and put it in a safe place.	
6	Working on the other side of the cluster, use the flathead or key to pop/pry off the two (2) accessory gauge panels (or blank panels).	
7	After doing step #6, it will expose the other two Phillips head screws. Be careful not to drop them as they become loose.	
8	Pull the instrument cluster towards you -- as far as you go before you hit the steering wheel (usually that little ledge of the steering	n/a

	wheel is a good place). Working from your right to left, **WRITE DOWN WHERE ALL THE WIRES PLUG INTO.** Draw a small diagram if you have to! And finally, count the number of wires you disconnected. Sometimes a little force is needed to remove the full-moon and half-moon connectors. Be patient. What's good about these connectors are, they can only plug into one specific location and one way! You won't get them mixed up.	
9	Once all the wires are disconnected, you should be able to slide the instrument cluster out to your right. Bring it inside and let's begin the fun stuff...	
10	Remove all 7 screws around the perimeter of the circuit board.	
11	Gently remove the circuit board from the housing. Stand the circuit board upright (as shown). Support the circuit board so it doesn't tip over. Next, remove the four small Phillips head screws. Then, grab the edges of the speedometer's face (usually at 3 o'clock and 9 o'clock) and pull it out from the board. **Note:** *Be careful not to lay the speedometer/gauges (face/dial side) directly on the table/ground. This prevents any potential damage to the gauges' needles.*	
12	Tilt the speedometer on its side and remove the two flathead (or Phillips) screws. **Note:** *Again, be careful not to lay the speedometer on its face.*	
13	Gently pull the speedometer's circuit board loose from the side of the speedometer. You are only going to go a little ways. There are two wires soldered between the speedometer head itself and the board. *We do **not** want to disconnect these wires.*	see picture below for blue/black wires to the left of the green arrow
14	You should now see the odometer gears. There's a white disc sitting on top of a shaft, with the little tooth gear underneath. Remove the white disc from the shaft.	

15	See the missing teeth? Once one tooth breaks off, the blasted odometer quits working! **Swap your new gear out with the bad one.** Then put the disc back on the shaft and reconnect the side board to the speedometer.	
15-2	Reseat the new gear and pod as shown. *Picture courtesy of Randy Starkie and Brickboard.com.*	
16	When reinstalling the speedometer, make sure that the three (female) pin connectors from the speedometer daughterboard is making contact with the male pins from the circuit board.	n/a
17	Put the cluster back together...	n/a
18	When it's time to reconnect the wires to the back of your cluster, **it is imperative that you connect them exactly where they belong.** Check your diagram, count the wires, and double-check again. Reinstall the cluster, etc... And take your 240 for a test drive. *Don't forget to put the metal bracket (from Step #5) back on! I've forgot this countless times... this just adds on another 5 minutes to put it back on.*	n/a
--	If for some reason your odometer still isn't turning, the motor that turns the odometer may be bad. Before inventing new curse words, pull the cluster again and check to be sure that the gear is on correctly. Furthermore, try checking for debris in the grooves of the clear plastic housing on the side of the speedometer (where the small circuit board screws into). Also, check the small grooves on the shaft where the smaller tooth gear spins around.	
--	See why you need one of Jeff's gears? Because you might one day be able to get to 999,999 miles, too! *Okay, without any modifications!* *:-)*	

ODOMETER GEARS

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