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# Ford Ranger and Mazda Pickup Odometer Worm Gear Replacement

[http://www.therangerstation.com/Magazine/Fall2008/odometer\\_worm\\_gear.htm](http://www.therangerstation.com/Magazine/Fall2008/odometer_worm_gear.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.***

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I have seen a few questions pop up recently about Odometers not working. I too had that problem and decided to fix the darn thing. So here is my "How to Article" entitled – Odometer Worm Gear Replacement.

**Disclaimer:** This article is not guaranteed to fix all issues with the odometer only the replacement of the motor or the gear.

Of course we have to begin by removing all necessary interior panels that will give us access to the instrument panel.

**Step 1:** I began by removing the two (four screws for those who have not modified their hood open latch, see photo (1) screws on the panel under the steering column. Be careful when pulling the panel out because you can break the spring clips that hold the panel in at the top.



Photo 1: Hood Latch Section Removed.

**Step 2:** Now that the lower panel is off I removed the Lower Dash Trim Panel Screws and the Radio Bezel Screws indicated by yellow arrows. Also take note in the picture the blue arrow indicating the Hood Latch still in place – no need to remove those P.I.A. screws.



Photo 2: Screws

**Step 3:** Now I removed the Dash Trim Panel Upper Screws as indicated by the yellow arrows.



**Step 4:** Next I carefully removed the radio bezel first and then gently squeezed the Dash Trim Panel out over the column. The only way to make that easier is to loosen the steering column bolts and lower the column a little. When you get it out you need to unplug the Headlight and Dimmer Switches as shown.



Headlight Switch

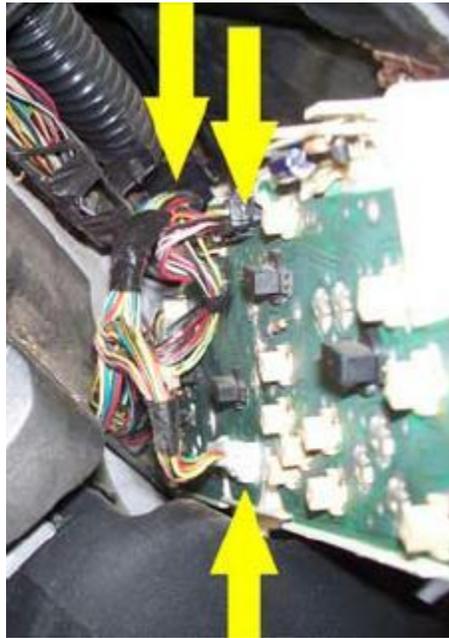


Dimmer Switch

**Step 5:** Now I removed the 4 screws holding the Instrument Panel in place.



**Step 6:** Now slide the Instrument Panel (IP) forward, pulling the left side out first. This will give you access to the back side so you can remove the plugs from the back of the IP – on my 95 there are three, two white and one black – see the photo.



**Step 7:** Now that the IP is out of the truck you need to remove the IP Bezel. This requires the removal of (7) torx drive screws as indicated in the photo.



Screws



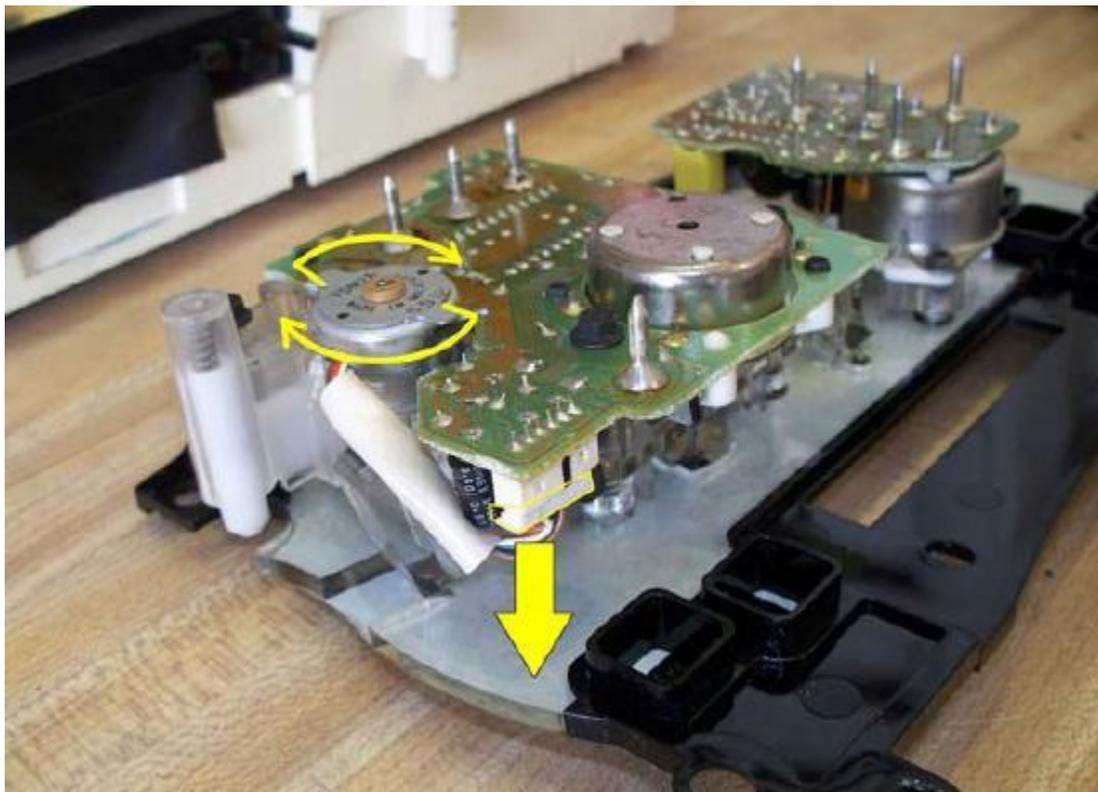
Bezel Off

**Step 8:** Now we have access to the gauges. To remove the Speedometer you need to gently pry up and remove the gauges on either side of the Speedometer. Then gently pry up and remove the Speedometer. Here is the Speedo out . . .

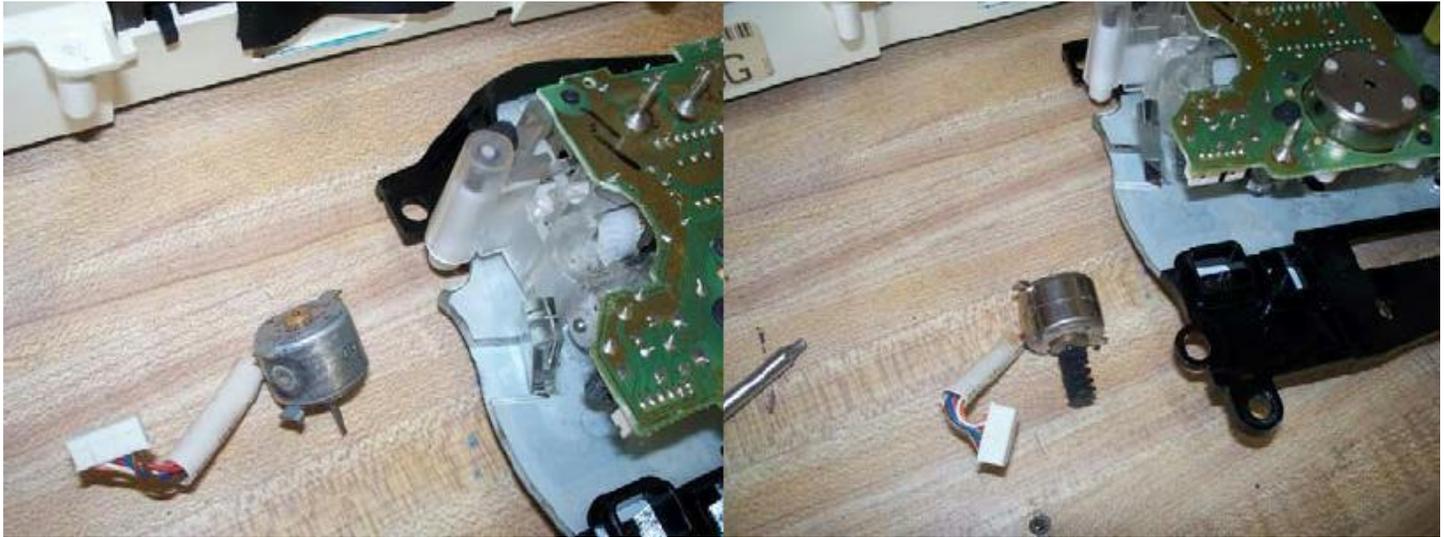


**Step 9:** Now turn the speedo over and place it face down on a soft towel or rag to protect the gauge face and needles. You will notice I did not do this as I took my time and was careful not to damage anything on the front.

This photo shows you the Odometer/Trip Meter Motor installed in the back of the Speedo. To remove the motor gently twist it in a clockwise fashion and it will lift out of the socket. **When trying to remove the motor you may either have to depress or lift up on the plastic tabs.** Then unplug the leads as shown in this picture.



The following photos show the old motor without a gear and with old used gear. **New gear is available from OdometerGears.com and is a permanent repair. The original black worm gear will fail again. The concern is the worm gear will not hold securely to the motor shaft as well as the material degrades and becomes a waxy material that crumbles.**



Once the motor is removed you will see the worm gear attached to the bottom side of the motor. Remove the old worm gear by pulling it off with your fingers or a flat blade screw driver. Install the new worm gear using channel lock pliers or a bench vise leaving the thickness of two business cards between the motor and the gear. **The new gear is installed with the neck (non-threaded end) towards the motor.**

Now just insert the motor into the socket, twist counter-clockwise, and plug in the leads. Installation is the reverse of the above procedures, just make sure to take your time and carefully reinstall the panels and ALL screws.

Hope this helps anyone needing to replace the odometer gear/motor.

Tom – Hazmat Ranger



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