



www.OdometerGears.com

Porsche 944 Odometer Gear Repair

<http://www.klaindustries.net/gearinstr/gear-instr-1.htm>

See section #2 and #3 for cluster removal

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.

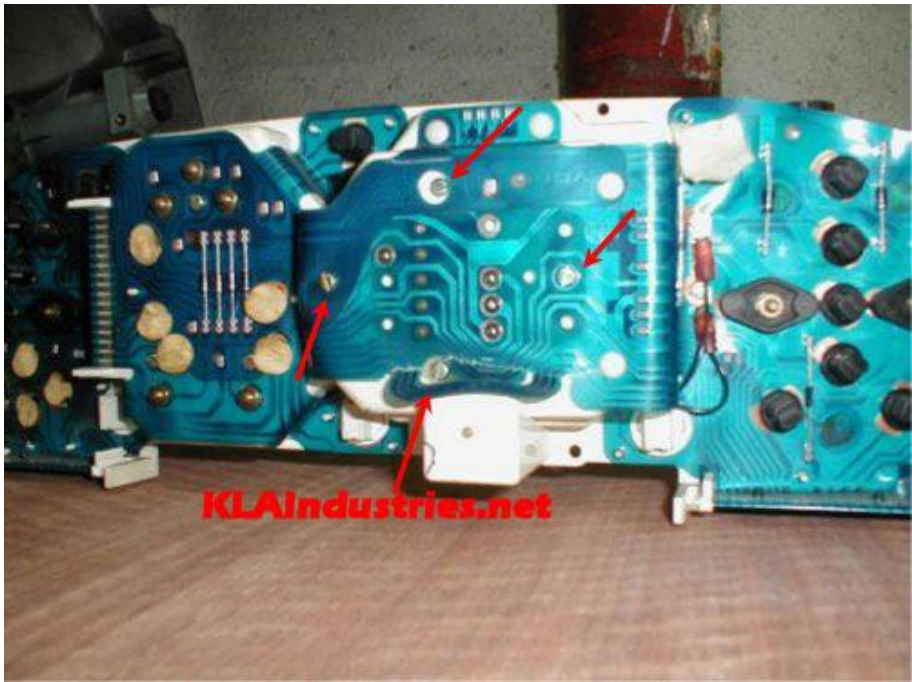
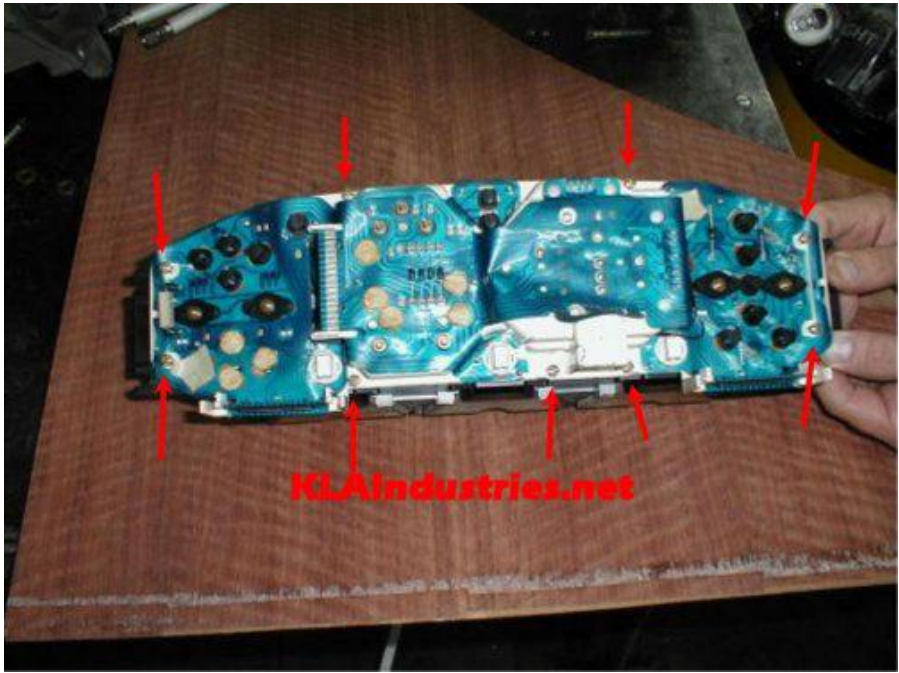
* Work smart, meaning have a clean area to work and the proper tools to perform the repair. General tools that will be needed depending on the vehicle are small standard screwdriver, small Phillips screwdriver, assortment of torx drivers, diagonal cutters (dikes), 1/4" socket set are just a few of the 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.**

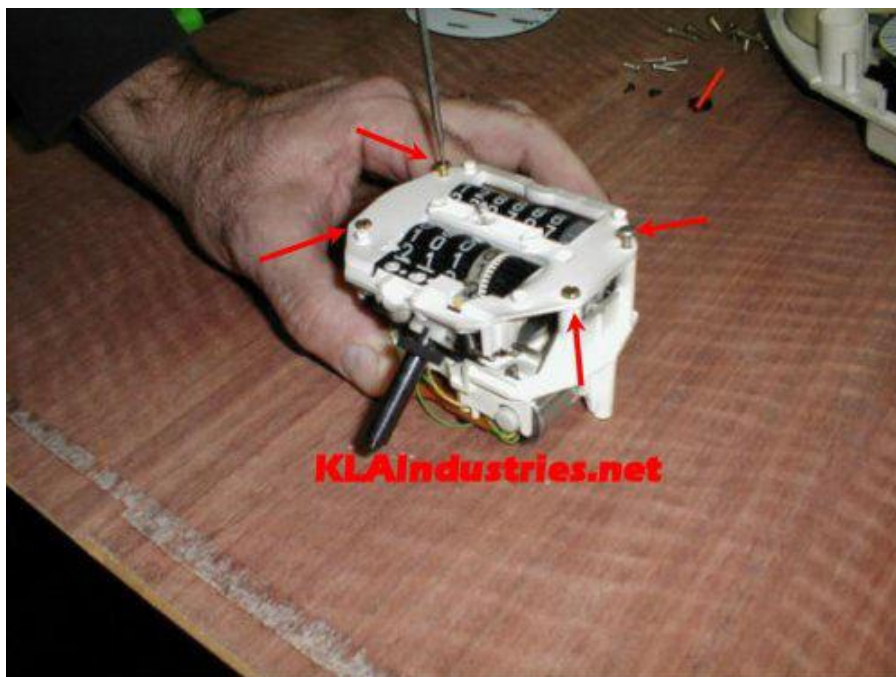
* Wipe the area around the gears, any shaft or shafts that the gears may ride on, the motor shaft and the peg on the pod that the small gear spins on clean, using a clean cloth and rubbing alcohol. Any residue left over from the old gears can allow the new gears to stick and not allow the odometer to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

You'll need to remove the needle in order to remove the face plate. The Speedo needle is press fitted on a small spindle with fine gear teeth on the end. **DO NOT PRY UP ON THE NEEDLE TO REMOVE!** This is the trickiest part of the job. The needle is pressed onto a shaft that is extremely thin. It feels like a pretty tough metal, but you need to be careful here. Do not pull straight up. **Do not put any torque on the shaft.** Grip the speedometer needle at the center and rotate counter-clockwise, you may have to gently lift the needle above the needle stop, until it hits an internal stop. Gently continue to rotate the needle while also gently applying a small amount of upwards tension at the same time. The friction is all that is holding the needle to the shaft. Keep turning and applying a small amount of upwards tension until the needle comes off. **Do not force it.)**

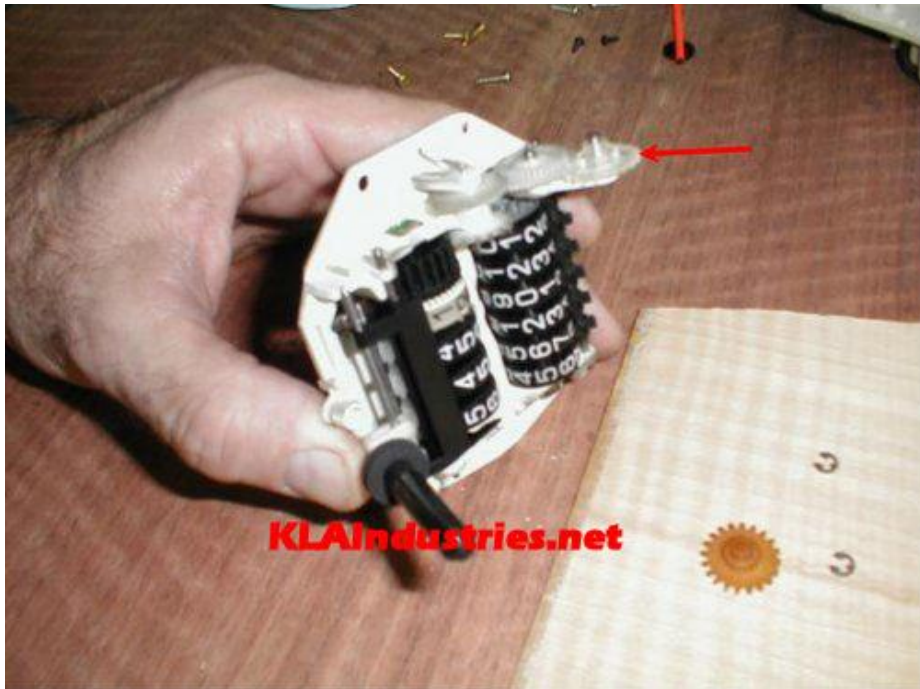


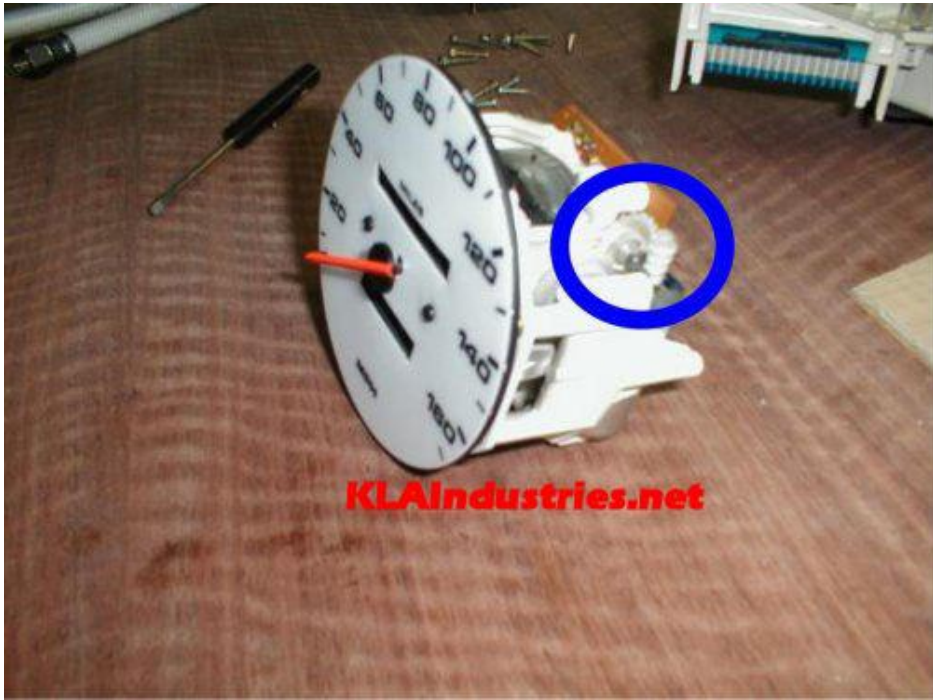


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Section #2

Early 944 early cluster removal

<http://www.clarks-garage.com/shop-manual/elect-06.htm>

Introduction

One of the hardest part of removing the gauges on an early 944 is disconnecting the speedometer cable from the back of the speedometer. To do this, the gauge must be slid out of the dash enough to get your hand behind the cluster to unscrew the cable connection. By pushing all of the slack in the speedometer cable from the engine compartment through the dash into the passenger's compartment, you may be able to slid the gauges out enough to disconnect the cable. However, if this does not work, you'll have to remove the turn signal assembly to get enough room to disconnect the cable.

Tools

- Phillips head screwdriver
- 24 mm socket (or 15/16") and ratchet
- Scribe, paint pen, or brightly colored nail polish

Procedure

1. Remove the horn button from the steering wheel and disconnect the electrical spade connector on the back of the horn button.
2. Using a 24 mm (or 15/16") socket and ratchet, remove the steering wheel retaining nut and washer.
3. Using a scribe, paint pen, or nail polish, mark the orientation of the steering wheel to the end of the steering shaft. This will facilitate easier installation during re-assembly.
4. Pull the steering wheel off the steering shaft.
5. Remove the two Phillips head screws located in the outer to gauge pods.
6. In the engine compartment, locate the speedometer cable and push as much of the slack in the cable through the firewall into the passenger's compartment.

7. Slide the gauge assembly as far out as possible, reach behind the assembly, and unscrew the speedometer cable.
8. If the gauges will not slide out enough to unscrew the speedometer cable, remove the turn signal switch assembly as follows:
 - a. Remove the two screws holding the upper and lower steering column covers in place and remove the covers. The lower cover will come off easily. However, the upper cover will require some wiggling to remove. Be careful when removing the covers as they are easily broken.
 - b. Disconnect the electrical connectors for the turn signal switch assembly.
 - c. Remove the three screws from the face of the turn signal switch assembly and remove the assembly from the steering shaft.
 - d. You should now be able to move one side of the gauge cluster out far enough to get your hand behind the assembly and unscrew the speedometer cable.
9. Once the speedometer cable is disconnected, slide the gauges out far enough to disconnect all the wires attached to the back of the gauges and then remove the cluster from the dash.
10. The individual gauges can be removed from the cluster by pushing them from the back of the cluster out the front.
11. Installation is the reverse of removal.

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Section #3

1985.5 And newer cluster removal

<http://www.clarks-garage.com/shop-manual/elect-07.htm>

Tools

- Phillips Screwdriver
- 24 mm (or 15/16") socket and ratchet
- Scribe, paint pen, or brightly colored nail polish

Procedure

1. Remove the horn button from the steering wheel and disconnect the electrical spade connector on the back of the horn button.
2. Using a 24 mm (or 15/16") socket and ratchet, remove the steering wheel retaining nut and washer.

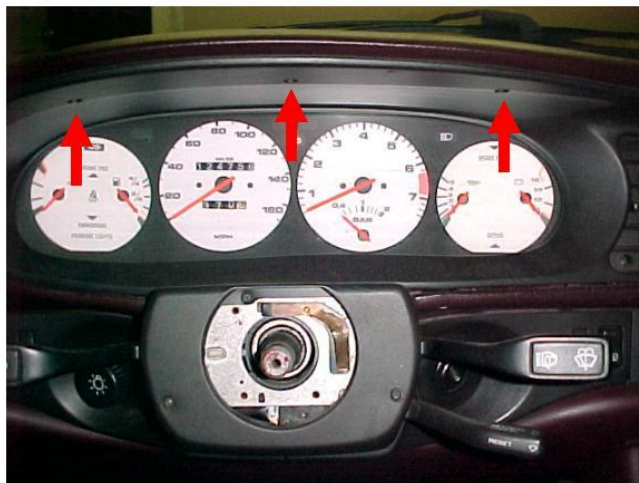




3. Using a scribe, paint pen, or nail polish, mark the orientation of the steering wheel to the end of the steering shaft. This will facilitate easier installation during re-assembly.
4. Pull the steering wheel off the steering shaft. As you can see from the picture below, this will make the gauge cluster removal much easier.

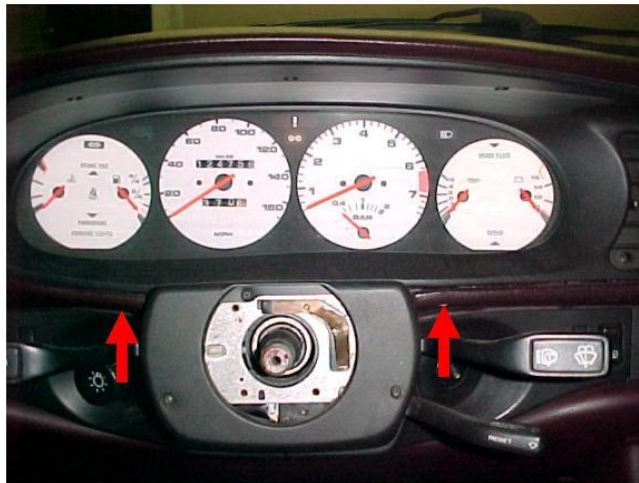


5. Remove the three Phillips head screws located in the top of the plastic trim piece around the gauge cluster. A stubby Phillips head screwdriver works well here.





6. Remove the two Phillips head screws which thread into the plastic trim piece from the bottom on either side of the steering column.



7. The vents in the center of the dash are an integral part of the trim piece surrounding the instrument cluster. There are several Phillips screws located in the vents which must be removed to remove the instrument cluster trim piece. There is one Phillips head screw located in the vent

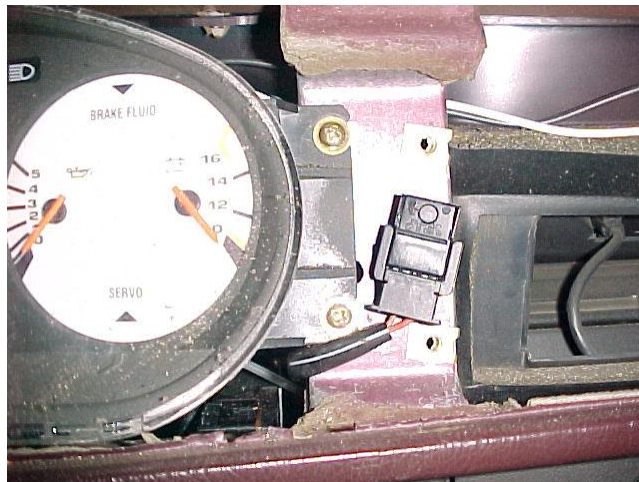
area to the far right of the instrument cluster. There are two more Phillips head screws located in the vent area closest to the instrument cluster. Remove all three of these screws.



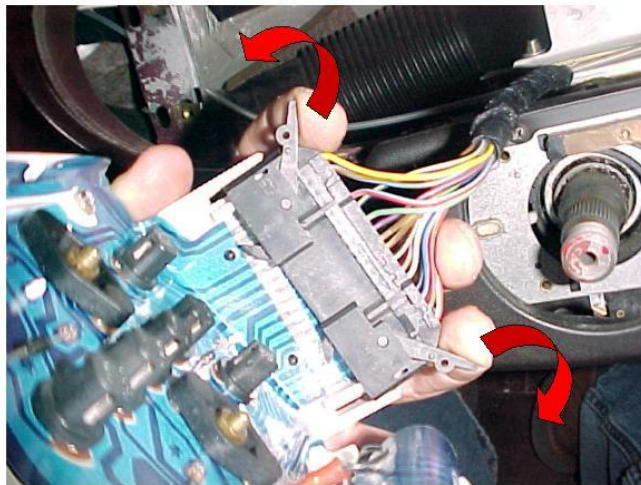
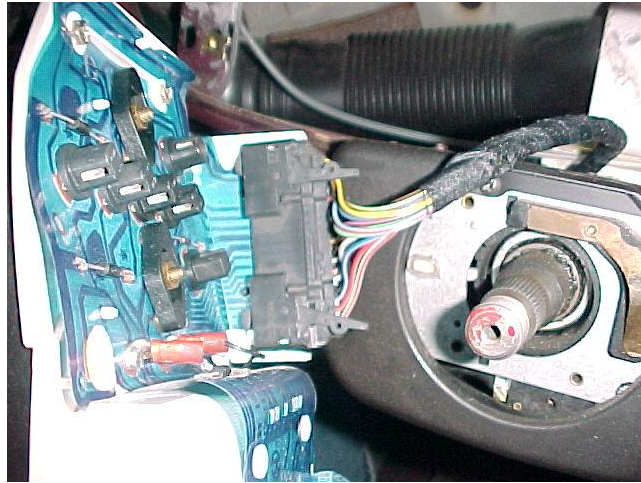
8. Lift up on the bottom edge of the trim piece right behind the steering column trim piece. This will allow the gauge cluster trim top of the steering column. You may also need to pull down slightly on the top of the trim piece to clear the dash. The instrument cluster trim piece should now slide out of the dash.



9. With the trim piece removed, you will now see the four Phillips head screws which hold the gauge cluster in the dash. Remove the screws and slide the cluster forward to access the electrical connectors on the back of the cluster.



10. Slide the cluster forward enough to reach the electrical plug connectors on the back of the cluster. Be extremely careful when moving the cluster around and removing it. There is a ribbon circuit board on the back which can easily hang on the edges of the openings in the dash and tear (don't ask how I know). There are three electrical connectors on the back of the cluster. Each has a set of locking levers that hold the plug connector onto the back of the cluster. Push outward on the levers to release each connector and remove it from the back of the cluster.



11. The instrument cluster will now slide out of the dash. You may have to tilt the cluster back slightly and slide on end out first. You may also need to push up on the instrument cluster opening in the dash to provide enough clearance to slide the cluster out. Be patient. Do not rush. Again, be careful of the ribbon circuit board on the back of the cluster.
12. Installation is the reverse of removal.

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