

DISTRIBUTOR BELT MONITORING SYSTEM PART NUMBER 993206 INSTALLATION INSTRUCTIONS

GENERAL INFORMATION

The Perma-Tune part number 993206 warns the Porsche 993 driver of a catastrophic distributor belt failure. The failure of the secondary distributor head drive belt will result in severe damage to the engine if the car is continued to be driven with a broken belt. The 993206 integrates with the existing engine cooling system fan belt warning system. Once installed, if the distributor belt breaks, the fan belt warning light will illuminate on the car's dashboard. A Visual inspection of the engine bay will reveal if the reason the dashboard light illuminated is a broken fan belt or broken distributor belt.



Additionally, the 993206 kit offers a valuable feature for engine builders: it remembers the highest RPM the engine reached. This feature can be utilized to document missed downshift damage to the engine, and the recorded data can only be retrieved by the Perma-Tune laboratory.

These are the parts included in the kit:

- Cover with integrated control electronics
- Set of connection cables
- Cable ties
- 2 x Neodymium magnets (5x4x2), pre-assembled in shrink tubing
- 1 tube of adhesive gel (20-30 seconds drying time for gluing the magnets)
- 1 retaining plate for sensor element (blue anodized aluminum plate)
- 1 sensor element assembly
- 1 alcohol cleaning pad (for cleaning the adhesive surfaces of the metal tabs in the distributor)



PREPARATION

You will need access to a Porsche 993 factory engine manual. Be aware that there are several versions of 993. To install the kit, the air handling parts on the driver side of the engine must be removed, the distributor cap and rotor must be disassembled, and the distributor must be removed from the engine. Consult the factory engine manual for disassembly and inspection instructions for your particular version of the Porsche 993. No wire splicing is required, the electrical connections are plug and play. It's noted that distributor shaft bearings may be worn out, and if a rebuild is necessary, special bearings, tooling, and technical expertise are required. The recommendation is to send the distributor to Perma-Tune for rebuilding, where the sensor, magnets, and necessary reconstruction will be performed simultaneously. For special packing and shipping instructions, contact Perma-Tune directly before shipping the part.

In addition to the tools required for removing the air box, distributor, and distributor caps, you will need these tools.



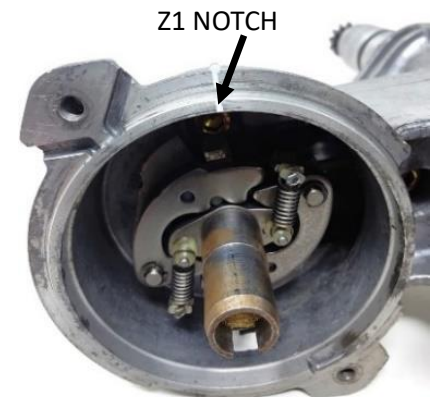
- Medium-sized flat end screwdriver (for removing the metal cover in the distributor head)
- Needle-nose pliers (for aligning the sensor element)
- Socket, ¼ inch drive, size 10 mm (for removing and installing the relay box cover)
- Socket, ¼ inch drive, size 8 mm (for removing and installing the ground screw on the spark plug wire holder)
- Angle ratchet, ¼ inch drive
- Box end wrench, size 14 mm (for installing the union nut on the sensor element)

INSTALLATION INSTRUCTIONS

WARNING: Disconnect the battery before working under the hood. Failure to follow these instructions and the instructions found in the vehicle owners' handbook and factory engine manual could result in serious personal injury, death and or damage to property. This kit is designed to be installed by a mechanic that is familiar with European automobiles and safety standards.

DISTRIBUTOR PREPARATION

1. Disconnect the battery negative terminal. Remove the air box from the engine following the factory engine manual instructions. Replace the relay box cover with the one provided. Note that there is an electronics enclosure on the inside of the box cover, behind the two connectors on the outside of the cover.
2. Remove the distributor caps and inspect the distributor caps and rotors for wear or damage. If replacement is necessary, take note of the firing order before detaching caps from the spark plug wires. If the spark plug wires are not marked with the cylinder numbers, do so before removing the caps from the spark plug wires. Distinguish between upper and lower wires; avoid mixing them.
3. Rotate the crankshaft manually until the Z1 mark on the crankshaft pulley aligns with the marker on the fan shroud. Consult the factory engine manual for the pulley markings. The rotor must align with the Z1 notch at the edge of the distributor head, if it does not, rotate the crankshaft one full turn.



4. Remove the distributor from the engine and block the engine case hole with a shop rag. Refer to the factory engine manual for details. Remove the rotors from the distributor shafts. Inspect the mechanical components of the distributor and consider rebuilding if necessary.
5. Pry off the metal cover pressed into the oval hole in the side of the distributor housing. This is where the sensor will be mounted.

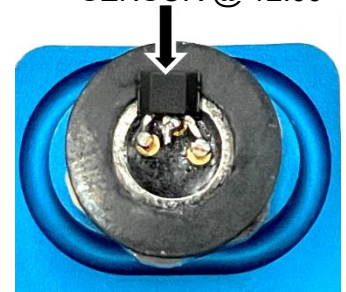
SENSOR
ASSEMBLY
MOUNTS HERE



CONNECTOR
@ 12:00



SENSOR @ 12:00

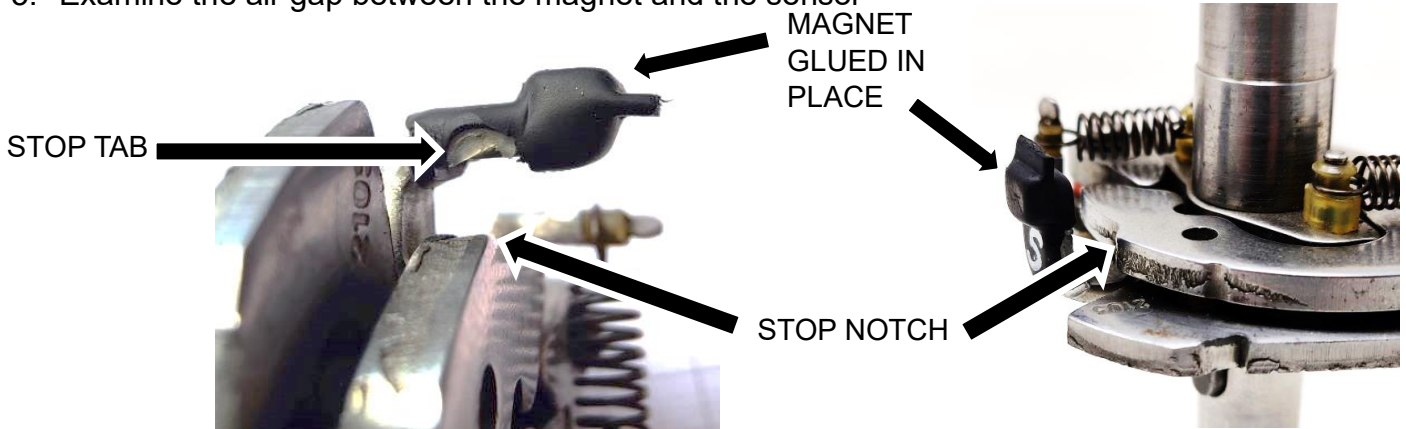


CIDCS-964 / 993 SENSOR AND MAGNET INSTALLATION

1. Insert the threaded sensor element into the housing from the inside and position the blue bracket over it. Ensure that the oval of the bracket aligns with the oval hole in the distributor housing.
2. Thread the nut onto the threaded sensor element keeping it nut loose enough to turn within the housing. Align the sensor to the 12:00 position in relation to the distributor cap mounting surface, then tighten the nut. You may need needle nose pliers to hold the sensor element in place while tightening the nut.
3. Attache the magnets to the end of the centrifugal stop tabs. Clean the stop tabs and then wipe them with the alcohol wipes provided. Apply a drop of adhesive gel to the stop tab and slide the magnet over it ensuring it faces outward towards the sensor element. Repeat the process for the other tab.



4. Check the centrifugal mechanism for smooth and full travel. Confirm that the stop notch of the weight arm meets the stop tab without interference from the magnet.
5. Examine the air gap between the magnet and the sensor

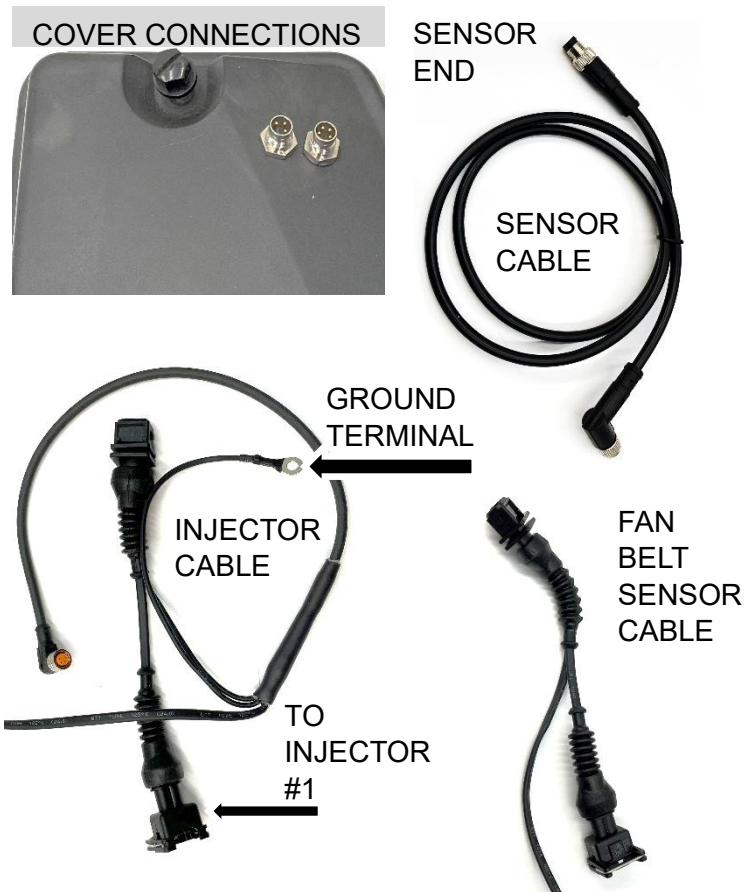


element, ensuring it falls within the range of 1 mm and 2.5 mm.

DISTRIBUTOR AND CABLE INSTALLATION

1. Connect the straight end of the three-pin cable to the sensor, ensuring careful handling to avoid disrupting the sensor element orientation when turning the connector ferrule.

2. Route the sensor cable to the relay cover taking care to avoid the spark plug wires and ignition coils. Connect the 90-degree end of the connector to the three pin connector on the relay cover.
3. Unplug the connector from injector #1 and link the injector cable between the injector harness and the injector.
4. Connect the injector cable ground terminal to the spark plug wire bracket bolt located aft of the injector.



5. Navigate the four-pin connector cable to the relay cover, cautiously avoiding the spark plug wires, and plug in the connector. Route the fan belt sensor cable to the fan belt sensor.
6. Unplug the connector from the fan belt sensor and connect the injector cable between the sensor harness and the sensor.
7. Use the cable ties provided to secure the cables away from the spark plug wires and ignition coils. Use the adhesive cable holder provided to secure the cables to the relay cover.
8. Lubricate the distributor shaft and reinstall the distributor into the engine with the rotor pointing to the Z1 notch. Consult the factory engine manual for details on installation of the distributor.
9. Connect the battery and start the engine. The monitoring electronics performs a self-check routine every time the engine is started. The belt warning light on the dashboard will illuminate upon starting the engine and will turn off within 15 seconds if the self-diagnosis is successful.

