AIP Electronics CAM27

AIP Electronics Camshaft Position Sensor

Instruction Manual - Model CAM27

1. Product Overview

The AIP Electronics Camshaft Position Sensor (CPS) is a direct replacement component designed to restore proper engine timing. This sensor is crucial for your engine's timing and firing system, providing the Electronic Control Module (ECM) with information about the engine's position for accurate timing and fuel injection pulses.

A malfunctioning CPS can lead to a service engine light error code, no-start conditions, or rough engine running due to inaccurate ignition and fuel timing. This replacement part is manufactured to meet or exceed original manufacturer specifications.

Key Features:

- 100% New Construction
- High Quality OEM Replacement Part
- Guaranteed Fit and Quality
- Ready for Install Straight out of the box

Compatible Vehicles:

- 1990-1992 Mercedes-Benz 300CE 3.0L 2962CC I6 GAS DOHC
- 1993 Mercedes-Benz 300CE 3.2L 3199CC I6 GAS DOHC
- 1993 Mercedes-Benz 300E 2.8L 2799CC I6 GAS DOHC
- 1993 Mercedes-Benz 300E 3.0L 2962CC I6 GAS SOHC
- 1993 Mercedes-Benz 300E 3.2L 3199CC I6 GAS DOHC
- 1992-1993 Mercedes-Benz 300SE 3.2L 3199CC I6 GAS DOHC
- 1990-1993 Mercedes-Benz 300SL 3.0L 2962CC I6 GAS DOHC
- 1993 Mercedes-Benz 300TE 3.0L 2962CC I6 GAS SOHC
- 1993 Mercedes-Benz 300TE 3.2L 3199CC I6 GAS DOHC
- 1992-1993 Mercedes-Benz 400E 4.2L 4196CC V8 GAS DOHC
- 1992-1993 Mercedes-Benz 500E 5.0L 4973CC V8 GAS DOHC

- 1993 Mercedes-Benz 500SEC 5.0L 4973CC V8 GAS DOHC
- 1992-1993 Mercedes-Benz 500SEL 5.0L 4973CC V8 GAS DOHC
- 1990-1992 Mercedes-Benz 500SL 5.0L 4973CC V8 GAS DOHC
- 1995-1996 Mercedes-Benz C280 2.8L 2799CC I6 GAS DOHC
- 1995-1996 Mercedes-Benz C36 AMG 3.6L 3606CC I6 GAS DOHC
- 1995 Mercedes-Benz E320 3.2L 3199CC I6 GAS DOHC
- 1995 Mercedes-Benz E420 4.2L 4196CC V8 GAS DOHC
- 1995-1996 Mercedes-Benz S320 3.2L 3199CC I6 GAS DOHC
- 1995 Mercedes-Benz S420 4.2L 4196CC V8 GAS DOHC
- 1995 Mercedes-Benz S500 5.0L 4973CC V8 GAS DOHC
- 1995-1996 Mercedes-Benz SL320 3.2L 3199CC I6 GAS DOHC
- 1994-1995 Mercedes-Benz SL500 5.0L 4973CC V8 GAS DOHC

2. Installation and Setup

Installation of the Camshaft Position Sensor typically involves replacing the existing unit. While the process can be straightforward for those with mechanical experience, professional installation is recommended to ensure proper function and avoid damage.

General Installation Steps:

1. **Safety First:** Ensure the vehicle's engine is off and cool. Disconnect the negative terminal of the battery to prevent electrical hazards.
2. **Locate the Sensor:** Identify the location of the existing camshaft position sensor in your vehicle. Its accessibility can vary by model.
3. **Disconnect Wiring:** Carefully disconnect the electrical connector from the old sensor.
4. **Remove Old Sensor:** Loosen and remove the retaining bolts that secure the sensor. Gently wiggle the old sensor to remove it from its mounting hole.
5. **Prepare New Sensor:** Apply a small amount of clean engine oil to the rubber O-ring of the new AIP Electronics sensor. This aids in smooth installation and proper sealing.
6. **Install New Sensor:** Insert the new sensor into the mounting hole. Ensure the gasket is properly seated.
7. **Secure Sensor:** Reinstall the retaining bolts. *Important:* Tighten the bolts equally and gradually to avoid cracking the sensor housing.
8. **Reconnect Wiring:** Reattach the electrical connector securely to the new sensor.
9. **Final Steps:** Reconnect the negative battery terminal. Start the engine and check for proper operation and any diagnostic trouble codes.

Figure 2.1: Front view of the AIP Electronics Camshaft Position Sensor, showing the main body and electrical connector end.

Figure 2.2: Angled view of the sensor, highlighting the mounting flanges and the red O-ring for sealing.

Figure 2.3: Another perspective of the sensor, showing the magnetic tip and the two bolt holes for secure mounting.

3. Operating Principles

The Camshaft Position Sensor plays a vital role in modern engine management systems. It monitors the rotational position of the camshaft, which is synchronized with the crankshaft. This information is then sent to the vehicle's Electronic Control Module (ECM).

The ECM uses the camshaft position data, along with crankshaft position data, to precisely determine the timing for fuel injection and ignition. This ensures that fuel is delivered and spark plugs fire at the optimal moment for efficient combustion, engine performance, and emissions control.

4. Maintenance

The AIP Electronics Camshaft Position Sensor is designed as a direct replacement part and typically requires no routine maintenance after proper installation. Its sealed construction protects internal components from environmental factors.

However, it is advisable to periodically inspect the sensor's electrical connector and wiring for any signs of corrosion, damage, or loose connections during routine vehicle maintenance. Ensure the mounting bolts remain secure to prevent any movement that could affect sensor readings.

5. Troubleshooting

If you experience issues after installing the new camshaft position sensor, or if your vehicle exhibits symptoms of a failing sensor, consider the following troubleshooting steps:

Common Symptoms of a Faulty CPS:

- Check Engine Light (CEL) illuminated on the dashboard.
- Engine cranking but not starting (no-start condition).
- Rough idling or stalling.
- Reduced engine power or poor acceleration.
- Increased fuel consumption.

Troubleshooting Steps:

1. **Check Connections:** Ensure the electrical connector is fully seated and free from dirt or corrosion. Inspect the wiring harness for any cuts, fraying, or damage.
2. **Scan for Codes:** Use an OBD-II scanner to retrieve any diagnostic trouble codes (DTCs) stored in the ECM. Common codes related to the camshaft position sensor include P0340, P0341, etc. These codes can help pinpoint the exact issue.
3. **Inspect for Oil Seepage:** After installation, check around the sensor's mounting area for any oil leaks, which could indicate an improper seal.
4. **Verify Compatibility:** Double-check that the sensor is the correct part number for your specific vehicle year, make, model, and engine size.
5. **Professional Diagnosis:** If symptoms persist or you are unable to diagnose the issue, it is recommended to consult a qualified automotive technician for professional diagnosis and repair.

6. Specifications

Attribute	Value
Brand	AIP Electronics
Model Number	CAM27
Item Dimensions (L x W x H)	4.25 x 2.75 x 1.75 inches
Item Weight	2.39 ounces
Mounting Type	Flange Mount
Specific Uses For Product	Camshaft Position Sensor
UPC	025093009778
OEM Part Numbers	0021539528, 21539528, PC378, 5S1347

7. Warranty Information

Specific warranty details for the AIP Electronics Camshaft Position Sensor (CAM27) are not provided in this manual. For information regarding product warranty, including coverage period and terms, please refer to the product packaging, the official AIP Electronics website, or contact the seller directly.

8. Customer Support

For technical assistance, product inquiries, or support regarding your AIP Electronics Camshaft Position Sensor, please contact AIP Electronics customer service. You can also visit their official store for more information and contact options:

Visit the AIP Electronics Store on Amazon