FAST 307003

FAST 307003 Coolant Temperature Sensor

Instruction Manual

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the FAST 307003 Coolant Temperature Sensor. This sensor is designed to accurately measure the temperature of the engine's coolant, providing critical data to the engine control unit (ECU) for optimal engine performance and fuel efficiency. Proper installation and care will ensure reliable operation and longevity of the sensor.

2. Safety Information

Always observe the following safety precautions when working with automotive components:

- Ensure the engine is **cool and off** before beginning any work. Hot engine components and fluids can cause severe burns.
- Disconnect the vehicle's battery **negative terminal** before installation to prevent electrical shorts and accidental engine starts.
- Wear appropriate **personal protective equipment (PPE)**, including safety glasses and gloves.
- Handle engine coolant with care. It is toxic and should be disposed of properly according to local regulations.
- If you are unsure about any step, consult a qualified automotive technician.

3. Product Overview

The FAST 307003 Coolant Temperature Sensor is a precision-engineered component. It typically consists of a brass or metal housing with a threaded end for secure mounting into the engine block or coolant passage, and an electrical connector for transmitting temperature data to the vehicle's ECU.

Figure 3.1: The FAST 307003 Coolant Temperature Sensor, showing its brass body and electrical connector.

The sensor's tip, which is submerged in the coolant, contains a thermistor that changes resistance based on temperature. This resistance change is then interpreted by the ECU to determine the engine's operating temperature.

4. Setup and Installation

Follow these steps for proper installation of the coolant temperature sensor:

1. **Prepare the Vehicle:** Park the vehicle on a level surface and allow the engine to cool completely. Disconnect the negative battery cable.
2. **Locate the Old Sensor:** Refer to your vehicle's service manual for the exact location of the coolant temperature sensor. It is typically found on the engine block, cylinder head, or intake manifold, often near the thermostat housing.
3. **Drain Coolant (if necessary):** Depending on the sensor's location, you may need to drain a small amount of coolant to prevent spillage when removing the old sensor. Place a drain pan underneath.
4. **Remove Old Sensor:** Disconnect the electrical connector from the old sensor. Use an appropriately sized wrench or sensor socket to carefully unscrew and remove the old sensor. Be prepared for some coolant to leak out.
5. **Inspect and Clean:** Inspect the sensor port for any debris or old sealant. Clean the threads thoroughly to ensure a proper seal with the new sensor.
6. **Install New Sensor:** Apply a small amount of thread sealant (if not pre-applied or if specified by vehicle manufacturer) to the threads of the new FAST 307003 sensor. Carefully thread the new sensor into the port by hand to avoid cross-threading.
7. **Tighten Sensor:** Use a wrench or sensor socket to tighten the sensor to the vehicle manufacturer's specified torque. **Do not overtighten**, as this can damage the sensor or the engine component.

8. **Reconnect Electrical Connector:** Firmly connect the electrical harness to the new sensor until it clicks into place.
9. **Refill Coolant and Bleed Air:** If coolant was drained, refill the cooling system to the proper level with the correct type of coolant. Bleed any air from the system according to your vehicle's service manual.
10. **Reconnect Battery:** Reconnect the negative battery cable.
11. **Test System:** Start the engine and check for leaks around the new sensor. Monitor the engine temperature gauge to ensure it operates normally.

5. Operation

Once installed, the FAST 307003 Coolant Temperature Sensor operates continuously as part of your vehicle's engine management system. It sends real-time temperature data to the ECU, which uses this information for various functions, including:

- Adjusting fuel mixture and ignition timing for optimal combustion.
- Controlling cooling fan operation to maintain ideal engine temperature.
- Activating the cold start enrichment system.
- Providing temperature readings for the dashboard gauge.

No user interaction is required for the sensor's operation after proper installation.

6. Maintenance

The FAST 307003 Coolant Temperature Sensor is designed for long-term, maintenance-free operation. However, its performance can be affected by the overall health of your vehicle's cooling system. To ensure optimal sensor function and longevity:

- Regularly check and maintain your vehicle's coolant level and quality. Contaminated or low coolant can lead to inaccurate readings or sensor damage.
- Follow your vehicle manufacturer's recommended coolant flush and replacement intervals.
- Inspect the sensor's electrical connector periodically for corrosion or damage. Clean with an electrical contact cleaner if necessary.
- Ensure there are no coolant leaks around the sensor or elsewhere in the cooling system.

7. Troubleshooting

If you suspect an issue with your coolant temperature sensor, consider the following common symptoms and solutions:

Symptom	Possible Cause	Solution
Engine temperature gauge erratic or not working	Faulty sensor, poor electrical connection, wiring issue.	Check electrical connector. Test sensor resistance (refer to vehicle manual for specifications). Inspect wiring for damage. Replace sensor if faulty.
Check Engine Light (CEL) with P0117, P0118, P0119 codes	Sensor circuit low/high input, intermittent circuit.	These codes directly relate to the Engine Coolant Temperature (ECT) sensor. Diagnose with a scan tool. Check wiring, connector, and sensor.

Symptom	Possible Cause	Solution
Poor fuel economy or black smoke from exhaust	Sensor reporting incorrect cold temperature (rich mixture).	Verify sensor readings with a scan tool. Replace sensor if readings are consistently inaccurate.
Engine running hot or overheating	Sensor reporting incorrect hot temperature (lean mixture, cooling fan not activating).	Check coolant level and system for leaks. Verify cooling fan operation. Test sensor.

For complex issues or if basic troubleshooting does not resolve the problem, it is recommended to consult a certified automotive technician or refer to your vehicle's specific service manual.

8. Specifications

Attribute	Detail
Brand	FAST
Model Number	307003
Product Type	Coolant Temperature Sensor (Electronic Sensor)
Material	Brass body, plastic connector (typical)
Item Dimensions (L x W x H)	Approximately 6.5 x 3.75 x 2 inches (packaging dimensions)
Item Weight	Approximately 0.96 Pounds (packaging weight)
UPC	036584268734
Country of Origin	USA

9. Warranty and Support

For warranty information and technical support regarding your FAST 307003 Coolant Temperature Sensor, please refer to the official FAST website or contact their customer service directly. Keep your purchase receipt as proof of purchase for any warranty claims.

FAST Customer Support:

Website: www.fuelairspark.com (This is a common website for FAST automotive products)

Phone: Refer to the website for current contact numbers.

Related Documents - 307003

	[FAST 8200N Applicator Parts Manual] Comprehensive illustrated parts manual for the FAST 8200N Applicator, covering models 60' and 66'. Includes detailed parts lists, diagrams, and warranty information.
	[FAST 9518T & 9524T Truss Boom Parts Manual | Fast Manufacturing] Official parts manual for FAST 9518T and 9524T Truss Boom sprayers (120/132' boom width). Essential guide for agricultural equipment maintenance and parts identification from Fast Manufacturing, Inc.
	[FAST 8200N Applicator Parts Manual] Illustrated parts list and manual for the FAST 8200N Applicator, covering trailer and frame, toolbar, row units, tank and pump, hydraulics, and electrical components.
	[Fast DuraPlacer Quick Start Guide | FAST AG Solutions] Get started quickly with the Fast DuraPlacer agricultural equipment. This guide provides essential instructions for hydraulic setup, field operation, and transport positioning.
	[FAST EZ-EFI 2.0 Self Tuning Fuel Injection System Installation Instructions] Comprehensive installation guide for the FAST EZ-EFI 2.0 Self Tuning Fuel Injection System, detailing kit contents, setup procedures, wiring, and troubleshooting for automotive performance enthusiasts.
	[Fast I-VAC DRY VACUUM CLEANER OPERATOR MANUAL - Hi-Filtration 6.0] Operator manual for the Fast I-VAC DRY VACUUM CLEANER, model Hi-Filtration 6.0. This document provides comprehensive instructions on assembly, operation, maintenance, troubleshooting, and technical specifications for this industrial cleaning equipment. Includes safety guidelines and parts identification.