

Basic Natural Gas Vehicle Training

Module 4: Introduction to Sensors and Actuators

Lesson 3: Position Sensors

Lecture 20 Minutes

Lab None

Classroom Instructional Objectives:

Upon completion of this unit of instruction the student will be able to:

- Explain the operating theory of position sensors.
- Compare and contrast throttle actuator position sensor (TPS) and throttle pedal position sensors.
- Create a table listing the relationship between position and voltage output.
- Identify position sensors on a wiring diagrams
- Explain how to test the five-volt reference wire.
- Explain how to test the sensor signal wire.
- Explain how to test the sensor ground wire.

Key Classroom Points:

- Explain the operational theory of position sensors.
- Explain the difference between throttle actuator TPS and pedal TPS.
- Demonstrate how to read wiring diagrams specific to position sensors.
- Provide specific examples of position sensors.
- Explain how to test the sensor five-volt reference signal using a multi-meter.
- Explain how to test the sensor signal using a multi-meter.
- Explain how to test the sensor ground.
- Introduce how to test sensor signals using a lab scope

Lab Skill Objectives:

Upon completion of this unit of instruction the student will be able to:

None

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Key Lab Points:

None

Classroom Materials:

- Attendance sheet
- Power Point presentation CD
- Lap-top
- Projector
- Instructor's guide
- White board marking pens
- Projection screen

Handouts:

- Power Point slide materials

Instructor's notes:
