

## 2008 Isuzu Ascender LS

2008 SUSPENSION Tire Pressure Monitoring - Ascender, Envoy & Trailblazer

### 2008 SUSPENSION

#### Tire Pressure Monitoring - Ascender, Envoy & Trailblazer

## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS

#### Fastener Tightening Specifications

Application	Specification	
	Metric	English
Tire Pressure Sensor Nut (domestic vehicles)	7 N.m	62 lb in
Tire Pressure Sensor Nut (export vehicles)	12 N.m	106 lb in

## DIAGNOSTIC INFORMATION & PROCEDURES

### DIAGNOSTIC CODE INDEX

#### DIAGNOSTIC CODE INDEX

DTC	Description
<b><u>DTC C0750, C0755, C0760, or C0765</u></b>	C0750: Left Front Low Tire Pressure Sensor C0755: Right Front Low Tire Pressure Sensor C0760: Left Rear Low Tire Pressure Sensor C0765: Right Rear Low Tire Pressure Sensor
<b><u>DTC C0775</u></b>	C0775: Low Tire Pressure System Sensors Not Learned

### DIAGNOSTIC STARTING POINT - TIRE PRESSURE MONITORING

Begin the system diagnosis with **Diagnostic System Check - Vehicle** . The Diagnostic System Check - Vehicle will provide the following information:

- The ability of the control modules to communicate through the serial data circuit
- The Identification of stored diagnostic trouble codes (DTCs) and their status

The use of the Diagnostic System Check - Vehicle will identify the correct procedure for diagnosing the system and where the procedure is located.

### DTC C0750, C0755, C0760, OR C0765

#### Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

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### DTC Descriptors

#### DTC C0750

Left Front Low Tire Pressure Sensor

#### DTC C0755

Right Front Low Tire Pressure Sensor

#### DTC C0760

Left Rear Low Tire Pressure Sensor

#### DTC C0765

Right Rear Low Tire Pressure Sensor

### Circuit/System Description

The tire pressure monitor (TPM) system has a radio frequency (RF) transmitting pressure sensor in each wheel/tire assembly. As vehicle speed increases, centrifugal force closes the sensors internal roll switch, which puts the sensor into rolling mode. The lift gate module (LGM) receives and translates the data contained in the tire pressure sensor RF transmissions into sensor presence, sensor mode, and tire pressure. Once vehicle speed is 40 km/h (25 mph) or greater, the LGM waits for the sensors to go into rolling mode. If one or more sensors do not go into rolling mode, or do not transmit at all, the LGM will set DTC C0750, C0755, C0760, or C0765 respectively.

### Conditions for Running the DTC

Vehicle speed is 40 km/h (25 mph) or greater for 2 minutes.

### Conditions for Setting the DTC

A sensor does not transmit for 18 minutes.

### Action Taken When the DTC Sets

- The tire pressure monitor indicator icon on the instrument panel cluster (IPC) flashes for 1 minute and then remains illuminated after the ignition switch is cycled ON and the IPC bulb check is complete.
- If equipped, the driver information center (DIC) displays the suspect tire pressure as dashes.
- If equipped, the DIC displays a service tire monitor type message.

### Conditions for Clearing the DTC

- A current DTC will clear when the malfunction is no longer present and 1 ignition cycle occurs.
- The LGM automatically clears the history DTC when a current DTC is not detected in 100 consecutive

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drive cycles.

### Diagnostic Aids

- Some aftermarket wheel valve stem holes are located further from the wheel rim than original equipment wheels. When using the TPM special tool to activate a sensor, ensure the tool antenna is no further than 15 cm (6 in) from the sensor and is aiming upward.
- Aftermarket wheel valve stem locations can cause a sensor to not function correctly.
- A sensor may have been damaged due to a previous wheel/tire service or flat tire event.
- The use of tire sealants can obstruct the sensor pressure sensing port and cause inaccurate tire pressure readings. If this condition is verified, remove the sealer from the tire and replace the sensor. Refer to **Tire Pressure Indicator Sensor Replacement**.
- Occasionally sensor transmissions are not received by the RCDLR due to vehicle level RF interference from items such as but not limited to aftermarket ignition systems, DVD players, CB radios, or metallic type window tinting.
- The sensor activation procedure may have to be repeated up to 3 times before determining a sensor is malfunctioning. In the event a particular sensor information is displayed on the special tool upon activation but the horn does not chirp, it may be necessary to rotate the wheel valve stem to a different position due to the RF signal is being blocked by another component.
- Occasionally sensors can become mislocated due to previous tire rotations where the sensor learn procedure was not performed or stray sensor transmissions have been received from other vehicles. Always learn the sensors to ensure the DTC set is for that actual physical corner of the vehicle. Refer to **Tire Pressure Sensor Learn**.

### Reference Information

#### Description and Operation

#### **Tire Pressure Monitor Description and Operation**

#### Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

#### Scan Tool Reference

**Control Module References** for Scan Tool Information

#### Special Tools

**J-46079** Tire Pressure Monitor Diagnostic Tool. See **Special Tools**.

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### Circuit/System Verification

1. Using the **J-46079**, activate each tire pressure sensor and record each sensors transmission data and physical location. See **Special Tools**. Verify **J-46079** displays the 8-digit ID number, accurate tire pressure +/- 27. See **Special Tools**. 6 kPa (4 psi), Learn Mode, and at least a 1/4 graph signal strength displayed.
  - If any of the parameters listed above are not displayed, replace the suspect tire pressure sensor.
2. With the scan tool, verify tire pressure sensors ID and locations displayed on the scan tool match the IDs and locations recorded from the special tool.
  - If the IDs and locations do not match, perform the **Tire Pressure Sensor Learn**.
3. Enable the TPM learn mode. Use the **J-46079** in simulate mode to learn 4 simulated sensor transmissions into the LGM. See **Special Tools**. Verify that all 4 simulated sensor locations, IDs, and tire pressures displayed on the TPM special tool match the corresponding scan tool parameters displayed.
  - If the scan tool does not match, replace the LGM.
4. Test drive the vehicle above 40 km/h (25 mph) for greater than 2 minutes. With the scan tool, observe the suspect Pressure Sensor Mode data parameter. Verify the sensor mode changes to Rolling.
  - If the Pressure Sensor Mode does not change, replace the suspect tire pressure sensor.

### Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Tire Pressure Indicator Sensor Replacement**
- **Tire Pressure Sensor Learn**
- **Control Module References** for LGM replacement, setup, and programming

### DTC C0775

#### Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

#### DTC Descriptor

### DTC C0775

Low Tire Pressure System Sensors Not Learned

#### Circuit/System Description

The lift gate module (LGM) receives a radio frequency (RF) transmission from each tire pressure sensor. Each sensor RF transmission contains its own unique identification (ID) code that must be learned into the LGM memory. Once all 4 IDs have been learned and vehicle speed is 25 mph or greater, the LGM continuously

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compares IDs in received transmission to its learned IDs to determine if all 4 sensors are present.

#### **Conditions for Running the DTC**

The ignition is ON.

#### **Conditions for Setting the DTC**

The LGM has not undergone the tire pressure sensor learn procedure.

#### **Action Taken When the DTC Sets**

The driver information center (DIC) displays the SERVICE TIRE MONITOR warning message or the IPC icon illuminates.

#### **Conditions for Clearing the DTC**

A current DTC will clear when the LGM has undergone the sensor learn procedure.

#### **Diagnostic Aids**

A newly replaced LGM will set DTC C0775 on its initial ignition ON cycle. Tire pressure sensor learn procedure must be performed.

#### **Reference Information**

#### **Description and Operation**

#### **Tire Pressure Monitor Description and Operation**

#### **Electrical Information Reference**

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

#### **Scan Tool Reference**

**Control Module References** for Scan Tool Information

#### **Special Tools Required**

**J-46079** Tire Pressure Monitor Diagnostic Tool. See **Special Tools**.

#### **Circuit/System Verification**

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Verify that the DTC C0775 is not set.

- If the DTC is set, program/setup the LGM. If the DTC resets, replace the LGM.

### Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Tire Pressure Sensor Learn**
- **Control Module References** for LGM replacement, setup, and programming

### SYMPTOMS - TIRE PRESSURE MONITORING

1. Perform the **Diagnostic System Check - Vehicle** , before using the Symptom Tables in order to verify that all of the following are true:
  - There are no DTCs set.
  - The control modules can communicate via the serial data link.
2. Review the system operation in order to familiarize yourself with the system functions. Refer to **Tire Pressure Monitor Description and Operation**.

### Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Tire Pressure Monitoring (TPM) System. Refer to **Checking Aftermarket Accessories** .
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

### Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections** .

### Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- **Low Tire Pressure Indicator Always On**
- **Low Tire Pressure Indicator Inoperative**

### LOW TIRE PRESSURE INDICATOR ALWAYS ON

#### Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.

- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

#### Circuit/System Description

The lift gate module (LGM) receives a radio frequency (RF) transmission from each tire pressure sensor. Each sensor RF transmission contains its own unique identification (ID) code that must be learned into the LGM memory. Once all 4 IDs have been learned and vehicle speed is greater than 40 km/h (25 mph), the LGM continuously compares IDs in received transmission to its learned IDs to determine if all 4 sensors are present. If the LGM detects a low tire pressure condition or a malfunction in the system, it will send a serial data message to the instrument panel cluster (IPC) requesting tire pressure monitor indicator illumination and to display a data message on the driver information center (DIC), if equipped.

#### Diagnostic Aids

- Some aftermarket wheel valve stem holes are located further from the wheel rim than original equipment wheels. When using the TPM special tool to activate a sensor, ensure the tool antenna is no further than 15 cm (6 in) from the sensor and is aiming upward.
- Aftermarket wheel valve stem locations can cause a sensor to not function correctly.
- A sensor may have been damaged due to a previous wheel/tire service or flat tire event.
- The use of tire sealants can obstruct the sensor pressure sensing port and cause inaccurate tire pressure readings. If this condition is verified, remove the sealer from the tire and replace the sensor. Refer to **Tire Pressure Indicator Sensor Replacement**.
- Occasionally sensor transmissions are not received by the LGM due to vehicle level RF interference from items such as but not limited to aftermarket ignition systems, DVD players, CB radios, or metallic type window tinting.
- The sensor activation procedure may have to be repeated up to 3 times before determining a sensor is malfunctioning. In the event a particular sensor's information is displayed on the special tool upon activation but the horn does not chirp, it may be necessary to rotate the wheel valve stem to a different position due to the RF signal is being blocked by another component.
- Occasionally sensors can become mislocated due to previous tire rotations where the sensor learn procedure was not performed or stray sensor transmissions have been received from other vehicles. Always learn the sensors to ensure the DTC set is for that actual physical corner of the vehicle. Refer to **Tire Pressure Sensor Learn**.

#### Reference Information

#### Description and Operation

#### **Tire Pressure Monitor Description and Operation**

#### Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**

- **Wiring Repairs**

**Scan Tool Reference**

**Control Module References** for Scan Tool Information

**Special Tools Required**

**J-46079** Tire Pressure Monitor Diagnostic Tool. See **Special Tools**.

**IMPORTANT: When a TPM DTC is set, the tire pressure monitor indicator icon will flash for 1 minute after the IPC bulb check is completed and then remains illuminated. If equipped with a DIC, a service tire monitor type message will also be displayed.**

**Low tire pressure in one or more tires is indicated by a continuously illuminated tire pressure monitor indicator icon after the IPC bulb check is completed. If equipped with a DIC, a check tire pressure type message will also be displayed.**

**Circuit/System Verification**

1. Inflate all tires to the proper pressure and drive the vehicle over 40 km/h (25 MPH) for over 2 minutes. Refer to **Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label** .
2. Using the **J-46079** , activate each tire pressure sensor and record each sensors tire pressure reading. See **Special Tools**. Check the tire pressures with a known accurate hand held tire pressure gauge. Verify that the pressure readings from the special tool do not differ more than 27.6 kPa (4 psi) from the actual tire pressure readings.
  - If not within the specified range, replace the suspect tire pressure sensor.
3. Using a scan tool, enable the TPM learn mode. Use the **J-46079** in simulate mode to learn 4 simulated sensor transmissions into the LGM. See **Special Tools**. Observe tire pressures in the scan tool data display. Verify the simulated tire pressures do not differ more than +/-27.6 kPa (4 psi) of the scan tool reading.
  - If not within the specified range, replace the LGM.
4. Using a scan tool, select instrument panel special functions Lamp Test. Command the instrument panel warning lamps OFF. Verify the tire pressure monitor indicator icon turns OFF.
  - If the tire pressure monitor icon does not turn OFF, replace the IPC.
5. Ignition ON, use the scan tool to setup the Tire Type/Pressure Selection in the LGM Module Setup menu. Refer to the **Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label** . Verify the tire pressure monitor indicator icon turns OFF.
  - If the tire pressure monitor icon does not turn OFF, replace the LGM.

**Repair Procedures**

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.



- **Tire Pressure Indicator Sensor Replacement**
- **Tire Pressure Sensor Learn**
- **Control Module References** for IPC or LGM replacement, setup, and programming

## LOW TIRE PRESSURE INDICATOR INOPERATIVE

### Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

### Circuit/System Description

The lift gate module (LGM) receives a radio frequency (RF) transmission from each tire pressure sensor. Each sensor RF transmission contains its own unique identification (ID) code that must be learned into the LGM memory. Once all 4 IDs have been learned and vehicle speed is greater than 40 km/h (25 mph), the LGM continuously compares IDs in received transmission to its learned IDs to determine if all 4 sensors are present. If the LGM detects a low tire pressure condition or a malfunction in the system, it will send a serial data message to the instrument panel cluster (IPC) requesting tire pressure monitor indicator illumination and to display a data message on the driver information center (DIC), if equipped.

### Diagnostic Aids

- Some aftermarket wheel valve stem holes are located further from the wheel rim than original equipment wheels. When using the TPM special tool to activate a sensor, ensure the tool antenna is no further than 15 cm (6 in) from the sensor and is aiming upward.
- Aftermarket wheel valve stem locations can cause a sensor to not function correctly.
- A sensor may have been damaged due to a previous wheel/tire service or flat tire event.
- The use of tire sealants can obstruct the sensor pressure sensing port and cause inaccurate tire pressure readings. If this condition is verified, remove the sealer from the tire and replace the sensor. Refer to **Tire Pressure Indicator Sensor Replacement**.
- Occasionally sensor transmissions are not received by the LGM due to vehicle level RF interference from items such as but not limited to aftermarket ignition systems, DVD players, CB radios, or metallic type window tinting.
- The sensor activation procedure may have to be repeated up to 3 times before determining a sensor is malfunctioning. In the event a particular sensor's information is displayed on the special tool upon activation but the horn does not chirp, it may be necessary to rotate the wheel valve stem to a different position due to the RF signal is being blocked by another component.
- Occasionally sensors can become mislocated due to previous tire rotations where the sensor learn procedure was not performed or stray sensor transmissions have been received from other vehicles. Always learn the sensors to ensure the DTC set is for that actual physical corner of the vehicle. Refer to **Tire Pressure Sensor Learn**.

### Reference Information

## Description and Operation

### Tire Pressure Monitor Description and Operation

#### Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

#### Scan Tool Reference

Control Module References for Scan Tool Information

#### Special Tools

**J-46079** Tire Pressure Monitor Diagnostic Tool. See Special Tools.

#### Circuit/System Verification

1. Ignition ON, with the scan tool, setup the Tire Type and Pressure Selection information in the LGM. Refer to the Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label .
2. With the scan tool, select instrument panel special functions Lamp Test. Command the instrument panel lamps ON. Verify tire pressure monitor indicator icon turns ON.
  - If the icon does not turn ON, replace the IPC.
3. Using the tire pressure monitor (TPM) special tool to observe the tire pressure of the suspected faulty sensor. Check the air pressure with a known accurate tire pressure gage. Compare the pressure reading to the display on the TPM special tool. Verify the pressure readings from special tool do not differ 27.6 kPa (4 psi) or more than actual tire pressure.
  - If not within the specified range, replace the suspect tire pressure sensor.
4. With the scan tool, observe tire pressures in the scan tool data display. Verify pressure readings from special tool do not differ 27.6 kPa (4 psi) or more than scan tool data display.
  - If not within the specified range, replace the LGM.

#### Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Tire Pressure Indicator Sensor Replacement
- Tire Pressure Sensor Learn
- Control Module References for IPC and LGM replacement, setup, and programming

## REPAIR INSTRUCTIONS

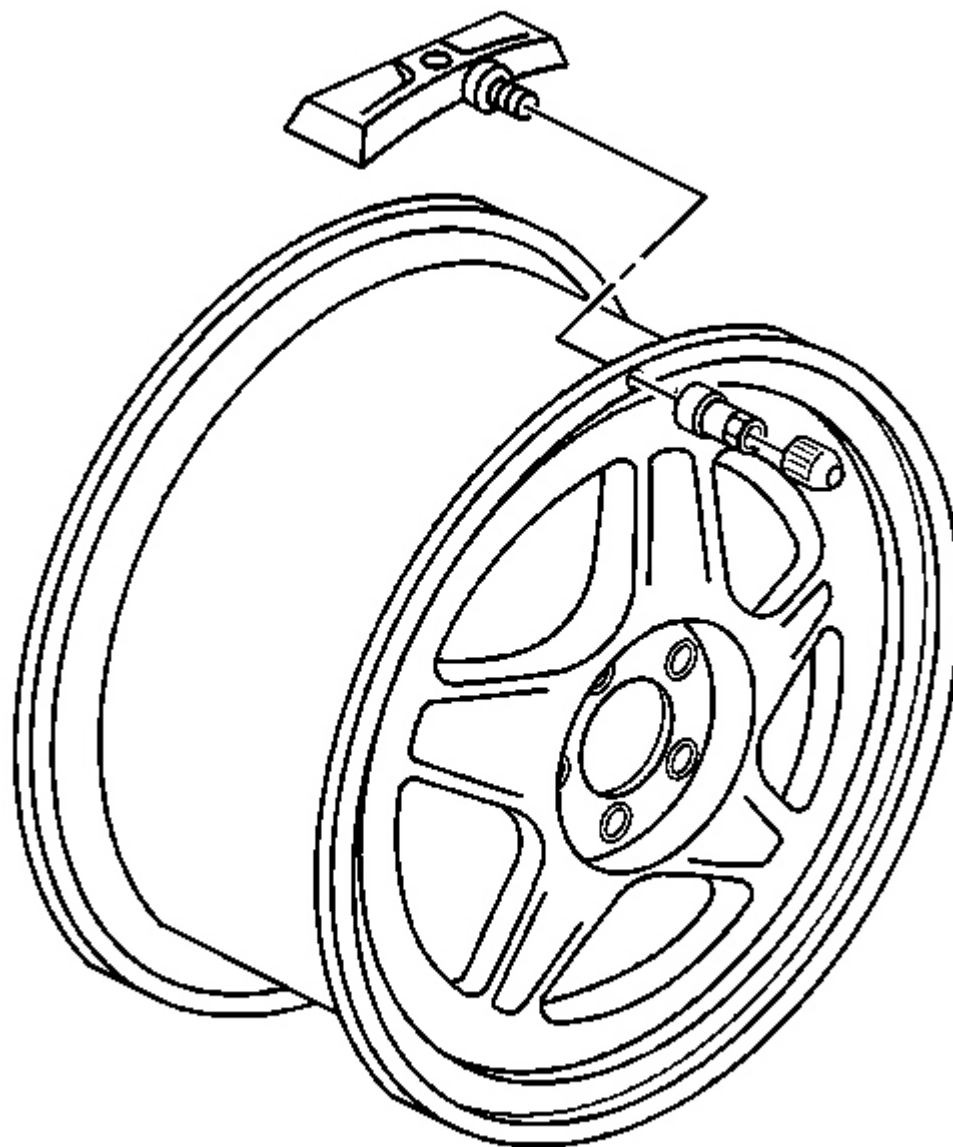
## TIRE PRESSURE INDICATOR SENSOR REPLACEMENT

### Removal Procedure

1. Raise the vehicle on a suitable support. Refer to Lifting and Jacking the Vehicle .
2. Remove the tire/wheel assembly from the vehicle. Refer to Tire and Wheel Removal and Installation .

**IMPORTANT:** Before the tire is removed from the wheel, note the following items to avoid tire pressure sensor damage upon tire dismounting.

- Place the sensors cap and valve on a dry clean surface after removal. The cap is aluminum and the valve is nickel plated to prevent corrosion and are not to be substituted with a cap or valve made of any other material.
  - When separating the tire bead from the wheel, position the bead breaking fixture 90 degrees from the valve stem.
  - Position the mounting/dismounting head so the tire iron, or pry bar can be inserted slightly clockwise of the sensor body when prying the tire bead up and over the mounting/dismounting head.
  - Using the tire machine, rotate the tire/wheel assembly clockwise when transferring the tire bead to the outside of the wheel rim.
  - Repeat items for inner bead.
3. Remove the tire from the wheel. Refer to Tire Mounting and Dismounting .



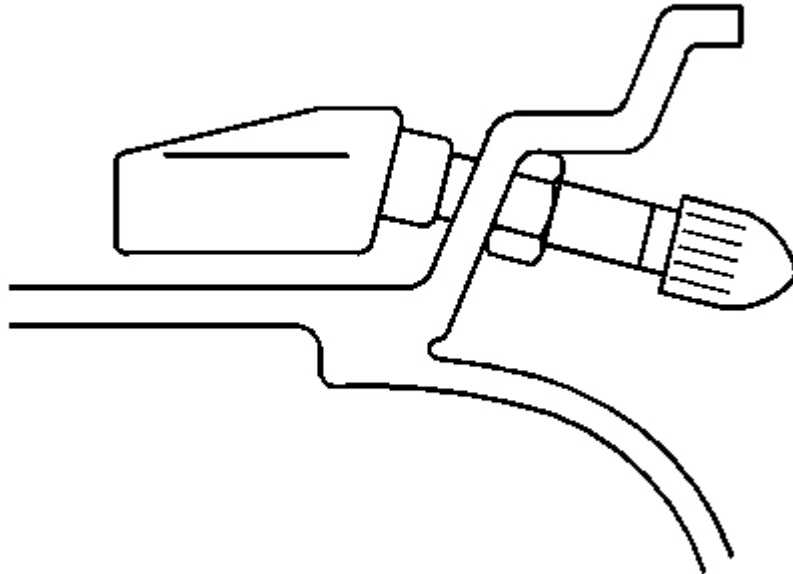
**Fig. 1: View Of Tire Pressure Sensor**  
Courtesy of GENERAL MOTORS CORP.

**IMPORTANT:** If any tire sealant is noted upon tire dismounting, remove all residual liquid sealant from the inside of the tire and wheel surfaces.

5. Remove the tire pressure sensor.

#### Installation Procedure

1. Clean any dirt or debris from the grommet sealing area.



**Fig. 2: View Of Tire Pressure Monitor Sensor & Nut**  
Courtesy of GENERAL MOTORS CORP.

2. Insert the sensor in the wheel hole with the air passage facing away from the wheel.

**NOTE:** Refer to Fastener Notice .

3. Install the sensor nut and position the sensor body parallel to the inside wheel surface while torquing.

**Tighten:** Tighten the sensor nut to 7 N.m (62 lb in).

**IMPORTANT:** Before reinstalling the tire on the wheel, note the following items to avoid tire pressure sensor damage upon tire mounting.

- Position the mounting/dismounting head 180 degrees from the valve stem.

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- Position the bead transition area 45 degrees counterclockwise of the valve stem.
- Using the tire machine, rotate the tire/wheel assembly clockwise when transferring the tire bead to the inside of the wheel rim.
- Repeat items for outer bead.

4. Install the tire on the wheel. Refer to [Tire Mounting and Dismounting](#) .

**IMPORTANT:** A service replacement tire pressure sensor is shipped in OFF mode. In this mode the sensor's unique identification code cannot be learned into the passenger door modules (PDMs) memory. The sensor must be taken out of OFF mode by spinning the tire/wheel assembly above 32 km/h (20 mph) in order to close the sensors internal roll switch for at least 10 seconds.

5. Install the tire/wheel assembly on the vehicle. Refer to [Tire and Wheel Removal and Installation](#) .

6. Lower the vehicle.

7. Learn the tire pressure sensors. Refer to [Tire Pressure Sensor Learn](#).

### TIRE PRESSURE SENSOR GROMMET REPLACEMENT

#### Removal Procedure

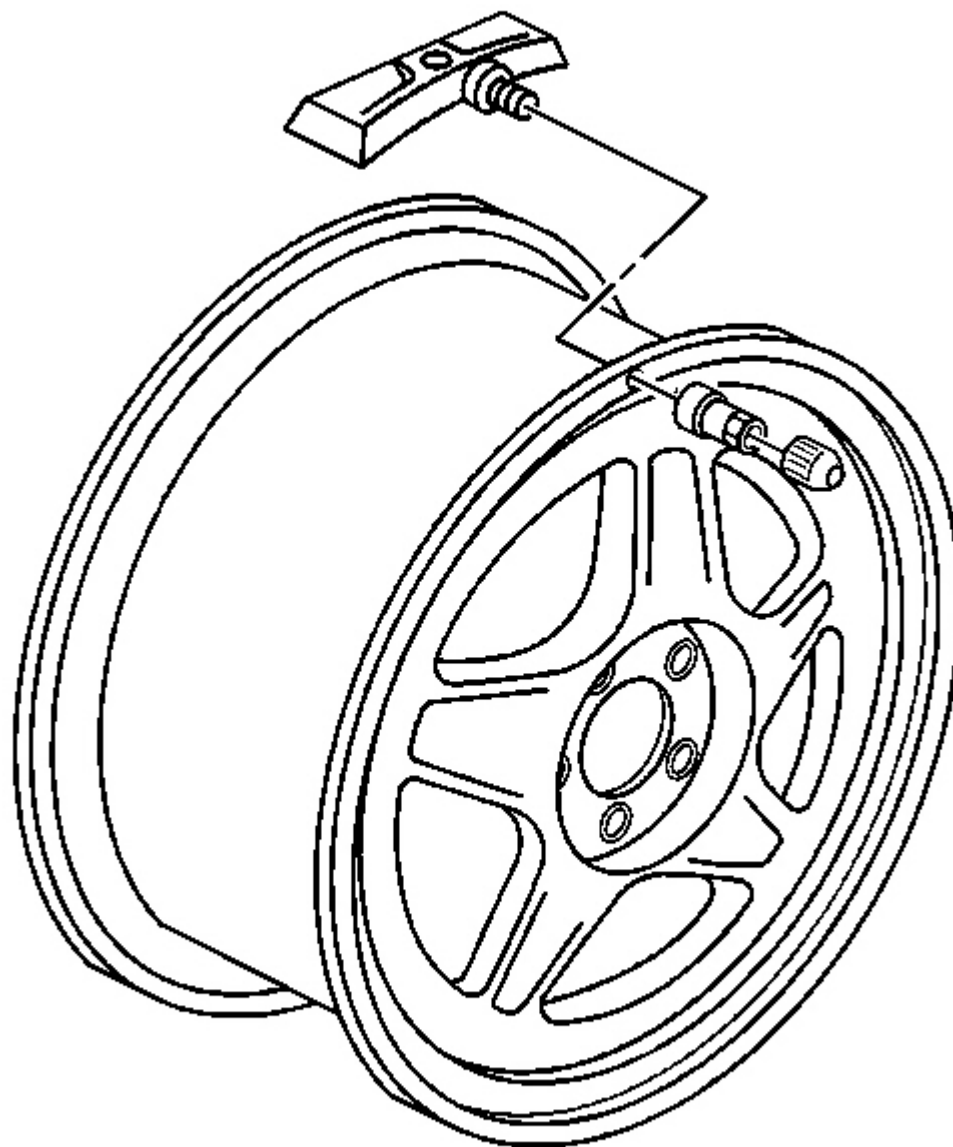
1. Raise the vehicle on a suitable support. Refer to [Lifting and Jacking the Vehicle](#) .

2. Remove the tire/wheel assembly from the vehicle. Refer to [Tire and Wheel Removal and Installation](#) .

**IMPORTANT:** Before the tire is removed from the wheel, note the following items to avoid tire pressure sensor damage upon tire dismounting:

- Place the sensors cap and valve on a dry clean surface after removal, the cap is aluminum and the valve is nickel plated to prevent corrosion and are not to be substituted with a cap or valve made of any other material.
- Position the bead breaking fixture 90 degrees from the valve stem when separating the tire bead from the wheel.
- Position the mounting/dismounting head so the tire iron, or pry bar can be inserted slightly clockwise of the sensor body when prying the tire bead up and over the mounting/dismounting head.
- Using the tire machine, rotate the tire/wheel assembly clockwise when transferring the tire bead to the outside of the wheel rim.
- Repeat items for inner bead.

3. Remove the tire from the wheel. Refer to [Tire Mounting and Dismounting](#) .



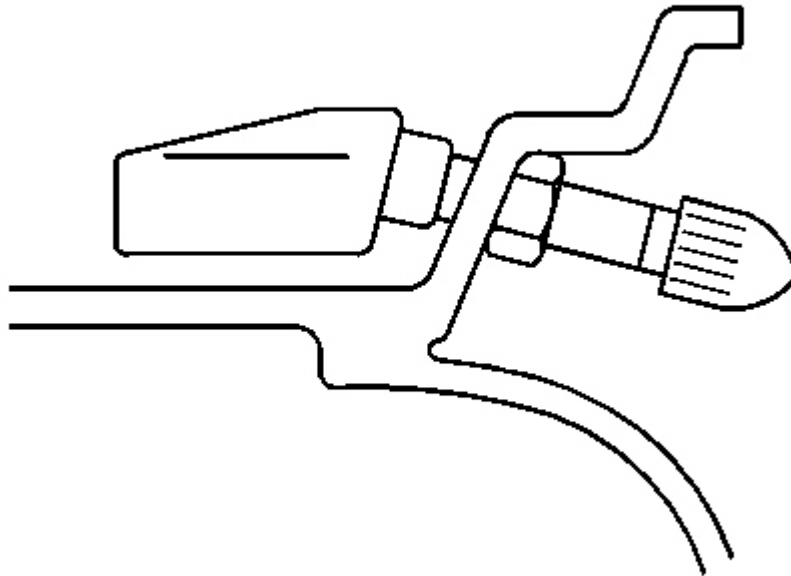
**Fig. 3: View Of Tire Pressure Sensor**  
Courtesy of GENERAL MOTORS CORP.

**IMPORTANT:** If any tire sealant is noted upon tire dismounting, replace the sensor. Refer to Tire Pressure Indicator Sensor Replacement. Also remove all residual liquid sealant from the inside of the tire and wheel surfaces.

4. Remove the tire pressure sensor nut.
5. Remove the sensor from the wheel hole.
6. Remove the sensor grommet from the valve stem.

#### Installation Procedure

1. Clean any dirt or debris from the grommet sealing areas.
2. Install the grommet on the sensor valve stem.



**Fig. 4: View Of Tire Pressure Monitor Sensor & Nut**  
Courtesy of GENERAL MOTORS CORP.

3. Insert the sensor in the wheel hole with the air passage facing away from the wheel.

**NOTE:** Refer to Fastener Notice .

4. Install the sensor nut and position the sensor body parallel to the inside wheel surface while torquing.

**Tighten:** Tighten the sensor nut to 7 N.m (62 lb in).

**IMPORTANT:** Before installing the tire on the wheel, note the following items to avoid



**tire pressure sensor damage upon tire mounting:**

- **Position the mounting/dismounting head 180 degrees from the valve stem.**
- **Position the bead transition area 45 degrees counterclockwise of the valve stem.**
- **Using the tire machine, rotate the tire/wheel assembly clockwise when transferring the tire bead to the inside of the wheel rim.**
- **Repeat items for outer bead.**

5. Install the tire on the wheel. Refer to **Tire Mounting and Dismounting** .

6. Install the tire/wheel assembly on the vehicle. Refer to **Tire and Wheel Removal and Installation** .

7. Lower the vehicle.

**TIRE PRESSURE SENSOR LEARN****Special Tools**

**J-46079** Tire Pressure Monitor Diagnostic Tool. See **Special Tools**.

**TPM Learn Mode Description**

The tire pressure monitor (TPM) system uses the liftgate module (LGM), body control module (BCM), exterior lamp switch, 4 RF transmitting pressure sensors, and the serial data circuit to perform the TPM learn mode functions. The sensor learn procedure must be performed after every tire rotation, LGM replacement, or sensor replacement. Once the TPM learn mode has been enabled, each of the sensor's unique identification (ID) codes can be learned in to the LGM memory. When a sensor's ID has been learned, the LGM sends a serial data message to the BCM to sound a horn chirp. This verifies the sensor has transmitted its ID and the LGM has received and learned it. The LGM must learn the sensor IDs in the proper order to determine correct sensor location. The first learned ID is assigned to the left front location, the second to right front, the third to right rear, and the fourth to left rear.

**Sensor Functions Using J-46079**

Each sensor has an internal low frequency (LF) coil. When the **J-46079** is used in activate mode it produces an LF transmission that activates the sensor. See **Special Tools**. The sensor responds to a LF activation by transmitting in learn mode. When the LGM receives a learn mode transmission while in TPM learn mode, it will assign that sensor's ID to the location on the vehicle relative to the order in which it was learned.

**Sensor Functions Using Pressure Increase/Decrease Method**

Each sensor takes a pressure measurement sample once every 30 seconds while in stationary mode. If the tire pressure increases, or decreases by more than 8.3 kPa (1.2 psi) from the last transmitted pressure, another measurement will occur immediately to verify the change in pressure. If a pressure change has indeed occurred, the sensor transmits in re-measure mode. When the LGM receives a re-measure mode transmission while in TPM learn mode, it will assign that sensor's ID to the location on the vehicle relative to the order in which it

was learned.

### **Learn Mode Cancellation**

The learn mode will cancel if the ignition is cycled to OFF or if more than 2 minutes has elapsed for any sensor that has not been learned. If the learn mode is cancelled before the first sensor is learned, the original sensor IDs will be maintained. If the learn mode is canceled for any reason after the first sensor is learned, all IDs are erased from the LGM memory and if equipped, the DIC will display dashes for tire pressures.

### **TPM Learn Procedure**

**IMPORTANT:** Stray signals from other TPM equipped vehicles just driving by can be inadvertently learned. If any random horn chirps are heard from the vehicle while performing the learn procedure, most likely a stray sensor has been learned and the procedure will need to be cancelled and repeated. Under these circumstances, performing the TPM Learn Procedure away from other vehicles would be highly recommended. In the event a particular sensor activation does not cause the horn to chirp, it may be necessary to rotate the wheel valve stem to a different position due to the sensor signal is being blocked by another component.

**Before proceeding with the steps below, verify the following:**

- **No other sensor learn procedure is being performed simultaneously within close proximity.**
- **Tire pressures are not being adjusted on another TPM equipped vehicle within close proximity.**
- **Park Brake and Headlamp Switch input parameters are functioning correctly.**

1. Turn ON the ignition, with the engine OFF.
2. Apply the parking brake.
3. Cycle the exterior lamp switch from OFF to parking lamps 4 times within 4 seconds. A double horn chirp will sound and the low tire pressure indicator will begin to flash indicating the learn mode has been enabled.
4. Starting with the left front tire, learn the tire pressure using one of the following methods:
  - Hold the antenna of the **J-46079** against the tire sidewall close to the wheel rim at the valve stem location then press and release the activate button and wait for a horn chirp. See **Special Tools**.

**CAUTION:** Over inflating tires may cause personal injury or damage to the tires and wheels. When increasing tire pressure do not exceed the maximum inflation pressure as noted on the tire sidewall.

- Increase/decrease the tire pressure for 8-10 seconds then wait for a horn chirp. The horn chirp may occur before or up to 30 seconds after the 8-10 second pressure increase/decrease time period has been reached.

5. After the horn chirp has sounded, repeat step 4 for the remaining 3 sensors in the following order:
  - Right front
  - Right rear
  - Left rear
6. After the LR sensor has been learned, a horn chirp will sound indicating all sensors have been learned.
7. Turn OFF the ignition to exit the learn mode.
8. After the learn mode has been exited, adjust all tires to the recommended pressures. Refer to **Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label** .

## **DESCRIPTION & OPERATION**

### **TIRE PRESSURE MONITOR DESCRIPTION & OPERATION**

The tire pressure monitor (TPM) system warns the driver when a significant loss, or gain of tire pressure occurs in any of the 4 tires and allows the driver to display the individual tire pressures and their locations on the driver information center (DIC).

The system uses the instrument panel cluster (IPC), DIC, powertrain control module (PCM), lift gate module (LGM), a radio frequency (RF) transmitting pressure sensor in each wheel/tire assembly, and the serial data circuit to perform the system functions. Each sensor has an internal power supply with a 10 year service life.

When the vehicle is stationary, the sensors internal accelerometer is inactive, which puts the sensors into a stationary state. In this state the sensors sample tire pressure once every 30 seconds and do not transmit at all if the tire pressure does not change. As vehicle speed increases, centrifugal force activates the sensors internal accelerometer causing the sensors to go into rolling mode. In this mode, the sensors sample tire pressure once every 30 seconds and transmit in rolling mode once every 60 seconds. The LGM receives and translates the data contained in each sensors RF transmission into sensor presence, sensor mode, and tire pressure. The LGM sends the tire pressure and tire location data to the DIC via the serial data circuit.

The sensors continuously compare their last pressure sample to their current pressure sample and will transmit in re-measure mode if a 8.3 kPa (1.2 psi) change in tire pressure has been detected in either a stationary or rolling state. When the TPM system detects a significant loss, or gain of tire pressure, the tire pressure monitor indicator icon is illuminated on the IPC and if equipped, a check tire pressure type message is displayed on the DIC. Both the indicator icon and DIC message can be cleared by adjusting the tire pressures to the recommended kPa/psi and driving the vehicle above 40 km/h (25 mph) for at least 2 minutes.

The LGM has the ability to detect malfunctions within the TPM system. In the event a DTC is set, the tire pressure monitor indicator icon on the IPC will flash for 1 minute and then remain illuminated after the ignition is turned ON and the IPC bulb check has been completed. Any malfunction detected will cause the DIC to display a service tire monitor system type message.

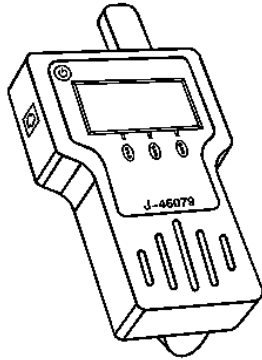
## **SPECIAL TOOLS & EQUIPMENT**

### **SPECIAL TOOLS**

**2008 Isuzu Ascender LS**

2008 SUSPENSION Tire Pressure Monitoring - Ascender, Envoy & Trailblazer

**Illustration**



**Tool Number/ Description**

J 46079  
Tire Pressure Monitor Diagnostic Tool