

SUSPENSION

Tire Pressure Monitoring - Coupe & Wagon

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Tire Pressure Sensor Nut	7 N.m	62 lb in

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
<u>DTC C0569</u>	DTC C0569 00 System Configuration Error
<u>DTC C0750, C0755, C0760, or C0765 (Without UH3)</u>	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
<u>DTC C0775</u>	DTC C0775 Low Tire Pressure System Sensors Not Learned

DTC C0569: SYSTEM CONFIGURATION ERROR

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 C0569 00

System Configuration Error

Circuit/System Description

If the tire type and pressure selection information is not entered with the scan tool during the remote control door lock receiver (RCDLR) setup, the tire pressure monitor indicator icon on the instrument panel cluster (IPC) will flash for 1 minute and then remain illuminated after the ignition switch is cycled ON and the IPC

bulb check is complete. If equipped, the driver information center (DIC) will also display a service tire monitor type message. Under these circumstances, DTC C0569 will be set and the tire type and pressure information will need to be entered for the system to function correctly.

Conditions for Running the DTC

The ignition is ON.

Conditions for Setting the DTC

The RCDLR has not undergone the programming procedure.

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 RCDLR has undergone the tire type and pressure selection setup procedure and 1 ignition cycle has occurred.

Diagnostic Aids

A newly replaced RCDLR will set DTC C0569 after programming on its initial ignition ON cycle if the module setup information has not been entered. The Tire Type and Tire Pressure Selection setup must be performed with the scan tool.

Reference Information

Description and Operation

Tire Pressure Monitor Description and Operation

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Verify that the DTC C0569 is not set.

- If the DTC is set, perform the RCDLR tire type and pressure selection setup with the scan tool and cycle the ignition. If the DTC resets, replace the RCDLR.

Repair Instructions

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

Control Module References for RCDLR replacement, setup, and programming

DTC C0750, C0755, C0760, OR C0765 (WITHOUT UH3): LOW TIRE PRESSURE SENSOR

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 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 remote control door lock receiver (RCDLR) 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 greater than 40km/h (25 mph), the RCDLR 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 RCDLR 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.
- The driver information center (DIC) displays the suspect tire pressure as dashes.
- The DIC displays the 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 key cycle occurs.
- The RCDLR automatically clears the history DTC when a current DTC is not detected in 100 consecutive 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 other than GM approved 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 (Clamp In Style)**, **Tire Pressure Indicator Sensor Replacement (Snap In Style)**.
- 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'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 Indicator Sensor Learn (Without UH3)**.
- A sensor low battery condition will set a sensor DTC but will not illuminate the low tire pressure indicator or display a message on the DIC, if equipped. The sensor battery condition can be verified in the scan tool RCDLR data list. If a sensor low battery condition is indicated on the scan tool, the sensor will need to be replaced. Refer to **Tire Pressure Indicator Sensor Replacement (Clamp In Style)**, **Tire Pressure Indicator Sensor Replacement (Snap In Style)**.

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

EL-46079/J-46079 Tire Pressure Monitor Diagnostic Tool

Circuit/System Verification

1. Using the **EL-46079/J-46079** tire pressure monitor diagnostic tool , activate each tire pressure sensor and record each sensors transmission data and physical location. Verify **EL-46079/J-46079** tire pressure monitor diagnostic tool displays the 8-digit ID number, accurate tire pressure +/- 27.6 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 Indicator Sensor Learn (Without UH3)**.
3. Enable the TPM learn mode. Use the **EL-46079/J-46079** tire pressure monitor diagnostic tool in simulate mode to learn 4 simulated sensor transmissions into the RCDLR. 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 RCDLR.
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 Instructions

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

- **Tire Pressure Indicator Sensor Replacement (Clamp In Style), Tire Pressure Indicator Sensor Replacement (Snap In Style)**
- **Tire Pressure Indicator Sensor Learn (Without UH3)**
- **Control Module References** for RCDLR replacement, setup, and programming

DTC C0775: LOW TIRE PRESSURE SYSTEM SENSORS NOT LEARNED

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

If the tire pressure sensor learn procedure has not been performed, the tire pressure monitor indicator icon on the instrument panel cluster (IPC) will flash for 1 minute and then remain illuminated after the ignition switch is cycled ON and the IPC bulb check is complete. If equipped, the driver information center (DIC) will also display a service tire monitor type message. Under these circumstances, DTC C0775 will be set and the tire pressure sensor learn procedure will need to be performed for the system to function correctly.

Conditions for Running the DTC

The ignition is ON.

Conditions for Setting the DTC

The remote control door lock receiver (RCDLR) has not undergone the tire pressure sensor learn procedure.

Action Taken When the DTC Sets

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

Conditions for Clearing the DTC

A current DTC will clear when the RCDLR has undergone the tire pressure sensor learn procedure and 1 ignition cycle has occurred.

Diagnostic Aids

A newly replaced RCDLR will set DTC C0775 on its initial ignition ON cycle. The 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

Circuit/System Verification

Verify that the DTC C0775 is not set.

- If the DTC is set, perform the tire pressure sensor learn procedure. Cycle the ignition. If the DTC resets, replace the RCDLR.

Repair Instructions

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

- **Tire Pressure Indicator Sensor Learn (With UH3), Tire Pressure Indicator Sensor Learn (Without UH3)**
- **Control Module References** for RCDLR 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 **Low Tire Pressure Indicator Malfunction** in order to diagnose the symptom.

LOW TIRE PRESSURE INDICATOR MALFUNCTION

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 remote control door lock receiver (RCDLR) receives a radio frequency (RF) transmission from each tire pressure sensor. Each sensor has its own unique identification (ID) code, which it transmits as part of each RF message, that must be learned into the RCDLR memory. Once all 4 IDs have been learned and vehicle speed is greater than 40 km/h (25 mph), the RCDLR continuously compares IDs in received transmission to its learned IDs to determine if all 4 sensors are present. If the RCDLR 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 the appropriate tire pressure monitor indicator illumination and also to display the appropriate data message on the driver information center (DIC), if equipped.

Diagnostic Aids

- If unsure about the condition, cycle the ignition and observe the tire pressure monitor indicator icon. If the tire pressure monitor indicator icon is continuously illuminated after the IPC bulb check is completed, a low tire pressure condition is present. Check the tires for damage or leaks and inflate to the tire placard specifications. Refer to **Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label** , . If the tire pressure monitor indicator icon flashes for 1 minute after the IPC bulb check is completed and then remains illuminated, a tire pressure monitor system DTC is set. Perform the **Diagnostic System Check - Vehicle** to proceed with the proper diagnosis.
- Temperature can greatly effect tire pressures. Low tire pressure on a cold morning may cause the tire pressure monitor indicator icon to turn ON. The air pressure in the tire increases as the ambient temperature rises or as the tire warms up while the vehicle is driven. The pressure may increase enough to exceed the predetermined low pressure threshold which will turn OFF the tire pressure monitor indicator icon .
- 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 value 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 other than GM approved 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 (Clamp In Style)**, **Tire Pressure Indicator Sensor Replacement (Snap In Style)**.

- 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'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 Indicator Sensor Learn (With UH3)**, **Tire Pressure Indicator Sensor Learn (Without UH3)**.

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

Circuit/System Verification

NOTE: 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. It is not necessary to perform the Learn procedure for a low tire condition.

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.

1. Verify all tires are inflated to the proper pressure $\pm 10\%$. Refer to **Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label**.
 - If not within the specified range, adjust all tire pressures to specification and drive the vehicle over 40 km/h (25 mph) for greater than 2 minutes. Verify the tire pressure monitor indicator icon is OFF.
2. Using the **J 46079** tire pressure monitor diagnostic tool, activate each B2 Tire Pressure Sensor and record each sensor tire pressure reading. 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 appropriate B2 Tire Pressure Sensor.
3. Using a scan tool, enable the TPM learn mode. Use the **J 46079** tire pressure monitor diagnostic tool in simulate mode to learn 4 simulated sensor transmissions into the RCDLR. 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 RCDLR.
4. Using a scan tool, perform the instrument panel special functions Lamp Test. Command the instrument panel warning lamps ON and OFF. Verify the tire pressure monitor indicator icon turns ON and OFF.
 - If the tire pressure monitor icon does not turn ON and OFF, replace the IPC.
5. Ignition ON, use the scan tool to setup the Tire Type/Pressure Selection in the RCDLR Module Setup menu. Refer to the **Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label**. Drive the vehicle over 40 km/h (25 mph) for greater than 2 minutes. Verify the tire pressure monitor indicator icon is OFF.
 - If the tire pressure monitor indicator icon is ON, replace the RCDLR.

Repair Instructions

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

- **Tire Pressure Indicator Sensor Replacement (Clamp In Style), Tire Pressure Indicator Sensor Replacement (Snap In Style)**
- **Tire Pressure Indicator Sensor Learn (With UH3), Tire Pressure Indicator Sensor Learn (Without UH3)**
- **Control Module References** for IPC or RCDLR replacement, setup, and programming

REPAIR INSTRUCTIONS

TIRE PRESSURE INDICATOR RECEIVER REPLACEMENT (RPO UH3)

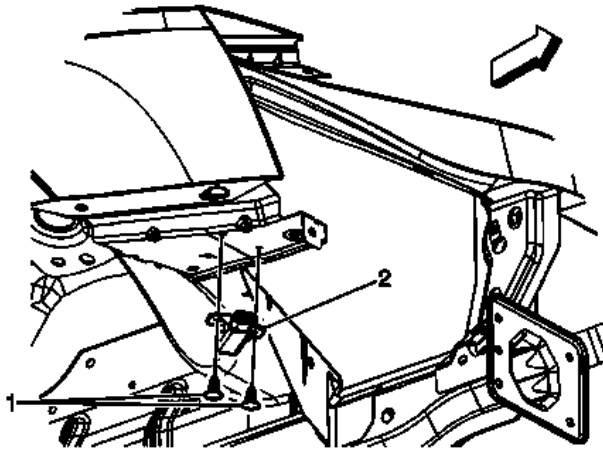


Fig. 1: Tire Pressure Monitoring Receiver (RPO UH3)
Courtesy of GENERAL MOTORS COMPANY

Tire Pressure Indicator Receiver Replacement (RPO UH3)

Callout	Component Name
Preliminary Procedure	
1. Raise and suitably support the vehicle. Refer to <u>Lifting and Jacking the Vehicle</u> . 2. Remove the LH or RH wheelhouse liner. Refer to <u>Front Wheelhouse Liner Replacement</u> .	
1	Pin-Type Retainer (Qty: 2)
2	Tire Pressure Monitor Receiver Assembly • Disconnect the electrical connector. • Relearn the tire pressure monitoring system. Refer to <u>Tire Pressure Indicator Sensor Learn (With UH3)</u>.

TIRE PRESSURE INDICATOR SENSOR REPLACEMENT (CLAMP IN STYLE)

Removal Procedure

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

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

- Place the cap and the 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 using the tire machine to separate the tire bead from the wheel,

position the bead breaking fixture 90 degrees from the valve stem.

- When removing the tire from the wheel, ensure a tolerance is maintained between the tire machine fixture, or irons, tire bead, and the sensor.

3. Remove the tire from the wheel. Refer to Tire Dismounting and Mounting .

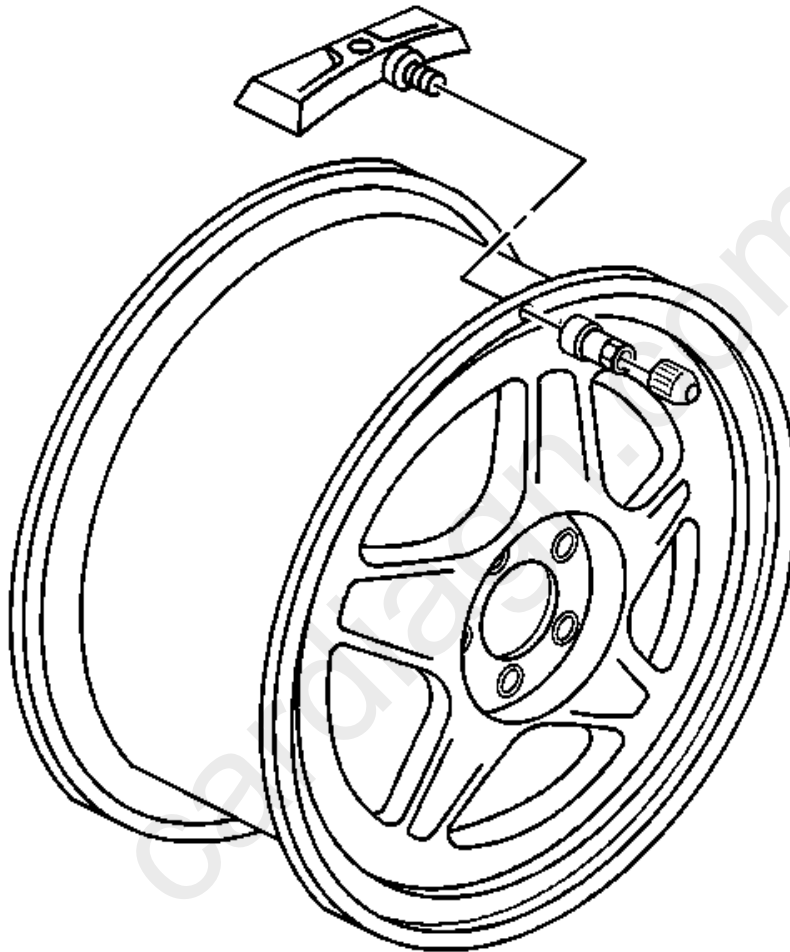


Fig. 2: View Of Tire Pressure Sensor
Courtesy of GENERAL MOTORS COMPANY

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

4. Remove the tire pressure sensor nut.
5. Remove the tire pressure sensor.

Installation Procedure

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

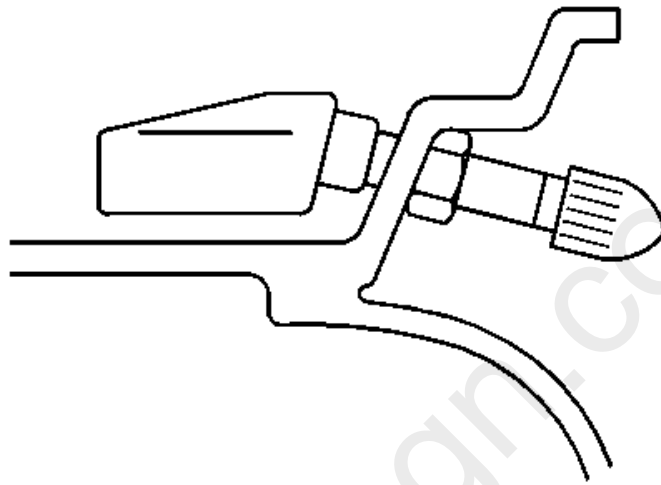


Fig. 3: View Of Tire Pressure Monitor Sensor & Nut
Courtesy of GENERAL MOTORS COMPANY

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

CAUTION: Refer to Fastener Caution .

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

Tighten

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

NOTE: To avoid tire pressure sensor damage when mounting the tire back on the wheel, ensure a tolerance is maintained between the tire machine, or irons, tire bead, and the sensor.

4. Install the tire on the wheel. Refer to **Tire Dismounting and Mounting** .
5. Install the tire and 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 Indicator Sensor Learn (With UH3)**, **Tire Pressure Indicator Sensor Learn (Without UH3)**.

TIRE PRESSURE INDICATOR SENSOR REPLACEMENT (SNAP IN STYLE)

Removal Procedure

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

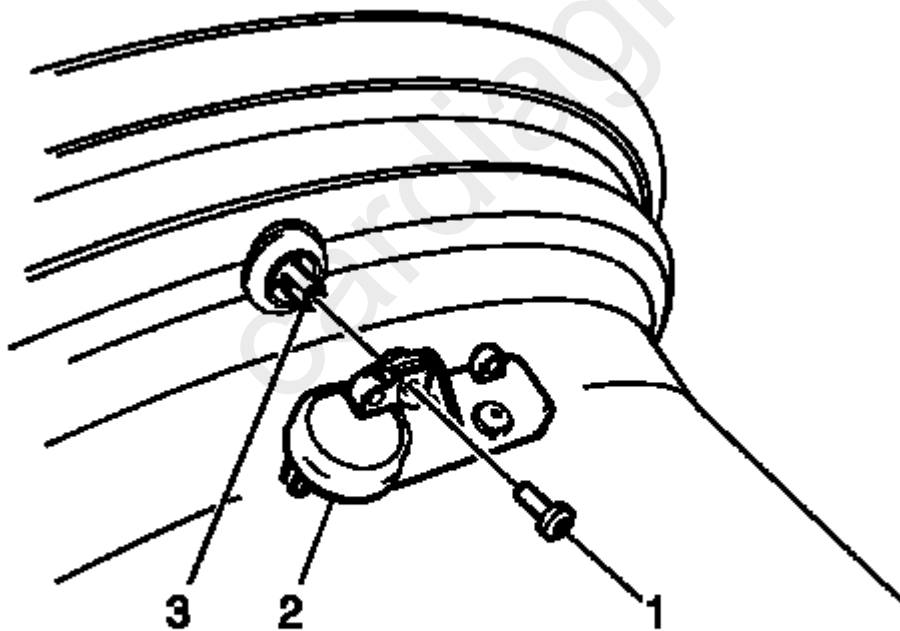


Fig. 4: View Of Tire Pressure Indicator Sensor

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Do not scratch or damage the clear coating on aluminum wheels with the tire changing equipment. Scratching the clear coating could cause the aluminum wheel to corrode and the clear coating to peel from the wheel.

NOTE: When servicing the tire pressure sensor always use a new tire pressure monitor (TPM) and a new TORX screw during installation.

4. Remove the TORX screw (1) from the tire pressure sensor (2) and pull it straight off the tire pressure valve stem (3).
5. Remove the tire pressure valve stem by pulling it through the rim.

Installation Procedure

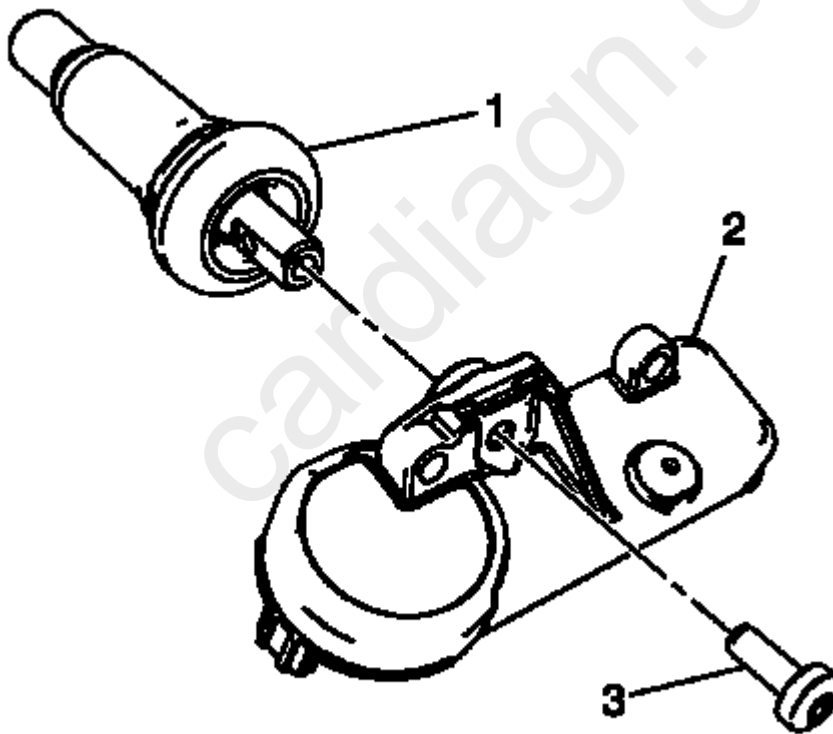


Fig. 5: View Of Tire Pressure Indicator Sensor
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to Fastener Caution

NOTE:

- Ensure the flat of the valve, lines up with the flats of the snap in the enclosure.
- When servicing the tire pressure sensor always use a new tire pressure monitor (TPM) and a new TORX screw during installation.

1. Install the tire pressure sensor (2) to the valve stem with the NEW TORX screw (3) and tighten to 10 (7 lb ft).

CAUTION: When mounting the tires, use an approved tire mounting lubricant. **DO NOT** use silicon or corrosive base compounds to lubricate the tire bead and the wheel rim. A silicon base compound can cause the tire to slip on the rim. A corrosive type compound can cause tire or rim deterioration.

2. Apply tire soap to the rubber portion of the valve stem (1).

NOTE:

Snap Fit TPM sensors are still shipped in the OFF mode. However, the TPM no longer needs to be spun to remove it from the OFF mode. The sensor will exit its OFF state when the tire is inflated. The technician can then program the vehicle as normal.

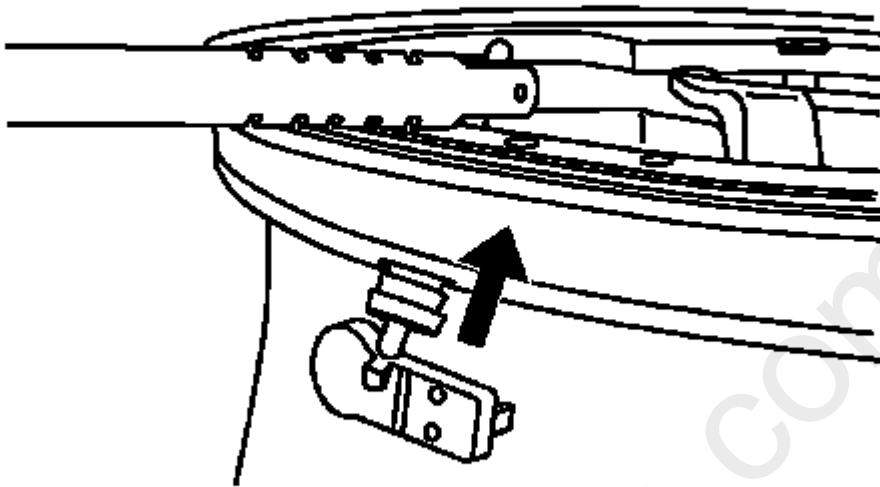


Fig. 6: View Of Tire Valve Stem Mounting Tool
Courtesy of GENERAL MOTORS COMPANY

3. Using a tire valve stem mounting tool, pull the valve stem through in a direction parallel to the valve hole on the rim.
4. Mount the tire to the rim.
5. Install the tire and wheel assembly on the vehicle. Refer to **Tire and Wheel Removal and Installation** .
6. Lower the vehicle.
7. Program the tire pressure sensors. Refer to **Tire Pressure Indicator Sensor Learn (With UH3)**, **Tire Pressure Indicator Sensor Learn (Without UH3)**.

LOW TIRE PRESSURE INDICATOR MODULE REPLACEMENT (RPO UH3)

Removal Procedure

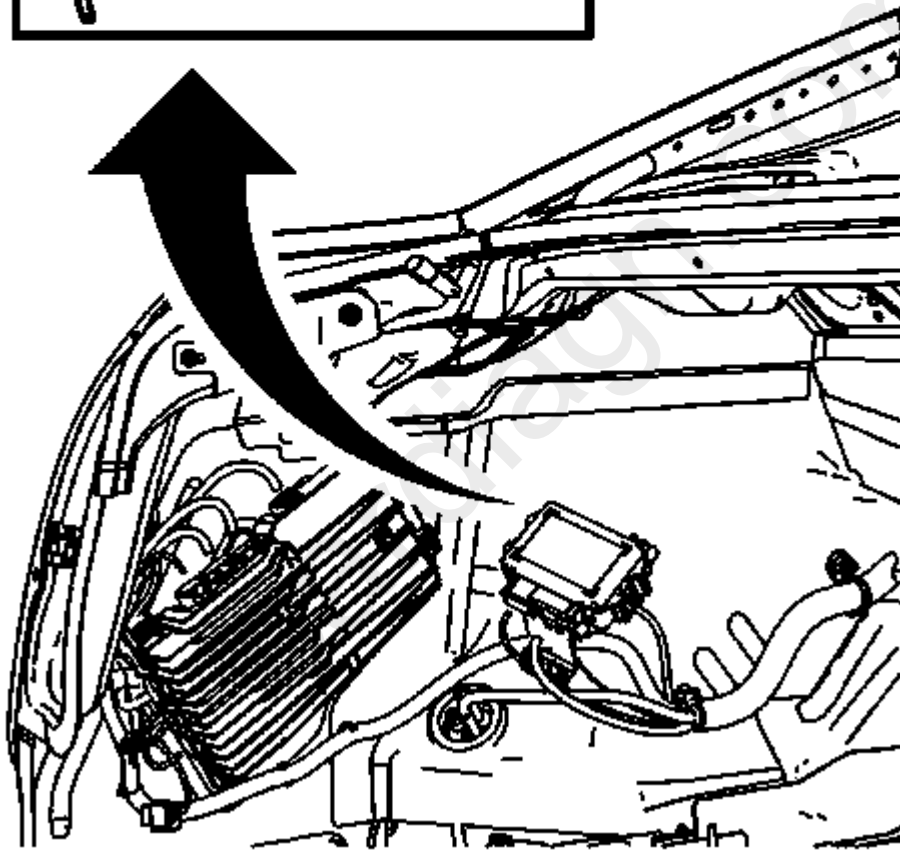
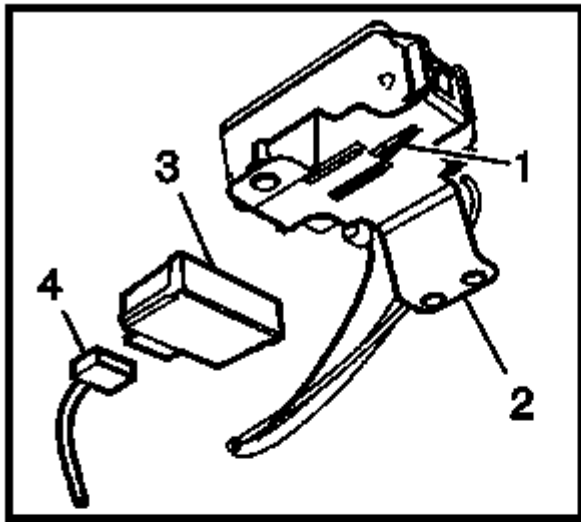


Fig. 7: Locating Tire Pressure Indicator Module
 Courtesy of GENERAL MOTORS COMPANY

1. Remove the left rear compartment trim. Refer to **Rear Compartment Side Trim Panel Replacement (Coupe)**.
2. Depress the lock tab (1) for the tire pressure indicator monitoring module (TPIM) (3).
3. Slide the TPIM (3) over the lock tab (1) and remove it from the mounting bracket (2).
4. Lower the TPIM (3) and remove the electrical connector (4).

5. Remove the TPIM (2) from the vehicle.

Installation Procedure

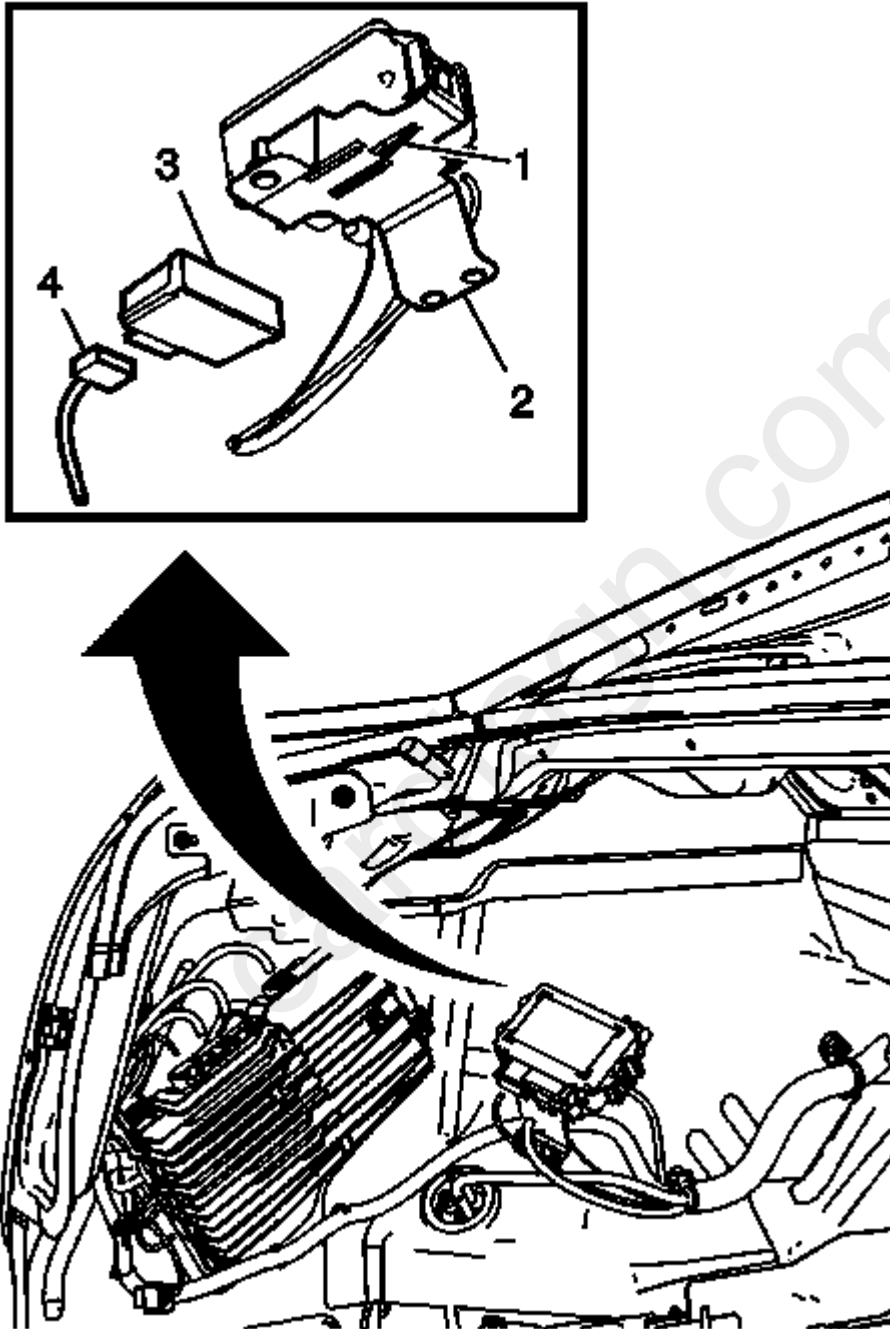


Fig. 8: Locating Tire Pressure Indicator Module
Courtesy of GENERAL MOTORS COMPANY

1. Install electrical connector (4) in the TPIM (3).

2. Install the TPIM (3) on the mounting bracket (2).
3. Using a flatbladed screw driver, ensure that the lock tab (1) is positioned properly to hold the TPIM (3) in place.
4. Install the left rear compartment trim. Refer to **Rear Compartment Side Trim Panel Replacement (Coupe)**.

TIRE PRESSURE INDICATOR SENSOR LEARN (WITHOUT UH3)

Special Tools

- **EL-46079** Tire Pressure Monitor Diagnostic Tool
- or
- **EL-50448** Tire Pressure Monitor Sensor Activation Tool

For equivalent regional tools, refer to **Special Tools**

Learn Mode Description

The Tire Pressure Monitor (TPM) System uses the instrument panel cluster (IPC), body control module (BCM), remote control door lock receiver (RCDLR), keyless entry transmitter, 4 radio frequency 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, RCDLR replacement, or sensor replacement. Once the learn mode has been enabled, each of the sensors unique identification codes can be learned into the RCDLR memory. When a sensor ID has been learned, the RCDLR sends a serial data message to the BCM to sound a horn chirp. This verifies the sensor has transmitted its ID and the RCDLR has received and learned it. The RCDLR must learn the sensor IDs in the proper sequence 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. The turn signals will individually illuminate indicating which location is to be learned in the proper sequence.

Sensor Functions Using EL-46079, EL-50448, or Equivalent

Each sensor has an internal low frequency coil. When the TPM special tool is used in activate mode, it produces a low frequency transmission that activates the sensor. The sensor responds to an low frequency activation by transmitting in learn mode. When the RCDLR receives a learn mode transmission while in TPM learn mode, it will assign that sensor 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 after the first sensor is learned, the following will occur:

- All stored sensor IDs will be invalidated in the RCDLR memory.
- If equipped, the DIC will display dashes instead of tire pressures.

- DTC C0775 will be set.

These conditions will now require the learn procedure to be repeated for the system to function properly.

TPM Learn Procedure

NOTE: 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.

1. Place the ignition switch in the proper position as follows:
 - With standard ignition switch, place the switch in the RUN position.
 - With electronic keyless ignition, place the switch in the ACCY position.
2. Initiate the TPM Learn Mode using one of the following procedures:
 - Using a scan tool, initiate the TPM Learn Mode. A double horn chirp will sound indicating the Learn Mode has been enabled. The left front turn signal will also be illuminated.
 - On vehicles equipped with keyless entry, simultaneously press the keyless entry transmitters lock and unlock buttons until a double horn chirp sounds indicating the Learn Mode has been enabled. The left front turn signal will also be illuminated.
 - On vehicles not equipped with keyless entry, press and release the driver information center (DIC) INFO button until the RELEARN TIRE POSITIONS message appears on the DIC display. Press and hold the SET/RESET button until a double horn chirp sounds and the DIC displays a TIRE LEARNING ACTIVE message indicating the Learn Mode has been enabled. The left front turn signal will also be illuminated.
3. Starting with the left front tire, hold the antenna of the TPM special tool aimed upward against the tire sidewall close to the wheel rim at the valve stem location. Press and release the activate button. Ensure that the transmit indicator on the special tool indicates that the sensor activation signal is being transmitted. Wait for a horn chirp. If the horn does not chirp, repeat the sensor activation sequence with the tool. Once the horn chirp has sounded, the turn signal in the next location to be learned will illuminate.
4. After the horn chirp has sounded and the right front turn signal is illuminated, repeat step 3 for the remaining 3 sensors in the following order:
 1. Right front
 2. Right rear
 3. Left rear
5. After the LR sensor has been learned, a double horn chirp will sound indicating all sensors have been learned.
6. Turn OFF the ignition to exit the learn mode.

TIRE PRESSURE INDICATOR SENSOR LEARN (WITH UH3)

Special Tools

EL-46079 Tire Pressure Monitor Diagnostic Tool or **EL-50448** Tire Pressure Monitor Sensor Activation Tool

For equivalent regional tools, refer to **Special Tools**

Learn Mode Description

The Tire Pressure Monitor (TPM) System uses the instrument panel cluster (IPC), body control module (BCM), remote control door lock receiver (RCDLR), tire pressure module, keyless entry transmitter, 4 radio frequency transmitting pressure sensors, 4 tire pressure sensor receivers, and the serial data circuit to perform the TPM learn mode functions. The sensor learn procedure must be performed after every tire rotation, RCDLR replacement, or sensor replacement. Once the learn mode has been enabled, each of the sensors unique identification codes can be learned into the RCDLR memory. When a sensor ID has been learned, the RCDLR sends a serial data message to the BCM to sound a horn chirp. This verifies the sensor has transmitted its ID and the RCDLR has received and learned it. The RCDLR must learn the sensor IDs in the proper sequence 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 EL-46079, EL-50448, or Equivalent

Each sensor has an internal low frequency coil. When the TPM special tool is used in activate mode, it produces a low frequency transmission that activates the sensor. The sensor responds to an low frequency activation by transmitting in learn mode. When the RCDLR receives a learn mode transmission while in TPM learn mode, it will assign that sensors 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 after the first sensor is learned, the following will occur:

- All stored sensor IDs will be invalidated in the RCDLR memory
- If equipped, the DIC will display dashes instead of tire pressures
- DTC C0775 will be set

These conditions will now require the learn procedure to be repeated for the system to function properly.

TPM Learn Procedure

IMPORTANT: 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.

1. Place the ignition switch in the RUN position.
2. Initiate the TPM Learn Mode using one of the following procedures:
 - Using a scan tool, initiate the TPM Learn Mode. A double horn chirp will sound indicating the Learn Mode has been enabled. The left front turn signal will also be illuminated.
 - On vehicles equipped with keyless entry, simultaneously press the keyless entry transmitters lock and unlock buttons until a double horn chirp sounds indicating the Learn Mode has been enabled.

The left front turn signal will also be illuminated.

3. Starting with the left front tire, hold the antenna of the TPM special tool aimed upward against the tire sidewall close to the wheel rim at the valve stem location. Press and release the activate button. Ensure that the transmit indicator on the special tool indicates that the sensor activation signal is being transmitted. Wait for a horn chirp. If the horn does not chirp, repeat the sensor activation sequence with the tool.
4. After the horn chirp has sounded, repeat step 3 for the remaining 3 sensors in the following order:
 1. Right front
 2. Right rear
 3. Left rear
5. After the LR sensor has been learned, a double horn chirp will sound indicating all sensors have been learned.
6. Turn OFF the ignition to exit the learn mode.

DESCRIPTION AND OPERATION

TIRE PRESSURE MONITOR DESCRIPTION AND 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, remote control door lock receiver (RCDLR), 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.

On vehicles equipped with the UH3 option, the sensor signals are received by tire pressure receivers mounted near each wheel. Each receiver has a 5 volt reference circuit, a low reference circuit, and signal circuit connected to a tire pressure module. The tire pressure module transmits the individual sensor signals to the remote control door lock receiver (RCDLR) which translates the data contained in the tire pressure sensor RF transmissions into sensor presence, sensor mode, and tire pressure.

On all TPM equipped vehicles, 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 RCDLR receives and translates the data contained in each sensors RF transmission into sensor presence, sensor mode, and tire pressure. The RCDLR sends the tire pressure and tire location data to the DIC via the serial data circuit where they are displayed.

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, the 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.

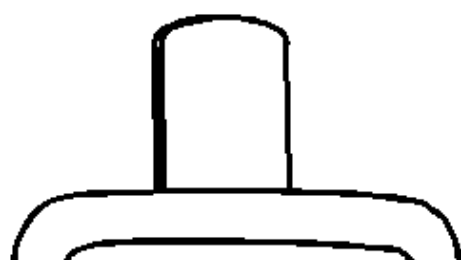
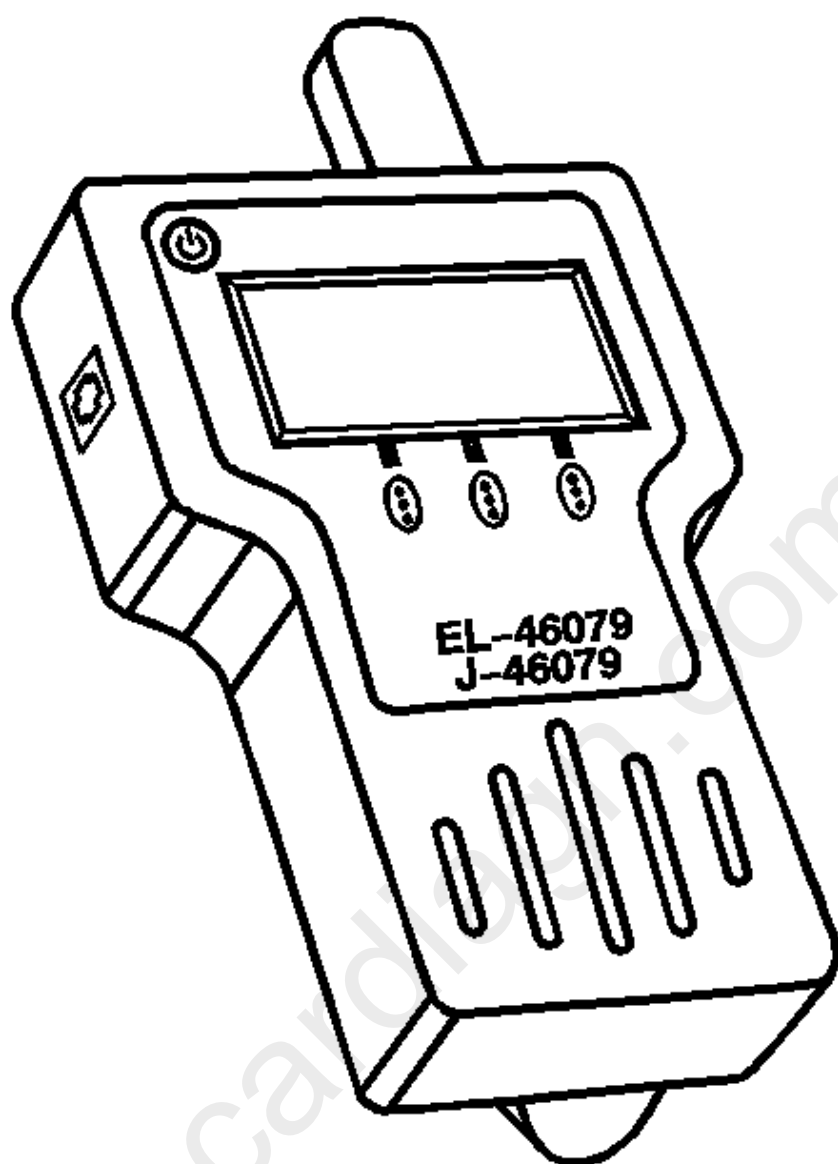
If power is disconnected from the RCDLR or if the vehicle battery is disconnected each TPM sensor ID is retained but all of the tire pressure information is lost. Under these circumstances the RCDLR cannot assume that the tire pressures were maintained over an unknown period of time. If equipped, the DIC will display all dashes and the scan tool will indicate a default tire pressure value of 1020 kPa (148 PSI) for each tire. Driving the vehicle above 40 km/h (25 mph) for at least 2 minutes will activate the sensors causing the DIC to display the current tire pressures. The J-46079 TPM special tool or the pressure increase/decrease method may also be used to activate the sensors as well.

The RCDLR 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 the service tire monitor type message. For more information on other functions of the RCDLR, refer to **Keyless Entry System Description and Operation (without ATH)** , **Keyless Entry System Description and Operation (with ATH)** .

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/Descrip
	EL 46079 Tire Pressure Monitor Diagnos Tool



EL 50448
Tire Pressure
Monitor Senso
Activation Toc

cardiagn.com