

TIRE PRESSURE MONITOR SYSTEMS

GM - Chevrolet - Equinox & GMC Terrain - 2010-19

DESCRIPTION & OPERATION

TIRE PRESSURE MONITOR (TPM) SYSTEM

NOTE: The TPMS sensor Relearn procedure must be performed after every tire rotation, BCM replacement, or sensor replacement. See [RESET PROCEDURES](#).

The tire pressure monitor system uses the instrument panel cluster (IPC), body control module (BCM), 4 radio frequency transmitting pressure sensors, and the serial data circuit to perform the TPMS Relearn mode functions. Once the relearn mode has been enabled, each of the sensors unique identification codes can be learned into the BCM memory. When a sensor ID has been learned, the BCM sounds a horn chirp indicating the sensor has transmitted its ID and the BCM has received and learned it. The BCM 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.

When the tire pressure monitor system detects a significant loss, or gain of tire pressure, the tire pressure monitor indicator icon is illuminated on the instrument cluster and if equipped, a check tire pressure type message is displayed on the driver information center. Both the indicator icon and driver information center message can be cleared by adjusting the tire pressures to the recommended pressures and driving the vehicle above 25 mph (40 km/h) for at least 2 minutes.

TIRE PRESSURE MONITOR WARNING INDICATORS

The tire pressure monitor 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).

When the tire pressure monitor system detects a significant loss, or gain of tire pressure, the tire pressure monitor indicator icon is illuminated on the instrument cluster.

NOTE: If power is disconnected from the BCM or if the vehicle battery is disconnected, each tire pressure monitor sensor ID is retained but all of the tire pressure information is lost. 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 25 mph (40 km/h) for at least 2 minutes will activate the sensors causing the DIC to display the current tire pressures.

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

Driver Information Center (DIC) Controls: Press MENU on the turn signal lever until Vehicle Information Menu is displayed. Use to scroll through the following menu items:

- Unit
- Tire Pressure
- Remaining Oil Life

The display will show the approximate pressures of all four tires. Tire pressure is displayed in either kilopascal (kPa) or pounds per square inch (psi).

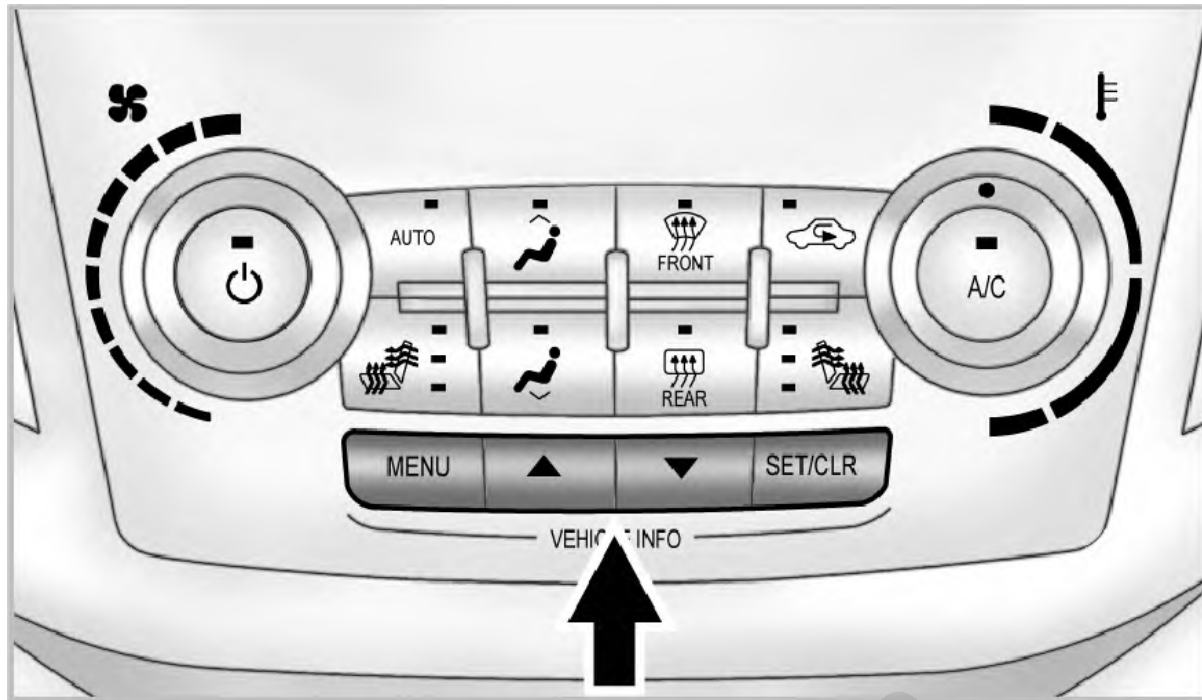


Fig. 1: Identifying Driver Information Center (DIC) Controls (Center Console))
Courtesy of GENERAL MOTORS CORP.

TPMS RESET PROCEDURES

NOTE: The TPMS sensor Relearn procedure must be performed after every tire rotation, BCM replacement, or sensor replacement.

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TIRE PRESSURE SENSOR RELEARN

NOTE: If using the TPM tool to activate the sensors, any stray sensor signals will not affect the relearn procedure. 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 sensor signal is being blocked by another component

NOTE: If using the Pressure Increase/Decrease sensor activation method, ensure that no other learn procedure is being performed simultaneously or that tire pressures are not being adjusted on another TPM equipped vehicle within close proximity. 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 Relearn 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.

NOTE:

The Relearn 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 relearn mode is cancelled before the first sensor is learned, the original sensor IDs will be maintained. If the relearn mode is canceled after the first sensor is learned, the following will occur:

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

1. Turn ignition switch to ACC position.
2. Activate the Relearn mode using a OEM scan tool or driver information center controls (see [Fig. 1](#)). A double horn chirp sounds indicating the Relearn mode has been enabled and the left front turn signal will also be illuminated.
3. Starting with the left front tire, activate the tire pressure sensor using one of the following methods:
 - 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. Once the horn chirp has sounded, the sensor information is learned and the turn signal in the next location to be learned will illuminate.
 - Hold the antenna of the TPM Special Tool (EL-46079 or EL-50448) 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 sensor information is learned and the turn signal in the next location to be learned will illuminate.
4. After horn chirp has sounded and the right front turn signal is illuminated, repeat procedure for the next 3 sensors in the following order: Right Front, Right Rear, Left Rear.
5. After left rear sensor has been learned, a double horn chirp will sound, indicating all 4 sensor IDs have been learned. Turn ignition switch to OFF position. Adjust all tire pressures to specification.

DISMOUNTING/MOUNTING PROCEDURES

CAUTION:

The tire should be dismounted from the wheel using the tire changer manufacturer's instructions. Use the following information to avoid damage during the dismounting/mounting procedures.

NOTE:

If vehicle's tires are replaced with those not having a TPC Spec number, the TPM system may give an inaccurate low pressure warning. Non-TPC Spec tires may give a low pressure warning that is higher or lower than the proper warning level achieved by TPC Spec numbered tires.

NOTE:

If a tire pressure sensor or the RCDLR is replaced, or if wheels have been rotated, tire pressure sensor must be retrained. See [RESET PROCEDURES](#).

TIRE PRESSURE SENSOR

CAUTION:

DO NOT inject any tire liquid or aerosol tire sealant into tires, as this may cause a malfunction of the tire pressure sensors. If any tire sealant is noted upon tire dismounting, replace the sensor. Also remove all residual liquid sealant from the inside of the tire and wheel surfaces.

NOTE:

Beginning in 2015, Equinox and Terrain come equipped with a newer type tire pressure sensor (see [Fig. 3](#)). Very little removal and installation information is available. The procedure below does not apply to the newer sensors.

Removal

1. Dismount tire from wheel following tire changer manufacturer's instructions while paying special attention to the following to avoid damaging tire pressure sensor:
 - Place the sensor's cap and valve on a dry, clean surface after removal. The cap is aluminum and the valve is nickel-plated to prevent corrosion. DO NOT substitute a cap or valve made of any other material.
 - Position the bead breaking fixture 90 degrees from valve stem when separating tire bead from wheel.
 - Position the mounting/dismounting head so tire iron (or pry bar) can be inserted slightly clockwise of sensor body when prying tire bead up and over the mounting/dismounting head.
 - Using tire machine, rotate tire/wheel assembly clockwise when transferring the tire bead to the outside of the wheel rim.
 - Repeat items for inner bead.
2. Remove tire pressure sensor nut (or screw). See [Fig. 2](#).
3. Remove sensor from wheel hole.
4. Remove sensor grommet from valve stem.

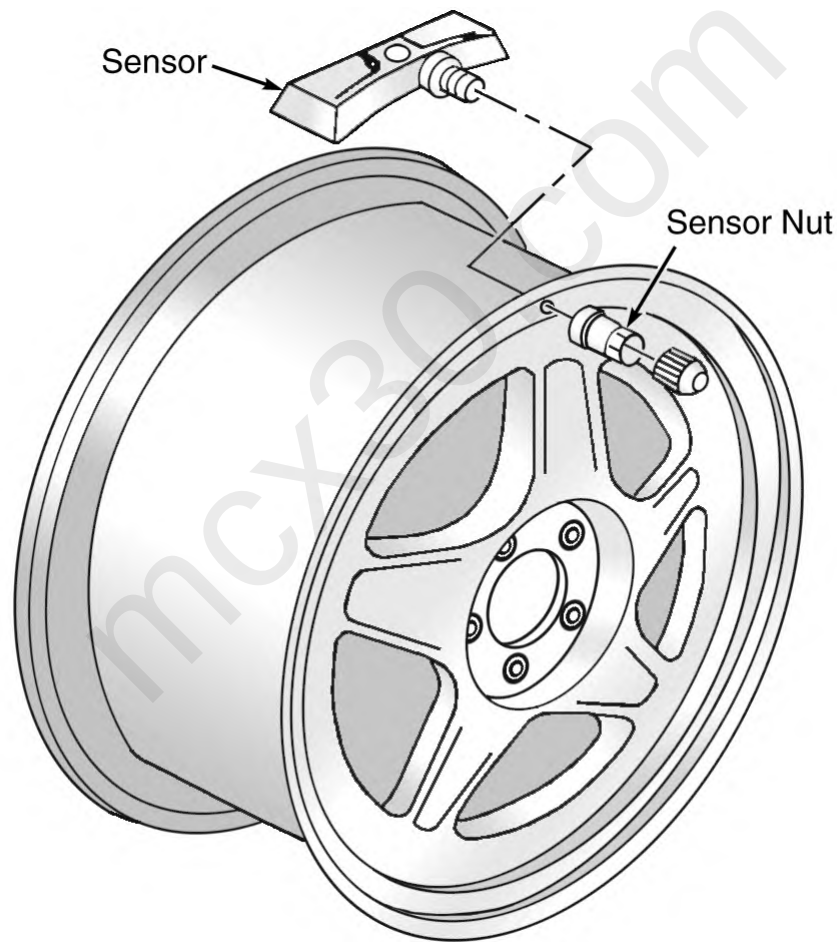


Fig. 2: Exploded View Of Tire Pressure Sensor (Old Style)
Courtesy of GENERAL MOTORS CORP.

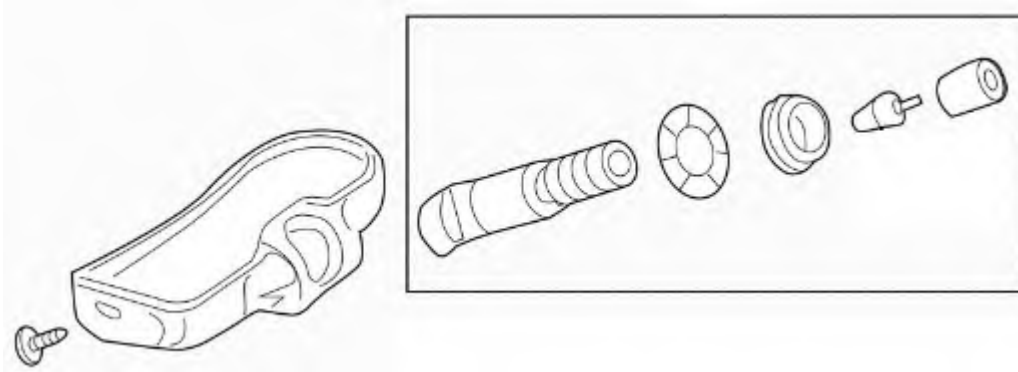


Fig. 3: Exploded View Of Tire Pressure Sensor (New Style).

Courtesy of GENERAL MOTORS CORP.

Installation

1. Clean any dirt or debris from grommet sealing areas. Install grommet on sensor valve stem.
2. Insert sensor in wheel hole with the air passage facing away from the wheel.
3. Install sensor nut, and position sensor body parallel to inside wheel surface while tightening.
4. Before installing 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 valve stem.
 - Position the bead transition area 45 degrees counterclockwise of valve stem.
 - Using tire machine, rotate tire/wheel assembly clockwise when transferring tire bead to the inside of the wheel rim.
 - Repeat items for outer bead.
5. Install tire on wheel. Install tire/wheel assembly on vehicle. Retrain tire pressure sensor. See [RESET PROCEDURES](#)

NOTE: 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 RCDLR's memory. The sensor must be taken out of OFF mode by spinning the tire/wheel assembly above 25 mph (40 km/h) for at least 10 seconds in order to close the sensor's internal roll switch.

TORQUE SPECIFICATIONS

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Component	Ft. Lbs. (N.m)
Wheel Nut	103 (140)
	INCH Lbs. (N.m)
Tire Pressure Sensor Nut (Old Style)	62 (7)
Tire Pressure Sensor Screw (New Style)	89 (10)