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WARNING: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTICE: This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

The term "IC" before the radio certification number only signifies that Industry Canada technical specifications were met.

Model: PTPMS13   FCC ID: MRXPTPMS13   IC: 2546APTMP13

EZ-sensor™ OVERVIEW

The EZ-sensor™ program is the revolutionary new programmable TPMS system that will assist you in better servicing TPMS, offering more repair coverage and reduce inventory costs. There are nearly 150 different sensor part numbers on the road today. In just <u>two</u> part numbers, the EZ-sensor™ system is expected to eventually cover 90% of them!
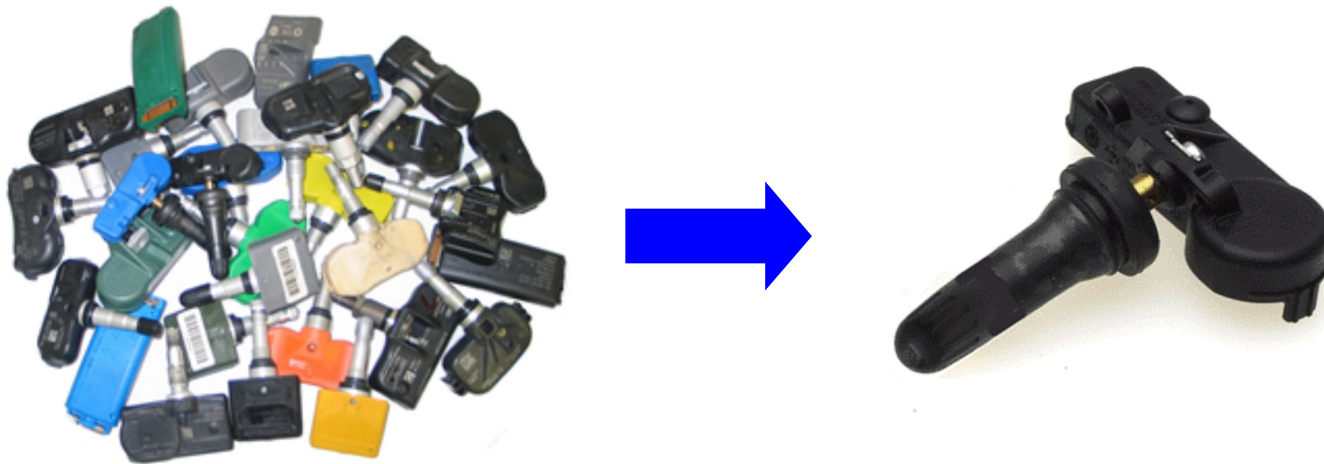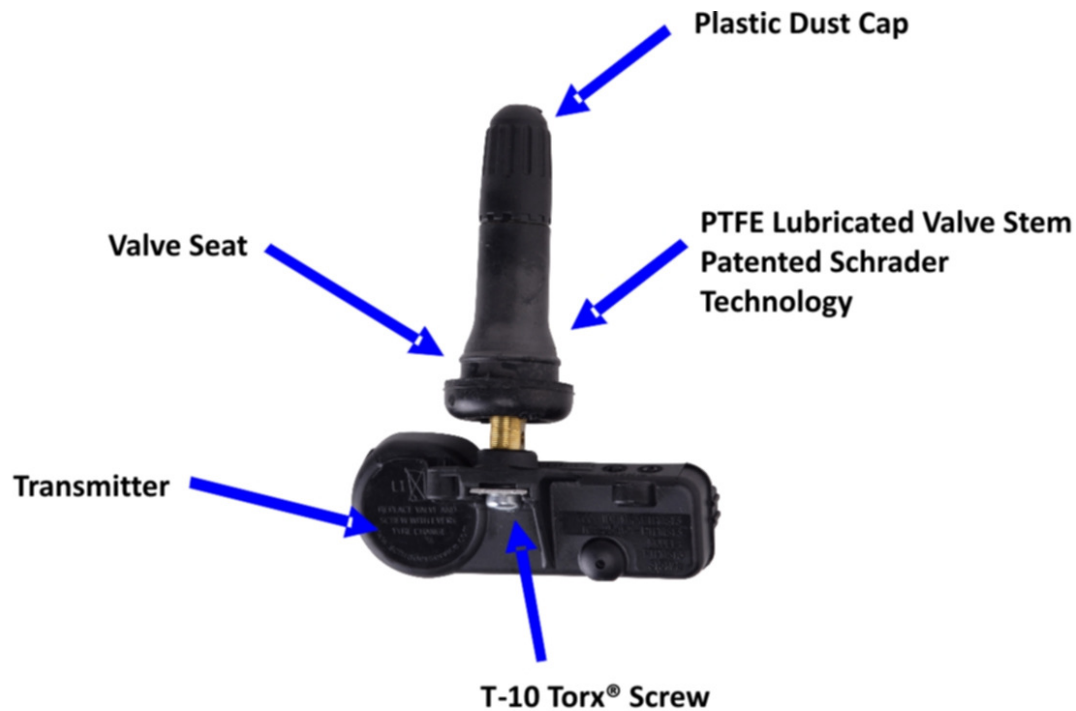
Using a TPMS Tool (Schrader® 21230, NAPA 92-1520/92-1521, 92-1525, and Bartec Tech400) you can diagnose faulty sensors, program an EZ-sensor™ replacement and re-learn the vehicle all with the SAME tool. The flexibility and ease of the EZ-sensor™ system will be another powerful tool for your tool box.

EZ-sensor™ OVERVIEW

The EZ-sensor™ is based on the widely used and patented Snap-In, or pull through, body design that Schrader® already supplies as an OEM part to many vehicle manufacturers today.

The key advantage to this body design is that there are no special tools required (other than a stem puller) to mount the EZ-sensor™ onto the wheel and tire assembly.

Plastic Dust Cap

PTFE Lubricated Valve Stem Patented Schrader Technology

Valve Seat

Transmitter

T-10 Torx® Screw

BEFORE YOU GET STARTED

Before you can begin work with EZ-sensor™ you will need to update your Schrader TPMS tool with the EZ-sensor™ software. Visit the Schrader® software website at www.schradertpms.com to retrieve the software update.

Make sure your tool is fully charged and then follow the update instructions found in the **TOOL USER GUIDE**.

Familiarize yourself with the EZ-sensor™ product set as well as the support materials before getting started.

- ✓ EZ-sensors™
- ✓ Aluminum Valve Kits
- ✓ Programming Fixture
- ✓ Quick Start Guide
- ✓ EZ-sensor™ Application Coverage Chart
- ✓ Training DVD

NOTICE: It is helpful to watch the Training DVD in its entirety to get the full understanding of the EZ-sensor™ system.

DESCRIPTION OF KEY ITEMS

	TPMS Activation Tools Tech 400/400P Schrader® 21230 NAPA 92-1520/92-1521, 92-1525 Tools to program EZ-sensor™ (purchased separately)
	Programming fixture Used to hold tool and sensor at a fixed location during sensor programming and validation
	EZ-Sensor™ A blank, ready for programming of BOTH the Protocol and ID
	Clamp-In Valve Kit (optional) Aluminum stem to change sensor from Snap-In to Clamp-In style

TEST BEFORE YOU TOUCH

TPMS is often mis-diagnosed; therefore it is best practice to ALWAYS check the vehicle thoroughly BEFORE servicing. Always inspect the following items prior to doing any tire related work:

- ✓ Check the instrument panel for TPMS lights
- ✓ Flashing TPMS Light = System Problem
- ✓ Solid TPMS Light = Low Pressure
- ✓ Review the Placard Sticker (typically in the driver's door jam area)
- ✓ Check TPMS Sensors with the Activation Tool
- ✓ Check Tire Pressure (can do with the TPMS Tool)

Visual inspection of the sensors is also critical. Look for obvious corrosion and damage. Remember, missing valves caps means the valve core has been exposed to moisture and as a result can be corroded. Inform the customer of these conditions PRIOR to doing any work.

The Bartec TPMS Tool has the ability to print an AUDIT REPORT after sensors have been checked. This is an important step in showing the customer the condition of the TPMS sensors. The next page has a sample of an audit report.

TEST BEFORE YOU TOUCH

WHEELRITE TECH 400plus ov1.39d2
Vehicle Make Tested: Nissan

Test Performed On: Saturday, July 10, 2010 7:37:22 AM

Test Performed by:

Owners Name:

License Plate No:

Model and Year:

VIN:

Comments:

Wheel	BCM ID Hex	BCM ID Dec	Position	TPM Type	Reads	ID Hex	ID Dec	Mode	Battery State	Pressure	Temperature	OEM Part #
Left Front	Untested	Untested	New	Schrader 4096 Manchester 315 MHz AM	1	00E4E4B9	15000761	Learn	N\A	0.0 PSI	N\A	40700-JA02B
Right Front	Untested	Untested	New	Schrader 4096 Manchester 315 MHz AM	1	00E4E5DF	15001055	Learn	N\A	0.0 PSI	N\A	40700-JA02B
Right Rear	Untested	Untested	New	Schrader 4096 Manchester 315 MHz AM	1	00E4E5F5	15001077	Learn	N\A	0.0 PSI	N\A	40700-JA02B
Left Rear	Untested	Untested	New	Schrader 4096 Manchester 315 MHz AM	1	00E4E5D9	15001049	Learn	N\A	0.0 PSI	N\A	40700-JA02B

Note: Battery value or state displayed is a direct output from the sensor and is not an interpretation on the part of Bartec.

This TPM information is provided as is and has no warranty implied or otherwise. You are free to (use/modify) this information at your own risk with the expressed limitation of liability.

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The PLACARD label gives you the specified air pressure for that vehicle. Remember the TPMS is designed to trigger when at least one of the tires falls 25% below placard. The following table has approximate reference TPMS triggering points.

Placard Pressure	Reference TPMS Trigger Point
25	18.8
30	22.5
35	26.3
40	30.0
45	33.8
50	37.5
55	41.3

TIRE AND LOADING INFORMATION

SEATING CAPACITY | TOTAL 88 | FRONT 8 | REAR 88

The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs.

TIRE	ORIGINAL SIZE	COLD TIRE PRESSURE	
FRONT	P235/60R17XL	200 kPa, 29 PSI	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
REAR	P235/60R17XL	200 kPa, 29 PSI	
SPARE	P235/60R17XL	200 kPa, 29 PSI	

1G6Y34AX45601310

TEST BEFORE YOU TOUCH

IMPORTANT: Proper tool position is critical to insure successful sensor activation and decode. Improper positioning may result in false readings. Position your tool as shown, AGAINST the tire, near the wheel, where the sensor is located. Make sure the tool is aimed at the sensor.

NOTE: Verifying and setting your tool to the proper Make, Model, and Year is critical to successful sensor activation and decode. Improper MMY may result in false readings.

Verify the model year by reading the VIN (Vehicle Identification Number). The 10th digit of the VIN will verify the model year. For example, if the 10th digit was "9", the model year was 2009, if "A" the model year is 2010.

TEST BEFORE YOU TOUCH

To set up your tool:

1) Power the tool ON by pressing the ON key
2) From the Main Menu, using the UP/DOWN arrow keys, scroll until "Read TPM" is shown/highlighted, and press the ENTER key.
3) The tool will display "Select by Make". Using the UP/DOWN arrow keys, scroll to the MAKE you are working on until that MAKE is shown/highlighted and press ENTER key.
4) Tool will display "Select Model". Using the UP/DOWN arrow keys, scroll to the Model you are working on until that Model is shown/highlighted and press ENTER key.
5) Tool will display "Read TPM". Using the UP/DOWN arrow keys, scroll to the Year (may be part of a range) you are working on until that Year is shown/highlighted and press ENTER key.
6) Tool will display the OE or Equivalent Aftermarket replacement part number, as well as sensor information such as: Frequency and Protocol. Press ENTER key to continue.
7) Tool will now show the outline of a vehicle and will display the MMY you have selected at the top of the screen. It is important to note: Vehicles equipped with COMS and EZ-sensor coverage will indicate so by having those boxes filled in to the left of your screen as shown.

IMPORTANT: Verify tool has a good charge prior to activating sensors. A weak battery may result in false readings.

Once the tool is set for the MMY, starting with the Left Front (LF) wheel, place the tool with proper position and press the TEST button. Tool will send the proper signal based on the MMY you selected and wait for a specific response from that sensor, decoding the message (Pressure, Temperature, ID, etc.) Continue this with the remaining tire RF, RR, LR and the Spare if equipped.

EZ-sensor™ PROGRAMMING PROCEDURE

This section describes the best practice process for actually programming an EZ-sensor™. The sections that follow will explain specific processes and screen flows.

The best practice for programming an EZ-sensor is to program the sensor using the EZ-sensor programming fixture. This method ensures that the sensor is the proper distance from the tool as well as stationary during the programming process. This also keeps the EZ-sensor at the correct angle to ensure that programming is successful.

If you do put the sensor in the wheel and then try to program it, and you are not successful, you should remove the EZ-sensor from the wheel and attempt to program the sensor using the programming fixture before proceeding any further.

REPLACING A TPMS SENSOR WITH EZ-sensor™

There are two scenarios in which you can use the EZ-sensor™ to replace a single faulty TPMS Sensor.

1. **Mechanically Broken Sensor** – a sensor that has physical damage but still functions electronically.
2. **Non-functioning or missing Sensor** – the sensor has stopped working or transmitting due to dead battery or other damage – or the sensor is missing completely.

► Mechanically Broken Sensor

During "Test before you Touch," you may discover a broken TPMS Sensor, in most cases these sensors will still respond to the TPMS tool. In this case, you can retrieve the SENSOR ID from the sensor and COPY it to the EZ-sensor™. **NOTE**: This eliminates having to do a RE-LEARN procedure.

Process:
1. Read the Wheel position (of broken sensor).
2. Move cursor to the EZ-sensor™ icon – press enter.
3. Select **COPY** Sensor
4. Follow programming instructions on screen
5. Once programming is complete, replace the broken sensor.
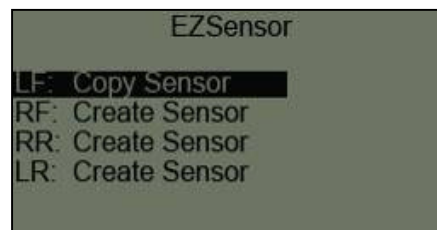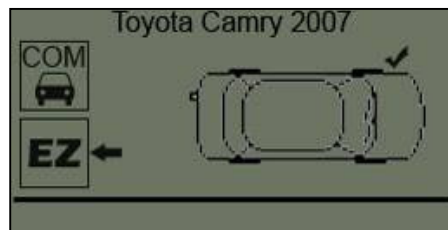
REPLACING A TPMS SENSOR WITH EZ-sensor™

► Missing or Faulty Sensor

During "Test before you Touch," you may discover a TPMS Sensor that is not responsive or missing all-together. This will result in an "X" on the tool screen indicating no sensor found. In this case, you can create a NEW SENSOR ID using the EZ-sensor™.

Process:
1. Read all Wheel positions
2. Access the EZ-sensor™ option
3. Select **CREATE** Sensor
4. Follow programming instructions on screen
5. On the tool screen: "RF: Create Sensor" is replaced with "RF: Programmed" upon success
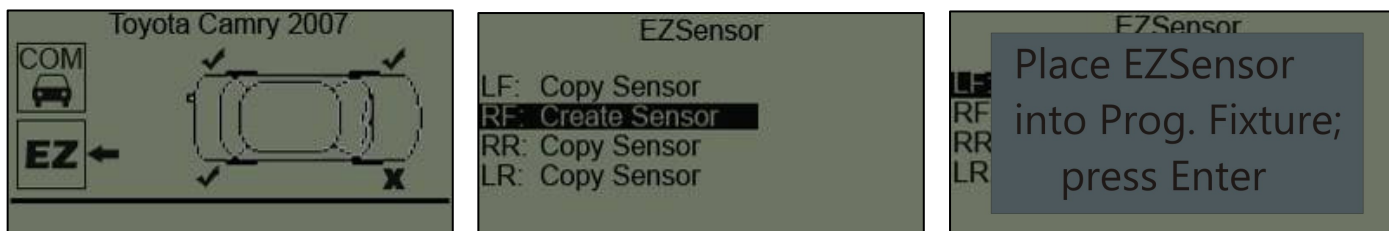
MAKING A COMPLETE SET OF EZ-sensors™

There are two scenarios in which you can use the EZ-sensor™ to create a complete set of replacement sensors.

1. **Duplicate Seasonal Set**– a set of sensors that have the SAME ID's as what is currently on the car. An example would be a set of snow tires. This option gives the consumer the option to change between the sets and NOT have to have a vehicle re-learning procedure done.
2. **A Unique Sensor Set** – a set of sensors programmed with the proper protocol but with UNIQUE sensor ID's. Can be done remotely and shipped to a customer for installation at a later time.

► Copy Tire Set
Use this method when a DUPLICATE SET of sensors is required.

Process:
1. Read all Wheel positions
2. Move cursor to the EZ-sensor™ icon – press enter.
3. Select Copy Tire Set
4. Follow normal programming procedure as tool prompts for all wheels
5. On the tool screen: "Copy Sensor" replaced with "Programmed" upon success.
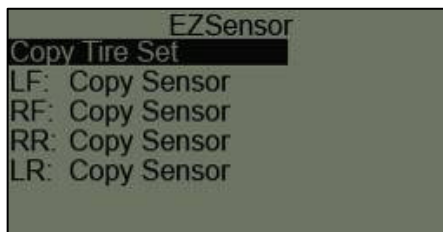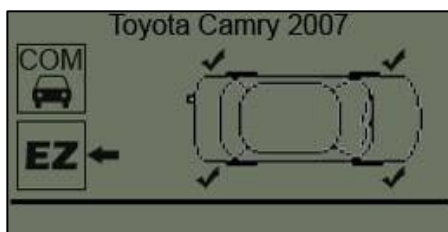
MAKING A COMPLETE SET OF EZ-sensors™

► Create Tire Set

Use this method when a UNIQUE SET of sensors is required. These can be created remotely or on site as reading the sensors from the car is not required.

Process:

1. Select EZ-Sensor without reading any Wheel Positions
2. Move cursor to the EZ-Sensor™ icon – press enter.
3. Select Create Tire Set
4. Follow normal programming procedure as tool prompts for all wheels
5. On the tool screen: "Create Sensor" is replaced with "Programmed" upon success.
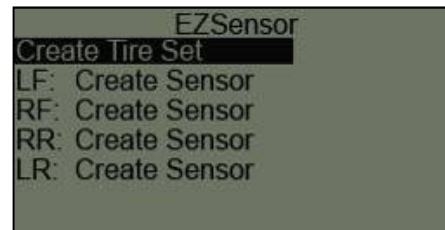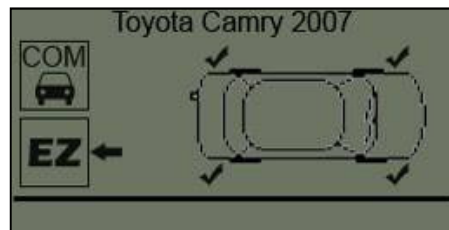
AFTER PROGRAMMING EZ-sensor™

Do I need to conduct a re-learn?

A unique feature to EZ-sensor is the ability to COPY sensor IDs. You do not need to re-learn the vehicle if you copy a sensor ID and put the sensor in the same position as the one you replaced.

If you **create** an ID then you will need to re-learn the vehicle.

What do I do with the old sensors?

Old sensors can still transmit a signal. This can cause the TPM light to come on. Old sensors need to be stored away from the vehicle.

If I used the optional Clamp-In stem, what do I do with the supplied Snap-In stems?

If you elect to use the Clamp-In stems you need to dispose of the Snap-In stems when you remove them, as they are no longer usable.

AFTER PROGRAMMING EZ-sensor™

Audit Report (Post Service Scan)

The Bartec manufactured tools have a very powerful feature, the audit report. Using the audit report for both Pre and Post service scans will allow you to accurately keep records of your TPMS service on each vehicle you work on.

Benefits to Post Service Scan & Audit Report

- Record is kept for each vehicle
- Audit report has location for Customer info and VIN
- Shows all work conducted
- Final verification

To use the post service scan and audit report, after all work is preformed and the TPMS light is out, scan all sensors.

With the data stored in the tool, connect the tool to your PC using the USB cable.

ASSEMBLING THE ALUMINUM VALVE KIT TO THE EZ-sensor™

To use the optional Clamp-In stem, the Snap-In stem will need to be removed.

Using the T-10 tool, remove the screw at the base of the stem. Once removed discard the old stem and screw.

- The optional Clamp-In stem will include the Stem, Nut, Core, Cap, Grommet and new T-10 screw.
- Align the flats of the Clamp-In stem with the flats on the sensor body, and insert the stem.
- With the 10 mm wrench on the stems flats (as shown), using the T-10 12 in/lbs torque tool, tighten the provide screw until the torque tool limiter clicks.
- The stem will now be securely fastened to the sensor body.
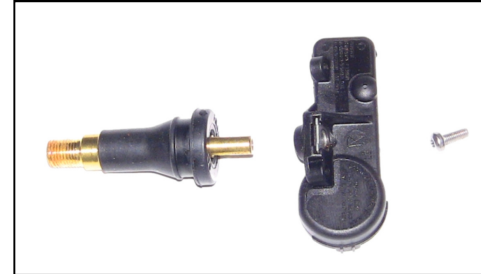
IMPORTANT: The stem for this sensor is the UHF antenna and requires the proper torque for the antenna to work properly.

INSTALLING AN EZ-sensor™ TO A WHEEL

Tools Needed:

Snap-In sensor:
- Valve Pull tool
- Block of Wood or Rubber Mallet
- Tire Lube
- T-10 12in/lbs torque tool

Clamp-In sensor:
- Adjustable Torque wrench set to 62 in/lbs (7Nm)
- 12 mm socket
- 10 mm open end wrench (to attach optional stem to sensor)
- T-10 12 in/lbs torque tool

Step 1 is to program the sensor – see section on programming EZ-sensor™

STEP 2
Apply tire soap or lube solution to rubber portion of the valve stem.
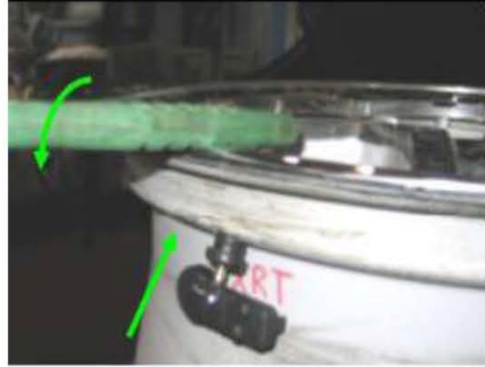
STEP 3
Line sensor up with rim hole as shown and attach a standard TTV pull in tool to the end of the valve ready for pull in.
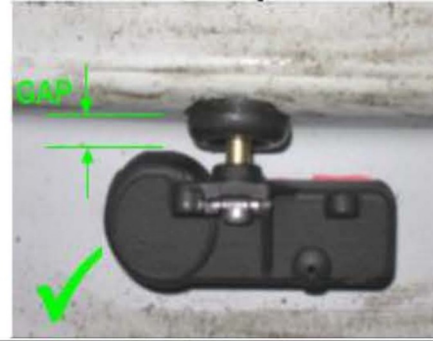
INSTALLING AN EZ-sensor™ TO A WHEEL

STEP 4
Using a standard TTV pull in tool, pull the valve stem straight through the valve hole and **NOT** at an angle.

STEP 5
The picture below shows the correct fit for the sensor. Note the rubber bulb of valve resting against rim and the front face of the sensor body is NOT touching the rim.
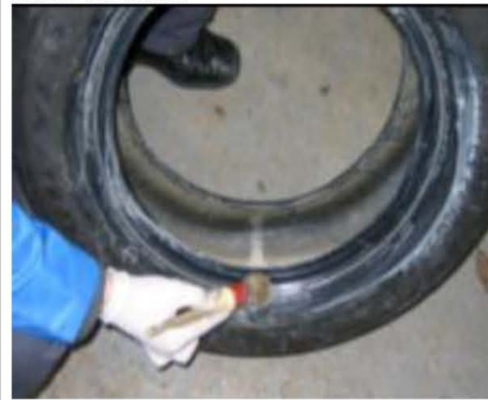

STEP 6
This picture shows a TPMS sensor with a bad fit. Note that the rubber bulb is not resting on rim, and will not seal.

STEP 7
Apply tire soap or lube solution to top and bottom tire beads.

INSTALLING AN EZ-sensor™ TO A WHEEL

STEP 8
To fit the bottom bead of the tire, make sure that the sensor is 90° from the tire changing head in the clockwise direction as shown below. This will protect the sensor when the bottom bead seats.
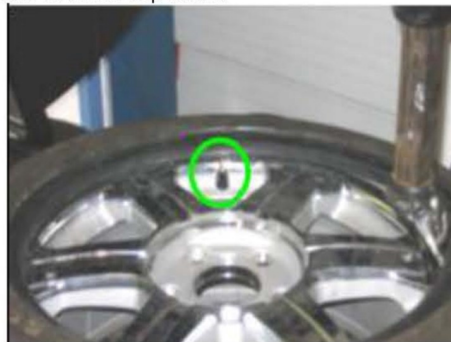
STEP 9
Fit the bottom bead of the tire by rotating the wheel clockwise, and push down on the bead in the position shown so that it does not hit the sensor when the bead seats.

STEP 10
Once the bottom bead is on the wheel, rotate the wheel so the sensor is again at 90° to the tire changing head in the clockwise direction in order to fit the top bead.

STEP 11
Fit the top bead of the tire by rotating the wheel clockwise, and pushing down on the bead in the position shown so that it does not hit the sensor.

INSTALLING AN EZ-sensor™ TO A WHEEL

STEP 12
Inflate tire until the beads seat.

STEP 13
Inflate tire per vehicle recommendation.

Clamp-In sensor:

Install valve through the rim hole with the label facing down. To prevent sensor damage, keep sensor alignment level. Do not push down or up on the sensor during tightening.

Manually thread the hex nut onto the valve stem. Hand tighten until the nut touches the rim.

Use Torque Wrench set to 57-62 in/lbs. torque.

Lubricate and mount outside bead of the tire to the rim. Caution: To avoid damage, position sensor 90° from the duck head in the direction of table rotation. The tire should be mounted to the wheel using tire changer manufacturer's instructions.

Use Valve Core Torque Tool to install a new electro-less nickel-plated valve core into sensor. SEE CAUTION below.

Tire with TPMS is now ready for proper inflation.

CAUTION: Do not reuse the removed valve core. Always replace with a new electro-less nickel-plated valve core. Use of non-electro-less nickel-plated cores with aluminum valve stems can result in galvanic corrosion and loss of tire pressure. Tighten core with an approved valve core tool to 0.17–0.37 Nm (1.5–3.3 lbf/in). **DO NOT OVERTIGHTEN.**

FREQUENTLY ASKED QUESTIONS

- **If I copy a sensors ID to an EZ-sensor™ and put the wheel back on the vehicle in the same place do I have to relearn the vehicle?** *No you do not need to relearn the vehicle. As far as the vehicle is concerned, the sensor you replaced is the same sensor as the OE part.*

- **Do I have to program the EZ-sensor™ in the provided programming fixture?**
  The EZ-sensor™ system was designed to be robust. However it is based on Radio Frequency, therefore the best practice is to program in the fixture. When you program in a wheel and tire assembly, there are variables like size and type, and distance from the tool, etc. that may come into play.

- **Do I have to have to pay for software to program an EZ-sensor™?**
  No, however your tool subscription has to be current in order to obtain the EZ-sensor™ software for your tool.

- **Can I program EZ-sensor™ to any vehicle I work on?**
  Check the coverage chart included for current availability. Ultimately EZ-sensor™ is expected to cover more than 90% of the market.

- **Can I create a sensor for a vehicle if I do not have a sensor ID to copy?**
  Yes, you can read the ID from the vehicles OBD II connection and then write that ID to an EZ-sensor™.

FREQUENTLY ASKED QUESTIONS

- **What if I can't read from the vehicles OBD II connection?**
  The EZ-sensor™ software allows you to create a unique ID for the sensor you are replacing and then you can program that ID to the vehicle.

- **What do I do if the EZ-sensor™ does not program the first time I try?**
  This is OK, though you should not run into this problem very often if you just retry the programming process. Make sure you use the fixture.

- **I went through the programming process in the fixture and the tool went all the way through but did not read the ID. Is the sensor programmed?**
  Yes, the EZ-sensor™ should be programmed. Try reading the sensor as a normal sensor. If it does not read, retry the programming process.

- **If I get a vehicle with an EZ-sensor™ already installed and it is not functioning, can I copy that sensor's ID to a new EZ-sensor™?**
  Yes, once an EZ-sensor™ has been programmed with an ID and protocol, it is just like the OE sensor.

GLOSSARY

Sensor Protocol – If TPMS is all about communication, this is the "language" of the sensor. This includes baud rate, pressure range, data format and frequency. EZ-sensors™ are able to have protocols programmed.

Sensor ID – The unique identifier that every TPMS sensor as. It is the information that is stored in the vehicle's BCM that links the sensor to the car. Think of it as an address.

UHF – Ultra High Frequency. The radio signal used by TPMS sensors to transmit the pressure and temperature information to the receiver.

COMMS – Short for vehicle communication. Process used to transmit sensor ID's to the BCM known as re-learning.

BCM – Acronym for Body Control Module. The device that controls the TPMS and typically where the sensor ID's are written.

Re-Learn – Process of programming sensor ID's into the BCM. Done with a TPMS tool.