



United States Department of Transportation  
National Highway Traffic Safety Administration

## REPAIR FACILITIES SURVEY (CATI)

Form Approved O.M.B. No. 2127-0626  
Expiration Date: XXXX

Tire Pressure Monitoring System  
Outage Rates and Repair Costs

---

Received:

**Paperwork Reduction Act Burden Statement**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2127-0626 (Expiration date: XX/XX/XXXX). Public reporting for this collection of information is estimated to be approximately 20 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are voluntary. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, National Highway Traffic Safety Administration, 1200 New Jersey Ave, S.E., Washington, DC, 20590. NHTSA Form 1276.

Formatting conventions:

**Questionnaire item**

**///PROGRAMMING LOGIC///**

*Explanatory notes*

---

*Programmer Notes:*

- *All variables are assumed to be numeric*
- *For SELECT ALL THAT APPLY items, create a series of variables with **\_1, \_2**, etc. appended to original variable name to indicate selection status of each response option*
- *For all "Other: Specify" items, create a new variable (length \$ 256) with **\_OTHER** appended to original variable name to hold open-end text*

*Disposition Definitions:*

- *25 = Screened out, Not a repair facility*
- *26 = Screened out, Facility does not service passenger vehicles*
- *27 = Screened out, Facility does not service TPMS*
- *61 = Complete*

## SCREENING

///**ON FIRST ATTEMPT FOR EACH RECORD, CREATE FLAG VARIABLE MGRONLY = 1 TO INDICATE THAT WE ARE INITIALLY SCREENING SPECIFICALLY FOR SERVICE MANAGER. ALSO CREATE COUNTER VARIABLE ATTEMPTS = 0 TO TRACK HOW MANY ATTEMPTS HAVE BEEN MADE**///  
///

///**ASK ALL**///  
///

**INTRORF1**     **Hi, I'm [NAME] calling on behalf of the United States Department of Transportation. Can I please speak with the service manager or equivalent <///IF MGRONLY=0, INSERT: or, if this person is unavailable, any employee who is knowledgeable about TPMS or tire service in general///>?**

**[INTERVIEWER: READ IF NECESSARY: We're conducting a survey of outage rates and repair costs for tire pressure monitoring systems, or TPMS, and your business was selected at random.]**

1. YES - SPEAKING
2. TRANSFER INITIATED
3. NO - REQUESTED PERSON(S) UNAVAILABLE
4. NO - NOT A REPAIR FACILITY
99. REFUSED

///**IF INTRORF1=3 THEN DO**  
    **ATTEMPTS = ATTEMPTS + 1**  
    **IF ATTEMPTS >= 6 THEN MGRONLY = 0**  
    **IF NOT AT PROTOCOL THEN SCHEDULE CALLBACK**  
**END**///  
///

///**IF INTRORF1=04, SKIP TO END: SET DISPO=25, Screened out: Not a repair facility**///  
///

///**ASK IF INTRORF1=01 or 02** ///  
///

**INTRORF2**     **//IF INTRORF1=02 THEN INSERT <Hi, I'm [NAME] calling on behalf of United States Department of Transportation.> //**  
**We're conducting a survey of outage rates and repair costs for tire pressure monitoring systems, or TPMS. You may have recently received a letter from the National Highway Safety Administration (NHTSA) inviting you to participate in this survey.**  
**1. CONTINUE**  
**99. REFUSED**

///ASK IF INTRORF2=01, Screening successful///

**INTRORF2B** This survey is voluntary. It has been approved by OMB under control number 2127-0626. Your answers will be kept private, used only for statistical purposes, and protected to the full extent of the law.  
You do not have to answer any question you do not want to, and you can end the interview at any time. If you don't know the answer to any question, you can say that you don't know.

This call may be monitored or recorded for quality assurance purposes.

1. CONTINUE

///ASK IF INTRORF2B=01, Screening successful///

**RFFNAME** Is the name of your facility [POPULATED]?  
1. YES  
2. NO  
99. REFUSED

///ASK IF INTRORF2B=01, Screening successful///

**RFTYPE** Please indicate the category that BEST describes your auto repair facility. Is it...  
1. Franchised (not attached to a dealership)  
2. Connected to a dealership  
3. Independently owned  
4. OTHER: SPECIFY  
98. DON'T KNOW  
99. REFUSED

///ASK IF INTRORF2B=01, Screening successful///

**RFPSSGR** Does this facility service passenger vehicles—that is, passenger cars or light trucks, including pickups, vans, and SUVs?  
1. YES  
2. NO  
99. REFUSED

///IF RFPSSGR=2 SKIP TO END: SET DISPO=26, Facility does not service passenger vehicles///

///ASK IF RFPSSGR=01, Facility services passenger vehicles///

**RFTPMS1** Does this facility service Tire Pressure Monitoring Systems, known as TPMS, in passenger vehicles?  
1. YES  
2. NO  
99. REFUSED

///IF RFTPMS1=2 SKIP TO END: SET DISPO=27, Facility does not service TPMS in passenger vehicles///

///ASK IF RFTPMS1=1, Facility services TPMS in passenger vehicles///

- RFTPMS2** Does this facility service both direct and indirect TPMS systems in passenger vehicles?  
[INTERVIEWER: IF NECESSARY, PROMPT TO CLARIFY THE TYPE SERVICED: Do you service only direct TPMS, or only indirect TPMS?]
1. DIRECT AND INDIRECT
  2. DIRECT ONLY
  3. INDIRECT ONLY
  99. REFUSED

## FACILITY INFO

///ASK IF RFTPMS1=1, Facility services TPMS in passenger vehicles///

- RFOPEN1** How many years has this facility been in business?  
[IF NECESSARY: Include all locations, if the facility has moved]  
/RECORD NUMBER: RANGE = 1-100/  
996. LESS THAN ONE YEAR  
997. MORE THAN 100 YEARS  
998. DON'T KNOW  
999. REFUSED

///ASK IF RFOPEN1=996, Open less than one year///

- RFOPEN2** How many months has this facility been in business?  
/RECORD NUMBER: RANGE = 1-11/  
98. DON'T KNOW  
99. REFUSED

///ASK IF RFTPMS1=1, Facility services TPMS in passenger vehicles ///

- RFBRAND1** Does this facility only service specific makes of passenger vehicles?
1. YES
  2. NO
  98. DON'T KNOW
  99. REFUSED

///ASK IF RFBRAND1=1, Services only specific makes of passenger vehicles///

- RFBRAND2** Which makes of passenger vehicles are serviced at this facility?  
/OPEN-END: ENTER RESPONSE/

///ASK IF RFTPMS1=1, Facility services TPMS in passenger vehicles ///

- RFVEHIC** In the past 90 days, how many passenger vehicles has this facility serviced?  
/RECORD NUMBER: RANGE = 0-9997/  
9998. DON'T KNOW  
9999. REFUSED

///**ASK IF RFTPMS1=1, Facility services TPMS in passenger vehicles ///**

**INTRORF3** In the remaining questions, I'll be asking specifically about Tire Pressure Monitoring Systems, or "TPMS," on passenger vehicles.

1. CONTINUE

///**ASK IF INTRORF3=1, Continuing with interview ///**

**SRVTOT** In the past 90 days, what percent of the passenger vehicles serviced in this facility were equipped with a TPMS system (whether or not it was functional)? Your best estimate is fine.

/RECORD NUMBER: RANGE = 0-100/

998. DON'T KNOW

999. REFUSED

///**ASK IF RFTPMS2=1, Facility services direct and indirect TPMS ///**

**SRVDIR** Of these vehicles equipped with a TPMS system, what percent were direct TPMS systems? Your best estimate is fine.

/RECORD NUMBER: RANGE = 0-100/

998. DON'T KNOW

999. REFUSED

///**IF RFTPMS2=1 AND SRVDIR IN 0:100, AUTOPUNCH: SRVINDIR = 100-SRVDIR, percent of vehicles equipped with a TPMS system that were indirect systems ///**

///**IF RFTPMS2=2, AUTOPUNCH: SRVDIR=100, SRVINDIR=0 ///**

///**IF RFTPMS2=3, AUTOPUNCH: SRVDIR=0, SRVINDIR=100 ///**

///**ASK IF INTRORF3=1, Continuing with interview ///**

**TPMSVOL** Is the volume of TPMS service in this facility in the last 90 days higher or lower compared to other times of year? Would you say...

1. Much higher
  2. Somewhat higher
  3. About the same
  4. Somewhat lower
  5. Much lower
98. DON'T KNOW  
99. REFUSED

///**ASK IF INTRORF3=1, Continuing with interview ///**

**CHKMALF1** As a standard practice, does your facility perform a TPMS system inspection on all TPMS-equipped vehicles that come in?

1. YES
  2. NO
98. DON'T KNOW  
99. REFUSED

///ASK IF CHKMALF1 IN (2,98,99), Do not check that TPMS is working for all vehicles///

**CHKMALF2** As a standard practice, does your facility check that the TPMS system is working properly each time a TPMS-equipped vehicle...

- a. ...Has wheel or tire service performed?
- b. ...Has been involved in an accident?
- c. ...Is brought in for recommended maintenance (such as a 50,000 mile checkup) that does not include work on wheels or tires?
- d. Is brought in for any other type of work?

- 01 YES
- 02 NO
- 98. DON'T KNOW
- 99. REFUSED

## COMPONENT LIFESPAN

### >> AVERAGE LIFESPAN

///ASK IF INTRORF3=1, Continuing with interview///

**INTRORF4** In the next set of questions, I'll be asking about the average functional lifespan of TPMS components. Please base your answers on your knowledge about servicing TPMS systems, not on any marketing or other information provided by the suppliers of these products.

- 1. CONTINUE

///ASK IF RFTPMS2=1,2, Facility services direct TPMS in passenger vehicles ///

**LSD\_RSENSOR** In a direct TPMS system, what is the average functional lifespan of a rim-mounted sensor?

[NOTE: IF LESS THAN 1 YEAR, ENTER 1]

[NOTE: IF MORE THAN 10 YEARS, ENTER 11]

/RECORD NUMBER: RANGE = 1-11/

- 98. DON'T KNOW
- 99. REFUSED

///ASK IF RFTPMS2=1,2, Facility services direct TPMS in passenger vehicles ///

**LSD\_SSENSOR** In a direct TPMS system, what is the average functional lifespan of a stem-mounted sensor?

[NOTE: IF LESS THAN 1 YEAR, ENTER 1]

[NOTE: IF MORE THAN 10 YEARS, ENTER 11]

/RECORD NUMBER: RANGE = 1-11/

- 98. DON'T KNOW
- 99. REFUSED

///**ASK IF RFTPMS2=1,2, Facility services direct TPMS in passenger vehicles ///**

**LSD\_OVERALL** What is the average functional lifespan of a direct TPMS system as a whole - that is, before it requires some kind of service?

[NOTE: IF LESS THAN 1 YEAR, ENTER 1]

[NOTE: IF MORE THAN 10 YEARS, ENTER 11]

/RECORD NUMBER: RANGE = 1-11/

98. DON'T KNOW

99. REFUSED

///**ASK IF RFTPMS2=1,3, Facility services indirect TPMS in passenger vehicles ///**

**LSI\_SENSOR** In an indirect TPMS system, what is the average functional lifespan of a chassis-mounted sensor (such as a wheel speed sensor)?

[NOTE: IF LESS THAN 1 YEAR, ENTER 1]

[NOTE: IF MORE THAN 10 YEARS, ENTER 11]

/RECORD NUMBER: RANGE = 1-11/

98. DON'T KNOW

99. REFUSED

///**ASK IF RFTPMS2=1,3, Facility services indirect TPMS in passenger vehicles ///**

**LSI\_OVERALL** What is the average functional lifespan of an indirect TPMS system as a whole - that is, before it requires some kind of service?

[NOTE: IF LESS THAN 1 YEAR, ENTER 1]

[NOTE: IF MORE THAN 10 YEARS, ENTER 11]

/RECORD NUMBER: RANGE = 1-11/

98. DON'T KNOW

99. REFUSED

## TPMS MALFUNCTIONS

///**ASK IF INTRORF4=1, Continuing with interview ///**

**INTRORF5** Now I'd like you to think about TPMS malfunctions in passenger vehicles. For this survey, a TPMS malfunction is defined as any time a TPMS system is not working correctly - including problems with the sensors or the on-board components.

1. CONTINUE

## >> DIRECT TPMS

///**ASK IF RFTPMS2=1,2, Facility services dTPMS ///**

**INTRORF5D** The following questions will be specifically about the vehicles with direct TPMS systems that were seen in the last 90 days.

1. CONTINUE

///ASK IF INTRORF5D=1, Continuing with interview///

**MALFREQD** Over the past 90 days, how often did vehicles with direct TPMS come in with a TPMS malfunction whether or not a repair was later done? Please use a 1 to 5 scale where 1 means Never and 5 means Almost Always. [Would you say...]

1. 1- NEVER
- 2.
- 3.
- 4.
5. 5 - ALMOST ALWAYS
98. DON'T KNOW
99. REFUSED

///ASK IF MALFREQD=1, No dTPMS malfunctions seen in past 90 days///

**MALFREQD2** When was the last time a TPMS malfunction was seen in a vehicle with direct TPMS?

1. Within the past 6 months
2. Within the past 12 months
3. More than 12 months ago
4. Never
98. DON'T KNOW
99. REFUSED

///IF MALFREQD=1 THEN SKIP TO DISABLED///

///ASK IF MALFREQD=2,3,4,5, Some dTPMS malfunctions seen in past 90 days///

**MALIDENTD** How frequently were these malfunctions originally identified by the owner when the vehicle was first brought in for service?

[Please use a 1 to 5 scale where 1 means Never and 5 means Almost Always.]

[INTERVIEWER NOTE: IN PAST 90 DAYS]

1. 1 - NEVER
- 2.
- 3.
- 4.
5. 5 - ALMOST ALWAYS
98. DON'T KNOW
99. REFUSED

///ASK IF MALFREQD=2,3,4,5, Some dTPMS malfunctions seen in past 90 days///

**MALSRCD** Which of the following was most frequently the source of the TPMS malfunction in these vehicles?

1. Sensors
2. On-board hardware
3. On-board software
98. DON'T KNOW
99. REFUSED



///ASK IF MALFREQD=2,3,4,5, Some dTPMS malfunctions seen in past 90 days///

**MALSRVCD** What was the most common service your facility performed to fix the malfunctions in these vehicles?

1. Recalibrate the TPMS system
2. Install new rim-mounted sensors
3. Install new stem-mounted sensors
4. Repair or replace on-board hardware
5. Repair or replace on-board software
6. Perform another type of service
7. Perform no service
98. DON'T KNOW
99. REFUSED

///ASK IF MALFREQD=2,3,4,5, Some dTPMS malfunctions seen in past 90 days///

**ASKDISABD1** How frequently did the owners of these vehicles ask you to disable the direct TPMS system or to leave it unrepaired? Please use the same 1 to 5 scale where 1 means Never and 5 means Almost Always. [Would you say...]

1. 1 - NEVER
- 2.
- 3.
- 4.
5. 5 - ALMOST ALWAYS
98. DON'T KNOW
99. REFUSED

///ASK IF ASKDISABD1=2,3,4,5, Some customers ask about disabling the dTPMS system or leaving it unrepaired ///

**ASKDISABD2** What is the most common reason these owners gave for wanting the direct TPMS system in their vehicle disabled or for not wanting it fixed?

1. It's not accurate or reliable
2. It costs too much
3. It isn't necessary for the operation of the vehicle
4. It isn't legally required to be working
5. OTHER: SPECIFY
98. DON'T KNOW
99. REFUSED

///ASK IF INTRORF5D=1, Continuing with interview///

**DISABLED** Over the past 90 days, how frequently were disabled TPMS systems seen in vehicles with direct TPMS? Please use the same 1 to 5 scale where 1 means Never and 5 means Almost Always. [Would you say...]

1. 1 - NEVER
- 2.
- 3.
- 4.
5. 5 - ALMOST ALWAYS
98. DON'T KNOW

99. REFUSED

///**ASK IF INTRORF5D=1 AND (MALFREQD=2,3,4,5 OR MALFREQD2=1,2,3), Continuing with interview and has seen dTPMS malfunctions///**

**MALEVENTD** Based on your overall experience, what most commonly causes malfunctions in direct TPMS systems? Please include up to three causes.

[CATI: MUL=3, CAPTURE RESPONSES IN ORDER IN MALEVENTD\_01-MALEVENTD\_03]

[MAIL: OPEN-ENDED, 3 LINES]

1. VEHICLE ACCIDENT
2. VEHICLE AGE
3. VEHICLE MILEAGE
4. ROTATION OF TIRES
5. REPLACEMENT OF TIRES
6. WEATHER/CLIMATE (INCLUDING FLOODING OR SNOW)
7. ELECTRICAL INTERFERENCE
8. WORN OUT BATTERIES
9. OTHER: SPECIFY
98. DON'T KNOW
99. REFUSED

## >> INDIRECT TPMS

///**ASK IF RFTPMS2=1,3, Facility services iTPMS///**

**INTRORF5I** The following questions will be specifically about the vehicles with indirect systems seen in the last 90 days.

1. CONTINUE

///**ASK IF INTRORF5I=1, Continuing with interview///**

**MALFREQI** Over the past 90 days, how often did vehicles with indirect TPMS come in with a TPMS malfunction whether or not a repair was later done? Please use a 1 to 5 scale where 1 means Never and 5 means Almost Always. [Would you say...]

1. 1 - NEVER
- 2.
- 3.
- 4.
5. 5 - ALMOST ALWAYS
98. DON'T KNOW
99. REFUSED

///**ASK IF MALFREQI=1, No iTPMS malfunctions seen in past 90 days///**

**MALFREQI2** When was the last time a TPMS malfunction was seen in a vehicle with indirect TPMS?

1. Within the past 6 months
2. Within the past 12 months
3. More than 12 months ago
4. Never
98. DON'T KNOW

99. REFUSED

///**IF MALFREQI=1 THEN SKIP TO DISABLEI**///

///**ASK IF MALFREQI=2,3,4,5, Some iTPMS malfunctions seen in past 90 days**///

**MALIDENTI** How frequently were these malfunctions originally identified by the owner when the vehicle was first brought in for service?

[Please use a 1 to 5 scale where 1 means Never and 5 means Almost Always.]

[INTERVIEWER NOTE: IN PAST 90 DAYS]

1. 1 - NEVER
  - 2.
  - 3.
  - 4.
  5. 5 - ALMOST ALWAYS
98. DON'T KNOW  
99. REFUSED

///**ASK IF MALFREQI=2,3,4,5, Some iTPMS malfunctions seen in past 90 days**///

**MALSRCI** Which of the following was most frequently the source of the TPMS malfunction in these vehicles?

1. Chassis-mounted sensor (such as a wheel speed sensors)
  2. On-board hardware
  3. On-board software
98. DON'T KNOW  
99. REFUSED

///**ASK IF MALFREQI=2,3,4,5, Some iTPMS malfunctions seen in past 90 days**///

**MALSRVCI** What was the most common service your facility performed to fix the malfunctions in these vehicles?

1. Recalibrate the TPMS system
  2. Install new chassis-mounted sensors (such as wheel speed sensors)
  3. Repair or replace on-board hardware
  4. Repair or replace on-board software
  5. Perform another type of service
  6. Perform no service
98. DON'T KNOW  
99. REFUSED

///**ASK IF MALFREQI=2,3,4,5, Some iTPMS malfunctions seen in past 90 days**///

**ASKDISABI1** How frequently did the owners of these vehicles ask you to disable the TPMS system or to leave it unrepaired? Please use the same 1 to 5 scale where 1 means Never and 5 means Almost Always. [Would you say...]

1. 1 - NEVER
- 2.
- 3.
- 4.
5. 5 - ALMOST ALWAYS

98. DON'T KNOW

99. REFUSED

///**ASK IF ASKDISABI1=2,3,4,5, Some customers ask about disabling the iTPMS system or leaving it unrepaired ///**

**ASKDISABI2** What is the most common reason these owners gave for wanting the indirect TPMS system in their vehicle disabled or for not wanting it fixed?

1. It's not accurate or reliable
  2. It costs too much
  3. It isn't necessary for the operation of the vehicle
  4. It isn't legally required to be working
  5. OTHER: SPECIFY
98. DON'T KNOW  
99. REFUSED

///**ASK IF INTRORF5I=1, Continuing with interview ///**

**DISABLEI** Over the past 90 days, how frequently were disabled TPMS systems seen in vehicles with indirect TPMS? Please use the same 1 to 5 scale where 1 means Never and 5 means Almost Always. [Would you say...]

1. 1 - NEVER
  - 2.
  - 3.
  - 4.
  5. 5 - ALMOST ALWAYS
98. DON'T KNOW  
99. REFUSED

///**ASK IF INTRORF5I=1 AND (MALFREQI=2,3,4,5 OR MALFREQI2=1,2,3), Continuing with interview and has seen iTPMS malfunctions ///**

**MALEVENTI** Based on your overall experience, what most commonly causes malfunctions in indirect TPMS systems? Please include up to three causes.  
[CATI: MUL=3, CAPTURE RESPONSES IN ORDER IN MALEVENTI\_01-MALEVENTI\_03]  
[MAIL: OPEN-ENDED, 3 LINES]

1. VEHICLE ACCIDENT
  2. VEHICLE AGE
  3. VEHICLE MILEAGE
  4. ROTATION OF TIRES
  5. REPLACEMENT OF TIRES
  6. WEATHER/CLIMATE (INCLUDING FLOODING OR SNOW)
  7. ELECTRICAL INTERFERENCE
  8. OTHER: SPECIFY
98. DON'T KNOW  
99. REFUSED

## REPAIR COSTS

### >> DIRECT TPMS

///**ASK IF RFTPMS2=1,2, Facility services dTPMS**///  
PRICED\_INTRO

In the following questions I'll ask about the average price you charge customers to repair specific components in a direct TPMS system. Please provide your best estimate of the total price you charge for this work, including both parts and labor.

1. CONTINUE

///**ASK IF RFTPMS2=1,2, Facility services dTPMS**///  
What is the average price you charge for replacing each of the following, independent of tire replacement? Your best estimate is fine.

- PRICED\_RSENSOR      One rim-mounted sensor?  
PRICED\_SSENSOR      One stem-mounted sensor?  
PRICED\_HWARE\_A      The on-board processing unit?  
PRICED\_HWARE\_B      The on-board receiver hardware?  
PRICED\_HWARE\_C      The on-board electrical wiring?  
PRICED\_HWARE\_D      The onboard dash lights?

/RECORD NUMBER: RANGE = 0-997/

998. DON'T KNOW

999. REFUSED

///**ASK IF RFTPMS2=1,2, Facility services dTPMS**///  
PRICED\_SWARE

What is the average price you charge for updating the software on a direct system? Your best estimate is fine.

/RECORD NUMBER: RANGE = 0-997/

998. DON'T KNOW

999. REFUSED

///**ASK IF RFTPMS2=1,2, Facility services dTPMS**///  
PRICED\_RECAL1A

Does this facility perform recalibrations of direct TPMS systems that require an activation tool with the vehicle in relearn mode to register new sensor IDs, but do not require driving the vehicle?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

///**ASK IF PRICED\_RECAL1A = 01, Performs stationary-scan dTPMS recalibration**///  
PRICED\_RECAL1B

What is the average price you charge for this work? Your best estimate is fine.

/RECORD NUMBER: RANGE = 0-997/

///ASK IF RFTPMS2=1,2, Facility services dTPMS///

**PRICED\_RECAL2A** Does this facility perform recalibrations of direct TPMS systems that require an activation tool in conjunction with a scan tool to register new sensor IDs, but do not require driving the vehicle?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

///ASK IF PRICED\_RECAL2A = 01, Performs OBD dTPMS recalibration///

**PRICED\_RECAL2B** What is the average price you charge for this work? Your best estimate is fine.  
/RECORD NUMBER: RANGE = 0-997/

///ASK IF RFTPMS2=1,2, Facility services dTPMS///

**PRICED\_RECAL3A** Does this facility perform auto-relearn recalibrations of direct TPMS systems, which do not require tools but do require driving the vehicle to register new sensor IDs?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

///ASK IF PRICED\_RECAL3A = 01, Performs auto-relearn dTPMS recalibration///

**PRICED\_RECAL3B** What is the average price you charge for this work? Your best estimate is fine.  
/RECORD NUMBER: RANGE = 0-997/

///ASK IF RFTPMS2=1,2, Facility services dTPMS///

**PRICED\_RECAL4A** Does this facility perform stationary recalibrations of direct TPMS systems, which do not require tools but do require a series of steps - such as button presses, pumping the brake pedal, and cycling the ignition - before deflating each tire to register the new sensor IDs?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

///ASK IF PRICED\_RECAL4A = 01, Performs stationary-no scan dTPMS recalibration///

**PRICED\_RECAL4B** What is the average price you charge for this work? Your best estimate is fine.  
/RECORD NUMBER: RANGE = 0-997/

## >> INDIRECT TPMS

///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
**PRICEI\_INTRO** In the following questions I'll ask about the average price you charge customers to repair specific components in an indirect TPMS system. Please provide your best estimate of the total price you charge for this work, including both parts and labor.

1. CONTINUE

///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
**PRICEI\_SENSOR** One chassis-mounted sensor (such as a wheel speed sensor)?

**PRICEI\_HWARE\_A** The on-board processing unit?  
**PRICEI\_HWARE\_B** The on-board receiver hardware?  
**PRICEI\_HWARE\_C** The electrical wiring?  
**PRICEI\_HWARE\_D** The dash lights?

/RECORD NUMBER: RANGE = 0-997/  
998. DON'T KNOW  
999. REFUSED

///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
**PRICEI\_SWARE** What is the average price you charge for updating the software on an indirect system? Your best estimate is fine.

/RECORD NUMBER: RANGE = 0-997/  
998. DON'T KNOW  
999. REFUSED

///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
///**ASK IF RFTPMS2=1,3, Facility services iTPMS**///  
**PRICEI\_RECAL1A** Does this facility perform recalibrations of indirect TPMS systems that require pushing buttons or using the vehicle control panel to update the tire pressures, but do not require driving the vehicle?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

///**ASK IF PRICEI\_RECAL1A = 01, Performs stationary-scan iTPMS recalibration**///  
///**ASK IF PRICEI\_RECAL1A = 01, Performs stationary-scan iTPMS recalibration**///  
///**ASK IF PRICEI\_RECAL1A = 01, Performs stationary-scan iTPMS recalibration**///  
**PRICEI\_RECAL1B** What is the average price you charge for this work? Your best estimate is fine.

/RECORD NUMBER: RANGE = 0-997/

///ASK IF RFTPMS2=1,3, Facility services iTPMS///

**PRICEI\_RECAL2A** Does this facility perform recalibrations of indirect TPMS systems that require the use of magnets to update the tire pressures, but do not require driving the vehicle?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

///ASK IF PRICEI\_RECAL2A = 01, Performs OBD iTPMS recalibration///

**PRICEI\_RECAL2B** What is the average price you charge for this work? Your best estimate is fine.

/RECORD NUMBER: RANGE = 0-997/

///ASK IF RFTPMS2=1,3, Facility services iTPMS///

**PRICEI\_RECAL3A** Does this facility perform auto-relearn recalibrations of indirect TPMS systems, which do not require tools but do require driving the vehicle to register new sensor IDs?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

///ASK IF PRICEI\_RECAL3A = 01, Performs auto-relearn iTPMS recalibration///

**PRICEI\_RECAL3B** What is the average price you charge for this work? Your best estimate is fine.

/RECORD NUMBER: RANGE = 0-997/

## >> ADDITIONAL CHARGES

///ASK IF INTRORF5D=1 OR INTRORF5I=1, Continuing with interview///

**PRICE\_MAKE1** Is there an additional charge for servicing the TPMS system on any specific makes of passenger vehicle?

1. YES
2. NO
98. DON'T KNOW
99. REFUSED

///ASK IF PRICE\_MAKE1=1///

**PRICE\_MAKE2** Which specific makes of passenger vehicle receive this additional charge?

/OPEN-END: RECORD LIST OF VEHICLE MAKES/

///SET DISPO=61, COMPLETE///

///LABEL: END///

**THANK** Those are all the questions I have. Thank you for your participation. The information you have provided will be valuable for improving knowledge about TPMS. Thank you and goodbye.

1. CONTINUE