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| TriskelUnited States Department of TransportationNational Highway Traffic Safety Administration | DRIVERS INTERVIEW (CAPI) | Form Approved O.M.B. No. 2127-0626Expiration Date: XX/XX/XXXX Tire Pressure Monitoring System Outage Rates and Repair Costs |

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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

Create variable “CURRYEAR” to equal the 4-digit year when survey is administered

Create variable “VAGE” to represent age of vehicle where VAGE=CURRYEAR – MODELYEAR; IF VAGE <0, SET VAGE=0

Create GPS variable to tag location of interview

Disposition Definitions:

23 = Refusal at MY\_RECALL2

24 = Refusal at Primary Driver/Upkeep

25 = Driver already participated in this survey

26 = Refusal at INTRO1A

27 = Screen Out: Rental/Zipcar

28 = Refusal at Rental

29 = Screen Out: Model year/not FMVSS 138 compliant

30 = Refused dash inspection

31 = Screen Out: Primary driver/upkeep not with respondent

32 = Screen Out: Could not speak to primary driver/upkeep

33 = Refusal after transfer

34 = Screen Out: Unable to locate primary driver/upkeep after transfer

35 = Refused or unable to collect VIN

36 = Screen Out: Phase-in vehicle, no indication of TPMS, not reported as disabled

37 = Screen Out: Phase-in vehicle, no indication of TPMS, not reported as equipped

38 = Mid-terminate, eligible vehicle not selected

61 = Complete: Phase-in vehicle, TPMS reported to be disabled

63 = Complete: Post-phase-in vehicle, TPMS reported to be disabled

64 = Complete: Post-phase-in vehicle, no lights, not reported as disabled

66 = Complete: TPMS system malfunction

67 = Complete: TPMS low pressure

68 = Complete: TPMS functioning properly

71 = At Quota: Phase-in vehicle, TPMS reported to be disabled

73 = At Quota: Post-phase-in vehicle, TPMS reported to be disabled

74 = At Quota: Post-phase-in vehicle, no lights, not reported as disabled

76 = At Quota: TPMS system malfunction

77 = At Quota: TPMS low pressure

78 = At Quota: TPMS functioning properly

## MODULE INTRO

///Scan or enter MASTERID generated by INSPECTOR to sync this interview with Vehicle Observation data///

PSU ID [1-24]

CREW ID [1-4]

INTRO1A Hello.  I’m \_\_\_\_\_ and we are doing a survey related to vehicle safety for the US Department of Transportation. Would you spend a few minutes answering some questions about your dashboard displays and letting us check the make, model, and model year?  It will only take a few minutes. To thank you for participating, we are offering to check whether your vehicle has any open manufacturer recalls.

[INTERVIEWER: CONTINUING WITH INTERVIEW?]

1. YES
2. NO
3. DRIVER ALREADY PARTICIPATED IN THIS SURVEY

///IF INTRO1A=2 SKIP TO INTRO2: THEN SET DISPO=26, Refusal at INTRO1A///

**///IF INTRO1A=3 SKIP TO END: SET DISPO=25, Driver already participated in this survey**

**///IF INTRO1A=01///**

MY\_RECALL1 First, what is the model year of this vehicle?

 [IF NECESSARY: The year the vehicle was made.]

 [IF NECESSARY: Your best guess about the year.]

DISPLAY BUTTONS FOR YEARS

1. BEFORE 2006

06 – 18 /SEPARATE BUTTONS FOR EACH YEAR /2006 – 2018/

9998 DON’T KNOW

///ASK IF MY\_RECALL1=9998, Don’t know exact model year///

MY\_RECALL2 Is the model year of this vehicle 2006 or later?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

**///IF MY\_RECALL2=99, SKIP TO INTRO2; THEN SET DISPO=23, Refusal at MY\_RECALL2///**

///IF ((MY\_RECALL1=01 OR 2017 OR 2018) OR (MY\_RECALL2=02)), SET DISPO=29, Screen Out: Model year/not FMVSS 138 compliant

SCREEN9 It appears your vehicle is not eligible for our survey. I won’t have any further questions for you today. Thanks for your time.

IF ASKED: We’re only surveying model year 2006-2016 vehicles that meet Federal Motor Vehicle Safety Standard 138.

INTERVIEWER: Communicate to INSPECTOR that case screened out///

///ASK IF MY\_RECALL1=2006-9998 OR MY\_RECALL2=01,98///

RENTAL Is this vehicle a short-term rental or part of a car sharing service, such as a Zipcar? [INTERVIEWER: SHORT-TERM=1 MONTH OR LESS; CAR-SHARE=SHORT\_TERM HOURLY RENTAL]

1. YES
2. NO

99. REFUSED

**///IF RENTAL=99, SKIP TO INTRO2; THEN SET DISPO=28, Refusal at Rental/Zip car///**

///ASK IF RENTAL=1, Vehicle is rental/Zipcar, SET DISPO==27, Screened out: Rental/Zip car///

SCREEN1 I won’t have any further questions for you today, since we’re only surveying vehicles that are owned or leased. Thanks for your time.

1. CONTINUE

///ASK IF MY\_RECALL1>01 OR MY\_RECALL2=01///

PRIM1A Are you the main driver of this vehicle?

 [IF NECESSARY: Are you the person who drives this vehicle most frequently?]

1. YES
2. NO

99. REFUSED

///ASK IF MY\_RECALL1>01 OR MY\_RECALL2=01///

PRIM1B Are you mainly responsible for having this vehicle repaired or serviced, other than just refueling?

1. YES
2. NO

99. REFUSED

///ASK IF PRIM1A=2 AND PRIM1B=2, Respondent is not primary driver and not primary for upkeep///

PRIM1C Is the main driver of this vehicle, or the person responsible for its upkeep, here with you?

1. YES
2. NO

99. REFUSED

///ASK IF PRIM1C=1///

PRIM1D May I speak with that person?

 **[IF NECESSARY: I need to talk in-person.]**

1. YES
2. NO

99. REFUSED

///IF PRIM1A=99 OR PRIM1B=99 OR PRIM1C=99 OR PRIM1D=99, SKIP TO INTRO2; THEN SET DISPO=24, Refused Primary Driver/Upkeep///

**///ASK IF PRIM1D=1///**

INTRO1B Hello.  I’m \_\_\_\_\_ and we are doing a survey related to vehicle safety for the US Department of Transportation. Would you spend a few minutes answering some questions about your dashboard displays and letting us check the make, model, and model year?  It will only take a few minutes. To thank you for participating, we are offering to check whether your vehicle has any open manufacturer recalls.

[INTERVIEWER: CONTINUING WITH INTERVIEW?]

1. YES
2. NO

///ASK IF INTRO1B=1///

PRIM2A Are you the main driver of this vehicle?

 [IF NECESSARY: Are you the person who drives this vehicle most frequently?]

1. YES
2. NO

99. REFUSED

///ASK IF INTRO1B=1///

PRIM2B Are you mainly responsible for having this vehicle repaired or serviced, other than just refueling?

1. YES
2. NO

99. REFUSED

///IF INTRO1B=2 OR PRIM2A=99 OR PRIM2B=99, SKIP TO INTRO2: THEN SET DISPO=33, Refusal after transfer///

SET VARIABLE PRIM=01 IF PRIM1A=01 OR PRIM1B=01 OR PRIM2A=01 OR PRIM2B=01, ELSE SET PRIM=02

///IF PRIM=01, Located PRIMARY respondent ///

MY\_VIN1 Ok, to start my partner will get some basic information from the door jamb. If your vehicle is eligible for our survey we will then check your vehicle’s dash to see what lights are coming on.

 [INTERVIEWER: INSTRUCT INSPECTOR TO PROCEED TO VIN SCAN. EXPLAIN IF NECESSARY: we’re checking the make, model, and year information. No private information will be stored in my system.]

[Training note: *Pause to provide educational materials and allow respondent to begin refueling vehicle as soon as ignition test is complete*.]

1. Continue
2. Refused

\*\*\*\*\*\*\*\*\*\*INSPECTOR PROCEEDS TO CAPTURE VIN\*\*\*\*\*\*\*\*\*\*

**///IF PRIM=01///**

**ELIG INTERVIEWER: ENTER ELIGIBILITY STATUS FROM INSPECTOR SCAN**

 **01 ELIGIBLE**

 **02 INELIGIBLE**

///IF ELIG=02///

SCREEN2 It appears your vehicle is ineligible. I won’t have any further questions for you today. Thanks for your time.

IF ASKED: We’re only surveying model year 2006-2016 vehicles that meet Federal Motor Vehicle Safety Standard 138.

1. CONTINUE

///IF ELIG=02//

SKIP TO END: SET DISPO=29, SCREENED OUT: Model year/NOT FMVSS 138 COMPLIANT

///ASK IF ELIG=01, Eligible Vehicle///

DASHINT1 Your vehicle is eligible for our survey. Now we’ll quickly check your vehicle’s dash to see what lights are coming on. To do that we need the car key. Afterward, you can fuel your car while we finish the survey.

 [Training note: *Pause to provide educational materials and allow respondent to begin refueling vehicle as soon as ignition test is complete*.]

 01 CONTINUE

 99 REFUSED

**///IF DASHINT1=99 SKIP TO INTRO2: THEN SET DISPO=30, Refused dash inspection///**

///IF DASHINT1=01///

DASHTRANS. INTERVIEWER PLEASE WAIT FOR WIRELESS TRANSFER OF DASH INSPECTION; PRESS “MANUAL ENTRY” IF WIRELESS TRANSFER DOES NOT WORK

**///ASK IF DASHINT1=01///**

**MYINDMAL\_SCAN PROGRAMMER: DISPLAY CODE AND RESULT TRANSFERRED FROM INSPECTOR TABLET [CONTAINS MODEL YEAR, INDIRECT TPMS CODE, AND DASH INSPECTION CODE]**

 **MY\_SCAN //STORE 2-digit MODEL YEAR//**

 **IND\_SCAN //STORE 2-digit IND\_TPMS VALUE WHERE 01=INDIRECT AND 02=DIRECT//**

 **MALFCODE\_SCAN //STORE 2-digit MALFCODE VALUE WHERE**

1. INDICATOR(S) @ ON, SYSTEM MALF @ START
2. INDICATOR(S) @ ON, LOW PRESSURE ONLY @ START
3. NO INDICATOR(S) @ ON, NO INDICATOR(S) @ START
4. INDICATOR(S) @ ON, NO INDICATOR(S) @ START
5. STATUS UNCLEAR

**PROGRAMMER: SET SCANSTAT=1 IF SUCCESSFUL SCAN, ELSE SET SCANSTAT=2**

**//IF SCANSTAT=02, FAILED TO TRANSFER CODE FROM INSPECTOR TABLET//**

**MYINDMAL\_MAN INTERVIEWER: ENTER MODEL YEAR, INDIRECT TPMS CODE, AND DASH INSPECTION CODE REPORTED BY INSPECTOR**

**MY\_MAN //ENTER 2-digit MODEL YEAR//**

 **IND\_MAN //ENTER 2-digit IND\_TPMS VALUE WHERE 01=INDIRECT AND 02=DIRECT**

 **MALFCODE\_MAN //ENTER 2-digit MALFCODE VALUE WHERE**

1. INDICATOR(S) @ ON, SYSTEM MALF @ START
2. INDICATOR(S) @ ON, LOW PRESSURE ONLY @ START
3. NO INDICATOR(S) @ ON, NO INDICATOR(S) @ START
4. INDICATOR(S) @ ON, NO INDICATOR(S) @ START
5. STATUS UNCLEAR

**//IF MY\_MAN, IND\_MAN, MALFCODE\_MAN<>MISSING//**

**MYINDMAL\_CFRM PROGRAMMER: DISPLAY MY\_MAN, IND\_MAN, MALFCODE\_MAN ENTERED BY INTERVIEWER**

**INTERVIEWER: REPORT CODES TO INSPECTOR FOR MATCH CONFIRMATION**

 **Do your codes match the vehicle inspector code?**

1. **YES**
2. **NO [GO BACK TO MYINDMAL\_MAN]**

**///IF MODELYEAR NOT SET SKIP TO INTRO2: THEN SET DISPO=35, REFUSED or unable to COLLECT VIN///**

///MODELYEAR TARGET TO BE MONITORED AND ADJUSTED BASED ON FIELD EXPERIENCE///

MINIMA SAMPLE SIZES [REQUIRED SAMPLE FLOOR]

|  |  |  |
| --- | --- | --- |
| Model Year | Car | LTV |
| 2006-2008 | 300 | 300 |
| 2009-2011 | 300 | 300 |
| 2012-2014 | 300 | 300 |
| 2015-2016 | 300 | 300 |

///PROGRAMMER CREATE VARIABLE MALFCODE///

1. **INDICATOR(S) @ ON, SYSTEM MALF @ START**
	1. **IF MALFCODE\_SCAN=01 OR MALFCODE\_MAN=01, SET MALFCODE=01**
2. **INDICATOR(S) @ ON, LOW PRESSURE ONLY @ START**
	1. **IF MALFCODE\_SCAN=02 OR MALFCODE\_MAN=02, SET MALFCODE=02**
3. **NO INDICATOR(S) @ ON, NO INDICATOR(S) @ START**
	1. **IF MALFCODE\_SCAN=03 OR MALFCODE\_MAN=03, SET MALFCODE=03**
4. **INDICATOR(S) @ ON, NO INDICATOR(S) @ START**
	1. **IF MALFCODE\_SCAN=04 OR MALFCODE\_MAN=04, SET MALFCODE=04**
5. **STATUS UNCLEAR**
	1. **IF MALFCODE\_SCAN=05 OR MALFCODE\_MAN=05///**

At this point, the primary driver or upkeeper has been located (if not original respondent) and agreed to participate (confirmed within-range model year and agreed to dash inspection); all others have screened out.

///ASK IF AUTOELIG=01 OR ELIG\_MAN=01, Eligible Vehicle///

TPMSEQ To your knowledge, is this vehicle equipped with a tire pressure monitoring system, known as TPMS,—whether or not it is currently working?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF TPMSEQ=1, Respondent reports vehicle is equipped with TPMS///

TPMSTYPE To your knowledge, is the TPMS system in this vehicle “direct”, using sensors in the wheels, or “indirect”, using sensors in the anti-lock braking system?

1. DIRECT
2. INDIRECT

98. DON’T KNOW

99. REFUSED

///ASK IF DASHINT=01, Continuing with interview, Located eligible respondent ///

TPMSDASH Looking at these pictures – and allowing for minor variations in style – please point to those items that you have seen on your vehicle’s dash at any time in the past, either when starting the engine or later when the vehicle was running.

 [INTERVIEWER: SHOW RESPONDENT IMAGES OF TPMS SYMBOLS]

|  |  |
| --- | --- |
| 1. tire pressure monitoring system warning light icon
 | 1. C:\Documents and Settings\Charlene.Doyle\Local Settings\Temporary Internet Files\Content.Word\Santa Fe TPMS.JPG
 |
| 1. C:\Documents and Settings\Charlene.Doyle\Local Settings\Temporary Internet Files\Content.Word\Santa Fe TPMS.JPG
 | 1. C:\Documents and Settings\Charlene.Doyle\Local Settings\Temporary Internet Files\Content.Word\Safe_Braking_tpms.jpg
 |
| 1. http://subscribers.wardsauto.com/images/2009/02/gm-tpms-display.jpg
 |  |

**///ASK IF DASHINT=01,** Located eligible respondent **///**

**TPMSDASHA What does this light/these lights mean to you? [INTERVIEWER: BACKCODE RESPONSE; IF NECESSARY, ASK WHAT LIGHT(S) MEANS WITH REGARD TO SPECIFIC VEHICLE SYSTEMS]**

1. RELATED TO TIRE PRESSURE/TPMS
2. OTHER

98. DON’T KNOW

99. REFUSED

///ASK IF DASHINT=01, Located eligible respondent///

NEXTVEH How important is it to you that your next personal vehicle be equipped with a TPMS system? Would you…

1. Strongly prefer the vehicle be equipped with TPMS?
2. Somewhat prefer the vehicle be equipped with TPMS?
3. Have no preference whether the vehicle is equipped with TPMS?
4. Somewhat prefer the vehicle NOT be equipped with TPMS?
5. Strongly prefer the vehicle NOT be equipped with TPMS?

98. DON’T KNOW

99. REFUSED

///ASK IF TPMSEQ=2,98,99 AND (MALFCODE in 3,5) AND (2006≤MODELYEAR≤2007), Phase-in vehicle, no indication of TPMS, not reported as equipped///

SCREEN8 I won’t have any further questions for you today. Thanks for your time.

1. CONTINUE

///IF SCREEN8=1 SET DISPO=37, Screen Out: Phase-in vehicle, no indication of TPMS, not reported as equipped

///ASK IF 2006≤MODELYEAR≤2007 AND TPMSEQ=1 AND (MALFCODE IN 3,5), Vehicle manufactured during phase-in is said to be equipped but no indicator lights @ ON///

DISABLE1 You said earlier that your vehicle is equipped with TPMS, but during our vehicle inspection we were not able to confirm that your vehicle has a functioning TPMS system. Has the TPMS system in this vehicle been disabled?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF DISABLE1=2,98,99 AND SET DISPO=36, Phase-in vehicle, no indication of TPMS, not reported as disabled ///

SCREEN7 I won’t have any further questions for you today. Thanks for your time.

1. CONTINUE

///ASK IF MODELYEAR≥2008 AND TPMSEQ=1,2,98,99 AND (MALFCODE IN 3, 5), Vehicle manufactured after phase-in (known to be equipped) but no indicator lights @ ON///

DISABLE2 Based on the model year of your vehicle, it should have been manufactured with a TPMS system, but during our vehicle inspection we were not able to confirm that your vehicle has a functioning TPMS system. Has the TPMS system in this vehicle been disabled?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF

 (MALFCODE =02,04 AND IND\_TPMS=02 AND NUMBER OF COMPLETES WITH (DISPO 67, 68) >= 350)

///

SCREEN6 I won’t have any further questions for you today. Thanks for your time.

1. CONTINUE

///IF MALFCODE=02 OR 04 AND IND\_TPMS=02 and (MODELYEAR>=2006) THEN SELECT EVERY VEHICLE FOR EXTENDED INTERVIEW, ELSE IF MALFCODE=02 OR 04 AND IND\_TPMS=02 AND (MODELYEAR>=2006) THEN SKIP TO INTRO2 AND SET DISPO = 38: ELIGIBLE VEHICLE NOT SELECTED///

**SET 2 DAYPARTS: 8 A.M. – 12P.M.; 12:01 P.M.-5 P.M.**

SUBGROUP 1: DIRECT TPMS (MALFUNCTION/DISABLED)

SUBGROUP 2: DIRECT TPMS (LOW PRESSURE, OK)

SUBGROUP 3: INDIRECT TPMS (LOW PRESSURE, OK]

SUBGROUP 4: INDIRECT TPMS (MALFUNCTION/DISABLED)

SET SUBGROUP1STOP=0, ELSE SET SUBGROUP1STOP=1, WHERE 0=NO AND 1=YES

SET SUBGROUP2STOP=0, ELSE SET SUBGROUP2STOP=1, WHERE 0=NO AND 1=YES

SET SUBGROUP3STOP=0, ELSE SET SUBGROUP3STOP=1, WHERE 0=NO AND 1=YES

SET SUBGROUP4STOP=0, ELSE SET SUBGROUP4STOP=1, WHERE 0=NO AND 1=YES

SET DP1STOP=0, ELSE SET DP1STOP=1, WHERE 0=NO AND 1=YES

SET DP2STOP=0, ELSE SET DP2STOP=1, WHERE 0=NO AND 1=YES

EXTENDED INTERVIEWS DIVIDED AS FOLLOWS

1. TPMS MALFUNCTIONS/DISABLED [SUBGROUP 1 OR SUBGROUP 4]
	1. MALFCODE=1 =MALFUNCTION
	2. MALFCODE=(3 OR 5) AND (DISABLE1=1 OR DISABLE2=1) =DISABLED
	3. MALFCODE=3 AND DISABLE2 IN (02,98,99) =MALFUNCTION
	4. SELECT 100% OF THESE RECORDS FOR EXTENDED INTERVIEW
		1. PROGRAM “HOOKS” TO ALTER 100% SELECTION IF FIELD EXPERIENCE PROJECTS TOO MANY CASES
2. DIRECT TPMS OK [SUBGROUP 2]
	1. MALFCODE=2 OR 4 and IND\_TPMS=02
	2. Collect 350 interviews split among 24 PSUs

**Divide interviews between team 1 and team 2 at each PSU**

**350/24 = 15 per PSU**

**15/2 = 7.5 per crew per PSU…..call it 7 to 8**

|  |  |  |
| --- | --- | --- |
|  |  | **Day of Week** |
|  |  | **Wed** | **Thurs** | **Fri** | **Sat** |
| **Dayparts** | **A.m.** | **1** | **Note 1** | **1** | **1** |
| **P.M.** | **1** | **1** | **1** | **1** |
| **Note 1 = one crew has 1, the other zero, at ½ the PSUs.  At the other half, do this 0-1 in the pm** |

1. INDIRECT TPMS OK [SUBGROUP 3]
	1. MALFCODE=2 OR 4 AND IND\_TPMS=01
	2. SELECT 100% OF THESE RECORDS FOR EXTENDED INTERVIEW
		1. PROGRAM “HOOKS” TO ALTER 100% SELECTION IF FIELD EXPERIENCE PROJECTS TOO MANY SUBGROUP 3 CASES

Respondents continuing past this point will be given an extended interview.

///ASK IF MALFCODE=1,2,4, Indicator lights on @ ON///

INTRO1C The remaining questions will focus on the results on our dash inspection.

1. CONTINUE

///IF DISABLE2=1 SKIP TO MODULE DISABLED///

///IF DISABLE2=2,98,99 SKIP TO MODULE MALFUNCTION #3///

///IF MALFCODE=1 SKIP TO MODULE MALFUNCTION #1///

///IF MALFCODE=2 AND IND\_TPMS=02 SKIP TO MODULE MALFUNCTION #2///

///IF MALFCODE=4 AND IND\_TPMS=02 SKIP TO MODULE PAST MALFUNCTION #1///

### END MODULE INTRO

## MODULE INDIRECT: IF IND\_TPMS=01 AND MALFCODE=2 OR 4

*This module is entered by any respondents who are driving a vehicle with an indirect TPMS system that is FMVSS-compliant and is not malfunctioning or disabled.*

**///ASK IF IND\_TPMS=01 AND MALFCODE=2 OR 4///**

**IND\_CHK** **When was the last time you used a pressure gauge to check the tire pressure in the tires on this vehicle?**

 01. TODAY

 02. IN THE PAST WEEK

 03. IN THE PAST MONTH

 04. MORE THAN A MONTH AGO

 05. NEVER

 98. DON’T KNOW

 99. REFUSED

IND\_TPMS=01///

**IND\_RECB Did you know that the Tire Pressure Monitoring System on this vehicle needs to be recalibrated on occasion?**

1. YES
2. NO
3. DON’T KNOW
4. REFUSED

**///ASK IF IND\_RECB=01///**

**IND\_AWARE Are you aware that you can recalibrate the Tire Pressure Monitoring System yourself?**

1. YES
2. NO
3. DON’T KNOW
4. REFUSED

**///ASK IF IND\_AWARE=01///**

**IND\_KNOW Do you know how to recalibrate your Tire Pressure Monitoring System?**

1. YES
2. NO
3. DON’T KNOW
4. REFUSED

**///IF IND\_KNOW=01, 98, 99, ASK//**

**IND\_MRECB Have you ever recalibrated your Tire Pressure Monitoring System on this vehicle in the past?**

1. YES
2. NO
3. DON’T KNOW
4. REFUSED

**///IF IND\_MRECB=1///**

**IND\_RCBY Which of the following were reasons that you recalibrated this vehicle’s Tire Pressure Monitoring System?**

**INTERVIEWER: READ EACH ITEM AND PAUSE TO SELECT EACH ITEM THAT APPLIES BEFORE READING NEXT ITEM**

 **IND\_RCBY\_1 After tire replacement or rotation**

 **IND\_RCBY\_2 After changing between winter / summer tires**

 **IND\_RCBY\_3 If the TPMS warning light stayed on after start**

 **IND\_RCBY\_4 After checking tire pressure and/or adding air to tires**

 **IND\_RCBY\_5 After vehicle service performed by dealership, gas station, or repair facility**

 **IND\_RCBY\_6 After you serviced your vehicle**

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

**IND\_SVC If you have had this vehicle serviced or have had the tires changed, did the facility or dealership recalibrate your Tire Pressure Monitoring System?**

1. YES
2. NO
3. DON’T KNOW
4. REFUSED

*//SKIP TO MODULE PAST MALFUNCTION #1//*

## MODULE DISABLED: IF DISABLE1=1 OR DISABLE2=1

This module is entered by any respondents who report that the TPMS system in their vehicle was disabled.

///ASK IF DISABLE1=1 OR DISABLE2=1///

DIS\_OTH2 Who disabled the TPMS system in this vehicle?

1. RESPONDENT
2. MECHANIC/REPAIR FACILITY
3. FRIEND
4. RELATIVE
5. OTHER

98. DON’T KNOW

99. REFUSED

///ASK IF DISABLE1=1 OR DISABLE2=1///

DIS\_HOW What was done to disable the TPMS system in this vehicle?

 **[SELECT ALL THAT APPLY]**

1. REMOVED TIRE PRESSURE SENSORS
2. MODIFIED BRAKE SYSTEM/WHEELSPEED SENSORS
3. DISABLED ON-BOARD COMPONENTS
4. PULLED BULB OR FUSE
5. COVERED UP DASH LIGHT
6. OTHER
7. NOTHING

98. DON’T KNOW

99. REFUSED

///ASK IF DISABLE1=1 OR DISABLE2=1///

DIS\_COST How much did it cost to disable the TPMS system? [INTERVIEWER: PROBE FOR NEAREST WHOLE NUMBER VALUE]

1. $0.00
2. $1 - $49
3. $50 - $99
4. $100 - $299
5. $300 - $499
6. $500 - $999
7. $1,000 OR MORE

98. DON’T KNOW

99. REFUSED

///ASK IF DISABLE1=1 OR DISABLE2=1///

DIS\_WHY What was the primary reason you decided to disable the TPMS system in this vehicle?

 [INTERVIEWER: BACKCODE]

1. TO GET THE DASH WARNING LIGHTS TO TURN OFF
2. TPMS IS NOT NECESSARY FOR VEHICLE OPERATION
3. TPMS WAS FAULTY/INACCURATE
4. TPMS WAS DISTRACTING/IRRITATING
5. TPMS IS TOO EXPENSIVE TO MAINTAIN/REPAIR
6. OTHER

98. DON’T KNOW

99. REFUSED

/// SKIP TO MODULE PAST MALFUNCTION #1 ///

### END MODULE DISABLED: IF DISABLE1=1 OR DISABLE2=1

## MODULE MALFUNCTION #1: IF MALFCODE =1

This module is entered by respondents experiencing TPMS Malfunction #1: TPMS System Malfunction indicator is currently illuminated.

///ASK IF MALFCODE =1///

MALF1AW1 Are you aware that a TPMS dash light is currently on in your vehicle?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

**///ASK IF MALF1AW1=1///**

**MALF1AW1A** **What does this light mean to you? [INTERVIEWER: BACKCODE RESPONSE; IF NECESSARY, ASK WHAT LIGHT MEANS WITH REGARD TO SPECIFIC VEHICLE SYSTEMS]**

1. LOW TIRE PRESSURE
2. TPMS MALFUNCTION
3. OTHER
4. DON’T KNOW
5. REFUSED

///ASK IF MALF1AW1=1, Aware that TPMS Malfunction light is on///

MALF1AW2 How long has this malfunction light been on? If the light has been turning on and off intermittently, please think back to the first time you noticed that the light was on.

1. LESS THAN 1 WEEK
2. 1 – 2 WEEKS
3. 3 – 4 WEEKS
4. 1 – 6 MONTHS
5. 7 – 12 MONTHS
6. MORE THAN 1 YEAR

98. DON’T KNOW

99. REFUSED

///ASK IF MALF1AW1=1, Aware that TPMS Malfunction light is on///

MALF1AF1A Did any of the following events occur shortly before the TPMS system malfunction light came on? [INTERVIEWER: PAUSE AFTER EACH ITEM TO COLLECT “YES” OR “NO” RESPONSE]

 **[SELECT ALL THAT APPLY]**

1. The tires were rotated
2. Specialty (e.g., seasonal or off-road) tires were switched out
3. One or more new tires or wheels were installed or replaced
4. One or more tire stems were installed or replaced
5. One or more tire pressure sensors were installed or replaced
6. Work was performed on the braking system
7. Work was performed to on the on-board computer system
8. The vehicle was involved in an accident
9. The vehicle experienced an extended period of flooding / snow
10. Anything else?
11. NONE OF THE ABOVE
12. DON’T KNOW
13. REFUSED

**///ASK IF MALF1AW1=2,98,99, Not aware that TPMS Malfunction light is on///**

MALF1AF1B Did any of the following events occur recently? [INTERVIEWER: PAUSE AFTER EACH ITEM TO COLLECT “YES” OR “NO” RESPONSE]

 **[SELECT ALL THAT APPLY]**

1. The tires were rotated
2. Specialty (e.g., seasonal or off-road) tires were switched out
3. One or more new tires or wheels were installed or replaced
4. One or more tire stems were installed or replaced
5. One or more tire pressure sensors were installed or replaced
6. Work was performed on the braking system
7. Work was performed to on-board computer system
8. The vehicle was involved in an accident
9. The vehicle experienced an extended period of flooding / snow
10. Anything else?
11. NONE OF THE ABOVE
12. DON’T KNOW
13. REFUSED

///ASK IF MALF1AF1A=4,5 OR MALF1AF1B=4,5, Tire stems/sensors replaced///

MALF1AF2 Did you install or replace the tire stems or tire pressure sensors yourself?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALF1AF1A=4,5 OR MALF1AF1B=4,5, Tire stems/sensors replaced///

MALF1AF3 How much did this work cost? [INTERVIEWER: PROBE FOR NEAREST WHOLE NUMBER VALUE]

1. $0.00
2. $1 - $49
3. $50 - $99
4. $100 - $299
5. $300 - $499
6. $500 - $999
7. $1,000 OR MORE

98. DON’T KNOW

99. REFUSED

///ASK IF MALF1AW1=1, Aware that TPMS Malfunction light is on///

MALFIX1 Has anyone explained to you what needs to be done to make the malfunction light turn off?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALFIX=1, Someone explained how to correct malfunction///

MALFIX2 Who explained this to you?

 **[INTERVIEWER: SELECT ALL THAT APPLY]**

1. RELATIVE/FRIEND/COLLEAGUE
2. DEALERSHIP/AUTO REPAIR SHOP/MECHANIC
3. OWNER’S MANUAL
4. OTHER BOOK, MAGAZINE, OR ARTICLE
5. TV OR RADIO
6. INTERNET
7. SOCIAL MEDIA (E.G., FACEBOOK, TWITTER, YOUTUBE)
8. OTHER

98. DON’T KNOW

99. REFUSED

///ASK IF MALFIX=1, Someone explained how to correct malfunction///

MALFIX3 What were you told needed to be done to correct the malfunction? [INTERVIEWER: If the driver provides more than one action, ask the driver to state the most important action they were told to take]

1. RECALIBRATION
2. REPAIR/REPLACE TIRE PRESSURE MONITORING SENSORS
3. REPAIR/REPLACE ON-BOARD COMPONENTS (HARDWARE OR SOFTWARE)
4. OTHER: SPECIFY

98. DON’T KNOW

99. REFUSED

///ASK IF MALF1AW1=1, Aware that TPMS Malfunction light is on///

MALCOST1A Have you priced the work required to correct the TPMS system malfunction (whether or not you had the work done)?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MACLOST1A=1, Had the work priced///

MALCOST1B What was the price for this work? [INTERVIEWER: PROBE FOR NEAREST WHOLE NUMBER VALUE]

1. $0.00
2. $1 - $49
3. $50 - $99
4. $100 - $299
5. $300 - $499
6. $500 - $999
7. $1,000 OR MORE

98. DON’T KNOW

99. REFUSED

///ASK IF MALCOST1A=2,98,99, Haven’t had repair priced/DK/REF ///

MALCOST2A Do you have a general idea of what the price to repair the system would be?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALCOST2A=1, Has an idea of cost of work///

MALCOST2B What is your estimate of the price to perform this repair? [INTERVIEWER: PROBE FOR NEAREST WHOLE NUMBER VALUE]

1. $0.00
2. $1 - $49
3. $50 - $99
4. $100 - $299
5. $300 - $499
6. $500 - $999
7. $1,000 OR MORE

98. DON’T KNOW

99. REFUSED

///ASK IF MALF1AW1=1, Aware that TPMS Malfunction light is on///

MALFIX4 Do you plan to correct the current malfunction in the system?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALFIX4=1, Plan to correct malfunction///

MALFIX5 How do you plan to correct the current malfunction?

1. TAKE MY VEHICLE INTO THE DEALERSHIP OR REPAIR FACILITY
2. HIRE SOMEONE ELSE TO REPAIR IT
3. ORDER THE PARTS AND REPAIR IT MYSELF
4. REPAIR IT MYSELF WITH THE HELP OF OTHERS
5. OTHER

98. DON’T KNOW

99. REFUSED

///ASK IF MALFIX4=2, No plan to correct malfunction///

MALFIX6 What is the primary reason you are not planning to repair the current malfunction in the system?

 **[INTERVIEWER: BACKCODE]**

1. CURRENTLY USING SEASONAL TIRES AND WILL SWITCH TIRES OUT WHEN THE WEATHER PERMITS, WHICH SHOULD FIX THE PROBLEM
2. CANNOT AFFORD THE COST TO REPAIR
3. TPMS SYSTEM IS A LUXURY AND NOT NECESSARY FOR THE OPERATION OF THE VEHICLE
4. IT IS NOT MANDATED BY THE STATE THAT I REPAIR THE SYSTEM
5. WILL BE SELLING / GETTING RID OF THIS CAR SHORTLY
6. NOT SURE THE TPMS MALFUNCTION INDICATOR IS ACCURATE
7. TOO INCONVENIENT/IT’S JUST A NUISANCE
8. OTHER

98. DON’T KNOW

99. REFUSED

///IF MALFIX6=6, Not sure if TPMS indicator is accurate///

MALCONF Why do you think the TPMS system malfunction indicator is inaccurate?

 [IF NECESSARY: What is the primary reason?]

 **[INTERVIEWER: BACKCODE]**

1. THE TPMS MALFUNCTION LIGHT HAS COME ON BEFORE AND TURNED OFF BY ITSELF, WITHOUT ANY REPAIRS
2. HEARD FROM OTHER SOURCES THAT IT MAY BE INACCURATE
3. OTHER
4. NO SPECIFIC REASON

98. DON’T KNOW

99. REFUSED

///ASK IF MALCONF NE 1 OR MALF1AW1=2,98,99, Driver does not say TPMS malfunction light is flashing intermittently OR Not aware that TPMS Malfunction light is on ///

MALPREV1 A previous malfunction would be an episode in which the TPMS system malfunction light turned on and then turned off and remained off for at least one week, either by itself or due to servicing the vehicle. Aside from the current malfunction, have there been any previous malfunctions of the TPMS system?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALCONF=1 OR MALPREV=1, Previous malfunction episode reported///

MALPREV2 Other than the current malfunction, how many times has the TPMS system malfunctioned?

1. 1 OTHER TIME
2. 2 – 4 OTHER TIMES
3. 5 OR MORE OTHER TIMES

98. DON’T KNOW

99. REFUSED

///SKIP TO MODULE CLOSE///

### END MODULE MALFUNCTION #1: IF MALFCODE =1

## MODULE MALFUNCTION #2: IF MALFCODE =2

This module is entered by respondents experiencing TPMS Malfunction #2: TPMS Low Tire Pressure indicator is currently illuminated.

///ASK IF MALFCODE =2///

MALF2AW1 Are you aware that a TPMS dash light is currently on in your vehicle?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

**///ASK IF MALF2AW1=01///**

**MALF2AW1A** **What does this light mean to you? [INTERVIEWER: BACKCODE RESPONSE; IF NECESSARY, ASK WHAT LIGHT MEANS WITH REGARD TO SPECIFIC VEHICLE SYSTEMS]**

1. LOW TIRE PRESSURE
2. TPMS MALFUNCTION
3. OTHER
4. DON’T KNOW
5. REFUSED

///IF MALF2AW1=2,98,99 SKIP TO MODULE PAST MALFUNCTION #1///

///ASK IF MALF2AW1=1, Aware that low tire pressure light is on///

MALF2FIX1 Since this light came on, have you checked the pressure in any of your tires?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALF2FIX1=1, Checked tire pressure///

MALF2FIX2 Were all of the checked tires properly inflated?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALF2AW1=1, Aware that low tire pressure light is on///

MALF2AW2 How long has the low tire pressure light been on? If the light has been turning on and off intermittently, please think back to the first time you noticed that the light was on.

1. LESS THAN 1 WEEK
2. 1 – 2 WEEKS
3. 3 – 4 WEEKS
4. 1 – 6 MONTHS
5. 7 – 12 MONTHS
6. MORE THAN 1 YEAR

98. DON’T KNOW

99. REFUSED

///IF MALF2FIX1=2,98,99 OR MALF2FIX2=2,98,99, SKIP TO MODULE PAST MALFUNCTION #1///

///ASK IF MALF2FIX2=1, Verified all tires properly inflated///

MALF2AF1 Your TPMS system may be malfunctioning. Did any of the following events occur shortly before the low pressure light came on? [INTERVIEWER: PAUSE AFTER EACH ITEM TO COLLECT “YES” OR “NO” RESPONSE]

 **[SELECT ALL THAT APPLY]**

1. The tires were rotated
2. Specialty (e.g., seasonal or off-road) tires were switched out
3. One or more new tires or wheels were installed or replaced
4. One or more tire stems were installed or replaced
5. One or more tire pressure sensors were installed or replaced
6. Work was performed on the braking system
7. Work was performed to on-board computer system
8. The vehicle was involved in an accident
9. The vehicle experienced an extended period of flooding / snow
10. Anything else?
11. NONE OF THE ABOVE
12. DON’T KNOW
13. REFUSED

///ASK IF MALF2AF1=4,5, Tire stems/sensors replaced///

MALF2AF2 Did you install or replace the tire stems or tire pressure sensors yourself?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALF2AF1=4,5, Tire stems/sensors replaced///

MALF2AF3 How much did this work cost? [INTERVIEWER: PROBE FOR NEAREST WHOLE NUMBER VALUE]

1. $0.00
2. $1 - $49
3. $50 - $99
4. $100 - $299
5. $300 - $499
6. $500 - $999
7. $1,000 or more

///ASK IF MALF2AF1=6, Work done to brake system///

MALF2AF4 Did you perform the work on the braking system yourself?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALF2AF1=6, Work done to brake system///

MALF2AF5 How much did this work cost? [INTERVIEWER: PROBE FOR NEAREST WHOLE NUMBER VALUE]

1. $0.00
2. $1 - $49
3. $50 - $99
4. $100 - $299
5. $300 - $499
6. $500 - $999
7. $1,000 or more

///SKIP TO MODULE PAST MALFUNCTION #1///

### END MODULE MALFUNCTION #2: IF MALFCODE =2

## MODULE MALFUNCTION #3: IF MALFCODE (IN 3) AND DISABLE2=2,98,99 OR MALFCODE (IN 5) AND DISABLE2=2,98,99 AND ELIG=1

This module is entered by respondents experiencing TPMS Malfunction #3: Vehicle is known to be equipped with TPMS and respondent denied disabling system, but no TPMS lights are illuminated at ON position.

///ASK IF MALFCODE IN (3) AND DISABLE2=2,98,99///

MALF3RE At any time since you’ve had this vehicle, have you seen any TPMS dash lights on?

 [IF NECESSARY: SHOW RESPONDENT IMAGES OF TPMS INDICATOR LIGHTS]

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALF3RE=1, Has seen TPMS indicator light previously///

MALF1AW2A When was the last time you noticed a TPMS dash light turned on?

1. LESS THAN 1 WEEK AGO
2. 1 – 2 WEEKS AGO
3. 3 – 4 WEEKS AGO
4. 1 – 6 MONTHS AGO
5. 7 – 12 MONTHS AGO
6. MORE THAN 1 YEAR AGO

98. DON’T KNOW

99. REFUSED

///ASK IF MALFCODE IN (3) AND DISABLE2=2,98,99///

MALF3AF Since you’ve had this vehicle, have any of the following events occurred? [INTERVIEWER: PAUSE AFTER EACH ITEM TO COLLECT “YES” OR “NO” RESPONSE]

 **[SELECT ALL THAT APPLY]**

1. The vehicle was involved in an accident
2. Service was performed that did or may have involved the vehicle’s electrical wiring
3. The vehicle experienced an extended period of flooding / snow
4. Anything else?
5. NONE OF THE ABOVE
6. DON’T KNOW
7. REFUSED

///SKIP TO MODULE PAST MALFUNCTION #1///

### END MODULE MALFUNCTION #3: IF MALFCODE IN (3) AND DISABLE2=2,98,99

## MODULE PAST MALFUNCTION #1: IF MALFCODE =2,3,4,5

This module is entered by all respondents except those currently experiencing TPMS Malfunction #1 (TPMS System Malfunction indicator is illuminated). Purpose is to gather data about this kind of malfunction if it happened in the past (when not currently indicated).

///ASK IF MODELYEAR>2007 AND TPMSEQ IN 2,98,99 AND MALFCODE IN (3,5)///

REMIND1 Earlier you indicated that your vehicle may not be equipped with a TPMS system, but based on the model year the vehicle should be equipped with TPMS.

1. CONTINUE

///ASK IF MALFCODE =2,3,4,5///

MALEVER Has the TPMS system malfunction dash light ever been on and stayed on while you were driving this vehicle?

 [IF NECESSARY: SHOW RESPONDENT IMAGES OF MALFUNCTION INDICATOR LIGHT]

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALEVER=1, System malfunction light has been illuminated previously///

LASTMAL When was the last time the TPMS system malfunction light was on?

1. LESS THAN A MONTH AGO
2. 1 – 6 MONTHS AGO
3. 7 – 12 MONTHS AGO
4. 1 – 2 YEARS AGO
5. 3 OR MORE YEARS AGO

98. DON’T KNOW

99. REFUSED

///ASK IF MALEVER=1, System malfunction light has been illuminated previously///

LASTACT1 Did you take any action in response to the indicator light?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF LASTACT1=1, Took some action in response to malfunction light///

LASTACT2 What needed to be done to correct the malfunction?

1. RECALIBRATION
2. REPAIR/REPLACE TIRE PRESSURE MONITORING SENSORS
3. REPAIR/REPLACE ON-BOARD COMPONENTS (HARDWARE OR SOFTWARE)
4. REPAIRS, OTHER THAN ABOVE
5. OTHER REPAIRS, SPECIFICS UNKNOWN
6. OTHER

98. DON’T KNOW

99. REFUSED

///ASK IF LASTACT1=1, Took some action in response to malfunction light///

LASTACT3 What actions did you take in response? [SELECT ALL THAT APPLY] [MUL=7] [06,98,99 ARE MUTUALLY EXCLUSIVE]

1. REPAIRED THE SYSTEM MYSELF
2. DISABLED THE SYSTEM
3. HAD THE DEALER / REPAIR FACILITY REPAIR THE SYSTEM AT A COST
4. HAD THE DEALER / REPAIR FACILITY REPAIR UNDER WARRANTY
5. HAD THE DEALER / REPAIR FACILITY DISABLE THE SYSTEM
6. PURCHASED NEW TIRES
7. PURCHASED NEW TIRE PRESSURE MONITORING SENSORS
8. NONE, BECAUSE THE MALFUNCTION INDICATOR TURNED OFF ON ITS OWN
9. OTHER

98. DON’T KNOW

99. REFUSED

///ASK IF MALEVER=1, System malfunction light has been illuminated previously///

LASTAF Did any of the following events occur shortly before the TPMS system malfunction light came on? [INTERVIEWER: PAUSE AFTER EACH ITEM TO COLLECT “YES” OR “NO” RESPONSE]

 **[SELECT ALL THAT APPLY]**

1. The tires were rotated
2. Specialty (e.g., seasonal or off-road) tires were switched out
3. One or more new tires or wheels were installed or replaced
4. One or more tire stems were installed or replaced
5. One or more tire pressure sensors were installed or replaced
6. Work was performed on the braking system
7. Work was performed to on-board computer system
8. The vehicle was involved in an accident
9. The vehicle experienced an extended period of flooding / snow
10. The TPMS system was intentionally disabled
11. Anything else?
12. NONE OF THE ABOVE
13. DON’T KNOW
14. REFUSED

///ASK IF LASTAF=4,5, Tire stems/sensors replaced///

LASTFIX1 Did you install or replace the tire stems or tire pressure sensors yourself?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF LASTAF=4,5, Tire stems/sensors replaced///

LASTFIX2 How much did this work cost? [INTERVIEWER: PROBE FOR NEAREST WHOLE NUMBER VALUE]

1. $0.00
2. $1 - $49
3. $50 - $99
4. $100 - $299
5. $300 - $499
6. $500 - $999
7. $1,000 OR MORE

98. DON’T KNOW

99. REFUSED

///ASK IF LASTAF=6, Work done to brake system///

MALF2AF4\_2 Did you perform the work on the braking system yourself?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF LASTAF=6, Work done to brake system///

MALF2AF5\_2 How much did this work cost? [INTERVIEWER: PROBE FOR NEAREST WHOLE NUMBER VALUE]

1. $0.00
2. $1 - $49
3. $50 - $99
4. $100 - $299
5. $300 - $499
6. $500 - $999
7. $1,000 or more

///IF LASTAF=10 AND (MALFCODE NE (3,5), SKIP TO MODULE DISABLED, THEN RETURN///

///SKIP TO MODULE CLOSE///

### END MODULE PAST MALFUNCTION #1

## MODULE CLOSE

All respondents enter this module.

///ASK ALL EXTENDED INTERVIEWS///

TDRIVE How long have you had this vehicle?

1. LESS THAN 1 YEAR
2. 1 YEAR
3. 2 YEARS
4. 3 YEARS
5. 4 YEARS
6. 5 YEARS
7. 6 YEARS
8. 7 YEARS
9. 8 YEARS
10. 9 YEARS
11. 10 YEARS
12. MORE THAN 10 YEARS

98. DON’T KNOW

99. REFUSED

//IF TDRIVE IN (01,02,03,04,05,06,07,08,09,10,11,12) – 1 > VAGE THEN DISPLAY PROMPT: I need to confirm your answer. Based on the model year of this vehicle, [INSERT MODELYEAR], it is [INSERT VAGE] old.

///ASK ALL EXTENDED INTERVIEWS///

MAINT2A Does this vehicle currently have a manufacturer warranty or other vehicle protection/extended maintenance plan?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MAINT2A=1///

MAINT2B Is this the original manufacturer warranty?

1. Yes
2. NO
3. DON’T KNOW
4. REFUSED

///ASK ALL EXTENDED INTERVIEWS ///

AIR1 Where would you look to find the pressure required for correct inflation of the tires on this vehicle?

 **[INTERVIEWER: BACKCODE RESPONSE]**

1. ON THE TIRE WALL
2. DOOR PLACARD
3. OWNER’S MANUAL
4. RELATIVE/FRIEND/COLLEAGUE
5. DEALERSHIP/AUTO REPAIR SHOP/MECHANIC
6. OTHER BOOK, MAGAZINE, OR ARTICLE
7. TV OR RADIO
8. INTERNET
9. SOCIAL MEDIA (E.G., FACEBOOK, TWITTER, YOUTUBE)
10. OTHER

98. DON’T KNOW

99. REFUSED

///ASK ALL EXTENDED INTERVIEWS ///

AIR2 Do you know how to inflate your tires to the correct pressure?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK ALL EXTENDED INTERVIEWS ///

TRYFIX1 Before today, has the TPMS low tire pressure light in your dash ever come on and remained on after driving your vehicle?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF TRYFIX1=1, Had low pressure light come on///

TRYFIX2 Did you or someone else add air to one of more tires after this light came on?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF TRYFIX2=1, Had low pressure light come on and then added air to tires///

TRYFIX3 Did the TPMS low tire pressure light continue to stay on even after adding air to the tires and driving?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK IF MALEVER=2, Has never experienced a TPMS system malfunction///

HYPMAL2 If the TPMS malfunction light turned on, indicating a problem with the system itself, what action would you most likely take in response?

 [IF NECESSARY: What would be your primary action?]

 [INTERVIEWER: BACKCODE]

1. TAKE NO ACTION
2. HAVE THE DEALER / REPAIR FACILITY REPAIR THE SYSTEM
3. ORDER THE PARTS AND REPAIR THE SYSTEM MYSELF
4. HAVE THE DEALER / REPAIR FACILITY DISABLE THE SYSTEM
5. DISABLE THE SYSTEM MYSELF
6. OTHER

98. DON’T KNOW

99. REFUSED

///ASK IF HYPMAL2=02-06, would take action to fix a TPMS malfunction///

HYPMAL3 How quickly would you try to get the problem fixed?

1. I WOULD FIX IT AS SOON AS I COULD GET THE VEHICLE TO THE SHOP
2. I WOULD HAVE IT FIXED, BUT TIMING WOULD DEPEND UPON THE COST OF REPAIR
3. I WOULD HAVE IT FIXED AT MY NEXT SCHEDULED MAINTENANCE APPOINTMENT (INCLUDING OIL CHANGE, TIRE ROTATION, ETC.)
4. I WOULD NOT FIX IT UNTIL I WAS GOING TO GET RID OF THE CAR

98. DON’T KNOW

99. REFUSED

///

IF MALFIX5=1,2,3 OR (LASTACT3\_3, LASTACT3\_4, OR LASTACT3\_5=TRUE) OR MALF1AF1A=4,5 OR MALF1AF1B=4,5 OR MALF2AF1=4,5 OR LASTAF=4,5 OR HYPMAL2=1,2,3 THEN AUTOPUNCH PAYFIX1=1, Has already indicated spending money to repair TPMS

ELSE, ASK ALL

///

PAYFIX2 What is the most you would be willing to spend to repair a malfunctioning TPMS system?

1. $0.00
2. $1 - $49
3. $50 - $99
4. $100 - $299
5. $300 - $499
6. $500 - $999
7. $1,000 OR MORE

98. DON’T KNOW

99. REFUSED

///ASK ALL EXTENDED INTERVIEWS ///

RESET1 Who would be able to reset the TPMS system in your vehicle when needed, such as after adding air to the tires or doing work on the tires or wheels?

 **[INTERVIEWER: SELECT ALL THAT APPLY]**

1. THE OWNER/DRIVER
2. THE REPAIR SHOP OR DEALER
3. OTHER

98. DON’T KNOW

99. REFUSED

///ASK ALL EXTENDED INTERVIEWS ///

RESET2 What action is required to reset the TPMS system? [INTERVIEWER: PROBE FOR THE PRIMARY ACTION]

1. PRESS A BUTTON
2. SELECT OPTION VIA VEHICLE’S ELECTRONIC MENU CONTROL
3. SPECIAL TOOLS ARE USED BY A REPAIR SHOP/DEALER
4. OTHER

98. DON’T KNOW

99. REFUSED

///ASK ALL EXTENDED INTERVIEWS ///

TPMSREQ To your knowledge, is the TPMS system in your vehicle legally required to be functioning properly?

1. YES
2. NO

98. DON’T KNOW

99. REFUSED

///ASK ALL///

INTRO2 Now I just need to ask you some basic demographic information.

1. CONTINUE

///ASK IF INTRO2=1///

AGE What is your age? [INTERVIEWER: IF RESPONDENT HESITATES TO REPORT SINGLE AGE READ THE LIST OF CATEGORIES AND ASK THEM TO INDICATE THE CATEGORY THAT BEST MATCHES THEIR AGE]

1. UNDER 18
2. 18 – 25
3. 26 – 35
4. 36 – 45
5. 46 – 55
6. 56 – 65
7. 65 OR OLDER

98. DON’T KNOW

99. REFUSED

///ASK IF INTRO2=1///

EDUC What is the highest level of education you have completed?

1. SOME ELEMENTARY/MIDDLE/HIGH SCHOOL
2. HIGH SCHOOL GRADUATE (OR DIPLOMA) OR GED
3. ASSOCIATE’S DEGREE / SOME COLLEGE
4. BACHELOR’S DEGREE
5. GRADUATE/PROFESSIONAL DEGREE

98. DON’T KNOW

99. REFUSED

///ASK IF INTRO2=1///

**ZIP. What is your home ZIP code?**

 **01 //ALLOW 5 DIGIT NUMERIC CODE//**

 **98 RESPONDENT LIVES OUTSIDE U.S.**

**99 REFUSED**

**///PROGRAMMER: IMPORT TP\_LOW (01=UNDER-INFLATED, 02=OK) FROM INSPECTOR TABLET///**

**//ASK IF IND\_TPMS=01 AND TP\_LOW=01 (AIR PRESSURE MEASURED 25+% BELOW PLACARD PRESSURE VEHICLE INSPECTION)//**

**AIR\_LOW** **When we checked the tire pressure in your tires, they were under-inflated according to the manufacturer recommendations for this vehicle.**

01 continue

///IF DISABLE1=1 AND SCREEN6 NE 1 THEN SET DISPO = 61, Complete: Phase-in vehicle, TPMS reported to be disabled – DISABLED COMPLETE///

///IF DISABLE1=1 AND SCREEN6 = 1 THEN SET DISPO = 71, At Quota: Phase-in vehicle, TPMS reported to be disabled ///

///IF DISABLE2=1 AND SCREEN6 NE 1 THEN SET DISPO = 63, Complete: Post-phase-in vehicle, TPMS reported to be disabled – DISABLED COMPLETE///

///IF DISABLE2=1 AND SCREEN6 = 1 THEN SET DISPO = 73, At Quota: Post-phase-in vehicle, TPMS reported to be disabled ///

///IF DISABLE2=2,98,99 AND MALFCODE =3 AND SCREEN6 NE 1 THEN SET DISPO = 64, Complete: Post-phase-in vehicle, no lights, not reported as disabled – MALFUNCTION COMPLETE///

///IF DISABLE2=2,98,99 AND MALFCODE =3 AND SCREEN6=1 THEN SET DISPO = 74, At Quota: Post-phase-in vehicle, no lights, not reported as disabled ///

///IF MALFCODE =1 AND SCREEN6 NE 1 THEN SET DISPO = 66, Complete: TPMS system malfunction COMPLETE///

///IF MALFCODE =1 AND SCREEN6=1 THEN SET DISPO = 76, At Quota: TPMS system malfunction ///

///IF MALFCODE =2 AND SCREEN6 NE 1 THEN SET DISPO = 67, Complete: TPMS low pressure ///

///IF MALFCODE =2 AND SCREEN6=1 THEN SET DISPO = 77, At Quota: TPMS low pressure ///

///IF MALFCODE =4 AND SCREEN6 NE 1 THEN SET DISPO = 68, Complete: TPMS functioning properly ///

///IF MALFCODE =4 AND SCREEN6=1 THEN SET DISPO = 78, At Quota: TPMS functioning properly ///

///SET COUNTER FOR MODELYEAR AND INCREMENT COUNT FOR DISPOSITIONS 61, 63, 64, 66, 67, 68. TARGET TO BE MONITORED AND ADJUSTED BASED ON FIELD EXPERIENCE///

MINIMA SAMPLE SIZES [REQUIRED SAMPLE FLOOR]

|  |  |  |
| --- | --- | --- |
| Model Year | Car | LTV |
| 2006-2008 | 300 | 300 |
| 2009-2011 | 300 | 300 |
| 2012-2014 | 300 | 300 |
| 2015-2016 | 300 | 300 |

///SKIP TO MODULE END///

### END MODULE CLOSE

## MODULE END

///ASK IF PRIM1C=2, Primary driver/upkeep not with respondent///

SCREEN3 I won’t have any further questions for you today, since we’re only surveying drivers who are primarily responsible for the upkeep of their car. Thanks for your time.

1. CONTINUE

///IF PRIM1C=2 SET DISPO=31, SCREENED OUT: Primary driver/upkeep not with respondent///

///ASK IF PRIM1D=2, Could not speak to primary driver/upkeep///

SCREEN4 I won’t have any further questions for you today, since we’re only surveying drivers who are primarily responsible for the upkeep of their car. Thanks for your time.

1. CONTINUE

///IF PRIM1D=2 SET DISPO=32, SCREENED OUT: Could not speak to primary driver/upkeep///

///ASK IF PRIM2A=2 AND PRIM2B=2, Unable to locate primary driver/upkeep ///

SCREEN5 I won’t have any further questions for you today, since we’re only surveying drivers who are primarily responsible for the upkeep of their car. Thanks for your time.

1. CONTINUE

///IF PRIM2A=2 AND PRIM2B=2 SET DISPO=34, SCREENED OUT, Unable to locate primary driver/upkeep///

///ASK ALL IF INTRO3<>01///

THANK Thank you for your participation in this survey.

1. CONTINUE

//ADD BUTTONS FOR INTERVIEWER TO INDICATE WHETHER TO UPLOAD RECORD

**SUBMIT** INTERVIEWER: SUBMIT TO ONLINE DATABASE?

 01 YES

02 MARK QUESTIONNABLE ///SAVE AND UPLOAD BUT DON’T INCREMENT TALLY///

 03 NO, UPLOAD LATER

**///IF SUBMIT=01 or 02///**

**SUBMITV** INTERVIEWER: Are you sure you want to submit data to online database?

01 Yes

02 No

### END MODULE END