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Technical Bulletin

Subject: **Tire Pressure Monitoring System (TPMS), Diagnosing**

Group: **44**

Number: **04-05**

Model(s): **Touareg**

2004 ► 2005

Date: **Dec. 8, 2004**

Condition

Consumer concern that TPMS warning is displayed in instrument cluster.

Service

- Enter vehicle, close door and switch ON ignition.
- Observe text in MFI.
- If message does not contain "System fault" or "System learning", write down tire pressure from MFI ("Monitored pressures" menu) and switch OFF ignition.
- Adjust tire to recommended pressure from tire pressure label.
- Switch ON ignition.
- If TPMS warning light goes out and the "Monitored pressures" value matches tire pressure label, no malfunction is present and the work is complete.
- The above condition is an intended operation of the vehicle and will not be warrantable.
- If a system fault message is present or the "Monitored pressure" value is below the correct tire pressure, follow diagnostic sequence outlined in "TPMS Service Flowchart".

Test Plans 1, 2 and 3 are located after Fault code table.

TPMS Survey Form is located on the last page of this Technical Bulletin.

- Record Test Plan 1 - Measuring Value Block readings on "TPMS Survey Form".



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- Record Test Plan 3 - Wheel sensor ID in their respective box on “TPMS Survey Form”.

For vehicles within the new vehicle limited warranty, TPMS Survey Form must be filled out by Test Plan completed or Warranty claim may be denied.

- A completed survey form must be attached to every warranty claim that is filed.
- Make additional copies of TPMS form as necessary.

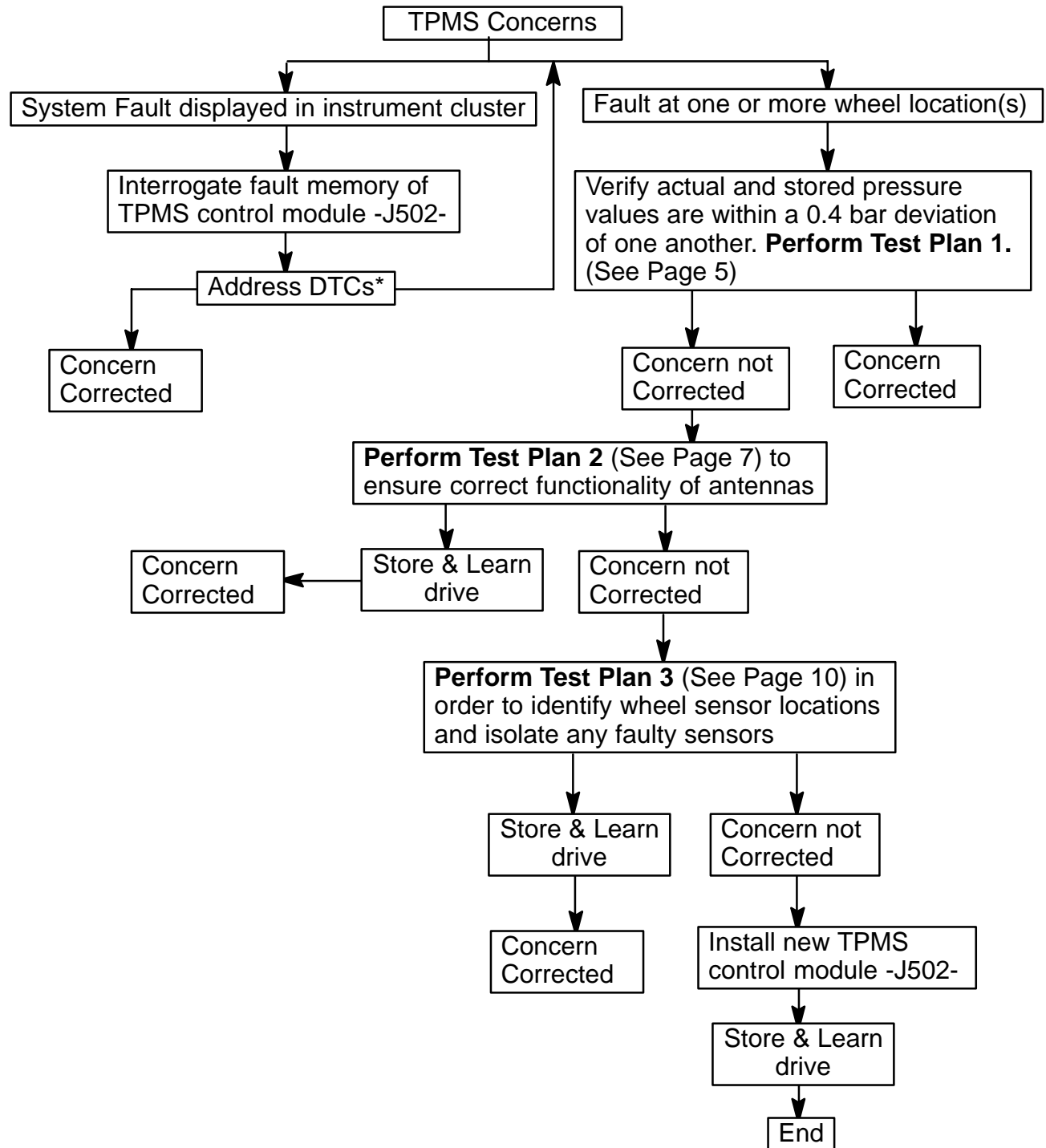


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Tire Pressure Monitoring System Service Flowchart



*) See Fault Code Table



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Fault Code Table

DTC #		DTC text	Corrective action
0003	014	Control Unit Faulty	Erase fault code and recheck for it's return. If cannot be erased, then replace the Control Module
0668	002	30 power system voltage exceeded lower limit	30 power interruption while engine was running
1312	013	Powertrain data bus, please read fault codes	Brake problem (no speed signal), missing ambient temperature
1325	001	Control Module for Tire Monitoring, upper limit exceeded	Too many unrecognized wheels
	004	Control Module for Tire Monitoring, no signal / communication	Calibration time out (didn't learn values within 30 minutes)
	005	Control Module for Tire Monitoring, no or wrong basic settings	No or incorrect coding of module
1467	001	Tire Pressure Sensor, exceeded upper limit	Excessive temperature shut down
	002	Tire Pressure Sensor, exceeded lower limit	Battery voltage too low
	004	Tire Pressure Sensor, no signal / communication	Malfuction of 10 signals of the wheel electronics
1472	004	Antenna for TPMS no signal / communication	Antenna fault (not connected, cable interrupted), wrong frequency
1477	001	System is switched off	Display of status only, will not cause system malfunction
1478	001	Spare Tire Monitoring is switched off	Display of status only, will not cause system malfunction
1487	005	System function test, no or wrong basic setting	End of line test not completed successfully, change coding from 12339 to 10339 then start learning (STORE)
1507	000	Initialization not successful	30 minute time limit for learning mode has been reached. Learn not successful
1521	004	Wheel sensor no signal / sporadic signal	A signal is missing at times from one or more wheel locations. Could be caused by a faulty wheel sensor or faulty antenna.
2757	000	Wheel communication fault	No communication from a wheel sensor for 15 or more minutes. Could be caused by failure of antenna or failed wheel sensor



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Vehicle Self-Diagnosis				
Select vehicle system				
15 - Airbag	▲			
25 - Immobilizer				
35 - Central locking				
45 - Interior monitoring				
55 - Automatic vertical headlight aim control				
65 - Tyre pressure monitoring				
75 - Telematics				
1C- Vehicle position detection				
06 - Passenger - side seat adjustment				
16 - Steering wheel electronics				
26 - Electronic roof controls				
Test Instruments	Guided Fault Finding	Go to	Print	Help
44-A059				

Test Plan 1: Pressure Verification

Record TPMS Measuring Value Blocks 1-15 as follows:

- Connect VAS 5051/5052 Diagnostic tool.
- Switch ignition ON.
- From Start-up screen, select "Vehicle Self-Diagnosis".
- ← - Select vehicle system "65 - Tyre pressure monitoring".

Vehicle Self-Diagnosis		65 - Tyre pressure monitoring		
Select diagnosis function		Component part number		
		Component description		
		Coding XXXX		
		Dealership number XXXXX		
02 - Interrogate fault memory	▲			
05 - Erase fault memory				
06 - End output				
07 - Code control unit				
Coding subbussystem				
08 - Read Measuring Value Block				
10 - Adaption				
16 - Access permission				
Identification services				
Test Instruments		Go to	Print	Help
44-A070				

- ← - Select Diagnosis function "08-Read Measuring Value Block".

- Input "1" on keypad to select "Display group "1".



Tip:

Beginning on next page, Fields with "On-vehicle wheel locations" might be displayed in German or English. Refer to table below for German / English translation.

Tire Location	German	English
Front Left	VL	FL
Front Right	VR	FR
Rear Left	HL	RL
Rear Right	HR	RR



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Vehicle Self-Diagnosis	65 - Tyre pressure monitoring
08 - Read Measuring Value Block	Component part number Component description Coding XXXXX Dealership number XXXXX
Read data block	
<div style="display: flex; justify-content: space-between;"> <div> <p>➡ wheel fl</p> <p>➡ 19.0 °C</p> <p>➡ 2.48 bar</p> <p>➡ 2.40 bar</p> </div> <div style="border: 1px solid black; padding: 2px;">Display Group</div> </div>	
1	
<input type="button" value="Go to"/> <input type="button" value="Print"/> <input type="button" value="Help"/>	
44-A071	

◀ – Record “Fields 1-4” -black arrows- on appropriate MVB line of TPMS Survey Form.

- Field 1 = On-vehicle wheel location.
- Field 2 = Actual tire temperature.
- Field 3 = Actual tire pressure (at default temperature of 20 °C).
- Field 4 = Stored tire pressure value from last learn drive must match value of vehicle tire pressure label or learn drive must be performed after setting correct tire pressure (if last learn drive was not completed, default value will be displayed).

– Compare stored tire pressure “Field 4” and actual tire pressure “Field 3”.

◆ Actual tire pressure must not vary by more than – 0.4 bar.

If actual tire pressure varies by more than –0.4 bar:

- Adjust tire pressure to value on tire pressure label.
- Cycle ignition.

If TPMS light goes out shortly after ignition cycle:

◆ Concern is corrected. No Learn drive required.

– Go to “Display group 2”.

◀ – Record “Fields 1-2” -black arrows- on appropriate MVB line of TPMS Survey Form.

- Field 1 = On-vehicle wheel location.
- Field 2 = Months of battery life remaining in wheel sensor.

– Go to “Display group 3”.

Vehicle Self-Diagnosis	65 - Tyre pressure monitoring
08 - Read Measuring Value Block	Component part number Component description Coding XXXXX Dealership number XXXXX
Read data block	
<div style="display: flex; justify-content: space-between;"> <div> <p>➡ wheel fl</p> <p>➡ 84 Mon</p> </div> <div style="border: 1px solid black; padding: 2px;">Display Group</div> </div>	
2	
<input type="button" value="Go to"/> <input type="button" value="Print"/> <input type="button" value="Help"/>	
44-A072	



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Vehicle Self-Diagnosis	65 - Tyre pressure monitoring
08 - Read Measuring Value Block	Component part number
	Component description
	Coding XXXXX
	Dealership number XXXXX
Read data block	
<u>Rad vl 0.003.823.067</u> <u>Status 01h US. iO</u>	
	Display Group
	3
	▲ ▼
◀	Go to Print Help
44-A073	

◀ – Record “Fields 1-3” on appropriate MVB line of TPMS Survey Form.



Tip:

Display group 3 fields are shown in one line. Divide line into 3 fields (indicated by number of underlines).

- Field 1 = On-vehicle wheel location.
 - Field 2 = Last stored wheel ID.
 - Field 3 = Last known status of sensor.
- Repeat “Test Plan 1” for remaining tires. Use the following display groups for appropriate tire:
- ◆ Right front tire = Display groups 4, 5 and 6.
 - ◆ Left rear tire = Display groups 7, 8 and 9.
 - ◆ Right rear tire = Display groups 10, 11 and 12.
 - ◆ Spare tire = Display groups 13, 14 and 15 (with full size spare only).
- Record 2 additional Display groups:
- ◆ Display group 19 (System status).
 - ◆ Display group 20 (State of CAN status).

Vehicle Self-Diagnosis	
Select vehicle system	
15 - Airbag	▲
25 - Immobilizer	
35 - Central locking	
45 - Interior monitoring	
55 - Automatic vertical headlight aim control	
65 - Tyre pressure monitoring	
75 - Telematics	
1C- Vehicle position detection	
06 - Passenger - side seat adjustment	
16 - Steering wheel electronics	
26 - Electronic roof controls	▼
Test Instruments	Guided Fault Finding
Go to	Print Help
44-A074	

Test Plan 2: Antenna Diagnosis

- From Start-up screen, select “Vehicle Self-Diagnosis”.
- ◀ – Select Vehicle system “65 - Tyre pressure monitoring”.



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Vehicle Self-Diagnosis	65 - Tyre pressure monitoring
Select diagnosis function	Component part number Component description Coding XXXX Dealership number XXXXX
02 - Interrogate fault memory 05 - Erase fault memory 06 - End output 07 - Code control unit Coding subbussystem 08 - Read Measuring Value Block 10 - Adaption 16 - Access permission Identification services	
<input type="button" value="Test Instruments"/> <input type="button" value="Go to"/> <input type="button" value="Print"/> <input type="button" value="Help"/>	
44-A075	

- ◀ - Select Diagnosis function "10-Adaption".
- Input "17" on keypad to select "Channel "17".
- Press "Q" button to confirm.

Vehicle Self-Diagnosis	65 - Tyre pressure monitoring
10 - Adaption	Component part number Component description Coding XXXXX Dealership number XXXXX
Read and test channel 17	
<input type="button" value="Syst. Test OFF"/>	
0 0 8 <input type="text" value=""/>	
<input type="button" value="Keyboard"/> <input type="button" value="Save"/>	
<input type="button" value="Test Instruments"/> <input type="button" value="Go to"/> <input type="button" value="Print"/> <input type="button" value="Help"/>	
44-A076	

- ◀ - Change value to "1" using keyboard button or slider bar.
- Select "Save" and "Accept" buttons to record change.

**Tip:**

Antenna diagnosis is now in progress.

- Return to "Diagnosis function" screen using backward arrow ◀ on navigation bar.

Vehicle Self-Diagnosis	65 - Tyre pressure monitoring
Select diagnosis function	Component part number Component description Coding XXXX Dealership number XXXXX
02 - Interrogate fault memory 05 - Erase fault memory 06 - End output 07 - Code control unit Coding subbussystem 08 - Read Measuring Value Block 10 - Adaption 16 - Access permission Identification services	
<input type="button" value="Test Instruments"/> <input type="button" value="Go to"/> <input type="button" value="Print"/> <input type="button" value="Help"/>	
44-A077	

- ◀ - Select Diagnosis function "08-Read Measuring Value Block".

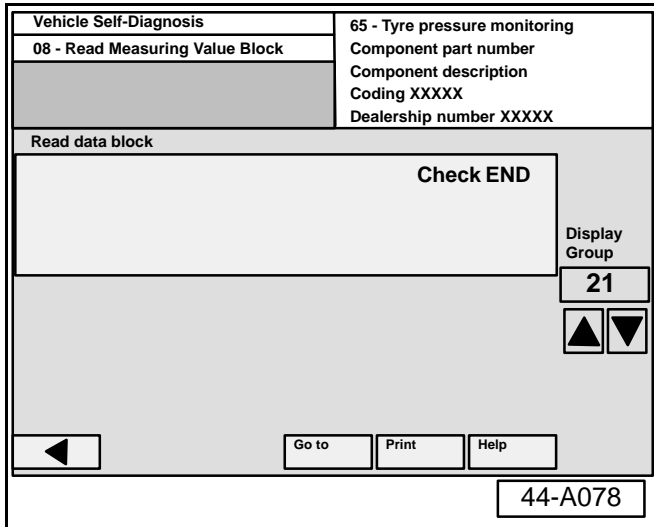
- Input "21" on keypad to select "Display group "21".



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◀ – Wait until “Field 1” displays “Check END”.



Tip:

Test will take approximately one minute.

- Return to “Diagnosis function” screen using backward arrow ◀ on navigation bar.
- Select Diagnosis function “02-Interrogate fault memory”.

If antenna fault (DTC 1472) is present:

- Proceed to “Advanced antenna diagnosis”.

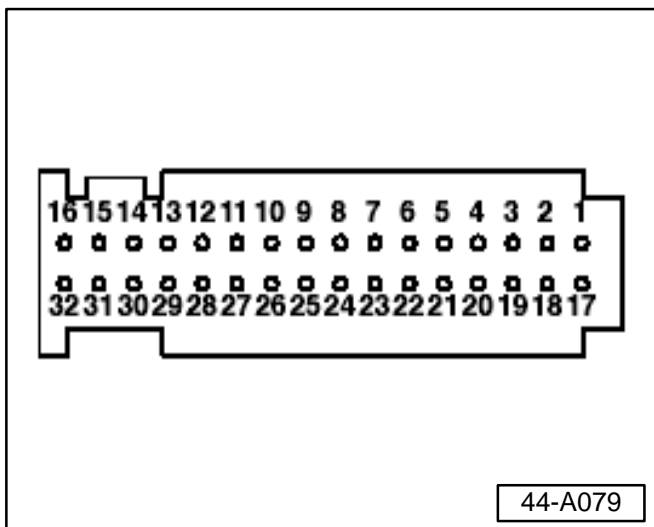
Advanced antenna diagnosis



Tip:

Individual resistance of each antenna should be approximately 210 ohms.

◀ Measure resistance at the harness side of TPMS control module between pins as shown in table below.



Front Left Antenna	Front Right Antenna
WS Pin 12	WS Pin 10
GE Pin 28	BL Pin 26
Rear Left Antenna	Rear Right Antenna
WS Pin 9	WS Pin 7
RO Pin 25	GN Pin 23

If any resistance measurement does not near 210 ohms:

- Check and repair wiring.

If wiring OK:

- Replace antenna.



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Test Plan 3: Wheel Sensor Identification / Status



Tip:

Measure Value Blocks 3, 6, 9 and 12 (also MVB 15 in 2005 only) only are stored only when the system is relearned. Therefore this information is not always an accurate representation of current wheel location and status.

In addition, one faulty wheel sensor has the potential to create faults at multiple wheel locations.

How to identify current tire pressure monitoring sensor locations:

- Vehicle must be parked AWAY from other vehicles with same or similar tire pressure monitoring system.



Tip:

If vehicles with same or similar systems are parked too close to one another there is a likely possibility of system interfering with each other.

Enter Measuring Value Block 16 as follows:

- From Start-up screen, select "Vehicle Self-Diagnosis".

Vehicle Self-Diagnosis	
Select vehicle system	
15 - Airbag 25 - Immobilizer 35 - Central locking 45 - Interior monitoring 55 - Automatic vertical headlight aim control 65 - Tyre pressure monitoring 75 - Telematics 1C- Vehicle position detection 06 - Passenger - side seat adjustment 16 - Steering wheel electronics 26 - Electronic roof controls	▲ ▼
Test Instruments Guided Fault Finding Go to Print Help	
44-A059	

- ◀ - Select vehicle system "65 - Tyre pressure monitoring".



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Vehicle Self-Diagnosis	65 - Tyre pressure monitoring
Select diagnosis function	Component part number Component description Coding XXXX Dealership number XXXXX
02 - Interrogate fault memory 05 - Erase fault memory 06 - End output 07 - Code control unit Coding subbussystem 08 - Read Measuring Value Block 10 - Adaption 16 - Access permission Identification services	
<input type="button" value="Test Instruments"/> <input type="button" value="Go to"/> <input type="button" value="Print"/> <input type="button" value="Help"/>	
44-A080	

← Select Diagnosis function “08-Read Measuring Value Block”.

– Input “16” on keypad to select “Display group “16”.



Tip:

The MVB is a current / real time scrolling status of all ID's and sending speeds.

Vehicle Self-Diagnosis	65 - Tyre pressure monitoring
08 - Read Measuring Value Block	Component part number Component description Coding XXXXX Dealership number XXXXX
Read data block 0.003.336.548 Status 01h_UB. iO 2.37bar	
Display Group <input type="button" value="16"/> <input type="button" value="▲"/> <input type="button" value="▼"/>	
<input type="button" value="Go to"/> <input type="button" value="Print"/> <input type="button" value="Help"/>	
44-A081	

← Starting with front left wheel, release a minimum of 3.0 psi. (0.2 bar).



Tip:

A pressure release of more than 3.0 psi. will change the sensor in wheel from 01h to 02h (normal sending speed to rapid sending speed.).

– Observe MVB 16 for the ID which speed changed to “02h”.

– Please write down respective ID in the correct location on “TPMS Survey Form”.

After completing first two wheels, wait 3 minutes until sensors revert back to normal speed (01h).

If any wheel on vehicle transmitted speed reads 00h:

◆ Sensor in wheel is faulty.

– Replace when located.

– Repeat “Test Plan 3” for each wheel until ALL wheel sensors have been identified.



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- Perform learn drive to set system pressures.
- Using second technician, verify that all sensor ID's scroll through "MVB 16".

If one ID is not observed while driving:

- Call Technical Helpline after verifying that rear antennas are properly secured.
- Repeat learn drive, until "MVB 19" shows "63545".

When procedure applies to vehicles within the New Vehicle Limited Warranty, use the following:		
Part Identifier:	4438	
Labor Operation: Test Plan 1	44380201	40 TU
Labor Operation: Test Plan 2	44380202	30 TU
Labor Operation: Test Plan 3	44380203	50 TU
Labor Operation: Learn Drive	01210002	10 TU
	01210004	10 TU



TPMS Survey Form

Fax to (800) 403-4710

Date: _____

Control Module Part No.: _____		VIN: _____
SW Level: _____	Coding: _____	DTCs: _____
Mileage: _____	Outside Temp: _____	_____

Measured Tire Pressure (Psi)		
Left Front: _____	Right Front: _____	Spare Tire: _____
Left Rear: _____	Right Rear: _____	

Test Plan 1					
	MVB No.	Field 1 Value	Field 2 Value	Field 3 Value	Field 4 Value
Left Front Wheel	1				
	2				
	3				
Right Front Wheel	4				
	5				
	6				
Left Rear Wheel	7				
	8				
	9				
Right Rear Wheel	10				
	11				
	12				
Spare Tire (full size spare only)	13				
	14				
	15				
System Status	19				
CAN Status	20				

Test Plan 3	
LF Sensor ID: _____	LR Sensor ID: _____
RF Sensor ID: _____	RR Sensor ID: _____
Spare Tire Sensor ID: _____	

List all parts replaced and Repairs performed: