SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 138
TIRE PRESSURE MONITORING SYSTEMS

NISSAN MOTOR COMPANY
2010 NISSAN CUBE
FOUR-DOOR MPV
NHTSA NO. CA5203

U.S. DOT SAN ANGELO TEST FACILITY
131 COMANCHE TRAIL, BUILDING 3527
GOODFELLOW AFB, TEXAS  76908

June 3, 2010
FINAL REPORT

PREPARED FOR
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
NVS-220
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVENUE, SE
WASHINGTON, D.C. 20590
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Prepared By: Doris Beebe

Approved By: [Signature]

Accepted By: [Signature]

Acceptance Date: 6/3/10
Final Report of FMVSS 138 Compliance Testing of 2010 Nissan Cube Four-Door MPV, NHTSA No. CA5203

Test failures identified were as follows: None

Compliance tests were conducted on the subject 2010 Nissan Cube four-door MPV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure Number TP-138-03 for the determination of FMVSS 138 compliance. Test failures identified were as follows: None

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</thead>
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<td>Safety Engineering</td>
<td>Technical Information Services Division</td>
</tr>
<tr>
<td>FMVSS 138</td>
<td>NPO-411, Room E12-100</td>
</tr>
<tr>
<td></td>
<td>1200 New Jersey Avenue, S.E.</td>
</tr>
<tr>
<td></td>
<td>Washington, DC 20590</td>
</tr>
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<td></td>
<td>Email: <a href="mailto:tis@dot.gov">tis@dot.gov</a></td>
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<tr>
<td></td>
<td>FAX: 202-493-2833</td>
</tr>
</tbody>
</table>

Compliance Testing
Safety Engineering
FMVSS 138
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</tbody>
</table>
SECTION 1

INTRODUCTION

1.1 PURPOSE OF COMPLIANCE TEST

A 2010 Nissan Cube four-door MPV was tested to determine if the vehicle was in compliance with the requirements of FMVSS 138. All tests were conducted in accordance with NHTSA/Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure TP-138-03 dated July 12, 2007.

1.2 TEST VEHICLE

The test vehicle was a 2010 Nissan Cube four-door MPV. Nomenclatures applicable to the test vehicle are:

A. **Vehicle Identification Number:** JN8AZ2KR6AT151088

B. **NHTSA Number:** CA5203

C. **Manufacturer:** Nissan Motor Company

D. **Manufacture Date:** 10/2009

1.3 TEST DATE

The test vehicle was tested during the time period May 12 through May 19, 2010.
SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.1 TEST PROCEDURE

Prior to test, the test vehicle was inspected for completeness, systems operability, and appropriate fuel and liquid levels, i.e. oil and coolant. The vehicle was then photographically documented as required by the NHTSA/OVSC Test Procedure. Tire sidewall and vehicle labeling information were recorded. The owner’s manual was reviewed, and pertinent tire and TPMS information were noted. Telltale’s symbol, color, location, and lamp function were checked.

Subsequent events included weighing the vehicle to establish the Unloaded Vehicle Weight (UVW) and the distribution of weight on the front and rear axles and each wheel position. The vehicle was loaded to its Lightly Loaded Vehicle Weight (LLVW) for three tire deflation scenarios. This LLVW included the weights of driver, one passenger, and test equipment. The vehicle was loaded to its Unloaded Vehicle Weight plus Vehicle Capacity Weight (VCW) for three additional tire deflation scenarios. The VCW included the weights of driver, one passenger, test equipment, ballast in the rear seat, and ballast in the rear cargo area. The vehicle is required to be loaded to its maximum capacity without exceeding either the Vehicle Capacity Weight or Gross Vehicle Weight Rating (GVWR). For determination of the telltale warning activation pressure, the recommended cold inflation pressure was identified from the vehicle placard.

The vehicle was instrumented with a Racelogic VBOX III 100 Hz GPS Data Logger and brake pedal trigger. The VBOX uses GPS to measure vehicle speed, time, and distance. Test data were recorded to a compact flash card. During the test, a stopwatch was used to determine the approximate “cumulative driving time” during each test phase. Cumulative driving time does not include time during the brake application or when the vehicle speed was below 50 km/h or above 100 km/h. Upon completion of a tire deflation scenario, graphs were generated by VBOX software showing vehicle speed versus time during the test procedures. The graphs furnish a second by second analysis of each calibration and low inflation pressure detection phase (as appropriate). The cumulative driving time was calculated by post-processing the VBOX graph data, and is reported in Section 3 (Test Data) as ‘Total Driving Time’.

The tire deflation test scenario consisted of four phases:

1. Calibration phase: Tires were set at vehicle placard cold inflation pressure and the vehicle was driven for at least twenty minutes of cumulative driving time between 50 and 100 km/h.
2. Detection phase: Immediately after calibration phase, the selected tire(s) were deflated to seven kPa (one psi) below the Telltale Warning Activation Pressure. After one minute, the inflation pressure(s) of only deflated tire(s) were rechecked and adjusted if necessary. The vehicle was started and driven to ensure that the low inflation pressure telltale illuminated.

3. Cool down phase: Vehicle was parked in the San Angelo Test Facility (SATF) open bay shielded from direct sunlight. Tires were allowed to cool down for a minimum of one hour. After cool down, the vehicle was started and the low tire pressure telltale was checked for re-illumination.

4. Extinguishment phase: Tires were adjusted to vehicle placard cold inflation pressure. The vehicle was started and driven to ensure that the low inflation pressure telltale extinguished.

Two malfunction scenarios were performed on the Nissan Cube. The first scenario was performed with the vehicle loaded to its LLVW. The malfunction was simulated by placing the compact spare tire, with no TPMS sensor, on the right front wheel position. The second scenario was performed by disconnecting the wiring harness from the tire pressure receiver module.

2.2 SUMMARY OF RESULTS

Three tire deflation scenarios were performed on the test vehicle at LLVW:
   A. Right rear
   B. Left rear, right rear, and right front
   C. Left front, left rear, right rear, and right front

Three tire deflation scenarios were performed on the test vehicle at UVW + VCW:
   D. Left rear
   E. Left front and right front
   F. Left rear and right front

The data indicate compliance of the test vehicle’s tire pressure monitoring system for the six tire deflation scenarios tested.

One malfunction detection scenario was performed on the test vehicle at LLVW:
   G. Spare tire without TPMS sensor was applied to right front wheel position.

One malfunction detection scenario was performed on the test vehicle at UVW + VCW:
   H. Tire Pressure Receiver module was disconnected.

In both scenarios, the vehicle’s combination malfunction telltale properly operated per the standard’s requirements.
SECTION 3
TEST DATA
**FMVSS No. 138 – TEST DATA SUMMARY**

**TEST DATES:** May 12 – May 19, 2010  
**LAB:** U.S. DOT San Angelo Test Facility

**VIN:** JN8AZ2KR6AT151088  
**VEHICLE NHTSA NUMBER:** CA5203

**CERTIFICATION LABEL BUILD DATE:** 10/2009

<table>
<thead>
<tr>
<th>REQUIREMENTS</th>
<th>PASS/FAIL</th>
</tr>
</thead>
</table>
| **LOW TIRE PRESSURE WARNING TELLTALE**  
S138: S4.3.1 (a), (b); S4.3.3 (a), (b)                                      |           |
| Mounting                                                                    | PASS      |
| Symbol and color                                                            | PASS      |
| Check of lamp function                                                      | PASS      |
| **MALFUNCTION TELLTALE**  
S138: S4.4 (b) or (c)                                                        |           |
| Mounting                                                                    | PASS      |
| Symbol and color                                                            | PASS      |
| Check of lamp function                                                      | PASS      |
| **LOW TIRE PRESSURE WARNING - OPERATIONAL PERFORMANCE**  
S138: S4.2, S4.3.1 (c), S4.3.2                                               |           |
| Telltale illumination                                                       | PASS      |
| **MALFUNCTION INDICATOR – OPERATIONAL PERFORMANCE**  
S138: S4.4 (a)                                                              |           |
| Telltale illumination                                                       | PASS      |
| **TPMS WRITTEN INSTRUCTIONS**  
S138: S4.5                                                                   |           |
| Image of telltales                                                          | PASS      |
| Verbatim statements                                                         | PASS      |

**REMARKS:** None
DATA SHEET 1 (Sheet 1 of 3)
TEST PREPARATION INFORMATION

TEST DATE: May 12, 2010  LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: CA5203  VIN: JN8AZ2KR6AT151088

CERTIFICATION LABEL BUILD DATE: 10/2009  ENGINE: 1.8 liter, 4 cylinder

MY/MAKE/MODEL/BODY STYLE: 2010 Nissan Cube four-door MPV

TIRE CONDITIONING:
( X ) Tires used more than 100 km. Actual odometer reading: 113 km (70 mi)

VEHICLE ALIGNMENT AND WHEEL BALANCING:
Alignment checked: ( ) Front  ( ) Rear  ( X ) COTR waived
Wheels balanced: ( ) Front  ( ) Rear  ( X ) COTR waived

TPMS IDENTIFICATION:
TPMS MAKE/MODEL: Sensor: Schrader Electronics; ECU: Calsonic Kansei Corp.;
tuner: ALPS Electric Company
Source: Manufacturer supplied information

TPMS TYPE: ( X ) Direct  ( ) Indirect  ( ) Other

Does TPMS require execution of a learning/calibration driving phase? ( )YES  ( X )NO
Source: Manufacturer supplied information

Does TPMS have a manual reset control?  ( )YES  ( X )NO

TPMS MALFUNCTION INDICATOR TYPE:
( ) None  ( ) Dedicated Telltale  ( X ) Combination low tire pressure/malfunction telltale
**DATA SHEET 1 (Sheet 2 of 3)**

**TEST PREPARATION INFORMATION**

**DESIGNATED TIRE SIZE(S) FROM VEHICLE LABELING AND OWNER’S MANUAL:**

<table>
<thead>
<tr>
<th>Axle</th>
<th>Tire Size</th>
<th>Recommended Cold Inflation Pressure</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>P195/60R15</td>
<td>230 kPa (33 psi)</td>
<td>Vehicle placard</td>
</tr>
<tr>
<td>Rear</td>
<td>P195/60R15</td>
<td>230 kPa (33 psi)</td>
<td>Vehicle placard</td>
</tr>
</tbody>
</table>

**INSTALLED TIRE DATA**

Diagram - MPV Tire Labeling

Front and Rear Axles

- **Tire Size and Load Index / Speed Rating:** P195/60R15 87H
- **Manufacturer/Tire Name:** Toyo A20
- **Sidewall Max Load Rating:** 540 kg (1,190 lbs)
- **Max Inflation Pressure:** 350 kPa (51 psi)
- **Sidewall Construction (number of plies and ply material):** 1 polyester
- **Tread Construction (number of plies and ply material):** 2 steel, 1 polyester, 1 nylon

Do all installed tires have the same sidewall information?  (X) YES  ( ) NO

Are all installed tires the same as designated by the vehicle manufacturer on the vehicle placard?  (X) YES  ( ) NO
### Worksheet for Determining FMVSS No. 138 Telltale Warning Activation Pressure for Tires Installed on Vehicle

<table>
<thead>
<tr>
<th>Part</th>
<th>Front Axle</th>
<th>Rear Axle</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Recommended Inflation Pressure x .75</td>
<td>230 kPa x .75 = 172.5 kPa</td>
<td>230 kPa x .75 = 172.5 kPa</td>
</tr>
<tr>
<td>(B) Information from FMVSS 138 Table 1 below, Tire types are:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation pressure</td>
<td>( X ) P-metric-Standard load</td>
<td>( X ) P-metric-Standard load</td>
</tr>
<tr>
<td>Minimum activation pressures from Table 1</td>
<td>( ) P-metric-Extra Load</td>
<td>( ) P-metric-Extra Load</td>
</tr>
<tr>
<td>Load Range</td>
<td>( C, ( ) D, or ( ) E</td>
<td>Load Range</td>
</tr>
<tr>
<td>(C) Telltale Warning Activation Pressure is the higher of Part (A) or (B)</td>
<td>172.5 kPa (25 psi)</td>
<td>172.5 kPa (25 psi)</td>
</tr>
<tr>
<td>(D) Pressure at which to deflate tire(s) = (C) – 7 kPa</td>
<td>165.5 kPa (24 psi)</td>
<td>165.5 kPa (24 psi)</td>
</tr>
</tbody>
</table>

### FMVSS 138 Table 1 - Low Tire Pressure Warning Telltale - Minimum Activation Pressure

<table>
<thead>
<tr>
<th>Tire Type</th>
<th>Maximum or Rated Inflation Pressure</th>
<th>Minimum Activation Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(kPa)</td>
<td>(psi)</td>
</tr>
<tr>
<td>P-metric -- Standard Load</td>
<td>240, 300, or 350</td>
<td>35, 44, or 51</td>
</tr>
<tr>
<td>P-metric - Extra Load</td>
<td>280 or 340</td>
<td>41 or 49</td>
</tr>
<tr>
<td>Load Range C</td>
<td>350</td>
<td>51</td>
</tr>
<tr>
<td>Load Range D</td>
<td>450</td>
<td>65</td>
</tr>
<tr>
<td>Load Range E</td>
<td>550</td>
<td>80</td>
</tr>
</tbody>
</table>

REMARKS: None

RECORDED BY: Todd P. Groghan
DATE: May 12, 2010

APPROVED BY: Kenneth H. Yates
DATA SHEET 2 (Sheet 1 of 2)
LOW TIRE PRESSURE WARNING AND MALFUNCTION TELTTALE

TEST DATE: May 12, 2010 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: CA5203

TPMS Low Tire Pressure Warning Telltale

Telltale is mounted inside the occupant compartment in front of and in clear view of the driver? (X) YES ( ) NO (fail)

TPMS Low Tire Pressure Warning Telltale Location: Between “3” and “4” in tachometer display

Identify Telltale Symbol Used (check box above figure).

X

Note any words or additional symbols used: None

Telltale is part of a reconfigurable display? ( ) YES (X) NO

TPMS Malfunction Telltale

( ) None ( ) Dedicated stand-alone (X) Combined with low tire pressure telltale

( ) None ( ) Dedicated stand-alone (X) Combined with low tire pressure telltale
DATA SHEET 2 (Sheet 2 of 2)
LOW TIRE PRESSURE WARNING AND MALFUNCTION TELLTALE

Check Telltale Lamp Functions:

LOW TIRE PRESSURE WARNING AND MALFUNCTION TELLTALE

Ignition locking system position when telltale illuminates:

☐ OFF/LOCK ☐ Between OFF/LOCK and ON/RUN

☒ ON/RUN ☐ Between ON/RUN and START

Is the telltale yellow in color? ( X )YES ( )NO (fail)

Time telltale remains illuminated _2_ seconds.

Starter Interlocks:

Does vehicle have any starter, transmission or other interlocks that affect operation of the
telltale lamp check function? ( )YES ( X )NO

Low Tire Pressure Warning and Malfunction Telltales (PASS/FAIL) PASS

REMARKS: None

RECORDED BY: Todd P. Groghan DATE: May 12, 2010

APPROVED BY: Kenneth H. Yates
TEST DATE: May 13, 2010 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: CA5203

Time: Start: 8:32 am End: 11:10 am

Ambient Temperature: Start: 21.2°C (70.2°F) End: 20.4°C (68.7°F)

Trip Odometer Reading: Start: 112.7 km (70 mi)

Fuel Level: Start: Full

Weather Conditions: Partly cloudy, light breeze

Time vehicle remained with engine off and tires shielded from direct sunlight (1 hour minimum): 1 hour.

### PRE-TEST TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test cold measurements after ambient soak: Inflation Pressure</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>24.2°C (75.6°F)</td>
<td>24.2°C (75.6°F)</td>
<td>23.8°C (74.8°F)</td>
<td>23.8°C (74.8°F)</td>
</tr>
</tbody>
</table>
DATA SHEET 3 (Sheet 2 of 22)
TPMS OPERATIONAL PERFORMANCE

VEHICLE WEIGHT:
Vehicle Ratings from Certification Label:
Ratings are not expressed in metric units on certification label. Therefore, metric units shown below are conversions from English units shown on certification label.

GVWR: 1,750 kg (3,858 lbs)
GAWR (front): 900 kg (1,984 lbs)
GAWR (rear): 860 kg (1,896 lbs)

Vehicle Capacity Weight:
Vehicle Capacity Weight: 390 kg (860 lbs)

Measured Unloaded Vehicle Weight:

<table>
<thead>
<tr>
<th></th>
<th>LF 387 kg (853 lbs)</th>
<th>LR 262 kg (577 lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RF 376 kg (829 lbs)</td>
<td>RR 262 kg (578 lbs)</td>
</tr>
<tr>
<td>Front</td>
<td>763 kg (1,682 lbs)</td>
<td>Rear Axle 524 kg (1,155 lbs)</td>
</tr>
<tr>
<td>Axle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Vehicle 1,287 kg (2,837 lbs)

Measured Test Weight: (X) LLVW (+50, -0 kg) ( ) UVW + VCW ( ) GVWR (+0, -50 kg)

<table>
<thead>
<tr>
<th></th>
<th>LF 433 kg (955 lbs)</th>
<th>LR 305 kg (672 lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RF 423 kg (933 lbs)</td>
<td>RR 306 kg (674 lbs)</td>
</tr>
<tr>
<td>Front</td>
<td>856 kg (1,888 lbs)</td>
<td>Rear Axle 611 kg (1,346 lbs)</td>
</tr>
<tr>
<td>Axle</td>
<td></td>
<td>(≤ GAWR)</td>
</tr>
</tbody>
</table>

Total Vehicle 1,467 kg (3,234 lbs) (not greater than GVWR)

Note: For scenarios A through C, this Total Vehicle Weight measures the vehicle loaded to Lightly Loaded Vehicle Weight (LLVW), 180 kg (397 lbs) of driver, passenger, and test equipment.

RECORDED BY: Todd P. Groghan
DATE: May 13, 2010
APPROVED BY: Kenneth H. Yates
DATA SHEET 3 (Sheet 3 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO A – Right Rear Tire Deflation at LLVW

TEST DATE: May 14, 2010  LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: CA5203

Note: See Data Sheet 3 (Sheet 2 of 22) for Test Weight.

TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES
BEFORE CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature: 20.1°C (68.2°F)</td>
<td>Vehicle cool down period: overnight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>21.2°C (70.2°F)</td>
<td>21.0°C (69.8°F)</td>
<td>21.2°C (70.2°F)</td>
<td>21.2°C (70.2°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>22.4°C (72.3°F)</td>
<td>22.6°C (72.7°F)</td>
<td>22.6°C (72.7°F)</td>
<td>22.6°C (72.7°F)</td>
</tr>
</tbody>
</table>

SYSTEM CALIBRATION/LEARNING PHASE:

Trip Odometer Reading: Start: 142.7 km (88.7 mi)  End: 175.1 km (108.8 mi)
Ambient Temperature: Start: 20.1°C (68.2°F)  End: 21.0°C (69.8°F)
Roadway Temperature: Start: 23.4°C (74.1°F)  End: 23.0°C (73.4°F)

Driving in first direction:
Goodfellow Air Force Base (GAFB) north gate  Direction: see chart, page 59
10:17 minutes (stopwatch time)  15.9 km (9.9 mi) distance

Driving in opposite direction:
Starting point: US 87 crossover overpass  Direction: see chart, page 59
10:19 minutes (stopwatch time)  16.3 km (10.1 mi) distance

Max speed: 100.0 km/h (62.1 mph)
Total Driving Time: 20:37 minutes (VBox time)
DATA SHEET 3 (Sheet 4 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO A – Right Rear Tire Deflation at LLVW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately, after vehicle is stopped, engine off: Inflation Pressure</td>
<td>245.3 kPa (35.6 psi)</td>
<td>243.0 kPa (35.2 psi)</td>
<td>242.8 kPa (35.2 psi)</td>
<td>245.6 kPa (35.6 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>32.4°C (90.3°F)</td>
<td>28.2°C (82.8°F)</td>
<td>28.6°C (83.5°F)</td>
<td>33.2°C (91.8°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>22.6°C (72.7°F)</td>
<td>22.4°C (72.3°F)</td>
<td>22.6°C (72.7°F)</td>
<td>22.8°C (73.0°F)</td>
</tr>
</tbody>
</table>

SYSTEM DETECTION PHASE:

LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate Location of Tire(s) Deflated:</td>
<td>( )LF ( )LR ( X )RR ( )RF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>165.5 kPa (24.0 psi)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop

Illumination at 1.42 minutes (stopwatch time – non-cumulative)

0.6 km (0.4 mi) distance

Driving above 50 km/h was not necessary.

TEST RESULTS

TELLTALE ILLUMINATES WITHIN 20 MINUTES: ( X )YES ( )NO (fail)

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)
DATA SHEET 3 (Sheet 5 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO A – Right Rear Tire Deflation at LLVW

TIRES INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After vehicle cool down period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature: 23.0°C (73.4°F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle cool down period: 62 minutes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>234.7 kPa (34.0 psi)</td>
<td>234.1 kPa (34.0 psi)</td>
<td>160.0 kPa (23.2 psi)</td>
<td>235.0 kPa (34.1 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>27.0°C (80.6°F)</td>
<td>25.6°C (78.1°F)</td>
<td>25.2°C (77.4°F)</td>
<td>26.8°C (80.2°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>23.6°C (74.5°F)</td>
<td>23.4°C (74.1°F)</td>
<td>23.6°C (74.5°F)</td>
<td>23.4°C (74.1°F)</td>
</tr>
</tbody>
</table>

After the cool down period of a minimum of one hour, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?  
( X )YES  (   )NO (fail)

TELLTALE EXTINGUISHMENT:

RE-ADJUSTED TIRE INFLATION PRESSURES:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After illumination verification:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-adjusted Inflation Pressure:</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
</tbody>
</table>

Is it necessary to drive the vehicle to extinguish the telltale?  
( X )YES  (   )NO

Starting point:  San Angelo Test Facility shop

1:59 minutes (stopwatch time – non-cumulative)  0.6 km (0.4 mi) distance

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL)  PASS

Right rear tire was deflated at LLVW.

REMARKS: None

RECORDED BY: Todd P. Groghan  DATE: May 14, 2010

APPROVED BY: Kenneth H. Yates
DATA SHEET 3 (Sheet 6 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO B – Left Rear, Right Rear, and Right Front Tire Deflation at LLVW

TEST DATE: May 14, 2010 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: CA5203

Note: See Data Sheet 3 (Sheet 2 of 22) for Test Weight.

TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES BEFORE CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period:</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>25.0°C (77.0°F)</td>
<td>26.4°C (79.5°F)</td>
<td>26.6°C (79.9°F)</td>
<td>27.4°C (81.3°F)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>27.6°C (81.7°F)</td>
<td>26.4°C (79.5°F)</td>
<td>26.6°C (79.9°F)</td>
<td>27.4°C (81.3°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>24.2°C (75.6°F)</td>
<td>24.0°C (75.2°F)</td>
<td>24.0°C (75.2°F)</td>
<td>24.0°C (75.2°F)</td>
</tr>
</tbody>
</table>

SYSTEM CALIBRATION/LEARNING PHASE:

Time: Start: 16:01:22 UTC End: 16:26:39 UTC
Trip Odometer Reading: Start: 179.1 km (111.3 mi) End: 211.5 km (131.4 mi)
Ambient Temperature: Start: 25.0°C (77.0°F) End: 26.0°C (78.8°F)
Roadway Temperature: Start: 30.4°C (86.7°F) End: 33.6°C (92.5°F)

Driving in first direction:
Starting point: GAFB north gate Direction: see chart, page 60
10:20 minutes (stopwatch time) 16.1 km (10.0 mi) distance

Driving in opposite direction:
Starting point: US 87 crossover overpass Direction: see chart, page 60
10:24 minutes (stopwatch time) 16.3 km (10.1 mi) distance

Max speed: 99.1 km/h (61.6 mph)
Total Driving Time: 20:46 minutes (VBox time)
TPMS OPERATIONAL PERFORMANCE

SCENARIO B – Left Rear, Right Rear, and Right Front Tire Deflation at LLVW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately, after vehicle is stopped, engine off: Inflation Pressure</td>
<td>248.1 kPa (36.0 psi)</td>
<td>247.3 kPa (35.9 psi)</td>
<td>247.7 kPa (35.9 psi)</td>
<td>248.0 kPa (36.0 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>41.2°C (106.2°F)</td>
<td>38.0°C (100.4°F)</td>
<td>37.2°C (99.0°F)</td>
<td>40.2°C (104.4°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>24.0°C (75.2°F)</td>
<td>24.2°C (75.6°F)</td>
<td>24.0°C (75.2°F)</td>
<td>24.0°C (75.2°F)</td>
</tr>
</tbody>
</table>

SYSTEM DETECTION PHASE:

LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate Location of Tire(s) Deflated:</td>
<td></td>
<td>( X )</td>
<td>( X )</td>
<td>( X )</td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>0 kPa</td>
<td>165.5 kPa (24.0 psi)</td>
<td>165.5 kPa (24.0 psi)</td>
<td>165.5 kPa (24.0 psi)</td>
</tr>
</tbody>
</table>

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop

Illumination at 1:44 minutes (stopwatch time – non-cumulative)

0.3 km (0.2 mi) distance

Driving above 50 km/h was not necessary.

TEST RESULTS

TELLTALE ILLUMINATES WITHIN 20 MINUTES: ( X )YES ( )NO (fail)
DATA SHEET 3 (Sheet 8 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO B – Left Rear, Right Rear, and Right Front Tire Deflation at LLVW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After vehicle cool down period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature:</td>
<td>29.1°C (84.4°F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle cool down period:</td>
<td>60 minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>235.6 kPa (34.2 psi)</td>
<td>158.1 kPa (22.9 psi)</td>
<td>158.0 kPa (22.9 psi)</td>
<td>158.7 kPa (23.0 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>32.8°C (91.0°F)</td>
<td>30.2°C (86.4°F)</td>
<td>30.6°C (87.1°F)</td>
<td>32.4°C (90.3°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>25.2°C (77.4°F)</td>
<td>25.2°C (77.4°F)</td>
<td>25.4°C (77.7°F)</td>
<td>25.2°C (77.4°F)</td>
</tr>
</tbody>
</table>

After the cool down period of a minimum of one hour, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)

TELLTALE EXTINGUISHMENT:
RE-ADJUSTED TIRE INFLATION PRESSURES:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After illumination verification:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-adjusted Inflation Pressure:</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
</tbody>
</table>

Is it necessary to drive the vehicle to extinguish the telltale? ( X )YES ( )NO

Starting point: San Angelo Test Facility shop

1:35 minutes (stopwatch time – non-cumulative) 0.5 km (0.3 mi) distance

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL) PASS
Left rear, right rear, and right front tires were deflated at LLVW.

REMARKS: None

RECORDED BY: Todd P. Groghan DATE: May 14, 2010
APPROVED BY: Kenneth H. Yates
TEST DATE: May 17, 2010 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: CA5203

Note: See Data Sheet 3 (Sheet 2 of 22) for Test Weight.

TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES BEFORE CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inflation Pressure</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
<tr>
<td></td>
<td>Tire Sidewall Temp</td>
<td>20.4°C (68.7°F)</td>
<td>20.4°C (68.7°F)</td>
<td>20.4°C (68.7°F)</td>
</tr>
<tr>
<td></td>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>20.8°C (69.4°F)</td>
<td>21.8°C (71.2°F)</td>
<td>22.2°C (72.0°F)</td>
</tr>
</tbody>
</table>

SYSTEM CALIBRATION/LEARNING PHASE:


Trip Odometer Reading: Start: 214.8 km (133.5 mi) End: 247.2 km (153.6 mi)

Ambient Temperature: Start: 19.9°C (67.8°F) End: 20.8°C (69.4°F)

Roadway Temperature: Start: 21.0°C (69.8°F) End: 26.2°C (79.2°F)

Driving in first direction:
Starting point: GAFB north gate Direction: see chart, page 61
10:12 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:
Starting point: US 87 crossover overpass Direction: see chart, page 61
10:25 minutes (stopwatch time) 16.4 km (10.2 mi) distance

Max speed: 105.5 km/h (65.6 mph)
Total Driving Time: 20:37 minutes (VBox time)
DATA SHEET 3 (Sheet 10 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO C – Left Front, Left Rear, Right Rear, and Right Front Tire Deflation at LLVW

TIRED INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately, after vehicle is stopped, engine off: Inflation Pressure</td>
<td>248.7 kPa (36.1 psi)</td>
<td>246.3 kPa (35.7 psi)</td>
<td>245.7 kPa (35.6 psi)</td>
<td>247.5 kPa (35.9 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>34.0°C (93.2°F)</td>
<td>30.2°C (86.4°F)</td>
<td>28.8°C (83.8°F)</td>
<td>32.8°C (91.0°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>21.6°C (70.9°F)</td>
<td>22.4°C (72.3°F)</td>
<td>22.8°C (73.0°F)</td>
<td>22.2°C (72.0°F)</td>
</tr>
</tbody>
</table>

SYSTEM DETECTION PHASE:

LOCATION AND PRESSURE(S) OF HEFLATED TIRE(S):

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate Location of Tire(s) Deflated: Inflation Pressure</td>
<td>165.5 kPa (24.0 psi)</td>
<td>165.5 kPa (24.0 psi)</td>
<td>165.5 kPa (24.0 psi)</td>
<td>165.5 kPa (24.0 psi)</td>
</tr>
</tbody>
</table>

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop

Illumination at _1:42_ minutes (stopwatch time – non-cumulative)

0.5 km (0.3 mi) distance

Driving above 50 km/h was not necessary.

TEST RESULTS

TELLTALE ILLUMINATES WITHIN 20 MINUTES: (X) YES ( ) NO (fail)

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? (X) YES ( ) NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? (X) YES ( ) NO (fail)
TPMS OPERATIONAL PERFORMANCE

SCENARIO C – Left Front, Left Rear, Right Rear, and Right Front Tire Deflation at LLVW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELTTALE ILLUMINATION:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After vehicle cool down period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature:</td>
<td>24.7°C (76.5°F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle cool down period:</td>
<td>60 minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>159.4 kPa (23.1 psi)</td>
<td>160.3 kPa (23.2 psi)</td>
<td>160.0 kPa (23.2 psi)</td>
<td>160.4 kPa (23.3 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>27.8°C (82.0°F)</td>
<td>26.4°C (79.5°F)</td>
<td>25.8°C (78.4°F)</td>
<td>27.8°C (82.0°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>22.8°C (73.0°F)</td>
<td>23.2°C (73.8°F)</td>
<td>23.2°C (73.8°F)</td>
<td>23.2°C (73.8°F)</td>
</tr>
</tbody>
</table>

After the cool down period of a minimum of one hour, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?

(X) YES ( ) NO (fail)

TELLTALE EXTINGUISHMENT:
RE-ADJUSTED TIRE INFLATION PRESSURES:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After illumination verification:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-adjusted Inflation Pressure:</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
</tbody>
</table>

Is it necessary to drive the vehicle to extinguish the telltale?

(X) YES ( ) NO

Starting point: San Angelo Test Facility shop

1:37 minutes (stopwatch time – non-cumulative) 0.5 km (0.3 mi) distance

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL)  PASS
Left front, left rear, right rear, and right front tires were deflated at LLVW.

REMARKS: None

RECORDED BY: Todd P. Groghan DATE: May 17, 2010
APPROVED BY: Kenneth H. Yates
TEST DATE:  May 17, 2010  
LAB:  U.S. DOT San Angelo Test Facility  

VEHICLE NHTSA NUMBER:  CA5203  

Time:  
Start:  11:55 am  
End:  1:35 pm  

Ambient Temperature:  
Start:  29.7°C (85.5°F)  
End:  30.7°C (87.3°F)  

Trip Odometer Reading:  
Start:  275 km (171 mi)  

Fuel Level:  
Start:  Full  

Weather Conditions:  
Sunny, calm  

Time vehicle remained with engine off and tires shielded from direct sunlight (1 hour minimum):  1 hour.  

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test cold measurements after ambient soak: Inflation Pressure</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>31.8°C (89.2°F)</td>
<td>31.8°C (89.2°F)</td>
<td>31.6°C (88.9°F)</td>
<td>31.6°C (88.9°F)</td>
</tr>
</tbody>
</table>
DATA SHEET 3 (Sheet 13 of 22)
TPMS OPERATIONAL PERFORMANCE

VEHICLE WEIGHT:

Vehicle Ratings from Certification Label:
Ratings are not expressed in metric units on certification label. Therefore, metric units shown below are conversions from English units shown on certification label.

GVWR: 1,750 kg (3,858 lbs)
GAWR (front): 900 kg (1,984 lbs)
GAWR (rear): 860 kg (1,896 lbs)

Vehicle Capacity Weight:
Vehicle Capacity Weight: 390 kg (860 lbs)

Measured Unloaded Vehicle Weight:

<table>
<thead>
<tr>
<th></th>
<th>LF</th>
<th>LR</th>
<th>LF</th>
<th>LR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>387 kg (853 lbs)</td>
<td>262 kg (578 lbs)</td>
<td>377 kg (830 lbs)</td>
<td>261 kg (576 lbs)</td>
</tr>
<tr>
<td>Front Axle</td>
<td>764 kg (1,683 lbs)</td>
<td>Rear Axle</td>
<td>523 kg (1,154 lbs)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Vehicle</td>
<td>1,287 kg (2,837 lbs)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Measured Test Weight: ( ) LLVW (+50, -0 kg) ( X ) UVW + VCW ( ) GVWR (+0, -50 kg)

<table>
<thead>
<tr>
<th></th>
<th>LF</th>
<th>LR</th>
<th>LF</th>
<th>LR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>442 kg (974 lbs)</td>
<td>400 kg (881 lbs)</td>
<td>435 kg (959 lbs)</td>
<td>400 kg (883 lbs)</td>
</tr>
<tr>
<td>Front Axle</td>
<td>877 kg (1,933 lbs) ( ≤ GAWR)</td>
<td>Rear Axle</td>
<td>800 kg (1,764 lbs) ( ≤ GAWR)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Vehicle</td>
<td>1,677 kg (3,697 lbs) (not greater than GVWR)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: For scenarios D through F, this Total Vehicle Weight measures the vehicle loaded to Unloaded Vehicle Weight (UVW) and Vehicle Capacity Weight (VCW), 390 kg (860 lbs) of driver, passenger, test equipment, and ballast.

RECORDED BY: Todd P. Groghan DATE: May 17, 2010
APPROVED BY: Kenneth H. Yates
DATA SHEET 3 (Sheet 14 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO D – Left Rear Tire Deflation at UVW + VCW

TEST DATE: May 18, 2010 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: CA5203

Note: See Data Sheet 3 (Sheet 13 of 22) for Test Weight.

TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES
BEFORE CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature: 18.4°C (65.1°F)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>19.6°C (67.3°F)</td>
<td>19.2°C (66.6°F)</td>
<td>19.2°C (66.6°F)</td>
<td>19.4°C (66.9°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>20.4°C (68.7°F)</td>
<td>20.8°C (69.4°F)</td>
<td>21.0°C (69.8°F)</td>
<td>21.2°C (70.2°F)</td>
</tr>
</tbody>
</table>

SYSTEM CALIBRATION/LEARNING PHASE:

| Time: | Start: 12:56:03 UTC | End: 13:20:56 UTC |
| Trip Odometer Reading: | Start: 308.4 km (191.6 mi) | End: 340.7 km (211.7 mi) |
| Ambient Temperature: | Start: 18.4°C (65.1°F) | End: 18.4°C (65.1°F) |
| Roadway Temperature: | Start: 19.0°C (66.2°F) | End: 19.6°C (67.3°F) |

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 62

10:12 minutes (stopwatch time) 16.1 km (10.0 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 62

10:22 minutes (stopwatch time) 16.3 km (10.1 mi) distance

Max speed: 98.7 km/h (61.3 mph)
Total Driving Time: 20:34 minutes (VBox time)
TPMS OPERATIONAL PERFORMANCE
SCENARIO D – Left Rear Tire Deflation at UVW + VCW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately, after vehicle is stopped, engine off:</td>
<td>246.6 kPa</td>
<td>247.3 kPa</td>
<td>247.7 kPa</td>
<td>246.5 kPa</td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>(35.8 psi)</td>
<td>(35.9 psi)</td>
<td>(35.9 psi)</td>
<td>(35.8 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>30.2°C</td>
<td>28.4°C</td>
<td>29.0°C</td>
<td>30.6°C</td>
</tr>
<tr>
<td></td>
<td>(86.4°F)</td>
<td>(83.1°F)</td>
<td>(84.2°F)</td>
<td>(87.1°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>21.2°C</td>
<td>20.2°C</td>
<td>21.2°C</td>
<td>21.4°C</td>
</tr>
<tr>
<td></td>
<td>(70.2°F)</td>
<td>(68.4°F)</td>
<td>(70.2°F)</td>
<td>(70.5°F)</td>
</tr>
</tbody>
</table>

SYSTEM DETECTION PHASE:

LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate Location of Tire(s) Deflated:</td>
<td>( )LF ( X )LR ( )RR ( )RF</td>
<td>Inflation Pressure</td>
<td>165.5 kPa</td>
<td>(24.0 psi)</td>
</tr>
</tbody>
</table>

TELLTALE ILLUMINATION:

Starting point:  San Angelo Test Facility shop

Illumination at   1:43  minutes (stopwatch time – non-cumulative)

0.6 km (0.4 mi) distance

Driving above 50 km/h was not necessary.

TEST RESULTS

TELLTALE ILLUMINATES WITHIN 20 MINUTES:    ( X )YES    ( )NO (fail)
TPMS OPERATIONAL PERFORMANCE

SCENARIO D – Left Rear Tire Deflation at UVW + VCW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After vehicle cool down period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature:</td>
<td>19.4°C (66.9°F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle cool down period:</td>
<td>60 minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>236.2 kPa (34.3 psi)</td>
<td>158.7 kPa (23.0 psi)</td>
<td>235.1 kPa (34.1 psi)</td>
<td>236.4 kPa (34.3 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>25.2°C (77.4°F)</td>
<td>24.2°C (75.6°F)</td>
<td>23.8°C (74.8°F)</td>
<td>25.6°C (78.1°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>20.4°C (68.7°F)</td>
<td>20.8°C (69.4°F)</td>
<td>21.6°C (70.9°F)</td>
<td>22.2°C (72.0°F)</td>
</tr>
</tbody>
</table>

After the cool down period of a minimum of one hour, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? 
( X )YES     (   )NO (fail)

TELLTALE EXTINGUISHMENT:

RE-ADJUSTED TIRE INFLATION PRESSURES:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After illumination verification:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-adjusted Inflation Pressure:</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
</tbody>
</table>

Is it necessary to drive the vehicle to extinguish the telltale? 
( X )YES     (   )NO

Starting point:   San Angelo Test Facility shop

1:36 minutes (stopwatch time – non-cumulative)   0.3 km (0.2 mi)  distance

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL)  PASS
Left rear tire was deflated at UVW + VCW.

REMARKS:   None

RECORDED BY:   Todd P. Groghan   DATE:   May 18, 2010

APPROVED BY:   Kenneth H. Yates
DATA SHEET 3 (Sheet 17 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO E – Left Front, Right Front Tire Deflation at UVW + VCW

TEST DATE: ___May 18, 2010___  LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: ___CA5203___

Note: See Data Sheet 3 (Sheet 13 of 22) for Test Weight.

TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES
BEFORE CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period:</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
<tr>
<td>Ambient Temperature: <strong>21.4°C (70.5°F)</strong>_</td>
<td>Vehicle cool down period: <strong>60 minutes</strong>_</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>24.0°C (75.2°F)</td>
<td>23.4°C (74.1°F)</td>
<td>23.8°C (74.8°F)</td>
<td>23.8°C (74.8°F)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>21.6°C (70.9°F)</td>
<td>22.2°C (72.0°F)</td>
<td>22.6°C (72.7°F)</td>
<td>22.4°C (72.3°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SYSTEM CALIBRATION/LEARNING PHASE:

Time: Start: ___15:57:35 UTC___ End: ___16:22:05 UTC___

Trip Odometer Reading: Start: ___344.6 km (214.1 mi)___ End: ___376.9 km (234.2 mi)___

Ambient Temperature: Start: ___21.4°C (70.5°F)___ End: ___22.3°C (72.1°F)___

Roadway Temperature: Start: ___36.8°C (98.2°F)___ End: ___39.6°C (103.3°F)___

Driving in first direction:

Starting point: GAFB north gate  Direction: see chart, page 63

10:15 minutes (stopwatch time)  16.1 km (10.0 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass  Direction: see chart, page 63

10:23 minutes (stopwatch time)  16.3 km (10.1 mi) distance

Max speed: ___99.7 km/h (62.0 mph)___

Total Driving Time: ___20:39 minutes (VBox time)___
TPMS OPERATIONAL PERFORMANCE

SCENARIO E – Left Front, Right Front Tire Deflation at UVW + VCW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately, after vehicle is stopped, engine off:</td>
<td>250.4 kPa</td>
<td>253.4 kPa</td>
<td>251.4 kPa</td>
<td>250.5 kPa</td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>(36.3 psi)</td>
<td>(36.8 psi)</td>
<td>(36.5 psi)</td>
<td>(36.3 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>37.6°C</td>
<td>37.0°C</td>
<td>35.4°C</td>
<td>36.2°C</td>
</tr>
<tr>
<td></td>
<td>(99.7°F)</td>
<td>(98.6°F)</td>
<td>(95.7°F)</td>
<td>(97.2°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>23.2°C</td>
<td>23.0°C</td>
<td>23.2°C</td>
<td>23.2°C</td>
</tr>
<tr>
<td></td>
<td>(73.8°F)</td>
<td>(73.4°F)</td>
<td>(73.8°F)</td>
<td>(73.8°F)</td>
</tr>
</tbody>
</table>

SYSTEM DETECTION PHASE:

LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate Location of Tire(s) Deflated:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( X )LF (   )LR (   )RR ( X )RF</td>
<td>165.5 kPa</td>
<td></td>
<td></td>
<td>165.5 kPa</td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>(24.0 psi)</td>
<td></td>
<td></td>
<td>(24.0 psi)</td>
</tr>
</tbody>
</table>

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop

Illumination at 1:25 minutes (stopwatch time – non-cumulative)

0.2 km (0.1 mi) distance

Driving above 50 km/h was not necessary.

TEST RESULTS

TELLTALE ILLUMINATES WITHIN 20 MINUTES: ( X )YES (   )NO (fail)

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES (   )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES (   )NO (fail)
DATA SHEET 3 (Sheet 19 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO E – Left Front, Right Front Tire Deflation at UVW + VCW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After vehicle cool down period:</td>
<td>156.7 kPa (22.7 psi)</td>
<td>238.2 kPa (34.5 psi)</td>
<td>235.6 kPa (34.2 psi)</td>
<td>157.8 kPa (22.9 psi)</td>
</tr>
<tr>
<td>Ambient Temperature: <em>25.3°C (77.5°F)</em></td>
<td>Vehicle cool down period: <em>60</em> minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>30.2°C (86.4°F)</td>
<td>29.8°C (85.6°F)</td>
<td>28.4°C (83.1°F)</td>
<td>30.2°C (86.4°F)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>23.4°C (74.1°F)</td>
<td>22.8°C (73.0°F)</td>
<td>23.2°C (73.8°F)</td>
<td>23.4°C (74.1°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>23.4°C (74.1°F)</td>
<td>22.8°C (73.0°F)</td>
<td>23.2°C (73.8°F)</td>
<td>23.4°C (74.1°F)</td>
</tr>
</tbody>
</table>

After the cool down period of a minimum of one hour, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?  
( X )YES  (   )NO (fail)

TELLTALE EXTINGUISHMENT:
RE-ADJUSTED TIRE INFLATION PRESSURES:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After illumination verification:</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
<tr>
<td>Re-adjusted Inflation Pressure:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Is it necessary to drive the vehicle to extinguish the telltale?  
( X )YES  (   )NO

Starting point:  San Angelo Test Facility shop

1:43 minutes (stopwatch time – non-cumulative)  0.6 km (0.4 mi) distance

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL)  PASS
Left front and right front tires were deflated at UVW + VCW.

REMARKS:  None

RECORDED BY:  Todd P. Groghan  DATE:  May 18, 2010
APPROVED BY:  Kenneth H. Yates
DATA SHEET 3 (Sheet 20 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO F – Left Rear, Right Front Tire Deflation at UVW + VCW

TEST DATE: May 19, 2010  LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: CA5203

Note: See Data Sheet 3 (Sheet 13 of 22) for Test Weight.

TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES BEFORE CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature: 22.1°C (71.8°F)</td>
<td>Vehicle cool down period: overnight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inflation Pressure</strong></td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
<tr>
<td><strong>Tire Sidewall Temp</strong></td>
<td>22.6°C (72.7°F)</td>
<td>22.6°C (72.7°F)</td>
<td>22.8°C (73.0°F)</td>
<td>22.6°C (72.7°F)</td>
</tr>
<tr>
<td><strong>San Angelo Test Facility Shop Floor Temp</strong></td>
<td>22.6°C (72.7°F)</td>
<td>22.8°C (73.0°F)</td>
<td>22.8°C (73.0°F)</td>
<td>22.8°C (73.0°F)</td>
</tr>
</tbody>
</table>

SYSTEM CALIBRATION/LEARNING PHASE:

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Trip Odometer Reading: Start: 380.6 km (236.5 mi)</td>
<td>End: 413.0 km (256.6 mi)</td>
</tr>
<tr>
<td>Ambient Temperature: Start: 22.1°C (71.8°F)</td>
<td>End: 22.1°C (71.8°F)</td>
</tr>
<tr>
<td>Roadway Temperature: Start: 23.4°C (74.1°F)</td>
<td>End: 25.8°C (78.4°F)</td>
</tr>
</tbody>
</table>

Starting point: GAFB north gate  Direction: see chart, page 64
10:14 minutes (stopwatch time)  16.1 km (10.0 mi) distance

Driving in opposite direction:
Starting point: US 87 crossover overpass  Direction: see chart, page 64
10:31 minutes (stopwatch time)  16.3 km (10.1 mi) distance

Max speed: 99.6 km/h (61.9 mph)
Total Driving Time: 20:45 minutes (VBox time)
TPMS OPERATIONAL PERFORMANCE

SCENARIO F – Left Rear, Right Front Tire Deflation at UVW + VCW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately, after vehicle is stopped, engine off:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>248.1 kPa (36.0 psi)</td>
<td>248.7 kPa (36.1 psi)</td>
<td>247.8 kPa (35.9 psi)</td>
<td>247.0 kPa (35.8 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>32.8°C (91.0°F)</td>
<td>32.4°C (90.3°F)</td>
<td>32.2°C (90.0°F)</td>
<td>33.4°C (92.1°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>23.6°C (74.5°F)</td>
<td>23.8°C (74.8°F)</td>
<td>24.0°C (75.2°F)</td>
<td>23.8°C (74.8°F)</td>
</tr>
</tbody>
</table>

SYSTEM DETECTION PHASE:

LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate Location of Tire(s) Deflated:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( ),LF ( ),LR ( ),RR ( ),RF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>165.5 kPa (24.0 psi)</td>
<td>165.5 kPa (24.0 psi)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop

Illumination at 1:35 minutes (stopwatch time – non-cumulative)

0.3 km (0.2 mi) distance

Driving above 50 km/h was not necessary.

TEST RESULTS

TELLTALE ILLUMINATES WITHIN 20 MINUTES: ( X )YES ( )NO (fail)

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)
DATA SHEET 3 (Sheet 22 of 22)
TPMS OPERATIONAL PERFORMANCE
SCENARIO F – Left Rear, Right Front Tire Deflation at UVW + VCW

TIREF INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After vehicle cool down period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature:</td>
<td>25.0°C (77.0°F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle cool down period:</td>
<td>70 minutes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Pressure</td>
<td>235.6 kPa (34.2 psi)</td>
<td>156.8 kPa (22.7 psi)</td>
<td>233.9 kPa (33.9 psi)</td>
<td>158.8 kPa (23.0 psi)</td>
</tr>
<tr>
<td>Tire Sidewall Temp</td>
<td>27.2°C (81.0°F)</td>
<td>26.2°C (79.2°F)</td>
<td>26.6°C (79.9°F)</td>
<td>27.6°C (81.7°F)</td>
</tr>
<tr>
<td>San Angelo Test Facility Shop Floor Temp</td>
<td>24.4°C (75.9°F)</td>
<td>24.4°C (75.9°F)</td>
<td>24.4°C (75.9°F)</td>
<td>24.6°C (76.3°F)</td>
</tr>
</tbody>
</table>

After the cool down period of a minimum of one hour, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)

TELLTALE EXTINGUISHMENT:
RE-ADJUSTED TIRE INFLATION PRESSURES:

<table>
<thead>
<tr>
<th>Execution Procedure</th>
<th>LF Tire</th>
<th>LR Tire</th>
<th>RR Tire</th>
<th>RF Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>After illumination verification:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-adjusted Inflation Pressure:</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
<td>230.0 kPa (33.4 psi)</td>
</tr>
</tbody>
</table>

Is it necessary to drive the vehicle to extinguish the telltale? ( X )YES ( )NO

Starting point: San Angelo Test Facility shop

1:24 minutes (stopwatch time – non-cumulative) 0.3 km (0.2 mi) distance

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL) PASS

Left rear and right front tires were deflated at UVW + VCW.

REMARKS: None

RECORDED BY: Todd P. Groghan DATE: May 19, 2010
APPROVED BY: Kenneth H. Yates
DATA SHEET 4 (Sheet 1 of 4)
Scenario G – Malfunction Detection Test at LLVW –
Spare Installed on Right Front

TEST DATE:  May 17, 2010  LAB:  U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER:  CA5203

Time:  Start:  15:42:54 UTC  End:  15:57:03 UTC
Trip Odometer Reading:  Start:  251.4 km (156.2 mi)  End:  266.8 km (165.8 mi)
Ambient Temperature:  Start:  25.7°C (78.3°F)  End:  25.7°C (78.3°F)
Roadway Temperature:  Start:  38.4°C (101.1°F)  End:  41.2°C (106.2°F)
Fuel Level:  Start:  Full

Note:  See Data Sheet 3 (Sheet 2 of 22) for Test Weight.

TPMS TYPE:  ( X ) Direct  (   ) Indirect  (   ) Other  Describe:  

TPMS MALFUNCTION TELLTALE:  
(   ) Dedicated stand-alone  ( X ) Combination low tire pressure warning/malfunction telltale

METHOD OF MALFUNCTION SIMULATION:
Describe method of malfunction simulation:  Spare tire without TPMS sensor was applied to right front at LLVW. (See Figure 5.15)

MALFUNCTION TELLTALE ILLUMINATION
(after ignition locking system is activated to “On” (“Run”) position):

Combination Malfunction Telltale

Driving in first direction:

Starting point:  San Angelo Test Facility shop  Direction:  see chart, page 65

15.4 km (9.6 mi) distance

Max speed:  97.6 km/h (60.6 mph)
Total Driving Time:  9:52 minutes (VBox time)

COMBINATION MALFUNCTION TELLTALE ILLUMINATES (FLASHING AND ILLUMINATION SEQUENCE) WITHIN 20 MINUTES:
( X )YES  (   )NO
After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the combination low tire pressure/malfunction telltale flash for a period of at least 60 seconds but no longer than 90 seconds, and then remain illuminated when the ignition locking system is activated to the “On” or “Run” position?  ( X )YES   (   )NO (fail)

Time it takes before telltale starts flashing  2  seconds
Time telltale remains flashing  60  seconds
Time telltale remains illuminated >60 seconds
(Verified for a minimum of 60 seconds)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale’s illumination sequence repeat when the ignition locking system is activated and the engine running?  ( X )YES   (   )NO (fail)

Extinguishment Phase:

Restore the TPMS to normal operation. Is it necessary to drive the vehicle to extinguish the telltale?  ( X )YES   (   )NO

Starting point:  San Angelo Test Facility shop

1:27 minutes (stopwatch time – non-cumulative)  0.2 km (0.1 mi)  distance

COMBINATION MALFUNCTION TELLTALE EXTINGUISHED:  ( X )YES   (   )NO (FAIL)

TPMS MALFUNCTION PERFORMANCE TEST RESULTS (PASS/FAIL)   PASS
Spare without TPMS sensor was applied to right front at LLVW.

REMARKS:  None

RECORDED BY:  Todd P. Groghan   DATE:  May 17, 2010
APPROVED BY:  Kenneth H. Yates
DATA SHEET 4 (Sheet 3 of 4)
Scenario H – Malfunction Detection Test –
Tire Pressure Receiver Module Disconnected

TEST DATE: May 17, 2010 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: CA5203

Time: Start: 19:10:05 UTC End: 19:23:21 UTC
Odometer Reading: Start: 276.8 km (172.0 mi) End: 291.5 km (181.1 mi)
Ambient Temperature: Start: 30.7°C (87.3°F) End: 30.7°C (87.3°F)
Roadway Temperature: Start: 50.8°C (123.4°F) End: 50.8°C (123.4°F)
Fuel Level: Start: Full

TPMS TYPE: (X) Direct ( ) Indirect ( ) Other Describe: _______________________

TPMS MALFUNCTION TELLTALE:
( ) Dedicated stand-alone (X) Combination low tire pressure warning/malfunction telltale

METHOD OF MALFUNCTION SIMULATION:
Describe method of malfunction simulation: Wiring harness was disconnected from the tire pressure receiver module. (See Figure 5.16)

MALFUNCTION TELLTALE ILLUMINATION
(after ignition locking system is activated to “On” (“Run”) position):

Combination Malfunction Telltale

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: see chart, page 66

14.6 km (9.1 mi) distance

Max speed: 98.8 km/h (61.4 mph)
Total Driving Time: 9:12 minutes (VBox time)

COMBINATION MALFUNCTION TELLTALE ILLUMINATES (FLASHING AND ILLUMINATION SEQUENCE) WITHIN 20 MINUTES:
( )YES (X)NO
After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the combination low tire pressure/malfunction telltale flash for a period of at least 60 seconds but no longer than 90 seconds, and then remain illuminated when the ignition locking system is activated to the “On” or “Run” position? (X) YES ( ) NO (fail)

- Time it takes before telltale starts flashing: 2 seconds
- Time telltale remains flashing: 60 seconds
- Time telltale remains illuminated: >60 seconds (Verified for a minimum of 60 seconds)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale’s illumination sequence repeat when the ignition locking system is activated and the engine running? (X) YES ( ) NO (fail)

**Extinguishment Phase:**

Restore the TPMS to normal operation. Is it necessary to drive the vehicle to extinguish the telltale? (X) YES ( ) NO

Starting point: San Angelo Test Facility shop

0:33 minutes (stopwatch time – non-cumulative) 0.2 km (0.1 mi) distance

**COMBINATION MALFUNCTION TELLTALE EXTINGUISHED:** (X) YES ( ) NO (FAIL)

**TPMS MALFUNCTION PERFORMANCE TEST RESULTS (PASS/FAIL)** PASS

Wiring harness was disconnected from tire pressure receiver module.

**REMARKS:** None

RECORDED BY: Todd P. Groghan  DATE: May 17, 2010

APPROVED BY: Kenneth H. Yates
The following statement, in the English language, is provided verbatim in the Owner’s Manual. (X)YES ( )NO

“Each tire, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire inflation pressure label. (If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pressure label, you should determine the proper tire inflation pressure for those tires.)

As an added safety feature, your vehicle has been equipped with a tire pressure monitoring system (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated. Accordingly, when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle’s handling and stopping ability.

Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver’s responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale.”
As specified, the following sections, in the English language, are required verbatim in paragraph form in the Owner’s Manual:

The following statement is required for all vehicles certified to the standard starting on September 1, 2007 and for vehicles voluntarily equipped with a compliant TPMS MIL before that time.

"Your vehicle has also been equipped with a TPMS malfunction indicator to indicate when the system is not operating properly."

The above statement in the English language is provided verbatim in owner’s manual:  
( X )YES    (   )NO

For vehicles with a dedicated MIL telltale, add the following statement:

"The TPMS malfunction indicator is provided by a separate telltale, which displays the symbol “TPMS” when illuminated."

The above statement in the English language is provided verbatim in owner’s manual:  
(   )YES    ( )NO    ( X )N/A

For vehicles with a combined low tire pressure/MIL telltale, add the following statement:

The TPMS malfunction indicator is combined with the low tire pressure telltale. When the system detects a malfunction, the telltale will flash for approximately one minute and then remain continuously illuminated. This sequence will continue upon subsequent vehicle start-ups as long as the malfunction exists.

The above statement in the English language is provided verbatim in owner’s manual:  
( X )YES    (   )NO    ( X )N/A

The following statement is required for all vehicles certified to the standard starting on September 1, 2007 and for vehicles voluntarily equipped with a compliant TPMS MIL before that time.

“When the malfunction indicator is illuminated, the system may not be able to detect or signal low tire pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation of replacement or alternate tires or wheels on the vehicle that prevent the TPMS from functioning properly. Always check the TPMS malfunction telltale after replacing one or more tires or wheels on your vehicle to ensure that the replacement or alternate tires and wheels allow the TPMS to continue to function properly.”

The above statement in the English language is provided verbatim in owner’s manual:  
( X )YES    (   )NO

DATA INDICATES COMPLIANCE:  
PASS/FAIL:  PASS
Does the Owner’s Manual provide an image of the Low Tire Pressure Warning Telltale symbol (and an image of the TPMS Malfunction Telltale warning (“TPMS”), if a dedicated telltale is utilized for this function)?

( X )YES  (   )NO

Does the Owner’s Manual include the following (allowable) information?

☑ Significance of the low tire pressure warning telltale illuminating

☑ A description of corrective action to be undertaken

☑ Whether the tire pressure monitoring system functions with the vehicle’s spare tire (if provided)

☐ How to use a reset button, if one is provided

☐ The time for the TPMS telltale(s) to extinguish once the low tire pressure condition or the malfunction is corrected.

REMARKS: None

RECORDED BY: Todd P. Groghan  DATE: May 12, 2010

APPROVED BY: Kenneth H. Yates
<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>DESCRIPTION</th>
<th>MODEL/ SERIAL NO</th>
<th>CAL. DATE</th>
<th>NEXT CAL. DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOPWATCH</td>
<td>CHAMPION SPORTS TIMER</td>
<td>910 R</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>AMBIENT TEMPERATURE GAUGE</td>
<td>FLUKE 179 DIGITAL THERMOMETER</td>
<td>SERIAL # 84740316</td>
<td>2/24/2010</td>
<td>2/24/2011</td>
</tr>
<tr>
<td>LASER TEMPERATURE GAUGE (TIRES AND GROUND)</td>
<td>RAYTEK ST20</td>
<td>SERIAL 2065640101-0014</td>
<td>8/19/2009</td>
<td>8/19/2010</td>
</tr>
<tr>
<td>AIR PRESSURE GAUGE</td>
<td>ASHCROFT GENERAL PURPOSE DIGITAL GAUGE</td>
<td>MODEL # D1005PS 02L 100 PSI SERIAL # 20017398-01</td>
<td>12/9/2009</td>
<td>12/9/2010</td>
</tr>
<tr>
<td>FLOOR SCALES (VEHICLE)</td>
<td>INTERCOMP SW DELUXE SCALES</td>
<td>PART # 100156 SERIAL # 24032382</td>
<td>7/28/2009</td>
<td>7/28/2010</td>
</tr>
<tr>
<td>PLATFORM SCALE (BALLAST)</td>
<td>HOWE RICHARDSON</td>
<td>MODEL # 6401 SERIAL # 0181-5509-26</td>
<td>7/28/2009</td>
<td>7/28/2010</td>
</tr>
<tr>
<td>LASER TEMPERATURE GAUGE (TIRES AND GROUND)</td>
<td>MINITEMP MT6</td>
<td>SERIAL # MAGR000042598</td>
<td>4/6/2010</td>
<td>4/6/2011</td>
</tr>
</tbody>
</table>
SECTION 5
PHOTOGRAPHS
2010 NISSAN CUBE
NHTSA NO. CA5203
FMVSS NO.138

FIGURE 5.1
¾ FRONT VIEW FROM LEFT SIDE OF VEHICLE
2010 NISSAN CUBE
NHTSA NO. CA5203
FMVSS NO.138

FIGURE 5.2
VEHICLE CERTIFICATION LABEL
2010 NISSAN CUBE
NHTSA NO. CA5203
FMVSS NO. 138

FIGURE 5.4
TIRE SHOWING BRAND AND MODEL
FIGURE 5.5
TIRE SHOWING SIZE AND LOAD INDEX / SPEED RATING
MAX LOAD 540 kg (1190 LBS) AT 350 kPa (51 PSI) MAX PRESS.
2010 NISSAN CUBE
NHTSA NO. CA5203
FMVSS NO. 138

FIGURE 5.8
TIRE SHOWING SIDEWALL / TREAD CONSTRUCTION
FIGURE 5.9
RIM SHOWING TPMS SENSOR AND RIM CONTOUR FOR FULL WIDTH OF CROSS SECTION
Figure 5.10

2010 NISSAN CUBE
NHTSA NO. CA5203
FMVSS NO. 138

DISPLAY SHOWING COMBINATION LOW TIRE PRESSURE / TPMS MALFUNCTION WARNING TELTTALE
2010 NISSAN CUBE
NHTSA NO. CA5203
FMVSS NO 138

FIGURE 5.11
TEST INSTRUMENTATION INSTALLED IN VEHICLE
2010 NISSAN CUBE
NHTSA NO. CA5203
FMVSS NO. 138

FIGURE 5.13
VEHICLE CARGO AREA BALLAST FOR UVW + VCW LOAD
2010 NISSAN CUBE
NHTSA NO. CA5203
FMVSS NO. 138

FIGURE 5.14
VEHICLE ON WEIGHT SCALES
2010 NISSAN CUBE
NHTSA NO. CA5203
FMVSS NO. 138
FIGURE 5.15
SPARE INSTALLED ON RIGHT FRONT
FIGURE 5.16
TIRE PRESSURE RECEIVER MODULE DISCONNECTED
SECTION 6
TEST PLOTS
Scenario A: Right Rear Tire at LLVW
Test Date: 5/14/10
Data File Time: 25:56 minutes
Cumulative Driving Time: 20:37 minutes
Start Point: GAFB north gate

Calibration Phase:

RR Detection Phase: Telltale illuminated 1:42 minutes after lamp check. Driving above 50 km/h was not necessary.
Scenario B: Left Rear, Right Rear, Right Front Tires at LLVW
Test Date: 5/14/10
Data File Time: 25:40 minutes
Cumulative Driving Time: 20:46 minutes
Start Point: GAFB north gate

Calibration Phase:

LR, RR, RF Detection Phase: Telltale illuminated 1:44 minutes after lamp check. Driving above 50 km/h was not necessary.
Scenario C: Left Front, Left Rear, Right Rear, Right Front Tires at LLVW
Test Date: 5/17/10
Data File Time: 25:46 minutes
Cumulative Driving Time: 20:37 minutes
Start Point: GAFB north gate

Calibration Phase:

LF, LR, RR, RF Detection Phase: Telltale illuminated 1:42 minutes after lamp check. Driving above 50 km/h was not necessary.
Scenario D: Left Rear Tire at UVW + VCW
Test Date: 5/18/10
Data File Time: 25:24 minutes
Cumulative Driving Time: 20:34 minutes
Start Point: GAFB north gate

Calibration Phase:

LR Detection Phase: Telltale illuminated 1:43 minutes after lamp check. Driving above 50 km/h was not necessary.
Scenario E: Left Front, Right Front Tires at UVW + VCW
Test Date: 5/18/10
Data File Time: 24:55 minutes
Cumulative Driving Time: 20:39 minutes
Start Point: GAFB north gate

Calibration Phase:

2010 Nissan Cube (CA5203) LF, RF Calibration UVW+VCW

LF, RF Detection Phase: Telltale illuminated 1:25 minutes after lamp check. Driving above 50 km/h was not necessary.
Scenario F: Left Rear, Right Front Tires at UVW + VCW
Test Date: 5/19/10
Data File Time: 26:13 minutes
Cumulative Driving Time: 20:45 minutes
Start Point: GAFB north gate

Calibration Phase:

LR, RF Detection Phase: Telltale illuminated 1:35 minutes after lamp check. Driving above 50 km/h was not necessary.
Scenario G: Malfunction Detection Test at LLVW - Spare Installed on Right Front
Test Date: 5/17/10
Data File Time: 14:30 minutes
Cumulative Driving Time: 9:52 minutes
Start Point: San Angelo Test Facility shop

Malfunction Telltale Illumination:

2010 Nissan Cube (CA5203) RF Spare Tire Malfunction Illumination LLVW
Scenario H: Malfunction Detection Test - Tire Pressure Receiver Module Disconnected
Test Date: 5/17/10
Data File Time: 13:39 minutes
Cumulative Driving Time: 9:12 minutes
Start Point: San Angelo Test Facility shop

Malfunction Telltale Illumination:

2010 Nissan Cube (CA5203) Tire Pressure Receiver Disconnect Malfunction Illumination VCW
SECTION 7
OWNER’S MANUAL PAGES
Low tire pressure warning light

Your vehicle is equipped with a Tire Pressure Monitoring System (TPMS) that monitors the tire pressure of all tires except the spare.

The low tire pressure warning light warns of low tire pressure or indicates that the TPMS is not functioning properly.

After the ignition switch is placed in the ON position, this light illuminates for about 1 second and turns off.

Low tire pressure warning:

If the vehicle is being driven with low tire pressure, the warning light will illuminate.

When the low tire pressure warning light illuminates, you should stop and adjust the tire pressure to the recommended COLD tire pressure shown on the Tire and Loading Information label. The low tire pressure warning light does not automatically turn off when the tire pressure is adjusted. After the tire is inflated to the recommended pressure, the vehicle must be driven at speeds above 16 MPH (25 km/h) to activate the TPMS and turn off the low tire pressure warning light. Use a tire pressure gauge to check the tire pressure.

For additional information, see “TIRE PRESSURE MONITORING SYSTEM (TPMS)” in the “5. Starting and driving” section and “TIRE PRESSURE MONITORING SYSTEM (TPMS)” in the “6. In case of emergency” section.

TPMS malfunction:

If the TPMS is not functioning properly, the low tire pressure warning light will flash for approximately 1 minute when the ignition switch is placed in the ON position. The light will remain on after 1 minute. Have the system checked by a NISSAN dealer.

For additional information, see “TIRE PRESSURE MONITORING SYSTEM (TPMS)” in the “5. Starting and driving” section.

⚠️ WARNING

- If the light does not illuminate with the ignition switch placed in the ON position, have the vehicle checked by a NISSAN dealer as soon as possible.
- If the light illuminates while driving, avoid sudden steering maneuvers or abrupt braking, reduce vehicle speed, pull off the road to a safe location and stop the vehicle as soon as possible. Driving with under-inflated tires may permanently damage the tires and increase the likelihood of tire failure. Serious vehicle damage could occur and may lead to an accident and could result in serious personal injury. Check the tire pressure for all four tires. Adjust the tire pressure to the recommended COLD tire pressure shown on the Tire and Loading Information label to turn the low tire pressure warning light OFF. If the light still illuminates while driving after adjusting the tire pressure, a tire may be flat. If you have a flat tire, replace it with a spare tire as soon as possible.
- When a spare tire is mounted or a wheel is replaced, the TPMS will not function and the low tire pressure warning light will flash for approximately 1 minute. The light will remain on after 1 minute. Contact your NISSAN dealer as soon as possible for tire replacement and/or system resetting.
- Replacing tires with those not originally specified by NISSAN could affect the proper operation of the TPMS.
CAUTION

- The TPMS is not a substitute for the regular tire pressure check. Be sure to check the tire pressure regularly.
- If the vehicle is being driven at speeds of less than 16 MPH (25 km/h), the TPMS may not operate correctly.
- Be sure to install the specified size of tires to the four wheels correctly.

Low washer fluid warning light (Canada only)

This light illuminates when the washer fluid is at a low level. Add washer fluid as necessary. (See "WINDOW WASHER FLUID" in the "8. Maintenance and do-it-yourself" section.)

P position selecting warning light (if so equipped)

The warning light blinks in red when the ignition switch is pushed to stop the engine with the selector lever in any position except the P (Park) position.

If this warning appears, move the selector lever to the P (Park) position or push the ignition switch to the ON position.

An inside warning chime will also sound.

See "INTELLIGENT KEY SYSTEM" in the "3. Pre-driving checks and adjustments" section.

Seat belt warning light

The light and chime remind you to fasten seat belts. The light illuminates whenever the ignition switch is placed in the ON position, and will remain illuminated until the driver's seat belt is fastened. At the same time, the chime will sound for about 6 seconds unless the driver's seat belt is securely fastened.

The seat belt warning light for the front passenger will illuminate if the seat belt is not fastened when the front passenger's seat is occupied. For 5 seconds after the ignition switch is in the ON position, the system does not activate the warning light for the front passenger.

See "SEAT BELTS" in the "1. Safety — Seats, seat belts and supplemental restraint system" section for precautions on seat belt usage.

Supplemental air bag warning light

After turning the ignition switch to the ON position, the supplemental air bag warning light will illuminate. The supplemental air bag warning light will turn off after about 7 seconds if the supplemental front air bag and supplemental side air bag, curtain side-impact air bag systems and/or pretensioner seat belt are operational.

If any of the following conditions occur, the front air bag, side air bag, curtain air bag and pretensioner systems need servicing and your vehicle must be taken to your nearest NISSAN dealer.

- The supplemental air bag warning light remains on after approximately 7 seconds.
- The supplemental air bag warning light flashes intermittently.
- The supplemental air bag warning light does not illuminate at all.

Unless checked and repaired, the Supplemental Restraint Systems and/or the pretensioners may not function properly.

For additional information, see "SUPPLEMENTAL RESTRAINT SYSTEM" in the "1. Safety — Seats, seat belts and supplemental restraint system" section.
**WARNING**

- The exhaust gas and the exhaust system are very hot. Keep people, animals or flammable materials away from the exhaust system components.
- Do not stop or park the vehicle over flammable materials such as dry grass, waste paper or rags. They may ignite and cause a fire.

**CAUTION**

- Do not use leaded gasoline. Deposits from leaded gasoline will seriously reduce the three-way catalyst's ability to help reduce exhaust pollutants.
- Keep your engine tuned up. Malfunctions in the ignition, fuel injection, or electrical systems can cause overrich fuel flow into the three-way catalyst, causing it to overheat. Do not keep driving if the engine misfires, or if noticeable loss of performance or other unusual operating conditions are detected. Have the vehicle inspected promptly by a NISSAN dealer.
- Avoid driving with an extremely low fuel level. Running out of fuel could cause the engine to misfire, damaging the three-way catalyst.
- Do not race the engine while warming it up.
- Do not push or tow your vehicle to start the engine.

**TIRE PRESSURE MONITORING SYSTEM (TPMS)**

Each tire, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire inflation pressure label. (If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pressure label, you should determine the proper tire inflation pressure for those tires.)

As an added safety feature, your vehicle has been equipped with a Tire Pressure Monitoring System (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated. Accordingly, when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle's handling and stopping ability.

Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale.

Your vehicle has also been equipped with a TPMS malfunction indicator to indicate when the system is not operating properly. The TPMS malfunction indicator is combined with the low tire pressure telltale. When the system detects a malfunction, the telltale will flash for approximately one minute and then remain continuously illuminated. This sequence will continue upon subsequent vehicle start-ups as long as the malfunction exists. When the malfunction indicator is illuminated, the system may not be able to detect or signal low tire pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation of replacement or alternate tires or wheels on the vehicle that prevent the TPMS from functioning properly. Always check the TPMS malfunction telltale after replacing one or more tires or wheels on your vehicle to ensure that the replacement or...

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alternate tires and wheels allow the TPMS to continue to function properly.

Additional information

- The TPMS does not monitor the tire pressure of the spare tire.

- The TPMS will activate only when the vehicle is driven at speeds above 16 MPH (25 km/h). Also, this system may not detect a sudden drop in tire pressure (for example a flat tire while driving).

- The low tire pressure warning light does not automatically turn off when the tire pressure is adjusted. After the tire is inflated to the recommended pressure, the vehicle must be driven at speeds above 16 MPH (25 km/h) to activate the TPMS and turn off the low tire pressure warning light. Use a tire pressure gauge to check the tire pressure.

- Tire pressure rises and falls depending on the heat caused by the vehicle's operation and the outside temperature. Low outside temperature can lower the temperature of the air inside the tire which can cause a lower tire inflation pressure. This may cause the low tire pressure warning light to illuminate. If the warning light illuminates in low ambient temperature, check the tire pressure for all four tires.

For additional information, see “Low tire pressure warning light” in the “2. Instruments and controls” section and “TIRE PRESSURE MONITORING SYSTEM (TPMS)” in the “6. In case of emergency” section.

When a spare tire is mounted on a wheel is replaced, the TPMS will not function and the low tire pressure warning light will flash for approximately 1 minute. The light will remain on after 1 minute. Contact your NISSAN dealer as soon as possible for tire replacement and/ or system resetting.

Replacing tires with those not originally specified by NISSAN could affect the proper operation of the TPMS.

Do not inject any tire liquid or aerosol tire sealant into the tires, as this may cause a malfunction of the tire pressure sensors.

- The TPMS may not function properly when the wheels are equipped with tire chains or the wheels are buried in snow.

- Do not place metalized film or any metal parts (antenna, etc.) on the windows. This may cause poor reception of the signals from the tire.
pressure sensors, and the TPMS will not function properly.

Some devices and transmitters may temporarily interfere with the operation of the TPMS and cause the low tire pressure warning light to illuminate. Some examples are:
- Facilities or electric devices using similar radio frequencies are near the vehicle.
- If a transmitter set to similar frequencies is being used in or near the vehicle.
- If a computer (or similar equipment) or a DC/AC converter is being used in or near the vehicle.

FCC Notice:

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

This device complies with Part 15 of the FCC Rules and 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 of the device.

AVOIDING COLLISION AND ROLLOVER

⚠️ WARNING

Failure to operate this vehicle in a safe and prudent manner may result in loss of control or an accident.

Be alert and drive defensively at all times. Obey all traffic regulations. Avoid excessive speed, high speed cornering, or sudden steering maneuvers, because these driving practices could cause you to lose control of your vehicle. As with any vehicle, a loss of control could result in a collision with other vehicles or objects, or cause the vehicle to rollover, particularly if the loss of control causes the vehicle to slide sideways. Be attentive at all times, and avoid driving when tired. Never drive when under the influence of alcohol or drugs (including prescription or over-the-counter drugs which may cause drowsiness). Always wear your seat belt as outlined in the “SEAT BELTS” in the “1. Safety — Seats, seat belts and supplemental restraint system” section of this manual, and also instruct your passengers to do so.

Seat belts help reduce the risk of injury in collisions and rollovers. In a rollover crash, an unbelted or improperly belted person is significantly more likely to be injured or killed than a person properly wearing a seat belt.

OFF-ROAD RECOVERY

While driving, the right side or left side wheels may unintentionally leave the road surface. If this occurs, maintain control of the vehicle by following the procedure below. Please note that this procedure is only a general guide. The vehicle must be driven as appropriate based on the conditions of the vehicle, road and traffic.

1. Remain calm and do not overreact.
2. Do not apply the brakes.
3. Maintain a firm grip on the steering wheel with both hands and try to hold a straight course.
4. When appropriate, slowly release the accelerator pedal to gradually slow the vehicle.
5. If there is nothing in the way, steer the vehicle to follow the road while the vehicle speed is reduced. Do not attempt to drive the vehicle back onto the road surface until vehicle speed is reduced.
6. When it is safe to do so, gradually turn the steering wheel until both tires return to the road surface. When all tires are on the road surface, steer the vehicle to stay in the

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FLAT TIRE

TIRE PRESSURE MONITORING SYSTEM (TPMS)

This vehicle is equipped with the Tire Pressure Monitoring System (TPMS). It monitors tire pressure of all tires except the spare. When the low tire pressure warning light is lit, one or more of your tires is significantly under-inflated. If the vehicle is being driven with low tire pressure, the TPMS will activate and warn you of it by the low tire pressure warning light. This system will activate only when the vehicle is driven at speeds above 16 MPH (25 km/h). For more details, see "WARNING/INDICATOR LIGHTS AND AUDIBLE REMINDERS" in the "2. Instruments and controls" section and "TIRE PRESSURE MONITORING SYSTEM (TPMS)" in the "5. Starting and driving" section.

WARNING

- If the low tire pressure warning light illuminates while driving, avoid sudden steering maneuvers or abrupt braking, reduce vehicle speed, pull off the road to a safe location and stop the vehicle as soon as possible. Driving with under-inflated tires may permanently damage the tires and increase the likelihood of tire failure. Serious vehicle damage could occur and may lead to an accident and could result in serious personal injury. Check the tire pressure for all four tires. Adjust the tire pressure to the recommended COLD tire pressure shown on the Tire and Loading Information label to turn the low tire pressure warning light OFF. If you have a flat tire, replace it with a spare tire as soon as possible.

- When a spare tire is mounted or a wheel is replaced, the TPMS will not function and the low tire pressure warning light will flash for approximately 1 minute. The light will remain on after 1 minute. Contact your NISSAN dealer as soon as possible for tire replacement and/or system resetting.

- Replacing tires with those not originally specified by NISSAN could affect the proper operation of the TPMS.

- Do not inject any tire liquid or aerosol tire sealant into the tires, as this may cause a malfunction of the tire pressure sensors.

CHANGING A FLAT TIRE

If you have a flat tire, follow the instructions below.

Stopping the vehicle
1. Safely move the vehicle off the road and away from traffic.
2. Turn on the hazard warning flashers.
3. Park on a level surface and apply the parking brake.
4. Continuously Variable Transmission (CVT) models:
   Move the selector lever to the P (Park) position.
   Manual Transmission (MT) models:
   Move the shift lever to the R (Reverse) position.
5. Turn off the engine.
6. Raise the hood to warn other traffic, and to signal professional road assistance personnel that you need assistance.
7. Have all passengers get out of the vehicle and stand in a safe place, away from traffic and clear of the vehicle.

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wear indicators are visible, the tire(s) should be replaced.

- Tires degrade with age and use. Have tires, including the spare, over 6 years old checked by a qualified technician, because some tire damage may not be obvious. Replace the tires as necessary to prevent tire failure and possible personal injury.

- Improper service of the spare tire may result in serious personal injury. If it is necessary to repair the spare tire, contact a NISSAN dealer.

- For additional information regarding tires, refer to "Important Tire Safety Information" (US) or "Tire Safety Information" (Canada) in the Warranty Information Booklet.

Replacing wheels and tires

When replacing a tire, use the same size, tread design, speed rating and load carrying capacity as originally equipped. (See "SPECIFICATIONS" in the "9. Technical and consumer information" section for recommended types and sizes of tires and wheels.)

- When a spare tire is mounted or a wheel is replaced, the TPMS will not function and the low tire pressure warning light will flash for approximately 1 minute. The light will remain on after 1 minute. Contact your NISSAN dealer as soon as possible for tire replacement and/or system resetting.

- Replacing tires with those not originally specified by NISSAN could affect the proper operation of the TPMS.

- Do not install a damaged or deformed wheel or tire even if it has been repaired. Such wheels or tires could have structural damage and could fail without warning.

- The use of retread tire is not recommended.

- For additional information regarding tires, refer to "Important Tire Safety Information" (US) or "Tire Safety Information" (Canada) in the Warranty Information Booklet.