

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

HONDA MOTOR COMPANY, LTD.  
2009 HONDA FIT  
FIVE-DOOR PASSENGER CAR  
NHTSA NO. C95302

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



February 23, 2009

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
ENFORCEMENT  
NVS-220  
OFFICE OF VEHICLE SAFETY COMPLIANCE  
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## SECTION 1

### INTRODUCTION

#### 1.1 PURPOSE OF COMPLIANCE TEST

A 2009 Honda Fit five-door passenger car 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 2009 Honda Fit five-door passenger car. Nomenclatures applicable to the test vehicle are:

A. Vehicle Identification Number: JHMGE87229S021972

B. NHTSA Number: C95302

C. Manufacturer: Honda Motor Company, Ltd.

D. Manufacture Date: 10/2008

#### 1.3 TEST DATE

The test vehicle was tested during the time period January 26 through February 11, 2009.

## 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 information was 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. The vehicle does not have a telltale that identifies which tire is under-inflated.

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 phase. 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'. Driving above 50 km/h was not required for the detection or extinguishment phases.

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 as necessary.
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 as necessary.

One malfunction scenario was performed on the Honda Fit. This 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 malfunction telltale properly operated within the requisite time period.

## 2.2 SUMMARY OF RESULTS

Three tire deflation scenarios were performed on the test vehicle at LLVW:

- A. Left front
- B. Left front and left rear
- C. Left front, left rear, right rear, and right front

Three tire deflation scenarios were performed on the test vehicle at UVW + VCW:

- D. Right rear
- E. Left front and right front
- F. Left rear, right 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.

In this scenario, the vehicle's dedicated malfunction telltale properly operated per the standard's requirements.

SECTION 3  
TEST DATA



# FMVSS No. 138 – TEST DATA SUMMARY

TEST DATES: January 26 – February 11, 2009 LAB: U. S. DOT San Angelo Test Facility  
 VIN: JHMGE87229S021972 VEHICLE NHTSA NUMBER: C95302  
 CERTIFICATION LABEL BUILD DATE: 10/2008

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

REMARKS: None

**DATA SHEET 1 (Sheet 1 of 3)**  
**TEST PREPARATION INFORMATION**

TEST DATE: January 28, 2009 LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302 VIN: JHMGE87229S021972

CERTIFICATION LABEL BUILD DATE: 10/2008 ENGINE: 1.5 liter 4 cylinder

MY/MAKE/MODEL/BODY STYLE: 2009 Honda Fit five-door passenger car

**TIRE CONDITIONING:**

( X ) Tires used more than 100 km. Actual odometer reading : 267 km (166 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: TRW sensor, part #/model #42753-SNA-A83

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 ( X ) Dedicated Telltale ( ) 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:**

Axle	Tire Size	Recommended Cold Inflation Pressure	Source
Front	175/65R15	220 kPa (32 psi)	Vehicle placard
Rear	175/65R15	220 kPa (32 psi)	Vehicle placard

## **INSTALLED TIRE DATA** Diagram - Passenger Car Tire Labeling



## **Front and Rear Axles**

Tire Size and Load Index / Speed Rating: 175/65R15 84S

Manufacturer/Tire Name: Dunlop SP31 A/S

Sidewall Max Load Rating: 500 kg (1,102 lbs)

Max Inflation Pressure: 300 kPa (44 psi)

Sidewall Construction (number of plies and ply material): 1 polyester

Tread Construction (number of plies and ply material): 1 polyester, 2 steel

**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

**DATA SHEET 1 (Sheet 3 of 3)**  
**TEST PREPARATION**

<b>Worksheet for Determining FMVSS No. 138 Telltale Warning Activation Pressure for Tires Installed on Vehicle</b>		
<b>Part</b>	<b>Front Axle</b>	<b>Rear Axle</b>
<b>(A)</b> Recommended Inflation Pressure x .75	<u>220</u> kPa x .75 = <u>165.0</u> kPa	<u>220</u> kPa x .75 = <u>165.0</u> kPa
<b>(B)</b> Information from FMVSS 138 Table 1 below, Tire types are:  Inflation pressure  Minimum activation pressures from Table 1	( <input checked="" type="checkbox"/> ) P-metric-Standard load (    ) P-metric-Extra Load Load Range (    ) C, (    ) D, or (    ) E  ( <input checked="" type="checkbox"/> ) Maximum or (    ) Rated <u>300</u> kPa (44 psi)  <u>140</u> kPa (20 psi)	( <input checked="" type="checkbox"/> ) P-metric-Standard load (    ) P-metric-Extra Load Load Range (    ) C, (    ) D, or (    ) E  ( <input checked="" type="checkbox"/> ) Maximum or (    ) Rated <u>300</u> kPa (44 psi)  <u>140</u> kPa (20 psi)
<b>(C)</b> Telltale Warning Activation Pressure is the higher of Part (A) or (B)	<u>165.0</u> kPa (23.9 psi)	<u>165.0</u> kPa (23.9 psi)
<b>(D)</b> Pressure at which to deflate tire(s) = (C) – 7 kPa	<u>158.0</u> kPa (22.9 psi)	<u>158.0</u> kPa (22.9 psi)

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

Tire Type	Maximum or Rated Inflation Pressure		Minimum Activation Pressure	
	(kPa)	(psi)	(kPa)	(psi)
P-metric -- Standard Load	240, 300, or 350	35, 44, or 51	140 140 140	20 20 20
P-metric - Extra Load	280 or 340	41 or 49	160 160	23 23
Load Range C	350	51	200	29
Load Range D	450	65	240	35
Load Range E	550	80	240	35

REMARKS: None

RECORDED BY: Jack R. Stewart

DATE: January 28, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 2 (Sheet 1 of 2)**  
**LOW TIRE PRESSURE WARNING AND MALFUNCTION TELLTALE**

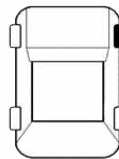
TEST DATE: January 28, 2009 LAB: U. S. DOT San Angelo Test Facility  
VEHICLE NHTSA NUMBER: C95302

**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 the speedometer and fuel  
gauge

Identify Telltale Symbol Used (check box above figure).



OTHER (fail)  
(describe below)

Note any words or additional symbols used: None

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

**TPMS Malfunction Telltale**

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

TPMS Dedicated Malfunction Telltale Location: Between the speedometer and fuel gauge

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

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

Identify Dedicated Telltale Symbol Used: ( X ) "TPMS" ( ) OTHER (fail)

Note any words or additional symbols used: None

**DATA SHEET 2 (Sheet 2 of 2)**  
**LOW TIRE PRESSURE WARNING AND MALFUNCTION TELLTALE**

**Check Telltale Lamp Functions:**

LOW TIRE PRESSURE WARNING 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   3   seconds.

DEDICATED 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   3   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:   Jack R. Stewart  

DATE:   January 28, 2009  

APPROVED BY:   Kenneth H. Yates

**DATA SHEET 3 (Sheet 1 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

TEST DATE: January 28, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302

Time: Start: 11:09 am End: 12:15 pm

Ambient Temperature: Start: 16.1°C (61.0°F) End: 18.2°C (64.8°F)

Odometer Reading: Start: 270 km (168 mi)

Fuel Level: Start: Full

Weather Conditions: Clear

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

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Pre-test cold measurements after ambient soak: Inflation Pressure	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	18.2°C (64.8°F)	18.3°C (64.9°F)	18.4°C (65.1°F)	18.2°C (64.8°F)

**DATA SHEET 3 (Sheet 2 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

**VEHICLE WEIGHT:**

**Vehicle Ratings from Certification Label:**

GVWR: 1,594 kg (3,512 lbs)

GAWR (front): 872 kg (1,921 lbs)

GAWR (rear): 735 kg (1,619 lbs)

**Vehicle Capacity Weight:**

Vehicle Capacity Weight 385 kg (850 lbs)

**Measured Unloaded Vehicle Weight:**

LF	<u>354 kg (780 lbs)</u>	LR	<u>211 kg (466 lbs)</u>
RF	<u>347 kg (765 lbs)</u>	RR	<u>213 kg (469 lbs)</u>
Front		Rear	
Axle	<u>701 kg (1,545 lbs)</u>	Axle	<u>424 kg (935 lbs)</u>
Total Vehicle <u>1,125 kg (2,480 lbs)</u>			

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

LF	<u>402 kg (887 lbs)</u>	LR	<u>260 kg (574 lbs)</u>
RF	<u>401 kg (883 lbs)</u>	RR	<u>265 kg (585 lbs)</u>
Front		Rear	
Axle	<u>803 kg (1,770 lbs) ( ≤ GAWR )</u>	Axle	<u>525 kg (1,159 lbs) ( ≤ GAWR )</u>
Total Vehicle <u>1,328 kg (2,929 lbs) (not greater than GVWR)</u>			

Note: For scenarios A, B, C, and G, this total vehicle weight measures the vehicle loaded to Lightly Loaded Vehicle Weight (LLVW), 204 kg (449 lbs) of driver, passenger, and test equipment.



**DATA SHEET 3 (Sheet 3 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

**SCENARIO A – Left Front Tire Deflation at LLVW**

TEST DATE: January 30, 2009 LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302

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

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to lightly loaded vehicle weight, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>12.3°C (54.1°F)</u> Vehicle cool down period: <u>overnight</u>				
Inflation Pressure	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)
Tire Sidewall Temp	10.2°C (50.4°F)	10.6°C (51.1°F)	10.0°C (50.0°F)	9.8°C (49.6°F)
San Angelo Test Facility Shop Floor Temp	9.6°C (49.3°F)	9.0°C (48.2°F)	9.0°C (48.2°F)	8.8°C (47.8°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 17:51:51 UTC End: 18:16:10 UTC  
Trip Odometer Reading: Start: 55.2 km (34.3 mi) End: 87.1 km (54.1 mi)  
Ambient Temperature: Start: 12.3°C (54.1°F) End: 13.5°C (56.3°F)  
Roadway Temperature: Start: 20.8°C (69.4°F) End: 21.2°C (70.2°F)

Driving in first direction:

Goodfellow Air Force  
Starting point: Base (GAFB) north gate Direction: see chart, page 59  
10:11 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 59  
10:25 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 98.2 km/h (61.0 mph)

**Total Driving Time:** 20:37 minutes (VBox time)

## SCENARIO A – Left Front Tire Deflation at LLVW

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	245.4 kPa (35.6 psi)	241.6 kPa (35.0 psi)	243.7 kPa (35.3 psi)	245.5 kPa (35.6 psi)
Tire Sidewall Temp	26.2°C (79.2°F)	21.2°C (70.2°F)	21.6°C (70.9°F)	24.2°C (75.6°F)
San Angelo Test Facility Shop Floor Temp	7.8°C (46.0°F)	7.8°C (46.0°F)	9.8°C (49.6°F)	8.2°C (46.8°F)

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( X )LF ( )LR ( )RR ( )RF Inflation Pressure	158.0 kPa (22.9 psi)			

**DATA SHEET 3 (Sheet 5 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

**SCENARIO A – Left Front Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>16.0°C (60.8°F)</u> Vehicle cool down period: <u>61</u> minutes				
Inflation Pressure	149.1 kPa (21.6 psi)	227.1 kPa (32.9 psi)	226.9 kPa (32.9 psi)	228.9 kPa (33.2 psi)
Tire Sidewall Temp	14.0°C (57.2°F)	14.4°C (57.9°F)	14.2°C (57.6°F)	13.2°C (55.8°F)
San Angelo Test Facility Shop Floor Temp	10.8°C (51.4°F)	11.2°C (52.2°F)	10.8°C (51.4°F)	10.2°C (50.4°F)

After the cool down period of a minimum of one hour, restart 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)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)

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

Starting point: San Angelo Test Facility shop

1:17 seconds (stopwatch time – non-cumulative) 0.2 km (0.1 mi) distance

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left front tire was deflated at LLVW.

**REMARKS:** None

RECORDED BY: Jack R. Stewart

DATE: January 30, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 6 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

**SSCENARIO B – Left Front and Left Rear Tire Deflation at LLVW**

TEST DATE: February 2, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302

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

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to lightly loaded vehicle weight, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>6.5°C (43.7°F)</u> Vehicle cool down period: <u>overnight</u>				
Inflation Pressure	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	7.4°C (45.3°F)	7.4°C (45.3°F)	6.8°C (44.2°F)	7.0°C (44.6°F)
San Angelo Test Facility Shop Floor Temp	9.6°C (49.3°F)	9.6°C (49.3°F)	8.8°C (47.8°F)	9.2°C (48.6°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 16:43:38 UTC End: 17:08:50 UTC  
Trip Odometer Reading: Start: 89.8 km (55.8 mi) End: 121.8 km (75.7 mi)  
Ambient Temperature: Start: 6.6°C (43.9°F) End: 9.9°C (49.8°F)  
Roadway Temperature: Start: 11.0°C (51.8°F) End: 17.0°C (62.6°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 60  
10:12 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 60  
10:31 minutes (stopwatch time) 16.1 km (10.0 mi) distance

Max speed: 99.5 km/h (61.8 mph)

Total Driving Time: 20:43 minutes (VBox time)

## SSCENARIO B – Left Front and Left Rear Tire Deflation at LLVW

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	244.4 kPa (35.4 psi)	240.0 kPa (34.8 psi)	242.5 kPa (35.2 psi)	244.6 kPa (35.5 psi)
Tire Sidewall Temp	23.0°C (73.4°F)	18.6°C (65.5°F)	19.6°C (67.3°F)	23.2°C (73.8°F)
San Angelo Test Facility Shop Floor Temp	10.4°C (50.7°F)	10.6°C (51.1°F)	10.4°C (50.7°F)	10.6°C (51.1°F)

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( X )LF ( X )LR ( )RR ( )RF Inflation Pressure	158.0 kPa (22.9 psi)	158.0 kPa (22.9 psi)		

**DATA SHEET 3 (Sheet 8 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

**SSCENARIO B – Left Front and Left Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>11.0°C (51.8°F)</u> Vehicle cool down period: <u>76</u> minutes				
Inflation Pressure	149.8 kPa (21.7 psi)	151.6 kPa (22.0 psi)	228.8 kPa (33.2 psi)	229.5 kPa (33.3 psi)
Tire Sidewall Temp	13.6°C (56.5°F)	13.2°C (55.8°F)	13.2°C (55.8°F)	12.8°C (55.0°F)
San Angelo Test Facility Shop Floor Temp	12.6°C (54.7°F)	12.8°C (55.0°F)	12.6°C (54.7°F)	12.6°C (54.7°F)

After the cool down period of a minimum of one hour, restart 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)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)

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

Starting point: San Angelo Test Facility shop

1:23 seconds (stopwatch time – non-cumulative) 0.2 km (0.1 mi) distance

**TPMS Performance Test Results (PASS/FAIL)**

Left front and left rear tires were deflated at LLVW.

**PASS**

**REMARKS:** None

RECORDED BY: Jack R. Stewart

DATE: February 2, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 9 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

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

TEST DATE: February 3, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302

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

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to lightly loaded vehicle weight, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>5.1°C (41.2°F)</u> Vehicle cool down period: <u>overnight</u>				
Inflation Pressure	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)
Tire Sidewall Temp	7.4°C (45.3°F)	6.6°C (43.9°F)	7.2°C (45.0°F)	7.0°C (44.6°F)
San Angelo Test Facility Shop Floor Temp	9.2°C (48.6°F)	8.8°C (47.8°F)	9.4°C (48.9°F)	9.2°C (48.6°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 14:24:43 UTC End: 14:49:22 UTC  
Trip Odometer Reading: Start: 124.6 km (77.4 mi) End: 156.4 km (97.2 mi)  
Ambient Temperature: Start: 5.1°C (41.2°F) End: 6.5°C (43.7°F)  
Roadway Temperature: Start: 2.6°C (36.7°F) End: 6.6°C (43.9°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 61  
10:15 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 61  
10:34 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 97.9 km/h (60.8 mph)

**Total Driving Time:** 20:50 minutes (VBox time)

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	241.7 kPa (35.1 psi)	237.6 kPa (34.5 psi)	239.2 kPa (34.7 psi)	241.1 kPa (35.0 psi)
Tire Sidewall Temp	21.6°C (70.9°F)	17.0°C (62.6°F)	17.0°C (62.6°F)	21.0°C (69.8°F)
San Angelo Test Facility Shop Floor Temp	10.8°C (51.4°F)	10.6°C (51.1°F)	10.8°C (51.4°F)	10.8°C (51.4°F)

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( X )LF ( X )LR ( X )RR ( X )RF				
Inflation Pressure	158.0 kPa (22.9 psi)	158.1 kPa (22.9 psi)	158.0 kPa (22.9 psi)	158.1 kPa (22.9 psi)



**DATA SHEET 3 (Sheet 11 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

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

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>11.6°C (52.9°F)</u> Vehicle cool down period: <u>64</u> minutes				
Inflation Pressure	150.5 kPa (21.8 psi)	151.9 kPa (22.0 psi)	151.4 kPa (22.0 psi)	151.5 kPa (22.0 psi)
Tire Sidewall Temp	11.8°C (53.2°F)	11.4°C (52.5°F)	11.2°C (52.2°F)	11.4°C (52.5°F)
San Angelo Test Facility Shop Floor Temp	10.8°C (51.4°F)	11.2°C (52.2°F)	10.8°C (51.4°F)	10.6°C (51.1°F)

After the cool down period of a minimum of one hour, restart 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)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)

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) 0.3 km (0.2 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: Jack R. Stewart

DATE: February 3, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 12 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

TEST DATE: February 4, 2009      LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302

Time:                      Start: 1:40 pm                      End: 2:40 pm

Ambient Temperature:    Start: 20.1°C (68.2°F)                      End: 22.2°C (72.0°F)

Odometer Reading:      Start: 428 km (266 mi)

Fuel Level:              Start: Full

Weather Conditions:      Clear, light winds

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

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Pre-test cold measurements after ambient soak: Inflation Pressure	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	20.8°C (69.4°F)	21.2°C (70.2°F)	21.0°C (69.8°F)	20.6°C (69.1°F)

**DATA SHEET 3 (Sheet 13 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

**VEHICLE WEIGHT:**

**Vehicle Ratings from Certification Label:**

GVWR: 1,594 kg (3,512 lbs)  
GAWR (front): 872 kg (1,921 lbs)  
GAWR (rear): 735 kg (1,619 lbs)

**Vehicle Capacity Weight:**

Vehicle Capacity Weight 385 kg (850 lbs)

**Measured Unloaded Vehicle Weight:**

LF <u>354 kg (781 lbs)</u>	LR <u>212 kg (467 lbs)</u>
RF <u>347 kg (765 lbs)</u>	RR <u>213 kg (470 lbs)</u>
Front <u>701 kg (1,546 lbs)</u>	Rear <u>425 kg (937 lbs)</u>
Axle	Axle
Total Vehicle <u>1,126 kg (2,483 lbs)</u>	

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

LF <u>414 kg (913 lbs)</u>	LR <u>342 kg (754 lbs)</u>
RF <u>409 kg (902 lbs)</u>	RR <u>347 kg (764 lbs)</u>
Front <u>823 kg (1,815 lbs)</u> ( ≤ GAWR )	Rear <u>689 kg (1,518 lbs)</u> ( ≤ GAWR )
Axle	Axle
Total Vehicle <u>1,512 kg (3,333 lbs)</u> (not greater than GVWR)	

Note: For scenarios D, E, and F, this Total Vehicle Weight measures the vehicle loaded to Unloaded Vehicle Weight (UVW) and Vehicle Capacity Weight (VCW), 385 kg (850 lbs) of driver, passenger, test equipment, and ballast.

**DATA SHEET 3 (Sheet 14 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

**SCENARIO D – Right Rear Tire Deflation at UVW + VCW**

TEST DATE: February 5, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302

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

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>11.1°C (52.0°F)</u> Vehicle cool down period: <u>overnight</u>				
Inflation Pressure	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	12.0°C (53.6°F)	12.2°C (54.0°F)	12.2°C (54.0°F)	12.4°C (54.3°F)
San Angelo Test Facility Shop Floor Temp	12.8°C (55.0°F)	12.8°C (55.0°F)	12.8°C (55.0°F)	12.8°C (55.0°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 14:19:34 UTC End: 14:44:33 UTC  
Trip Odometer Reading: Start: 163.2 km (101.4 mi) End: 195.1 km (121.2 mi)  
Ambient Temperature: Start: 11.1°C (52.0°F) End: 12.3°C (54.1°F)  
Roadway Temperature: Start: 6.2°C (43.2°F) End: 9.0°C (48.2°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 62  
10:10 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 62  
10:19 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 99.9 km/h (62.1 mph)

**Total Driving Time:** 20:29 minutes (VBox time)

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	239.5 kPa (34.7 psi)	238.3 kPa (34.6 psi)	238.6 kPa (34.6 psi)	239.5 kPa (34.7 psi)
Tire Sidewall Temp	22.8°C (73.0°F)	19.4°C (66.9°F)	21.8°C (71.2°F)	23.6°C (74.5°F)
San Angelo Test Facility Shop Floor Temp	11.6°C (52.9°F)	11.6°C (52.9°F)	11.8°C (53.2°F)	11.8°C (53.2°F)

## SYSTEM DETECTION PHASE:

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

<b>Execution Procedure</b>			<b>RR Tire</b>	
Indicate Location of Tire(s) Deflated: ( )LF ( )LR (X)RR ( )RF Inflation Pressure			158.0 kPa (22.9 psi)	

## TELLTALE ILLUMINATION:

Driving in first direction:

Starting point: San Angelo Test Facility shop

1:50 minutes (stopwatch time – non-cumulative)      0.3 km (0.2 mi) distance

Max speed: 34.6 km/h (21.5 mph)

**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 16 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

**SCENARIO D – Right Rear Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>14.8°C (58.6°F)</u> Vehicle cool down period: <u>64</u> minutes				
Inflation Pressure	226.0 kPa (32.8 psi)	225.0 kPa (32.6 psi)	148.7 kPa (21.6 psi)	226.9 kPa (32.9 psi)
Tire Sidewall Temp	14.8°C (58.6°F)	14.6°C (58.3°F)	14.8°C (58.6°F)	14.8°C (58.6°F)
San Angelo Test Facility Shop Floor Temp	13.6°C (56.5°F)	13.8°C (56.8°F)	13.8°C (56.8°F)	13.6°C (56.5°F)

After the cool down period of a minimum of one hour, restart 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)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)

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

Starting point: San Angelo Test Facility shop

1:25 minutes (stopwatch time – non-cumulative) 0.3 km (0.2 mi) distance

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Right rear tire was deflated at UVW + VCW.

**REMARKS:** None

RECORDED BY: Jack R. Stewart

DATE: February 5, 2009

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: February 11, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302

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

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>10.4°C (50.7°F)</u> Vehicle cool down period: <u>overnight</u>				
Inflation Pressure	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	12.2°C (54.0°F)	11.6°C (52.9°F)	11.8°C (53.2°F)	11.6°C (52.9°F)
San Angelo Test Facility Shop Floor Temp	13.6°C (56.5°F)	13.4°C (56.1°F)	12.8°C (55.0°F)	13.2°C (55.8°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 14:41:16 UTC End: 15:06:15 UTC  
Trip Odometer Reading: Start: 201.2 km (125.0 mi) End: 233.0 km (144.8 mi)  
Ambient Temperature: Start: 10.4°C (50.7°F) End: 11.2°C (52.2°F)  
Roadway Temperature: Start: 8.5°C (47.3°F) End: 11.6°C (52.9°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 63  
10:00 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 63  
10:37 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 99.0 km/h (61.5 mph)

**Total Driving Time:** 20:37 minutes (VBox time)

**DATA SHEET 3 (Sheet 18 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**

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

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	239.8 kPa (34.8 psi)	238.5 kPa (34.6 psi)	240.2 kPa (34.8 psi)	240.1 kPa (34.8 psi)
Tire Sidewall Temp	23.6°C (74.5°F)	21.2°C (70.2°F)	20.2°C (68.4°F)	22.8°C (73.0°F)
San Angelo Test Facility Shop Floor Temp	13.6°C (56.5°F)	13.6°C (56.5°F)	13.4°C (56.1°F)	13.6°C (56.5°F)

**SYSTEM DETECTION PHASE:**

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( X )LF ( )LR ( )RR ( X )RF Inflation Pressure	158.0 kPa (22.9 psi)			158.0 kPa (22.9 psi)

**TELLTALE ILLUMINATION:**

Driving in first direction:

Starting point: San Angelo Test Facility shop

1:39 minutes (stopwatch time – non-cumulative)      0.3 km (0.2 mi) distance

Max speed: 24.8 km/h (15.4 mph)

**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:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>13.1°C (55.6°F)</u> Vehicle cool down period: <u>62</u> minutes				
Inflation Pressure	149.9 kPa (21.7 psi)	224.3 kPa (32.5 psi)	223.6 kPa (32.4 psi)	150.2 kPa (21.8 psi)
Tire Sidewall Temp	14.2°C (57.6°F)	14.4°C (57.9°F)	14.2°C (57.6°F)	13.8°C (56.8°F)
San Angelo Test Facility Shop Floor Temp	13.8°C (56.8°F)	14.4°C (57.9°F)	14.0°C (57.2°F)	13.8°C (56.8°F)

After the cool down period of a minimum of one hour, restart 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)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)

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

Starting point: San Angelo Test Facility shop

1:26 minutes (stopwatch time – non-cumulative)      0.3 km (0.2 mi) distance

**TPMS Performance Test Results (PASS/FAIL)**

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

**PASS**

**REMARKS:** None

RECORDED BY: Jack R. Stewart

DATE: February 11, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 20 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**  
**SCENARIO F – Left Rear, Right Rear, and Right Front**  
**Tire Deflation at UVW +VCW**

TEST DATE: February 11, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302

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

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>15.6°C (60.1°F)</u> Vehicle cool down period: <u>78</u> minutes				
Inflation Pressure	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	15.4°C (59.7°F)	15.8°C (60.4°F)	15.2°C (59.4°F)	15.6°C (60.1°F)
San Angelo Test Facility Shop Floor Temp	14.6°C (58.3°F)	14.8°C (58.6°F)	14.6°C (58.3°F)	14.4°C (57.9°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 18:02:14 UTC End: 18:27:16 UTC  
Trip Odometer Reading: Start: 236.1 km (146.7 mi) End: 268.0 km (166.5 mi)  
Ambient Temperature: Start: 15.6°C (60.1°F) End: 16.2°C (61.2°F)  
Roadway Temperature: Start: 24.8°C (76.6°F) End: 25.8°C (78.4°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 64  
10:09 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 64  
10:31 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 99.6 km/h (61.9 mph)

**Total Driving Time:** 20:41 minutes (VBox time)

**DATA SHEET 3 (Sheet 21 of 22)**  
**TPMS OPERATIONAL PERFORMANCE**  
**SCENARIO F – Left Rear, Right Rear, and Right Front**  
**Tire Deflation at UVW +VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	241.6 kPa (35.0 psi)	242.1 kPa (35.1 psi)	244.7 kPa (35.5 psi)	242.5 kPa (35.2 psi)
Tire Sidewall Temp	29.4°C (84.9°F)	26.2°C (79.2°F)	25.8°C (78.4°F)	28.0°C (82.4°F)
San Angelo Test Facility Shop Floor Temp	13.6°C (56.5°F)	14.2°C (57.6°F)	14.2°C (57.6°F)	14.2°C (57.6°F)

**SYSTEM DETECTION PHASE:**

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

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( )LF (X)LR (X)RR (X)RF Inflation Pressure		158.0 kPa (22.9 psi)	158.0 kPa (22.9 psi)	158.0 kPa (22.9 psi)

**TELLTALE ILLUMINATION:**

Driving in first direction:

Starting point: San Angelo Test Facility shop

1:02 minutes (stopwatch time – non-cumulative) 0.3 km (0.2 mi) distance

Max speed: 23.8 km/h (14.8 mph)

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> <span style="float: right;"><b>( X )YES ( )NO (fail)</b></span>
--

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 Rear, and Right Front**  
**Tire Deflation at UVW +VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>18.6°C (65.5°F)</u> Vehicle cool down period: <u>64</u> minutes				
Inflation Pressure	225.5 kPa (32.7 psi)	149.2 kPa (21.6 psi)	147.3 kPa (21.4 psi)	149.8 kPa (21.7 psi)
Tire Sidewall Temp	17.6°C (63.7°F)	18.4°C (65.1°F)	18.2°C (64.8°F)	17.8°C (64.0°F)
San Angelo Test Facility Shop Floor Temp	15.6°C (60.1°F)	16.4°C (61.5°F)	16.2°C (61.2°F)	15.6°C (60.1°F)

After the cool down period of a minimum of one hour, restart 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)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)

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

Starting point: San Angelo Test Facility shop

1:11 minutes (stopwatch time – non-cumulative) 0.3 km (0.2 mi) distance

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

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

**REMARKS:** None

RECORDED BY: Jack R. Stewart

DATE: February 11, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 4 (Sheet 1 of 2)**  
**Scenario G – Malfunction Detection Test at LLVW**

TEST DATE: January 29, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95302

Time:	Start:	<u>17:07:08 UTC</u>	End:	<u>17:30:11 UTC</u>
Trip Odometer Reading:	Start:	<u>2.4 km (1.5 mi)</u>	End:	<u>32.8 km (20.4 mi)</u>
Ambient Temperature:	Start:	<u>4.9°C (40.8°F)</u>	End:	<u>8.5°C (47.3°F)</u>
Roadway Temperature:	Start:	<u>12.2°C (54.0°F)</u>	End:	<u>15.2°C (59.4°F)</u>
Fuel Level:	Start:	<u>Full</u>		

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

TPMS TYPE: ( ☒ ) Direct ( ☐ ) Indirect ( ☐ ) Other Describe: \_\_\_\_\_

TPMS MALFUNCTION TELLTALE:

( ☒ ) Dedicated stand-alone ( ☐ ) 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.

**MALFUNCTION TELLTALE ILLUMINATION**

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

**Dedicated Malfunction Telltale**

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: see chart , page 65  
30.4 km (18.9 mi) distance

Max speed: 97.9 km/h (60.8 mph)

Total Driving Time: 18:25 minutes (VBox time)

TELLTALE ILLUMINATES WITHIN 20 MINUTES:	( <input checked="" type="checkbox"/> ) YES ( <input type="checkbox"/> ) NO
---	---

**DATA SHEET 4 (Sheet 2 of 2)**  
**Scenario G – Malfunction Detection Test at LLVW**

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 for at least 60 seconds when the ignition locking system is activated to the “On” or “Run” position?                    ( 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  
1:08 minutes (stopwatch time – non-cumulative)                    0.2 km (0.1 mi) distance

<b>DEDICATED MALFUNCTION TELLTALE EXTINGUISHED:</b> ( 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:    Jack R. Stewart

DATE:    January 29, 2009

APPROVED BY:    Kenneth H. Yates

**DATA SHEET 5 (Sheet 1 of 3)**  
**TPMS WRITTEN INSTRUCTIONS**

TEST

DATE: January 26, 2009      LAB: San Angelo Test Facility      VEHICLE NHTSA NO: C95302

**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."

**DATA SHEET 5 (Sheet 2 of 3)**  
**TPMS WRITTEN INSTRUCTIONS**

**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:**

☒ 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   ☐ 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:**

☐ YES   ☐ NO   ☒ 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:**

☒ YES   ☐ NO

**DATA INDICATES COMPLIANCE:**

**PASS/FAIL: PASS**



**DATA SHEET 5 (Sheet 3 of 3)**  
**TPMS WRITTEN INSTRUCTIONS**

**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: Jack R. Stewart

DATE: January 26, 2009

APPROVED BY: Kenneth H. Yates

**SECTION 4**  
**TEST EQUIPMENT LIST AND CALIBRATION INFORMATION**

<b>EQUIPMENT</b>	<b>DESCRIPTION</b>	<b>MODEL/ SERIAL NO</b>	<b>CAL. DATE</b>	<b>NEXT CAL. DATE</b>
STOPWATCH	WESTCLOX QUARTZ STOPWATCH	NONE	N/A	N/A
VBOX RECORDING DEVICE	RACELOGIC VBOX III	SERIAL # 030209	3/20/2008	3/20/2009
AMBIENT TEMPERATURE GAUGE	FLUKE 50D K/J THERMOMETER	SERIAL # 80840101	3/10/2008	3/10/2009
LASER TEMPERATURE GAUGE (TIRES AND GROUND)	RAYTEK MINITEMP MT6 INFRARED THERMOMETER	SERIAL # MAGR000042598	4/11/2008	4/11/2009
AIR PRESSURE GAUGE	ASHCROFT GENERAL PURPOSE DIGITAL GAUGE	MODEL # D1005PS 02L 100 PSI SERIAL # 20017398-01	11/20/2008	11/20/2009
FLOOR SCALES (VEHICLE)	INTERCOMP SW DELUXE SCALES	PART # 100156 SERIAL # 27032382	8/5/2008	8/5/2009
PLATFORM SCALE (BALLAST)	HOWE RICHARDSON	MODEL # 6401 SERIAL # 0181- 5509-26	8/5/2008	8/5/2009

SECTION 5  
PHOTOGRAPHS



2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO.138

FIGURE 5.1  
¾ FRONT VIEW FROM LEFT SIDE OF VEHICLE



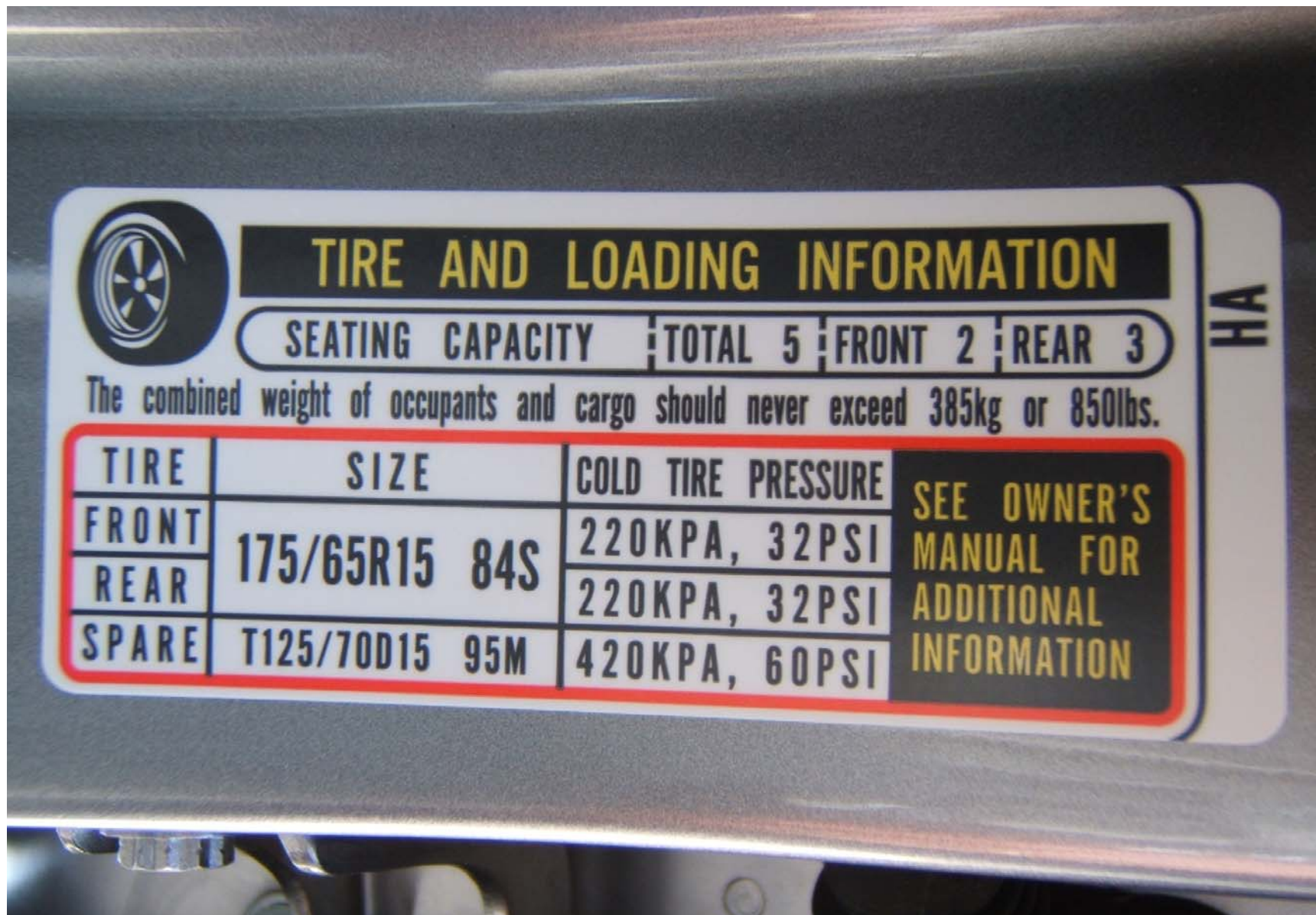
MFD. IN JAPAN BY HONDA MOTOR CO., LTD; 10/'08  
GVWR 3512LBS GAWR F 1921LBS R 1619LBS  
GVWR 1594KG GAWR F 872 KG R 735 KG  
THIS VEHICLE CONFORMS TO ALL APPLICABLE  
FEDERAL MOTOR VEHICLE SAFETY, BUMPER,  
AND THEFT PREVENTION STANDARDS IN EFFECT  
ON THE DATE OF MANUFACTURE SHOWN ABOVE.  
V.I.N.: JHMGE87229S021972 TYPE: PASSENGER CAR



TK6 9 AA0 - NH642M - B - S

2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO.138

FIGURE 5.2  
VEHICLE CERTIFICATION LABEL



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NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.3  
VEHICLE PLACARD





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NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.4  
TIRE SHOWING BRAND





2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.5  
TIRE SHOWING MODEL





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NHTSA NO. C95302  
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FIGURE 5.6  
TIRE SHOWING SIZE AND LOAD INDEX / SPEED RATING



2009 HONDA FIT  
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FMVSS NO. 138

FIGURE 5.7  
TIRE SHOWING DOT SERIAL NUMBER





2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.8  
TIRE SHOWING MAX LOAD RATING  
AND MAX COLD INFLATION PRESSURE





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FIGURE 5.9  
TIRE SHOWING SIDEWALL / TREAD CONSTRUCTION



2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.10  
RIM SHOWING VALVE STEM





2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.11  
RIM SHOWING TPMS SENSOR



2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.12  
DISPLAY SHOWING LOW  
TIRE PRESSURE WARNING



2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.13  
DISPLAY SHOWING DEDICATED  
TPMS MALFUNCTION WARNING





2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO 138

FIGURE 5.14  
TEST INSTRUMENTATION ON VEHICLE



2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.15  
VEHICLE REAR SEAT BALLAST  
FOR UVW + VCW LOAD





2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.16  
REAR OF VEHICLE BALLAST FOR UVW + VCW LOAD



2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

FIGURE 5.17  
VEHICLE ON WEIGHT SCALES





2009 HONDA FIT  
NHTSA NO. C95302  
FMVSS NO. 138

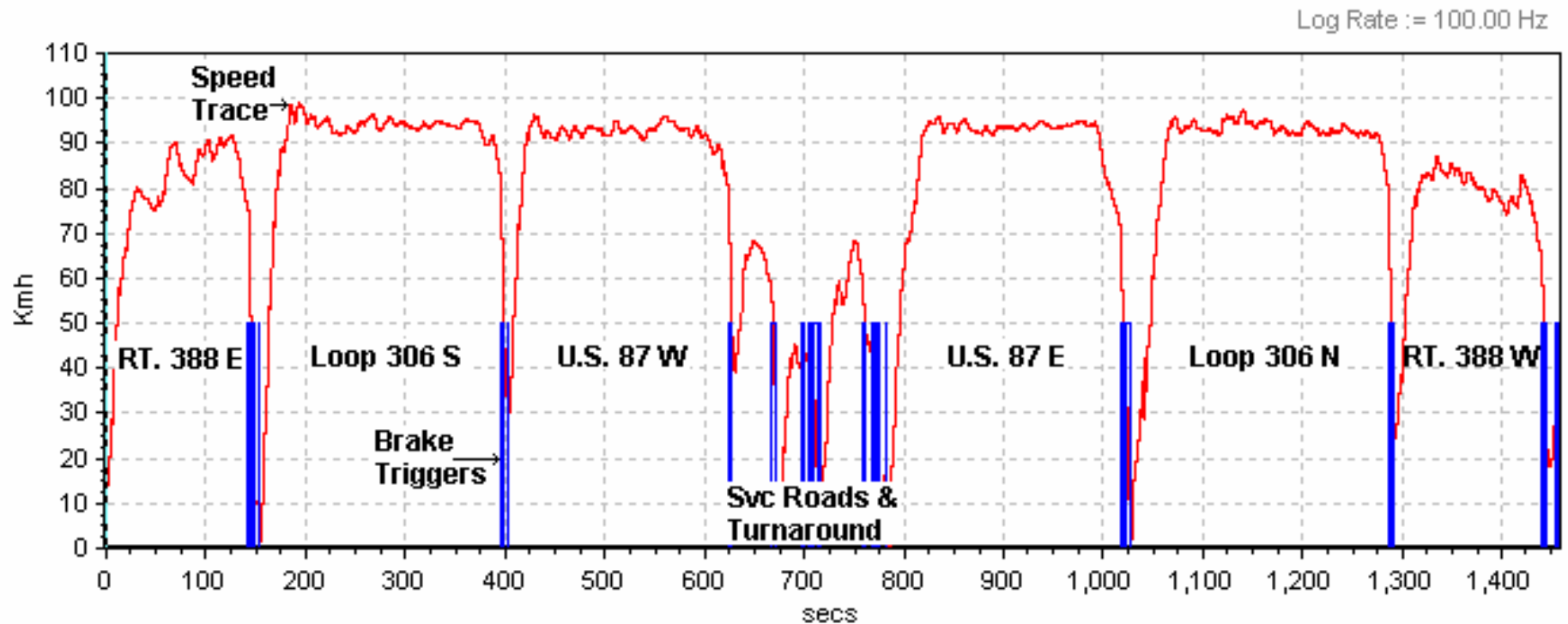
FIGURE 5.18  
SPARE INSTALLED ON RIGHT FRONT  
FOR MALFUNCTION DETECTION TEST

SECTION 6  
TEST PLOTS

Scenario A: Left Front Tire at LLVW  
Test Date: 1/30/09  
Data File Time: 24:18 minutes  
Cumulative Driving Time: 20:37 minutes  
Start Point: GAFB North Gate

Calibration Phase:

### 2009 Honda Fit (C95302) LF Calibration LLVW

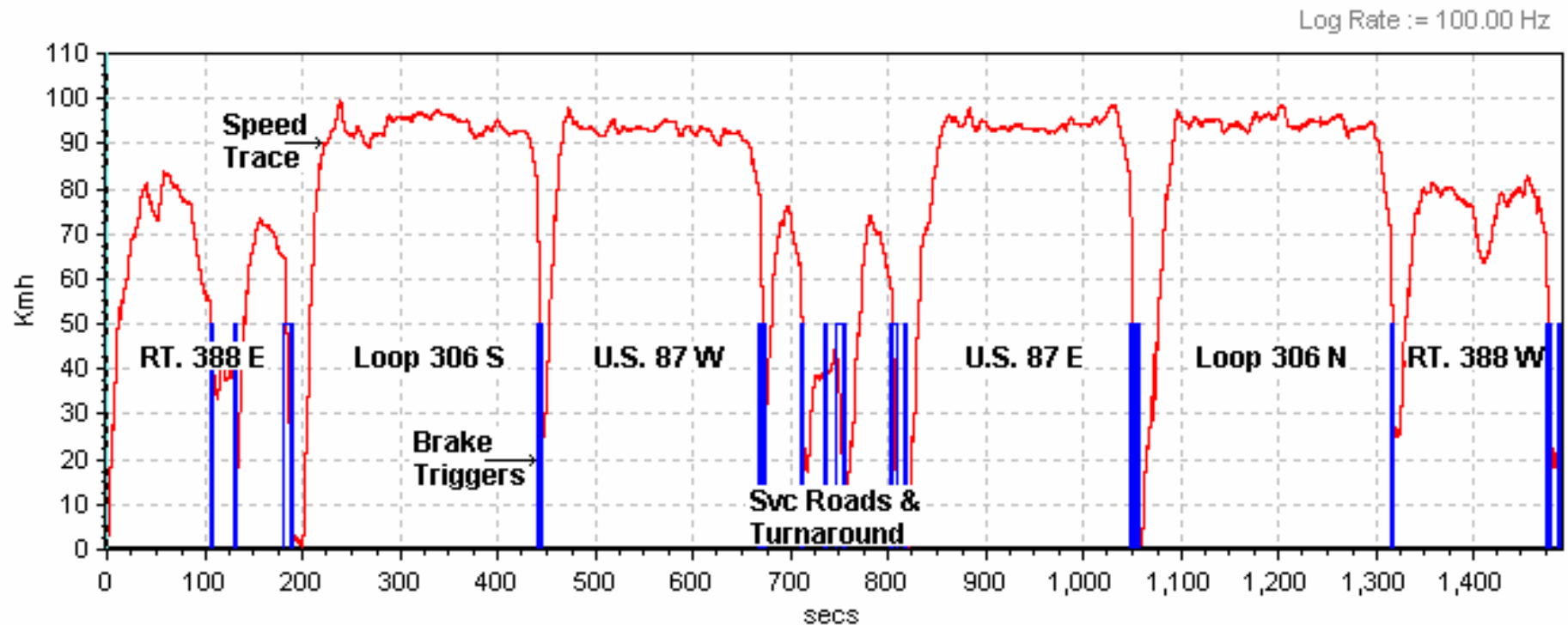


LF Detection Phase: Telltale illumination in 1:14 minutes. Driving above 50 km/h (31 mph) was not required.

Scenario B: Left Front, Left Rear Tires at LLVW  
Test Date: 2/2/09  
Data File Time: 24:51 minutes  
Cumulative Driving Time: 20:43 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Honda Fit (C95302) LF, LR Calibration LLVW



LF, LR Detection Phase: Telltale illumination in 1:41 minutes. Driving above 50 km/h (31 mph) was not required.

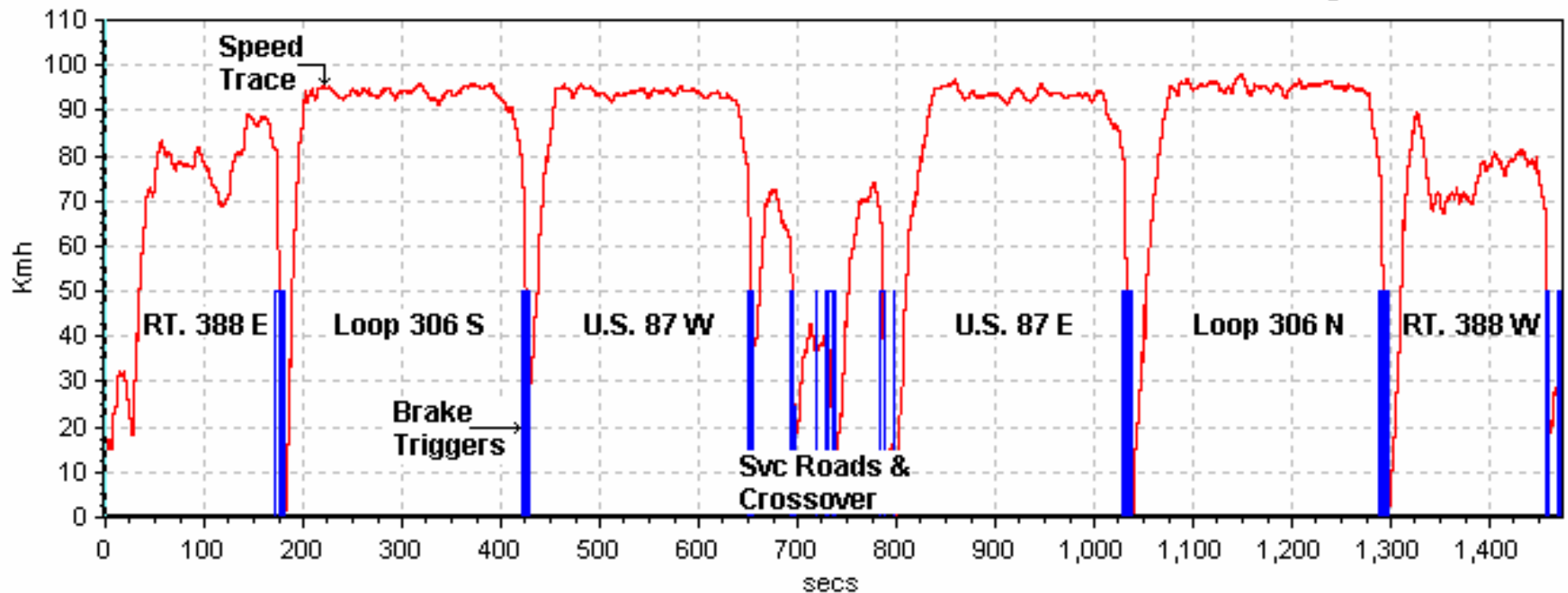


Scenario C: Left Front, Left Rear, Right Rear, Right Front Tires at LLVW  
Test Date: 2/3/09  
Data File Time: 24:36 minutes  
Cumulative Driving Time: 20:50 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Honda Fit (C95302) LF, LR, RR, RF Calibration LLVW

Log Rate := 100.00 Hz

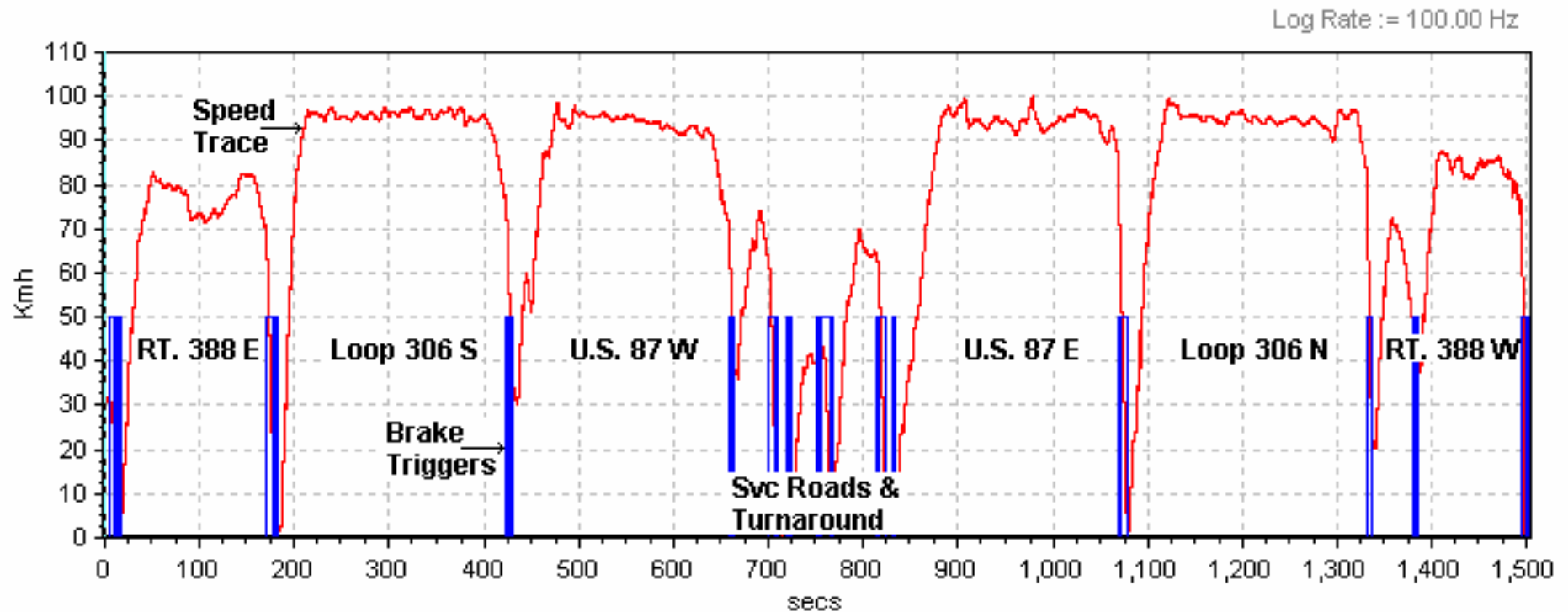


LF, LR, RR, RF Detection Phase: Telltale illumination in 0:58 minutes. Driving above 50 km/h (31 mph) was not required.

Scenario D: Right Rear Tire at UVW + VCW  
Test Date: 2/5/09  
Data File Time: 25:04 minutes  
Cumulative Driving Time: 20:29 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Honda Fit (C95302) RR Calibration UVW+VCW

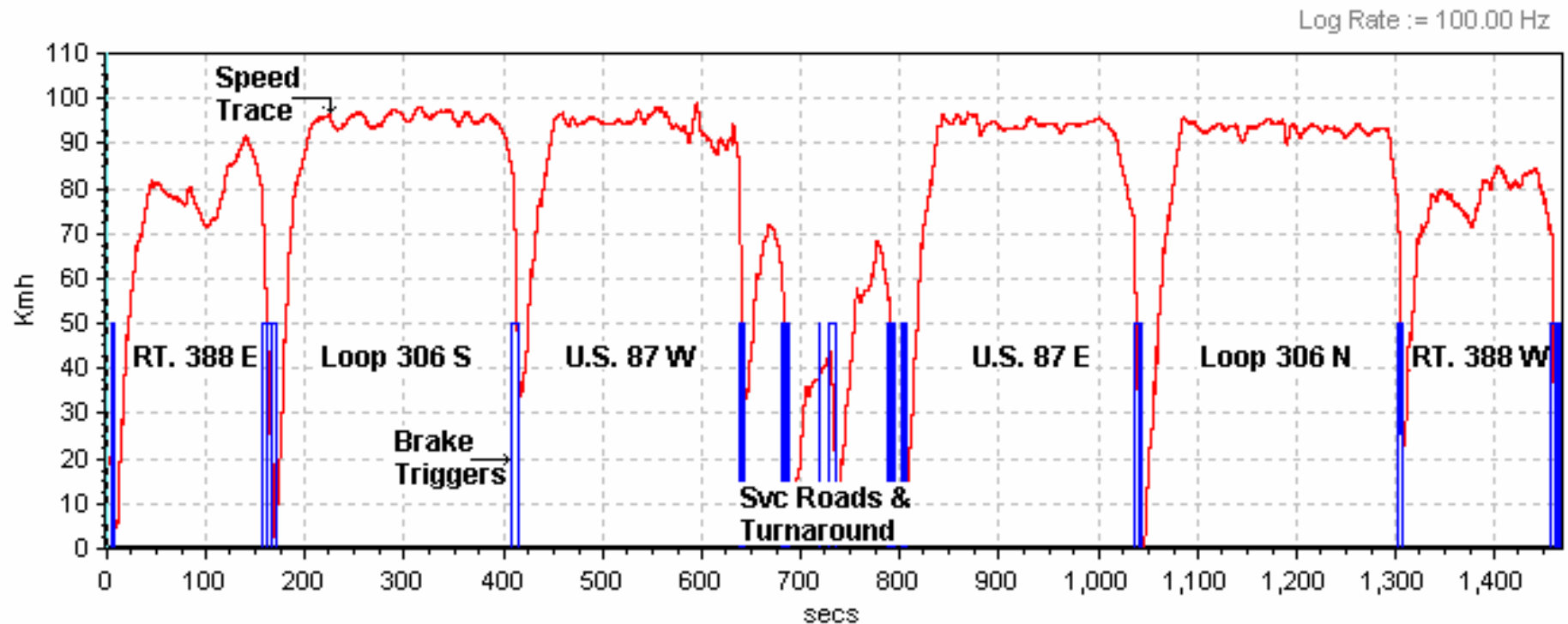


RR Detection Phase: Telltale illumination in 1:50 minutes. Driving above 50 km/h (31 mph) was not required.

Scenario E: Left Front, Right Front Tires at UVW + VCW  
Test Date: 2/11/09  
Data File Time: 24:28 minutes  
Cumulative Driving Time: 20:37 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Honda Fit (C95302) LF, RF Calibration UVW+VCW

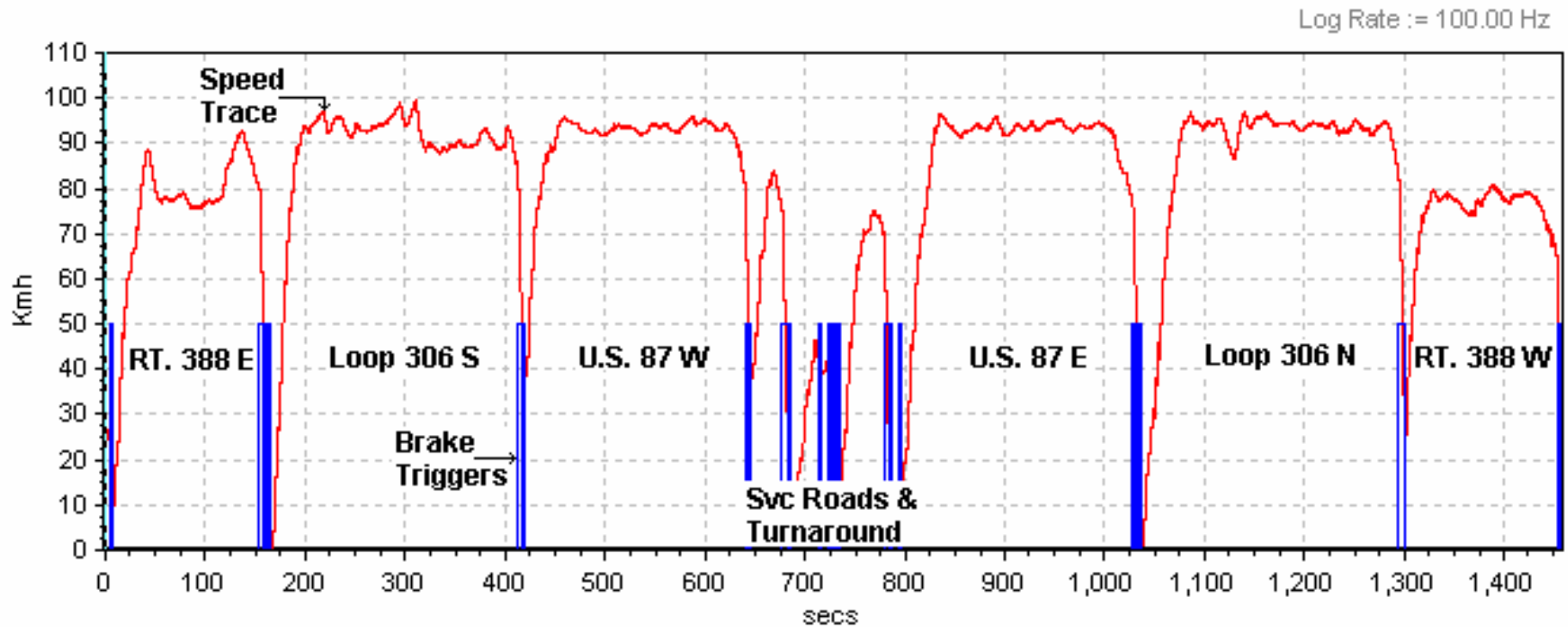


LF, RF Detection Phase: Telltale illumination in 1:39 minutes. Driving above 50 km/h (31 mph) was not required.

Scenario F: Left Rear, Right Rear, Right Front Tires at UVW + VCW  
Test Date: 2/11/09  
Data File Time: 24:18 minutes  
Cumulative Driving Time: 20:41 minutes  
Start Point: GAFB North Gate

Calibration Phase:

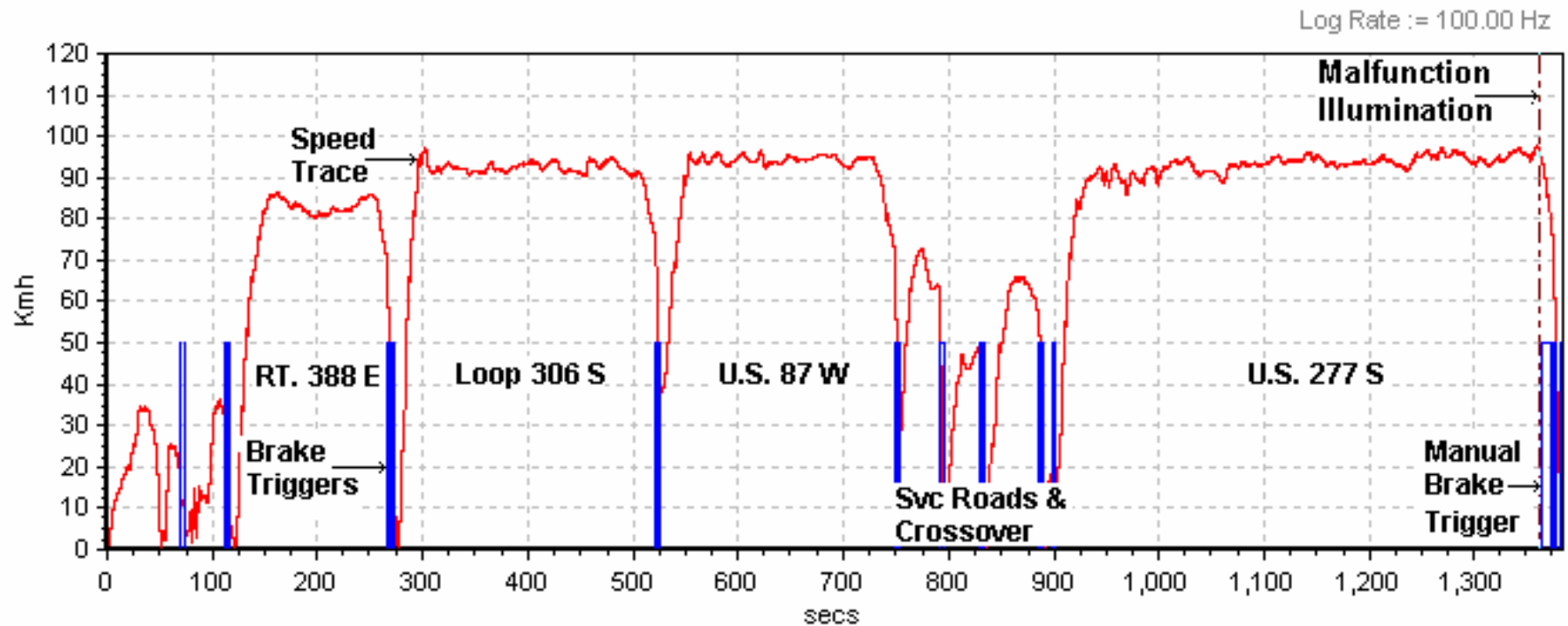
2009 Honda Fit (C95302) LR, RR, RF Calibration UVW+VCW



LR, RR, RF Detection Phase: Telltale illumination in 1:02 minutes. Driving above 50 km/h (31 mph) was not required.

Scenario G Malfunction Illumination: Spare Tire without TPMS Sensor Applied to Right Front at LLVW.  
 Test Date: 1/29/09  
 Data File Time: 23:04 minutes  
 Cumulative Driving Time: 18:25 minutes  
 Start Point: GAFB North Gate

### 2009 Honda Fit (C95302) RF Spare Tire Malfunction Illumination LLVW



SECTION 7  
OWNER'S MANUAL PAGES

## Tire Pressure Monitoring System (TPMS)

### *U.S. models only*

Your vehicle is equipped with a tire pressure monitoring system (TPMS) that turns on every time you start the engine and monitors the pressure in your tires while driving.

Each tire has its own pressure sensor (not including the spare tire). If the air pressure of a tire becomes significantly low, the sensor in that tire immediately sends a signal that causes the low tire pressure indicator to come on.



### **Low Tire Pressure Indicator**

When the low tire pressure indicator is on, one or more of your tires is significantly underinflated. You should stop and check your tires as soon as possible, and inflate them to the proper pressure as indicated on the vehicle's tire information placard.

If you think you can safely drive a short distance to a service station, proceed slowly, and inflate the tire to the recommended pressure shown on the driver's doorjamb.

If the tire is flat, or if the tire pressure is too low to continue driving, replace the tire with the compact spare tire (see page 284).

If you cannot make the low tire pressure indicator go out after inflating the tires to the specified values, have your dealer check the system as soon as possible.

Driving on a significantly underinflated 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.

Because tire pressure varies by temperature and other conditions, the low tire pressure indicator may come on unexpectedly.

CONTINUED

## Tire Pressure Monitoring System (TPMS)

For example, if you check and fill your tires in a warm area, then drive in extremely cold weather, the tire pressure will be lower than measured and could be underinflated and cause the low tire pressure indicator to come on. Or, if you check and adjust your tire pressure in cooler conditions, and drive into extremely hot conditions, the tire may become overinflated. However, the low tire pressure indicator will not come on if the tires are overinflated.

Refer to page 273 for tire inflation guidelines.

Although your tire pressure is monitored, you must manually check the tire pressures monthly.

Each tire, including the spare, should be checked monthly when cold, and set to the recommended inflation pressure as specified on the tire information label and in the owner's manual (see page 274).

### **TPMS** Tire Pressure Monitoring System (TPMS) Indicator

This indicator comes on and stays on if there is a problem with the tire pressure monitoring system.

If this happens, the system will shut off and no longer monitor tire pressures. Have the system checked by your dealer as soon as possible.

If the low tire pressure indicator or TPMS indicator comes on, the VSA system\* automatically turns on even if the VSA system is turned off by pressing the VSA OFF switch\* (see page 234). If this happens, you cannot turn the VSA system off by pressing the VSA off switch again.

\*: If equipped

When you restart the vehicle with the compact spare tire, the TPMS indicator may also come on and stay on after driving several miles (kilometers).



## Tire Pressure Monitoring System (TPMS)

### Changing a Tire with TPMS

If you have a flat tire, the low tire pressure indicator will come on. Replace the flat tire with the compact spare tire (see page 284).

Each wheel (except the compact spare tire wheel) is equipped with a tire pressure sensor mounted inside the tire behind the valve stem. You must use TPMS specific wheels. It is recommended that you always have your tires serviced by your dealer or qualified technician.

After you replace the flat tire with the compact spare tire, the low tire pressure indicator stays on. This is normal; the system is not monitoring the spare tire pressure. Manually check the spare tire pressure to be sure it is correct. After several miles (kilometers) driving with the compact spare tire, the TPMS indicator comes on and the low tire pressure indicator goes off.

The low tire pressure indicator or the TPMS indicator will go off, after several miles (kilometers) driving, when you replace the spare tire with the specified regular tire equipped with the tire pressure monitor sensor.

Never use a puncture-repairing agent in a flat tire. If used, you will have to replace the tire pressure sensor. Have the flat tire repaired by your dealer as soon as possible.

*As required by the FCC: This device complies with Part 15 of the FCC rules. 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.*

*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 Industry Canada Standard RSS-210. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference that may cause undesired operation of the device.*

## Tire Labeling, Tire Pressure Monitoring System (TPMS) – Required Federal Explanation

### **Maximum Tire Pressure**

Max Press – The maximum air pressure the tire can hold.

### **Maximum Tire Load**

Max Load – The maximum load the tire can carry at maximum air pressure.

### **Tire Pressure Monitoring System (TPMS) – Required Federal Explanation**

#### *U.S. models only*

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.

## Tire Pressure Monitoring System (TPMS) – Required Federal Explanation

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 provided by a separate telltale, which displays the symbol “TPMS” when illuminated.

When the malfunction indicator is illuminated,

**TPMS**

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.

Technical Information

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