REPORT NUMBER 138-STF-06-006

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

MAZDA MOTOR CORPORATION
2006 RX-8 FOUR-DOOR
PASSENGER CAR
NHTSA NO. C65403

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

April 20, 2007

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6111 (NVS-220)
WASHINGTON, D.C. 20590

This publication is distributed by the National Highway Traffic Safety Administration in the interest of information exchange. Opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof.

If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement.

Prepared By: Doris Seeba

Approved By: [signature]

Accepted By: Theresa M. Lacuesta

Acceptance Date: 4/20/2007

Technical Report Documentation Page

1. Report No. 138-STF-06-006	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Final Report of FMVSS 138 Compliance Testing of 2006 Mazda RX-8 Four-door Passenger Car, NHTSA No. C65403		5. Report Date April 20, 2007 6. Performing Organization Code STF
7. Author(s) David K. Banks, Junior Systems Analyst R.N. Gregg, Safety Compliance Specialist Kenneth Yates, Safety Compliance Engineer		8. Performing Organization Report Number STF-DOT-06-138-006
9. Performing Organization Name and Address U. S. DOT San Angelo Test Facility 131 Comanche Trail, Building 3527 Goodfellow AFB, Texas 76908		10. Work Unit No. (TRAIS) 11. Contract or Grant No.
12. Sponsoring Agency Name and Address United States Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance 400 Seventh Street, SW, Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report September 19 through November 9, 2006 14. Sponsoring Agency Code NVS-220
15. Supplementary Notes		
16. Abstract Compliance tests were conducted on the subject 2006 Mazda RX-8 four-door passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-138-02 for the determination of FMVSS 138 compliance. Test failures identified were as follows: NONE.		
17. Key Words Compliance Testing Safety Engineering FMVSS 138	18. Distribution Statement Copies of this report are available from NHTSA Technical Information Services Room 2334, (NPO-411) 400 Seventh St., SW Washington, DC 20590 Email: tis@nhtsa.dot.gov FAX: 202-493-2833	
19. Security Classification (of this report) UNCLASSIFIED	21. No. of Pages 81	22. Price
20. Security Classification (of this page) UNCLASSIFIED		

Form DOT F 1700.7 (8-72)

TABLE OF CONTENTS

SECTION 1
INTRODUCTION

1.1 PURPOSE OF COMPLIANCE TEST

A 2006 Mazda RX-8 four-door passenger car was tested to determine if the vehicle was in compliance with the requirements of the standard. All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure TP-138-02 dated September 14, 2005.

1.2 TEST VEHICLE

The test vehicle was a 2006 Mazda RX-8 four-door passenger car. Nomenclatures applicable to the test vehicle are:

A. Vehicle Identification Number: JM1FE173460204276

B. NHTSA No: C65403

C. Manufacturer: Mazda Motor Corporation

D. Manufacture Date: 03/2006

1.3 TEST DATE

The test vehicle was tested during the time period September 19 through November 9, 2006.

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 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 six tire deflation scenarios. This LLVW included the weights of driver, one passenger, and test equipment. The vehicle was loaded to its Gross Vehicle Weight Rating (GVWR) for four tire deflation scenarios. The gross vehicle weight included the weights of driver, one passenger, equipment, ballast in the rear seat, and ballast in the trunk. 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 test, graph(s) were generated by VBOX software showing vehicle speed versus time during the test procedure calibration phase and detection phase. The graphs furnish a second-by-second analysis of each test phase. The cumulative driving time for each test 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 consisted of four parts:

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 and100 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. Vehicle was started and driven (if necessary) between 50 and 100 km/h until low tire pressure telltale illuminated.
3. Cool down phase: Vehicle was parked in the San Angelo Test Facility (SATF) garage. Tires were allowed to cool down for one hour, or until all tires excluding deflated tire(s) were within seven kPa (one psi) of vehicle placard cold inflation pressure. 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 driven (if necessary) until the telltale extinguished.

An indicant malfunction detection scenario was performed with the vehicle loaded to its GVWR. A malfunction was simulated by removing the TPMS sensor from the left front wheel and replacing it with a non-TPMS valve stem. The vehicle was driven until telltale illumination or until a minimum of 20 minutes of cumulative driving time between 50 and 100 km/h was attained.

2.2 SUMMARY OF RESULTS

Six tire deflation scenarios were performed on the test vehicle at LLVW: A. left front; B. left rear; C. left front, left rear, right rear, right front; D. right front; E. right rear; and F. left front and left rear. Four tire deflation scenarios were performed on the test vehicle at GVWR: G. left front; H. right rear; I. left front, right front; and J. left front, left rear, right rear, right front.

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

One indicant malfunction detection scenario was performed on the test vehicle at GVWR. The vehicle's combination low tire pressure warning and malfunction telltale indicated a malfunction, but did not illuminate per the standard's requirements effective September 1, 2007.

SECTION 3

TEST DATA

FMVSS No. 138 – TEST DATA SUMMARY

TEST DATES: September 19 – November 9, 2006 LAB: U. S. DOT San Angelo Test Facility (SATF)

CONTRACT: N/A VEHICLE NHTSA NUMBER: C65403

VIN: JM1FE173460204276 CERTIFICATION LABEL BUILD DATE: 03/2006

REQUIREMENTS	PASS/FAIL
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	N/A
Symbol and color	N/A
Check of lamp function	N/A
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	INDICANT TEST ONLY
TPMS WRITTEN INSTRUCTIONS S138: S4.5	
Image of telltales	PASS
Verbatim statements	PASS

REMARKS: The FMVSS 138 malfunction performance requirements do not become effective until September 1, 2007. The test vehicle was built before the requirement is effective and is equipped with a malfunction capability that would not correctly meet the future requirements.

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

TEST DATE: September 19, 2006 LAB: U. S. DOT San Angelo Test Facility

CONTRACT: N/A VEHICLE NHTSA NUMBER: C65403

VIN: JM1FE173460204276 CERTIFICATION LABEL BUILD DATE: 03/2006

MY/MAKE/MODEL/BODY STYLE: 2006 Mazda RX-8 four-door passenger car

ENGINE: 1.3 L Rotary

TIRE CONDITIONING:

(X) Tires used more than 100 km. Actual odometer reading : 180 km (112 mi)

VEHICLE ALIGNMENT AND WHEEL BALANCING:

Alignment checked: ( ) Front ( ) Rear (X) COTR waived

Wheels balanced: ( ) Front ( ) Rear (X) COTR waived

TPMS IDENTIFICATION:

TPMS SENSOR MAKE/MODEL: Siemens FE01-37140

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

TPMS MALFUNCTION INDICATOR TYPE:

( ) None ( ) Dedicated Telltale (X) Combination low tire pressure/malfunction telltale

Does TPMS require execution of a learning/calibration driving phase? ( )YES (X)NO

Note: A learning / calibration driving phase is not required for normal TPMS operation. Per the Owner's Manual, when replacing tires or wheels, a waiting period of 15 minutes and subsequent driving period of 10 minutes at 25 km/h are required to automatically register the tire pressure sensor ID signal codes.

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

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	225/55R16	220 kPa (32 psi)	Vehicle placard
Rear	225/55R16	220 kPa (32 psi)	Vehicle placard
Spare	None provided	None	None

INSTALLED TIRE DATA (Use diagrams as reference):

Diagram - Passenger Car Tire Labeling

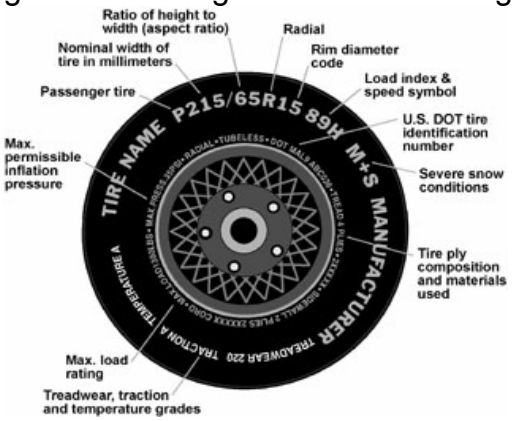
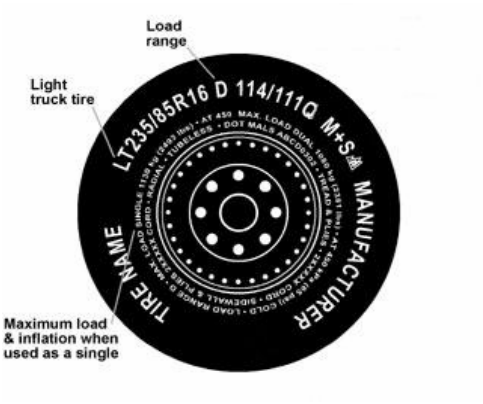


Diagram - Other Markings on Light Trucks



Front and Rear Axles

Tire Size (ex. P225/65R15 89H): 225/55R16 94V

Manufacturer/Tire Name: Dunlop SP Sport D8Z

Sidewall Max Load Rating: 670 kg (1,477 lbs)

Max Inflation Pressure: 350 kPa (51 psi)

Sidewall Construction (number of plies and ply material): 2 plies polyester

Tread Construction (number of plies and ply material): 5 plies - 2 polyester, 2 steel, 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?
(X)YES ( )NO

DATA SHEET 1 (Sheet 3 of 3)
TEST PREPARATION

Worksheet for Determining FMVSS No. 138 Telltale Warning Activation Pressure for Tires Installed on Vehicle		
Part	**Front Axle**	**Rear Axle**
(A) Recommended Inflation Pressure x .75	220 kPa x .75 = 165.0 kPa	220 kPa x .75 = 165.0 kPa
(B) Information from FMVSS 138 Table 1 below, Tire types are: Inflation pressure Minimum activation pressures from Table 1	(X) P-metric-Standard load ( ) P-metric-Extra Load Load Range ( ) C, ( ) D, or ( ) E (X) Maximum or ( ) Rated 350 kPa (51 psi) 140 kPa (20 psi)	(X) P-metric-Standard load ( ) P-metric-Extra Load Load Range ( ) C, ( ) D, or ( ) E (X) Maximum or ( ) Rated 350 kPa (51 psi) 140 kPa (20 psi)
(C) Telltale Warning Activation Pressure is the higher of Part (A) or (B)	165.0 kPa (23.9 psi)	165.0 kPa (23.9 psi)
(D) Pressure at which to deflate tire(s) = (C) – 7 kPa	158.0 kPa (22.9 psi)	158.0 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: David K. Banks DATE: September 19, 2006

APPROVED BY: Kenneth H. Yates

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

TEST DATE: September 20, 2006 LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

TPMS Low Tire Pressure Warning Telltale

TPMS Low Tire Pressure Warning Telltale Location: Center of left instrument cluster

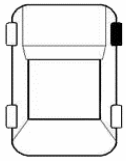
Telltale is mounted inside the occupant compartment in front of and in clear view of the driver?

(X)YES ( )NO (fail)

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

Identify Telltale Symbol Used (check box above figure).

[X] 

[ ] 

[ ] OTHER (fail)
(describe below)

Note any words or additional symbols used.

None

TPMS Malfunction 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 TELLTALE AND MALFUNCTION INDICATION, IF COMBINED

Identify position of ignition locking system when telltale illuminates.

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

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

Starter Interlocks:

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

TEST RESULTS

Low Tire Pressure Warning Telltale (PASS/FAIL) **PASS**

REMARKS: None

RECORDED BY: David K. Banks DATE: September 20, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 1 of 32)
TPMS OPERATIONAL PERFORMANCE

TEST DATE: September 21, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 8:45 am

Ambient Temperature: Start: 22.8°C (73.0°F)

Odometer Reading: Start: 180 km (112 mi)

Fuel Level: Start: Full

Weather Conditions: Cool and clear

Time vehicle has remained with engine off and tires shielded from direct sunlight:
(1 hour minimum): overnight (inside the SATF garage)

VEHICLE WEIGHT:
Vehicle Ratings from Certification Label:

GVWR: 1,748 kg (3,854 lbs)

GAWR (front): 844 kg (1,861 lbs)

GAWR (rear): 907 kg (2,000 lbs)

Vehicle Capacity Weight:

Vehicle Capacity Weight 308 kg (680 lbs)

Measured Unloaded Vehicle Weight:

LF	363 kg (800 lbs)	LR	318 kg (701 lbs)
RF	358 kg (789 lbs)	RR	326 kg (719 lbs)
Front Axle	721 kg (1,589 lbs)	Rear Axle	644 kg (1,420 lbs)

Total Vehicle 1,365 kg (3,009 lbs)

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

LF	405 kg (893 lbs)	LR	366 kg (807 lbs)
RF	400 kg (882 lbs)	RR	374 kg (825 lbs)
Front Axle	805 kg (1,775 lbs) (≤ GAWR)	Rear Axle	740 kg (1,632 lbs) (≤ GAWR)

Total Vehicle 1,545 kg (3,407 lbs) (not greater than UVW + VCW)

Note: For scenarios A, B, C, D, E, and F, this total vehicle weight measures the vehicle loaded to LLVW, 180 kg (396 lbs) of passengers and equipment.

DATA SHEET 3 (Sheet 2 of 32)
TPMS OPERATIONAL PERFORMANCE

TEST DATE: November 6, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 4:46 pm

Ambient Temperature: Start: 22.4°C (72.3°F)

Odometer Reading: Start: 413.3 km (256.8 mi)

Fuel Level: Start: Full

VEHICLE WEIGHT:
Vehicle Ratings from Certification Label:

GVWR: 1,748 kg (3,854 lbs)

GAWR (front): 844 kg (1,861 lbs)

GAWR (rear): 907 kg (2,000 lbs)

Vehicle Capacity Weight:

Vehicle Capacity Weight 308 kg (680 lbs)

Measured Unloaded Vehicle Weight:

LF	363 kg (800 lbs)	LR	318 kg (701 lbs)
RF	358 kg (789 lbs)	RR	326 kg (719 lbs)
Front Axle	721 kg (1,589 lbs)	Rear Axle	644 kg (1,420 lbs)

Total Vehicle 1,365 kg (3,009 lbs)

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

LF	411 kg (906 lbs)	LR	421 kg (928 lbs)
RF	414 kg (913 lbs)	RR	423 kg (933 lbs)
Front Axle	825 kg (1,819 lbs) (≤ GAWR)	Rear Axle	844 kg (1,861 lbs) (≤ GAWR)

Total Vehicle 1,669 kg (3,680 lbs) (not greater than UVW + VCW)

Note: For scenarios G, H, I, J, and K, this Total Vehicle Weight measures the vehicle loaded to GVWR, 304 kg (671 lb) of passengers, equipment, and ballast.

DATA SHEET 3 (Sheet 3 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO A - Left Front Tire Deflation at LLVW

TEST DATE: September 19, 2006 LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 3:10 pm

Odometer Reading: Start: 185 km (115 mi)

Note: See Data Sheet 3 (Sheet 1 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 28.0°C (82.4°F) Vehicle cool down period: overnight				
Inflation Pressure	220.1 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	26.4°C (79.5°F)	26.2°C (79.2°F)	26.0°C (78.8°F)	26.4°C (79.5°F)
San Angelo Test Facility Shop Floor Temp	26.2°C (79.2°F)	26.8°C (80.2°F)	25.9°C (78.6°F)	26.0°C (78.8°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:19 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:11 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Max speed: 89.2 km/hr (55.4 mph)

Total Driving Time: 20:51 minutes (V-Box time)

DATA SHEET 3 (Sheet 4 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO A - Left Front Tire Deflation at LLVW

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	242.3 kPa (35.1 psi)	243.8 kPa (35.4 psi)	242.6 kPa (35.2 psi)	242.9 kPa (35.2 psi)
Tire Sidewall Temp	35.9°C (96.6°F)	35.2°C (95.4°F)	35.9°C (96.6°F)	35.1°C (95.2°F)
San Angelo Test Facility Shop Floor Temp	27.6°C (81.7°F)	27.6°C (81.7°F)	27.2°C (81.0°F)	27.4°C (81.3°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 ( )RF Inflation Pressure	158.0 kPa (22.9 psi)	N/A	N/A	N/A

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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)

DATA SHEET 3 (Sheet 5 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO A - Left Front Tire Deflation at LLVW

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)

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: 27.6°C (81.7°F) Vehicle cool down period: 81 minutes				
Inflation Pressure	147.0 kPa (21.3 psi)	225.5 kPa (32.7 psi)	226.0 kPa (32.8 psi)	226.3 kPa (32.8 psi)
Tire Sidewall Temp	29.4°C (84.9°F)	29.2°C (84.6°F)	28.9°C (84.0°F)	30.4°C (86.7°F)
San Angelo Test Facility Shop Floor Temp	27.2°C (81.0°F)	27.2°C (81.0°F)	27.4°C (81.3°F)	27.2°C (81.0°F)

After the cool down period of approximately 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 cool down period; Re-adjusted Inflation Pressure:	220.2 kPa (31.9 psi)	225.5 kPa (32.7 psi)	226.0 kPa (32.8 psi)	226.3 kPa (32.8 psi)

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

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL) **PASS**
Left front tire was deflated at LLVW.

REMARKS: None

RECORDED BY: R.N. Gregg DATE: September 19, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 6 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO B – Left Rear Tire Deflation at LLVW

TEST DATE: September 21, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 9:31 am

Odometer Reading: Start: 220 km (137 mi)

Note: See Data Sheet 3 (Sheet 1 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 23.3°C (73.9°F) Vehicle cool down period: overnight Road Surface Temp: 26.5°C (79.7°F)				
Inflation Pressure	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)
Tire Sidewall Temp	24.6°C (76.3°F)	24.2°C (75.6°F)	24.8°C (76.6°F)	25.0°C (77.0°F)
San Angelo Test Facility Shop Floor Temp	25.2°C (77.4°F)	25.0°C (77.0°F)	25.6°C (78.1°F)	25.4°C (77.7°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:01 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:33 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Max speed: 83.6 km/hr (51.9 mph)

Total Driving Time: 20:46 minutes (V-Box time)

DATA SHEET 3 (Sheet 7 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO B – Left Rear Tire Deflation at LLVW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Road Surface Temp: 29.4°C (84.9°F)				
Immediately, after vehicle is stopped, engine off; Inflation Pressure	236.9 kPa (34.4 psi)	236.2 kPa (34.3 psi)	239.3 kPa (34.7 psi)	238.2 kPa (34.5 psi)
Tire Sidewall Temp	34.8°C (94.6°F)	30.6°C (87.1°F)	31.6°C (88.9°F)	33.4°C (92.1°F)
San Angelo Test Facility Shop Floor Temp	26.4°C (79.5°F)	26.6°C (79.9°F)	26.6°C (79.9°F)	26.8°C (80.2°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 ( )RR ( )RF Inflation Pressure	N/A	158.0 kPa (22.9 psi)	N/A	N/A

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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)

DATA SHEET 3 (Sheet 8 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO B – Left Rear Tire Deflation at LLVW

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)

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: 25.7°C (78.3°F) Vehicle cool down period: 63 minutes				
Inflation Pressure	220.2 kPa (31.9 psi)	149.9 kPa (21.7 psi)	225.8 kPa (32.7 psi)	224.9 kPa (32.6 psi)
Tire Sidewall Temp	27.2°C (81.0°F)	27.2°C (81.0°F)	27.8°C (82.0°F)	27.6°C (81.7°F)
San Angelo Test Facility Shop Floor Temp	26.2°C (79.2°F)	26.6°C (79.9°F)	26.8°C (80.2°F)	26.6°C (79.9°F)

After the cool down period of approximately 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 cool down period; Re-adjusted Inflation Pressure:	220.2 kPa (31.9 psi)	220.1 kPa (31.9 psi)	225.8 kPa (32.7 psi)	224.9 kPa (32.6 psi)

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

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL) **PASS**
Left rear tire was deflated at LLVW.

REMARKS: None

RECORDED BY: David K. Banks DATE: September 21, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 9 of 32)
TPMS OPERATIONAL PERFORMANCE

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

TEST DATE: September 21, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 12:53 pm

Odometer Reading: Start: 249 km (155 mi)

Note: See Data Sheet 3 (Sheet 1 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 28.4°C (83.1°F) Vehicle cool down period: 68 minutes Road Surface Temp: 40.9°C (105.6°F)				
Inflation Pressure	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	28.0°C (82.4°F)	27.4°C (81.3°F)	27.9°C (82.2°F)	28.2°C (82.8°F)
San Angelo Test Facility Shop Floor Temp	27.2°C (81.0°F)	26.8°C (80.2°F)	26.6°C (79.9°F)	27.2°C (81.0°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:15 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:32 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Max speed: 86.5 km/hr (53.7 mph)

Total Driving Time: 20:48 minutes (V-Box time)

DATA SHEET 3 (Sheet 10 of 32)
TPMS OPERATIONAL PERFORMANCE

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

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Road Surface Temp: 42.4°C (108.3°F)				
Immediately, after vehicle is stopped, engine off; Inflation Pressure	241.7 kPa (35.1 psi)	242.2 kPa (35.1 psi)	241.4 kPa (35.0 psi)	240.3 kPa (34.9 psi)
Tire Sidewall Temp	39.4°C (102.9°F)	35.8°C (96.4°F)	33.9°C (93.0°F)	36.4°C (97.5°F)
San Angelo Test Facility Shop Floor Temp	28.0°C (82.4°F)	27.0°C (80.6°F)	28.2°C (82.8°F)	27.8°C (82.0°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 (X)LR (X)RR (X)RF Inflation Pressure	158.1 kPa (22.9 psi)	158.1 kPa (22.9 psi)	158.1 kPa (22.9 psi)	158.0 kPa (22.9 psi)

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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)

DATA SHEET 3 (Sheet 11 of 32)
TPMS OPERATIONAL PERFORMANCE

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

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)

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: 31.7°C (89.1°F) Vehicle cool down period: 62 minutes				
Inflation Pressure	149.4 kPa (21.7 psi)	149.3 kPa (21.7 psi)	149.5 kPa (21.7 psi)	150.4 kPa (21.8 psi)
Tire Sidewall Temp	29.6°C (85.3°F)	30.9°C (87.6°F)	31.2°C (88.2°F)	31.4°C (88.5°F)
San Angelo Test Facility Shop Floor Temp	28.3°C (82.9°F)	28.2°C (82.8°F)	28.4°C (83.1°F)	28.2°C (82.8°F)

After the cool down period of approximately 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 cool down period; Re-adjusted Inflation Pressure:	220.1 kPa (34.8 psi)	220.0 kPa (34.8 psi)	220.1 kPa (34.8 psi)	220.2 kPa (34.8 psi)

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

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: David K. Banks DATE: September 21, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 12 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO D – Right Front Tire Deflation at LLVW

TEST DATE: October 26, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 12:07 pm

Odometer Reading: Start: 319 km (198 mi)

Note: See Data Sheet 3 (Sheet 1 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 23.5°C (74.3°F) Vehicle cool down period: 120 minutes Road Surface Temp: 22.6°C (72.7°F)				
Inflation Pressure	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)	222.0 kPa (32.2 psi)
Tire Sidewall Temp	24.0°C (75.2°F)	23.8°C (74.8°F)	24.4°C (75.9°F)	24.6°C (76.3°F)
San Angelo Test Facility Shop Floor Temp	23.4°C (74.1°F)	23.4°C (74.1°F)	23.6°C (74.5°F)	24.2°C (75.6°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:14 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:17 minutes (stopwatch time) 15.0 km (9.3 mi) distance

Max speed: 86.4 km/hr (53.7 mph)

Total Driving Time: 20:40 minutes (V-Box time)

DATA SHEET 3 (Sheet 13 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO D – Right Front Tire Deflation at LLVW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Road Surface Temp: 27.8°C (82.0°F)				
Immediately, after vehicle is stopped, engine off; Inflation Pressure	238.5 kPa (34.6 psi)	240.6 kPa (34.9 psi)	240.9 kPa (34.9 psi)	237.5 kPa (34.4 psi)
Tire Sidewall Temp	32.6°C (90.7°F)	30.9°C (87.6°F)	31.9°C (89.4°F)	32.8°C (91.0°F)
San Angelo Test Facility Shop Floor Temp	21.2°C (70.2°F)	21.4°C (70.5°F)	22.8°C (73.0°F)	21.4°C (70.5°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: ( )LF ( )LR ( )RR (X)RF Inflation Pressure	N/A	N/A	N/A	158.0 kPa (22.9 psi)

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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)

DATA SHEET 3 (Sheet 14 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO D – Right Front Tire Deflation at LLVW

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)

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: 26.0°C (78.8°F)	Vehicle cool down period: 60 minutes			
Inflation Pressure	224.9 kPa (32.6 psi)	226.1 kPa (32.8 psi)	225.2 kPa (32.7 psi)	149.6 kPa (21.7 psi)
Tire Sidewall Temp	27.4°C (81.3°F)	27.0°C (80.6°F)	27.1°C (80.8°F)	27.4°C (81.3°F)
San Angelo Test Facility Shop Floor Temp	24.4°C (75.9°F)	24.4°C (75.9°F)	24.6°C (76.3°F)	24.6°C (76.3°F)

After the cool down period of approximately 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 cool down period; 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? ( )YES (X)NO

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL) **PASS**
Right front tire was deflated at LLVW.

REMARKS: None

RECORDED BY: R.N. Gregg DATE: October 26, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 15 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO E – Right Rear Tire Deflation at LLVW

TEST DATE: October 30, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 10:38 am

Odometer Reading: Start: 348 km (216 mi)

Note: See Data Sheet 3 (Sheet 1 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 19.3°C (66.7°F) Vehicle cool down period: overnight Road Surface Temp: 20.8°C (69.4°F)				
Inflation Pressure	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)	222.1 kPa (32.2 psi)
Tire Sidewall Temp	21.2°C (70.2°F)	21.4°C (70.5°F)	21.6°C (70.9°F)	21.6°C (70.9°F)
San Angelo Test Facility Shop Floor Temp	21.6°C (70.9°F)	21.6°C (70.9°F)	21.8°C (71.2°F)	21.6°C (70.9°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75+ 25 km/h excluding time periods when brake pedal is applied.

10:08 minutes (stopwatch time) 14.6 km (9.1 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75+ 25 km/h excluding time periods when brake pedal is applied.

9:57 minutes (stopwatch time) 14.8 km (9.2 mi) distance

Max speed: 84.2 km/hr (52.3 mph)

Total Driving Time: 20:29 minutes (V-Box time)

DATA SHEET 3 (Sheet 16 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO E – Right Rear Tire Deflation at LLVW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Road Surface Temp: 21.6°C (70.9°F)				
Immediately, after vehicle is stopped, engine off; Inflation Pressure	239.0 kPa (34.7 psi)	239.5 kPa (34.7 psi)	239.4 kPa (34.7 psi)	238.1 kPa (34.5 psi)
Tire Sidewall Temp	27.0°C (80.6°F)	27.0°C (80.6°F)	27.0°C (80.6°F)	28.4°C (83.1°F)
San Angelo Test Facility Shop Floor Temp	21.4°C (70.5°F)	21.7°C (71.1°F)	22.6°C (72.7°F)	22.4°C (72.3°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 ( )LR (X)RR ( )RF Inflation Pressure	N/A	N/A	158.0 kPa (22.9 psi)	N/A

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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)

DATA SHEET 3 (Sheet 17 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO E – Right Rear Tire Deflation at LLVW

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)

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: 23.0°C (73.4°F) Vehicle cool down period: 60 minutes				
Inflation Pressure	227.5 kPa (33.0 psi)	226.6 kPa (32.9 psi)	150.6 kPa (21.8 psi)	227.0 kPa (32.9 psi)
Tire Sidewall Temp	24.6°C (76.3°F)	24.4°C (75.9°F)	25.0°C (77.0°F)	24.8°C (76.6°F)
San Angelo Test Facility Shop Floor Temp	23.8°C (74.8°F)	23.2°C (73.8°F)	23.6°C (74.5°F)	23.6°C (74.5°F)

After the cool down period of approximately 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 cool down period; Re-adjusted Inflation Pressure:	220.1 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? ( )YES (X)NO

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL) **PASS**
Right rear tire was deflated at LLVW.

REMARKS: None

RECORDED BY: R.N. Gregg DATE: October 30, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 18 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO F – Left Front, Left Rear Tire Deflation at LLVW

TEST DATE: October 30, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 12:46 pm

Odometer Reading: Start: 377 km (234 mi)

Note: See Data Sheet 3 (Sheet 1 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 24.6°C (76.3°F) Vehicle cool down period: 72 minutes Road Surface Temp: 30.2°C (86.4°F)				
Inflation Pressure	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	24.6°C (76.3°F)	24.4°C (75.9°F)	25.0°C (77.0°F)	24.8°C (76.6°F)
San Angelo Test Facility Shop Floor Temp	23.8°C (74.8°F)	23.2°C (73.8°F)	23.6°C (74.5°F)	23.6°C (74.5°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75+ 25 km/h excluding time periods when brake pedal is applied.

10:06 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75+ 25 km/h excluding time periods when brake pedal is applied.

10:14 minutes (stopwatch time) 15.0 km (9.3 mi) distance

Max speed: 89.6 km/hr (55.7 mph)

Total Driving Time: 20:36 minutes (V-Box time)

DATA SHEET 3 (Sheet 19 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO F – Left Front, Left Rear Tire Deflation at LLVW

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Road Surface Temp: 31.6°C (88.9°F)				
Immediately, after vehicle is stopped, engine off; Inflation Pressure	234.8 kPa (34.1 psi)	239.8 kPa (34.8 psi)	238.1 kPa (34.5 psi)	238.8 kPa (34.6 psi)
Tire Sidewall Temp	29.4°C (84.9°F)	29.4°C (84.9°F)	28.4°C (83.1°F)	29.6°C (85.3°F)
San Angelo Test Facility Shop Floor Temp	23.6°C (74.5°F)	23.8°C (74.8°F)	23.6°C (74.5°F)	23.6°C (74.5°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 (X)LR ( )RR ( )RF Inflation Pressure	158.0 kPa (22.9 psi)	157.9 kPa (22.9 psi)	N/A	N/A

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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)

DATA SHEET 3 (Sheet 20 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO F – Left Front, Left Rear Tire Deflation at LLVW

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)

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: 26.6°C (79.9°F) Vehicle cool down period: 60 minutes				
Inflation Pressure	149.5 kPa (21.7 psi)	148.8 kPa (21.6 psi)	222.3 kPa (32.2 psi)	224.2 kPa (32.5 psi)
Tire Sidewall Temp	26.6°C (79.9°F)	25.2°C (77.4°F)	26.0°C (78.8°F)	26.0°C (78.8°F)
San Angelo Test Facility Shop Floor Temp	24.0.°C (75.2°F)	23.8°C (74.8°F)	23.6°C (74.5°F)	23.6°C (74.5°F)

After the cool down period of approximately 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 cool down period; Re-adjusted Inflation Pressure:	220.1 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? ( )YES (X)NO

TEST RESULTS

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

REMARKS: None

RECORDED BY: R.N. Gregg DATE: October 30, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 21 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO G – Left Front Tire Deflation at GVWR

TEST DATE: November 7, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 10:20 am

Odometer Reading: Start: 414 km (257 mi)

Note: See Data Sheet 3 (Sheet 2 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 20.6°C (69.1°F) Vehicle cool down period: overnight Road Surface Temp: 20.8°C (69.4°F)				
Inflation Pressure	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)	220.2 kPa (31.9 psi)	220.2 kPa (31.9 psi)
Tire Sidewall Temp	21.1°C (70.0°F)	21.0°C (69.8°F)	22.0°C (71.6°F)	22.2°C (72.0°F)
San Angelo Test Facility Shop Floor Temp	19.8°C (67.6°F)	19.9°C (67.8°F)	20.1°C (68.2°F)	20.1°C (68.2°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:04 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:15 minutes (stopwatch time) 14.8 km (9.2 mi) distance

Max speed: 85.7 km/hr (53.3 mph)

Total Driving Time: 20:29 minutes (V-Box time)

DATA SHEET 3 (Sheet 22 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO G – Left Front Tire Deflation at GVWR

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Road Surface Temp: 26.8°C (80.2°F)				
Immediately, after vehicle is stopped, engine off; Inflation Pressure	240.7 kPa (34.9 psi)	248.9 kPa (36.1 psi)	242.3 kPa (35.1 psi)	239.3 kPa (34.7 psi)
Tire Sidewall Temp	28.6°C (83.5°F)	27.6°C (81.7°F)	25.2°C (77.4°F)	24.8°C (76.6°F)
San Angelo Test Facility Shop Floor Temp	16.6°C (61.9°F)	17.8°C (64.0°F)	17.2°C (63.0°F)	17.0°C (62.6°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: (X)LF ( )LR ( )RR ( )RF Inflation Pressure	158.0 kPa (22.9 psi)	N/A	N/A	N/A

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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

DATA SHEET 3 (Sheet 23 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO G – Left Front Tire Deflation at GVWR

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)

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: 22.4°C (72.3°F) Vehicle cool down period: 60 minutes				
Inflation Pressure	149.8 kPa (21.7 psi)	231.1 kPa (33.5 psi)	223.2 kPa (32.4 psi)	224.8 kPa (32.6 psi)
Tire Sidewall Temp	23.0°C (73.4°F)	22.4°C (72.3°F)	24.2°C (75.6°F)	21.8°C (71.2°F)
San Angelo Test Facility Shop Floor Temp	20.0°C (68.0°F)	20.8°C (69.4°F)	21.2°C (70.2°F)	20.2°C (68.4°F)

After the cool down period of approximately 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 cool down period; Re-adjusted Inflation Pressure:	220.2 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? ( )YES (X)NO

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL) **PASS**
Left front tire was deflated at GVWR.

REMARKS: None

RECORDED BY: R.N. Gregg DATE: November 7, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 24 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO H – Right Rear Tire Deflation at GVWR

TEST DATE: November 7, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 12:33 pm

Odometer Reading: Start: 443 km (275 mi)

Note: See Data Sheet 3 (Sheet 2 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 24.3°C (75.7°F) Vehicle cool down period: 60 minutes Road Surface Temp: 32.2°C (90.0°F)				
Inflation Pressure	220.1 kPa (31.9 psi)	220.2 kPa (31.9 psi)	220.2 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	23.2°C (73.8°F)	24.0°C (75.2°F)	23.2°C (73.8°F)	24.4°C (75.9°F)
San Angelo Test Facility Shop Floor Temp	21.2°C (70.2°F)	22.0°C (71.6°F)	21.8°C (71.2°F)	21.8°C (71.2°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:02 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:11 minutes (stopwatch time) 14.8 km (9.2 mi) distance

Max speed: 89.9 km/hr (55.9 mph)

Total Driving Time: 20:25 minutes (V-Box time)

DATA SHEET 3 (Sheet 25 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO H – Right Rear Tire Deflation at GVWR

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Road Surface Temp: 33.8°C (92.8°F)				
Immediately, after vehicle is stopped, engine off; Inflation Pressure	239.2 kPa (34.7 psi)	243.1 kPa (35.3 psi)	243.4 kPa (35.3 psi)	238.6 kPa (34.6 psi)
Tire Sidewall Temp	32.4°C (90.3°F)	30.8°C (87.4°F)	29.4°C (84.9°F)	30.4°C (86.7°F)
San Angelo Test Facility Shop Floor Temp	22.6°C (72.7°F)	22.6°C (72.7°F)	22.4°C (72.3°F)	22.8°C (73.0°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 ( )LR (X)RR ( )RF Inflation Pressure	N/A	N/A	157.9 kPa (22.9 psi)	N/A

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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)

DATA SHEET 3 (Sheet 26 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO H – Right Rear Tire Deflation at GVWR

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)

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: 25.6°C (78.1°F) Vehicle cool down period: 60 minutes				
Inflation Pressure	223.9 kPa (32.5 psi)	225.5 kPa (32.7 psi)	146.5 kPa (21.2 psi)	224.4 kPa (32.5 psi)
Tire Sidewall Temp	25.8°C (78.4°F)	26.8°C (80.2°F)	26.4°C (79.5°F)	25.6°C (78.1°F)
San Angelo Test Facility Shop Floor Temp	23.0°C (73.4°F)	23.0°C (73.4°F)	23.4°C (74.1°F)	23.2°C (73.8°F)

After the cool down period of approximately 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

TELLTALE EXTINGUISHMENT:

RE-ADJUSTED TIRE INFLATION PRESSURES:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After cool down period; Re-adjusted Inflation Pressure:	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)

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

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL) **PASS**
Right rear tire was deflated at GVWR.

REMARKS: None

RECORDED BY: R.N. Gregg DATE: November 7, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 27 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO I – Left Front, Right Front Tire Deflation at GVWR

TEST DATE: November 8, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 12:34 pm

Odometer Reading: Start: 475 km (295 mi)

Note: See Data Sheet 3 (Sheet 2 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 27.3°C (81.1°F) Vehicle cool down period: overnight Road Surface Temp: 33.8°C (92.8°F)				
Inflation Pressure	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.0 kPa (31.9 psi)
Tire Sidewall Temp	22.0°C (71.6°F)	23.8°C (74.8°F)	23.4°C (74.1°F)	21.6°C (70.9°F)
San Angelo Test Facility Shop Floor Temp	20.0°C (68.0°F)	21.6°C (70.9°F)	21.2°C (70.2°F)	20.2°C (68.4°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:07 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal is applied.

10:05 minutes (stopwatch time) 14.8 km (9.2 mi) distance

Max speed: 85.6 km/hr (53.2 mph)

Total Driving Time: 20:40 minutes (V-Box time)

DATA SHEET 3 (Sheet 28 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO I – Left Front, Right Front Tire Deflation at GVWR

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Road Surface Temp: 33.8°C (92.8°F)				
Immediately, after vehicle is stopped, engine off; Inflation Pressure	284.4 kPa (41.2 psi)	246.7 kPa (35.8 psi)	246.5 kPa (35.8 psi)	242.2 kPa (35.1 psi)
Tire Sidewall Temp	31.6°C (88.9°F)	32.2°C (90.0°F)	30.8°C (87.4°F)	34.0°C (93.2°F)
San Angelo Test Facility Shop Floor Temp	20.8°C (69.4°F)	22.2°C (72.0°F)	22.8°C (73.0°F)	21.8°C (71.2°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)	N/A	N/A	157.9 kPa (22.9 psi)

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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)

DATA SHEET 3 (Sheet 29 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO I – Left Front, Right Front Tire Deflation at GVWR

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)

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: 29.1°C (84.4°F) Vehicle cool down period: 60 minutes				
Inflation Pressure	149.1 kPa (21.6 psi)	227.8 kPa (33.0 psi)	227.9 kPa (33.1 psi)	148.9 kPa (21.6 psi)
Tire Sidewall Temp	25.2°C (77.4°F)	27.4°C (81.3°F)	27.2°C (81.0°F)	29.4°C (84.9°F)
San Angelo Test Facility Shop Floor Temp	22.4°C (72.3°F)	23.4°C (74.1°F)	23.6°C (74.5°F)	23.2°C (73.8°F)

After the cool down period of approximately 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)

RE-ADJUSTED TIRE INFLATION PRESSURES:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After cool down period; Re-adjusted Inflation Pressure:	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)

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

TEST RESULTS

TPMS Performance Test Results (PASS/FAIL) **PASS**
Left front and right front tires were deflated at GVWR.

REMARKS: None

RECORDED BY: R.N. Gregg DATE: November 8, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 3 (Sheet 30 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO J – Left Front, Left Rear, Right Rear, Right Front Tire Deflation at GVWR

TEST DATE: November 8, 2006 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C65403

Time: Start: 2:38 pm

Odometer Reading: Start: 504 km (313 mi)

Note: See Data Sheet 3 (Sheet 2 of 32) 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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 29.9°C (85.8°F) Vehicle cool down period: overnight Road Surface Temp: 33.8°C (92.8°F)				
Inflation Pressure	220.0 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)	220.1 kPa (31.9 psi)
Tire Sidewall Temp	27.8°C (82.0°F)	27.6°C (81.7°F)	30.2°C (86.4°F)	28.2°C (82.8°F)
San Angelo Test Facility Shop Floor Temp	22.2°C (72.0°F)	23.2°C (73.8°F)	23.6°C (74.5°F)	22.8°C (73.0°F)

SYSTEM CALIBRATION/LEARNING PHASE:
(V-box time – see Section 6 test plots)

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south
Cumulative vehicle driving time (10 – 15 minutes) at a vehicle speed of 75+ 25 km/h excluding time periods when brake pedal is applied.

10:12 minutes (stopwatch time) 14.5 km (9.0 mi) distance

Driving in opposite direction:

Starting point: Brodnax Road / Highway 87 Direction: north
Cumulative vehicle driving time (5 – 10 minutes) at a vehicle speed of 75+ 25 km/h excluding time periods when brake pedal is applied.

10:11 minutes (stopwatch time) 15.0 km (9.3 mi) distance

Max speed: 87.3 km/hr (54.2 mph)

Total Driving Time: 20:45 minutes (V-Box time)

DATA SHEET 3 (Sheet 31 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO J – Left Front, Left Rear, Right Rear, Right Front Tire Deflation at GVWR

TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Road Surface Temp: 36.2°C (97.2°F)				
Immediately, after vehicle is stopped, engine off; Inflation Pressure	237.1 kPa (34.4 psi)	241.8 kPa (35.1 psi)	241.4 kPa (35.0 psi)	237.1 kPa (34.4 psi)
Tire Sidewall Temp	33.4°C (92.1°F)	39.0°C (102.2°F)	34.8°C (94.6°F)	35.4°C (95.7°F)
San Angelo Test Facility Shop Floor Temp	23.6°C (74.5°F)	25.4°C (77.7°F)	25.2°C (77.4°F)	24.2°C (75.6°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: (X)LF (X)LR (X)RR (X)RF Inflation Pressure	158.1 kPa (22.9 psi)	158.0 kPa (22.9 psi)	158.0 kPa (22.9 psi)	158.1 kPa (22.9 psi)

TELLTALE ILLUMINATION:

Starting point: San Angelo Test Facility shop Direction: south

Did the telltale illuminate? (X)YES ( )NO

Time to Illuminate:

Illumination with ignition switch activation. Driving was not required.

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

Does the vehicle have a telltale that identifies which tire(s) is (are) under-inflated?
( )YES (X)NO

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)

DATA SHEET 3 (Sheet 32 of 32)
TPMS OPERATIONAL PERFORMANCE

SCENARIO J – Left Front, Left Rear, Right Rear, Right Front Tire Deflation at GVWR

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

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: 30.3°C (86.5°F)	Vehicle cool down period: 60 minutes			
Inflation Pressure	148.7 kPa (21.6 psi)	147.5 kPa (21.4 psi)	148.8 kPa (21.6 psi)	149.4 kPa (21.7 psi)
Tire Sidewall Temp	31.0°C (87.8°F)	31.2°C (88.2°F)	31.2°C (88.2°F)	29.4°C (84.9°F)
San Angelo Test Facility Shop Floor Temp	25.2°C (77.4°F)	26.2°C (79.2°F)	27.2°C (81.0°F)	25.4°C (77.7°F)

After the cool down period of approximately 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 cool down period; 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? ( )YES (X)NO

TEST RESULTS

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

Left front, left rear, right rear, and right front tires were deflated at GVWR.

REMARKS: None

RECORDED BY: R.N. Gregg DATE: November 8, 2006

APPROVED BY: Kenneth H. Yates

DATA SHEET 4 (Sheet 1 of 2)
Malfunction Detection

SCENARIO K – Malfunction Detection Test at GVWR

TEST DATE: November 9, 2006 LAB: San Angelo Test Facility VEHICLE NHTSA NO: C65403

Time:	Start:	10:12 am	; End	11:16 am
Ambient Temperature:	Start:	22.6°C (72.7°F)	; End	25.7°C (78.3°F)
Odometer Reading:	Start:	534 km (332 mi)	; End	592 km (368 mi)
Fuel Level:	Start:	7/8 full	; End	¾ full

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

TPMS MALFUNCTION TELLTALE:

( )Dedicated stand-alone (X)Combination low tire pressure warning/malfunction telltale

METHOD OF MALFUNCTION SIMULATION:

Describe method of malfunction simulation: TPMS sensor was removed from left front tire/wheel assembly and replaced with non-TPMS valve stem.

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 or GVWR, positioning vehicle at selected test start point, and vehicle cool down period. Ambient Temperature: 22.6°C (72.7°F) Vehicle cool down period: overnight				
Inflation Pressure	220.0 kPa (34.8 psi)	220.0 kPa (34.8 psi)	220.0 kPa (34.8 psi)	220.1 kPa (34.8 psi)

DATA SHEET 4 (Sheet 2 of 2)
Malfunction Detection

SCENARIO K – Malfunction Detection Test at GVWR

COMBINATION LOW TIRE / MALFUNCTION TELLTALE ILLUMINATION (after ignition locking system is activated to "On" ("Run") position):

Note: See Data Sheet 3 (Sheet 2 of 32) for Test Weight.

Driving in first direction:

Starting point: San Angelo Test Facility shop Direction: south

Cumulative vehicle driving time at a vehicle speed of 75± 25 km/h excluding time periods when brake pedal was applied. Drive the vehicle for 15-17 minutes or until the telltale illuminates, whichever occurs first.

Did the telltale illuminate? (X)YES ( )NO

16:36 minutes (stopwatch time) 25.7 km (16.0 mi) distance

Max speed: 86.5 km/hr (53.7 mph)

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 telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or Run" position? ( )YES (X)NO

Deactivate the ignition locking system and then re-start the vehicle engine. When the ignition locking system is activated to the "On" or "Run" position, does the telltale re-illuminate and stay illuminated? ( )YES (X)NO

TPMS MALFUNCTION PERFORMANCE TEST RESULTS (PASS/FAIL) **N/A (INDICANT TEST ONLY)**

TPMS sensor was removed from left front tire/wheel assembly and replaced with non-TPMS valve stem at GVWR.

REMARKS: Telltale flashed and continued flashing past 90 seconds, never going to solid illumination. This vehicle was manufactured before FMVSS 138 malfunction performance requirements become effective on September 1, 2007.

RECORDED BY: R.N. Gregg DATE: November 9, 2006

APPROVED BY: Kenneth H. Yates

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

TEST DATE: November 9, 2006 LAB: SATF VEHICLE NHTSA NO: C65403

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)? ☑ YES ☐ NO

The following statement, in the English language, is provided verbatim in the Owner's Manual. ☑ 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.

Statement is provided verbatim: ( )YES ( )NO (X)N/A

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.

Statement is provided verbatim: ( )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.

Statement is provided verbatim: ( )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."

Statement is provided verbatim: ( )YES ( )NO (X)N/A

DATA INDICATES COMPLIANCE: PASS/FAIL PASS/FAIL: N/A

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

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: FMVSS 138 malfunction performance requirements do not become effective until September 1, 2007.

RECORDED BY: R.N. Gregg DATE: November 9, 2006

APPROVED BY: Kenneth H. Yates

SECTION 4

INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

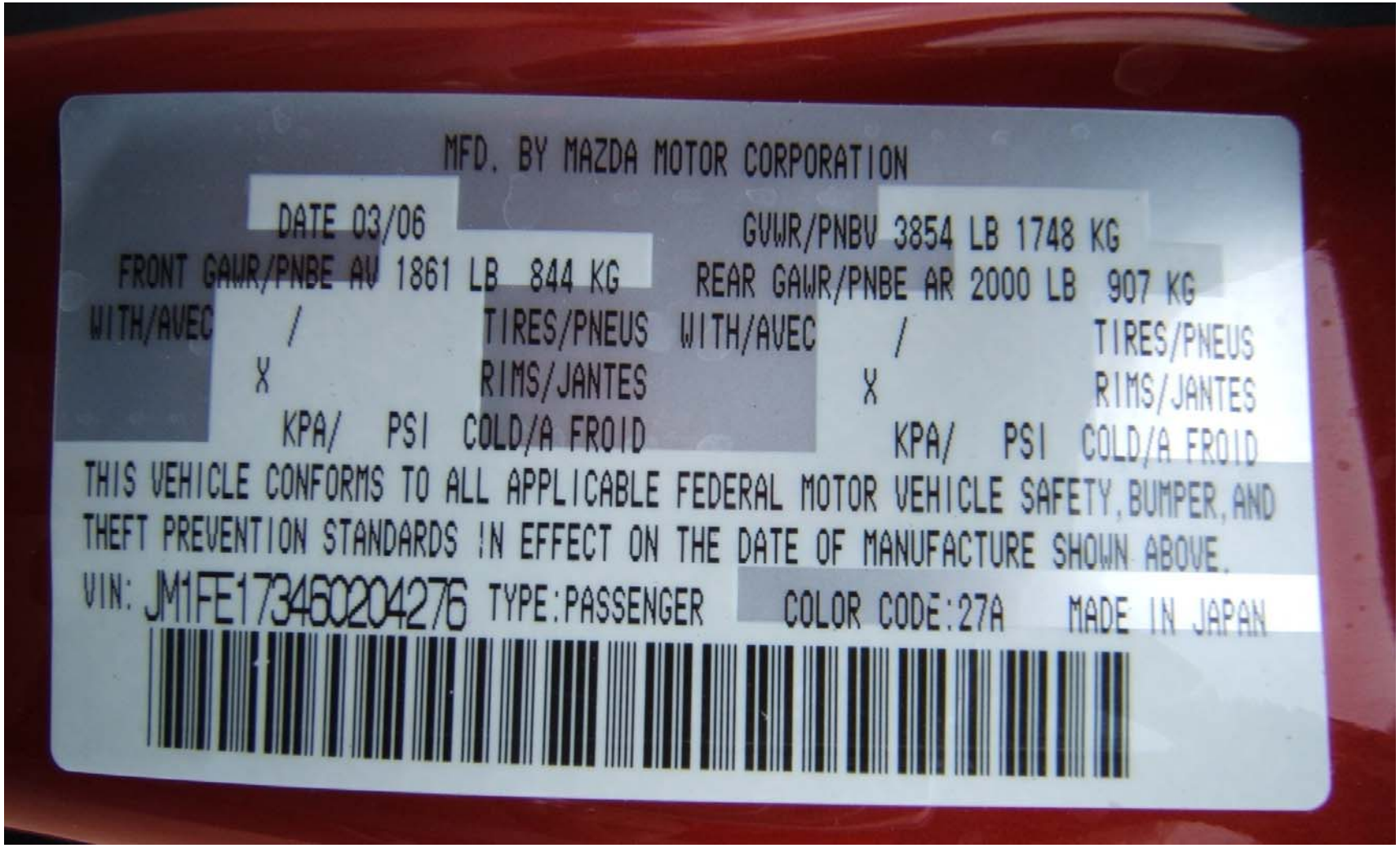
EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO	CAL. DATE	NEXT CAL. DATE
STOPWATCH	WESTCLOX QUARTZ STOPWATCH	NONE	N/A	N/A
V-BOX RECORDING DEVICE	RACELOGIC V-BOX III	SERIAL #030209	2/23/2006	2/23/2007
AMBIENT TEMPERATURE GAUGE	FLUKE 50D K/J THERMOMETER	SERIAL #80840101	7/7/2006	7/7/2007
LASER TEMPERATURE GAUGE (TIRES AND GROUND)	RAYNGER ST20 PRO NON-CONTACT INFRARED THERMOMETER	SERIAL #2065640101-0014	8/10/2006	8/10/2007
AIR PRESSURE GAUGE	ASHCROFT GENERAL PURPOSE DIGITAL GAUGE	MODEL #25C1005 PS02L100-B1 SERIAL #1003098	12/15/2005	12/15/2006
FLOOR SCALES (VEHICLE)	INTERCOMP SW DELUXE SCALES	PART #100156 SERIAL #27032382	8/10/2006	8/10/2007
PLATFORM SCALE (BALLAST)	HOWE RICHARDSON	MODEL #6401 SERIAL #0181-5509-26	8/10/2006	8/10/2007

SECTION 5

PHOTOGRAPHS

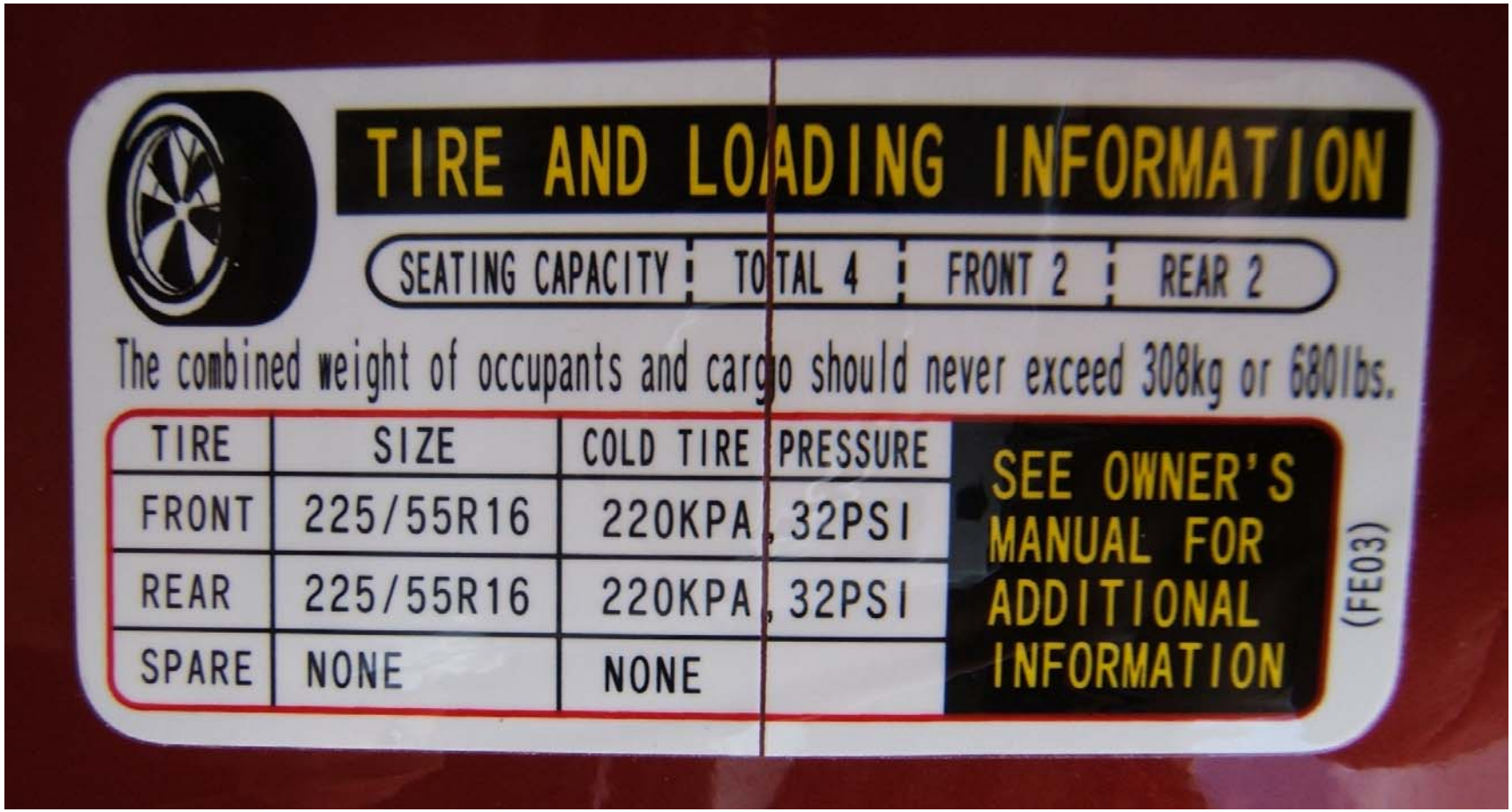
2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO.138

FIGURE 5.1
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE



2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO.138

FIGURE 5.2
VEHICLE CERTIFICATION LABEL



2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.3
VEHICLE PLACARD

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.4
TIRE SHOWING BRAND

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.5
TIRE SHOWING MODEL

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.6
TIRE SHOWING SIZE

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.7
TIRE SHOWING DOT SERIAL NUMBER

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

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

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.9
TIRE SHOWING SIDEWALL/TREAD CONSTRUCTION

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.10
RIM SHOWING VALVE STEM

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.11
INSTRUMENT PANEL SHOWING COMBINATION LOW TIRE PRESSURE WARNING AND MALFUNCTION TELLTALE

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.12
TEST INSTRUMENTATION MOUNTED ON VEHICLE

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.13
VEHICLE REAR SEAT BALLAST FOR GVWR LOAD

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.14
VEHICLE TRUNK BALLAST FOR GVWR LOAD

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

FIGURE 5.15
VEHICLE ON WEIGHT SCALES

2006 MAZDA RX-8
NHTSA NO. C65403
FMVSS NO. 138

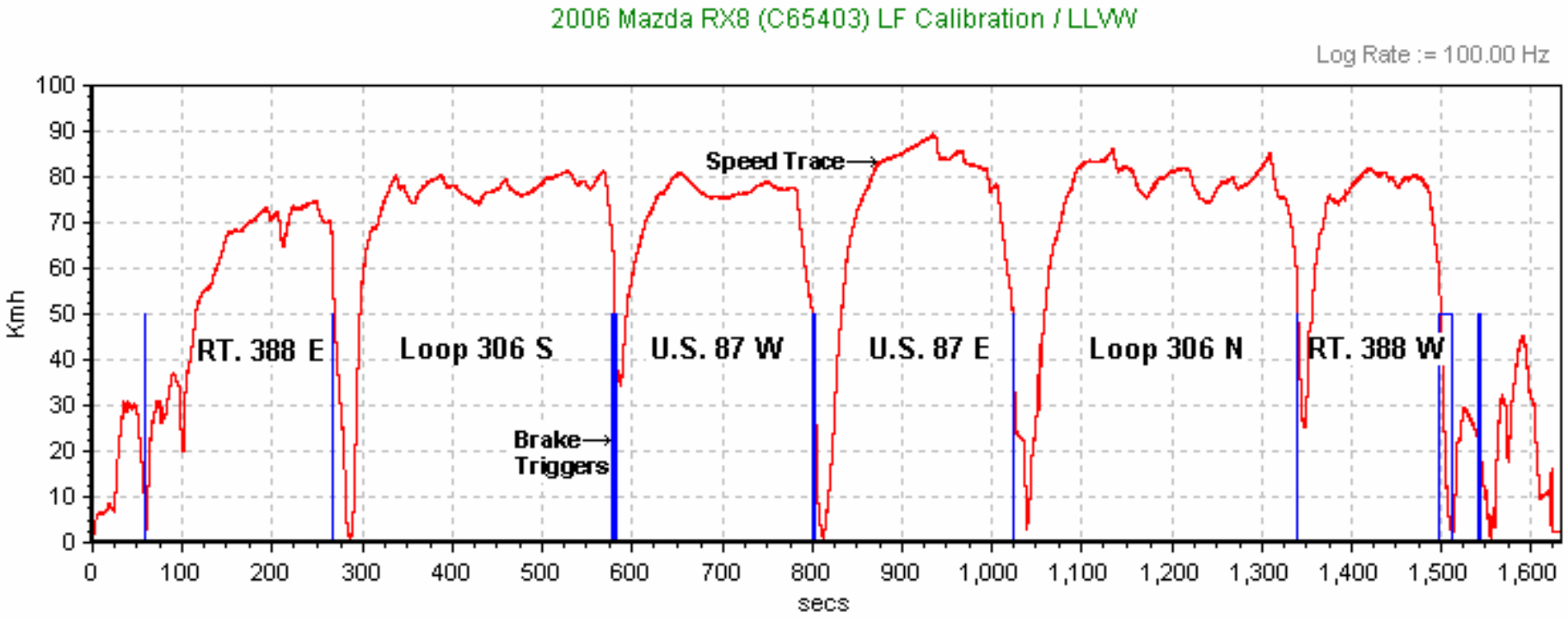
FIGURE 5.16
LEFT FRONT WHEEL SHOWING TPMS SENSOR REPLACED WITH REGULAR VALVE STEM FOR MALFUNCTION DETECTION TEST

SECTION 6

TEST PLOTS

Scenario A:	Left Front Tire
Test Date:	9/19/06
Data File Time:	27:13 minutes
Cumulative Driving Time:	20:51 minutes
Start Point:	SATF shop

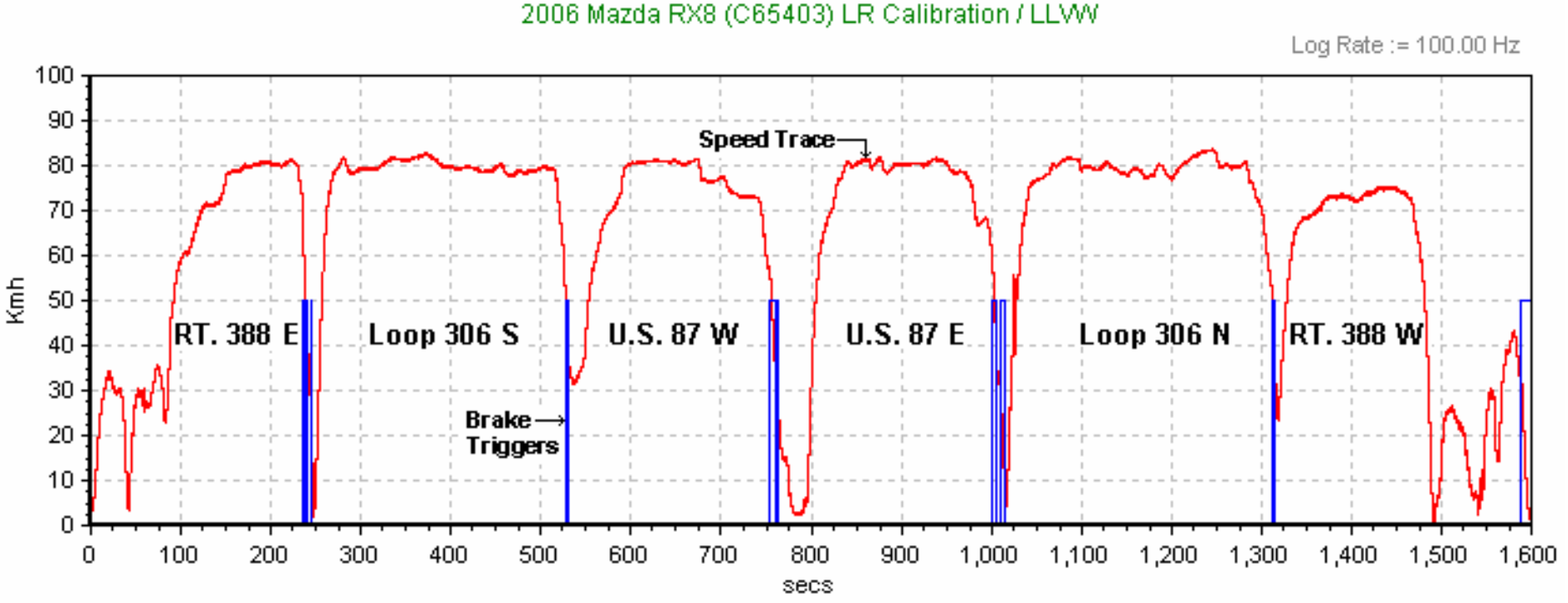
Calibration Phase



LF Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario B:	Left Rear Tire
Test Date:	9/21/06
Data File Time:	26:58 minutes
Cumulative Driving Time:	20:46 minutes
Start Point:	SATF shop

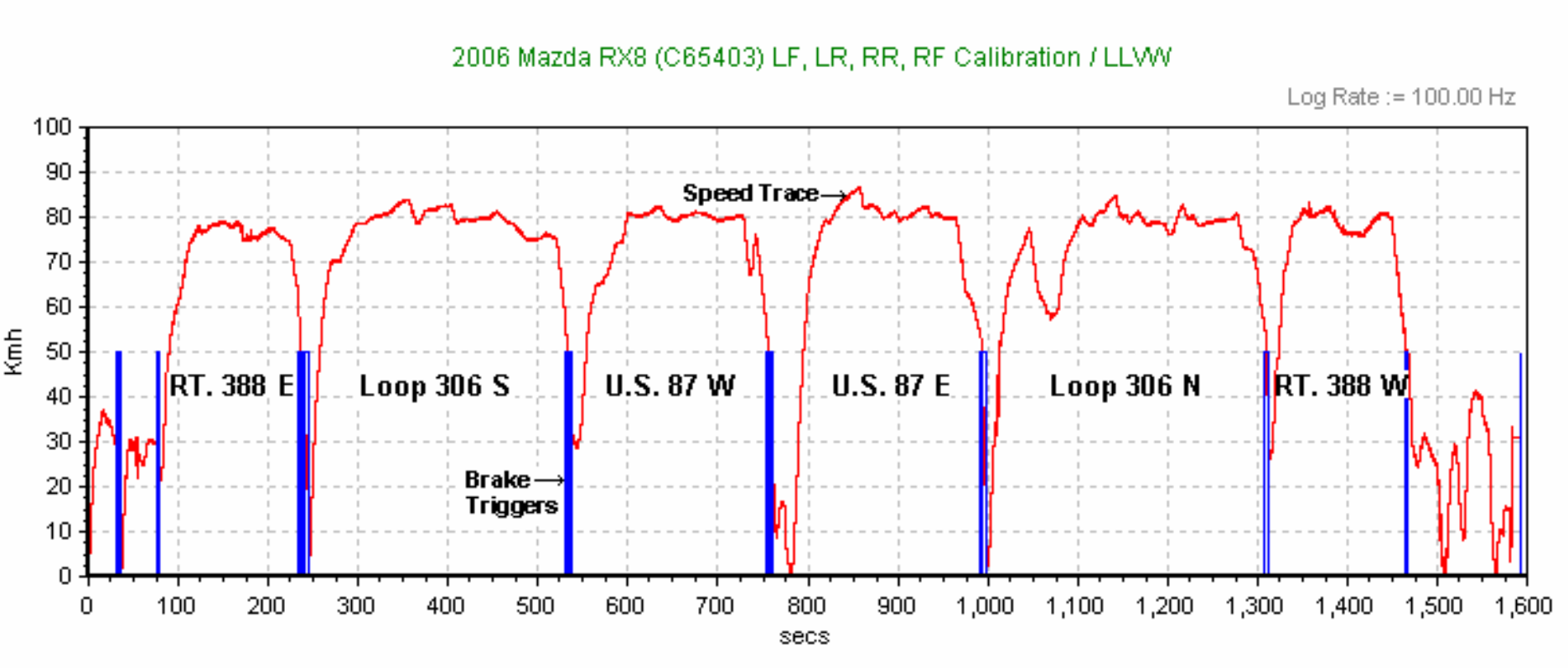
Calibration Phase



LR Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario C:	Left Front, Left Rear, Right Rear, Right Front Tires
Test Date:	9/21/06
Data File Time:	26:32 minutes
Cumulative Driving Time:	20:48 minutes
Start Point:	SATF shop

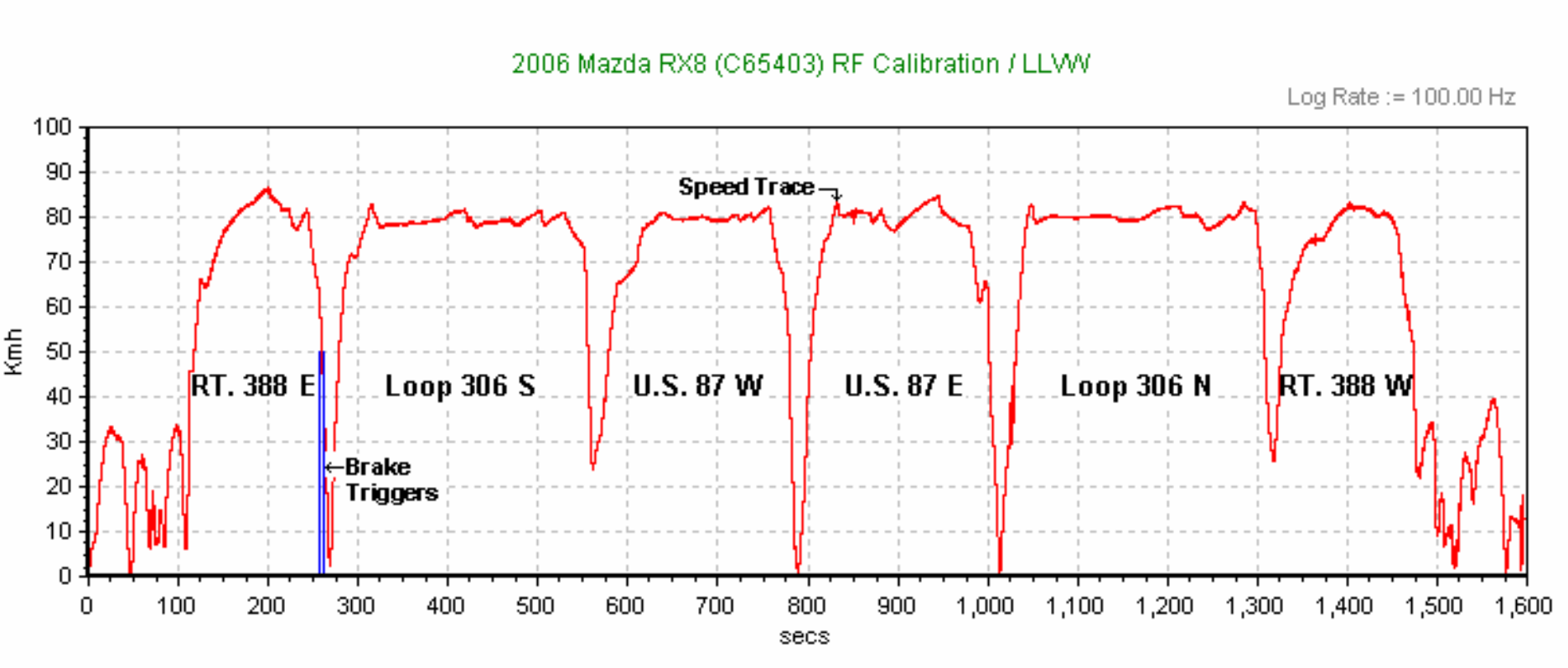
Calibration Phase



LF, LR, RR, RF Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario D:	Right Front Tire
Test Date:	10/26/06
Data File Time:	26:44 minutes
Cumulative Driving Time:	20:40 minutes
Start Point:	SATF shop

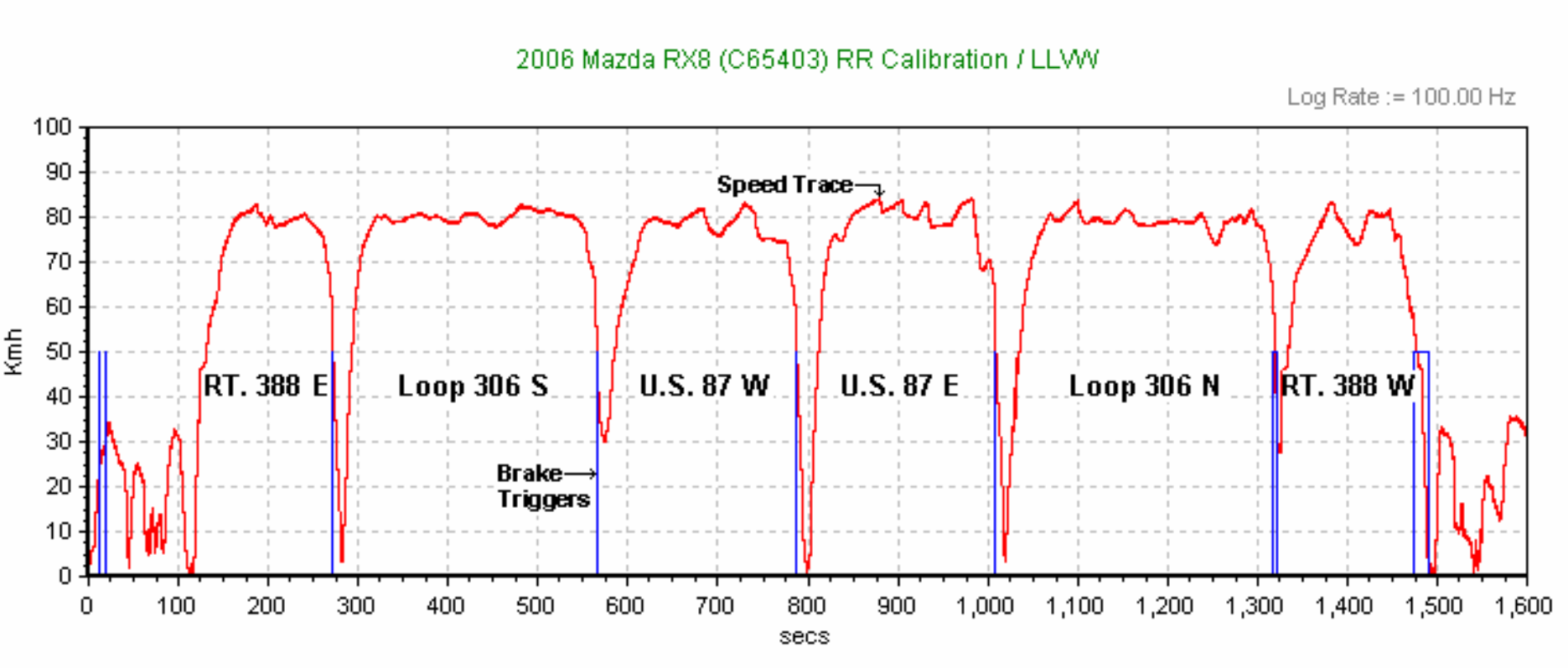
Calibration Phase



RF Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario E:	Right Rear Tire
Test Date:	10/30/06
Data File Time:	27:18 minutes
Cumulative Driving Time:	20:29 minutes
Start Point:	SATF shop

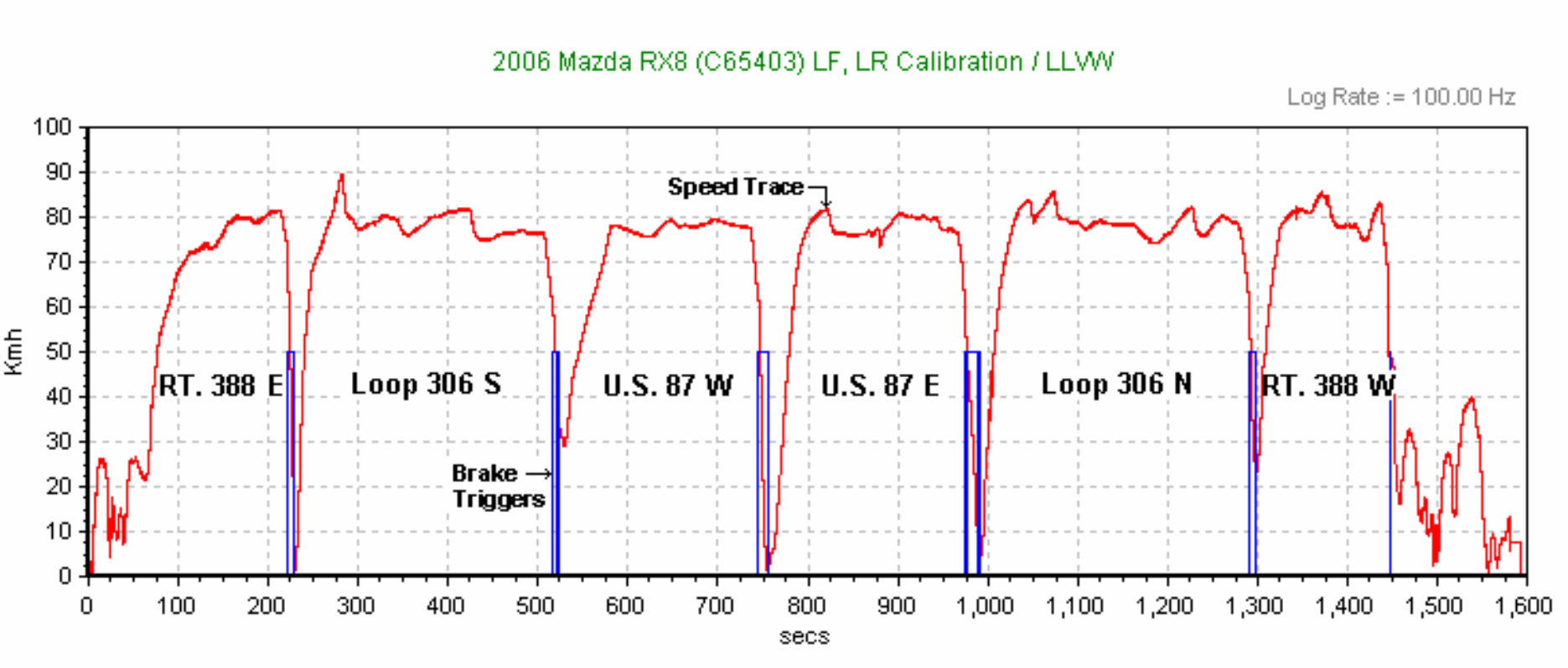
Calibration Phase



RR Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario F:	Left Front, Left Rear Tires
Test Date:	10/30/06
Data File Time:	26:32 minutes
Cumulative Driving Time:	20:36 minutes
Start Point:	SATF shop

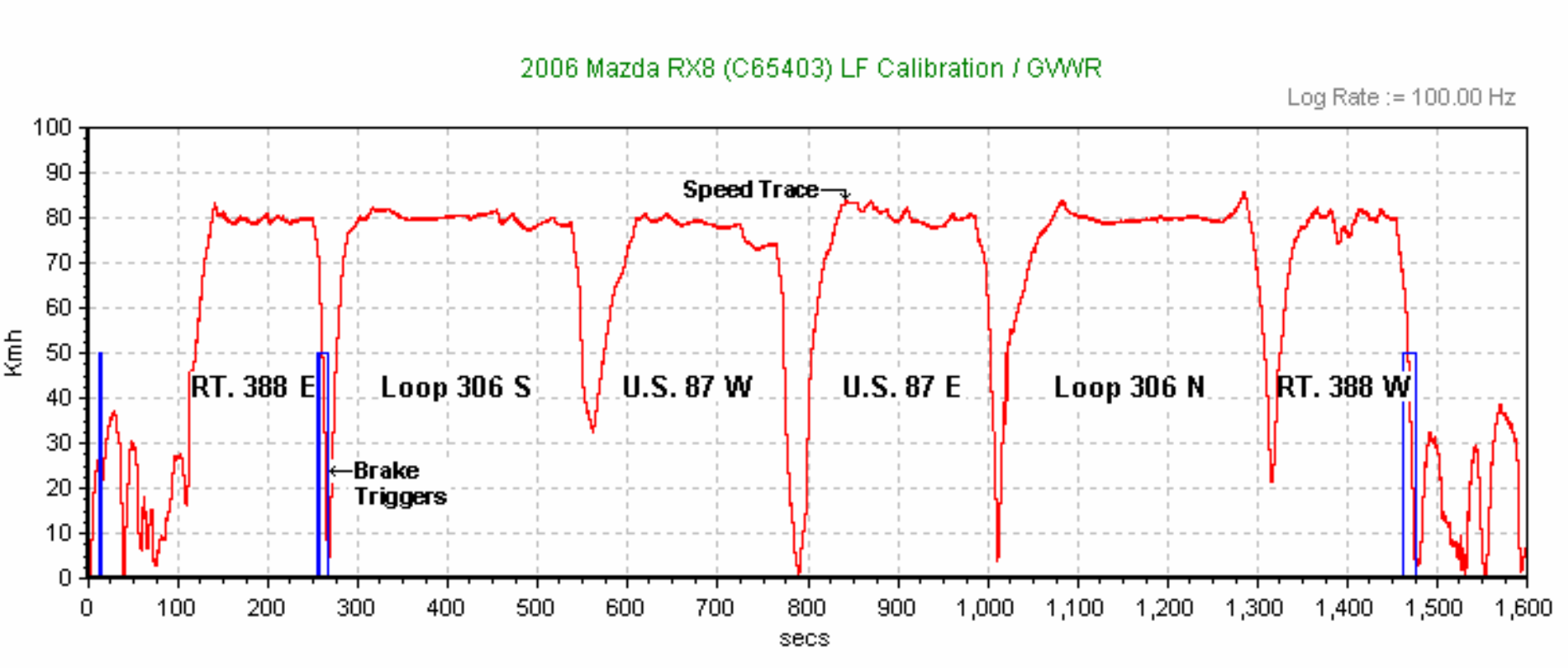
Calibration Phase



LF, LR Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario G:	Left Front Tires
Test Date:	11/7/06
Data File Time:	27:01 minutes
Cumulative Driving Time:	20:29 minutes
Start Point:	SATF shop

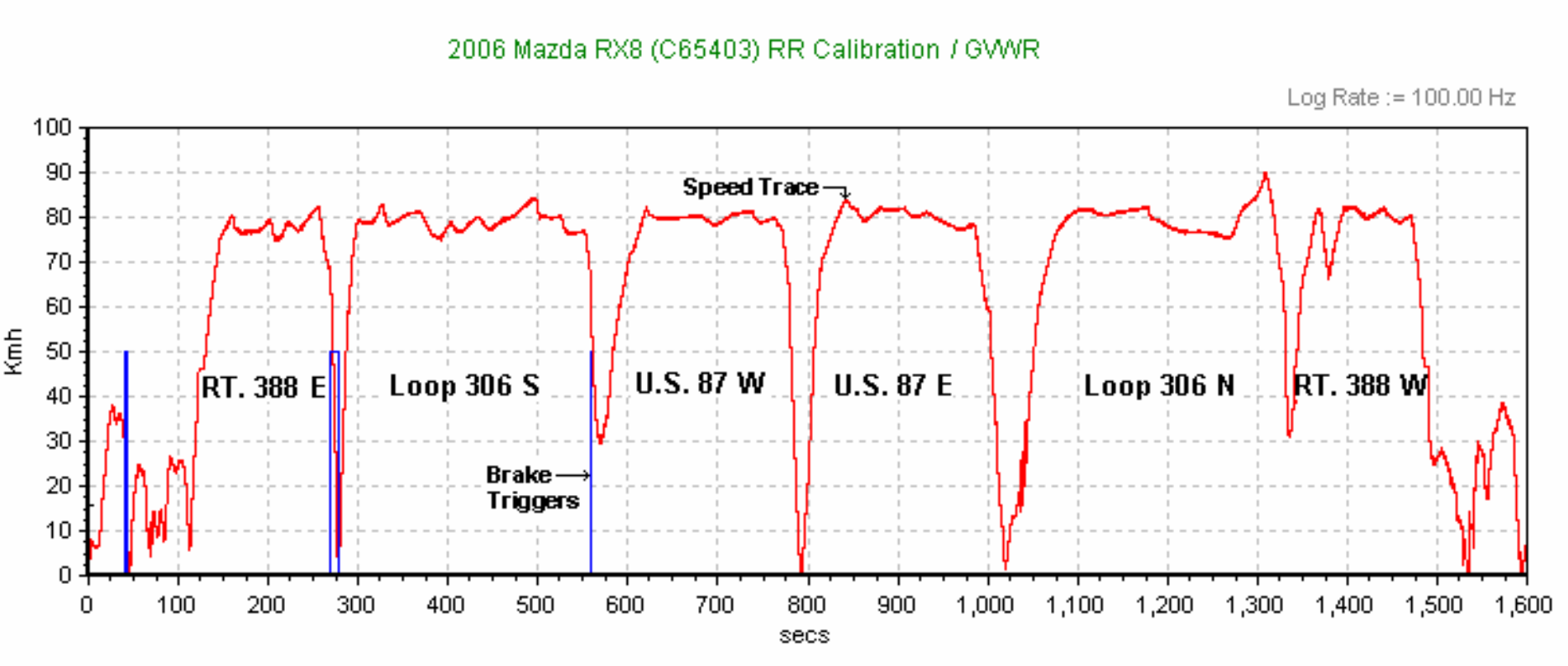
Calibration Phase



LF Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario H:	Right Rear Tire
Test Date:	11/7/06
Data File Time:	27:01 minutes
Cumulative Driving Time:	20:25 minutes
Start Point:	SATF shop

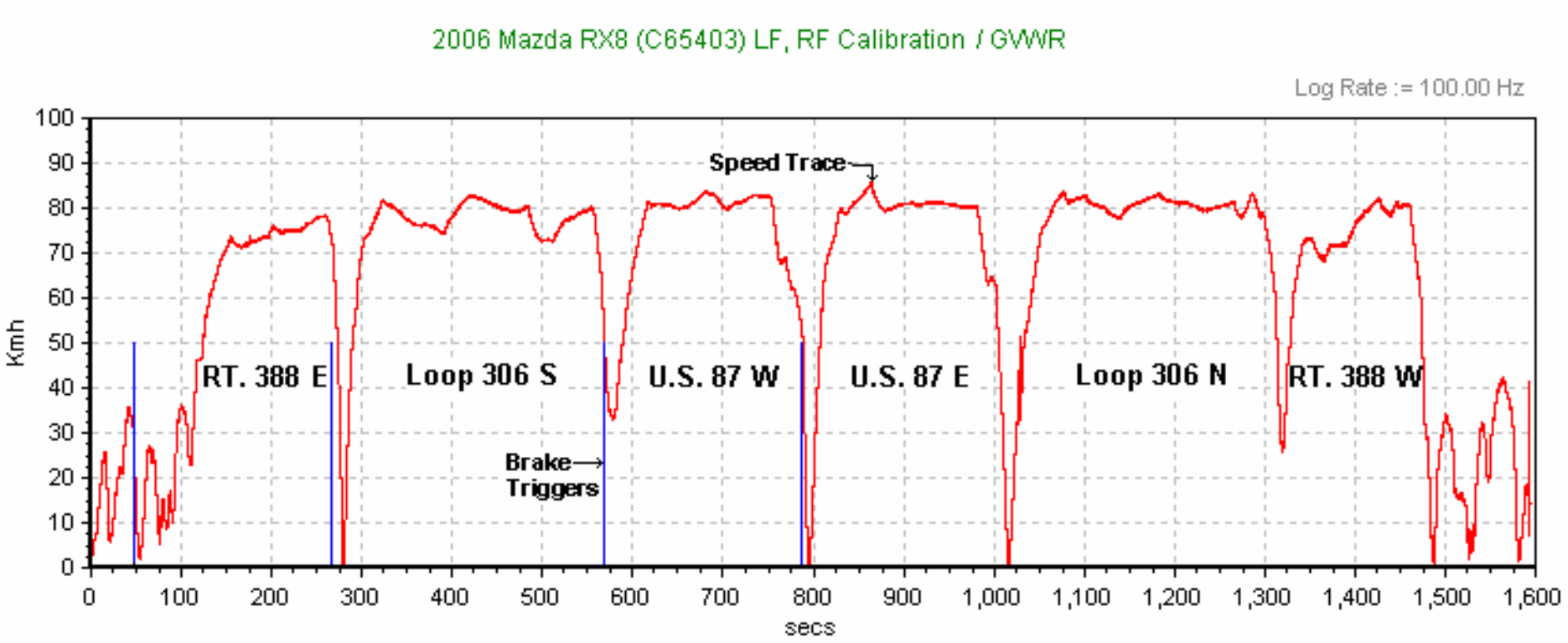
Calibration Phase



RR Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario I:	Left Front, Right Front Tires
Test Date:	11/8/06
Data File Time:	26:37 minutes
Cumulative Driving Time:	20:40 minutes
Start Point:	SATF shop

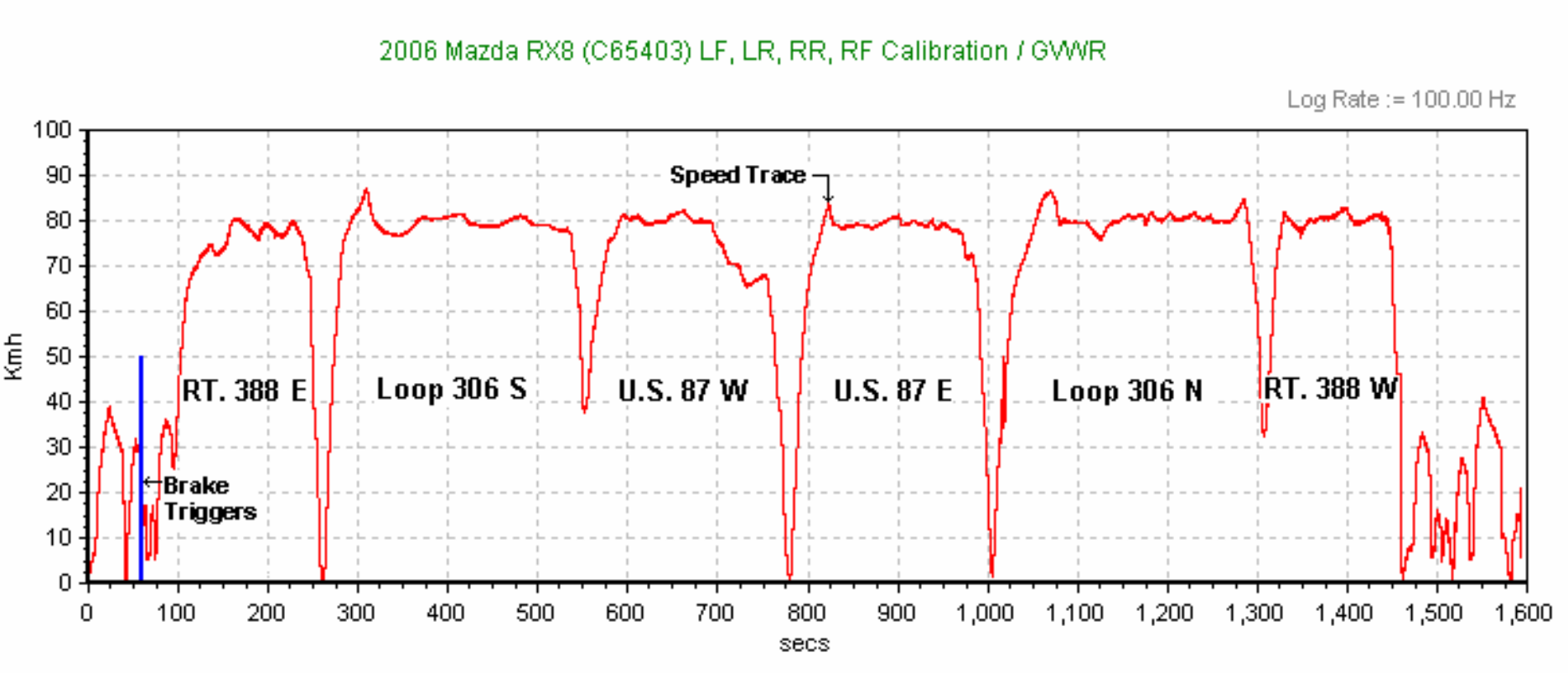
Calibration Phase



LF, RF Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario J:	Left Front, Left Rear, Right Rear, Right Front Tires
Test Date:	11/8/06
Data File Time:	26:49 minutes
Cumulative Driving Time:	20:45 minutes
Start Point:	SATF shop

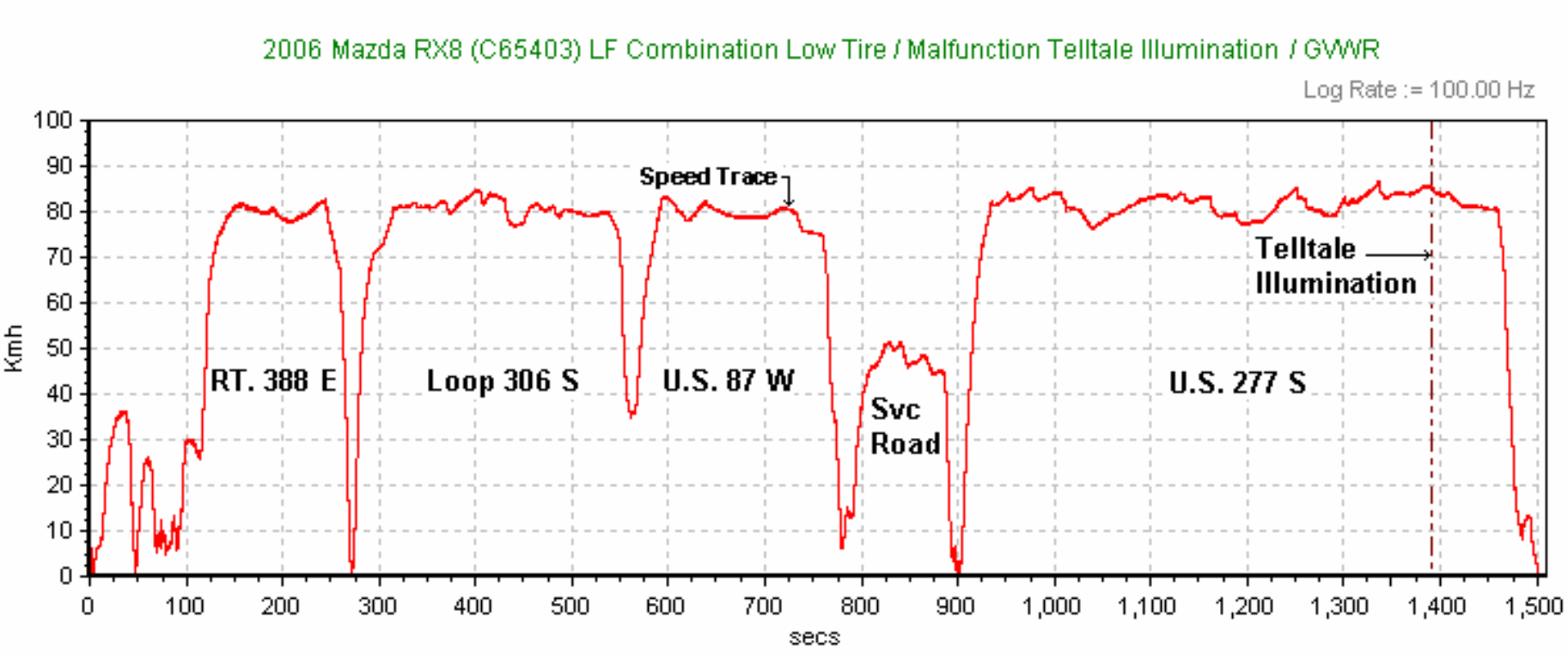
Calibration Phase



LF, LR, RR, RF Detection Phase: Telltale illuminated upon ignition activation. Driving was not required.

Scenario K: Sensor from Left Front Wheel Replaced with Non-TPMS Valve Stem
Test Date: 11/8/06
Data File Time: 25:02 minutes
Illumination: 16:36 minutes
Start Point: SATF shop

Malfunction Detection Test



LF Malfunction Telltale: Indicant test only.