

REPORT NUMBER 110-GTL-08-002

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 110 TIRE SELECTION AND RIMS

COMMERCIAL TRUCK & VAN EQUIPMENT
2008 CHEVROLET UPLANDER
NHTSA NO. C80109

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SEPTEMBER 15, 2008

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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16. Abstract Compliance tests were conducted on the subject 2008 Chevrolet Uplander in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-110T-02 for the determination of FMVSS 110 compliance. Test failures identified were as follows: FMVSS No. 110 Vehicle Placard and Part 567 Certification Label provide incomplete or inaccurate information. Vehicle FMVSS No. 110 Placard <ol style="list-style-type: none"> 1. Placard does not indicate tire size but provides rim size instead. 2. Placard inflation pressure does not indicate units of measure. 3. Spare tire information is not filled in. 4. Capacity weight in pounds is not the correct conversion from the weight provided in kilograms. Vehicle Part 567 Certification Label <ol style="list-style-type: none"> 5. Label shows vehicle type as "VAN" 6. Rear GAWR and tire information are listed under GAWR-INTERMEDIATE(2) 		
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SECTION 1

INTRODUCTION

1.0 PURPOSE OF COMPLIANCE TEST

A 2008 Chevrolet Uplander was subjected to FMVSS No. 110 testing 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 Procedure, TP-110T-02 dated 31 August 2007 and General Testing Laboratories, Inc (GTL) Test Procedure, TP-110T dated 24 September 2007.

1.1 TEST VEHICLE

The test vehicle was a 2008 Chevrolet Uplander. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 1GBDV13W18D172488

B. NHTSA No.: C80109

C. Manufacturer: COMMERCIAL TRUCK & VAN EQUIPMENT, NORCROSS, GA.

D. Manufacture Date: 02/08

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 110 testing during the time period July 14-21, 2008.

SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 GENERAL

The 2008 Chevrolet Uplander, NHTSA No. C80109, was subjected to FMVSS No. 110 testing during the time period July 14 through July 21, 2008.

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 DOT/NHTSA and GTL test procedures. Subsequent events included weighing the vehicle to establish delivered curb weight and the distribution of weight on the front and rear axles and each wheel position. The vehicle normal load as well as the maximum load on each wheel were measured. Data from each tire furnished with the vehicle were recorded. The vehicle tire placard was surveyed and photographed. Required dimensional data and other identifying data for the left front and right rear rims were obtained. The contour of the aforementioned rims was documented photographically.

In preparation for the deflated tire retention test, test instrumentation was installed in the vehicle. With the driver aboard, the vehicle was ballasted to equal the "vehicle maximum load on the tire" on the front and rear axle, as previously established. The tire pressure of all tires was adjusted to placard specifications for cold tire inflation at maximum loaded vehicle weight. The deflated tire retention test was then conducted on the left front tire followed by the right rear tire. The tests were conducted with the vehicle traveling in a straight line at 96.6 kph (60 mph). The respective tire was blown by an explosive charge on the tire's sidewall. Test data collected during the test included vehicle speed, deceleration, stopping distance, distance of uncontrolled deviation from a straight line and tire pressure. After the vehicle was stopped, any tire bead separation from the rim flange was documented photographically.

2.2 SUMMARY OF RESULTS

The test vehicle appears to be in compliance with the requirements of FMVSS No. 110 except for several required labeling issues as noted on Data sheet 5 (3 of 3) under remarks, and in Section 8, Notice of Test Failure.

SECTION 3
TEST DATA

DATA SHEET 1 (1 of 2)
SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2008 Chevrolet Uplander
 VEHICLE NHTSA NO.: C80109 ; VIN: 1GBDV13W18D172488
 VEHICLE TYPE: _____ DATE OF MANUFACTURE: 02/08
 LABORATORY: General Testing Laboratories, Inc.
 TEST DATE: July 14-21, 2008

LIGHT TRUCK TYPE VEHICLE REQUIREMENTS

PASS/FAIL

General (Data Sheet 2)

The vehicle is equipped with tires that meet the requirements of S139. (S110, S4.1)

Pass

Tire Load Limits (Data Sheet 2)

The sum of the maximum load ratings of the tires fitted to an axle is not less than the gross axle weight rating (GAWR) of the axle system as specified on the certification label. When passenger car tires are installed, each tires load rating is reduced by dividing it by 1.10 before determining the sum of the maximum load ratings of the tires fitted to an axle. (S110, S4.2.2.1, S4.2.2.2)

Pass

When passenger car tires are installed, the vehicle normal load on the tire is not greater than the value of 94 percent of the derated load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire. When LT tires are installed, the vehicle normal load on the tire is not greater than the value of 94 percent of the load rating at the vehicle manufacturer's recommended cold inflation pressure for that tire. (S110, S4.2.2.3(a), (b))

Pass

Rims (Data Sheet 3 and 6)

Each rim is constructed to the dimensions of a rim referred to in FMVSS 139 that is listed by the manufacturer of the tires as suitable for use with those tires. (S110, S4.4.1 (a))

Pass

Vehicle rims retain deflated tires during a controlled braking application (S110, S4.4.1(b))

Pass

Each rim is properly marked (S110, S4.4.2)

Pass

DATA SHEET 1 (2 of 2)
SUMMARY

LIGHT TRUCK TYPE VEHICLE REQUIREMENTS

PASS/FAIL

Certification, Placard, and Tire Inflation Pressure Labels (Data Sheet 4)

The placard and tire inflation pressure label (if provided) are affixed and located correctly, and display the information and format required (S110, S4.3)

Fail

The Part 567 certification label shows the size designation of the tires and rims appropriate for the vehicle including the tire size(s) listed on the vehicle placard and, if provided, tire inflation pressure label. (S110, S4.3.3)

Pass

No inflation pressure other than the maximum permissible inflation pressure is shown on the placard and, if any, tire inflation pressure label unless as required. (S110, S4.3.4)

Pass

Vehicle Weight Distribution (Data Sheet 5)

The Gross Vehicle Weight Rating(GVWR) is not less than the sum of the unloaded vehicle weight, rated cargo load, and 68 kg times the vehicle's designated seating capacity. However, for school buses, the minimum occupant weight allowance is 54 kg. (49 CFR 567, Certification)

Pass

Owner's Manual (Data Sheet 6)

Owner's manual or other document has discussion of Vehicle Placard, Loading and Tires. (575.6 (a) (4))

Pass

Owner's manual includes exact statement relating to "Steps for Determining Correct Load Limits." (575.6 (a)(5))

Pass

RECORDED BY: G. FARRAND
APPROVED BY: D. MESSICK

DATE: 07/14/08

DATA SHEET 2
TEST VEHICLE INFORMATION

LABORATORY: General Testing Laboratories, Inc. DATE: 07/14/08

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2008 Chevrolet Uplander

MANUFACTURE DATE: 02/08 NHTSA NO.: C80109 BODY COLOR: White

VIN: 1GBDV13W18D172488 VEHICLE TYPE: VAN*

GVWR 2650 kg (5842 lbs) GAWR(Fr) 1350 kg (2976 lbs) GAWR(Rr) 1300 kg (2866 lbs)

SEATING POSITIONS: FRONT 2 MID REAR

ODOMETER READING AT START OF TEST: 96 Miles

ENGINE DATA: 6 Cylinders 3.9 Liters 240 Cubic Inches

TRANSMISSION DATA: X Automatic Manual 4 No. of Speeds

FINAL DRIVE DATA: Rear Drive X Front Drive 4 Wheel Drive

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT/MAKE SURE ALL OPTIONS ON WINDOW

X	Air Conditioning	X	Traction Control	X	Clock
X	Tinted Glass		All Wheel Drive		Roof Rack
X	Power Steering		Cruise Control		Console
X	Power Windows	X	Rear Window Defroster	X	Driver Air Bag
X	Power Door Locks		Sun Roof or T-Top	X	Passenger Air Bag
	Power Seat(s)	X	Tachometer	X	Front Disc Brakes
X	Power Brakes	X	Tilt Steering Wheel	X	Rear Disc Brakes
X	Antilock Brake System	X	AM/FM/CD	X	Other – Cargo Barrier

REMARKS: * Should be "MPV" or "TRUCK" not "VAN"

RECORDED BY: G. FARRAND

DATE: 07/14/08

APPROVED BY: D. MESSICK

DATA SHEET 3
TEST VEHICLE TIRE IDENTIFICATION AND LOAD LIMITS

VEHICLE MAKE/MODEL/BODY STYLE: 2008 Chevrolet Uplander
 VEHICLE NHTSA NO.: C80109 ; VIN: 1GBDV13W18D172488
 LABORATORY: General Testing Laboratories, Inc.
 TEST DATE: July 14, 2008

All tires on the vehicle (excluding the spare) are the same size: Yes No

Spare tire is the same size as all other tires: Yes No

Tire Sidewall	Right Front	Left Rear (If different)	Spare Tire (If different)
Manufacturer and Model	<u>Goodyear Integrity</u>	_____	<u>Continental</u>
Tire Size Designation	<u>P225/60R17</u>	_____	<u>T135/70R16</u>
Load Index/Speed Symbol	<u>98 S</u>	_____	<u>100/M</u>
Maximum Inflation Pressure	<u>300 KPA, 44 PSI</u>	_____	<u>420 KPA, 60 PSI</u>
Maximum Load Rating	<u>750 KG, 1653 LBS</u>	_____	<u>800 KG, 1764 LBS</u>
Treat/Traction/Temperature	<u>460 "A" "B"</u>	_____	<u>N/A</u>
Tires have "DOT" markings	<u>YES</u>	_____	<u>YES</u>

Serial Number: Right Front M679B3DR Left Front M679B3DR
 Right Rear M679B3DR Left Rear M679B3DR
 Spare CPDJAF CW

Mounted Tire vs. Axle Rating Comparison (at sidewall maximum inflation pressure)	Front Axle	Rear Axle
A. GAWR (KG) from certification label	1350 KG	1300 KG
B. Tire Maximum Load Rating from above (KG)	750 KG	750 KG
C. Reduced Tire Load Rating, if applicable (KG)*	682 KG	682 KG
D. (Number of tires on axle) x (tire load rating, de-rated if appropriate)	1364 KG	1364 KG
Is "D" equal to or greater than "A"? (Yes/No)	YES	YES

* If a passenger car tire is installed on a multipurpose passenger vehicle (MPV), truck or bus, the tire's load rating is reduced by dividing by 1.10.

DATA INDICATES COMPLIANCE

PASS/FAIL Pass

REMARKS:

RECORDED BY: G. FARRAND
 APPROVED BY: D. MESSICK

DATE: 07/15/08

DATA SHEET 4
VEHICLE RIM IDENTIFICATION

VEHICLE MAKE/MODEL/BODY STYLE: 2008 Chevrolet Uplander
 VEHICLE NHTSA NO.: C80109 ; VIN: 1GBDV13W18D172488
 LABORATORY: General Testing Laboratories, Inc.
 TEST DATE: July 15, 2008

RIM MARKINGS	RIGHT FRONT	LEFT REAR (if different)
A. Source of published dimensions (letter designation)	"T"	
B. Rim Size	17 x 6.5 J	
C. Does rim contain DOT symbol (Yes/No)	YES	
D. Manufacturer's name, symbol or trademark (copy format)	GM	
E. Date of manufacture or symbol (copy format)	021608	
Do items A-C appear on weather side of rim? (Yes/No)	YES	
Letter height (not less than 3 mm)	YES	
Lettering (impressed or embossed)	IMPRESSED	
Are all rim markings legible? (Yes/No)	YES	
Do all markings comply with requirements? (Yes/No)	YES	

RIM MEASUREMENTS	RIGHT FRONT	LEFT REAR (if different)
Rim Width (mm)	165.1 (6.5")	
Rim Diameter (mm)	431.8 (17")	
Rim measurements same as rim markings? (Yes/No)	YES	

Rims are suitable for tire on vehicle* Yes () No

*Reference source used for tire/rim match verification: 2008 Tire and Rim Association Yearbook

DATA INDICATES COMPLIANCE

PASS/FAIL Pass

REMARKS:

RECORDED BY: G. FARRAND
 APPROVED BY: D. MESSICK

DATE: 07/15/08

DATA SHEET 5 (1 of 3)
VEHICLE PLACARD AND TIRE INFLATION PRESSURE LABEL

VEHICLE MAKE/MODEL/BODY STYLE: 2008 Chevrolet Uplander
 VEHICLE NHTSA NO.: C80109 ; VIN: 1GBDV13W18D172488
 LABORATORY: General Testing Laboratories, Inc.
 TEST DATE: July 15, 2008

Identification of Vehicle Labeling

	(Yes/No)	Location	Pass/Fail
1. Certification Label*	<u>Yes</u>	<u>Driver "B" Pillar</u>	<u>Pass</u>
2. Vehicle Placard*	<u>Yes</u>	<u>Driver "B" Pillar</u>	<u>Pass</u>
3. Tire Inflation Pressure Label*	<u>No</u>	<u>N/A</u>	<u>N/A</u>

*Labels are to be located as specified in section 12.4 of DOT test procedure

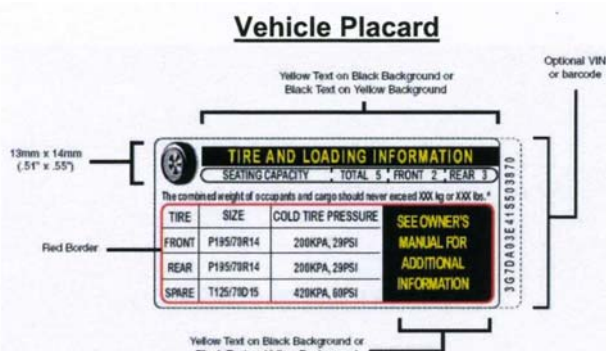


FIGURE 1B
(70 FR 14425)

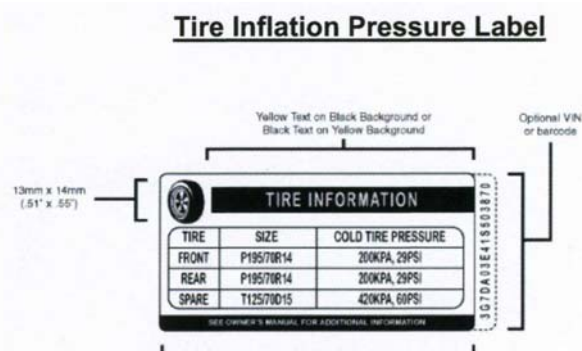


FIGURE 2B
(70 FR 14426)

Labeling Notes:

- Tire size and pressure can be omitted from Vehicle Placard if same data is displayed on a Tire Inflation Pressure Label.
- The Alphanumeric Identifier or Barcode, is optional. It can be located vertically, along the right edge or the left edge of the placard or label, or horizontally, along the bottom edge of the placard or label.
- Tire size can include the tire load range identification symbol ("XL" or "reinforced", "B", "C", "D", "E", or "F"), the load index number, and speed rating symbol, located immediately to the right of the tire size designation.
- The tire "SIZE" heading can be replaced with "ORIGINAL TIRE SIZE" or "ORIGINAL SIZE"
- The "SPARE" tire heading can be replaced with "SPARE TIRE."
- For full size spare tires, the recommended cold tire inflation pressure can be replaced with "SEE ABOVE."
- If no spare tire is provided, the word "NONE" is to replace the manufacturer's cold tire inflation pressure.

DATA SHEET 5 (2 of 3)
VEHICLE PLACARD AND TIRE INFLATION PRESSURE LABEL

Vehicle Placard has the exact color and format as specified in the above Figure 1B and text is in English. Yes No

If no, explain: Label is properly formatted but tire data provided is incorrect. (See remarks)

Tire Inflation Pressure Label, if provided, has the exact color and format as specified in the above Figure 2B and text is in English. Yes No

If no, explain: LABEL NOT PROVIDED

Vehicle Placard and, if provided, **Tire Inflation Pressure Label** are permanently affixed.

Yes No

Vehicle Placard information:

Combined weight of occupants and cargo 646 kg (5797 lbs) (See Remarks)

Seating capacity: Total 2 Front 2 Rear 0

Is the number of belted seating positions the same as the labeled seating capacity?

Yes No

If no, explain _____

Is the tire size and pressure provided? Yes No (See Remarks)

If no, is the tire size and pressure provided on a Tire Inflation Pressure Label?

Yes No (See Remarks)

Vehicle Placard or Tire Inflation Pressure Label tire information:

Tire size Front 17 x 6.5J Rear 17 x 6.5J (See Remarks)

Tire Inflation Pressure Front 35 Rear 35

Are the sizes of the installed tires the same as the sizes of the labeled tires?

Yes No

If no, explain Placard indicates rim size not tire size.

Is the labeled cold tire inflation pressure equal to or less than the sidewall labeled maximum cold tire inflation pressure?

Front axle: Yes No Rear axle: Yes No

Vehicle Certification Label information:

	Tire Size	Rim Size	Rim Suitable for Tire? (Yes/No)*
Front Axle	<u>P225/60R17</u>	<u>17 x 6.5J</u>	<u>Yes</u>
	_____	_____	_____
Rear Axle	<u>P225/60R17</u>	<u>17 x 6.5J</u>	<u>Yes</u>
	_____	_____	_____

DATA SHEET 5 (3 of 3)
VEHICLE PLACARD AND TIRE INFLATION PRESSURE LABEL

Referenced source used for tire/rim match verification: 2008 Tire and Rim Association Yearbook

Is (Are) tire size(s) listed on the vehicle placard and/or tire inflation pressure label also listed on the certification label with suitable rim size? () Yes (X) No (See Remarks)

Labeled Tire Capacity at Specified Pressure GVWR: <u>750</u> KG @ 240 KPA (35 PSI)	<u>Front Axle</u>	<u>Rear Axle</u>
A. GAWR (KG) from certification label	1350	1300
B. Tire Load Rating (KG) of labeled tire size at labeled inflation pressure*	750	750
C. Reduced Tire Load Rating, if applicable** (KG)	682	682
D. (Number of tires) x (tire load rating, de-rated if appropriate) (KG)	1364	1364
Is "D" equal to or greater than "A"? (Yes/No)	YES	YES

*Reference source used for tire/rim match verification: 2008 Tire and Rim Association Yearbook

** If a passenger car tire is installed on a multipurpose passenger vehicle(MPV), truck or bus, the tire's load rating is reduced by dividing 1.10.

DATA INDICATES COMPLIANCE

PASS/FAIL Fail

REMARKS:

Vehicle FMVSS No. 110 Placard

1. Placard does not indicate tire size but provides rim size instead.
2. Placard inflation pressure does not indicate units of measure.
3. Spare tire information is not filled in.
4. Capacity weight in pounds is not the correct conversion from the weight provided in kilograms.

Vehicle Part 567 Certification Label

5. Label shows vehicle type as "VAN"
6. Rear GAWR and tire information are listed under GAWR-INTERMEDIATE(2)

RECORDED BY: G. FARRAND
APPROVED BY: D. MESSICK

DATE: 07/17/08

DATA SHEET 6 (1 of 4)
CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT

VEHICLE MAKE/MODEL/BODY STYLE: 2008 Chevrolet Uplander
 VEHICLE NHTSA NO.: C80109 ; VIN: 1GBDV13W18D172488
 LABORATORY: General Testing Laboratories, Inc.
 TEST DATE: July 17, 2008

Full Fluid Levels: Fuel Full Coolant Full Other Fluids Full (Brake Fluid, Windshield Washer Fluid)

Tire Pressures: LF 240 KPA LR 240 KPA
 RF 240 KPA RR 240 KPA

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF 562.5 KG LR 355.0 KG
 RF 559.5 KG RR 355.0 KG

Front Axle 1122.0 KG Rear Axle 710.0 KG

Total Vehicle 1832 KG

B. MEASURED VEHICLE NORMAL LOAD WEIGHT

1. Seating Capacity from Vehicle Placard 2
2. Normal Load Number of Occupants (from table in Section 10)
 Occupant Distribution: Front Seat 2 Second Seat 0
 Third Seat 0 Fourth Seat 0

3. Total Normal Occupant Load 136 KG
 (# of occupants x 68 KG per occupant)

4. Measured Normal Load on Axles
 LF 607 KG LR 380 KG
 RF 601 KG RR 380 KG

Front Axle 1208 KG Rear Axle 760 KG

Total 1968 KG

5. Calculated Vehicle Normal Load on the Tire
 Front Tires (Measured front axle normal load/2) 604 KG
 Rear Tires (Measured rear axle normal load/2) 380 KG

DATA SHEET 6 (2 of 4)
CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT

Vehicle Normal Load on the Tire should not be greater than the Value of 94% of the load rating at the vehicle manufacturer's recommended cold inflation pressure.

MEASURED NORMAL LOAD ON TIRE VS. VALUE OF 94% OF LOAD RATING FOR THAT TIRE AT SPECIFIED PRESSURE	Front Axle	Rear Axle
A. Calculated Vehicle Normal Load on the Tire from (5)	604	380
B. Tire Load Rating (KG) of installed tire size at recommended cold inflation pressure*	750	750
C. Reduced Tire Load Rating, if applicable (KG)**	682	682
D. 94% of tire load rating, de-rated if appropriate (KG)	641	641
Is "D" equal to or greater than "A"? (Yes/No)	YES	YES

*Reference source used for tire/rim match verification: 2008 Tire and Rim Association Yearbook

** If a passenger car tire is installed on a multipurpose passenger vehicle(MPV), truck or bus, the tire's load rating is reduced by dividing 1.10.

DATA SHEET 6 (3 of 4)
CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT

C. MEASURED VEHICLE WEIGHT WITH FULL OCCUPANT LOAD

1. Seating Capacity from Placard:
Total 2 Front 2 Rear 0
2. Full Occupant Load 136 KG
(# of occupants x 68 KG per occupant)
3. Measured Vehicle Weight with Full Occupant Load

LF <u> 607.0 </u> KG	LR <u> 380.0 </u> KG
RF <u> 601.0 </u> KG	RR <u> 380.0 </u> KG
Front Axle <u> 1208.0 </u> KG	
Rear Axle <u> 760.0 </u> KG	
Total Vehicle <u> 1968.0 </u> KG	

D. MEASURED VEHICLE WEIGHT WITH MAXIMUM LOAD (PLACARD)

1. Vehicle Capacity Weight (from placard) 646 KG
2. Full Occupant Load (from C.2 above) 136 KG
(# of occupants x 68 KG per occupant)
3. Luggage/Cargo Load (subtract 2 from 1) 510 KG
4. Measured Vehicle Maximum Load on Axles

LF <u> 630.0 </u> KG	LR <u> 615.5 </u> KG
RF <u> 614.5 </u> KG	RR <u> 618.0 </u> KG
Front Axle <u> 1244.5 </u> KG	
Rear Axle <u> 1233.5 </u> KG	
Total <u> 2478.0 </u> KG	

DATA SHEET 6 (4 of 4)
CURB WEIGHT, NORMAL LOAD WEIGHT & MAXIMUM VEHICLE WEIGHT

WEIGHT DISTRIBUTION

Item	Tire or Vehicle Rating* (KG)	Unloaded Vehicle Wt. (KG)		Vehicle Wt. With Full Occupant Load (KG)		Vehicle Maximum Wt. With Occupants and Cargo (KG)	
		Measured Overload	Measured Overload	Measured Overload	Measured Overload	Measured Overload	Measured Overload
Left Front Tire	682	562.5	No	607.0	No	630.0	No
Right Front Tire	682	559.5	No	601.0	No	614.5	No
Front Axle (GAWR)	1350	1122.0	No	1208.0	No	1244.5	No
Left Rear Tire	682	355.0	No	380.0	No	615.5	No
Right Rear Tire	682	355.0	No	380.0	No	618.0	No
Rear Axle (GAWR)	1300	710.0	No	760.0	No	1233.5	No
Total Vehicle (GVWR)	2650	1832.0	No	1968.0	No	2478.0	No

* Vehicle and axle weight ratings (GVWR & GAWR) are located on the vehicle certification label. Vehicle tire load ratings are based upon the inflation pressure specified on the Vehicle Placard or Tire Inflation Pressure Label for each respective axle, as determined from the appropriate Tire and Rim reference manual. If a passenger car tire is installed on a multipurpose passenger vehicle (MPV), truck or bus, the tire's load rating is reduced by dividing by 1.10.

DATA INDICATES COMPLIANCE

PASS/FAIL Pass

REMARKS:

RECORDED BY: G. FARRAND
APPROVED BY: D. MESSICK

DATE: 07/17/08

DATA SHEET 7 (1 of 2)
DEFLATED TIRE RETENTION

VEHICLE MAKE/MODEL/BODY STYLE: 2008 Chevrolet Uplander
 VEHICLE NHTSA NO.: C80109 ; VIN: 1GBDV13W18D172488
 LABORATORY: General Testing Laboratories, Inc.
 TEST DATE: July 18, 2008

Tire Pressures: LF 240 KPA LR 240 KPA
 RF 240 KPA RR 240 KPA

Test Weight: LF 611.5 KG LR 628 KG
 RF 624.5 KG RR 614 KG

Front Axle 1236 KG Rear Axle 1242 KG

Total Vehicle 2478 KG

Retention Test Left Front:

Odometer (START): 112 miles Fuel Level: Full

Ambient Temperature: 36 °C Wind Speed: 2.2 m/s

Vehicle Speed at time of blow-out: 96 kmph (97 kmph +0 kmph, -2 kmph)

Maximum Deceleration Rate: 2.5 m/sec² Deflation Opening Size 2.5 cm (dia.)

Stopping Distance (Distance traveled after initial release of air): 204 m

Distance of Uncontrolled Deviation from a straight line: 0 cm

Description of Bead Separation, Outboard:

None

Description of Bead Separation, Inboard:

None

Vehicle stopped with a controlled brake application (driver opinion): (X) Yes () No

Deflated tire retained on rim for duration of test: (X) Yes () No

DATA SHEET 7 (2 of 2)
DEFLATED TIRE RETENTION

Retention Test Right Rear:

Odometer (START): 116 miles Fuel Level: Full

Ambient Temperature: 36 °C Wind Speed: 4 m/s

Vehicle Speed at time of blow-out: 95.1 kmph (97 kmph +0 kmph, -2 kmph)

Maximum Deceleration Rate: 2.5 m/sec² Deflation Opening Size 2.2 cm (dia.)

Stopping Distance (Distance traveled after initial release of air): 233 m

Distance of Uncontrolled Deviation from a straight line: 0 cm

Description of Bead Separation, Outboard:

None

Description of Bead Separation, Inboard:

None

Vehicle stopped with a controlled brake application (driver opinion): (X) Yes () No

Deflated tire retained on rim for duration of test: (X) Yes () No

DATA INDICATES COMPLIANCE:

Left Front
Right Rear

PASS/FAIL

Pass

Pass

REMARKS:

RECORDED BY: G. FARRAND
APPROVED BY: D. MESSICK

DATE: 07/18/08

DATA SHEET 8
OWNER'S MANUAL REQUIREMENTS

VEHICLE MAKE/MODEL/BODY STYLE: 2008 Chevrolet Uplander
 VEHICLE NHTSA NO.: C80109 ; VIN: 1GBDV13W18D172488
 LABORATORY: General Testing Laboratories, Inc.
 TEST DATE: July 21, 2008

Owner's Manual Discusses:

Part 575.6(a) Paragraph	Required Discussion Topic	Discussed in Manual? (Yes/No)
(4) (i)	Tire labeling, including a description and explanation of each marking on the tire provided with the vehicle, and information about the location of the Tire Identification Number (TIN)	YES
(4) (ii)	A. Description and explanation of recommended cold tire inflation pressure.	YES
	B. Description and explanation of FMVSS 110 Vehicle Placard and Tire Inflation Pressure Label and their location(s)	YES
	C. Description and explanation of adverse safety consequences of under-inflation including tire failure	YES
	D. Description and explanation for measuring and adjusting air pressure to achieve proper inflation	YES
(4) (iii)	Glossary of tire terminology, including "cold tire pressure", "maximum inflation pressure", and all non-technical terms defined in S3 of FMVSS 110 and 139	YES
(4) (iv)	Tire care, including maintenance and safety practices	YES
(4) (v)	A. Description and explanation of locating and understanding load limit information, total load capacity, seating capacity, towing capacity and cargo capacity.	YES
	B. Description and explanation for calculating total and cargo load capacities with varying seating configurations including quantitative examples showing/illustrating how the vehicle's cargo and luggage capacity decreases as the combined number and size of occupants increases.	YES
	C. Description and explanation for determining compatibility of tire and vehicle load capabilities	YES
	D. Description and explanation of adverse safety consequences of overloading on handling and stopping and on tires	YES

DATA SHEET 8 Continued
OWNER'S MANUAL REQUIREMENTS

The following verbatim statement, in the English language, is provided in the Owner's Manual.
Reference Part 575.6 (a)(5) (X)Yes () No

Steps for Determining Correct Load Limit:

1. Locate the statement "The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs." on your vehicle's placard.
2. Determine the combined weight of the driver and passenger that will be riding in your vehicle
3. Subtract the combined weight of the driver and passenger from XXX kg or XXX lbs.
4. The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the XXX amount equals 1400 lbs and there will be five 150 lb passenger in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs. ($1400 - 750 (5 \times 150) = 650$ lbs.)
5. Determine the combined weight of the luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.
6. If you vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult the manual to determine how this reduces the available cargo and luggage load capacity of your vehicle.

DATA INDICATES COMPLIANCE

PASS/FAIL Pass

REMARKS:

RECORDED BY: G. FARRAND
APPROVED BY: D. MESSICK

DATE: 07/21/08

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
PAD SCALES	#1 199744LF	199744LF	01/08	01/09
	#2 199744RF	199744RF	01/08	01/09
	#3 199744LR	199744LR	01/08	01/09
	#4 199744RR	19974RR	01/08	01/09
PRESSURE TRANSDUCER	BLH	D-HF #65409	BEFORE USE	BEFORE USE
ANEMOMETER	OMEGA	19353-56	06/08	06/09
SLIP RING ASSEMBLY	GTL	N/A	BEFORE USE	BEFORE USE
DECELEROMETER	GTL	N/A	BEFORE USE	BEFORE USE
VBOX	RACELOGIC	VB2 #004337	06/08	06/09
LASER LEVEL	ACCULINE	40-6620	BEFORE USE	BEFORE USE

SECTION 5
PHOTOGRAPHS



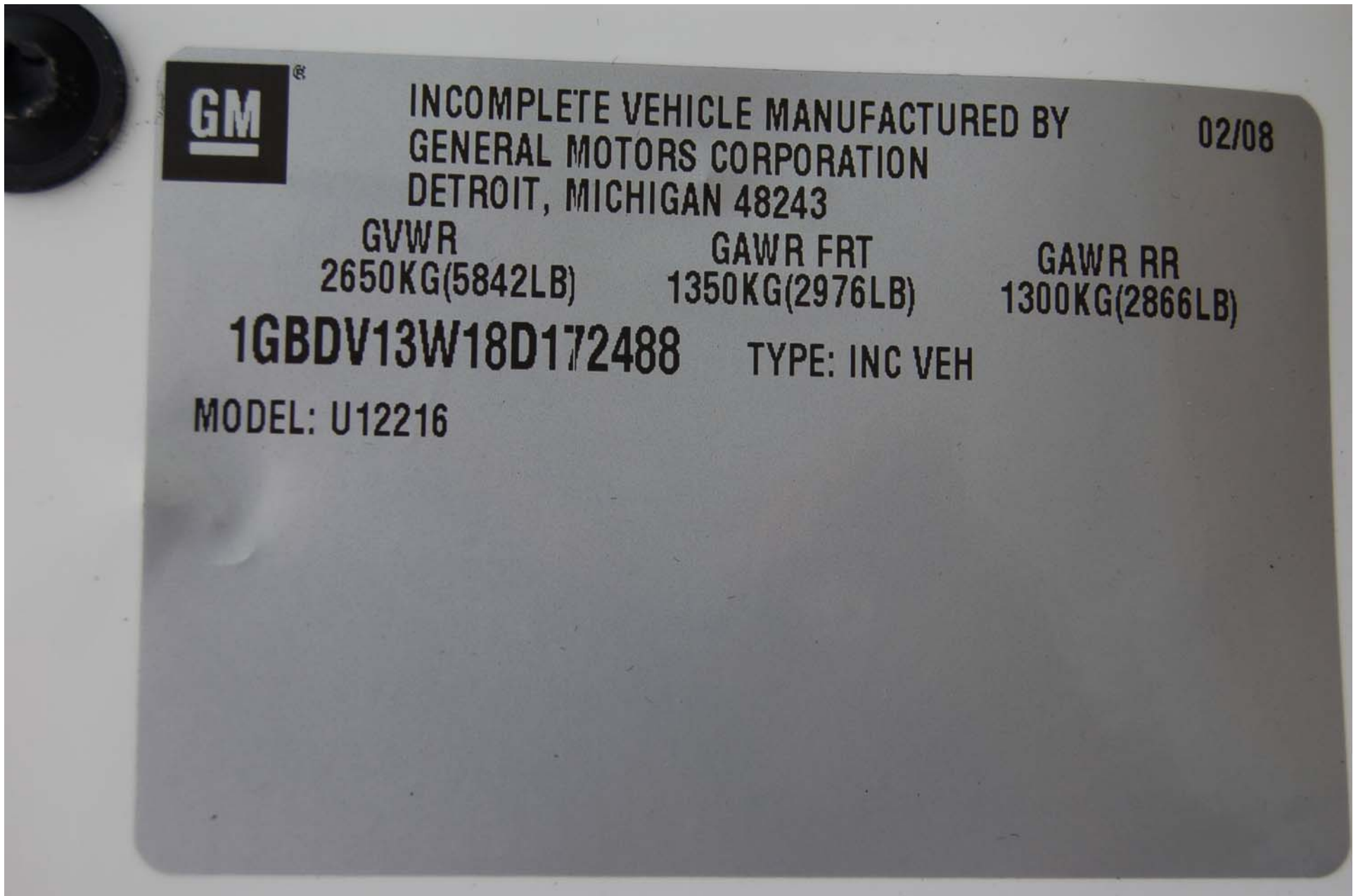
2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.1
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.2
¾ REAR VIEW FROM RIGHT SIDE VIEW OF VEHICLE




2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.3
INCOMPLETE VEHICLE LABEL

**MFD BY: COMMERCIAL TRUCK &
 VAN EQUIP. NORCROSS, GA**
 DATE OF MFR: MO. 2 YR. 2008
 GVWR: 2650 KG (5842 LB)
GAWR-FRONT:
1350 KG (2976 LB)
 WITH P225/60R17 TIRES,
17X6.5J RIMS, @ 240 KPA
 (35 PSI) COLD
GAWR-INTERMEDIATE(1):
 _____ KG (_____ LB)
 WITH _____ TIRES,
 _____ RIMS, @ _____ KPA
 (_____ PSI) COLD
GAWR-INTERMEDIATE(2):
1300 KG (2866 LB)
 WITH P225/60R17 TIRES,
17X6.5J RIMS, @ 240 KPA
 (35 PSI) COLD
GAWR-REAR:
 _____ KG (_____ LB)
 WITH _____ TIRES,
 _____ RIMS, @ _____ KPA
 (_____ PSI) COLD
 THIS VEHICLE HAS BEEN COMPLETED IN ACCORDANCE
 WITH THE PRIOR MANUFACTURERS' IVD, WHERE
 APPLICABLE. THIS VEHICLE CONFORMS TO ALL
 APPLICABLE FEDERAL MOTOR VEHICLE SAFETY
 STANDARDS, [AND BUMPER AND THEFT PREVENTION
 STANDARDS, IF APPLICABLE] IN EFFECT IN:
 MO. 02 YR. 08
VEHICLE IDENTIFICATION NUMBER:
1GBDV13W18D172488
VEHICLE TYPE:
VAN

2008 CHEVROLET UPLANDER
 NHTSA NO. C80109
 FMVSS NO. 110

FIGURE 5.4
 VEHICLE CERTIFICATION LABEL


TIRE AND LOADING INFORMATION

SEATING CAPACITY | TOTAL **2** | FRONT **2** | REAR **0**

The combined weight of occupants and cargo should never exceed **646** Kg or **5797** Lbs.

TIRE	SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT	17X6.5J	35	
REAR	17X6.5J	35	
SPARE			

2008 CHEVROLET UPLANDER
 NHTSA NO. C80109
 FMVSS NO. 110

FIGURE 5.5
 VEHICLE TIRE INFORMATION LABEL



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.6
TIRE SHOWING BRAND AND MODEL



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.7
TIRE SHOWING LOAD INDEX AND SPEED SYMBOL



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.8
TIRE SHOWING LOAD RATING AND INFLATION PRESSURE



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.9
TIRE SHOWING SERIAL NUMBER



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.10
RIM MARKINGS



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.11
RIM MARKINGS



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.12
RIM CONTOUR



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.13
VEHICLE BALLAST FOR OCCUPANTS



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.14
VEHICLE BALLAST FOR CARGO



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.15
VEHICLE ON SCALES



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.16
TEST INSTRUMENTATION SET-UP



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.17
LEFT FRONT TIRE BLOW-OUT



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.18
LEFT FRONT TIRE HOLE



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.19
LEFT FRONT TIRE OUTSIDE, POST TEST



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.20
LEFT FRONT TIRE INSIDE, POST TEST



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.21
RIGHT REAR TIRE BLOW-OUT



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.22
RIGHT REAR TIRE HOLE



2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

FIGURE 5.23
RIGHT REAR TIRE OUTSIDE, POST TEST

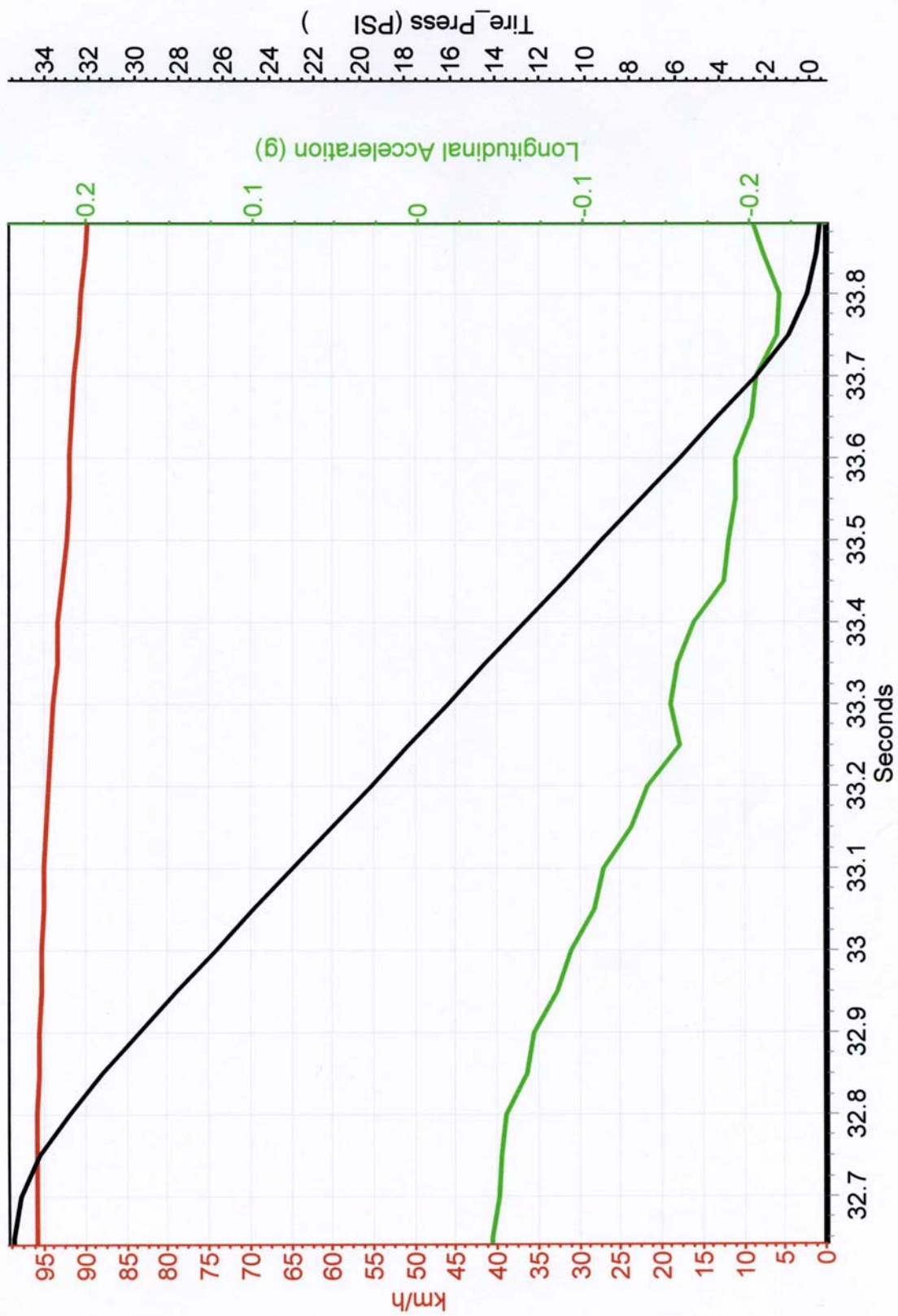


2008 CHEVROLET UPLANDER
NHTSA NO. C80109
FMVSS NO. 110

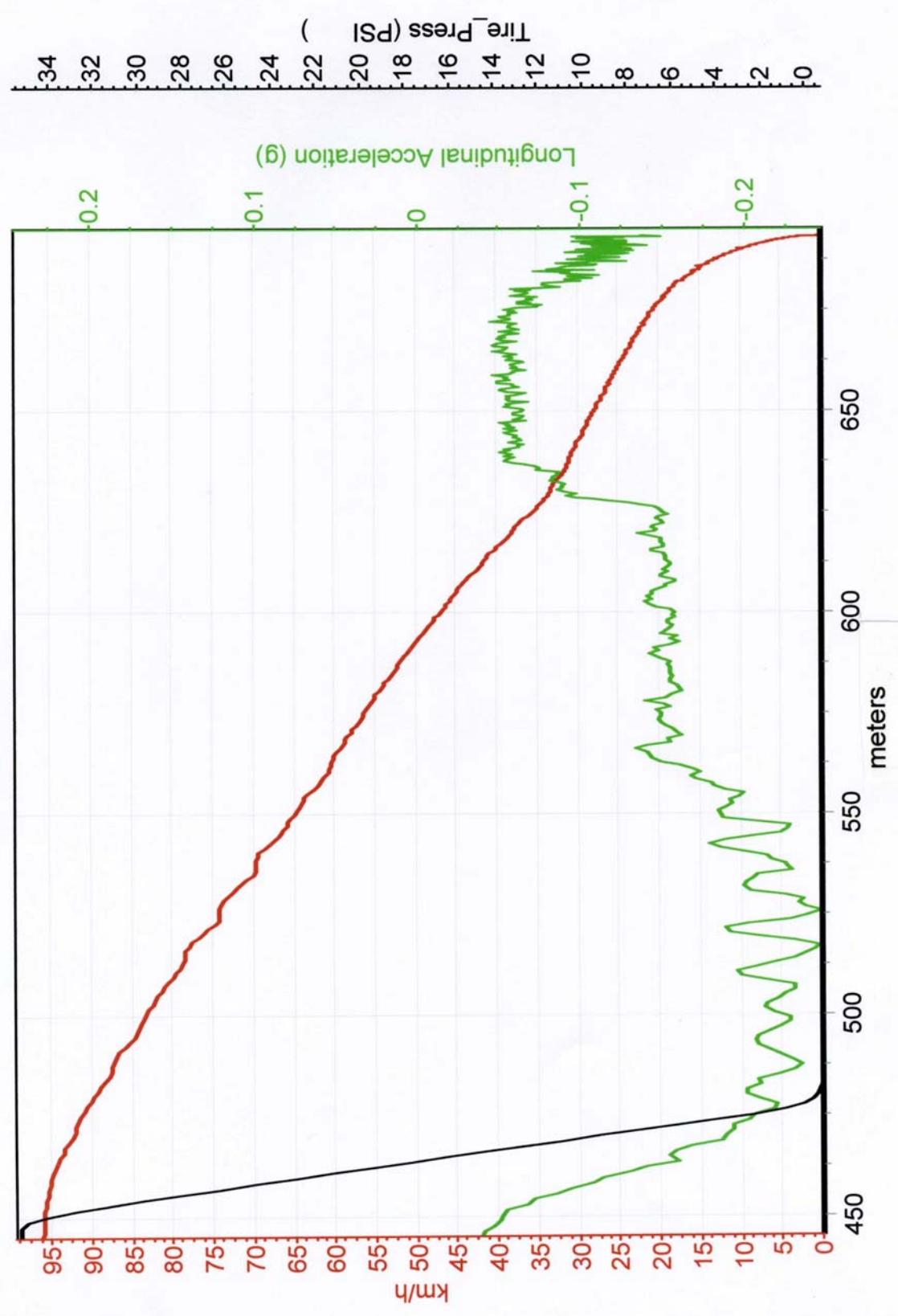
FIGURE 5.24
RIGHT REAR TIRE INSIDE, POST TEST

SECTION 6
TEST PLOTS

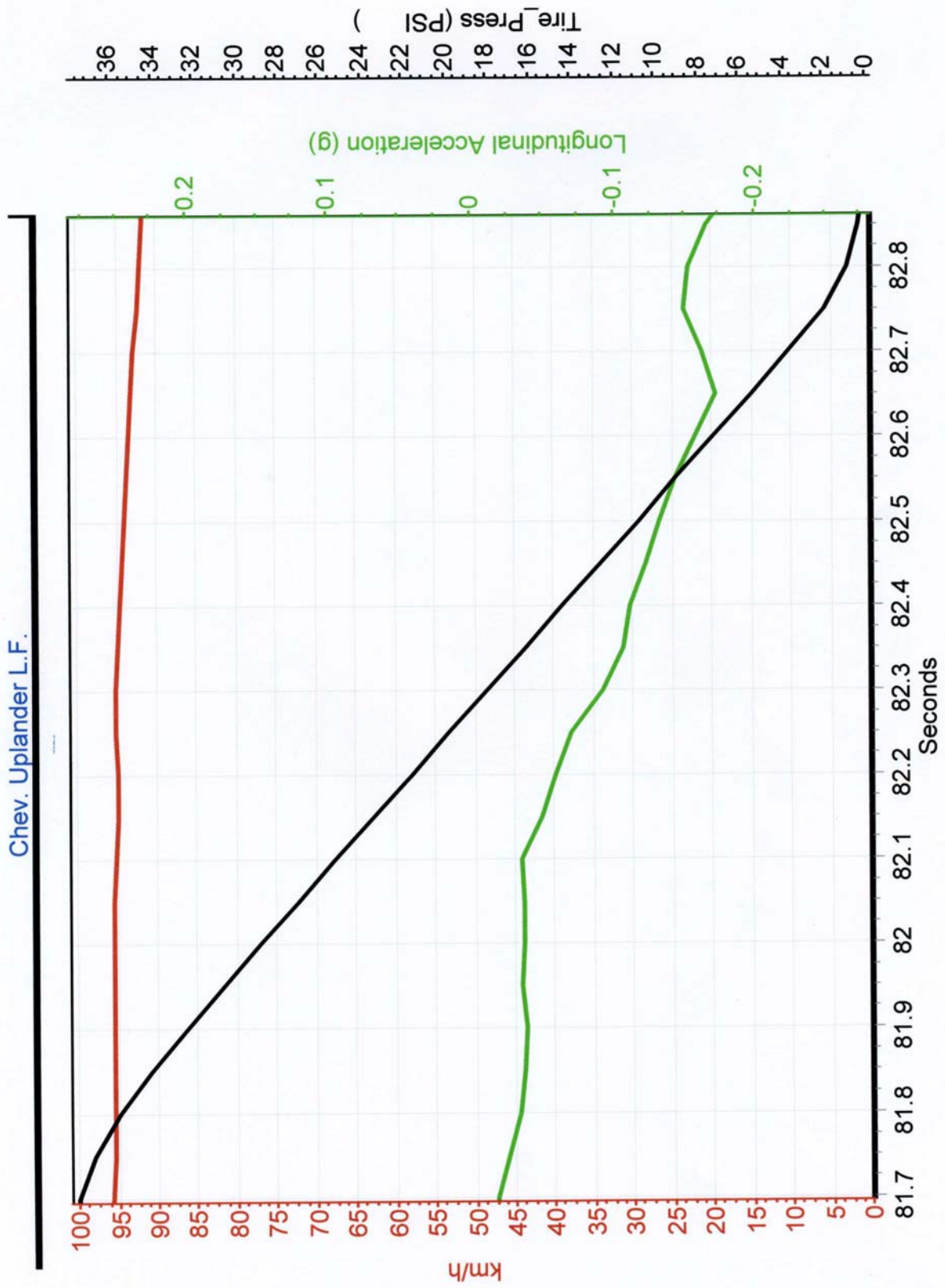
Chev. Uplander R.R.



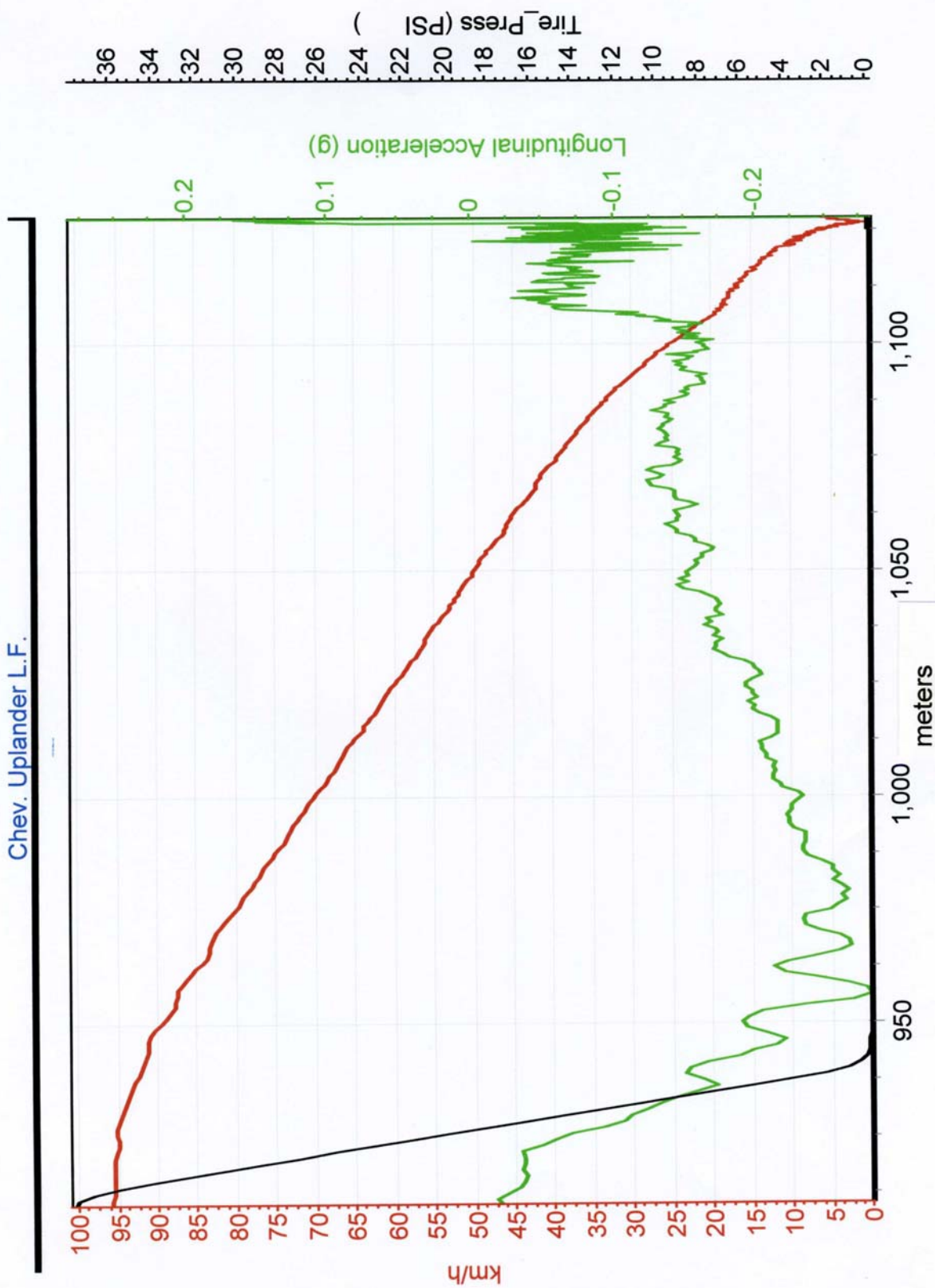
Chev. Uplander R.R.



Chev. Uplander L.F.



Chev. Uplander L.F.



Tire_Press (PSI)

36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0

SECTION 7
OWNER'S MANUAL INFORMATION

Loading the Vehicle

It is very important to know how much weight your vehicle can carry. This weight is called the vehicle capacity weight and includes the weight of all occupants, cargo, and all nonfactory-installed options. Two labels on your vehicle show how much weight it may properly carry, the Tire and Loading Information label and the Certification/Tire label.

⚠ CAUTION:

Do not load the vehicle any heavier than the Gross Vehicle Weight Rating (GVWR), or either the maximum front or rear Gross Axle Weight Rating (GAWR). If you do, parts on the vehicle can break, and it can change the way your vehicle handles. These could cause you to lose control and crash. Also, overloading can shorten the life of the vehicle.

Tire and Loading Information Label

TIRE AND LOADING INFORMATION			
SEATING CAPACITY	TOTAL	FRONT	REAR
The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs.			
TIRE	ORIGINAL SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT			
REAR			
SPARE			

Example Label

A vehicle specific Tire and Loading Information label is attached to the center pillar (B-pillar) of your vehicle. With the driver's door open, you will find the label attached below the door lock post (striker). The tire and loading information label shows the number of occupant seating positions (A), and the maximum vehicle capacity weight (B) in kilograms and pounds.

The Tire and Loading Information label also shows the size of the original equipment tires (C) and the recommended cold tire inflation pressures (D).

For more information on tires and inflation see *Tires* on page 5-53 and *Inflation - Tire Pressure* on page 5-60.

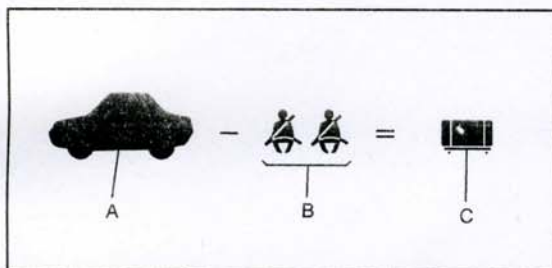
There is also important loading information on the vehicle Certification/Tire label. It tells you the Gross Vehicle Weight Rating (GVWR) and the Gross Axle Weight Rating (GAWR) for the front and rear axle. See "Certification/Tire Label" later in this section.

Steps for Determining Correct Load Limit

1. Locate the statement "The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs" on your vehicle's placard.
2. Determine the combined weight of the driver and passengers that will be riding in your vehicle.
3. Subtract the combined weight of the driver and passengers from XXX kg or XXX lbs.
4. The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the "XXX" amount equals 1400 lbs and there will be five 150 lb passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs (1400 - 750 (5 x 150) = 650 lbs).
5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.
6. If your vehicle will be towing a trailer, the load from your trailer will be transferred to your vehicle. Consult this manual to determine how this reduces the available cargo and luggage load capacity for your vehicle.

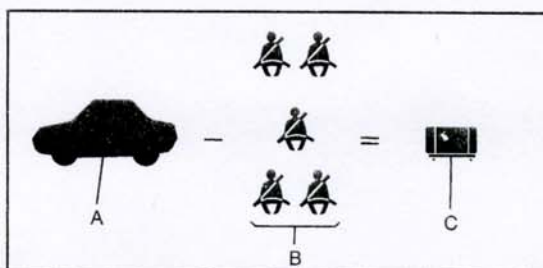
See *Towing a Trailer* on page 4-28 for important information on towing a trailer, towing safety rules, and trailering tips.

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Example 1

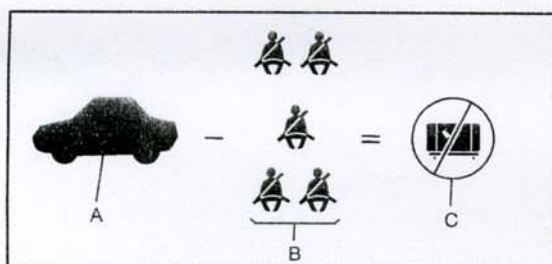
Item	Description	Total
A	Vehicle Capacity Weight for Example 1 =	1,000 lbs (453 kg)
B	Subtract Occupant Weight 150 lbs (68 kg) × 2 =	300 lbs (136 kg)
C	Available Occupant and Cargo Weight =	700 lbs (317 kg)



Example 2

Item	Description	Total
A	Vehicle Capacity Weight for Example 2 =	1,000 lbs (453 kg)
B	Subtract Occupant Weight 150 lbs (68 kg) × 5 =	750 lbs (340 kg)
C	Available Cargo Weight =	250 lbs (113 kg)

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Example 3

Item	Description	Total
A	Vehicle Capacity Weight for Example 3 =	1,000 lbs (453 kg)
B	Subtract Occupant Weight 200 lbs (91 kg) × 5 =	1,000 lbs (453 kg)
C	Available Cargo Weight =	0 lbs (0 kg)

Refer to your vehicle's tire and loading information label for specific information about your vehicle's capacity weight and seating positions. The combined weight of the driver, passengers, and cargo should never exceed your vehicle's capacity weight.

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Certification/Tire Label

The image shows a sample of a Certification/Tire Label. It contains several fields for information: GVWR (Gross Vehicle Weight Rating), GAWR FRT (Gross Axle Weight Rating Front), and GAWR RR (Gross Axle Weight Rating Rear). There are also fields for MODEL, RIM, and COLD TIRE PRESSURE. A large, diagonal watermark reading 'EXAMPLE' is overlaid on the entire label. At the bottom, it says 'SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION'.

A vehicle specific Certification/Tire label is attached to the rear edge of the driver's door.

The label shows the gross weight capacity of your vehicle. This is called the Gross Vehicle Weight Rating (GVWR). The GVWR includes the weight of the vehicle, all occupants, fuel, and cargo.

The Certification/Tire label also tells you the maximum weights for the front and rear axles, called the Gross Axle Weight Rating (GAWR).

To find out the actual loads on your front and rear axles, you need to go to a weigh station and weigh your vehicle. Your dealer/retailer can help you with this. Be sure to spread out your load equally on both sides of the centerline.

Never exceed the GVWR for your vehicle or the GAWR for either the front or rear axle.

⚠ CAUTION:

Do not load the vehicle any heavier than the Gross Vehicle Weight Rating (GVWR), or either the maximum front or rear Gross Axle Weight Rating (GAWR). If you do, parts on the vehicle can break, and it can change the way your vehicle handles. These could cause you to lose control and crash. Also, overloading can shorten the life of the vehicle.

Notice: Overloading your vehicle may cause damage. Repairs would not be covered by your warranty. Do not overload your vehicle.

If you put things inside your vehicle — like suitcases, tools, packages, or anything else, they will go as fast as the vehicle goes. If you have to stop or turn quickly, or if there is a crash, they will keep going.

⚠ CAUTION:

Things you put inside your vehicle can strike and injure people in a sudden stop or turn, or in a crash.

- Put things in the cargo area of your vehicle. Try to spread the weight evenly.
- Never stack heavier things, like suitcases, inside the vehicle so that some of them are above the tops of the seats.
- Do not leave an unsecured child restraint in your vehicle.
- When you carry something inside the vehicle, secure it whenever you can.
- Do not leave a seat folded down unless you need to.

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Tires

Your new vehicle comes with high-quality tires made by a leading tire manufacturer. If you ever have questions about your tire warranty and where to obtain service, see your vehicle Warranty booklet for details.

CAUTION:

- Poorly maintained and improperly used tires are dangerous.
- Overloading your tires can cause overheating as a result of too much flexing. You could have an air-out and a serious accident. See *Loading the Vehicle* on page 4-21.

CAUTION: (Continued)

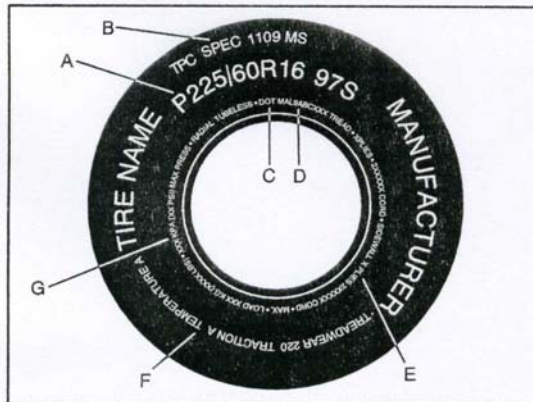
CAUTION: (Continued)

- Underinflated tires pose the same danger as overloaded tires. The resulting accident could cause serious injury. Check all tires frequently to maintain the recommended pressure. Tire pressure should be checked when your tires are cold. See *Inflation - Tire Pressure* on page 5-60.
- Overinflated tires are more likely to be cut, punctured, or broken by a sudden impact — such as when you hit a pothole. Keep tires at the recommended pressure.
- Worn, old tires can cause accidents. If your tread is badly worn, or if your tires have been damaged, replace them.

See *High-Speed Operation* on page 5-62 for inflation pressure adjustment for high speed driving.

Tire Sidewall Labeling

Useful information about a tire is molded into its sidewall. The examples below show a typical passenger vehicle tire and a compact spare tire sidewall.



Passenger (P-Metric) Tire Example

(A) Tire Size: The tire size is a combination of letters and numbers used to define a particular tire's width, height, aspect ratio, construction type, and service description. See the "Tire Size" illustration later in this section for more detail.

(B) TPC Spec (Tire Performance Criteria Specification): Original equipment tires designed to GM's specific tire performance criteria have a TPC specification code molded onto the sidewall. GM's TPC specifications meet or exceed all federal safety guidelines.

(C) DOT (Department of Transportation): The Department of Transportation (DOT) code indicates that the tire is in compliance with the U.S. Department of Transportation Motor Vehicle Safety Standards.

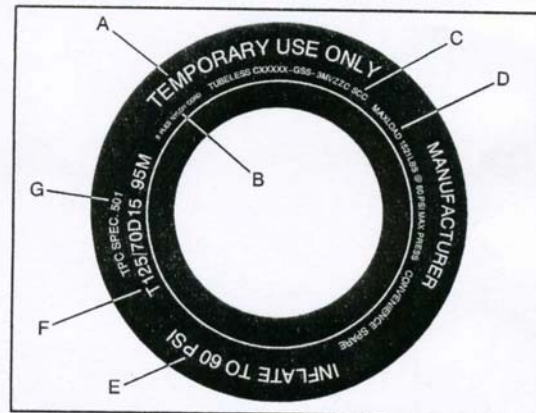
(D) Tire Identification Number (TIN): The letters and numbers following DOT (Department of Transportation) code is the Tire Identification Number (TIN). The TIN shows the manufacturer and plant code, tire size, and date the tire was manufactured. The TIN is molded onto both sides of the tire, although only one side may have the date of manufacture.

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(E) Tire Ply Material: The type of cord and number of plies in the sidewall and under the tread.

(F) Uniform Tire Quality Grading (UTQG): Tire manufacturers are required to grade tires based on three performance factors: treadwear, traction, and temperature resistance. For more information see *Uniform Tire Quality Grading* on page 5-72.

(G) Maximum Cold Inflation Load Limit: Maximum load that can be carried and the maximum pressure needed to support that load.



Compact Spare Tire Example

(A) Temporary Use Only: The compact spare tire or temporary use tire has a tread life of approximately 3,000 miles (5 000 km) and should not be driven at speeds over 65 mph (105 km/h). The compact spare tire is for emergency use when a regular road tire has lost air and gone flat. If your vehicle has a compact spare tire, see *Compact Spare Tire* on page 5-93 and *If a Tire Goes Flat* on page 5-78.

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(B) Tire Ply Material: The type of cord and number of plies in the sidewall and under the tread.

(C) Tire Identification Number (TIN): The letters and numbers following the DOT (Department of Transportation) code is the Tire Identification Number (TIN). The TIN shows the manufacturer and plant code, tire size, and date the tire was manufactured. The TIN is molded onto both sides of the tire, although only one side may have the date of manufacture.

(D) Maximum Cold Inflation Load Limit: Maximum load that can be carried and the maximum pressure needed to support that load.

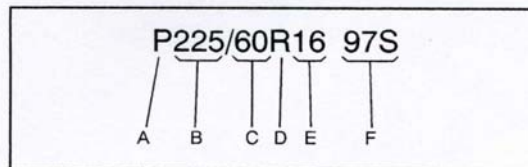
(E) Tire Inflation: The temporary use tire or compact spare tire should be inflated to 60 psi (420 kPa). For more information on tire pressure and inflation see *Inflation - Tire Pressure on page 5-60*.

(F) Tire Size : A combination of letters and numbers define a tire's width, height, aspect ratio, construction type, and service description. The letter T as the first character in the tire size means the tire is for temporary use only.

(G) TPC Spec (Tire Performance Criteria Specification): Original equipment tires designed to GM's specific tire performance criteria have a TPC specification code molded onto the sidewall. GM's TPC specifications meet or exceed all federal safety guidelines.

Tire Size

The following illustration shows an example of a typical passenger vehicle tire size.



(A) Passenger (P-Metric) Tire: The United States version of a metric tire sizing system. The letter P as the first character in the tire size means a passenger vehicle tire engineered to standards set by the U.S. Tire and Rim Association.

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(B) Tire Width: The three-digit number indicates the tire section width in millimeters from sidewall to sidewall.

(C) Aspect Ratio: A two-digit number that indicates the tire height-to-width measurements. For example, if the tire size aspect ratio is 60, as shown in item C of the illustration, it would mean that the tire's sidewall is 60 percent as high as it is wide.

(D) Construction Code: A letter code is used to indicate the type of ply construction in the tire. The letter R means radial ply construction; the letter D means diagonal or bias ply construction; and the letter B means belted-bias ply construction.

(E) Rim Diameter: Diameter of the wheel in inches.

(F) Service Description: These characters represent the load range and speed rating of the tire. The load index represents the load carry capacity a tire is certified to carry. The load index can range from 1 to 279. The speed rating is the maximum speed a tire is certified to carry a load. Speed ratings range from A to Z.

Tire Terminology and Definitions

Air Pressure: The amount of air inside the tire pressing outward on each square inch of the tire. Air pressure is expressed in pounds per square inch (psi) or kilopascal (kPa).

Accessory Weight: This means the combined weight of optional accessories. Some examples of optional accessories are, automatic transmission, power steering, power brakes, power windows, power seats, and air conditioning.

Aspect Ratio: The relationship of a tire's height to its width.

Belt: A rubber coated layer of cords that is located between the plies and the tread. Cords may be made from steel or other reinforcing materials.

Bead: The tire bead contains steel wires wrapped by steel cords that hold the tire onto the rim.

Bias Ply Tire: A pneumatic tire in which the plies are laid at alternate angles less than 90 degrees to the centerline of the tread.

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Cold Tire Pressure: The amount of air pressure in a tire, measured in pounds per square inch (psi) or kilopascals (kPa) before a tire has built up heat from driving. See *Inflation - Tire Pressure* on page 5-60.

Curb Weight: The weight of a motor vehicle with standard and optional equipment including the maximum capacity of fuel, oil, and coolant, but without passengers and cargo.

DOT Markings: A code molded into the sidewall of a tire signifying that the tire is in compliance with the U.S. Department of Transportation (DOT) motor vehicle safety standards. The DOT code includes the Tire Identification Number (TIN), an alphanumeric designator which can also identify the tire manufacturer, production plant, brand, and date of production.

GVWR: Gross Vehicle Weight Rating. See *Loading the Vehicle* on page 4-21.

GAWR FRT: Gross Axle Weight Rating for the front axle. See *Loading the Vehicle* on page 4-21.

GAWR RR: Gross Axle Weight Rating for the rear axle. See *Loading the Vehicle* on page 4-21.

Intended Outboard Sidewall: The side of an asymmetrical tire, that must always face outward when mounted on a vehicle.

Kilopascal (kPa): The metric unit for air pressure.

Light Truck (LT-Metric) Tire: A tire used on light duty trucks and some multipurpose passenger vehicles.

Load Index: An assigned number ranging from 1 to 279 that corresponds to the load carrying capacity of a tire.

Maximum Inflation Pressure: The maximum air pressure to which a cold tire can be inflated. The maximum air pressure is molded onto the sidewall.

Maximum Load Rating: The load rating for a tire at the maximum permissible inflation pressure for that tire.

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Maximum Loaded Vehicle Weight: The sum of curb weight, accessory weight, vehicle capacity weight, and production options weight.

Normal Occupant Weight: The number of occupants a vehicle is designed to seat multiplied by 150 lbs (68 kg). See *Loading the Vehicle* on page 4-21.

Occupant Distribution: Designated seating positions.

Outward Facing Sidewall: The side of an asymmetrical tire that has a particular side that faces outward when mounted on a vehicle. The side of the tire that contains a whitewall, bears white lettering, or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same moldings on the other sidewall of the tire.

Passenger (P-Metric) Tire: A tire used on passenger cars and some light duty trucks and multipurpose vehicles.

Recommended Inflation Pressure: Vehicle manufacturer's recommended tire inflation pressure as shown on the tire placard. See *Inflation - Tire Pressure* on page 5-60 and *Loading the Vehicle* on page 4-21.

Radial Ply Tire: A pneumatic tire in which the ply cords that extend to the beads are laid at 90 degrees to the centerline of the tread.

Rim: A metal support for a tire and upon which the tire beads are seated.

Sidewall: The portion of a tire between the tread and the bead.

Speed Rating: An alphanumeric code assigned to a tire indicating the maximum speed at which a tire can operate.

Traction: The friction between the tire and the road surface. The amount of grip provided.

Tread: The portion of a tire that comes into contact with the road.

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Treadwear Indicators: Narrow bands, sometimes called wear bars, that show across the tread of a tire when only 1/16 inch (1.6 mm) of tread remains. See *When It Is Time for New Tires* on page 5-69.

UTQGS (Uniform Tire Quality Grading Standards): A tire information system that provides consumers with ratings for a tire's traction, temperature, and treadwear. Ratings are determined by tire manufacturers using government testing procedures. The ratings are molded into the sidewall of the tire. See *Uniform Tire Quality Grading* on page 5-72.

Vehicle Capacity Weight: The number of designated seating positions multiplied by 150 lbs (68 kg) plus the rated cargo load. See *Loading the Vehicle* on page 4-21.

Vehicle Maximum Load on the Tire: Load on an individual tire due to curb weight, accessory weight, occupant weight, and cargo weight.

Vehicle Placard: A label permanently attached to a vehicle showing the vehicle's capacity weight and the original equipment tire size and recommended inflation pressure. See "Tire and Loading Information Label" under *Loading the Vehicle* on page 4-21.

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A vehicle specific Tire and Loading Information label is attached to your vehicle. This label shows your vehicle's original equipment tires and the correct inflation pressures for your tires when they are cold. The recommended cold tire inflation pressure, shown on the label, is the minimum amount of air pressure needed to support your vehicle's maximum load carrying capacity.

For additional information regarding how much weight your vehicle can carry, and an example of the Tire and Loading Information label, see *Loading the Vehicle* on page 4-21. How you load your vehicle affects vehicle handling and ride comfort. Never load your vehicle with more weight than it was designed to carry.

When to Check

Check your tires once a month or more. Do not forget to check the compact spare tire, it should be at 60 psi (420 kPa). For additional information regarding the compact spare tire, see *Compact Spare Tire* on page 5-93.

Inflation - Tire Pressure

Tires need the correct amount of air pressure to operate effectively.

Notice: Do not let anyone tell you that under-inflation or over-inflation is all right. It is not. If your tires do not have enough air (under-inflation), you can get the following:

- Too much flexing
- Too much heat
- Tire overloading
- Premature or irregular wear
- Poor handling
- Reduced fuel economy

If your tires have too much air (over-inflation), you can get the following:

- Unusual wear
- Poor handling
- Rough ride
- Needless damage from road hazards

How to Check

Use a good quality pocket-type gage to check tire pressure. You cannot tell if your tires are properly inflated simply by looking at them. Radial tires may look properly inflated even when they are under-inflated. Check the tire's inflation pressure when the tires are cold. Cold means your vehicle has been sitting for at least three hours or driven no more than 1 mile (1.6 km).

Remove the valve cap from the tire valve stem. Press the tire gage firmly onto the valve to get a pressure measurement. If the cold tire inflation pressure matches the recommended pressure on the Tire and Loading Information label, no further adjustment is necessary. If the inflation pressure is low, add air until you reach the recommended amount.

If you overfill the tire, release air by pushing on the metal stem in the center of the tire valve. Re-check the tire pressure with the tire gage.

Be sure to put the valve caps back on the valve stems. They help prevent leaks by keeping out dirt and moisture.

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High-Speed Operation

CAUTION:

Driving at high speeds, 100 mph (160 km/h) or higher, puts an additional strain on tires. Sustained high-speed driving causes excessive heat build up and can cause sudden tire failure. You could have a crash and you or others could be killed. Some high-speed rated tires require inflation pressure adjustment for high speed operation. When speed limits and road conditions are such that a vehicle can be driven at high speeds, make sure the tires are rated for high speed operation, in excellent condition, and set to the correct cold tire inflation pressure for the vehicle load.

If your vehicle has P225/60R17 size tires, they will require inflation pressure adjustment when driving your vehicle at speeds of 100 mph (160 km/h) or higher. Set the cold inflation pressure to the maximum inflation pressure shown on the tire sidewall, or 38 psi (262 kPa), whichever is lower. See the example following. When you end this high-speed driving, return the tires to the cold tire inflation pressure shown on the Tire and Loading Information label. See *Loading the Vehicle* on page 4-21 and *Inflation - Tire Pressure* on page 5-60.

Example:

You will find the maximum load and inflation pressure molded on the tire's sidewall, in small letters, near the rim flange. It will read something like this: Maximum load 690 kg (1521 lbs) 300 kPa (44 psi) Max. Press.

For this example, you would set the inflation pressure for high-speed driving at 38 psi (262 kPa).

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Tire Pressure Monitor System

The Tire Pressure Monitor System (TPMS) uses radio and sensor technology to check tire pressure levels. The TPMS sensors monitor the air pressure in your vehicle's tires and transmit tire pressure readings to a receiver located in the vehicle.

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

As an added safety feature, your vehicle has been equipped with a tire pressure monitoring system (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated.

Accordingly, when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle's handling and stopping ability.

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

Your vehicle has also been equipped with a TPMS malfunction indicator to indicate when the system is not operating properly. The TPMS malfunction indicator is combined with the low tire pressure telltale. When the system detects a malfunction, the telltale will flash for approximately one minute and then remain continuously illuminated. This sequence will continue upon subsequent vehicle start-ups as long as the malfunction exists.

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

See *Tire Pressure Monitor Operation* on page 5-64 for additional information.

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Federal Communications Commission (FCC) and Industry and Science Canada

The Tire Pressure Monitor System (TPMS) operates on a radio frequency and complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

The TPMS operates on a radio frequency and complies with RSS-210 of Industry and Science Canada. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

Tire Pressure Monitor Operation

The Tire Pressure Monitor System (TPMS) is designed to warn the driver when a low tire pressure condition exists. TPMS sensors are mounted onto each tire and wheel assembly, excluding the spare tire and wheel assembly. The TPMS sensors monitor the air pressure in the vehicle's tires and transmits the tire pressure readings to a receiver located in the vehicle.



When a low tire pressure condition is detected, the TPMS illuminates the low tire pressure warning light located on the instrument panel cluster.

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At the same time a message to check the pressure in a specific tire appears on the Driver Information Center (DIC) display. The low tire pressure warning light and the DIC warning message come on at each ignition cycle until the tires are inflated to the correct inflation pressure. Using the DIC, tire pressure levels can be viewed by the driver. For additional information and details about the DIC operation and displays see *DIC Operation and Displays on page 3-50* and *DIC Warnings and Messages on page 3-57*.

The low tire pressure warning light may come on in cool weather when the vehicle is first started, and then turn off as you start to drive. This could be an early indicator that the air pressure in the tire(s) are getting low and need to be inflated to the proper pressure.

A Tire and Loading Information label, attached to your vehicle, shows the size of your vehicle's original equipment tires and the correct inflation pressure for your vehicle's tires when they are cold. See *Loading the Vehicle on page 4-21*, for an example of the Tire and Loading Information label and its location on your vehicle. Also see *Inflation - Tire Pressure on page 5-60*.

Your vehicle's TPMS can warn you about a low tire pressure condition but it does not replace normal tire maintenance. See *Tire Inspection and Rotation on page 5-68* and *Tires on page 5-53*.

Notice: Liquid tire sealants could damage the Tire Pressure Monitor System (TPMS) sensors. Sensor damage caused by using a tire sealant is not covered by your warranty. Do not use liquid tire sealants.

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TPMS Malfunction Light and Message

The TPMS will not function properly if one or more of the TPMS sensors are missing or inoperable. When the system detects a malfunction, the low tire warning light flashes for about one minute and then stays on for the remainder of the ignition cycle. A DIC warning message is also displayed. The low tire warning light and DIC warning message come on at each ignition cycle until the problem is corrected. Some of the conditions that can cause the malfunction light and DIC message to come on are:

- One of the road tires has been replaced with the spare tire. The spare tire does not have a TPMS sensor. The TPMS malfunction light and DIC message should go off once you re-install the road tire containing the TPMS sensor.
- The TPMS sensor matching process was started but not completed or not completed successfully after rotating the vehicle's tires. The DIC message and TPMS malfunction light should go off once the TPMS sensor matching process is performed successfully. See "TPMS Sensor Matching Process" later in this section.

- One or more TPMS sensors are missing or damaged. The DIC message and the TPMS malfunction light should go off when the TPMS sensors are installed and the sensor matching process is performed successfully. See your dealer/retailer for service.
- Replacement tires or wheels do not match your vehicle's original equipment tires or wheels. Tires and wheels other than those recommended for your vehicle could prevent the TPMS from functioning properly. See *Buying New Tires on page 5-70*.
- Operating electronic devices or being near facilities using radio wave frequencies similar to the TPMS could cause the TPMS sensors to malfunction.

If the TPMS is not functioning it cannot detect or signal a low tire condition. See your dealer/retailer for service if the TPMS malfunction light and DIC message comes on and stays on.

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TPMS Sensor Matching Process

Each TPMS sensor has a unique identification code. Any time you rotate your vehicle's tires or replace one or more of the TPMS sensors, the identification codes will need to be matched to the new tire/wheel position. The sensors are matched to the tire/wheel positions in the following order: driver side front tire, passenger side front tire, passenger side rear tire, and driver side rear tire using a TPMS diagnostic tool. See your dealer/retailer for service.

The TPMS sensors can also be matched to each tire/wheel position by increasing or decreasing the tire's air pressure. If increasing the tire's air pressure, do not exceed the maximum inflation pressure indicated on the tire's sidewall.

To decrease air-pressure out of a tire you can use the pointed end of the valve cap, a pencil-style air pressure gage, or a key.

You will have two minutes to match the first tire/wheel position, and five minutes overall to match all four tire/wheel positions. If it takes longer than two minutes, to match the first tire and wheel, or more than five minutes to match all four tire and wheel positions the matching process stops and you will need to start over.

The TPMS sensor matching process is outlined below:

1. Set the parking brake.
2. Turn the ignition switch to RUN with the engine off.
3. Using the Remote Keyless Entry (RKE) transmitter, lock and unlock the vehicle's doors.
4. Press and hold the RKE transmitter's LOCK and UNLOCK buttons at the same time, for about three seconds. The horn chirps two times indicating the receiver is ready for the sensor matching process to begin.
5. Start with the driver side front tire. The driver side turn signal lamp comes on.
6. Remove the valve cap from the valve cap stem. Activate the TPMS sensor by increasing or decreasing the tire's air pressure for five seconds, or until a horn chirp sounds. The horn chirp, which may take up to 30 seconds to sound, confirms that the sensor identification code has been matched to this tire and wheel position.
7. Proceed to the passenger side front tire, and repeat the procedure in Step 6.
8. Proceed to the passenger side rear tire, and repeat the procedure in Step 6.

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9. Proceed to the driver side rear tire, and repeat the procedure in Step 6.
10. After hearing the confirming horn chirp for the driver side rear tire, the tire sensor matching process ends. Turn the ignition switch to LOCK.
11. Set all four tires to the recommended air pressure level as indicated on the Tire and Loading Information label.
12. Put the valve caps back on the valve stems.

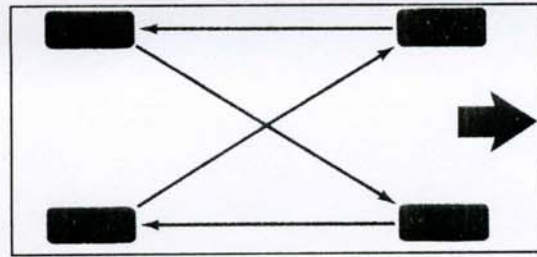
Tire Inspection and Rotation

We recommend that you regularly inspect your vehicle's tires, including the spare tire, for signs of wear or damage. See *When It Is Time for New Tires* on page 5-69 for more information.

Tires should be rotated every 5,000 to 8,000 miles (8 000 to 13 000 km). See *Scheduled Maintenance* on page 6-4.

The purpose of a regular tire rotation is to achieve a uniform wear for all tires on the vehicle. This will ensure that your vehicle continues to perform most like it did when the tires were new.

Any time you notice unusual wear, rotate your tires as soon as possible and check wheel alignment. Also check for damaged tires or wheels. See *When It Is Time for New Tires* on page 5-69 and *Wheel Replacement* on page 5-74.



When rotating your vehicle's tires, always use the correct rotation pattern shown here.

Do not include the compact spare tire in the tire rotation.

After the tires have been rotated, adjust the front and rear inflation pressures as shown on the Tire and Loading Information label. See *Inflation - Tire Pressure* on page 5-60 and *Loading the Vehicle* on page 4-21.

Reset the Tire Pressure Monitor System. See *Tire Pressure Monitor Operation* on page 5-64.

Make certain that all wheel nuts are properly tightened. See "Wheel Nut Torque" under *Capacities and Specifications* on page 5-112.

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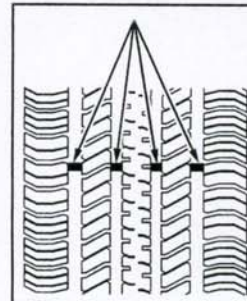
CAUTION:

Rust or dirt on a wheel, or on the parts to which it is fastened, can make wheel nuts become loose after time. The wheel could come off and cause an accident. When you change a wheel, remove any rust or dirt from places where the wheel attaches to the vehicle. In an emergency, you can use a cloth or a paper towel to do this; but be sure to use a scraper or wire brush later, if needed, to get all the rust or dirt off. See *Changing a Flat Tire* on page 5-78.

Make sure the spare tire is stored securely. Push, pull, and then try to rotate or turn the tire. If it moves, tighten the cable. See *Storing a Flat or Spare Tire and Tools* on page 5-90.

When It Is Time for New Tires

Various factors, such as maintenance, temperatures, driving speeds, vehicle loading, and road conditions influence when you need new tires.



One way to tell when it is time for new tires is to check the treadwear indicators, which will appear when your tires have only 1/16 inch (1.6 mm) or less of tread remaining.

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SECTION 8
LABORATORY NOTICE OF TEST FAILURE

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS: 110 TEST DATE: 07/21/08

LABORATORY: GTL

CONTRACT NO.: DTNH22-06-C-00032 DELV. ORDER NO.: 0004

LABORATORY PROJECT ENGINEER'S NAME: Grant Farrand

TEST VEHICLE MAKE/MODEL/BODY STYLE: 2008 Chevrolet Uplander

VEHICLE NHTSA NO.: C80109 VIN: 1GBDV13W18D172488

VEHICLE MODEL YEAR: 2008 BUILD DATE: 02/08

TEST FAILURE DESCRIPTION: FMVSS No. 110 Vehicle Placard and Part 567 Certification Label provide incomplete or inaccurate information.

FMVSS REQUIREMENT, PARAGRAPH 571 : 110 S4.3, Placard
Each vehicle shall show the information specified in S4.3(a) through (g) on a placard permanently affixed to the Driver's "B" pillar. (a) Vehicle capacity weight - Metric to English conversion is incorrect; (c) Vehicle manufacturer's recommended cold tire inflation pressure - No units provided; (d) Tire size designation label - Provides rim size not tire size.

FMVSS REQUIREMENT, PARAGRAPH 567.4 (g) (7), The type classification of the vehicle as designed is incorrect.

NOTIFICATION TO NHTSA (COTR): John Finneran

DATE: 07/22/08 BY: Grant Farrand

REMARKS: