REPORT NUMBER 110-GTL-08-004

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

NISSAN MOTOR CO., LTD.
2009 NISSAN MURANO, MPV
NHTSA NO. C95200

GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
COLONIAL BEACH, VIRGINIA 22443

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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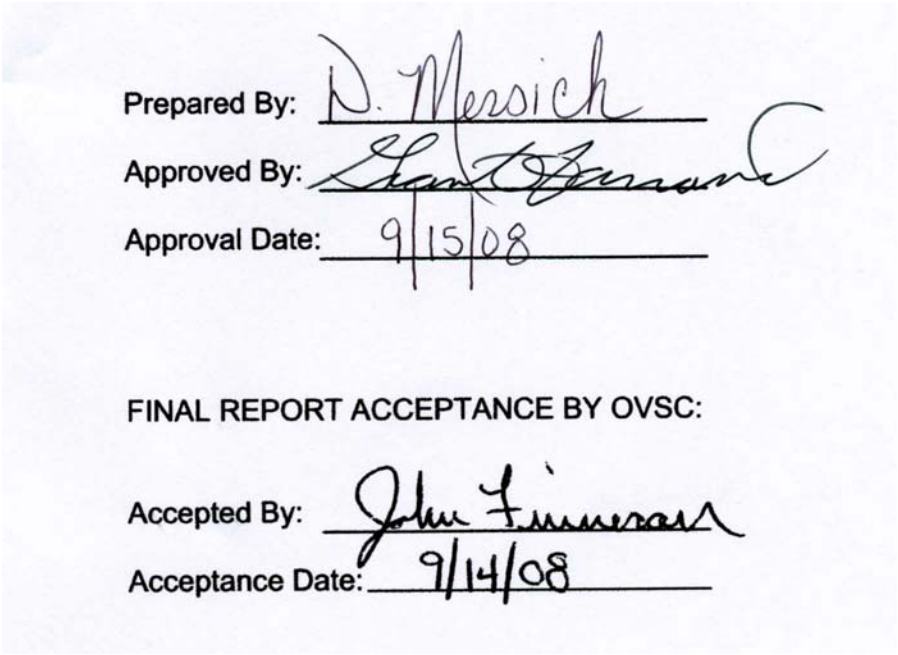

Technical Report Documentation Page

1. Report No. 111-GTL-08-004	2. Government Accession No. N/A	3. Recipient's Catalog No. N/A
4. Title and Subtitle Final Report of FMVSS 110 Compliance Testing of a 2009 NISSAN MURANO, MPV NHTSA No. C95200		5. Report Date September 15, 2008 6. Performing Organ. Code GTL
7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager		8. Performing Organ. Rep# GTL-DOT-08-110-004
9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443		10. Work Unit No. (TRAIS) N/A 11. Contract or Grant No. DTNH22-06-C-00032
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Admin. Enforcement Office of Vehicle Safety Compliance (NVS-220) 1200 New Jersey Ave., S.E., Washington, DC 20590		13. Type of Report and Period Covered Final Test Report July 23 - 24, 2008 14. Sponsoring Agency Code NVS-221
15. Supplementary Notes		
16. Abstract Compliance tests were conducted on the subject 2009 Nissan Murano, MPV 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: None		
17. Key Words Compliance Testing Safety Engineering FMVSS 110	18. Distribution Statement Copies of this report are available from NHTSA Technical Information Services (TIS) Room W45-212 (NPO-411) 1200 New Jersey Ave., S.E. Washington, DC 20590 Telephone No. (202) 366-4947	
19. Security Classif. (of this report) UNCLASSIFIED	21. No. of Pages 72	22. Price
20. Security Classif. (of this page) UNCLASSIFIED		

Form DOT F 1700.7 (8-72)

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SECTION 1

INTRODUCTION

1.0 PURPOSE OF COMPLIANCE TEST

A 2009 Nissan Murano MPV 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 11 June 2007.

1.1 TEST VEHICLE

The test vehicle was a 2009 Nissan Murano MPV. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: JN8AZ18UX9W001369

B. NHTSA No.: C95200

C. Manufacturer: NISSAN MOTOR CO., LTD.

D. Manufacture Date: 11/07

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 110 testing during the time period July 23-24, 2008.

SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 GENERAL

The 2009 Nissan Murano MPV, NHTSA No. C95200, was subjected to FMVSS No. 110 testing during the time period July 23 through July 24, 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.

SECTION 3

TEST DATA

DATA SHEET 1 (1 of 2)
SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2009 NISSAN MURANO
VEHICLE NHTSA NO.: C95200 ; VIN: JN8AZ18UX9W001369
VEHICLE TYPE: MPV DATE OF MANUFACTURE: 11/07
LABORATORY: General Testing Laboratories, Inc.
TEST DATE: July 23-24, 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) Pass

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 DATE: 07/24/08
APPROVED BY: D. MESSICK

DATA SHEET 2
TEST VEHICLE INFORMATION

LABORATORY: General Testing Laboratories, Inc. DATE: 07/23-24/08

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2009 NISSAN MURANO

MANUFACTURE DATE: 11/07 NHTSA NO.: C95200 BODY COLOR: Platinum Graphite

VIN: JN8AZ18UX9W001369 VEHICLE TYPE: MPV

GVWR 2288 kg (5044 lbs) GAWR(Fr) 1199 kg (2643 lbs) GAWR(Rr) 1130 kg (2491 lbs)

SEATING POSITIONS: FRONT 2 MID ____ REAR 3

ODOMETER READING AT START OF TEST: 36 Miles

ENGINE DATA: 6 Cylinders 3.5 Liters ____ Cubic Inches

TRANSMISSION DATA: X Automatic ____ Manual ____ 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	X	Roof Rack
X	Power Steering	X	Cruise Control	X	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
X	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		Other –

REMARKS:

RECORDED BY: G. FARRAND DATE: 07/23/08
APPROVED BY: D. MESSICK

DATA SHEET 3
TEST VEHICLE TIRE IDENTIFICATION AND LOAD LIMITS

VEHICLE MAKE/MODEL/BODY STYLE: 2009 NISSAN MURANO
VEHICLE NHTSA NO.: C95200 ; VIN: JN8AZ18UX9W001369
LABORATORY: General Testing Laboratories, Inc.
TEST DATE: July 23, 2008

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

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

Tire Sidewall	Right Front	Left Rear (If different)	Spare Tire (If different)
Manufacturer and Model	Bridgestone Dueler H/T 687		Goodyear
Tire Size Designation	P235/65R18		T165/90D18
Load Index/Speed Symbol	104 T		107/M
Maximum Inflation Pressure	300 KPA, 44 PSI		420 KPA, 60 PSI
Maximum Load Rating	900 KG, 1984 LBS		975 KG, 2149 LBS
Treat/Traction/Temperature	300 "B" "B"		N/A
Tires have "DOT" markings	YES		YES

Serial Number:
Right Front JKN 4407 Left Front JKN 4407
Right Rear JKN 4407 Left Rear JKN 4407
Spare 7TMDKARP3307

Mounted Tire vs. Axle Rating Comparison (at sidewall maximum inflation pressure)	Front Axle	Rear Axle
A. GAWR (KG) from certification label	1199 KG	1130 KG
B. Tire Maximum Load Rating from above (KG)	1800 KG	1800 KG
C. Reduced Tire Load Rating, if applicable (KG)*	818 KG	818 KG
D. (Number of tires on axle) x (tire load rating, de-rated if appropriate)	1636 KG	1636 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 DATE: 07/23/08
APPROVED BY: D. MESSICK

DATA SHEET 4
VEHICLE RIM IDENTIFICATION

VEHICLE MAKE/MODEL/BODY STYLE: 2009 NISSAN MURANO
VEHICLE NHTSA NO.: C95200 ; VIN: JN8AZ18UX9W001369
LABORATORY: General Testing Laboratories, Inc.
TEST DATE: July 24, 2008

RIM MARKINGS	RIGHT FRONT	LEFT REAR (if different)
A. Source of published dimensions (letter designation)	"J"	
B. Rim Size	18 x 7.5 J	
C. Does rim contain DOT symbol (Yes/No)	YES	
D. Manufacturer's name, symbol or trademark (copy format)	DT12 NISSAN	
E. Date of manufacture or symbol (copy format)	07/10	
Do items A-C appear on weather side of rim? (Yes/No)	YES	
Letter height (not less than 3 mm)	5 mm	
Lettering (impressed or embossed)	EMBOSSED	
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)	190.5	
Rim Diameter (mm)	457.2	
Rim measurements same as rim markings? (Yes/No)	YES	

Rims are suitable for tire on vehicle* (X) 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 DATE: 07/24/08
APPROVED BY: D. MESSICK

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

VEHICLE MAKE/MODEL/BODY STYLE: 2009 NISSAN MURANO
VEHICLE NHTSA NO.: C95200 ; VIN: JN8AZ18UX9W001369
LABORATORY: General Testing Laboratories, Inc.
TEST DATE: July 24, 2008

Identification of Vehicle Labeling

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

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

Vehicle Placard

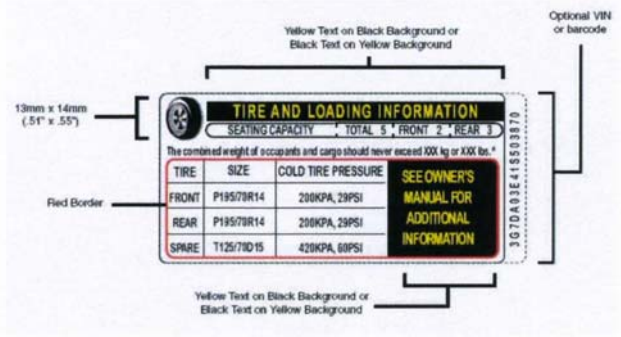


FIGURE 1B
(70 FR 14425)

Tire Inflation Pressure Label

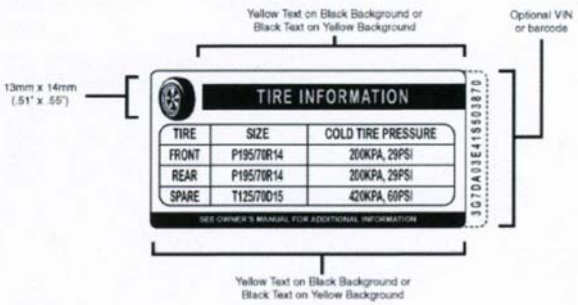


FIGURE 2B
(70 FR 14426)

Labeling Notes:
1. Tire size and pressure can be omitted from Vehicle Placard if same data is displayed on a Tire Inflation Pressure Label.
2. 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.
3. 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.
4. The tire "SIZE" heading can be replaced with "ORIGINAL TIRE SIZE" or "ORIGINAL SIZE"
5. The "SPARE" tire heading can be replaced with "SPARE TIRE."
6. For full size spare tires, the recommended cold tire inflation pressure can be replaced with "SEE ABOVE."
7. 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. (X) Yes ( ) No
If no, explain:_____

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 (X) Not Applicable
If no, explain:_____

Vehicle Placard and, if provided, **Tire Inflation Pressure Label** are permanently affixed.
(X) Yes ( ) No

Vehicle Placard information:

Combined weight of occupants and cargo 408 kg (900 lbs)
Seating capacity: Total 5 Front 2 Rear 3
Is the number of belted seating positions the same as the labeled seating capacity?
(X) Yes ( ) No
If no, explain_____

Is the tire size and pressure provided? (X) Yes ( ) No
If no, is the tire size and pressure provided on a Tire Inflation Pressure Label?
( ) Yes ( ) No

Vehicle Placard or Tire Inflation Pressure Label tire information:

Tire size Front P235/65R18 Rear P235/65R18
Tire Inflation Pressure Front 230kPa 33 psi Rear 230kPa 33 psi
Are the sizes of the installed tires the same as the sizes of the labeled tires?
(X) Yes ( ) No
If no, explain_____

Is the labeled cold tire inflation pressure equal to or less than the sidewall labeled maximum cold tire inflation pressure?
Front axle: (X) Yes ( ) No Rear axle: (X) Yes ( ) No

Vehicle Certification Label information:

	Tire Size	Rim Size	Rim Suitable for Tire? (Yes/No)*
Front Axle	P235/65R18	18 x 7.5 J	Yes
Rear Axle	P235/65R18	18 x 7.5 J	Yes

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? (X) Yes ( ) No

Labeled Tire Capacity at Specified Pressure GVWR: 2288 KG	Front Axle	Rear Axle
A. GAWR (KG) from certification label	1199	1130
B. Tire Load Rating (KG) of labeled tire size at labeled inflation pressure*	880	880
C. Reduced Tire Load Rating, if applicable** (KG)	800	800
D. (Number of tires) x (tire load rating, de-rated if appropriate) (KG)	1600	1600
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 Pass

REMARKS:

RECORDED BY: G. FARRAND DATE: 07/23/08
APPROVED BY: D. MESSICK

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

VEHICLE MAKE/MODEL/BODY STYLE: 2009 NISSAN MURANO
VEHICLE NHTSA NO.: C95200 ; VIN: JN8AZ18UX9W001369
LABORATORY: General Testing Laboratories, Inc.
TEST DATE: July 23, 2008

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

Tire Pressures: LF 230 KPA LR 230 KPA
RF 230 KPA RR 230 KPA

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF 511.5 KG LR 354.5 KG
RF 543.0 KG RR 364.5 KG

Front Axle 1054.5 KG Rear Axle 719.0 KG

Total Vehicle 1773.5 KG

B. MEASURED VEHICLE NORMAL LOAD WEIGHT

1. Seating Capacity from Vehicle Placard 5
2. Normal Load Number of Occupants(from table in Section 10) 3
   Occupant Distribution: Front Seat 2 Second Seat 1
   Third Seat 0 Fourth Seat 0
3. Total Normal Occupant Load 204 KG
   (# of occupants x 68 KG per occupant)
4. Measured Normal Load on Axles

   LF 560.0 KG LR 408.5 KG
   RF 591.5 KG RR 417.5 KG

   Front Axle 1151.5 KG Rear Axle 826.0 KG

   Total Vehicle 1977.5 KG

5. Calculated Vehicle Normal Load on the Tire
   Front Tires (Measured front axle normal load/2) 575.8 KG
   Rear Tires (Measured rear axle normal load/2) 413 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)	575.8	413
B. Tire Load Rating (KG) of installed tire size at recommended cold inflation pressure*	880	880
C. Reduced Tire Load Rating, if applicable (KG)**	800	800
D. 94% of tire load rating, de-rated if appropriate (KG)	752	752
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 5 Front 2 Rear 3

2. Full Occupant Load 340 KG
   (# of occupants x 68 KG per occupant)

3. Measured Vehicle Weight with Full Occupant Load

   LF 574.5 KG LR 461.5 KG
   RF 608.5 KG RR 469 KG

   Front Axle 1183 KG Rear Axle 930.5 KG

   Total Vehicle 2113.5 KG

D. MEASURED VEHICLE WEIGHT WITH MAXIMUM LOAD (PLACARD)

1. Vehicle Capacity Weight (from placard) 408 KG

2. Full Occupant Load (from C.2 above) 340 KG
   (# of occupants x 68 KG per occupant)

3. Luggage/Cargo Load (subtract 2 from 1) 68 KG

4. Measured Vehicle Maximum Load on Axles
   LF 565.0 KG LR 502.5 KG
   RF 610.0 KG RR 504.0 KG

   Front Axle 1175.0 KG Rear Axle 1006.5 KG

   Total Vehicle 2181.5 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) Measured	Overload	Vehicle Wt. With Full Occupant Load (KG) Measured	Overload	Vehicle Maximum Wt. With Occupants and Cargo (KG) Measured	Overload
Left Front Tire	800	511.5	No	574.5	No	565.0	No
Right Front Tire	800	543.0	No	608.5	No	610.0	No
Front Axle (GAWR)	1199	1054.5	No	1183.0	No	1175.0	No
Left Rear Tire	800	354.5	No	461.5	No	502.5	No
Right Rear Tire	800	364.5	No	469.0	No	504.0	No
Rear Axle (GAWR)	1130	719.0	No	930.5	No	1006.5	No
Total Vehicle (GVWR)	2288	1773.5	No	2113.5	No	2181.5	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 DATE: 07/23/08
APPROVED BY: D. MESSICK

DATA SHEET 7 (1 of 2)
DEFLATED TIRE RETENTION

VEHICLE MAKE/MODEL/BODY STYLE: 2009 NISSAN MURANO
VEHICLE NHTSA NO.: C95200 ; VIN: JN8AZ18UX9W001369
LABORATORY: General Testing Laboratories, Inc.
TEST DATE: July 24, 2008

Tire Pressures: LF 230 KPA LR 230 KPA
RF 230 KPA RR 230 KPA

Test Weight: LF 558.5 KG LR 510.5 KG
RF 605 KG RR 507.5 KG

Front Axle 1163.5 KG Rear Axle 1018.0 KG

Total Vehicle 2181.5 KG

Retention Test Left Front:

Odometer (START): 36 miles Fuel Level: Full

Ambient Temperature: 30.0 °C Wind Speed: .5 m/s

Vehicle Speed at time of blow-out: 94.9 kmph (97 kmph +0 kmph, -2 kmph)

Maximum Deceleration Rate: 2.5 m/sec^2 Deflation Opening Size 2.5 cm (dia.)

Stopping Distance (Distance traveled after initial release of air): 313 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): 39 miles Fuel Level: Full

Ambient Temperature: 32 °C Wind Speed: 3 m/s

Vehicle Speed at time of blow-out: 96.5 kmph (97 kmph +0 kmph, -2 kmph)

Maximum Deceleration Rate: 2.5 m/sec^2 Deflation Opening Size 2.6 cm (dia.)

Stopping Distance (Distance traveled after initial release of air): 195 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:

	PASS/FAIL
Left Front	Pass
Right Rear	Pass

REMARKS:

RECORDED BY: G. FARRAND DATE: 07/24/08
APPROVED BY: D. MESSICK

DATA SHEET 8
OWNER'S MANUAL REQUIREMENTS

VEHICLE MAKE/MODEL/BODY STYLE: 2009 NISSAN MURANO
VEHICLE NHTSA NO.: C95200 ; VIN: JN8AZ18UX9W001369
LABORATORY: General Testing Laboratories, Inc.
TEST DATE: July 24, 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 x 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 DATE: 07/24/08
APPROVED BY: D. MESSICK

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 #2 199744RF #3 199744LR #4 199744RR	199744LF 199744RF 199744LR 19974RR	01/08 01/08 01/08 01/08	01/09 01/09 01/09 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

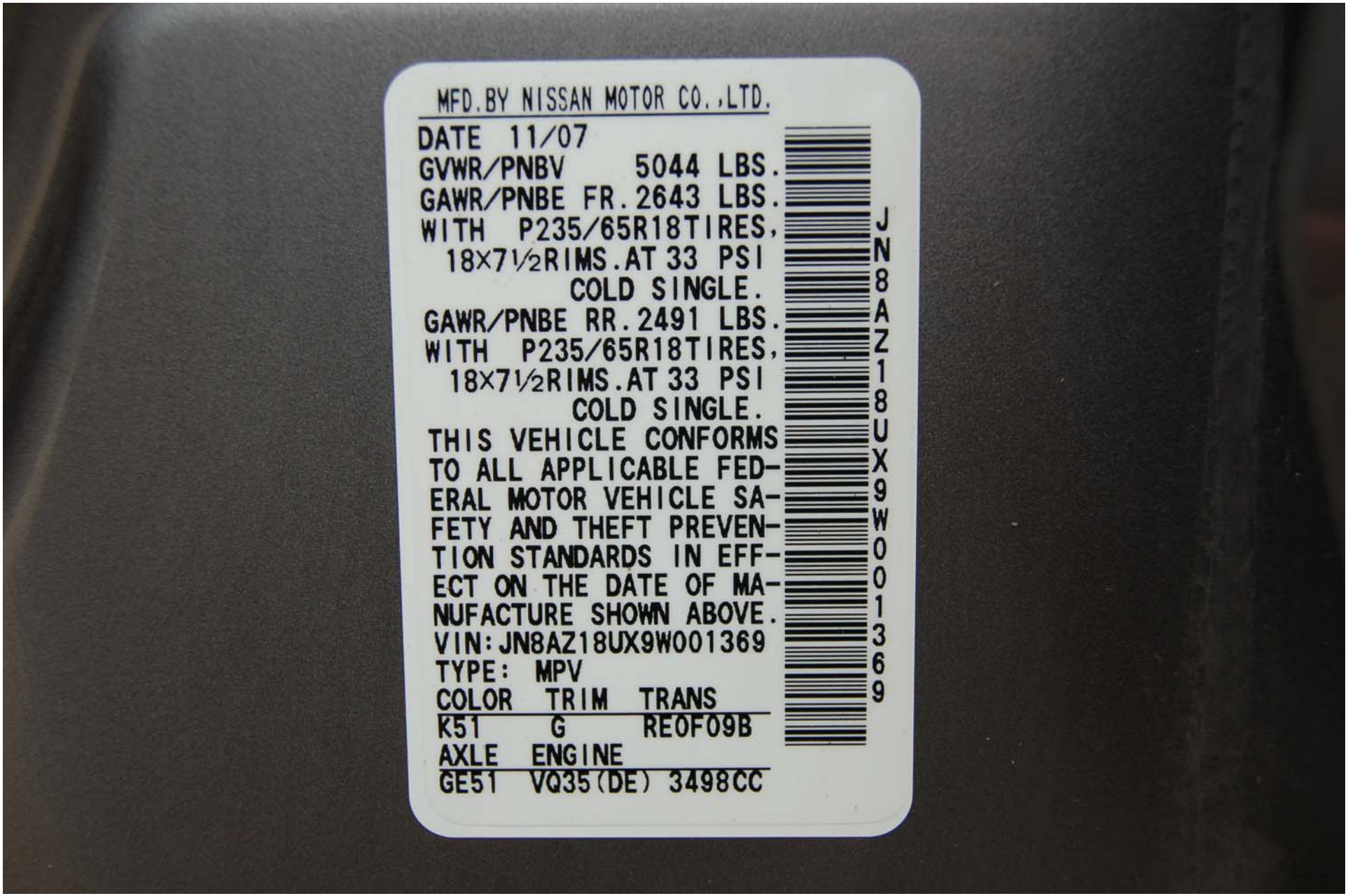
SECTION 5
PHOTOGRAPHS

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.1
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.2
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE



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NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.3
CLOSE-UP VIEW OF VEHICLE CERTIFICATION LABEL

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FMVSS NO. 110

FIGURE 5.4
CLOSE-UP VIEW OF VEHICLE TIRE INFORMATION LABEL

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FIGURE 5.5
TIRE SHOWING MAKE AND MODEL

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.6
TIRE SHOWING SIZE, LOAD INDEX AND SPEED SYMBOL

2009 NISSAN MURANO
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FIGURE 5.7
TIRE SHOWING LOAD RATING AND PRESSURE

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.8
TIRE SHOWING SERIAL NUMBER

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.9
RIM MARKING SHOWING MAKE

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.10
RIM MARKING SHOWING SIZE

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.11
RIM MARKING SHOWING DATE CODE

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.12
RIM MARKING

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.13
RIM MARKING

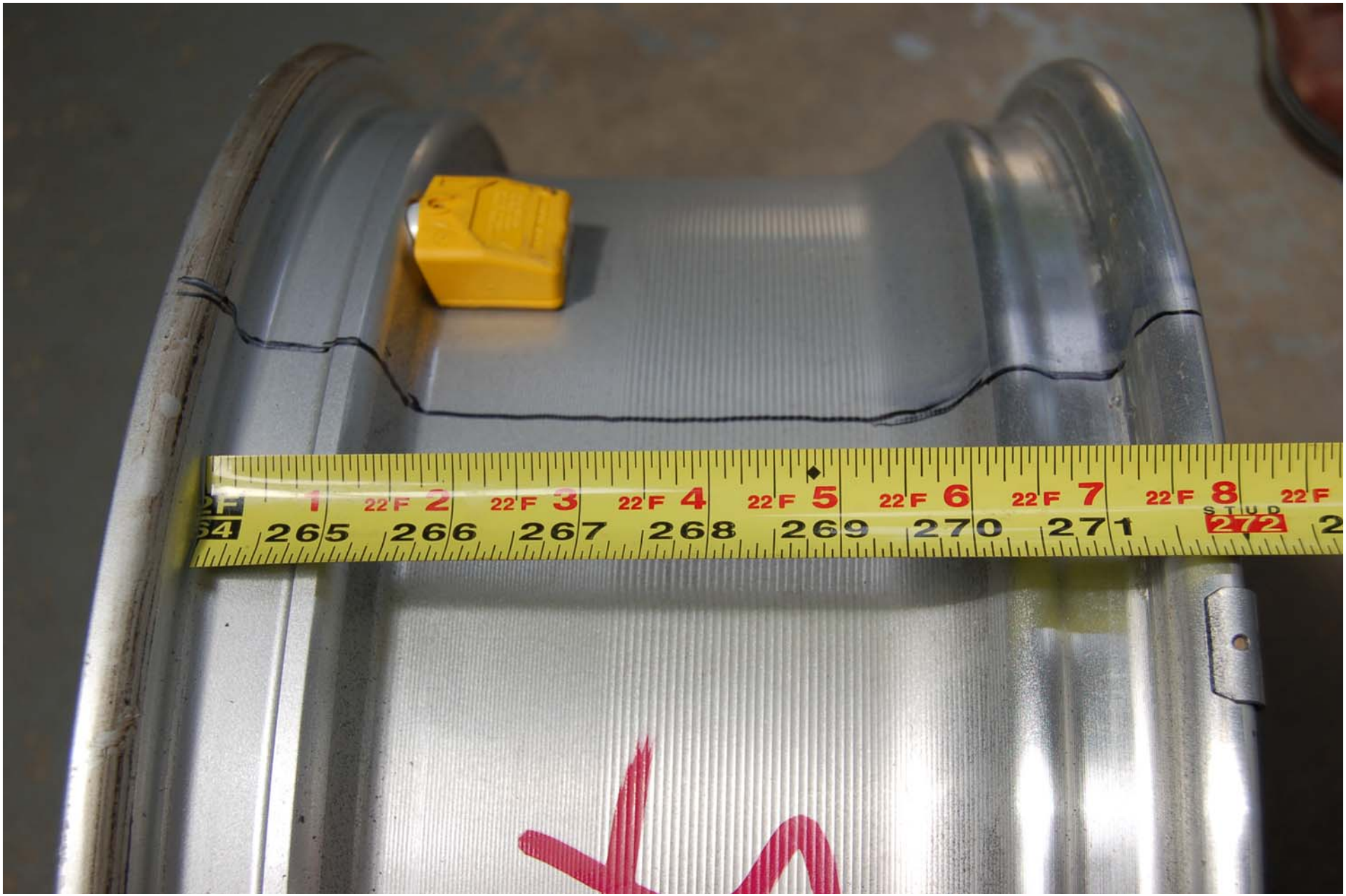

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FIGURE 5.14
RIM MEASUREMENT

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.15
VEHICLE BALLAST FOR FRONT SEAT

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.16
VEHICLE BALLAST FOR REAR SEAT, NORMAL LOAD

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.17
VEHICLE BALLAST FOR REAR SEAT, FULL LOAD

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.18
VEHICLE BALLAST FOR CARGO LOAD

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NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.19
VEHICLE ON SCALES

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FIGURE 5.20
INSTRUMENTATION SET-UP

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NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.21
LEFT FRONT TIRE BLOW-OUT

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NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.22
LEFT FRONT TIRE HOLE

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.23
LEFT FRONT TIRE OUTSIDE, POST TEST

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.24
LEFT FRONT TIRE INSIDE, POST TEST

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.25
RIGHT REAR TIRE BLOW-OUT

2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

FIGURE 5.26
RIGHT REAR TIRE HOLE

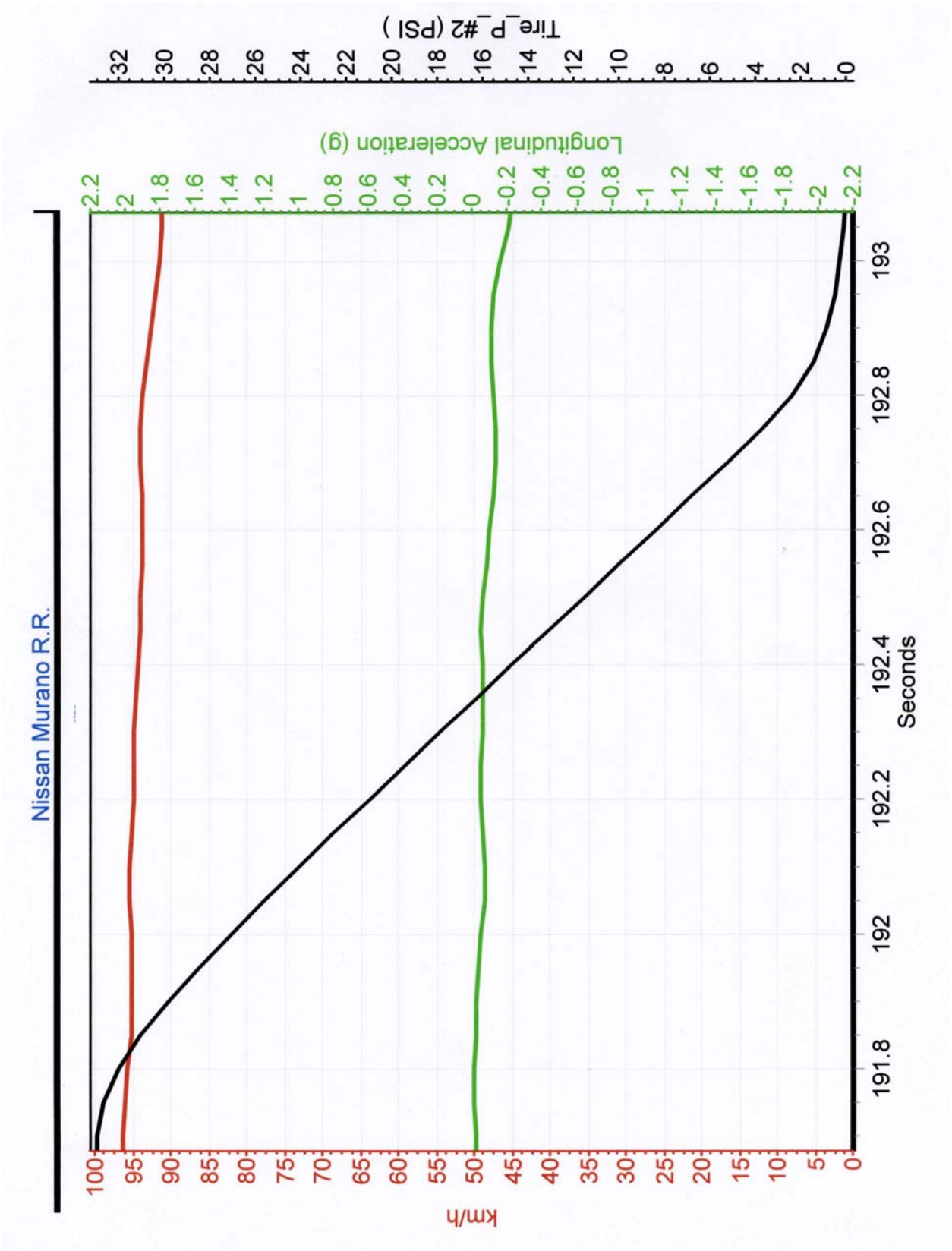
2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

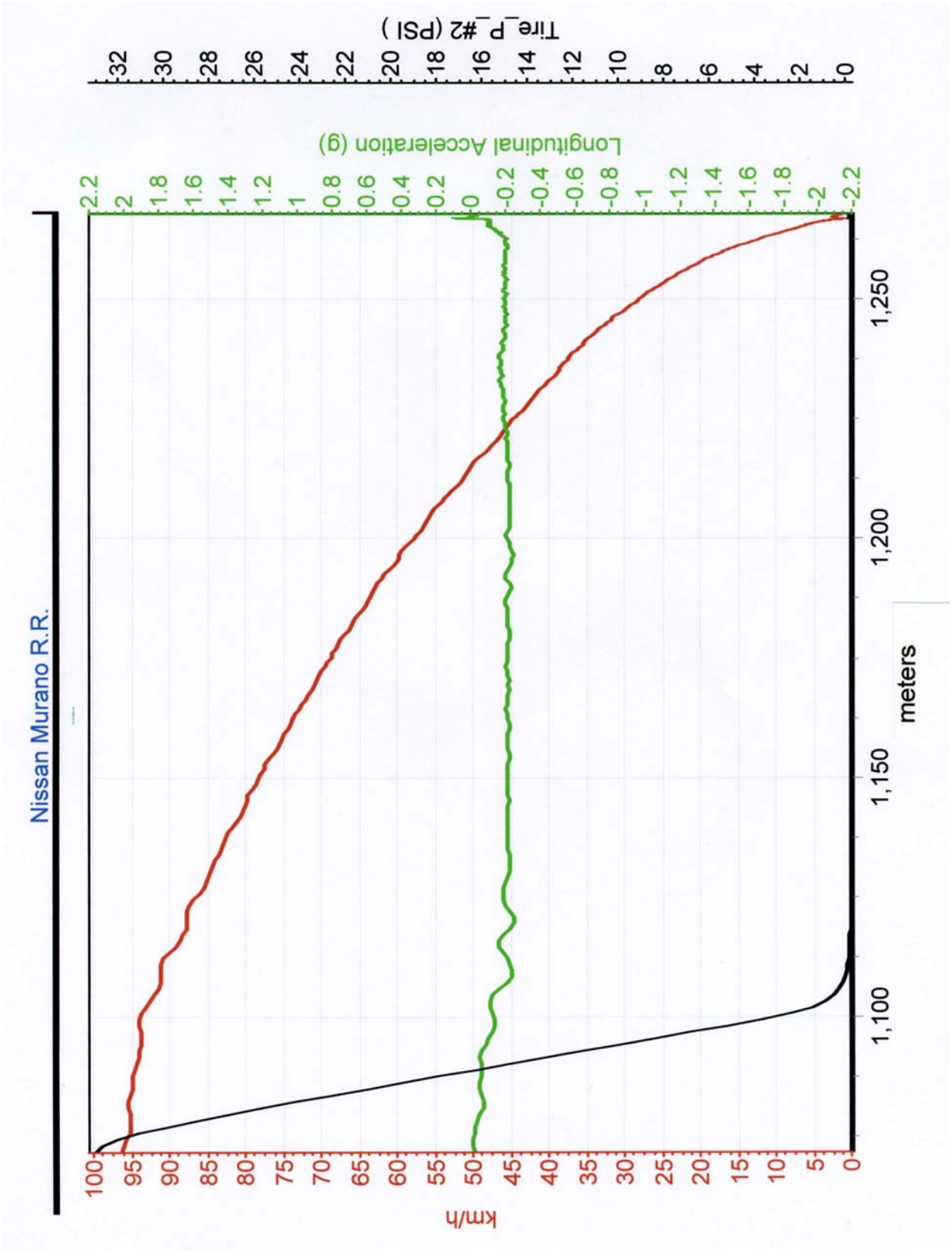
FIGURE 5.27
RIGHT REAR TIRE OUTSIDE, POST TEST

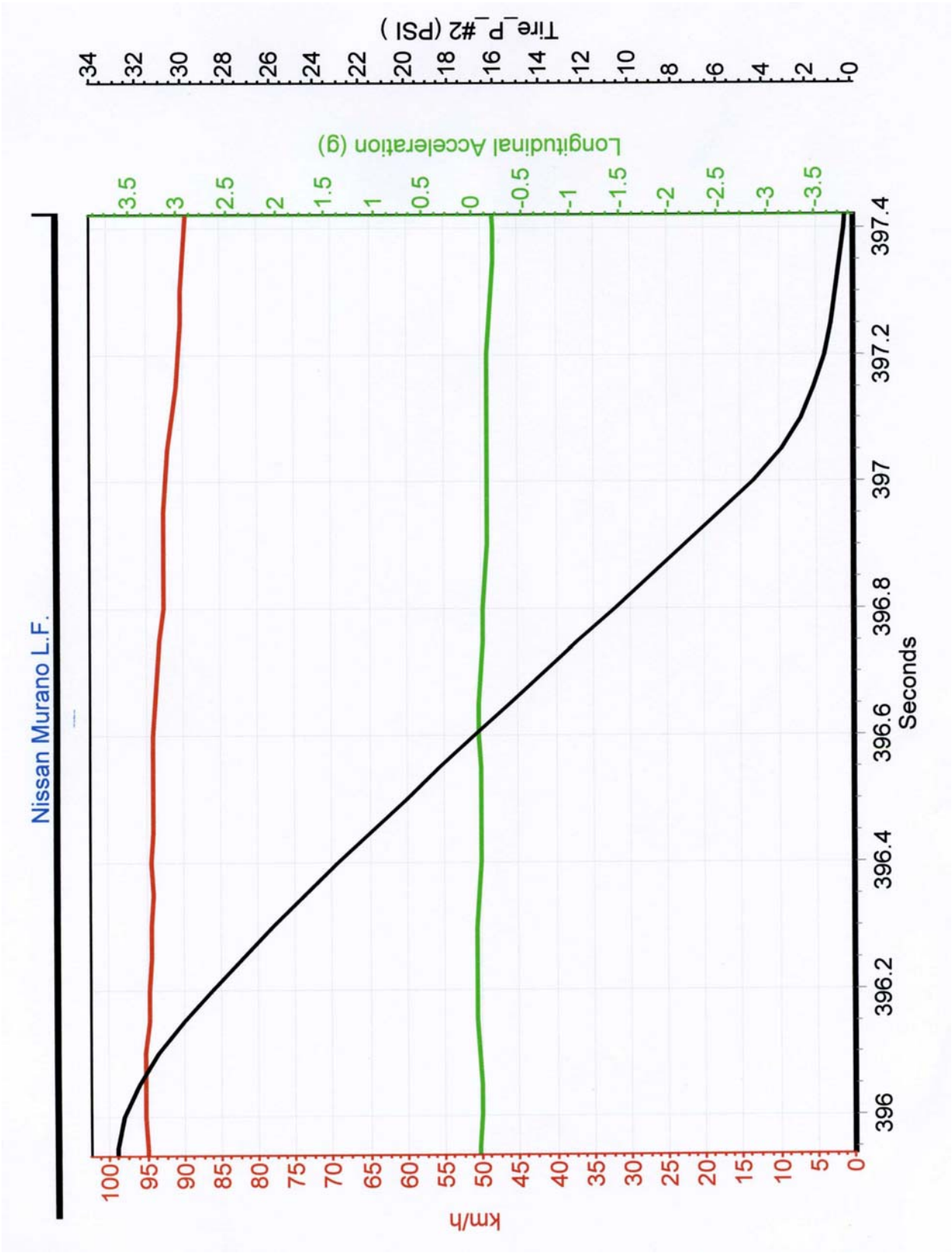
2009 NISSAN MURANO
NHTSA NO. C95200
FMVSS NO. 110

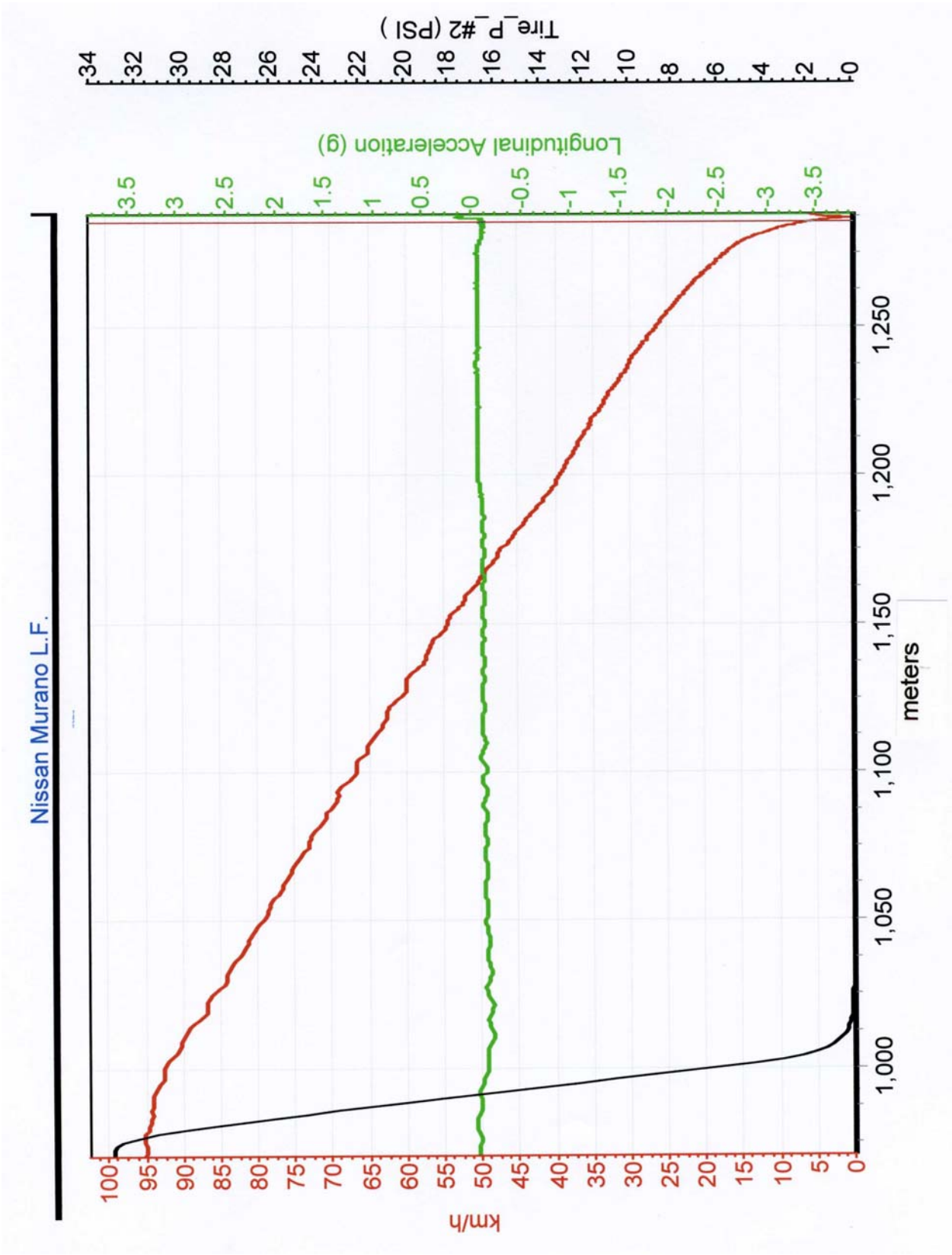
FIGURE 5.28
RIGHT REAR TIRE INSIDE, POST TEST

SECTION 6
TEST PLOTS


Nissan Murano R.R.
km/h
Seconds
Longitudinal Acceleration (g)
Tire_P_#2 (PSI)
191.8
192
192.2
192.4
192.6
192.8
193


Nissan Murano R.R.
km/h
meters
Longitudinal Acceleration (g)
Tire_P_#2 (PSI)
1,100
1,150
1,200
1,250


Nissan Murano L.F.
km/h
Seconds
Longitudinal Acceleration (g)
Tire_P_#2 (PSI)
396
396.2
396.4
396.6
396.8
397
397.2
397.4


Nissan Murano L.F.
km/h
meters
Longitudinal Acceleration (g)
Tire_P_#2 (PSI)
1,000
1,050
1,100
1,150
1,200
1,250

SECTION 7
OWNER'S MANUAL INFORMATION

If you have a flat tire, see "FLAT TIRE" in the "6. In case of emergency" section.

TIRE PRESSURE

Tire Pressure Monitoring System (TPMS)

This vehicle is equipped with the Tire Pressure Monitoring System (TPMS). It monitors tire pressure of all tires except the spare. When the low tire pressure warning light is lit, one or more of your tires is significantly under-inflated.

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

For more details, see "Low tire pressure warning light" in the "2. Instruments and controls" section, "TIRE PRESSURE MONITORING SYSTEM (TPMS)" in the "5. Starting and driving" section and "TIRE PRESSURE MONITORING SYSTEM (TPMS)" in the "6. In case of emergency" section.

Tire inflation pressure

Check the pressure of the tires (including the spare) often and always prior to long distance trips. The recommended tire pressure specifications are shown on the Tire and Loading Information label under the "Cold Tire Pressure" heading. The Tire and Loading Information label is affixed to the driver side center pillar. Tire pressures should be checked regularly because:

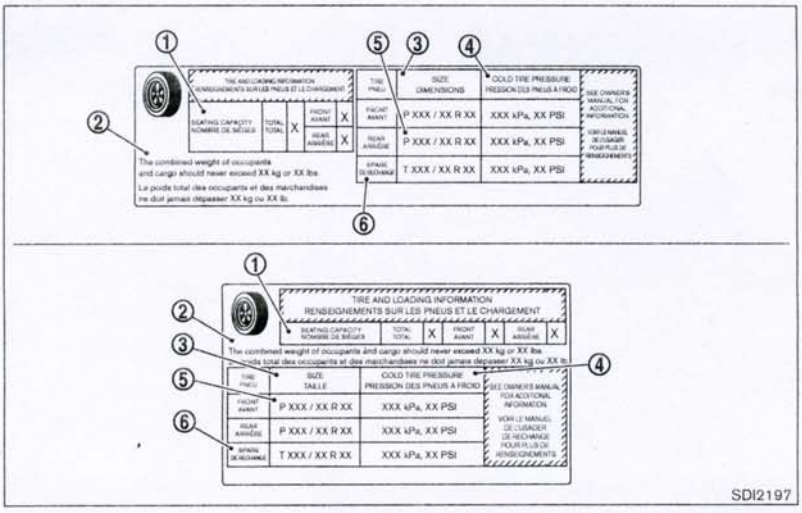
- Most tires naturally lose air over time.
- Tires can lose air suddenly when driven over potholes or other objects or if the vehicle strikes a curb while parking.

The tire pressures should be checked when the tires are cold. The tires are considered COLD after the vehicle has been parked for 3 or more hours, or driven less than 1 mile (1.6 km) at moderate speeds.

Incorrect tire pressure, including under inflation, may adversely affect tire life and vehicle handling.

⚠ WARNING

- **Improperly inflated tires can fail suddenly and cause an accident.**
- **The Gross Vehicle Weight rating (GVWR) is located on the F.M.V.S.S./C.M.V.S.S. certification label. The vehicle weight capacity is indicated on the Tire and Loading Information label. Do not load your vehicle beyond this capacity. Overloading your vehicle may result in reduced tire life, unsafe operating conditions due to premature tire failure, or unfavorable handling characteristics and could also lead to a serious accident. Loading beyond the specified capacity may also result in failure of other vehicle components.**
- **Before taking a long trip, or whenever you heavily load your vehicle, use a tire pressure gauge to ensure that the tire pressures are at the specified level.**
- **Do not drive your vehicle over 85 MPH (137 km/h) unless it is equipped with high speed rated tires. Driving faster than 85 MPH (137 km/h) may result in tire failure, loss of control and possible injury.**
- **For additional information regarding tires, refer to "Important Tire Safety Information" (US) or "Tire Safety Information" (Canada) in the Warranty Information Booklet.**



Tire and Loading Information label

① Seating capacity: The maximum number of occupants that can be seated in the vehicle.

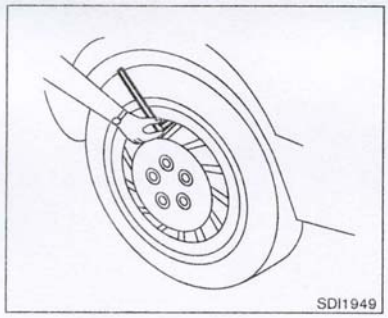
② Vehicle load limit: See "VEHICLE LOADING INFORMATION" in the "9. Technical and consumer information" section.

③ Original size: The size of the tires originally installed on the vehicle at the factory.

④ Cold tire pressure: Inflate the tires to this pressure when the tires are cold. Tires are considered COLD after the vehicle has been parked for 3 or more hours, or driven less than 1 mile (1.6 km) at moderate speeds. The recommended cold tire inflation is set by the manufacturer to provide the best balance of tire wear, vehicle handling, driveability, tire noise, etc., up to the vehicle's GVWR.

⑤ Tire size — see "TIRE LABELING" later in this section.

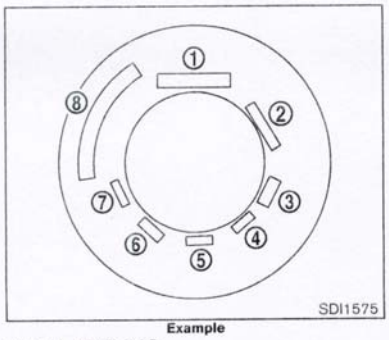
⑥ Spare tire size or compact spare tire size (if so equipped)



Checking the tire pressure

1. Remove the valve stem cap from the tire.
2. Press the pressure gauge squarely onto the valve stem. Do not press too hard or force the valve stem sideways, or air will escape. If the hissing sound of air escaping from the tire is heard while checking the pressure, reposition the gauge to eliminate this leakage.
3. Remove the gauge.
4. Read the tire pressure on the gauge stem and compare it to the specification shown on the Tire and Loading Information label.
5. Add air to the tire as needed. If too much air is added, press the core of the valve stem briefly with the tip of the gauge stem to release pressure. Recheck the pressure and add or release air as needed.
6. Install the valve stem cap.
7. Check the pressure of all other tires, including the spare.

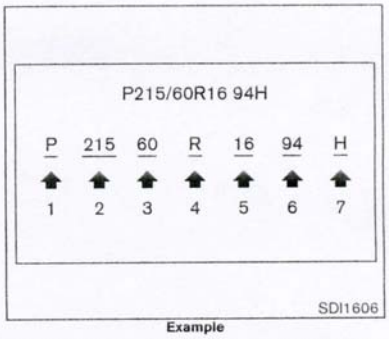
	SIZE	COLD TIRE INFLATION PRESSURE
FRONT ORIGINAL TIRE	P235/65R18 104T	230 kPa, 33 PSI
	P235/55R20 102T	230 kPa, 33 PSI
REAR ORIGINAL TIRE	P235/65R18 104T	230 kPa, 33 PSI
	P235/55R20 102T	230 kPa, 33 PSI
SPARE TIRE	Original tire	230 kPa, 33 PSI
	T165/90D18 107M	420 kPa, 60 PSI



Example

TIRE LABELING

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides the tire identification number (TIN) for safety standard certification. The TIN can be used to identify the tire in case of a recall.

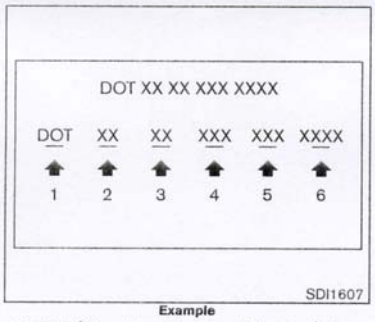


Example

① Tire size (example: P215/60R16 94H)

1. P: The "P" indicates the tire is designed for passenger vehicles. (Not all tires have this information.)
2. Three-digit number (215): This number gives the width in millimeters of the tire from sidewall edge to sidewall edge.
3. Two-digit number (60): This number, known as the aspect ratio, gives the tire's ratio of height to width.
4. R: The "R" stands for radial.

5. Two-digit number (16): This number is the wheel or rim diameter in inches.
6. Two- or three-digit number (94): This number is the tire's load index. It is a measurement of how much weight each tire can support. You may not find this information on all tires because it is not required by law.
7. H: Tire speed rating. You should not drive the vehicle faster than the tire speed rating.



Example

② TIN (Tire Identification Number) for a new tire (example: DOT XX XX XXX XXXX)

1. DOT: Abbreviation for the "Department of Transportation". The symbol can be placed above, below or to the left or right of the Tire Identification Number.
2. Two-digit code: Manufacturer's identification mark
3. Two-digit code: Tire size
4. Three-digit code: Tire type code (Optional)
5. Three-digit code: Date of Manufacture
6. Four numbers represent the week and year the tire was built. For example, the numbers 3103 means the 31st week of 2003. If these numbers are missing, then look on the other sidewall of the tire.

③ Tire ply composition and material
The number of layers or plies of rubber-coated fabric in the tire.
Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

④ Maximum permissible inflation pressure
This number is the greatest amount of air pressure that should be put in the tire. Do not exceed the maximum permissible inflation pressure.

⑤ Maximum load rating
This number indicates the maximum load in kilograms and pounds that can be carried by the tire. When replacing the tires on the vehicle, always use a tire that has the same load rating as the factory installed

tire.

⑥ Term of "tubeless" or "tube type"
Indicates whether the tire requires an inner tube ("tube type") or not ("tubeless").

⑦ The word "radial"
The word "radial" is shown, if the tire has radial structure.

⑧ Manufacturer or brand name
Manufacturer or brand name is shown.

Other tire-related terminology:

In addition to the many terms that are defined throughout this section, Intended Outboard Sidewall is (1) the sidewall that contains a whitewall, bears white lettering or bears manufacturer, brand and/or model name molding that is higher or deeper than the same molding on the other sidewall of the tire, or (2) the outward facing sidewall of an asymmetrical tire that has a particular side that must always face outward when mounted on a vehicle.

TYPES OF TIRES

⚠ WARNING

- **When changing or replacing tires, be sure all four tires are of the same type (Example: Summer, All Season or Snow) and construction. A NISSAN dealer may be able to help you with information about tire type, size, speed rating and availability.**
- **Replacement tires may have a lower speed rating than the factory equipped tires, and may not match the potential maximum vehicle speed. Never exceed the maximum speed rating of the tire.**
- **Replacing tires with those not originally specified by NISSAN could affect the proper operation of the TPMS.**
- **For additional information regarding tires, refer to "Important Tire Safety Information" (US) or "Tire Safety Information" (Canada) in the Warranty Information Booklet.**

All season tires

NISSAN specifies all season tires on some models to provide good performance all year, including snowy and icy road conditions. All Season tires are identified by ALL SEASON and/or M&S (Mud and Snow) on the tire sidewall. Snow tires have better snow traction than All Season tires and may be more appropriate in some areas.

Summer tires

NISSAN specifies summer tires on some models to provide superior performance on dry roads. Summer tire performance is substantially reduced in snow and ice. Summer tires do not have the tire traction rating M&S on the tire sidewall.

If you plan to operate your vehicle in snowy or icy conditions, NISSAN recommends the use of SNOW tires or ALL SEASON tires on all four wheels.

Snow tires

If snow tires are needed, it is necessary to select tires equivalent in size and load rating to the original equipment tires. If you do not, it can adversely affect the safety and handling of your vehicle.

Generally, snow tires will have lower speed ratings than factory equipped tires and may not match the potential maximum vehicle speed.

Never exceed the maximum speed rating of the tire.

If you install snow tires, they must be the same size, brand, construction and tread pattern on all four wheels.

For additional traction on icy roads, studded tires may be used. However, some U.S. states and Canadian provinces prohibit their use. Check local, state and provincial laws before installing studded tires. Skid and traction capabilities of studded snow tires, on wet or dry surfaces, may be poorer than that of non-studded snow tires.

All-Wheel Drive (AWD) models

⚠ CAUTION

- **Always use tires of the same type, size, brand, construction (bias, bias-belted or radial), and tread pattern on all four wheels. Failure to do so may result in a circumference difference between tires on the front and rear axles which will cause excessive tire wear and may damage the transmission, transfer case and differential gears.**
- **ONLY use spare tires specified for the AWD model.**

If excessive tire wear is found, it is recommended that all four tires be replaced with tires of the same size, brand, construction and tread pattern. The tire pressure and wheel alignment should also be checked and corrected as necessary. Contact a NISSAN dealer.

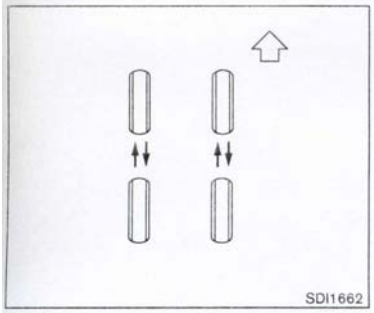
TIRE CHAINS

Use of tire chains may be prohibited according to location. Check the local laws before installing tire chains. When installing tire chains, make sure they are the proper size for the tires on your vehicle and are installed according to the chain manufacturer's suggestions. **Use only SAE Class S chains.** Class "S" chains are used on vehicles with restricted tire to vehicle clearance. Vehicles that can use Class "S" chains are designed to meet the SAE standard minimum clearances between the tire and the closest vehicle suspension or body component required to accommodate the use of a winter traction device (tire chains or cables). The minimum clearances are determined using the factory equipped tire size. Other types may damage your vehicle. Use chain tensioners when recommended by the tire chain manufacturer to ensure a tight fit. Loose end links of the tire chain must be secured or removed to prevent the possibility of whipping action damage to the fenders or underbody. If possible, avoid fully loading your vehicle when using tire chains. In addition, drive at a reduced speed. Otherwise, your vehicle may be damaged and/or vehicle handling and performance may be adversely affected.

Tire chains must be installed only on the front wheels and not on the rear wheels.

Never install tire chains on a TEMPORARY USE ONLY spare tire.

Do not use tire chains on dry roads. Driving with tire chains in such conditions can cause damage to the various mechanisms of the vehicle due to some overstress.


SDI1662

CHANGING WHEELS AND TIRES

Tire rotation

NISSAN recommends rotating the tires every 7,500 miles (12,000 km). (See "FLAT TIRE" in the "6. In case of emergency" section for tire replacing procedures.)

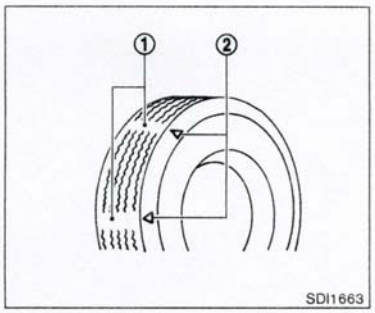
As soon as possible, tighten the wheel nuts to the specified torque with a torque wrench.

Wheel nut tightening torque:
80 ft-lb (108 N·m)

The wheel nuts must be kept tightened to the specification at all times. It is recommended that wheel nuts be tightened to the specification at each tire rotation interval.

⚠ WARNING

- **After rotating the tires, check and adjust the tire pressure.**
- **Retighten the wheel nuts when the vehicle has been driven for 600 miles (1,000 km) (also in cases of a flat tire, etc.).**
- **Do not include the spare tire or any other small size spare tire in the tire rotation.**
- **For additional information regarding tires, refer to "Important Tire Safety Information" (US) or "Tire Safety Information" (Canada) in the Warranty Information Booklet.**



SDI1663

1. Wear indicator
2. Wear indicator location mark

Tire wear and damage

⚠ WARNING

- **Tires should be periodically inspected for wear, cracking, bulging or objects caught in the tread. If excessive wear, cracks, bulging or deep cuts are found, the tire(s) should be replaced.**
- **The original tires have built-in tread wear indicators. When**

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

- **Tires degrade with age and use. Have tires, including the spare, over 6 years old checked by a qualified technician, because some tire damage may not be obvious. Replace the tires as necessary to prevent tire failure and possible personal injury.**
- **Improper service of the spare tire may result in serious personal injury. If it is necessary to repair the spare tire, contact a NISSAN dealer.**
- **For additional information regarding tires, refer to "Important Tire Safety Information" (US) or "Tire Safety Information" (Canada) in the Warranty Information Booklet.**

Replacing wheels and tires

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

WARNING

- **The use of tires other than those recommended or the mixed use of tires of different brands, construction (bias, bias-belted or radial), or tread patterns can adversely affect the ride, braking, handling, ground clearance, body-to-tire clearance, tire chain clearance, speedometer calibration, headlight aim and bumper height. Some of these effects may lead to accidents and could result in serious personal injury.**
- **If the wheels are changed for any reason, always replace with wheels which have the same off-set dimension. Wheels of a different off-set could cause premature tire wear, degrade vehicle handling characteristics and/or interference with the brake discs/drums. Such interference can lead to decreased braking efficiency and/or early brake pad/shoe wear. See "WHEELS AND TIRES" in the "9. Technical and consumer information" section of this manual for wheel off-set dimensions.**
- **When a spare tire is mounted or a wheel is replaced, the TPMS will not function and the low tire pressure warning light will flash for approximately 1 minute. The light will remain on after 1 minute. Contact your NISSAN dealer as soon as possible for tire replacement and/or system resetting.**
- **Replacing tires with those not originally specified by NISSAN could affect the proper operation of the TPMS.**
- **Do not install a damaged or deformed wheel or tire even if it has been repaired. Such wheels or tires could have structural damage and could fail without warning.**
- **The use of retread tire is not recommended.**
- **For additional information regarding tires, refer to "Important Tire Safety Information" (US) or "Tire Safety Information" (Canada) in the Warranty Information Booklet.**

CAUTION

Always use tires of the same type, size, brand, construction (bias, bias-belted or radial), and tread pattern on all four wheels. Failure to do so may result in a circumference difference between tires on the front and rear axles which will cause excessive tire wear and may damage the transmission, transfer case and differential gears (AWD models).

Wheel balance

Unbalanced wheels may affect vehicle handling and tire life. Even with regular use, wheels can get out of balance. Therefore, they should be balanced as required.

Wheel balance service should be performed with the wheels off the vehicle. Spin balancing the wheels on the vehicle could lead to mechanical damage.

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

Care of wheels

- Wash the wheels when washing the vehicle to maintain their appearance.
- Clean the inner side of the wheels when the wheel is changed or the underside of the vehicle is washed.
- Do not use abrasive cleaners when washing the wheels.
- Inspect wheel rims regularly for dents or corrosion. Such damage may cause loss of pressure or poor seal at the tire bead.
- NISSAN recommends that the road wheels be waxed to protect against road salt in areas where it is used during winter.

Spare tire

When a spare tire is mounted (TEMPORARY USE ONLY or conventional), the TPMS will not function.

Observe the following precautions if the TEMPORARY USE ONLY spare tire must be used, otherwise your vehicle could be damaged or involved in an accident.

WARNING

- **The TEMPORARY USE ONLY spare tire should be used for emergency use. It should be replaced with the standard tire at the first opportunity to avoid possible tire or differential damage.**
- **Drive carefully while the TEMPORARY USE ONLY spare tire is installed. Avoid sharp turns and abrupt braking while driving.**
- **Periodically check spare tire inflation pressure. Always keep the pressure of the TEMPORARY USE ONLY spare tire at 60 psi (420 kPa, 4.2 bar). Always keep the pressure of the full size spare tire (if so equipped) at the recommended pressure for standard tires, as indicated on the Tire and Loading Information label.**
- **With the TEMPORARY USE ONLY spare tire installed do not drive your vehicle at speeds faster than 50 MPH (80 km/h).**
- **When driving on roads covered with snow or ice, the TEMPORARY USE ONLY spare tire should be used on the rear wheels and original tire used on the front wheels (drive wheels). Use tire chains only on the front (original) tires.**
- **Tire tread of the TEMPORARY USE ONLY spare tire will wear at a faster rate than the standard tire. Replace**

the spare tire as soon as the tread wear indicators appear.

- Do not use the spare tire on other vehicles.
- Do not use more than one spare tire at the same time.
- Do not tow a trailer while the TEMPORARY USE ONLY spare tire is installed.

⚠ CAUTION

- Do not use tire chains on a TEMPORARY USE ONLY spare tire. Tire chains will not fit properly and may cause damage to the vehicle.
- Because the TEMPORARY USE ONLY spare tire is smaller than the original tire, ground clearance is reduced. To avoid damage to the vehicle, do not drive over obstacles. Also do not drive the vehicle through an automatic car wash since it may get caught.

VEHICLE LOADING INFORMATION

⚠ WARNING

- **It is extremely dangerous to ride in a cargo area inside the vehicle. In a collision, people riding in these areas are more likely to be seriously injured or killed.**
- **Do not allow people to ride in any area of your vehicle that is not equipped with seats and seat belts.**
- **Be sure everyone in your vehicle is in a seat and using a seat belt properly.**

TERMS

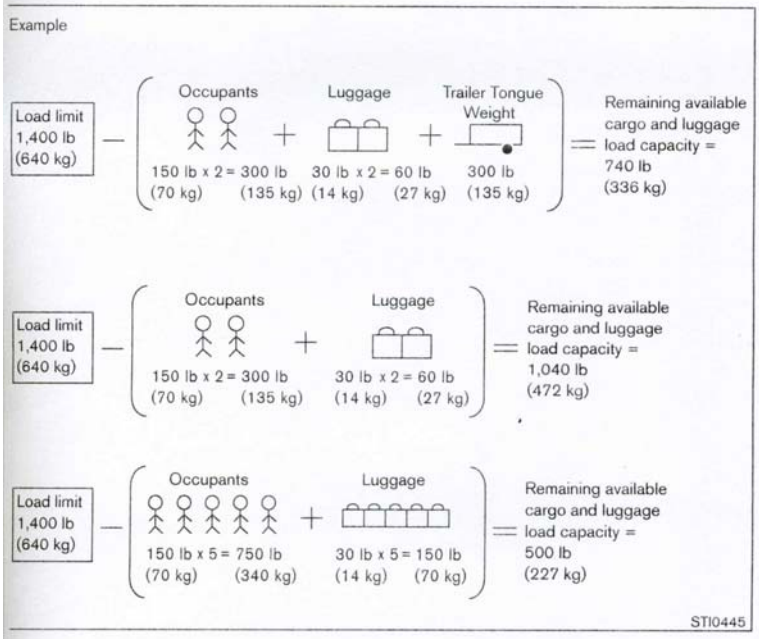
It is important to familiarize yourself with the following terms before loading your vehicle:

- Curb Weight (actual weight of your vehicle) - vehicle weight including: standard and optional equipment, fluids, emergency tools, and spare tire assembly. This weight **does not** include passengers and cargo.
- GVW (Gross Vehicle Weight) - curb weight plus the combined weight of passengers and cargo.
- GVWR (Gross Vehicle Weight Rating) - maximum total combined weight of the unloaded vehicle, passengers, luggage, hitch, trailer tongue load and any other optional equipment. This information is located on the F.M.V.S.S./C.M.V.S.S. label.
- GAWR (Gross Axle Weight Rating) - maximum weight (load) limit specified for the front or rear axle. This information is located on the F.M.V.S.S./C.M.V.S.S. label.
- GCWR (Gross Combined Weight Rating) - The maximum total weight rating of the vehicle, passengers, cargo, and trailer.
- Vehicle Capacity Weight, Load limit, Total load capacity - maximum total weight limit specified of the load (passengers and cargo) for the vehicle. This is the maximum combined weight of occupants and cargo that can be loaded into the vehicle. If the vehicle is used to tow a trailer, the trailer tongue weight must be included as part of the cargo load. This information is located on the Tire and Loading Information label.
- Cargo capacity - permissible weight of cargo, the subtracted weight of occupants from the load limit.

VEHICLE LOAD CAPACITY

Do not exceed the load limit of your vehicle shown as "The combined weight of occupants and cargo" on the Tire and Loading Information label. Do not exceed the number of occupants shown as "Seating Capacity" on the Tire and Loading Information label.

To get "the combined weight of occupants and cargo", add the weight of all occupants, then add the total luggage weight. Examples are shown in the following illustration.



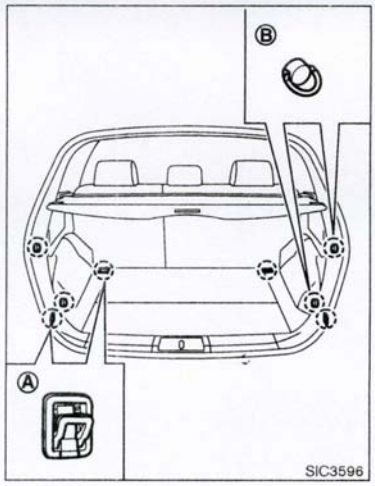
Steps for determining correct load limit

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) or (640 – 340 (5 x 70) = 300 kg.)
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,

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 of your vehicle.

Before driving a loaded vehicle, confirm that you do not exceed the Gross Vehicle Weight Rating (GVWR) or the Gross Axle Weight Rating (GAWR) for your vehicle. (See "MEASUREMENT OF WEIGHTS" later in this section.)

Also check tires for proper inflation pressures. See the Tire and Loading Information label.



SECURING THE LOAD

There are tie down hooks located in the cargo area as shown. The tie down hooks can be used to secure cargo with ropes or other types of straps.

Do not apply a total load of more than 22 lb. (98 N) to a single hook Ⓐ or 7 lb. (31 N) to a single hook Ⓑ when securing cargo.

⚠ WARNING

- **Properly secure all cargo with ropes or straps to help prevent it from sliding or shifting. Do not place cargo higher than the seatbacks. In a sudden stop or collision, unsecured cargo could cause personal injury.**
- **The child restraint top tether strap may be damaged by contact with items in the cargo area. Secure any items in the cargo area. Your child could be seriously injured or killed in a collision if the top tether strap is damaged.**
- **Do not load your vehicle any heavier than the GVWR or the maximum front and rear GAWRs. If you do, parts of your vehicle can break, tire damage could occur, or it can change the way your vehicle handles. This could result in loss of control and cause personal injury.**

LOADING TIPS

- The GVW must not exceed GVWR or GAWR as specified on the F.M.V.S.S./ C.M.V.S.S. certification label.
- Do not load the front and rear axle to the GAWR. Doing so will exceed the GVWR.

⚠ WARNING

- **Properly secure all cargo with ropes or straps to help prevent it from sliding or shifting. Do not place cargo higher than the seatbacks. In a sudden stop or collision, unsecured cargo could cause personal injury.**
- **Do not load your vehicle any heavier than the GVWR or the maximum front and rear GAWRs. If you do, parts of your vehicle can break, tire damage could occur, or it can change the way your vehicle handles. This could result in loss of control and cause personal injury.**
- **Overloading not only can shorten the life of your vehicle and the tire, but can cause unsafe vehicle handling and longer braking distances. This may cause a premature tire failure, which could result in a serious accident and personal injury. Failures caused by overloading are not covered by the vehicle's warranty.**

MEASUREMENT OF WEIGHTS

Secure loose items to prevent weight shifts that could affect the balance of your vehicle. When the vehicle is loaded, drive to a scale and weigh the front and the rear wheels separately to determine axle loads. Individual axle loads should not exceed either of the Gross Axle Weight Ratings (GAWR). The total of the axle loads should not exceed the Gross Vehicle Weight Rating (GVWR). These ratings are given on the vehicle certification label. If weight ratings are exceeded, move or remove items to bring all weights below the ratings.

TOWING A TRAILER

⚠ WARNING

Overloading or improper loading of a trailer and its cargo can adversely affect vehicle handling, braking and performance and may lead to accidents.

⚠ CAUTION

- **Do not tow a trailer or haul a heavy load for the first 500 miles (800 km). Your engine, axle or other parts could be damaged.**
- **For the first 500 miles (800 km) that you tow a trailer, do not drive over 50 MPH (80 km/h) and do not make starts at full throttle. This helps the engine and other parts of your vehicle wear in at the heavier loads.**

Your new vehicle was designed to be used primarily to carry passengers and cargo. Remember that towing a trailer places additional loads on your vehicle's engine, drivetrain, steering, braking and other systems.

A NISSAN Towing Guide (U.S. only) is available on the website at www.nissanusa.com. This guide includes information on trailer towing capability and the special equipment required

for proper towing.

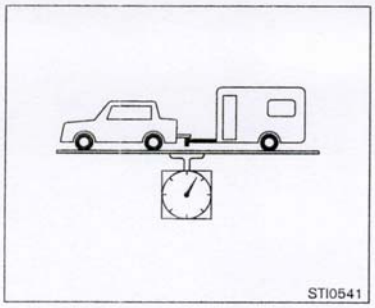
MAXIMUM LOAD LIMITS

Maximum trailer loads

Never allow the total trailer load to exceed the value specified in the "Towing Load/Specification" chart. The total trailer load equals trailer weight plus its cargo weight.

- **When towing a trailer load of 1,000 lbs (454 kg) or more, trailers with a brake system MUST be used.**

The maximum GCWR (Gross Combined Weight Rating) should not exceed the value specified in the following "Towing Load/Specification" chart.


STI0541

The GCWR equals the combined weight of the towing vehicle (including passengers and cargo) plus the total trailer load. Towing loads greater than these or using improper towing equipment could adversely affect vehicle handling, braking and performance.

The ability of your vehicle to tow a trailer is not only related to the maximum trailer loads, but also the places you plan to tow. Tow weights appropriate for level highway driving may have to be reduced on very steep grades or for low traction situations (for example, on slippery boat ramps).

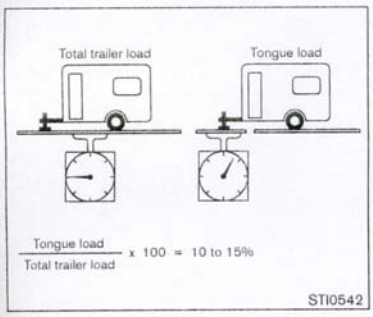
Temperature conditions can also affect towing. For example, towing a heavy trailer in high outside temperatures on graded roads can affect engine performance and cause overheating. The transmission high fluid temperature protection mode, which helps reduce the chance of transmission damage, could activate and automatically decrease engine power. Vehicle speed may decrease under high load. Plan your trip carefully to account for trailer and vehicle load, weather and road conditions.

⚠ WARNING

Overheating can result in reduced engine power and vehicle speed. The reduced speed may be lower than other traffic, which could increase the chance of a collision. Be especially careful when driving. Pull to the side of the road to a safe area. Allow the engine to cool and return to normal operation. See "IF YOUR VEHICLE OVERHEATS" in the "6. In case of emergency" section of this manual.

⚠ CAUTION

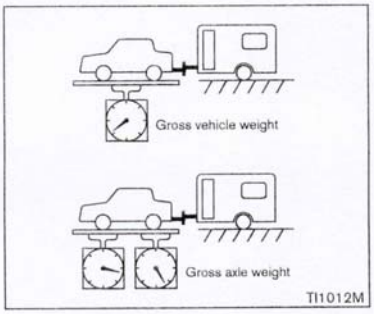
Vehicle damage resulting from improper towing procedures are not covered by NISSAN warranties.



STI0542

Tongue load

When using a weight carrying or a weight distributing hitch, keep the tongue load between 10 to 15% of the total trailer load within the maximum tongue load limits shown in the following "Towing Load/Specification" chart. If the tongue load becomes excessive, rearrange cargo to allow for proper tongue load.



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MAXIMUM GROSS VEHICLE WEIGHT (GVW)/MAXIMUM GROSS AXLE WEIGHT (GAW)

The GVW of the towing vehicle must not exceed the Gross Vehicle Weight Rating (GVWR) shown on the F.M.V.S.S./C.M.V.S.S. certification label. The GVW equals the combined weight of the unloaded vehicle, passengers, luggage, hitch, trailer tongue load and any other optional equipment. In addition, front or rear GAW must not exceed the Gross Axle Weight Rating (GAWR) shown on the F.M.V.S.S./C.M.V.S.S. certification label.

Towing capacities are calculated assuming a base vehicle with driver and any options required to achieve the rating. Additional passengers, cargo and/or optional equipment, such as the trailer hitch, will add weight to the vehicle and reduce your vehicle's maximum towing capacity and trailer tongue load.

The vehicle and trailer need to be weighed to confirm the vehicle is within the GVWR, Front GAWR, Rear GAWR, Gross Combined Weight Rating (GCWR) and Towing capacity.

All vehicle and trailer weights can be measured using platform type scales commonly found at truck stops, highway weigh stations, building supply centers or salvage yards.

To determine the available payload capacity for tongue load, use the following procedure.

1. Locate the GVWR on the F.M.V.S.S./C.M.V.S.S. certification label.
2. Weigh your vehicle on the scale with all of the passengers and cargo that are normally in the vehicle when towing a trailer.
3. Subtract the actual vehicle weight from the GVWR. The remaining amount is the available maximum tongue load.

To determine the available towing capacity, use the following procedure.

1. Find the GCWR for your vehicle on the "Towing Load/Specification" chart found

later in this section.

2. Subtract the actual vehicle weight from the GCWR. The remaining amount is the available maximum towing capacity.

To determine the Gross Trailer Weight, weigh your trailer on a scale with all equipment and cargo, that are normally in the trailer when it is towed. Make sure the Gross trailer weight is not more than the Gross Trailer Weight Rating shown on the trailer and is not more than the calculated available maximum towing capacity.

Also weigh the front and rear axles on the scale to make sure the Front Gross Axle Weight and Rear Gross Axle Weight are not more than Front Gross Axle Weight and Rear Gross Axle Weight on the F.M.V.S.S./C.M.V.S.S. certification label. The cargo in the trailer and vehicle may need to be moved or removed to meet the specified ratings.

Example:

- Gross Vehicle Weight (GVW) as weighed on a scale - including passengers, cargo and hitch - 4,926 lb. (2,234 kg).
- Gross Vehicle Weight Rating (GVWR) from F.M.V.S.S./C.M.V.S.S. certification label - 5,263 lb. (2,387 kg).
- Gross Combined Weight Rating (GCWR) from "Towing Load/Specification" chart - 8,300 lb. (3,765 kg).
- Maximum Trailer towing capacity from "Towing Load/Specification" chart - 3,500 lb. (1,588 kg).

5,263 lb. (2,387 kg)	GVWR
– 4,926 lb. (2,234 kg)	GVW
= 337 lb. (152 kg)	Available for tongue weight
8,300 lb. (3,765 kg)	GCWR
– 4,926 lb. (2,234 kg)	GVW
= 3,374 lb. (1,530 kg)	Capacity available for towing
337 lb. (152 kg) /	Available tongue weight
3,374 lb. (1,530 kg)	Available capacity
	= 10 % tongue weight

The available towing capacity may be less than the maximum towing capacity due to the passenger and cargo load in the vehicle.

Remember to keep trailer tongue weight between 10 to 15% of the trailer weight. If the tongue load becomes excessive, rearrange the cargo to obtain the proper tongue load. Do not exceed the 10 to 15% tongue weight specification even if the calculated available tongue weight is greater than 15%. If the calculated tongue weight is less than 10%, reduce the total trailer weight to match the available tongue weight.

Always verify that available capacities are within the required ratings.

TOWING LOAD/SPECIFICATION

TOWING LOAD/SPECIFICATION CHART

Unit: lb (kg)

MODEL / WEIGHT	VQ35DE CVT
MAXIMUM TRAILER WEIGHT*1	3,500 (1,588)
MAXIMUM TONGUE LOAD	350 (159)
GROSS COMBINED WEIGHT RATING	8,300 (3,765)
RECOMMENDED EQUIPMENT*2	Sway Control Device (SCD)

1: All towing above 1,000 lb (454 kg) requires the use of trailer brakes. NISSAN recommends the use of a tandem axle trailer whenever towing above 3,000 lb (1,361 kg).

2: A sway control device is recommended for all towing above 2,000 lb (907 kg). Sway control devices are not offered by NISSAN. See a professional trailer/hitch outlet for a properly designed sway control device for your trailer.

TOWING SAFETY

Trailer hitch

Choose a proper hitch for your vehicle and trailer. A genuine NISSAN trailer hitch is available from a NISSAN dealer. Make sure the trailer hitch is securely attached to the vehicle to help avoid personal injury or property damage due to sway caused by crosswinds, rough road surfaces or passing trucks.

⚠ WARNING

Trailer hitch components have specific weight ratings. Your vehicle may be capable of towing a trailer heavier than the weight rating of the hitch components. Never exceed the weight rating of the hitch components. Doing so can cause serious personal injury or property damage.

Hitch ball

Choose a hitch ball of the proper size and weight rating for your trailer:

- The required hitch ball size is stamped on most trailer couplers. Most hitch balls also have the size printed on top of the ball.
- Choose the proper class hitch ball based on the trailer weight.

- The diameter of the threaded shank of the hitch ball must be matched to the ball mount hole diameter. The hitch ball shank should be no more than 1/16" smaller than the hole in the ball mount.
- The threaded shank of the hitch ball must be long enough to be properly secured to the ball mount. There should be at least 2 threads showing beyond the lock washer and nut.

Sway control device

Sudden maneuvers, wind gusts and buffeting caused by other vehicles can affect trailer handling. Sway control devices may be used to help control these affects. If you choose to use one, contact a reputable trailer hitch supplier to make sure the sway control device will work with the vehicle, hitch, trailer and the trailer's brake system. Follow the instructions provided by the manufacturer for installing and using the sway control device.

Class I hitch

Class I trailer hitch equipment (receiver, ball mount and hitch ball) can be used to tow trailers of a maximum weight of 2,000 lb (907 kg).

Class II hitch

Class II trailer hitch equipment (receiver, ball mount and hitch ball) can be used to tow trailers of a maximum weight of 3,500 lb (1,588 kg).

CAUTION

- **Special hitches which include frame reinforcements are required for towing above 2,000 lb (907 kg). Suitable genuine NISSAN hitches for pickup trucks and sport utility vehicles are available at a NISSAN dealer.**
- **The hitch should not be attached to or affect the operation of the impact-absorbing bumper.**
- **Do not use axle-mounted hitches.**
- **Do not modify the vehicle exhaust system, brake system, etc. to install a trailer hitch.**
- **To reduce the possibility of additional damage if your vehicle is struck from the rear, where practical, remove the hitch and/or receiver when not in use. After the hitch is removed, seal the bolt holes to prevent exhaust fumes, water or dust from entering the passenger compartment.**
- **Regularly check that all trailer hitch mounting bolts are securely mounted.**

Tire pressures

- When towing a trailer, inflate the vehicle tires to the recommended cold tire pressure indicated on the Tire and Loading Information label.
- Trailer tire condition, size, load rating and proper inflation pressure should be in accordance with the trailer and tire manufacturers' specifications.

Safety chains

Always use a suitable chain between your vehicle and the trailer. The safety chains should be crossed and should be attached to the hitch, not to the vehicle bumper or axle. The safety chains can be attached to the bumper if the hitch ball is mounted to the bumper. Be sure to leave enough slack in the chains to permit turning corners.

Trailer lights

CAUTION

When splicing into the vehicle electrical system, a commercially available power-type module/converter must be used to provide power for all trailer lighting. This unit uses the vehicle battery as a direct power source for all

trailer lights while using the vehicle tail light, stoplight and turn signal circuits as a signal source. The module/converter must draw no more than 15 milliamps from the stop and tail lamp circuits. Using a module/converter that exceeds these power requirements may damage the vehicle's electrical system. See a reputable trailer dealer to obtain the proper equipment and to have it installed.

Trailer lights should comply with federal and/or local regulations. For assistance in hooking up trailer lights, contact a NISSAN dealer or reputable trailer dealer.

Trailer brakes

If your trailer is equipped with a braking system, make sure it conforms to federal and/or local regulations and that it is properly installed.

WARNING

Never connect a trailer brake system directly to the vehicle brake system.

Pre-towing tips

- Be certain your vehicle maintains a level position when a loaded or unloaded trailer is hitched. Do not drive the vehicle if it has an abnormal nose-up or nose-down condition; check for improper tongue load, overload, worn suspension or other possible causes of either condition.
- Always secure items in the trailer to prevent load shift while driving.
- Keep the cargo load as low as possible in the trailer to keep the trailer center of gravity low.
- Load the trailer so approximately 60% of the trailer load is in the front half and 40% is in the back half. Also make sure the load is balanced side to side.
- Check your hitch, trailer tire pressure, vehicle tire pressure, trailer light operation, and trailer wheel lug nuts every time you attach a trailer to the vehicle.
- Be certain your rearview mirrors conform to all federal, state or local regulations. If not, install any mirrors required for towing before driving the vehicle.
- Determine the overall height of the vehicle and trailer so the required clearance is known.

Trailer towing tips

In order to gain skill and an understanding of the vehicle's behavior, you should practice turning, stopping and backing up in an area which is free from traffic. Steering stability, and braking performance will be somewhat different than under normal driving conditions.

- Always secure items in the trailer to prevent load shift while driving.
- Lock the trailer hitch coupler with a pin or lock to prevent the coupler from inadvertently becoming unlatched.
- Avoid abrupt starts, acceleration or stops.
- Avoid sharp turns or lane changes.
- Always drive your vehicle at a moderate speed. Some states or provinces have specific speed limits for vehicles that are towing trailers. Obey the local speed limits.
- When backing up, hold the bottom of the steering wheel with one hand. Move your hand in the direction in which you want the trailer to go. Make small corrections and back up slowly. If possible, have someone guide you when you are backing up.

Always block the wheels on both vehicle and trailer when parking. Parking on a slope is not recommended; however, if you must do so:

CAUTION

If you move the shift selector lever to the P (Park) position before blocking

the wheels and applying the parking brake, transmission damage could occur.

1. Apply and hold the brake pedal.
2. Have someone place blocks on the downhill side of the vehicle and trailer wheels.
3. After the wheel blocks are in place, slowly release the brake pedal until the blocks absorb the vehicle load.
4. Apply the parking brake.
5. Shift the transmission into P (Park).
6. Turn off the engine.

To drive away:

1. Apply and hold the brake pedal.
2. Start the engine.
3. Shift the transmission into gear.
4. Release the parking brake.
5. Drive slowly until the vehicle and trailer are clear from the blocks.
6. Apply and hold the brake pedal.
7. Have someone retrieve and store the blocks.

- When going down a hill, shift into a lower gear and use the engine braking effect. When going up a long grade, downshift the transmission to a lower gear and reduce speed to reduce chances of engine overloading and/or overheating.
- If the engine coolant rises to an extremely high temperature when the air conditioning system is on, turn off the air conditioner. Coolant heat can be additionally vented by opening the windows, switching the fan control to high and setting the temperature control to the HOT position.
- Trailer towing requires more fuel than normal circumstances.
- Avoid towing a trailer for the first 500 miles (800 km).
- Have your vehicle serviced more often than at intervals specified in the recommended maintenance schedule in the NISSAN Service and Maintenance Guide.
- When making a turn, your trailer wheels will be closer to the inside of the turn than your vehicle wheels. To compensate for this, make a larger than normal turning radius during the turn.
- Crosswinds and rough roads will adversely affect vehicle/trailer handling, possibly causing vehicle sway. When being passed by larger vehicles, be prepared for possible changes in crosswinds that could affect vehicle handling. If swaying does occur, firmly grip the steering wheel, steer straight ahead, and immediately (but gradually) reduce vehicle speed. This combination will help stabilize the vehicle. Never increase speed.

Do the following if the trailer begins to sway:

1. Take your foot off the accelerator pedal to allow the vehicle to coast and steer as straight ahead as the road conditions allow. This combination will help stabilize the vehicle.
   — Do not correct trailer sway by steering or applying the brakes.
2. When the trailer sway stops, gently apply the brakes and pull to the side of the road in a safe area.
3. Try to rearrange the trailer load so it is balanced as described earlier in this section.

- Be careful when passing other vehicles. Passing while towing a trailer requires considerably more distance than normal passing. Remember the length of the trailer must also pass the other vehicle before you can safely change lanes.
- Down shift the transmission to a lower gear for engine braking when driving down steep or long hills. This will help slow the vehicle without applying the brakes.
- Avoid holding the brake pedal down too long or too frequently. This could cause the brakes to overheat, resulting in reduced braking efficiency.
- Increase your following distance to allow for greater stopping distances while towing a trailer. Anticipate stops and brake gradually.
- Do not use cruise control while towing a trailer.
- Some states or provinces have specific regulations and speed limits for vehicles that are towing trailers. Obey the local speed limits.
- Check your hitch, trailer wiring harness connections, and trailer wheel lug nuts after 50 miles (80 km) of travel and at every break.
- When stopped in traffic for long periods of time in hot weather, put the vehicle in the P (Park) position.
- When launching a boat, don't allow the water level to go over the exhaust tail pipe or rear bumper.
- Make sure you disconnect the trailer lights before backing the trailer into the water or the trailer lights may burn out.

When towing a trailer, the transmission fluid should be changed more frequently. For additional information, see the "8. Maintenance and do-it-yourself" section earlier in this manual.

FLAT TOWING

Towing your vehicle with all four wheels on the ground is sometimes called flat towing. This method is sometimes used when towing a vehicle behind a recreational vehicle, such as a motor home.

⚠ CAUTION

- **Failure to follow these guidelines can result in severe transmission damage.**
- **Whenever flat towing your vehicle, always tow forward, never backward.**
- **DO NOT tow any continuously variable transmission vehicle with all four wheels on the ground (flat towing). Doing so WILL DAMAGE internal transmission parts due to lack of transmission lubrication.**
- **DO NOT tow an All-Wheel Drive (AWD) vehicle with any of the wheels on the ground. Doing so may cause serious and expensive damage to the powertrain.**
- **For emergency towing procedures refer to "TOWING RECOMMENDED BY NISSAN" in the "6. In case of emergency" section of this manual.**

Continuously Variable Transmission (CVT)

All-Wheel Drive (AWD) models:

Do not tow an AWD vehicle with any of the wheels on the ground.

Two-Wheel Drive (2WD) models:

To tow a vehicle equipped with a Continuously Variable Transmission (CVT), an appropriate vehicle dolly **MUST** be placed under the towed vehicle's driving wheels. **Always** follow the dolly manufacturer's recommendations when using their product.

UNIFORM TIRE QUALITY GRADING

DOT (Department Of Transportation) Quality Grades: All passenger car tires must conform to federal safety requirements in addition to these grades.

Quality grades can be found where applicable on the tire sidewall between tread shoulder and maximum section width. For example:

Treadwear 200 Traction AA Temperature A

TREADWEAR

The treadwear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear one and one-half (1 1/2) times as well on the government course as a tire graded 100. The relative performance of tires depends upon actual conditions of their use, however, and may depart significantly from the norm due to variations in driving habits, service practices and differences in road characteristics and climate.

TRACTION AA, A, B AND C

The traction grades, from highest to lowest, are AA, A, B and C. Those grades represent the tire's ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.

⚠ WARNING

The traction grade assigned to this tire is based on straight-ahead braking traction tests, and does not include acceleration, cornering, hydroplaning, or peak traction characteristics.

TEMPERATURE A, B AND C

The temperature grades A (the highest), B, and C, representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the material of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure. The grade C corresponds to a level of performance which all passenger car tires must meet under the Federal Motor Vehicle Safety Standard No. 109. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

⚠ WARNING

The temperature grade for this tire is established for a tire that is properly inflated and not overloaded. Excessive speed, under-inflation, or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure.