FINAL REPORT NUMBER 225-MGA-07-001

SAFETY COMPLIANCE TESTING FOR FMVSS 225
"Child Restraint Anchorage Systems"

NISSAN MOTOR CO., LTD
2007 NISSAN SENTRA 4-DOOR
NHTSA No. C65202

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: March 31, 2008
Report Date: April 30, 2008

FINAL REPORT

PREPARED FOR:

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

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Approved By: P. Michael Miller II, Vice President

Approval Date: 5/19/08

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: Edward E. Chan
Digitally signed by Edward E. Chan
DN: CN = Edward E. Chan, C = US, O = National Highway Traffic Safety Administration, OU = Office of Vehicle Safety Compliance
Date: 2008.05.22 14:20:43 -04'00'

Acceptance Date: _____

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4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of a 2007 Nissan Sentra, NHTSA No. C65202		5. Report Date April 30, 2008 6. Performing Organization Code MGA	
7. Author(s) Helen A. Kaleto, Laboratory Manager Fern Gatilao, Project Engineer Brad Reaume, Test Personnel		8. Performing Organization Report No. 225-MGA-07-001	
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12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 Seventh Street, SW Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report 14. Sponsoring Agency Code NVS-220	
15. Supplementary Notes			
16. Abstract A compliance test was conducted on the subject 2007 Nissan Sentra, NHTSA No. C65202, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-225-01 for the determination of FMVSS 225 compliance. The tests were conducted at MGA Research Corporation in Troy, Michigan on March 31, 2008. Test failures identified were as follows: NONE The data recorded indicates that the 2007 Nissan Sentra tested appears to meet the requirements of FMVSS 225.			
17. Key Words Compliance Testing Safety Engineering FMVSS 225 2007 Nissan Sentra		18. Distribution Statement Copies of this report are available From: NHTSA Technical Reference Division, Mail Code: NPO-230 400 Seventh Street, SW, Room PL-403 Washington, D.C. 20590 Telephone No. (202) 366-4946	
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1.0 PURPOSE AND PROCEDURE

PURPOSE

The child restraint anchorage testing results presented in this report are part of the Federal Motor Vehicle Safety Standard (FMVSS) No. 225 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-06-C-00030/0003. The purpose of the testing was to determine if the subject vehicle, a 2007 Nissan Sentra, NHTSA No. C65202 meets the performance requirements of FMVSS No. 225, "Child Restraint Anchorage Systems."

PROCEDURE

This testing was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure TP-225-01 (4/11/05) and MGA's Laboratory Test Procedure, MGATP225GOV (6/23/06).

The rear occupant compartment consisted of a 2nd row three-passenger bench seat. The 2nd row outboard left and right seating positions were equipped with a child restraint anchorage system (one tether and two lower anchorages). The 2nd row center seating position was equipped with a tether anchorage. The center-to-center spacing between the 2nd row outboard lower anchorages was approximately 660 mm. The 2nd row left and right outboard seating positions were tested with the SFADII fixture and the 2nd row center seating position was tested with the SFADI fixture.

2.0 COMPLIANCE TEST AND DATA SUMMARY

TEST SUMMARY

The testing was conducted at MGA in Troy, Michigan on March 31, 2008.

Based on the test results, the 2007 Nissan Sentra appears to meet the requirements of FMVSS No. 225 for this testing.

The SFADII at the 2nd row left seating position sustained a maximum force of 11,132 N and held the required load for 3 seconds. The SFADII at the 2nd row right seating position sustained a maximum force of 15,325 N and held the required load for 3 seconds. The total displacement was 69mm. The SFADI at the 2nd row center seating position sustained a maximum force of 15,277 N and held the required load for 3 seconds.

DATA SUMMARY

Strength and displacement summary data are provided below. Data for the configuration and the location of each child restraint anchorage system are provided in Section 5.0. Photographs are found in Section 6.0 and test plots are found in Section 7.0.

Table 1. Summary Data for Strength and Displacement

MGA Test #	Fixture Type	Test Configuration	Seating Position	Max. Load (N)	Displacement (mm)
SB8169	SFADII	Forward Lower Only	2nd Row Left	11,132	69
		Forward Lower w/Top Tether	2nd Row Right	15,325	N/A
SB8170	SFADI		2nd Row Center	15,277	N/A

N/A indicates that the displacement criteria does not apply to this test.

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2007 Nissan Sentra
VEH. NHTSA NO.	C65202
VIN	3N1CB51D16L611966
COLOR	White
VEH. BUILD DATE	06/2006
TEST DATE	March 31, 2008
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Fern Gatilao , Brad Reaume, Kenney Godfrey

GENERAL INFORMATION:

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Nissan Motor CO., LTD

Date of Manufacture: 06/06; VIN: 3N1CB51D16L611966

GVWR: 3549 lbs; GAWR FRONT: 1922 lbs

GAWR REAR: 1688 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 44 psi REAR: 44 psi

Recommended Tire Size: P165/60R15

Recommended Cold Tire Pressure:

FRONT: 33 psi REAR: 30 psi

Size of Tire on Test Vehicle: P165/60R15

Size of Spare Tire: T115/70*14

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench ____; Bucket X; Split Bench___

Number of Occupants: Front __2__; Middle__0___; Rear;_3__ TOTAL __5__.

4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

MGA Research Corporation 446 Executive Drive Troy, Michigan 48083	
Test Equipment Used for Testing	**Calibration Due Date**
MGA Hydraulic Test Frame	N/A
Three (3) Load Cell 10,000 lb Capability	S/N 607 (12/11/07), 618 (12/11/07)
String Potentiometer	Calibrated at each use (S/N A1600462A)
Hydraulic Pump	N/A
MGA CRF Fixture	N/A
MGA SFADI	N/A
MGA SFADII	N/A
MGA 2-Dimensional Template	N/A
Linear Scale	S/N TPM722 (1/2/08)
MGA Data Acquisition System	N/A
Digital Calipers	S/N MGA00676 (1/14/08)
Force Gauge	S/N MGA00100 (1/11/08)
Inclinometer (Digital)	S/N MGA00764 (1/11/08)

5.0 DATA

Table 3. Child Restraint Tether Anchorage Configuration

Seating Position		Permit the attachment of a tether hook	Accessible without the need for any tool other than a screwdriver or coin	Ready for use without the need for any tools	Sealed to prevent the entry of exhaust fumes
Front Row		N/A	N/A	N/A	N/A
Second Row	LH	Yes	Yes	Yes	Yes
	Ctr.	Yes	Yes	Yes	Yes
	RH	Yes	Yes	Yes	Yes
Third Row		N/A	N/A	N/A	N/A

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

REMARKS: NONE.

Table 4. Child Restraint Lower Anchorage Configuration

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION				
		FRONT ROW	SECOND ROW		THIRD ROW
			I/B	O/B	
Above anchorage, permanently marked with a circle not less than 13 mm in Dia.; and whose color contrasts with its background; and its center is not less than 50 mm and not more than 100 mm above the bar, and in the vertical longitudinal plane that passes through the center of the bar.	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Each of the bars is visible, without the compression of the seat cushion or seat back, when the bar is viewed, in a vertical longitudinal plane passing through the center of the bar, along a line marking an upward 30 degree angle with a horizontal plane.	LH	N/A	Yes		N/A
	Ctr		No		
	RH		Yes		
Diameter of the bar (mm)	LH	N/A	N/A		N/A
	Ctr		6	6	
	RH		6	6	
Inspect if the bars are straight, horizontal and transverse	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Optional Marking: At least one anchorage bar (when deployed for use, if storable anchorages), one guidance fixture, or one seat marking is visible.	LH	N/A	N/A		N/A
	Ctr				
	RH				
Optional Marking: If guidance fixtures are used, the fixture(s) must be installed.	LH	N/A	N/A		N/A
	Ctr				
	RH				
Measure the distance between Point "Z" of the CRF and the front surface of the anchorage bar (mm)	LH	N/A	36		N/A
	Ctr		N/A		
	RH		33		
Measure the distance between the SRP to the front of the anchorage bar (mm)	LH	N/A	150	150	N/A
	Ctr		N/A		
	RH		138	138	

Table 4. Child Restraint Lower Anchorage Configuration (continued)

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION					
			FRONT ROW	SECOND ROW I/B	SECOND ROW O/B	THIRD ROW
Inspect if the centroidal longitudinal axes are collinear within 5 degrees	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		
Inspect if the inside surface of the bar that is straight and horizontal section of the bars, and determine they are not less than 25 mm, but not more than 60 mm in length (mm).	LH	Req't>25	N/A	26	26	N/A
		Req't<60		35	35	
	Ctr	Req't>25		N/A		
		Req't<60		N/A		
	RH	Req't>25		26	26	
		Req't<60		35	35	
Inspect if the bars can be connected to, over their entire inside length by the connectors of child restraint system.	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		
Inspect if the bars are an integral and permanent part of the vehicle.	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		
Inspect if the bars are rigidly attached to the vehicle. If feasible, hold the bar firmly with two fingers and gently pull.	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		

PITCH, YAW, & ROLL INFORMATION

SEAT POSITION	PITCH (deg)	YAW (deg)	ROLL (deg)
2nd Row Left	17.0	No Data	0.0
2nd Row Center	N/A	N/A	N/A
2nd Row Right	19.0	No Data	0.0

N/A indicates that there were no lower anchorages in the 2nd row center seating position.

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

REMARKS: NONE

Table 5. Tether Location and Dimensional Measurements

SEAT POSITION FOR TETHER		TETHER ANCHORAGE LOCATION Located in the required zone?
Front Row		N/A
Second Row	LH	Yes
	Ctr.	Yes
	RH	Yes
Third Row		N/A

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

REMARKS: NONE

Table 6. Tether Anchorage Static Loading and Displacement

SEAT POSITION		Seat, Seat Back, & Head Restraint Positions			Type of SFAD Used	Angle (deg)	Initial Location (mm)	Onset Rate (N/sec.)	Force Applied (N)	Max. Load (N)	Final Location (mm)	Horiz. Displ. (mm)
		Seat	Seat Back	Is There a H/R?								
Front Row		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Second Row	LH	Fixed	Most Upright	Yes	II	10	37	389	11,000	11,132*	106	69
	Ctr.			No	I	10	N/A	537	15,000	15,277*	N/A	N/A
	RH			Yes	II	10	N/A	537	15,000	15,325*	N/A	N/A
Third Row		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN TP-225-01.

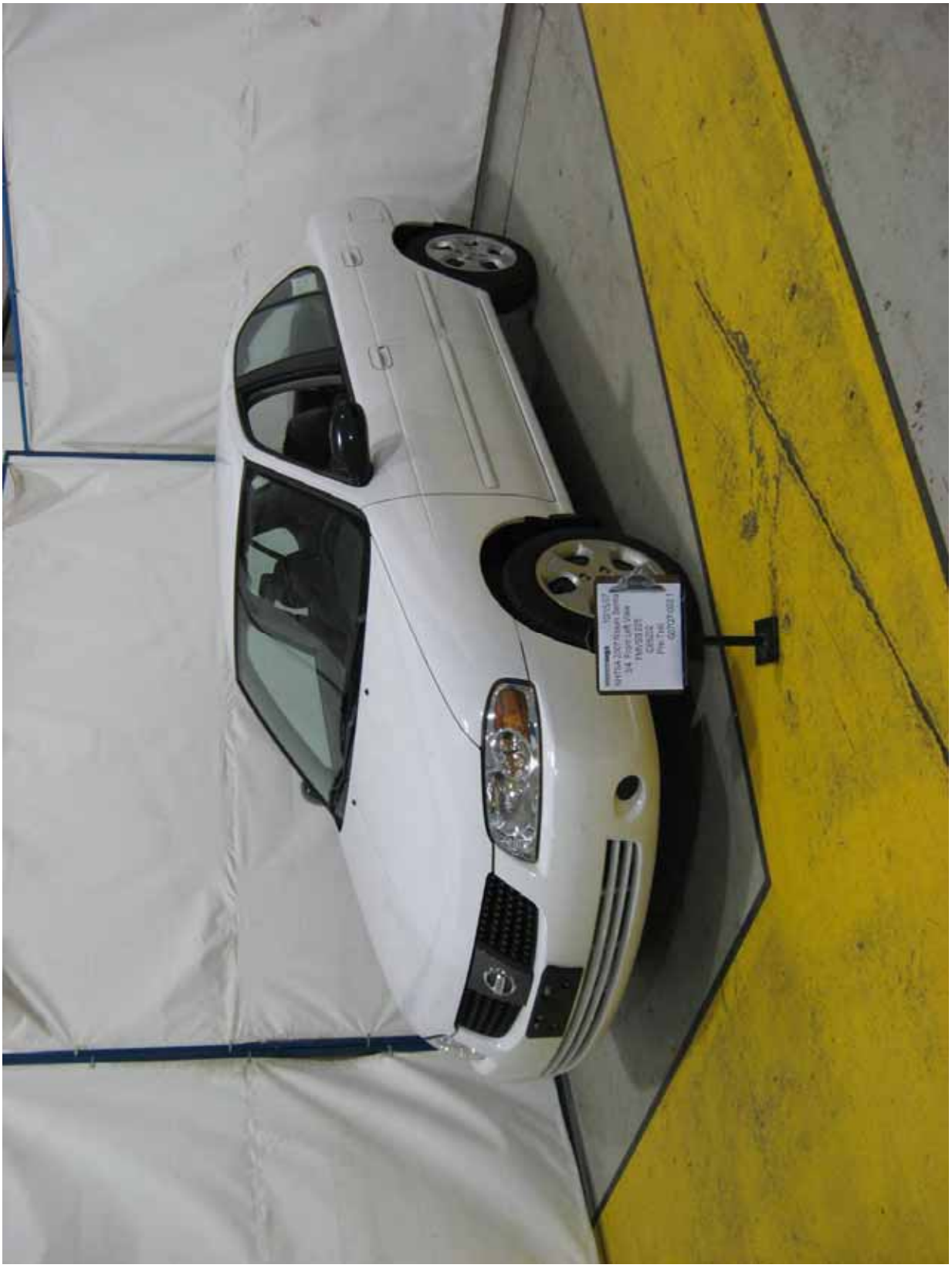
REMARKS: * Applied force exceeded the force specified in the test procedure.

6.0 PHOTOGRAPHS

6.1 Front view

6.2 Rear view

6.3 ¾ Front left view



6.4 ¾ Front right view

6.5 Test vehicle's certification label

6.5.1 Certification label photo #1

6.5.2 Certification label photo #2

6.5.3 Tire information label photo #1

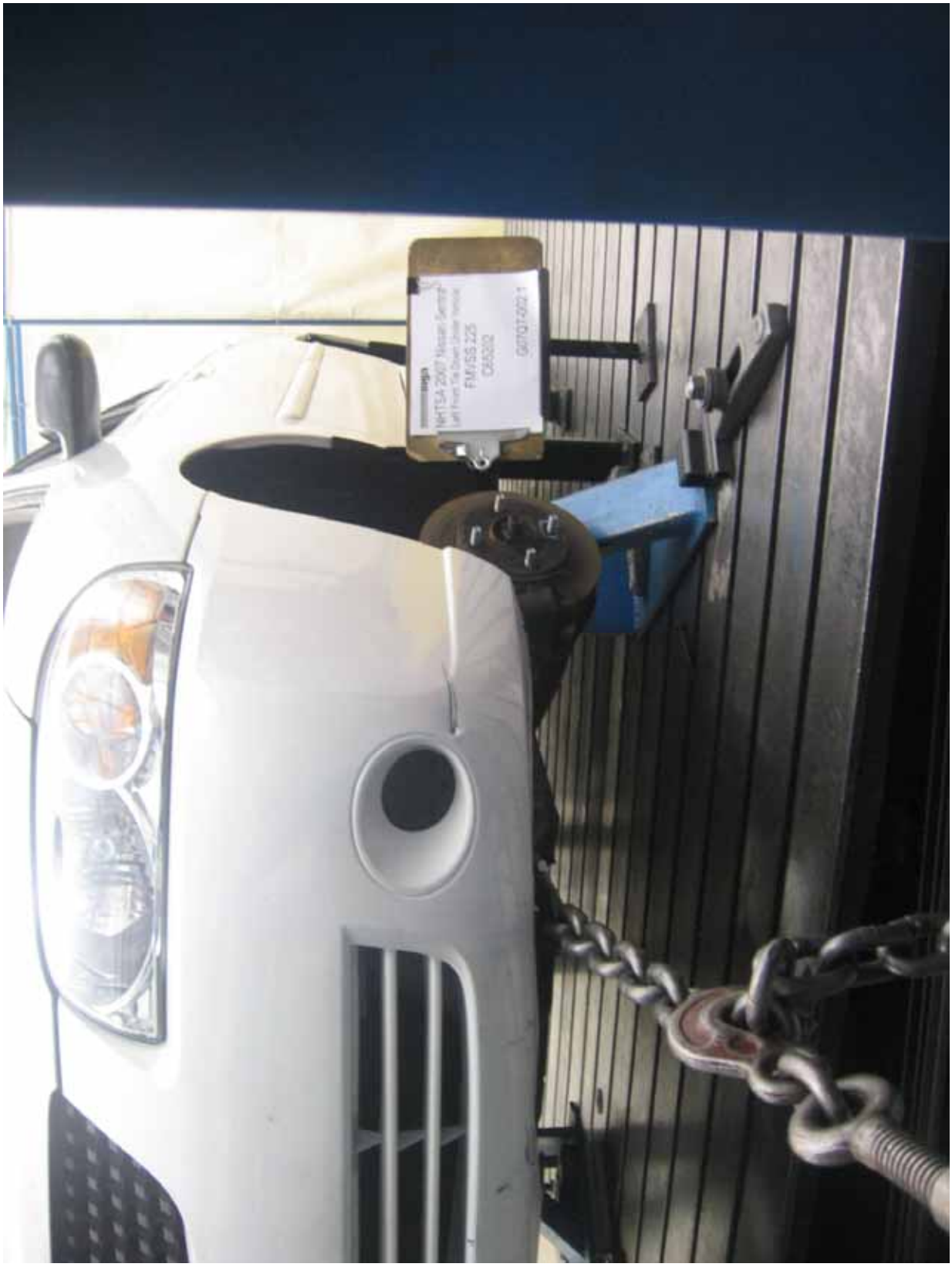
6.5.4 Tire information label photo #2

6.6 Vehicle tie down at each tie down location

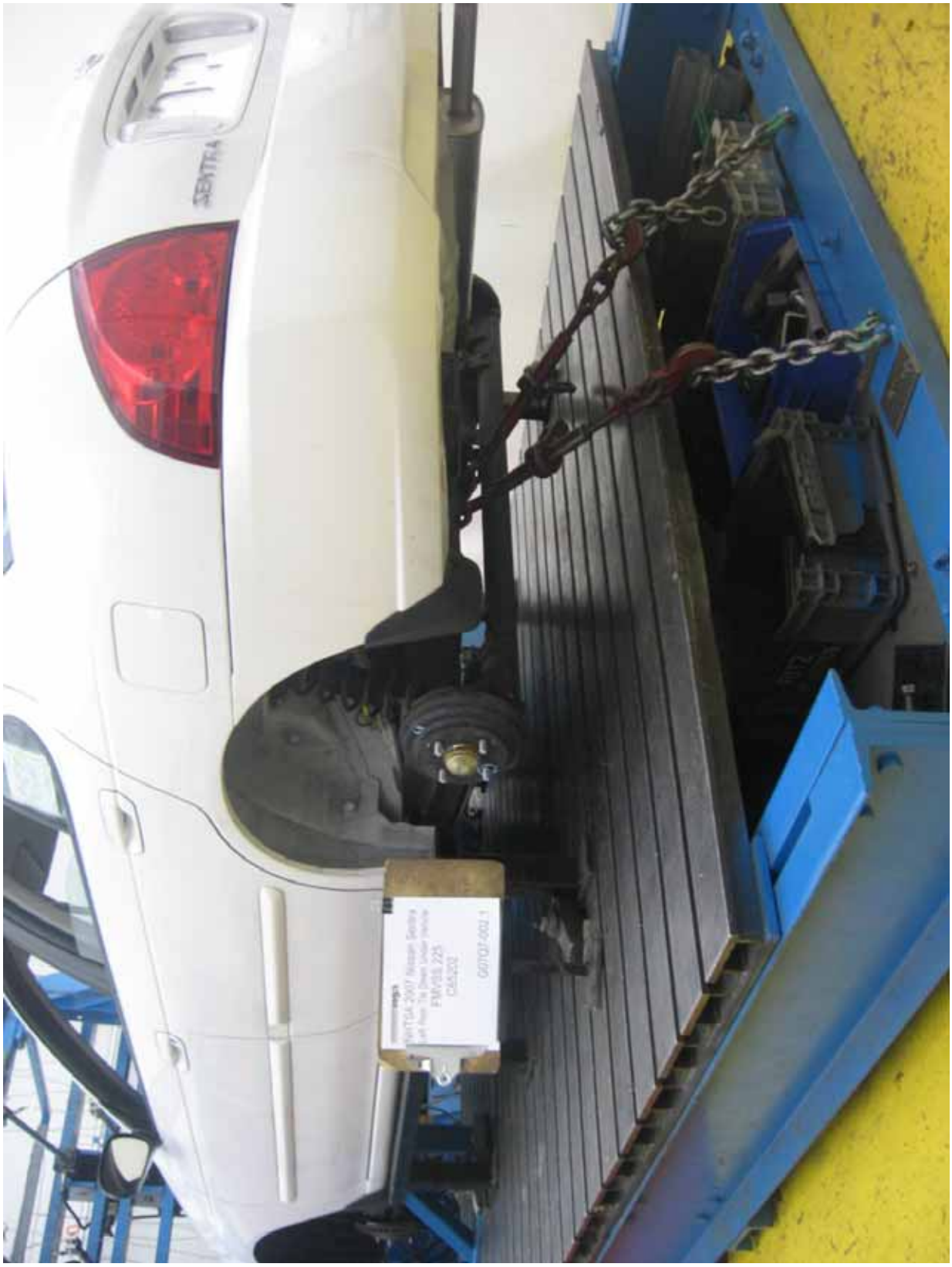
6.6.1 Front under vehicle

6.6.2 Rear under vehicle

6.6.3 Left front



6.6.4 Left rear



6.6.5 Right front

6.6.6 Right rear

6.7 2-dimensional template

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6.9.1 SFADII photo

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6.10.2 Pre-test photo #2 of SFADII

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6.11 Post-test condition of each child restraint anchorage system

6.11.1 Post-test photo #1 of SFADII

6.11.2 Post-test photo #2 of SFADII

6.11.3 Post-test photo #3 of SFADII

6.11.4 Post-test photo #4 of SFADII

6.11.5 Post-test photo #5 of SFADII

6.11.6 Post-test photo #6 of SFADII

6.11.7 Post-test photo #7 of SFADII

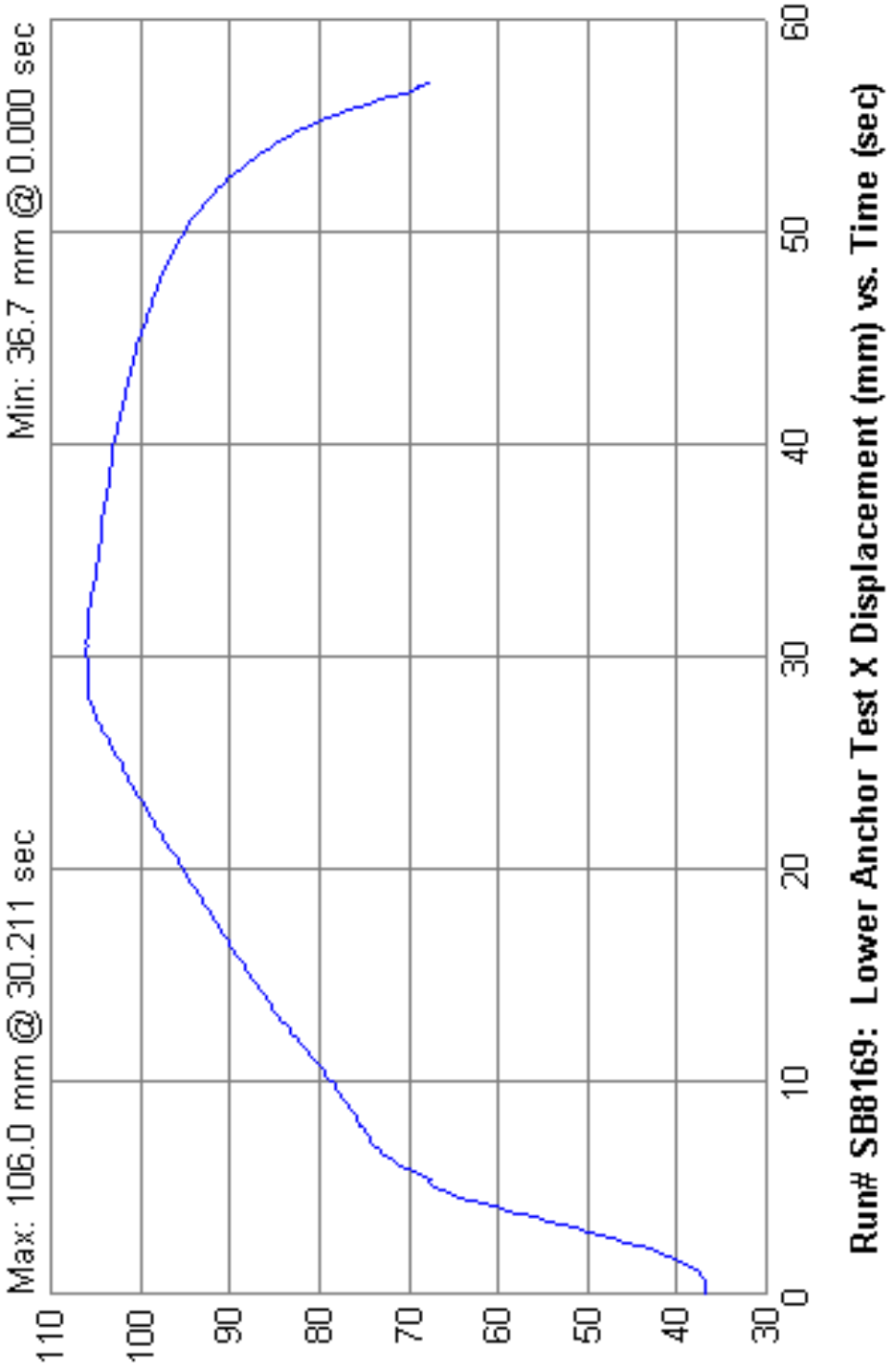
6.11.8 Post-test photo #8 of SFADII

6.11.9 Post-test photo #9 of SFADI

6.11.10 Post-test photo #10 of SFADI

6.11.11 Post-test photo #11 of SFADI

7.0 PLOTS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Min: 36.7 mm @ 0.000 sec
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80
70
60
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40
30
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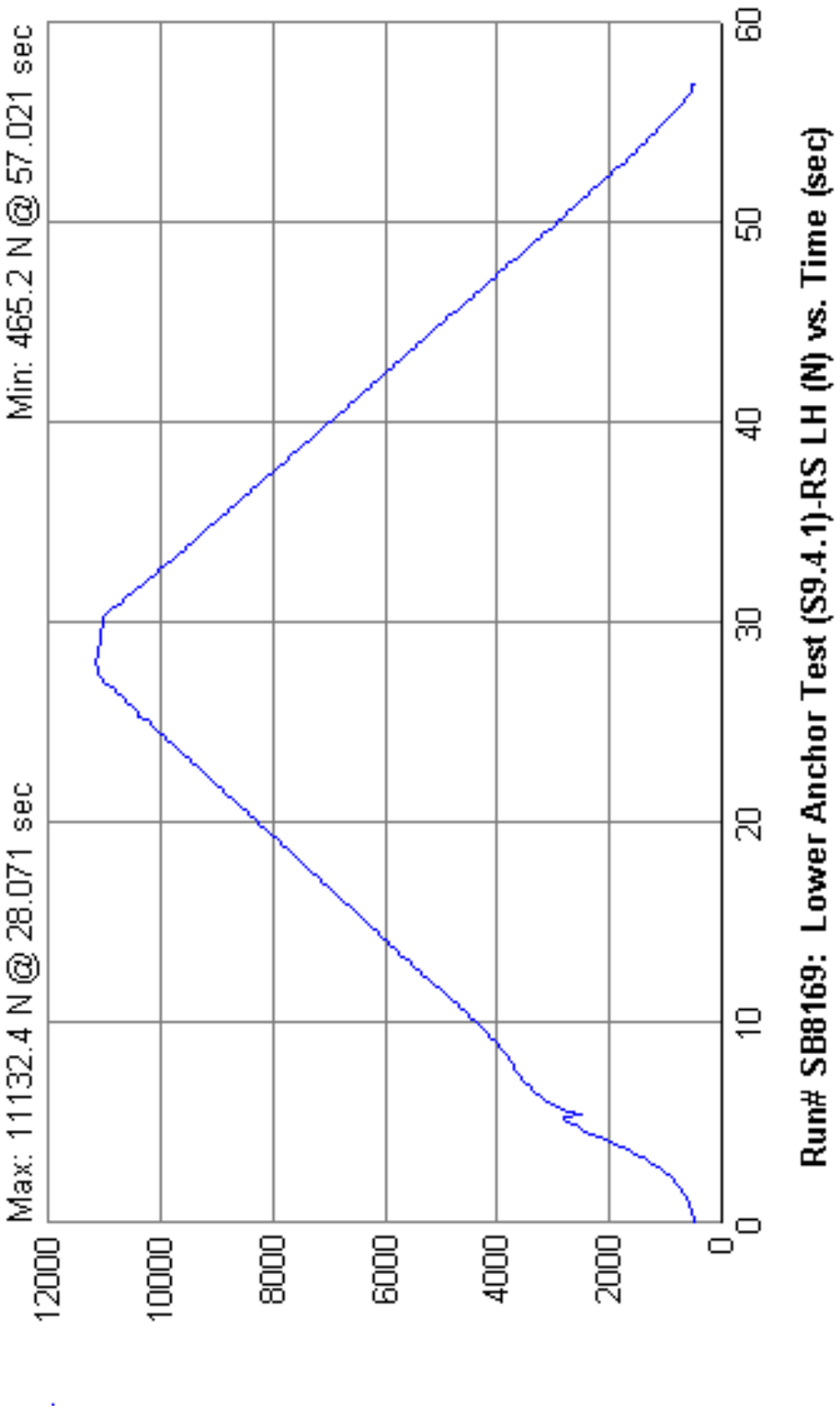
10
20
30
40
50
60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Min: 465.2 N @ 57.021 sec
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8000
6000
4000
2000
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0
10
20
30
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50
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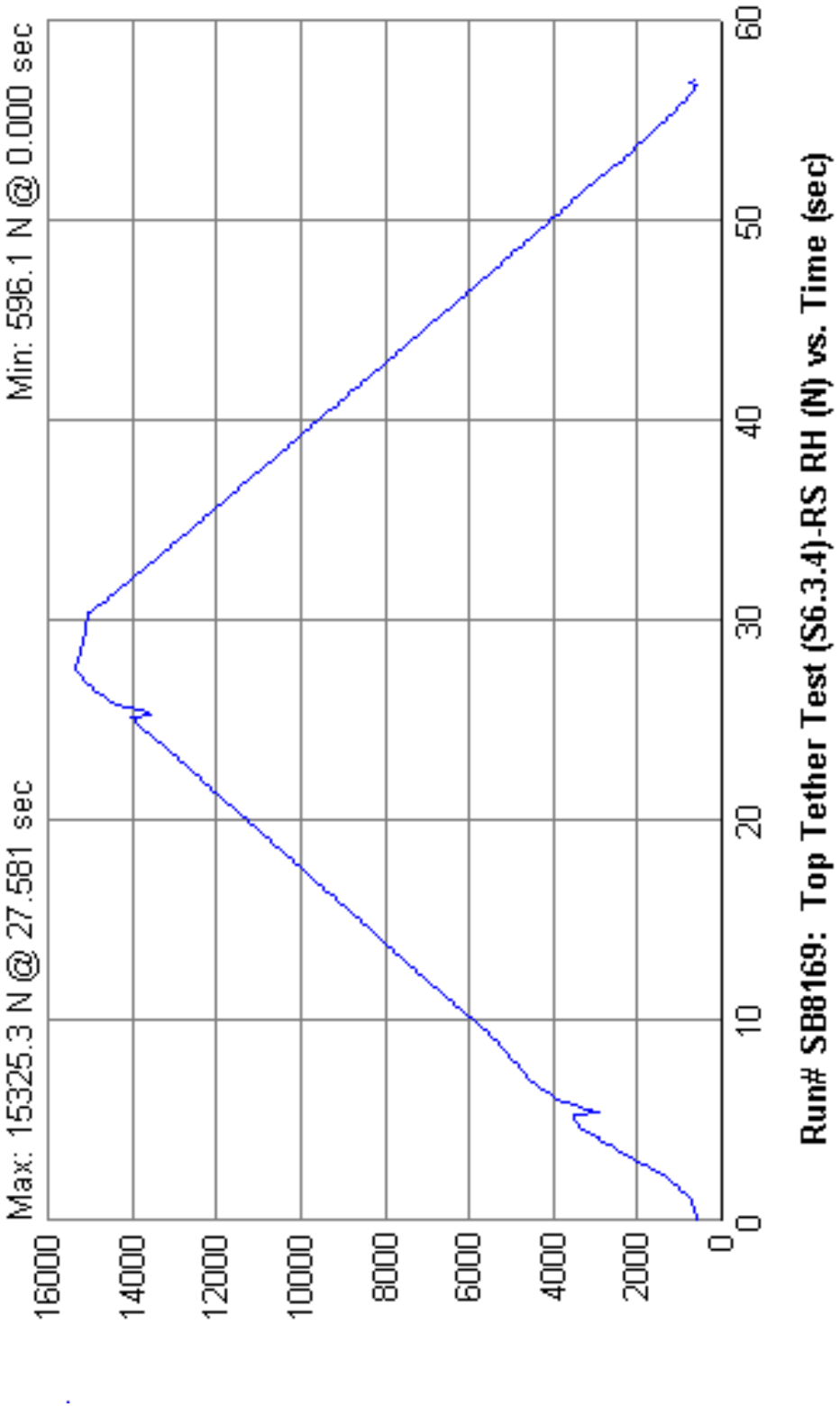
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Min: 596.1 N @ 0.000 sec
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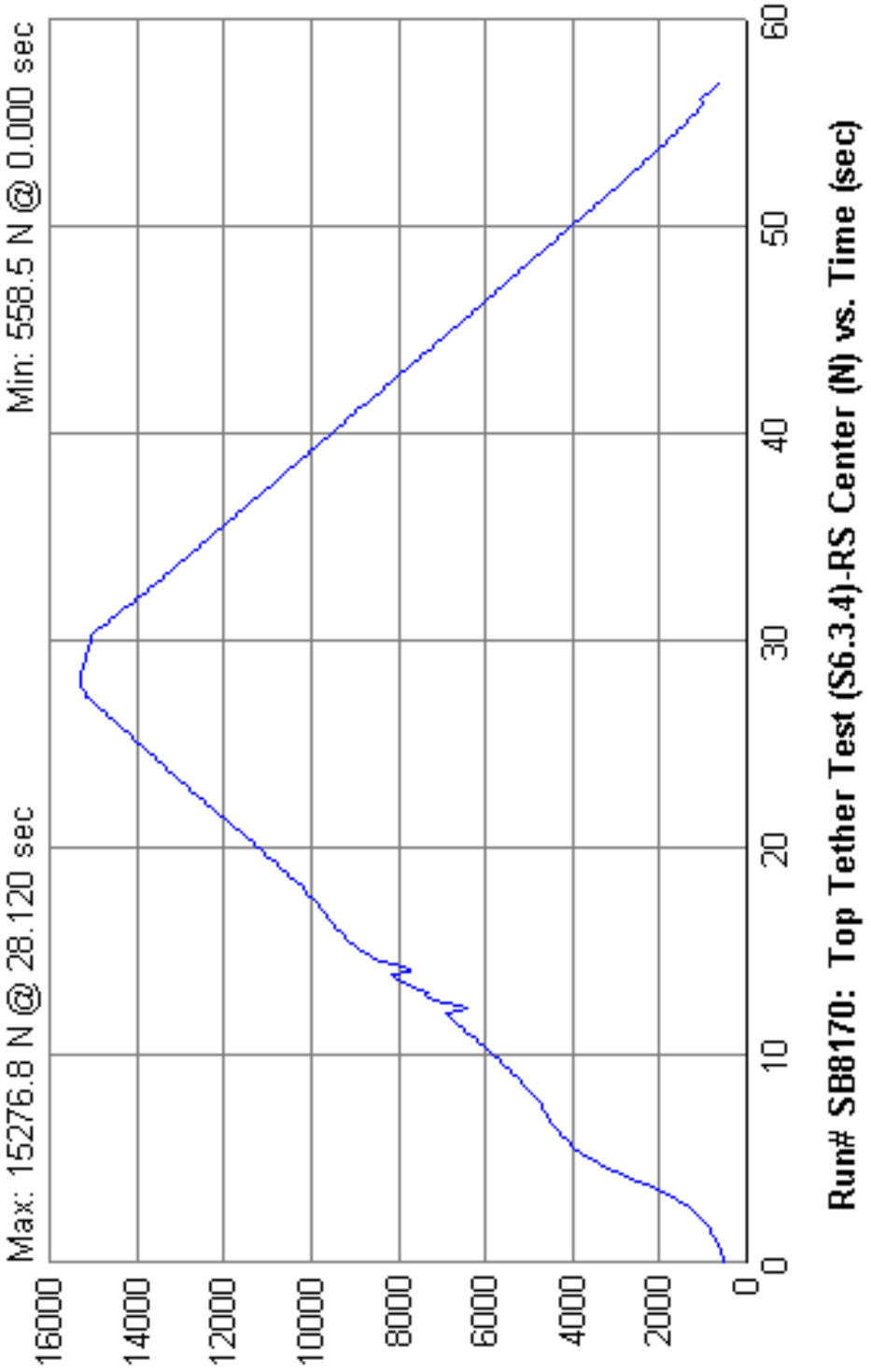
14000
12000
10000
8000
6000
4000
2000
0
0
10
20
30
40
50
60
Run# SB8169: Top Tether Test (S6.3.4)-RS RH (N) vs. Time (sec)


Max: 15276.8 N @ 28.120 sec
Min: 558.5 N @ 0.000 sec
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12000
10000
8000
6000
4000
2000
0
0
10
20
30
40
50
60
Run# SB8170: Top Tether Test (S6.3.4)-RS Center (N) vs. Time (sec)

8.0 REPORT of VEHICLE CONDITION

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-06-C-00030/0003 DATE: March 31, 2008

From: MGA Research Corporation, 446 Executive Drive, Troy, MI 48083

To: NHTSA, OVSC, NVS-220

The following vehicle has been subjected to compliance testing for FMVSS No. 201U and 225

The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager (NAD0-30), with a copy to the OVSC COTR. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

VEH. MOD YR/MAKE/MODEL/BODY: 2007 Nissan Sentra

VEH. NHTSA NO.: C65202 VIN: 3N1CB51D16L611966

COLOR: White

ODOMETER READINGS: ARRIVAL 548 miles Date: 07/20/07

COMPLETION 548 miles Date: 3/31/08

PURCHASE PRICE: $15,365 DEALER'S NAME: TRC

ENGINE DATA: 4 Cylinders 1.8 Liters 108 Cubic Inches

TRANSMISSION DATA: ___Automatic X Manual No. of Speeds 5

FINAL DRIVE DATA: ____Rear Drive X Front Drive ____4 Wheel Drive

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT:

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Fern Gatilao, Brad Reaume, Kenney Godfrey

X	Air Conditioning		Traction Control	X	Clock
	Tinted Glass		All Wheel Drive		Roof Rack
X	Power Steering		Speed 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/Compact Disc		Other

REMARKS:

Salvage only.

Equipment that is no longer on the test vehicle as noted on previous pages:

All equipment inventoried and placed in vehicle.

Explanation for equipment removal:

Windshield and front seats were removed before conducting the testing.

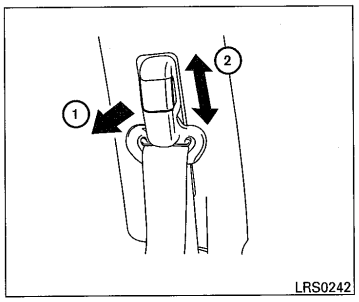
Test Vehicle Condition:

Salvage only.

RECORDED BY: Fern Gatilao, Kenney Godfrey DATE: March 31, 2008

APPROVED BY: Brad Reaume

APPENDIX A
OWNERS MANUAL CHILD RESTRAINT SYSTEMS



Shoulder belt height adjustment (Front seats)

The shoulder belt anchor height should be adjusted to the position best for you. (See "Precautions on seat belt usage" earlier in this section.) To adjust, pull out the adjustment button ① and move the shoulder belt anchor to the desired position ②, so the belt passes over the center of the shoulder. The belt should be away from your face and neck, but not falling off your shoulder. Release the adjustment button to lock the shoulder belt anchor into position.

⚠WARNING

- **After adjustment, release the adjustment button and try to move the shoulder belt anchor up and down to make sure it is securely fixed in position.**
- **The shoulder belt anchor height should be adjusted to the position best for you. Failure to do so may reduce the effectiveness of the entire restraint system and increase the chance or severity of injury in an accident.**

SEAT BELT EXTENDERS

If, because of body size or driving position, it is not possible to properly fit the lap-shoulder belt and fasten it, an extender is available which is compatible with the installed seat belts. The extender adds approximately 8 inches (200 mm) of length and may be used for either the driver or front passenger seating position. See a NISSAN dealer for assistance if an extender is required.

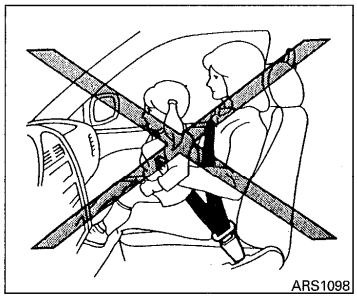
⚠WARNING

- **Only NISSAN seat belt extenders, made by the same company which made the original equipment seat belts, should be used with NISSAN seat belts.**
- **Adults and children who can use the standard seat belt should not use an extender. Such unnecessary use could result in serious personal injury in the event of an accident.**
- **Never use seat belt extenders to install child restraints. If the child restraint is not secured properly, the child could be seriously injured in a collision or a sudden stop.**

SEAT BELT MAINTENANCE

- **To clean the seat belt webbing,** apply a mild soap solution or any solution recommended for cleaning upholstery or carpet. Then wipe with a cloth and allow the seat belts to dry in the shade. Do not allow the seat belts to retract until they are completely dry.
- **If dirt builds up in the shoulder belt guide** of the seat belt anchors, the seat belts may retract slowly. Wipe the shoulder belt guide with a clean, dry cloth.
- **Periodically check to see that the seat belt and the metal components,** such as buckles, tongues, retractors, flexible wires and anchors, work properly. If loose parts, deterioration, cuts or other damage on the webbing is found, the entire seat belt assembly should be replaced.

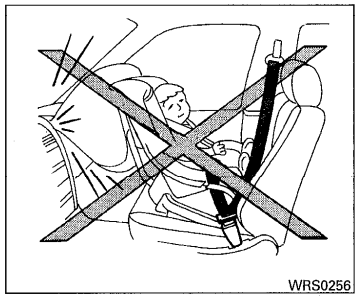
CHILD RESTRAINTS



PRECAUTIONS ON CHILD RESTRAINTS

⚠WARNING

- **Infants and small children should always be placed in an appropriate child restraint while riding in the vehicle. Failure to use a child restraint can result in serious injury or death.**



⚠WARNING

- **Infants and small children should never be carried on your lap. It is not possible for even the strongest adult to resist the forces of a severe accident. The child could be crushed between the adult and parts of the vehicle. Also, do not put the same seat belt around both your child and yourself.**
- **Never install a rear-facing child restraint in the front seat. An inflating supplemental front air bag could seriously injure or kill your child. A rear-facing child restraint must only be used in the rear seat.**
- **NISSAN recommends that the child restraint be installed in the rear seat. According to accident statistics, children are safer when properly restrained in the rear seat than in the front seat.**
- **An improperly installed child restraint could lead to serious injury or death in an accident.**

In general, child restraints are designed to be installed with the lap portion of a lap/shoulder seat belt. In addition, this vehicle is equipped with a universal child restraint lower anchor system, referred to as the LATCH (Lower Anchors and Tethers for CHildren) system. Some child restraints include two rigid or webbing-mounted attachments that can be connected to these lower anchors. For details, see the "LATCH (Lower Anchors and Tethers for CHildren) system" later in this section.

Child restraints for infants and small children of various sizes are offered by several manufacturers. When selecting any child restraint, keep the following points in mind:

- Choose only a restraint with a label certifying that it complies with Federal Motor Vehicle Safety Standard 213 or Canadian Motor Vehicle Safety Standard 213.
- Check the child restraint in your vehicle to be sure it is compatible with the vehicle's seat and seat belt system.
- If the child restraint is compatible with your vehicle, place your child in the child restraint and check the various adjustments to be sure the child restraint is compatible with your child. Choose a child restraint that is designed for your child's height and weight. Always follow all recommended procedures.

All U.S. states and Canadian provinces or territories require that infants and small children be restrained in an approved child restraint at all times while the vehicle is being operated.

⚠WARNING

- **Improper use of a child restraint can increase the risk or severity of injury for both the child and other occupants of the vehicle.**
- **Follow all of the child restraint manufacturer's instructions for installation and use. When purchasing a child restraint, be sure to select one which will fit your child and vehicle. It may not be possible to properly install some types of child restraints in your vehicle.**
- **If the child restraint is not anchored properly, the risk of a child being injured in a collision or a sudden stop greatly increases.**
- **Adjustable seatbacks should be positioned to fit the child restraint, but as upright as possible.**
- **After attaching the child restraint, test it before you place the child in it. Push it from side to side. Try to tug it forward and check to see if the belt holds the restraint in place. The child restraint should not move more than 1 inch (25 mm). If the restraint is not secure, tighten the belt as necessary, or put the restraint in another seat and test it again. You may need to try a different child restraint. Not all child restraints fit in all types of vehicles.**
- **If you must install a front facing child restraint in the front seat, see "Child restraint installation on front passenger seat" later in this section.**
- **When your child restraint is not in use, keep it secured with a seat belt to prevent it from being thrown around in case of a sudden stop or accident.**

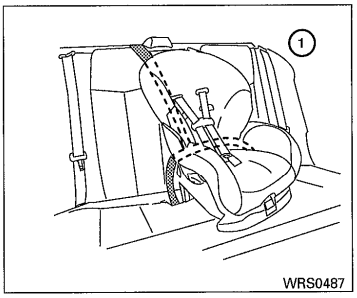
⚠CAUTION

Remember that a child restraint left in a closed vehicle can become very hot. Check the seating surface and buckles before placing your child in the child restraint.

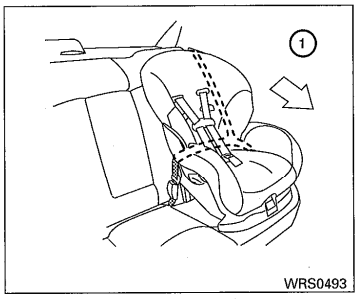
CHILD RESTRAINT INSTALLATION ON REAR SEAT CENTER OR OUTBOARD POSITIONS

⚠WARNING

- **The three-point seat belt in your vehicle is equipped with an automatic locking mode retractor which must be used when installing a child restraint.**
- **Failure to use the retractor's locking mode will result in the child restraint not being properly secured. The restraint could tip over or otherwise be unsecured and cause injury to the child in a sudden stop or collision.**
- **When installing a child restraint system in the rear center position, both the center seat belt connector tongue and buckle tongue must be secured.**



Front Facing (center) — step 1

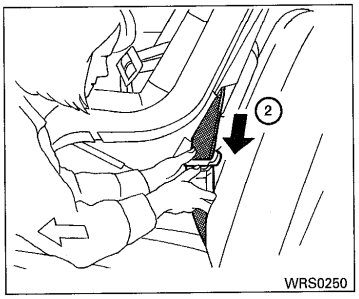


Front Facing (outboard) — step 1

Front facing

When you install a child restraint in the rear seat, follow these steps:

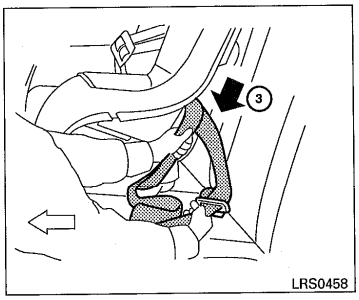
① Position the child restraint on the seat. Always follow the restraint manufacturer's instructions. The back of the child restraint should be secured against the vehicle seat back. If necessary, adjust or remove the head restraint to obtain the correct child restraint fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the child restraint is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper child restraint fit, try another seating position or a different child restraint.



Front Facing — step 2

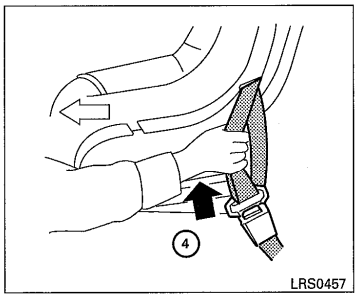
② Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage.

Be sure to follow the child restraint manufacturer's instructions for belt routing.



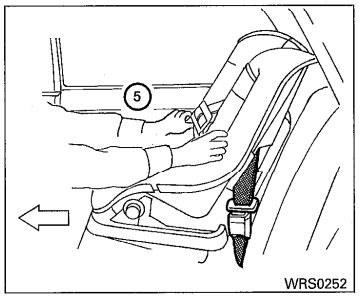
Front Facing — step 3

③ Pull on the shoulder belt until all of the belt is fully extended. At this time, the seat belt retractor is in the automatic locking mode (child restraint mode). It reverts back to emergency locking mode when the seat belt is fully retracted.



Front Facing — step 4

④ Allow the seat belt to retract. Pull up on the shoulder belt to remove any slack in the belt.

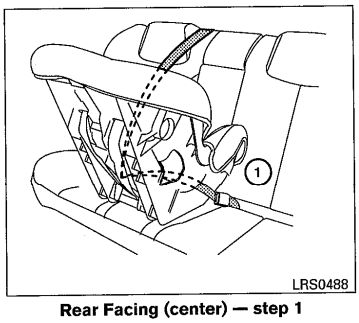


Front Facing — step 5

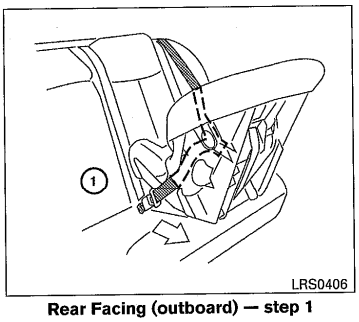
⑤ Before placing the child in the child restraint, use force to push the child restraint from side to side, and tug it forward to make sure that it is securely held in place. It should not move more than 1 inch (25 mm). If it does move more than 1 inch (25 mm), pull again on the shoulder belt to further tighten the child restraint. If unable to properly secure the restraint move the restraint to another rear seating position and try again, or try a different child restraint. Not all child restraints fit in all types of vehicles.

6. Check that the retractor is in the automatic locking mode by trying to pull more seat belt out of the retractor. If you cannot pull any more belt webbing out of the retractor, the retractor is in the automatic locking mode.
7. Check to make sure that the child restraint is properly secured prior to each use. If the seat belt is not locked, repeat steps 3 through 6.

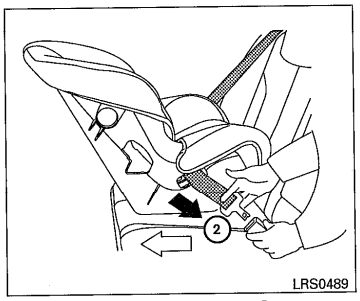
After the child restraint is removed and the seat belt is fully retracted, the automatic locking mode (child restraint mode) is canceled.



Rear Facing (center) — step 1



Rear Facing (outboard) — step 1



Rear Facing — step 2

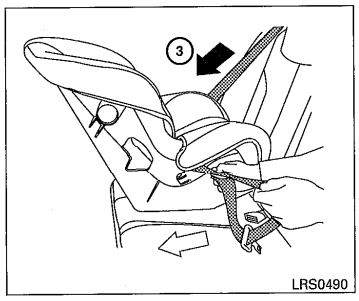
Rear facing

When you install a child restraint in the rear seat, follow these steps:

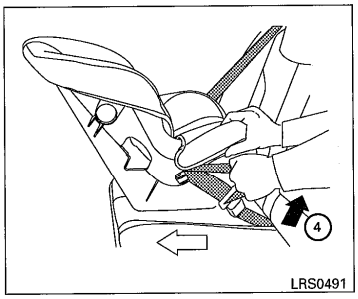
① Position the child restraint on the seat. Always follow the restraint manufacturer's instructions.

② Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage.

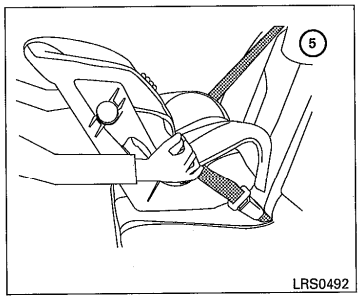
Be sure to follow the child restraint manufacturer's instructions for belt routing.



Rear Facing — step 3



Rear Facing — step 4



Rear Facing — step 5

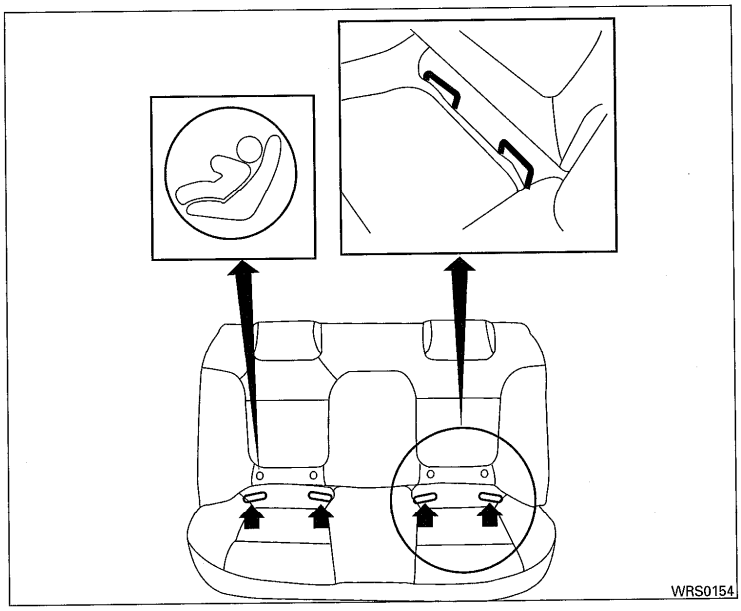
③ Pull on the shoulder belt until all of the belt is fully extended. At this time, the seat belt retractor is in the automatic locking mode (child restraint mode). It reverts to emergency locking mode when the seat belt is fully retracted.

④ Allow the seat belt to retract. Pull up on the shoulder belt to remove any slack in the belt.

⑤ Before placing the child in the child restraint, use force to push the child restraint from side to side, and tug it forward to make sure that it is securely held in place. It should not move more than 1 inch (25 mm). If it does move more than 1 inch (25 mm), pull again on the shoulder belt to further tighten the child restraint. If unable to properly secure the restraint move the restraint to another rear seating position and try again , or try a different child restraint. Not all child restraints fit in all types of vehicles.

6. Check that the retractor is in the automatic locking mode by trying to pull more seat belt out of the retractor. If you cannot pull any more seat belt webbing out of the retractor, the retractor is in the automatic locking mode.
7. Check to make sure that the child restraint is properly secured prior to each use. If the belt is not locked, repeat steps 3 through 6.

After the child restraint is removed and the seat belt fully retracted, the automatic locking mode (child restraint mode) is canceled.



LATCH (Lower Anchors and Tethers for CHildren) SYSTEM

The LATCH (Lower Anchors and Tethers for CHildren) anchor points are located in the seat cushions of the rear outboard seating positions only. Do not attempt to install a child restraint in the center position using the LATCH anchors.

The LATCH system anchors are located at the rear of the seat cushion near the seatback. A label is attached to the seat back to help you locate the LATCH system anchors.

⚠WARNING

- **Attach LATCH system compatible child restraints only at the locations shown. If a child restraint is not secured properly, your child could be seriously injured or killed in an accident.**
- **Do not secure a child restraint in the center rear seating position using the LATCH system anchors. The child restraint will not be secured properly.**
- **The LATCH system anchors are designed to withstand only those loads imposed by correctly fitted child restraints. Under no circumstance are they to be used for adult seat belts or harnesses.**

Some child restraints include two rigid or webbing-mounted attachments that can be connected to two anchors located at certain seating positions in your vehicle. This system is known as the LATCH system. This system may also be referred to as the ISOFIX or ISOFIX compatible system. With this system, you do not have to use a vehicle seat belt to secure the child restraint. Your vehicle is equipped with special anchor points that are used with LATCH system compatible child restraints. Check your child restraint for a label stating that it is compatible with the LATCH system. This information may also be in the instructions provided by the child restraint manufacturer. If you have such a child restraint, refer to the illustration for the seating positions equipped with LATCH system anchors which can be used to secure the child restraint.

LATCH child restraints generally require the use of a top tether strap. See "Top tether strap child restraint" later in this section for installation instructions.

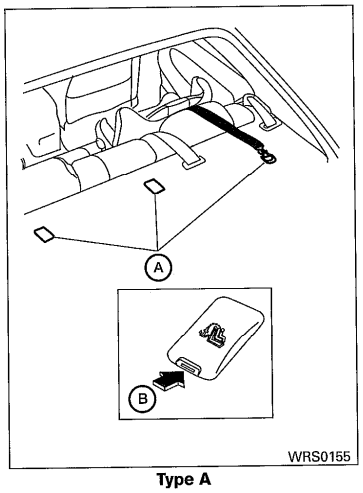
When installing a child restraint, carefully read and follow the instructions in this manual and those supplied with the child restraint.

When you install a LATCH system compatible child restraint to the lower anchor attachments, follow these steps:

⚠WARNING

Inspect the lower anchors by inserting your fingers into the lower anchor area and feeling to make sure there are no obstructions over the LATCH system anchors, such as seat belt webbing or seat cushion material. The child restraint will not be secured properly if the LATCH system anchors are obstructed.

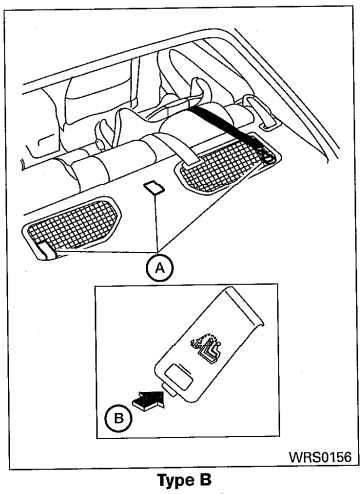
1. To install the LATCH system compatible child restraint, insert the child restraint LATCH system anchor attachments into the anchor points on the seat. If the child restraint is equipped with a top tether, see "Top tether strap child restraint" later in this section for installation instructions.
2. After attaching the child restraint and before placing the child in it, use force to push the child restraint from side to side and tug it forward to make sure that the child restraint is securely held in place. It should not move more than 1 inch (25 mm) .
3. Check to make sure that the child restraint is properly secured prior to each use.



Type A

TOP TETHER STRAP CHILD RESTRAINT

If your child restraint has a top tether strap, it must be secured to one of the provided anchor points Ⓐ. First, secure the child restraint with the rear seat belt.



Type B

Remove the anchor cover Ⓑ from the anchor point which is located directly behind the child seat.

Secure the top tether strap to the anchor bracket. Tighten the strap according to the manufacturer's instructions to remove any slack.

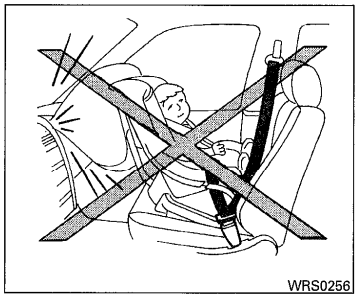
⚠WARNING

Child restraint anchor points are designed to withstand only those loads imposed by correctly fitted child restraints. Under no circumstances are they to be used for adult seat belts or harnesses.

Anchor point locations

Anchor points are located on the rear parcel shelf finisher.

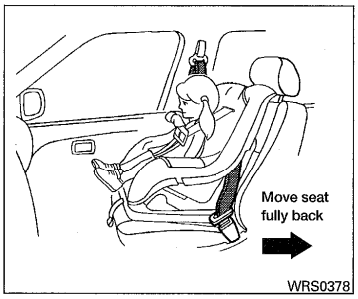
If you have any questions when installing a top strap child restraint on the rear seat, consult your NISSAN dealer for details.



CHILD RESTRAINT INSTALLATION ON FRONT PASSENGER SEAT

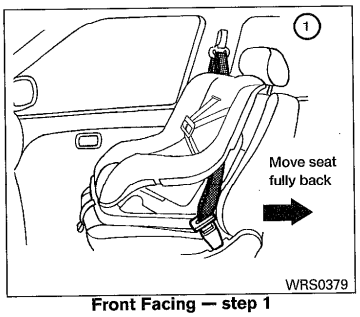
⚠WARNING

- **Never install a rear-facing child restraint in the front passenger seat. Supplemental front air bags inflate with great force. A rear-facing child restraint could be struck by the supplemental front air bag in a crash and could seriously injure or kill your child.**



- **NISSAN recommends that child restraints be installed in the rear seat. However, if you must install a forward-facing child restraint in the front passenger seat, move the passenger seat to the rearmost position.**
- **A child restraint with a top tether strap should not be used in the front passenger seat.**
- **The three-point seat belt in your vehicle is equipped with an automatic locking mode retractor which must be used when installing a child restraint.**

- **Failure to use the retractor's locking mode will result in the child restraint not being properly secured. The restraint could tip over or otherwise be unsecured and cause injury to the child in a sudden stop or collision.**

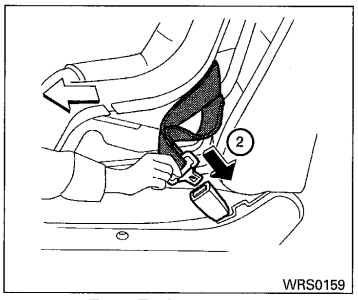


Front Facing — step 1

If you must install a child restraint in the front seat, follow these steps:

① Position the child restraint on the front passenger seat. **It should be placed in a front-facing direction only. Move the seat to the rearmost position.** Adjust the head restraint to its highest position. Always follow the child restraint manufacturer's instructions. **Child restraints for infants must be used in the rear-facing direction and therefore must not be used in the front seat.**

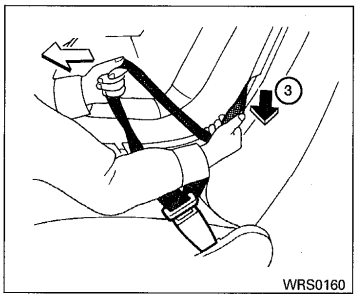
The back of the child restraint should be secured against the vehicle seat back. If necessary, adjust or remove the head restraint to obtain the correct child restraint fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the child restraint is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper child restraint fit, try another seating position or a different child restraint.



Front Facing — step 2

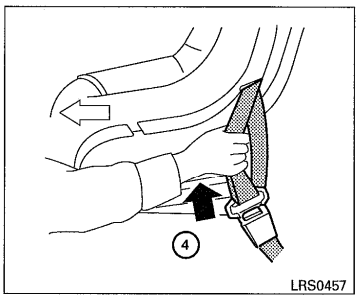
② Route the seat belt tongue through the child restraint and insert it into the buckle until you hear and feel the latch engage.

Be sure to follow the child restraint manufacturer's instructions for belt routing.



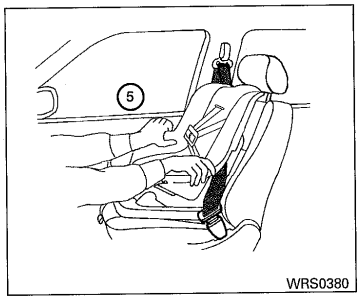
Front Facing — step 3

③ Pull on the shoulder belt until all of the belt is fully extended. At this time, the seat belt retractor is in the automatic locking mode (child restraint mode). It reverts to emergency locking mode when the seat belt is fully retracted.



Front Facing — step 4

④ Allow the seat belt to retract slightly. Pull up on the shoulder belt to remove any slack in the belt.



Front Facing — step 5

⑤ Before placing the child in the child restraint, use force to push the child restraint from side to side, and tug it forward to make sure that it is securely held in place. It should not move more than 1 inch (25 mm). If it does move more than 1 inch (25 mm), pull again on the shoulder belt to further tighten the child restraint. If unable to properly secure the restraint move the restraint to another seating position and try again , or try a different child restraint. Not all child restraints fit in all types of vehicles.

6. Check that the retractor is in the automatic locking mode by trying to pull more seat belt out of the retractor. If you cannot pull any more belt webbing out of the retractor, the retractor is in the automatic locking mode.
7. Check to make sure the child restraint is properly secured prior to each use. If the seat belt is not locked, repeat steps 3 through 6.

After the child restraint is removed and the seat belt is fully retracted, the automatic locking mode (child restraint mode) is canceled.

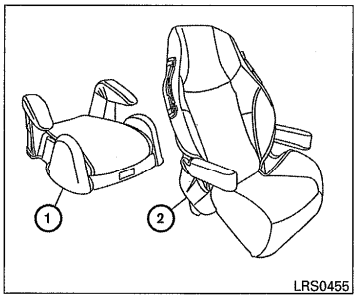
BOOSTER SEATS

PRECAUTIONS ON BOOSTER SEATS

⚠WARNING

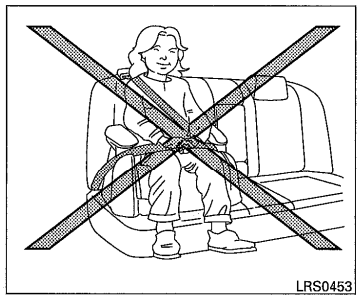
- **Infants and small children should always be placed in an appropriate child restraint while riding in the vehicle. Failure to use a child restraint or booster seat can result in serious injury or death.**
- **Infants and small children should never be carried on your lap. It is not possible for even the strongest adult to resist the forces of a severe accident. The child could be crushed between the adult and parts of the vehicle. Also, do not put the same seat belt around both your child and yourself.**
- **NISSAN recommends that the booster seat be installed in the rear seat. According to accident statistics, children are safer when properly restrained in the rear seat than in the front seat.**

- **A booster seat must only be installed in a seating position that has a lap/shoulder belt. Failure to use a three-point type seat belt with a booster seat can result in a serious injury in sudden stop or collision.**
- **An improperly installed booster seat could lead to serious injury or death in an accident.**



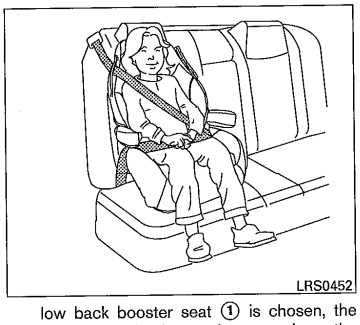
⚠WARNING

- **Do not use towels, books, pillows or other items in place of a booster seat. Items such as these may move during normal driving or a collision and result in serious injury or death. Booster seats are designed to be used with a lap/shoulder belt. Booster seats are designed to properly route the lap and shoulder portions of the seat belt over the strongest portions of a child's body to provide the maximum protection during a collision.**



Booster seats of various sizes are offered by several manufacturers. When selecting any booster seat, keep the following points in mind:

- Choose only a booster seat with a label certifying that it complies with Federal Motor Vehicle Safety Standard 213 or Canadian Motor Vehicle Safety Standard 213.
- Check the booster seat in your vehicle to be sure it is compatible with the vehicle's seat and seat belt system.
- Make sure the child's head will be properly supported by the booster seat or vehicle seat. The seat back must be at or above the center of the child's ears. For example, if a


LRS0452

low back booster seat ① is chosen, the vehicle seat back must be at or above the center of the child's ears. If the seat back is lower than the center of the child's ears, a high back booster seat ② should be used.

- If the booster seat is compatible with your vehicle, place your child in the booster seat and check the various adjustments to be sure the booster seat is compatible with your child. Always follow all recommended procedures.

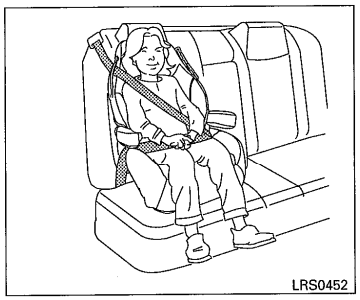
All U.S. states and Canadian provinces or territories require that infants and small children be restrained in an approved child restraint at all times while the vehicle is being operated.

⚠WARNING

- **Improper use of a booster seat can increase the risk or severity of injury for both the child and other occupants of the vehicle.**
- **Follow all of the booster seat manufacturer's instructions for installation and use. When purchasing a booster seat, be sure to select one which will fit your child and vehicle. It may not be possible to properly install some types of booster seats in your vehicle.**
- **If the booster seat and seat belt is not used properly, the risk of a child being injured in a collision or a sudden stop greatly increases.**
- **Adjustable seatbacks should be positioned to fit the booster seat, but as upright as possible.**
- **After placing the child in the booster seat and fastening the seat belt, make sure the shoulder portion of the belt is away from the child's face and neck and the lap portion of the belt does not cross the abdomen.**
- **Do not put the shoulder belt behind the child or under the child's arm. If you must install a booster seat in the front seat, see "Booster seat installation on front passenger seat" later in this section.**
- **When your booster seat is not in use, keep it secured with a seat belt to prevent it from being thrown around in case of a sudden stop or accident.**

⚠CAUTION

Remember that a booster seat left in a closed vehicle can become very hot. Check the seating surface and buckles before placing your child in the booster seat.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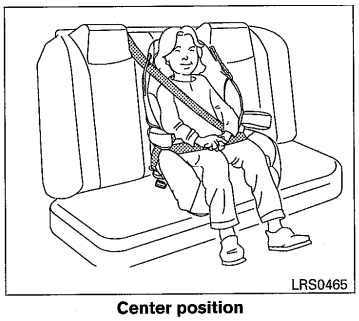
Outboard position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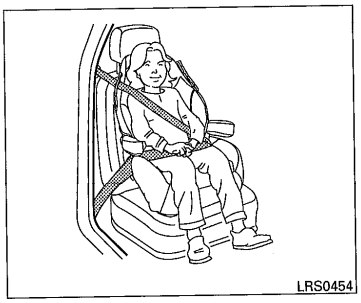
Center position

BOOSTER SEAT INSTALLATION ON REAR SEAT CENTER OR OUTBOARD POSITIONS

⚠CAUTION

Do not use a lap/shoulder belt automatic locking mode when using a booster seat with the seat belts. When you install a booster seat in the rear seat follow these steps:

1. Position the booster seat on the seat. Only place it in a front facing direction. Always follow the booster seat manufacturer's instructions.
2. The booster seat should be positioned on the vehicle seat so that it is stable. If necessary, adjust or remove the head restraint to obtain the correct booster seat fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the booster seat is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper booster seat fit, try another seating position or a different booster seat.
3. Position the lap portion of the seat belt low and snug on the child's hips. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.
4. Pull the shoulder belt portion of the seat belt toward the retractor to take up extra slack. Be sure the shoulder belt is positioned across the top, middle portion of the child's shoulder. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.
5. Follow the warnings, cautions and instructions for properly fastening a seat belt shown in the "Three-point seat belt with retractor" earlier in this section.


LRS0454

BOOSTER SEAT INSTALLATION ON FRONT PASSENGER SEAT

⚠ WARNING

NISSAN recommends that child restraints be installed in the rear seat. However, if you must install a booster seat in the front passenger seat, move the passenger's seat to the rearmost position.

If you must install a booster seat in the front seat, follow these steps:

1. Move the seat to the rear-most position.
2. Position the booster seat on the seat. Only place it in a front facing direction. Always follow the booster seat manufacturer's instructions.
3. The booster seat should be positioned on the vehicle seat so that it is stable. If necessary, adjust or remove the head restraint to obtain the correct booster seat fit. See "Head restraint adjustment" earlier in this section. If the head restraint is removed, store it in a secure place. Be sure to install the head restraint when the booster seat is removed. If the seating position does not have an adjustable head restraint and it is interfering with the proper booster seat fit, try another seating position or a different booster seat.
4. Position the lap portion of the seat belt low and snug on the child's hips. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.
5. Pull the shoulder belt portion of the seat belt toward the retractor to take up extra slack. Be sure the shoulder belt is positioned across the top, middle portion of the child's shoulder. Be sure to follow the booster seat manufacturer's instructions for adjusting the belt routing.
6. Follow the warnings, cautions and instructions for properly fastening a seat belt shown in the "Three-point seat belt with retractor" earlier in this section.

SUPPLEMENTAL RESTRAINT SYSTEM

PRECAUTIONS ON SUPPLEMENTAL RESTRAINT SYSTEM

This Supplemental Restraint System (SRS) section contains important information concerning the driver and passenger supplemental front air bags, supplemental side air bags and pretensioner seat belts.

Supplemental front impact air bag system: This system can help cushion the impact force to the head and chest of the driver and front passenger in certain frontal collisions.

Supplemental side-impact air bag system (if so equipped): This system can help cushion the impact force to the head and chest area of the driver and front passenger in certain side impact collisions. The supplemental side air bag is designed to inflate on the side where the vehicle is impacted.

These supplemental restraint systems are designed to **supplement** the crash protection provided by the driver and front passenger seat belts and are **not a substitute** for them. Seat belts should always be correctly worn and the driver and front passenger seated a suitable distance away from the steering wheel, instrument panel and front door finishers. (See "Seat belts" earlier in this section for instructions and precautions on seat belt usage.)

The supplemental air bags operate only when the ignition switch is in the ON or START position.

After turning the ignition key to the ON position, the supplemental air bag warning light illuminates. The supplemental air bag warning light will turn off after about 7 seconds if the system is operational.

APPENDIX B
MANUFACTURER'S DATA (OVSC FORM 14)

G707-002.1

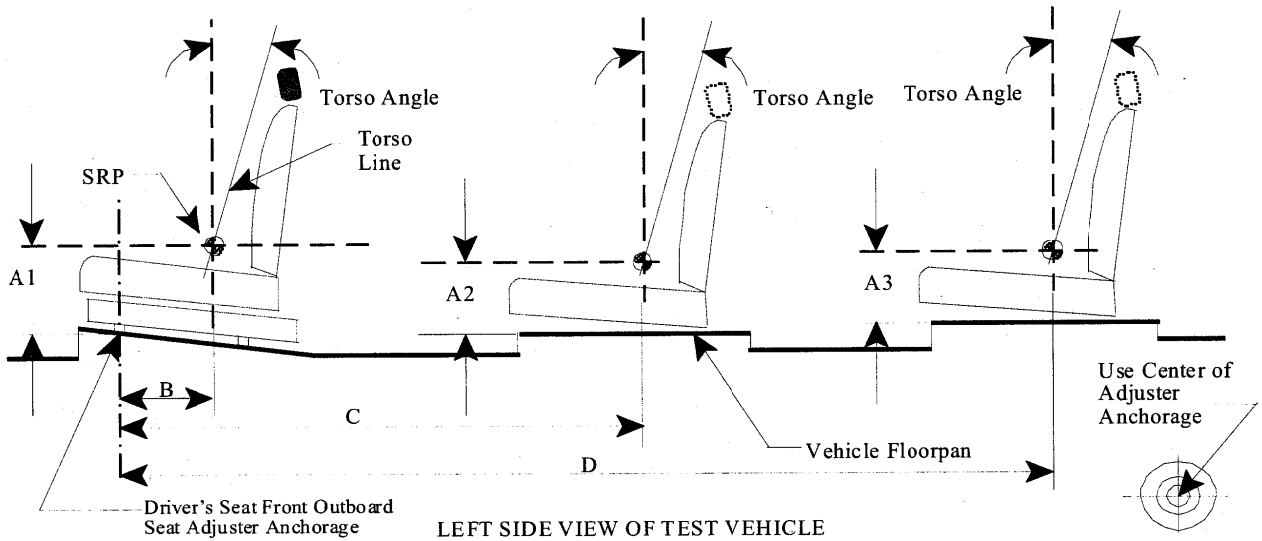
FORM – 225
Rev. 03/20/07

SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA

FMVSS No. 225
(All dimensions in mm[1])

MODEL YEAR: ___2007__/ MAKE: ___Nissan___/ MODEL: _Sentra (excluding SER)_/ BODY STYLE: ___Sedan____

SEAT STYLE: FRONT ROW: ___Bucket_____/ SECOND ROW: _40/60 Split Bench_/ THIRD ROW: ___N/A_____



LEFT SIDE VIEW OF TEST VEHICLE

Table 1. Seating Positions[1] and Torso Angles

		Left (Driver Side)	Center (if any)	Right
A1		270	N/A	270
A2		284	318	284
A3		N/A	N/A	N/A
B		327	N/A	327
C		1119	1084	1119
D		N/A	N/A	N/A
Torso Angle (degree)	Front Row	21	N/A	21
	Second Row	27	27	27
	Third Row	N/A	N/A	N/A

Note: All dimensions are in mm. If not, provide the unit used.

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Attachment 7.A
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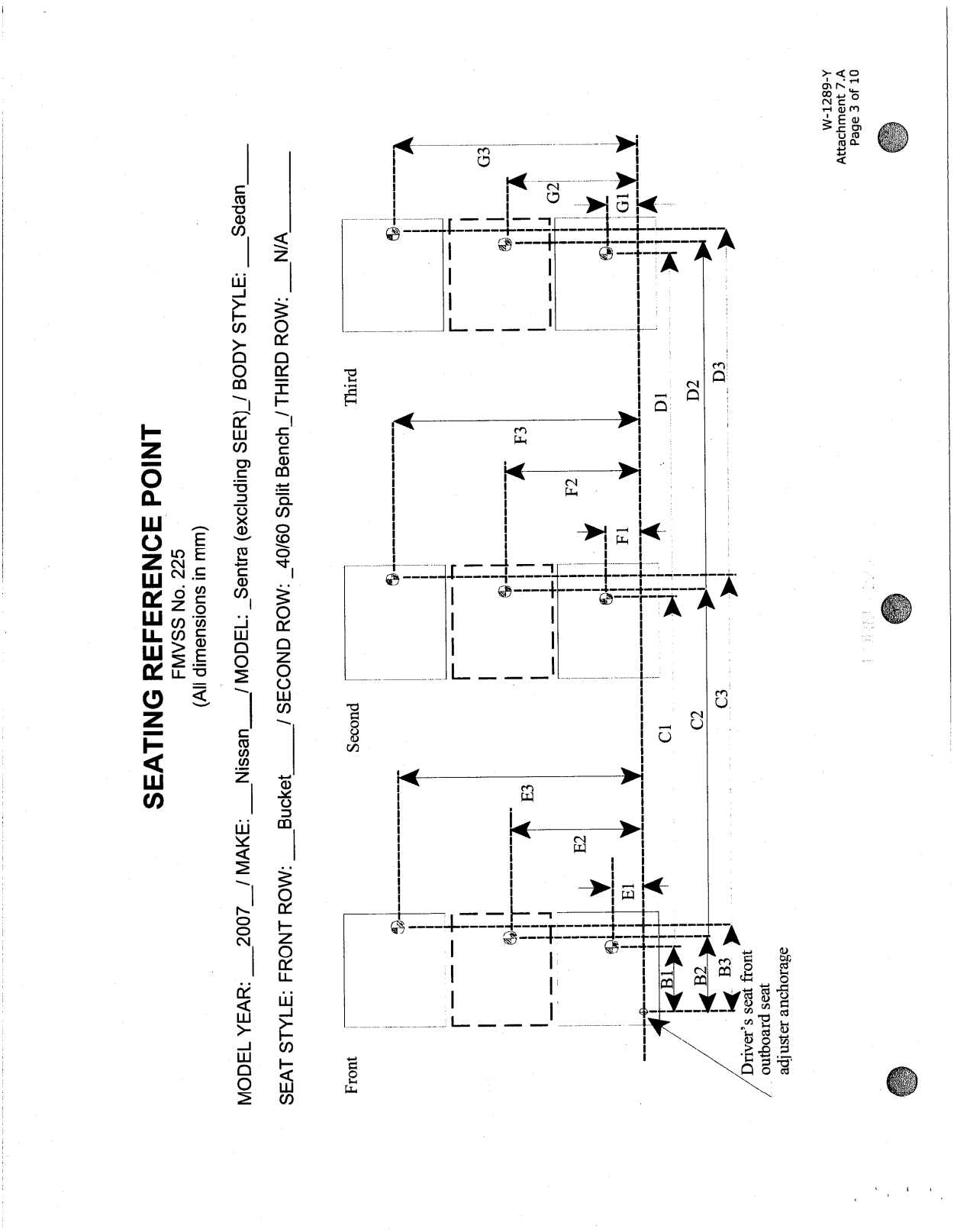
SEATING REFERENCE POINT
FMVSS No. 225
(All dimensions in mm)
MODEL YEAR: ___2007__ / MAKE: ___Nissan____ / MODEL: _Sentra (excluding SER)_ / BODY STYLE: ___Sedan____
SEAT STYLE: FRONT ROW: ___Bucket_____ / SECOND ROW: _40/60 Split Bench_ / THIRD ROW: ___N/A_____
Front
Second
Third
B1
B2
B3
C1
C2
C3
D1
D2
D3
E1
E2
E3
F1
F2
F3
G1
G2
G3
Driver's seat front outboard seat adjuster anchorage
W-1289-Y
Attachment 7.A
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Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	327
	E1	225
	B2	N/A
	E2	N/A
	B3	327
	E3	945
Second Row	C1	1119
	F1	245
	C2	1084
	F2	585
	C3	1119
	F3	925
Third Row	D1	N/A
	G1	N/A
	D2	N/A
	G2	N/A
	D3	N/A
	G3	N/A

Note: Use the center of anchorage.

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Attachment 7.A
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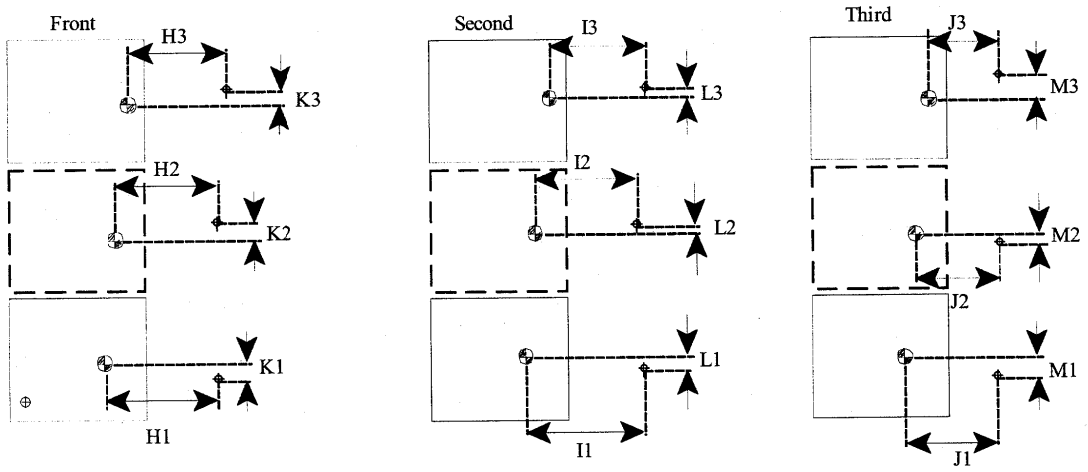
TETHER ANCHORAGE LOCATIONS

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: ___2007__/ MAKE: ___Nissan____/ MODEL: _Sentra (excluding SER)_/ BODY STYLE: ___Sedan____

SEAT STYLE: FRONT ROW: ___Bucket_____/ SECOND ROW: _40/60 Split Bench_/ THIRD ROW: ___N/A_____



⊕: SRP
⊕: Tether anchorage

Note: The location shall be measured at the center of anchorage.

Table 3. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	N/A
	K1	N/A
	H2	N/A
	K2	N/A
	H3	N/A
	K3	N/A
Second Row	I1	535
	L1	85
	I2	570
	L2	0
	I3	535
	L3	85
Third Row	J1	N/A
	M1	N/A
	J2	N/A
	M2	N/A
	J3	N/A
	M3	N/A

Note: Use the center of anchorage.

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Attachment 7.A
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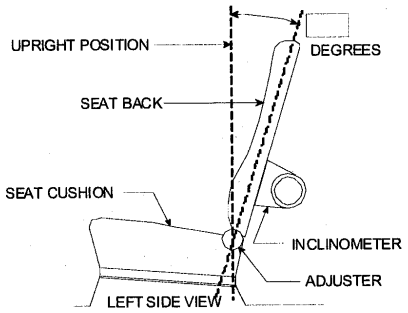
NOMINAL DESIGN RIDING POSITION

For adjustable driver, passenger, 2nd row and 3rd row seat backs, describe how to position the inclinometer to measure the seat back angle. Include a description of the location of the seat back adjustment latch detent if applicable. Indicate if applicable, how the detents are numbered (Is the first detent "0"or "1"?). Indicate if the seat back angle is measured with the dummy in the seat.



Seat back angle for driver's seat = 21 degrees.

Measurement Instructions:

Manual Seat: 7 clicks rearward from the forward-most locking position.
Power Seat: 11.4° off H/R post from the most upright position.

Seat back angle for passenger's seat = 21 degrees.

Measurement Instructions:

Manual Seat: 7 clicks rearward from the forward-most locking position.

Seat back angle for 2nd row seat = 27 degrees.

Measurement Instructions:

Fixed Seats, Not Adjustable

Seat back angle for 3rd row seat = N/A degrees.

Measurement Instructions:

N/A

TETHER ANCHORAGE LOCATIONS - VERTICAL

FMVSS No. 225

(All dimensions in mm)

MODEL YEAR: ___2007__ / MAKE: ___Nissan___ / MODEL: _Sentra (excluding SER)_/ BODY STYLE: ___Sedan___

SEAT STYLE: FRONT ROW: ___Bucket____ / SECOND ROW: _40/60 Split Bench_/ THIRD ROW: ___N/A_____

LEFT SIDE VIEW OF TEST VEHICLE

W-1289-Y
Attachment 7.A
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Table 4. Vertical Dimension For The Tether Anchorage

Seating Row		Vertical Distance from Seating Reference Point
Front Row	N1 (Driver)	N/A
	N2 (Center)	N/A
	N3 (Right)	N/A
Second Row	O1 (Left)	520
	O2 (Center)	485
	O3 (Right)	520
Third Row	P1 (Left)	N/A
	P2 (Center)	N/A
	P3 (Right)	N/A

Note: All dimensions are in mm. If not, provide the unit anchorage.

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Attachment 7.A
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For each vehicle, provide the following information:

1. How many designated seating positions exist in the vehicle?

   5 designated seating positions exist in the vehicle.

2. How many designated seating positions are equipped with lower anchorages and tether anchorages? Specify which position(s).

   2 designated seating positions in the rear outboard seats are equipped with both lower anchorages and tether anchorages.

3. How many designated seating positions are equipped with tether anchorages? Specify which positions(s).

   3 designated seating positions in all rear seats are equipped with tether anchorages.

4. Lower Anchorages Marking and Conspicuity: Whether the anchorages are certified to S9.5(a) or S9.5(b) of FMVSS No. 225.

   The Lower Anchorages Marking and Conspicuity are certified to S9.5(a) of FMVSS No. 225.