**FINAL REPORT NUMBER 225-MGA-10-003**

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

## NISSAN MOTORS
## 2010 NISSAN ROGUE
## NHTSA No. CA5202

## MGA RESEARCH CORPORATION
## 446 Executive Drive
## Troy, Michigan 48083

**Test Date: May 6 - June 2, 2010**
**Report Date: June 7, 2010**

FINAL REPORT

Prepared For:

U.S DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance (Rm W45-304)
1200 New Jersey Avenue, SE
Washington, DC 20590

Prepared By: _____
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_____
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Approved By: _____
P. Michael Miller II, Vice President

Approval Date: 6/9/2010

FINAL REPORT ACCEPTANCE BY OVSC:

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Date: 2010.06.22 13:49:05 -04'00'

Acceptance Date: _____

## TECHNICAL REPORT STANDARD TITLE PAGE

| | | | |
|---|---|---|---|
| 1. Report No.<br>225-MGA-10-003 | 2. Government Accession No. | 3. Recipient's Catalog No. | |
| 4. Title and Subtitle<br>Final Report of FMVSS 225 Compliance Testing of a 2010 Nissan Rogue, NHTSA No. CA5202 | | 5. Report Date June 7, 2010<br>6. Performing Organization Code<br>MGA | |
| 7. Author(s)<br>Helen A. Kaleto, Laboratory Manager<br>Fern Gatilao, Project Engineer<br>Brad Reaume, Test Personnel | | 8. Performing Organization Report No.<br>225-MGA-10-003 | |
| 9. Performing Organization Name and Address<br>MGA Research Corporation<br>446 Executive Drive<br>Troy, Michigan 48083 | | 10. Work Unit No.<br>11. Contract or Grant No.<br>DTNH22-02-D-11043 | |
| 12. Sponsoring Agency Name and Address<br>U.S. Department of Transportation<br>National Highway Traffic Safety Administration Enforcement<br>Office of Vehicle Safety Compliance (NVS-220)<br>400 Seventh Street, SW<br>Room 6111<br>Washington, DC 20590 | | 13. Type of Report and Period Covered<br>Final Test Report<br>14. Sponsoring Agency Code<br>NVS-220 | |
| 15. Supplementary Notes | | | |
| 16. Abstract<br>A compliance test was conducted on the subject 2010 Nissan Rogue, NHTSA No. CA5202, 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 test was conducted at MGA Research Corporation in Troy, Michigan on May 6 - June 2, 2010. Test failures identified were as follows:<br><br>NONE<br><br>The data recorded indicates that the 2010 Nissan Rogue tested appears to meet the requirements of FMVSS 225. | | | |
| 17. Key Words<br>Compliance Testing<br>Safety Engineering<br>FMVSS 225<br>2010 Nissan Rogue | | 18. Distribution Statement<br>Copies of this report are available<br>From: NHTSA Technical Reference<br>Technical Information Services Division, NPO-411<br>1200 New Jersey Avenue, SE (Rm E12-100)<br>Washington, D.C. 20590<br>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. DTNH22-02-D-11043. The purpose of the testing was to determine if the subject vehicle, a 2010 Nissan Rogue, NHTSA No. CA5202 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 60/40 split-back-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) and the center seating position was equipped with a tether anchorage. The center-to-center spacing between the 2nd row outboard lower anchorages was approximately 700 mm. The 2nd row left and right outboard seating positions were tested with the SFADII.

## 2.0 COMPLIANCE TEST AND DATA SUMMARY

### TEST SUMMARY

The testing was conducted at MGA in Troy, Michigan on May 6 - June 2, 2010.

Based on the test results, the 2010 Nissan Rogue 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 5,043 N and held the required load for 3 seconds and the total displacement was 69 mm. The SFADII at the 2nd row right seating position sustained a maximum force of 5,037 N and held the required load for 3 seconds and the total displacement was 81 mm.

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) |
|---|---|---|---|---|---|
| A10166 | SFADII | Lateral Left | 2nd Row Left | 5,043* | 69 |
| | | | 2nd Row Right | 5,037* | 81 |

Remark: * applied force exceeded the force specified in the test procedure.

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

| | |
|---|---|
| VEH. MOD YR/MAKE/MODEL/BODY | 2010 Nissan Rogue |
| VEH. NHTSA NO. | CA5202 |
| VIN | JN8AS5MVXAW116195 |
| COLOR | Red |
| VEH. BUILD DATE | 11/09 |
| TEST DATE | May 6 - June 2, 2010 |
| 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: 11/09; VIN: JN8AS5MVXAW116195

GVWR: 4,391 lbs GAWR FRONT: 2,373 lbs

GAWR REAR: 2,187 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 33 psi REAR: 33 psi

Recommended Tire Size: P215/70R16

Recommended Cold Tire Pressure:

FRONT: 33 psi REAR: 33 psi

Size of Tire on Test Vehicle: P215/70R16

Size of Spare Tire: T155/90D16

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<br>446 Executive Drive<br>Troy, Michigan 48083** | |
|---|---|
| **Test Equipment Used for Testing** | **Calibration Due Date** |
| MGA Hydraulic Test Frame | N/A |
| Two (2) Load Cell 10,000 lb Capability | S/N 151 & 153 (12/1/2010) |
| String Potentiometer Calibrated at each use | N/A |
| 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 | TPM928 (5/26/2010) |
| MGA Data Acquisition System | N/A |
| Digital Calipers | MGA00684 (1/16/2011) |
| Force Gauge | MGA00015 (5/18/2010) |
| Inclinometer (Digital) | MGA00822 (1/27/2011) |

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 | N/A | | N/A |
| | Ctr | | N/A | | |
| | RH | | N/A | | |
| Diameter of the bar (mm) | LH | N/A | 6.0 | 6.0 | N/A |
| | Ctr | | N/A | | |
| | RH | | 6.0 | 5.9 | |
| 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 | 37 | | N/A |
| | Ctr | | N/A | | |
| | RH | | 35 | | |
| Measure the distance between the SRP to the front of the anchorage bar (mm) | LH | N/A | 160 | 158 | N/A |
| | Ctr | | N/A | | |
| | RH | | 162 | 160 | |

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 | 31 | 29 | N/A |
| | | Req't<60 | | 36 | 36 | |
| | Ctr | Req't>25 | | N/A | | |
| | | Req't<60 | | N/A | | |
| | RH | Req't>25 | | 30 | 29 | |
| | | Req't<60 | | 36 | 36 | |
| 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 | 9 | N/A | 1 |
| 2nd Row Center | N/A | N/A | N/A |
| 2nd Row Right | 9 | N/A | 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 (kN) | 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 | Fixed | Yes | II | 0.2 | 16 | 167 | 5,000 | 5,043* | 85 | 69 |
| | Ctr. | N/A | N/A | No | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | RH | Fixed | Fixed | Yes | II | 0.2 | 9 | 167 | 5,000 | 5,037* | 90 | 81 |
| 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.

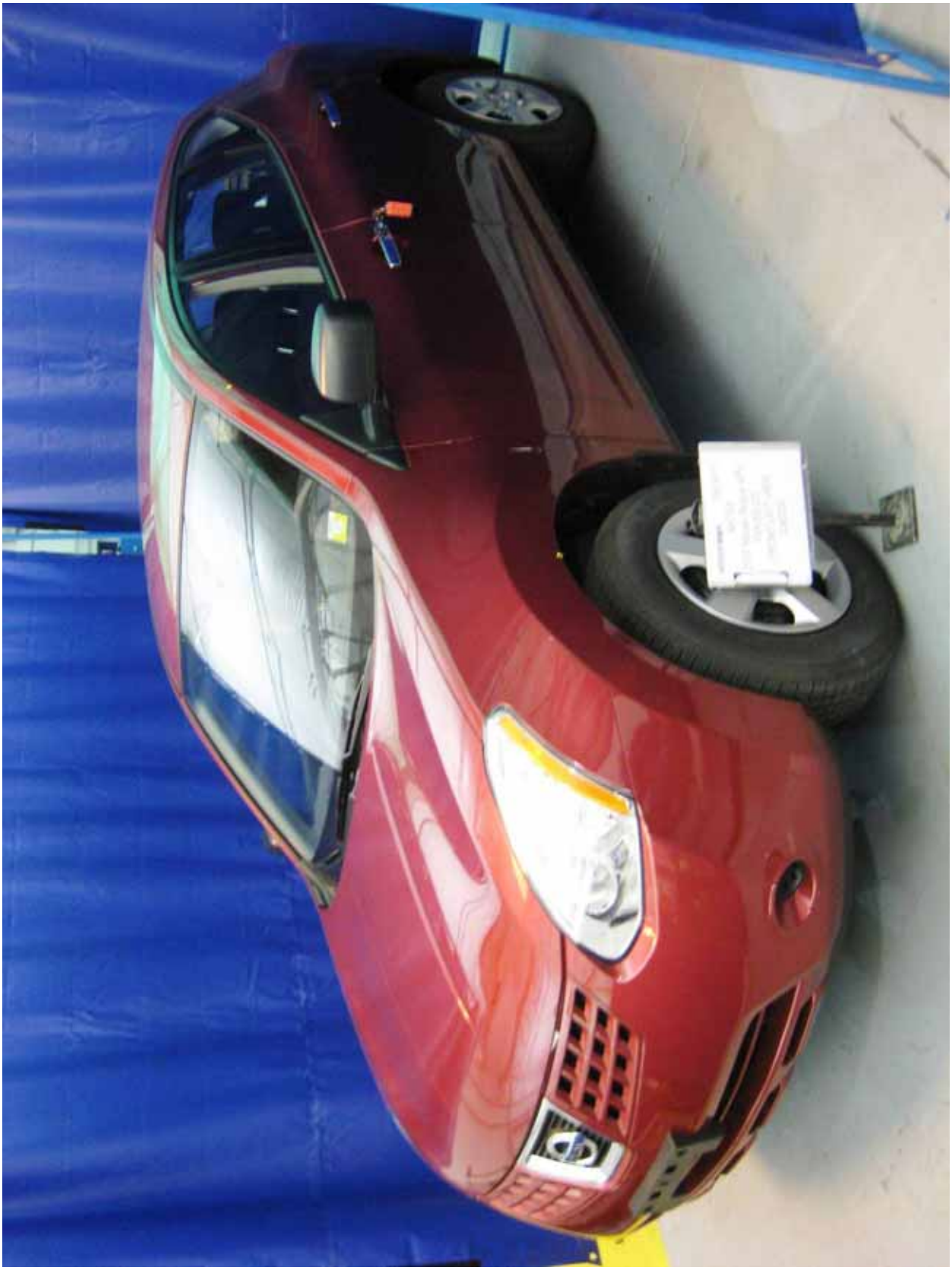
# 6.0 PHOTOGRAPHS

## 6.1 Front view

6.2 Rear view


AWD
NISSAN
ROGUE
05/06/10
NHTSA
2010 Nissan Rogue MPV
FMVSS 225
REAR VIEW
CA5202

6.3 Front left view

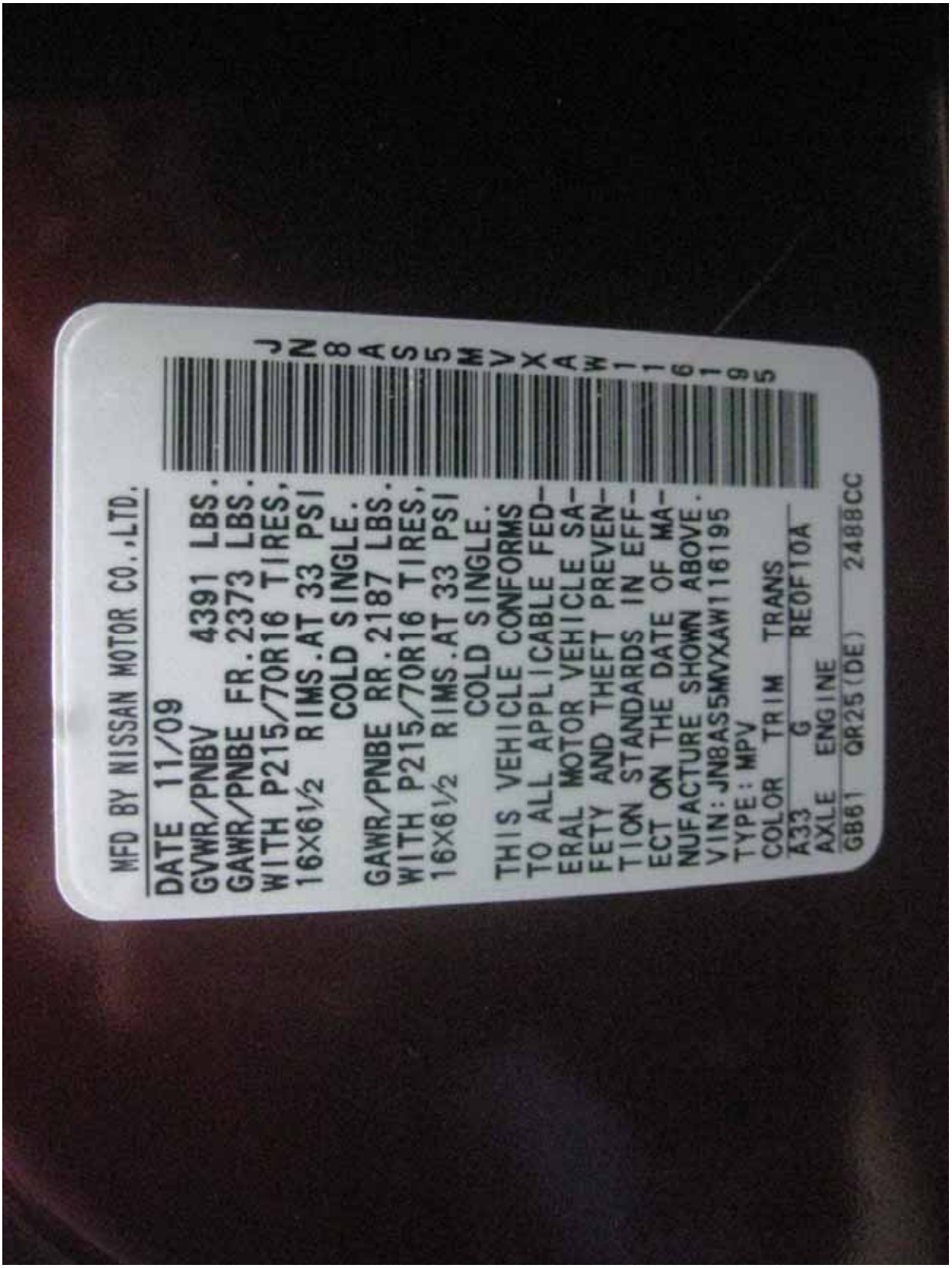


6.4 Front right view

6.5 Test vehicle's certification label

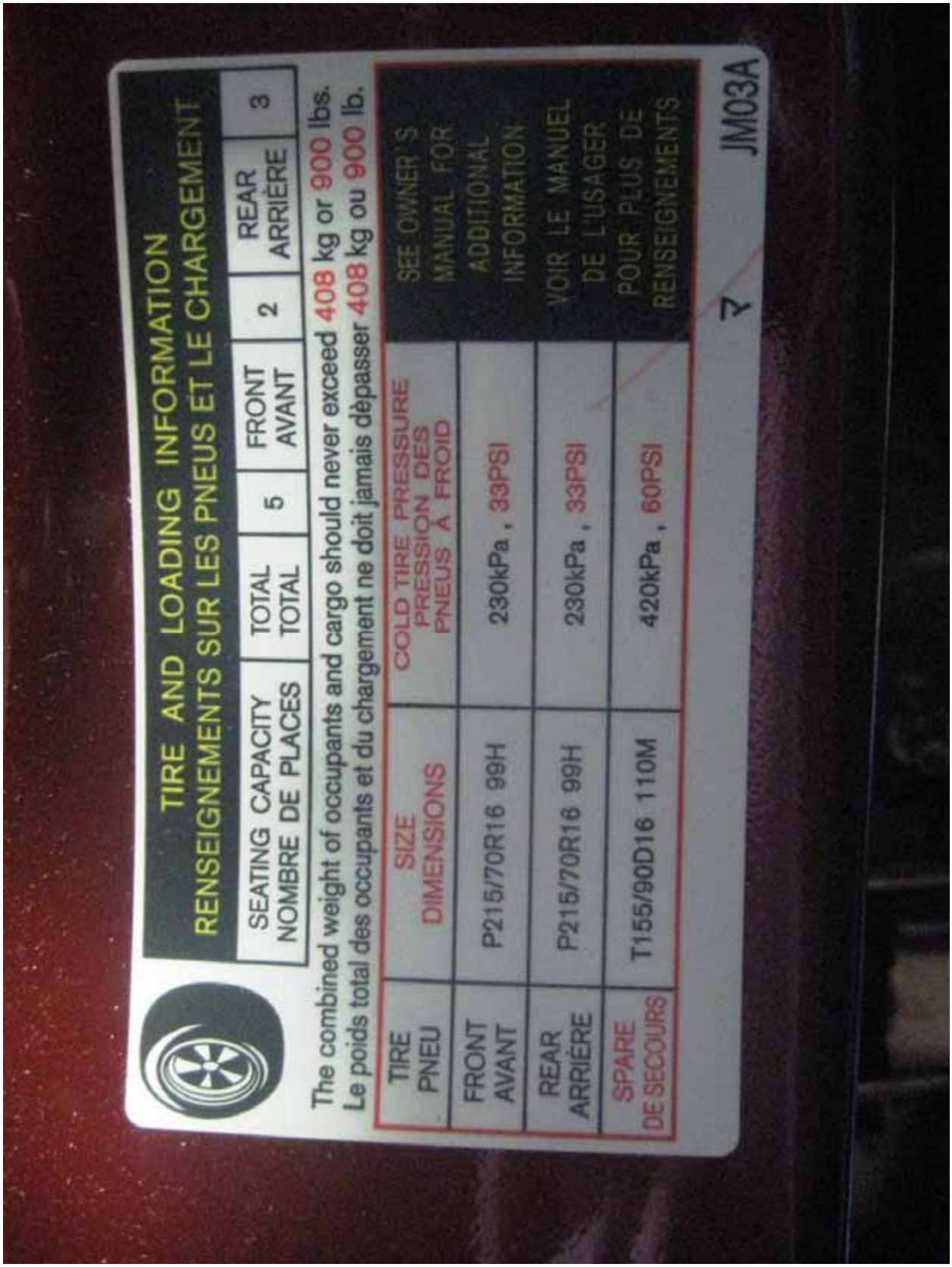
6.5.1 Certification label photo 1

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

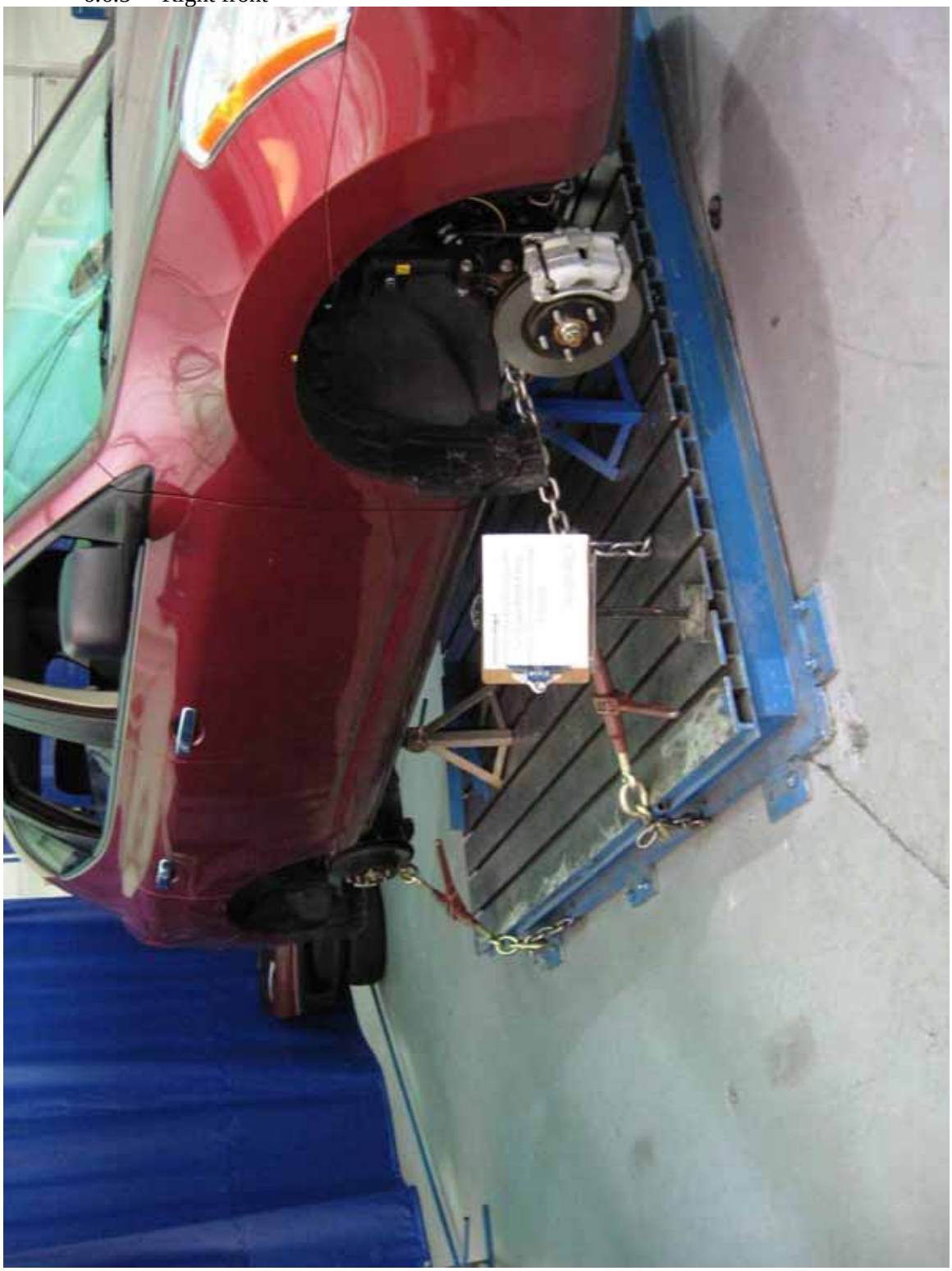
6.6.1 Front under vehicle

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

6.7.1 LH position photo #1

6.7.2 LH position photo #2

6.7.3 RH position photo #1

6.7.4 RH position photo #2

6.7.5 Center position photo #1

6.7.6 Center position photo #2

6.8 CRF verification

6.8.1 LH position photo

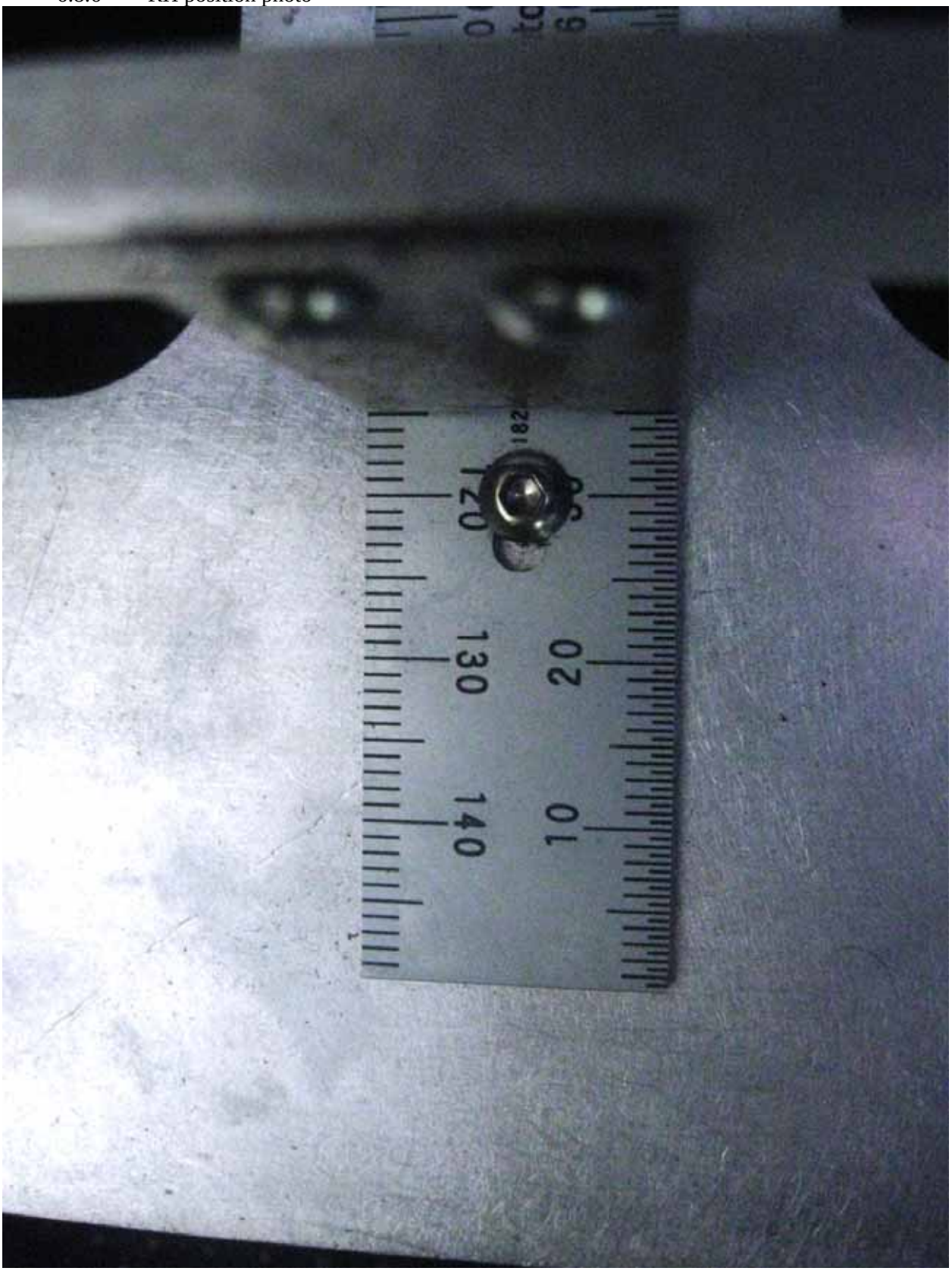
6.8.2 LH position photo

6.8.3 LH position photo

6.8.4 RH position photo

6.8.5 RH position photo

6.8.6 RH position photo



6.9 Front view of test vehicle with test apparatus in place

6.9.1 SFAD II LH & RH Photo # 1

6.9.2 SFAD II LH & RH Photo #2

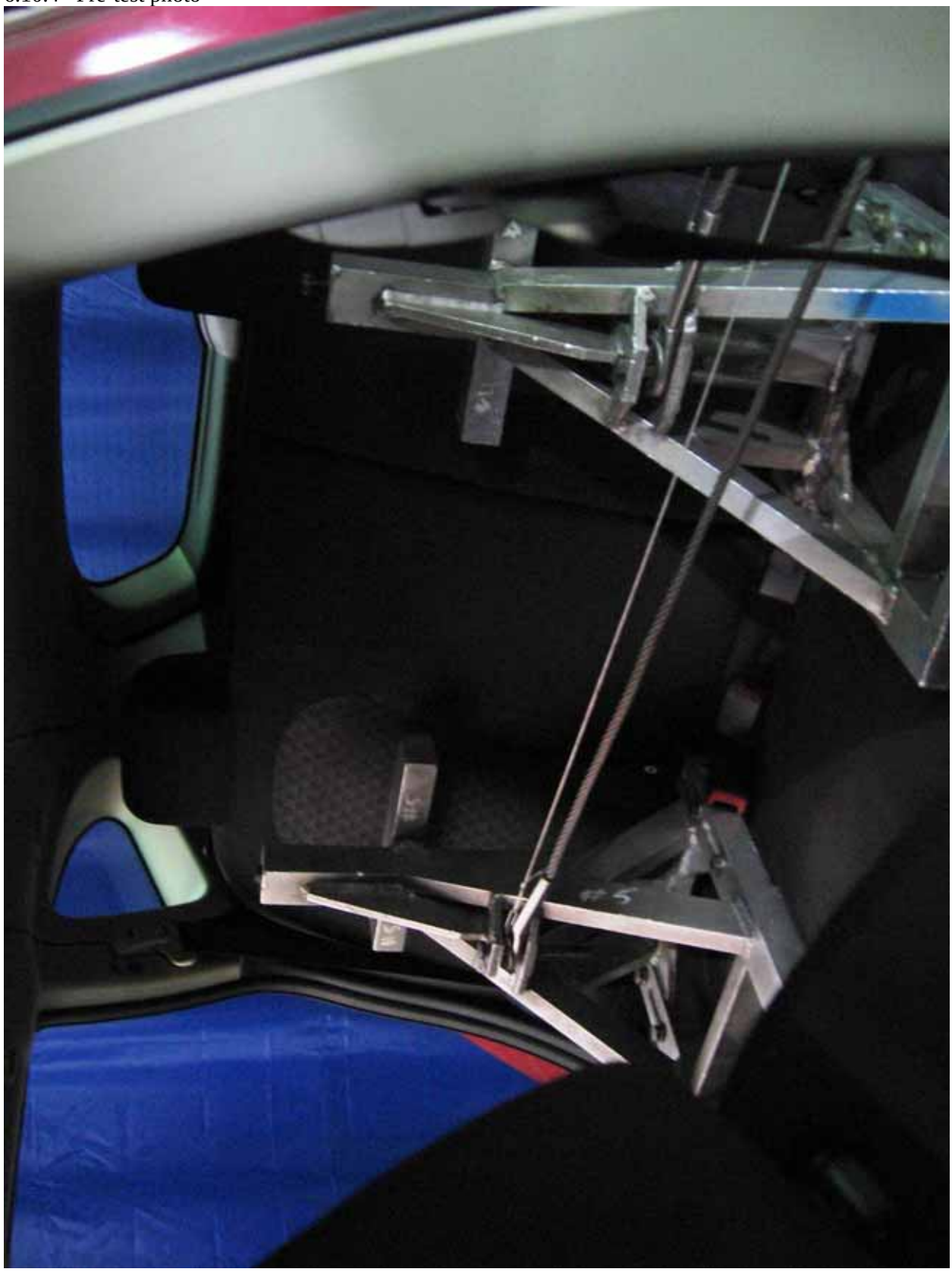
6.10 Pre-test views of each child restraint anchorage system installed in the vehicle

6.10.1 Pre-test photo

6.10.2 Pre-test photo

6.10.3 Pre-test photo

6.10.4 Pre-test photo



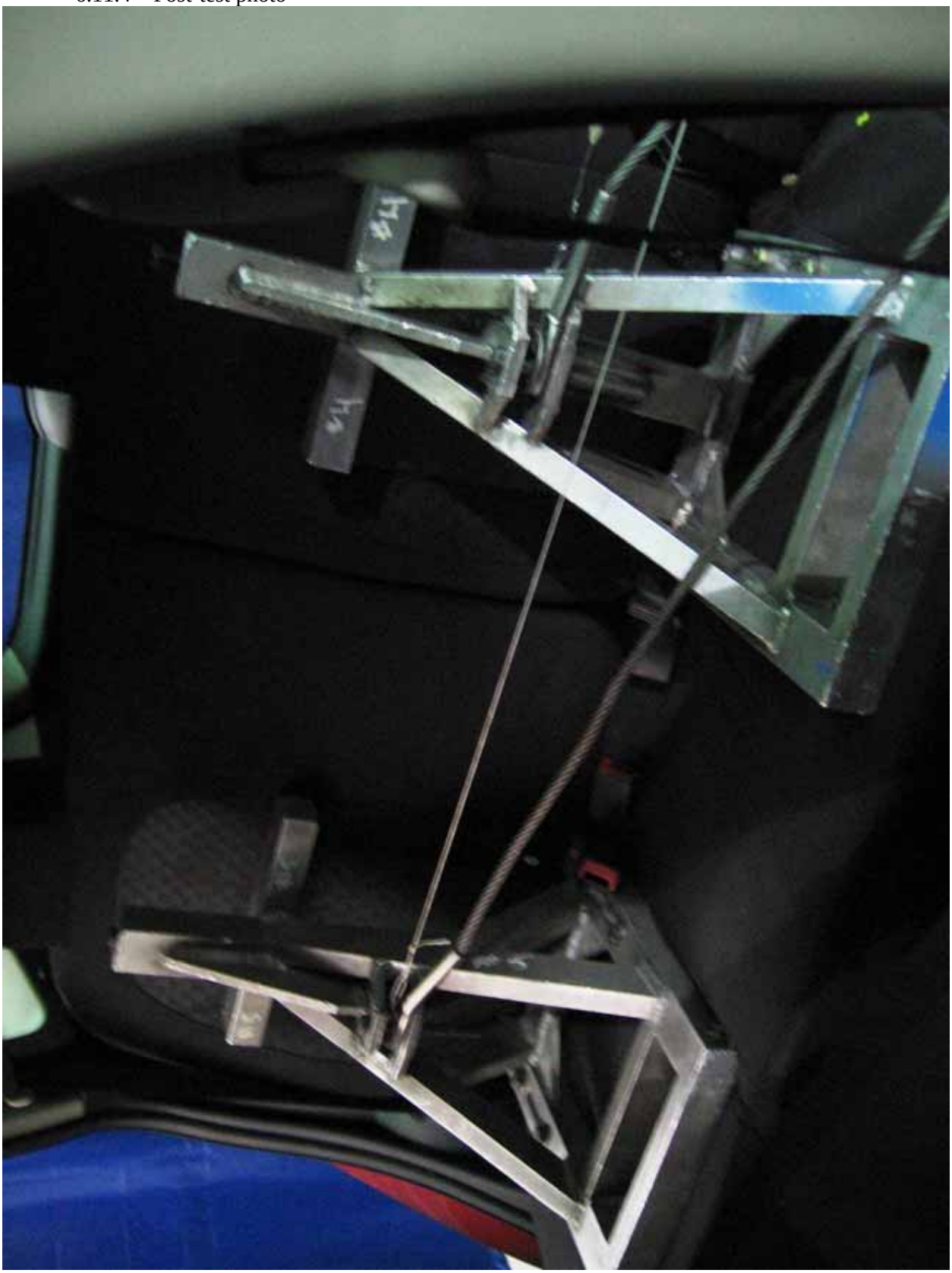
6.11 Post-test condition of each child restraint anchorage system

6.11.1 Post-test photo

6.11.2 Post-test photo

6.11.3 Post-test photo

6.11.4 Post-test photo



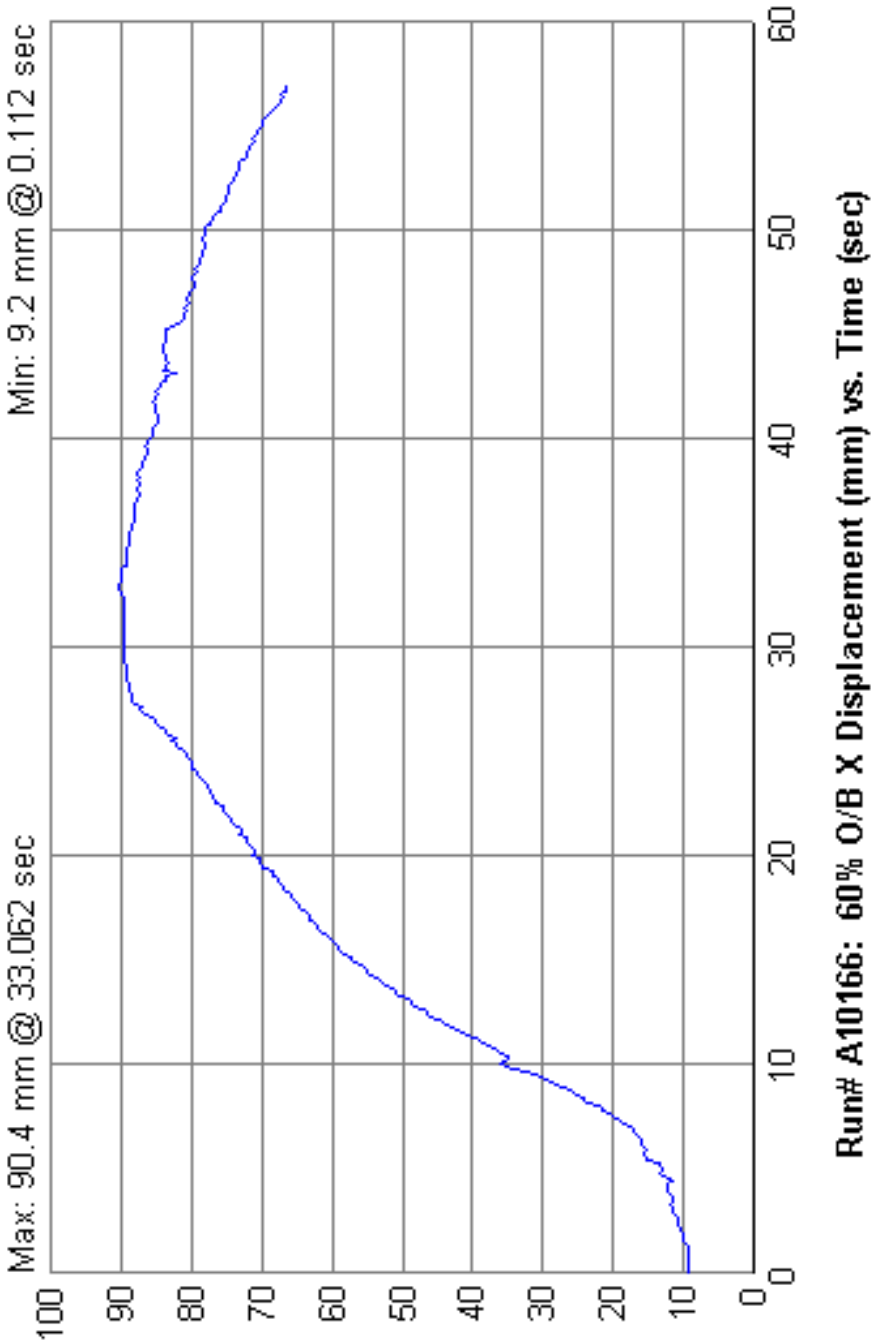
6.11.5 Post-test photo

6.11.6 Post-test photo

6.11.7 Post-test photo

6.11.8 Post-test photo

7.0 PLOTS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Max: 90.4 mm @ 33.062 sec
Run# A10166: 60% O/B X Displacement (mm) vs. Time (sec)
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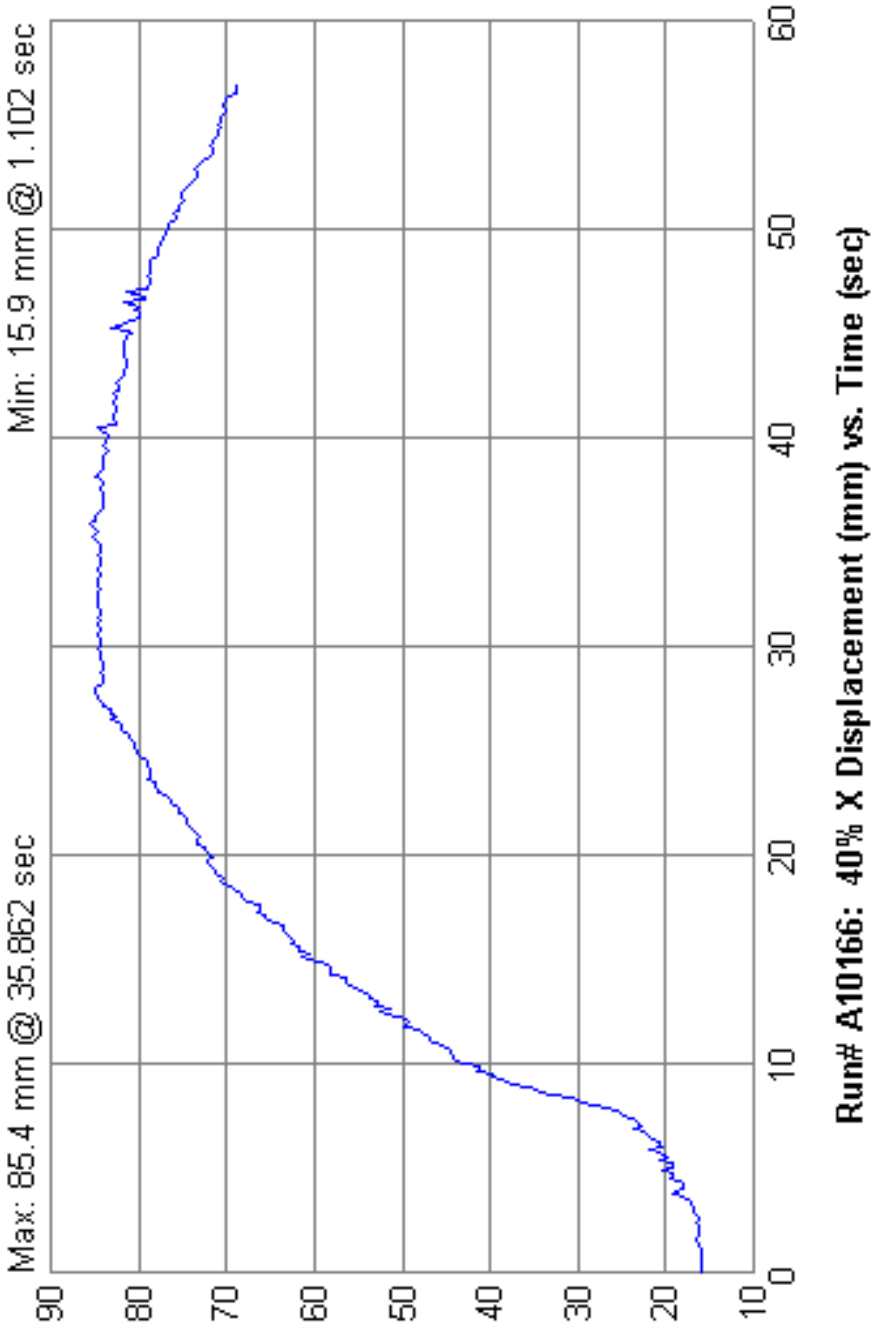
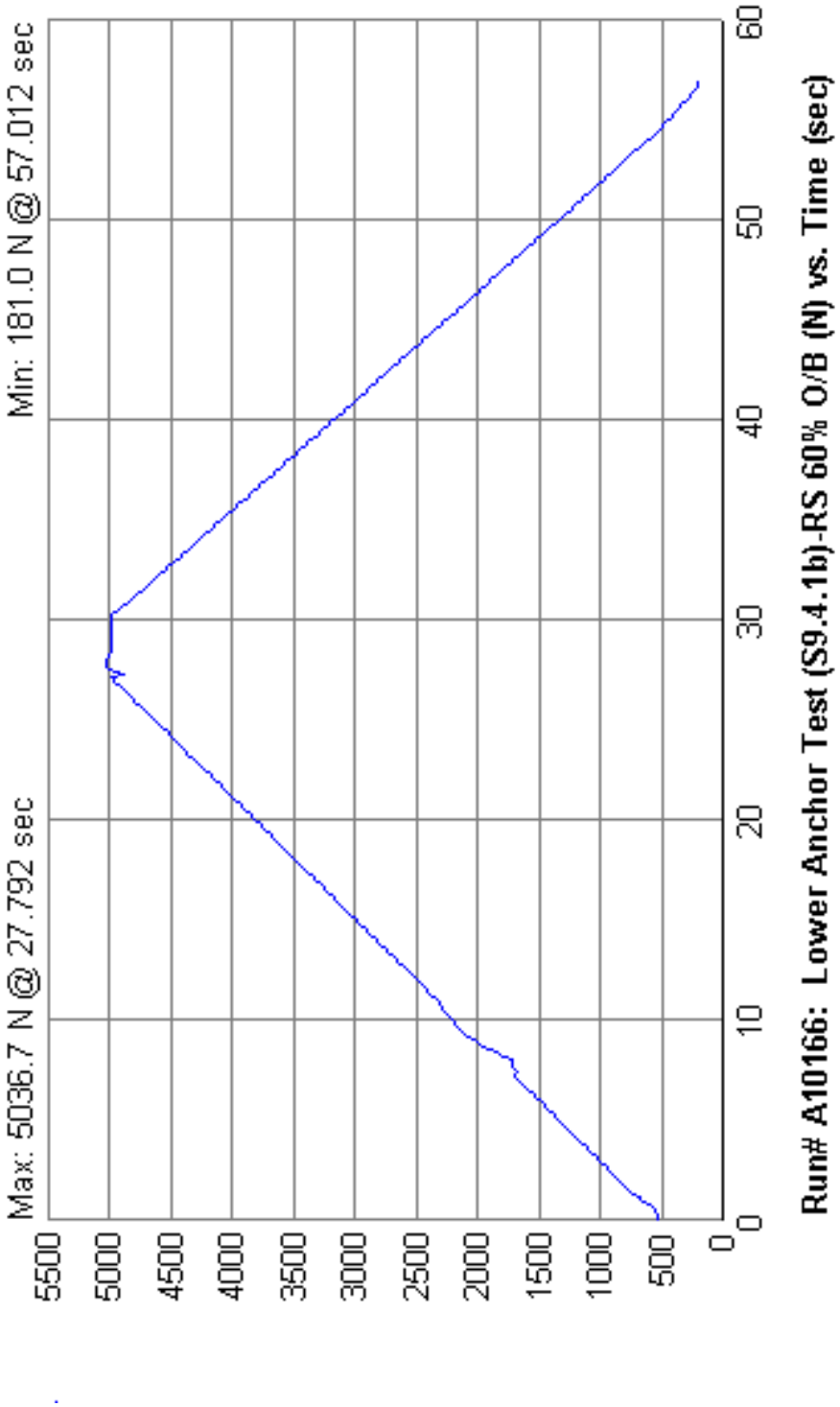
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60


Max: 85.4 mm @ 35.862 sec
Min: 15.9 mm @ 1.102 sec
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
Run# A10166: 40% X Displacement (mm) vs. Time (sec)


Max: 5036.7 N @ 27.792 sec
Min: 181.0 N @ 57.012 sec
Run# A10166: Lower Anchor Test (S9.4.1b)-RS 60% O/B (N) vs. Time (sec)
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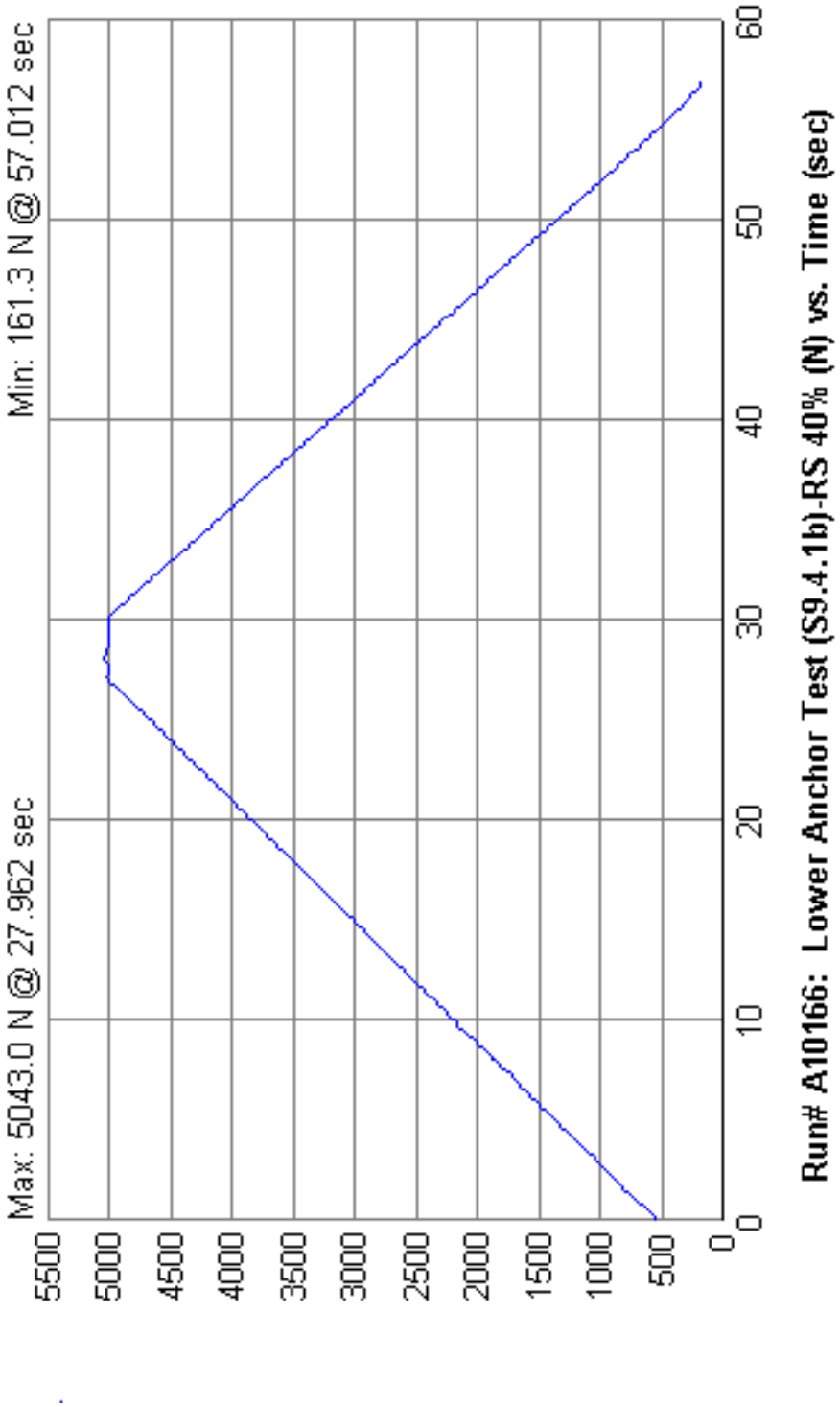
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60


Max: 5043.0 N @ 27.962 sec
Min: 161.3 N @ 57.012 sec
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
Run# A10166: Lower Anchor Test (S9.4.1b)-RS 40% (N) vs. Time (sec)

# 8.0 REPORT OF VEHICLE CONDITION

## REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-02-D-11043 DATE: May 6 - June 2, 2010

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. 225 & 201U

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: 2010 Nissan Rogue

VEH. NHTSA NO.: CA5202 VIN: JN8AS5MVXAW116195

COLOR: Red

ODOMETER READINGS: ARRIVAL 11 miles Date: 5/6/2010

COMPLETION 11 miles Date: 6/2/2010

PURCHASE PRICE: $22,650

ENGINE DATA: 4 Cylinders 2.5 Liters ___ Cubic Inches

TRANSMISSION DATA: X Automatic ___ Manual ___ No. of Speeds

FINAL DRIVE DATA: ___ Rear Drive ___ Front Drive X 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 | X | All Wheel Drive | | Roof Rack |
| X | Power Steering | X | 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 |
| | 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:**

**Test Vehicle Condition:**

Salvage only.

RECORDED BY: Fern Gatilao, Kenney Godfrey DATE: May 6 - June 2, 2010

APPROVED BY: Brad Reaume

# APPENDIX A
# OWNERS MANUAL CHILD RESTRAINT SYSTEMS

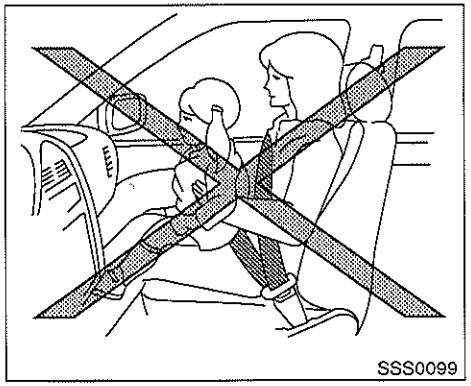
**injury in the event of an accident.**

- **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 carpets. 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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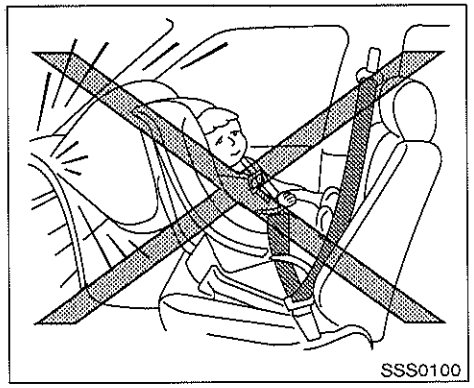

SSS0100

## 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.**
- **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.**
- **Even with the NISSAN Advanced Air Bag System, never install a rear-facing child restraint in the front seat. An inflating 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. If you must install a front-facing child restraint in the front seat, see "CHILD RESTRAINT INSTALLATION USING THE SEAT BELTS" later in this section.**

- **Improper use or improper installation of a child restraint can increase the risk or severity of injury for both the child and other occupants of the vehicle and can lead to serious injury or death in an accident.**
- **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.**
- **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.**
- **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 while holding the seat near the LATCH attachment or by the seat belt path. The child restraint should not move more than 1 inch (25 mm) from side to side. Try to tug it forward and check to see if the belt holds the restraint in place. 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.**
- **When your child restraint is not in use, keep it secured with the LATCH system or 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.**

This vehicle is equipped with a universal child restraint lower anchor system, referred to as the Lower Anchors and Tethers for CHildren System or LATCH. Some child restraints include two rigid or webbing-mounted attachments that can be connected to these lower anchors. For details, see "Lower Anchors and Tethers for CHildren System (LATCH)" later in this section.

If you do not have a LATCH compatible child restraint, the vehicle seat belts can be used. (See "CHILD RESTRAINT INSTALLATION USING THE SEAT BELTS" later in this section.) In general, child restraints are also designed to be installed with a lap/shoulder seat belt.

Several manufacturers offer child restraints for infants and small children of various sizes. 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.

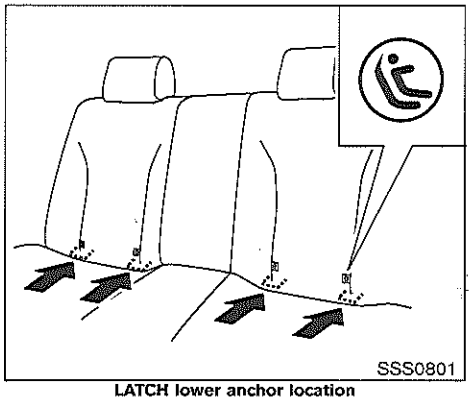
- Check the child restraint in your vehicle to be sure it is compatible with the vehicle's seat and seat belt system.
- If the child restraint is compatible with your vehicle, place your child in the child restraint and check the various adjustments to be sure the child restraint is compatible with your 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. Canadian law requires the top tether strap on front-facing child restraints be secured to the designated anchor point on the vehicle.**

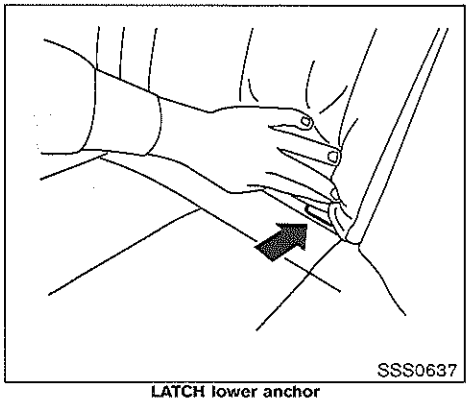
## Lower Anchors and Tethers for CHildren System (LATCH)

Your vehicle is equipped with special anchor points that are used with Lower Anchors and Tethers for CHildren System (LATCH) compatible child restraints. 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.

The LATCH anchor points are provided to install child restraints in the rear outboard seating positions only. Do not attempt to install a child restraint in the center position using the LATCH anchors.




**LATCH lower anchor location**



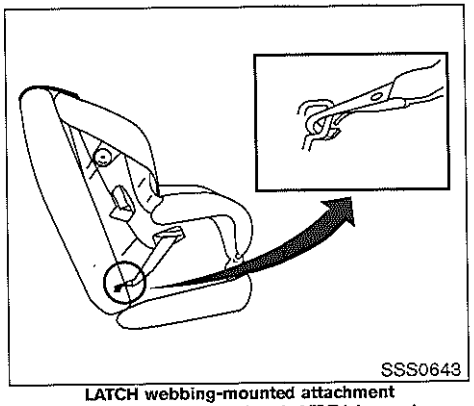

**LATCH lower anchor**

### LATCH lower anchor point locations

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

**⚠ WARNING**

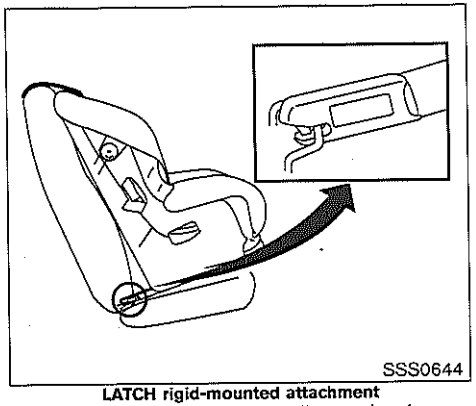
- **Attach LATCH system compatible child restraints only at the locations shown in the illustration. If a child restraint is not secured properly, your child could be seriously injured or killed in an accident.**
- **Do not secure a child restraint in the center rear seating position using the LATCH anchors. The child restraint will not be secured properly.**
- **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.**




**LATCH webbing-mounted attachment**

### Installing child restraint LATCH anchor attachments

LATCH compatible child restraints include two rigid or webbing-mounted attachments that can be connected to two anchors located at certain seating positions in your vehicle. With this system, you do not have to use a vehicle seat belt to secure the child restraint. Check your child restraint for a label stating that it is compatible with LATCH system. This information may also be in the instructions provided by the child restraint manufacturer.




**LATCH rigid-mounted attachment**

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. (See "CHILD RESTRAINT INSTALLATION USING LATCH" later in this section.)

### TOP TETHER STRAP CHILD RESTRAINT

If the manufacturer of your child restraint requires the use of a top tether strap, it must be secured to an anchor point.

**⚠ 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.**
- **If the cargo cover contacts the top tether strap when it is attached to the top tether anchor, remove the cargo cover from the vehicle or secure it on the cargo floor below its attachment location. If the cargo cover is not removed, it may damage the top tether strap during a collision. Your child could be seriously injured or killed in a collision if the child restraint top tether strap is damaged.**
- **Do not allow cargo to contact the top tether strap when it is attached to the top tether anchor. Properly secure the cargo so it does not contact the top tether strap. Cargo that is not properly secured or that contacts the top tether strap may damage the top tether strap during a collision. Your child could be seriously injured or killed in a collision if the child restraint top tether strap is damaged.**




## Top tether anchor point locations

Anchor points are located on the floor behind the outboard and center seating positions.

## Installing top tether strap

First secure the child restraint with the LATCH system (rear outboard seating positions only) or the seat belt as applicable.

1. Remove the anchor cover from the anchor point which is located directly behind the child seat.
2. Position the top tether strap over the top of the seatback.
3. Secure the tether strap to the tether anchor

bracket that provides the straightest installation.

4. Tighten the tether strap according to the manufacturer's instructions to remove any slack.

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

## CHILD RESTRAINT INSTALLATION USING LATCH

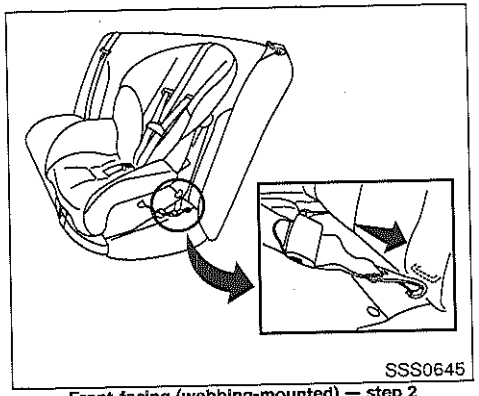
**⚠ WARNING**

- **Attach LATCH system compatible child restraints only at the locations shown. For the LATCH lower anchor locations, see "Lower Anchors and Tethers for CHildren System (LATCH)" earlier in this section. If a child restraint is not secured properly, your child could be seriously injured or killed in an accident.**
- **The LATCH 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.**
- **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 anchors, such as seat belt webbing or seat cushion material. The child restraint will not be secured properly if the LATCH anchors are obstructed.**

### Front-facing

Follow these steps to install a front-facing child restraint using LATCH system:

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




**Front-facing (webbing-mounted) — step 2**

2. Secure the child restraint anchor attachments to the LATCH lower anchors. Check to make sure the LATCH attachment is properly attached to the lower anchors.
3. The back of the child restraint should be secured against the vehicle seatback. 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 (rigid-mounted) — step 2




Front-facing — step 4

4. For child restraints that are equipped with webbing-mounted attachments, remove any additional slack from the anchor attachments. Press downward and rearward firmly in the center of the child restraint with your knee to compress the vehicle seat cushion and seatback while tightening the webbing of the anchor attachments.

5. If the child restraint is equipped with a top tether strap, route the top tether strap and secure the tether strap to the tether anchor point. (See "TOP TETHER STRAP CHILD RESTRAINT" earlier in this section.)




Front-facing — step 6

6. After attaching the child restraint, test it before you place the child in it. Push it from side to side while holding the seat near the LATCH attachment path. The child restraint should not move more than 1 inch (25 mm) from side to side. Try to tug it forward and check to see if the LATCH attachment holds the restraint in place. If the restraint is not secure, tighten the LATCH attachment 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.

**Safety — Seats, seat belts and supplemental restraint system** 1-27

7. Check to make sure the child restraint is properly secured prior to each use. If the child restraint is loose, repeat steps 3 through 6.

## Rear-facing

Follow these steps to install a rear-facing child restraint using LATCH system:

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




Rear-facing (rigid-mounted) — step 2




Rear-facing (webbing-mounted) — step 2

2. Secure the child restraint anchor attachments to the LATCH lower anchors. Check to make sure the LATCH attachment is properly attached to the lower anchors.

SSS0639

**Rear-facing — step 3**

3. For child restraints that are equipped with webbing-mounted attachments, remove any additional slack from the anchor attachments. Press downward and rearward firmly in the center of the child restraint with your hand to compress the vehicle seat cushion and seatback while tightening the webbing of the anchor attachments.



SSS0650

**Rear-facing — step 4**

4. After attaching the child restraint, test it before you place the child in it. Push it from side to side while holding the seat near the LATCH attachment path. The child restraint should not move more than 1 inch (25 mm) from side to side. Try to tug it forward and check to see if the LATCH attachment holds the restraint in place. If the restraint is not secure, tighten the LATCH attachment 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.

5. Check to make sure the child restraint is properly secured prior to each use. If the child restraint is loose, repeat steps 3 through 4.

**Safety — Seats, seat belts and supplemental restraint system 1-29**

- **A child restraint with a top tether strap should not be used in the front passenger seat.**

The instructions in this section apply to child restraint installation using the vehicle seat belts in the rear seat or the front passenger seat.

**However, if you must install a front-facing child restraint in the front passenger seat, move the passenger seat to the rearmost position. Also, be sure the front passenger air bag status light is illuminated to indicate the passenger air bag is OFF. See "Front passenger air bag and status light" later in this section for details.**

- **The three-point seat belt in your vehicle is equipped with an Automatic Locking Retractor (ALR) which must be used when installing a child restraint.**
- **Failure to use the ALR 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 using the rear center seat belt to install a child restraint, make sure the connector tongue and the seat belt tongue are secured. Do not use the seat belt with only the seat belt tongue attached. This could result in serious personal injury in case of an accident or sudden stop.**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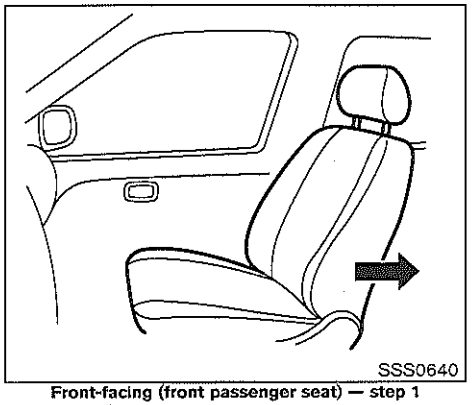
CHILD RESTRAINT INSTALLATION USING THE SEAT BELTS

**⚠ WARNING**

- **Even with the NISSAN Advanced Air Bag System, never install a rear-facing child restraint in the front passenger seat. Front air bags inflate with great force. A rear-facing child restraint could be struck by the 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.**




**Front-facing (front passenger seat) — step 1**

## Front-facing

Follow these steps to install a front-facing child restraint using the vehicle seat belt in the rear seat or in the front passenger seat:

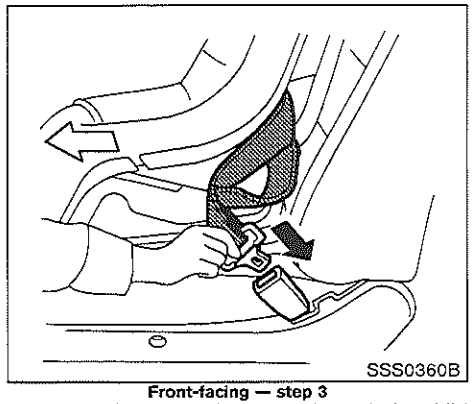
1. **If you must install a child restraint in the front seat, it should be placed in a front-facing direction only. Move the seat to the rearmost position. Child restraints for infants must be used in the rear-facing direction and therefore must not be used in the front seat.**
2. Position the child restraint on the seat. Always follow the child restraint manufacturer's instructions.

The back of the child restraint should be secured against the seatback.

If necessary, adjust or remove the head restraint (front passenger seat only) to obtain the correct child restraint fit. (See "HEAD RESTRAINTS" earlier in this section.)

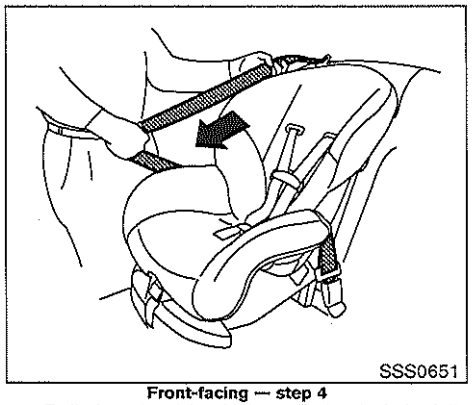
If the head restraint is removed, store it in a secure place. Be sure to reinstall the head restraint when the child restraint is removed.

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.



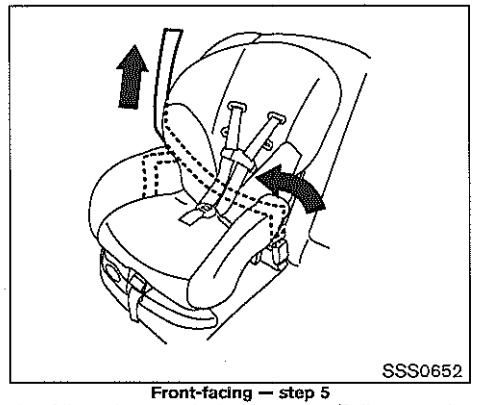

**Front-facing — step 3**

3. 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.



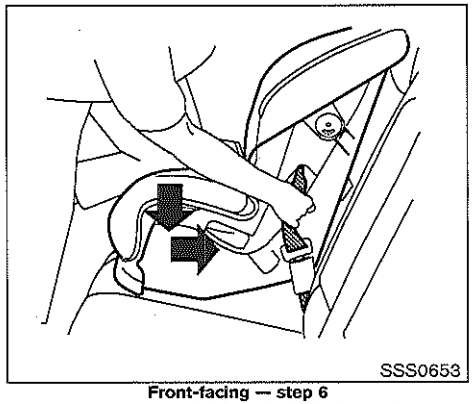

**Front-facing — step 4**

4. Pull the shoulder belt until the belt is fully extended. At this time, the seat belt retractor is in the Automatic Locking Retractor (ALR) mode (child restraint mode). It reverts to the Emergency Locking Retractor (ELR) mode when the seat belt is fully retracted.




**Front-facing — step 5**

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




**Front-facing — step 6**

6. Remove any additional slack from the seat belt; press downward and rearward firmly in the center of the child restraint with your knee to compress the vehicle seat cushion and seatback while pulling up on the seat belt.

7. If the child restraint is equipped with a top tether strap, route the top tether strap and secure the tether strap to the tether anchor point (rear seat installation only). (See "TOP TETHER STRAP CHILD RESTRAINT" earlier in this section.) Do not install child restraints that require the use of a top tether strap to seating positions that do not have a top tether anchor.

SSS0641

**Front-facing — step 8**

8. After attaching the child restraint, test it before you place the child in it. Push it from side to side while holding the seat by the seat belt path. The child restraint should not move more than 1 inch (25 mm) from side to side. Try to tug it forward and check to see if the belt holds the restraint in place. 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.

9. Check that the retractor is in the ALR 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 ALR mode.

10. 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 9.

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**Front-facing — step 11**

11. If the child restraint is installed in the front passenger seat, turn the ignition switch to the ON position. The front passenger air bag status light should illuminate. If this light is not illuminated, see "Front passenger air bag and status light" later in this section. **Move the child restraint to another seating position.** Have the system checked by a NISSAN dealer.

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



*... and test it again. You ... put the ... tighten the belt as different child restraint in ...*

## BOOSTER SEATS

7. Check that the retractor is in the ALR 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 ALR mode.
8. 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 7.

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




### 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 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 auto... do not put the... vehicle. Also, do not put your child and 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. If you must install a booster seat in the front seat, see "BOOSTER SEAT INSTALLATION" later in this section.
- 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.
- Improper use or improper installation of a booster seat can increase the risk or severity of injury for both the child and other occupants of the vehicle and can lead to serious injury or death in an accident.
- Do not use towels, books or other items in place of the booster seat. Items such as these

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.

- 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" 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.

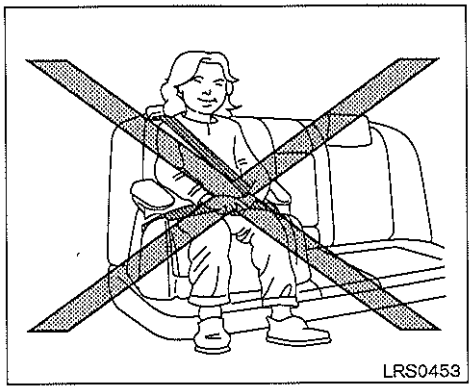
**⚠ CAUTION**

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.

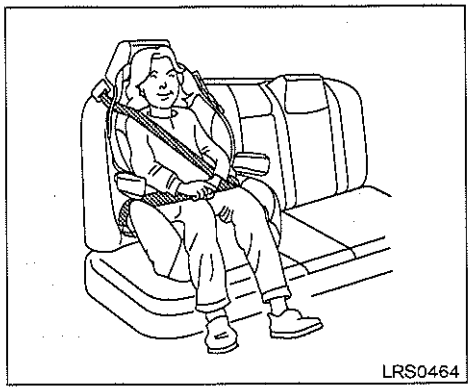



Booster seats of various sizes are offered by several manufacturers. When selecting any booster seat, keep the following points in mind:

- 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.


LRS0453

- Make sure the child's head will be properly supported by the booster seat or vehicle seat. The seatback must be at or above the center of the child's ears. For example, if a low back booster seat (1) is chosen, the vehicle seatback must be at or above the center of the child's ears. If the seatback is lower than the center of the child's ears, a high back booster seat (2) should be used.


LRS0464

- 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.**

The instructions in this section apply to booster seat installation in the rear seats or the front passenger seat.

## BOOSTER SEAT INSTALLATION

**⚠ WARNING**

**NISSAN recommends that booster seats 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.**

**⚠ CAUTION**

**Do not use the lap/shoulder belt Automatic Locking Retractor (ALR) mode when using a booster seat with the seat belts.**

Follow these steps to install a booster seat in the rear seat or in the front passenger seat:

**Front seat**

1. **If you must install a booster seat in the front seat, move the seat to the rearmost 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.




**Rear center position**

3. The booster seat should be positioned on the vehicle seat so that it is stable. If necessary, adjust or remove the head restraint (front passenger seat only) to obtain the correct booster seat fit. (See "HEAD. RESTRAINTS" earlier in this section.)

   If the head restraint is removed, store it in a secure place. Be sure to reinstall 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.




**Rear outboard position**

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 seat 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 seat belt routing.

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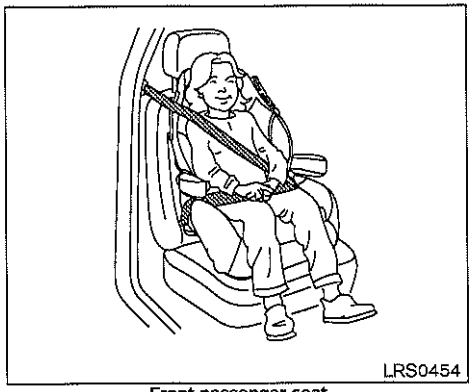
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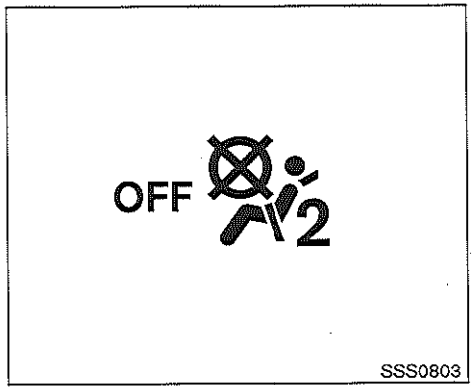
**Front passenger seat**

6. Follow the warnings, cautions and instructions for properly fastening a seat belt shown in the "THREE-POINT TYPE SEAT BELT" earlier in this section.



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7. If the booster seat is installed in the front passenger seat, turn the ignition switch to the ON position. The front passenger air bag status light OFF may or may not be illuminated depending on the size of the child and the type of booster seat used. (See "Front passenger air bag and status light" later in this section.)

## SUPPLEMENTAL RESTRAINT SYSTEM

### PRECAUTIONS ON SUPPLEMENTAL RESTRAINT SYSTEM

This Supplemental Restraint System (SRS) section contains important information concerning the following systems:

- Driver and passenger supplemental front-impact air bag (NISSAN Advanced Air Bag System)
- Front seat-mounted side-impact supplemental air bag
- Roof-mounted curtain side-impact and rollover supplemental air bag
- Seat belt with pretensioner

**Supplemental front-impact air bag system:** The NISSAN Advanced Air Bag System can help cushion the impact force to the head and chest of the driver and front passenger in certain frontal collisions.

**Front seat-mounted side-impact supplemental air bag system:** This system can help cushion the impact force to the chest area of the driver and front passenger in certain side impact collisions. The side air bags are designed to inflate on the side where the vehicle is impacted.

**Roof-mounted curtain side-impact and rollover supplemental air bag system:** This system can help cushion the impact force to the

**Safety — Seats, seat belts and supplemental restraint system 1-41**

head of occupants in front and rear outboard seating positions in certain side impact or rollover collisions. In a side impact, the curtain and rollover air bags are designed to inflate on the side where the vehicle is impacted. In a rollover both curtain and rollover air bags are designed to inflate and remain inflated for a short period of time.

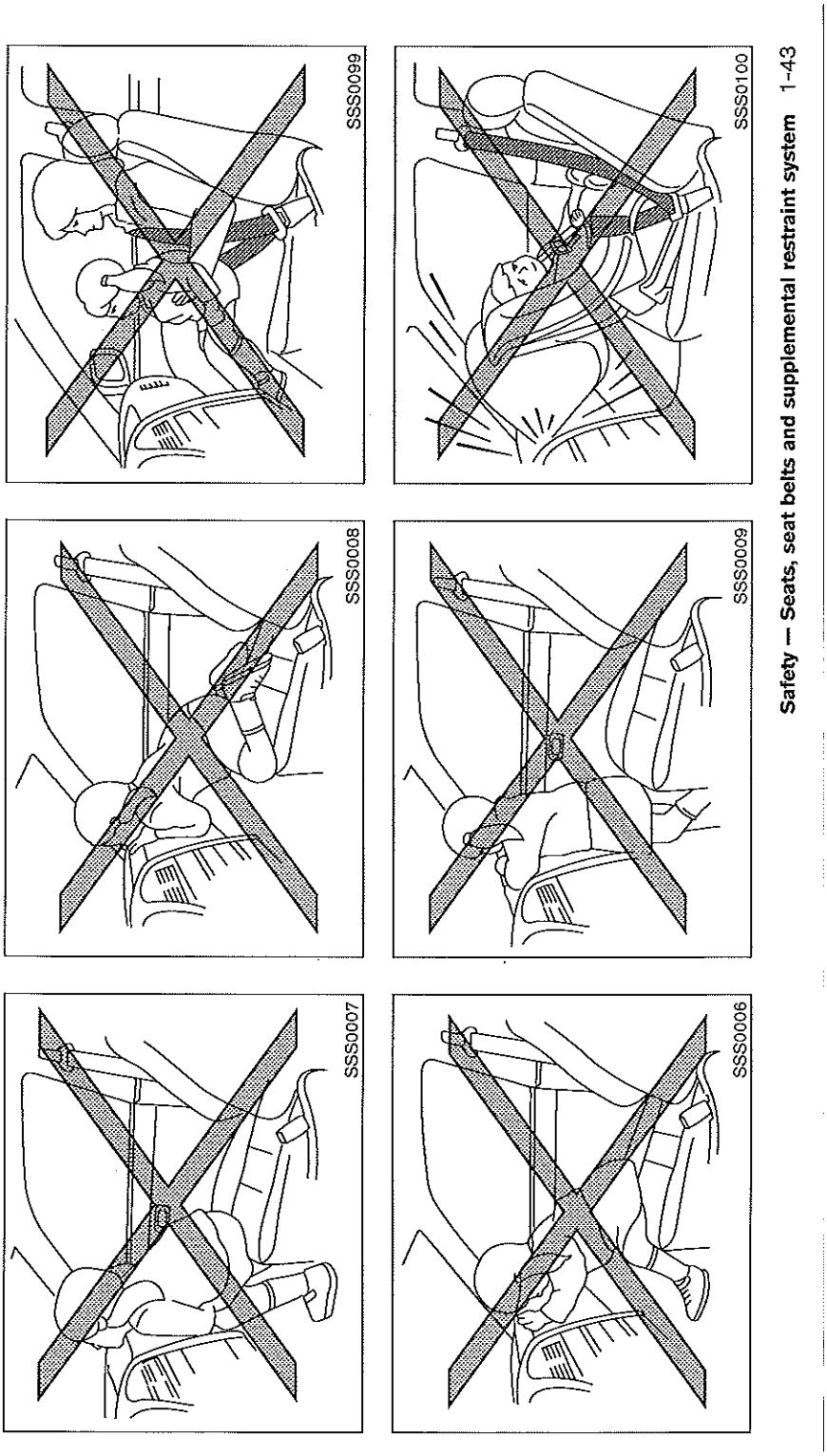
These supplemental restraint systems are designed to **supplement** the crash protection provided by the driver and passenger seat belts and are **not a substitute** for them. Seat belts should always be correctly worn and the occupant seated a suitable distance away from the steering wheel, instrument panel and 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 position.**

**After turning the ignition switch 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 systems are operational.**

**⚠ WARNING**

- The front air bags ordinarily will not inflate in the event of a side impact, rear impact, rollover, or lower severity frontal collision. Always wear your seat belts to help reduce the risk or severity of injury in various kinds of accidents.
- The front passenger air bag will not inflate if the passenger air bag status light is lit or if the front passenger seat is unoccupied. See "Front passenger air bag and status light" later in this section.
- The seat belts and the front air bags are most effective when you are sitting well back and upright in the seat with both feet on the floor. The front air bags inflate with great force. Even with the NISSAN Advanced Air Bag System, if you are unrestrained, leaning forward, sitting sideways or out of position in any way, you are at greater risk of injury or death in a crash. You may also receive serious or fatal injuries from the front air bag if you are up against it when it inflates. Always sit back against the seatback and as far-away as practical from the steering wheel or instrument panel. Always use the seat belts.
- The driver and front passenger seat belt buckles are equipped with sensors that detect if the seat belts are fastened. The Advanced Air Bag System monitors the severity of a collision and seat belt usage then inflates the air bags. Failure to properly wear seat belts can increase the risk or severity of injury in an accident.
- The front passenger seat is equipped with an occupant classification sensor (pattern sensor) that turns the front passenger air bag OFF under some conditions. This sensor is only used in this seat. Failure to be properly seated and wearing the seat belt can increase the risk or severity of injury in an accident. See "Front passenger air bag and status light" later in this section.
- Keep hands on the outside of the steering wheel. Placing them inside the steering wheel rim could increase the risk that they are injured if the front air bag inflates.


SSS0099
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Safety — Seats, seat belts and supplemental restraint system 1-43

**⚠ WARNING**

- Never let children ride unrestrained or extend their hands or face out of the window. Do not attempt to hold them in your lap or arms. Some examples of dangerous riding positions are shown in the illustrations.
- Children may be severely injured or killed when the front air bags, side air bags or curtain and rollover air bags inflate if they are not properly restrained. Pre-teens and children should be properly restrained in the rear seat, if possible.
- Even with the NISSAN Advanced Air Bag System, never install a rear-facing child restraint in the front seat. An inflating front air bag could seriously injure or kill your child. See "CHILD RESTRAINTS" earlier in this section for details.

Do not lean against doors or windows.

1-44 **Safety — Seats, seat belts and supplemental restraint system**

- The seat belts, the side air bags and curtain and rollover air bags are most effective when you are sitting well back and upright in the seat. The side air bag and curtain and rollover air bag inflate with great force. Do not allow anyone to place their hand, leg or face near the side air bag on the side of the seatback of the front seat or near the side roof rails. Do not allow anyone sitting in the front seats or rear outboard seats to extend their hand out of the window or lean against the door. Some examples of dangerous riding positions are shown in the previous illustrations.
- When sitting in the rear seat, do not hold onto the seatback of the front seat. If the side air bag inflates, you may be seriously injured. Be especially careful with children, who should always be properly restrained. Some examples of dangerous riding positions are shown in the illustrations.
- Do not use seat covers on the front seatbacks. They may interfere with side air bag inflation.



SSS0159

**⚠ WARNING**

Front seat-mounted side-impact supplemental air bags and roof-mounted curtain side-impact and rollover supplemental air bags:

- The side air bags and curtain and rollover air bags ordinarily will not inflate in the event of a frontal impact, rear impact or lower severity side collision. Always wear your seat belts to help reduce the risk or severity of injury in various kinds of accidents.

Safety — Seats, seat belts and supplemental restraint system 1-45

# APPENDIX B
# MANUFACTURER'S DATA (OVSC FORM 225)

2

FORM – 225
Rev. 10/10/08

## SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA

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

MODEL YEAR: 2010 / MAKE: CHEVY / MODEL: EQUINOX / BODY STYLE: SUV

SEAT STYLE: FRONT ROW: Free Standing Buckets / SECOND ROW: Full Bench W/Split Seat Back / THIRD ROW: N/A




LEFT SIDE VIEW OF TEST VEHICLE

FORM – 225

Table 1. Seating Positions[1] and Torso Angles

| | | Left (Driver Side) | Center (if any) | Right |
|---|---|---|---|---|
| A1 | | 268.15 (Driver) | N/A | 268.15 (Front Passenger) |
| A2 | | 265.77 | 285.77 | 265.77 |
| A3 | | N/A | N/A | N/A |
| B | | 304.8 | N/A | 304.8 |
| C | | 1187.0 | 1167.0 | 1187.0 |
| D | | N/A | N/A | N/A |
| Torso Angle (degree) | Front Row | 20 | N/A | 20 |
| | Second Row | 22 | 22 | 22 |
| | Third Row | N/A | N/A | N/A |

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

FORM – 225

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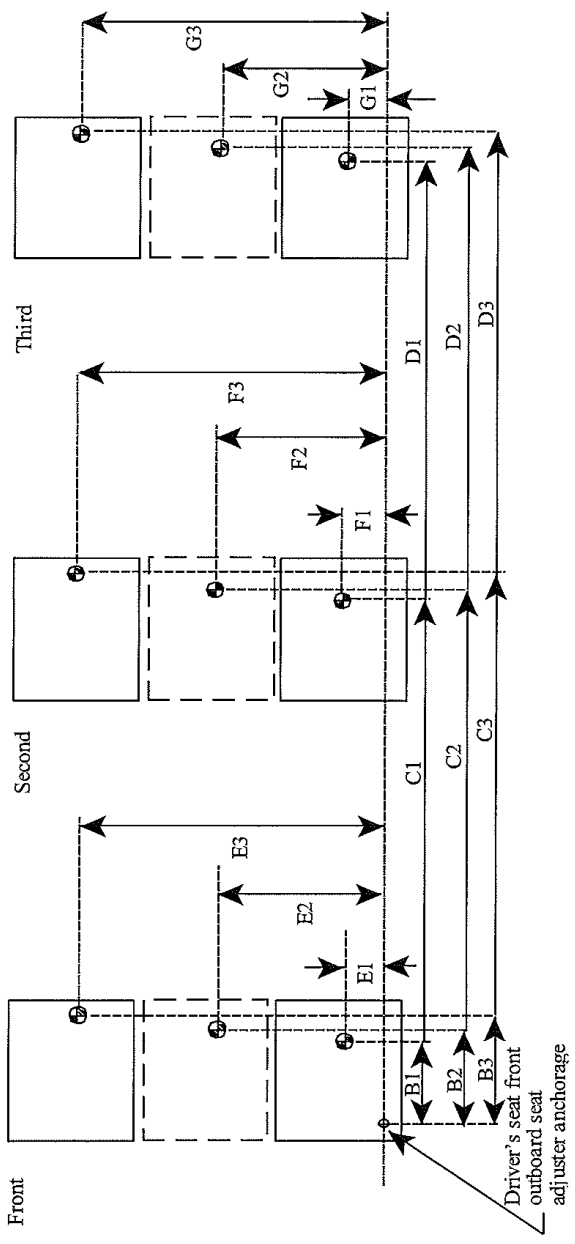
**SEATING REFERENCE POINT**

FMVSS No. 225

(All dimensions in mm)

MODEL YEAR: 2010 / MAKE: CHEVY / MODEL: EQUINOX / BODY STYLE: SUV

SEAT STYLE: FRONT ROW: Free Standing Buckets / SECOND ROW: Full Bench W/Split Seat Back / THIRD ROW: N/A




FORM – 225

Point selected for the 2nd row "Vehicle Floor-pan" reference point.

Point selected as the "Driver's seat front outboard seat adjuster anchorage" reference point.

FORM – 225

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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 | 300.51 |
| | E1 | 222.75 |
| | B2 | N/A |
| | E2 | N/A |
| | B3 | 300.51 |
| | E3 | 962.75 |
| Second Row | C1 | 1182.71 |
| | F1 | 232.75 |
| | C2 | 1162.71 |
| | F2 | 592.75 |
| | C3 | 1182.71 |
| | F3 | 952.75 |
| 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.

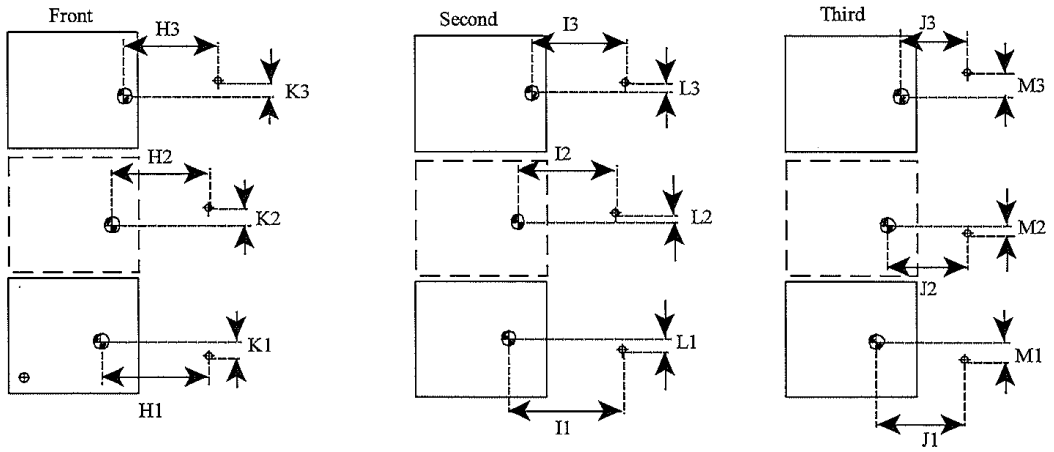
FORM – 225

# TETHER ANCHORAGE LOCATIONS

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2010 / MAKE: CHEVY / MODEL: EQUINOX / BODY STYLE: SUV

SEAT STYLE: FRONT ROW: Free Standing Buckets / SECOND ROW: Full Bench W/Split Seat Back / THIRD ROW: N/A




⊕: SRP
⌖: Tether anchorage

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

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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 | 324.0 |
| | L1 | 0.0 |
| | I2 | 344.0 |
| | L2 | 20.0 |
| | I3 | 324.0 |
| | L3 | 0.0 |
| 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.

FORM – 225

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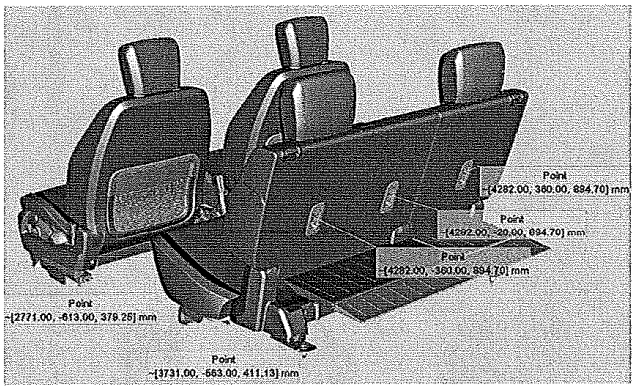


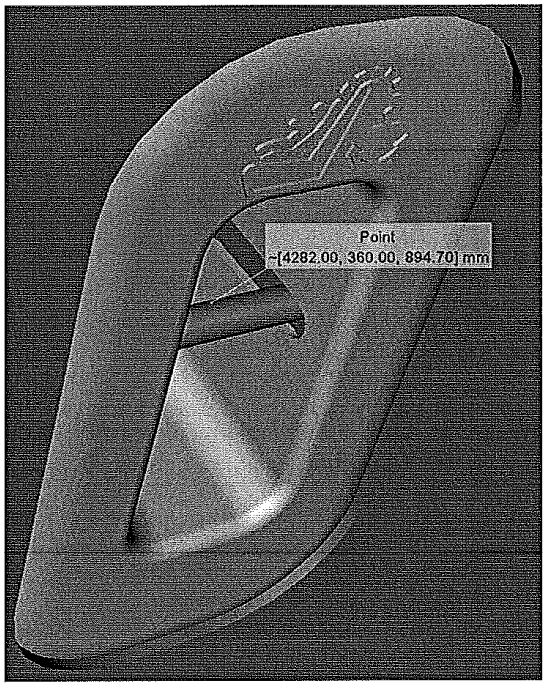


Point measured is on the top and centered on the anchor

FORM – 225

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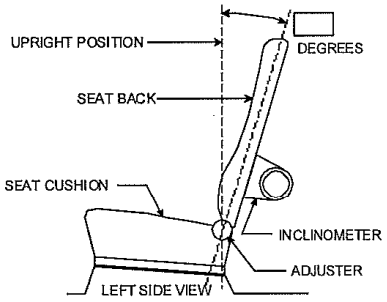
**NOMINAL DESIGN RIDING POSITION**

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 = 20 degrees.

Measurement Instructions:

To get to the 20 degree back angle move the head restraint to the highest position and fit an electronic inclinometer against the back of the head restraint post and recline the seat back until it reads 2.8 degrees. The driver torso angle is 20 degrees.

---

Seat back angle for passenger's seat = 20 degrees.

Measurement Instructions:

Measurement instructions same as driver seat. The passenger torso same as driver.

---

Seat back angle for 2nd row seat = 18.3 SIDES_18.3 MIDDLE_degrees.

Measurement Instructions:

To get to the 18.3 degree back angle measure 18.3 degrees off the hard back panel. This is the first locking position you get to when you rotate the seat up from fold flat position. It has two recline positions. Each position is 3.5 degrees rearward. The torso angle is 22 degrees for sides and middle.

---

Seat back angle for 3rd row seat = __N/A__ degrees.

Measurement Instructions:

---

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# TETHER ANCHORAGE LOCATIONS - VERTICAL

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2010 / MAKE: CHEVY / MODEL: EQUINOX / BODY STYLE: SUV

SEAT STYLE: FRONT ROW: Free Standing Buckets / SECOND ROW: Full Bench W/Split Seat Back / THIRD ROW: N/A




LEFT SIDE VIEW OF TEST VEHICLE

FORM – 225

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) | 217.8 |
| | O2 (Center) | 197.8 |
| | O3 (Right) | 217.8 |
| 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.

For each vehicle, provide the following information:

1. How many designated seating positions exist in the vehicle? 5

2. How many designated seating positions are equipped with lower anchorages and tether anchorages? Specify which position(s). 3 positions: 2nd row, LH, Ctr and RH. Only 2 Child Seats can be used in the 2nd row at one time. Options are: 1) The two outboard positions or 2) Ctr position.

3. How many designated seating positions are equipped with tether anchorages? Specify which positions(s).
   3 positions; 2nd row, LH, Ctr and RH

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4. Lower Anchorages Marking and Conspicuity: Whether the anchorages are certified to S9.5(a) or S9.5(b) of FMVSS No. 225. Vehicle rear seats have exposed latch wires, S9.5(b).

**SgRP's:**

| | LH | RH |
|---|---|---|
| Front Seat: | X = 2771.0<br>Y = -613.0<br>Z = 379.25 | X = 2771.0<br>Y = 613.0<br>Z = 379.25 |

| | LH | CTR | RH |
|---|---|---|---|
| 2nd Row Seat: | X = 3958.0<br>Y = -360.0<br>Z = 676.9 | X = 3938.0<br>Y = 0.0<br>Z = 696.9 | X = 3958.0<br>Y = 360.0<br>Z = 676.9 |

FORM – 225