FINAL REPORT NUMBER 225-MGA-09-004

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

Fuji Heavy Industries LTD.
2009 Subaru Forrester
NHTSA No. C95501

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: July 14, 2009
Report Date: July 20, 2009

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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Approval Date: 7/28/09

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: 2009.08.07 13:55:51 -04'00'

Acceptance Date:

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 225-MGA-09-004	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of a 2009 Subaru Forrester, NHTSA No. C95501		5. Report Date July 20, 2009 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-09-004	
9. Performing Organization Name and Address MGA Research Corporation 446 Executive Drive Troy, Michigan 48083		10. Work Unit No. 11. Contract or Grant No. DTNH22-06-C-00030/0007	
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 2009 Subaru Forrester, NHTSA No. C95501, 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 July 15, 2009. Test failures identified were as follows: NONE The data recorded indicates that the 2009 Subaru Forrester tested appears to meet the requirements of FMVSS 225.			
17. Key Words Compliance Testing Safety Engineering FMVSS 225 2009 Subaru Forrester		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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Form DOT F 1700.7 (8-70)

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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-00030/0007. The purpose of the testing was to determine if the subject vehicle, a 2009 Subaru Forrester, NHTSA No. C95501 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-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 680 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 July 15, 2009.

Based on the test results, the 2009 Subaru Forrester 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 4,968 N and held the required load for 3 seconds and the total displacement was 44 mm. The SFADII at the 2nd row right seating position sustained a maximum force of 4,975 N and held the required load for 3 seconds and the total displacement was 44 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)
SC9245	SFADII	Lateral Left	2nd Row Left	4,968	44
			2nd Row Right	4,975	44

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2009 Subaru Forrester
VEH. NHTSA NO.	C95501
VIN	JF2SH61669G787839
COLOR	Silver
VEH. BUILD DATE	01/09
TEST DATE	July 14, 2009
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Fern Gatilao , Brad Reaume, Kenney Godfrey

GENERAL INFORMATION:

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Subaru

Date of Manufacture: 01/09; VIN: JF2SH61669G787839

GVWR: 4480 lbs GAWR FRONT: 2310 lbs

GAWR REAR: 2410 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 30 psi REAR: 29 psi

Recommended Tire Size: P215/65R16

Recommended Cold Tire Pressure:

FRONT: 30 psi REAR: 29 psi

Size of Tire on Test Vehicle: P215/65R16

Size of Spare Tire: T155/70D17

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
Two (2) Load Cell 10,000 lb Capability	S/N 629 & 635 (11/29/09)
String Potentiometer Calibrated at each use	S/N I1704802A/A1600461A
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	TPM886 (9/5/09)
MGA Data Acquisition System	N/A
Digital Calipers	MGA688 (3/6/10)
Force Gauge	MGA00801 (1/20/10)
Inclinometer (Digital)	MGA00715 (11/6/09)

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	6.04	6.08	N/A
	Ctr		N/A		
	RH		6.08	6.00	
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	38		N/A
	Ctr		N/A		
	RH		40		
Measure the distance between the SRP to the front of the anchorage bar (mm)	LH	N/A	197	197	N/A
	Ctr		N/A		
	RH		205	205	

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	40	41	N/A
		Req't<60		38	39	
	Ctr	Req't>25		N/A		
		Req't<60		N/A		
	RH	Req't>25		40	41	
		Req't<60		39	39	
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	9.6	N/A	0.1
2nd Row Center	N/A	N/A	N/A
2nd Row Right	10	N/A	0.3

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	1.2	12	167	5,000	4,968	56	44
	Ctr.			Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH			Yes	II	1.2	6	167	5,000	4,975	50	44
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.

6.0 PHOTOGRAPHS

6.1 Front view

6.2 Rear view

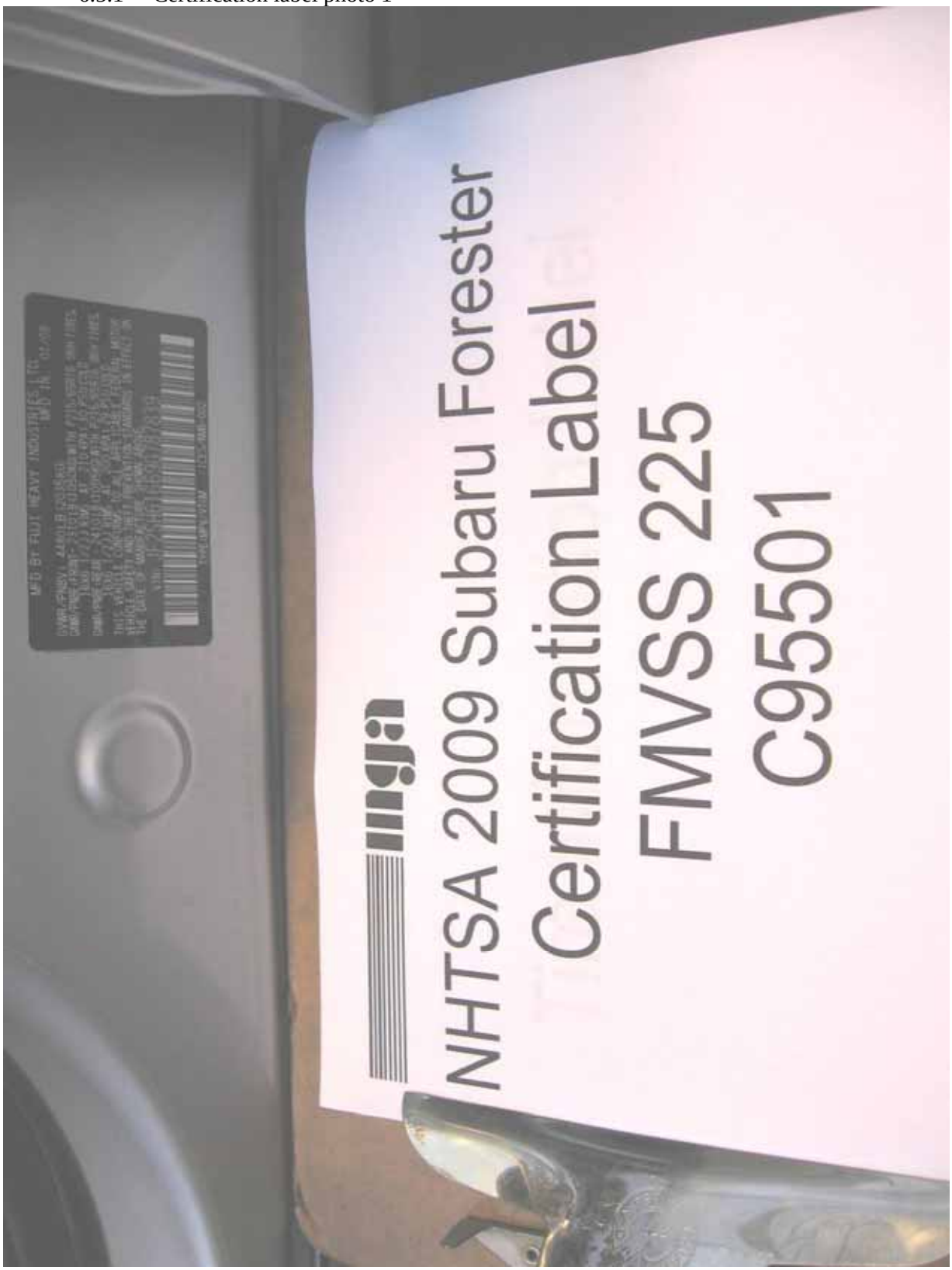

GLASSMAN
SOUTHFIELD
NHTSA 2009 Subaru Forester
Rear View
FMVSS 225
C95501

6.3 Front left view

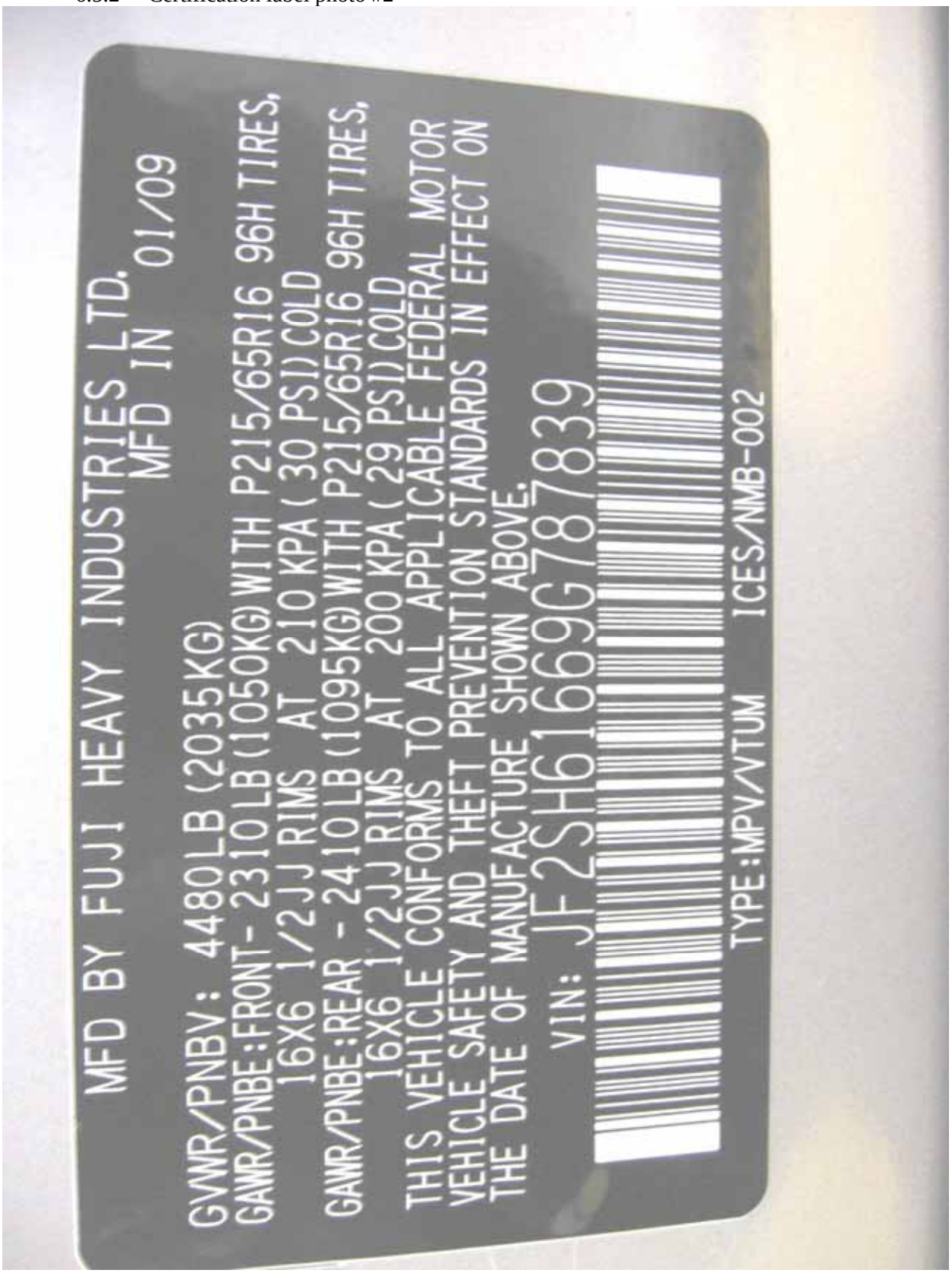
6.4 Front right view

6.5 Test vehicle's certification label

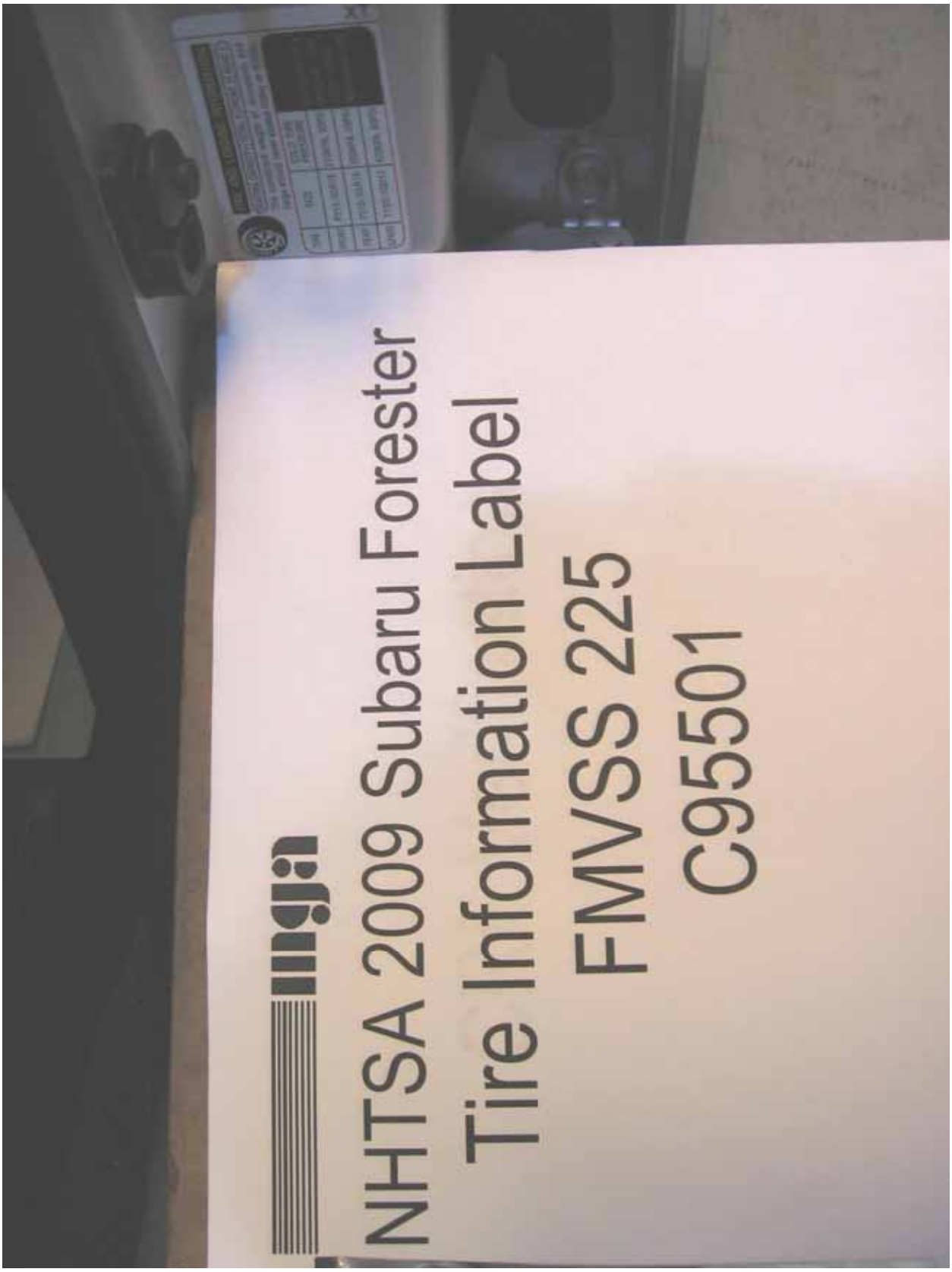
6.5.1 Certification label photo 1



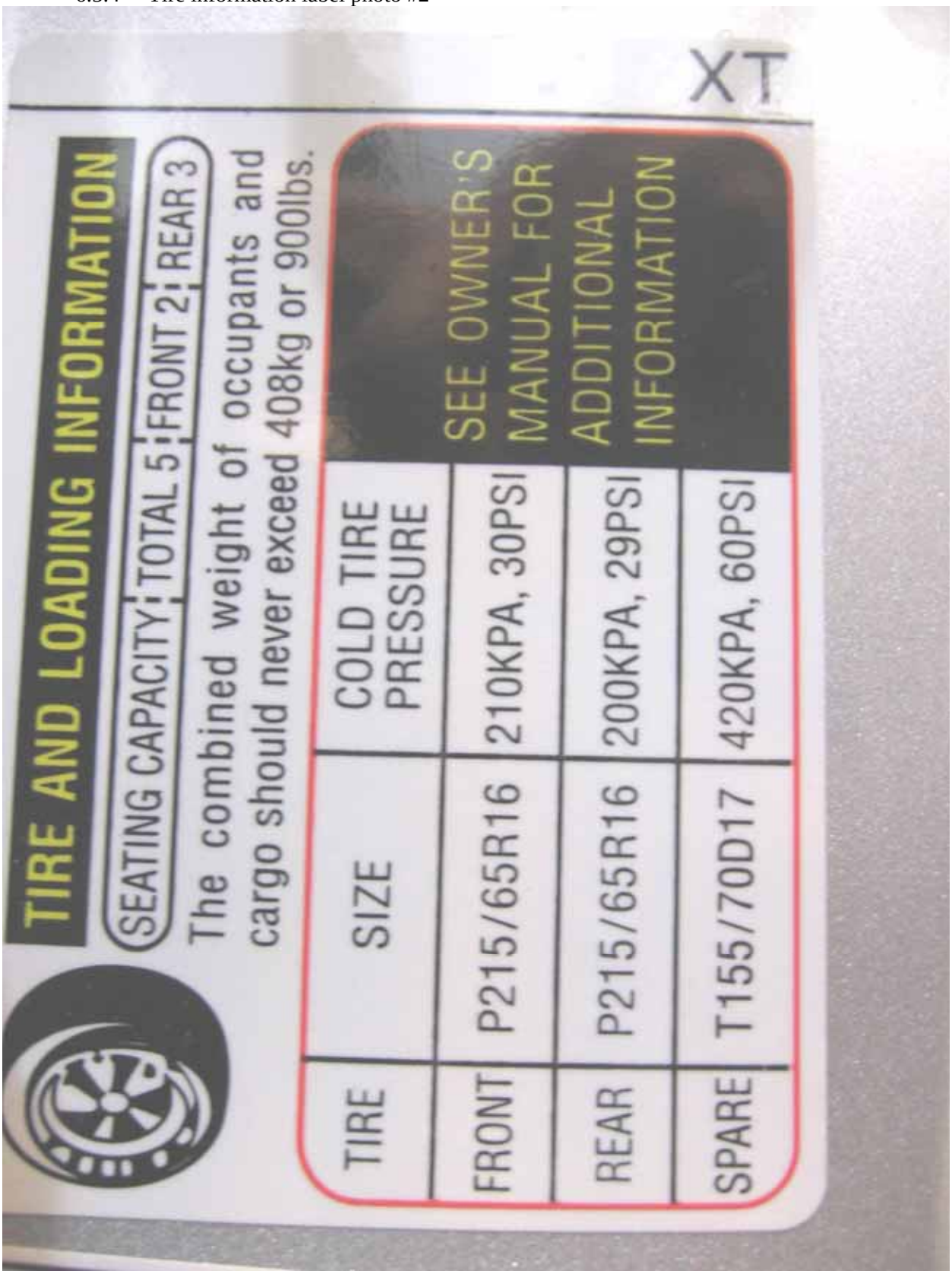
6.5.2 Certification label photo #2



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

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6.6.4 Left rear

6.6.5 Right front

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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

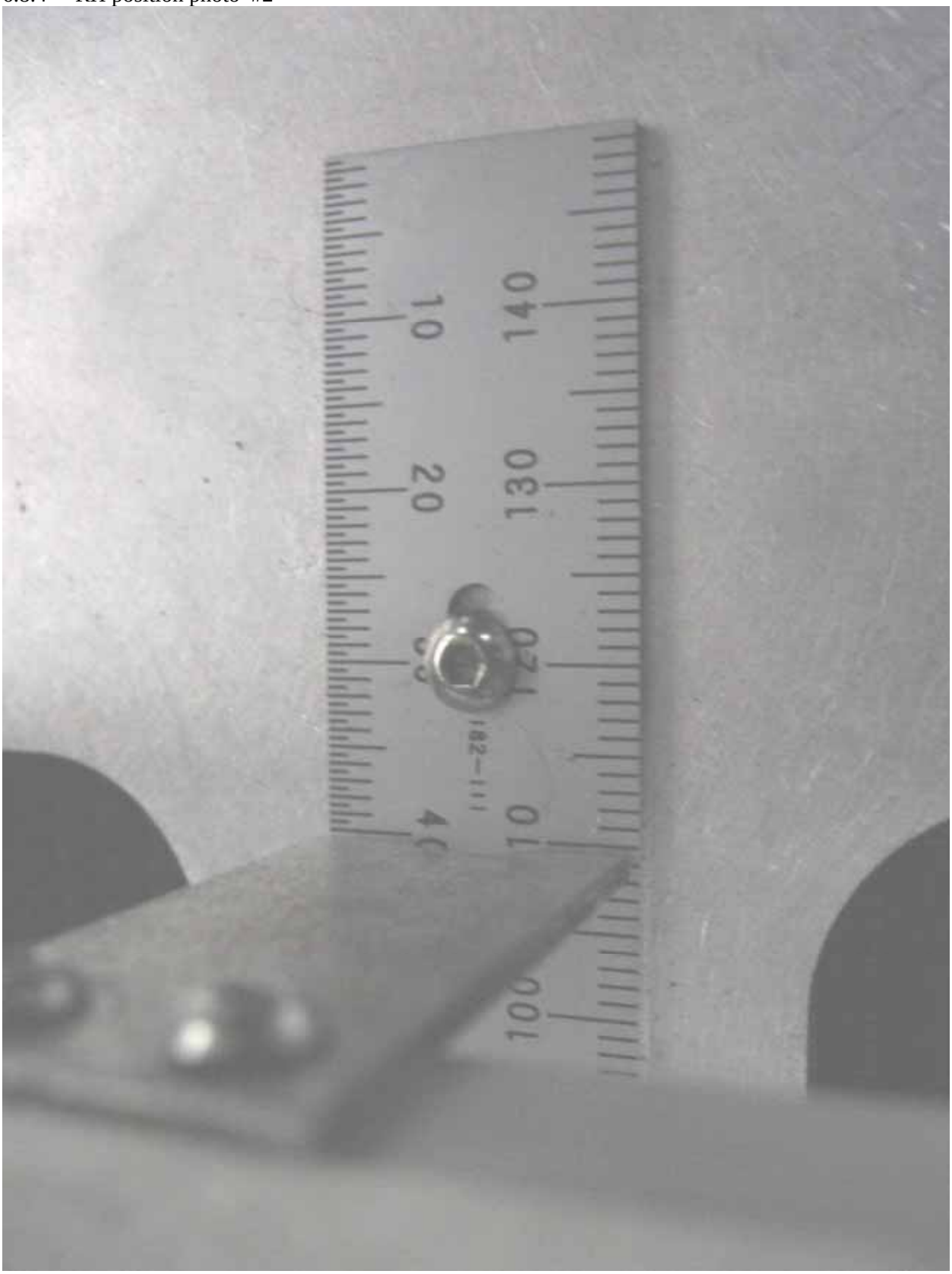
6.8 CRF verification

6.8.1 LH position photo #1

6.8.2 LH position photo #2

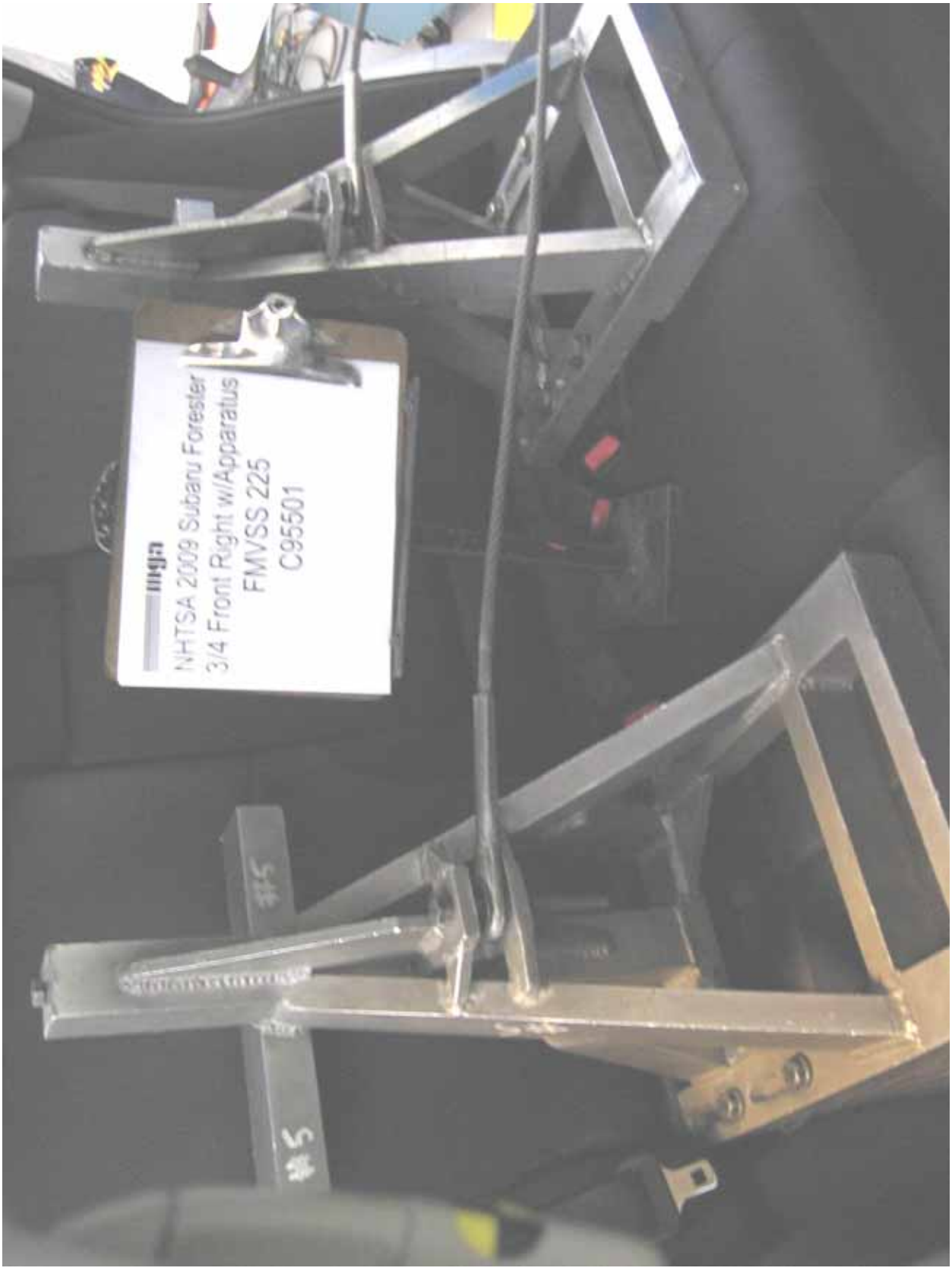
6.8.3 RH position photo #1

6.8.4 RH position photo #2



6.9 Front view of test vehicle with test apparatus in place

6.9.1 SFAD II LH & RH



6.9.2 SFAD II LH & RH

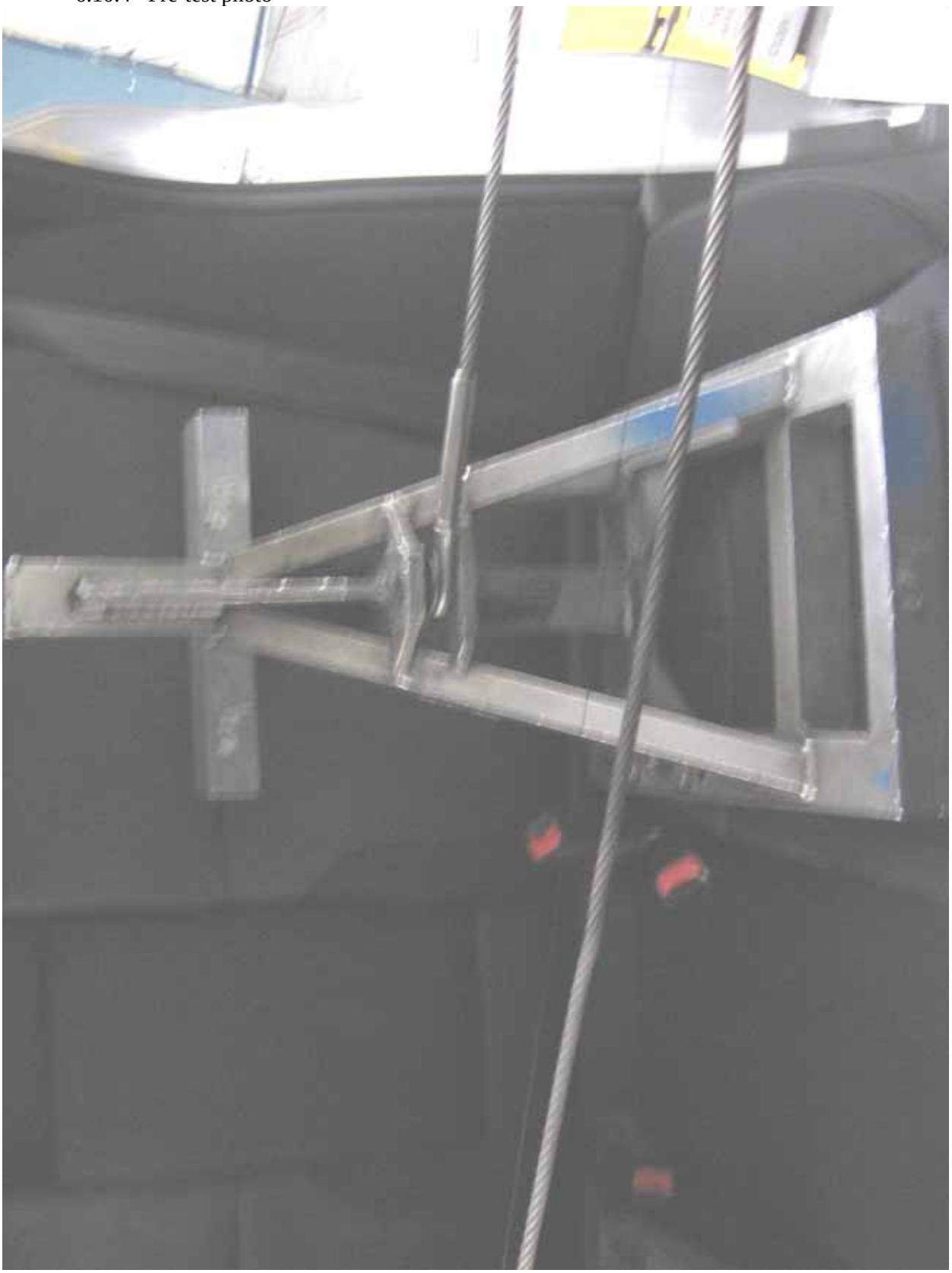
6.10 Pre-test views of each child restraint anchorage system installed in the vehicle

6.10.1 Pre-test photo

6.10.2 Pre-test photo

6.10.3 Pre-test photo

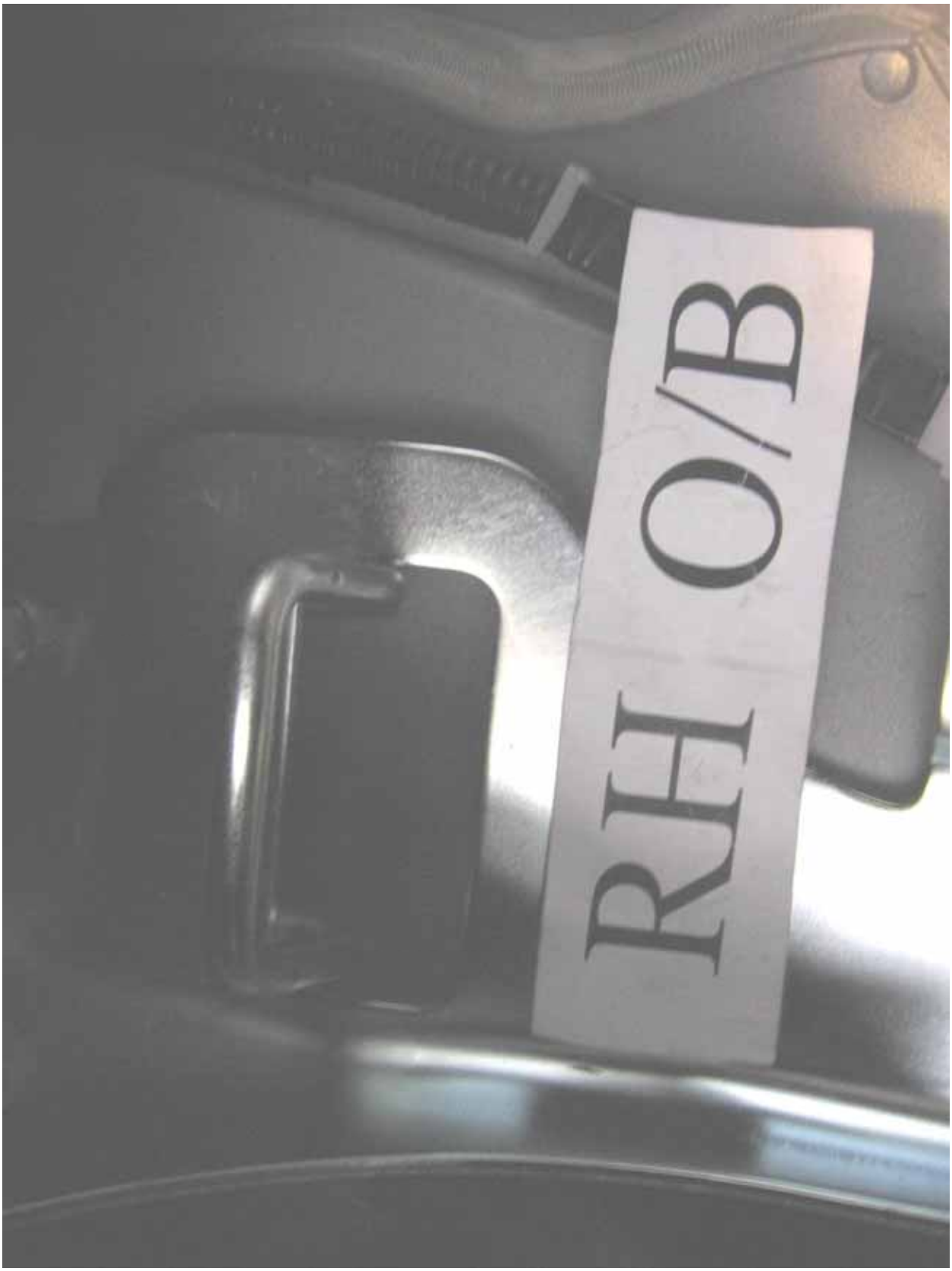
6.10.4 Pre-test photo



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

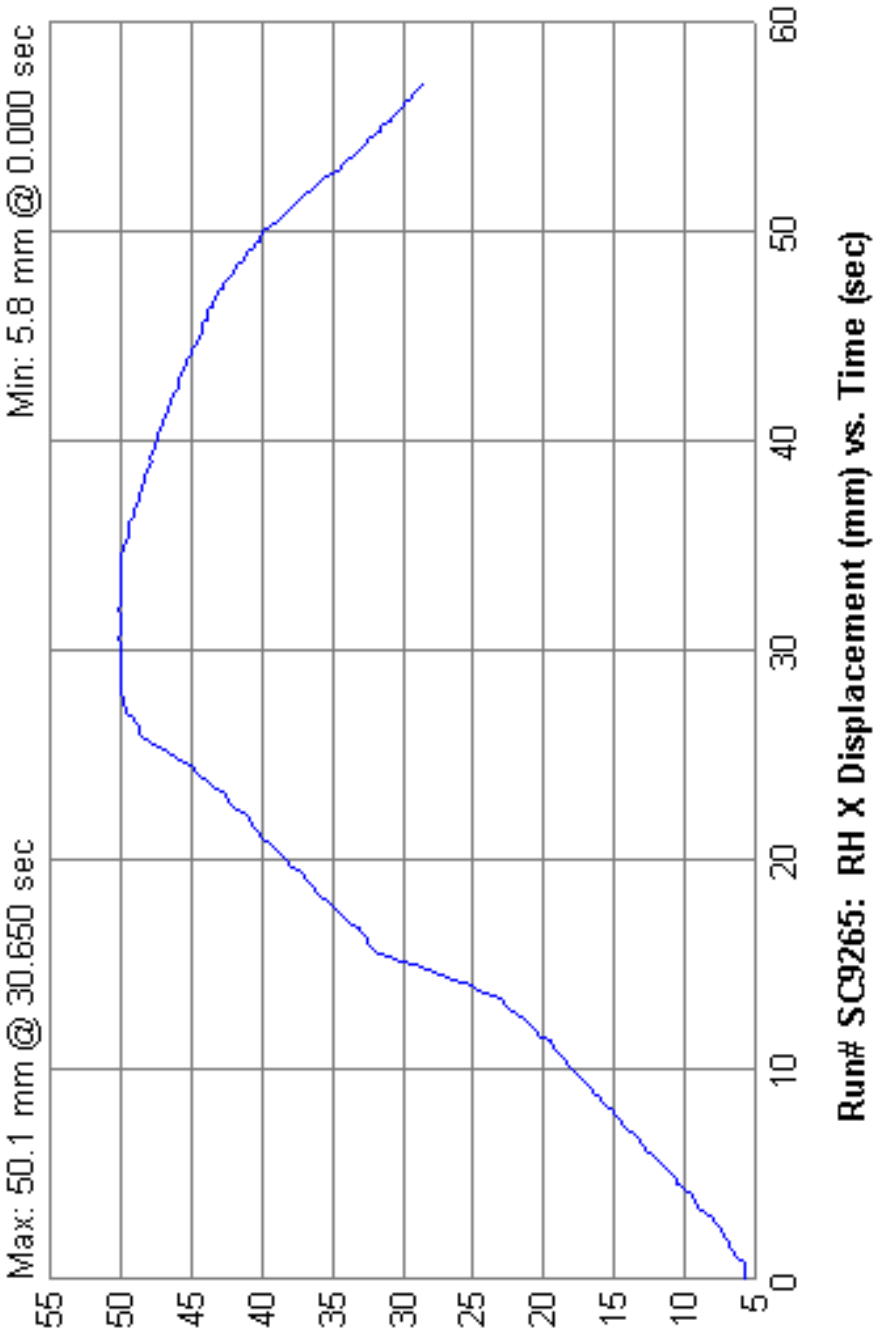
6.11.6 Post-test photo

6.11.7 Post-test photo

6.11.8 Post-test photo

6.11.9 Post-test photo

7.0 PLOTS


Min: 5.8 mm @ 0.000 sec
Max: 50.1 mm @ 30.650 sec
Run# SC9265: RH X Displacement (mm) vs. Time (sec)
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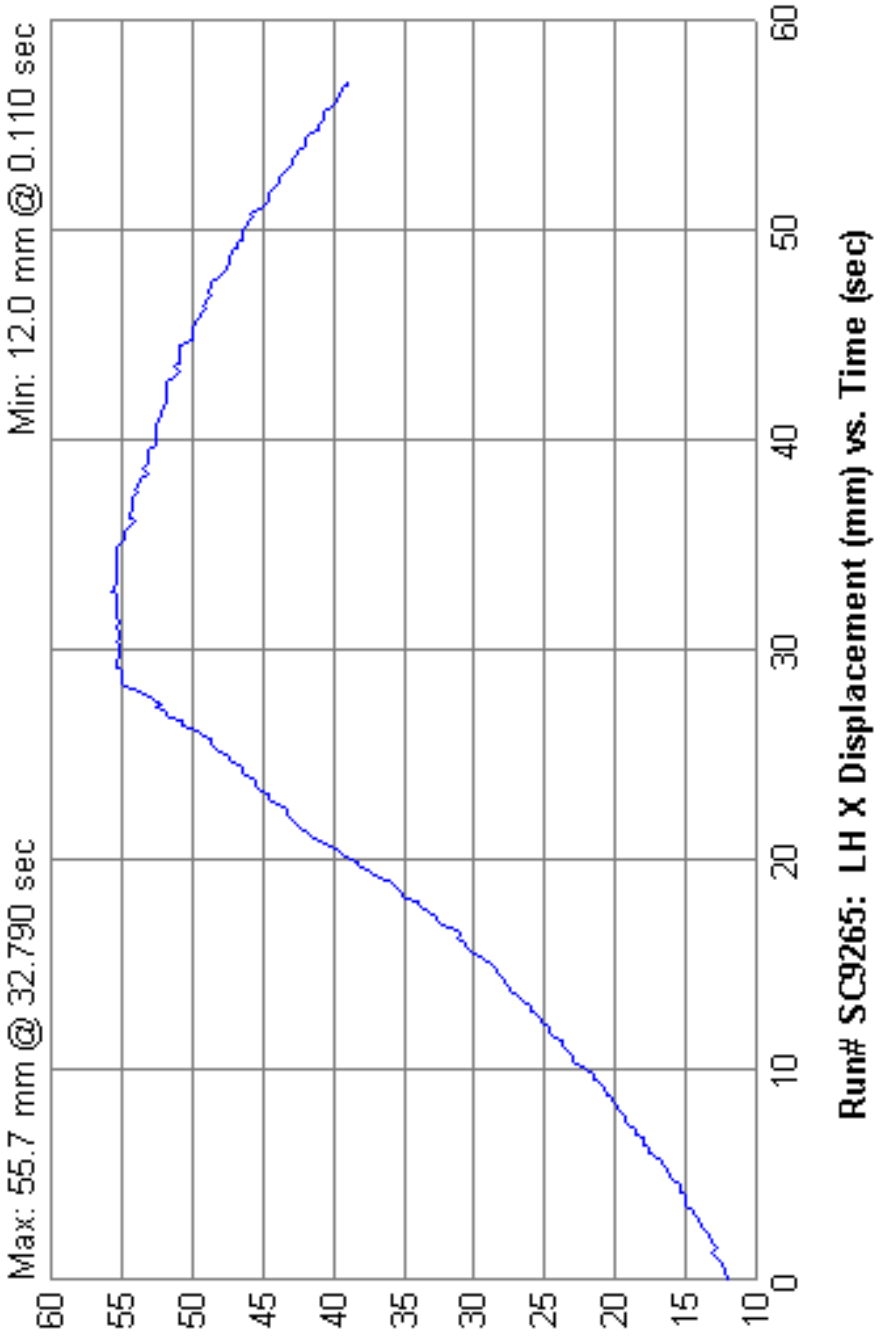
50
45
40
35
30
25
20
15
10
5
0
10
20
30
40
50
60


Run# SC9265: LH X Displacement (mm) vs. Time (sec)
Max: 55.7 mm @ 32.790 sec
Min: 12.0 mm @ 0.110 sec
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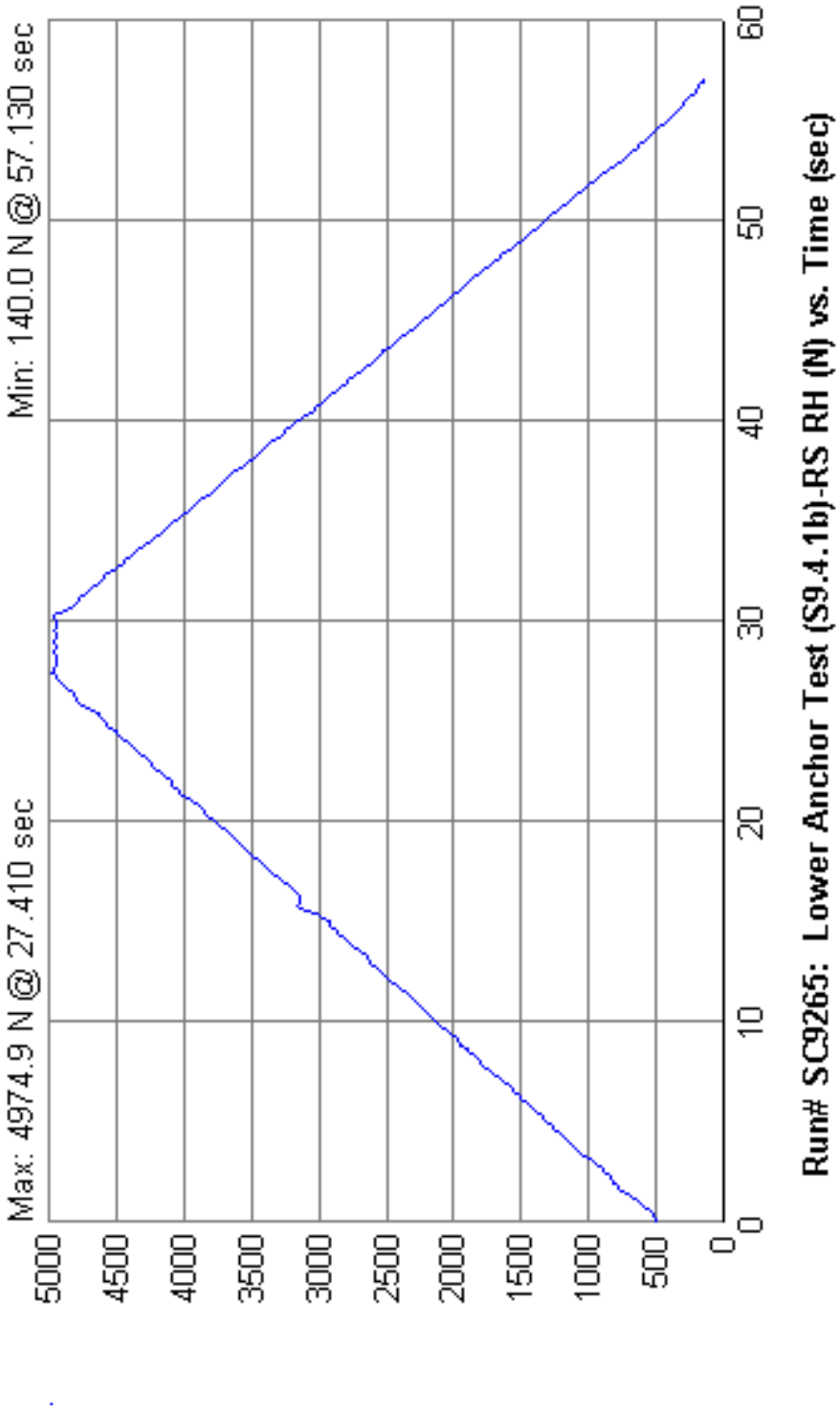
55
50
45
40
35
30
25
20
15
10
0
10
20
30
40
50
60


Max: 4974.9 N @ 27.410 sec
Min: 140.0 N @ 57.130 sec
Run# SC9265: Lower Anchor Test (S9.4.1b)-RS RH (N) vs. Time (sec)
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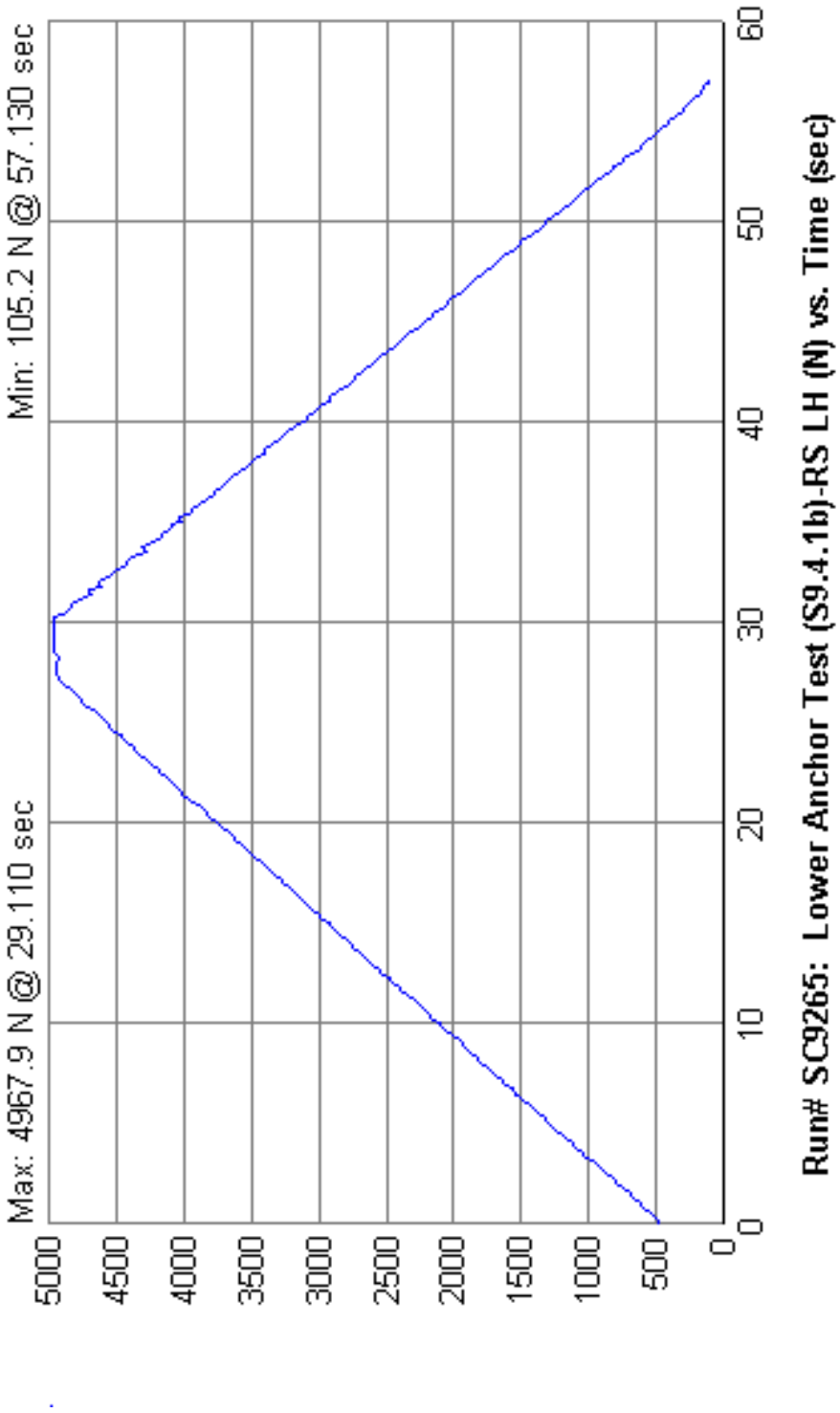
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60


Max: 4967.9 N @ 29.110 sec
Min: 105.2 N @ 57.130 sec
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
Run# SC9265: Lower Anchor Test (S9.4.1b)-RS LH (N) vs. Time (sec)

8.0 REPORT OF VEHICLE CONDITION

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-06-C-00030/0007 DATE: July 15, 2009

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: 2009 Subaru Forrester

VEH. NHTSA NO.: C95501 VIN: JF2SH61669G787839

COLOR: Silver

ODOMETER READINGS:	ARRIVAL	24 miles	Date: 3/11/09
	COMPLETION	24 miles	Date: 7/15/09
PURCHASE PRICE: $21,026	DEALER'S NAME: Glassman Subaru		
ENGINE DATA:	4 Cylinders	2.5 Liters	___ Cubic Inches
TRANSMISSION DATA:	____Automatic	X Manual	5 No. of Speeds
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	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
	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: July 15, 2009

APPROVED BY: Brad Reaume

APPENDIX A
OWNERS MANUAL CHILD RESTRAINT SYSTEMS

sult your nearest SUBARU dealer.

⚠ CAUTION

The front sub sensors are located on both the right and left sides at the front of the vehicle, and the SRS airbag control module including the impact sensors is located under the center console. If you need service or repair in those areas or near the front seatbelt retractors, have the work performed by your authorized SUBARU dealer.

NOTE

If the front part of the vehicle is damaged in an accident to the extent that the seatbelt pretensioner does not operate, contact your SUBARU dealer as soon as possible.

■ Precautions against vehicle modification

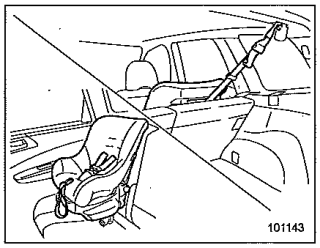
Always consult your SUBARU dealer if you want to install any accessory parts to your vehicle.

⚠ CAUTION

Do not perform any of the following modifications. Such modifications can interfere with proper operation of the seatbelt pretensioners.

- **Attachment of any equipment (bush bar, winches, snow plow, skid plate, etc.) other than genuine SUBARU accessory parts to the front end.**
- **Modification of the suspension system or front end structure.**
- **Installation of a tire of different size and construction from the tires specified on the vehicle placard attached to the driver's door pillar or specified for individual vehicle models in this Owner's Manual.**

Child restraint systems



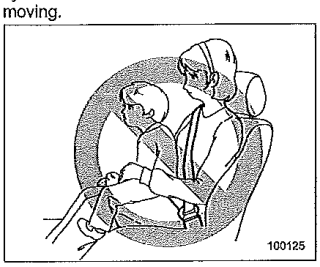
Infants and small children should always be placed in an infant or child restraint system in the rear seat while riding in the vehicle. You should use an infant or child restraint system that meets Federal Motor Vehicle Safety Standards or Canada Motor Vehicle Safety Standards, is compatible with your vehicle and is appropriate for the child's age and size. All child restraint systems are designed to be secured in vehicle seats by lap belts or the lap belt portion of a lap/shoulder belt (except those covered in "Installation of child restraint systems by use of lower and tether anchorages (LATCH)").

Children could be endangered in an accident if their child restraints are not

properly secured in the vehicle. When installing the child restraint system, carefully follow the manufacturer's instructions.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

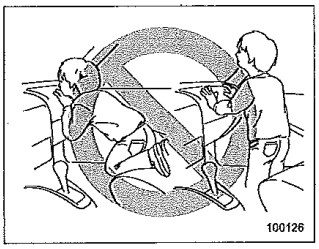
All U.S. states and Canadian provinces require that infants and small children be restrained in an approved child restraint system at all times while the vehicle is moving.


100125

⚠ WARNING

Never let a passenger hold a child on his or her lap or in his or her arms while the vehicle is moving. The passenger cannot protect the child from injury in a collision, because the child will be caught between the passenger and objects inside the vehicle.

Additionally, holding a child in your lap or arms in the front seat exposes that child to another serious danger. Since the SRS airbag deploys with considerable speed and force, the child could be injured or even killed.


100126

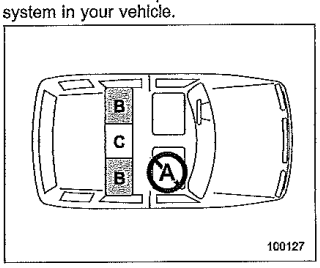
⚠ WARNING

Children should be properly restrained at all times. Never allow a child to stand up, or to kneel on any seat. Unrestrained children will be thrown forward during sudden stop or in an accident and can be injured seriously.

Additionally, children standing up or kneeling on or in front of the front seat are exposed another serious danger. Since the SRS airbag deploys with considerable speed and force, the child could be injured or even killed.

■ Where to place a child restraint system

The following are SUBARU's recommendations on where to place a child restraint system in your vehicle.



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– CONTINUED –

A: Front passenger's seat

You should not install a child restraint system (including a booster seat) due to the hazard to children posed by the passenger's airbag.

B: Rear seat, window-side seating positions

Recommended positions for all types of child restraint systems.

In these positions, Automatic/Emergency Locking Retractor (A/ELR) seatbelts and lower anchorages (bars) are provided for installing a child restraint system.

Some types of child restraints might not be able to be secured firmly due to projection of the seat cushion.

In this seating position, you should use only a child restraint system that has a bottom base that fits snugly against the contours of the seat cushion and can be securely retained using the seatbelt.

C: Rear seat, center seating position

Installing a child restraint system is not recommended, although the A/ELR seatbelt and an upper anchorage (tether anchorage) are provided in this position.

Some types of child restraints might not be able to be secured firmly due to projection of the seat cushion.

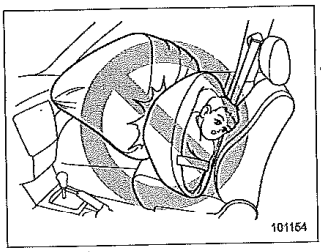
In this seating position, you should use only a child restraint system that has a bottom base that fits snugly against the contours of the seat cushion and can be securely retained using the seatbelt.

If it is unavoidable to install a child restraint system in the rear seat's center seating position, lower the center head restraint to the lowest position and install the child restraint system by correctly passing the rear center seatbelt through the belt guide.

⚠ WARNING

Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater.

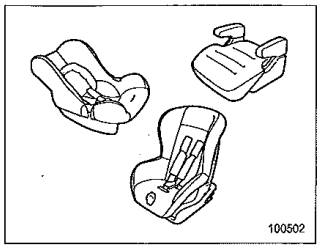
For that reason, be sure to secure ALL types of child restraint devices (including forward facing child seats) in the REAR seats at all times. You should choose a restraint device which is appropriate for the child's age, height and weight. According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.



⚠ WARNING

SINCE YOUR VEHICLE IS EQUIPPED WITH A PASSENGER'S SRS AIRBAG, NEVER INSTALL A REARWARD FACING CHILD SAFETY SEAT IN THE FRONT PASSENGER'S SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

■ Choosing a child restraint system



Choose a child restraint system that is appropriate for the child's age and size (weight and height) in order to provide the child with proper protection. The child restraint system should meet all applicable requirements of Federal Motor Vehicle Safety Standards for the United States or of Canada Motor Vehicle Safety Standards for Canada. It can be identified by looking for the label on the child restraint system or the manufacturer's statement of compliance in the document attached to the system.

Also it is important for you to make sure that the child restraint system is compatible with the vehicle in which it will be used.

■ Installing child restraint systems with A/ELR seatbelt

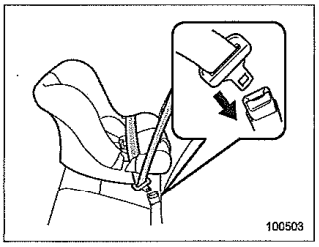
⚠ WARNING

- **Child restraint systems and seatbelts can become hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check the child restraint system before you place a child in it.**
- **Do not leave an unsecured child restraint system in your vehicle. Unsecured child restraint systems can be thrown around inside of the vehicle in a sudden stop, turn or accident; they can strike and injure vehicle occupants as well as result in serious injuries or death to the child.**

⚠ CAUTION

When you install a child restraint system, follow the manufacturer's instructions supplied with it. After installing the child restraint system, check to ensure that it is held securely in position. If it is not held tight and secure, the danger of your child suffering personal injury in the event of an accident may be increased.

▼ Installing a rearward facing child restraint



1. Place the child restraint system in the rear seating position.
2. Run the lap and shoulder belt through or around the child restraint system following the instructions provided by its manufacturer.
3. Insert the tongue plate into the buckle until you hear a click.

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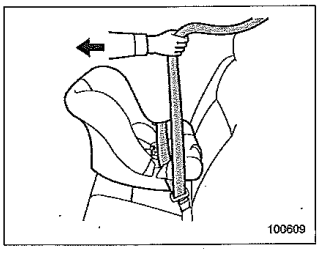
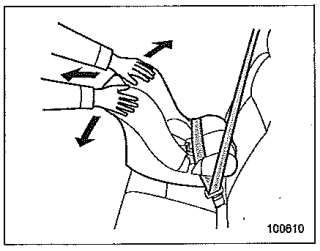
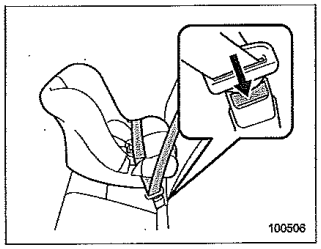


4. Take up the slack in the lap belt.
5. Pull out the seatbelt fully from the retractor to change the retractor over from the Emergency Locking Retractor (ELR) to the Automatic Locking Retractor (ALR) function. Then, allow the belt to rewind into the retractor. As the belt is rewinding, clicks will be heard which indicate the retractor functions as ALR.



6. Push and pull the child restraint system forward and from side to side to check if it is firmly secured. Sometimes a child restraint can be more firmly secured by pushing it down into the seat cushion and then tightening the seatbelt.
7. Pull at the shoulder portion of the belt to confirm that it cannot be pulled out (ALR properly functioning).



8. To remove the child restraint system, press the release button on the seatbelt buckle and allow the belt to retract completely. The belt will return to the ELR mode.

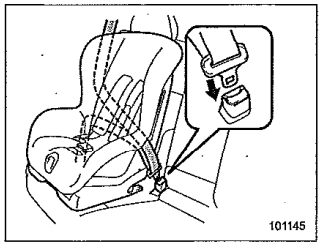
⚠ WARNING

NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT PASSENGER'S SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.

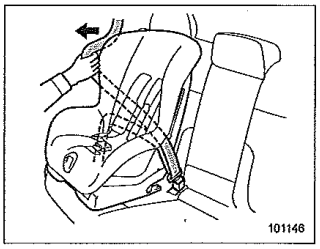
NOTE

When the child restraint system is no longer in use, remove it and restore the ELR function of the retractor. That function is restored by allowing the seatbelt to retract fully.

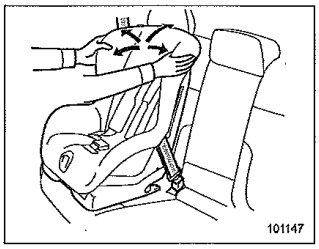
▼ Installing forward facing child restraint



1. Place the child restraint system in the rear seating position.
2. Run the lap and shoulder belt through or around the child restraint system following the instructions provided by its manufacturer.
3. Insert the tongue plate into the buckle until you hear a click.



4. Take up the slack in the lap belt.
5. Pull out the seatbelt fully from the retractor to change the retractor over from the Emergency Locking Retractor (ELR) to the Automatic Locking Retractor (ALR) function. Then, allow the belt to rewind into the retractor. As the belt is rewinding, clicks will be heard which indicate the retractor functions as ALR.



6. Before having a child sit in the child restraint system, move it back and forth and right and left to check if it is firmly secured. Sometimes a child restraint can be more firmly secured by pushing it down into the seat cushion and then tightening the seatbelt.
7. Pull at the shoulder portion of the belt to confirm that it cannot be pulled out (ALR properly functioning).

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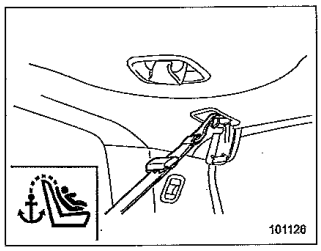
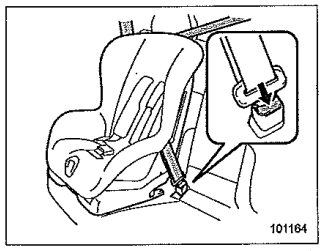


8. If the child restraint system requires a top tether, latch the hook onto the top tether anchorage and tighten the top tether. Refer to "Top tether anchorages" in this section for additional instructions.



9. To remove the child restraint system, press the release button on the seatbelt buckle and allow the belt to retract completely. The belt will return to the ELR mode.

NOTE

When the child restraint system is no longer in use, remove it and restore the ELR function of the retractor. That function is restored by allowing the seatbelt to retract fully.

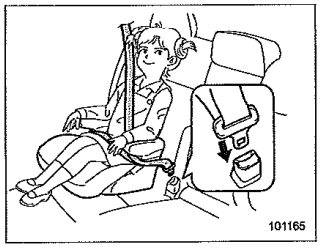
■ Installing a booster seat

⚠ WARNING

- **Child restraint systems and seatbelts can become hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check the child restraint system before you place a child in it.**
- **Do not leave an unsecured child restraint system in your vehicle. Unsecured child restraint systems can be thrown around inside of the vehicle in a sudden stop, turn or accident; they can strike and injure vehicle occupants as well as result in serious injuries or death to the child.**

⚠ CAUTION

When you install a child restraint system, follow the manufacturer's instructions supplied with it. After installing the child restraint system, check to ensure that it is held securely in position. If it is not held tight and secure, the danger of your child suffering personal injury in the event of an accident may be increased.



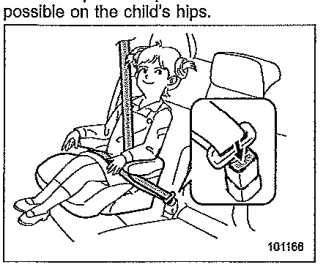
1. Place the booster seat in the rear seating position and sit the child on it. The child should sit well back on the booster

seat.

2. Run the lap and shoulder belt through or around the booster seat and the child following the instructions provided by its manufacturer.

3. Insert the tongue plate into the buckle until you hear a click. Take care not to twist the seatbelt.

Make sure the shoulder belt is positioned across the center of child's shoulder and that the lap belt is positioned as low as possible on the child's hips.



4. To remove the booster seat, press the release button on the seatbelt buckle and allow the belt to retract.

⚠ WARNING

- **Never use a belt that is twisted or reversed. In an accident, this can increase the risk or severity of injury to the child.**
- **Never place the shoulder belt under the child's arm or behind the child's back. If an accident occurs, this can increase the risk or severity of injury to the child.**
- **The seatbelt should fit snugly in order to provide full restraint. Loose fitting belts are not as effective in preventing or reducing injury.**
- **Place the lap belt as low as possible on the child's hips. A high-positioned lap belt will increase the risk of sliding under the lap belt and of the lap belt sliding up over the abdomen, and both can result in serious internal injury or death.**
- **Make sure the shoulder belt is positioned across the center of child's shoulder. Placing the shoulder belt over the neck may result in neck injury during sudden braking or in a collision.**

■ Installation of child restraint systems by use of lower and tether anchorages (LATCH)

⚠ WARNING

- **Child restraint systems and seatbelts can become hot in a vehicle that has been closed up in sunny weather; they could burn a small child. Check the child restraint system before you place a child in it.**
- **Do not leave an unsecured child restraint system in your vehicle. Unsecured child restraint systems can be thrown around inside of the vehicle in a sudden stop, turn or accident; they can strike and injure vehicle occupants as well as result in serious injuries or death to the child.**

⚠ CAUTION

When you install a child restraint system, follow the manufacturer's instructions supplied with it. After installing the child restraint system, check to ensure that it is held securely in position. If it is not held

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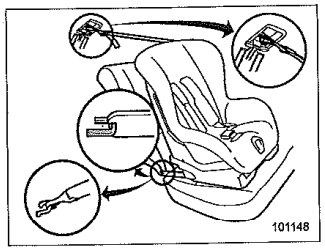
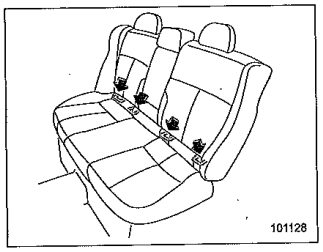
tight and secure, the danger of your child suffering personal injury in the event of an accident may be increased.

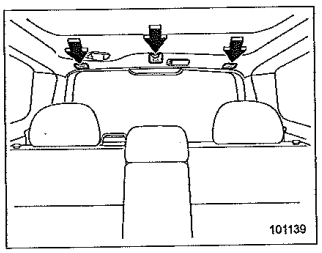


Some types of child restraint systems can be installed on the rear seat of your vehicle without use of the seatbelts. Such child restraint systems are secured to the designated anchorages provided on the vehicle body. The lower and tether anchorages are sometimes referred to as the LATCH system (Lower Anchors and Tethers for CHildren).

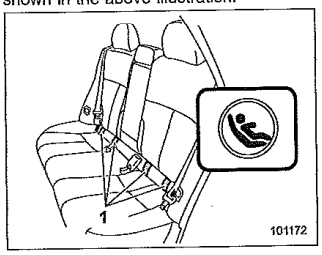
Your vehicle is equipped with four lower anchorages (bars) and three upper anchorages (tether anchorages) for accommodating such child restraint systems.



The lower anchorages (bars) are used for installing a child restraint system only on the rear seat window-side seating positions. For each window-side seating position, two lower anchorages are provided. Each lower anchorage is located where the seat cushion meets the seatback.



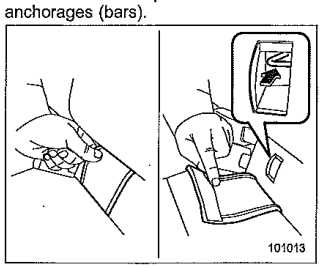
The tether anchorages (upper anchorages) are provided at the locations shown in the above illustration.



1) Cover

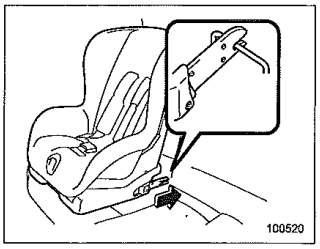
You will find marks "" on the cover at the bottom of the rear seat seatbacks. These

marks indicate the positions of the lower anchorages (bars).

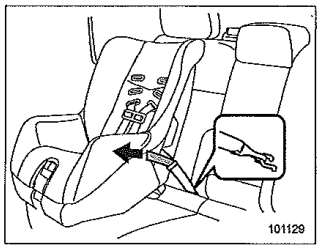


Each lower anchorage is located where the seat cushion meets the seatback.

1. Use the "⊘" marks to locate the two lower anchorages (bars) for the position where you want to install the child restraint system.



2. While following the instructions supplied by the child restraint system manufacturer, connect the lower hooks onto the lower anchorages located at "⊘" marks on the bottom of the rear seatback. When the hooks are connected, make sure the adjacent seatbelts are not caught.



3. [If your child restraint system is of a flexible attachment type (which uses tether belts to connect the child restraint system properly to the lower anchorages)]
While pushing the child restraint into the seat cushion, pull both left and right lower tether belts up to secure the child restraint system firmly by taking up the slack in the belt.

4. Connect the top tether hook to the tether anchorage and firmly tighten the tether.
For information on how to set the top tether, refer to "Top tether anchorages" in this section.

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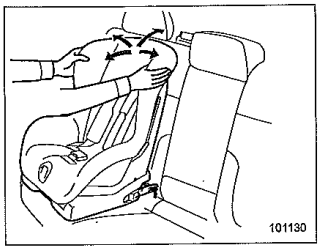


5. Before seating a child in the child restraint system, try to move seat back and forth and right and left to verify that it is held securely in position.
6. To remove the child restraint system, follow the reverse procedures of installation.

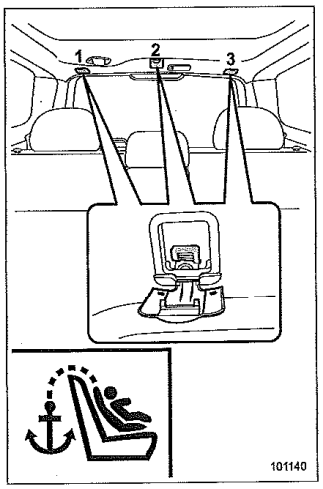
If you have any question concerning this type of child restraint system, ask your SUBARU dealer.

■ Top tether anchorages

Your vehicle is equipped with three top tether anchorages so that a child restraint system having a top tether can be installed in the rear seat. When installing a child restraint system using top tether, proceed as follows, while observing the instructions by the child restraint system manufacturer.

Since a top tether can provide additional stability by offering another connection between a child restraint system and the vehicle, we recommend that you use a top tether whenever one is required or available.

▼ Anchorage location

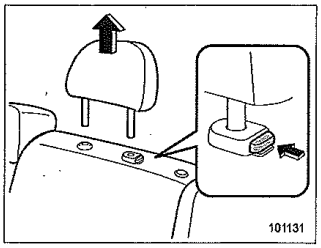


1) For right seat
2) For center seat
3) For left seat

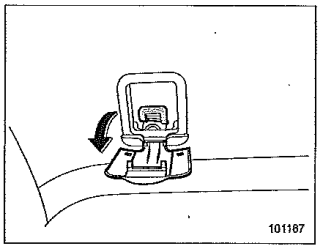
There are three anchorages for each seating position on the rear edge of the

roof.

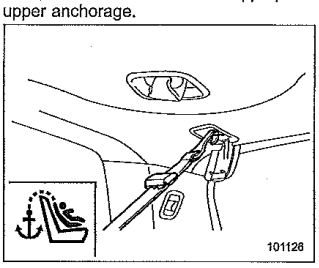
▼ **To hook the top tether**



1. Remove the headrest at the window-side seating position where the child restraint system has been installed with the lower anchorages or seatbelt; lift up the headrest while pressing the release button. Store the headrest in the cargo area. Avoid placing the headrest in the passenger compartment to prevent it from being thrown around in the passenger compartment in a sudden stop or a sharp turn.



2. For both window-side seating positions, remove the cover for the appropriate upper anchorage.



3. Attach the child restraint top tether hook to the appropriate upper anchorage.
4. Tighten the top tether securely.

Please contact your SUBARU dealer if you have any question regarding the installation of a child restraint system.

⚠ CAUTION

Always remove the headrest when mounting a child restraint system with a top tether. Otherwise, the top tether cannot be fastened tightly.

*SRS airbag (Supplemental Restraint System airbag)

*SRS: This stands for supplemental restraint system. This name is used because the airbag system supplements the vehicle's seatbelts.

Your vehicle is equipped with a crash sensing and diagnostic module, which will record the use of the seatbelt by the front passenger when any of the SRS frontal, side and curtain airbags deploys.

■ Vehicle with SRS airbags and lap/shoulder restraints for driver, front passenger, and window-side rear passengers

Your vehicle is equipped with a supplemental restraint system in addition to a lap/shoulder belt at each front seating position and each rear window-side seating positions. The supplemental restraint system (SRS) consists of six airbags.

The configurations are as follows:

- Driver's and front passenger's **frontal** airbags
- Driver's and front passenger's **side** airbags
- **Curtain** airbags (for driver, front passenger, and window-side rear passengers)

These SRS airbags are designed only as a supplement to the primary protection provided by the seatbelt.

The system also controls front seatbelt pretensioners. For operation instructions and precautions concerning the seatbelt pretensioner, refer to the "Front seatbelt pretensioners" section in this chapter.

⚠ WARNING

- **To obtain maximum protection in the event of an accident, the driver and all passengers in the vehicle should always wear seatbelts when the vehicle is moving. The SRS airbag is designed only as a supplement to the primary protection provided by the seatbelt. It does not do away with the need to fasten seatbelts. In combination with the seatbelts, it offers the best combined protection in case of a serious accident.**

  Not wearing a seatbelt increases the chance of severe injury or death in a crash even when the vehicle has the SRS airbag.

  For instructions and precautions concerning the seatbelt system, refer to the "Seatbelts" section in this chapter.
- **Do not sit or lean unnecessarily close to the SRS airbag. Because the SRS airbag deploys with considerable speed – faster than the blink of an eye – and force to protect in high speed collisions, the force of an airbag can injure an occupant whose body is too close to SRS airbag.**

  It is also important to wear your seatbelt to help avoid injuries that can result when the SRS airbag contacts an occupant not in proper position such as one thrown forward during pre-accident braking.

  Even when properly positioned, there remains a possibility that an occupant may suffer minor injury such as abrasions and bruises to the face or arms because of the SRS airbag deployment force.
- **The SRS airbags deploy with considerable speed and force. Occupants who are out of proper position when the SRS airbag deploys could suffer very serious injuries. Because the SRS airbag**

needs enough space for deployment, the driver should always sit upright and well back in the seat as far from the steering wheel as practical while still maintaining full vehicle control and the front passenger should move the seat as far back as possible and sit upright and well back in the seat.

- Do not place any objects over or near the SRS airbag cover or between you and the SRS airbag. If the SRS airbag deploys, those objects could interfere with its proper operation and could be propelled inside the vehicle and cause injury.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⚠ WARNING

- Put children aged 12 and under in the rear seat properly restrained at all times. The SRS airbag deploys with considerable speed and force and can injure or even kill children, especially if they are 12 years of age and under and are not restrained or improperly restrained. Because children are lighter and weaker than adults, their risk of being injured from deployment is greater.

  For that reason, we strongly recommend that ALL children (including those in child seats and those that have outgrown child restraint devices) sit in the REAR seat properly restrained at all times in a child restraint device or in a seatbelt, whichever is appropriate for the child's age, height and weight.

  Secure ALL types of child restraint devices (including forward facing child seats) in the REAR seats at all times.

  According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

  For instructions and precautions concerning the child restraint system, refer to the "Child restraint systems" section in this chapter.
- NEVER INSTALL A REARWARD FACING CHILD SEAT IN THE FRONT SEAT. DOING SO RISKS SERIOUS INJURY OR DEATH TO THE CHILD BY PLACING THE CHILD'S HEAD TOO CLOSE TO THE SRS AIRBAG.
- Never allow a child to stand up, or to kneel on the front passenger's seat, or never hold a child on your lap or in your arms. The SRS airbag deploys with considerable force and can injure or even kill the child.

⚠ CAUTION

- When the SRS airbag deploys, some smoke will be released. This smoke could cause breathing problems for people with a history of asthma or other breathing trouble. If you or your passengers have breathing pro-

– CONTINUED –

blems after SRS airbag deploys, get fresh air promptly.

- A deploying SRS airbag releases hot gas. Occupants could get burned if they come into direct contact with the hot gas.

NOTE

When you sell your vehicle, we urge you to explain to the buyer that it is equipped with SRS airbags by alerting him or her to the applicable section in this Owner's Manual.

APPENDIX B
MANUFACTURER'S DATA (OVSC FORM 14)

FORM – 225
Rev. 10/10/08

SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA

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

MODEL YEAR: 2009 / MAKE: SUBARU / MODEL: FORESTER / BODY STYLE: Wagon

SEAT STYLE: FRONT ROW: Individual / SECOND ROW: Contoured / 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			(Driver) 267.7	-	(Front Passenger) 257.6
A2			132.7	137.2	132.7
A3			-	-	-
B			358.3	-	363.4
C			1188.7	1158.7	1188.7
D			-	-	-
Torso Angle (degree)		Front Row	23°	-	23°
		Second Row	24°	19°	24°
		Third Row	-	-	-

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

FORM – 225

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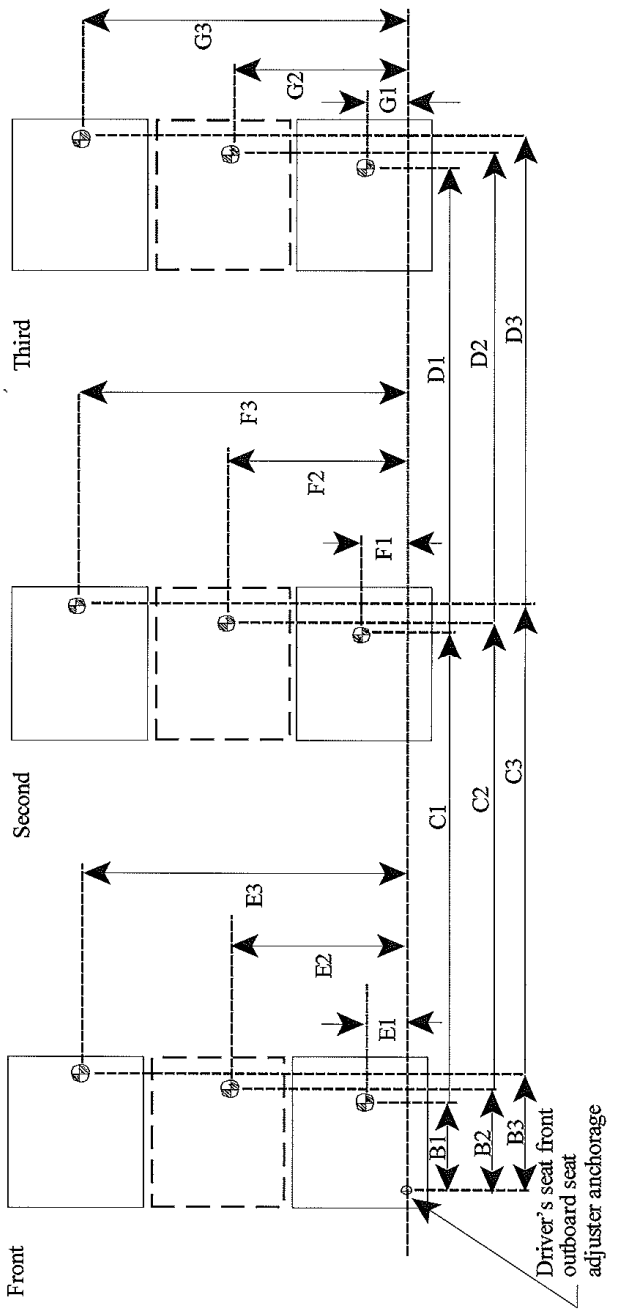
SEATING REFERENCE POINT

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2009 / MAKE: SUBARU / MODEL: FORESTER / BODY STYLE: Wagon

SEAT STYLE: FRONT ROW: Individual / SECOND ROW: Contoured / THIRD ROW: N/A



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	358.3
	E1	219
	B2	-
	E2	-
	B3	363.4
	E3	929
Second Row	C1	1188.7
	F1	209
	C2	1158.7
	F2	574
	C3	1188.7
	F3	939
Third Row	D1	-
	G1	-
	D2	-
	G2	-
	D3	-
	G3	-

Note: Use the center of anchorage.

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TETHER ANCHORAGE LOCATIONS

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2009 / MAKE: SUBARU / MODEL: FORESTER / BODY STYLE: Wagon

SEAT STYLE: FRONT ROW: Individual / SECOND ROW: Contoured / THIRD ROW: N/A

⊕: SRP
⊕: Tether anchorage

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

FORM – 225

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Table 3. Seating Reference Point and Tether Anchorage Locations

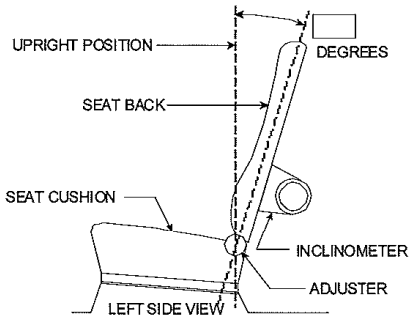
Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	-
	K1	-
	H2	-
	K2	-
	H3	-
	K3	-
Second Row	I1	797.8
	L1	31
	I2	765.5
	L2	0
	I3	797.8
	L3	31
Third Row	J1	-
	M1	-
	J2	-
	M2	-
	J3	-
	M3	-

Note: Use the center of anchorage.

7

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 = 23 degrees.

Measurement Instructions:
Automatic seats
a) Move seat back to its most vertical position.
b) Pull up head restraint and mount inclinometer on stay of head restraint.
c) Read inclinometer angle.
d) Move seat back down 14°from the angle reading in c) above.
Manual seats
a) Count the most vertical detent position as "1".
b) The design seatback angle is the 8th detent position.

Seat back angle for passenger's seat = 23 degrees.

Measurement Instructions:
Manual seats
a) Count the most vertical detent position as "1".
b) The design seatback angle is the 7th detent position.

Seat back angle for 2nd row seat = Outer:24 / Center:19 degrees.

Measurement Instructions:
Manual seats
a) Count the most vertical detent position as "1".
b) The design seatback angle is the 2nd detent position.
There are also 2nd row seat which is not adjustable.

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

Measurement Instructions:N/A

FORM – 225

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TETHER ANCHORAGE LOCATIONS - VERTICAL

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2009 / MAKE: SUBARU / MODEL: FORESTER / BODY STYLE: Wagon

SEAT STYLE: FRONT ROW: Individual / SECOND ROW: Contoured / 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)	-
	N2 (Center)	-
	N3 (Right)	-
Second Row	O1 (Left)	852.0
	O2 (Center)	830.4
	O3 (Right)	852.0
Third Row	P1 (Left)	-
	P2 (Center)	-
	P3 (Right)	-

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 desingated seating positions
2. How many designated seating positions are equipped with lower anchorages and tether anchorages? Specify which position(s).
   Lower anchorages : 2 / Second row (Left / Right), Tether anchorages : 3 / Second row (Left / Center / Right)
3. How many designated seating positions are equipped with tether anchorages? Specify which positions(s).
   Tether anchorages : 3 / Second row (Left / Center / Right)
4. Lower Anchorages Marking and Conspicuity: Whether the anchorages are certified to S9.5(a) or S9.5(b) of FMVSS No. 225. The anchorages are certified to S9.5(b) of FMVSS No.225.