

FINAL REPORT NUMBER 225-MGA-09-006

SAFETY COMPLIANCE TESTING FOR FMVSS 225
“Child Restraint Anchorage Systems”

MAZDA MOTOR CORPORATION
2009 Mazda 6
NHTSA No. C95401

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083



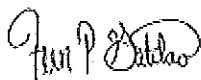
Test Date: July 8, 2009
Report Date: July 10, 2009

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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Prepared By:

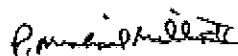
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Brad Reaume, Test Personnel



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7/20/09

Approval Date:

FINAL REPORT ACCEPTANCE BY OVSC:

Edward E. Chan

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National Highway Traffic Safety Administration,
OU = Office of Vehicle Safety Compliance
Date: 2009.08.06 10:19:49 -04'00'

Accepted By:

Acceptance Date: _____

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		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-09-006	
9. Performing Organization Name and Address MGA Research Corporation 446 Executive Drive Troy, Michigan 48083		10. Work Unit No.	
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12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 Seventh Street, SW Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report	
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15. Supplementary Notes			
16. Abstract A compliance test was conducted on the subject 2009 Mazda 6, NHTSA No. C95401, 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 8, 2009. Test failures identified were as follows: NONE The data recorded indicates that the 2009 Mazda 6 tested appears to meet the requirements of FMVSS 225.			
17. Key Words Compliance Testing Safety Engineering FMVSS 225 2009 Mazda 6		18. Distribution Statement Copies of this report are available From: NHTSA Technical Reference Division, Mail Code: NPO-230 400 Seventh Street, SW, Room PL-403 Washington, D.C. 20590 Telephone No. (202) 366-4946	
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1.0 PURPOSE AND PROCEDURE

PURPOSE

The child restraint anchorage testing results presented in this report are part of the Federal Motor Vehicle Safety Standard (FMVSS) No. 225 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-06-C-00030/0007. The purpose of the testing was to determine if the subject vehicle, a 2009 Mazda 6, NHTSA No. C95401 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 750 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 8, 2009.

Based on the test results, the 2009 Mazda 6 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 4,995 N and held the required load for 3 seconds and the total displacement was 41 mm. The SFADII at the 2nd row right seating position sustained a maximum force of 4,969 N and held the required load for 3 seconds and the total displacement was 71 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)
SC9248	SFADII	Lateral Right	2 nd Row Left	4,995	41
			2 nd Row Right	4,969	71

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2009 Mazda 6
VEH. NHTSA NO.	C95401
VIN	1YVHP80A995M26348
COLOR	Silver
VEH. BUILD DATE	10/08
TEST DATE	July 8, 2009
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Fern Gatilao , Brad Reaume, Kenney Godfrey

GENERAL INFORMATION:

DATA FROM VEHICLE’S CERTIFICATION LABEL:

Vehicle Manufactured By: Mazda Motor Corporation
 Date of Manufacture: 10/08; VIN: 1YVHP80A995M26348
 GVWR: 4340 lbs GAWR FRONT: 2286 lbs
 GAWR REAR: 2062 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 32 psi REAR: 32 psi

Recommended Tire Size: P205/65R16

Recommended Cold Tire Pressure:

FRONT: 32 psi REAR: 32 psi

Size of Tire on Test Vehicle: P205/65R16

Size of Spare Tire: T115/70D16

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 I1705802A & 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	TPM914 (5/26/10)
MGA Data Acquisition System	N/A
Digital Calipers	MGA00688 (3/16/10)
Force Gauge	MGA00800 (1/20/10)
Inclinometer (Digital)	MGA00715 (1/16/10)

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	6.01	6.05	N/A
	Ctr		N/A		
	RH		5.98	5.97	
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		N/A		
	RH		N/A		
Optional Marking: If guidance fixtures are used, the fixture(s) must be installed.	LH	N/A	N/A		N/A
	Ctr		N/A		
	RH		N/A		
Measure the distance between Point “Z” of the CRF and the front surface of the anchorage bar (mm)	LH	N/A	62		N/A
	Ctr		N/A		
	RH		65		
Measure the distance between the SRP to the front of the anchorage bar (mm)	LH	N/A	204	204	N/A
	Ctr		N/A		
	RH		199	204	

Table 4. Child Restraint Lower Anchorage Configuration (continued)

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION					
		FRONT ROW	SECOND ROW		THIRD ROW	
			I/B	O/B		
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	N/A	Req't>25	35	34	N/A
			Req't<60	48	49	
	Ctr		Req't>25	N/A		
			Req't<60	N/A		
	RH		Req't>25	32	37	
			Req't<60	42	48	
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)
2 nd Row Left	12.8	N/A	0.7
2 nd Row Center	N/A	N/A	N/A
2 nd Row Right	13.1	N/A	0.7

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	1.7	4	167	5,000	4,995	45	41	
	Ctr.			No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH			Yes	II	1.7	10	167	5,000	4,969	81	71	
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



6.3 Front left view



6.4 Front right view



- 6.5 Test vehicle's certification label
 - 6.5.1 Certification label photo 1



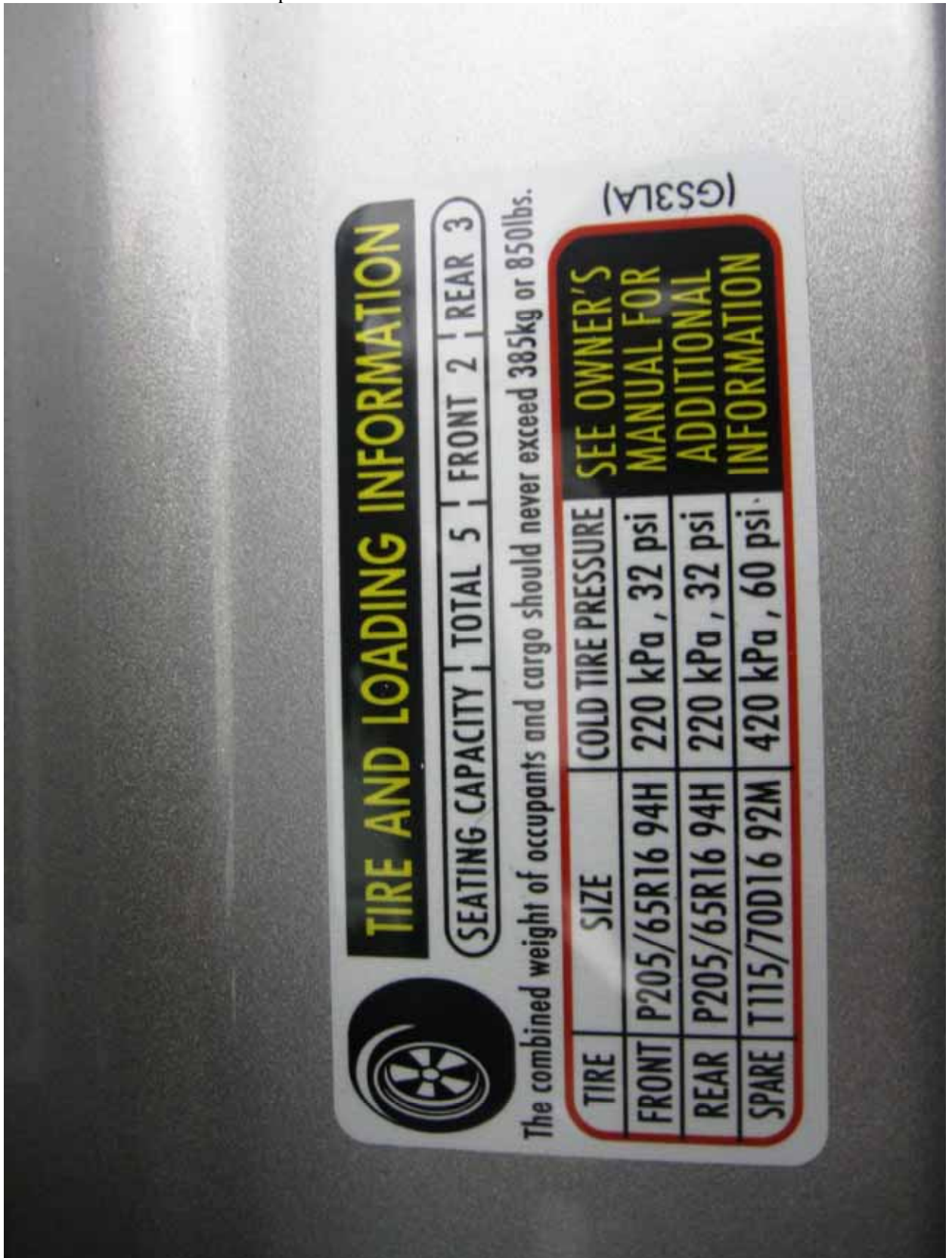
6.5.2 Certification label photo #2



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



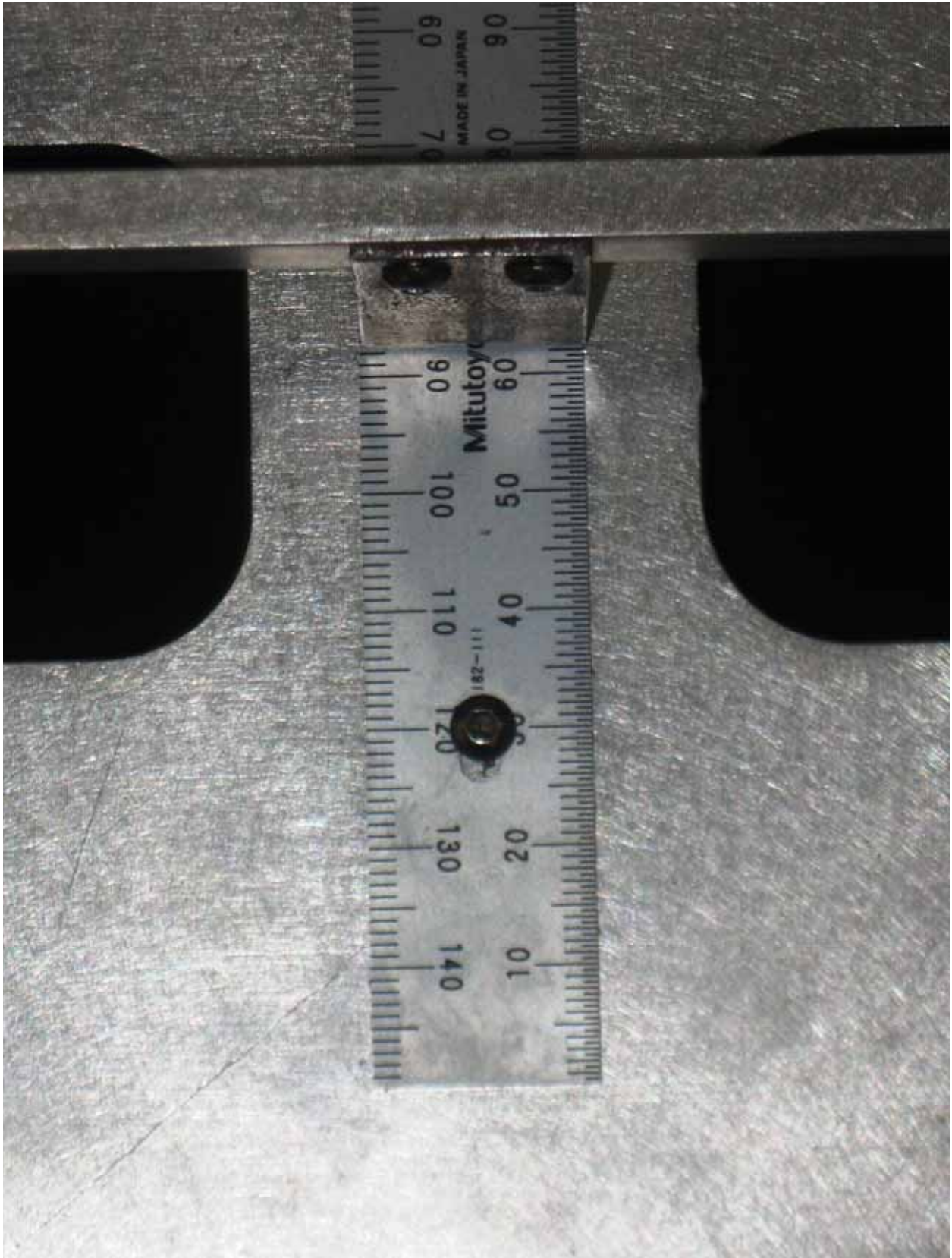
6.8 CRF verification
6.8.1 LH position photo



6.8.2 LH position photo



6.8.3 LH position photo



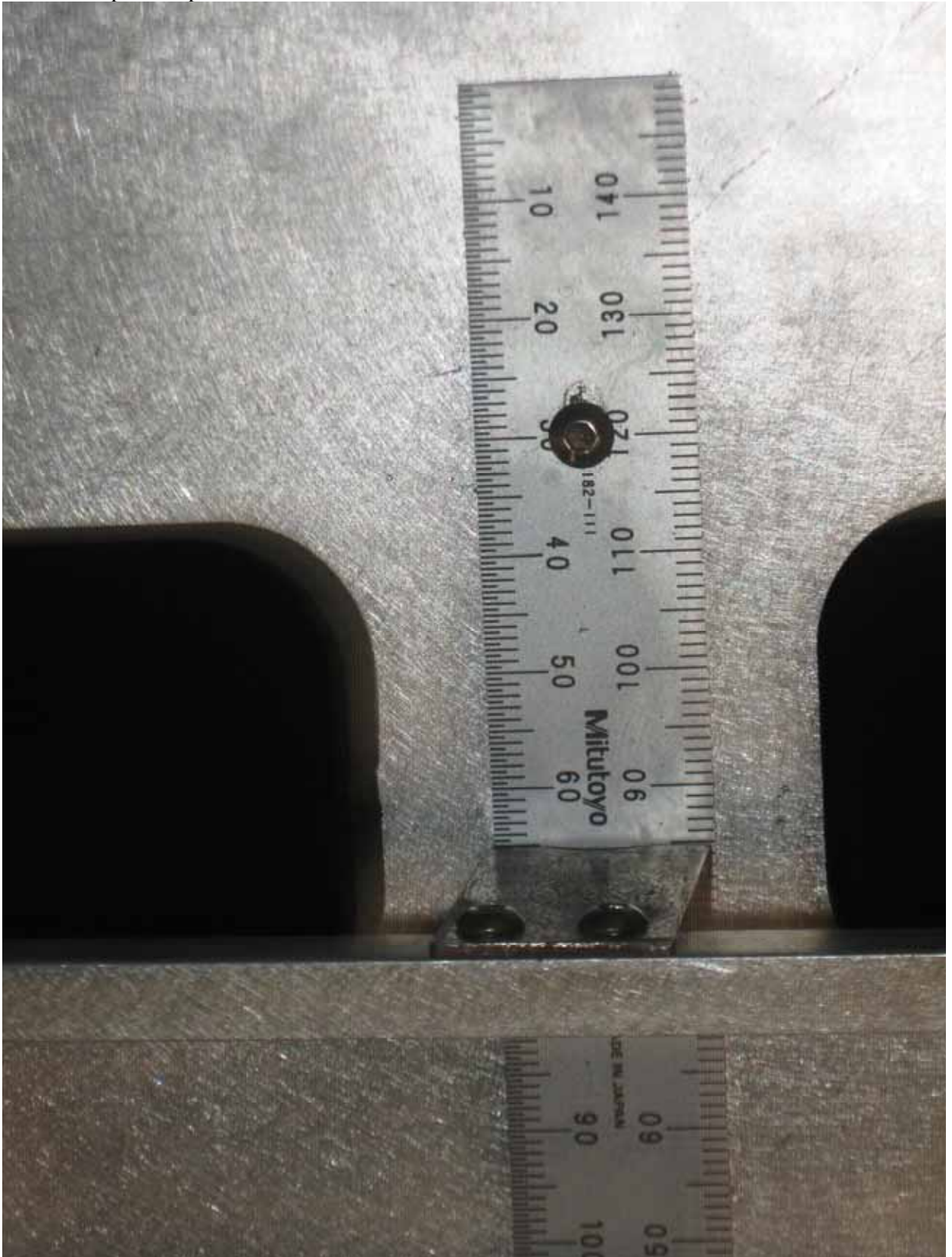
6.8.4 RH position photo



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



6.9.2 SFAD II LH & RH



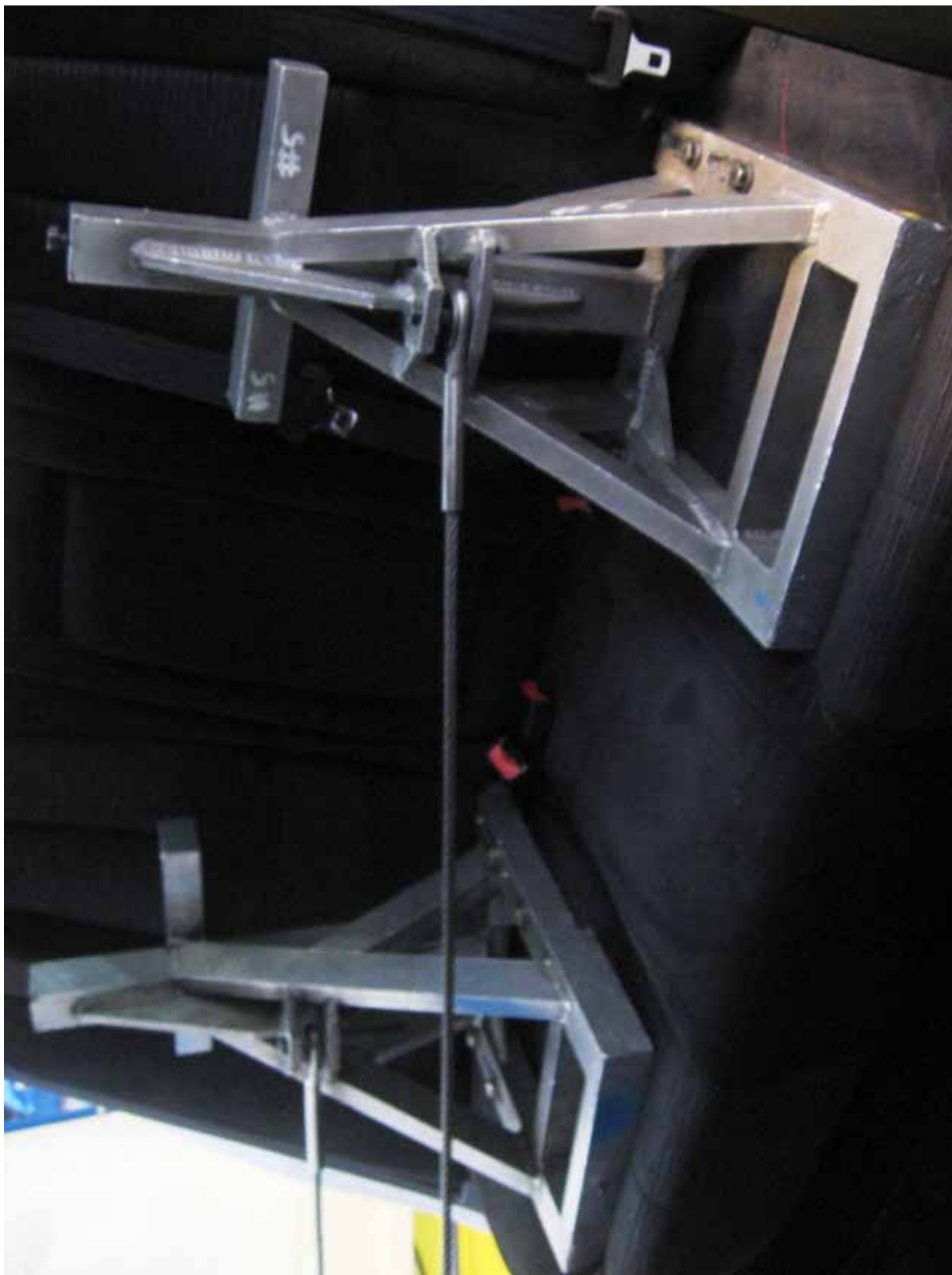
- 6.10 Pre-test views of each child restraint anchorage system installed in the vehicle
 - 6.10.1 Pre-test photo



6.10.2 Pre-test photo



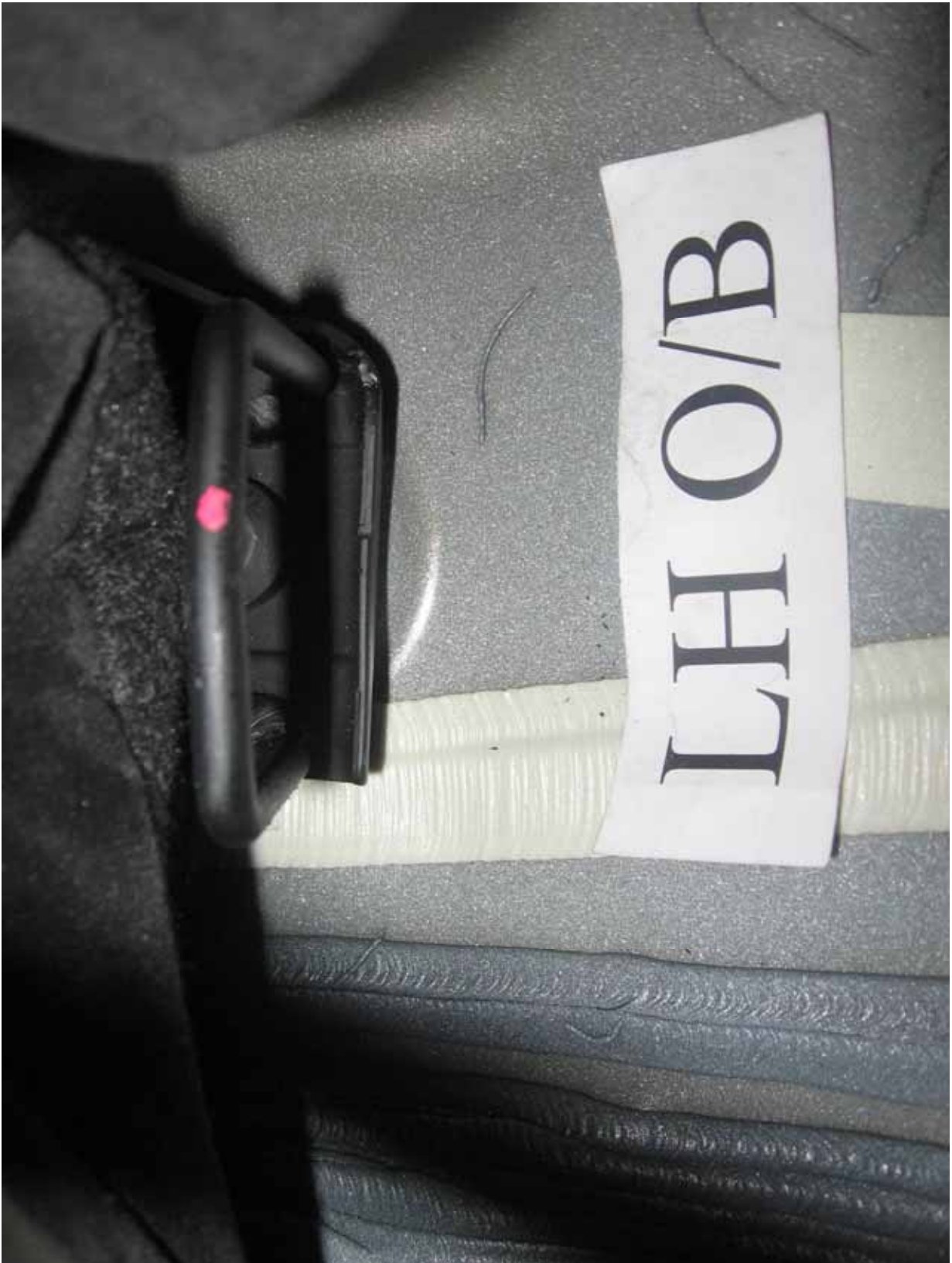
6.10.3 Pre-test photo



- 6.11 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



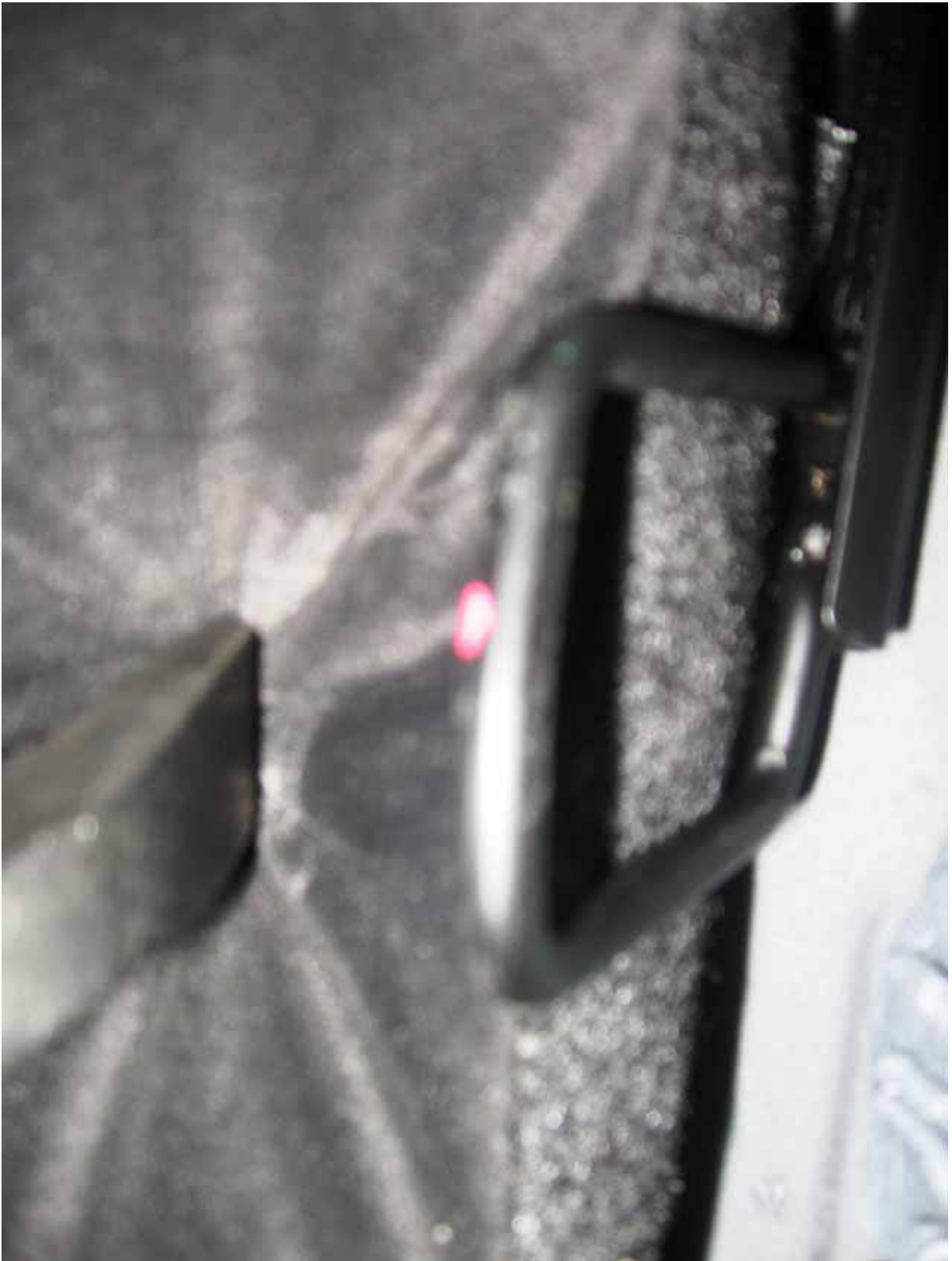
6.11.7 Post-test photo



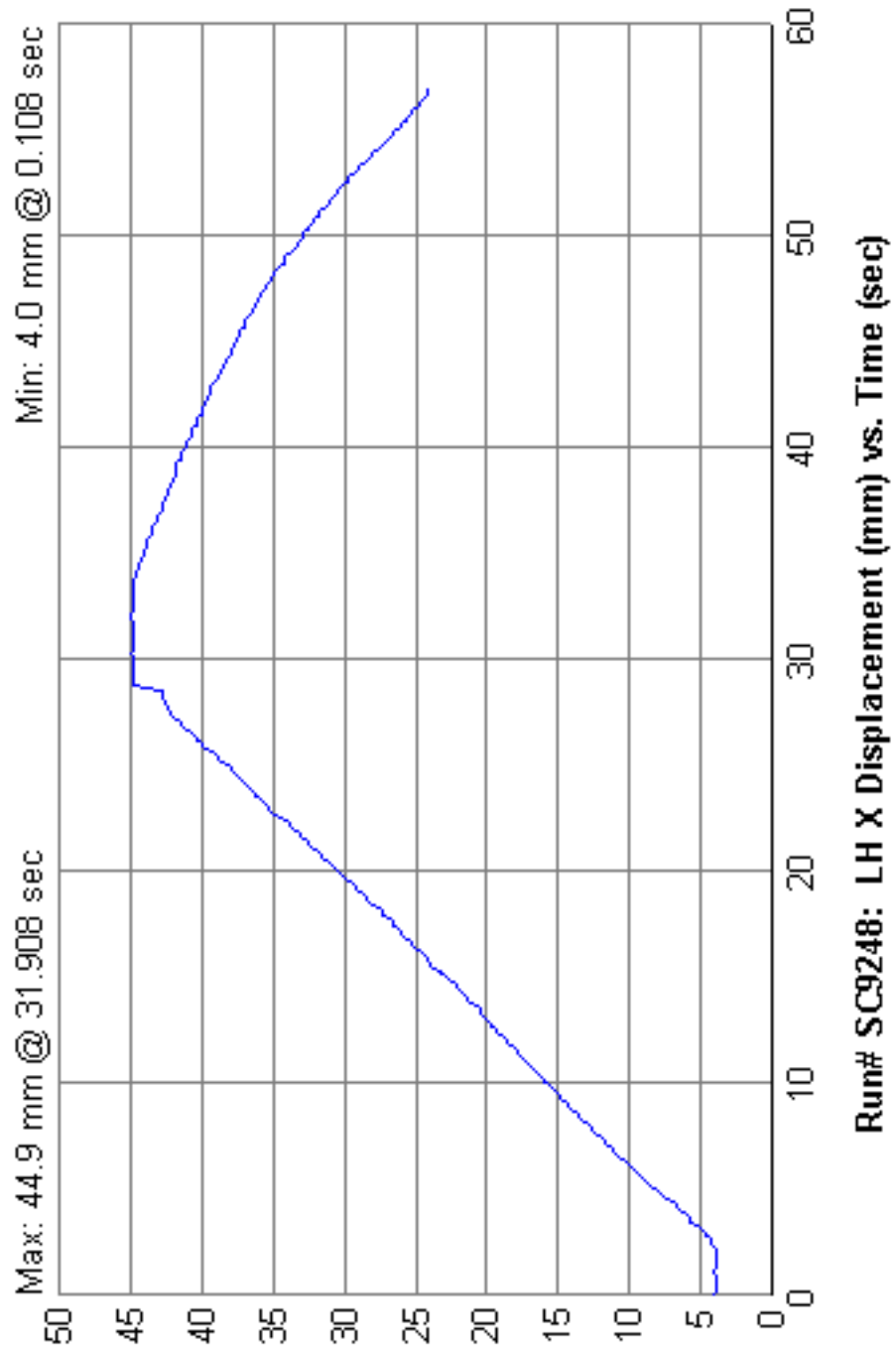
6.11.8 Post-test photo

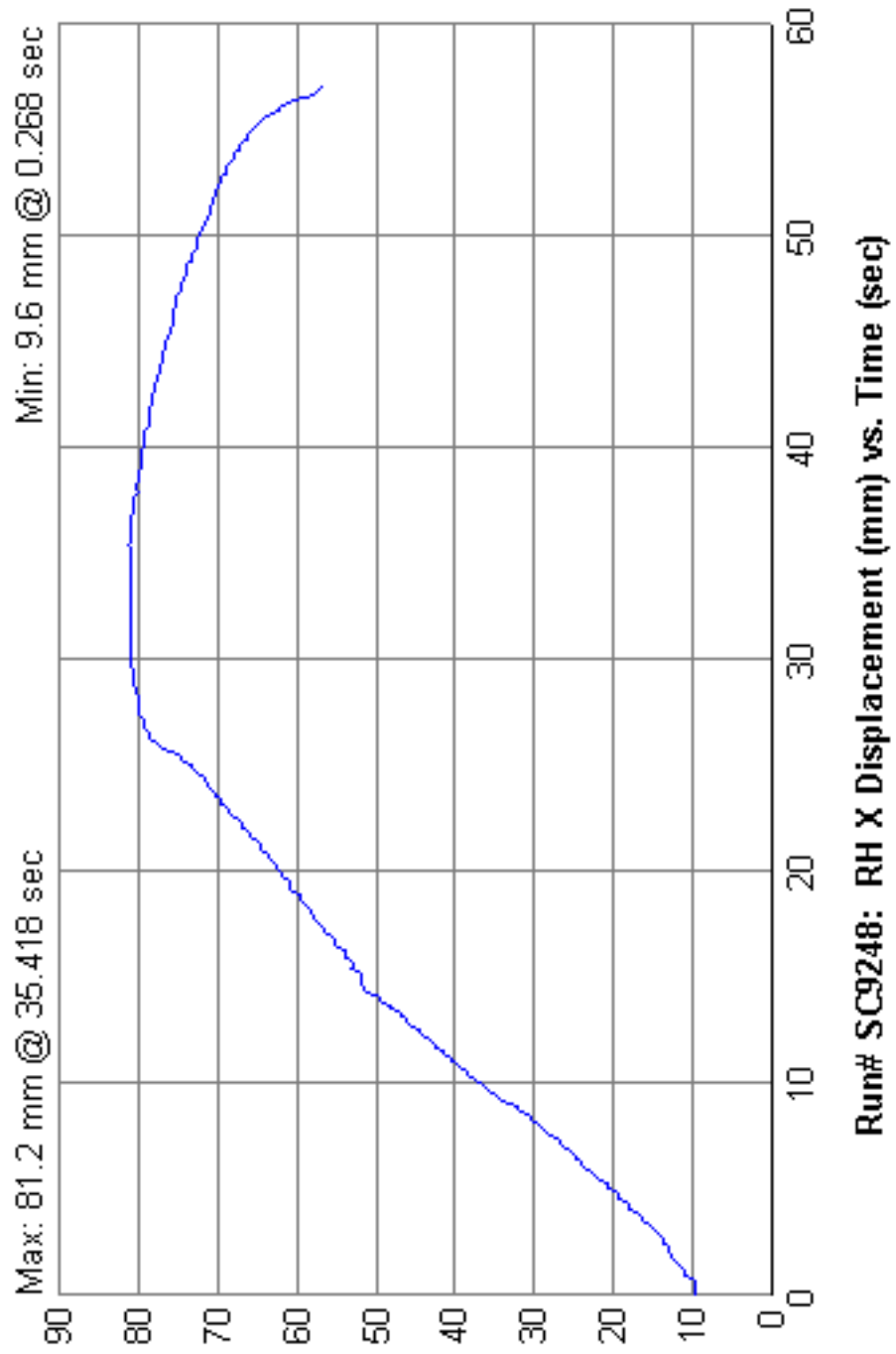


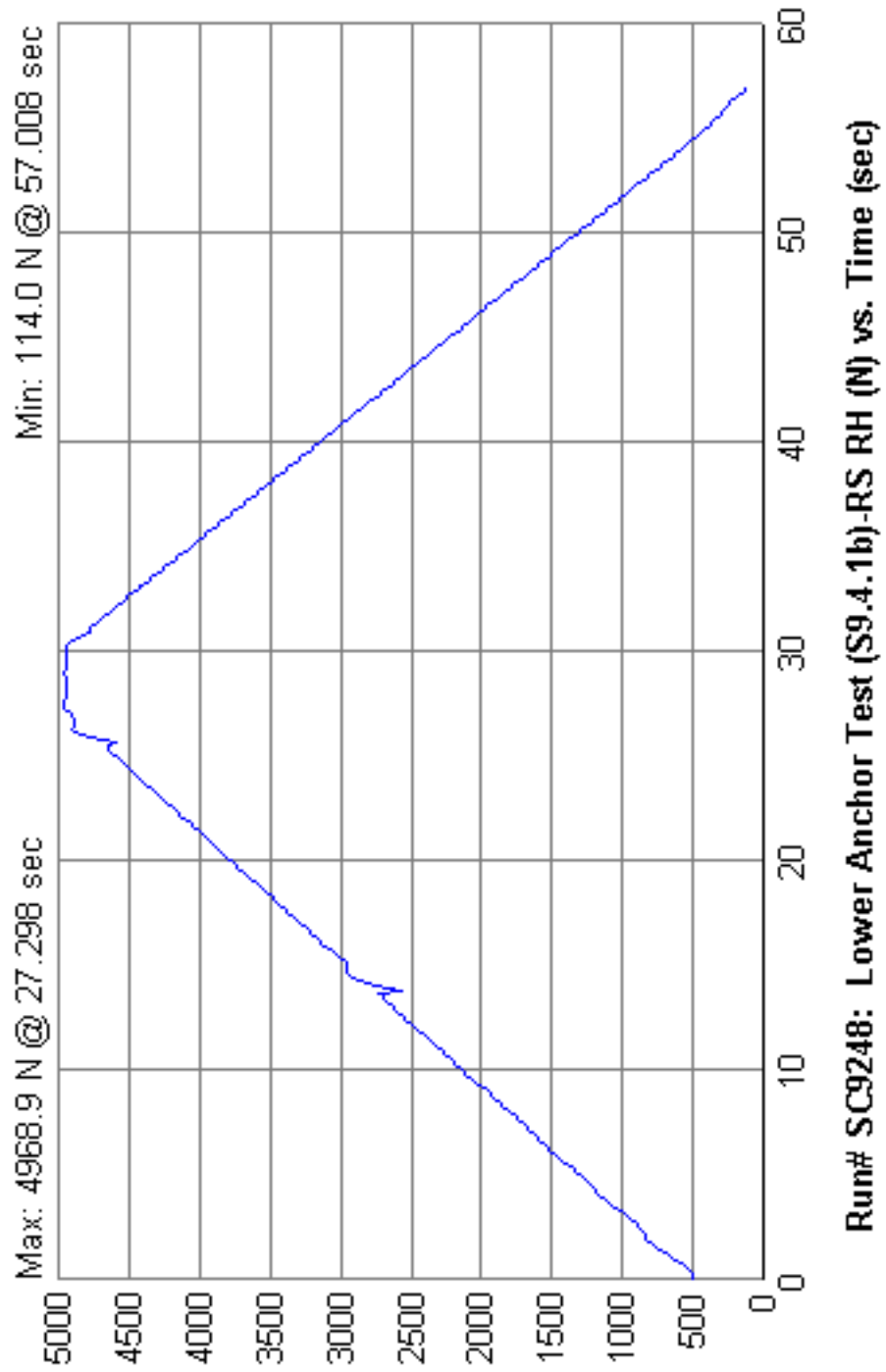
6.11.9 Post-test photo

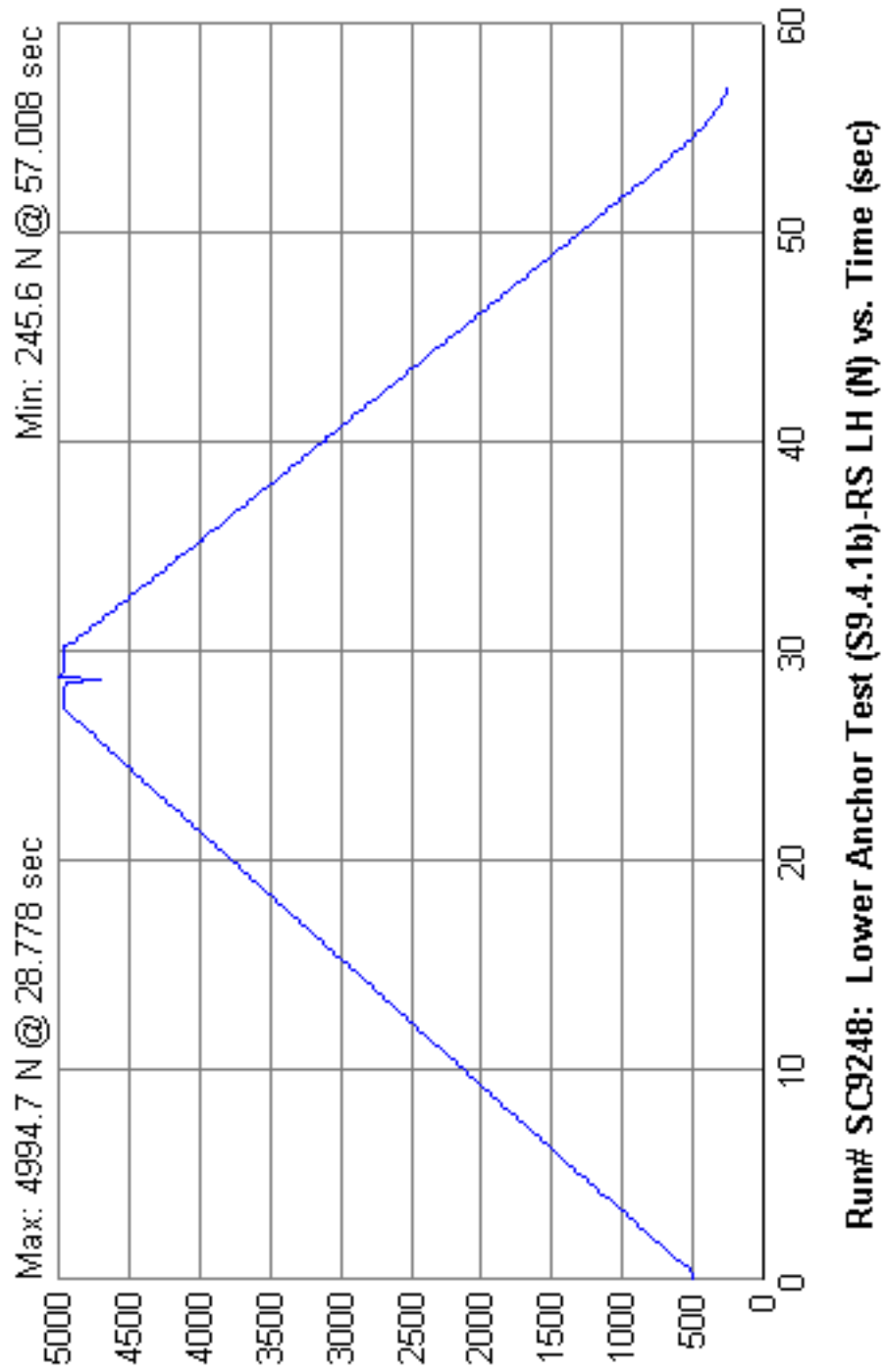


7.0 PLOTS









8.0 REPORT OF VEHICLE CONDITION

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-06-C-00030/0007

DATE: July 8, 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 Mazda 6

VEH. NHTSA NO.: C95401

VIN: 1YVHP80A995M26348

COLOR: Silver

ODOMETER READINGS: ARRIVAL 51 miles Date: 7/8/09

COMPLETION 51 miles Date: 7/8/09

PURCHASE PRICE: \$19,220

DEALER'S NAME: Ralph Thayer Mazda Livonia

ENGINE DATA: 6 Cylinders 2.5 Liters Cubic Inches

TRANSMISSION DATA: Automatic X Manual 6 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

<input checked="" type="checkbox"/>	Air Conditioning	<input checked="" type="checkbox"/>	Traction Control	<input checked="" type="checkbox"/>	Clock
	Tinted Glass		All Wheel Drive		Roof Rack
	Power Steering		Speed Control	<input checked="" type="checkbox"/>	Console
<input checked="" type="checkbox"/>	Power Windows		Rear Window Defroster	<input checked="" type="checkbox"/>	Driver Air Bag
<input checked="" type="checkbox"/>	Power Door Locks		Sun Roof or T-Top	<input checked="" type="checkbox"/>	Passenger Air Bag
	Power Seat(s)	<input checked="" type="checkbox"/>	Tachometer	<input checked="" type="checkbox"/>	Front Disc Brakes
	Power Brakes	<input checked="" type="checkbox"/>	Tilt Steering Wheel	<input checked="" type="checkbox"/>	Rear Disc Brakes
<input checked="" type="checkbox"/>	Antilock Brake System	<input checked="" type="checkbox"/>	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 8, 2009

APPROVED BY: Brad Reaume

APPENDIX A
OWNERS MANUAL CHILD RESTRAINT

Essential Safety Equipment
Child Restraint

Child Restraint Precautions

Mazda strongly urges the use of child-restraint systems for children small enough to use them.

You are required by law to use a child-restraint system for children in the U.S. and Canada. Check your local and state or provincial laws for specific requirements regarding the safety of children riding in your vehicle.

Whatever child-restraint system you consider, please pick the appropriate one for the age and size of the child, obey the law and follow the instructions that come with the individual child-restraint system.

A child who has outgrown child-restraint systems should sit in the rear and use seat belts, both lap and shoulder. If the shoulder belt crosses the neck or face, move the child closer to the center of the vehicle in the outboard seats, and towards the buckle on the right if the child is seated on the center seat.

Statistics confirm that the rear seat is the best place for all children up to 12 years of age, and more so with a supplemental restraint system (air bags).

A rear-facing child-restraint system should **NEVER** be used on the front seat with the air bag system activated. The front passenger's seat is also the least preferred seat for other child-restraint systems.

To reduce the chance of injuries caused by deployment of the front passenger air bag, your vehicle is equipped with the front passenger seat weight sensors. These sensors deactivate the front passenger front and side air bags and also the front passenger seat belt pretensioner system when the total seated weight on the front passenger seat is less than approximately 30 kg (66 lb).

When an infant or small child sits on the front passenger seat, the system shuts off the front passenger air bag, so make sure the front passenger air bag deactivation indicator light illuminates.

Even if the front passenger air bag is shut off, Mazda strongly recommends that children be properly restrained and child-restraint systems of all kinds are properly secured on the rear seats which are the best place for children.

For more details, refer to "Front passenger seat weight sensors" (page 2-47).

2-27

SYSTEMS

Essential Safety Equipment
Child Restraint

▲ WARNING

Use the correct size child-restraint system:

For effective protection in vehicle accidents and sudden stops, a child must be properly restrained using a seat belt or child-restraint system depending on age and size. If not, the child could be seriously injured or even killed in an accident.

Follow the manufacturer's instructions and always keep the child-restraint system buckled down:

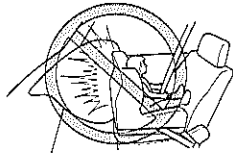
An unsecured child-restraint system is dangerous. In a sudden stop or a collision it could move causing serious injury or death to the child or other occupants. Make sure any child-restraint system is properly secured in place according to the child-restraint system manufacturer's instructions. When not in use, remove it from the vehicle or fasten it with a seat belt, or latch it down to BOTH LATCH lower anchors for LATCH child-restraint systems, and attach the corresponding tether anchor.

Always secure a child in a proper child-restraint system:

Holding a child in your arms while the vehicle is moving is extremely dangerous. No matter how strong the person may be, he or she cannot hold onto a child in a sudden stop or collision and it could result in serious injury or death to the child or other occupants. Even in a moderate accident, the child may be exposed to air bag forces that could result in serious injury or death to the child, or the child may be slammed into an adult, causing injury to both child and adult.

Never use a rear-facing child-restraint system in the front seat with an air bag that could deploy:

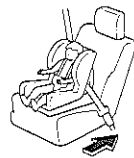
Rear-facing child-restraint systems on the front seat are particularly dangerous. The child-restraint system can be hit by a deploying air bag and moved violently backward resulting in serious injury or death to the child.



Essential Safety Equipment
Child Restraint

Do not install a front-facing child-restraint system on the front passenger seat unless it is unavoidable:

In a collision, the force of a deploying air bag could cause serious injury or death to the child. If installing a front-facing child-restraint system on the front passenger seat is unavoidable, move the front passenger seat as far back as possible.



Seating a child in a child-restraint system on the front passenger seat is dangerous:

Your vehicle is equipped with front passenger seat weight sensors. Even with front passenger seat weight sensors, if you must use the front passenger seat to seat a child, using a child-restraint system on the front passenger seat under the following conditions increases the danger of the front passenger air bag deploying and could result in serious injury or death to the child.

- *The total seated weight of the child with the child-restraint system on the front passenger seat is approximately 30 kg (66 lb) or more with a child in the child-restraint system.*
- *Luggage or other items are placed on the seat with the child in the child-restraint system.*
- *A rear passenger or luggage pushing or pulling down on the front passenger seatback.*
- *A rear passenger puts their feet on the front seat rails.*
- *Luggage or other items are placed on the seatback or hung on the head restraint.*
- *Heavy items are placed in the seatback map pocket.*
- *The seat is washed.*
- *Liquids are spilled on the seat.*
- *The front passenger seat is moved backward, pushing into luggage or other items placed behind it.*
- *The front passenger seatback contacts the rear seat.*
- *Luggage or other items are placed between the front passenger seat and driver seat.*
- *Any accessories increasing the total seated weight on the front passenger seat are attached to the front passenger seat.*

The designated positions with seat belts on the rear seats are the safest places for children. Always use seat belts and child restraints.

Essential Safety Equipment

Child Restraint

Do not allow a child or anyone to lean over or against the side window of a vehicle with side and curtain air bags:

It is dangerous to allow anyone to lean over or against the side window, the area of the front passenger seat, the front and rear window pillars and the roof edge along both sides from which the side and curtain air bags deploy, even if a child-restraint system is used. The impact of inflation from a side or curtain air bag could cause serious injury or death to an out of position child. Furthermore, leaning over or against the front door could block the side and curtain air bags and eliminate the advantages of supplemental protection. With the front air bag and the additional side air bag that comes out of the front seat, the rear seat is always a better location for children. Take special care not to allow a child to lean over or against the side window, even if the child is seated in a child-restraint system.

Never use one seat belt on more than one person at a time:

Using one seat belt for more than one person at a time is dangerous. A seat belt used in this way cannot spread the impact forces properly and the two passengers could be crushed together and seriously injured or even killed. Never use one belt for more than one person at a time and always operate the vehicle with each occupant properly restrained.

 **CAUTION**

A seat belt or child-restraint system can become very hot in a closed vehicle during warm weather. To avoid burning yourself or a child, check them before you or your child touches them.

NOTE

Your Mazda is equipped with LATCH lower anchors for attachment of specially designed LATCH child-restraint systems in the rear seat. When using these anchors to secure a child-restraint system, refer to "LATCH Child-Restraint Systems" (page 2-37).

Essential Safety Equipment
Child Restraint

Installing Child-Restraint Systems

Accident statistics reveal that a child is safer in the rear seat. The front passenger's seat is clearly the worst choice for any child under 12, and with rear-facing child-restraint systems it is clearly unsafe due to air bags.

Some child-restraint systems now come with tethers and therefore must be installed on the seats that take tethers to be effective. In your Mazda, tethered child-restraint systems can only be accommodated in the three positions on the rear seat.

Even if your vehicle is equipped with front passenger seat weight sensors (page 2-47), which automatically deactivates the front passenger air bag, a rear seat is the safest place for a child of any age or size.

Some child-restraint systems also employ specially designed LATCH attachments; refer to "LATCH Child-Restraint Systems" (page 2-37).

⚠ WARNING

Tethered Child-Restraint Systems Work Only on Tether-Equipped Rear Seats:

Installation of a tether equipped child-restraint system in the front passenger's seat defeats the safety design of the system and will result in an increased chance of serious injury if the child-restraint system goes forward without benefit of being tethered.

Place tether equipped child-restraint systems where there are tether anchors.

▼ Rear Seat Child-Restraint System Installation

Follow these instructions when using a child-restraint system, unless you are attaching a LATCH-equipped child-restraint system to the rear LATCH lower anchors. Refer to "LATCH Child-Restraint Systems" (page 2-37).

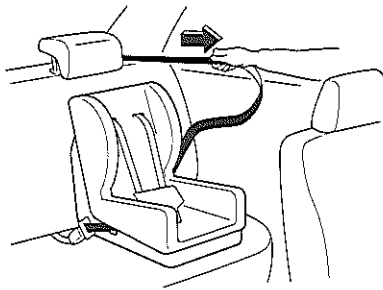
NOTE

Follow the child-restraint system manufacturer's instructions carefully. If you are not sure whether you have a LATCH system or tether, check in the child-restraint system manufacturer's instructions and follow them accordingly. Depending on the type of child-restraint system, it may use LATCH system instead of seat belts or if the belt goes across the child's chest, may recommend against using automatic locking mode.

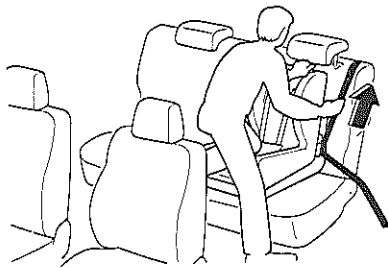
1. Raise the head restraint to the top locked position (except center seat position).
Refer to Head restraints on page 2-12.
2. Secure the child-restraint system with the lap portion of the lap/shoulder belt. See the manufacturer's instructions on the child-restraint system for belt routing instructions.

Essential Safety Equipment
Child Restraint

3. To get the retractor into the automatic locking mode, pull the shoulder belt portion of the seat belt until the entire length of the belt is out of the retractor.



4. Push the child-restraint system firmly into the vehicle seat. Be sure the belt retracts as snugly as possible. A clicking noise from the retractor will be heard during retraction if the system is in the automatic locking mode. If the belt does not lock the seat down tight, repeat this step.

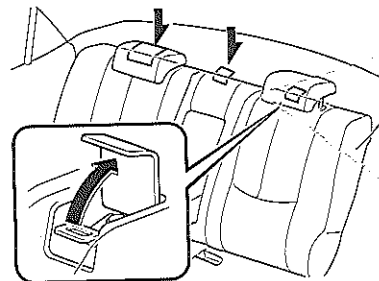


NOTE

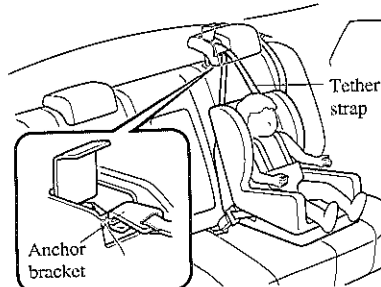
Inspect this function before each use of the child-restraint system. You should not be able to pull the shoulder belt out of the retractor while the system is in the automatic locking mode. When you remove the child-restraint system, be sure the belt fully retracts to return the system to emergency locking mode before occupants use the seat belts.

5. If your child-restraint system requires the use of a tether strap, refer to the manufacturer's instructions to hook and tighten the tether strap (except center position).

Anchor bracket location



Tether strap position



Essential Safety Equipment
Child Restraint

! WARNING

Use the tether and tether anchor only for a child-restraint system:

Using the tether or tether anchor to secure anything but a child-restraint system is dangerous. This could weaken or damage the tether or tether anchor and result in injury.

Always route the tether strap between the head restraint and the seatback (Except center seat position):

Routing the tether strap on top of the head restraint is dangerous. In a collision the tether strap could slide off the head restraint and loosen the child-restraint system. The child-restraint system could move which may result in death or injury to the child.

Always attach the tether strap to the correct tether anchor position:

Attaching the tether strap to the incorrect tether anchor position is dangerous. In a collision, the tether strap could come off and loosen the child-restraint system. If the child-restraint system moves it could result in death or injury to the child.

▼ If You Must Use the Front Seat for Children

If you cannot put all children in the rear seat, at least put the smallest children in the rear and be sure the largest child up front uses the shoulder belt over the shoulder.

NEVER put a rear-facing child-restraint system on the front passenger seat, even with a seat weight sensor equipped vehicle.

This seat is also not set up for tethered child-restraint systems, put them in one of the rear seat positions set up with tether anchors.

Likewise the LATCH child-restraint system cannot be secured in the front passenger's seat and should be used in the rear seat.

Do not allow anyone to sleep against the side window if you have an optional side and curtain air bag, it could cause serious injuries to an out of position occupant. As children more often sleep in cars, it is better to put them in the rear seat. If installing the child-restraint system on the front seat is unavoidable, follow these instructions when using a front-facing child-restraint system in the front passenger's seat.

NOTE

- *To check if your front seats have side air bags:
Mazda vehicles equipped with side air bag will have a "SRS AIRBAG" tag on the outboard shoulder of the front seats.*
- *To check if your vehicle has curtain air bags:
Mazda vehicles equipped with curtain air bag will have an "SRS AIRBAG" marking on the window pillars along the roof edge.*

Essential Safety Equipment

Child Restraint

⚠ WARNING

Always move the front passenger seat as far back as possible if installing a front-facing child-restraint system on it is unavoidable:

As your vehicle has front air bags and doubly so because your vehicle has side air bags, a front-facing child-restraint system should be put on the front passenger seat only when it is unavoidable.

Even if the front passenger air bag deactivation indicator light illuminates, always move the seat as far back as possible, because the force of a deploying air bag could cause serious injury or death to the child.

Never use a rear-facing child-restraint system in the front seat with an air bag that could deploy:

Rear-facing child-restraint systems on the front seat are particularly dangerous.

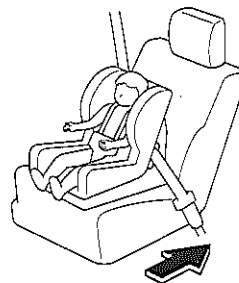
Even in a moderate collision, the child-restraint system can be hit by a deploying air bag and moved violently backward resulting in serious injury or death to the child. Even though you may feel assured that the front passenger air bag will not deploy based on the fact that the front passenger air bag deactivation indicator light illuminates.

Do not allow a child or anyone to lean over or against the side window of a vehicle with side and curtain air bags:

It is dangerous to allow anyone to lean over or against the side window, the area of the front passenger seat, the front and rear window pillars and the roof edge along both sides from which the side and curtain air bags deploy, even if a child-restraint system is used. The impact of inflation from a side or curtain air bag could cause serious injury or death to an out of position child. Furthermore, leaning over or against the front door could block the side and curtain air bags and eliminate the advantages of supplemental protection. With the front air bag and the additional side air bag that comes out of the front seat, the rear seat is always a better location for children. Take special care not to allow a child to lean over or against the side window, even if the child is seated in a child-restraint system.

▼ Front Passenger's Seat Child-Restraint System Installation

1. Slide the seat as far back as possible.



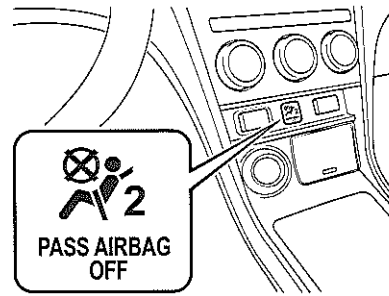
Essential Safety Equipment
Child Restraint

2. Secure the child-restraint system with the lap portion of the lap/shoulder belt. See the manufacturer's instructions on the child-restraint system for belt routing instructions.
3. To get the retractor into the automatic locking mode, pull the shoulder belt portion of the seat belt until the entire length of the belt is out of the retractor.
4. Push the child-restraint system firmly into the vehicle seat. Be sure the belt retracts as snugly as possible. A clicking noise from the retractor will be heard during retraction if the system is in automatic locking mode. If the belt does not lock the seat down tight, repeat the previous step and also this one.

NOTE

- *Inspect this function before each use of the child-restraint system. You should not be able to pull the shoulder belt out of the retractor while the system is in the automatic locking mode. When you remove the child-restraint system, be sure the belt fully retracts to return the system to emergency locking mode before occupants use the seat belts.*
- *Follow the child-restraint system manufacturer's instructions carefully. Depending on the type of child-restraint system, it may not employ seat belts which are in automatic locking mode.*

5. Make sure the front passenger air bag deactivation indicator light illuminates after installing a child-restraint system on the front passenger seat. Refer to Front passenger air bag deactivation indicator light on page 2-47.



Essential Safety Equipment

Child Restraint

⚠ WARNING

Do not seat a child in a child-restraint system on the front passenger seat if the front passenger air bag deactivation indicator light does not illuminate:

*While it is always better to install any child-restraint system on the rear seat, it is imperative that a child-restraint system **ONLY** be used on the front passenger seat if the deactivation indicator light illuminates when the child is seated in the child-restraint system (page 2-47). Seating a child in a child-restraint system installed on the front passenger seat with the front passenger air bag deactivation indicator light not illuminated is dangerous. If this indicator light does not illuminate even when the total seated weight is less than approximately 30 kg (66 lb), this means that the front passenger front and side air bags, and seat belt pretensioner are ready for deployment. If an accident were to deploy an air bag, a child in a child-restraint system sitting in the front passenger seat could be seriously injured or killed. If the indicator light does not illuminate after seating a child in a child-restraint system on the front passenger seat, seat a child in a child-restraint system on the rear seat and consult an Authorized Mazda Dealer as soon as possible.*

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Essential Safety Equipment
Child Restraint

LATCH Child-Restraint Systems

Your Mazda is equipped with LATCH lower anchors for attachment of specially designed LATCH child-restraint systems in the rear seat. Both anchors must be used, otherwise the seat will bounce around and put the child in danger. Most LATCH child-restraint systems must also be used in conjunction with a tether to be effective. If they have a tether you must use it to better assure your child's safety.

⚠ WARNING

Follow the manufacturer's instructions for the use of the child-restraint system:

An unsecured child-restraint system is dangerous. In a sudden stop or a collision it could move causing serious injury or death to the child or other occupants. Make sure the child-restraint system is properly secured in place according to the child-restraint system manufacturer's instructions.

Never attach two child-restraint systems to the same LATCH lower anchor:

Attaching two child-restraint systems to the same LATCH lower anchor is dangerous. In a collision, one anchor may not be strong enough to hold two child-restraint system attachments, and it may break, causing serious injury or death. If you use the seat position for another child-restraint system when an outboard LATCH position is occupied, use the center seat belts instead, and the tether if tether-equipped.

Make sure the child-restraint system is properly secured:

An unsecured child-restraint system is dangerous. In a sudden stop or a collision it could move causing serious injury or death to the child or other occupants. Follow the child-restraint system manufacturer's instructions on belt routing to secure the seat just as you would with a child in it so that nobody is tempted to put a child in an improperly secured seat later on. When not in use, remove it from the vehicle or fasten it with a seat belt, or latch it down to BOTH LATCH lower anchors for LATCH child-restraint systems.

Make sure there are no seat belts or foreign objects near or around the LATCH child-restraint system:

Not following the child-restraint system manufacturer's instructions when installing the child-restraint system is dangerous. If seat belts or a foreign object prevent the child-restraint system from being securely attached to the LATCH lower anchors and the child-restraint system is installed improperly, the child-restraint system could move in a sudden stop or collision causing serious injury or death to the child or other occupants. When installing the child-restraint system, make sure there are no seat belts or foreign objects near or around the LATCH lower anchors. Always follow the child-restraint system manufacturer's instructions.

NOTE

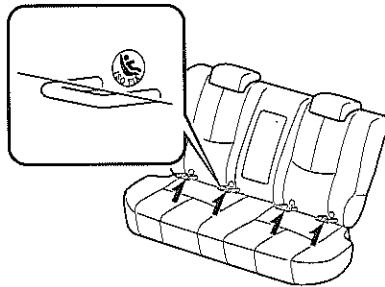
To install a child-restraint system on the rear-seat center position, use a seat belt-secured child-restraint system.

Essential Safety Equipment

Child Restraint

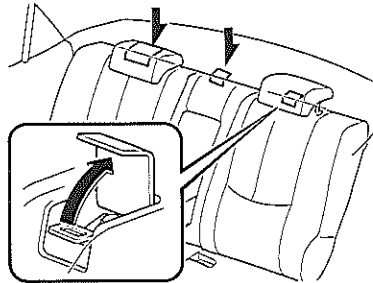
▼ LATCH Child-Restraint System Installation Procedure (Rear Outboard Seats)

1. Make sure the seatback is securely latched by pushing it back until it is fully locked.
2. Expand the area between the seat bottom and the seatback slightly to verify the locations of the LATCH lower anchors.

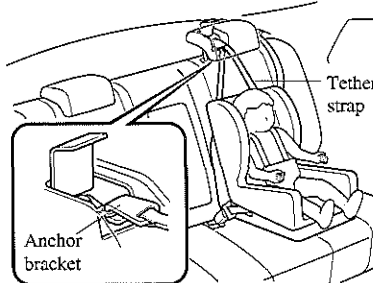


3. Raise the head restraint to the top locked position. Refer to Head restraints on page 2-12.
4. Secure the child-restraint system using BOTH LATCH lower anchors, following the child-restraint system manufacturer's instruction. Pull on the child-restraint to be sure both anchors are engaged.
5. If your child-restraint system came equipped with a tether, that means it is very important to properly secure the tether for child safety. Please carefully follow the child-restraint system manufacturer's instructions when installing tethers.

Anchor bracket location



Tether strap position



Essential Safety Equipment
Child Restraint

⚠ WARNING

Use the tether and tether anchor only for a child-restraint system:

Using the tether or tether anchor to secure anything but a child-restraint system is dangerous. This could weaken or damage the tether or tether anchor and result in injury.

Always route the tether strap between the head restraint and the seatback:

Routing the tether strap on top of the head restraint is dangerous. In a collision the tether strap could slide off the head restraint and loosen the child-restraint system. The child-restraint system could move which may result in death or injury to the child.

Always attach the tether strap to the correct tether anchor position:

Attaching the tether strap to the incorrect tether anchor position is dangerous. In a collision, the tether strap could come off and loosen the child-restraint system. If the child-restraint system moves it could result in death or injury to the child.

▼ LATCH Child-Restraint System Installation Procedure (Rear Center Seat)

The LATCH lower anchors at the center of the rear seat are much further apart than the sets of LATCH lower anchors for child-restraint system installation at other seating positions. Child-restraint systems with rigid LATCH attachments cannot be installed on the center seating position. Some LATCH equipped child-restraint systems can be placed in the center position and will reach the nearest LATCH lower anchors which are 466 mm (18.35 in) apart. LATCH compatible child-restraint systems (with attachments on belt webbing) can be used at this seating position only if the child-restraint system manufacturer's instructions state that the child-restraint system can be installed to LATCH lower anchors that are 466 mm (18.35 in) apart. Do not attach two child-restraint systems to the same LATCH lower anchor. If your child-restraint system has a tether, it must also be used for your child's optimum safety.

Essential Safety Equipment

Child Restraint

⚠ WARNING

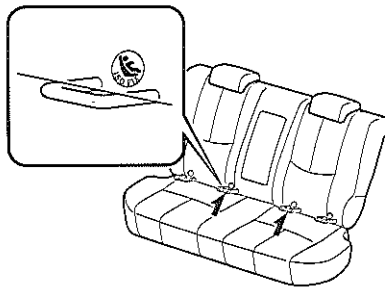
Use the tether and tether anchor only for a child-restraint system:

Using the tether or tether anchor to secure anything but a child-restraint system is dangerous. This could weaken or damage the tether or tether anchor and result in injury.

Always attach the tether strap to the correct tether anchor position:

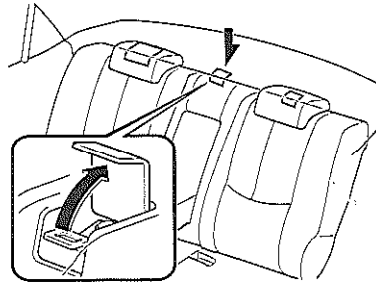
Attaching the tether strap to the incorrect tether anchor position is dangerous. In a collision, the tether strap could come off and loosen the child-restraint system. If the child-restraint system moves it could result in death or injury to the child.

1. Make sure the seatback is securely latched by pushing it back until it is fully locked.
2. Expand the area between the seat bottom and the seatback slightly to verify the locations of the LATCH lower anchors.

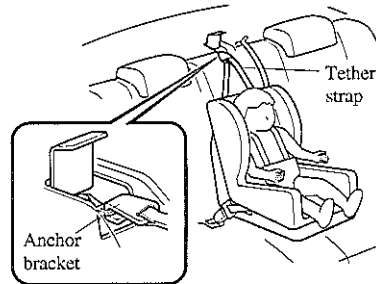


3. Secure the child-restraint system using BOTH LATCH lower anchors, following the child-restraint system manufacturer's instructions. Pull on the child-restraint to be sure both anchors are engaged.
4. If your child-restraint system came equipped with a tether, that means it is very important to properly secure the tether for child safety. Please carefully follow the child-restraint system manufacturer's instructions when installing tethers.

Anchor bracket location



Tether strap position



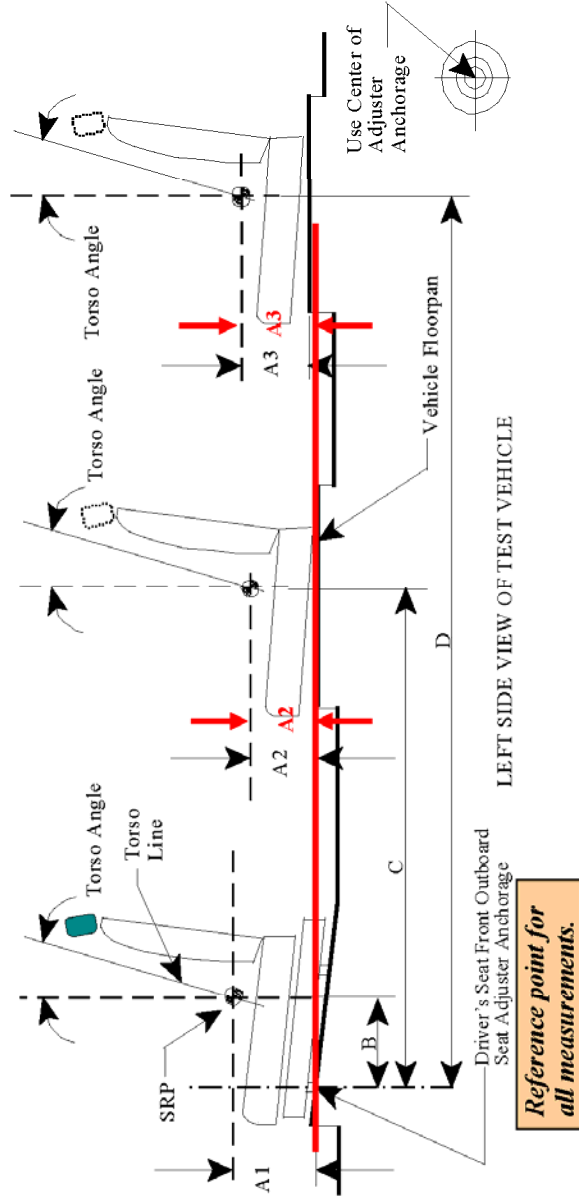
APPENDIX B
MANUFACTURER’S DATA (OVSC FORM 14)

FORM - 225
 Rev. 10/21/08

SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA

FMVSS No. 225
 (All dimensions in mm¹)

MODEL YEAR: 2009 / MAKE: Mazda / MODEL: MAZDA6 / BODY STYLE: 4-Dr SDN
 SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: Split Bench / THIRD ROW: N/A



2

Table 1. Seating Positions¹ and Torso Angles

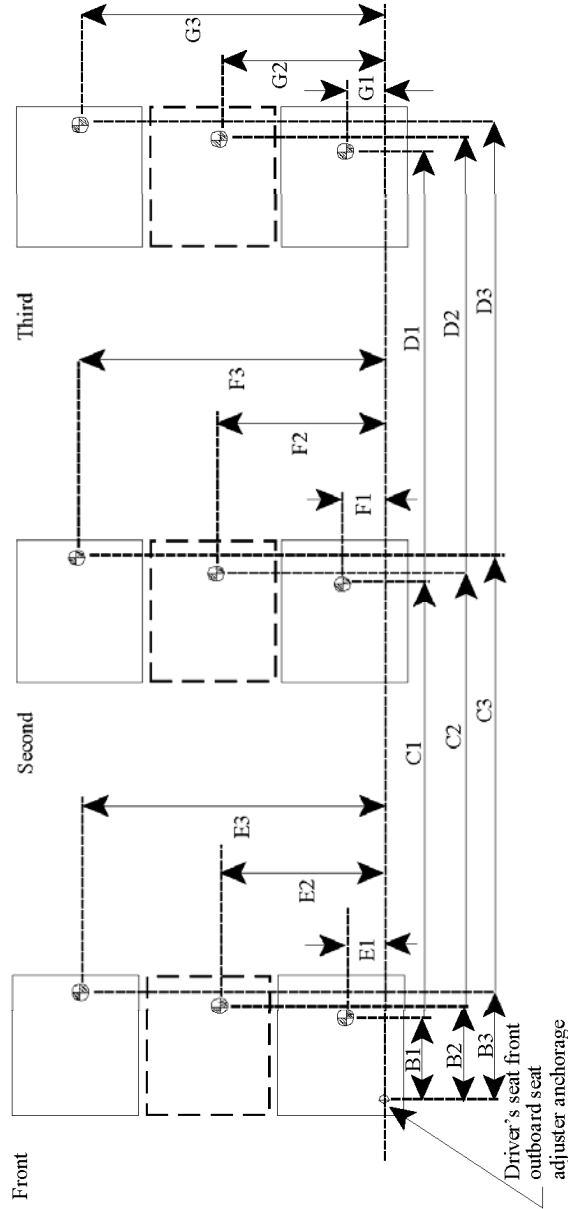
	Left (Driver Side)	Center (if any)	Right
A1	(Driver) 222.5	N/A	(Front Passenger) 224.5
A2	244.5	280.5	244.5
A3	N/A	N/A	N/A
B	316.5	N/A	316.5
C	1207.5	1205.5	1207.5
D	N/A	N/A	N/A
Torso Angle (degree)	Front Row	N/A	24°
	Second Row	22°	27°
	Third Row	N/A	N/A

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

SEATING REFERENCE POINT

FMVSS No. 225
 (All dimensions in mm)

MODEL YEAR: 2009 / MAKE: Mazda / MODEL: MAZDA6 / BODY STYLE: 4-Dr SDN
 SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: Split Bench / THIRD ROW: N/A



FORM - 225

Table 2. Seating Reference Point and Tether Anchorage Locations

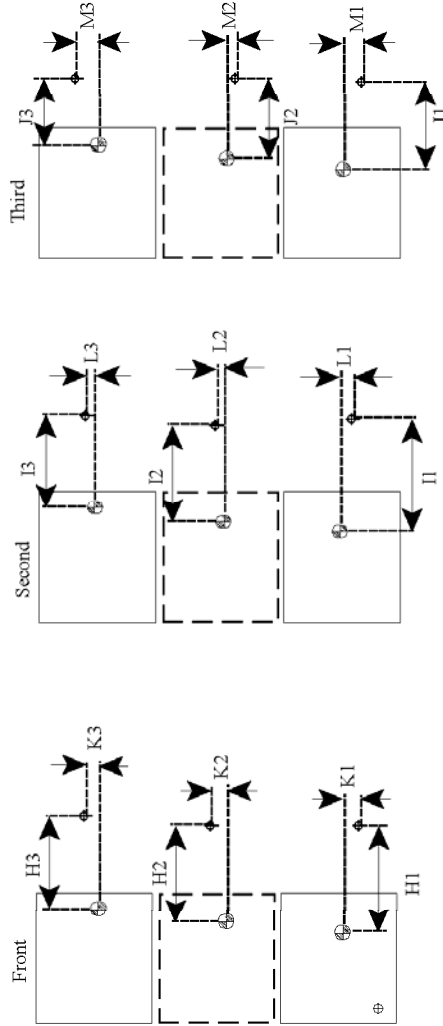
Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage ¹
Front Row	B1	316.5
	E1	217
	B2	N/A
	E2	N/A
	B3	316.5
	E3	947
Second Row	C1	1207.5
	F1	237
	C2	1205.5
	F2	582
	C3	1207.5
	F3	927
Third Row	D1	N/A
	G1	N/A
	D2	N/A
	G2	N/A
	D3	N/A
	G3	N/A

Note: Use the center of anchorage.

TETHER ANCHORAGE LOCATIONS

FMVSS No. 225
 (All dimensions in mm)

MODEL YEAR: 2009 / MAKE: Mazda / MODEL: MAZDA6 / BODY STYLE: 4-Dr SDN
 SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: Split Bench / THIRD ROW: N/A



⊕: SRP
 ⊕: Tether anchorage

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

FORM - 225

Table 3. Seating Reference Point and Tether Anchorage Locations

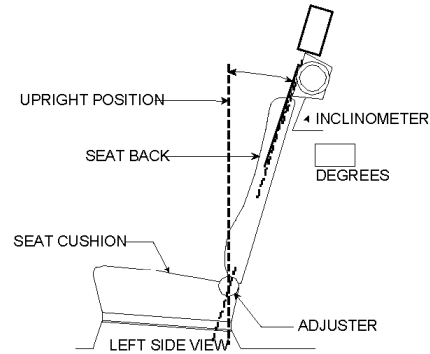
Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	N/A
	K1	N/A
	H2	N/A
	K2	N/A
	H3	N/A
	K3	N/A
Second Row	I1	507.8
	L1	10
	I2	509.8
	L2	0
	I3	507.8
	L3	10
Third Row	J1	N/A
	M1	N/A
	J2	N/A
	M2	N/A
	J3	N/A
	M3	N/A

Note: Use the center of anchorage.

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 = 10.8 degrees.

Measurement Instructions :

Align the inclinometer with the head restraint pole such as shown the above diagram.

Seat back angle for passenger's seat = 10.8 degrees.

Measurement Instructions :

Align the inclinometer with the head restraint pole such as shown the above diagram.

Seat back angle for 2nd row seat = 65.9 degrees.

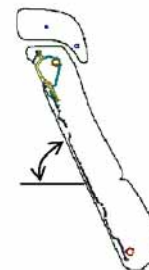
Measurement Instructions:

Not adjustable. (If the verification is necessary, align the inclinometer with the seat back plate as shown the next diagram.)

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

Measurement Instructions:

N/A

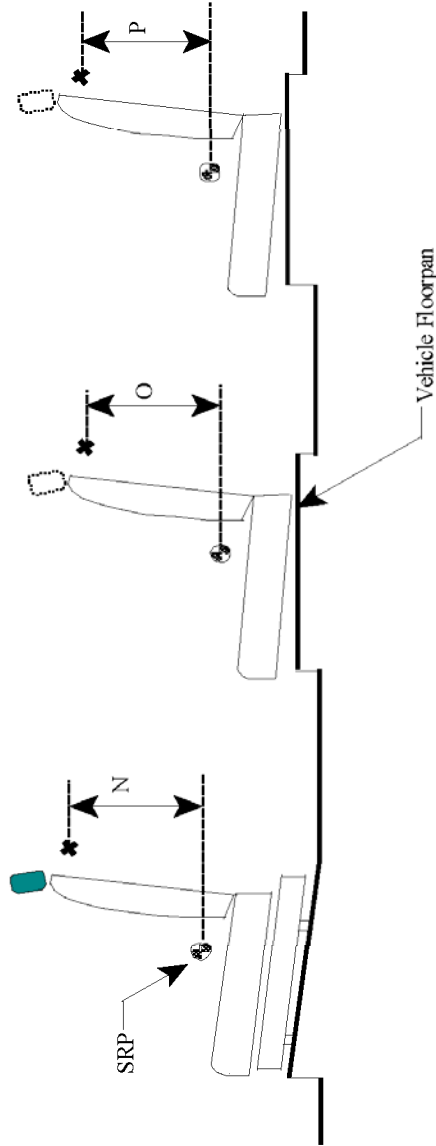


TETHER ANCHORAGE LOCATIONS - VERTICAL

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2009 / MAKE: Mazda / MODEL: MAZDA6 / BODY STYLE: 4-Dr SDN

SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: Split bench / 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) 511.6
	O2 (Center) 475.6
	O3 (Right) 511.6
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 persons
2. How many designated seating positions are equipped with lower anchorages and tether anchorages? Specify which position(s).
2 seating positions in the 2nd row
3. How many designated seating positions are equipped with tether anchorages? Specify which positions(s).
All seating positions in the 2nd row
4. Lower Anchorages Marking and Conspicuity: Whether the anchorages are certified to S9.5(a) or S9.5(b) of FMVSS No. 225.
S9.5(a)