

**FINAL REPORT NUMBER 225-MGA-08-001**

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

**MAZDA MOTOR COMPANY**  
**2008 MAZDA CX7 4-DOOR**  
**NHTSA No. C85400**

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



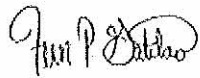
**Test Date: September 26, 2008**  
**Report Date: October 20, 2008**

**FINAL REPORT**

**PREPARED FOR:**

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

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Prepared By:

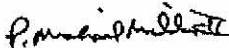
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Helen A. Kaleto, Laboratory Manager



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11/26/08

Approval Date:

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Edward E. Chan

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DN: CN = Edward E. Chan, C = US, O = National  
Highway Traffic Safety Administration, OU = Office  
of Vehicle Safety Compliance  
Date: 2008.12.05 15:25:06 -05'00'

Accepted By:

Acceptance Date: \_\_\_\_\_

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4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of a 2008 Mazda CX7, NHTSA No. C85400		5. Report Date October 20, 2008	
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		11. Contract or Grant No. DTNH22-06-C-00030/0003	
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 2008 Mazda CX7, NHTSA No. C85400, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-225-01 for the determination of FMVSS 225 compliance. The tests were conducted at MGA Research Corporation in Troy, Michigan on September 26, 2008. Test failures identified were as follows:  NONE  The data recorded indicates that the 2008 Mazda CX7 tested appears to meet the requirements of FMVSS 225.			
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## 1.0 PURPOSE AND PROCEDURE

### PURPOSE

The child restraint anchorage testing results presented in this report are part of the Federal Motor Vehicle Safety Standard (FMVSS) No. 225 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-06-C-00030/0003. The purpose of the testing was to determine if the subject vehicle, a 2008 Mazda CX7, NHTSA No. C85400 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 2<sup>nd</sup> row three-passenger 60/40 split back-bench seat. The 2<sup>nd</sup> row outboard left and right seating positions were equipped with a child restraint anchorage system (one tether and two lower anchorages). The center seating position was equipped with a tether anchorage. The center-to-center spacing between the 2<sup>nd</sup> row outboard lower anchorages was approximately 670 mm. The 2<sup>nd</sup> row left and right outboard seating positions were tested with the SFADII fixture.

## 2.0 COMPLIANCE TEST AND DATA SUMMARY

### TEST SUMMARY

The testing was conducted at MGA in Troy, Michigan on September 26, 2008.

Based on the test results, the 2008 Mazda CX7 appears to meet the requirements of FMVSS No. 225 for this testing.

The SFADII at the 2<sup>nd</sup> row left seating position sustained a maximum force of 5,087 N and held the required load for 3 seconds and the total displacement was 44 mm. The SFADII at the 2<sup>nd</sup> row right seating position sustained a maximum force of 5,118 N and held the required load for 3 seconds and the total displacement was 61 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

<b>MGA Test #</b>	<b>Fixture Type</b>	<b>Test Configuration</b>	<b>Seating Position</b>	<b>Max. Load (N)</b>	<b>Displacement (mm)</b>
SB8362	SFADII	Lateral Left	2 <sup>nd</sup> Row Left	5,087	44
			2 <sup>nd</sup> Row Right	5,118	61

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2008 Mazda CX7
VEH. NHTSA NO.	C85400
VIN	JM3ER293X80174861
COLOR	Black
VEH. BUILD DATE	06/2007
TEST DATE	September 26, 2008
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Brad Reaume, Kenney Godfrey

GENERAL INFORMATION:

DATA FROM VEHICLE’S CERTIFICATION LABEL:

Vehicle Manufactured By: Mazda Motor Company

Date of Manufacture: 06/07; VIN: JM3ER293X80174861

GVWR: 4780 lbs; GAWR FRONT: 2535 lbs

GAWR REAR: 2253 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 32 psi REAR: 32 psi

Recommended Tire Size: P235/60R18

Recommended Cold Tire Pressure:

FRONT: 32 psi REAR: 32 psi

Size of Tire on Test Vehicle: P235/60R18

Size of Spare Tire: T155/90D18

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

<b>MGA Research Corporation 446 Executive Drive Troy, Michigan 48083</b>	
<b>Test Equipment Used for Testing</b>	<b>Calibration Due Date</b>
MGA Hydraulic Test Frame	N/A
Two (2) Load Cell 10,000 lb Capability	S/N 629 (5/27/08), 659 (9/17/08)
String Potentiometer Calibrated at each use	S/N A1600462A/F1603964A (9/15/08)
Hydraulic Pump	N/A
MGA CRF Fixture	N/A
MGA SFADI	N/A
MGA SFADII	N/A
MGA 2-Dimensional Template	N/A
Linear Scale	S/N TDM (7/28/09)
MGA Data Acquisition System	N/A
Digital Calipers	S/N MGA00676 (1/14/09)
Force Gauge	S/N MGA00014 (6/4/09)
Inclinometer (Digital)	S/N MGA00575 (9/28/08)

5.0 DATA

Table 3. Child Restraint Tether Anchorage Configuration

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

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

REMARKS: NONE.

Table 4. Child Restraint Lower Anchorage Configuration

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION				
		FRONT ROW	SECOND ROW		THIRD ROW
			I/B	O/B	
Above anchorage, permanently marked with a circle not less than 13 mm in Dia.; and whose color contrasts with its background; and its center is not less than 50 mm and not more than 100 mm above the bar, and in the vertical longitudinal plane that passes through the center of the bar.	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Each of the bars is visible, without the compression of the seat cushion or seat back, when the bar is viewed, in a vertical longitudinal plane passing through the center of the bar, along a line marking an upward 30 degree angle with a horizontal plane.	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Diameter of the bar (mm)	LH	N/A	5.97	5.95	N/A
	Ctr		N/A		
	RH		5.97	5.99	
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	61		N/A
	Ctr		N/A		
	RH		60		
Measure the distance between the SRP to the front of the anchorage bar (mm)	LH	N/A	170	170	N/A
	Ctr		N/A		
	RH		171	171	

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	27	N/A	
			Req't<60	34		
	Ctr		Req't>25	N/A		
			Req't<60	N/A		
	RH		Req't>25	39		27
			Req't<60	45		36
Inspect if the bars can be connected to, over their entire inside length by the connectors of child restraint system.	LH	N/A	Yes		N/A	
	Ctr		N/A			
	RH		Yes			
Inspect if the bars are an integral and permanent part of the vehicle.	LH	N/A	Yes		N/A	
	Ctr		N/A			
	RH		Yes			
Inspect if the bars are rigidly attached to the vehicle. If feasible, hold the bar firmly with two fingers and gently pull.	LH	N/A	Yes		N/A	
	Ctr		N/A			
	RH		Yes			

**PITCH, YAW, & ROLL INFORMATION**

SEAT POSITION	PITCH (deg)	YAW (deg)	ROLL (deg)
2 <sup>nd</sup> Row Left	16.1	N/A	0.5
2 <sup>nd</sup> Row Center	N/A	N/A	N/A
2 <sup>nd</sup> Row Right	16.7	N/A	0.2

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

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

REMARKS: NONE

Table 5. Tether Location and Dimensional Measurements

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

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

REMARKS: NONE

Table 6. Tether Anchorage Static Loading and Displacement

SEAT POSITION	Seat, Seat Back, & Head Restraint Positions			Type of SFAD Used	Angle (deg)	Initial Location (mm)	Onset Rate (N/sec.)	Force Applied (N)	Max. Load (N)	Final Location (mm)	Horiz. Displ. (mm)	
	Seat	Seat Back	Is There a H/R?									
Front Row	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Second Row	LH	Fixed	Fixed	No	II	0	32	167	5,000	5,087*	76	44
	Ctr.			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH			No	II	0	42	167	5,000	5,118*	103	61
Third Row	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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

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

## 6.0 PHOTOGRAPHS

### 6.1 Front view



6.2 Rear view





6.3 3/4 Front left view





6.4 3/4 Front right view



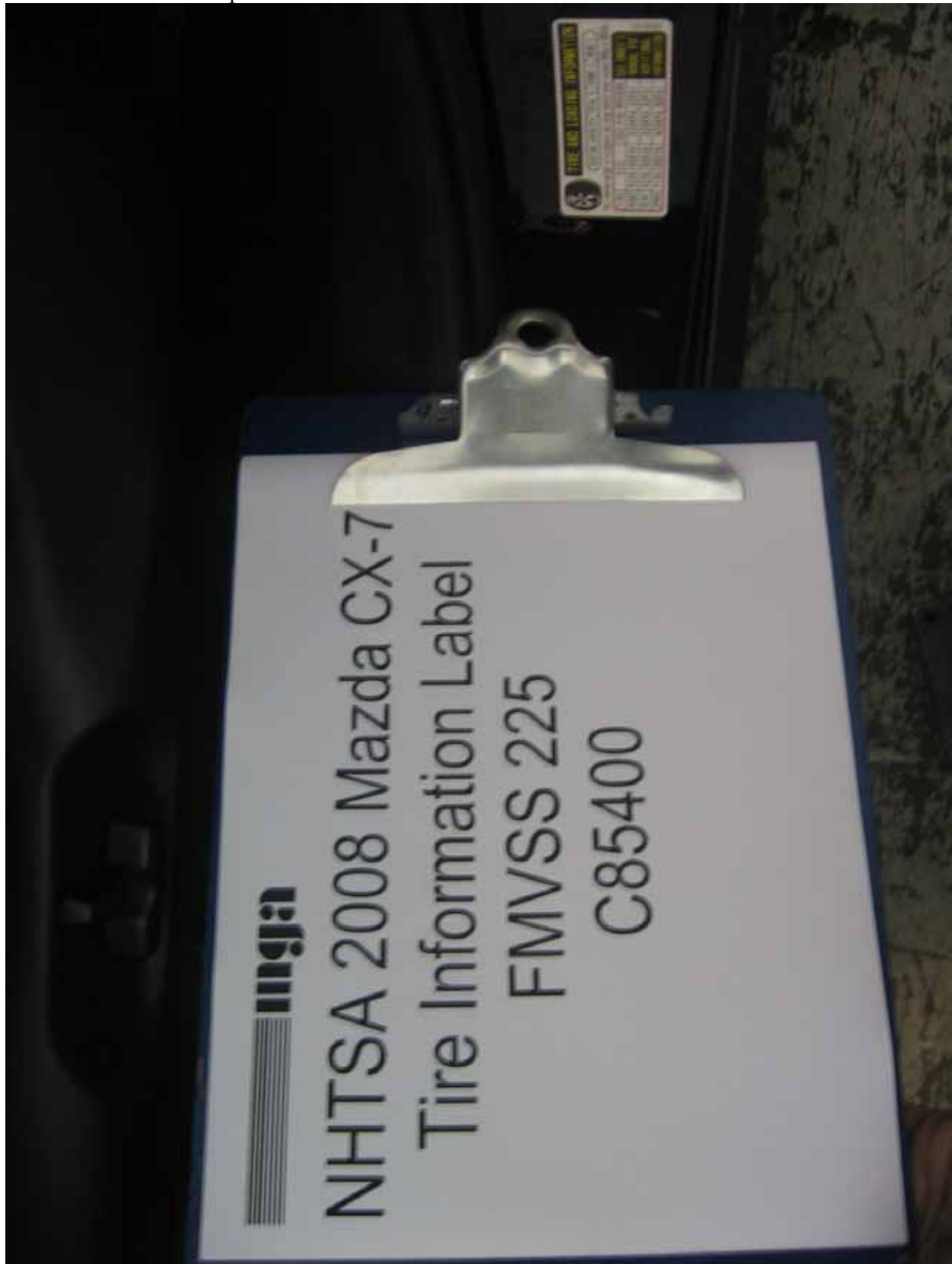
- 6.5 Test vehicle's certification label
  - 6.5.1 Certification label photo #1



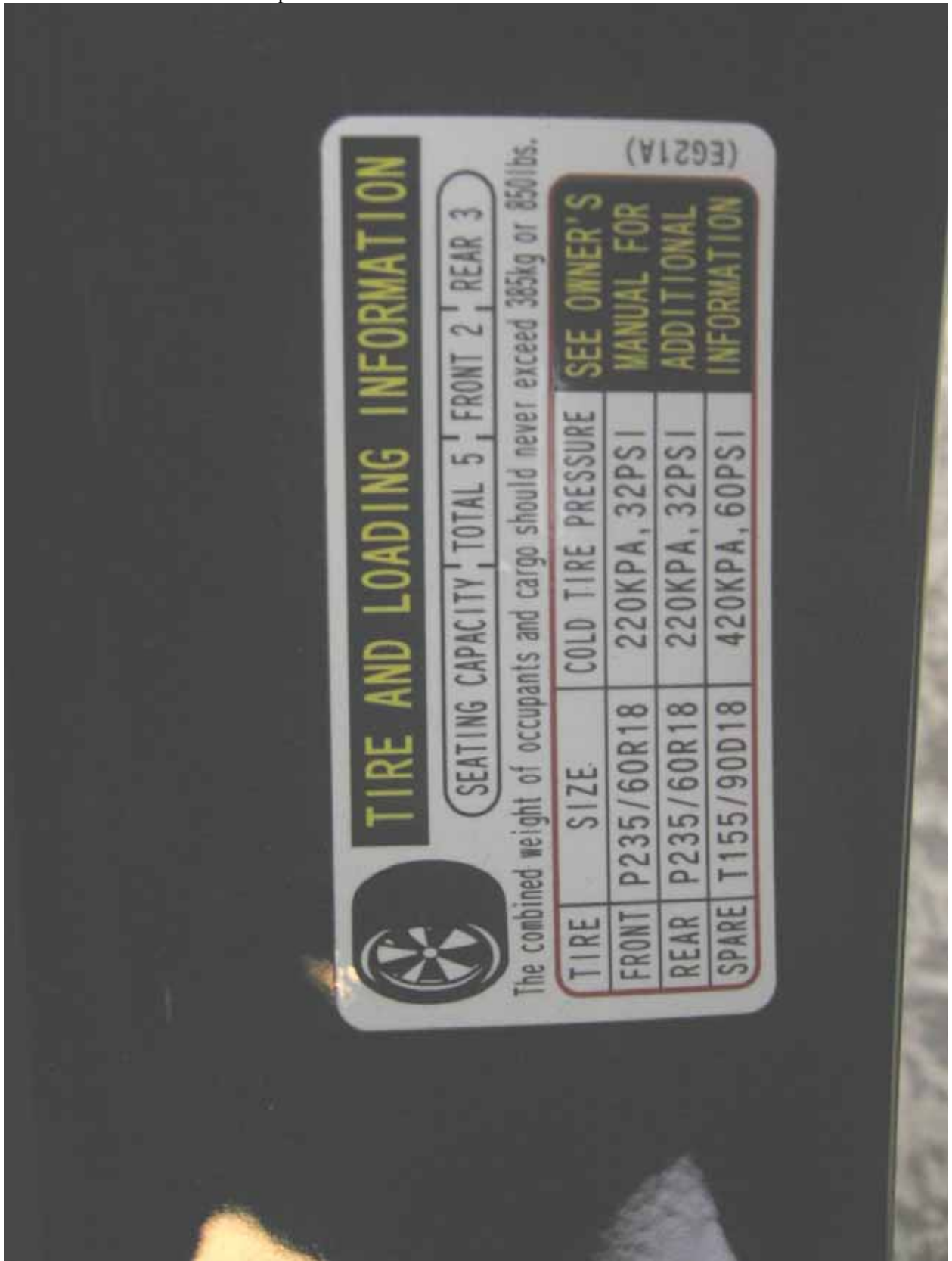
6.5.2 Certification label photo #2



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



6.8 CRF verification  
6.8.1 LH position photo #1





6.8.2 RH position photo #1



6.9 Front view of test vehicle with test apparatus in place



- 6.10 Pre-test views of each child restraint anchorage system installed in the vehicle
  - 6.10.1 Pre-test photo #1



6.10.2 Pre-test photo #2





6.10.3 Pre-test photo #3



- 6.11 Post-test condition of each child restraint anchorage system
  - 6.11.1 Post-test photo #1



6.11.2 Post-test photo #2



6.11.3 Post-test photo #3





6.11.4 Post-test photo #4



6.11.5 Post-test photo #5



6.11.6 Post-test photo #6





6.11.7 Post-test photo #7



6.11.8 Post-test photo #8



6.11.9 Post-test photo #9





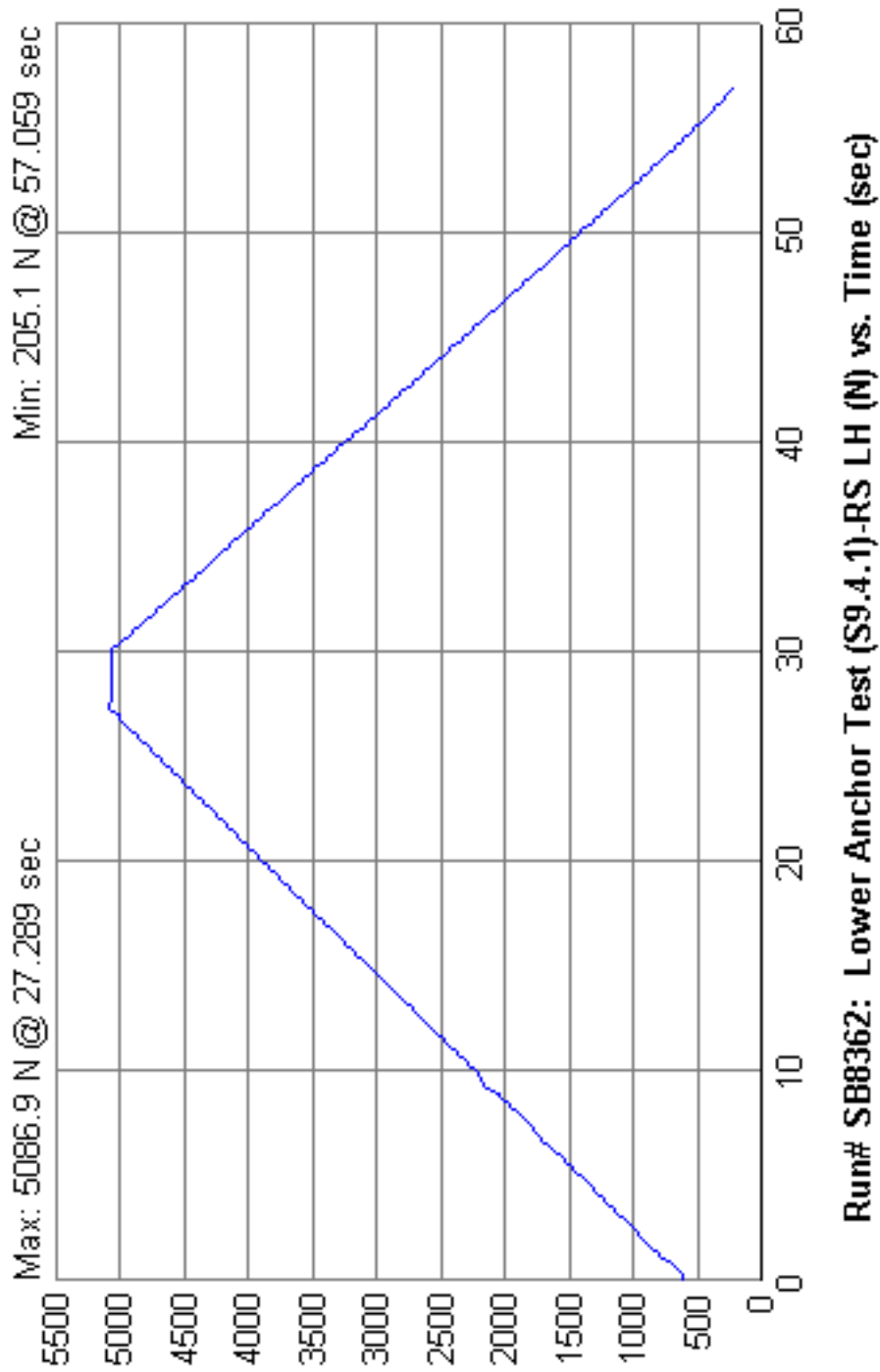
6.11.10 Post-test photo #10

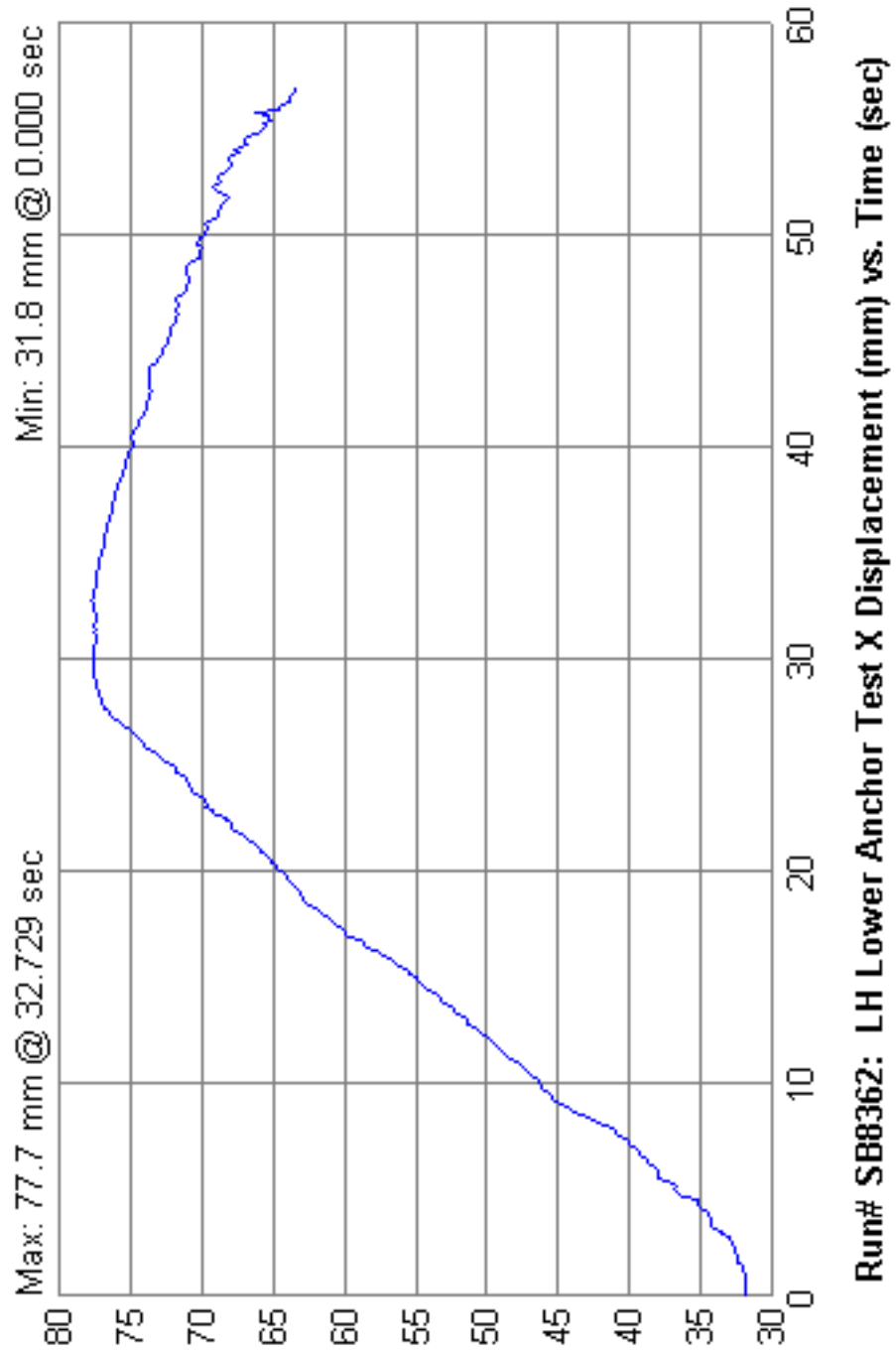


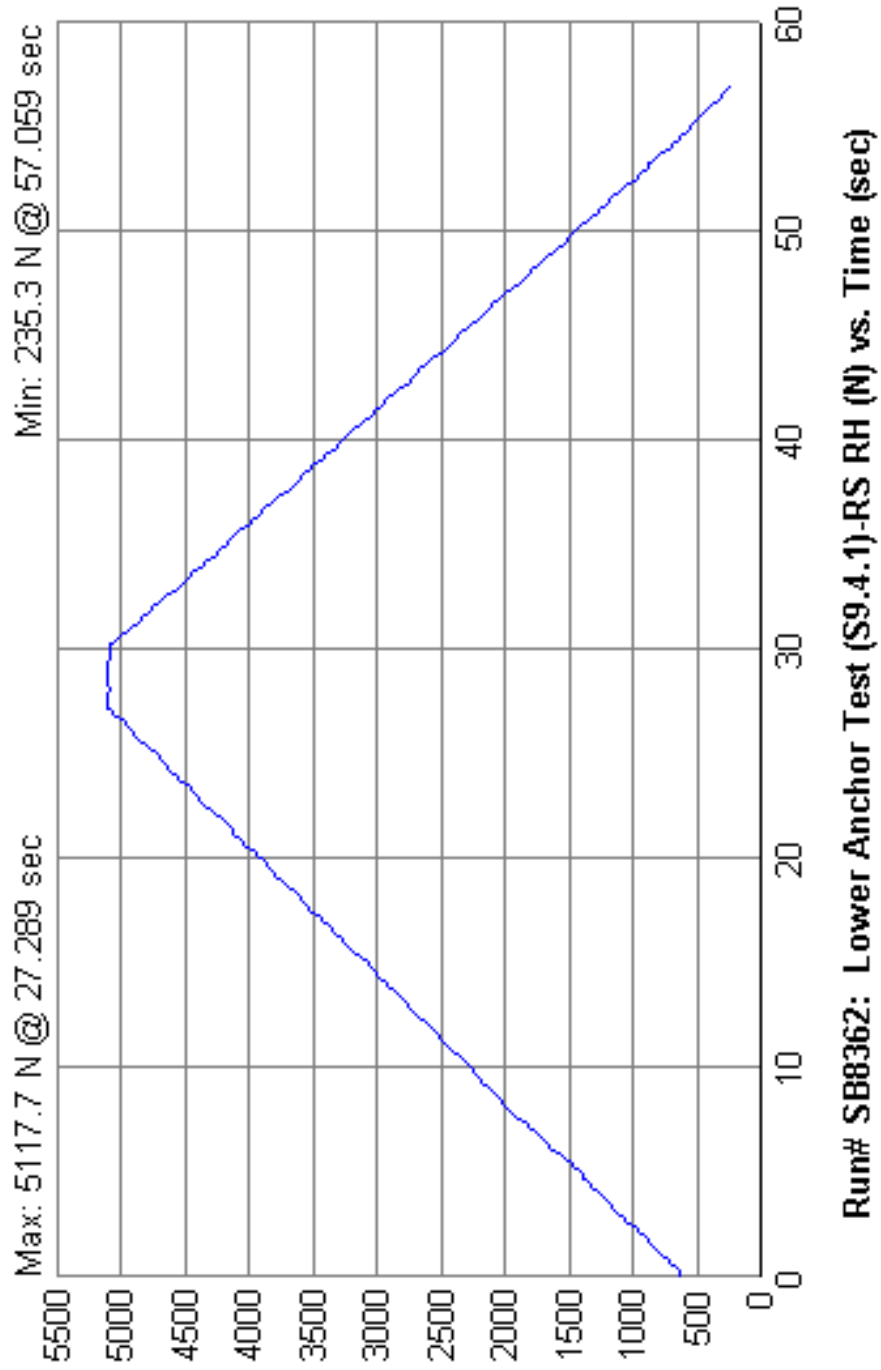
6.11.11 Post-test photo #11



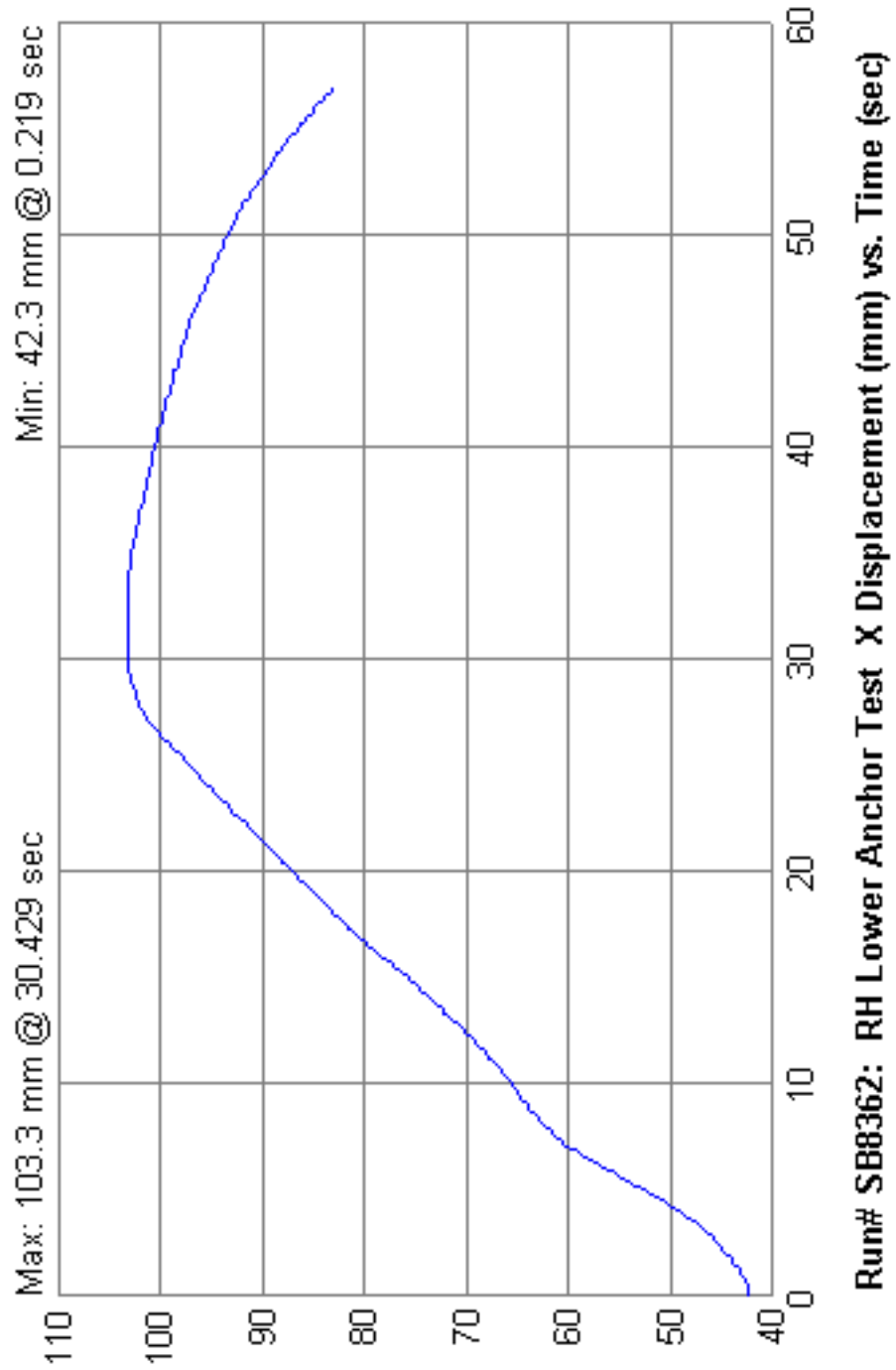
7.0 PLOTS











8.0 REPORT of VEHICLE CONDITION

**REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING**

CONTRACT No.: DTNH22-06-C-00030/0003

DATE: September 26, 2008

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

To: NHTSA, OVSC, NVS-220

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

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

VEH. MOD YR/MAKE/MODEL/BODY: 2008 Mazda CX7

VEH. NHTSA NO.: C85400

VIN: JM3ER293X80174861

COLOR: Black

ODOMETER READINGS: ARRIVAL 543 miles Date: 07/20/07

COMPLETION 544 miles Date: 4/28/08

PURCHASE PRICE: \$15,585 DEALER'S NAME: TRC

ENGINE DATA:      Cylinders 2.3 Liters      Cubic Inches

TRANSMISSION DATA: X Automatic      Manual No. of Speeds

FINAL DRIVE DATA:      Rear Drive X Front Drive      4 Wheel Drive

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT:

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Fern Gatilao, Brad Reaume, Kenney Godfrey

<input checked="" type="checkbox"/>	Air Conditioning		Traction Control	<input checked="" type="checkbox"/>	Clock
<input checked="" type="checkbox"/>	Tinted Glass		All Wheel Drive		Roof Rack
<input checked="" type="checkbox"/>	Power Steering		Speed Control	<input checked="" type="checkbox"/>	Console
<input checked="" type="checkbox"/>	Power Windows	<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	Power Seat(s)		Tachometer	<input checked="" type="checkbox"/>	Front Disc Brakes
<input checked="" type="checkbox"/>	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:**

Windshield and front seats were removed before conducting the testing.

**Test Vehicle Condition:**

Salvage only.

RECORDED BY: Fern Gatilao, Kenney Godfrey

DATE: September 26, 2008

APPROVED BY: Brad Reaume

APPENDIX A  
OWNERS MANUAL CHILD RESTRAINT SYSTEMS

Essential Safety Equipment

## Child Restraint

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### 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 2-60).



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:**

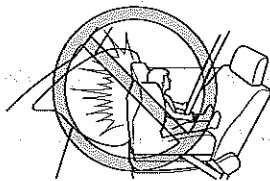
An unsecured child-restraint system is dangerous. In a sudden stop or a collision it could move causing serious injury or death to the child or other occupants. Make sure any child-restraint system is properly secured in place according to the child-restraint system manufacturer's instructions. When 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 even though you may feel assured that a front passenger air bag will not deploy based on the fact that the front passenger air bag deactivation indicator light illuminates. 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.

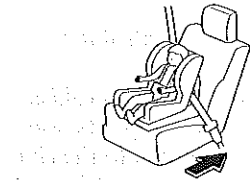


Essential Safety Equipment  
**Child Restraint**

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**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 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.*
- *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**

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**Do not allow a child 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. If the vehicle is equipped with side and curtain air bags, the impact of inflation could cause serious injury or death to the 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. Do not 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.

**Always remove the child-restraint system from the rear seat before operating the remote handle levers for the rear seat:**

Operating the remote handle levers while a rear-facing child-restraint system is in the rear seat is dangerous. It could cause injury to a child seated in the child-restraint system when the seatback suddenly flips forward.

**⚠ 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 2-41).

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 2-60), 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 2-41).

**⚠ 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.*

2-32

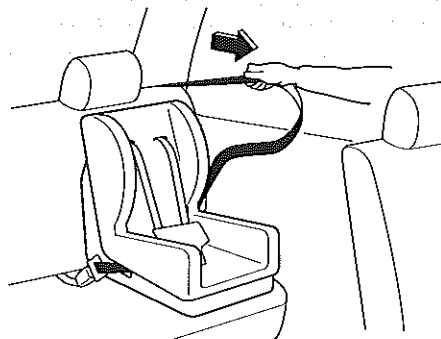
**▼ Rear Outboard Seat Child-Restraint System Installation**

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 2-41).

**NOTE**

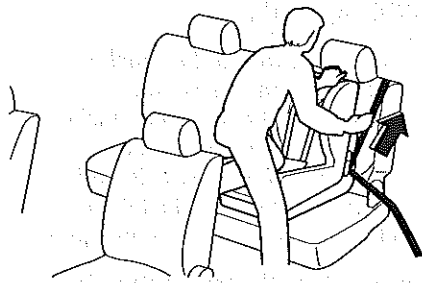
*Follow the child-restraint system manufacturer's instructions carefully. If you are not sure whether you have a LATCH system or tether, check in the child-restraint system manufacturer's instructions and follow them accordingly. Depending on the type of child-restraint system, it may not employ seat belts which are in automatic locking mode.*

1. Make sure the seatback is securely latched by pushing it back until it is fully locked.
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.



Essential Safety Equipment  
**Child Restraint**

4. Push the child-restraint system firmly into the vehicle seat. Be sure the belt retracts as snugly as possible. Clicking 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.

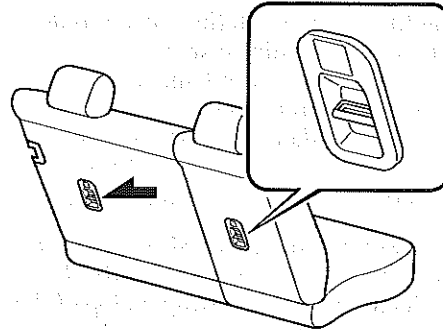


**NOTE**

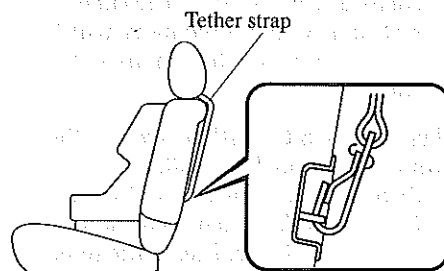
*Inspect this function before each use of the child-restraint system. You should not be able to pull the shoulder belt out of the retractor while the system is in the automatic locking mode. When you remove the child-restraint system, be sure the belt fully retracts to return the system to emergency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

**Anchor bracket location**



**Tether strap position**





Essential Safety Equipment  
**Child Restraint**

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**⚠ 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.*

**▼ Center-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 2-41).

**⚠ 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.*

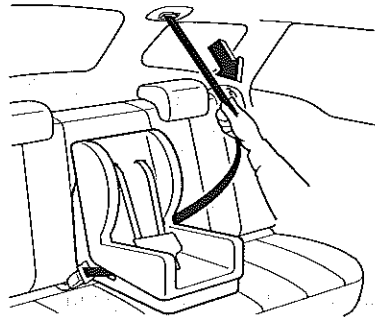
**NOTE**

*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 not employ seat belts which are in automatic locking mode.*

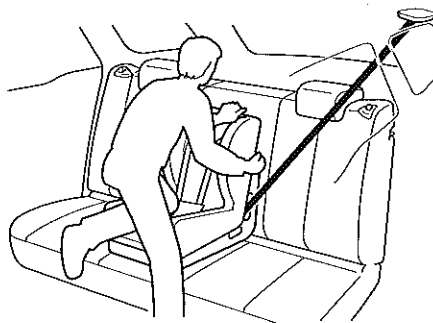
1. Make sure the seatback is securely latched by pushing it back until it is fully locked.

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. Clicking 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.

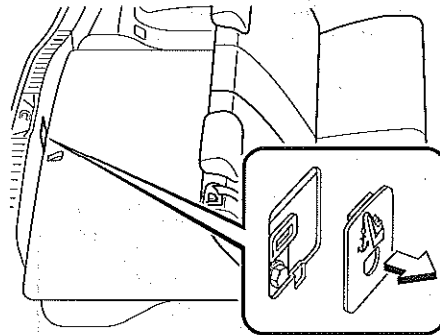


**NOTE**

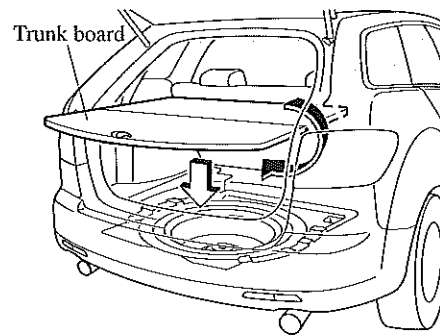
*Inspect this function before each use of the child-restraint system. You should not be able to pull the shoulder belt out of the retractor while the system is in the automatic locking mode. When you remove the child-restraint system, be sure the belt fully retracts to return the system to emergency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

**Type A**

1. If your child-restraint system requires the use of a tether strap, hook and tighten the tether strap. First, remove the anchor bracket cover on the rear end trim.

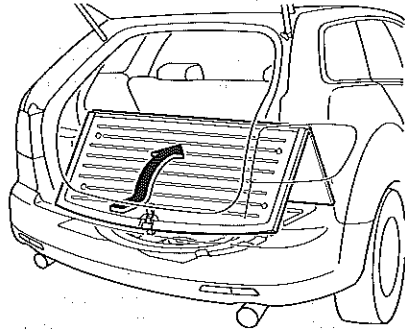


2. Flip over the trunk board.

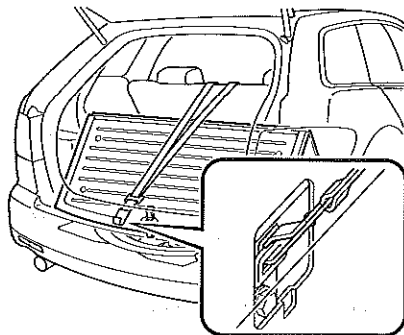


Essential Safety Equipment  
**Child Restraint**

3. Fold the trunk board into the position shown in the figure.



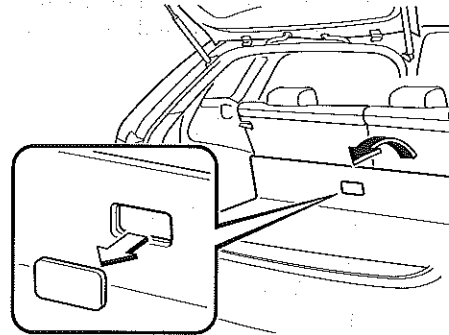
4. Latch the hook onto the anchor bracket, and tighten the tether strap following the child-restraint system manufacturer's instructions.



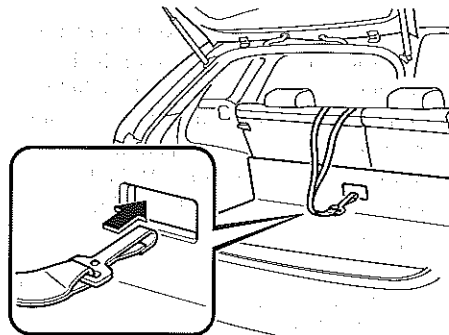
5. Push the trunk board down to its original position.

**Type B**

1. If your child-restraint system requires the use of a tether strap, hook and tighten the tether strap. First, pull up the front part of the trunk board and remove the anchor bracket cover on the trunk board.

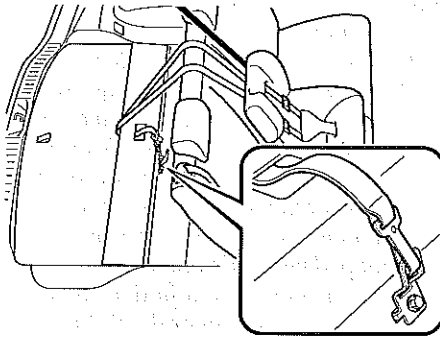


2. Pass the tether strap through the hole.



Essential Safety Equipment  
**Child Restraint**

3. Latch the hook onto the anchor bracket.



4. Push the trunk board down to its original position, and tighten the tether strap following the child-restraint system manufacturer's instructions.

▼ **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.

Don't 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 if 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.

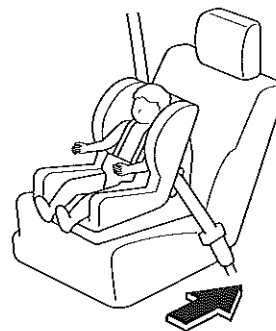
Even though you may feel assured that the front passenger air bag will not deploy based on the fact that the front passenger air bag deactivation indicator light illuminates.

**Do not allow a child 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. If the vehicle is equipped with side and curtain air bags, the impact of inflation could cause serious injury or death to the 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. Do not 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.



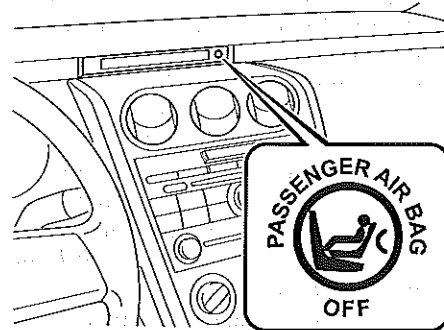
Essential Safety Equipment  
**Child Restraint**

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. Clicking 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 2-60.





Essential Safety Equipment

**Child Restraint**

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**⚠ 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 2-60). 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.*

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.*

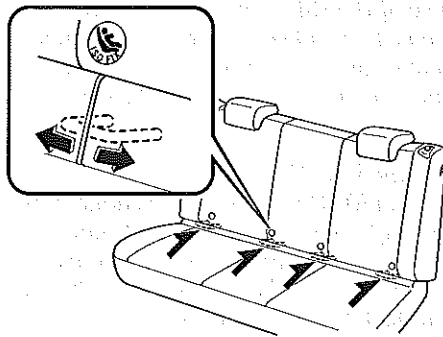
**Make sure there are no seat belts or foreign objects near or around the LATCH child-restraint system:**

*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.*

Essential Safety Equipment  
**Child Restraint**

▼ **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 open seams on the rear of the seat bottom slightly to verify the locations of the LATCH lower anchors.

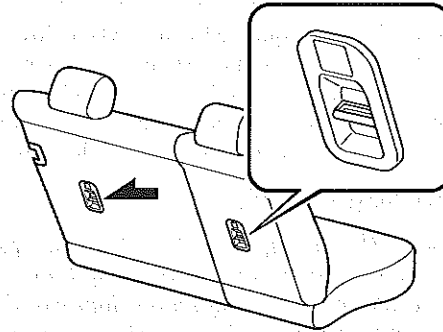


**NOTE**

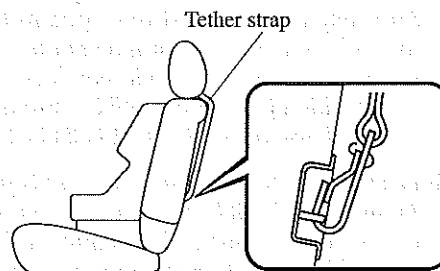
The markings above the LATCH lower anchors indicate the locations of LATCH lower anchors for the attachment of a child-restraint system.

3. Secure the child-restraint system using BOTH LATCH lower anchors, following the child-restraint system manufacturer's instruction.
4. If your child-restraint system came equipped with a tether, that probably 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.*

**▼ Child-Restraint System Installation Procedure (Center-Rear 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 400 mm (15.75 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 400 mm (15.75 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**

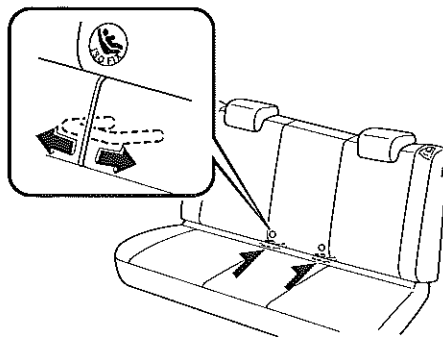
**Use the tether and tether anchor only for a child-restraint system:**

*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 open seams on the rear of the seat bottom slightly to verify the locations of the LATCH lower anchors.



**NOTE**

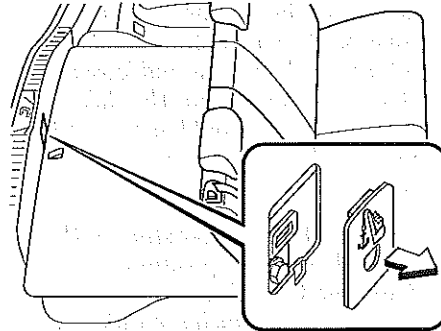
*The markings above the LATCH lower anchors indicate the locations of LATCH lower anchors for the attachment of a child-restraint system.*

2-44

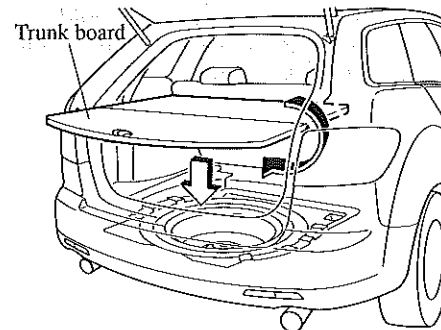
3. Secure the child-restraint system using BOTH LATCH lower anchors, following the child-restraint system manufacturer's instructions.

**Type A**

1. If your child-restraint system came equipped with a tether, that probably means it is very important to properly secure the tether for child safety. First, remove the anchor bracket cover on the rear end trim.

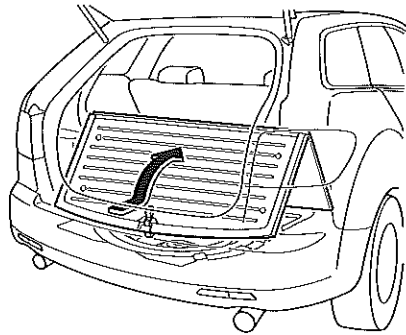


2. Flip over the trunk board.

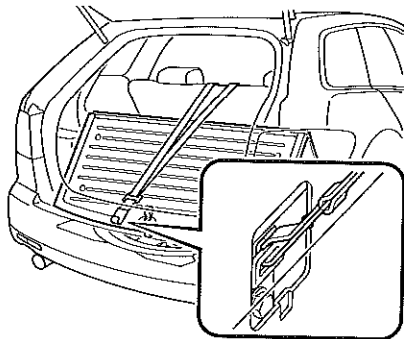


Essential Safety Equipment  
**Child Restraint**

3. Fold the trunk board into the position shown in the figure.



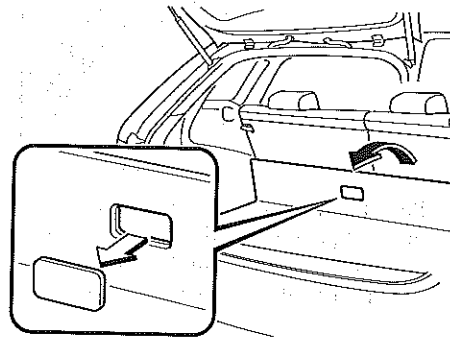
4. Latch the hook onto the anchor bracket, and tighten the tether strap following the child-restraint system manufacturer's instructions.



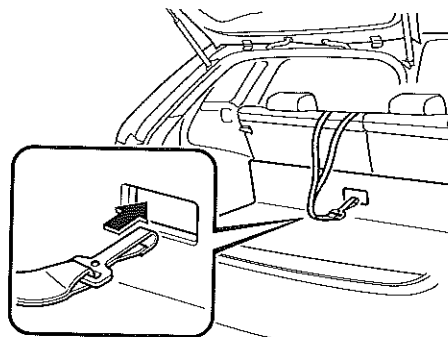
5. Push the trunk board down to its original position.

**Type B**

1. If your child-restraint system requires the use of a tether strap, hook and tighten the tether strap. First, pull up the front part of the trunk board and remove the anchor bracket cover on the trunk board.



2. Pass the tether strap through the hole.

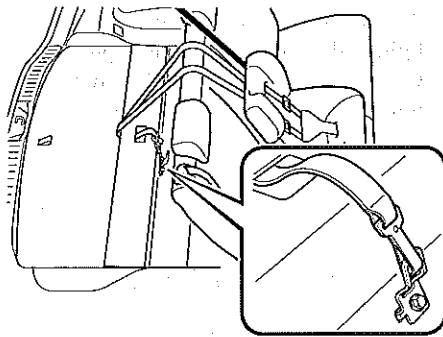




Essential Safety Equipment  
**Child Restraint**

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3. Latch the hook onto the anchor bracket.



4. Push the trunk board down to its original position, and tighten the tether strap following the child-restraint system manufacturer's instructions.

APPENDIX B  
MANUFACTURER’S DATA (OVSC FORM 14)

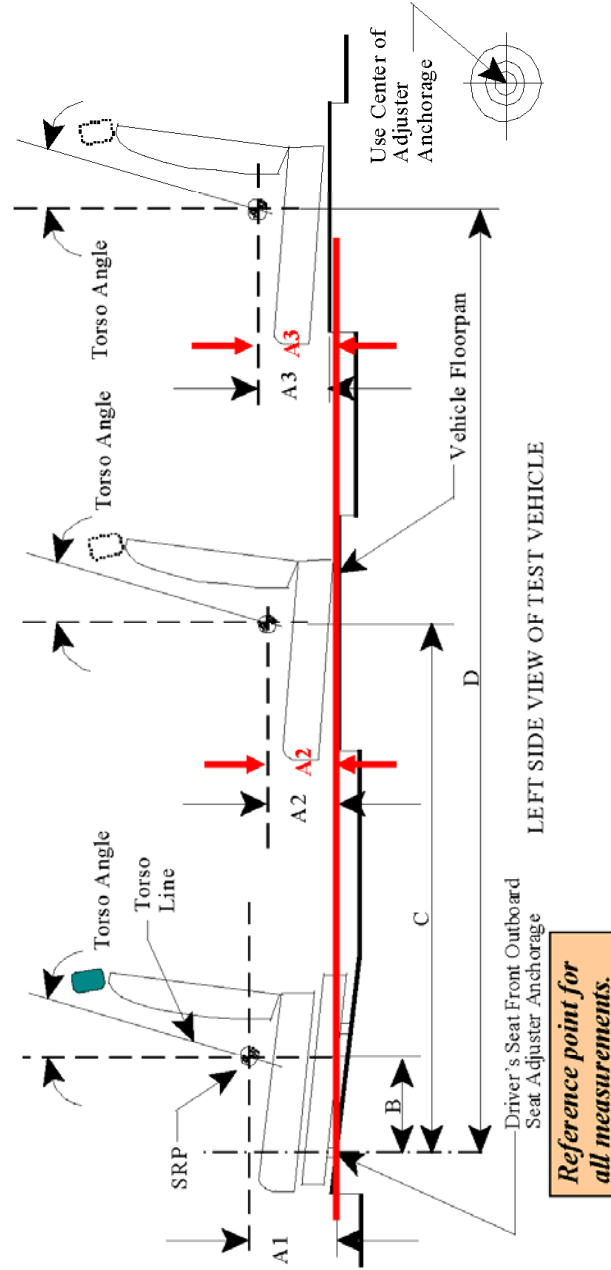
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 Rev. 03/20/07

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

FMVSS No. 225  
 (All dimensions in mm<sup>1</sup>)

MODEL YEAR: 2008 / MAKE: Mazda / MODEL: CX-7 / BODY STYLE: 5-Dr SUV

SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: Split Bench / THIRD ROW: N/A



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Table 1. Seating Positions<sup>1</sup> and Torso Angles

	Left (Driver Side)	Center (if any)	Right
A1	(Driver) 263.3	N/A	(Front Passenger) 263.3
A2	268.3	293.3	268.3
A3	N/A	N/A	N/A
B	364.5	N/A	364.5
C	1191.5	1171.5	1191.5
D	N/A	N/A	N/A
Torso Angle (degree)	Front Row	N/A	22°
	Second Row	24°	24°
	Third Row	N/A	N/A

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

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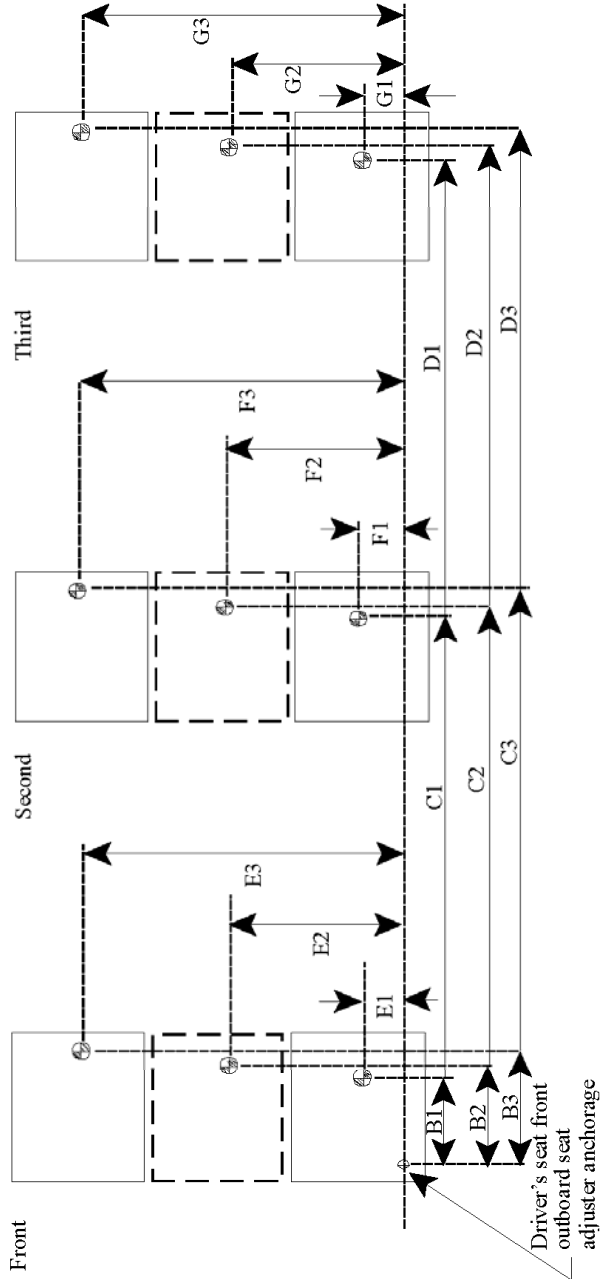
### SEATING REFERENCE POINT

FMVSS No. 225

(All dimensions in mm)

MODEL YEAR: 2008 / MAKE: Mazda / MODEL: CX-7 / BODY STYLE: 5-Dr SUV

SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: Split Bench / THIRD ROW: N/A



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Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage <sup>1</sup>
Front Row	B1	364.5
	E1	197
	B2	N/A
	E2	N/A
	B3	364.5
	E3	937
Second Row	C1	1191.5
	F1	227
	C2	1171.5
	F2	567
	C3	1191.5
	F3	907
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.



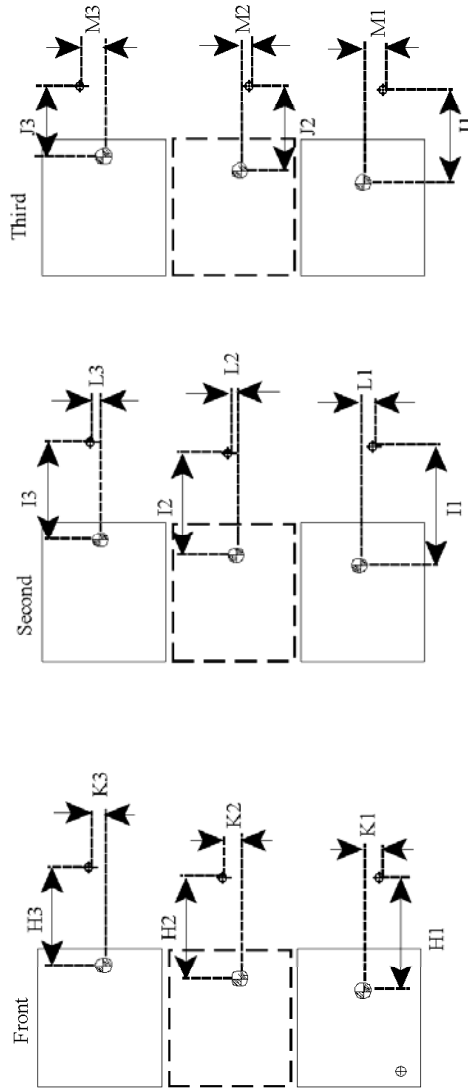
5

### TETHER ANCHORAGE LOCATIONS

FMVSS No. 225  
 (All dimensions in mm)

MODEL YEAR: 2008 / MAKE: Mazda / MODEL: CX-7 / BODY STYLE: 5-Dr SUV

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.

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Table 3. Seating Reference Point and Tether Anchorage Locations

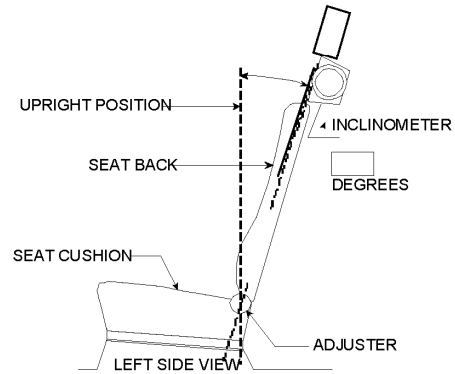
Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	N/A
	K1	N/A
	H2	N/A
	K2	N/A
	H3	N/A
	K3	N/A
Second Row	I1	299.4
	L1	0
	I2	1279.7
	L2	0
	I3	299.4
	L3	0
Third Row	J1	N/A
	M1	N/A
	J2	N/A
	M2	N/A
	J3	N/A
	M3	N/A

Note: Use the center of anchorage.

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**NOMINAL DESIGN RIDING POSITION**

For adjustable driver, passenger, 2<sup>nd</sup> row and 3<sup>rd</sup> 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 = 15 degrees.

Measurement Instructions :

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

Seat back angle for passenger's seat = 15.5 degrees.

Measurement Instructions :

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

Seat back angle for 2<sup>nd</sup> row seat = 25 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 3<sup>rd</sup> row seat = N/A degrees.

Measurement Instructions:

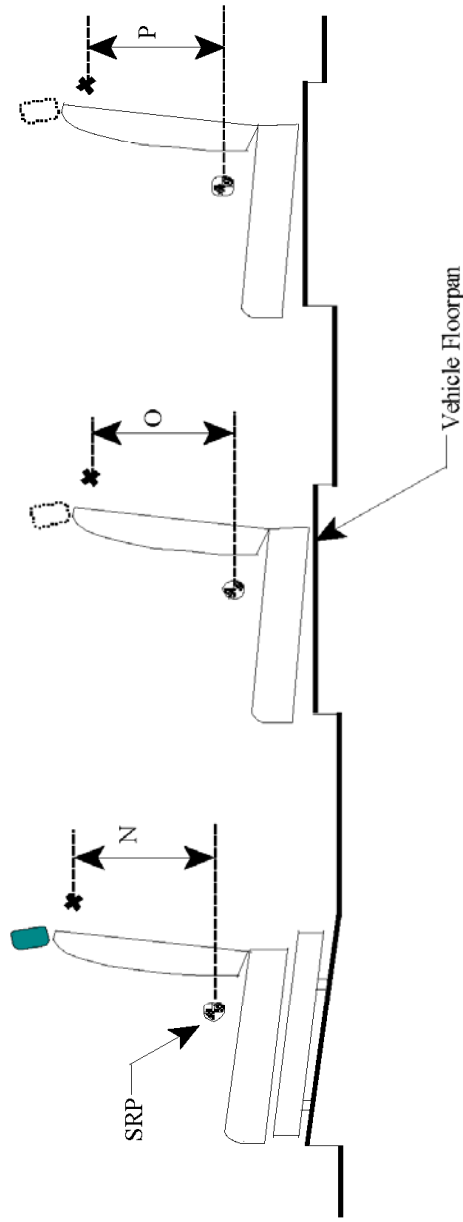
N/A

### TETHER ANCHORAGE LOCATIONS - VERTICAL

FMVSS No. 225  
(All dimensions in mm)

MODEL YEAR: 2008 / MAKE: Mazda / MODEL: CX-7 / BODY STYLE: 5-Dr SUV

SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: Split bench / THIRD ROW: N/A



LEFT SIDE VIEW OF TEST VEHICLE

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Table 4. Vertical Dimension For The Tether Anchorage

Seating Row	Vertical Distance from Seating Reference Point
Front Row	N1 (Driver) N/A
	N2 (Center) N/A
	N3 (Right) N/A
Second Row	O1 (Left) 194.6
	O2 (Center) -26.2(There is an tether anchorage under SRP.)
	O3 (Right) 194.6
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)