FINAL REPORT NUMBER 225-MGA-08-006

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

FORD MOTOR COMPANY
2008 FORD FOCUS
NHTSA No. C80208

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: February 23, 2009
Report Date: March 25, 2009

FINAL REPORT

PREPARED FOR:

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

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Approval Date: 3/27/09

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: Edward E. Chan
Digitally signed by Edward E. Chan
DN: CN = Edward E. Chan, C = US, O = National Highway Traffic Safety Administration, OU = Office of Vehicle Safety Compliance
Date: 2009.04.03 13:43:03 -04'00'

Acceptance Date: _____

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4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of a 2008 Ford Focus, NHTSA No. C80208		5. Report Date March 25, 2009 6. Performing Organization Code MGA	
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12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 Seventh Street, SW Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report 14. Sponsoring Agency Code NVS-220	
15. Supplementary Notes			
16. Abstract A compliance test was conducted on the subject 2008 Ford Focus, NHTSA No. C80208, 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 February 23, 2009. Test failures identified were as follows: NONE The data recorded indicates that the 2008 Ford Focus 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-00030/0006. The purpose of the testing was to determine if the subject vehicle, a 2008 Ford Focus, NHTSA No. C80208 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 split-bench seat. The 2nd row outboard left and right seating positions were equipped with a child restraint anchorage system (one tether and two lower anchorages) and the center seating position was equipped with a tether anchorage. The center-to-center spacing between the 2nd row outboard lower anchorages was approximately 710 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 February 23, 2009.

Based on the test results, the 2008 Ford Focus 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 4,975 N and held the required load for 3 seconds and the total displacement was 74 mm. The SFADII at the 2nd row right seating position sustained a maximum force of 4,962 N and held the required load for 3 seconds and the total displacement was 83 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)
SC9083	SFADII	Lateral Right	2nd Row Left	4,975*	74
			2nd Row Right	4,962*	83

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

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2008 Ford Focus
VEH. NHTSA NO.	C80208
VIN	1FAHP34N88W172541
COLOR	Gray
VEH. BUILD DATE	12/07
TEST DATE	February 23, 2009
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Fern Gatilao , Brad Reaume, Kenney Godfrey

GENERAL INFORMATION:

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Ford Motor CO

Date of Manufacture: 12/07; VIN: 1FAHP34N88W172541

GVWR: 3715 lbs GAWR FRONT: 1975 lbs

GAWR REAR: 1755 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

Recommended Tire Size: P195/60R16

Recommended Cold Tire Pressure:

FRONT: 32 psi REAR: 32 psi

Size of Spare Tire: P125/80R15

Recommended Cold Tire Pressure: 32 psi

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 (6/2/09) & 635 (6/4/09)
String Potentiometer Calibrated at each use	S/N L1668959A/L1608956A
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	TPM848 (7/28/09)
MGA Data Acquisition System	N/A
Digital Calipers	04456455 (3/19/09)
Force Gauge	MGA00801 (1/20/10)
Inclinometer (Digital)	MGA0048 (12/12/09)

5.0 DATA

Table 3. Child Restraint Tether Anchorage Configuration

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

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

REMARKS: NONE.

Table 4. Child Restraint Lower Anchorage Configuration

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION				
		FRONT ROW	SECOND ROW		THIRD ROW
			I/B	O/B	
Above anchorage, permanently marked with a circle not less than 13 mm in Dia.; and whose color contrasts with its background; and its center is not less than 50 mm and not more than 100 mm above the bar, and in the vertical longitudinal plane that passes through the center of the bar.	LH	N/A	N/A		N/A
	Ctr		N/A		
	RH		N/A		
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	5.93	5.95	N/A
	Ctr		N/A		
	RH		5.93	5.94	
Inspect if the bars are straight, horizontal and transverse	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Optional Marking: At least one anchorage bar (when deployed for use, if storable anchorages), one guidance fixture, or one seat marking is visible.	LH	N/A	N/A		N/A
	Ctr				
	RH				
Optional Marking: If guidance fixtures are used, the fixture(s) must be installed.	LH	N/A	N/A		N/A
	Ctr				
	RH				
Measure the distance between Point "Z" of the CRF and the front surface of the anchorage bar (mm)	LH	N/A	20		N/A
	Ctr		N/A		
	RH		25		
Measure the distance between the SRP to the front of the anchorage bar (mm)	LH	N/A	150	150	N/A
	Ctr		N/A		
	RH		145	145	

Table 4. Child Restraint Lower Anchorage Configuration (continued)

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION					
			FRONT ROW	SECOND ROW I/B	SECOND ROW O/B	THIRD ROW
Inspect if the centroidal longitudinal axes are collinear within 5 degrees	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		
Inspect if the inside surface of the bar that is straight and horizontal section of the bars, and determine they are not less than 25 mm, but not more than 60 mm in length (mm).	LH	Req't>25	N/A	25	25	N/A
		Req't<60		30	30	
	Ctr	Req't>25		N/A		
		Req't<60		N/A		
	RH	Req't>25		25	25	
		Req't<60		30	30	
Inspect if the bars can be connected to, over their entire inside length by the connectors of child restraint system.	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		
Inspect if the bars are an integral and permanent part of the vehicle.	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		
Inspect if the bars are rigidly attached to the vehicle. If feasible, hold the bar firmly with two fingers and gently pull.	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		

PITCH, YAW, & ROLL INFORMATION

SEAT POSITION	PITCH (deg)	YAW (deg)	ROLL (deg)
2nd Row Left	14.4	N/A	0.2
2nd Row Center	N/A	N/A	N/A
2nd Row Right	14.8	N/A	0.2

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	No	II	0	12	167	5,000	4,975*	86	74
	Ctr.				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH				II	0	12	167	5,000	4,962*	95	83
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.

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6.2 Rear view

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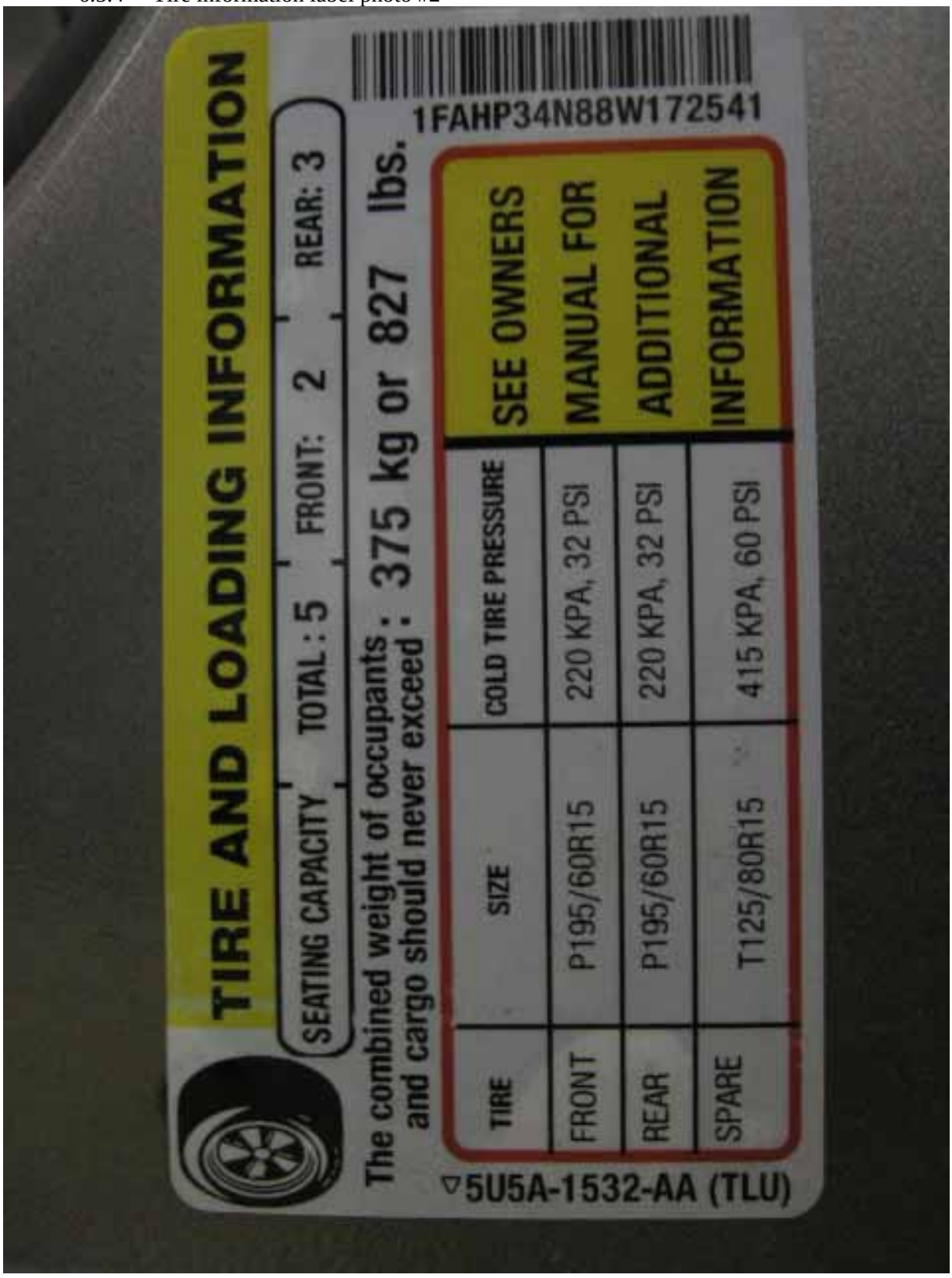

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6.11.5 Post-test photo

6.11.6 Post-test photo

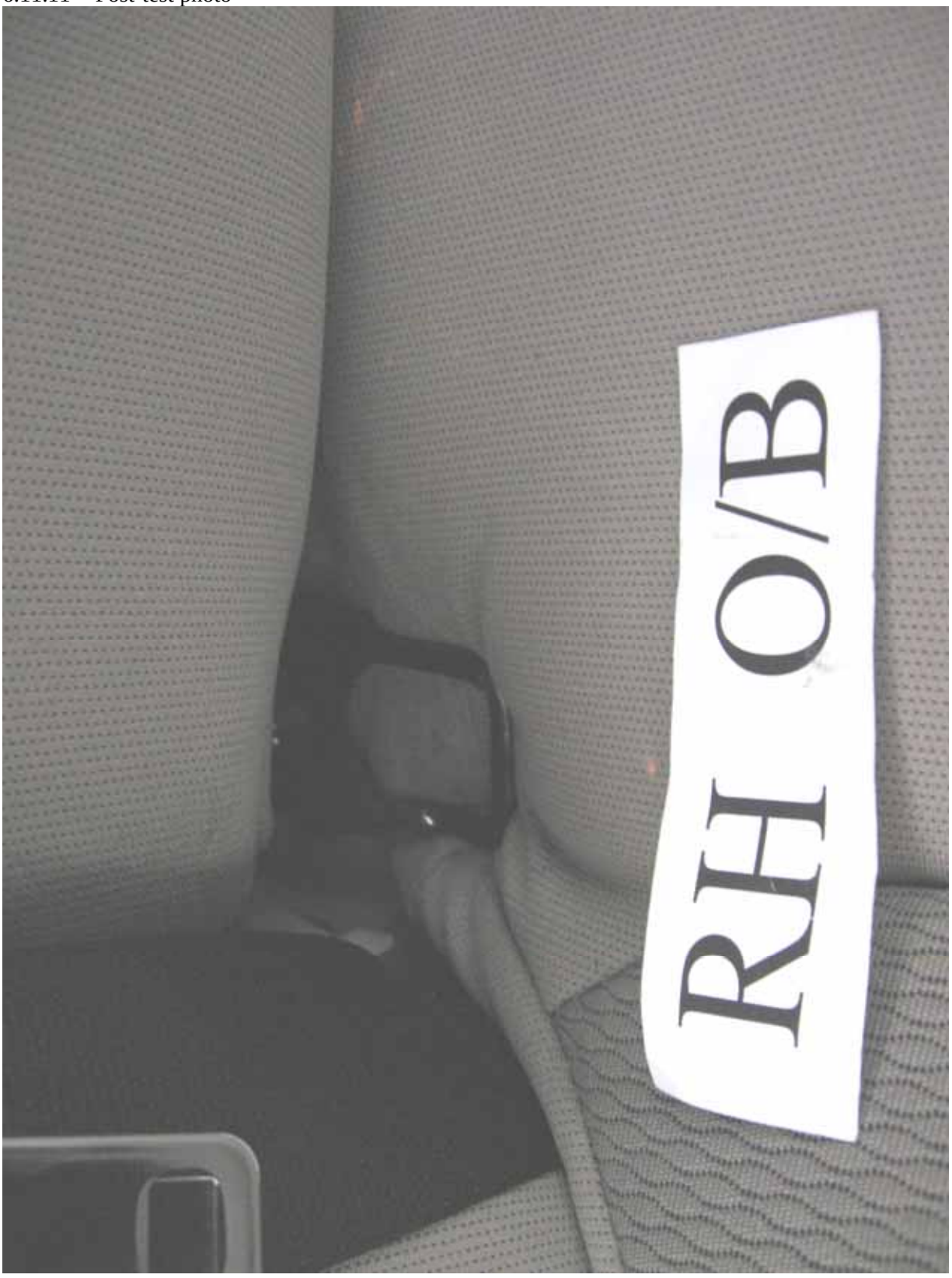
6.11.7 Post-test photo

6.11.8 Post-test photo

6.11.9 Post-test photo

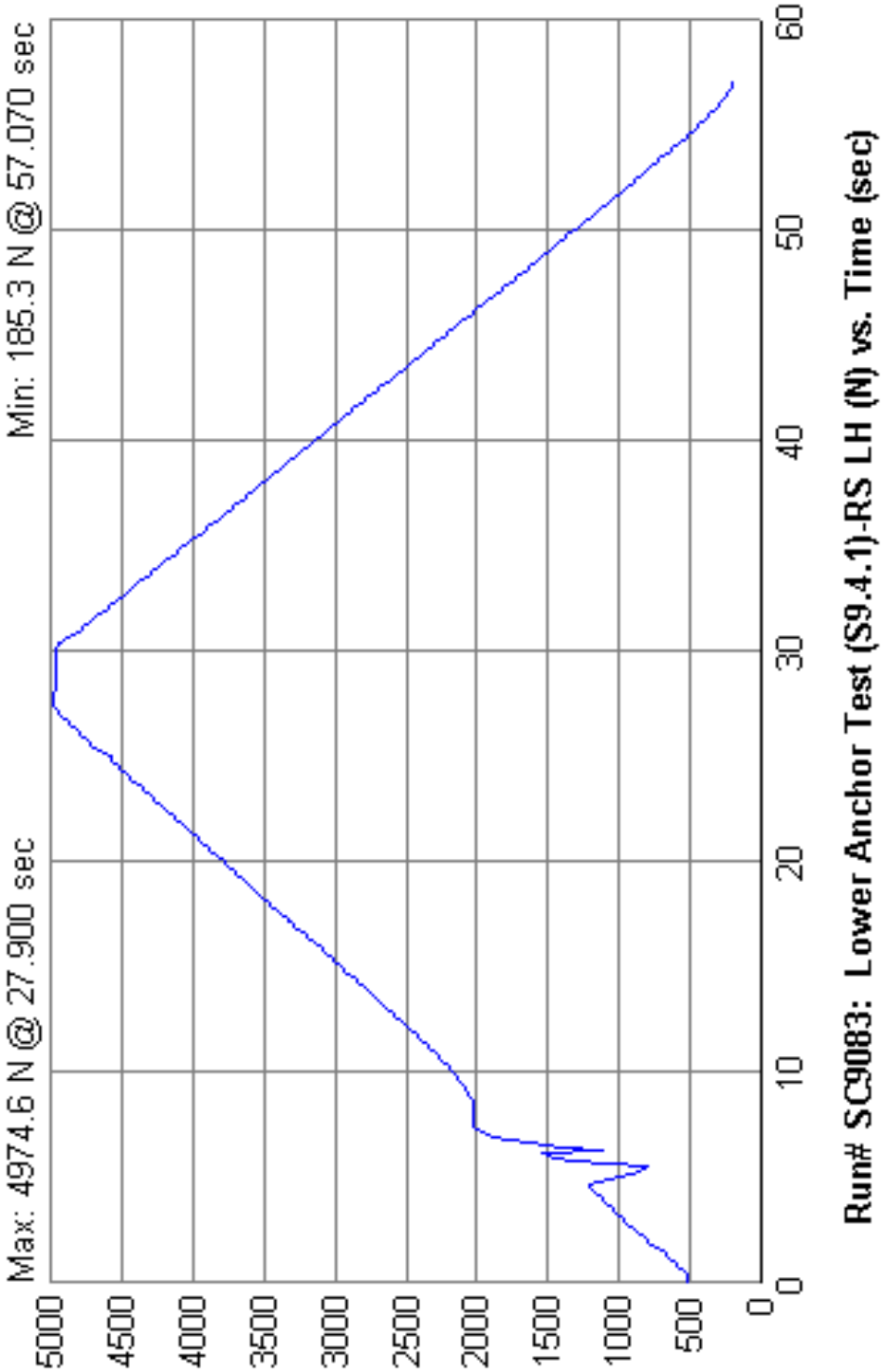
6.11.10 Post-test photo

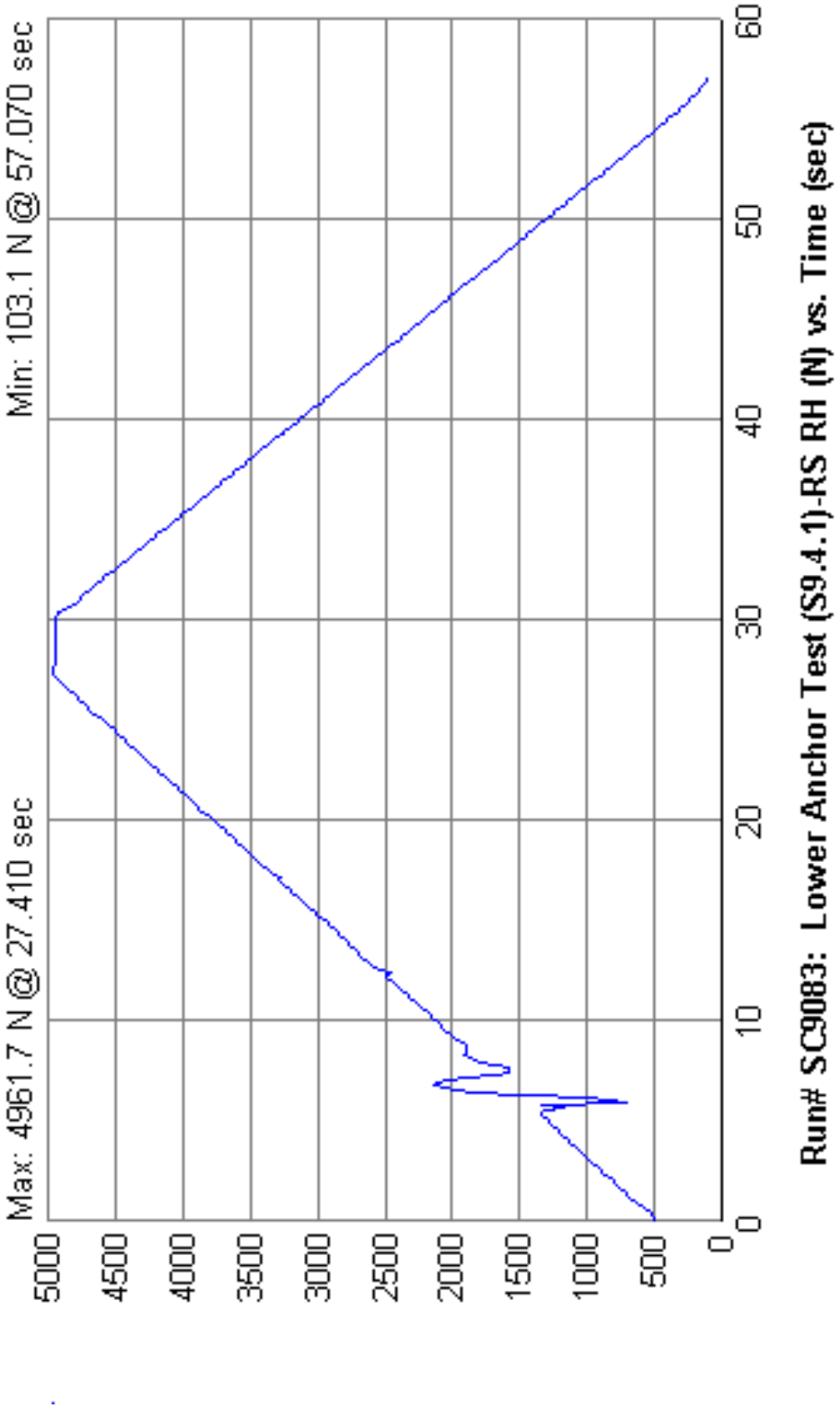
6.11.11 Post-test photo

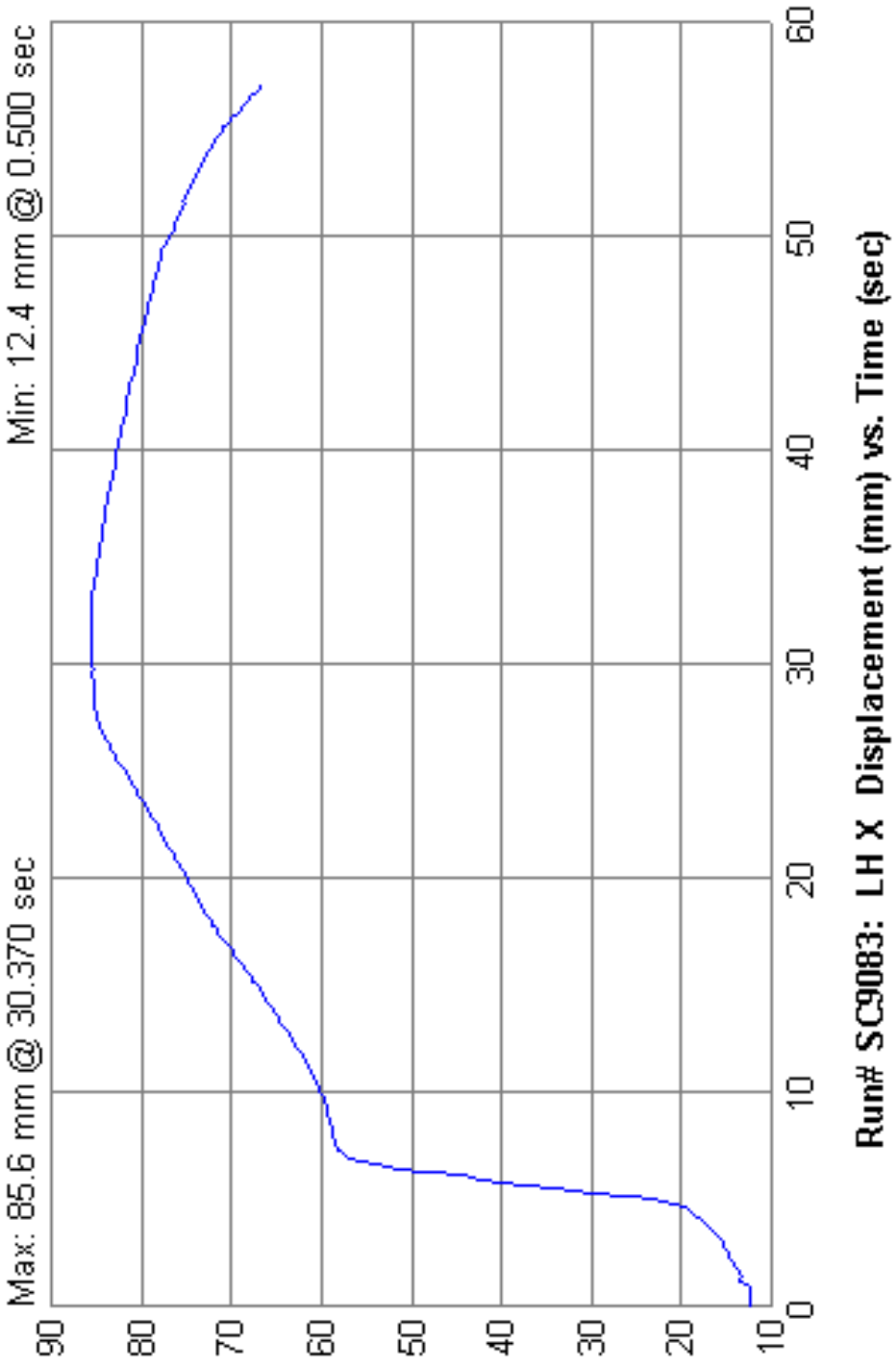


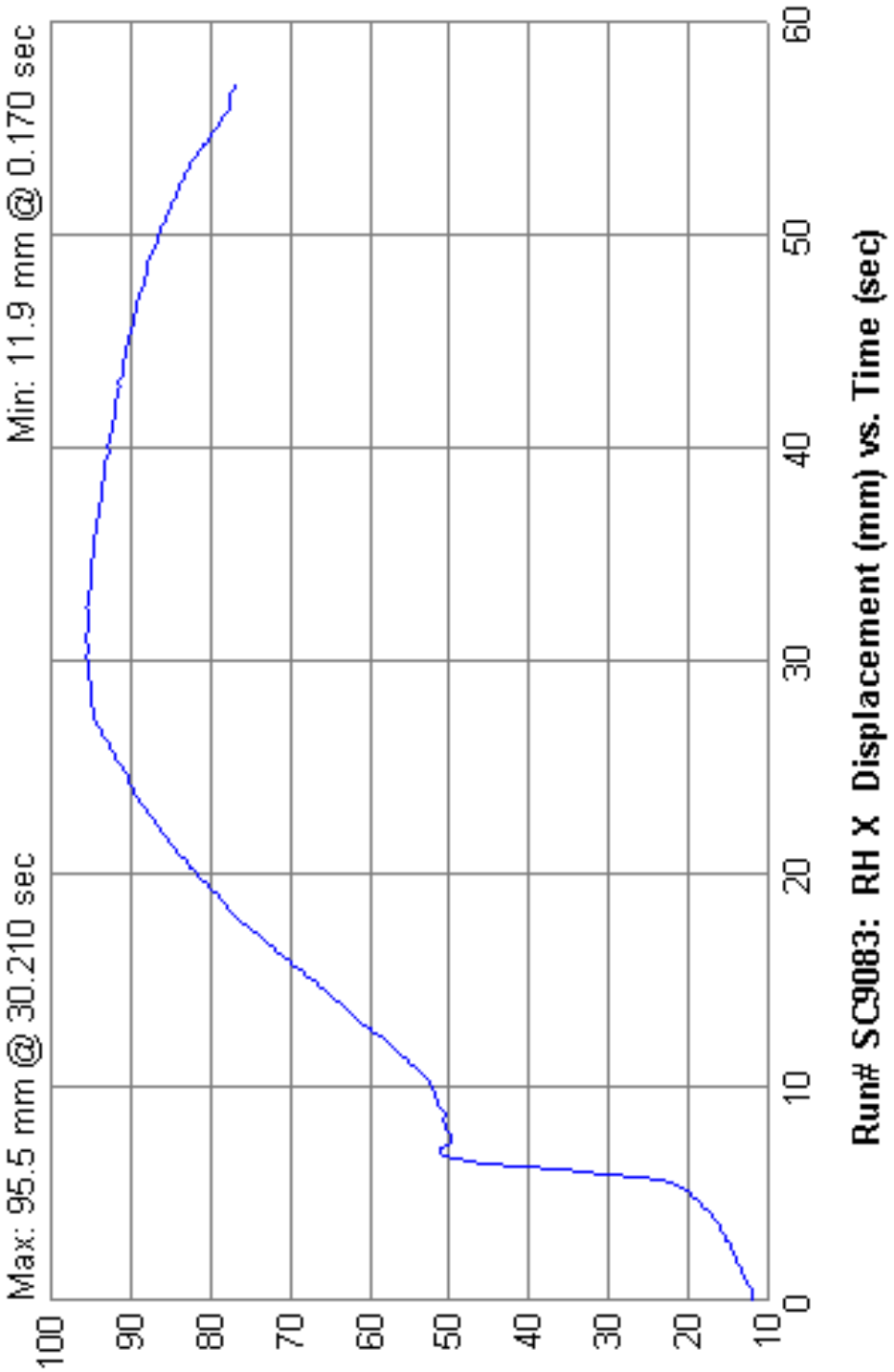
6.11.12 Post-test photo

7.0 PLOTS


Max: 4974.6 N @ 27.900 sec
Min: 185.3 N @ 57.070 sec
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
Run# SC9083: Lower Anchor Test (S9.4.1)-RS LH (N) vs. Time (sec)


Max: 4961.7 N @ 27.410 sec
Min: 103.1 N @ 57.070 sec
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
Run# SC9083: Lower Anchor Test (S9.4.1)-RS RH (N) vs. Time (sec)


Max: 85.6 mm @ 30.370 sec
Min: 12.4 mm @ 0.500 sec
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
Run# SC9083: LH X Displacement (mm) vs. Time (sec)


Max: 95.5 mm @ 30.210 sec
Min: 11.9 mm @ 0.170 sec
Run# SC9083: RH X Displacement (mm) vs. Time (sec)
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60

8.0 REPORT OF VEHICLE CONDITION

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-06-C-00030/0006 DATE: February 23, 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. 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 Ford Focus

VEH. NHTSA NO.: C80208 VIN: 1FAHP34N88W172541

COLOR: Gray

ODOMETER READINGS: ARRIVAL 76 miles Date: 7/9/08

COMPLETION 76 miles Date: 2/23/09

PURCHASE PRICE: $13,394 DEALER'S NAME: Unknown

ENGINE DATA: 6 Cylinders 2.0 Liters ___ Cubic Inches

TRANSMISSION DATA: _Automatic X 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

X	Air Conditioning		Traction Control	X	Clock
	Tinted Glass		All Wheel Drive		Roof Rack
X	Power Steering	X	Speed Control	X	Console
	Power Windows	X	Rear Window Defroster	X	Driver Air Bag
	Power Door Locks		Sun Roof or T-Top	X	Passenger Air Bag
	Power Seat(s)	X	Tachometer		Front Disc Brakes
X	Power Brakes	X	Tilt Steering Wheel		Rear Disc Brakes
	Antilock Brake System	X	AM/FM/Compact Disc		Other

REMARKS:

Salvage only.

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

All equipment inventoried and placed in vehicle.

Explanation for equipment removal:

Test Vehicle Condition:

Salvage only.

RECORDED BY: Fern Gatilao, Kenney Godfrey DATE: February 23, 2009

APPROVED BY: Brad Reaume

APPENDIX A
OWNERS MANUAL CHILD RESTRAINT SYSTEMS

A difficulty with the system is indicated by one or more of the following:

- The readiness light (same light as for front airbag system) will either flash or stay lit.
- The readiness light will not illuminate immediately after ignition is turned on.
- A series of five beeps will be heard. The tone pattern will repeat periodically until the problem and/or light are repaired.

If any of these things happen, even intermittently, have the SRS serviced at your authorized dealer immediately. Unless serviced, the system may not function properly in the event of a collision.

Disposal of airbags and airbag equipped vehicles (including pretensioners)

See your authorized dealer. Airbags MUST BE disposed of by qualified personnel.

SAFETY RESTRAINTS FOR CHILDREN

See the following sections for directions on how to properly use safety restraints for children. Also see *Airbag supplemental restraint system (SRS)* in this chapter for special instructions about using airbags.

⚠ Rear-facing child seats or infant carriers should never be placed in front of an active passenger airbag.

⚠ Always transport children 12 years old and under in the back seat and always use appropriate child restraints.

Accident statistics indicate that children are safer when properly restrained in the rear seats.

⚠ Do not leave children, unreliable adults, or pets unattended in your vehicle.

⚠ Safety belts and seats can become hot in a vehicle that has been closed up in sunny weather, they could burn a small child. Check seat covers and buckles before you place a child anywhere near them.

Important child restraint precautions

You are required by law to use safety restraints for children in the U.S. and Canada. If small children (generally children who are four years old

or younger and who weigh 40 lb. [18 kg] or less) ride in your vehicle, you must put them in safety seats made especially for children. Many states require that children use approved booster seats until they are eight years old. Check your local and state or provincial laws for specific requirements regarding the safety of children in your vehicle. When possible, always place children under age 12 in the rear seat of your vehicle. Accident statistics suggest that children are safer when properly restrained in the rear seating positions than in the front seating position.

⚠ Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Always follow the instructions and warnings that come with any infant or child restraint you might use.

Children and safety belts

If the child is the proper size, restrain the child in a safety seat. Children who are too large for child safety seats (as specified by your child safety seat manufacturer) should always wear safety belts.

Follow all the important safety restraint and airbag precautions that apply to adult passengers in your vehicle.

If the shoulder belt portion of a combination lap and shoulder belt can be positioned so it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt. Moving the child closer to the center of the vehicle may help provide a good shoulder belt fit.

⚠ Do not leave children, unreliable adults, or pets unattended in your vehicle.

Child booster seats

Children outgrow a typical convertible or toddler seat when they weigh 40 lb. (18 kg) and are around 4 years of age. Although the lap/shoulder belt will provide some protection, these children are still too small for lap/shoulder belts to fit properly, which could increase the risk of serious injury in a crash.

To improve the fit of both the lap and shoulder belt on children who have outgrown child safety seats, Ford Motor Company recommends use of a belt-positioning booster.

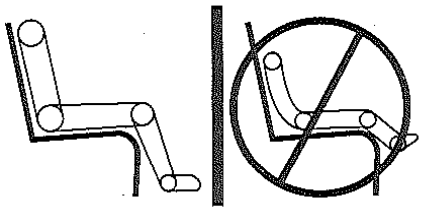
Booster seats position a child so that safety belts fit better. They lift the child up so that the lap belt rests low across the hips and the knees bend comfortably. Booster seats may also make the shoulder belt fit better and more comfortably. Try to keep the belt near the middle of the shoulder.

When children should use booster seats

Children need to use booster seats from the time they outgrow the toddler seat until they are big enough for the vehicle seat and lap/shoulder belt to fit properly. Generally this is when they weigh about 80 lb. (36 kg) (about 8 to 12 years old).

Booster seats should be used until you can answer YES to ALL of these questions:

- Can the child sit all the way back against the vehicle seat back with knees bent comfortably at the edge of the seat without slouching?



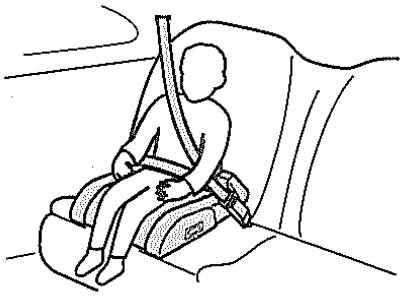
- Does the lap belt rest low across the hips?
- Is the shoulder belt centered on the shoulder and chest?
- Can the child stay seated like this for the whole trip?

Types of booster seats

There are two types of belt-positioning booster seats:

- Those that are backless.

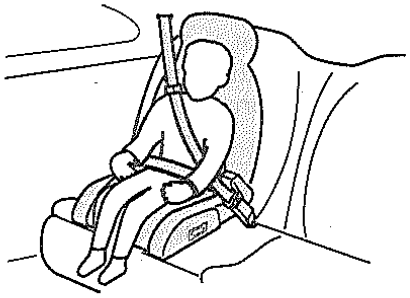
  If your backless booster seat has a removable shield, remove the shield and use the lap/shoulder belt. If a seating position has a low seat back and no head restraint, a backless booster seat may place your child's head (top of ear level) above the top of the seat. In this case, move the backless booster to another seating position with a higher seat back and lap/shoulder belts.



Seating and Safety Restraints

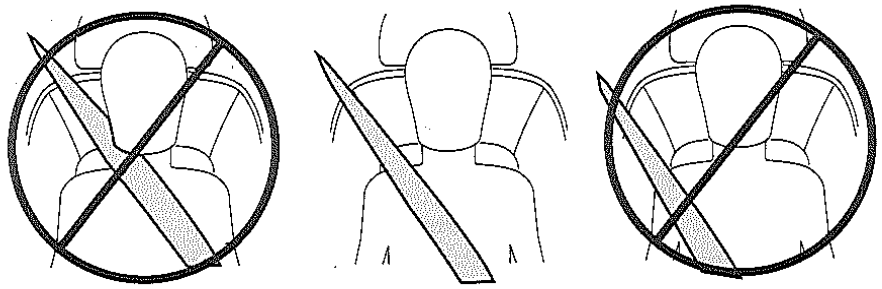
- Those with a high back.

  If, with a backless booster seat, you cannot find a seating position that adequately supports your child's head, a high back booster seat would be a better choice.



Either type can be used at any seating position equipped with lap/shoulder belts if your child is over 40 lb. (18 kg).

Children and booster seats vary widely in size and shape. Choose a booster that keeps the lap belt low and snug across the hips, never up across the stomach, and lets you adjust the shoulder belt to cross the chest and rest snugly near the center of the shoulder. The drawings below compare the ideal fit (center) to a shoulder belt uncomfortably close to the neck and a shoulder belt that could slip off the shoulder.



If the booster seat slides on the vehicle seat, placing a rubberized mesh sold as shelf or carpet liner under the booster seat may improve this condition.

The importance of shoulder belts

Using a booster without a shoulder belt increases the risk of a child's head hitting a hard surface in a collision. For this reason, you should never use a booster seat with a lap belt only. It is best to use a booster seat with lap/shoulder belts in the back seat- the safest place for children to ride.

⚠ Move a child to a different seating location if the shoulder belt does not stay positioned on the shoulder during use.

⚠ Follow all instructions provided by the manufacturer of the booster seat.

⚠ Never put the shoulder belt under a child's arm or behind the back because it eliminates the protection for the upper part of the body and may increase the risk of injury or death in a collision.

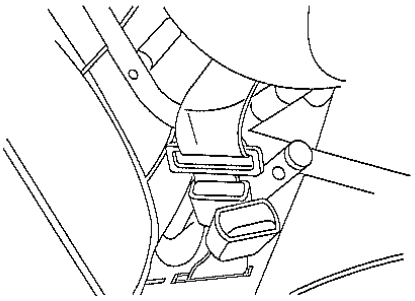
⚠ Never use pillows, books, or towels to boost a child. They can slide around and increase the likelihood of injury or death in a collision.

SAFETY SEATS FOR CHILDREN

Child and infant or child safety seats

Use a safety seat that is recommended for the size and weight of the child. Carefully follow all of the manufacturer's instructions with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

When installing a child safety seat:



- Review and follow the information presented in the *Airbag supplemental restraint system* (SRS) section in this chapter.
- Use the correct safety belt buckle for that seating position (the buckle closest to the direction the tongue is coming from).
- Insert the belt tongue into the proper buckle until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.
- Keep the buckle release button pointing up and away from the safety seat, with the tongue between the child seat and the release button, to prevent accidental unbuckling.

- Place seat back in upright position.
- Put the safety belt in the automatic locking mode. Refer to *Automatic locking mode* (passenger side front and outboard rear seating positions) (if equipped) section in this chapter.
- LATCH lower anchors are recommended for use by children up to 48 lb. (22 kg) in a child restraint. Top tether anchors can be used for children up to 60 lb. (27 kg) in a child restraint, and to provide upper torso restraint for children up to 80 lb. (36 kg) using an upper torso harness and a belt-positioning booster.

Ford recommends the use of a child safety seat having a top tether strap. Install the child safety seat in a seating position with LATCH and tether anchors. For more information on top tether straps and anchors, refer to *Attaching safety seats with tether straps* in this chapter. For more information of LATCH anchors refer to *Attaching safety seats with LATCH (Lower Anchors and Tethers for Children) attachments* in this chapter.

⚠ Carefully follow all of the manufacturer's instructions included with the safety seat you put in your vehicle. If you do not install and use the safety seat properly, the child may be injured in a sudden stop or collision.

⚠ Rear-facing child seats or infant carriers should never be placed in front of an active airbag.

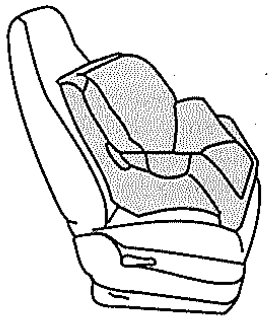
Installing child safety seats with combination lap and shoulder belts

⚠ Airbags can kill or injure a child in a child seat. **NEVER** place a rear-facing child seat in front of an active airbag. If you must use a forward-facing child seat in the front seat, move the seat all the way back.

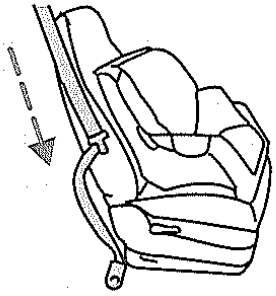
⚠ Children 12 and under should be properly restrained in the rear seat whenever possible.

Seating and Safety Restraints

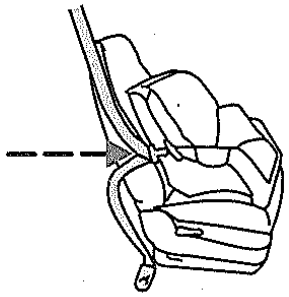
1. Position the child safety seat in a seat with a combination lap and shoulder belt.



2. Pull down on the shoulder belt and then grasp the shoulder belt and lap belt together.



3. While holding the shoulder and lap belt portions together, route the tongue through the child seat according to the child seat manufacturer's instructions. Be sure the belt webbing is not twisted.



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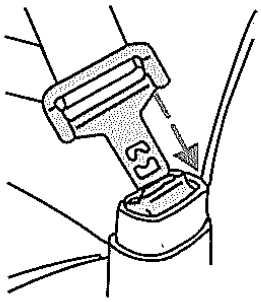
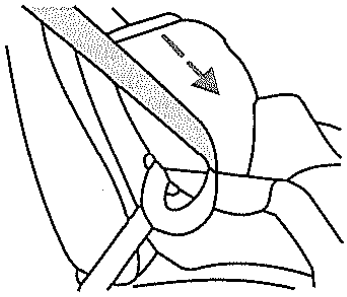
4. Insert the belt tongue into the proper buckle (the buckle closest to the direction the tongue is coming from) for that seating position until you hear a snap and feel the latch engage. Make sure the tongue is latched securely by pulling on it.



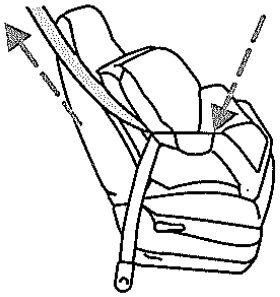
5. To put the retractor in the automatic locking mode, grasp the shoulder portion of the belt and pull downward until all of the belt is pulled out and a click is heard.



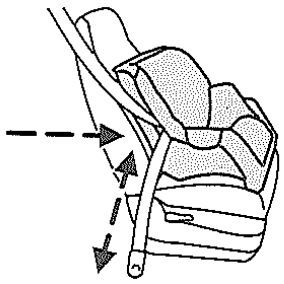
Note: The automatic locking mode is available on the front passenger and rear outboard seats only. The rear center seating position has a cinch tongue. Refer to *Installing child safety seats in cinch tongue combination lap shoulder belt seating positions* in this chapter.

6. Allow the belt to retract. The belt will click as it retracts to indicate it is in the automatic locking mode.

7. Pull the lap belt portion across the child seat toward the buckle and pull up on the shoulder belt while pushing down with your knee on the child seat.



8. Allow the safety belt to retract to remove any slack in the belt.



9. Before placing the child in the seat, forcibly move the seat forward and back to make sure the seat is securely held in place. To check this, grab the seat at the belt path and attempt to move it side to side and forward. There should be no more than one inch of movement for proper installation.

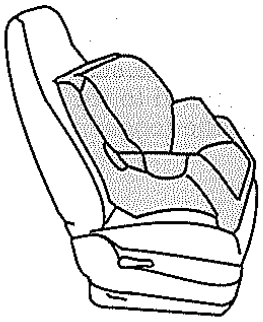
10. Try to pull the belt out of the retractor to make sure the retractor is in the automatic locking mode (you should not be able to pull more belt out). If the retractor is not locked, unbuckle the belt and repeat Steps 2 through 9.

Check to make sure the child seat is properly secured before each use.

Installing child safety seats in cinch tongue combination lap and shoulder belt seating positions (rear center position only)

The belt webbing below the tongue is the lap portion of the combination lap/shoulder belt, and the belt webbing above the tongue is the shoulder belt portion of the combination lap/shoulder belt.

1. Position the child safety seat in a seat with a combination lap and shoulder belt.

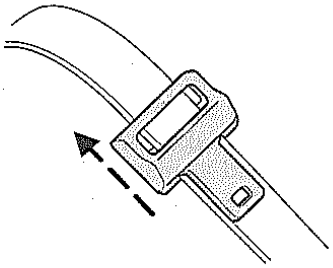


⚠ Airbags can kill or injure a child in a child seat. If you must use a forward-facing child seat in the front seat, move seat all the way back.

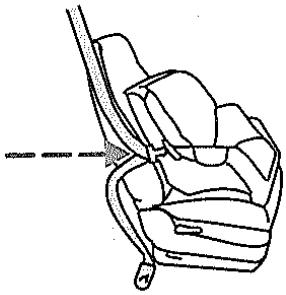
⚠ Rear facing child seats should NEVER be placed in front of an active airbag.

Seating and Safety Restraints

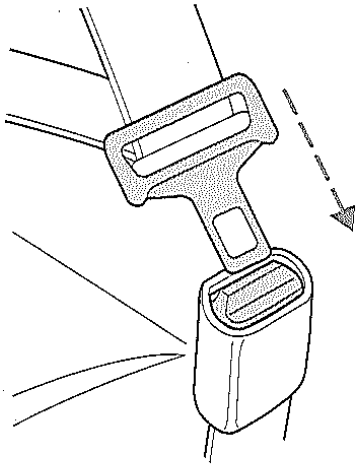
2. Slide the tongue up the webbing.



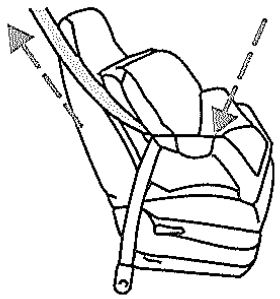
3. While holding both shoulder and lap portions next to the tongue, route the tongue and webbing through the child seat according to the child seat manufacturer's instructions. Be sure that the belt webbing is not twisted.



4. Insert the belt tongue into the proper buckle for that seating positions until you hear a snap and feel it latch. Make sure the tongue is securely latched to the buckle by pulling on the tongue.

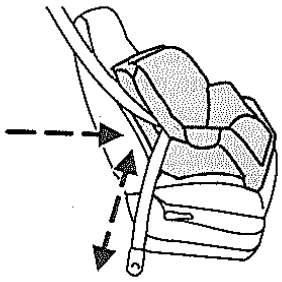


5. While pushing down with your knee on the child seat pull up on the shoulder belt portion to tighten the lap belt portion of the combination lap and shoulder belt.



6. Allow the safety belt to retract and remove any slack in the belt to securely tighten the child safety seat in the vehicle.

7. Before placing the child into the child seat, forcibly pull the child seat forward and back to make sure that the seat is held securely in place. To check this, grab the seat at the belt path and attempt to move it side to side and forward and back. There should be no more than one inch of movement for proper installation.



8. Check from time to time to be sure that there is no slack in the lap/shoulder belt. The shoulder belt must be snug to keep the lap belt tight during a collision.

Attaching child safety seats with tether straps

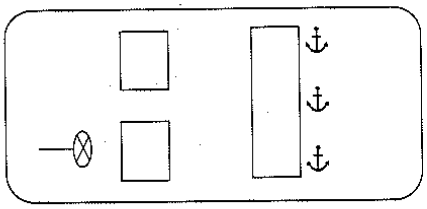
Most new forward-facing child safety seats include a tether strap which goes over the back of the seat and hooks to an anchoring point. Tether straps are available as an accessory for many older safety seats. Contact the manufacturer of your child seat for information about ordering a tether strap.

The rear seats of your vehicle are equipped with built-in tether strap anchors located behind the seats as described below.

The tether anchors in your vehicle are either located under a cover marked with the tether anchor symbol (shown with title) or are recessed bars on the back side of the seatback.

Seating and Safety Restraints

The tether strap anchors in your vehicle are in the following positions (shown from top view, left is front of the vehicle):



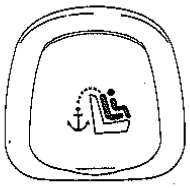
⚠ Attach the tether strap only to the appropriate tether anchor as shown. The tether strap may not work properly if attached somewhere other than the correct tether anchor.

1. Position the child safety seat on the seat cushion.
2. Route the child safety seat tether strap over the back of the seat.

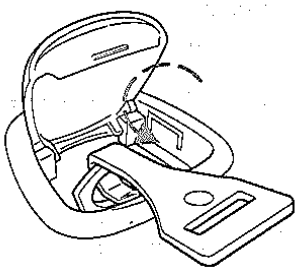
For vehicles with adjustable head restraints, route the tether strap under the head restraint and between the head restraint posts, otherwise route the tether strap over the top of the seatback.

3. Locate the correct anchor for the selected seating position.

- The anchors are located on the rear back panel.



4. Open the tether anchor cover.



⚠ If the tether strap is clipped incorrectly, the child safety seat may not be retained properly in the event of a collision.

5. Clip the tether strap to the anchor as shown.
6. Install the child safety seat tightly using the LATCH anchors or safety belts. Follow the instructions in this chapter.

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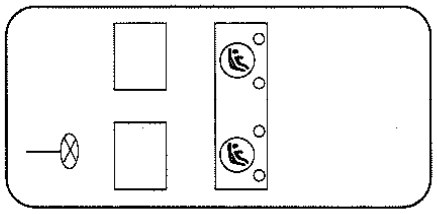
7. Tighten the child safety seat tether strap according to the manufacturer's instructions.

⚠ If the safety seat is not anchored properly, the risk of a child being injured in a collision greatly increases.

Attaching child safety seats with Lower Anchor and Tethers for Children (LATCH) attachments for child seat anchors

Some child safety seats have two rigid or webbing mounted attachments that connect to two anchors at specific seating positions in your vehicle. This type of child seat eliminates the need to use safety belts to attach the child seat. For forward-facing child seats, the tether strap must also be attached to the proper tether anchor point. For information on using tether straps with the child safety seats, refer to *Attaching safety seats with tether straps* in this chapter.



LATCH anchors for child seat installation have been provided in your vehicle at the following locations:

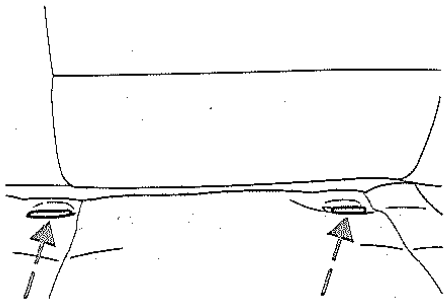
The anchors on both sides of the center of the rear seat are provided primarily for child seats at the outboard seats and are further apart than the pairs of lower anchors for child seat installation at other seats. A child seat with rigid LATCH attachments cannot be installed at the center rear seat. A child seat with LATCH attachments on belt webbing can be used at the center rear seat unless a child seat at an outboard rear seat is attached to one of these lower anchors. Install a child seat onto the lower anchors at the center rear seat ONLY IF the child restraint manufacturer recommends that the child seat can be installed to anchors that are spaced up to 450 mm apart.

⚠ Never attach two LATCH child safety seats to the same anchor. In a crash, one anchor may not be strong enough to hold two child seat attachments and may break, causing serious injury or death.

Seating and Safety Restraints

The LATCH anchors are located on the rear section of the seat cushion, at the bottom of the seatback.

Follow the child seat manufacturer's instructions to properly install safety seats with LATCH attachments.



⚠ Attach the LATCH lower attachments of the child seat only to the appropriate locations shown.

Once you have installed the LATCH safety seat, ensure that the seat is properly attached to LATCH and tether anchors. Also, test the safety seat before you place the child in it. Tilt the seat from side to side. Also try to tug the seat forward. Check to see if the anchors hold the seat in place.

⚠ If the safety seat in not anchored properly, the risk of a child being injured in a collision greatly increases.

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APPENDIX B
MANUFACTURER'S DATA (OVSC FORM 14)

Page 1 of 10
SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA
FOR FMVSS 225
(All dimensions in mm[1])
Model Year: 2008 Make: Ford ; Model: Focus ; Body Style: 4door Sedan / 2 Door Coupe
Seat Style: Front row: Driver 4 way manual, 2 way manual, passenger two way manual
; Second row: Bench seat cushion with 60/40 fold back ; Third row: None
No Third Row in this vehicle.
Torso Angle
Torso Line
SRP
A1
A2
A3
B
C
D
Vehicle Floorpan
Use Center of Adjuster Anchorage
Driver's Seat Front Outboard Seat Adjuster Anchorage
LEFT SIDE VIEW OF TEST VEHICLE
FMVSS_225_FORM_08C170.doc
Last printed 3/20/2007 11:29:00 PM

Table 1. Seating Positions[1] and Torso Angles

		Left (Driver Side)	Center (if any)	Right
A1		254.63mm	N/A	(Front Passenger)
A2		93.70mm Reference at cushion mounting because rear floor pan varies in "Z"	103.70mm Reference at cushion mounting because rear floor pan varies in "Z"	93.70mm Reference at cushion mounting because rear floor pan varies in "Z"
B		378.88mm	N/A	378.88mm
C		1151.01mm	1151.01mm	1151.01mm
Torso Angle (degree)	Front Row	24°	N/A	24°
	Second Row	25°	25°	25°

Note: 1. All dimensions are in mm. If not, provide the unit used.

SEATING REFERENCE POINT
FOR FMVSS 225
(All dimensions in mm)

Model Year: 2008 Make: Ford ; Model: Focus ; Body Style: 4door Sedan / 2 Door Coupe
Seat Style: Front row: Driver 4 way manual, 2 way manual, passenger two way manual
; Second row: Bench seat cushion with 60/40 fold back ; Third row: None

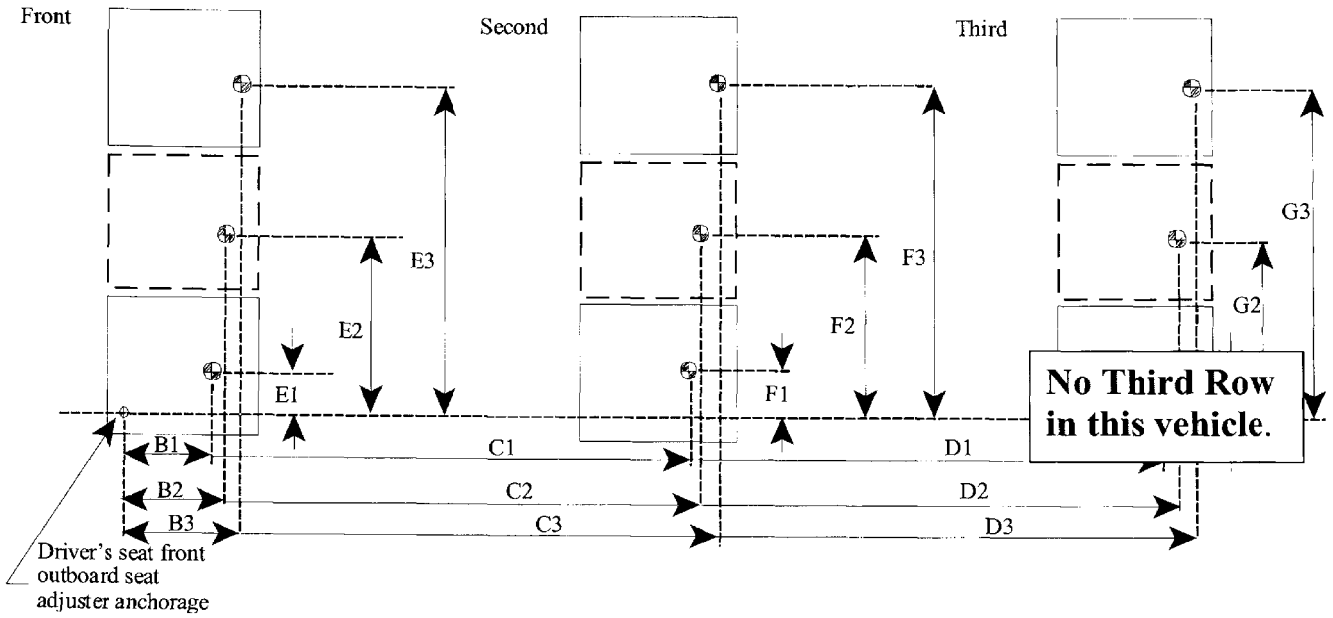


Table 2. Seating Reference Point and Tether Anchorage Locations

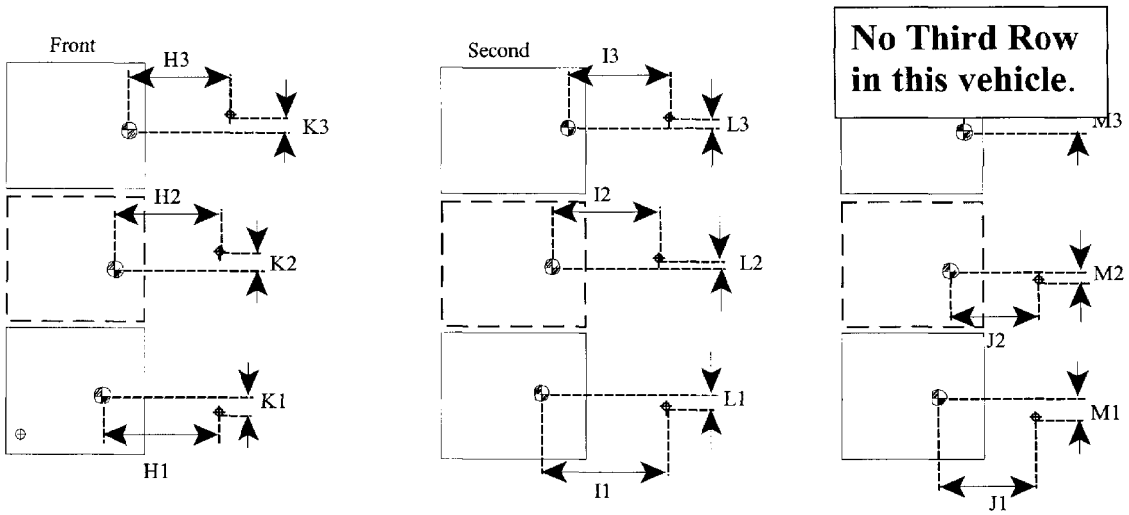
Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	378.88mm
	E1	247.6mm
	B2	N/A
	E2	N/A
	B3	378.88mm
	E3	247.6mm
Second Row	C1	1151.01mm
	F1	262.6mm
	C2	1151.01mm
	F2	592.6mm
	C3	1151.01mm
	F3	922.6mm

No Third Row in this vehicle.

Note: 1. Use the center of anchorage.

TETHER ANCHORAGE LOCATIONS
FOR FMVSS 225
(All dimensions in mm)

Model Year: 2008 Make: Ford ; Model: Focus ; Body Style: 4door Sedan / 2 Door Coupe
Seat Style: Front row: Driver 4 way manual, 2 way manual, passenger two way manual
; Second row: Bench seat cushion with 60/40 fold back ; Third row: None



●: SRP
◆: Tether anchorage

Note: 1. The location shall be measured at the center of the bar.

Table 3. Seating Reference Point and Tether Anchorage Locations

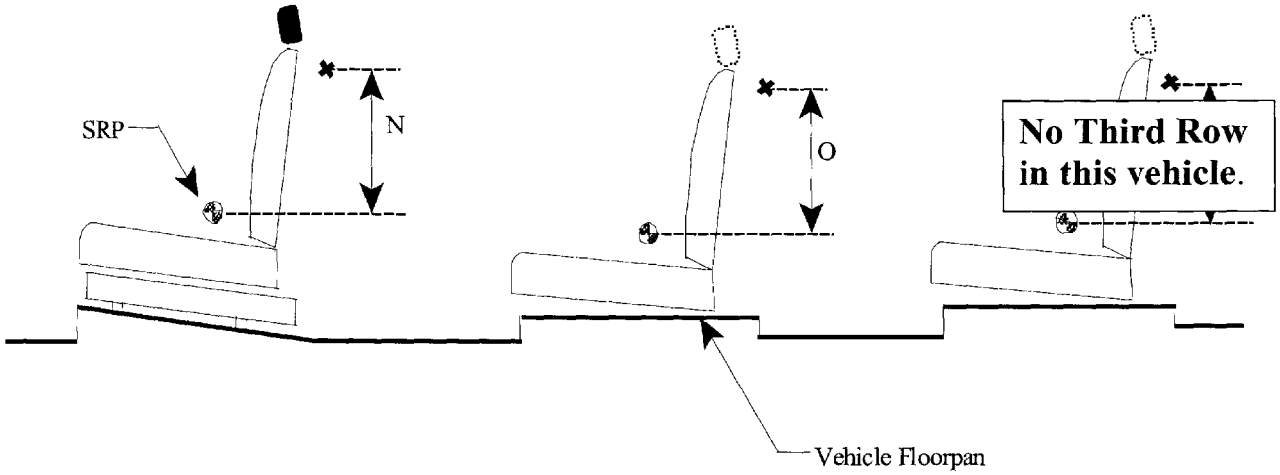
Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	N/A
	K1	N/A
	H2	N/A
	K2	N/A
	H3	N/A
	K3	N/A
Second Row	I1*	487.75mm
	L1	0 mm
	I2	514.87mm
	L2	0 mm
	I3*	487.75mm
	L3	0 mm

* Measured to the center of tether anchor bar

Note: 1. Use the center of anchorage.

TETHER ANCHORAGE LOCATIONS - VERTICAL
FOR FMVSS 225
(All dimensions in mm)

Model Year: 2008 Make: Ford ; Model: Focus ; Body Style: 4door Sedan / 2 Door Coupe
Seat Style: Front row: Driver 4 way manual, 2 way manual, passenger two way manual
; Second row: Bench seat cushion with 60/40 fold back ; Third row: None



LEFT SIDE VIEW OF TEST VEHICLE

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)	494.32mm
	O2 (Center)	493.03mm
	O3 (Right)	494.32mm

Note: 1. All dimensions are in mm. If not, provide the unit used.

For each vehicle, provide the following information:

1. **How many designated seating positions exist in the vehicle?** Answer: 5 designated seating positions.
2. **How many designated seating positions are equipped with lower anchorages and tether anchorages?**

   Specify which position(s).

   Answer: The 2nd row outboard seating positions are equipped with both lower anchorage and tether anchorages.
3. **How many designated seating positions are equipped with tether anchorages? Specify which position(s).**

   Answer: The 2nd row center seating position is equipped with only tether anchorage.
4. **Lower Anchorage Marking and Conspicuity:** Whether the anchorages are certified to S9.5(a) or S9.5(b) of FMVSS 225.

   Answer: Lower anchorages Marking and Conspicuity are certified with S9.5(b).
   All lower anchorages are visible without any guidance fixtures.