FINAL REPORT NUMBER 225-MGA-09-002

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

CHRYSLER CORPORATION
2008 Chrysler Commander
NHTSA No. C80308

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: March 6, 2009
Report Date: May 20, 2009

FINAL REPORT

PREPARED FOR:

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

Prepared By: _____
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_____
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Approval Date: 5/21/09

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: 2009.05.29 15:28:42 -04'00'

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4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of a 2008 Chrysler Commander, NHTSA No. C80308		5. Report Date May 20, 2009 6. Performing Organization Code MGA	
7. Author(s) Helen A. Kaleto, Laboratory Manager Fern Gatilao, Project Engineer Brad Reaume, Test Personnel		8. Performing Organization Report No. 225-MGA-09-002	
9. Performing Organization Name and Address MGA Research Corporation 446 Executive Drive Troy, Michigan 48083		10. Work Unit No. 11. Contract or Grant No. DTNH22-06-C-00030/0006	
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 Chrysler Commander, NHTSA No. C80308, 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 March 6, 2009. Test failures identified were as follows: NONE The data recorded indicates that the 2008 Chrysler Commander 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 Chrysler Commander, NHTSA No. C80308 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, right, and center seating positions were equipped with a child restraint anchorage system (one tether and two lower anchorages). The center-to-center spacing between the 2nd row outboard lower anchorages was approximately 880 mm. The 2nd row left, center, 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 March 6, 2009.

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

The SFADII at the 2nd row left seating position sustained a maximum force of 5,115 N and held the required load for 3 seconds and the total displacement was 41 mm. The SFADII at the 2nd row right seating position sustained a maximum force of 5,818 N and held the required load for 3 seconds and the total displacement was 89 mm. The SFADII at the 2nd row center seating position sustained a maximum force of 5,071 N and held the required load for 3 seconds and the total displacement was 29 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)
SC9112	SFADII	Lateral Left	2nd Row Left	5,115*	41
			2nd Row Right	5,818*	89
SC9113	SFADII	Lateral Left	2nd Row Center	5,071*	29

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 Chrysler Commander
VEH. NHTSA NO.	C80308
VIN	1J8HG48K98C133130
COLOR	Blue
VEH. BUILD DATE	09/07
TEST DATE	March 6, 2009
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Fern Gatilao , Brad Reaume, Kenney Godfrey

GENERAL INFORMATION:

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Chrysler LLC

Date of Manufacture: 09/07; VIN: 1J8HG48K98C133130

GVWR: 6400 lbs GAWR FRONT: 2950 lbs

GAWR REAR: 3650 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 35 psi REAR: 35 psi

Recommended Tire Size: P245/65R17

Recommended Cold Tire Pressure:

FRONT: 35 psi REAR: 35 psi

Size of Tire on Test Vehicle: P245/65R17

Size of Spare Tire: P245/65R17

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 180s & 126 (6/4/09)
String Potentiometer Calibrated at each use	S/N A1600462A/C1801426A
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	MGA00014 (6/4/09)
Inclinometer (Digital)	MGA0050 (8/22/09)

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		Yes		
	RH		Yes		
Diameter of the bar (mm)	LH	N/A	5.95	5.93	N/A
	Ctr		5.95	5.95	
	RH		5.93	5.93	
Inspect if the bars are straight, horizontal and transverse	LH	N/A	Yes		N/A
	Ctr		Yes		
	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	40		N/A
	Ctr		46		
	RH		39		
Measure the distance between the SRP to the front of the anchorage bar (mm)	LH	N/A	190	190	N/A
	Ctr		205	205	
	RH		185	185	

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			Yes		
	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	27	28	N/A
		Req't<60		37	37	
	Ctr	Req't>25		28	27	
		Req't<60		35	35	
	RH	Req't>25		27	28	
		Req't<60		37	37	
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			Yes		
	RH			Yes		
Inspect if the bars are an integral and permanent part of the vehicle.	LH		N/A	Yes		N/A
	Ctr			Yes		
	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			Yes		
	RH			Yes		

PITCH, YAW, & ROLL INFORMATION

SEAT POSITION	PITCH (deg)	YAW (deg)	ROLL (deg)
2nd Row Left	8.0	N/A	0.4
2nd Row Center	8.9	N/A	0.4
2nd Row Right	8.2	N/A	0.3

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

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

REMARKS: NONE

Table 5. Tether Location and Dimensional Measurements

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

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

REMARKS: NONE

Table 6. Tether Anchorage Static Loading and Displacement

SEAT POSITION		Seat, Seat Back, & Head Restraint Positions			Type of SFAD Used	Angle (deg)	Initial Location (mm)	Onset Rate (N/sec.)	Force Applied (kN)	Max. Load (N)	Final Location (mm)	Horiz. Displ. (mm)
		Seat	Seat Back	Is There a H/R?								
Front Row		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Second Row	LH	Fixed	Most Upright	Yes	II	0	29	167	5,000	5,115*	70	41
	Ctr.			No	II	0	13	167	5,000	5,071*	42	29
	RH			Yes	II	0	17	167	5,000	5,818*	106	89
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


Jeep
4x4
mga
NHTSA 2008 Chrysler Commander
Rear View
FMVSS 225
C80308

6.3 Front left view

6.4 Front right view

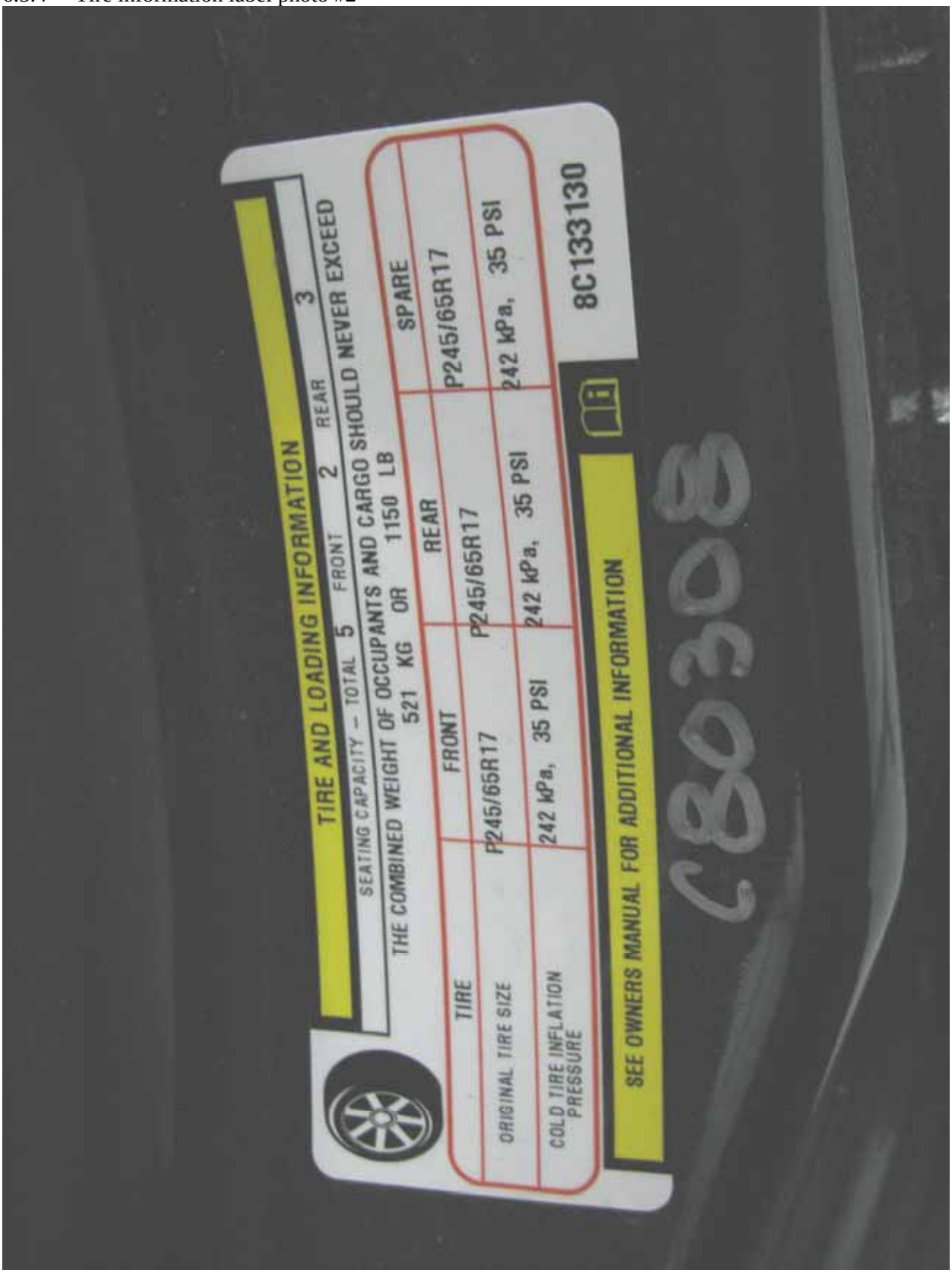
6.5 Test vehicle's certification label

6.5.1 Certification label photo #1

6.5.2 Certification label photo #2

6.5.3 Tire information label photo #1

6.5.4 Tire information label photo #2



6.6 Vehicle tie down at each tie down location

6.6.1 Front under vehicle

6.6.2 Rear under vehicle

6.6.3 Left front

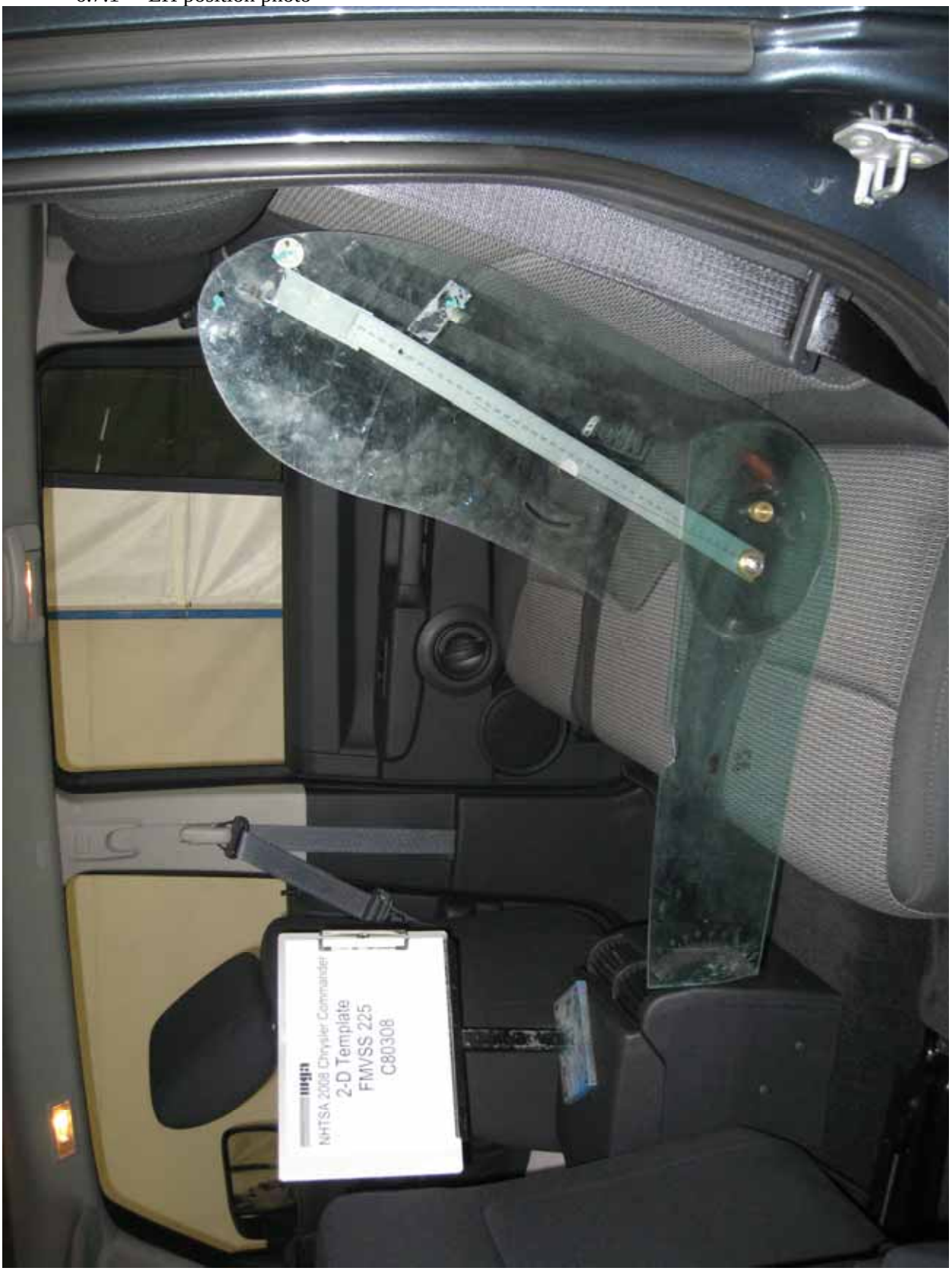
6.6.4 Left rear

6.6.5 Right front

6.6.6 Right rear

6.7 2-dimensional template

6.7.1 LH position photo



6.7.2 RH position photo

6.7.3 Center position photo

6.8 CRF verification

6.8.1 LH position photo

6.8.2 RH position photo

6.8.3 Center position photo

6.9 Front view of test vehicle with test apparatus in place

6.9.1 SFAD II LH & RH

6.9.2 SFAD II Center

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

6.10.1 Pre-test photo

6.10.2 Pre-test photo

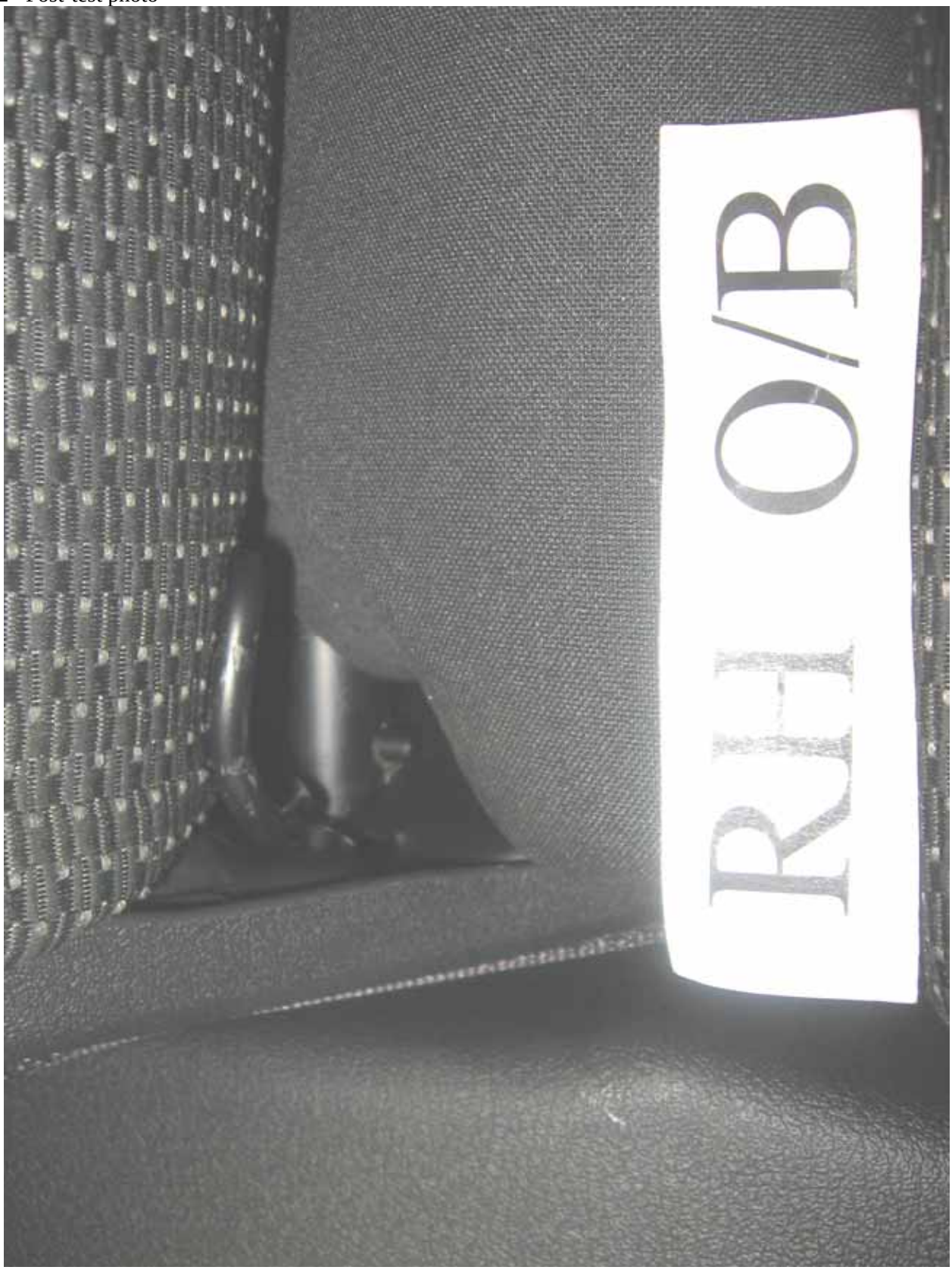
6.10.3 Pre-test photo

6.10.4 Pre-test photo

6.11 Post-test condition of each child restraint anchorage system

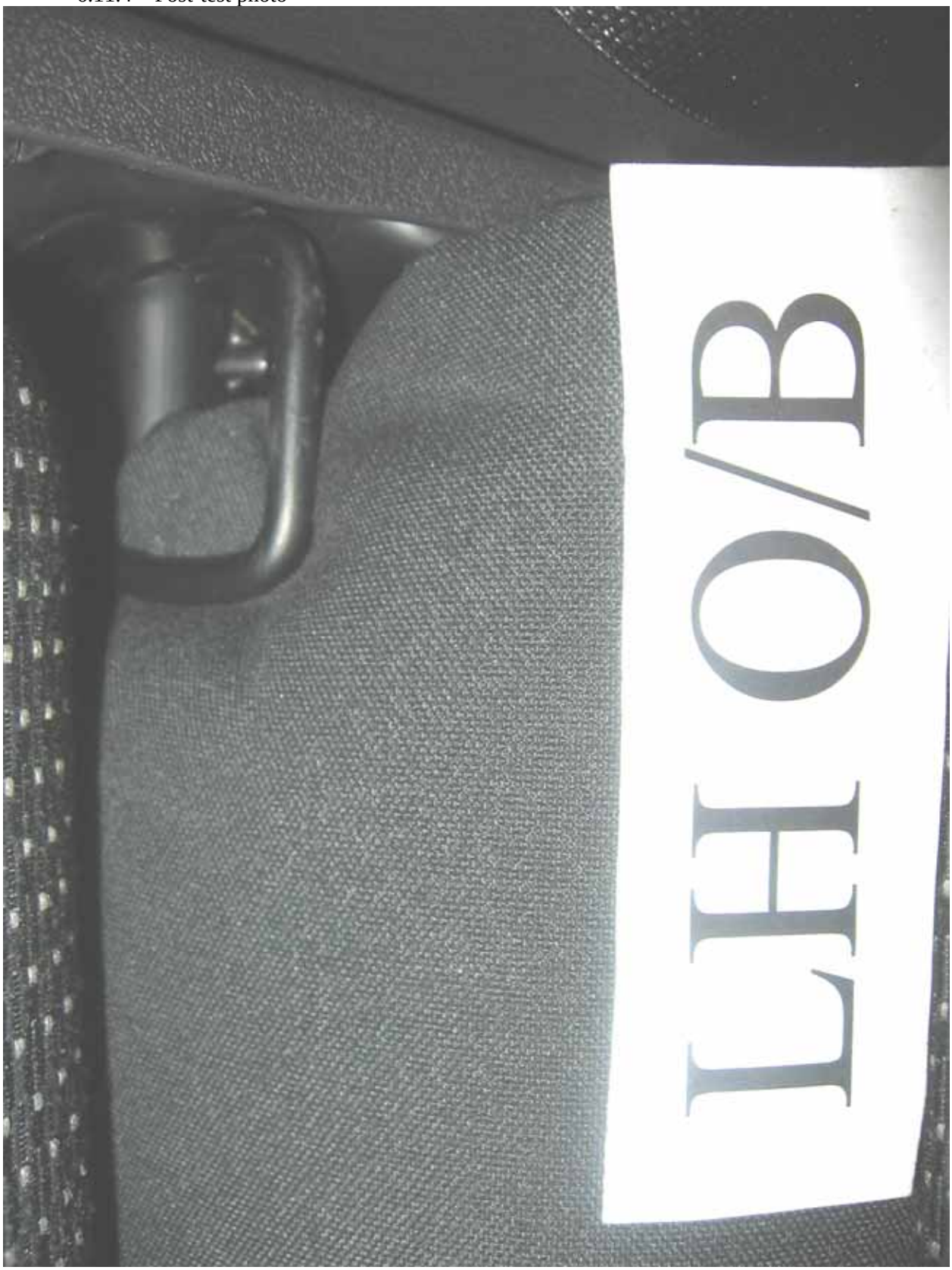
6.11.1 Post-test photo

6.11.2 Post-test photo



6.11.3 Post-test photo

6.11.4 Post-test photo



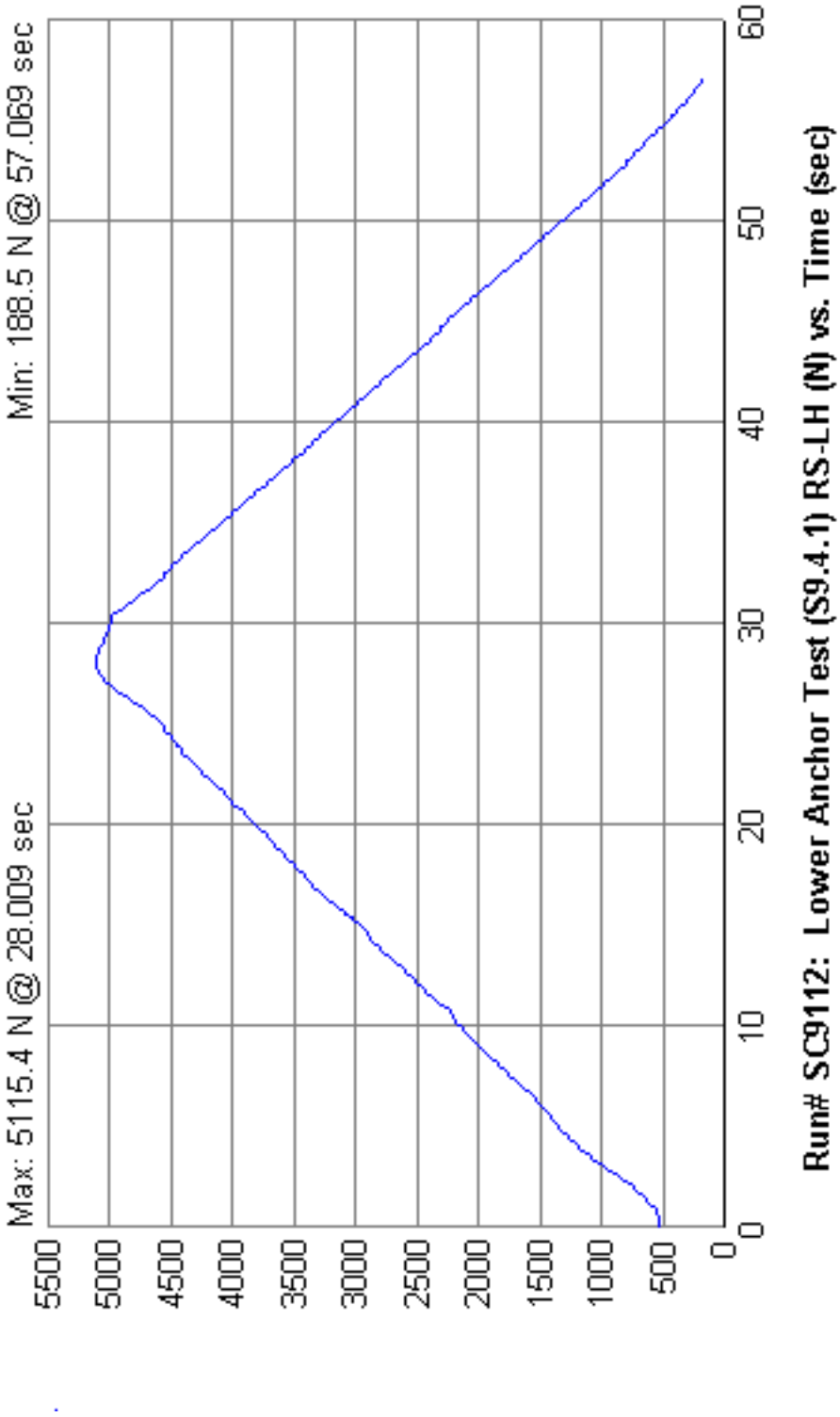
6.11.5 Post-test photo

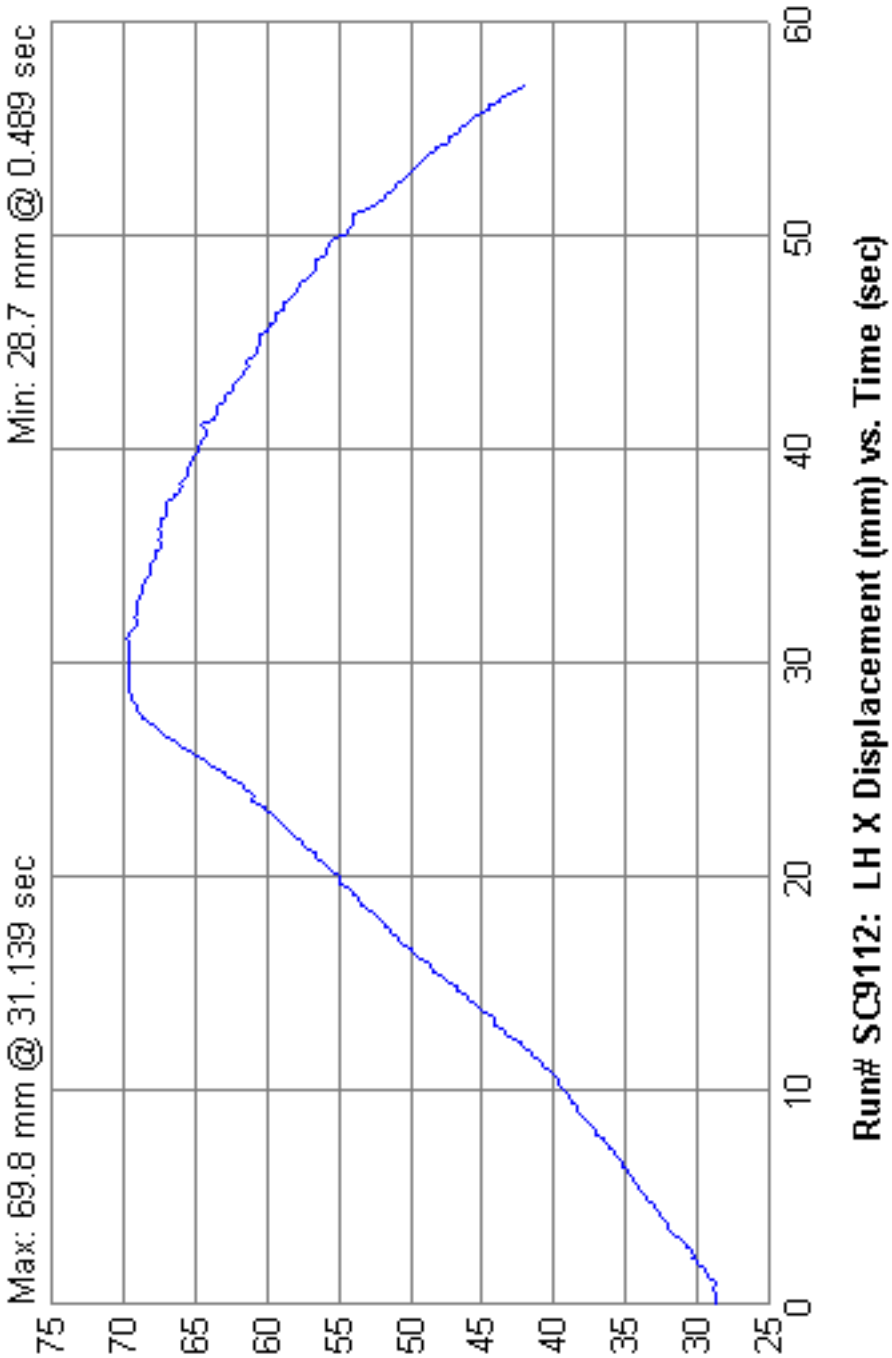
6.11.6 Post-test photo

6.11.7 Post-test photo

6.11.8 Post-test photo

7.0 PLOTS


Run# SC9112: Lower Anchor Test (S9.4.1) RS-LH (N) vs. Time (sec)
Max: 5115.4 N @ 28.009 sec
Min: 188.5 N @ 57.069 sec
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60


Run# SC9112: LH X Displacement (mm) vs. Time (sec)
Max: 69.8 mm @ 31.139 sec
Min: 28.7 mm @ 0.489 sec
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70
65
60
55
50
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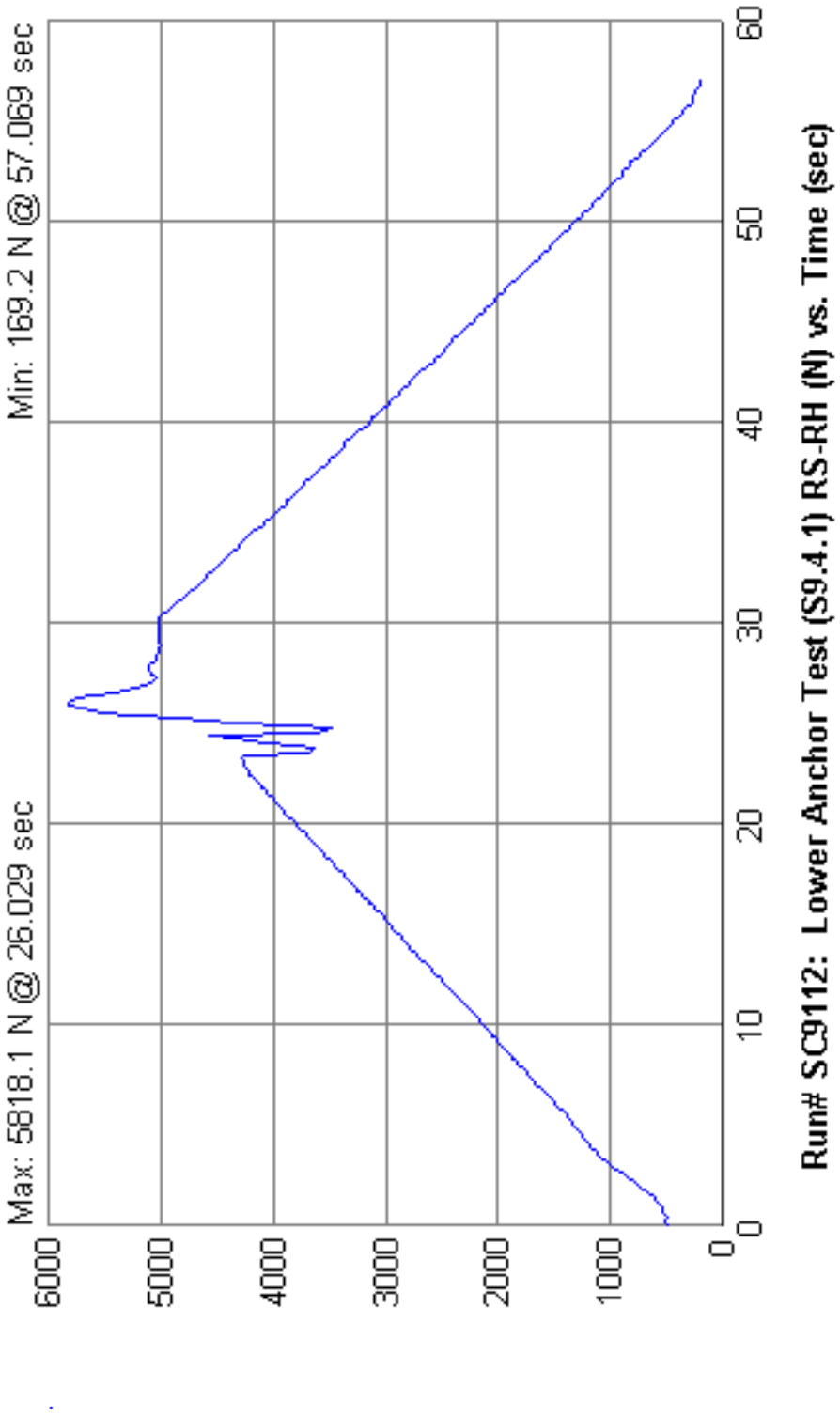
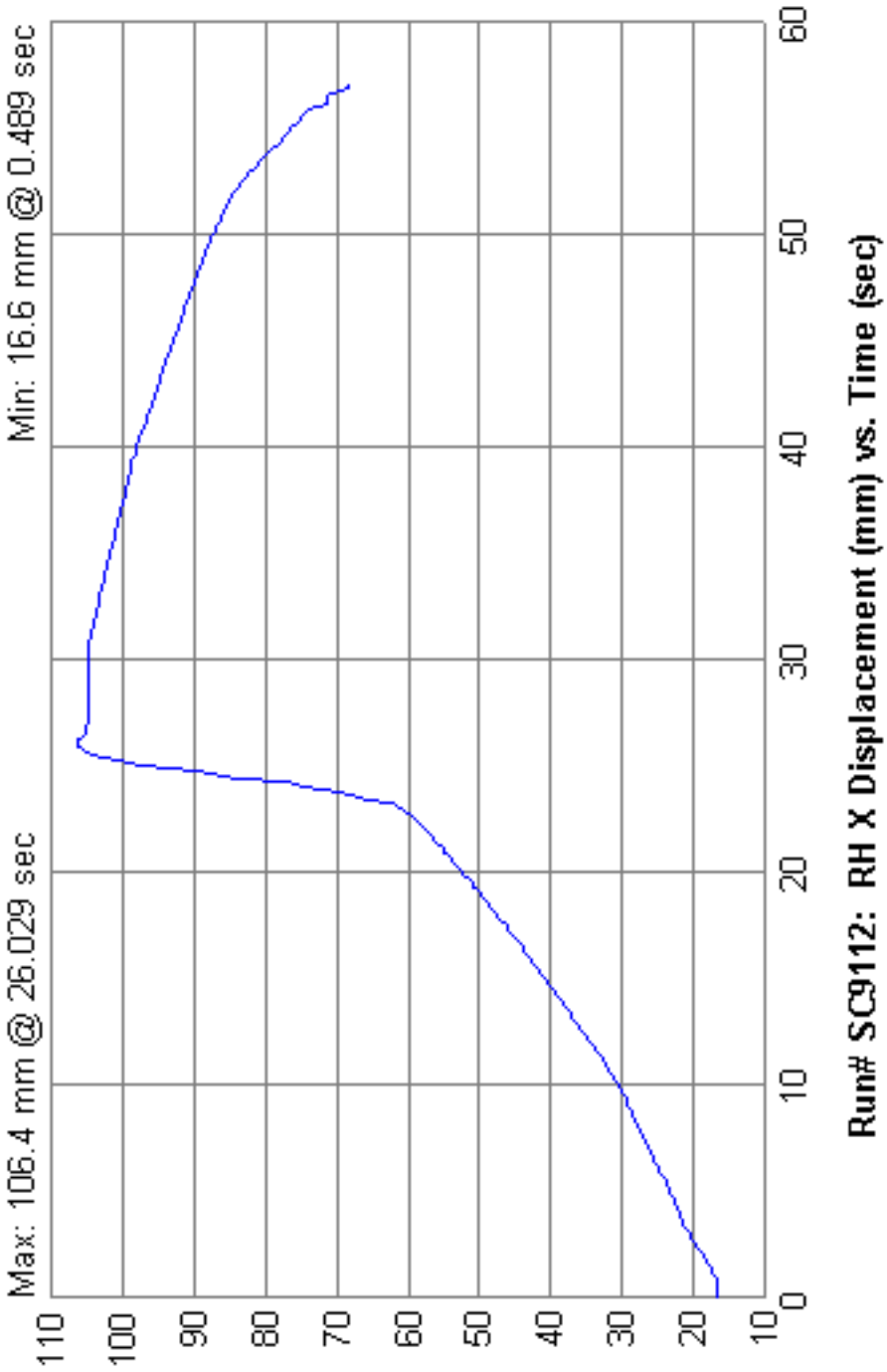
40
35
30
25
0
10
20
30
40
50
60


Max: 5818.1 N @ 26.029 sec
Min: 169.2 N @ 57.069 sec
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
Run# SC9112: Lower Anchor Test (S9.4.1) RS-RH (N) vs. Time (sec)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Min: 16.6 mm @ 0.489 sec
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100
90
80
70
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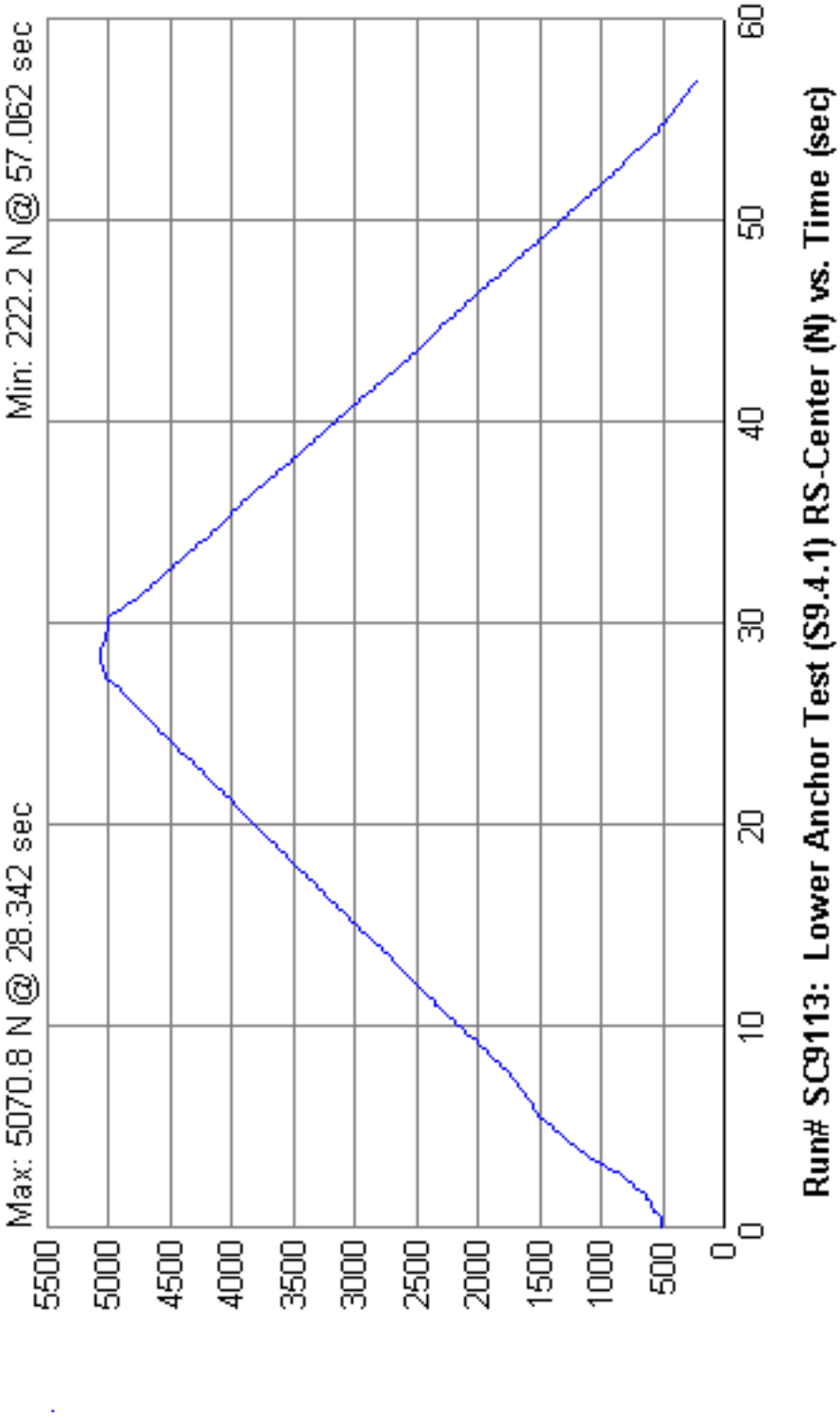
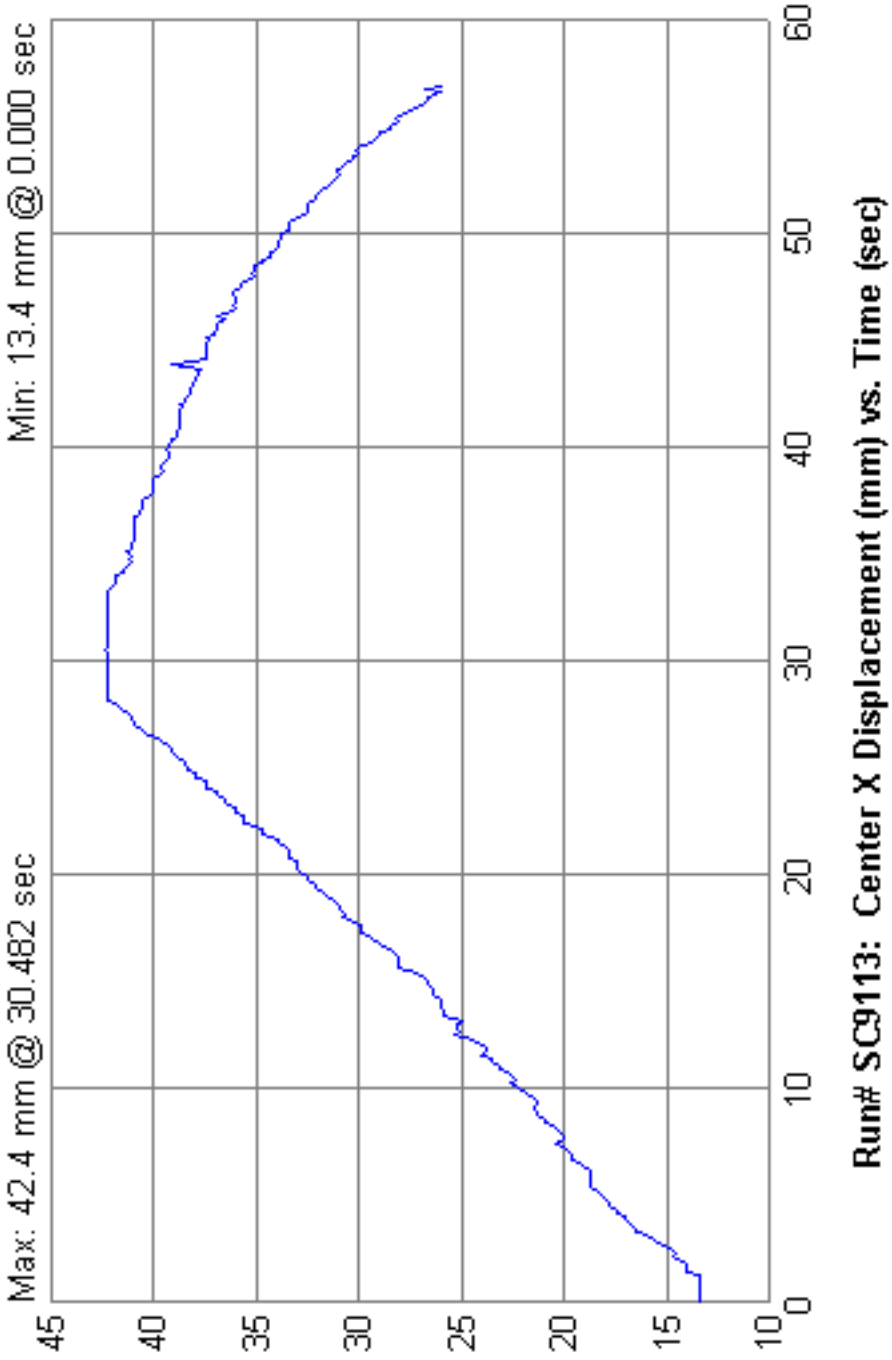
40
30
20
10
0
10
20
30
40
50
60


Max: 5070.8 N @ 28.342 sec
Min: 222.2 N @ 57.062 sec
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
Run# SC9113: Lower Anchor Test (S9.4.1) RS-Center (N) vs. Time (sec)


Min: 13.4 mm @ 0.000 sec
Max: 42.4 mm @ 30.482 sec
45
40
35
30
25
20
15
10
0
10
20
30
40
50
60
Run# SC9113: Center X Displacement (mm) vs. Time (sec)

8.0 REPORT OF VEHICLE CONDITION

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-06-C-00030/0006 DATE: March 6, 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 Chrysler Commander

VEH. NHTSA NO.: C80308 VIN: 1J8HG48K98C133130

COLOR: Blue

ODOMETER READINGS: ARRIVAL 26 miles Date: 7/9/08

COMPLETION 26 miles Date: 3/6/09

PURCHASE PRICE: $Unknown DEALER'S NAME: Unknown

ENGINE DATA: 6 Cylinders 3.7 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

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

REMARKS:

Salvage only.

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

All equipment inventoried and placed in vehicle.

Explanation for equipment removal:

Test Vehicle Condition:

Salvage only.

RECORDED BY: Fern Gatilao, Kenney Godfrey DATE: March 6, 2009

APPROVED BY: Brad Reaume

APPENDIX A
OWNERS MANUAL CHILD RESTRAINT SYSTEMS

>vided to the custodial entity upon request. General ta that does not identify particular vehicles or crashes y be released for incorporation in aggregate crash tabases, such as those maintained by the US governnt and various states. Data of a potentially sensitive ture, such as would identify a particular driver, vele, or crash, will be treated confidentially. Confidential ta will not be disclosed by DaimlerChrysler Corporan to any third party except when:

Used for research purposes, such as to match data th a particular crash record in an aggregate database, >vided confidentiality of personal data is thereafter >served

Used in defense of litigation involving a imlerChrysler Corporation product

Requested by police under a legal warrant

Otherwise required by law

Data Parameters that May Be Recorded:

- Diagnostic trouble code(s) and warning lamp status for electronically-controlled safety systems, including the airbag system
- Airbag disable lamp status (if equipped)
- "Time" of airbag deployment (in terms of ignition cycles and vehicle mileage)
- Airbag deployment level (if applicable)
- Impact acceleration and angle
- Seat belt status
- Brake status (service and parking brakes)
- Accelerator status (including vehicle speed)
- Engine control status (including engine speed)
- Transmission gear selection

- Cruise control status
- Traction/stability control status
- Tire pressure monitoring system status

Child Restraint

Everyone in your vehicle needs to be buckled up all the time — babies and children, too. Every state in the United States and all Canadian provinces require that small children ride in proper restraint systems. This is the law, and you can be prosecuted for ignoring it.

Children 12 years and under should ride properly buckled up in a rear seat, if available. According to crash statistics, children are safer when properly restrained in the rear seats rather than in the front.

There are different sizes and types of restraints for children from newborn size to the child almost large enough for an adult safety belt. Always check the child seat Owner's Manual to ensure you have the right seat for your child. Use the restraint that is correct for your child:

WARNING!

In a collision, an unrestrained child, even a tiny baby, can become a missile inside the vehicle. The force required to hold even an infant on your lap can become so great that you could not hold the child, no matter how strong you are. The child and others could be badly injured. Any child riding in your vehicle should be in a proper restraint for the child's size.

Infants and Child Restraints

- Safety experts recommend that children ride rearward-facing in the vehicle until they are at least one year old **and** weigh at least 20 lbs (9 kg). Two types of child restraints can be used rearward-facing: infant carriers and "convertible" child seats.
- The infant carrier is only used rearward-facing in the vehicle. It is recommended for children who weigh up to about 20 lbs (9 kg). "Convertible" child seats often have a higher weight limit in the rearward-facing direction than infant carriers do, so they can be used rearward-facing by children who weigh more than 20 lbs (9 kg) but are less than one year old. Both types of child restraints are held in the vehicle by the lap/shoulder belt or the LATCH child restraint anchorage system (Refer to LATCH — Child Seat Anchorage System in this section.)
- Rearward-facing child seats must **NEVER** be used in the front seat of a vehicle with the front passenger airbag unless the airbag is turned off. An airbag deployment could cause severe injury or death to infants in this position.

WARNING!

- **Improper installation can lead to failure of an infant or child restraint. It could come loose in a collision. The child could be badly injured or killed. Follow the manufacturer's directions exactly when installing an infant or child restraint.**
- **A rearward facing infant restraint should only be used in a rear seat. A rearward facing infant restraint in the front seat may be struck by a deploying passenger airbag which may cause severe or fatal injury to the infant.**

Here are some tips for getting the most out of your child restraint:

- Before buying any restraint system, make sure that it has a label certifying that it meets all applicable Safety Standards. The manufacturer also recommends that you try a child restraint in the vehicle seats where you will use it before you buy it.
- The restraint must be appropriate for your child's weight and height. Check the label on the restraint for weight and height limits.
- Carefully follow the instructions that come with the restraint. If you install the restraint improperly, it may not work when you need it.
- The front passenger seat belt is equipped with a cinching latch plate. The second and third row seating positions have automatic locking retractors. Both types of seat belts are designed to keep the lap portion tight around the child restraint so that it is not necessary to use a locking clip. If the seat belt has a cinching latch plate, pulling up on the shoulder portion of the lap/shoulder belt will tighten the belt (the cinching latch plate will keep the belt tight, however, any seat belt system will loosen with time, so check the belt occasionally and pull it tight if necessary). For the second and third row seat belts with the automatic locking retractor, pull the belt from the retractor until there is enough to allow you to pass through the child restraint and slide the latch plate into the buckle. Then, pull the belt until it is fully extracted from the retractor. Allow the belt to return to the retractor, pulling on the excess webbing to tighten the lap portion about the child restraint. For additional information, refer to "Automatic Locking Mode" earlier in this section.
- In your vehicle's 2nd row outboard seating positions, you may have trouble tightening the lap/shoulder belt on the child restraint because the buckle or latch plate

is too close to the belt path opening on the restraint. Disconnect the latch plate from the buckle and twist the short buckle-end belt several times to shorten it. Insert the latch plate into the buckle with the release button facing out.

- If the belt still cannot be tightened, or if pulling and pushing on the restraint loosens the belt, disconnect the latch plate from the buckle, turn the buckle around, and insert the latch plate into the buckle again. If you still cannot make the child restraint secure, try a different seating position.
- Buckle the child into the restraint exactly as the manufacturer's instructions tell you.
- When your child restraint is not in use, secure it in the vehicle with the seat belt or remove it from the vehicle. Do not leave it loose in the vehicle. In a sudden stop or collision, it could strike the occupants or seat backs and cause serious personal injury.

NOTE: For additional information refer to www.seatcheck.org or call 1-866-SEATCHECK.

Older Children and Child Restraints

2

Children who weigh more than 20 lbs (9 kg) and who are older than one year can ride forward-facing in the vehicle. Forward-facing child seats and convertible child seats used in the forward-facing direction, are for children who weigh 20 to 40 lbs (9 to 18 kg), and who are older than one year. These child seats are also held in the vehicle by the lap/shoulder belt or the LATCH child restraint anchorage system (Refer to LATCH — Child Seat Anchorage System in this section.)

The belt-positioning booster seat is for children weighing more than 40 lbs (18 kg), but who are still too small to fit the vehicle's seat belts properly. If the child cannot sit with knees bent over the vehicle's seat cushion while the child's back is against the seat back, they should use a

belt-positioning booster seat. The child and belt-positioning booster seat are held in the vehicle by the lap/shoulder belt.

Children Too Large for Booster Seats

Children who are large enough to wear the shoulder belt comfortably, and whose legs are long enough to bend over the front of the seat when their back is against the seat back, should use the lap/shoulder belt in a rear seat.

- Make sure that the child is upright in the seat.
- The lap portion should be low on the hips and as snug as possible.
- Check belt fit periodically. A child's squirming or slouching can move the belt out of position.
- If the shoulder belt contacts the face or neck, move the child closer to the center of the vehicle. Never allow a child to put the shoulder belt under an arm or behind their back.

LATCH — Child Seat Anchorage System (Lower Anchors and Tether for CHildren)

Your vehicle's second row seat is equipped with the child restraint anchorage system called LATCH. The LATCH system provides for the installation of the child restraint without using the vehicle's seat belts, instead securing the child restraint using lower anchorages and upper tether straps from the child restraint to the vehicle structure.

LATCH-compatible child restraint systems are now available. However, because the lower anchorages are to be introduced over a period of years, child restraint systems having attachments for those anchorages will continue to also have features for installation using the vehicle's seat belts. Child restraints having tether straps and hooks for connection to the top tether anchorages have been available for some time. For some older child restraints, many child restraint manufacturers offer add-on tether strap

kits or retro-fit kits. You are urged to take advantage of all the available attachments provided with your child restraint in any vehicle.

NOTE: When using the LATCH attaching system to install a child restraint, please ensure that all seat belts not being used for occupant restraints are stowed and out of reach of children. Remind all children in the vehicle that the seat belts are not toys and should not be played with, and never leave your child unattended in the vehicle.

The second row outboard seating positions have lower anchorages that are capable of accommodating LATCH-compatible child seats having flexible, webbing-mounted lower attachments. Child seats with fixed lower attachments must be installed in the outboard positions only. Regardless of the specific type of lower attachment, NEVER install LATCH-compatible child seats such that two seats share a common lower anchorage.

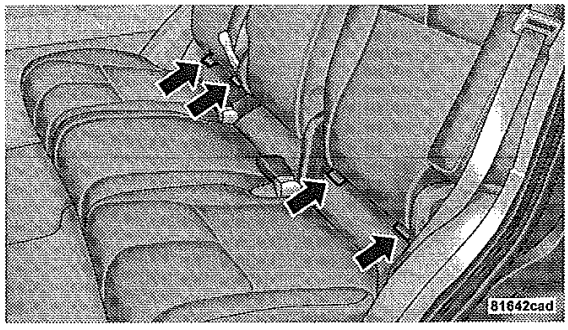
If you are installing LATCH-compatible child restraints in adjacent rear seating positions, you can use the LATCH anchors or the vehicle's seat belt for the outboard position, but you must use the vehicle's seat belt at the center position. If your child restraints are not LATCH-compatible, you can only install the child restraints using the vehicle's seat belts. Please refer to the next section for typical installation instructions.

Installing the LATCH-Compatible Child Restraint System

We urge that you carefully follow the directions of the manufacturer when installing your child restraint. Not all child restraint systems will be installed as described here. Again, carefully follow the installation instructions that were provided with the child restraint system.

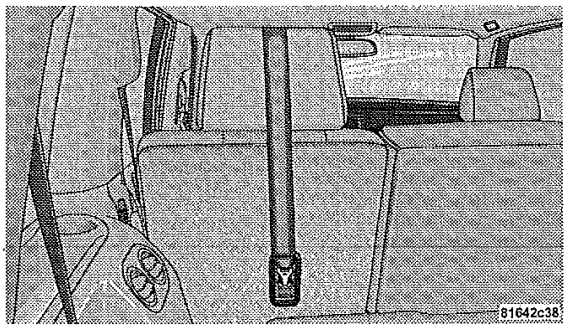
The rear seat lower anchorages are round bars, located at the rear of the seat cushion where it meets the seat back, and are just visible when you lean into the rear seat to

install the child restraint. You will easily feel them if you run your finger along the intersection of the seatback and seat cushion surfaces.



Latch Anchorages

In addition, there are tether strap anchorages behind each rear outboard seating position located on the back of the seat.



Tether Strap Mounting

Many, but not all restraint systems will be equipped with separate straps on each side, with each having a hook or connector for attachment to the lower anchorage and a means of adjusting the tension in the strap. Forward-facing toddler restraints and some rear-facing infant restraints will also be equipped with a tether strap, a

hook for attachment to the tether strap anchorage and a means of adjusting the tension of the strap.

You will first loosen the adjusters on the lower straps and on the tether strap so that you can more easily attach the hooks or connectors to the vehicle anchorages. Next attach the lower hooks or connectors over the top of the anchorage bars, pushing aside the seat cover material. Then, locate the tether anchorage directly behind the seat where you are placing the child restraint and attach the tether strap to the anchorage, being careful to route the tether strap to provide the most direct path between the anchor and the child restraint. Finally, tighten all three straps as you push the child restraint rearward and downward into the seat, removing slack in the straps according to the child restraint manufacturer's instructions.

WARNING!

Improper installation of a child restraint to the LATCH anchorages can lead to failure of an infant or child restraint. The child could be badly injured or killed. Follow the manufacturer's directions exactly when installing an infant or child restraint.

2

Installing Child Restraints Using the Vehicle Seat Belt

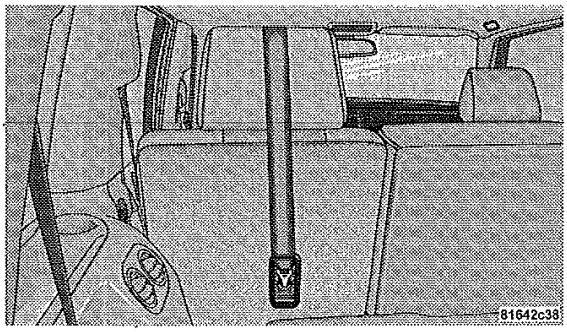
The passenger seat belts are equipped with either cinching latch plates or automatic locking retractors, which are designed to keep the lap portion tight around the child restraint so that it is not necessary to use a locking clip. If the seat belt has a cinching latch plate, pulling up on the shoulder portion of the lap/shoulder belt will tighten the belt. The cinching latch plate will keep the belt tight, however, any seat belt system will loosen with time, so check the belt occasionally and pull it tight if necessary.

If the seat belt has an automatic locking retractor, pull the belt from the retractor until there is enough to allow you to pass through the child restraint and slide the latch plate into the buckle. Then, pull the belt until it is all extracted from the retractor. Allow the belt to return to the retractor, pulling on the excess webbing to tighten the lap portion about the child restraint. Refer to "Automatic Locking Mode" earlier in this section.

In the rear seat, you may have trouble tightening the lap/shoulder belt on the child restraint because the buckle or latch plate is too close to the belt path opening on the restraint. Disconnect the latch plate from the buckle and twist the short buckle-end belt several times to shorten it. Insert the latch plate into the buckle with the release button facing out.

If the belt still can't be tightened, or if by pulling and pushing on the restraint loosens the belt, you may need to do something more. Disconnect the latch plate from the buckle, turn the buckle around, and insert the latch plate into the buckle again. If you still can't make the child restraint secure, try a different seating position.

To attach a child restraint tether strap:



Tether Strap Mounting

Route the tether strap over the seat back and attach the hook to the tether anchor located on the back of the seat.

For the outboard seating positions, route the tether over the head rests, and attach the hook to the tether anchor located on the back of the seat.

WARNING!

An incorrectly anchored tether strap could lead to increased head motion and possible injury to the child. Use only the anchor positions directly behind the child seat to secure a child restraint top tether strap.

Transporting Pets

Airbags deploying in the front seat could harm your pet. An unrestrained pet will be thrown about and possibly injured, or injure a passenger during panic braking or in a collision. Pets should be restrained in the rear seat in pet harnesses or pet carriers that are secured by seat belts.

ENGINE BREAK-IN RECOMMENDATIONS

A long break-in period is not required for the engine in your new vehicle.

2

Drive moderately during the first 300 miles (500 km). After the initial 60 miles (100 km), speeds up to 50 or 55 mph (80 or 90 km/h) are desirable.

While cruising, brief full-throttle acceleration, within the limits of local traffic laws, contributes to a good break-in. Wide-open throttle acceleration in low gear can be detrimental and should be avoided.

The engine oil installed in the engine at the factory is a high quality energy conserving type lubricant. Oil changes should be consistent with anticipated climate conditions under which vehicle operations will occur. The recommended viscosity and quality grades are shown in Section 7 of this manual. NON-DETERGENT OR STRAIGHT MINERAL OILS MUST NEVER BE USED.

APPENDIX B
MANUFACTURER'S DATA (OVSC FORM 14)

C80308

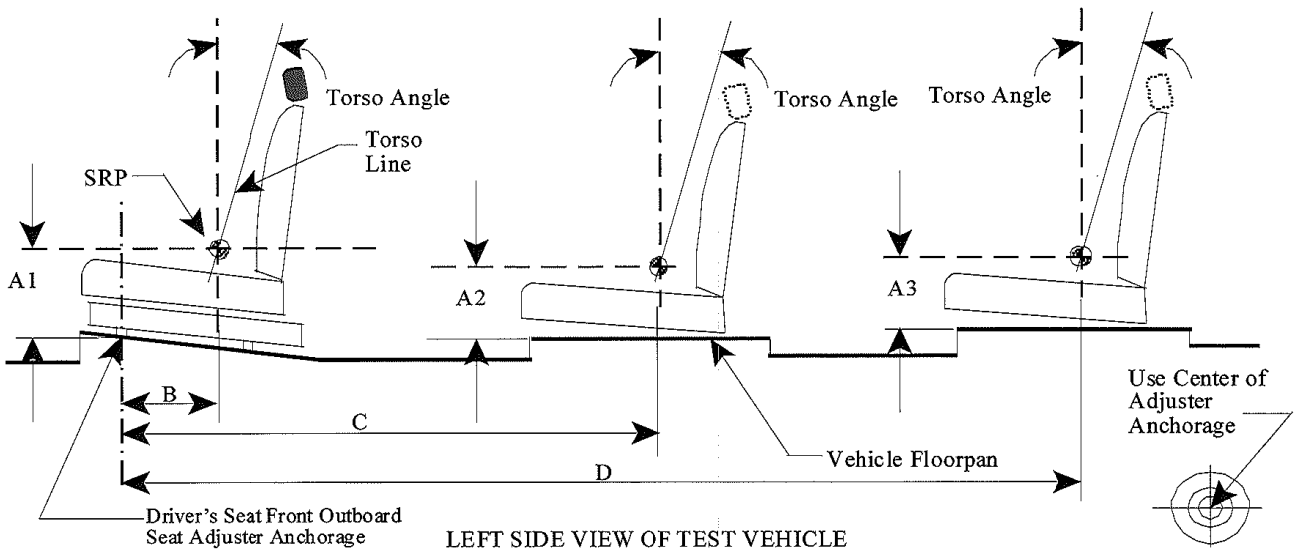
FORM – 225
Rev. 03/20/07

SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA

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

MODEL YEAR: 2008-2009 / MAKE: Chrysler / MODEL: Commander / BODY STYLE: 4-DR SUV

SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: 40/20/40 Split/ THIRD ROW: 50/50 Split



LEFT SIDE VIEW OF TEST VEHICLE

Table 1. Seating Positions[1] and Torso Angles

		Left (Driver Side)	Center (if any)	Right
A1		278.3	NA	278.3
A2		394.8	401.3	394.8
A3		505.3	NA	505.3
B		356.7	NA	356.7
C		1195.1	1180.7	1195.1
D		2029.7	NA	505.3
Torso Angle (degree)	Front Row	24	NA	24
	Second Row	19	19	19
	Third Row	19	NA	19

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: 2008-2009 / MAKE: Chrysler / MODEL:Commander / BODY STYLE: 4-DR SUV

SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: 40/20/40 Split / THIRD ROW: 50/50 Split

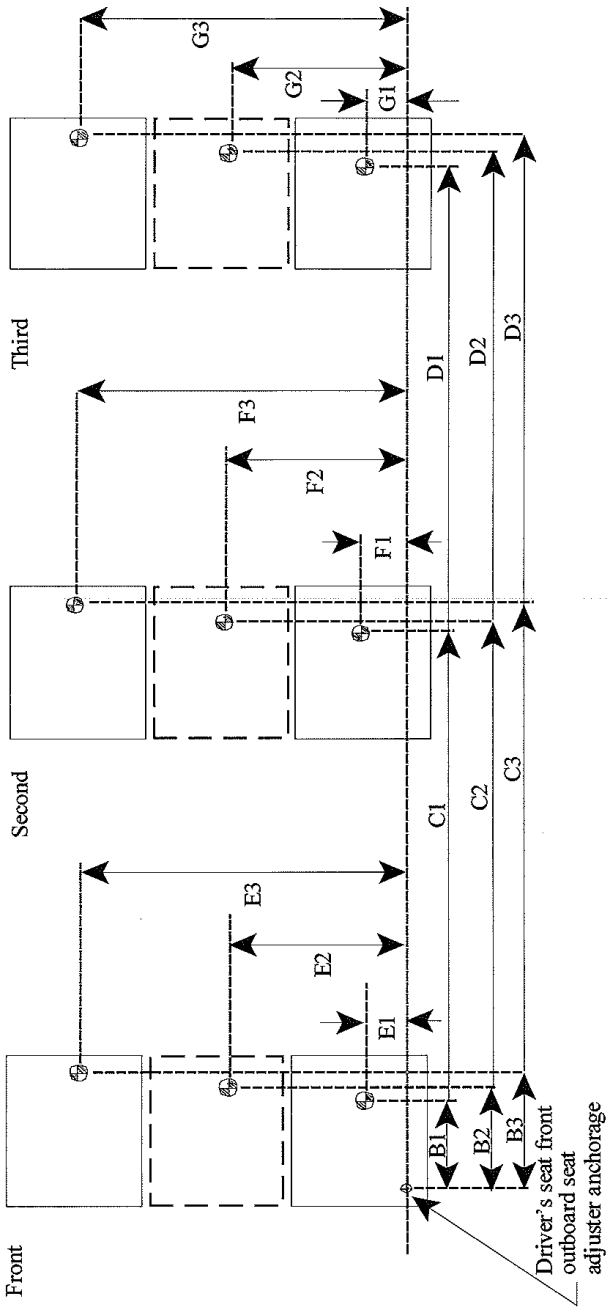

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Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	356.7
	E1	218
	B2	NA
	E2	NA
	B3	356.7
	E3	1036
Second Row	C1	1195.1
	F1	212
	C2	1180.7
	F2	627
	C3	1195.3
	F3	1042
Third Row	D1	2029.7
	G1	362
	D2	NA
	G2	NA
	D3	2029.7
	G3	892

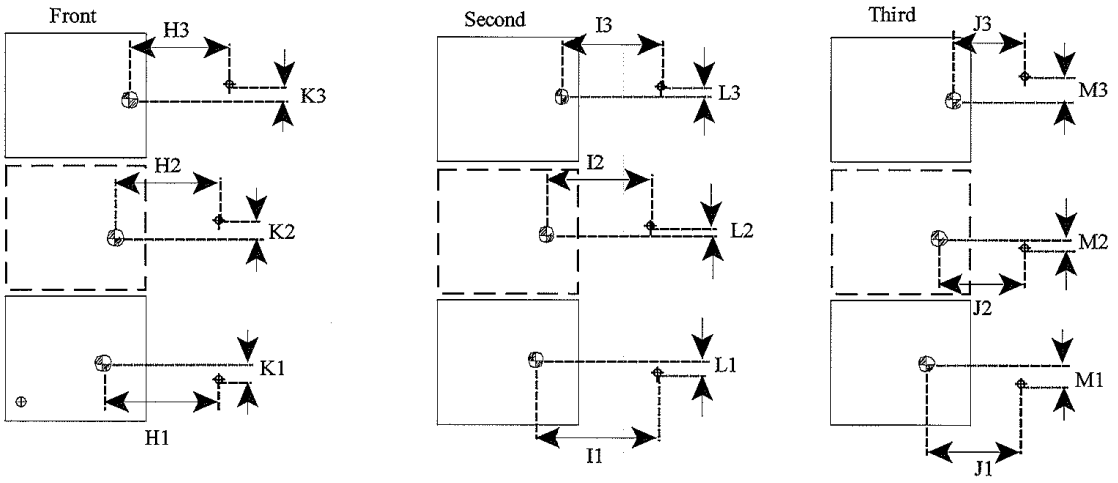
Note: Use the center of anchorage.

TETHER ANCHORAGE LOCATIONS

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2008-2009 / MAKE: Chrysler / MODEL:Commander / BODY STYLE: 4-DR SUV

SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: 40/20/40 Split / THIRD ROW: 50/50 Split



⊕: 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

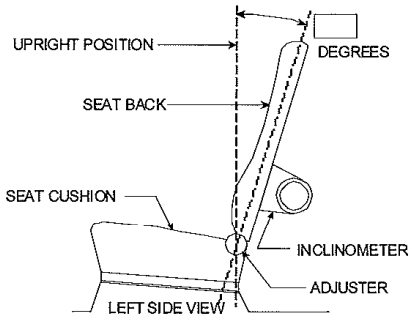
Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	NA
	K1	NA
	H2	NA
	K2	NA
	H3	NA
	K3	NA
Second Row	I1	304.3
	L1	-28.7 (IB of Occupant SRP)
	I2	293
	L2	0
	I3	304.3
	L3	-28.7 (IB of Occupant SRP)
Third Row	J1	NA
	M1	NA
	J2	NA
	M2	NA
	J3	NA
	M3	NA

Note: Use the center of anchorage.

7

NOMINAL DESIGN RIDING POSITION

For adjustable driver, passenger, 2nd row and 3rd row seat backs, describe how to position the inclinometer to measure the seat back angle. Include a description of the location of the seat back adjustment latch detent if applicable. Indicate if applicable, how the detents are numbered (Is the first detent "0"or "1"?). Indicate if the seat back angle is measured with the dummy in the seat.



Seat back angle for driver's seat = __14___ degrees.

Measurement Instructions:
Move HR to full up and place inclinometer on rear surface of HR rod. Rotate Seat back 14 degrees rearward from vertical. No dummy required.

Seat back angle for passenger's seat = __14____ degrees.

Measurement Instructions:

Move HR to full up and place inclinometer on rear surface of HR rod. Rotate seat back 14 degrees rearward from vertical. No dummy required.

Seat back angle for 2nd row seat = __19.5____ degrees.

Measurement Instructions:

From the folded flat position rotate the seatback upward into the first locked position. No dummy required.

Seat back angle for 3rd row seat = __19___ degrees.

Measurement Instructions:

From the folded flat position rotate the seatback upward into the first locked position. No dummy required.

8

TETHER ANCHORAGE LOCATIONS - VERTICAL

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2008-2009 / MAKE: Chrysler / MODEL:Commander / BODY STYLE: 4-DR SUV

SEAT STYLE: FRONT ROW: Bucket / SECOND ROW: 40/20/40 Split / THIRD ROW: 50/50 Split

LEFT SIDE VIEW OF TEST VEHICLE

FORM – 225

Table 4. Vertical Dimension For The Tether Anchorage

Seating Row	Vertical Distance from Seating Reference Point	
Front Row	N1 (Driver)	N/A
	N2 (Center)	NA
	N3 (Right)	NA
Second Row	O1 (Left)	188.9
	O2 (Center)	-91
	O3 (Right)	188.9
Third Row	P1 (Left)	NA
	P2 (Center)	NA
	P3 (Right)	NA

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? Based on the vehicle configuration, five to seven seating positions exist in the vehicle. Vehicle has an optional 3rd row with two seating positions.

2. How many designated seating positions are equipped with lower anchorages and tether anchorages? Specify which position(s). Three seating positions are equipped with lower anchorages and tether anchorages. They are the left, center and right occupant positions in the second row.

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3. How many designated seating positions are equipped with tether anchorages? Specify which positions(s).
   Three seating positions are equipped with tether anchorages. They are the left, center and right occupant positions in the second row.

4. Lower Anchorages Marking and Conspicuity: Whether the anchorages are certified to S9.5(a) or S9.5(b) of FMVSS No. 225. The anchorages are certified to S9.5(b) of FMVSS No. 225.

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