

REPORT NUMBER 225-GTL-08-004

**SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 225
CHILD RESTRAINT ANCHORAGE SYSTEMS
LOWER AND TETHER ANCHORAGES**

**GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.
2008 SATURN VUE, MPV
NHTSA NO. C80113**

**GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
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SEPTEMBER 15, 2008

FINAL REPORT

PREPARED FOR

**U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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Approval Date: 09/15/08

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Edward E. Chan 
Director, Office of Vehicle Safety Council
U.S. Department of Transportation

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SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF COMPLIANCE TEST

A 2008 Saturn Vue MPV was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 225 testing to determine if the vehicle was in compliance with the requirements of the standard. The purpose of this standard is to establish requirements for child restraint anchorage systems to ensure their proper location and strength for the effective securing of child restraints, to reduce the likelihood of the anchorage systems' failure and to increase the likelihood that child restraints are properly secured and thus more fully achieve their potential effectiveness in motor vehicles.

1.1 The test vehicle was a 2008 Saturn Vue MPV. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: 3GSCL33P08S593009

B. NHTSA No.: C80113

C. Manufacturer: GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.

D. Manufacture Date: 10/07

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 225 testing on August 25, 2008.

SECTION 2

COMPLIANCE TEST RESULTS

2.0 TEST RESULTS

All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-225-01 dated 11 April 2005.

Based on the test performed, the 2008 Saturn Vue MPV appears to meet the requirements of FMVSS 225 testing.

SECTION 3

COMPLIANCE TEST DATA

3.0 TEST DATA

The following data sheets document the results of testing on the 2008 Saturn Vue MPV.

DATA SHEET 1
SUMMARY OF RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV

VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009

VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008

TEST LABORATORY: GENERAL TESTING LABORATORIES

OBSERVERS: GRANT FARRAND, JIMMY LATANE

A. VISUAL INSPECTION OF TEST VEHICLE

Upon receipt for completeness, function, and discrepancies or damage which might influence the testing.

RESULTS: OK FOR TEST

B. REQUIREMENTS FOR CHILD RESTRAINT SYSTEMS AND TETHER ANCHORAGES

	PASS	FAIL
DSP a	<u> X </u>	<u> </u>
DSP b	<u> X </u>	<u> </u>
DSP c	<u> X </u>	<u> </u>

C. LOCATION OF TETHER ANCHORAGES

	PASS	FAIL
DSP a	<u> X </u>	<u> </u>
DSP b	<u> X </u>	<u> </u>
DSP c	<u> X </u>	<u> </u>

D. LOWER ANCHORAGE DIMENSIONS

	PASS	FAIL
DSP a	<u> X </u>	<u> </u>
DSP b	<u> N/A </u>	<u> N/A </u>
DSP c	<u> X </u>	<u> </u>

DATA SHEET 1 CONTINUED
SUMMARY OF RESULTS

E. CONSPICUITY AND MARKING OF LOWER ANCHORAGES

	PASS	FAIL
DSP a	<u> X </u>	<u> </u>
DSP b	<u> N/A </u>	<u> N/A </u>
DSP c	<u> X </u>	<u> </u>

F. STRENGTH OF TETHER ANCHORAGES

	PASS	FAIL
DSP a	<u> X </u>	<u> </u>
DSP b	<u> X </u>	<u> </u>
DSP c	<u> N/A </u>	<u> N/A </u>

G. STRENGTH OF LOWER ANCHORAGES (Forward Force)

	PASS	FAIL
DSP a	<u> N/A </u>	<u> N/A </u>
DSP b	<u> N/A </u>	<u> N/A </u>
DSP c	<u> X </u>	<u> </u>

H. STRENGTH OF LOWER ANCHORAGE (Lateral Force)

	PASS	FAIL
DSP a	<u> N/A </u>	<u> N/A </u>
DSP b	<u> N/A </u>	<u> N/A </u>
DSP c	<u> N/A </u>	<u> N/A </u>

I. OWNER'S MANUAL

	PASS	FAIL
	<u> X </u>	<u> </u>

REMARKS:

NOTE:

RECORDED BY: G. Farrand
APPROVED BY: D. Messick

DATE: 08/25/08

DATA SHEET 2
 REQUIREMENTS FOR CHILD RESTRAINT ANCHORAGE SYSTEMS
 AND TETHER ANCHORAGES

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV
 VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009
 VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE

Number of rows of seats: 2
 Number of rear, forward-facing designated seating positions: 3
 Number of required CRAS (lower anchorages only, for convertibles/school buses): 2
 Number of required tether anchorages (can be additional CRAS): 3
 Is the vehicle a convertible? NO
 Is the vehicle a school bus? NO

Does the vehicle have a CRAS (lower anchorage only, for convertibles/school buses) installed at a front passenger seating position? NO

If NO, skip to next question.

If YES, does the vehicle have rear designated seating positions? _____

If NO, does the vehicle have an air bag on-off switch or a special exemption for no passenger air bag?

If NO = FAIL If YES = PASS

If Yes, does the vehicle meet the requirements of S4.5.4.1 (b) of S208 and have and air bag on-off switch or a special exemption for no passenger air bag? _____

Record the distance between the front and rear seat back: _____

If Distance < 720 mm and vehicle has an air bag on-off switch or special exemption = PASS

If Distance ≥ 720 mm or no air bag on-off switch or no special exemption = FAIL

Does the vehicle have rear designated seating position(s) where the lower bars of a CRAS are prevented from being located because of transmission and/or suspension component interference?

NO

If NO, skip to next question.

If YES, does the vehicle have a tether anchorage at a front passenger seating position?

YES = PASS NO = FAIL (S5(e))

Number of provided CRAS (lower anchorage only, for convertibles/school buses), indicate if a built-in child restraint is counted as a CRAS: 2

Is the number of provided CRAS (lower anchorages only, for convertible/school buses) greater than or equal to the number of required CRAS (lower anchorages only, for convertibles/school buses)?

YES

YES = PASS NO = FAIL (S4.4(a) or (b) or (c))

DATA SHEET 2 CONTINUED

If the vehicle has 3 or more rows of seats is a CRAS (lower anchorage only for convertibles/school buses) provided in the second row: N/A
 YES = PASS NO = FAIL (S4.4(a)(1))

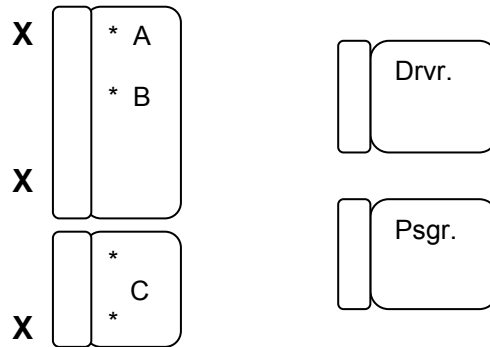
Number of provided tether anchorages (can be additional CRAS) indicate if a built-in child restraint is counted as tether anchorage (NOTE: a built-in child restraint can only be counted toward either the required number of CRAS or tether anchorages, not both): 3

Is the number of provided tether anchorages greater than or equal to the number of required tether anchorages? YES
 YES = PASS NO = FAIL (S4.4 (a) or (b) or (c))

If the vehicle has 3 or more rear dsps and a non-outboard dsp, is a tether anchorage or CRAS provided at a non-outboard dsp? YES
 YES = PASS NO = FAIL (S4.4 (a)(2))

Are all tether and lower anchorages available for use at all times when the seat is configured for passenger use? YES
 YES = PASS NO = FAIL (S4.6 (b))

Provide a diagram showing the location of lower anchorages and/or tether anchorages.



X = Top Tether
***** = Lower Anchors

RECORDED BY: G. Farrand

DATE: 08/25/08

APPROVED BY: D. Messick

DATA SHEET 3
LOCATION OF TETHER ANCHORAGES

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV
 VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009
 VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE

DESIGNATED SEATING POSITION: ROW 2 LEFT, RIGHT AND CENTER POSITIONS

Detailed description of the location of the tether anchorage:
 ON CENTER OF SEAT BACK

Based on visual inspection, is the tether anchorage within the shaded zone? YES

If YES = PASS, skip to next section

If NO, After constructing the shaded zone, is the tether anchorage within the shaded zone?

 If YES = PASS, skip to next section

If NO, Is it possible to locate a tether anchorage within the shaded zone without removing a seating component?

If YES = FAIL (S6.2.1)

If NO, Is a tether routing device provided?

If YES = PASS

IF NO = FAIL (S6.2.1.2)

Is the tether anchorage recessed? YES

If NO, skip to next question

If YES, is it outside of the tether strap wraparound area? YES

YES = PASS NO = FAIL (S6.2.1)

Does the tether anchorage permit attachment of a tether hook? YES

YES = PASS NO = FAIL (S6.1(a))

Is the tether anchorage accessible without the need for any tools other than a screwdriver or coin?

 YES

YES = PASS NO = FAIL (S6.1(b))

After the tether anchorage is accessed, is it ready for use without the need for tools? YES

YES = PASS NO = FAIL (S6.1(c))

Is the tether anchorage sealed to prevent the entry of exhaust fumes into the passenger compartment? YES

YES = PASS NO = FAIL (S6.1(d))

If the DSP has a tether routing device, is it flexible or rigid? N/A

DATA SHEET 3 CONTINUED

DESIGNATED SEATING POSITION: ROW 2 LEFT, RIGHT AND CENTER POSITIONS

If the DSP has a flexible tether routing device, after installing SFAD2 record the tether strap tension:
N/A (Must be 60 N \pm 5 N)

If the DSP has a flexible tether routing device, record the horizontal distance between the torso reference plane and the routing device: N/A
 Greater than or equal to 65mm = PASS Less than 65mm = FAIL

If the DSP has a rigid tether routing device, record the horizontal distance between the torso reference plane and the routing device: N/A
 Greater than or equal to 100mm = PASS Less than 100mm = FAIL

COMMENTS:

RECORDED BY: G. FarrandDATE: 08/25/08APPROVED BY: D. Messick

DATA SHEET 4
LOWER ANCHORAGE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV
 VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009
 VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE

DESIGNATED SEATING POSITION: ROW 2 LEFT SIDE (DSP A)

Outboard Lower Anchorage bar diameter: 6.02 mm
 6mm ± 0.1 mm = PASS Other size = FAIL (S9.1.1(a))

Inboard Lower Anchorage bar diameter: 6.02 mm
 6mm ± 0.1mm = PASS Other size = FAIL (S9.1.1(a))

Are the bars straight, horizontal and transverse? YES
 YES = PASS NO = FAIL

Length of the straight portion of the bar (outboard lower anchorage): 27 mm
 Length ≥ 25mm = PASS Length < 25mm = FAIL(S9.1.1(c) (i))

Length of the straight portion of the bar (inboard lower anchorage): 27 mm
 Length ≥ 25mm = PASS Length < 25mm = FAIL(S9.1.1(c) (i))

Length between the anchor bar supports (outboard lower anchorage): 35 mm
 Length ≤ 60mm = PASS Length > 60mm = FAIL(S9.1.1(c) (ii))

Length between the anchor bar supports (inboard lower anchorage): 35 mm
 Length ≤ 60mm = PASS Length > 60mm = FAIL(S9.1.1(c) (ii))

CRF Pitch angle: 12.9°
 Angle = 15° ± 10° = PASS Angle ≠ 15° ± 10° = FAIL (S9.2.1)

CRF Roll angle: 0.1°
 Angle = 0° ± 5° = PASS Angle ≠ 0° ± 5° = FAIL (S9.2.1)

CRF Yaw angle: 0°
 Angle = 0° ± 10° = PASS Angle ≠ 0° ± 10° = FAIL (S9.2.1)

Distance between point Z on the CRF and the front surface of outboard anchor bar: 56 mm
 Distance ≤ 70mm = PASS Distance > 70mm = FAIL

Distance between point Z on the CRF and the front surface of inboard anchor bar: 56 mm
 Distance ≤ 70mm = PASS Distance > 70mm = FAIL

DATA SHEET 4 CONTINUED

DESIGNATED SEATING POSITION: ROW 2 LEFT SIDE (DSP A)Distance between SgRP and the front surface of outboard anchor bar: 163 mm
Distance \geq 120mm = PASS Distance $<$ 120mm = FAILDistance between SgRP and the front surface of inboard anchor bar: 163 mm
Distance \geq 120mm = PASS Distance $<$ 120mm = FAILBased on visual observation, would a 100 N load cause the anchor bar to deform more than 5 mm?
NO

If NO = PASS

If YES = FAIL (S9.1.1(g)), Provide further description of the attachment of the anchor bar:

COMMENTS:

RECORDED BY: G. FarrandDATE: 08/25/08APPROVED BY: D. Messick

DATA SHEET 4A
LOWER ANCHORAGE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV
 VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009
 VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE

DESIGNATED SEATING POSITION: ROW 2 RIGHT SIDE (DSP C)

Outboard Lower Anchorage bar diameter: 6.02 mm
 6mm ± 0.1 mm = PASS Other size = FAIL (S9.1.1(a))

Inboard Lower Anchorage bar diameter: 6.02 mm
 6mm ± 0.1mm = PASS Other size = FAIL (S9.1.1(a))

Are the bars straight, horizontal and transverse? YES
 YES = PASS NO = FAIL

Length of the straight portion of the bar (outboard lower anchorage): 27 mm
 Length ≥ 25mm = PASS Length < 25mm = FAIL(S9.1.1(c) (i))

Length of the straight portion of the bar (inboard lower anchorage): 27 mm
 Length ≥ 25mm = PASS Length < 25mm = FAIL(S9.1.1(c) (i))

Length between the anchor bar supports (outboard lower anchorage): 35 mm
 Length ≤ 60mm = PASS Length > 60mm = FAIL(S9.1.1(c) (ii))

Length between the anchor bar supports (inboard lower anchorage): 35 mm
 Length ≤ 60mm = PASS Length > 60mm = FAIL(S9.1.1(c) (ii))

CRF Pitch angle: 14.3°
 Angle = 15° ± 10° = PASS Angle ≠ 15° ± 10° = FAIL (S9.2.1)

CRF Roll angle: 0°
 Angle = 0° ± 5° = PASS Angle ≠ 0° ± 5° = FAIL (S9.2.1)

CRF Yaw angle: 0°
 Angle = 0° ± 10° = PASS Angle ≠ 0° ± 10° = FAIL (S9.2.1)

Distance between point Z on the CRF and the front surface of outboard anchor bar: 60 mm
 Distance ≤ 70mm = PASS Distance > 70mm = FAIL

Distance between point Z on the CRF and the front surface of inboard anchor bar: 60 mm
 Distance ≤ 70mm = PASS Distance > 70mm = FAIL

DATA SHEET 4A CONTINUED

DESIGNATED SEATING POSITION: ROW 2 RIGHT SIDE (DSP C)Distance between SgRP and the front surface of outboard anchor bar: 169 mm
Distance \geq 120mm = PASS Distance $<$ 120mm = FAILDistance between SgRP and the front surface of inboard anchor bar: 169 mm
Distance \geq 120mm = PASS Distance $<$ 120mm = FAILBased on visual observation, would a 100 N load cause the anchor bar to deform more than 5 mm?
NO

If NO = PASS

If YES = FAIL (S9.1.1(g)), Provide further description of the attachment of the anchor bar:

COMMENTS:

RECORDED BY: G. FarrandDATE: 08/25/08APPROVED BY: D. Messick

DATA SHEET 5
CONSPICUITY AND MARKING OF LOWER ANCHORAGES

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV
 VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009
 VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE

DESIGNATED SEATING POSITION: ROW 2 LEFT AND RIGHT SIDE (DSP A AND C)

MARKING (Circles)

Diameter of the circle: 15.0 mm
 Diameter $\geq 13\text{mm}$ = PASS Diameter $< 13\text{mm}$ = FAIL (S9.5(a)(1))

Does the circle have words, symbols or pictograms? PICTOGRAM
 NO skip to next question
 YES, are the meaning of the words, symbols or pictograms explained in the owner's manual?
YES
 YES = PASS NO = FAIL (S9.5(a)(2))

Where is the circle located? Seat back or seat Cushion: Seat Back

For circles on seat backs, vertical distance from the center of the circle to the center of the anchor bar: 55 mm
 Distance between 50&100mm = PASS Other Distance=FAIL (S9.5(a)(3))

For circles on seat cushions, horizontal distance from the center of the circle to the center of the bar:
N/A
 Distance between 75&125mm= PASS Other Distance=FAIL (S9.5(a)(3))

Lateral distance from the center of the circle to the center of the anchor bar: 10 mm
 Distance $\leq 25\text{mm}$ = PASS Distance $> 25\text{mm}$ = FAIL (S9.5(a)(3))

CONSPICUITY (No Circles)

Is the anchor bar or guide visible when viewed from a point 30° above the horizontal in a vertical longitudinal plane bisecting the anchor bar or guide? N/A
 YES = PASS NO = FAIL (S9.5(b))

If there is a guide, is it permanently attached? N/A
 YES = PASS NO = FAIL (S9.5(b))

DATA SHEET 5 CONTINUED

DESIGNATED SEATING POSITION: ROW 2 LEFT SIDE AND RIGHT SIDE (DSP A & C)Is there a cap or cover over the anchor bar? N/A

If YES, Is the cap or cover marked with words, symbols or pictograms? _____

If NO = FAIL (S9.5(b))

If YES, is the meaning of the words, symbols or pictograms explained in the owner's manual?

YES = PASS NO = FAIL (S9.5(b))

If NO, there are no requirements for having a cover.

RECORDED BY: G. FarrandDATE: 08/25/08APPROVED BY: D. Messick

DATA SHEET 6
STRENGTH OF TETHER ANCHORAGES

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV
 VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009
 VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE
 TEST NO: 6055

DESIGNATED SEATING POSITION: ROW 2 LEFT SIDE (DSP A)

SFAD: 2

Seat Back Angle: 21°

Location of seat back angle measurement: 2D Template

Head Restraint Position: UP

D-ring Position: N/A

Force at Point X (lower front crossmember for SFAD2) while securing belts and tether: 135 N

Lap belt tension: N/A (SFAD 1 only)

Tether strap tension: 60 N

Angle (measured above the horizontal at 500 N): 10°

Separation of tether anchorage at 500 N: NO
 NO = PASS YES = FAIL (S6.3.1)

Force application rate: 577 N/S

Time to reach maximum force (24-30 s): 26 sec.

Maximum force (14,950 N ± 50 N): 14,967 N

Tested simultaneously with another DSP? NO

COMMENTS:

RECORDED BY: G. FARRAND

DATE: 08/25/08

APPROVED BY: D. MESSICK

DATA SHEET 6A
STRENGTH OF TETHER ANCHORAGES

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV
 VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009
 VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE
 TEST NO: 6057

DESIGNATED SEATING POSITION: ROW 2 CENTER (DSP B)

SFAD: 1

Seat Back Angle: 21°

Location of seat back angle measurement: 2D Template

Head Restraint Position: UP

D-ring Position: N/A

Force at Point X (lower front crossmember for SFAD2) while securing belts and tether: N/A

Lap belt tension: 60 N (SFAD 1 only)

Tether strap tension: 60 N

Angle (measured above the horizontal at 500 N): 10°

Separation of tether anchorage at 500 N: NO
 NO = PASS YES = FAIL (S6.3.1)

Force application rate: 577 N/S

Time to reach maximum force (24-30 s): 26 sec.

Maximum force (14,950 N ± 50 N): 14,950 N

Tested simultaneously with another DSP? NO

COMMENTS:

RECORDED BY: G. FARRAND

DATE: 08/25/08

APPROVED BY: D. MESSICK

DATA SHEET 7
STRENGTH OF LOWER ANCHORAGES (Forward Force)

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV
 VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009
 VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE
 TEST NO: 6056

DESIGNATED SEATING POSITION: ROW 2 RIGHT SIDE (DSP C)

Seat Back Angle: 21°

Location of seat back angle measurement: 2D Template

Head Restraint Position: N/A

Force at lower front crossmember for SFAD2 while tightening rearward extensions: 135 N

Angle (measured above the horizontal at 500 N): 10°

Force application rate: 423 N/S

Time to reach maximum force (24-30 s): 26 sec.

Maximum force (14,950 N ± 50 N): 10,973 N

Displacement, H1 (at 500N): 0

Displacement, H2 (at maximum load): 60.3 mm

Displacement of Point X: 60.3 mm (H2-H1)
 Displacement > 175 mm = FAIL (S9.4.1(a))

Tested simultaneously with another DSP? NO

Distance between adjacent DSP's: 355 mm

COMMENTS:

RECORDED BY: G. FARRAND

DATE: 08/25/08

APPROVED BY: D. MESSICK

DATA SHEET 8
OWNER'S MANUAL

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SATURN VUE MPV
 VEH. NHTSA NO: C80113; VIN: 3GSCL33P08S593009
 VEH. BUILD DATE: 10/07; TEST DATE: AUGUST 25, 2008
 TEST LABORATORY: GENERAL TESTING LABORATORIES
 OBSERVERS: GRANT FARRAND, JIMMY LATANE

Description of which DSP's are equipped with tether anchorages and child restraint anchorage systems: YES

PASS X FAIL _____

Step-by-step instructions for properly attaching a child restraint system's tether strap to the tether anchorage. Diagrams are required. YES

PASS X FAIL _____

Description of how to properly use the tether anchorage and lower anchor bars: YES

PASS X FAIL _____

If the lower anchor bars are marked with a circle, an explanation of what the circle indicates as well as any words or pictograms: YES

PASS X FAIL _____

COMMENTS:

RECORDED BY: G. Farrand

DATE: 08/25/08

APPROVED BY: D. Messick

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
COMPUTER	AT&T	486DX266	BEFORE USE	BEFORE USE
LOAD CELL	INTERFACE	215709	01/08	01/09
LINEAR TRANSDUCER	SERVO SYSTEMS	20	BEFORE USE	BEFORE USE
SEAT BELT LOAD CELL	TRANSDUCER	135	BEFORE USE	BEFORE USE
SEAT BELT LOAD CELL	TRANSDUCER	137	BEFORE USE	BEFORE USE
LEVEL	STANLEY	42-449	BEFORE USE	BEFORE USE
FORCE GAUGE	CHATILLON	8761	BEFORE USE	BEFORE USE
CALIPER	N/A	Q9322365	BEFORE USE	BEFORE USE
CRF	MEASUREMENT FIXTURE	GTL CRF	BEFORE USE	BEFORE USE
SFAD 1	FORCE APPLICATION DEVICE	GTL SFAD 1	BEFORE USE	BEFORE USE
SFAD 2	FORCE APPLICATION DEVICE	GLT SFAD 2	BEFORE USE	BEFORE USE

SECTION 5
PHOTOGRAPHS



2008 SATURN VUE
NHTSA NO. C80113
FMVSS NO. 225

FIGURE 5.1
LEFT SIDE VIEW OF VEHICLE



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FIGURE 5.2
RIGHT SIDE VIEW OF VEHICLE



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FIGURE 5.3
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE



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FIGURE 5.4
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE



MFD BY GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V. 10/07

GVWR
2189KG(4825LB)

GAWR FRT
1130KG(2491LB)

GAWR RR
1280KG(2822LB)

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR
VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.

3GSCL33P08S593009

TYPE: M.P.V.

MODEL: LF26

LBD7 TIRE SIZE SPEED RTG

FRT P235/65R16 S

RR P235/65R16 S

SPA T135/70R16 M

SEE OWNER'S MANUAL



FOR MORE INFORMATION.

RIM

16X6.5J

16X6.5J

16X4T

COLD TIRE PRESSURE

210KPA(30PSI)

210KPA(30PSI)

420KPA(60PSI)

FIGURE 5.5
VEHICLE CERTIFICATION LABEL



TIRE AND LOADING INFORMATION

SEATING CAPACITY : TOTAL 5 : FRONT 2 : REAR 3

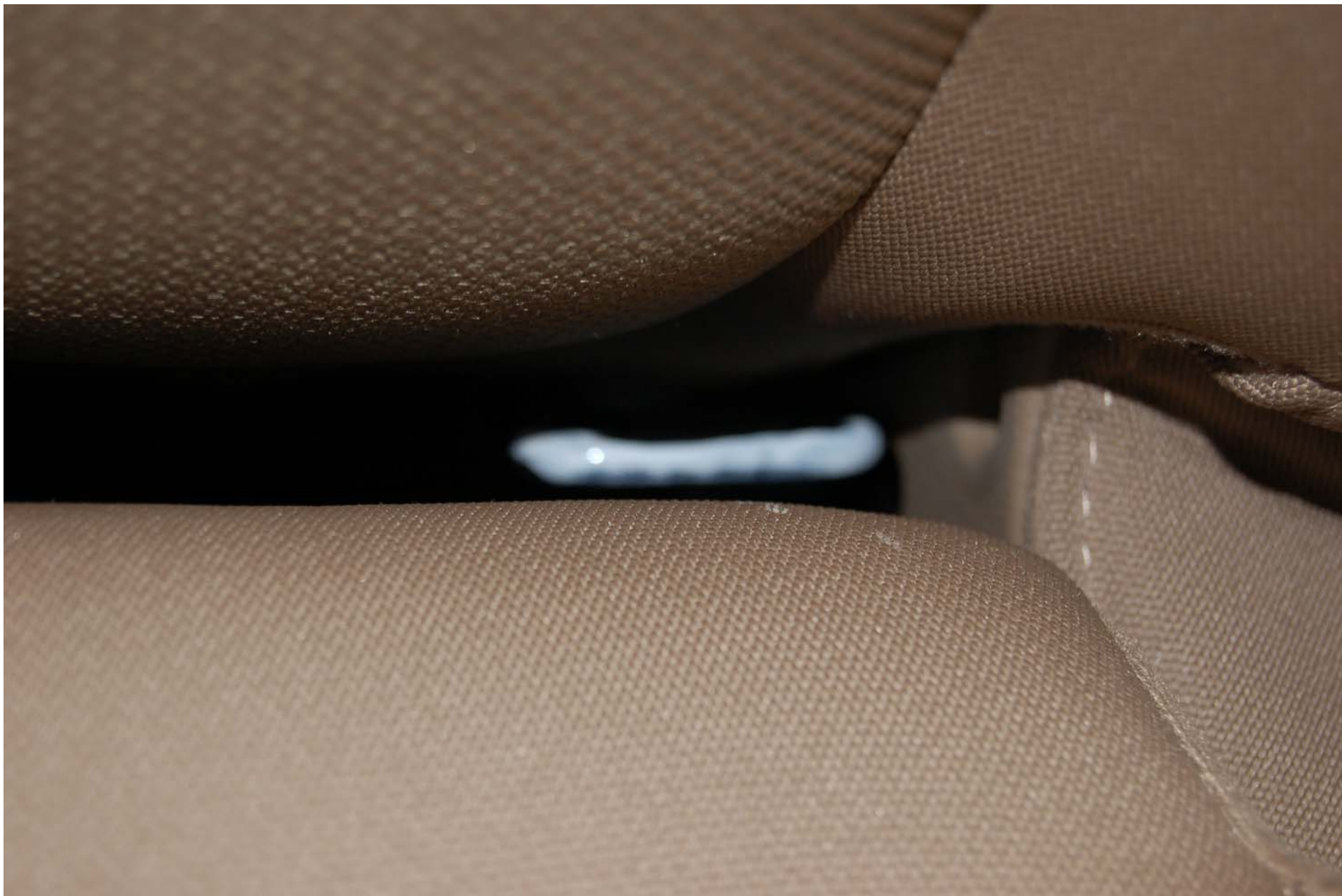
The combined weight of occupants and cargo should never exceed 479 kg or 1057 lbs.

TIRE	ORIGINAL SIZE	COLD TIRE PRESSURE
FRONT	P235/65R16 S	210 kPa, 30 PSI
REAR	P235/65R16 S	210 kPa, 30 PSI
SPARE	T135/70R16 M	420 kPa, 60 PSI

**SEE OWNER'S
MANUAL FOR
ADDITIONAL
INFORMATION**

3GSCL33P08S593009

FIGURE 5.6
VEHICLE TIRE INFORMATION LABEL



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FIGURE 5.7
ROW 2, LEFT SIDE, OUTBOARD LOWER ANCHOR,
PRE-TEST



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FIGURE 5.8
ROW 2, LEFT SIDE, INBOARD LOWER ANCHOR,
PRE-TEST



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FIGURE 5.9
ROW 2, LEFT SIDE, TOP TETHER ANCHOR, PRE-TEST



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FIGURE 5.10
ROW 2, CENTER, TOP TETHER ANCHOR, PRE-TEST



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FIGURE 5.11
ROW 2, RIGHT SIDE, INBOARD LOWER ANCHOR,
PRE-TEST



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FIGURE 5.12
ROW 2, RIGHT SIDE, OUTBOARD LOWER ANCHOR,
PRE-TEST



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FIGURE 5.13
ROW 2, RIGHT SIDE, TOP TETHER ANCHOR, PRE-TEST



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FIGURE 5.14
OVERALL VIEW OF ROW 2 SEATING POSITIONS



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FIGURE 5.15
ROW 2, LEFT SIDE WITH CRF



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FIGURE 5.16
ROW 2, LEFT SIDE WITH 2-D TEMPLATE



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FIGURE 5.17
ROW 2, LEFT SIDE TOP TETHER ROUTING



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FIGURE 5.18
ROW 2, LEFT SIDE TOP TETHER ROUTING



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FIGURE 5.19
ROW 2, RIGHT SIDE WITH CRF



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FMVSS NO. 225

FIGURE 5.20
ROW 2, RIGHT SIDE WITH 2-D TEMPLATE



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FIGURE 5.21
ROW 2, RIGHT SIDE TOP TETHER ROUTING



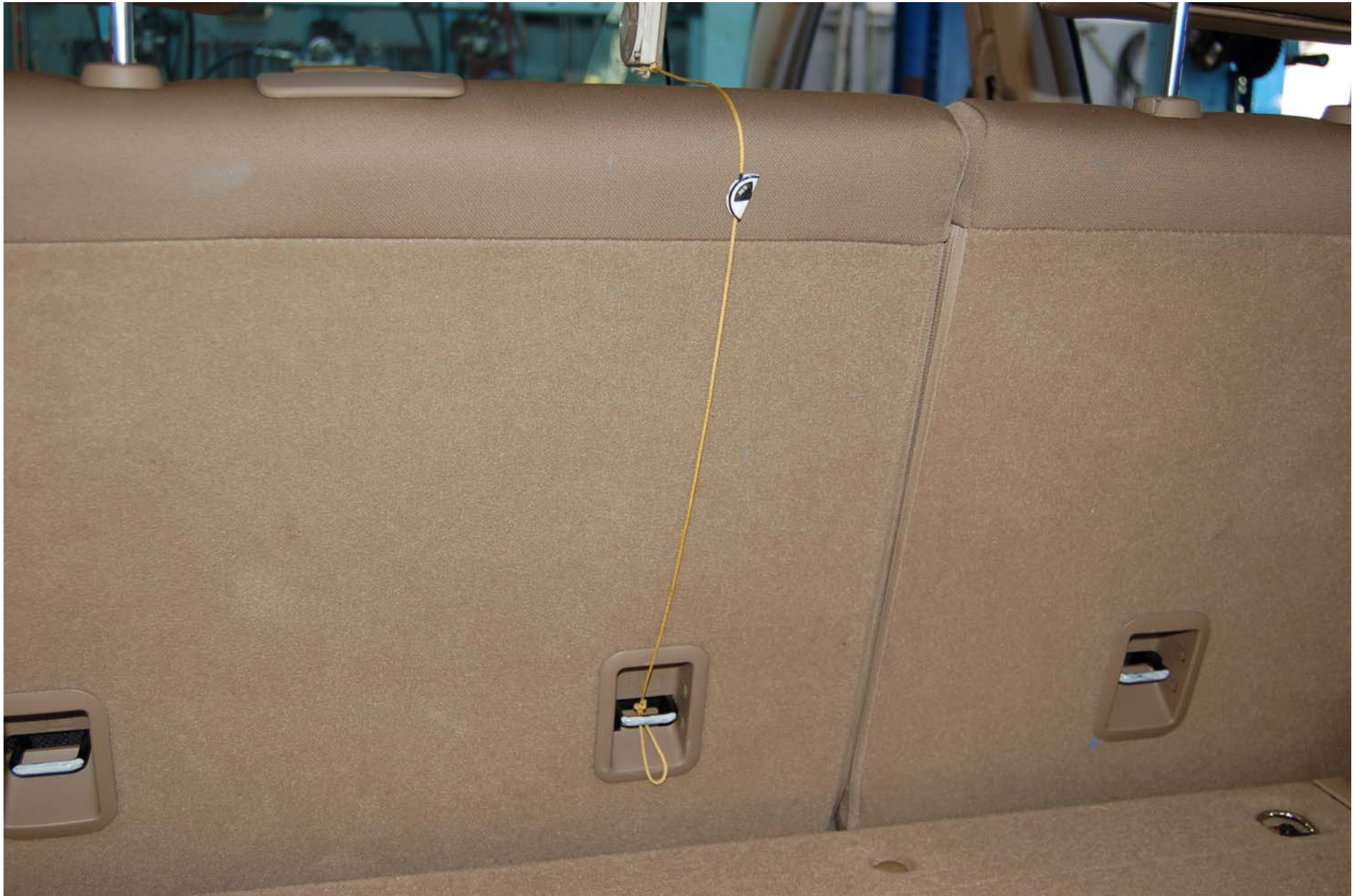
2008 SATURN VUE
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FIGURE 5.22
ROW 2, RIGHT SIDE TOP TETHER ROUTING



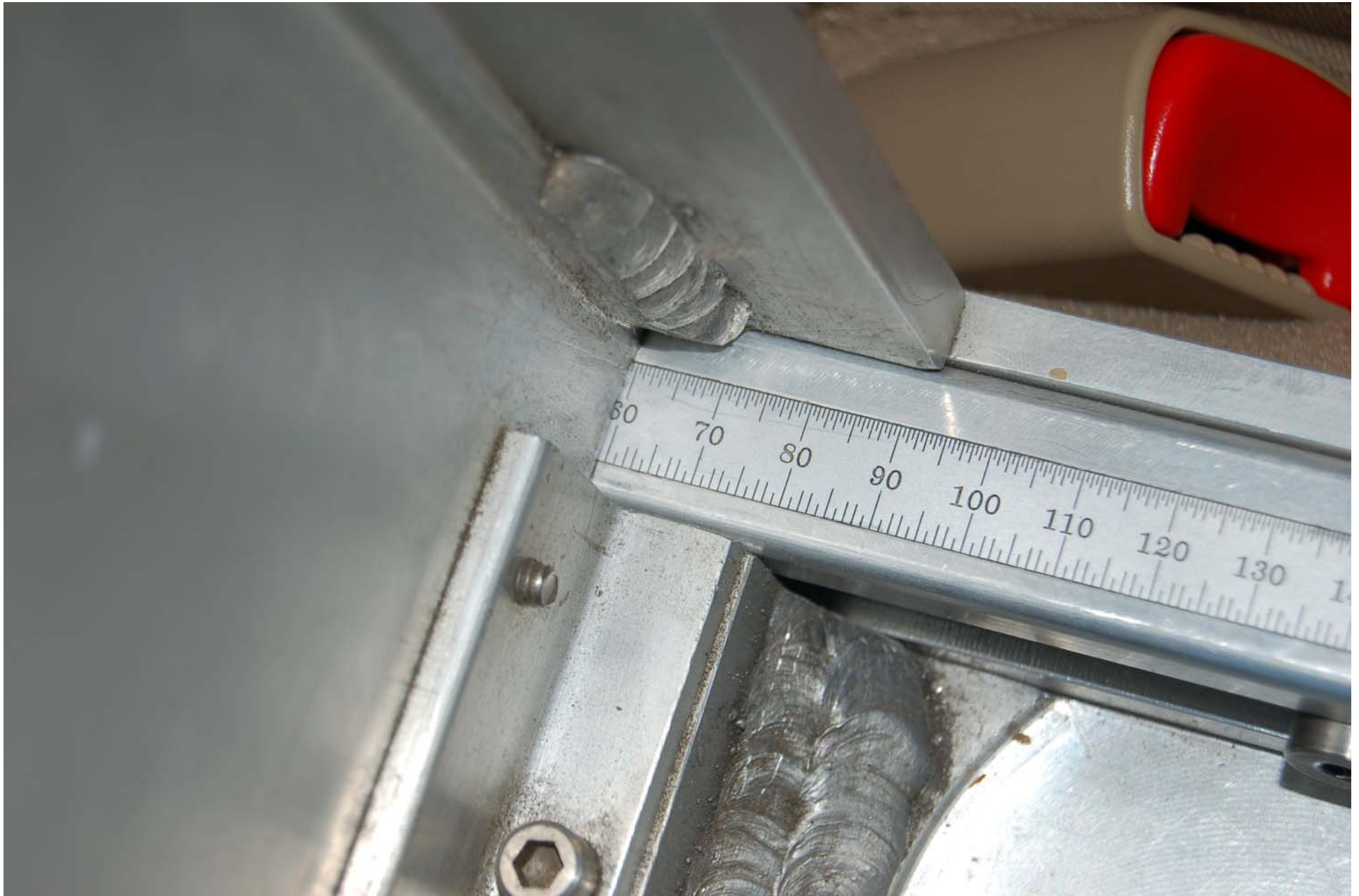
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FIGURE 5.23
ROW 2, CENTER WITH 2-D TEMPLATE



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FIGURE 5.24
ROW 2, CENTER TOP TETHER ROUTING



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FIGURE 5.25
ROW 2, RIGHT SIDE INBOARD CRF MEASUREMENT



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FIGURE 5.26
ROW 2, RIGHT SIDE OUTBOARD CRF MEASUREMENT



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FIGURE 5.27
ROW 2, LEFT SIDE OUTBOARD CRF MEASUREMENT



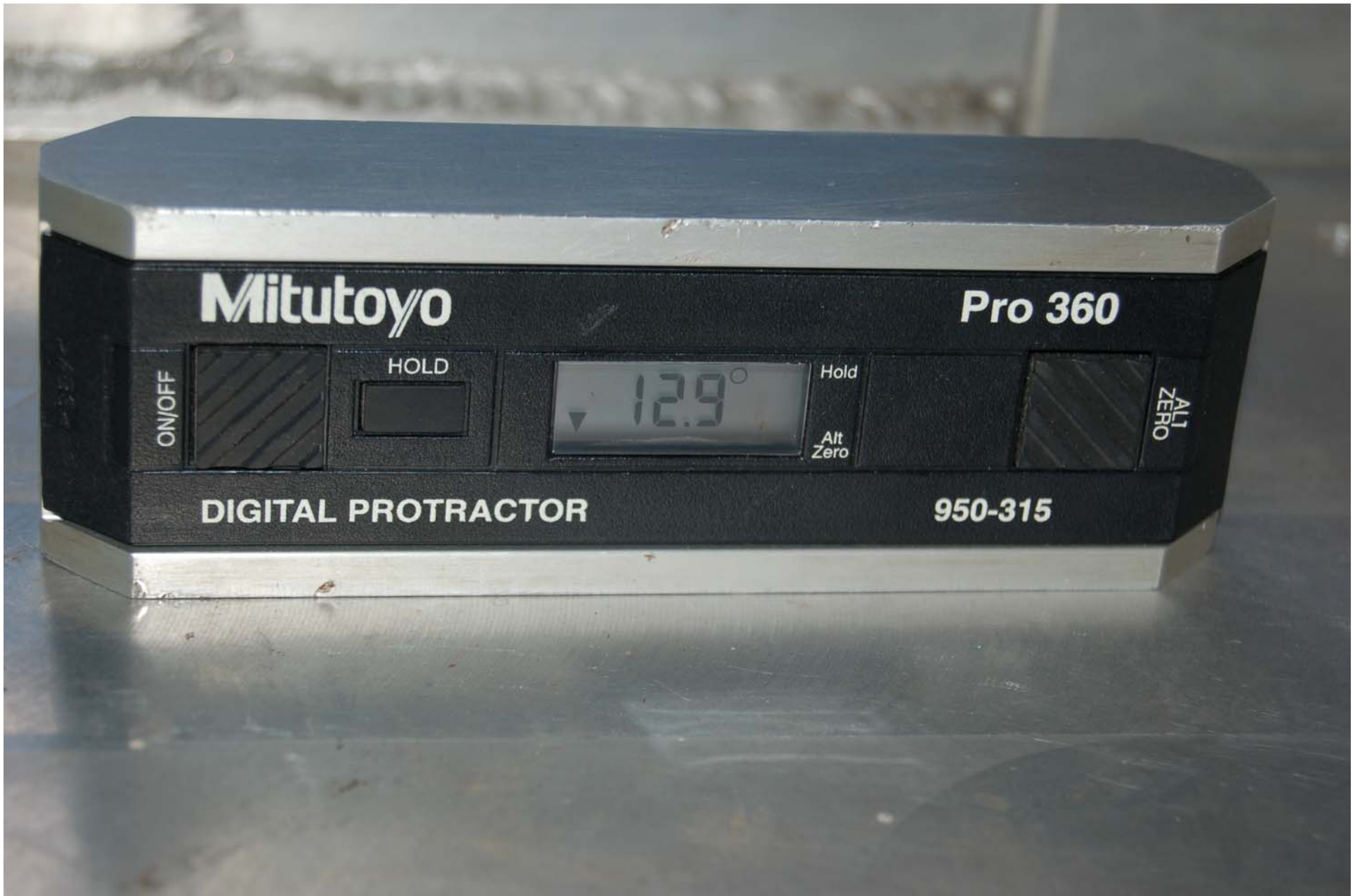
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FIGURE 5.28
ROW 2, LEFT SIDE INBOARD CRF MEASUREMENT



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FIGURE 5.29
MEASUREMENT OF SYMBOL



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FIGURE 5.30
ROW 2, LEFT SIDE PITCH MEASUREMENT



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FIGURE 5.31
ROW 2, RIGHT SIDE PITCH MEASUREMENT



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FIGURE 5.32
ROW 2, LEFT SIDE OUTBOARD SRP MEASUREMENT



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FIGURE 5.33
ROW 2, LEFT SIDE INBOARD SRP MEASUREMENT



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FIGURE 5.34
ROW 2, RIGHT SIDE OUTBOARD SRP MEASUREMENT



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FIGURE 5.35
ROW 2, RIGHT SIDE INBOARD SRP MEASUREMENT



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FIGURE 5.36
¾ LEFT FRONT VIEW OF VEHICLE IN TEST RIG



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FIGURE 5.37
¾ RIGHT FRONT VIEW OF VEHICLE IN TEST RIG



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FIGURE 5.38
PRE-TEST ROW 2, LEFT SIDE WITH SFAD 2



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FIGURE 5.39
PRE-TEST ROW 2, LEFT SIDE WITH SFAD 2



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FIGURE 5.40
POST TEST ROW 2, LEFT SIDE WITH SFAD 2



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FIGURE 5.41
POST TEST ROW 2, LEFT SIDE WITH SFAD 2



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FIGURE 5.42
PRE-TEST ROW 2, RIGHT SIDE WITH SFAD 2



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FIGURE 5.43
POST TEST ROW 2, RIGHT SIDE WITH SFAD 2



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FIGURE 5.44
PRE-TEST ROW 2, CENTER WITH SFAD 1



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FIGURE 5.45
PRE-TEST ROW 2, CENTER WITH SFAD 1



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FIGURE 5.46
POST TEST ROW 2, CENTER WITH SFAD 1



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NHTSA NO. C80113
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FIGURE 5.47
POST TEST ROW 2 CENTER WITH SFAD 1

APPENDIX A
OWNER'S MANUAL RESTRAINT INFORMATION

Infants and Young Children

Everyone in a vehicle needs protection! This includes infants and all other children. Neither the distance traveled nor the age and size of the traveler changes the need, for everyone, to use safety restraints. In fact, the law in every state in the United States and in every Canadian province says children up to some age must be restrained while in a vehicle.

CAUTION:

Children can be seriously injured or strangled if a shoulder belt is wrapped around their neck and the safety belt continues to tighten. Never leave children unattended in a vehicle and never allow children to play with the safety belts.

Every time infants and young children ride in vehicles, they should have the protection provided by appropriate restraints. Children who are not restrained properly can strike other people, or can be thrown out of the vehicle. In addition, young children should not use the vehicle's adult safety belts alone; they need to use a child restraint.

CAUTION:

People should never hold a baby in their arms while riding in a vehicle. A baby does not weigh much — until a crash. During a crash a baby will become so heavy it is not possible to hold it. For example, in a crash at only 25 mph (40 km/h), a 12 lb (5.5 kg) baby will suddenly become a 240 lb (110 kg) force on a person's arms. A baby should be secured in an appropriate restraint.

1-36



CAUTION:

Children who are up against, or very close to, any airbag when it inflates can be seriously injured or killed. Airbags plus lap-shoulder belts offer protection for adults and older children,

CAUTION: (Continued)

CAUTION: (Continued)

but not for young children and infants. Neither the vehicle's safety belt system nor its airbag system is designed for them. Young children and infants need the protection that a child restraint system can provide.



1-37

Q: What are the different types of add-on child restraints?

A: Add-on child restraints, which are purchased by the vehicle's owner, are available in four basic types. Selection of a particular restraint should take into consideration not only the child's weight, height, and age but also whether or not the restraint will be compatible with the motor vehicle in which it will be used.

For most basic types of child restraints, there are many different models available. When purchasing a child restraint, be sure it is designed to be used in a motor vehicle. If it is, the restraint will have a label saying that it meets federal motor vehicle safety standards.

The restraint manufacturer's instructions that come with the restraint state the weight and height limitations for a particular child restraint. In addition, there are many kinds of restraints available for children with special needs.

⚠ CAUTION:

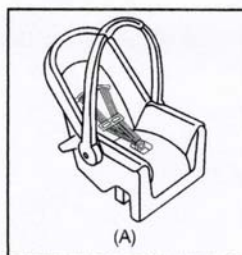
Newborn infants need complete support, including support for the head and neck. This is necessary because a newborn infant's neck is weak and its head weighs so much compared with the rest of its body. In a crash, an infant in a rear-facing seat settles into the restraint, so the crash forces can be distributed across the strongest part of an infant's body, the back and shoulders. Infants should always be secured in appropriate infant restraints.

1-38

⚠ CAUTION:

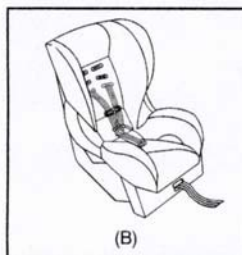
The body structure of a young child is quite unlike that of an adult or older child, for whom the safety belts are designed. A young child's hip bones are still so small that the vehicle's regular safety belt may not remain low on the hip bones, as it should. Instead, it may settle up around the child's abdomen. In a crash, the belt would apply force on a body area that is unprotected by any bony structure. This alone could cause serious or fatal injuries. Young children should always be secured in appropriate child restraints.

Child Restraint Systems



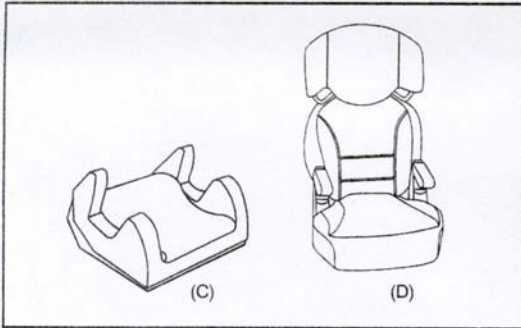
A rear-facing infant seat (A) provides restraint with the seating surface against the back of the infant.

The harness system holds the infant in place and, in a crash, acts to keep the infant positioned in the restraint.



A forward-facing child seat (B) provides restraint for the child's body with the harness.

1-39



A booster seat (C-D) is a child restraint designed to improve the fit of the vehicle's safety belt system. A booster seat can also help a child to see out the window.

Securing an Add-On Child Restraint in the Vehicle

⚠ CAUTION:

A child can be seriously injured or killed in a crash if the child restraint is not properly secured in the vehicle. Make sure the child restraint is properly installed in the vehicle using the vehicle's safety belt or LATCH system, following the instructions that came with that restraint, and also the instructions in this manual.

To help reduce the chance of injury, the child restraint must be secured in the vehicle. Child restraint systems must be secured in vehicle seats by lap belts or the lap belt portion of a lap-shoulder belt, or by the LATCH system. See *Lower Anchors and Tethers for Children (LATCH)* on page 1-43 for more information. A child can be endangered in a crash if the child restraint is not properly secured in the vehicle.

1-40

When securing an add-on child restraint, refer to the instructions that come with the restraint which may be on the restraint itself or in a booklet, or both, and to this manual. The child restraint instructions are important, so if they are not available, obtain a replacement copy from the manufacturer.

Keep in mind that an unsecured child restraint can move around in a collision or sudden stop and injure people in the vehicle. Be sure to properly secure any child restraint in your vehicle — even when no child is in it.

Securing the Child Within the Child Restraint

⚠ CAUTION:

A child can be seriously injured or killed in a crash if the child is not properly secured in the child restraint. Because there are different systems, it is important to refer to the instructions that come with the restraint. Make sure the child is properly secured, following the instructions that came with that restraint.

Where to Put the Restraint

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat.

We recommend that children and child restraints be secured in a rear seat, including: an infant or a child riding in a rear-facing child restraint; a child riding in a forward-facing child seat; an older child riding in a booster seat; and children, who are large enough, using safety belts.

1-41

A label on your sun visor says, "Never put a rear-facing child seat in the front." This is because the risk to the rear-facing child is so great, if the airbag deploys.

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's airbag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating airbag.

Even though the passenger sensing system is designed to turn off the right front passenger's frontal airbag if the system detects a rear-facing child restraint, no system is fail-safe, and no one can guarantee that an airbag will not deploy under some unusual circumstance, even though it is turned off. We recommend that rear-facing child restraints be secured in a rear seat, even if the airbag is off.

CAUTION: (Continued)

CAUTION: (Continued)

If you secure a forward-facing child restraint in the right front seat, always move the front passenger seat as far back as it will go. It is better to secure the child restraint in a rear seat.

See *Passenger Sensing System* on page 1-65 for additional information.

If your vehicle does not have a rear seat that will accommodate a rear-facing child restraint, we recommend that rear-facing child restraints not be transported in your vehicle, even if the airbag is off.

When securing a child restraint in a rear seating position, study the instructions that came with your child restraint to make sure it is compatible with this vehicle.

Wherever you install a child restraint, be sure to secure the child restraint properly.

Keep in mind that an unsecured child restraint can move around in a collision or sudden stop and injure people in the vehicle. Be sure to properly secure any child restraint in your vehicle — even when no child is in it.

1-42

Lower Anchors and Tethers for Children (LATCH)

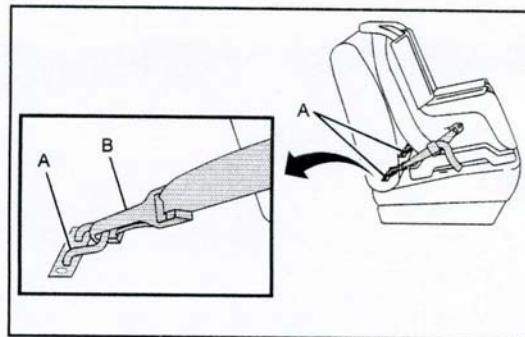
The LATCH system holds a child restraint during driving or in a crash. This system is designed to make installation of a child restraint easier. The LATCH system uses anchors in the vehicle and attachments on the child restraint that are made for use with the LATCH system.

Make sure that a LATCH-compatible child restraint is properly installed using the anchors, or use the vehicle's safety belts to secure the restraint, following the instructions that came with that restraint, and also the instructions in this manual. When installing a child restraint with a top tether, you must also use either the lower anchors or the safety belts to properly secure the child restraint. A child restraint must never be installed using only the top tether and anchor.

In order to use the LATCH system in your vehicle, you need a child restraint that has LATCH attachments. The child restraint manufacturer will provide you with instructions on how to use the child restraint and its attachments. The following explains how to attach a child restraint with these attachments in your vehicle.

Not all vehicle seating positions or child restraints have lower anchors and attachments or top tether anchors and attachments.

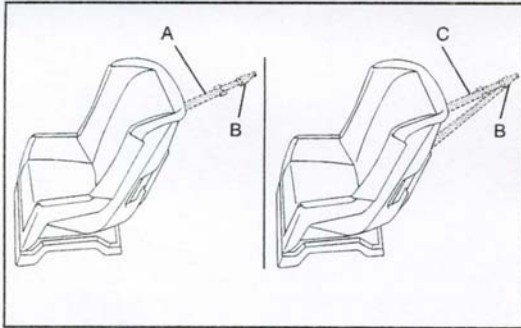
Lower Anchors



Lower anchors (A) are metal bars built into the vehicle. There are two lower anchors for each LATCH seating position that will accommodate a child restraint with lower attachments (B).

1-43

Top Tether Anchor



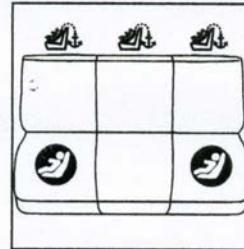
A top tether (A, C) anchors the top of the child restraint to the vehicle. A top tether anchor is built into the vehicle. The top tether attachment (B) on the child restraint connects to the top tether anchor in the vehicle in order to reduce the forward movement and rotation of the child restraint during driving or in a crash.

Your child restraint may have a single tether (A) or a dual tether (C). Either will have a single attachment (B) to secure the top tether to the anchor.

Some child restraints that have top tethers are designed for use with or without the top tether being attached. Others require the top tether always to be attached. In Canada, the law requires that forward-facing child restraints have a top tether, and that the tether be attached. Be sure to read and follow the instructions for your child restraint.


If the child restraint does not have a top tether, one can be obtained, in kit form, for many child restraints. Ask the child restraint manufacturer whether or not a kit is available.

Lower Anchor and Top Tether Anchor Locations



Rear Seat

 (Top Tether Anchor): Seating positions with top tether anchors.

 (Lower Anchor): Seating positions with two lower anchors.

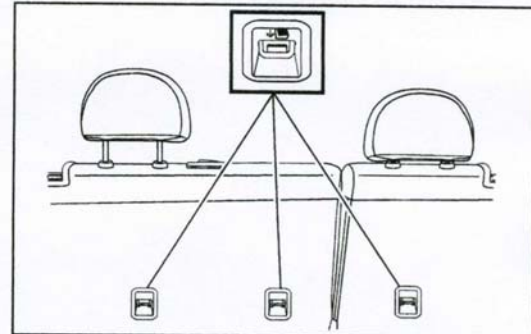
1-44



To assist you in locating the lower anchors, each seating position with lower anchors has two labels, near the crease between the seatback and the seat cushion.



To assist you in locating the top tether anchors, the top tether anchor symbol is located near the top tether anchors.



Do not secure a child restraint in a position without a top tether anchor if a national or local law requires that the top tether be attached, or if the instructions that come with the child restraint say that the top tether must be attached.

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. See *Where to Put the Restraint* on page 1-41 for additional information.

The top tether anchors are located on the back of the rear seatback. Be sure to use an anchor located on the same side of the vehicle as the seating position where the child restraint will be placed.

1-45

Securing a Child Restraint Designed for the LATCH System

CAUTION:

If a LATCH-type child restraint is not attached to anchors, the restraint will not be able to protect the child correctly. In a crash, the child could be seriously injured or killed. Make sure that a LATCH-type child restraint is properly installed using the anchors, or use the vehicle's safety belts to secure the restraint, following the instructions that came with that restraint, and also the instructions in this manual.

CAUTION:

Each top tether anchor and lower anchor in the vehicle is designed to hold only one child restraint. Attaching more than one child restraint to a single anchor could cause the anchor or attachment to come loose or even break during a crash. A child or others could be injured if this happens. To help prevent injury to people and damage to your vehicle, attach only one child restraint per anchor.

1-46

CAUTION:

Children can be seriously injured or strangled if a shoulder belt is wrapped around their neck and the safety belt continues to tighten. Secure any unused safety belts behind the child restraint so children cannot reach them. Pull the shoulder belt all the way out of the retractor to set the lock, if your vehicle has one, after the child restraint has been installed. Be sure to follow the instructions of the child restraint manufacturer.

Notice: Contact between the child restraint LATCH attachment parts and the vehicle's safety belt assembly may cause damage to these parts. Make sure when securing unused safety belts behind the child restraint that there is no contact between the child restraint LATCH attachment parts and the vehicle's safety belt assembly.

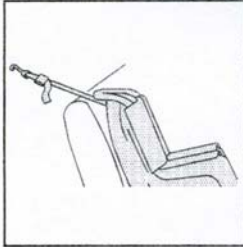
Folding an empty rear seat with the safety belts secured may cause damage to the safety belt or the seat. When removing the child restraint, always remember to return the safety belts to their normal, stowed position before folding the rear seat.

1. Attach and tighten the lower attachments to the lower anchors. If the child restraint does not have lower attachments or the desired seating position does not have lower anchors, secure the child restraint with the top tether and the safety belts. Refer to your child restraint manufacturer instructions and the instructions in this manual.
 - 1.1. Find the lower anchors for the desired seating position.
 - 1.2. Put the child restraint on the seat.
 - 1.3. Attach and tighten the lower attachments on the child restraint to the lower anchors.

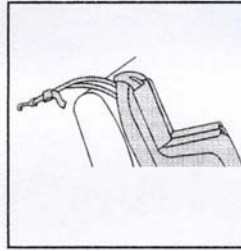
1-47

2. If the child restraint manufacturer recommends that the top tether be attached, attach and tighten the top tether to the top tether anchor, if equipped. Refer to the child restraint instructions and the following steps:

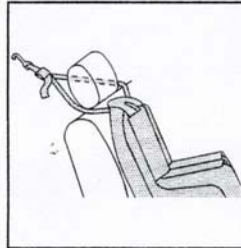
- 2.1. Find the top tether anchor.
- 2.2. Route, attach, and tighten the top tether according to your child restraint instructions and the following instructions:



If the position you are using does not have a headrest or head restraint and you are using a single tether, route the tether over the seatback.

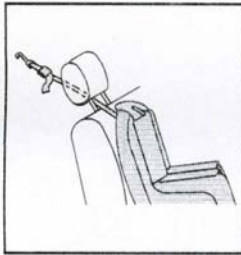


If the position you are using does not have a headrest or head restraint and you are using a dual tether, route the tether over the seatback.



If the position you are using has an adjustable headrest or head restraint and you are using a dual tether, route the tether around the headrest or head restraint.

1-48



If the position you are using has an adjustable headrest or head restraint and you are using a single tether, raise the headrest or head restraint and route the tether under the headrest or head restraint and in between the headrest or head restraint posts.

If you secure a child restraint using a safety belt and it uses a top tether, see *Lower Anchors and Tethers for Children (LATCH)* on page 1-43 for top tether anchor locations.

Do not secure a child seat in a position without a top tether anchor if a national or local law requires that the top tether be anchored, or if the instructions that come with the child restraint say that the top strap must be anchored.

In Canada, the law requires that forward-facing child restraints have a top tether, and that the tether be attached.

If your child restraint does not have the LATCH system, you will be using the safety belt to secure the child restraint in this position. Be sure to follow the instructions that came with the child restraint. Secure the child in the child restraint when and as the instructions say.

If you need to install more than one child restraint in the rear seat, be sure to read *Where to Put the Restraint* on page 1-41.

1. Put the child restraint on the seat.
2. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.

3. Push and pull the child restraint in different directions to be sure it is secure.

Securing a Child Restraint in a Rear Seat Position

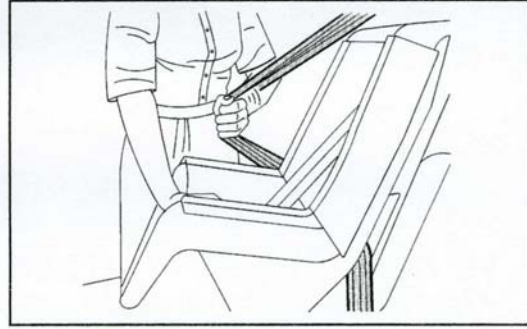
When securing a child restraint in a rear seating position, study the instructions that came with your child restraint to make sure it is compatible with this vehicle.

If your child restraint has the LATCH system; see *Lower Anchors and Tethers for Children (LATCH)* on page 1-43 for how to install your child restraint using LATCH.

1-49

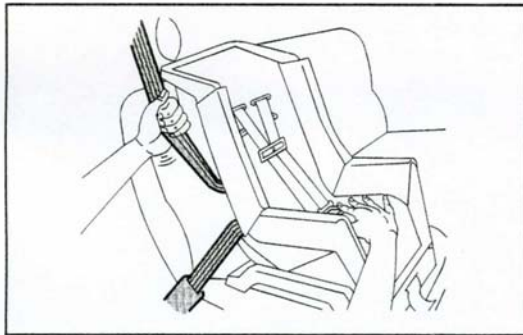


3. Push the latch plate into the buckle until it clicks. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if necessary.



4. Pull the rest of the shoulder belt all the way out of the retractor to set the lock.

1-50



5. To tighten the belt, push down on the child restraint, pull the shoulder portion of the belt to tighten the lap portion of the belt, and feed the shoulder belt back into the retractor. If you are using a forward-facing child restraint, you may find it helpful to use your knee to push down on the child restraint as you tighten the belt.

6. If your child restraint has a top tether, follow the child restraint manufacturer's instructions regarding the use of the top tether. See *Lower Anchors and Tethers for Children (LATCH)* on page 1-43 for more information.

7. Push and pull the child restraint in different directions to be sure it is secure.

To remove the child restraint, unbuckle the vehicle's safety belt and let it go back all the way. If the top tether is attached to a top tether anchor, disconnect it.

Securing a Child Restraint in the Right Front Seat Position

Your vehicle has airbags. A rear seat is a safer place to secure a forward-facing child restraint. See *Where to Put the Restraint* on page 1-41.

In addition, your vehicle has a passenger sensing system which is designed to turn off the right front passenger's frontal airbag under certain conditions. See *Passenger Sensing System* on page 1-65 and *Passenger Airbag Status Indicator* on page 3-32 for more information on this, including important safety information.

1-51

A label on your sun visor says, "Never put a rear-facing child seat in the front." This is because the risk to the rear-facing child is so great, if the airbag deploys.

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's airbag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating airbag.

Even though the passenger sensing system is designed to turn off the right front passenger's frontal airbag if the system detects a rear-facing child restraint, no system is fail-safe, and no one can guarantee that an airbag will not deploy under some unusual circumstance, even though it is turned off. We recommend that rear-facing child restraints be secured in a rear seat, even if the airbag is off.

CAUTION: (Continued)

CAUTION: (Continued)

If you secure a forward-facing child restraint in the right front seat, always move the front passenger seat as far back as it will go. It is better to secure the child restraint in a rear seat.

See *Passenger Sensing System* on page 1-65 for additional information.

If your vehicle does not have a rear seat that will accommodate a rear-facing child restraint, we recommend that rear-facing child restraints not be transported in your vehicle, even if the airbag is off.

If your child restraint has the LATCH system, see *Lower Anchors and Tethers for Children (LATCH)* on page 1-43 for how to install your child restraint using LATCH. If you secure a child restraint using a safety belt and it uses a top tether, see *Lower Anchors and Tethers for Children (LATCH)* on page 1-43 for top tether anchor locations.

1-52

Do not secure a child seat in a position without a top tether anchor if a national or local law requires that the top tether be anchored, or if the instructions that come with the child restraint say that the top strap must be anchored.

In Canada, the law requires that forward-facing child restraints have a top tether, and that the tether be attached.

You will be using the lap-shoulder belt to secure the child restraint in this position. Follow the instructions that came with the child restraint.

1. Move the seat as far back as it will go before securing the forward-facing child restraint.

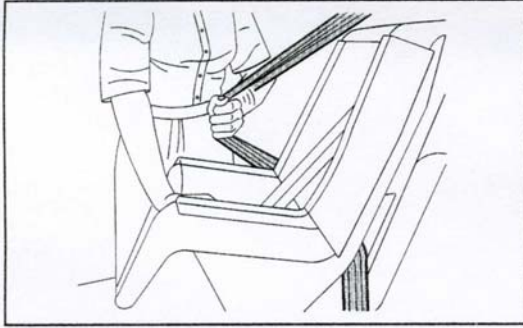
When the passenger sensing system has turned off the right front passenger's frontal airbag, the off indicator on the passenger airbag status indicator should light and stay lit when you start the vehicle. See *Passenger Airbag Status Indicator* on page 3-32.

2. Put the child restraint on the seat.
3. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.

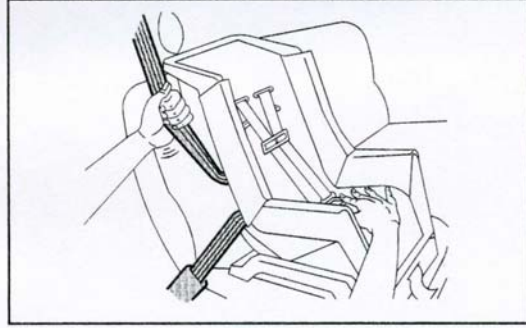


4. Push the latch plate into the buckle until it clicks. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if necessary.

1-53



5. Pull the rest of the shoulder belt all the way out of the retractor to set the lock.



6. To tighten the belt, push down on the child restraint, pull the shoulder portion of the belt to tighten the lap portion of the belt and feed the shoulder belt back into the retractor. If you are using a forward-facing child restraint, you may find it helpful to use your knee to push down on the child restraint as you tighten the belt.
7. If your vehicle does not have a rear seat and your child restraint has a top tether, follow the child restraint manufacturer's instructions regarding the use of the top tether. See *Lower Anchors and Tethers for Children (LATCH)* on page 1-43.
8. Push and pull the child restraint in different directions to be sure it is secure.

1-54

If the airbag is off, the off indicator in the passenger airbag status indicator will come on and stay on when the vehicle is started.

If a child restraint has been installed and the on indicator is lit, turn the vehicle off. Remove the child restraint from the vehicle and reinstall the child restraint.

If, after reinstalling the child restraint and restarting the vehicle, the on indicator is still lit, check to make sure that the vehicle's seatback is not pressing the child restraint into the seat cushion. If this happens, slightly recline the vehicle's seatback and adjust the seat cushion if possible. Also make sure the child restraint is not trapped under the vehicle head restraint. If this happens, adjust the head restraint.

Remove any additional material from the seat such as blankets, cushions, seat covers, seat heaters or seat massagers before reinstalling or securing the child restraint.

If the on indicator is still lit, secure the child in the child restraint in a rear seat position in the vehicle and check with your dealer/retailer. If no rear seat is available, do not install a child restraint in this vehicle and check with your dealer/retailer.

To remove the child restraint, unbuckle the vehicle's safety belt and let it go back all the way. If the top tether is attached to a top tether anchor, disconnect it.

Airbag System

Your vehicle has the following airbags:

- A frontal airbag for the driver.
- A frontal airbag for the right front passenger.
- A seat-mounted side impact airbag for the driver.
- A seat-mounted side impact airbag for the right front passenger.
- A roof-rail airbag for the driver and the passenger seated directly behind the driver.
- A roof-rail airbag for the right front passenger and the passenger seated directly behind the right front passenger.

All of the airbags in your vehicle will have the word AIRBAG embossed in the trim or on an attached label near the deployment opening.

For frontal airbags, the word AIRBAG will appear on the middle part of the steering wheel for the driver and on the instrument panel for the right front passenger.

With seat-mounted side impact airbags, the word AIRBAG will appear on the side of the seatback closest to the door.

With roof-rail airbags, the word AIRBAG will appear along the headliner or trim.

1-55

Even if you do not have a right front passenger seat in your vehicle there is still an active frontal airbag in the right side of the instrument panel. Do not place cargo in front of this airbag.

⚠ CAUTION:

Be sure that cargo is not near an airbag. In a crash, an inflating airbag might force that object toward a person. This could cause severe injury or even death. Secure objects away from the area in which an airbag would inflate. For more information, see *Where Are the Airbags?* on page 1-58 and *Loading Your Vehicle* on page 4-34.

Airbags are designed to supplement the protection provided by safety belts. Even though today's airbags are also designed to help reduce the risk of injury from the force of an inflating bag, all airbags must inflate very quickly to do their job.

Here are the most important things to know about the airbag system:

⚠ CAUTION:

You can be severely injured or killed in a crash if you are not wearing your safety belt — even if you have airbags. Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it. Airbags are “supplemental restraints” to the safety belts. All airbags are designed to work with safety belts, but do not replace them.

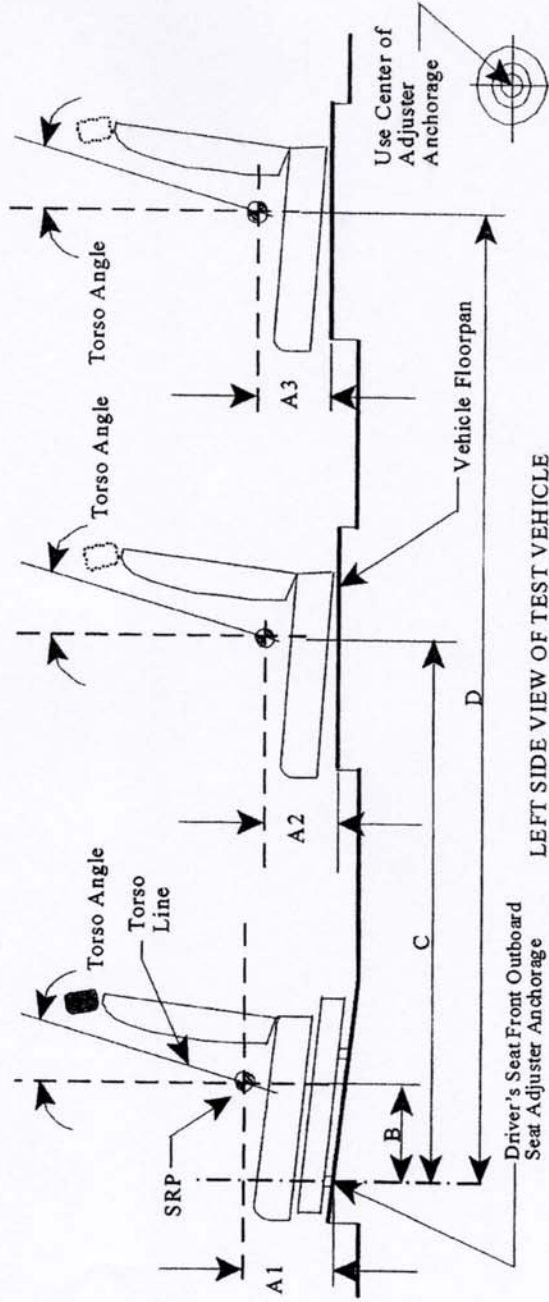
APPENDIX B
MANUFACTURER'S DATA

SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA

FMVSS No. 225
(All dimensions in mm¹)

MODEL YEAR: 2008 / MAKE: Saturn / MODEL: Vue / BODY STYLE: SW

SEAT STYLE: FRONT ROW: 40/40 / SECOND ROW: 60/40 / THIRD ROW: N/A



LEFT SIDE VIEW OF TEST VEHICLE

8/13/08 - SP

Table 1. Seating Positions¹ and Torso Angles

	Left (Driver Side)	Center (if any)	Right
A1	295.75mm	N/A	295.75
A2	303.35	313.35	303.35
A3	N/A	N/A	N/A
B	283.71	N/A	283.71
C	1098.71	1076.71	1098.71
D	N/A	N/A	N/A
Torso Angle (degree)	25 degrees	N/A	25 degrees
	25 degrees	23 degrees	25 degrees
	N/A	N/A	N/A

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

FORM 425

SEATING REFERENCE POINT

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2008 / MAKE: Saturn / MODEL: VUE / BODY STYLE: SW
 SEAT STYLE: FRONT ROW: 40/40 / SECOND ROW: 60/40 / THIRD ROW: N/A

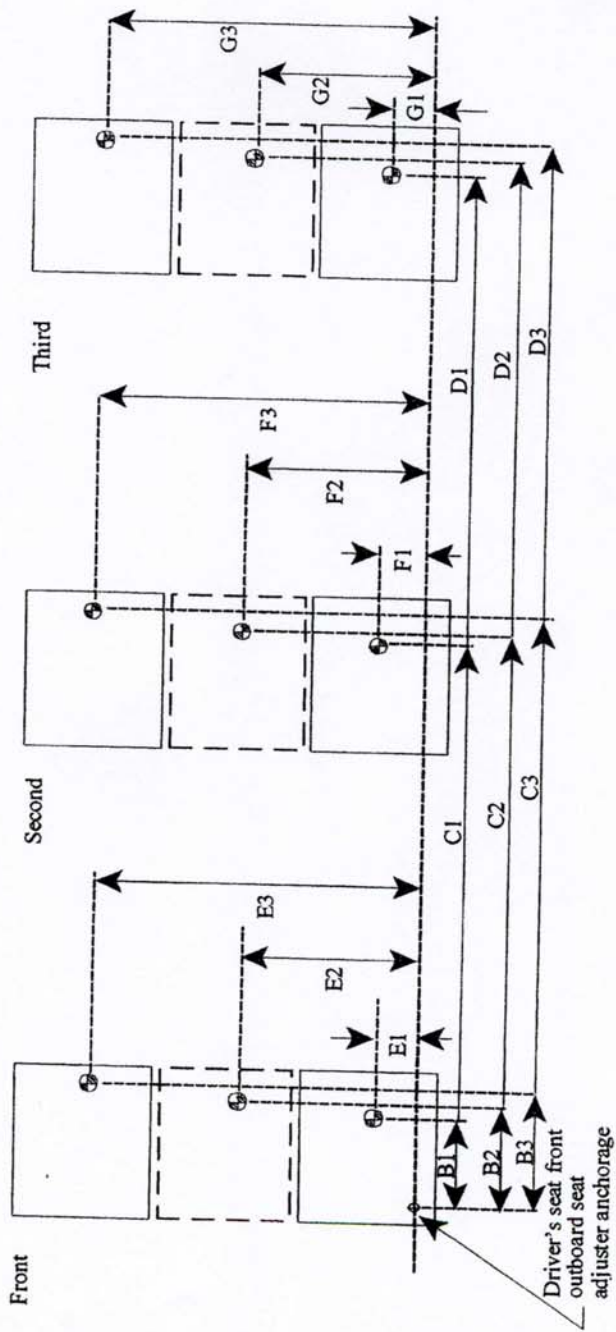


FIGURE 225

Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage ¹
Front Row	B1	283.71mm
	E1	193.25
	B2	N/A
	E2	N/A
	B3	283.71
	E3	933.25
Second Row	C1	1098.71
	F1	213.25
	C2	1076.71
	F2	563.25
	C3	1098.71
	F3	913.25
Third Row	D1	N/A
	G1	N/A
	D2	N/A
	G2	N/A
	D3	N/A
	G3	N/A

Note: Use the center of anchorage.

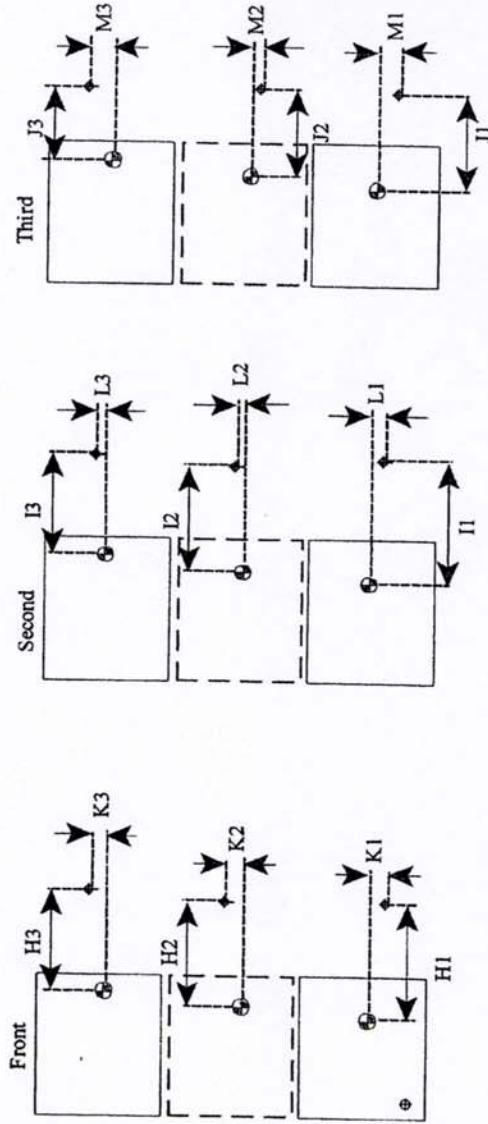
TETHER ANCHORAGE LOCATIONS

FMVSS No. 225

(All dimensions in mm)

MODEL YEAR: 2008 / MAKE: Saturn / MODEL: VUE / BODY STYLE: SW

SEAT STYLE: FRONT ROW: 40/40 / SECOND ROW: 60/40 / THIRD ROW: N/A



⊕: SRP
 †: Tether anchorage

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

FORM -- 225

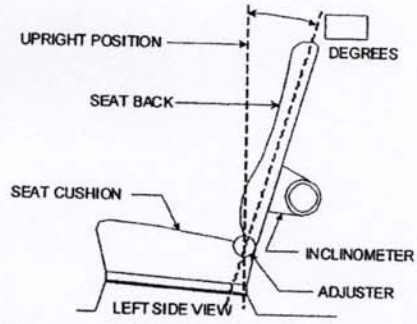
Table 3. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	N/A
	K1	N/A
	H2	N/A
	K2	N/A
	H3	N/A
	K3	N/A
Second Row	I1	312.6mm
	L1	0.0
	I2	334.6
	L2	0.0
	I3	312.6
	L3	0.0
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.

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 = 22.0 degrees.

Measurement Instructions:

No program specific measurement requirements

Seat back angle for passenger's seat = 22.0 degrees.

Measurement Instructions:

No program specific measurement requirements

Seat back angle for 2nd row seat = 21.4 degrees.

Measurement Instructions:

No program specific measurement requirements

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

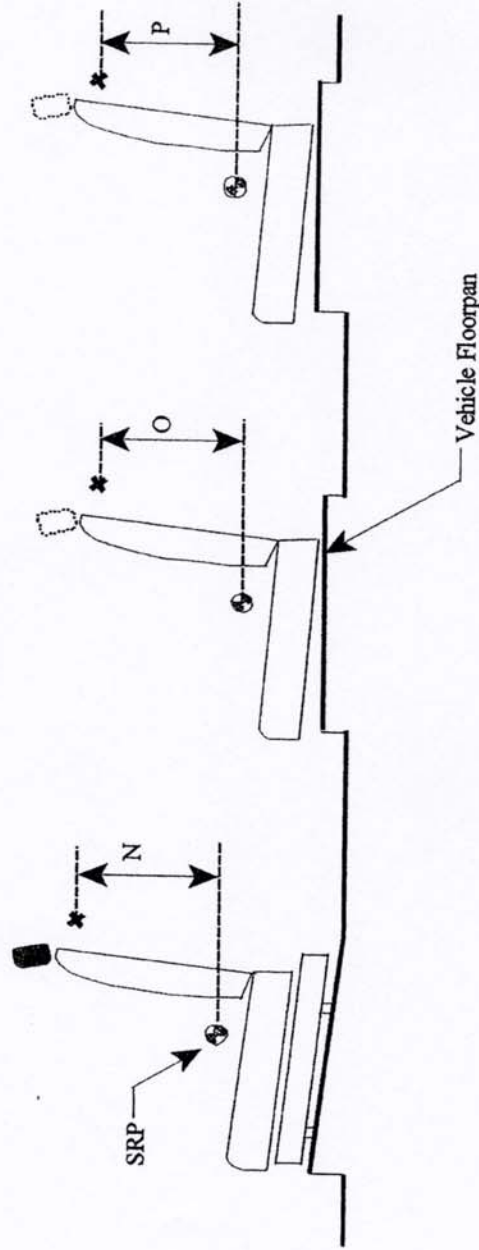
Measurement Instructions:

N/A

TETHER ANCHORAGE LOCATIONS - VERTICAL

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: ___2008___ / MAKE: ___Saturn___ / MODEL: ___VUE___ / BODY STYLE: ___SW___
SEAT STYLE: FRONT ROW: ___40/40___ / SECOND ROW: ___60/40___ / THIRD ROW: ___N/A___



FORM 225

Table 4. Vertical Dimension For The Tether Anchorage

Seating Row	Vertical Distance from Seating Reference Point
Front Row	N1 (Driver) N/A
	N2 (Center) N/A
	N3 (Right) N/A
Second Row	O1 (Left) 114.18mm
	O2 (Center) 104.18
	O3 (Right) 114.18
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:

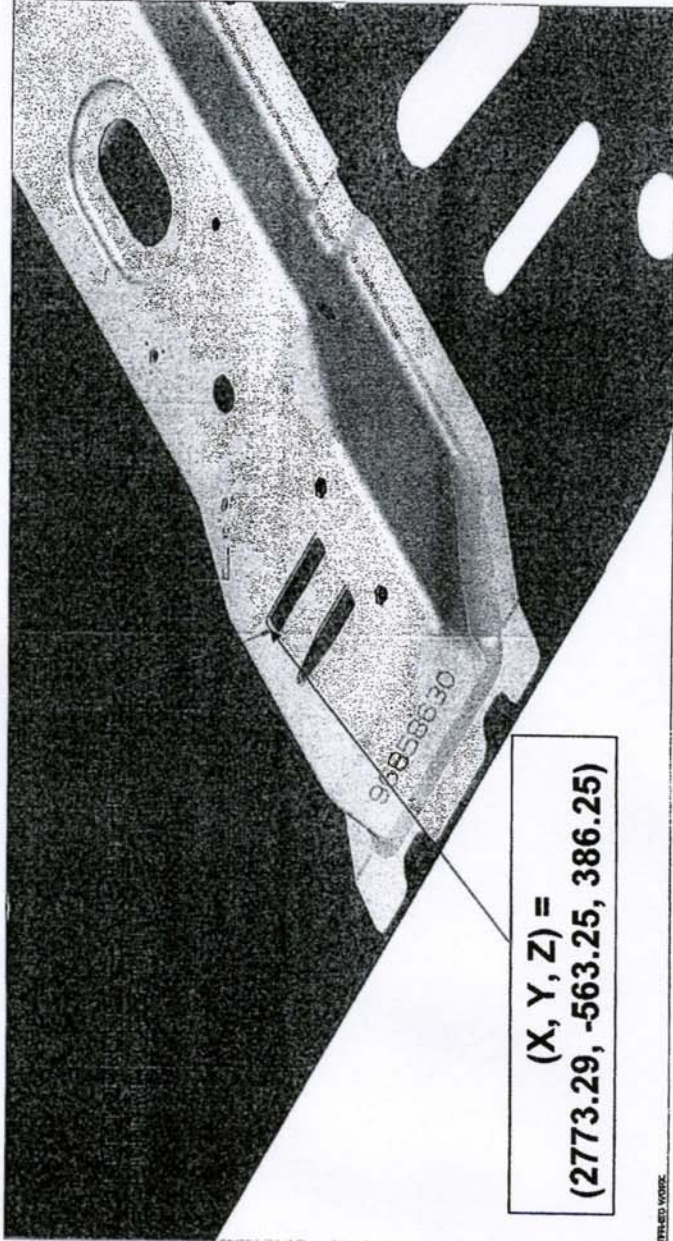
1. How many designated seating positions exist in the vehicle? 5
2. How many designated seating positions are equipped with lower anchorages and tether anchorages? Specify which position(s). 2 - LH AND RH SECOND ROW (not center)
3. How many designated seating positions are equipped with tether anchorages? Specify which positions(s). 3 - LH, CENTER AND RH 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. S9.5(a)

Driver's Seat Anchorage Point Clarification

[Due to 2-slot latch design at driver's forward outboard attachment to body]

Return Vis

008



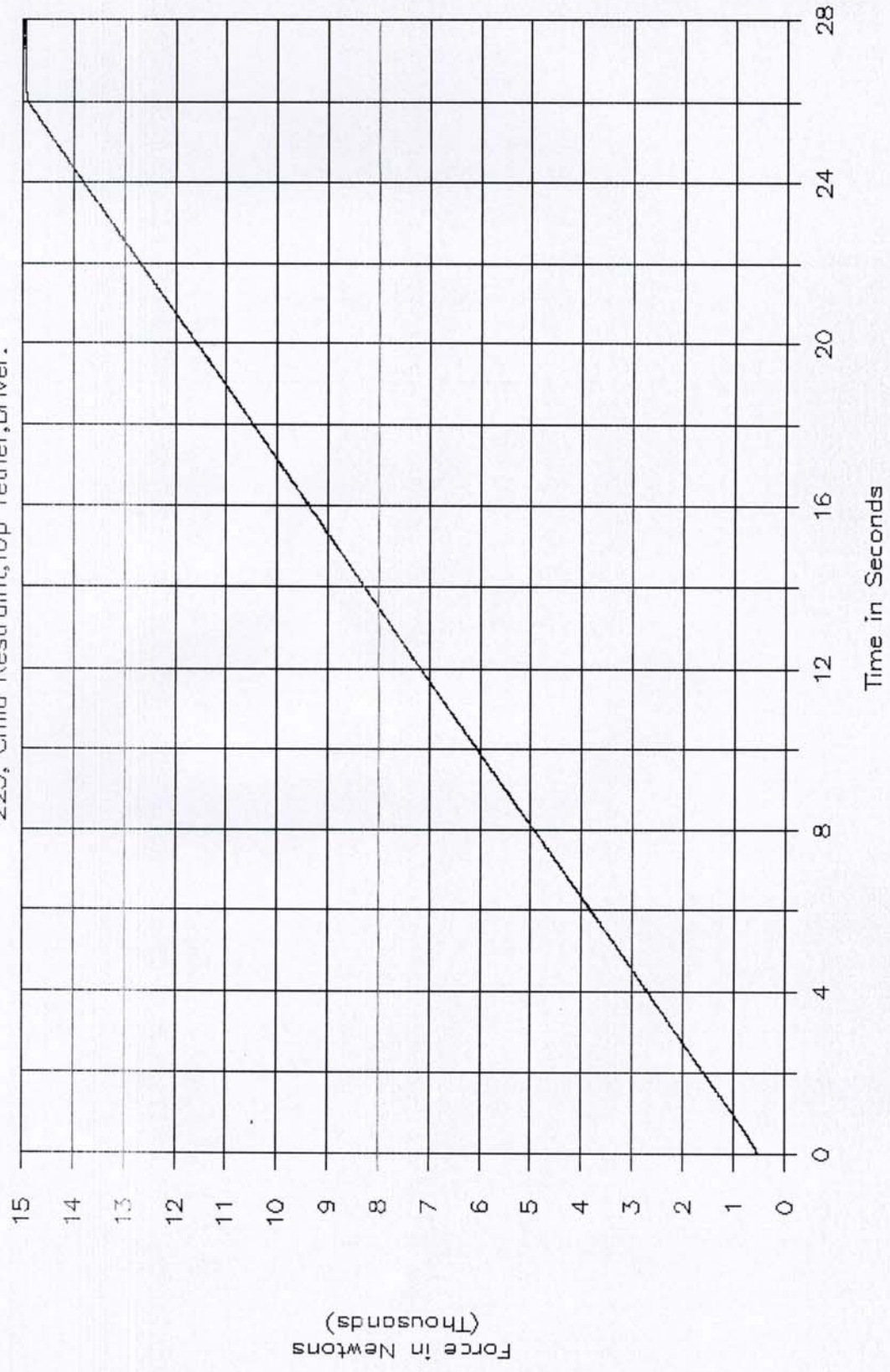
(X, Y, Z) =
(2773.29, -563.25, 386.25)

(X, Y, Z) Coordinates of
"Driver's Seat Front Outboard Seat Adjuster Anchorage"
provided by GM on 8/12/08

APPENDIX C
PLOTS

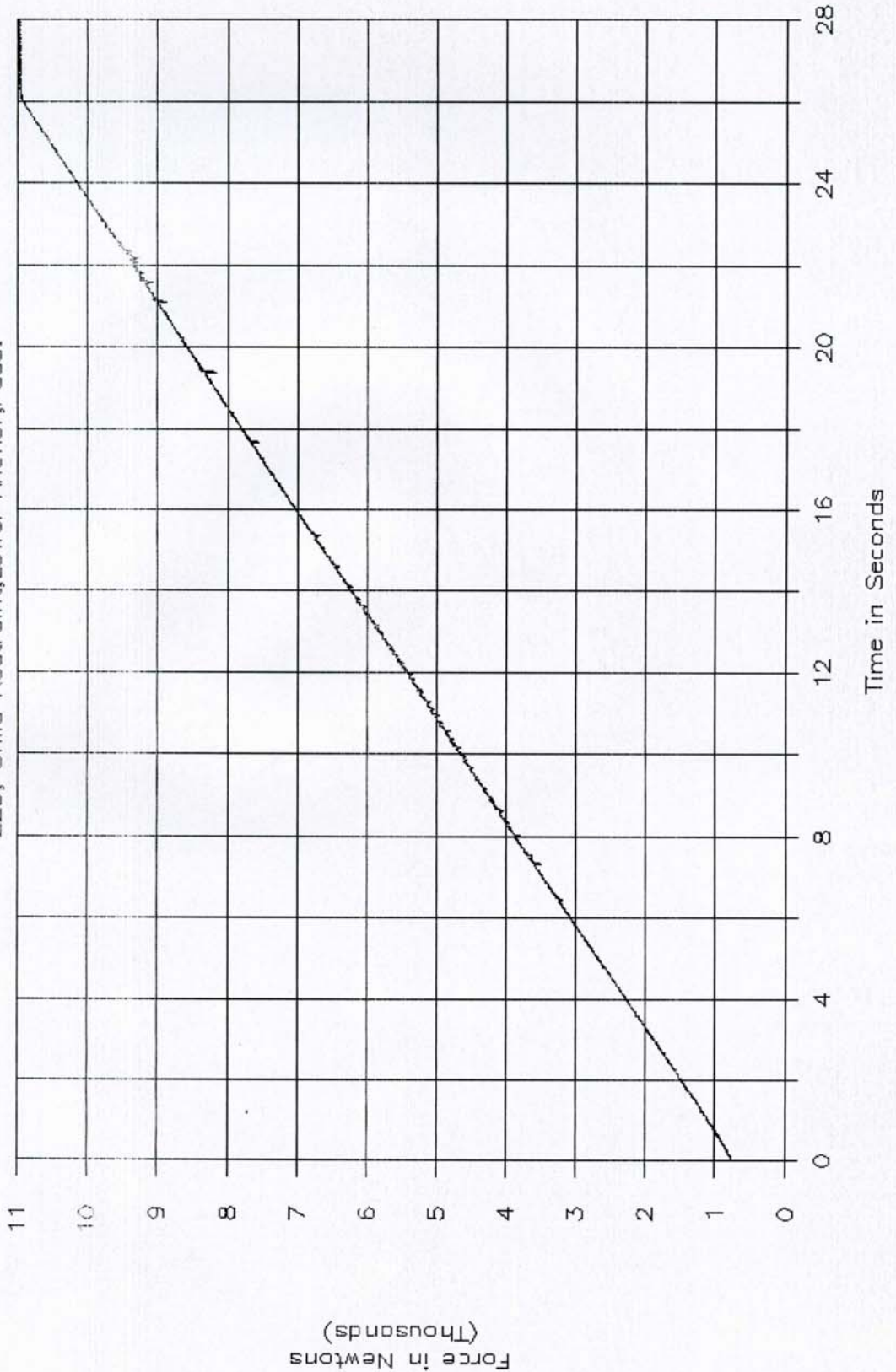
GTL 6055, NHTSA C80113

225, Child Restraint, Top Tether, Driver.



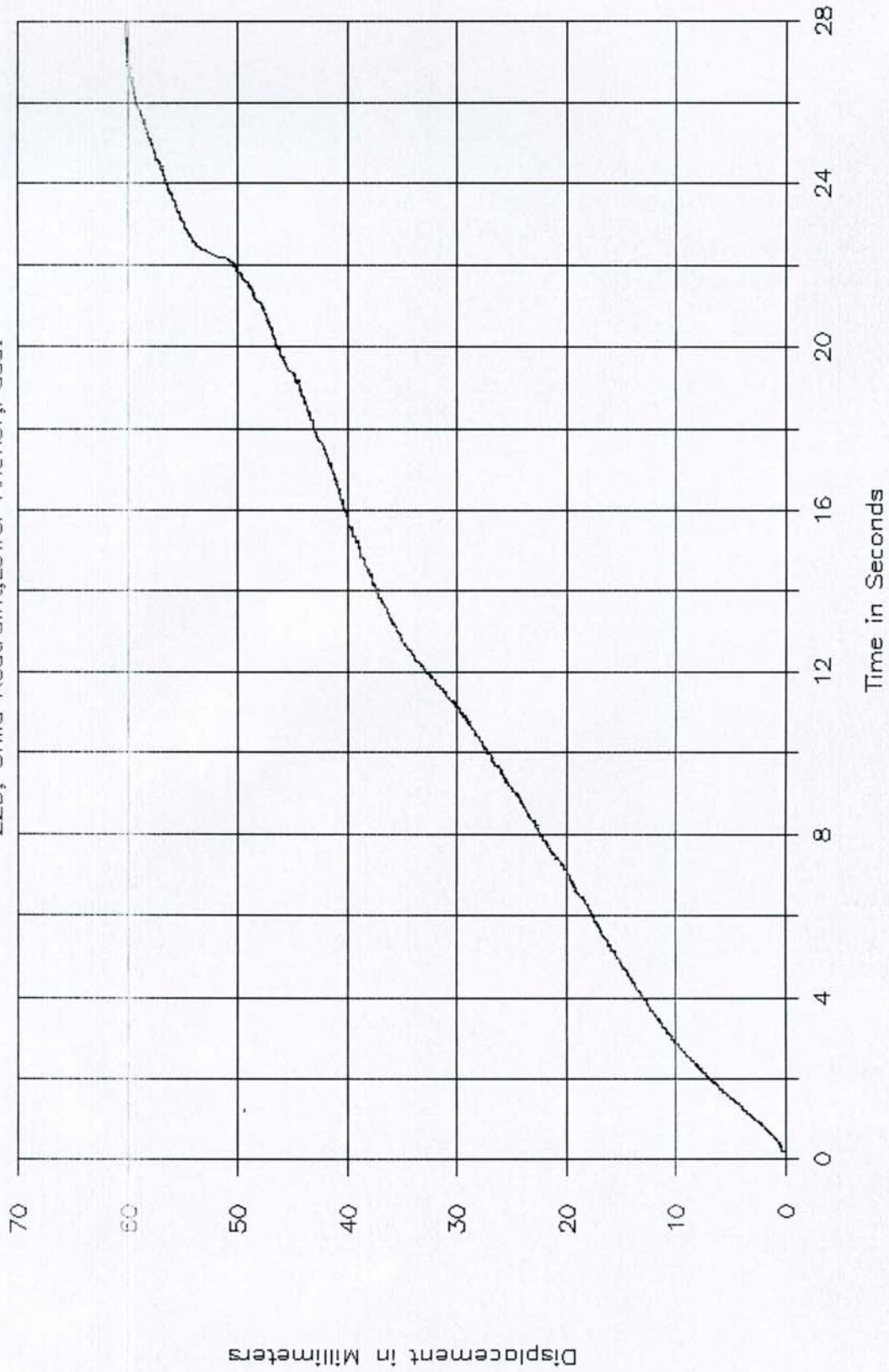
GTL 6056, NHTSA C80113

225, Child Restraint, Lower Anchor, Pass.



GTL 6056, NHTSA C80113

225, Child Restraint, Lower Anchor, Pass.



GTL 6057, NHTSA C80113

225, Child Restraint, Top Tether, Center

