REPORT NUMBER 225-GTL-08-010

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

SAAB AUTOMOBILE AB
2008 SAAB 95 WAGON, PASSENGER CAR
NHTSA NO. C80508

GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
COLONIAL BEACH, VIRGINIA 22443

January 15, 2009

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVE., SE
WASHINGTON, D.C. 20590

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Technical Report Documentation Page

1. Report No. 225-GTL-08-010	2. Government Accession No. N/A	3. Recipient's Catalog No. N/A
4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of 2008 SAAB 95 WAGON, PASSENGER CAR NHTSA No. C80508		5. Report Date January 15, 2009 6. Performing Organ. Code GTL
7. Author(s) Grant Farrand, Project Engineer Debbie Messick, Project Manager		8. Performing Organ. Rep# GTL-DOT-08-225-010
9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443		10. Work Unit No. (TRAIS) N/A 11. Contract or Grant No. DTNH22-06-C-00032
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Admin. Enforcement Office of Vehicle Safety Compliance (NVS-220) 1200 New Jersey Ave., S.E., Washington, DC 20590		13. Type of Report and Period Covered Final Test Report December 19-22, 2008 14. Sponsoring Agency Code NVS-221
15. Supplementary Notes		
16. Abstract Compliance tests were conducted on the subject, 2008 Saab 95 Wagon, Passenger Car 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. Test failures identified were as follows: None		
17. Key Words Compliance Testing Safety Engineering FMVSS 225	18. Distribution Statement Copies of this report are available from NHTSA Technical Information Services (TIS) Room W45-212 (NPO-411) 1200 New Jersey Ave., S.E. Washington, DC 20590 Telephone No. (202) 366-4947	
19. Security Classif. (of this report) UNCLASSIFIED	21. No. of Pages 96	22. Price
20. Security Classif. (of this page) UNCLASSIFIED		

Form DOT F 1700.7 (8-72)

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SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF COMPLIANCE TEST

A 2008 Saab 95 Wagon Passenger Car 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 Saab 95 Wagon Passenger Car. Nomenclature applicable to the test vehicle are:

A. Vehicle Identification Number: YS3ED59G783503647

B. NHTSA No.: C80508

C. Manufacturer: SAAB AUTOMOBILE AB

D. Manufacture Date: 09/07

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 225 testing during the time period December 19-22, 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 Saab 95 Wagon Passenger Car 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 Saab 95 Wagon Passenger Car.

DATA SHEET 1
SUMMARY OF RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 19-22, 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	X	
DSP b	X	
DSP c	X	

C. LOCATION OF TETHER ANCHORAGES

	PASS	FAIL
DSP a	X	
DSP b	X	
DSP c	X	

D. LOWER ANCHORAGE DIMENSIONS

	PASS	FAIL
DSP a	X	
DSP b	N/A	N/A
DSP c	X	

DATA SHEET 1 CONTINUED
SUMMARY OF RESULTS

E. CONSPICUITY AND MARKING OF LOWER ANCHORAGES

	PASS	FAIL
DSP a	X	
DSP b	N/A	N/A
DSP c	X	

F. STRENGTH OF TETHER ANCHORAGES

	PASS	FAIL
DSP a	X	
DSP b	X	
DSP c	N/A	N/A

G. STRENGTH OF LOWER ANCHORAGES (Forward Force)

	PASS	FAIL
DSP a	N/A	N/A
DSP b	N/A	N/A
DSP c	X	

H. STRENGTH OF LOWER ANCHORAGE (Lateral Force)

	PASS	FAIL
DSP a	N/A	N/A
DSP b	N/A	N/A
DSP c	N/A	N/A

I. OWNER'S MANUAL PASS: X FAIL:

REMARKS:

NOTE:

RECORDED BY: G. Farrand DATE: 12/22/08
APPROVED BY: D. Messick

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

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 19, 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))

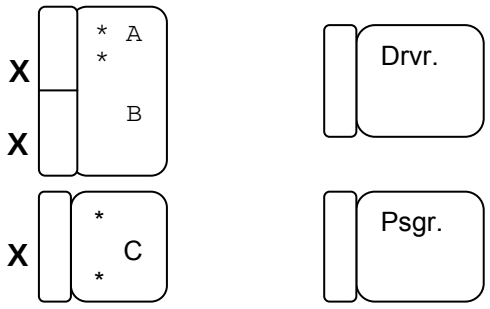
If the vehicle has 3 or more rear dsps and a non-outboard dsp, is a tether anchorage or CRAS provided at a non-outboard dsp? YES

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: 12/19/08

APPROVED BY: D. Messick

DATA SHEET 3
LOCATION OF TETHER ANCHORAGES

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 19, 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:
MOUNTED TO REAR FLOOR BEHIND 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? NO
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 ± 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. Farrand DATE: 12/19/08

APPROVED BY: D. Messick

DATA SHEET 4
LOWER ANCHORAGE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 19, 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: 5.97 mm
6mm ± 0.1 mm = PASS Other size = FAIL (S9.1.1(a))

Inboard Lower Anchorage bar diameter: 5.97 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): 26 mm
Length ≥25mm = PASS Length <25mm = FAIL(S9.1.1(c) (i))

Length of the straight portion of the bar (inboard lower anchorage): 26 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: 19.2°
Angle = 15º±10º = PASS Angle≠15º±10º = FAIL (S9.2.1)

CRF Roll angle: 0.0°
Angle = 0º±5º = PASS Angle≠0º±5º = FAIL (S9.2.1)

CRF Yaw angle: 0.0°
Angle = 0º±10º = PASS Angle≠0º±10º = FAIL (S9.2.1)

Distance between point Z on the CRF and the front surface of outboard anchor bar: 54 mm
Distance ≤70mm = PASS Distance > 70mm = FAIL

Distance between point Z on the CRF and the front surface of inboard anchor bar: 54 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: 148 mm
Distance ≥ 120mm = PASS Distance < 120mm = FAIL

Distance between SgRP and the front surface of inboard anchor bar: 150 mm
Distance ≥ 120mm = PASS Distance < 120mm = FAIL

Based 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. Farrand DATE: 12/19/08

APPROVED BY: D. Messick

DATA SHEET 4A
LOWER ANCHORAGE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 19, 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: 5.97 mm
6mm ± 0.1 mm = PASS Other size = FAIL (S9.1.1(a))

Inboard Lower Anchorage bar diameter: 5.97 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): 26 mm
Length ≥25mm = PASS Length <25mm = FAIL(S9.1.1(c) (i))

Length of the straight portion of the bar (inboard lower anchorage): 26 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: 18.8°
Angle = 15º±10º = PASS Angle≠15º±10º = FAIL (S9.2.1)

CRF Roll angle: 0.0°
Angle = 0º±5º = PASS Angle≠0º±5º = FAIL (S9.2.1)

CRF Yaw angle: 0.0°
Angle = 0º±10º = PASS Angle≠0º±10º = FAIL (S9.2.1)

Distance between point Z on the CRF and the front surface of outboard anchor bar: 54 mm
Distance ≤70mm = PASS Distance > 70mm = FAIL

Distance between point Z on the CRF and the front surface of inboard anchor bar: 54 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: 150 mm
Distance ≥ 120mm = PASS Distance < 120mm = FAIL

Distance between SgRP and the front surface of inboard anchor bar: 150 mm
Distance ≥ 120mm = PASS Distance < 120mm = FAIL

Based 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. Farrand DATE: 12/19/08

APPROVED BY: D. Messick

DATA SHEET 5
CONSPICUITY AND MARKING OF LOWER ANCHORAGES

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 19, 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 ≥13mm = PASS Diameter <13mm = 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: 78 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≤25mm = PASS Distance >25mm = FAIL (S9.5(a)(3))

CONSPICUITY (No Circles)

Is the anchor bar or guide visible when viewed from a point 30º 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. Farrand DATE: 12/19/08

APPROVED BY: D. Messick

DATA SHEET 6
STRENGTH OF TETHER ANCHORAGES

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 22, 2008
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE
TEST NO: 6172

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

SFAD: 2

Seat Back Angle: 25º

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: 65 N

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

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

Force application rate: 575 N/S

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

Maximum force (14,950 N ± 50 N): 15,000 N

Tested simultaneously with another DSP? NO

COMMENTS:

RECORDED BY: G. FARRAND DATE: 12/22/08

APPROVED BY: D. MESSICK

DATA SHEET 6A
STRENGTH OF TETHER ANCHORAGES

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 22, 2008
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE
TEST NO: 6174

DESIGNATED SEATING POSITION: ROW 2 CENTER (DSP B)

SFAD: 1

Seat Back Angle: 27º

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: 135N

Lap belt tension: 65 N (SFAD 1 only)

Tether strap tension: 65 N

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

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

Force application rate: 575 N/S

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

Maximum force (14,950 N ± 50 N): 14,923 N

Tested simultaneously with another DSP? NO

COMMENTS:

RECORDED BY: G. FARRAND DATE: 12/22/08

APPROVED BY: D. MESSICK

DATA SHEET 7
STRENGTH OF LOWER ANCHORAGES (Forward Force)

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 22, 2008
TEST LABORATORY: GENERAL TESTING LABORATORIES
OBSERVERS: GRANT FARRAND, JIMMY LATANE
TEST NO: 6173

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

Seat Back Angle: 25º

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): 10º

Force application rate: 421 N/S

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

Maximum force (14,950 N ± 50 N): 10,938 N

Displacement, H1 (at 500N): 0

Displacement, H2 (at maximum load): 20.2 mm

Displacement of Point X: 20.2 mm (H2-H1)
Displacement > 175 mm = FAIL (S9.4.1(a))

Tested simultaneously with another DSP? NO

Distance between adjacent DSP's:

COMMENTS:

RECORDED BY: G. FARRAND DATE: 12/22/08

APPROVED BY: D. MESSICK

DATA SHEET 8
OWNER'S MANUAL

VEH. MOD YR/MAKE/MODEL/BODY: 2008 SAAB 95 WAGON PASSENGER CAR
VEH. NHTSA NO: C80508; VIN: YS3ED59G783503647
VEH. BUILD DATE: 09/07; TEST DATE: DECEMBER 19, 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: 12/19/08

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 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.1
LEFT SIDE VIEW OF VEHICLE

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NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.2
RIGHT SIDE VIEW OF VEHICLE

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NHTSA NO. C80508
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FIGURE 5.3
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE

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NHTSA NO. C80508
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FIGURE 5.4
¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.5
VEHICLE CERTIFICATION LABEL

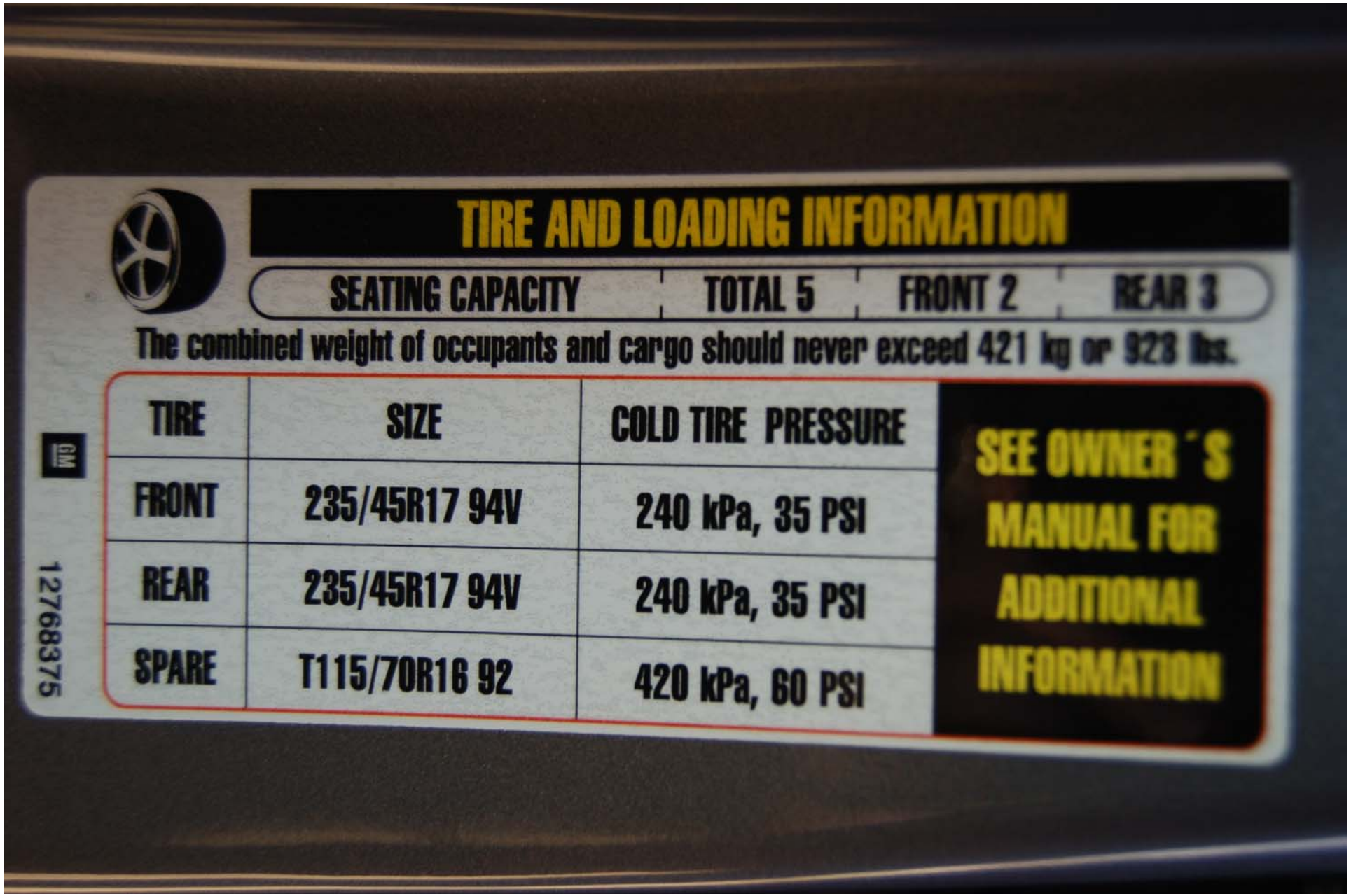

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FIGURE 5.6
VEHICLE TIRE INFORMATION LABEL

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FIGURE 5.7
ROW 2, VISIBILITY OF LOWER ANCHORS

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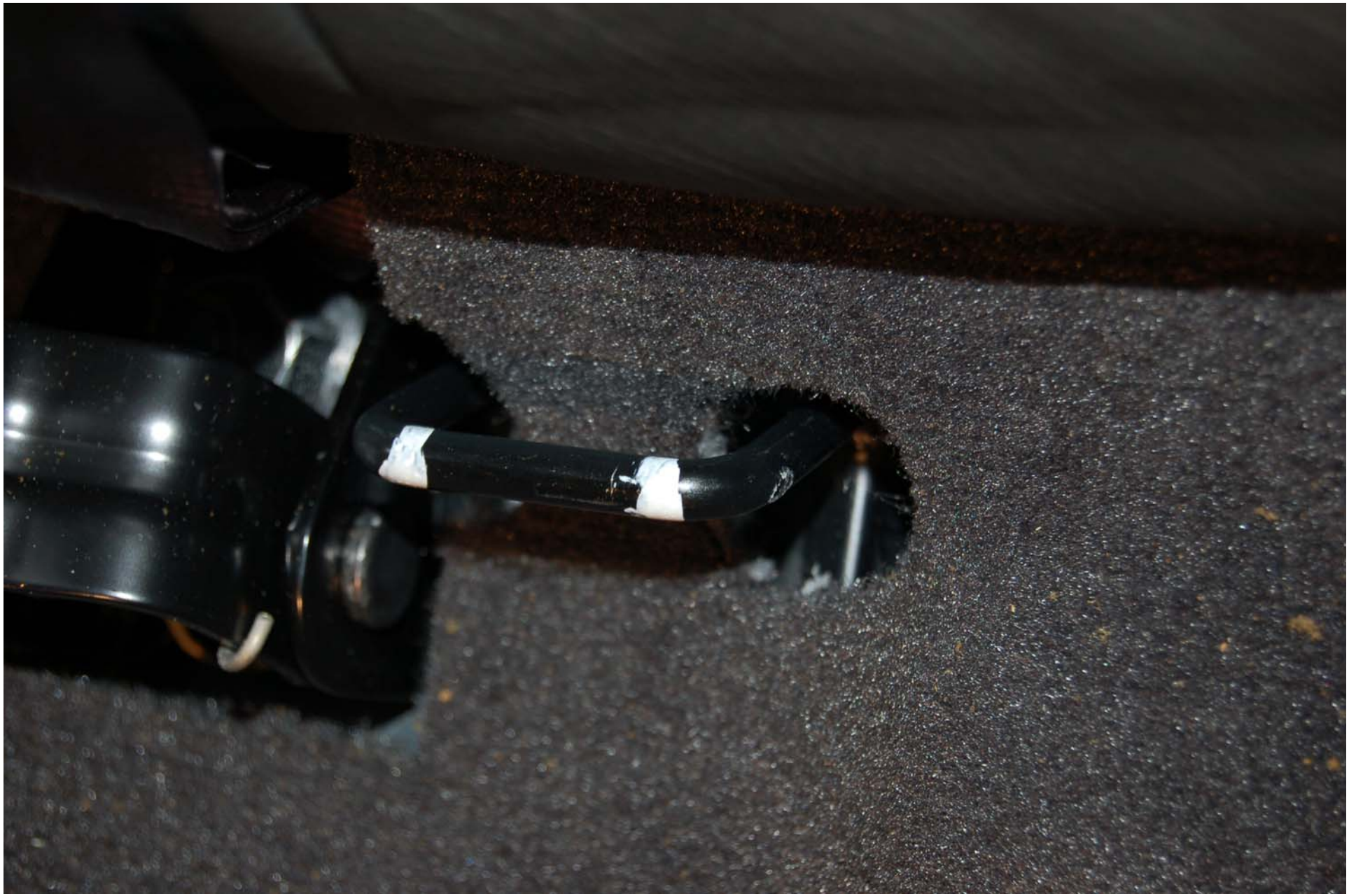
FIGURE 5.8
ROW 2, LEFT SIDE, OUTBOARD LOWER ANCHOR,
PRE-TEST



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NHTSA NO. C80508
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FIGURE 5.9
ROW 2, LEFT SIDE, INBOARD LOWER ANCHOR,
PRE-TEST

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FIGURE 5.10
ROW 2, LEFT SIDE, TOP TETHER ANCHOR,
PRE-TEST

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FIGURE 5.11
ROW 2, CENTER, TOP TETHER ANCHOR, PRE-TEST

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

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NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.13
ROW 2, RIGHT SIDE, OUTBOARD LOWER ANCHOR,
PRE-TEST

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NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.14
ROW 2, RIGHT SIDE, TOP TETHER ANCHOR, PRE-TEST

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NHTSA NO. C80508
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FIGURE 5.15
OVERALL VIEW OF ROW 2 SEATING POSITIONS WITH CHILD RESTRAINTS

2008 SAAB 95 WAGON
NHTSA NO. C80508
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FIGURE 5.16
ROW 2, LEFT SIDE WITH CRF

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NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.17
ROW 2, LEFT SIDE WITH 2-D TEMPLATE

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.18
ROW 2, LEFT SIDE, TOP TETHER ROUTING

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NHTSA NO. C80508
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FIGURE 5.19
ROW 2, LEFT SIDE, TOP TETHER ROUTING

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FIGURE 5.20
ROW 2, RIGHT SIDE WITH CRF

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NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.21
ROW 2, RIGHT SIDE WITH 2-D TEMPLATE

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FIGURE 5.22
ROW 2, RIGHT SIDE, TOP TETHER ROUTING

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.23
ROW 2, RIGHT SIDE TOP TETHER ROUTING

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.24
ROW 2, CENTER WITH 2-D TEMPLATE

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.25
ROW 2, CENTER, TOP TETHER ROUTING

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NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.26
ROW 2, RIGHT SIDE, OUTBOARD CRF MEASUREMENT

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FIGURE 5.27
ROW 2, RIGHT SIDE, INBOARD CRF MEASUREMENT

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FMVSS NO. 225

FIGURE 5.28
ROW 2, LEFT SIDE, INBOARD CRF MEASUREMENT

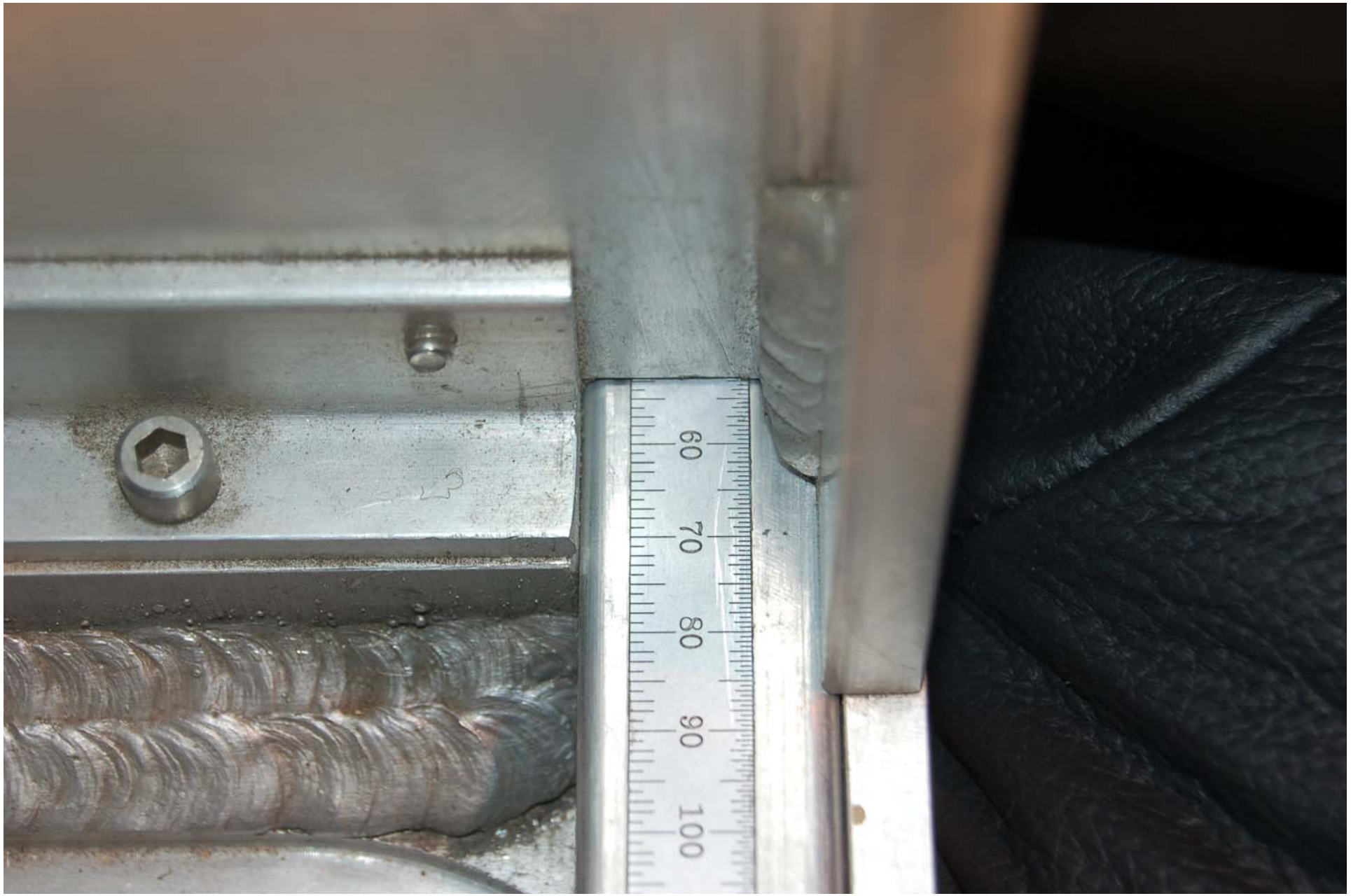

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FIGURE 5.29
ROW 2, LEFT SIDE OUTBOARD CRF MEASUREMENT

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FMVSS NO. 225

FIGURE 5.30
MEASUREMENT OF SYMBOL

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NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.31
ROW 2, LEFT SIDE WITH CRF PITCH MEASUREMENT

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.32
ROW 2, RIGHT SIDE, CRF PITCH MEASUREMENT

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.33
ROW 2, LEFT SIDE, OUTBOARD SRP MEASUREMENT

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.34
ROW 2, LEFT SIDE, INBOARD SRP MEASUREMENT

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.35
ROW 2, RIGHT SIDE, OUTBOARD SRP MEASUREMENT

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.36
ROW 2, RIGHT SIDE, INBOARD SRP MEASUREMENT

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.37
¾ LEFT FRONT VIEW OF VEHICLE IN TEST RIG

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.38
¾ RIGHT FRONT VIEW OF VEHICLE IN TEST RIG

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

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

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NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.40
PRE-TEST, ROW 2, LEFT SIDE WITH SFAD 2

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NHTSA NO. C80508
FMVSS NO. 225

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

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.42
POST TEST, ROW 2, LEFT SIDE WITH SFAD 2

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.43
PRE-TEST, ROW 2, RIGHT SIDE WITH SFAD 2

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.44
POST TEST, ROW 2, RIGHT SIDE WITH SFAD 2

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

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

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.46
PRE-TEST, ROW 2, CENTER WITH SFAD 1

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.47
POST TEST, ROW 2, CENTER WITH SFAD 1

2008 SAAB 95 WAGON
NHTSA NO. C80508
FMVSS NO. 225

FIGURE 5.48
POST TEST, ROW 2, CENTER WITH SFAD 1

APPENDIX A
OWNER'S MANUAL RESTRAINT INFORMATION

General information on child safety

The same attention must be given to child safety in the car as is given to adults.

Children travel most safely when properly restrained. However, the type of restraint must be appropriate for the size of the child. We recommend that you always consult your Saab dealer before fitting a child seat, child restraint or booster cushion.

The backseat is the safest place for children.

Make sure you are acquainted with the legal requirements for seating children in the car.

When fitting child restraints in cars you must always read the instructions supplied by the child restraint manufacturer.

Make sure that it is possible to fit a child restraint in accordance with the manufacturer's child restraint instructions.

Saab recommends the use of a rear-facing child seat for as long as this is possible - for all children under 18 kg (40 lbs.) as a minimum. Use a child seat approved for the weight of the child.

Saab recommends the use of a booster seat for children up to the length of 140 cm (55 in.) or the weight of 36 kg (80 lbs.).

LATCH

LATCH (Lower Anchorages & Top tethers for CHildren) is a US/Canadian safety standard for a uniform method of fitting child restraints without using the standard safety belts. Only certain child restraints are equipped to utilize the LATCH system.

The LATCH system is installed in the car to facilitate proper fitting of child restraints designed for and equipped with LATCH attachments.

The LATCH system consists of top tether and lower anchorages . In this vehicle, LATCH is installed at the two outboard seating positions in the rear seat, and there is a top tether on the rear center position (not Convertible).

The top tethers are located and on the cargo floor by the rear seat backrest's lower part (SportCombi), see page 25 and on top of the parcel shelf (9-5 Sedan), see page 26.

The lower anchorages are located where the seat cushion and seat back come together. There is a label above the anchorages, see picture on next page. Label consists of a symbol of a child restrained in a seat inside a circle.

When fitting child restraints in cars you must always read the instructions supplied by the child restraint manufacturer.

If you have any questions regarding LATCH please contact your Saab dealer.

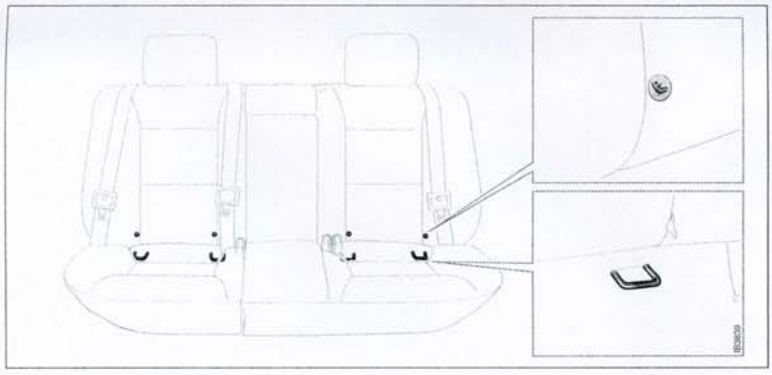
⚠ WARNING

If a LATCH-type child restraint is not attached to its anchor points, 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 anchor points, 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.

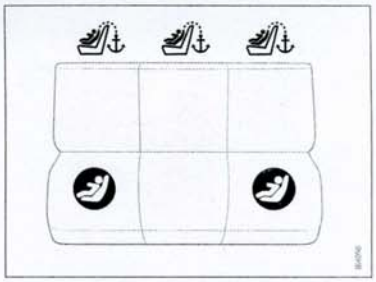
⚠ WARNING

Child top tether anchorages are designed to withstand only those loads imposed by correctly fitted child restraints.

Under no circumstances are they to be used for adult safety belts.

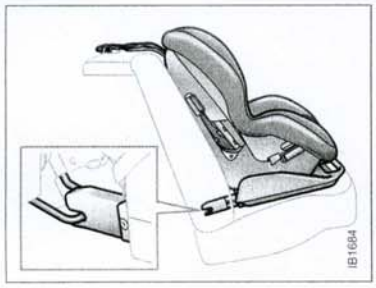


Location of lower anchors

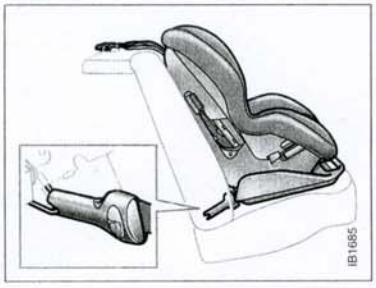


Lower anchor and top tether anchor locations.

Rigid 2-point lower attachment with top tether



Semi-rigid 2-point lower attachment with top tether



Securing a Child Restraint Designed for the LATCH System

9-5 SportCombi:

Before installation, please read through these instructions and the child restraint installation instructions.

1 The top tether anchor is located on the cargo floor by the rear seat backrest's lower part (see picture). To access the top tether anchor, unlock the rear seat backrest (see page 132 for detailed instructions), and fold it slightly forward. Note! Backrest only, not the seat cushion.

2 The top tether anchor is originally rotated downwards. To use it, it has to be rotated upwards (see arrow in picture). Use the top tether anchor right behind the seating position you want to use.

3 Raise the vehicle head restraint to its highest position (see page 21 for detailed instructions).

4 Put the child restraint on the seat.

5 If you are using a single top tether, route the top tether under the vehicle head restraint, and attach the top tether hook to the top tether anchor. If you are using around the vehicle head restraint, and attach the top tether hook to the top tether anchor. **The child restraint instructions will show you how.**

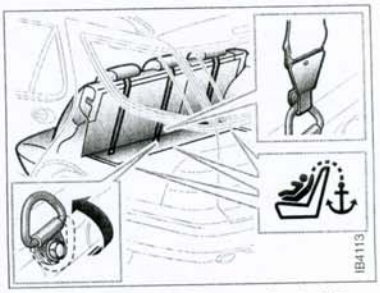
6 Reposition the rear seat backrest, and make sure it locks properly. Check the indicator on top of the backrest that it is locked.

7 Find the lower anchors for the seating position you want to use. The lower anchors are located where the bottom of the seatback meets the back of the seat cushion. Above each lower anchor, there is a label indicating its location (see picture on page 24).

8 Attach and tighten the lower anchor attachments on the child restraint to the vehicle lower anchors. If your child restraint does not have the lower attachments, you will be using the lap-shoulder belt to secure the child restraint. **The child restraint instructions will show you how.**

9 Tighten the top tether strap according to the child restraint instructions.

10 Push and pull the child restraint in different directions to be sure it is secured at the lower anchors/safety belt and the top tether anchor. The child restraint shall be firmly attached to the vehicle.



Child top tether anchorages, Saab 9-5 SportCombi

⚠ WARNING

Make sure the child restraint anchorages are folded all the way up or down otherwise it can obstruct locking the rear seat backrest.

⚠ WARNING

If a cargo net is fitted, do not pull the top tether strap through the cargo net in such a way that there is slack in the strap to the child seat.

Securing a Child Restraint Designed for the LATCH System

9-5 Sedan:

Before installation, please read through these instructions and the child restraint installation instructions.

1 Find the lower anchors for the seating position you want to use. The lower anchors are located where the bottom of the seatback meets the back of the seat cushion. Above each lower anchor, there is a label indicating its location (see picture).

2 Put the child restraint on the seat.

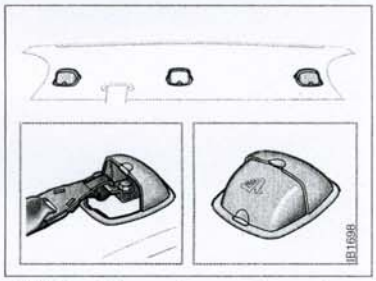
3 Attach and tighten the lower anchor attachments on the child restraint to the vehicle lower anchors. If your child restraint does not have the lower attachments, you will be using the lap-shoulder belt to secure the child restraint. **The child restraint instructions will show you how.**

4 The top tether anchor is located on top of the parcel shelf. Use the top tether anchor right behind the seating position you want to use. Open the top tether anchor trim cover to expose the anchor. Snap the cover to lock in open position.

5 Raise the vehicle head restraint to its highest position (see page 21 for detailed instructions).

6 If you are using a single top tether, route the top tether under the vehicle head restraint, and attach the top tether hook to the top tether anchor. If you are using a dual top tether, route the top tether around the vehicle head restraint, and attach the top tether hook to the top tether anchor. Tighten the top tether strap. **The child restraint instructions will show you how.**

7 Push and pull the child restraint in different directions to be sure it is secured at the lower anchors/safety belt and the top tether anchor. The child restraint shall be firmly attached to the vehicle.



Child top tether anchorages in parcel shelf, Saab 9-5 Sedan

Lockable latch plate

In fitting a child seat that is intended to be secured in position by the lap portion of the safety belt, make use of the locking function of the latch plate. This function is available on all seats in the second row.

Locking the lap portion of the belt lessens the risk that the seat will work loose while the car is in motion.

The button for the locking function is located on the back of the latch plate.

1 Put the child restraint on the rear seat.

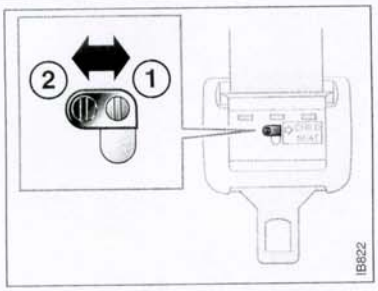
2 Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. **The child restraint instructions will show you how.**

3 Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

4 Tighten the safety belt. You may find it helpful to use your knee to push down on the child restraint as you tighten the belt.

5 While holding the safety belt tight, activate the locking function of the latch plate by moving the button from position 2 (unlocked) to position 1 (locked).

6 Push and pull the child restraint in different directions to be sure it is secure. The child restraint shall be firmly attached to the vehicle.



Locking the lap belt
1 Locked
2 Unlocked

To deactivate the locking function, move the button to position 2.

Installation of rear facing child restraints

Child restraints that are approved for rear facing installation in the rear seat can be positioned in any of the three rear seating positions.

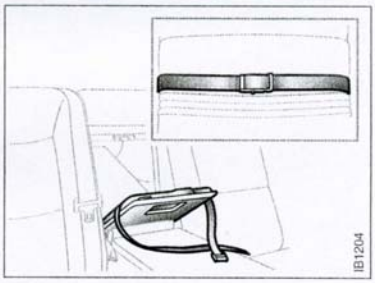
⚠ WARNING

Failure to follow all the manufacturer's instructions on the use of this child restraint system can cause your child to strike the vehicle´s interior during a sudden stop or crash.

⚠ WARNING

A special accessory is available for locking the center armrest so that a child seat can be installed in the middle seat. See your Saab dealer for details.

When a rear-facing child seat is fitted in the center position of the rear seat in the Saab 9-5 Sedan the center armrest **must** be secured in place with this strap. If this is not done, the center armrest could swing down in the event of a frontal crash and cause injury to the child.



Fitting the locking strap on the center armrest, Saab 9-5 Sedan (not needed on SportCombi).

APPENDIX B

MANUFACTURER'S DATA

FORM – 225
Rev. 03/20/07

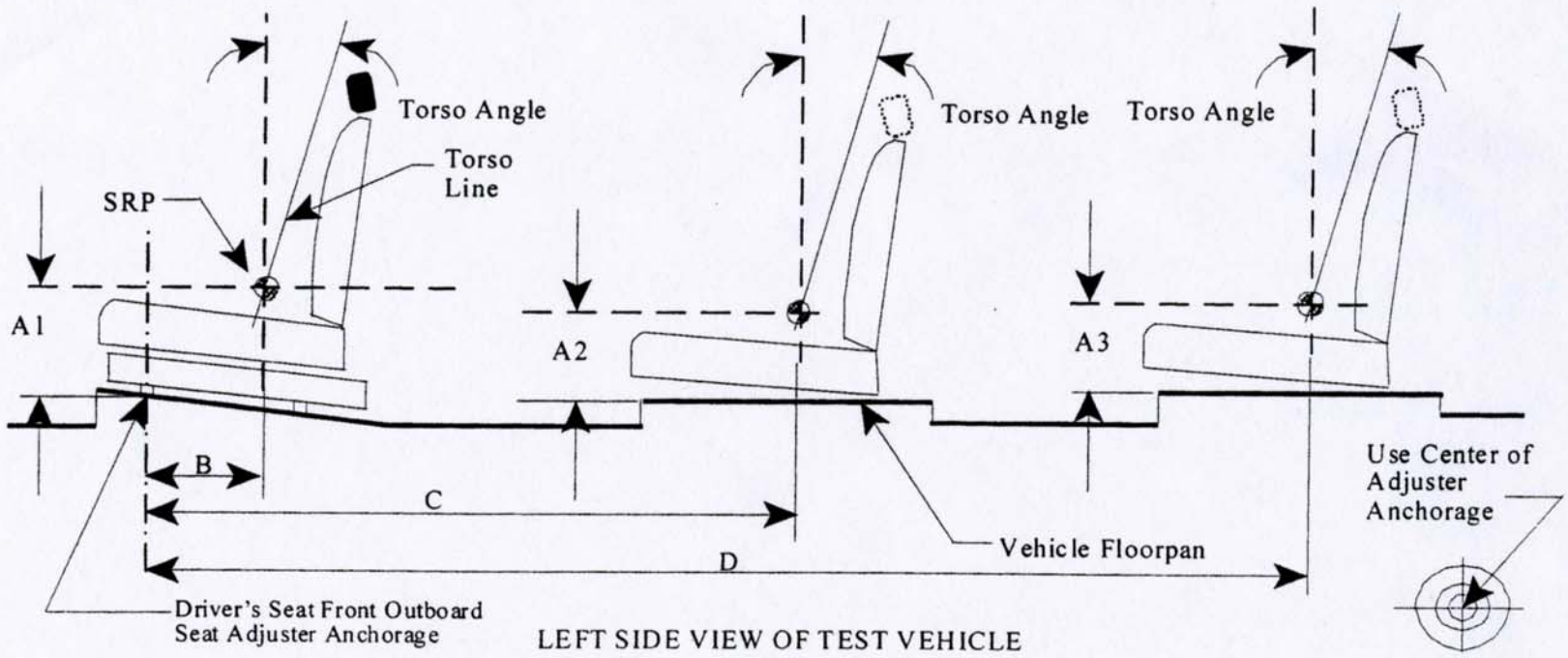
SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA

FMVSS No. 225

(All dimensions in mm[1])

MODEL YEAR: _2008____/ MAKE: _SAAB_____/ MODEL: _9-5_____/ BODY STYLE: _SEDAN_____

SEAT STYLE: FRONT ROW: FREE STANDING BUCKETS/ SECOND ROW: 60-40 SPLIT BENCH/ THIRD ROW: N/A



LEFT SIDE VIEW OF TEST VEHICLE

Table 1. Seating Positions[1] and Torso Angles

		Left (Driver Side)	Center (if any)	Right
A1		209 (Driver)	N/A	209 (Front Passenger)
A2 *OBS MEASURED FROM DRV FRONT SEAT FIXATION		255	255	255
A3		N/A	N/A	N/A
B		282	N/A	282
C		1130	1118	1130
D		N/A	N/A	N/A
Torso Angle (degree)	Front Row	25	N/A	25
	Second Row	28	23	28
	Third Row	N/A	N/A	N/A

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

SEATING REFERENCE POINT

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: _2008____/ MAKE: _SAAB_____/ MODEL: _9-5_____/ BODY STYLE: _SEDAN_____

SEAT STYLE: FRONT ROW: FREE STANDING BUCKETS/ SECOND ROW: 60-40 SPLIT BENCH/ THIRD ROW: N/A

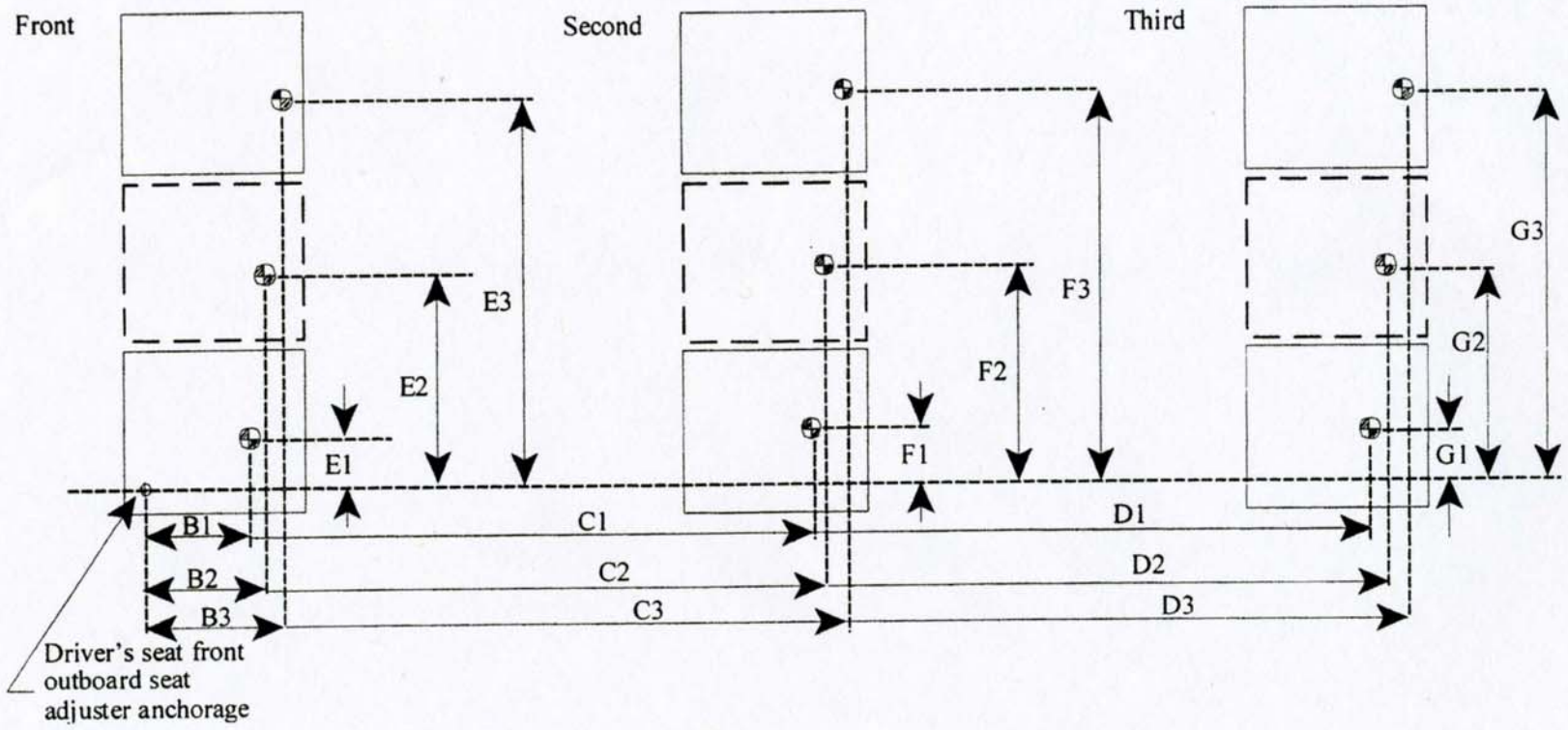


Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	282
	E1	198
	B2	N/A
	E2	N/A
	B3	282
	E3	918
Second Row	C1	1130
	F1	188
	C2	1118
	F2	558
	C3	1130
	F3	928
Third Row	D1	N/A
	G1	N/A
	D2	N/A
	G2	N/A
	D3	N/A
	G3	N/A

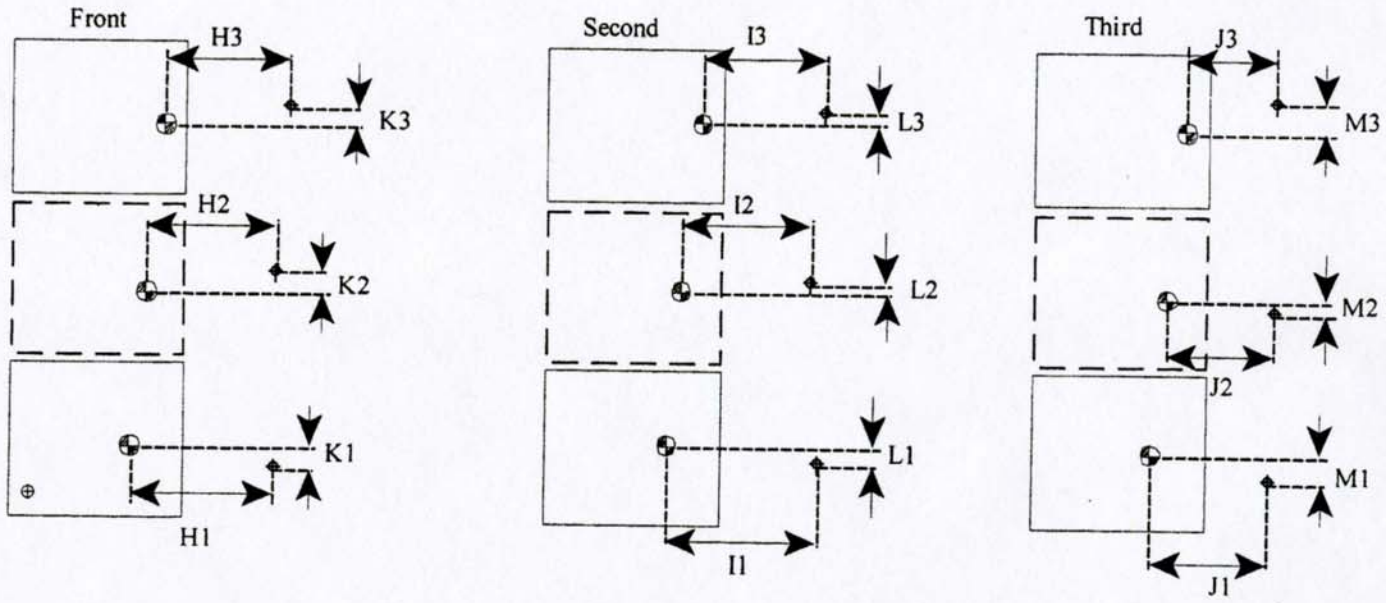
Note: Use the center of anchorage.

TETHER ANCHORAGE LOCATIONS

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: _2008____/ MAKE: _SAAB_____/ MODEL: _9-5_____/ BODY STYLE: _SEDAN_____

SEAT STYLE: FRONT ROW: FREE STANDING BUCKETS/ SECOND ROW: 60-40 SPLIT BENCH/ THIRD ROW: N/A



⊕: SRP
⊕: Tether anchorage

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

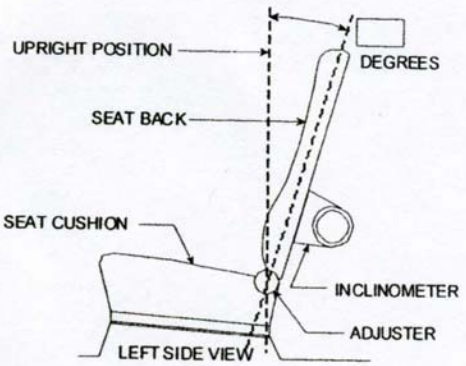
Table 3. Seating Reference Point and Tether Anchorage Locations

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	608,05
	L1	18,52
	I2	620,05
	L2	20,95
	I3	608,05
	L3	18,52
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 = ___18___ degrees.

Measurement Instructions:

See next page_____

_____

Seat back angle for passenger's seat = __18____ degrees.

Measurement Instructions:

See next page_____

_____

Seat back angle for 2nd row seat = __28 SIDES__23 MIDDLE__ degrees.

Measurement Instructions:

Rear seat is fixed._____

_____

Seat back angle for 3rd row seat = __N/A____ degrees.

Measurement Instructions:

_____

_____

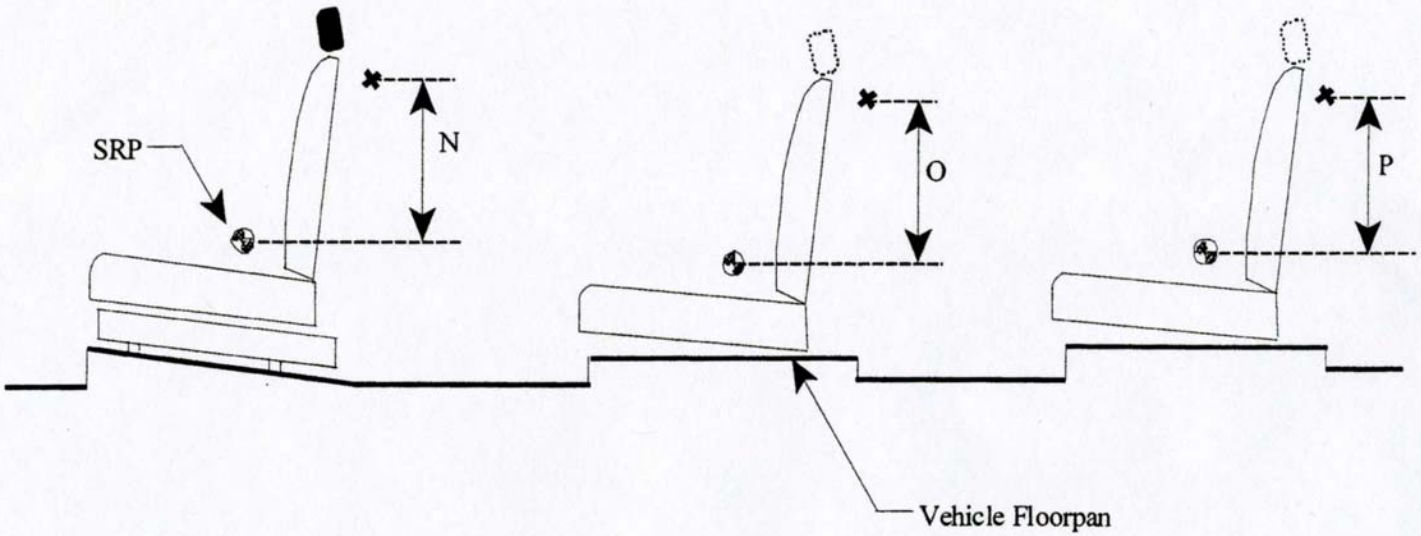
Seat back angle. Measure on the metal structure of the back of the seat with a 300mm long steel rule and an angle gauge as shown.

TETHER ANCHORAGE LOCATIONS - VERTICAL

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: _2008____/ MAKE: _SAAB_____/ MODEL: _9-5_____/ BODY STYLE: _SEDAN_____

SEAT STYLE: FRONT ROW: FREE STANDING BUCKETS/ SECOND ROW: 60-40 SPLIT BENCH/ THIRD ROW: N/A



LEFT SIDE VIEW OF TEST VEHICLE

Table 4. Vertical Dimension For The Tether Anchorage

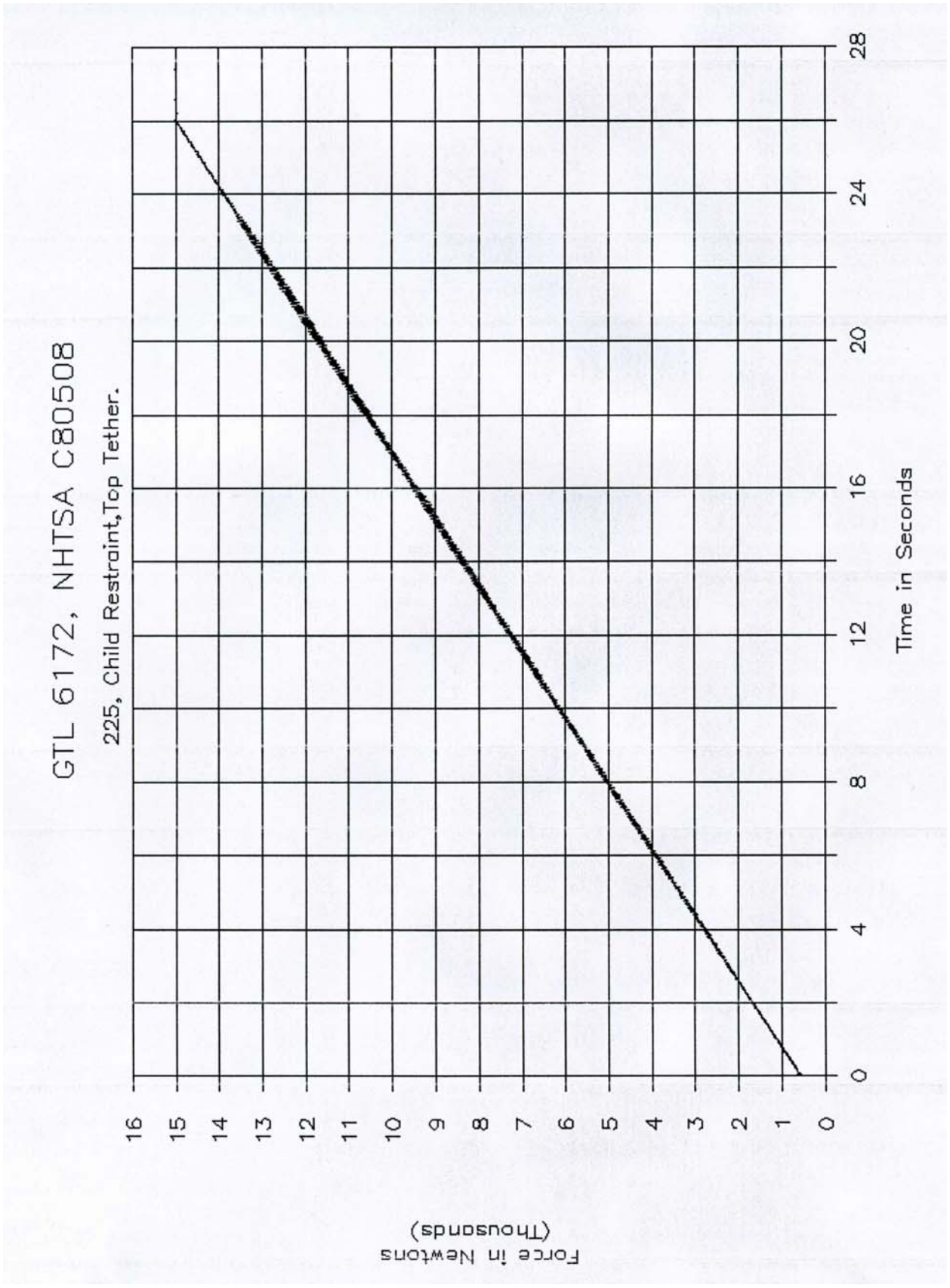
Seating Row	Vertical Distance from Seating Reference Point	
Front Row	N1 (Driver)	N/A
	N2 (Center)	N/A
	N3 (Right)	N/A
Second Row	O1 (Left)	502,73
	O2 (Center)	462,74
	O3 (Right)	502,73
Third Row	P1 (Left)	N/A
	P2 (Center)	N/A
	P3 (Right)	N/A

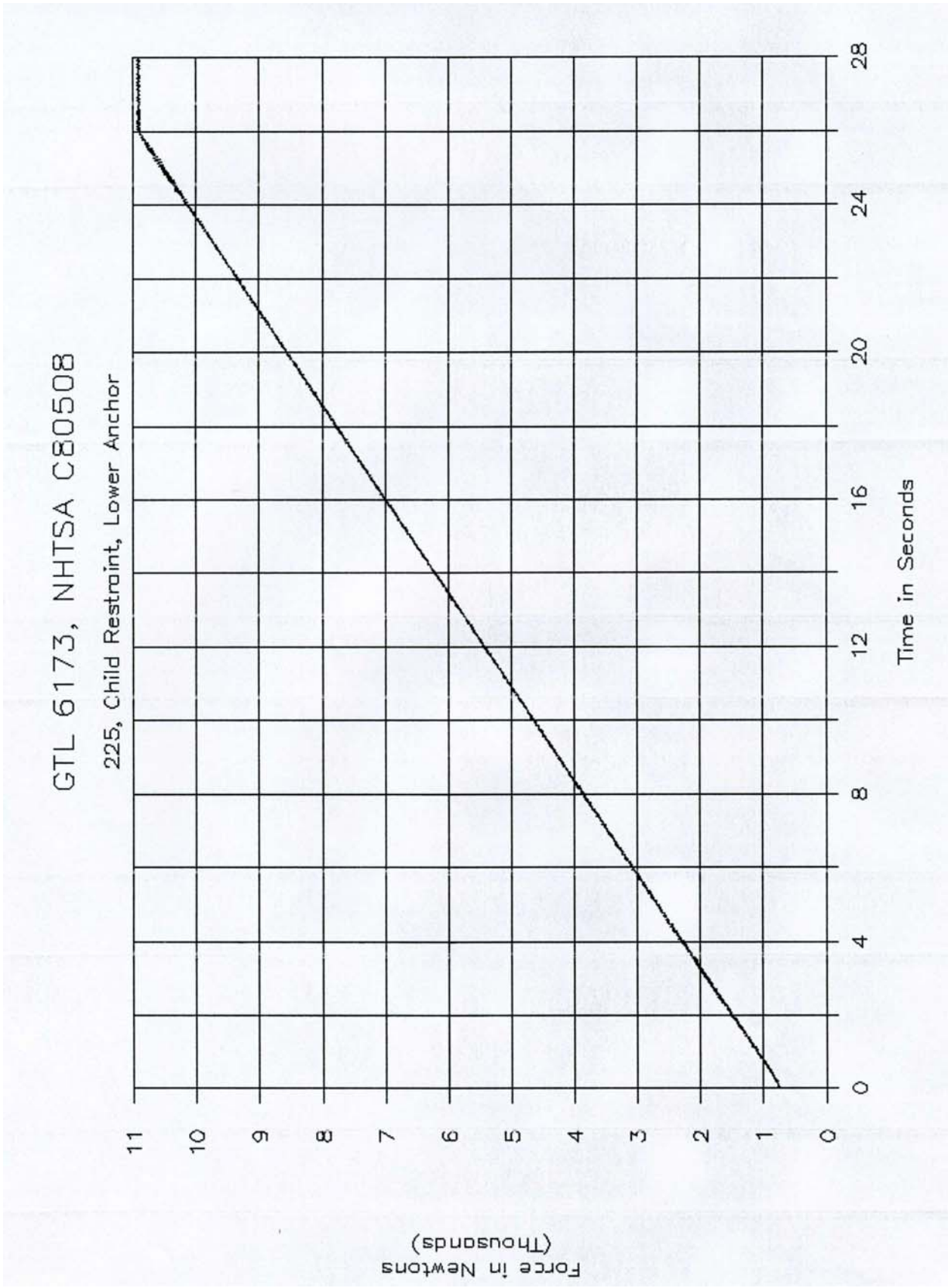
Note: All dimensions are in mm. If not, provide the unit anchorage.

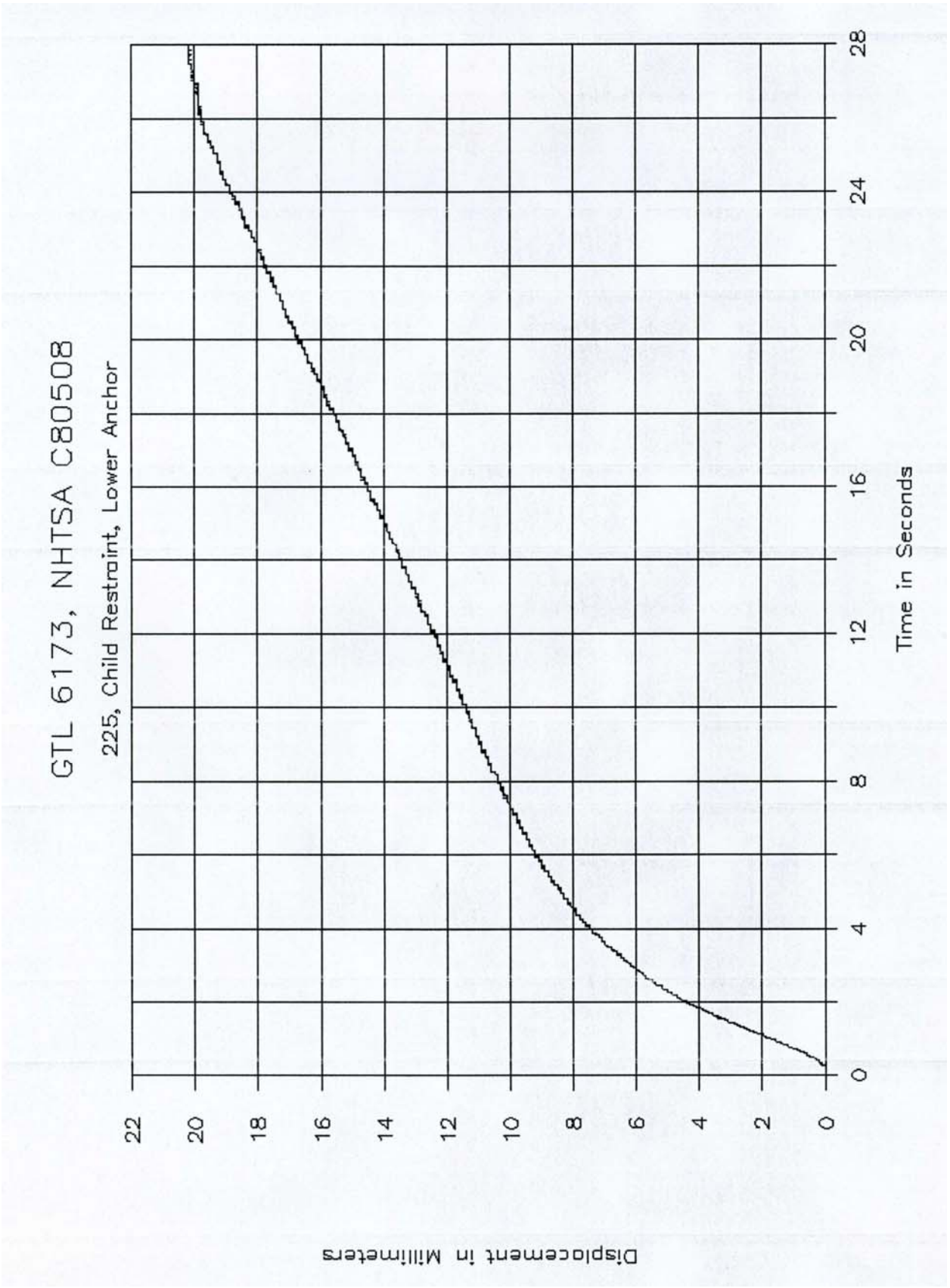
For each vehicle, provide the following information:

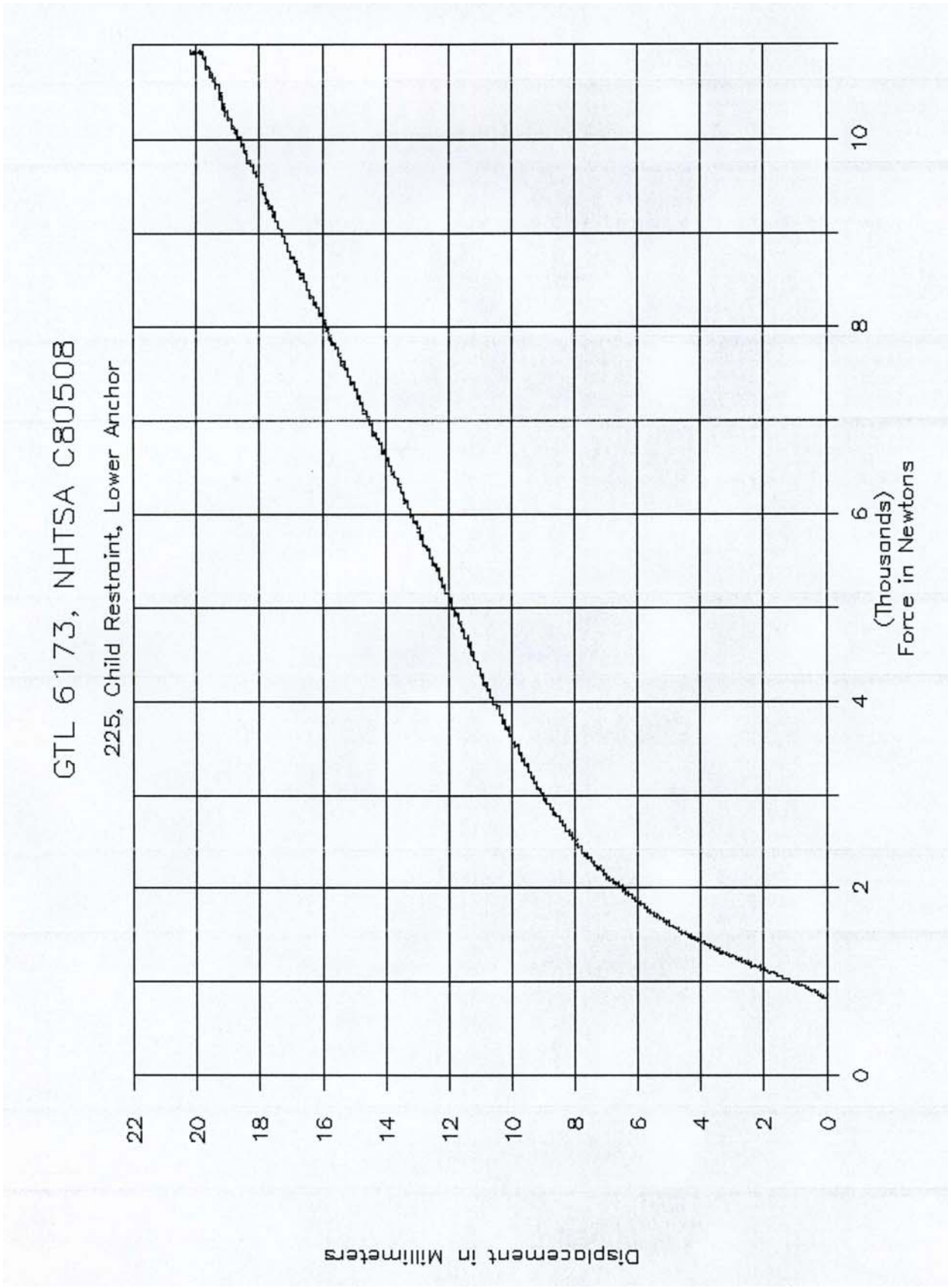
1. How many designated seating positions exist in the vehicle? 5
2. How many designated seating positions are equipped with lower anchorages and tether anchorages? Specify which position(s). 2 Positions; SECOND ROW, OUTBOARD
3. How many designated seating positions are equipped with tether anchorages? Specify which positions(s). 3 positions; SECOND ROW CENTER AND OUTBOARD
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)

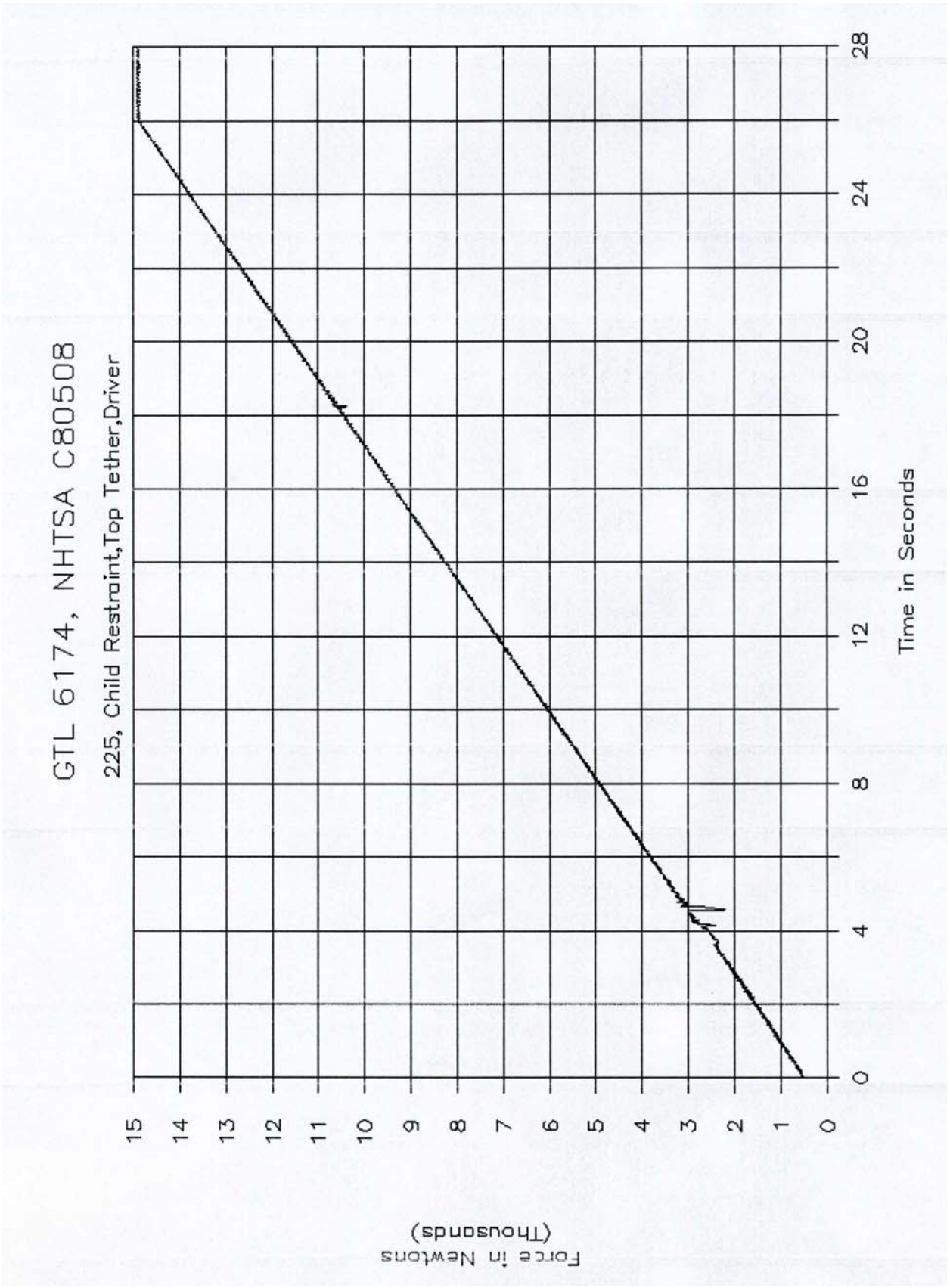
APPENDIX C
PLOTS


GTL 6172, NHTSA C80508
225, Child Restraint,Top Tether.
Force in Newtons
(Thousands)
Time in Seconds
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
0
4
8
12
16
20
24
28


GTL 6173, NHTSA C80508
225, Child Restraint, Lower Anchor
Force in Newtons
(Thousands)
Time in Seconds
0
1
2
3
4
5
6
7
8
9
10
11
0
4
8
12
16
20
24
28


GTL 6173, NHTSA C80508
225, Child Restraint, Lower Anchor
Displacement in Millimeters
Time in Seconds
0
2
4
6
8
10
12
14
16
18
20
22
0
4
8
12
16
20
24
28


GTL 6173, NHTSA C80508
225, Child Restraint, Lower Anchor
Displacement in Millimeters
0
2
4
6
8
10
12
14
16
18
20
22
0
2
4
6
8
10
(Thousands)
Force in Newtons


GTL 6174, NHTSA C80508
225, Child Restraint,Top Tether,Driver
Force in Newtons
(Thousands)
Time in Seconds
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0
4
8
12
16
20
24
28