FINAL REPORT NUMBER 225-MGA-09-003

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

JAGUAR CARS LTD
2009 JAGUAR XF
NHTSA No. C90205

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083

Test Date: June 26, 2009
Report Date: July 9, 2009

FINAL REPORT

PREPARED FOR:

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

Prepared By: _____
Fern Gatilao, Project Engineer

_____
Brad Reaume, Test Personnel

_____
Helen A. Kaleto, Laboratory Manager

Approved By: _____
P. Michael Miller II, Vice President

Approval Date: 7/21/09

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: Edward E. Chan
Digitally signed by Edward E. Chan
DN: CN = Edward E. Chan, C = US, O = National Highway Traffic Safety Administration, OU = Office of Vehicle Safety Compliance
Date: 2009.08.06 10:40:14 -04'00'

Acceptance Date: _____

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 225-MGA-09-003	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 225 Compliance Testing of a 2009 Jaguar XF, NHTSA No. C90205		5. Report Date July 9, 2009 6. Performing Organization Code MGA	
7. Author(s) Helen A. Kaleto, Laboratory Manager Fern Gatilao, Project Engineer Brad Reaume, Test Personnel		8. Performing Organization Report No. 225-MGA-09-003	
9. Performing Organization Name and Address MGA Research Corporation 446 Executive Drive Troy, Michigan 48083		10. Work Unit No. 11. Contract or Grant No. DTNH22-06-C-00030/0006	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 Seventh Street, SW Room 6111 Washington, DC 20590		13. Type of Report and Period Covered Final Test Report 14. Sponsoring Agency Code NVS-220	
15. Supplementary Notes			
16. Abstract A compliance test was conducted on the subject 2009 Jaguar XF, NHTSA No. C90205, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-225-01 for the determination of FMVSS 225 compliance. The test was conducted at MGA Research Corporation in Troy, Michigan on June 26, 2009. Test failures identified were as follows: NONE The data recorded indicates that the 2009 Jaguar XF tested appears to meet the requirements of FMVSS 225.			
17. Key Words Compliance Testing Safety Engineering FMVSS 225 2009 Jaguar XF		18. Distribution Statement Copies of this report are available From: NHTSA Technical Reference Division, Mail Code: NPO-230 400 Seventh Street, SW, Room PL-403 Washington, D.C. 20590 Telephone No. (202) 366-4946	
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Form DOT F 1700.7 (8-70)

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1.0 PURPOSE AND PROCEDURE

PURPOSE

The child restraint anchorage testing results presented in this report are part of the Federal Motor Vehicle Safety Standard (FMVSS) No. 225 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-06-C-00030/0006. The purpose of the testing was to determine if the subject vehicle, a 2009 Jaguar XF, NHTSA No. C90205 meets the performance requirements of FMVSS No. 225, "Child Restraint Anchorage Systems."

PROCEDURE

This testing was conducted in accordance with NHTSA's Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure TP-225-01 (4/11/05) and MGA's Laboratory Test Procedure, MGATP225GOV (6/23/06).

The rear occupant compartment consisted of a 2nd row three-passenger 60/40 split-back-bench seat. The 2nd row outboard left and right seating positions were equipped with a child restraint anchorage system (one tether and two lower anchorages) and the center seating position was equipped with a tether anchorage. The center-to-center spacing between the 2nd row outboard lower anchorages was approximately 718 mm. The 2nd row left and right outboard seating positions were tested with the SFADII.

2.0 COMPLIANCE TEST AND DATA SUMMARY

TEST SUMMARY

The testing was conducted at MGA in Troy, Michigan on June 26, 2009.

Based on the test results, the 2009 Jaguar XF appears to meet the requirements of FMVSS No. 225 for this testing.

The SFADII at the 2nd row left seating position sustained a maximum force of 4,968 N and held the required load for 3 seconds and the total displacement was 78 mm. The SFADII at the 2nd row right seating position sustained a maximum force of 4,966 N and held the required load for 3 seconds and the total displacement was 32 mm.

DATA SUMMARY

Strength and displacement summary data are provided below. Data for the configuration and the location of each child restraint anchorage system are provided in Section 5.0. Photographs are found in Section 6.0 and test plots are found in Section 7.0.

Table 1. Summary Data for Strength and Displacement

MGA Test #	Fixture Type	Test Configuration	Seating Position	Max. Load (N)	Displacement (mm)
SC9245	SFADII	Lateral Left	2nd Row Left	4,968	78
			2nd Row Right	4,966	32

3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2009 Jaguar XF
VEH. NHTSA NO.	C90205
VIN	SAJWA05BX9HR42140
COLOR	Black
VEH. BUILD DATE	11/08
TEST DATE	June 26, 2009
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Fern Gatilao , Brad Reaume, Kenney Godfrey

GENERAL INFORMATION:

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Jaguar Cars LTD

Date of Manufacture: 11/08; VIN: SAJWA05BX9HR42140

GVWR: 5005 lbs GAWR FRONT: 2420 lbs

GAWR REAR: 2585 lbs

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 31 psi REAR: 31 psi

Recommended Tire Size: P245/45R18

Recommended Cold Tire Pressure:

FRONT: 31 psi REAR: 31 psi

Size of Tire on Test Vehicle: P245/45R18

Size of Spare Tire: T135/80R18

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench ____; Bucket X; Split Bench___

Number of Occupants: Front __2__; Middle__0___; Rear;_3__ TOTAL __5__.

4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

MGA Research Corporation 446 Executive Drive Troy, Michigan 48083	
Test Equipment Used for Testing	**Calibration Due Date**
MGA Hydraulic Test Frame	N/A
Two (2) Load Cell 10,000 lb Capability	S/N 629 & 635 (11/29/09)
String Potentiometer Calibrated at each use	S/N L16000461A/I1704802A (7/26/09)
Hydraulic Pump	N/A
MGA CRF Fixture	N/A
MGA SFADI	N/A
MGA SFADII	N/A
MGA 2-Dimensional Template	N/A
Linear Scale	TPM886 (9/5/09)
MGA Data Acquisition System	N/A
Digital Calipers	MGA572 (9/23/09)
Force Gauge	MGA00647 (9/8/09)
Inclinometer (Digital)	MGA00726 (7/9/09)

5.0 DATA

Table 3. Child Restraint Tether Anchorage Configuration

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

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

REMARKS: NONE.

Table 4. Child Restraint Lower Anchorage Configuration

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION				
		FRONT ROW	SECOND ROW		THIRD ROW
			I/B	O/B	
Above anchorage, permanently marked with a circle not less than 13 mm in Dia.; and whose color contrasts with its background; and its center is not less than 50 mm and not more than 100 mm above the bar, and in the vertical longitudinal plane that passes through the center of the bar.	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Each of the bars is visible, without the compression of the seat cushion or seat back, when the bar is viewed, in a vertical longitudinal plane passing through the center of the bar, along a line marking an upward 30 degree angle with a horizontal plane.	LH	N/A	N/A		N/A
	Ctr		N/A		
	RH		N/A		
Diameter of the bar (mm)	LH	N/A	5.98	6.01	N/A
	Ctr		N/A		
	RH		5.95	5.95	
Inspect if the bars are straight, horizontal and transverse	LH	N/A	Yes		N/A
	Ctr		N/A		
	RH		Yes		
Optional Marking: At least one anchorage bar (when deployed for use, if storable anchorages), one guidance fixture, or one seat marking is visible.	LH	N/A	N/A		N/A
	Ctr				
	RH				
Optional Marking: If guidance fixtures are used, the fixture(s) must be installed.	LH	N/A	N/A		N/A
	Ctr				
	RH				
Measure the distance between Point "Z" of the CRF and the front surface of the anchorage bar (mm)	LH	N/A	23		N/A
	Ctr		N/A		
	RH		23		
Measure the distance between the SRP to the front of the anchorage bar (mm)	LH	N/A	228	228	N/A
	Ctr		N/A		
	RH		216	216	

Table 4. Child Restraint Lower Anchorage Configuration (continued)

OBSERVED LOWER ANCHORAGE CONFIGURATION	SEAT POSITION					
			FRONT ROW	SECOND ROW I/B	SECOND ROW O/B	THIRD ROW
Inspect if the centroidal longitudinal axes are collinear within 5 degrees	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		
Inspect if the inside surface of the bar that is straight and horizontal section of the bars, and determine they are not less than 25 mm, but not more than 60 mm in length (mm).	LH	Req't>25	N/A	29	29	N/A
		Req't<60		40	40	
	Ctr	Req't>25		N/A		
		Req't<60		N/A		
	RH	Req't>25		29	29	
		Req't<60		39	39	
Inspect if the bars can be connected to, over their entire inside length by the connectors of child restraint system.	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		
Inspect if the bars are an integral and permanent part of the vehicle.	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		
Inspect if the bars are rigidly attached to the vehicle. If feasible, hold the bar firmly with two fingers and gently pull.	LH		N/A	Yes		N/A
	Ctr			N/A		
	RH			Yes		

PITCH, YAW, & ROLL INFORMATION

SEAT POSITION	PITCH (deg)	YAW (deg)	ROLL (deg)
2nd Row Left	13.1	N/A	0.2
2nd Row Center	N/A	N/A	N/A
2nd Row Right	13.0	N/A	0.1

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

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

REMARKS: NONE

Table 5. Tether Location and Dimensional Measurements

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

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

REMARKS: NONE

Table 6. Tether Anchorage Static Loading and Displacement

SEAT POSITION		Seat, Seat Back, & Head Restraint Positions			Type of SFAD Used	Angle (deg)	Initial Location (mm)	Onset Rate (N/sec.)	Force Applied (kN)	Max. Load (N)	Final Location (mm)	Horiz. Displ. (mm)
		Seat	Seat Back	Is There a H/R?								
Front Row		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Second Row	LH	Fixed	Fixed	Yes	II	0.7	11	167	5,000	4,968	89	78
	Ctr.			No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RH			Yes	II	0.7	33	167	5,000	4,966	65	32
Third Row		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

6.0 PHOTOGRAPHS

6.1 Front view

6.2 Rear view


ASTON MARTIN
JAGUAR
JAGUAR OF Troy.com
JAGUAR of TROY
XF
NHTSA 2009 Jaguar XF
Rear View
FMVSS 225
C90205

6.3 Front left view

6.4 Front right view

6.5 Test vehicle's certification label

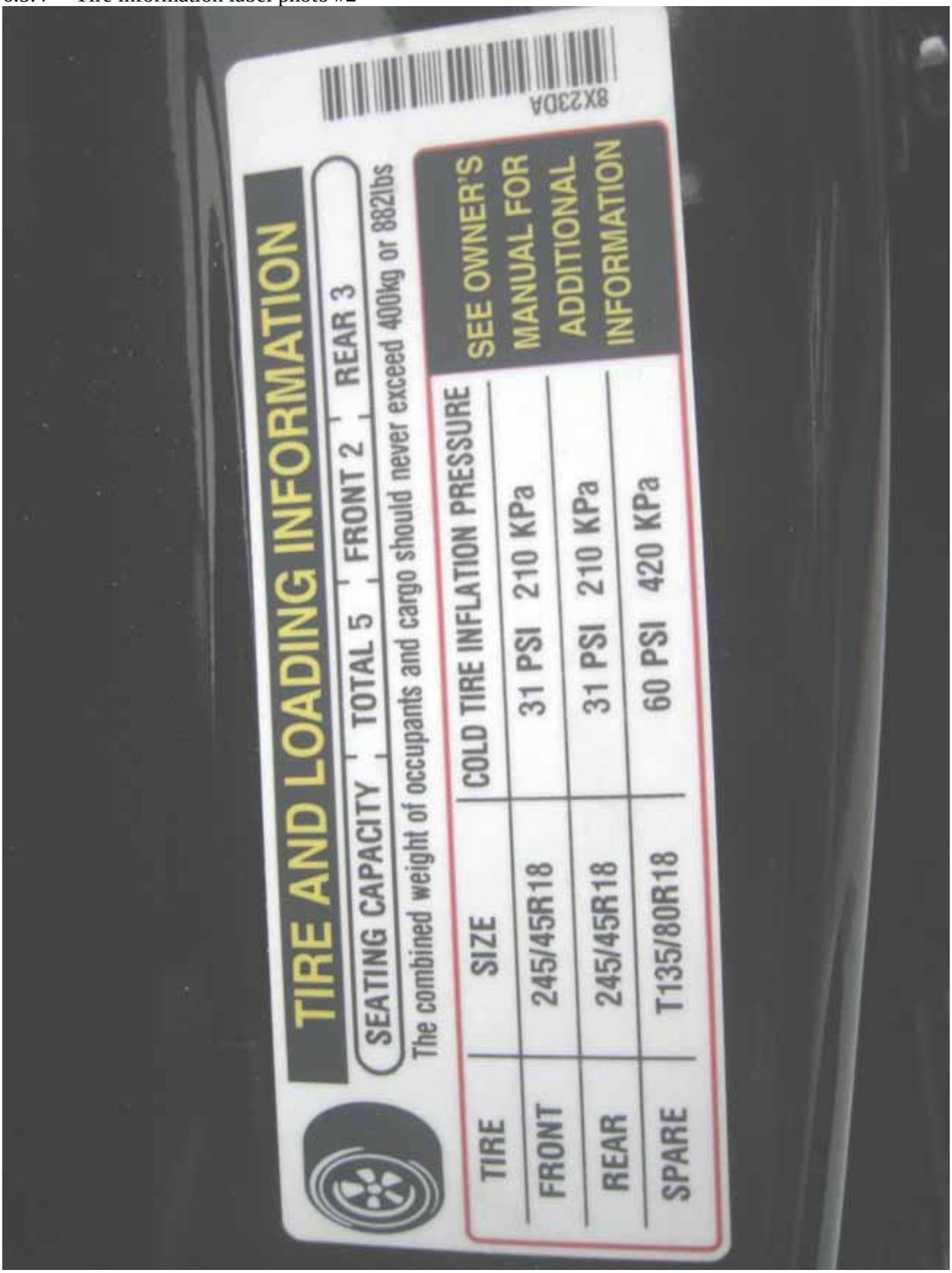
6.5.1 Certification label photo

1

6.5.2 Certification label photo #2

6.5.3 Tire information label photo #1

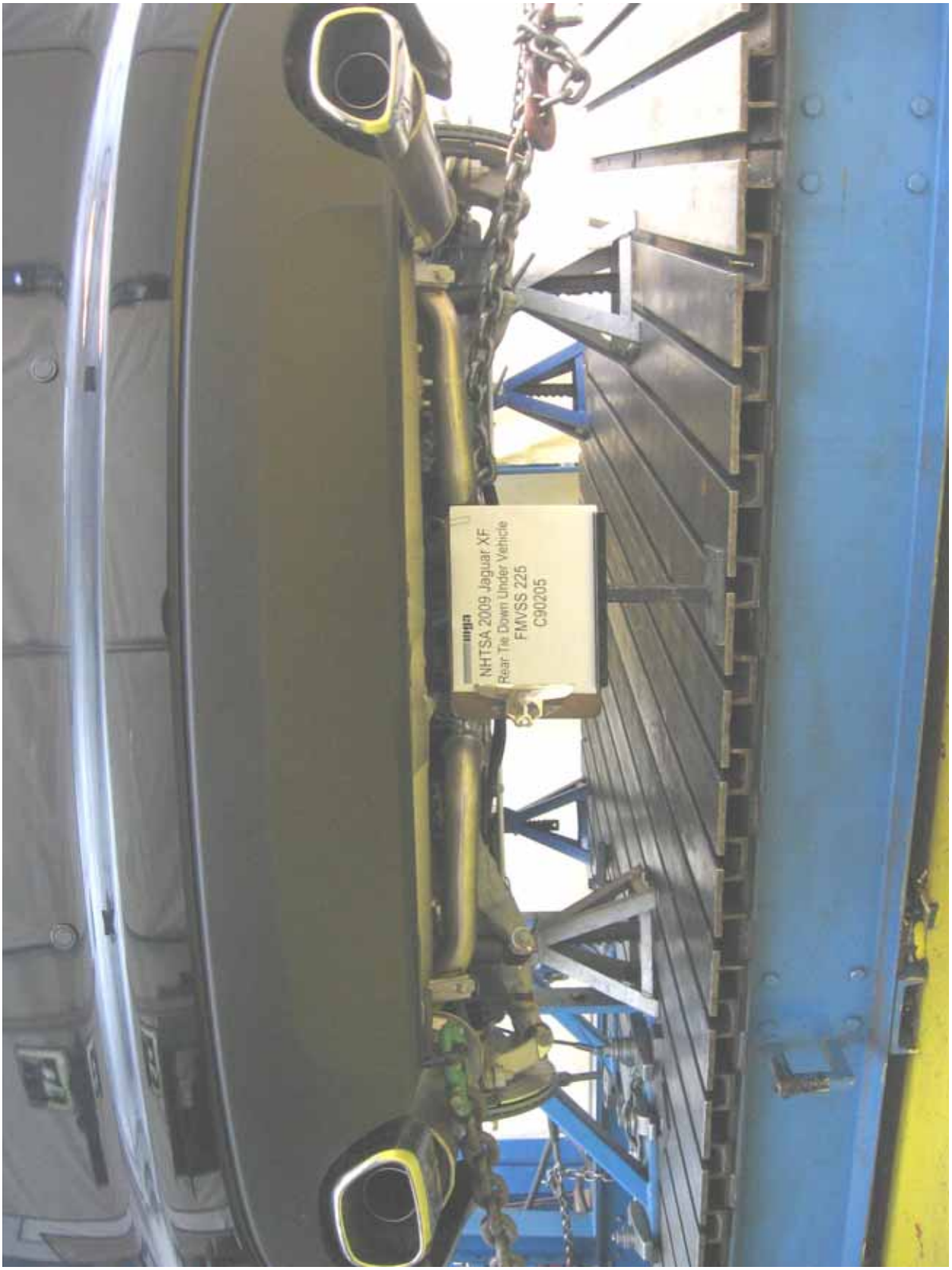
6.5.4 Tire information label photo #2



6.6 Vehicle tie down at each tie down location

6.6.1 Front under vehicle

6.6.2 Rear under vehicle



6.6.3 Left front

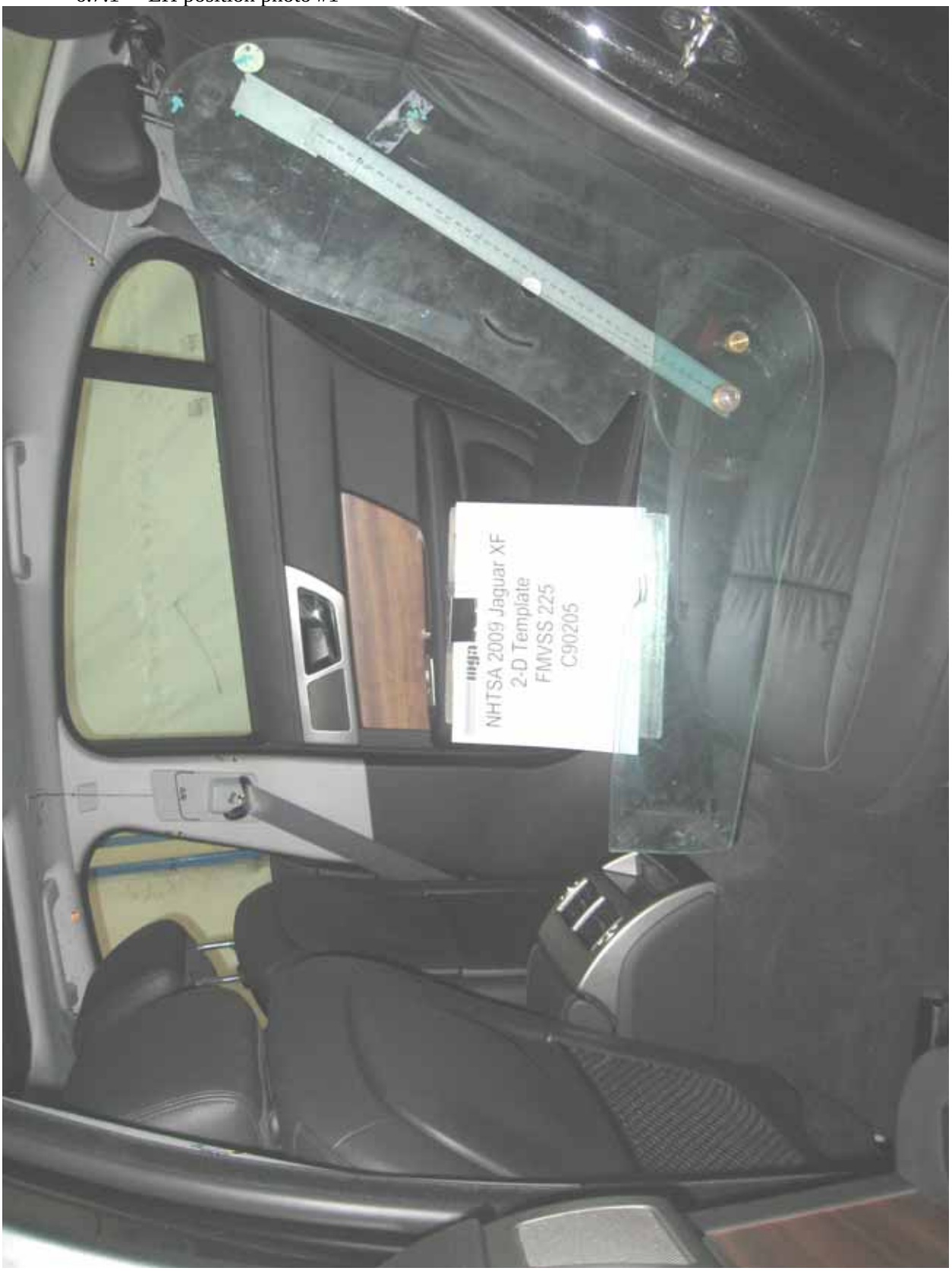
6.6.4 Left rear

6.6.5 Right front

6.6.6 Right rear

6.7 2-dimensional template

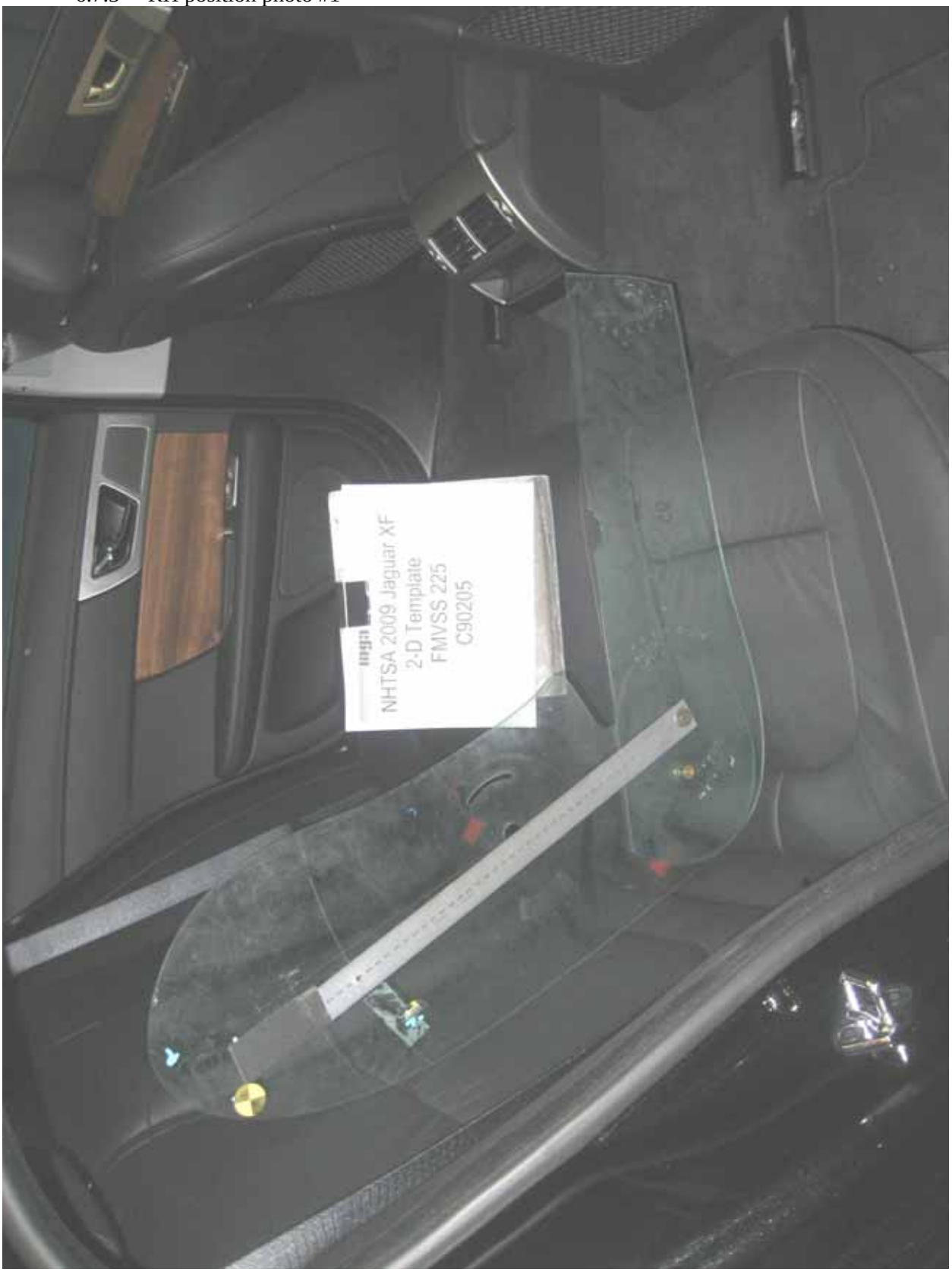
6.7.1 LH position photo #1



6.7.2 LH position photo #2

6.7.2

6.7.3 RH position photo #1



6.7.4 RH position photo #2

6.7.5 Center position photo #1

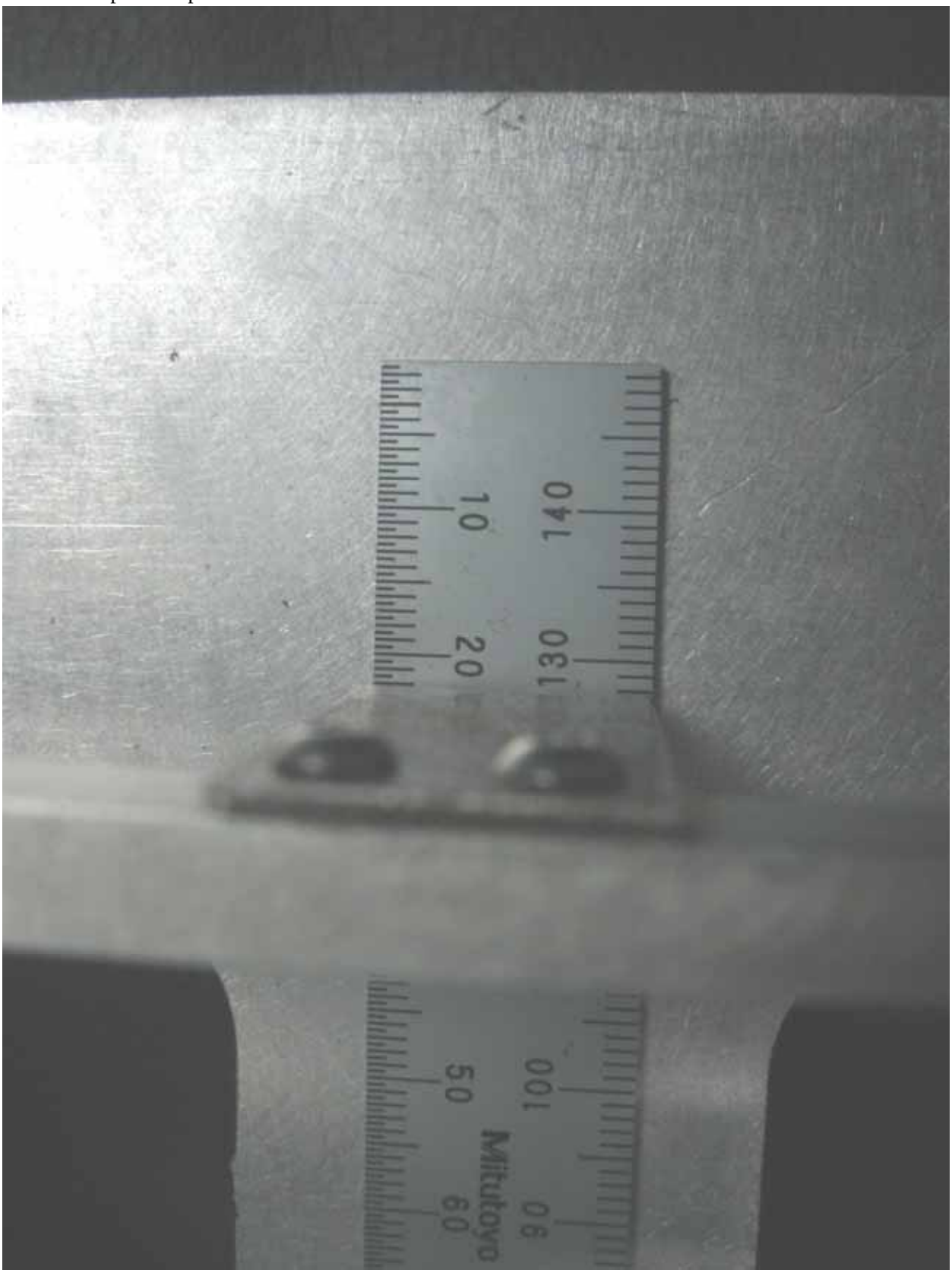
6.7.6 Center position photo #2

6.8 CRF verification

6.8.1 LH position photo

6.8.2 LH position photo

6.8.3 LH position photo



6.8.4 RH position photo

6.8.5 RH position photo

6.8.6 RH position photo

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6.9.1 SFAD II LH & RH

6.9.2 SFAD II LH & RH

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

6.10.1 Pre-test photo

6.10.2 Pre-test photo

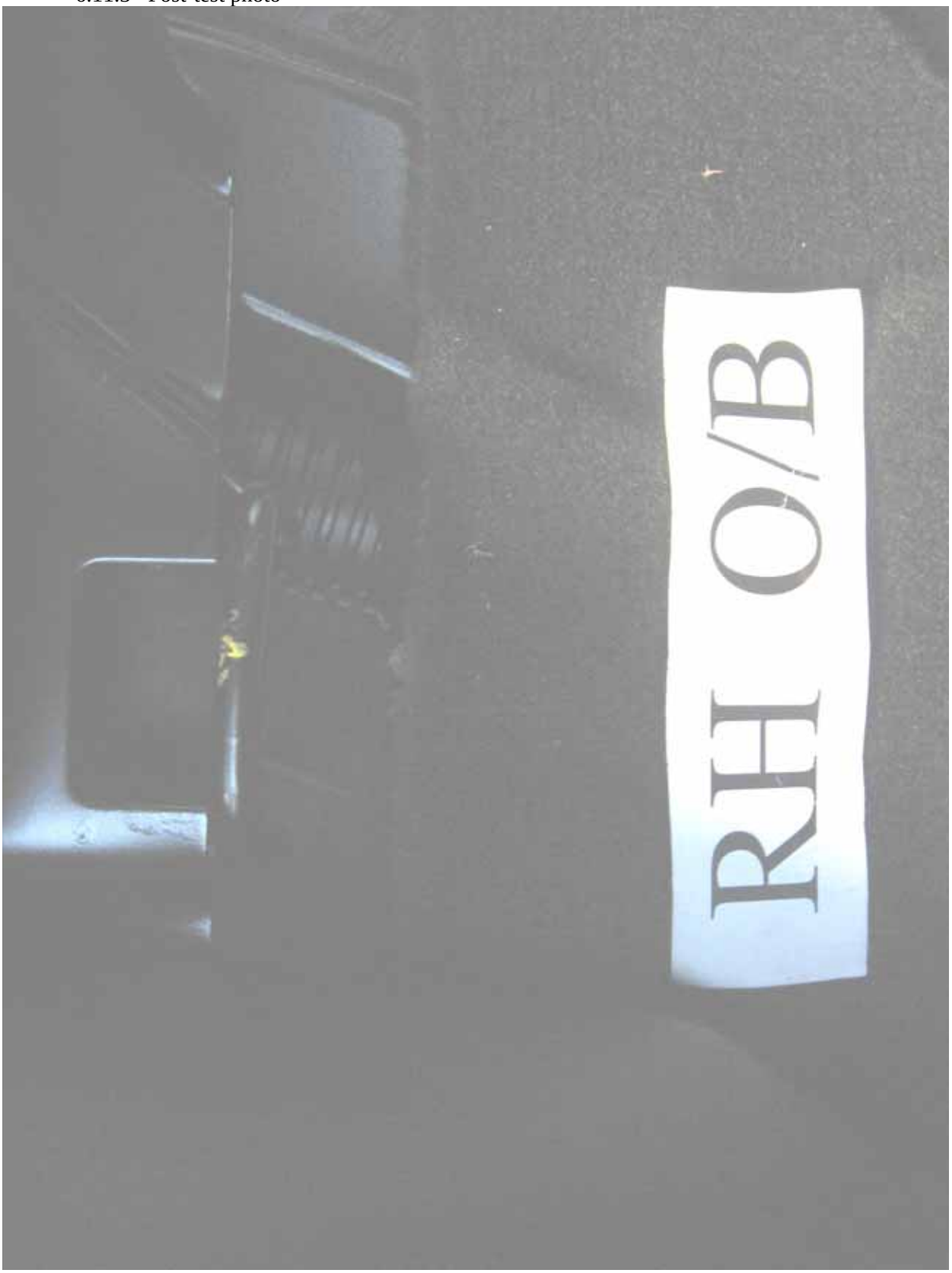
6.10.3 Pre-test photo

6.11 Post-test condition of each child restraint anchorage system

6.11.1 Post-test photo

6.11.2 Post-test photo

6.11.3 Post-test photo

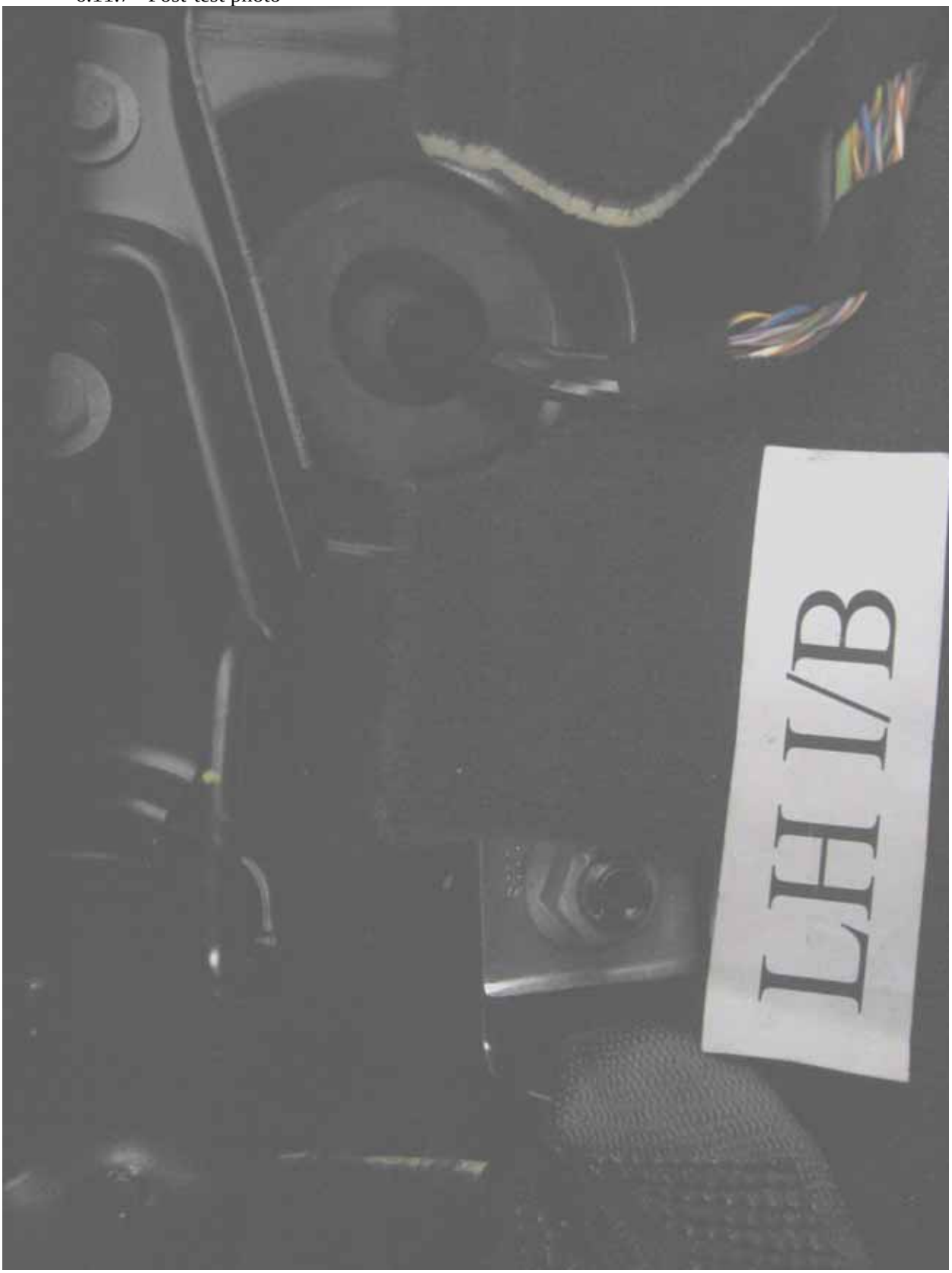


6.11.4 Post-test photo

6.11.5 Post-test photo

6.11.6 Post-test photo

6.11.7 Post-test photo

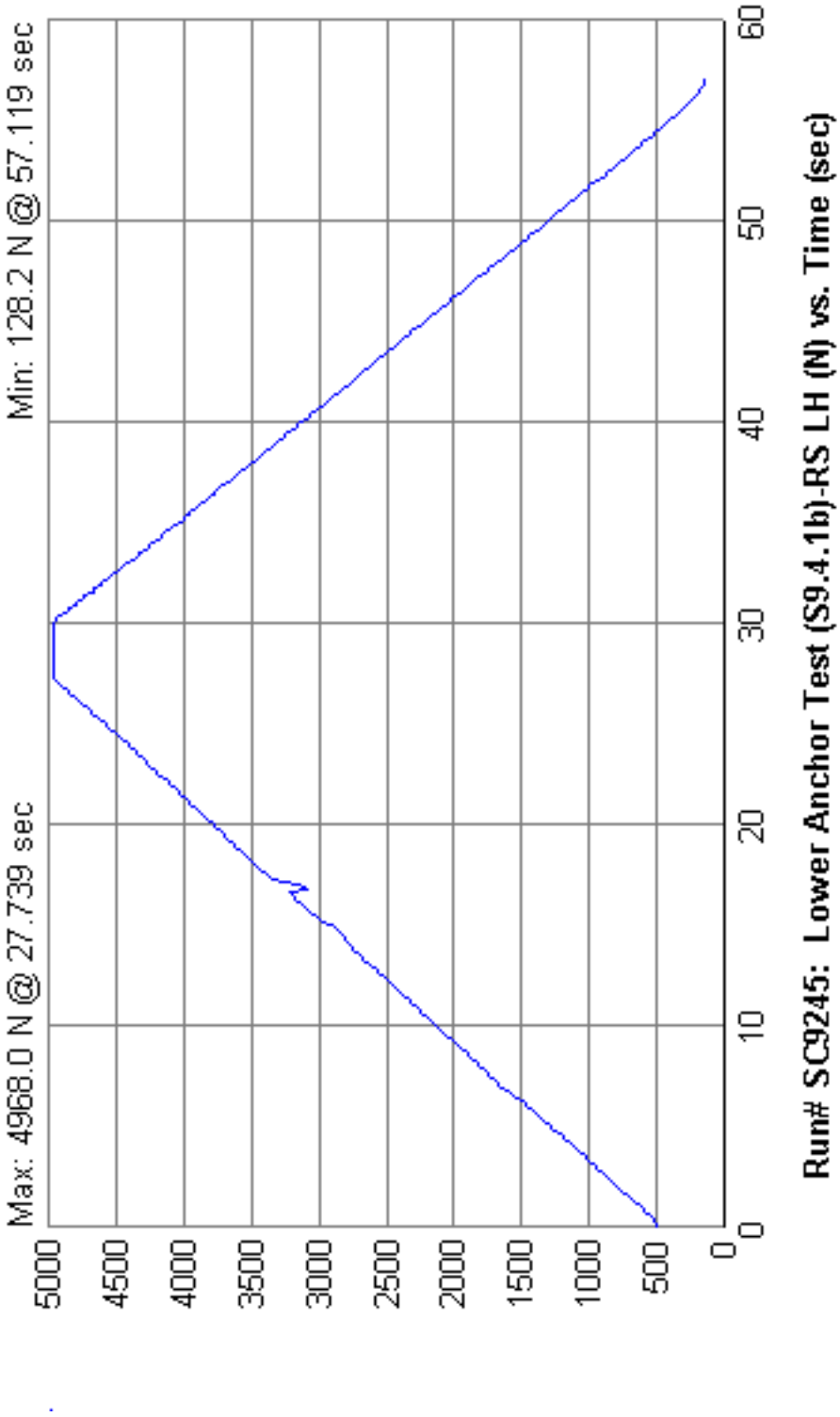


6.11.8 Post-test photo

6.11.9 Post-test photo

6.11.10 Post-test photo

7.0 PLOTS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Min: 128.2 N @ 57.119 sec
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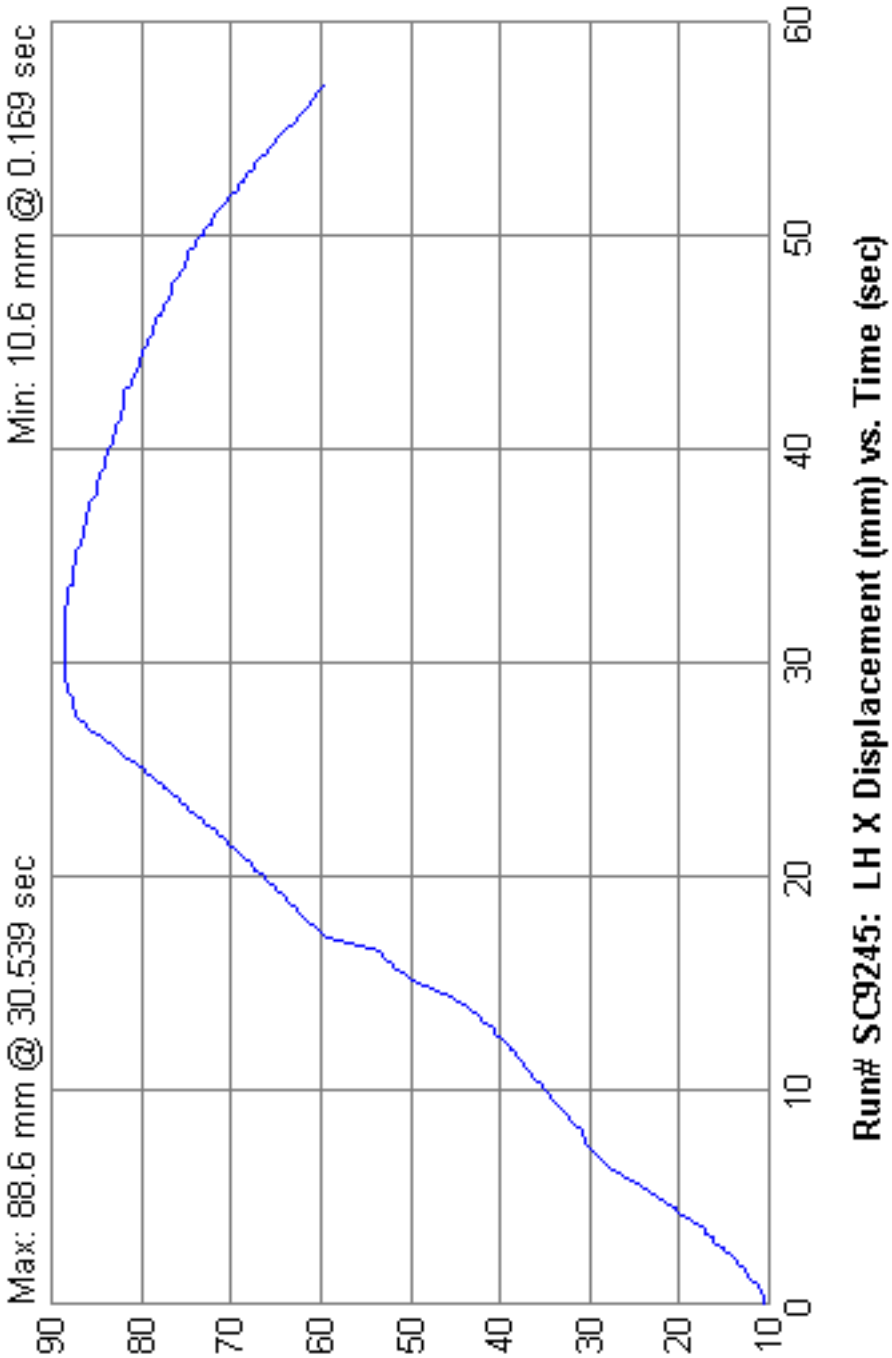
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
Run# SC9245: Lower Anchor Test (S9.4.1b)-RS LH (N) vs. Time (sec)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Min: 10.6 mm @ 0.169 sec
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70
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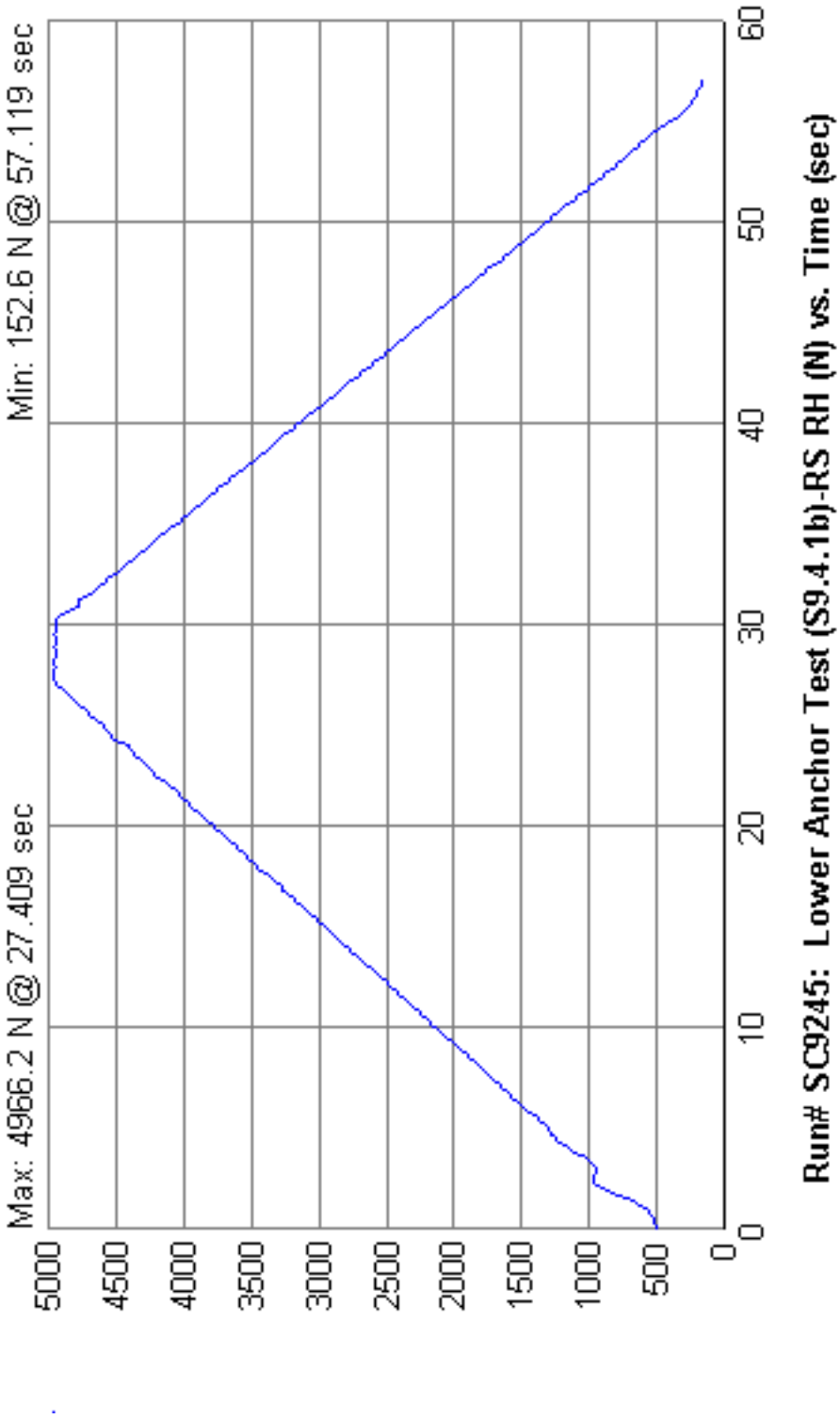
30
40
50
60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Min: 152.6 N @ 57.119 sec
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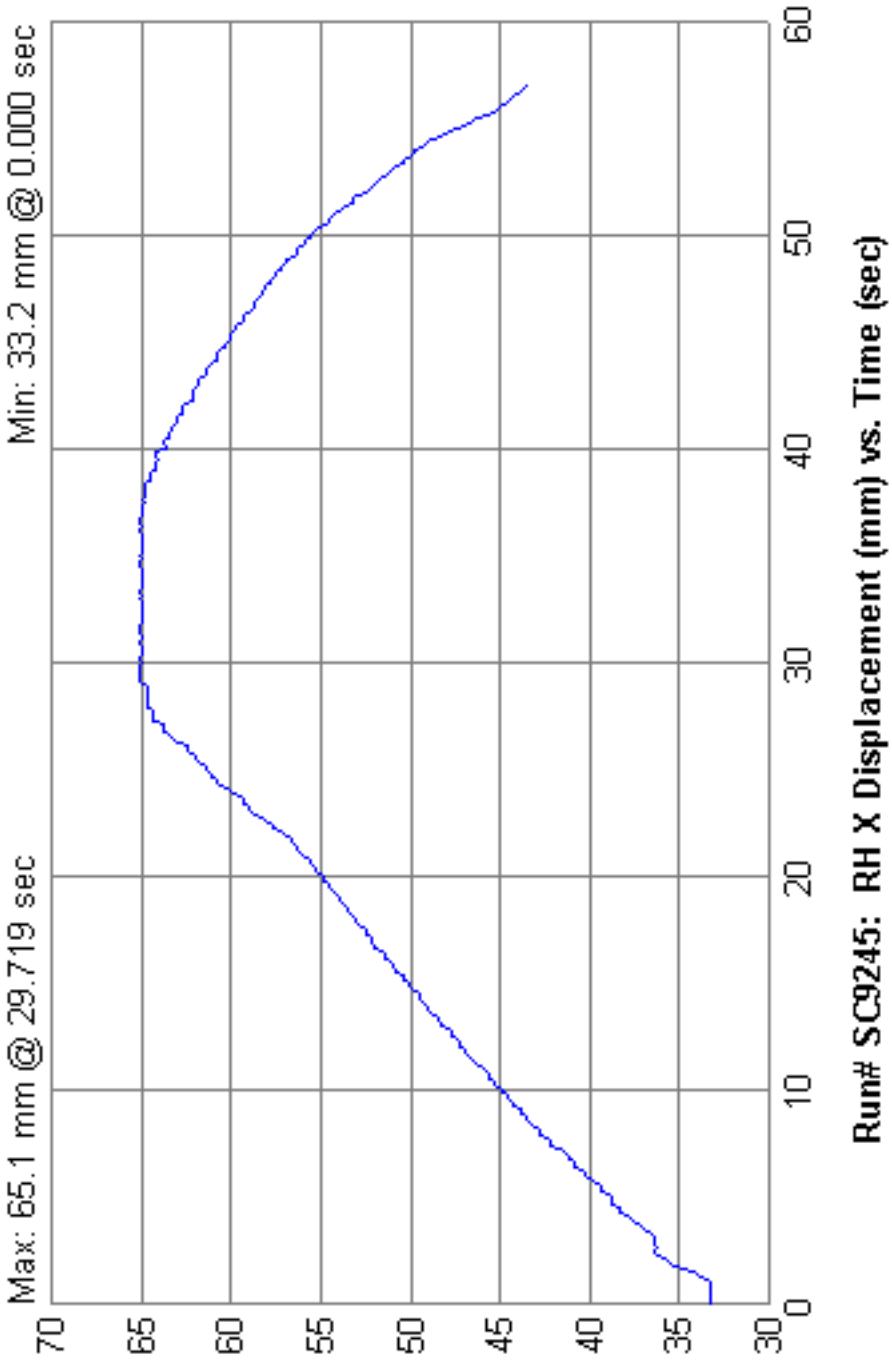
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
Run# SC9245: Lower Anchor Test (S9.4.1b)-RS RH (N) vs. Time (sec)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Max: 65.1 mm @ 29.719 sec
70
65
60
55
50
45
40
35
30
0
10
20
30
40
50
60
Run# SC9245: RH X Displacement (mm) vs. Time (sec)

8.0 REPORT OF VEHICLE CONDITION

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-06-C-00030/0006 DATE: June 24, 2009

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

To: NHTSA, OVSC, NVS-220

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

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

VEH. MOD YR/MAKE/MODEL/BODY: 2009 Jaguar XF

VEH. NHTSA NO.: C90205 VIN: SAJWA05BX9HR42140

COLOR: Black

ODOMETER READINGS: ARRIVAL 13 miles Date: 6/24/09

COMPLETION 14 miles Date: 2/26/09

PURCHASE PRICE: $49,975 DEALER'S NAME: Jaguar of Troy

ENGINE DATA: 8 Cylinders 4.2 Liters ___ Cubic Inches

TRANSMISSION DATA: X Automatic __ Manual ____ No. of Speeds

FINAL DRIVE DATA: ____Rear Drive X Front Drive ____4 Wheel Drive

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT:

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Fern Gatilao, Brad Reaume, Kenney Godfrey

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

REMARKS:

Salvage only.

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

All equipment inventoried and placed in vehicle.

Explanation for equipment removal:

Test Vehicle Condition:

Salvage only.

RECORDED BY: Fern Gatilao, Kenney Godfrey DATE: June 26, 2009

APPROVED BY: Brad Reaume

APPENDIX A
OWNERS MANUAL CHILD RESTRAINT SYSTEMS

Supplementary restraints system

AIR BAG LABELS

Air bag warning information is printed on the driver and passenger sun visors.

AIR BAG SERVICE INFORMATION

WARNINGS

Do not attempt to service, repair, replace, modify, or tamper with, any part of the SRS. This includes wiring or components in the vicinity of SRS components. Doing so may cause the system to trigger, or render the system inoperative, either of which may result in death or serious injuries.

Do not use any electrical test equipment or devices in the vicinity of SRS components or wiring. Doing so may cause the system to trigger, or render the system inoperative, either of which may result in death or serious injuries.

All of the following operations should only be carried out by a Dealer, or suitably qualified person:-

- Removal or repair of any wiring or component in the vicinity of any SRS components.
- Installation of electrical, or electronic, equipment and accessories.
- Modification to the front or sides of the vehicle exterior.
- Attachment of accessories to the front or sides of the vehicle.

In the event of the vehicle being dismantled, air bag module removal and disposal must be carried out by a qualified person.

Child safety

CHILD SEATS

WARNINGS

Do not use a child restraint on a seat with an operational air bag in front of it. There is a risk of death or serious injury when the air bag deploys.

Crash statistics show that children are safest when properly restrained in a child or infant restraint system that is secured in a rear seating position.

Do not use a forward facing child seat until the child using it is above the minimum weight of 9 kg (20 lb.) and able to sit up unaided. Up to the age of two, a child's spine and neck are not sufficiently developed to avoid injury in a frontal impact.

Do not allow a baby or infant to be held or carried on the lap. The force of a crash can increase effective body weight by as much as thirty times, making it impossible to hold onto the child.

Children typically require the use of a booster seat appropriate to their age and size, thereby enabling the seat belts to be properly fitted, reducing the risk of injury in a crash. Children could be endangered in a crash if their child restraints are not properly secured in the vehicle.

Do not use a child seat that hooks over the seat back. This type of seat cannot be satisfactorily secured and is unlikely to be safe for your child.

Child restraint systems are designed to be secured in vehicle seats by use of the lap belts or the lap belt portion of a lap-shoulder belt. Children could be endangered in a crash if their child restraints are not properly secured in the vehicle.

It is very important for all infants and children under 12 years of age to be restrained in a suitable child safety seat appropriate to their age and size.

Children are always safest when seated in a rear seating position.

If it is essential that a child travels in the front passenger seat, Jaguar recommends that the following preparations are made before fitting the child restraint.

- Adjust the front passenger seat fully rearwards.
- Adjust the lumbar support to its minimum support position.
- Adjust the seat cushion to its highest position. If cushion front tilt adjustment is possible, adjust it to its lowest position.
- Adjust the seat back to the fully upright position.
- Adjust the seat belt adjustable upper anchorage to its lowest position.
- Once the child seat is fitted and with the starter switch turned on, ensure that the air bag deactivation indicator, in the overhead console, is illuminated. This indicates that the front passenger air bag has been deactivated. See **OCCUPANT SENSING** (page 54).

In some countries, legislation prohibits children travelling in the front of a vehicle. Ensure that you are familiar with the legislation in force where the vehicle is being used and are in full compliance.

Child safety

WARNING

Do not use a rearward facing child restraint on a seat protected by an air bag in front of it. Doing so increases the risk of death or serious injury when the air bag deploys.

E79258

This symbol is affixed to the end of the facia on the passenger side. Its purpose is to warn against the use of a rear facing child seat when the front passenger air bag is fitted and operational.

Seat belt locking mechanism

The front passenger, and rear seat belts have a locking mechanism which improves the retention of child seats.

The procedure to install a child seat is as follows:

1. Place the child seat in the vehicle, attach the seat belt and secure the buckle in accordance with the manufacturer's fitting instructions.
2. Pull on the shoulder section of the belt to unreel all of the remaining webbing to the limit of its travel. This will engage the automatic locking feature, which then acts as a ratchet only allowing the webbing to retract.
3. Allow the seat belt to retract onto the child seat (a clicking sound will confirm that the ratchet has engaged), while firmly pushing the child seat into the vehicle seat.
4. Ensure that there is no slack in the seat belt by pulling upwards on the shoulder belt immediately above the child restraint. The seat belt should now be locked and the child seat held firmly in position.

When the child seat is removed and all of the seat belt webbing is allowed to retract, the seat belt locking mechanism reverts to normal operation.

Child safety

CHILD RESTRAINT POSITIONING

PROPER CHILD SAFETY SEAT USE CHART Buckle Everyone. Children Age 12 and Under in Back.			
	INFANTS	TODDLER	YOUNG CHILDREN
WEIGHT	Birth to 1 year at least 20 to 22 lb. (9 to 10 kg).	Over 1 year and Over 20 to 40 lb. (9 to 18 kg).	Ages 4 to 8, unless 4ft 9ins (145 cm). Over 40 lb. (18 kg)
TYPE of SEAT	Infant only or rear facing, convertible.	Convertible / Forward-facing.	Belt positioning booster seat.
SEAT POSITION	Rear-facing only.	Forward-facing.	Forward-facing.
ALWAYS MAKE SURE	Children to 1year and at least 20 lb. (9 kg) in rear-facing seats. Harness straps at or below shoulder level.	Harness straps should be at or above shoulders. Most seats require top slot for forward-facing.	Belt positioning booster seats must be used with both lap and shoulder belt. Make sure the lap belt fits low and tight across the lap and upper thigh area and the shoulder belt fits snug crossing the chest and shoulder to avoid abdominal injuries.
WARNING	All children age 12 and under should ride in the back seat.	All children age 12 and under should ride in the back seat.	All children age 12 and under should ride in the back seat.

When installing a child seat in the front passenger seat, the front passenger seat should be positioned fully rearwards and in its lowest position.

When installing a child seat in the rear, the front seat must be moved forward and upwards to install any rear-facing child seat.

Care must be taken not to load any part of the child seat when repositioning the front seat. The space available for front seat occupants will be reduced by the fitment of any rearward-facing child seat.

Child safety

CHILD RESTRAINT CHECK LISTS

Every time a child travels in the vehicle observe the following:-

Non-LATCH child restraints

- Carefully follow the instructions provided by the manufacturer of the restraint system.
- Always use the appropriate child restraints and adjust harnesses for every child, every trip.
- Avoid dressing a child in bulky clothing and do not place any objects between the child and the restraint system.
- Regularly check the fit of a child seat and replace seats or harnesses that show signs of wear.
- Ensure that you have removed all slack from the adult seat belt.
- No child seat is completely child-proof. Encourage a child not to play with the buckle or harness.
- Never leave a child unsupervised in the vehicle.
- Activate the rear door child safety locks. See **CHILD SAFETY LOCKS** (page 64).
- Ensure that a child does not exit the vehicle from the side where there is traffic.
- Set children a good example - always wear your seat belt.

LATCH child restraints

- Always attach the top tether when installing the LATCH seat.
- Carefully follow the instructions supplied with the child seat. Always give the LATCH seat a final pull, to ensure that the lower anchors are secure.
- Always use the appropriate child restraints and adjust the harnesses for every child, every trip.
- Make sure that a child falls into the correct weight range for the seat. Avoid dressing a child in bulky clothing and do not place any objects between the child and the restraint system.
- Regularly check the fit of a child seat and replace seats and harnesses that show signs of wear.
- No child seat is completely child-proof. Encourage children not to play with the buckle or harness.
- Never leave a child unsupervised in the vehicle.
- Activate the rear door child safety locks. See **CHILD SAFETY LOCKS** (page 64).
- Ensure that a child does not exit the vehicle from the side where there is traffic.
- Set children a good example - always wear your seat belt.

BOOSTER CUSHIONS

In a situation where a child is too large to fit into a child safety seat, but is still too small to safely fit the three point belt properly, a booster seat is recommended for maximum safety. Follow the manufacturer's instructions for fitting and use, then adjust the seat belt to suit.

Child safety

LATCH ANCHOR POINTS

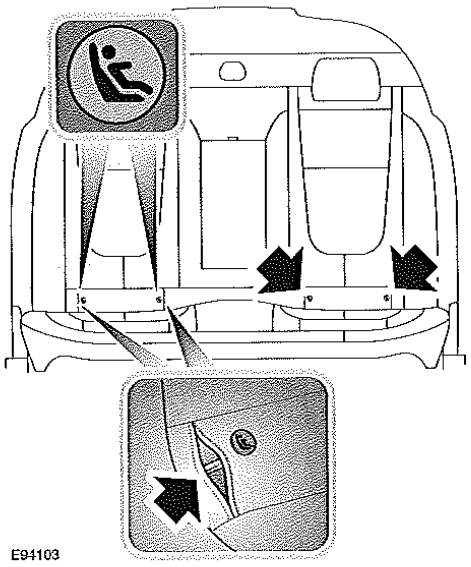
WARNINGS

Do not attempt to fit LATCH restraints to the center seating position. The anchor bars are not designed to hold a LATCH restraint in this position.

If the restraint is not correctly anchored, there is a significant risk of injury to the child in the event of a collision or emergency braking.

Child restraint anchorages are designed to withstand only loads imposed by correctly fitted child restraints. Under no circumstances are they to be used for adult seat belts, harnesses, or for attaching other items or equipment to the vehicle.

If removing a head restraint in order to fit a child restraint, always secure the head restraint when storing it. If left loose in the vehicle it may cause death or serious injury during sudden braking or an impact.

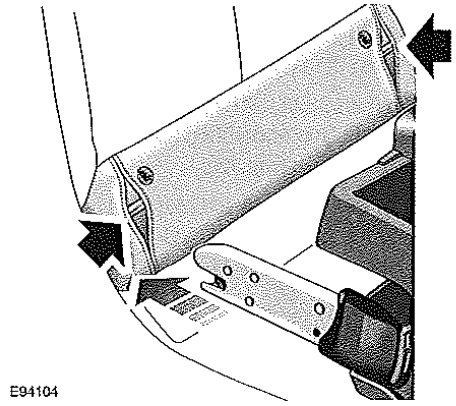


Both of the outer seat positions on the rear seat are equipped to accept LATCH restraints.

This symbol is shown on a label sewn into the seats to indicate the position of the LATCH lower anchorages.

Child safety

Installing a LATCH child restraint

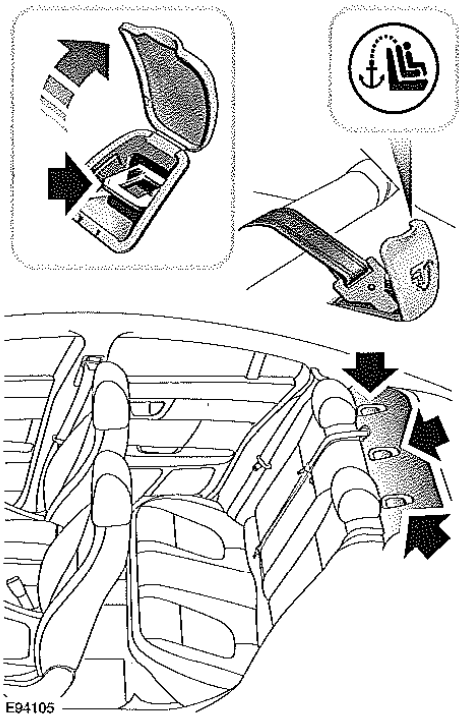


To install an LATCH restraint:-

1. Raise or remove the head restraint.
2. Lift the velcro flap to expose the LATCH locking mechanism.
3. Slide the child seat into the locking mechanism.
4. Test the security of the child restraint. To do this attempt to pull the restraint away from the vehicle seat and twist the restraint from side to side. Even if the restraint appears secure you should still check the anchor points visually to ensure correct attachment.

Note: *Always ensure that if an upper tether is provided, it is fitted and tightened correctly.*

User ready tether anchorages



WARNINGS

Child restraint anchorages are designed to withstand only those loads imposed by correctly fitted child restraints. Under no circumstances are they to be used for adult seat belts, harnesses or for attaching other equipment or items to the vehicle.

Always follow the child seat or restraint system manufacturer's instructions when fitting tether straps.

Child safety

WARNINGS

When fitting a child seat or restraint system, always pass the tether strap over the top of the seat back and beneath the underside of the head restraint.

If a child seat or restraint system is to be fitted to the center seating position, the center armrest must be in the stowed position (folded into the seat).

Attaching tether straps:-

1. Install the child restraint securely in one of the rear seating positions.
2. Pass the tether strap over the back of the vehicle seat and beneath the underside of the head restraint.
3. Attach the clip on the head of the tether strap to the tether anchor on the back of the vehicle seat.

   Ensure that the tether strap hook is facing the correct way. See illustration.
4. Tighten the tether strap according to the manufacturer's instructions to remove any slack in the webbing.

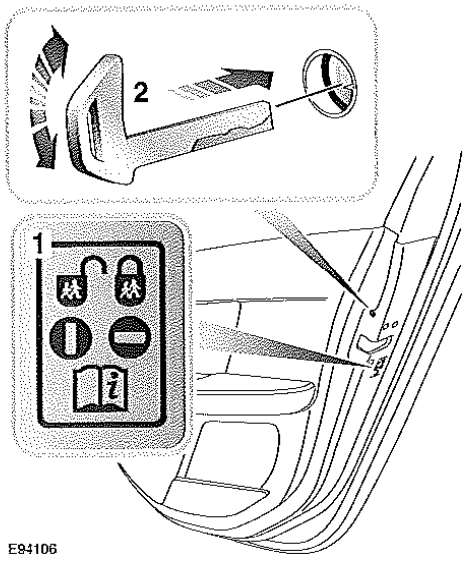
Note: *A tether anchorage is provided for the center seat position, but should only be used where LATCH child restraints are unavailable.*

CHILD SAFETY LOCKS

Child safety locks are fitted to the rear doors to allow you to prevent accidental opening of the doors when the vehicle is in motion.

If children are to be carried in the rear seat positions, it is recommended that the rear door interior handles are disabled.

Note: *For convenience, the rear door interior handles should be re-enabled when carrying adult passengers in the rear seat positions.*



To change the child lock settings:-

1. Open the door to access the child safety lock.
2. Insert the emergency key into the slot and rotate a quarter of a turn, to enable or disable the interior door handle, as required.

APPENDIX B
MANUFACTURER'S DATA (OVSC FORM 14)

FORM – 225
Rev. 10/10/08

SEAT REFERENCE POINT (SRP) AND TORSO ANGLE DATA

FMVSS No. 225

(All dimensions in mm[1])

MODEL YEAR: 2009 / MAKE: JAGUAR / MODEL: XF / BODY STYLE: 4-dr PASS CAR

SEAT STYLE: FRONT ROW: ELEC SPORTS BUCKET/ SECOND ROW: 60/40 SPLIT FOLDING / 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		**210.5**	**N/A**	**210.5**
A2		**52.8**	**103.8**	**52.8**
A3		**N/A**	**N/A**	**N/A**
B		**221.6**	**N/A**	**221.6**
C		**1071.6**	**1050.6**	**1071.6**
D		**N/A**	**N/A**	**N/A**
Torso Angle (degree)	Front Row	**25 deg**	**N/A**	**25 deg**
	Second Row	**27 deg**	**27 deg**	**27 deg**
	Third Row	**N/A**	**N/A**	**N/A**

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

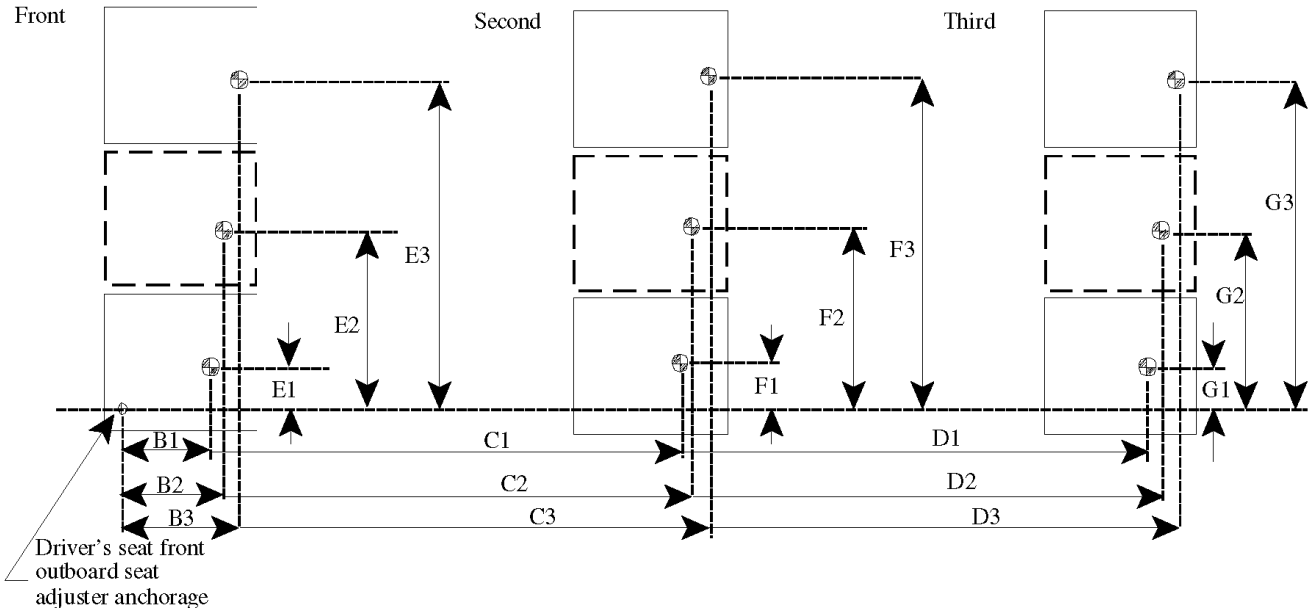
FORM – 225

SEATING REFERENCE POINT

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2009 / MAKE: JAGUAR / MODEL: XF / BODY STYLE: 4-dr PASS CAR

SEAT STYLE: FRONT ROW: ELEC SPORTS BUCKET/ SECOND ROW: 60/40 SPLIT FOLDING / THIRD ROW: N/A



FORM – 225

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Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage[1]
Front Row	B1	**221.6**
	E1	**223**
	B2	**N/A**
	E2	**N/A**
	B3	**221.6**
	E3	**983**
Second Row	C1	**1071.6**
	F1	**243**
	C2	**1050.6**
	F2	**603**
	C3	**1071.6**
	F3	**963**
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.

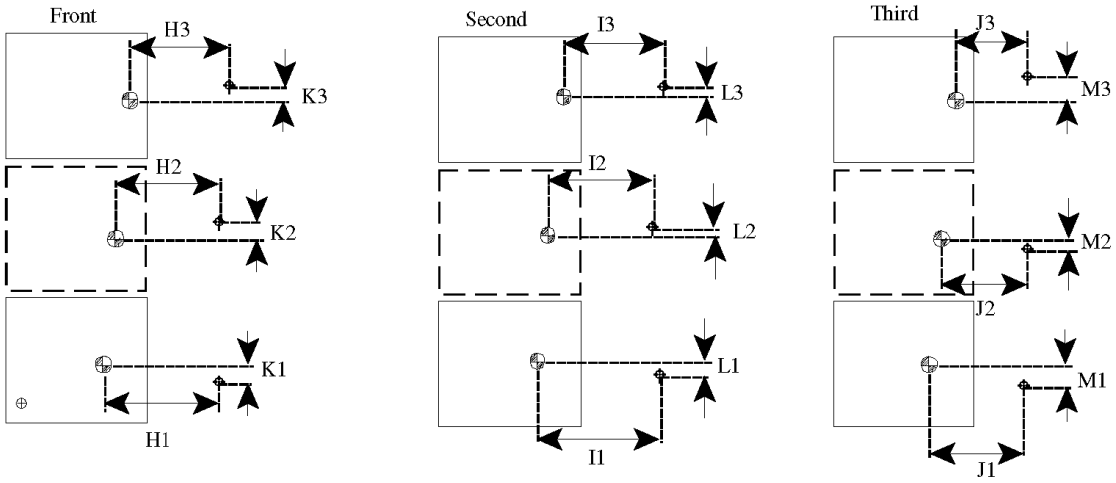
FORM – 225

TETHER ANCHORAGE LOCATIONS

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2009 / MAKE: JAGUAR / MODEL: XF / BODY STYLE: 4-dr PASS CAR

SEAT STYLE: FRONT ROW: ELEC SPORTS BUCKET/ SECOND ROW: 60/40 SPLIT FOLDING / THIRD ROW: N/A



⊕: SRP
⊕: Tether anchorage

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

FORM – 225

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Table 3. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)	Distance from SRP	
Front Row	H1	**N/A**
	K1	**N/A**
	H2	**N/A**
	K2	**N/A**
	H3	**N/A**
	K3	**N/A**
Second Row	I1	**545.7**
	L1	**10**
	I2	**566.7**
	L2	**0**
	I3	**545.7**
	L3	**10**
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.

FORM – 225

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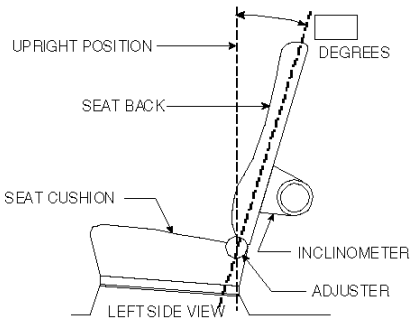
NOMINAL DESIGN RIDING POSITION

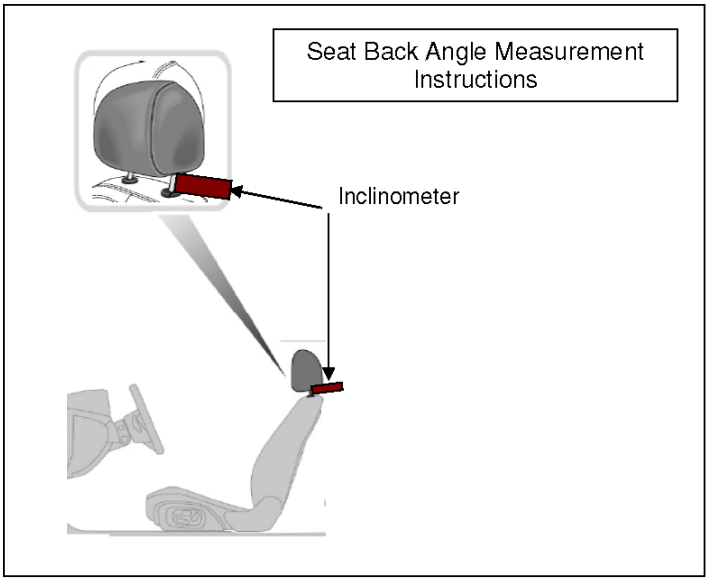
For adjustable driver, passenger, 2nd row and 3rd row seat backs, describe how to position the inclinometer to measure the seat back angle. Include a description of the location of the seat back adjustment latch detent if applicable. Indicate if applicable, how the detents are numbered (Is the first 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 = __25__ degrees.

Measurement Instructions:

In its nominal design riding position and with the J826 manikin dummy in the seat, the angle of the seat back is 25 deg. The seat back angle can be measured at the head restraint post as shown below where the corresponding angle will be 10.6 deg.



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Seat back angle for passenger's seat = __25__ degrees.

Measurement Instructions:

Same as driver's seat.

Seat back angle for 2nd row seat = __27__ degrees.

Measurement Instructions:

The seat back angle for 2nd row seat is not adjustable.

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

Measurement Instructions:

N/A

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TETHER ANCHORAGE LOCATIONS - VERTICAL

FMVSS No. 225
(All dimensions in mm)

MODEL YEAR: 2009 / MAKE: JAGUAR / MODEL: XF / BODY STYLE: 4-dr PASS CAR

SEAT STYLE: FRONT ROW: ELEC SPORTS BUCKET/ SECOND ROW: 60/40 SPLIT FOLDING / THIRD ROW: N/A

LEFT SIDE VIEW OF TEST VEHICLE

FORM – 225

Table 4. Vertical Dimension For The Tether Anchorage

Seating Row	Vertical Distance from Seating Reference Point	
Front Row	N1 (Driver)	**N/A**
	N2 (Center)	**N/A**
	N3 (Right)	**N/A**
Second Row	O1 (Left)	**567**
	O2 (Center)	**516**
	O3 (Right)	**567**
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?
   Answer: Five.

2. How many designated seating positions are equipped with lower anchorages and tether anchorages? Specify which position(s).
   Answer: Two; Second Row Left and Right.

3. How many designated seating positions are equipped with tether anchorages? Specify which positions(s).
   Answer: Three; Second Row Left, Centre and Right.

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

FORM – 225