#### FINAL REPORT NUMBER 225-MGA-06-008

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

## AUDI AG 2006 AUDI A3 NHTSA No. C65801

# MGA RESEARCH CORPORATION 446 Executive Drive Troy, Michigan 48083



Test Date: September 20, 2006 Report Date: December 7, 2006

## FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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#### 15. Supplementary Notes

#### 16. Abstract

A compliance test was conducted on the subject 2006 Audi A3, NHTSA No. C65801, 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 tests were conducted at MGA Research Corporation in Troy, Michigan on September 20, 2006. Test failures identified were as follows:

#### **NONE**

The data recorded indicates that the 2006 Audi A3 tested appears to meet the requirements of FMVSS 225.

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#### 1.0 PURPOSE AND PROCEDURE

#### **PURPOSE**

The child restraint anchorage testing results presented in this report are part of the Federal Motor Vehicle Safety Standard (FMVSS) No. 225 compliance test program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-02-D-11043. The purpose of the testing was to determine if the subject vehicle, a 2006 Audi A3, NHTSA No. C65801 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 front occupant compartment consisted of two (2) adjustable outboard bucket seats and the rear occupant compartment consisted of a 2<sup>nd</sup> row 60/40 split-back bench seat. Each 2<sup>nd</sup> row outboard seating position was equipped with a child restraint anchorage system (one tether and two lower anchorages). The 2<sup>nd</sup> row center seating position was equipped with a tether anchorage. The center-to-center spacing between the 2<sup>nd</sup> row outboard lower anchorages was approximately 700 mm. Each 2<sup>nd</sup> row outboard seating position was tested with the SFADII fixture and the 2<sup>nd</sup> row center seating position was tested with the SFADI fixture.

#### 2.0 COMPLIANCE TEST AND DATA SUMMARY

#### **TEST SUMMARY**

The testing was conducted at MGA in Troy, Michigan on September 20, 2006.

Based on the test results, the 2006 Audi A3 appears to meet the requirements of FMVSS No. 225 for this testing.

The SFADII at the  $2^{nd}$  row left seating position sustained a maximum force of 11,112 N and held the required load for 3 seconds. The total displacement from point "X" on the SFADII for the  $2^{nd}$  row left seating position was 44 mm. The SFADII at the  $2^{nd}$  row right seating position sustained a maximum force of 15,271 N and held the required load for 3 seconds. The SFADI at the  $2^{nd}$  row center seating position sustained a maximum force of 15,274 N and held the required load for 2 seconds.

#### **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	Fixture	Test	Seating	Max. Load	Displacement
Test #	Type	Configuration	Position	( <b>N</b> )	(mm)
SB6426	SFADII	Forward	2 <sup>nd</sup> Row Left	11,112	44
3D0420	SFADII	Forward w/Tether	2 <sup>nd</sup> Row Right	15,271	N/A
SB6427	SFADI	Forward	2 <sup>nd</sup> Row Center	15,274	N/A

N/A indicates that the displacement criteria does not apply to this test.

#### 3.0 TEST VEHICLE INFORMATION

Table 2. General Test and Vehicle Parameter Data

VEH. MOD YR/MAKE/MODEL/BODY	2006 Audi A3
VEH. NHTSA NO.	C65801
VIN	WAUHF78P86A003773
COLOR	Brilliant Red
VEH. BUILD DATE	05/2005
TEST DATE	September 20, 2006
TEST LABORATORY	MGA Research Corporation
OBSERVERS	Melanie Schick, Brad Reaume, Kenney Godfrey

#### GENERAL INFORMATION:

#### DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Audi AG

Date of Manufacture: <u>05/05</u>; VIN: <u>WAUHF78P86A003773</u>

GVWR: <u>4409 lbs</u>; GAWR FRONT: <u>2348 lbs</u>

GAWR REAR: 2216 lbs

#### DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 39 psi REAR: 35 psi

Recommended Tire Size: P225/45R17

Recommended Cold Tire Pressure:

FRONT: 39 psi REAR: 35 psi

Size of Tire on Test Vehicle: P225/45R17

Size of Spare Tire: T125/70R18

#### **VEHICLE CAPACITY DATA:**

Type of Front Seats: Bench \_\_\_\_; Bucket X ; Split Bench \_\_\_\_

Number of Occupants: Front  $\underline{2}$ ; Middle  $\underline{N/A}$ ; Rear  $\underline{3}$ ; TOTAL  $\underline{5}$ .

## 4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

MGA Research Corporation 446 Executive Drive Troy, Michigan 48083				
<b>Test Equipment Used for Testing</b>	Calibration Due Date			
MGA Hydraulic Test Frame	N/A			
Two (2) Load Cell 10,000 lb Capability	S/N 662 (12/20/06), S/N 304 (12/20/06)			
String Potentiometer	Calibrated at each use (S/N F1603960A)			
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	S/N TPM027 (08/14/07)			
MGA Data Acquisition System	N/A			
Digital Calipers	S/N MGA00074 (07/07/07)			
Force Gauge	S/N MGA00647 (05/26/07)			
Inclinometer (Digital)	S/N MGA00050 (10/18/06)			

## 5.0 DATA

Table 3. Child Restraint Tether Anchorage Configuration

Seatii Positi	_	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 F	Row	N/A	N/A	N/A	N/A
G 1	LH	Yes	Yes	Yes	Yes
Second Row	Ctr.	Yes	Yes	Yes	Yes
Row	RH	Yes	Yes	Yes	Yes
Third F	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 POS	SITION	
		FRONT			THIRD
		ROW	I/B	O/B	ROW
Above anchorage, permanently marked with a circle not less than 13 mm in Dia.; and whose color contrasts with its background; and its	LH		N/A	N/A	
center is not less than 50 mm and not more than 100 mm above the	Ctr	N/A	N	/A	N/A
bar, and in the vertical longitudinal plane that passes through the center of the bar.	RH		N/A	N/A	
Each of the bars is visible, without the compression of the seat cushion or seat back, when the bar is viewed, in a vertical	LH		Y	es	
longitudinal plane passing through the center of the bar, along a line	Ctr	N/A	N	ī/A	N/A
marking an upward 30 degree angle with a horizontal plane.	RH		Y	es	
Diameter of the bar (mm)	LH		5.99	6.00	
	Ctr	N/A	N/A		N/A
	RH		5.97	5.95	
Inspect if the bars are straight, horizontal and transverse	LH		Yes		
		N/A	N/A N/A		N/A
	RH		Yes		
Optional Marking: At least one anchorage bar (when deployed for	LH		N/A		
use, if storable anchorages), one guidance fixture, or one seat marking is visible.	Ctr	N/A			N/A
	RH				
Optional Marking: If guidance fixtures are used, the fixture(s) must be installed.	LH				
be instaned.	Ctr	N/A	N/A		N/A
	RH				
Measure the distance between Point "Z" of the CRF and the front	LH	49		19	
surface of the anchorage bar (mm)		N/A	N/A		N/A
	RH		48		
Measure the distance between the SRP to the front surface of the	LH		166	166	
anchorage bar (mm)	Ctr	N/A	N/A		N/A
	RH		168	168	

Table 4. Child Restraint Lower Anchorage Configuration (continued)

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

#### PITCH, YAW, & ROLL INFORMATION

SEAT POSITION	PITCH (deg)	YAW (deg)	ROLL (deg)
2 <sup>nd</sup> Row Left	12.4	No Data	0.1
2 <sup>nd</sup> Row Center	N/A	N/A	N/A
2 <sup>nd</sup> Row Right	12.4	No Data	0.5

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

Note: AS DETERMINED USING THE PROCEDURES SPECIFIED IN <u>TP-225-01</u>.

**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	Angle	Initial	Onset	Force	Max.	Final	Horiz.
		Seat	Seat Back	Is There a H/R?	SFAD Used	(deg)	Location (mm)	Rate (N/sec.)	Applied (N)	Load (N)	Location (mm)	Displ. (mm)
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	Yes	II	10	24	387	11,000	11,112*	68	44
	Ctr.	Fixed		Yes	I	10	N/A	535	15,000	15,271*	N/A	N/A
	RH			Yes	II	10	N/A	535	15,000	15,274*	N/A	N/A
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 <u>TP-225-01</u>.

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

## 6.0 PHOTOGRAPHS

6.1 Front view



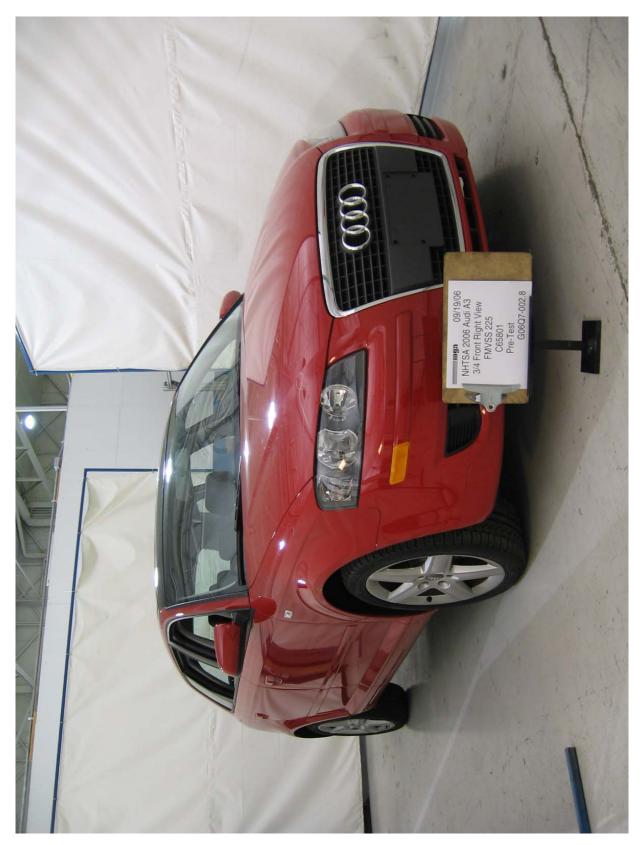
## 6.2 Rear view



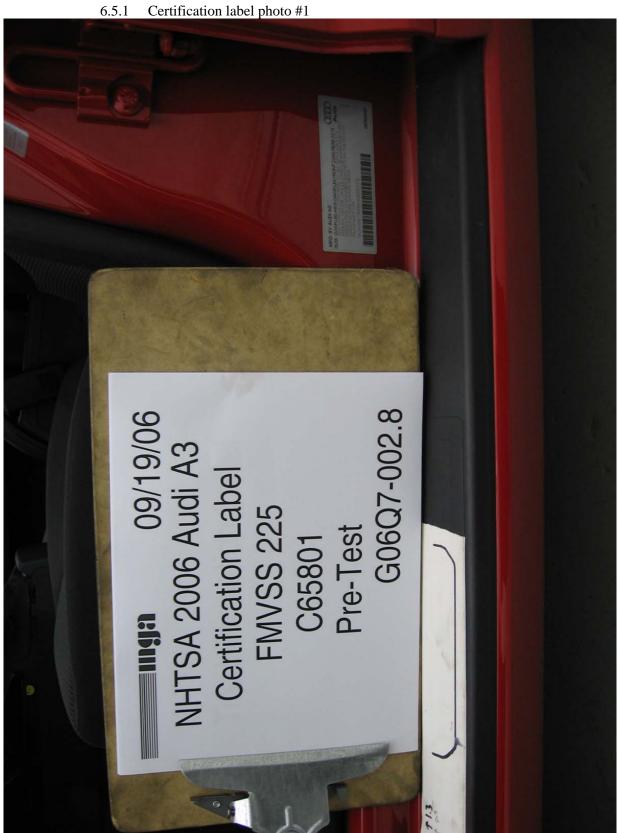
## 6.3 <sup>3</sup>/<sub>4</sub> Front left view



## 6.4 3/4 Front right view



6.5 Test vehicle's certification label



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 Left front



6.6.3 Left rear



6.6.4 Right front



6.6.5 Right rear



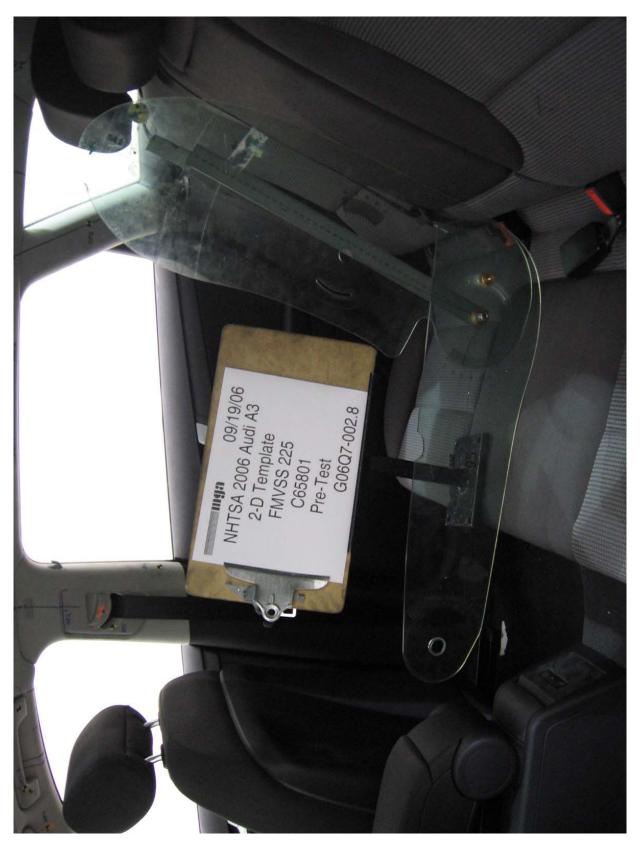
6.7 2-dimensional template



## 6.7.2 LH position photo #2



6.7.3 Center position photo #1



6.7.4 Center position photo #2



## 6.7.5 RH position photo #1



6.7.6 RH position photo #2



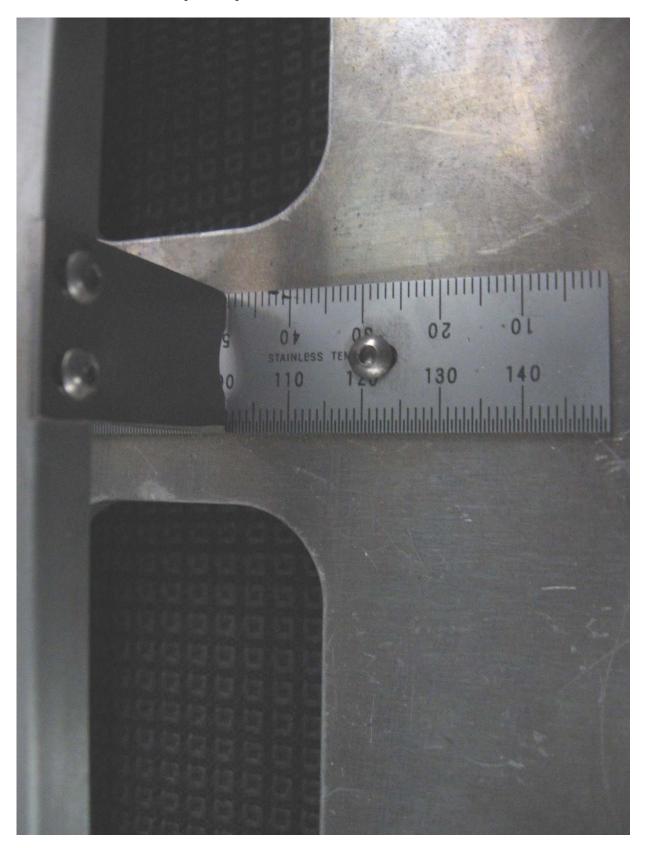
6.8 CRF verification



6.8.2 LH position photo #2



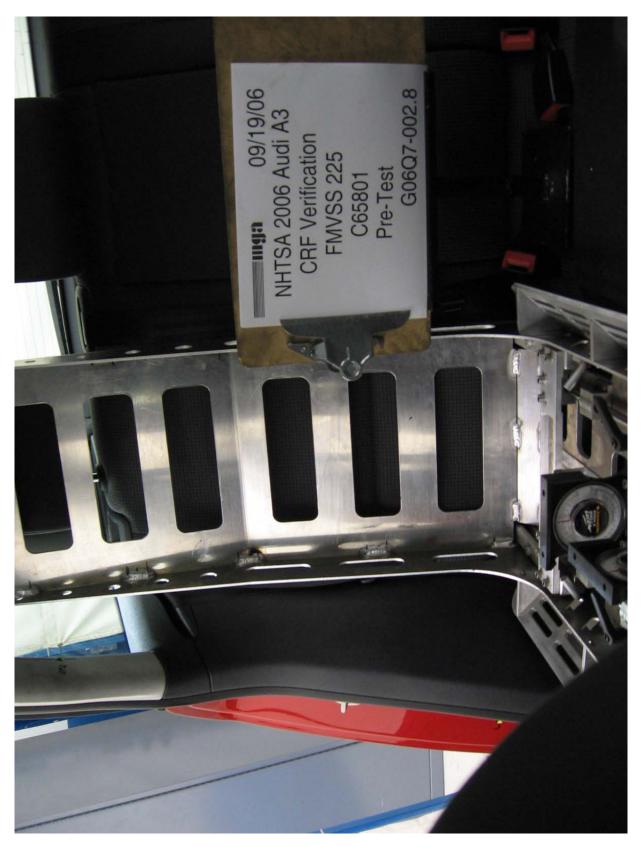
6.8.3 LH position photo #3



6.8.4 RH position photo #1



6.8.5 RH position photo #2



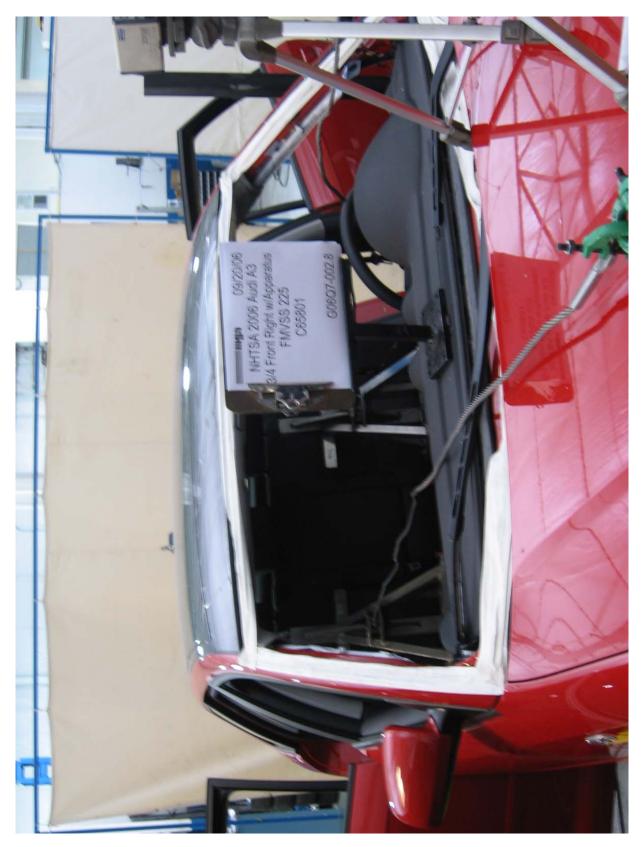
6.8.6 RH position photo #3



6.9 3/4 Front view of test vehicle with test apparatus in place 6.9.1 3/4 Front left view of SFADII test 1 of 2



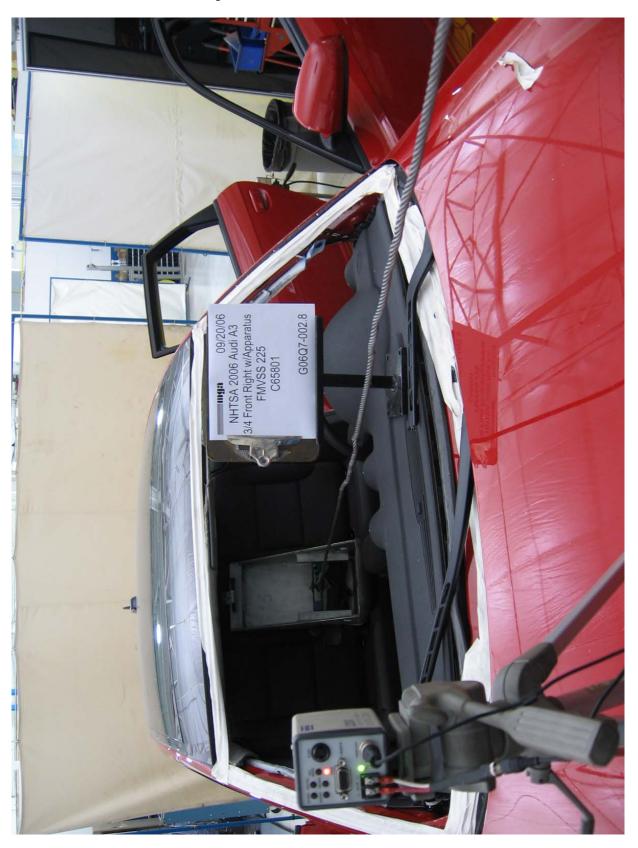
6.9.2  $^{3}$ 4 Front right view of SFADII test 1 of 2



6.9.3 3/4 Front left view of SFADI test 2 of 2



6.9.4 <sup>3</sup>/<sub>4</sub> Front right view of SFADI test 2 of 2



6.10 Pre-test views of each child restraint anchorage system installed in the vehicle 6.10.1 Pre-test photo #1 of SFADII test 1 of 2



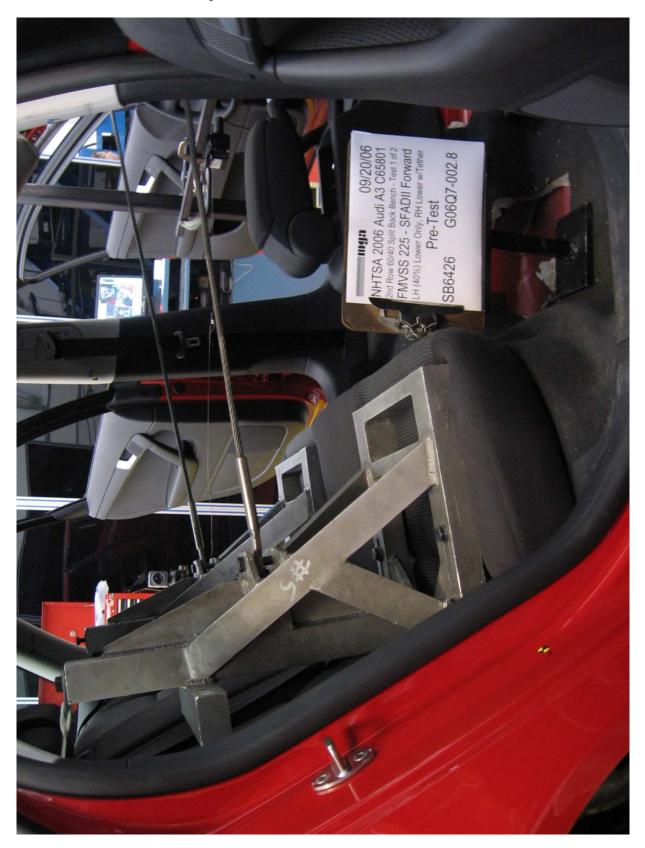
6.10.2 Pre-test photo #2 of SFADII test 1 of 2



6.10.3 Pre-test photo #3 of SFADII test 1 of 2



6.10.4 Pre-test photo #4 of SFADII test 1 of 2



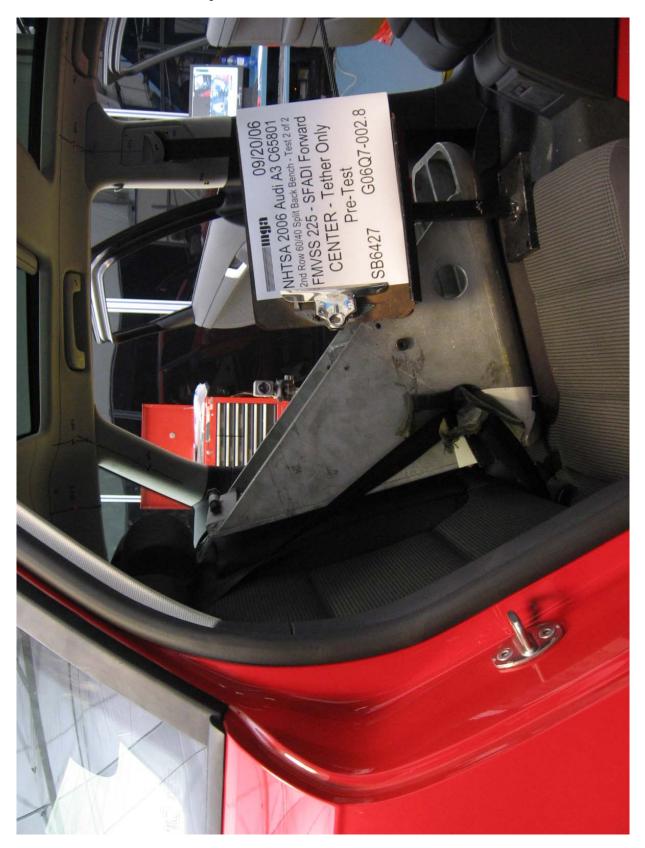
6.10.5 Pre-test photo #5 of SFADII test 1 of 2



6.10.6 Pre-test photo #6 of SFADI test 2 of 2



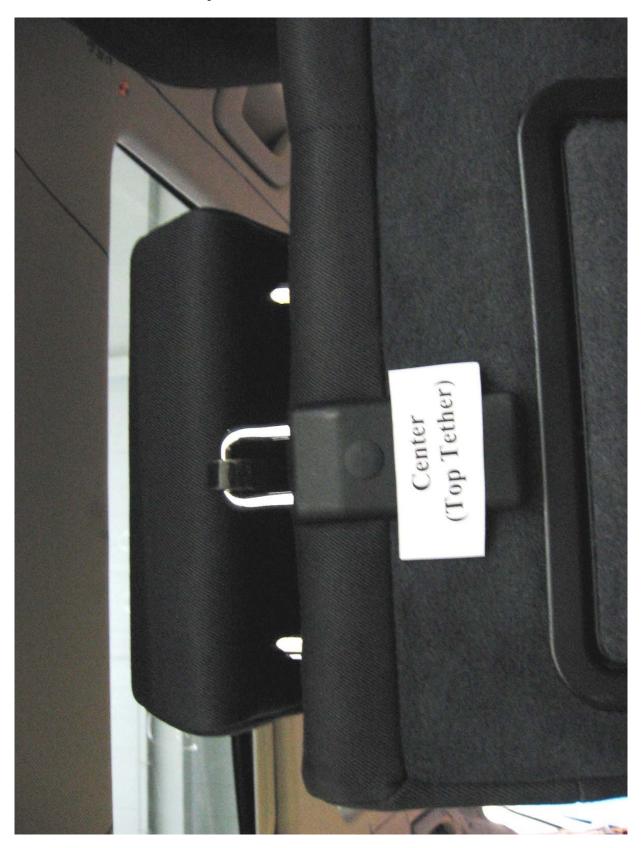
6.10.7 Pre-test photo #7 of SFADI test 2 of 2



6.10.8 Pre-test photo #8 of SFADI test 2 of 2



6.10.9 Pre-test photo #9 of SFADI test 2 of 2



6.11 Post-test condition of each child restraint anchorage system 6.11.1 Post-test photo #1 of SFADII test 1 of 2



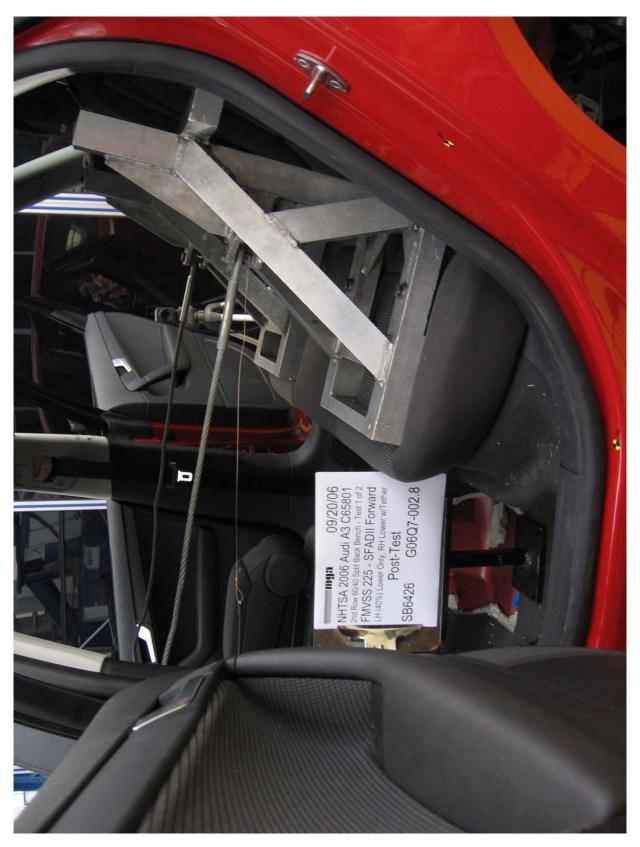
6.11.2 Post-test photo #2 of SFADII test 1 of 2



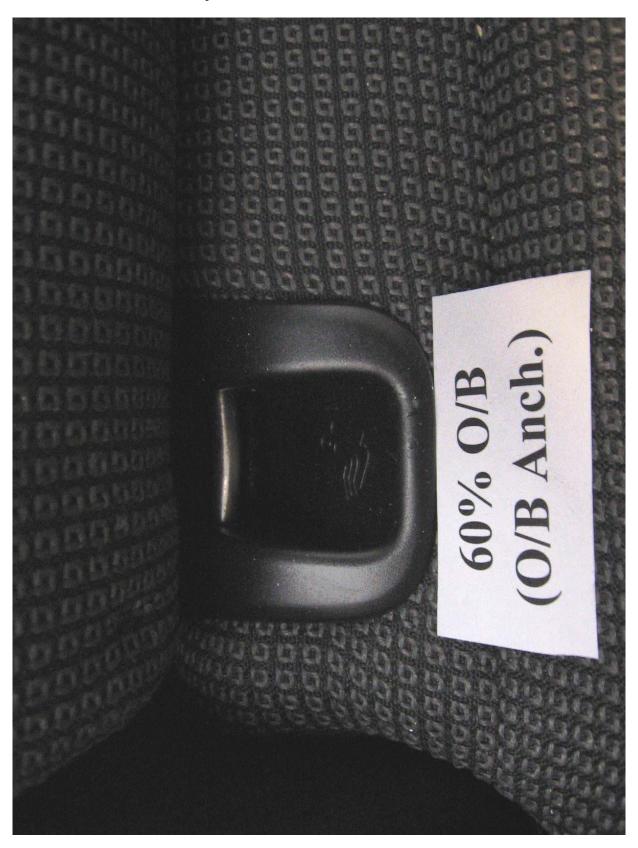
6.11.3 Post-test photo #3 of SFADII test 1 of 2



6.11.4 Post-test photo #4 of SFADII test 1 of 2



6.11.5 Post-test photo #5 of SFADII test 1 of 2



6.11.6 Post-test photo #6 of SFADII test 1 of 2



6.11.7 Post-test photo #7 of SFADII test 1 of 2



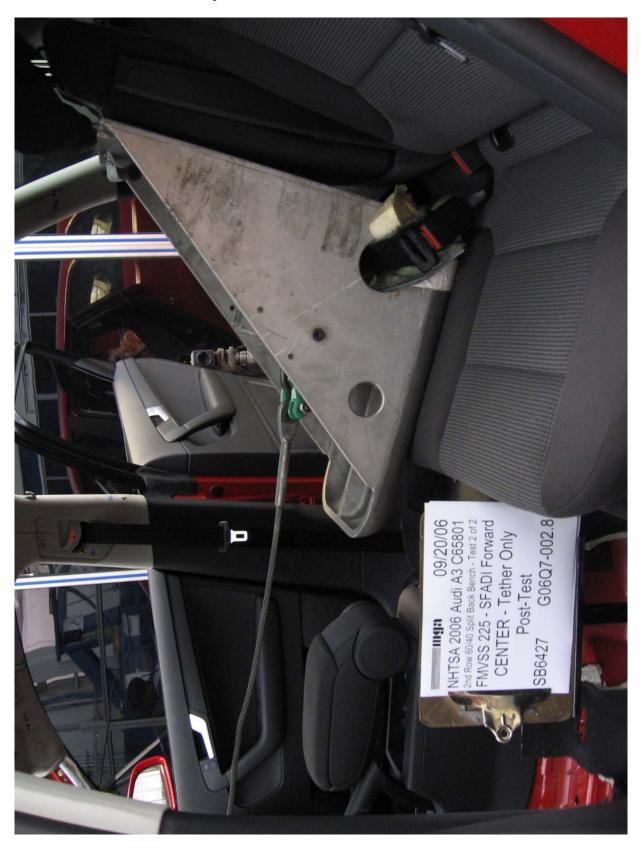
6.11.8 Post-test photo #8 of SFADII test 1 of 2



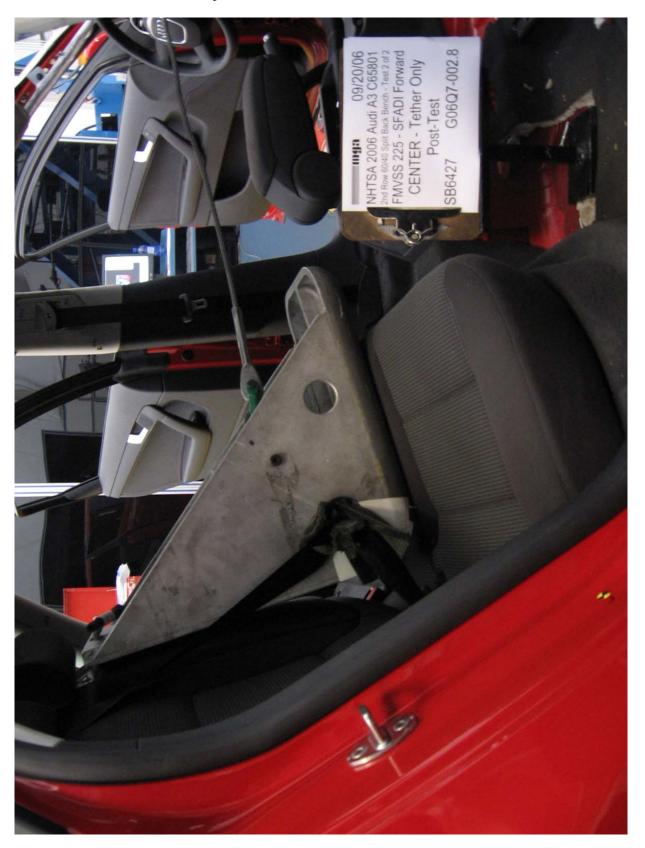
6.11.9 Post-test photo #9 of SFADII test 1 of 2



6.11.10 Post-test photo #10 of SFADI test 2 of 2



6.11.11 Post-test photo #11 of SFADI test 2 of 2



6.11.12 Post-test photo #12 of SFADI test 2 of 2



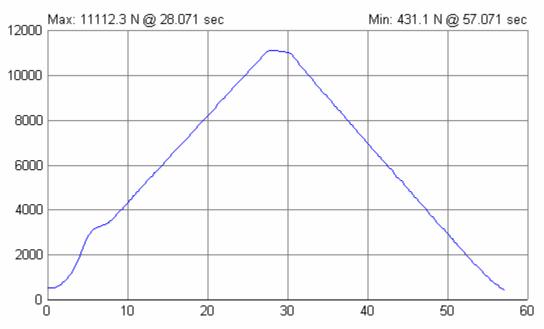
6.11.13 Post-test photo #13 of SFADI test 2 of 2



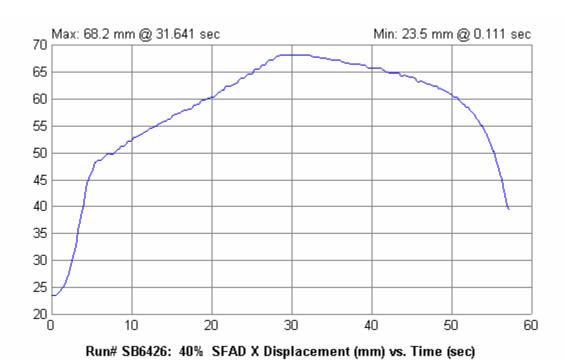
6.11.14 Post-test photo #14 of SFADI test 2 of 2



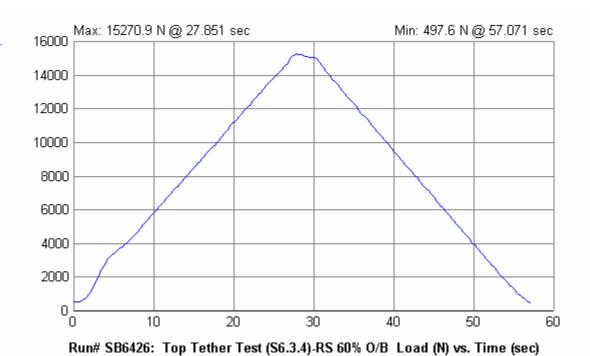
## 7.0 PLOTS



Run# SB6426: Lower Anchor Test (S9.4.1)-RS 40% Load (N) vs. Time (sec)



MGA File #: G06Q7-002.8



Max: 15273.7 N @ 28.339 sec Min: 439.3 N @ 57.119 sec Run# SB6427: Top Tether Test (S6.3.4)-RS Center Load (N) vs. Time (sec)

#### 8.0 REPORT of VEHICLE CONDITION

#### REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT No.: DTNH22-02-D-11043 DATE: September 20, 2006

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. 201U and 225

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

VEH. MOD YR/MAKE/MODI	EL/BODY: 2006 Audi A	<u>3</u>					
VEH. NHTSA NO.: <u>C65801</u>	VIN: WAHUF7	78P86A003773					
COLOR: Brilliant Red							
ODOMETER READINGS:	ARRIVAL	64 miles	Date: <u>05/11/06</u>				
	COMPLETION	<u>66</u> miles	Date: <u>09/20/06</u>				
PURCHASE PRICE: \$25,829	DEALER'S NAME: Su	ıburban Collecti	<u>on</u>				
ENGINE DATA:	4 Cylinders	<u>2.0</u> Liters	Cubic Inches				
TRANSMISSION DATA:	Automatic	X Manual	No. of Speeds <u>6</u>				
FINAL DRIVE DATA:	Rear Drive	X Front Dr	rive4 Wheel Drive				
CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT:							

TEST LABORATORY: MGA Research Corporation

OBSERVERS: Melanie Schick, Brad Reaume, Kenney Godfrey

X	Air Conditioning	X	Traction Control	X	Clock
	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		Sun Roof or T-Top	X	Passenger Air Bag
	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

Safety Compliance Testing For FMVSS	225
"Child Restraint Anchorage Systems"	

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#### **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:**

Windshield and front seats were removed before conducting the testing.

#### **Test Vehicle Condition:**

Salvage only.

RECORDED BY: Melanie Schick, Kenney Godfrey

DATE: September 20, 2006

APPROVED BY: Brad Reaume

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# APPENDIX A OWNERS MANUAL CHILD RESTRAINT SYSTEMS

Child Safety

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## **Child Safety**

#### Important things to know

#### Introduction

The rear seat is generally the safest place in a collision.

The physical principles of what happens when your vehicle is in a crash apply also to children ⇒ page 196, "What happens to occupants not wearing safety belts?". But unlike adults and tenagers, their muscles and bones are not fully developed. In many respects children are at greater risk of serious injury in crashes than adults.

Because children's bodies are not fully developed, they require restraint systems especially designed for their size, weight, and body structure. Many countries and all states of the United States and provinces of Canada have laws requiring the use of approved child restraint systems for infants and small children.

In a frontal crash at a speed of 20-35 mph (30-56 km/h) the forces acting on a 13-pound (6 kg) infant will be more than 20 times the weight of the child. This means the weight of the child would suddenly be more than 260 pounds (120 kg). Under these conditions, only an appropriate child restraint properly used can reduce the risk of serious injury. Child restraints, like adult safety belts, must be used properly to be effective. Used improperly, they can increase the risk of serious injury in an accident.

Consult the child seat manufacturer's instructions to be sure the seat is right for your child's size  $\Rightarrow$  page 234, "Important safety instructions for using child seats". Please be sure to read and heed all of the important information and WARNINGS about child safety, Advanced Airbags, and the installation of child restraints in this Childs Safety

There is a lot you need to know about the Advanced Airbags in your vehicle and how they, work when infants and children in child restraints are on the front passenger seat. Because of the large amount of important information, we cannot repeat it all here. We urge you to read the detailed information in this owner's manual about airbags and the Advanced Airbag System in your vehicle and the very important information about transporting children on the front passenger seat. Please be sure to heed the WARNINGS - they are extremely important for your safety and the safety of your passengers, especially infants and small children.

#### **⚠** WARNING

- Accident statistics have shown that children are generally safer in the rear seat area than in the front seating position. Always restrain any child age 12 and under in the rear.
- All vehicle occupants and especially children must be restrained properly whenever riding in a vehicle. An unrestrained or improperly restrained child could be injured by striking the interior or by being ejected from the vehicle during a sudden maneuver or impact. An unrestrained or improperly restrained child is also at greater risk of injury or death through contact with an inflating airbag.
- A suitable child restraint properly installed and used at one of the rear seating positions provides the highest degree of protection for infants and small children in most accident situations.



Children on the front seat of any car even with Advanced Airbags can be seriously injured or even killed when an airbag inflates. A

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Safety first

Vehicle operation

cle care

Do-it-yourself service

Technical data

#### ⚠ WARNING (continued)

Controls and equipment

> child in a rearward-facing child seat installed on the front passenger seat will be seriously injured and can be killed if the front airbag inflates.

- The inflating airbag will hit the child seat or infant carrier with great force and will smash the child seat and child against the backrest, center arm rest, or door.
- Always install rear-facing child seats on the rear seat.
- If you must install a rearward facing child seat on the front passenger seat in exceptional circumstances and the PASSENGER AIR BAG OFF light does not come on and stay on, immediately install the rear-facing child seat in a rear seating position and have the airbag system inspected immediately by your Audi dealer.

#### ♠ WARNING

If, in exceptional circumstances, you must install a forward-facing child restraint on the front passenger's seat:

- Always make sure the forward-facing seat has been designed and certified by its manufacturer for use on a front seat with a passenger front and side airbag.
- Always follow the manufacturer's instructions provided with the child seat or carrier.
- Always move the passenger seat into its rearmost position in the seat's fore and aft adjustment range, as far away from the airbag as possible before installing the child restraint. The backrest must be adjusted to an upright position.
- Always make sure that the PASSENGER AIR BAG OFF light comes on and stays on all the time whenever the ignition is switched on.

#### Advanced front airbag system and children

Your vehicle is equipped with a dual-stage front "Advanced Airbag System" in compliance with United States Federal Motor Vehicle Safety Standard (FMVSS) 208 as applicable at the time your vehicle was manufactured.

The Advanced Airbag system in your vehicle has been certified to meet the "low-risk" requirements for 3 and 6 year-old children on the passenger side and small adults on the driver side. The low risk deployment criteria are intended to reduce the risk of injury through interaction with the airbag that can occur, for example, by being too close to the steering wheel and instrument panel when the airbag inflates. In addition, the system has been certified to comply with the "suppression" requirements of the Safety Standard, to turn off the front airbag for infants up to 12 months who are restrained on the front passenger seat in child restraints that are listed in the

Even though your vehicle is equipped with an Advanced Airbag system, all children, especially those 12 years and younger, should always ride in the back seat properly restrained for their age and size. The airbag on the passenger side makes the front seat a potentially dangerous place for a child to ride. The front seat is not the safest place for a child in a forward-facing child seat. It can be a very dangerous place for an infant or a larger child in a rearward-facing seat.

# Advanced Airbags and the weight-sensing mat in the front seat

The Advanced Airbag System in your vehicle detects the presence of an infant or child in a child restraint on the front passenger seat using the weight-sensing mat in the seat cushion and the sensor

below the safety belt latch on the front passenger seat that measures the tension on the safety belt.

The weight-sensing mat measures total weight of the child and the child seat and a child blanket on the front passenger seat. The weight on the front passenger seat is related to the design of the child restraint and its "footprint", the size and shape of the bottom of the child restraint as it sits on the seat. The weight of a child restraint and its "footprint" vary for different kinds of child restraints and for the different models of the same kind of child restraint offered by child restraint manufacturers

The weight ranges for the individual types, makes and models of child restraints that the NHTSA has specified in the Safety Standard together with the weight ranges of typical infants and typical 1 yearold child have been stored in the control unit of the Advanced Airbag System. When a child restraint is being used on the front passenger seat with a typical 1 year-old child, the Advanced Airbag System compares the weight measured by the weight sensing mat with the information stored in the electronic control unit.

The electronic control unit also registers the tension on the front passenger safety belt. The tension on the safety belt for the front passenger seat will be different for an adult who is properly using the safety belt as compared to the tension on the belt when it is used to attach a child restraint to the seat. The sensor below the latch for the safety belt for the front seat passenger measures the tension on the belt. The input from this sensor is then used with the weight to "decide", whether there is a child restraint with a typical 1 year-old child on the front passenger seat and whether or not the airbag must be turned off.

#### Child restraints and Advanced Airbags

Regardless of the child restraint that you use, make sure that it has been certified to meet United States Federal Motor Vehicle Safety Standards and has been certified by its manufacturer for use with an airbag. Always be sure that the child restraint is properly installed at one of the rear seating positions. If in exceptional circumstances you must use it on the front passenger seat, carefully read all of the information on child safety and Advanced Airbags and heed all of the applicable WARNINGS. Make certain that the child restraint is correctly recognized by the weight-sensing mat inside the front passenger seat, that the front passenger airbag is turned off and that the airbag status is always correctly signaled by the PASSENGER AIR BAG OFF light.

Many types and models of child restraints have been available over the years, new models are introduced regularly incorporating new and improved designs and older models are taken out of production. Child restraints are not standardized. Child restraints of the same type typically have different weights and sizes and different 'footprints,' the size and shape of the bottom of the child restraint that sits on the seat, when they are installed on the seats. These differences make it virtually impossible to certify compliance with the requirements for advanced airbags with each and every child restraint that has ever been sold in the past or will be sold over the course of the useful life of your vehicle.

For this reason, the United States National Highway Traffic Safety Administration has published a list of specific type, makes and models of child restraints that must be used to certify compliance of the Advanced Airbag System in your vehicle with the suppression requirements of Federal Motor Vehicle Safety Standard 208. These



#### **Child Safety**

#### 1999:

Cosco Dream Ride 02-719

#### B. Rear facing child restraint systems, manufactured on or after December 1, 1999.

(When the restraint system comes equipped with a removable base, compliance has to be certified with or without the base).

- Britax Handle with Care 191
- Century Assura 4553
- Century Avanta SE 41530
- Century Smart Fit 4543
- Cosco Arriva 02727
- Cosco Opus 35 02603
- Evenflo Discovery Adjust Right 212
- Evenflo First Choice 204
- Evenflo On My Way Position Right V 282

C. Forward-facing convertible child restraint systems, manufactured on or after December 1, 1999:

- Britax Roundabout 161
- Britax Expressway ISOFIX
- Century Encore 4612
- Century STE 1000 4416 Cosco Olympian 02803
- Cosco Touriva 02519
- Evenflo Horizon V 425
- Evenflo Medallion 254
- Safety First Comfort Ride 22-400

### /!\ WARNING

To reduce the risk of serious injury, make sure that the PASSENGER AIR BAG OFF light comes on and stays on whenever a child restraint is installed on the front passenger seat and the ignition

- Take the child restraint off the front passenger seat and install it properly at one of the rear seat positions if the PASSENGER AIR BAG OFF light does not stay on
- Have the airbag system inspected by your authorized Audi dealer immediately.

### Tips

The child seats listed in categories A to C have been tested by Audi only for the Advanced Airbag function.

#### Important safety instructions for using child seats

Correct use of child seats substantially reduces the risk of injury in an accident!

As the driver, you are responsible for the safety of everybody in the vehicle, especially children:

- Always use the right child seat for each child and always use it properly ⇒ page 237.
- Always carefully follow the child seat manufacturer's instructions on how to route the safety belt properly through the child seat.

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- When using the vehicle safety belt to install a child seat, you must first activate the convertible locking retractor on the safety belt to prevent the child seat from moving page 242.
- Push the child seat down with your full weight to get the safety belt really tight so that the seat cannot moveforward or sideways more than one inch (2.5 cm).
- If a strap or tether is being used to tie the child seat to the front passenger seat, make sure that it is not so tight that it causes the weight-sensing mat to measure more weight than is actually on the seat.

Always remember: Even though your vehicle is equipped with an Advanced Airbag system, all children, especially those 12 years and younger, should always ride in the back seat properly restrained for their age and size.

#### **MARNING**

Not using a child seat, using the wrong child seat or improperly installing a child restraint increases the risk of serious personal injury and death.

- All vehicle occupants and especially children must always be restrained properly whenever riding in a vehicle.
  - An unrestrained or improperly restrained child can be injured or killed by being thrown against the inside of the vehicle or by being ejected from it during a sudden maneuver or impact.
  - An unrestrained or improperly restrained child is at much greater risk of injury or death by being struck by an inflating airbag.

**Child Safety** 

#### **⚠** WARNING (continue

- Commercially available child seats are required to comply with U.S. Federal Motor Vehicle Safety Standard (FMVSS) 213 (in Canada CMVSS 213).
  - When buying a child restraint, select one that fits your child and the vehicle.
  - Only use child restraint systems that fully contact the flat portion of the seat cushion. The child restraint must not tip or lean to either side. Audi does not recommend using child seats that rest on legs or tube-like frames. They do not provide adequate contact with the seat.
  - Always heed all legal requirements pertaining to the installation and use of child seats and carefully follow the instructions provided by the manufacturer of the seat you are using.
- Never allow children under 57 inches (1.5 meters) to wear a normal safety belt. They must always be restrained by a proper child restraint system. Otherwise, they could sustain injuries to the abdomen and neck areas during sudden braking maneuvers or assidente.
- Never let more than one child occupy a child seat.
- Never let babies or older children ride in a vehicle while sitting on the lap of another passenger.
- Holding a child in your arms is never a substitute for a child restraint system.
- The strongest person could not hold the child with the forces that exist in an accident. The child will strike the interior of the vehicle and can also be struck by the passenger.
- The child and the passenger can also injure each another in an accident.
- Never install rear-facing child seats or infant carriers on the front passenger seat. A child will be seriously injured and can be

Controls and equipment Safety first Vehicle operation Vehicle care Do-it-yourself service Technical dat.

#### MARNING (continued)

killed when the passenger airbag inflates – even with an Advanced Airbag System

- The inflating airbag will hit the child seat or infant carrier with great force and will smash the child seat and child against the backrest, center arm rest, door or roof.
- Always install rear-facing child seats or infant carriers on the rear seat.
- Forward-facing child seats installed on the front passenger's seat can interfere with the airbag when it inflates and cause serious injury to the child. Always install forward-facing child seats on the rear seat.
- If exceptional circumstances require the use of a forwardfacing child restraint on the front passenger's seat, the child's safety and well-being require that the following special precautions be taken:
  - Make sure the forward-facing seat has been designed and certified by its manufacturer for use on a front seat with a passenger front and side airbag.
  - Always carefully follow the manufacturer's instructions provided with the child seat or carrier.
  - Always move the front passenger seat into the rearmost position of the passenger seat's fore and aft adjustment range, and as far away from the airbag as possible before installing the child restraint.
  - Always make sure that nothing prevents the front passenger's seat from being moved to the rearmost position in its fore and aft adjustment range.
  - Always make sure that the backrest is in the upright position.

#### ↑ WARNING (continued)

- Always buckle the child seat firmly in place even if a child is not sitting in it. A loose child seat can fly around during a sudden stop or in a collision.
- Always read and heed all WARNINGS whenever using a child restrained in a vehicle is being used ⇒ page 193, "Safety belts", ⇒ page 205, "Airbag system" and ⇒ page 231, "Child Safety".

#### / WARNING

To reduce the risk of serious injury, make sure that the PASSENGER AIR BAG OFF light comes on and stays on whenever a child restraint is installed on the front passenger seat and the ignition is switched on.

- Take the child restraint off the front passenger seat and install it properly at one of the rear seat positions if the PASSENGER AIR BAG OFF light does not stay on.
- Have the airbag system inspected by your authorized Audidealer immediately.

#### Child safety seats

#### Infant seats

Babies and infants up to about one year old and 22 lbs or 10 kg need special rearward-facing child restraints that support the back, neck and head in a crash.



Fig. 174 Rearwardfacing infant seat, properly installed on

- When using the vehicle safety belt to install a child safety seat, you must first activate the convertible locking retractor on the safety belt to prevent the child safety seat from moving => page 242 or install the seat using the LATCH attachments.
- Push the child safety seat down with your full weight to get the safety belt really tight so that the seat cannot move forward or sideways more than one inch (2.5 cm).

Infants up to about one year (22 lbs. or 10 kg) are best protected in special infant carriers and child safety seats designed for their age group. Many experts believe that infants and small children should ride only in special restraints in which the child faces the back of the vehicle. These infant seats support the baby's back, neck and head in a crash. These child safety seats must never be used in the front seat because of the risk of serious injury or death should the airbag deploy in a crash  $\Rightarrow$  fig. 174.

#### /\ WARNING `

Not using a child safety seat, using the wrong child safety seat or improperly installing a child restraint increases the risk of serious personal injury and death in a crash.

- Never install rear-facing child safety seats or infant carriers on the front passenger seat - even with an Advanced Airbag System. A child will be seriously injured and can be killed when the inflating airbag hits the child seat or infant carrier with great force and smashes the child seat and child against the backrest, center arm rest, or door ⇒ page 207. "Child restraints on the front seat some important things to know".
- Always install rear-facing child safety seats or infant carriers on the rear seat.
- Never install a rear-facing child restraint in the forward-facing direction. Such restraints are designed for the special needs of infants and very small children and cannot protect them properly if the seat is forward-facing.
- If you must install a rearward facing child seat on the front passenger seat because of exceptional circumstances and the PASSENGER AIR BAG OFF light does not come on and stay on, immediately install the rear-facing child seat in a rear seating position and have the airbag system inspected by your Audi dealer.
- Always read and heed all WARNINGS whenever using a child restrained in a vehicle is being used ⇒ page 193, "Safety belts",

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	ment					
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# WARNING (continued) ⇒ page 205, "Airbag system" and ⇒ page 231, "Important things to know". ■

#### Convertible child safety seats

Properly used convertible child safety seats can help protect toddlers and children over age one who weigh between 22 and 40 lbs. (10 and 20 kg) in a crash.



Fig. 175 Rear seat: smaller child in a properly installed forwardfacing convertible child safety seat

 When using the vehicle safety belt to install a child safety seat, you must first activate the convertible locking feature on the safety belt to prevent the child safety seat from moving => page 242 or install the seat using the LATCH attachment.

- Push the child safety seat down with your full weight to get the safety belt really tight so that the seat cannot move forward or sideways more than one inch (2.5 cm)
   page 242.
- If the child safety seat is equipped with a tether strap, attach it to the tether anchors ⇒ page 250.

A toddler or child is usually too large for an infant restraint if it is more than one year old and weighs more than 22 lbs. (10 kg).

Toddlers and children who are older than one year up to about 4 years old and weigh more than 22 lbs (10 kg) up to 40 lbs. (18 kg) should be properly restrained in a child safety seat certified for their size and weight  $\Rightarrow$  fig. 175.

The airbag on the passenger side makes the front seat a potentially dangerous place for a child to ride. The front seat is not the safest place for a child in a forward-facing child safety seat. It is a very dangerous place for an infant or a larger child in a rearward-facing seat.

#### / WARNING

Not using a child seat, using the wrong child seat or improperly installing a child restraint increases the risk of serious personal injury and death in a collision or other emergency situation.

- Children on the front seat of any car, even with Advanced Airbags, can be seriously injured or even killed when an airbag inflates. A child in a rearward-facing child seat installed on the front passenger seat will be seriously injured and can be killed if the front airbag inflates – even with an Advanced Airbag System.
- The inflating airbag will hit the child seat or infant carrier with great force and will smash the child seat and child against the backrest, center arm rest, or door.

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#### MARNING (continued)

- Always install rear-facing child seats on the rear seat.
- If you must install a rearward facing child seat on the front passenger seat because of exceptional circumstances and the PASSENGER AIR BAG OFF light does not come on and stay on, immediately install the rear-facing child seat in a rear seating position and have the airbag system inspected by your Audi dealer.
- Always read and heed all WARNINGS whenever using a child restrained in a vehicle is being used > page 193, "Safety belts", > page 205, "Airbag system" and > page 231, "Important things to know".

### MARNING

If exceptional circumstances require the use of a forward-facing child restraint on the front passenger's seat, the child's safety and well-being require that the following special precautions be taken:

- Make sure the forward-facing seat has been designed and certified by its manufacturer for use on a front seat with a passenger front and side airbag.
- Always follow the manufacturer's instructions provided with the child seat or carrier.
- Always move the front passenger seat into the rearmost position of the passenger seat's fore and aft adjustment range, and as far away from the airbag as possible before installing the child restraint.
- Always make sure that nothing prevents the front passenger's seat from being moved to the rearmost position in its fore and aft adjustment range.
- Always make sure the backrest is in an upright position.
- Make sure that the PASSENGER AIR BAG OFF light comes on and stays on all the time whenever the ignition is switched on.

#### MARNING (continued)

- If the light does not stay on, perform the checks ⇒ page 218, "Monitoring the Advanced Airbag System".
- Take the child restraint off the front passenger seat and install it properly at one of the rear seat positions if the PASSENGER AIR BAG OFF light does not stay on whenever the ignition is switched on.

#### **Booster seats**

Properly used booster seats can help protect children weighing between about 40 lbs. and 80 lbs. (18 kg and 36 kg) who are less than 4 ft. 9 in. tall.



Fig. 176 Rear seat: child properly restrained in a booster

Controls and survivors | Safety first | Vehicle operation | Vehicle care | Do-it-yourself service | Technical data

- When using the vehicle safety belt to install a child safety seat, you must first activate the convertible locking feature on the safety belt to prevent the child safety seat from moving => page 242 or install the seat using the LATCH attachment.
- Push the child safety seat down with your full weight to get the safety belt really tight so that the seat cannot move forward or sideways more than one inch (2.5 cm)
   page 242.
- If the child safety seat is equipped with a tether strap, attach it to the tether anchors ⇒ page 250.

A toddler or child is usually too large for an infant restraint if it is more than one year old and weighs more than 22 lbs. (10 kg).

Toddlers and children who are older than one year up to about 4 years old and weigh more than 22 lbs (10 kg) up to 40 lbs. (18 kg) should be properly restrained in a child safety seat certified for their size and weight  $\Rightarrow$  page 238, fig. 175.

The airbag on the passenger side makes the front seat a potentially dangerous place for a child to ride. The front seat is not the safest place for a child in a forward-facing child safety seat. It is a very dangerous place for an infant or a larger child in a rearward-facing seat.

### **MARNING**

Not using a child seat, using the wrong child seat or improperly installing a child restraint increases the risk of serious personal injury and death in a collision or other emergency situation.

 Children on the front seat of any car, even with Advanced Airbags, can be seriously injured or even killed when an airbag

#### ↑ WARNING (continu

inflates. A child in a rearward-facing child seat installed on the front passenger seat will be seriously injured and can be killed if the front airbag inflates – even with an Advanced Airbag System.

- The inflating airbag will hit the child seat or infant carrier with great force and will smash the child seat and child against the backrest, center arm rest, or door.
- Always install rear-facing child seats on the rear seat.
- If you must install a rearward facing child seat on the front passenger seat because of exceptional circumstances and the PASSENGER AIR BAG OFF light does not come on and stay on, immediately install the rear-facing child seat in a rear seating position and have the airbag system inspected by your Audi dealer.
- Always read and heed all WARNINGS whenever using a child restrained in a vehicle is being used ⇒ page 193, "Safety belts", ⇒ page 205, "Airbag system" and ⇒ page 231, "Important things to know".

#### / WARNING

If exceptional circumstances require the use of a forward-facing child restraint on the front passenger's seat, the child's safety and well-being require that the following special precautions be taken:

- Make sure the forward-facing seat has been designed and certified by its manufacturer for use on a front seat with a passenger front and side airbag.
- Always follow the manufacturer's instructions provided with the child seat or carrier.
- Always move the front passenger seat into the rearmost position of the passenger seat's fore and aft adjustment range, and as far away from the airbag as possible before installing the child restraint.

- Always make sure that nothing prevents the front passenger's seat from being moved to the rearmost position in its fore and aft adjustment range.
- Always make sure the backrest is in an upright position
- Make sure that the PASSENGER AIR BAG OFF light comes on and stays on all the time whenever the ignition is switched on.
- If the light does not stay on, perform the checks ⇒ page 218, "Monitoring the Advanced Airbag System".
- Take the child restraint off the front passenger seat and install it properly at one of the rear seat positions if the PASSENGER AIR BAG OFF light does not stay on whenever the ignition is switched

#### Safety belts and older children

Properly worn three point lap and shoulder belt can help protect children weighing more than 80 lbs. (36 kg) and who are at least 4 ft. 9 in. tall.



Fig. 177 Child taller than 4 ft. 9 in. properly restrained on the rear

'Children who weigh more than about 80 lbs (36 kg) and are at least 4 ft. 9 in. tall can generally use the vehicle's three point lap and shoulder belts. Children should use a lap belt only in very exceptional situations and only if no child restraint system for the child's size and weight or safer alternative means of transportation of the child is available. In these exceptional situations, the use of a lap belt is better than permitting the child to remain totally unrestrained. But remember: a lap belt cannot provide the same level of protection as a proper child restraint or a three-point lap and shoulder belt if the child is big enough. Also, using a lap belt for younger children, who should be using a child restraint, may violate laws in your state or Province.

Never use a lap belt alone to restrain a child that weighs less than about 80 lbs (36 kg) and who is less than 4'9" tall. Always remember ▶

convertible locking retractor for child restraints. The safety belt

must be locked so that belt webbing cannot unreel. The retractor

can be activated to lock the safety belt and prevent the safety belt

webbing from loosening up during normal driving. A child safety

that the child and child safety seat will stay in place.

seat can only be properly installed when the safety belt is locked so

Always remember: Even though your vehicle is equipped with an Advanced Airbag system, all children, especially those 12 years and

younger, should always ride in the back seat properly restrained for

Child Safety

their age and size

/ WARNING

that children do not have the pronounced pelvic structure required for the proper function of lap belts. If a lap belt is only restraint system available, then the child's safety absolutely requires that the lap belt be fastened snugly and as low as possible around the pelvis let a lap belt pass over the child's stomach or abdomen.

#### ♠ WARNING

Using wrong child restraints or improperly installed child restraints can cause serious personal injury or death in a crash.

- Failure to properly route safety belts over a child's body will cause severe injuries in a crash. The lap belt portion of the three point belt as well as any lap belt alone must always pass as low as possible across the pelvis, never over the stomach or abdomen.
- An improperly worn safety belt will not provide the best protection in a crash and may cause serious personal injury. Always make sure that children and other vehicle occupants properly wear available restraint systems. Carefully follow the instructions provided by the manufacturers of child restraints.

Improperly installed child seats increase the risk of serious personal injury and death in a collision: Always make sure that the safety belt retractor is locked when

- installing a child seat. An unlocked safety belt retractor cannot hold the child seat in place during normal driving or in a crash.
- Always buckle the child seat firmly in place even if a child is not sitting in it. A loose child seat can fly around during a sudden stop or in a collision.
- Always make sure that the rear seat backrest to which the center rear safety belt is attached is securely latched whenever the rear center safety belt is being used to secure a child restraint.
- If the backrest is not securely latched, the child and the child restraint will be thrown forward together with the backrest and will strike parts of the vehicle interior. The child can be seriously injured or killed.
- Never install rear-facing child seats or infant carriers on the front passenger seat. A child will be seriously injured and can be killed when the passenger airbag inflates.

### Installing a child safety seat

Securing a child safety seat using a safety

Safety belts for the rear seats and the front passenger can be locked with the convertible locking retractor to properly secure child safety seats.

The safety belts emergency locking retractors for the rear seats safety belts and for the front passenger's seat safety belt have a

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#### MARNING (continued)

- The inflating airbag will hit the child seat or infant carrier with great force and will smash the child seat and child against the backrest, center arm rest, door or roof.
- Always install rear-facing child seats or infant carriers on the rear seat.
- Forward-facing child seats or infant carriers installed on the front passenger's seat may interfere with the deployment of the airbag and cause serious injury to the child.
- It is safer to install a forward-facing child seat on the rear seat
- Always read and heed all WARNINGS whenever using a child restrained in a vehicle is being used ⇒ page 231. Special precautions apply when installing a child seat on the front passenger seat ⇒ page 207, "Child restraints on the front seat – some important things to know".

#### MARNING:

Always take special precautions if you must install a forward or rearward-facing child restraint on the front passenger's seat in exceptional situations:

- Whenever a forward or rearward-facing child restraint is installed on the front passenger seat, the PASSENGER AIR BAG OFF light must come on and stay on whenever the ignition is switched on.
- If the PASSENGER AIR BAG OFF light does not come on and stay
  on, perform the checks described 

  page 218, "Monitoring the
  Advanced Airbag System".
- Take the child restraint off the front passenger seat and install
  it properly at one of the rear seat positions if the PASSENGER AIR
  BAG OFF light does not stay on whenever the ignition is switched

#### 

- Improper installation of child restraints can reduce their effectiveness or even prevent them from providing any protection.
- An improperly installed child restraint can interfere with the airbag as it deploys and seriously injure or even kill the child.
- Always carefully follow the manufacturer's instructions provided with the child seat or carrier.
- Never place additional items on the seat that can increase the total weight registered by the weight-sensing mat and can cause injury in a crash.

#### MARNING :

Forward-facing child restraints:

- Always make sure the forward-facing seat has been designed and certified by its manufacturer for use on a front seat with a passenger front and side airbag.
- Never put the forward-facing child restraint up, against or very near the instrument panel.
- Always move the passenger seat into its rearmost position in the seat's fore and aft adjustment range, as far away from the airbag as possible before installing the forward-facing child restraint. The backrest must be adjusted to an upright position.
- Make sure that the PASSENGER AIR BAG OFF light comes on and stays on all the time whenever the ignition is switched on.

### **⚠** WARNING

Rearward-facing child restraints:

 A child in a rearward-facing child seat installed on the front passenger seat will be seriously injured and can be killed if the front airbag inflates - even with an Advanced Airbag System.

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- The inflating airbag will hit the child seat or infant carrier with great force and will smash the child seat and child against the backrest, center arm rest, door or roof.
- Always be especially careful if you must install a rearward facing child seat on the front passenger seat in exceptional circumstances.
- A tight tether strap on a rearward-facing child restraint attached to the front passenger seat can put too much pressure on the weight-mat in the seat and register a heavier weight in the Advanced Airbag System. The heavier weight registered can make the system work as though an adult were on the seat and deploy the Advanced Airbag when it must be suppressed causing serious or even fatal injury to the child.
- Make sure that the PASSENGER AIR BAG OFF light comes on and stays on all the time whenever the ignition is switched on.
- If the PASSENGER AIR BAG OFF light does not come on and stay
  on, immediately install the rear-facing child seat in a rear seating
  position and have the airbag system inspected by your Audi
  dealer.

#### Activating the convertible locking retractor

Use the convertible locking retractor to secure a child restraint.

Always heed the child safety seat manufacturer's instructions when installing a child restraint in your vehicle. To activate the Convertible locking retractor:

- Place the child restraint on a seat, preferably on the rear seat.
- Slowly pull the belt all the way out.
- Route it around or through the child restraint belt path
   ⇒ ⚠.
- Push the child safety seat down with your full weight to 'get the safety belt really tight.
- Insert the belt tongue into the buckle for that seating position.
- Guide the safety belt back into the retractor until the belt lies flat and snug on the child safety seat.
- You should hear a "clicking" noise as the belt winds back into the inertia reel. Test the convertible locking retractor by pulling on the belt. You should no longer be able to pull the belt out of the retractor. The convertible locking retractor is now activated.
- Make sure that the red release button is facing away from the child restraint so that it can be unbuckled quickly.
- Pull on the belt to make sure the safety belt is properly tight and fastened so that the seat cannot move forward or sideways more than one inch (2.5 cm).

#### / WARNING

Using the wrong child restraint or an improperly installed child restraint can cause serious personal injury or death in a crash.

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#### MARNING (continued)

- Always make sure that the safety belt retractor is locked when installing a child seat. An unlocked safety belt retractor cannot hold the child seat in place during normal driving or in a crash.
- Always buckle the child safety seat firmly in place even if a child is not sitting in it. A loose child safety seat can fly around during a sudden stop or in a crash.
- Always make sure the seat backrest to which the child restraint is installed is in an upright position and securely latched into place and cannot fold forward. Otherwise, the seat back with the child seat attached to it could fly forward in the event of an accident or other emergency situation.
- Always read and heed all WARNINGS whenever using a child restrained in a vehicle is being used ⇒ page 231. Special precautions apply when installing a child seat on the front passenger seat ⇒ page 207, "Child restraints on the front seat – some important things to know".

### Deactivating the convertible locking retractor

The convertible locking retractor for child restraints will be deactivated automatically when the belt is wound all the way back into the retractor.

- Press the red button on the safety belt buckle. The belt tongue will pop out of the buckle.
- Guide the belt all the way back into its stowed position.

Always let the safety belt retract completely into its stowed position. The safety belt can now be used as an ordinary safety belt without the convertible locking retractor for child restraints.

If the convertible locking retractor should be activated inadvertently, the safety belt must be unfastened and guided completely back into its stowed position to deactivate this feature. If the convertible locking retractor is not deactivated, the safety belt will gradually become tighter and uncomfortable to wear.

#### MARNING

Improperly installed child seats increase the risk of serious personal injury and death in a collision.

- Never unfasten the safety belt to deactivate the convertible locking retractor for child restraints while the vehicle is moving.
   You would not be restrained and could be seriously injured in an accident.

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#### **Child Safety**

Additional Information

What types of child restraint anchors are available and how are they related to child safety?

For years, child restraints have been installed using the safety belts already present in every vehicle.

Since September 1, 1999, child restraint manufacturers have been providing tether straps that attach the top of the child restraint to the vehicles structure, on most of their forward-facing systems in order to comply with U.S. Federal regulations for child restraint performance in a crash. Vehicle manufacturers are required to phase-in tether anchorages for attachment of the tether strap in their U.S. vehicles beginning September 1, 1999.

The combination of the tether anchorages and the lower anchorages is now generally called the LATCH system for "Lower Anchorand Tether for Children".

(The term "ISOFIX" regarding lower anchorages had been used by Audi and other manufacturers in the past, but LATCH is now the standard name for the new child restraint anchorage system.)

Some child restraint system manufacturers have been providing tether straps on certain models of their child restraint systems, either as standard equipment or as a retrofit, for several years. Check with the manufacturer of the child restraint system for tether strap availability.

To provide a simpler and more practicable way to attach the child restraint system on the vehicle seat, U.S. Federal regulations require the phase-in of lower anchorages in vehicles and devices on new child restraint systems to attach to the vehicle anchorages.

Child restraint system manufacturers will probably offer two kinds of lower anchorages on their child seats

They could come with:

- hooks or other latches attached to adjustable straps or
- rigid latches on bars that extend out the back of the child restraint and are released with release buttons at the bottom of the child restraint.

In addition to the LATCH lower anchorages, both of these child restraint systems use tether straps to help keep the child restraint system firmly in place.

# Where can I get additional information about child restraint application and usage?

There are a number of sources of additional information about child restraint selection, installation and usage:

NHTSA advises that the best child safety seat is the one that fits your child and fits in your vehicle, and that you will use correctly and consistently.

Try before you buy!

National Highway Traffic Safety Administration Tel.: (888) DASH-2-DOT www.nhtsa.dot.gov

National SAFE KIDS Campaign Tel.: (202) 662-0600 www.safekids.org

Safety BeltSafe U.S.A

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Tel.: (800) 745-SAFE (English) Tel.: (800) 747-SANO (Spanish) www.carseat.org

Transport Canada Tel.: (888) 675-6863 www.tc.gc.ca

Audi Client Relations Tel.: (800) 822-2834

## Lower anchorages and tether for children (LATCH)

#### Location

LATCH is the acronym for Lower Anchor and Tethers for Children and designates a special child safety seat restraint system. In Canada, the terms "top tether" with "lower universal anchorages" (or "lower universal anchorage bars") are used to describe the system.

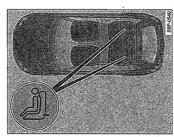


Fig. 178 Schematic overview: LATCH anchorage point locations

The illustration ⇒ fig. 178 shows the seating locations in your vehicle which are equipped with the lower universal anchorages system. ■

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## Installing a child restraint using the LATCH

Child safety seats equipped with the LATCH system can quickly and easily be secured to the rear seats.



Fig. 179 LATCH-type seat with both latch



Fig. 180 Installation of child safety seat with rigid latches on bars

Whenever you install a child restraint always refer to the child restraint manufacturer's instructions.

- Make sure the seat back of the rear seat bench is in the upright position and securely latched in place.
- Insert the latches onto the lower anchorages
   ⇒ page 248, fig. 180.
- Make sure you hear the child restraint click securely into place. This indicates that the seat is securely mounted on the anchors.
- Pull on the child restraint once you have mounted it to make sure it is secure.

#### **⚠** WARNING

Improper use of the LATCH system can increase the risk of serious personal injury and death in an accident.

- These anchors were developed solely for child seats using the "LATCH" system.
- Never attach other child seats; belts or other objects to these anchors.
- Always make sure that the you hear a click when latching the seat in place. If you do not hear a click the seat is not secure and could fly forward and hit the interior of the vehicle, or be ejected from the vehicle.

### **⚠** WARNING

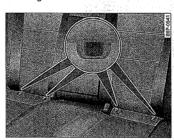
Improper installation of child restraints will increase the risk of injury in an accident.

#### MARNING (continued)

- · Always follow the child restraint system manufacturer's instructions for proper installation of the child restraint system and proper use of tether straps as well as the lower anchorages or safety belts in your vehicle.
- Always read and heed the important information and WARN-INGS about child safety and the installation of child restraint systems ⇒ page 231, "Child Safety". ■

#### Description

The lower anchorage positions are marked for quick locatina.



Attachment locator markers for lower anchorages Circular locator buttons on the rear seatback indicate the lower Child Safety

#### Lower anchorages

The lower anchorage attachment points are located between the rear seatback and rear seat cushion ⇒ page 249, fig. 181

Lower anchorages secure the child restraint in the seat without using the vehicle's safety belts. Anchorages provide a secure and easy-to-use attachment and minimize the possibility of improper child restraint installation.

All child restraints manufactured after September 1, 2002, must have lower anchorage attachments for the LATCH system.

However, child restraint manufacturers have already started providing such lower anchorages for the LATCH system in 2000 even before the required date.

Please remember that the lower anchorage points are only intended for installation and attachment of child restraints specifically certified for use with LATCH lower anchorages. Child restraints that are not equipped with the lower anchorage attachments can still be installed in compliance with the child restraint manufacturer's instructions on using vehicle safety belts.

#### MARNING

Improper installation of child restraints will increase the risk of injury in a crash.

- Always carefully follow the child restraints manufacturer's instructions for proper installation of the child restraint and proper use of the lower anchorages or safety belts in your vehicle.
- Never secure or attach any luggage or other items to the LATCH
- Always read and heed the important information about child restraints in this chapter and WARNINGS => page 231, "Child



## Mounting and releasing the anchorage

If you use a child restraint system with hooks or other latches attached to adjustable straps.

#### Mounting

- Guide the anchorage hook into the guidance fixture.
- Press the anchorage hook with the spring catch release onto the lower anchorage so that the anchorage hook
- Pull on the anchorage hook to make sure that it has securely engaged the lower anchorage.
- Tighten the strap following the child restraint manufacturer's instructions.

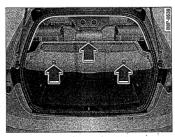
#### Releasing

- Loosen the tension on the strap following the child restraint manufacturer's instructions.
- Depress the spring catch on the hook.
- Hold the spring catch in depressed position.
- Move the hook in the direction of the vehicle floor so that there is enough space to release the anchorage hook from the lower anchorage.

#### ♠ WARNING

- Improper installation of child restraints will increase the risk of injuries in a collision
- Always refer to the child restraints manufacturer's instructions for proper installation of the child restraint and proper use of the lower anchorages or safety belts in your vehicle. m

#### Tether anchors



hook locations behind

The tether anchor for middle three rear seating position is located in recesses in the rear window shelf ⇒ fig. 182



Improper installation of child restraints will increase the risk of injury and death in a crash.

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### MARNING (continued)

- Improper use of child restraint anchors (tether anchors) could lead to injury in a collision. The anchors are designed to withstand only those loads imposed by correctly fitted child restraints.
- Never mount two child restraint systems on one LATCH lower anchor point.
- Never attach two child restraint systems to one tether strap or tether anchorage.
- Always follow the instructions provided by the manufacturer of the child restraint you intend to install in your Audi.
- Never use child restraint tether anchorages to secure safety belts or other kinds of occupant restraints.
- Never attach a tether strap to a tie-down hook in the luggage compartment.
- Never secure or attach any luggage or other items to the LATCH lower anchorages or to the tether anchors.
- If a tether or other strap is used to attach a child restraint to the front passenger seat, make sure that it is not so tight, that it causes the weight-sensing mat to measure more weight than is actually on the seat.
- The heavier weight registered can make the system work as though an adult were on the seat and deploy the Advanced Airbag when it must be suppressed causing serious or even fatal injury to the child.

#### Tether strap

A tether is a straight or V-shaped strap that attaches the top part of a child restraint to special anchorage point in the vehicle.

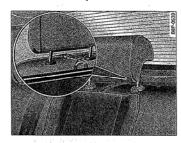


Fig. 183 Tether strap (center): proper routing and mounting

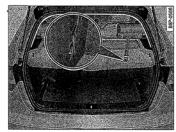


Fig. 184 Tether strap (outboard): proper routing and mounting

#### **Child Safety**

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The purpose of the tether is to reduce the forward movement of the child restraint in a crash, in order to help reduce the risk of head injury that could be caused by striking the vehicle interior.

Forward facing child restraints manufactured after September 1, 1999, are required by U.S. federal regulations to comply with child head movement performance requirements. These new performance requirements make a tether necessary on most new child safety seats.

#### **MARNING**

Improper installation of child restraints will increase the risk of injury in a crash.

- $\bullet$  . Never attach a child seat tether strap to a tie-down hook in the luggage compartment.
- Never secure or attach any luggage or other items to the LATCH lower anchorages or to the tether.
- If a tether or other strap is used to attach a child restraint to the front passenger seat, make sure that it is not so tight, that it causes the weight-sensing mat to measure more weight than is actually on the seat.
- The heavier weight registered can make the system work as though an adult were on the seat and deploy the Advanced Airbag when it must be suppressed causing serious or even fatal injury to the child.

## Securing the upper tether strap to the anchor bracket

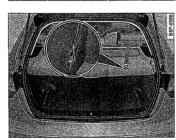


Fig. 185 Tether strap: proper routing and mounting

### Securing the child restraint tether strap to the tether anchor

- Release or deploy the tether strap on the child restraint according to the child restraint manufacturer's usage instructions.
- To install the tether to the anchor on the seat back, remove the luggage cover assembly, guide the tether strap under the head restraint page 253, fig. 186, over the rolled up cargo net and attach to the tether anchor.
- If it is desired to use the cargo net try to route the tether strap through the net opening. If this is not possible the net must be retracted and the tether strap must be passed over the rolled up net.

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 Install the child seat according to instructions and tighten the tether strap, then replace the luggage cover assembly.

#### Releasing the tether strap

- Loosen the tension following the child restraint manufacturer's instructions.
- Depress the spring catch on the hook and release it from the tether anchor.



## Using tethers on rear-facing child restraint systems

Currently, few rear-facing child restraint systems come with a tether. Please read and heed the child restraint system manufacturer's instructions carefully to determine how to properly install the tether.



A child in a rearward-facing child seat installed on the front passenger seat will be seriously injured and can be killed if the front airbag inflates - even with an Advanced Airbag System.

 The inflating airbag will hit the child seat or infant carrier with great force and will smash the child seat and child against the backrest, center arm rest, or door. Child Safety

#### MARNING (continued)

- A tight tether or other strap on a rearward-facing child restraint attached to the front passenger seat can put too much pressure on the weight-mat in the seat and register a heavier weight in the Advanced Airbag System. The heavier weight registered can make the system work as though an adult were on the seat and deploy the Advanced Airbag when it must be suppressed causing serious or even fatal injury to the child.
- If you must install a rearward facing child seat on the front passenger seat because of exceptional circumstances and the PASSENGER AIR BAG OFF light does not come on and stay on, immediately install the rear-facing child seat in a rear seating position and have the airbag system inspected by your Audi dealer.

#### Securing the upper tether strap to the anchor bracket

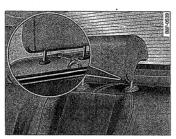


Fig. 186 Tether strap: proper routing and mounting

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## Securing the child restraint tether strap to the tether anchor

- Release or deploy the tether strap on the child restraint according to the child restraint manufacturer's usage
- Guide the upper tether strap under the rear head restraint => fig. 186 (raise the head restraint if necessary).
- Tilt the recess flap -detail view- ⇒ fig. 186 up to expose the anchor bracket.
- Slide the tether strap hook over the anchor bracket.
- Pull on the tether strap hook so that the spring catch of the hook engages.
- Tighten the tether strap firmly following the child restraint manufacturer's instructions.

#### Releasing the tether strap

- Loosen the tension following the child restraint manufacturer's instructions.
- Depress the spring catch on the hook and release it from the tether anchor.

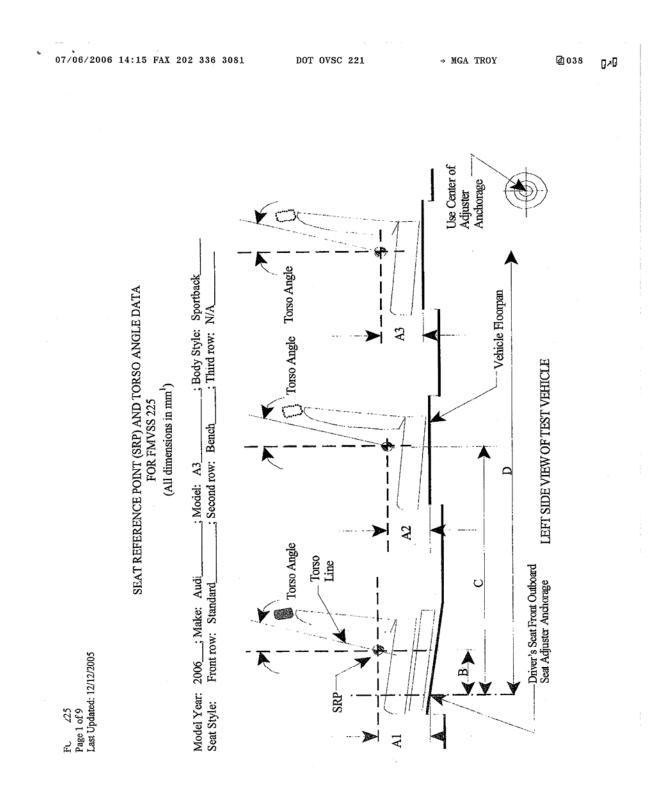


### ① Note

If you leave the child restraint with the tether strap firmly installed for several days, this could leave a mark on the upholstery on the seat cushion and backrest in the area where the tether strap was installed. The upholstery would also be permanently stretched around the tether strap. This applies especially to leather seats.

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# APPENDIX B MANUFACTURER'S DATA (OVSC FORM 14)



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Table 1. Seating Positions and Torso Angles

river Side) Center (if any) Right	89.4 N/A (Front Passenger) 189.4	90.6 110.6 90.6	N/A N/A N/A	. 335.8	138.8 1093.7 1138.8	N/A N/A N/A	25	26 22 26	NIA NIA
Left (Driver Side)	(Driver) 189.4	9.06	N/A	335.8	1138.8	N/A	25	26	AI/A
	A1	A2	A3	В	C	Ω	Front Row	Second Row	Third Don
			,				Torso Angle (degree)		_

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

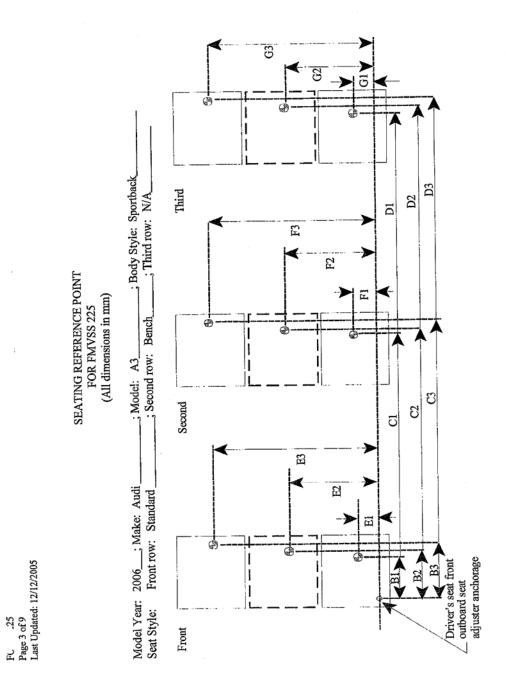
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Table 2. Seating Reference Point and Tether Anchorage Locations

Seating Reference Point (SRP)		Distance from Driver's front outboard seat adjuster anchorage <sup>1</sup>		
Front Row	B1	335.8		
	E1	270		
	B2	N/A		
	E2	N/A		
	В3	335.8		
-	E3	960		
Second Row	C1	1138.8		
	F1	270		
	C2	1093.7		
	F2	615		
	C3	1138.8		
	F3	960		
Third Row	D1	N/A		
	G1	N/A		
	D2	N/A		
	G2	N/A		
	D3	N/A		
	G3	N/A		

Note: 1. Use the center of anchorage.

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

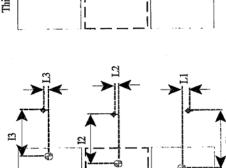
; Body Style: Sportback Second row: Bench. : Model: A3\_ Model Year: 2006 ...; Make: Audi Front row: Standard

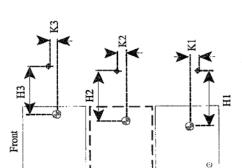
Seat Style:

Third row: N/A

Third

Second





P: Tether anchorage ⊕: SRP

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

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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	379	
	L1	10	
·	12	496	
	L2	0	
	I3	379	
	L3	10	
Third Row	J1	N/A	
-	M1	N/A	
	J2	N/A	
	M2	N/A	
	J3	N/A	
	М3	N/A	

Note: 1. Use the center of anchorage.

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TETHER ANCHORAGE LOCATIONS - VERTICAL (All dimensions in mm)

.; Body Style: Sportback ; Second row: Bench ; Third row: N/A .; Model: A3\_ Model Year: 2006 ; Make: Audi\_Seat Style: Front row: Standard\_

Vehicle Floorpan

LEFT SIDE VIEW OF TEST VEHICLE

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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)	306.6	
	O2 (Center)	501.2	
	O3 (Right)	306.6	
Third Row	P1 (Left)	N/A	
	P2 (Center)	N/A	
	P3 (Right)	N/A	

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

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FORM 225 Page 9 of 9 Last Updated: 12/12/2005 For each vehicle, provide the following information:

1. How many designated seating positions exist in the vehicle?

Five (5) designated seating positions.

2. How many designated seating positions are equipped with lower anchorages and tether anchorages? Specify which position(s).

Two rear (second row) outboard seating positions are equipped with lower anchorages and tether anchorages.

- How many designated seating positions are equipped with tether anchorages? Specify which position(s).
   All seating positions in the second row (left, center and right) are equipped with tether anchorages.
- Lower Anchorage Marking and Conspicuity: Whether the anchorages are certified to S9.5(a) or S9.5(b) of FMVSS 225.

The anchorage are certified to S9.5(b) of FMVSS 225.