



## The New Audi A6 Avant '05

Self-Study Programme 344

## The New Audi A6 Avant '05

Audi is adding a new chapter to the success story of the Avant.

The new Audi A6 Avant '05 represents a unique blend of design and dynamism, driving pleasure and functionality.

Here is a car that exhibits a unity and harmony of design.

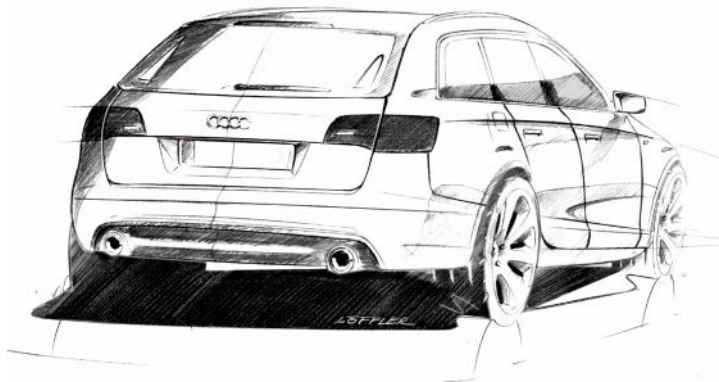
Measuring 4.93 metres in length, 1.86 metres in width, and 1.46 metres in height, the new Audi A6 Avant '05 visibly sets a new standard in terms of its proportions.

The lines of the car combine the clear architecture typical of Audi with other core elements of the brand's progressive design.

The already classic proportions of the Avant's silhouette, with its high shoulder line, narrow windows all round, coupé-like roofline and shallow sloping tail end, have been infused with added dynamism.



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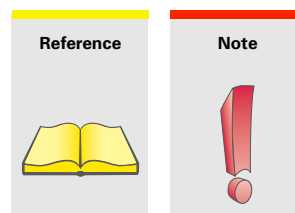
# Table of contents

Introduction . . . . .	4
Body . . . . .	5
Occupant protection . . . . .	6
Engine . . . . .	8
Running gear . . . . .	12
Electrical systems . . . . .	26
Infotainment . . . . .	30
Convenience electronics . . . . .	32

The self-study programme provides introductory information regarding the design and function of new models, automotive components or technologies.

**The self-study programme is not a Repair Manual!**  
**All values given are intended as a guideline only and refer to the software version valid at the time of publication of the SSP.**

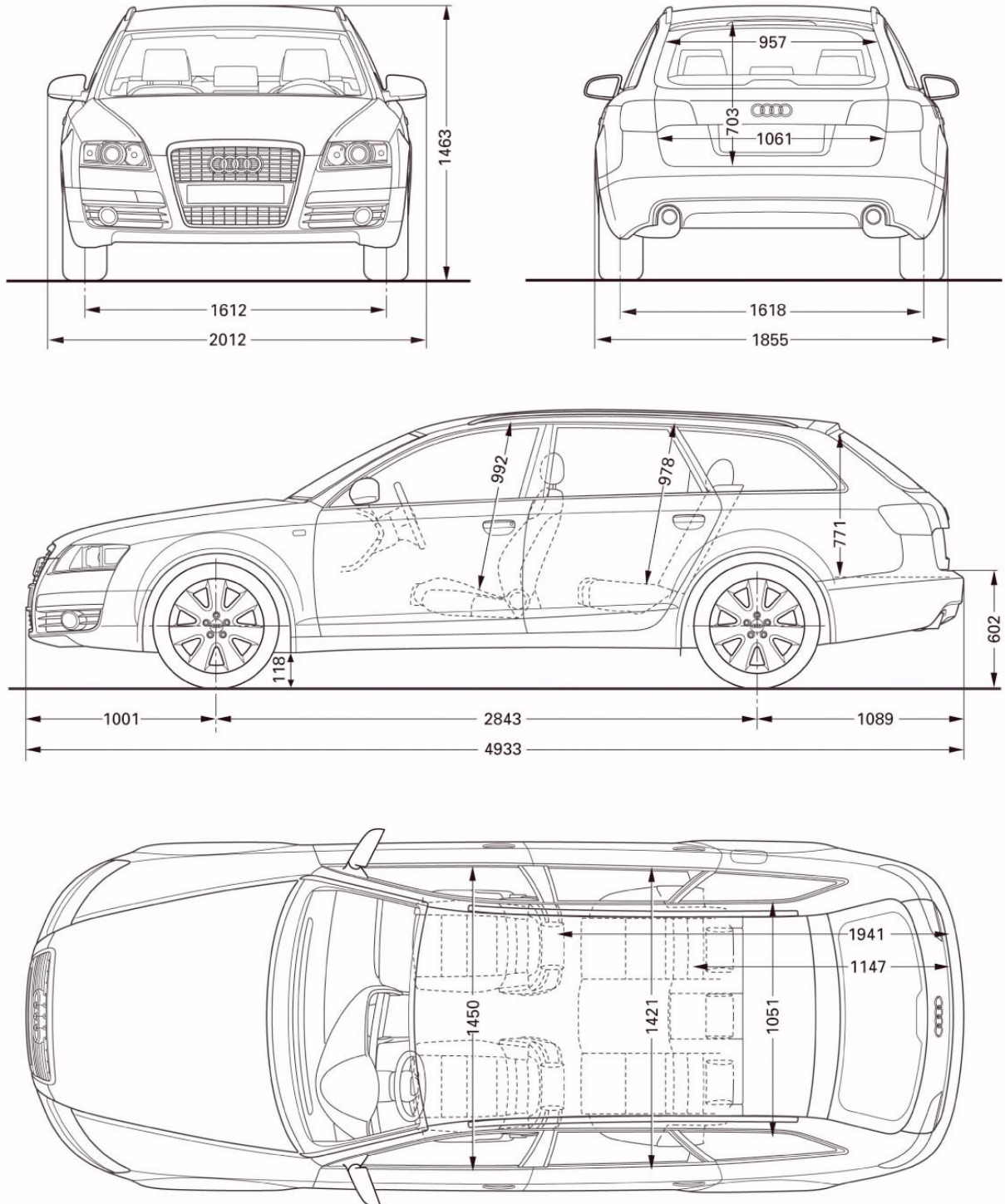
For maintenance and repair work, always refer to the current technical literature.



# Introduction

## Overview

Dimensions of the Audi A6 Avant '05.

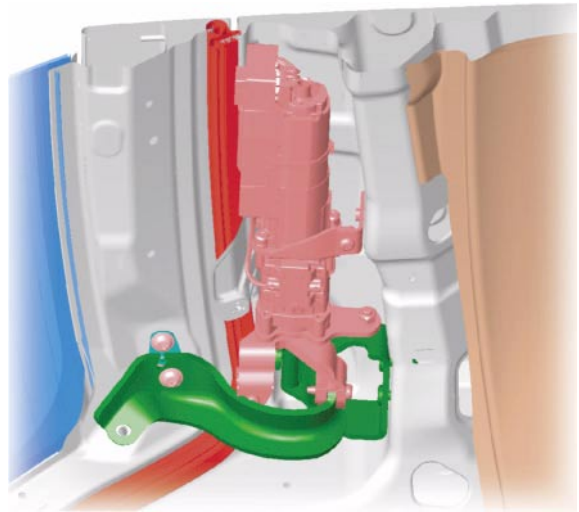


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## Tailgate

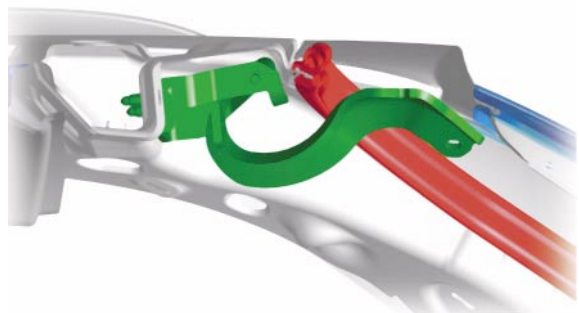
In the new Audi A6 Avant '05, an inner tailgate hinge is implemented for the first time.

The hinge is attached to the upper roof crossrail at the rear so that it is located behind the tailgate seal, and thus inside the occupant cell.



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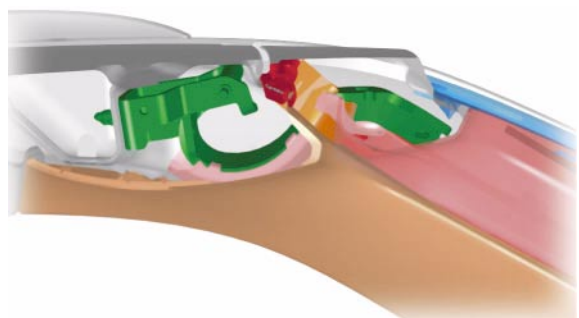
When the tailgate is closed, the hinge is concealed behind the trim panel and is not visible from the interior.



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This hinge arrangement and function has the following advantages:

- no corrosion,
  - no sealing problems,
  - internal wiring,
  - no grommets are needed to seal through-holes in the body,
  - larger cargo area
- possibility for electric tailgate drive.



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# Occupant protection

## Safety system

The goal was to implement a protection system that offers a very high level of safety, thereby raising still further the high safety standard set by the current Audi fleet.

The many safety requirements for the new Audi A6 Avant '05 included meeting all current legislation, as well as achieving a top rating in consumer tests.

Audi's internal specifications often increase the challenges to the development team.

This was the case with the Audi A6 saloon introduced to the market in the 2005 model year; likewise with the new Audi A6 Avant '05.

The occupant protection system in the Audi A6 Avant '05 was largely adopted from the saloon. Due to the modifications to the body, however, several components were adapted to the new parameters.

A new gas generator with dual threshold deployment for the front passenger front airbag will be implemented in the Audi A6 saloon in early 2005. This module will be fitted to all models world-wide.

The new Audi A6 Avant '05 will be equipped with this airbag from rollout.

### Reference

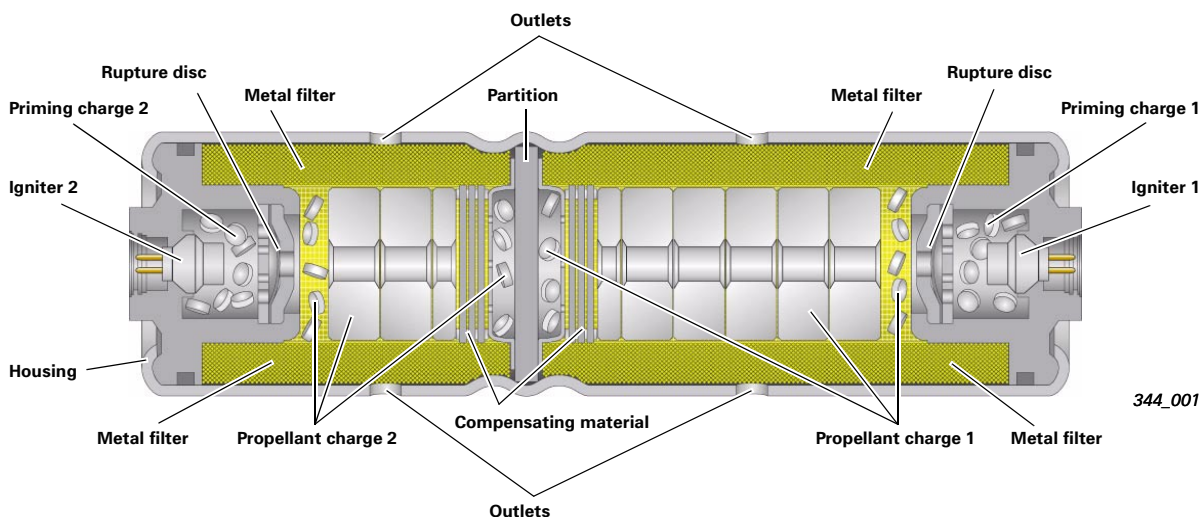


For further information on the safety system, please refer to Self-Study Programme 323 - Audi A6 '05.

## Front passenger front airbag

- Airbag igniter 1, front passenger side N131
- Airbag igniter 2, front passenger side N132

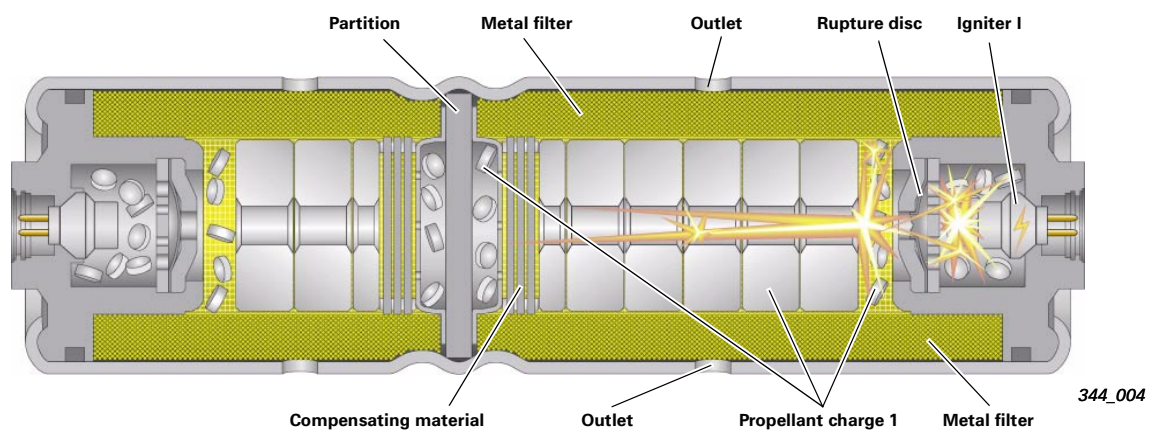
The front passenger airbag consists of a casing in which are housed two pyrotechnic gas generators separated by a partition. A propellant in the form of tablets and hollow tabs is used.





### Airbag igniter 1, front passenger side N131

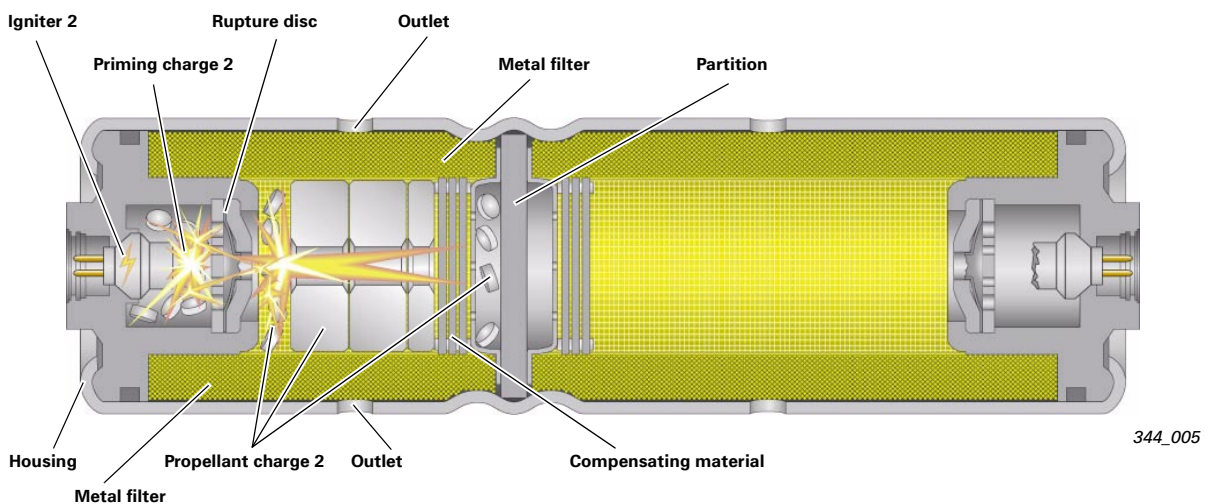
If igniter I is electrically activated by the airbag control unit J234, it ignites priming charge I. Under the resulting pressure, the flame passes through the rupture disc and ignites propellant charge I. On account of the hollow propellant tabs, the complete propellant charge ignites more quickly. The metal filter cools and treats the developing gas before it flows through the outlets to the airbag. The task of the first gas generator is to inflate the airbag.



### Airbag igniter 2, front passenger side N132

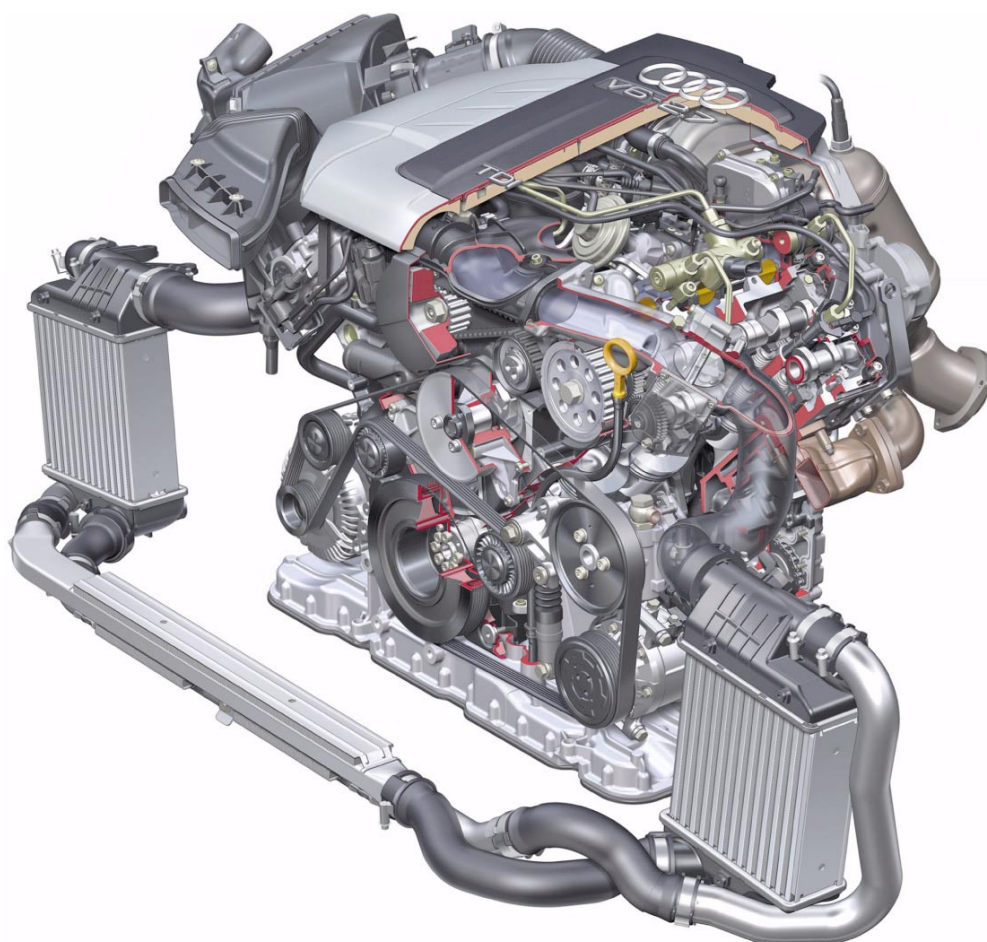
The airbag control unit defines the time interval between the deployment of airbag igniter 1, front passenger side N131 and airbag igniter 2, front passenger side N132 according to the type and severity of the accident. The task of the second gas generator is to inflate the airbag to its full size.

The second gas generator has exactly the same function as the first gas generator.



## The 2.7l V6 TDI with common rail

The 3.0l V6 TDI was modified in several respects to fill the gap between the 2.5l V6 TDI with distributor injection pump and the 3.0l V6 TDI with common rail injection. A wide range of diesel engines in various sizes is therefore available to the customer.



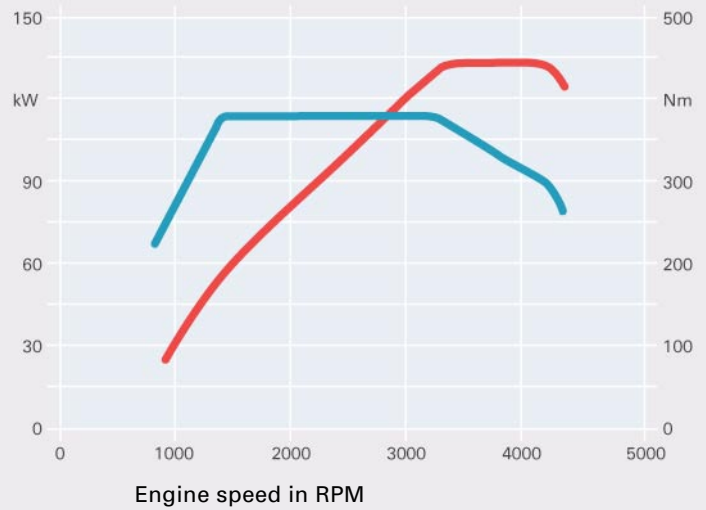
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The engine number is located on the cylinder block at the front right adjacent to the vibration absorber.

### Torque/power curve

- Max. torque in Nm
- Max. power output in kW



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### Specifications

<b>Engine code</b>	<b>BPP</b>
<b>Type of engine</b>	V6 diesel engine
<b>Displacement</b>	2698 cm <sup>3</sup>
<b>Power output</b>	132 kW (180 bhp)
<b>Torque</b>	380 Nm at 1400-3300 rpm
<b>Bore</b>	83 mm
<b>Stroke</b>	83.1 mm
<b>Compression ratio</b>	17:1
<b>Weight</b>	220 kg
<b>Firing order</b>	1 - 4 - 3 - 6 - 2 - 5
<b>Engine management</b>	Bosch EDC-16CP+ common rail injection system with max. 1600 bar operating pressure and 8-port piezo injectors
<b>Exhaust emission control</b>	Oxidising catalytic converter, maintenance free diesel particulate filter (optional), lambda probe and cooled exhaust gas recirculation
<b>Exhaust emission standard</b>	EU 4

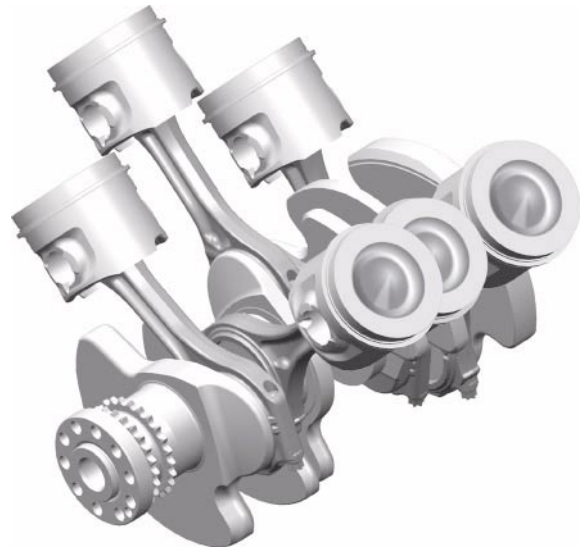
## Modifications to the 2.7l engine

- The stroke was reduced from 91.4 mm to 83.1 mm by modifying the crankshaft, con-rod and piston
- Cast exhaust manifold and steel compensator without air-gap insulation
- Deletion of the shield plates above the manifolds
- Piezo injectors with eight-port nozzles instead of seven-port nozzles
- An inlet restrictor has been integrated into the fuel rail for each injector

## Crankshaft drive

The basis is the 3.0l V6 TDI CR engine, i.e. the engine block with 90 mm cylinder spacing was adopted, likewise the 83.0 mm cylinder bore.

The crankshaft, the con-rod and the pistons were modified so that a swept volume of 2698 cm<sup>3</sup> was obtained by changing the stroke.

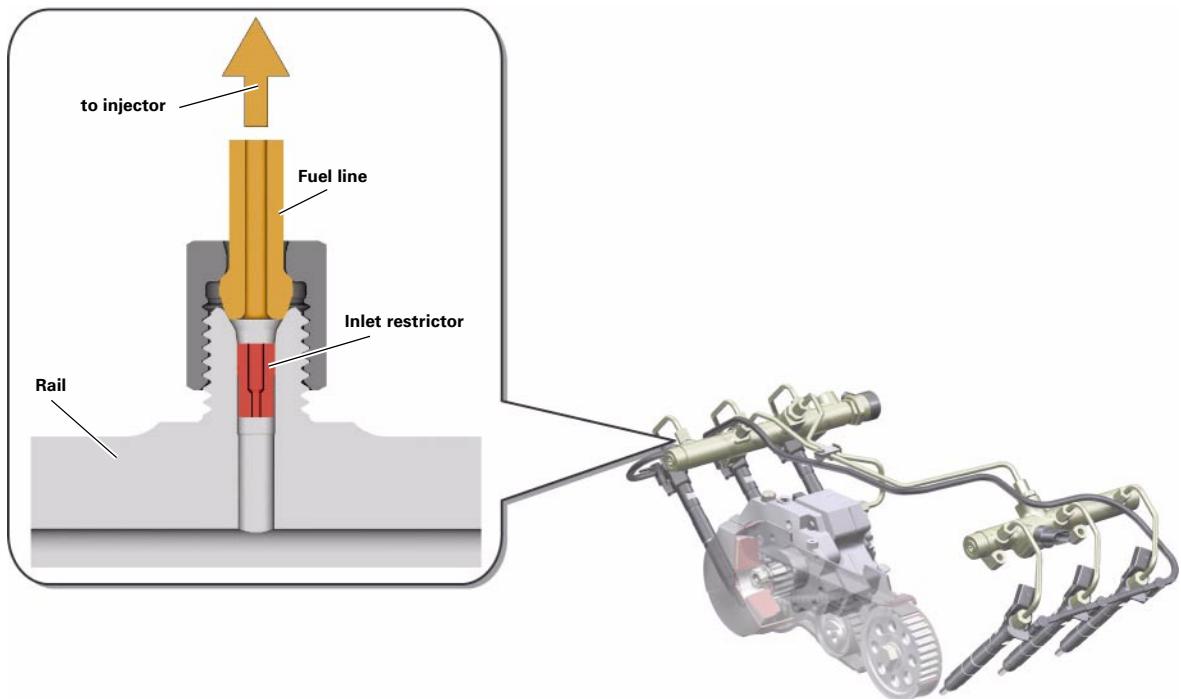


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## In-rail restrictor

The closing of the injector produces a pulse which propagates from the injector to the fuel rail and is reflected back to the injector. In this connection, the injector pintle and injector pintle seat are subjected to a high mechanical load (bounce). A restrictor is installed upstream of each injector to dampen the pulses in the fuel rail. This restrictor dampens the incoming and outgoing pulses and so prevents the injector pintle from colliding with the injector pintle seat.

The restrictor is mechanically press-fitted into the fuel rail.



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## Piezo injector

To reduce particulate emissions still further and to optimise combustion, 8-port injectors are used in place of 7-port injectors. This enables the fuel to be more finely atomised and provides a smoother combustion process.



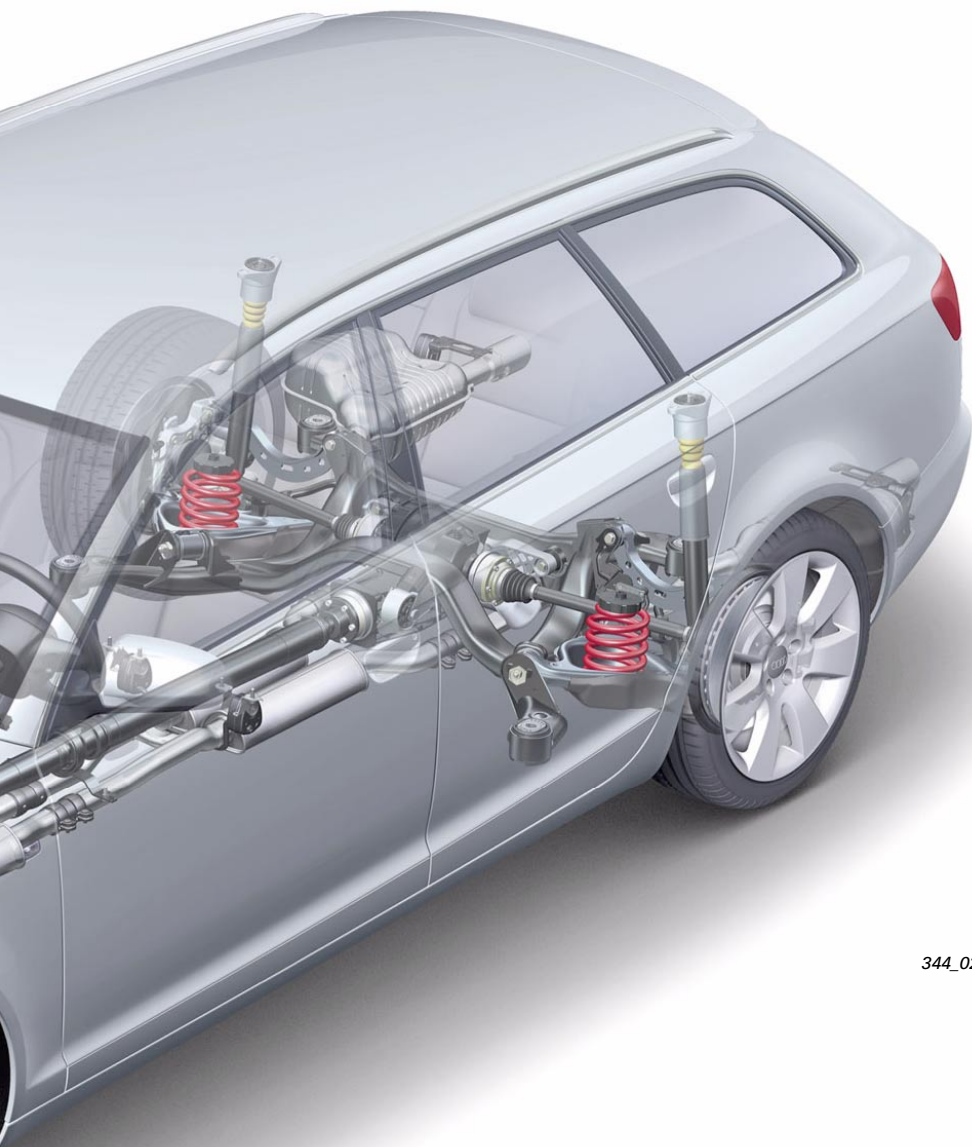
### Note

When replacing the injector, pay attention to the genuine parts number!

## Running gear

A steel-spring suspension is used in the basic version of Audi A6 Avant '05. In comparison with the running gear in the A6 saloon, the set-ups for the springs, dampers and anti-roll bars have been revised. In the Avant, too, there are suspension systems for front-wheel-drive and quattro versions. The dynamic suspension system is available in the basic version. A sport suspension, which lowers the overall car's ride height by 15 mm compared to the dynamic suspension system, is available as an optional extra. Heavy-duty running gear, which raises the car's ride height by 15 mm compared to the dynamic suspension system, is also optional.





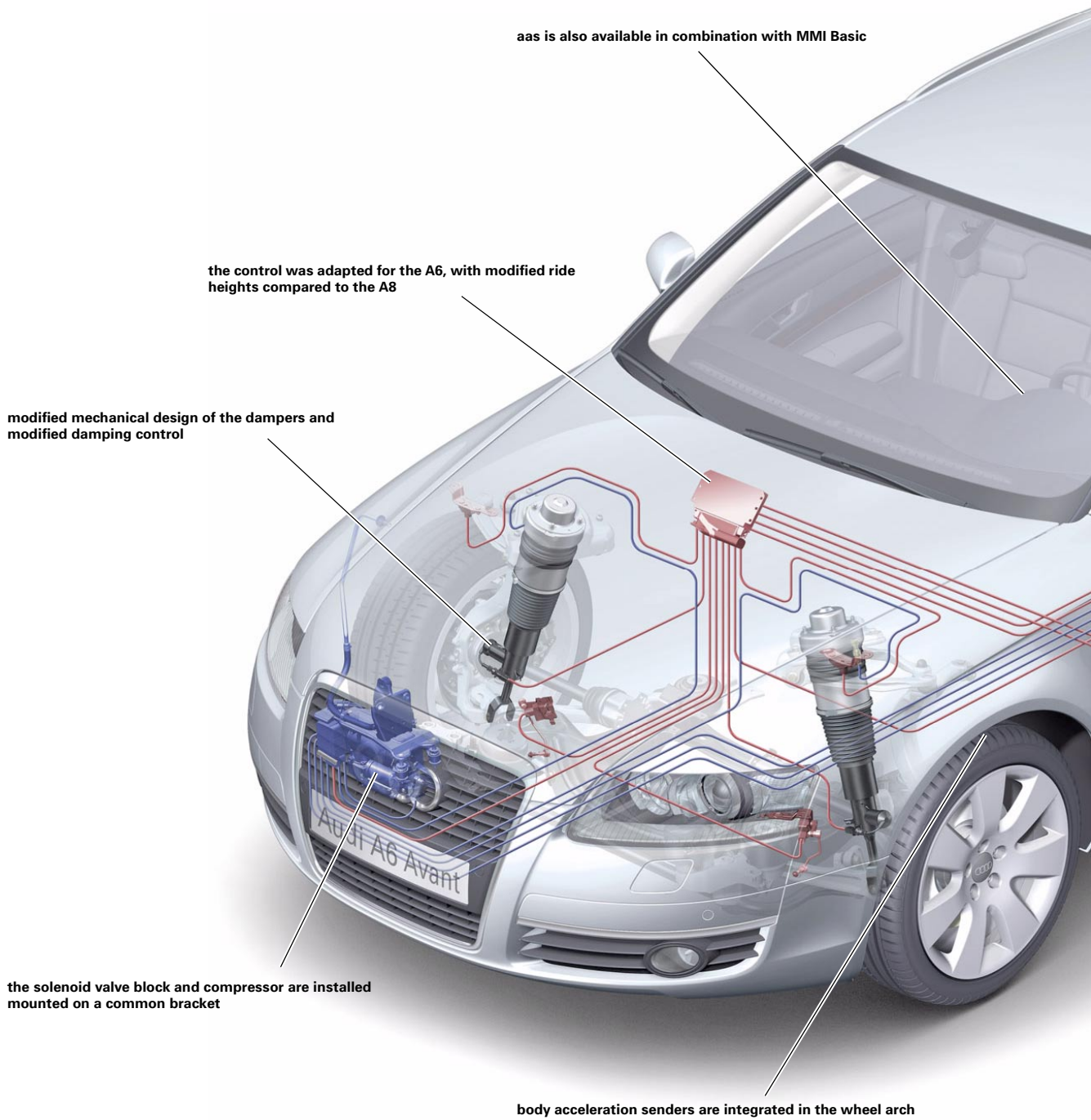
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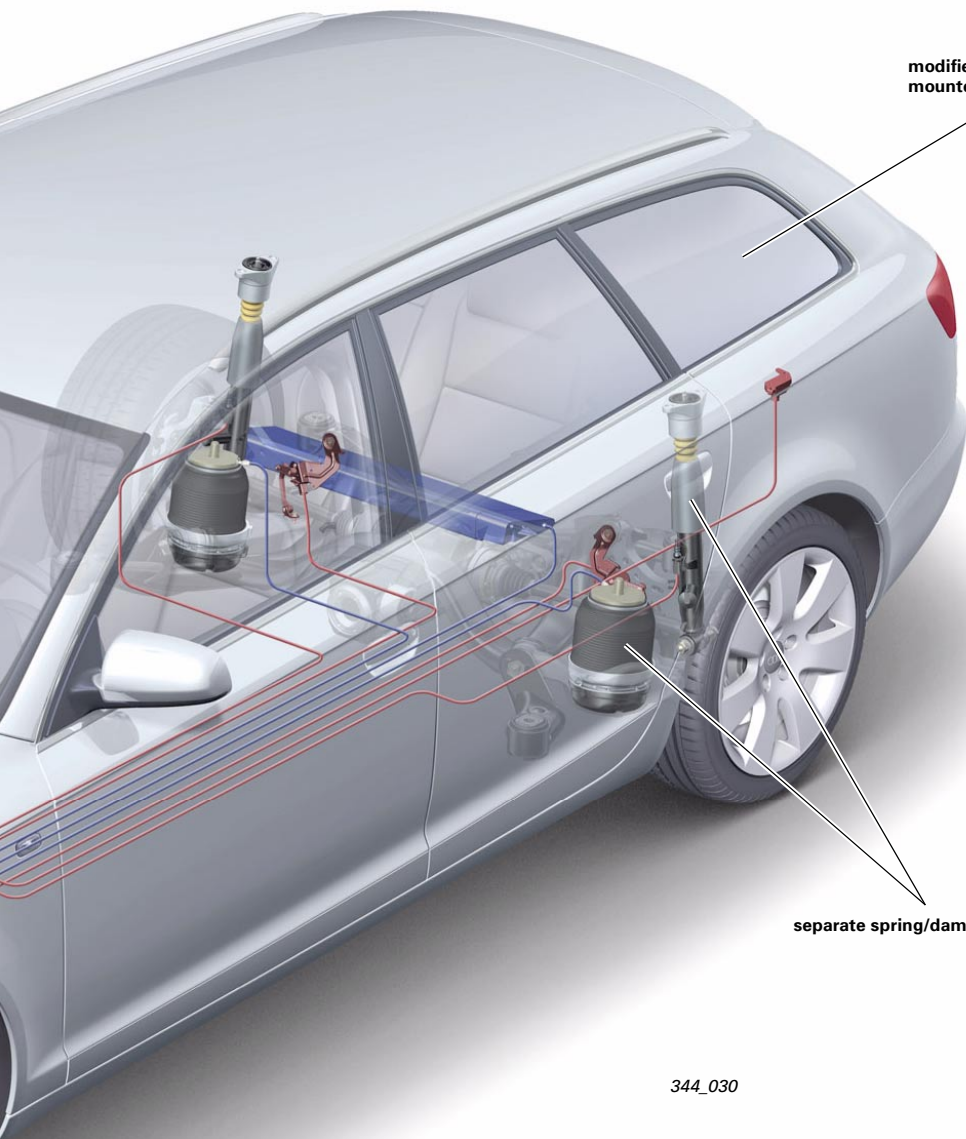


# Running gear

## Adaptive air suspension (aas)

A modified aas system is optional in the Audi A6 Avant '05. By comparison with the aas in the A8, there is no distinction to be made between the aas standard suspension and the aas sports suspension. The following fundamental differences exist between the aas in the A6 and the aas in the A8:





**modified pressure accumulator design,  
mounted to luggage compartment floor**

**separate spring/damper arrangement**

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