



Audi TT Coupé '07

Self-Study Programme 380

Introduction

The first generation of the Audi TT Coupé, named after the legendary "Tourist Trophy" race in the UK, was a milestone in automotive design.

The design followed the pure geometry, with central motives being the circle, particularly distinctive on the wheel arches, the arches of the roofline, the front end and the rear end. Audi has taken this genetic code and developed it in authentic style.

In the new TT, the geometric shapes merge fluidly with one another. The concave and convex arches radiate dynamism and movement while lending the TT Coupé the character of an athletic sculpture thrusting forwards.

The front end of the new TT Coupé has gained in expressiveness and resoluteness, the most distinctive element being the singelframe radiator grille.

Unlike the predecessor model, the rear end has a completely different outline to the front end. The rear lights create a three-dimensional effect by virtue of their visual depth. The trapezoidal cut-out around the license plate continues the flowing lines of the boot lid. The powerful exhaust tailpipes, wide diffusor and central rear fog light are borrowed straight from motorsport.

The dynamic impression conveyed by the Audi TT Coupé also stems from its modified proportions.

On the exterior it is now: - 137 mm longer
- 78 mm wider



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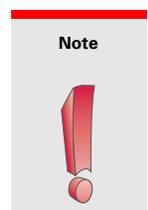
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The self-study programme teaches the design and function of new vehicle models, new automotive components or new technologies.

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.

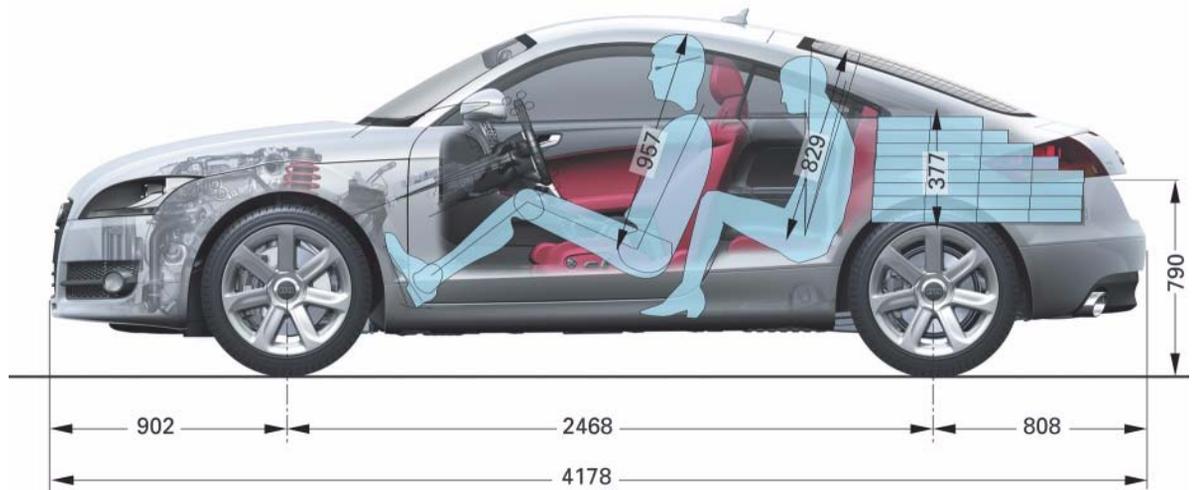
For maintenance and repair work, always refer to the current technical literature.



Introduction

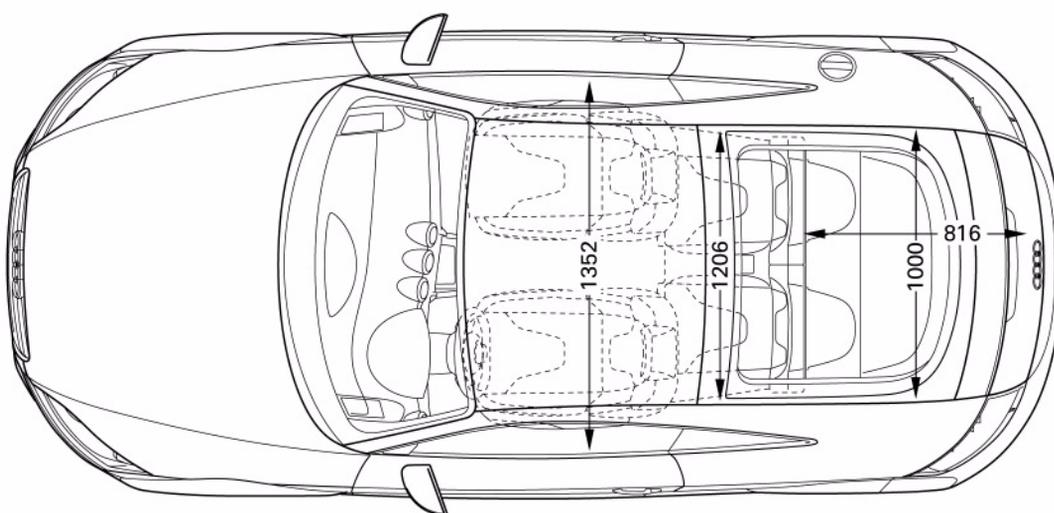
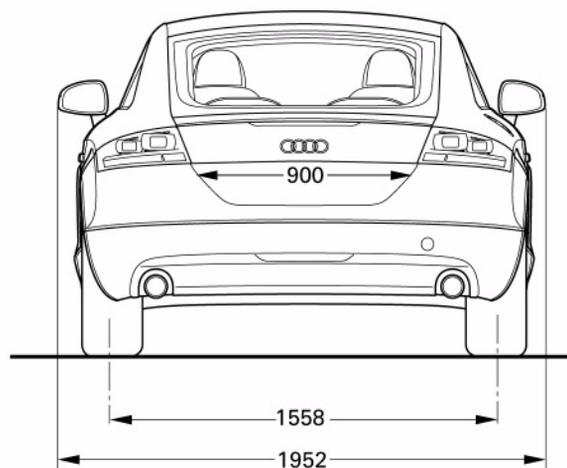
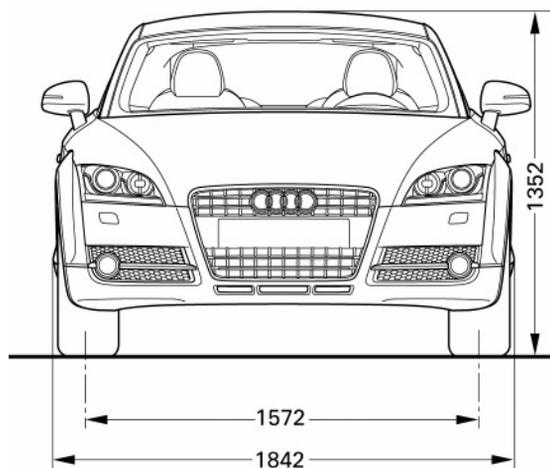
Overview

Dimensions of the Audi TT Coupé '07.



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Audi TT Coupé '07	2.0l HS	2.0l s-tronic	3.2l HS qu	3.2l s-tronic qu
Permissible gross weight in kg	1660	1680	1810	1830
Kerb weight without driver in kg	1260	1280	1410	1430
Drag coefficient Cw	0.30		0.30	0.31
Fuel tank capacity in litres	55		60	
Body type	Audi Space Frame (ASF)			
Height of loading sill in mm	790			
Luggage compartment volume in l	290 (700l with rear-seat back folded forward)			



380_040

Body / dimensions

Length in mm	4178	+ 137
Width in mm	1842	+ 78
Height in mm	1352	+ 6
Wheelbase in mm	2468	+ 46
Front track width in mm	1572	+ 26
Rear track width in mm	1558	+ 30
Number of seats	2 + 2	

Audi Space Frame ASF of the Audi TT Coupé '07

The development targets for the bodyshell of the Audi TT Coupé '07

With a weight advantage of 48 % over a comparable all-steel bodyshell, not to mention the optimised weight distribution, the new composite aluminium-steel spaceframe body of the TT Coupé marks yet another milestone in the development of modern Audi bodyshells.

Crash safety of the bodyshell is enhanced by load-bearing structures at the front, sides and rear end with a heavy emphasis on pedestrian safety.

To ensure efficient volume bodyshell production, various new joining and production techniques are employed.

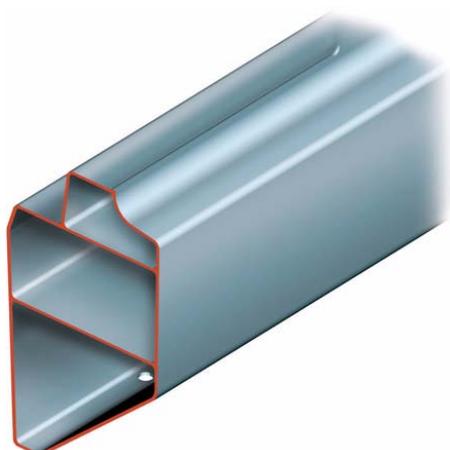
The repair concept is to a large extent based on the well-known aluminium repair concept, although combining the materials aluminium and steel meant, of course, that new approaches had to be taken.

Sill section Audi TT Coupé '07
Four-chamber extruded section



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Sill section Audi A8
Three-chamber extruded section



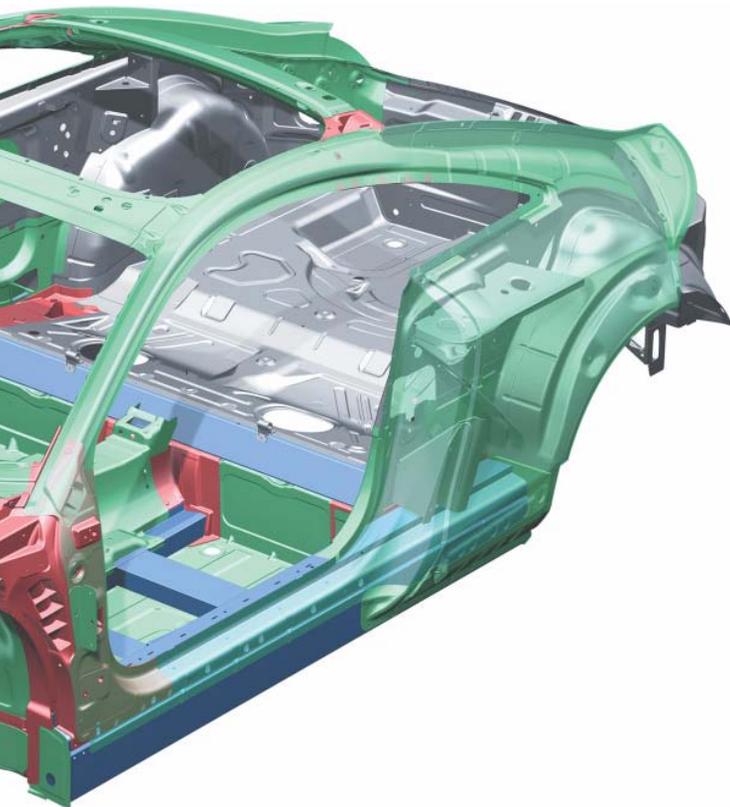
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Technological concept

Sheet-steel parts are used for the first time in the ASF of the Audi TT Coupé '07, in addition to aluminium castings, aluminium extruded sections and aluminium sheet-metal parts. Collectively they form the body structure. Vehicle weight distribution is optimised by using sheet-steel parts at the rear end of the body. This has a direct bearing on sporting characteristics such as driving dynamics and acceleration, as well as safety characteristics such as stopping distance and driving stability. Despite the partial use of sheet-steel parts, the total body weight of 277 kg including attachments, such as doors and lids, is approx. 48 % less than that of a comparable full steel body. Although the TT Coupé has grown considerably in size, the overall weight of the vehicle has been reduced through the use of the aluminium steel bodysell.

The body structure of the Audi TT Coupé '07 has higher strength and 50 % higher torsional rigidity than its predecessor.



Component parts overview

	22	Aluminium castings
	129	Sheet-aluminium parts
	19	Extruded aluminium sections
	107	Sheet-steel parts (galvanised)

380_061

Reference



For details of design and function, refer to Self-Study Programme 383 Audi TT Coupé '07 - Body.

Occupant protection

Occupant protection system in the Audi TT Coupé '07

The Audi TT Coupé '07 is a high-end sports car. However, the occupant protection system matches the vehicle's driving dynamics in every respect. Creating a sports car with a high occupant protection potential is always a big challenge. This challenge was met by the TT Coupé development team.

The occupant protection system of the Audi TT Coupé '07 is composed of the following components and systems:

- Airbag control unit
- Dual-stage driver and front passenger airbags
- Front side airbags
- Central crash sensor for front airbag, so-called "upfront" sensor for head-on collision detection
- Side impact detection sensors in the front doors
- Front belt tensioners
- Battery isolation igniter
- Belt switch, driver side
- Belt-on indicator

Due to the different criteria and statutory requirements set by the various markets, the equipment specifications can vary. This applies particularly to the US market.

Legend

- E24 Driver side belt switch
- E224 Front passenger side airbag deactivation key switch
- G179 Side airbag crash sensor, driver side
- G180 Side airbag crash sensor, front passenger side
- G283 Driver side front airbag crash sensor (central)

Airbag control unit J234

Airbag control unit J234 and integrated electronics have the task of detecting a collision.

In the Audi TT Coupé '07 the airbag control unit is attached to the vehicle body in the area of the handbrake lever.

The airbag control unit is integrated in the CAN powertrain data bus so that it can exchange information with other control units.

The airbag electronics basically have the following main tasks:

- Collision detection (front, side, rear)
- Defined deployment of the belt tensioners, airbags and battery disconnect
- Defined deployment of the second front airbag stage
- Evaluation of all input information
- Permanent monitoring of the complete airbag system
- Independent energy supply via capacitor for a defined period of time (approx. 150 ms)
- Fault display via failure warning lamp
- Storage of error / and crash information
- Indication of a collision event to other system components via the powertrain CAN bus or discrete collision output (conventionally wired)
- Activate seat belt reminder



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To find out which components need replacing after an accident, refer to the valid Workshop Manual in ElsaWin.

An airbag control unit can only be replaced with a VAS tester running the "Guided Fault Finding" or "Guided Functions" application.

Reference



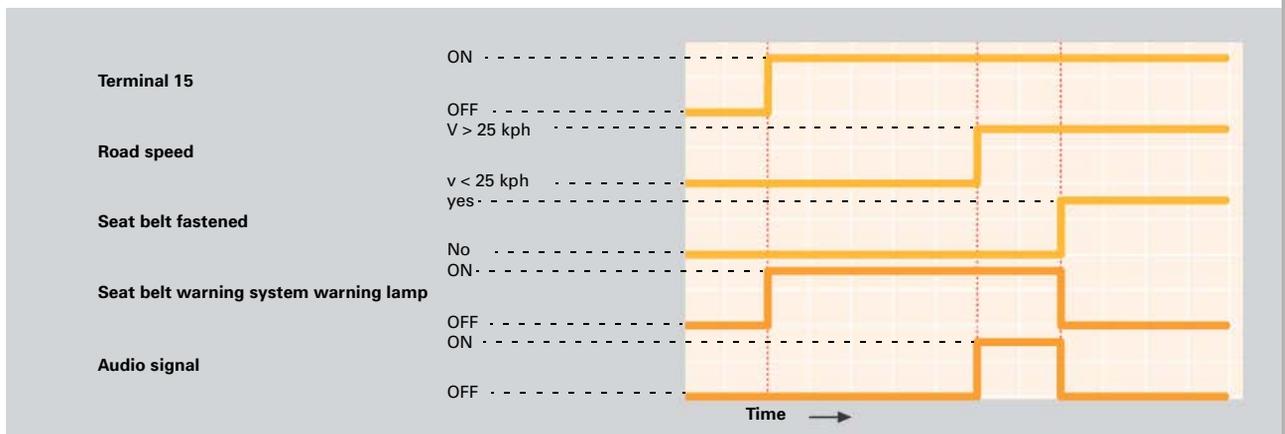
For more information about the airbag control unit J234, refer to Self-Study Programmes 323 Audi A6 '05 and 361 Audi Q7.

Belt-on warning

The Audi TT Coupé '07 has a belt-on warning function for the driver. The airbag control unit evaluates the information from the driver side belt switch E24 after ignition "on". If the driver is not wearing a seat belt, a visual warning is given by the seat belt warning system warning lamp K19 integrated in the dash panel insert. If the system determines that the vehicle is moving, an audio warning is given in addition to the visual warning. As long as the ignition is on, the airbag control unit monitors the switched condition of seat belt switch E24. If seat belt status changes while terminal 15 is "on", the seat belt reminder will be reactivated.

Time diagram for seat belt reminder

Visual and audio signals
- Delayed seat belt fastening

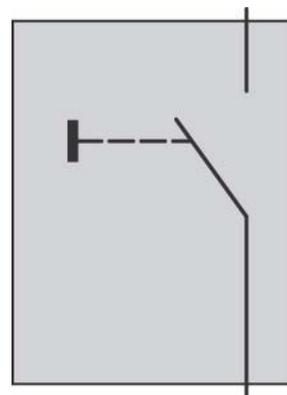


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Driver side belt switch E24

The "belt-on warning" function needs information on whether the driver's seat belt is fastened or not.

Seat belt switch E24 in the belt buckle is a mechanically actuated open-close switch. The airbag control unit uses a resistance measurement to establish whether the seat belt is fastened or not.



380_065

Occupant protection

Airbag

The Audi TT Coupé '07 has two-stage front airbags on the driver and front passenger sides.

The airbag control unit selects the time interval between the two ignition stages (approx. 5 ms to 30 ms) according to severity and type of crash.

The loads acting on the driver or front passenger during an accident can be reduced through time-staggered ignition of the propellant charges.

Both propellant charges are always ignited. This ensures that no propellant charge remains active after the airbag is deployed.

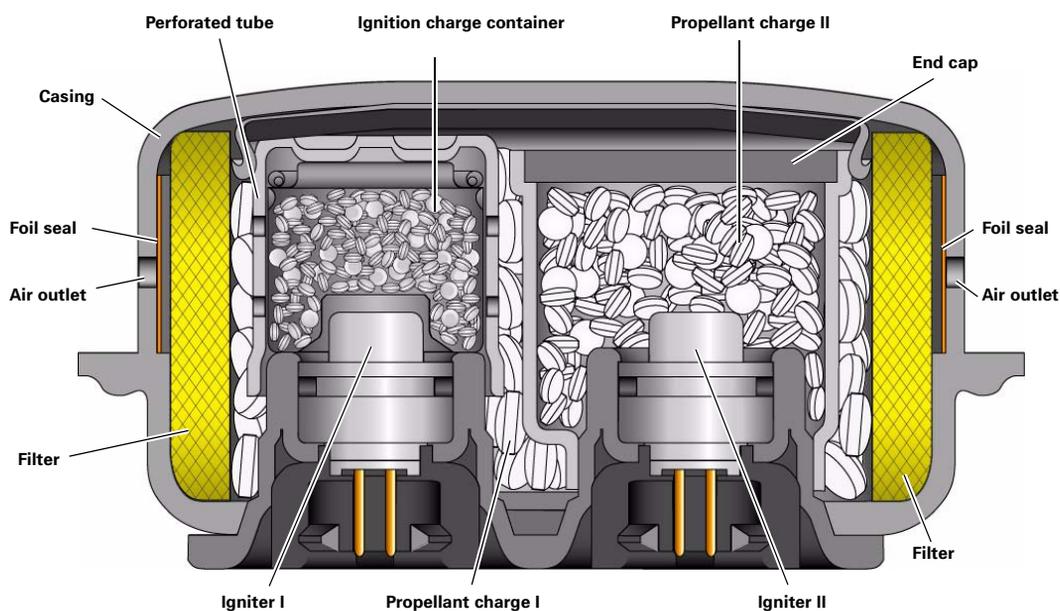
Driver airbag

Airbag igniter I, driver side N95

Airbag igniter II, driver side N250

A gas generator with two pyrotechnic propellant charges is integrated in the driver's airbag.

Igniter I is activated electrically by the airbag control unit J234. The igniter flame passes through the container and ignites the ignition charge in the container. If the pressure produced by the ignition of the ignition charge is high enough, the flame will break through the container and reach the propellant charge through the perforated tube. Propellant charge I ignites and combusts. The developing gas destroys the foil seal, and filtered gas flows through the air outlet into the airbag. After a defined interval has expired, the airbag control unit activates igniter II, which in turn ignites propellant charge II directly. The gas produced by combustion of the propellant material flows through the raised end cap into the combustion chamber of propellant charge I. From here the gas flows through the filter into the airbag.



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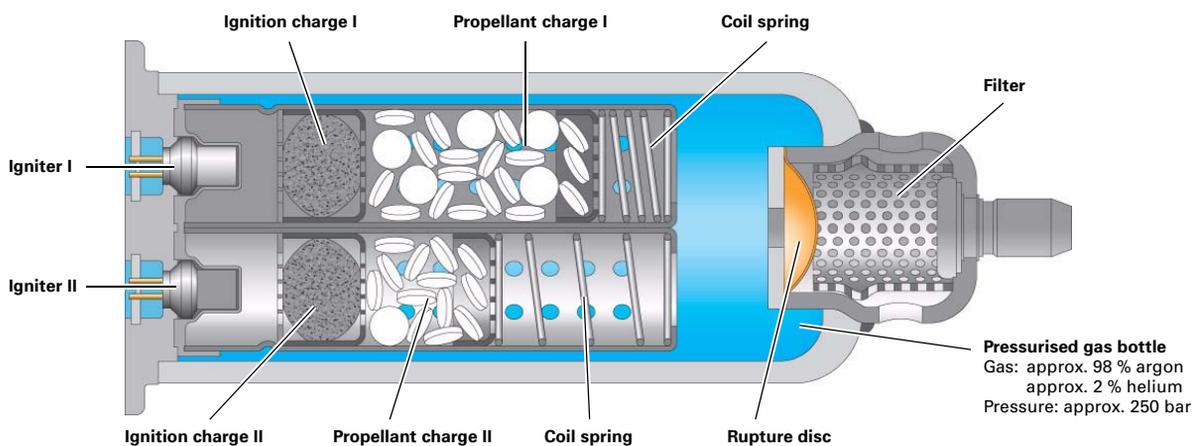
Front passenger airbag

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

An airbag module with a two-stage hybrid gas generator is used in the Audi TT Coupé '07 on the front passenger side. This module is already in use in the Audi Q7. However, it has been adapted for the TT Coupé.

Two pyrotechnic propellant charges integrated in a pressurised gas bottle are activated separately by the airbag control unit.

The so-called cold gas in the pressurised gas bottle is under approx. 250 bar of pressure and is a mixture of approx. 98 % argon and approx. 2 % helium.



361_002

Reference



For more information about the function of the front passenger front airbag, refer to Self-Study Programme 361 Audi Q7.

Occupant protection

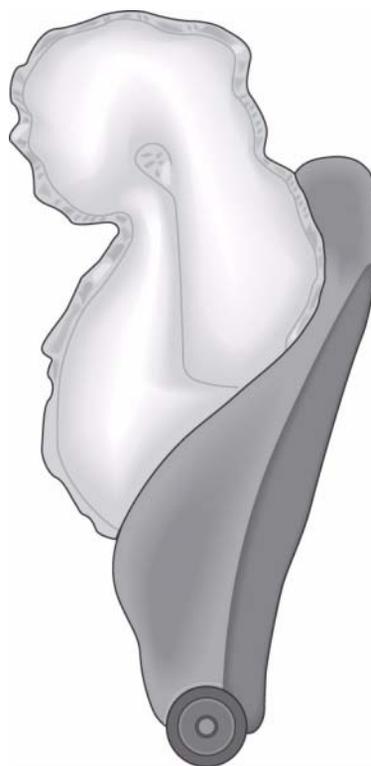
Side airbags

Side airbag igniter, driver side N199

Side airbag igniter, front passenger side N200

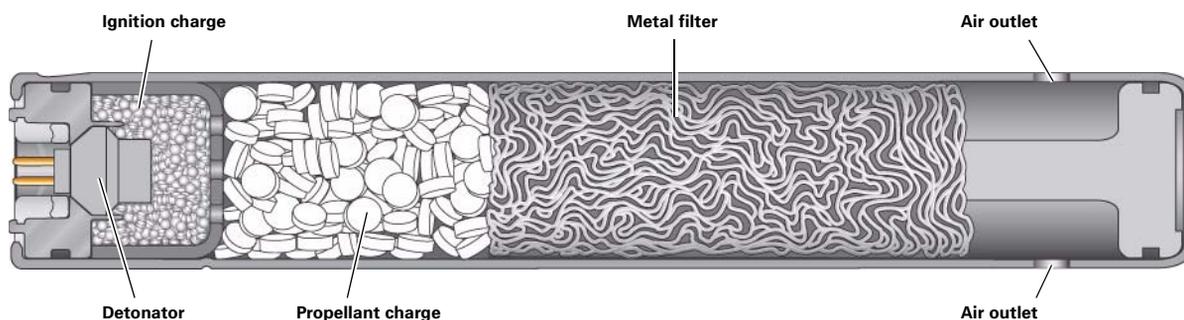
Airbag modules which cover both the body and head areas - so-called head-thorax airbags - are used as side airbags.

Tubular gas generators filled with solid propellant inflate the airbags with gas in the event of a crash.



380_004

The airbag control unit J234 energises the corresponding side airbag igniter. The ignition charge which is ignited by the igniter in turn ignites the actual propellant charge. The developing gas is treated and cooled by the metal filter, whereupon it unfolds and inflates the airbag.



361_022

**Driver seat belt tensioner igniter -1- N153
Front passenger seat belt tensioner igniter -1- N154**

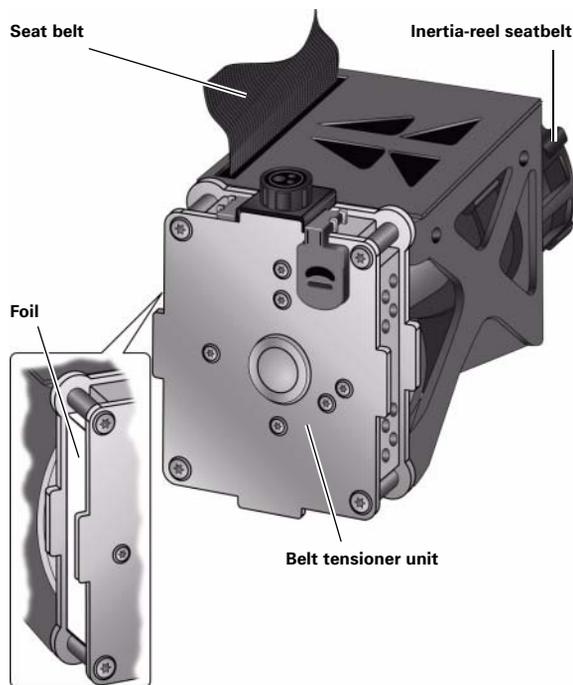
The Audi TT Coupé '07 is equipped with redesigned belt tensioners for the driver and front passenger. These belt tensioners are so-called "band tensioners".

The TT Coupé for the North American market is also equipped with these belt tensioners.

If the rear seats in the TT Coupé are equipped with Isofix fixing eyelets, belt tensioners are also installed for these seats.

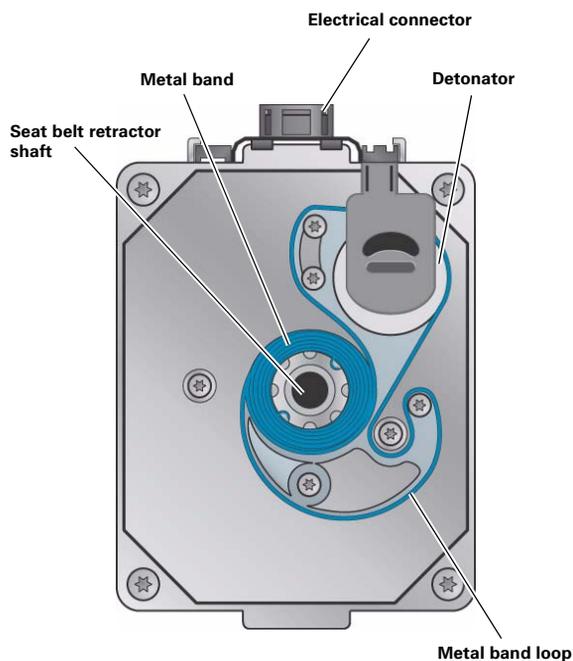
The workshop manual (ElsaWin) applicable to the vehicle describes the tests which must be made to detect an activated belt tensioner (band tensioner).

An activated belt tensioner can be detected, among other things, by virtue of the fact that the foil located on the side of the belt tensioner housing is detached from the housing.



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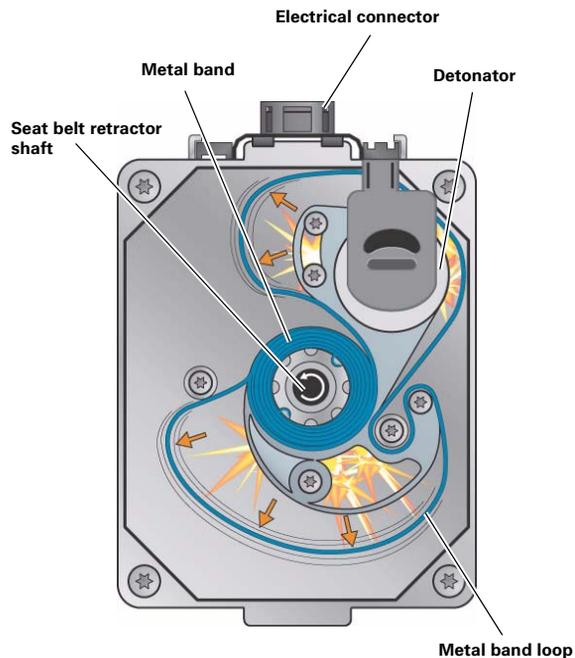
A metal band is wrapped around the seat belt retractor shaft. Both open ends are connected to the seat belt retractor shaft. The closed end is looped around the belt tensioner igniter.



380_027

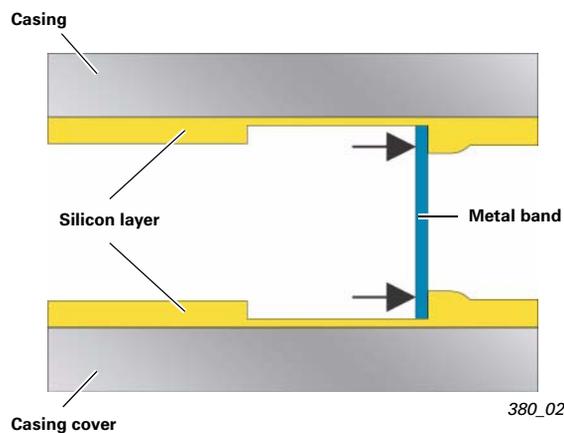
Occupant protection

The belt tensioner igniter is located inside the metal band loop. When the igniter is activated by the airbag control unit, the resultant pressure causes the loop of the metal band to expand. The movement of the metal band exerts a pull on the seat belt retractor shaft, which thereupon begins to rotate, tensioning the seat belt.



380_028

The casing and casing cover surface between which the metal band moves are coated in a layer of silicon. When the metal band moves, it thrusts a part of this silicon layer ahead of itself and thereby ensures that a tight seal is maintained. Pressure losses are thus reduced.

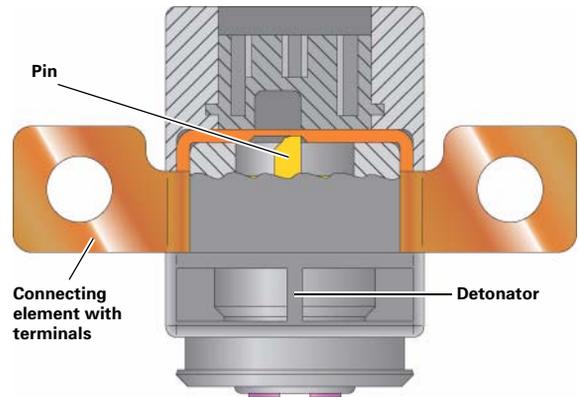


380_026

Battery isolation igniter N253

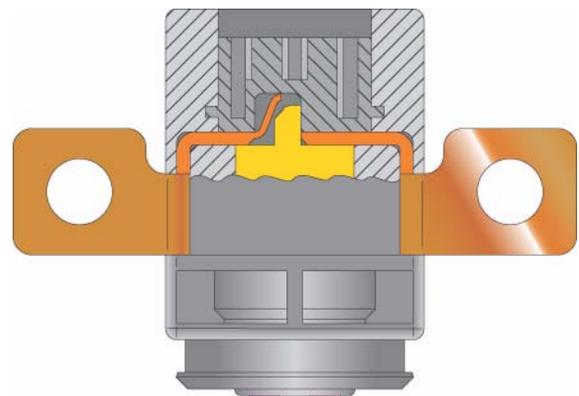
The battery isolation igniter has the task of disconnecting the starter and alternator leads from the vehicle battery in the event of a crash. Use is made of a pyrotechnic component which is activated by the airbag control unit J234 whenever the airbag is deployed. During a rear collision, only the belt tensioner and the battery isolation igniter are activated.

Battery isolation igniter



If the pyrotechnic propellant charge is ignited, the resultant gas pressure displaces the pin on a piston and disconnects the two terminals.

After deployment of the airbag, the battery isolation igniter must be replaced.



Reference



Further information on the function of the battery isolation igniter, refer to Self-Study Programme 361 Audi Q7.

Occupant protection

Additional functions and components of the occupant protection system for the North American market

The additional functions and components of the occupant protection system for the North American market are described on the following pages.

The occupant protection system is equipped with additional functions and components, e.g. second crash sensor for front airbag, so that the Audi TT Coupé '07 meets the statutory and market-specific requirements for the US market.

Seat occupied detection, front passenger side

The front passenger side seat occupied recognition system was largely adopted from the Audi Q7.

The system basically comprises the following components:

- Seat squab
- Sensor mat for seat occupied recognition
- Pressure sensor for seat occupied recognition G452
- Seat occupied recognition control unit J706
- Front passenger side belt switch E25
- Seat belt force sensor for seat occupied recognition G453
- Front passenger side airbag deactivated warning lamp K145 (PASSENGER AIRBAG OFF)
- Airbag control unit J234

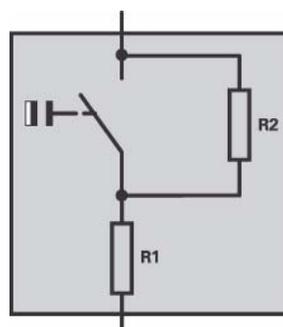
These components form a single unit and must not be separated from each other.

Driver side belt switch E24 Front passenger side belt switch E25

The Audi TT Coupé '07 for the North American market is equipped with seat belt switches for belt-fastened recognition on the driver and front passenger sides.

Seat belt switches E24 and E25 are integrated in the belt buckles on the front seats. So-called "reed switches" are used. The reed switch remains open until the occupants have fastened their seat belts.

The airbag control unit J234 performs a resistance measurement from which it can determine whether the occupants have fastened their seat belts or not. Depending on the position of the reed switch, the measurement is made using one or both resistors.



361_029

Reference



For further information about the seat occupied recognition system and the seat belt switch, refer to Self-Study Programme 361 Audi Q7.

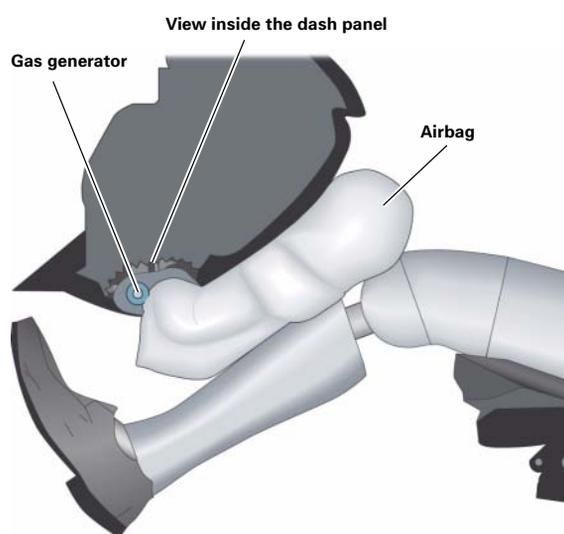
Knee airbag igniter, driver side N295
Knee airbag igniter, front passenger side N296

The Audi TT Coupé '07 for the North American market is equipped with knee airbags for the driver and front passenger sides.

Ignited knee airbags allow the occupants to participate earlier in the vehicle deceleration process. The airbag system of driver and front passenger front airbags in combination with knee airbags reduces the injury risk for the occupants.

On the driver side, the knee airbag is located in the footwell trim panel below the dash panel. On the front passenger side, the knee airbag is located behind the glove box lid.

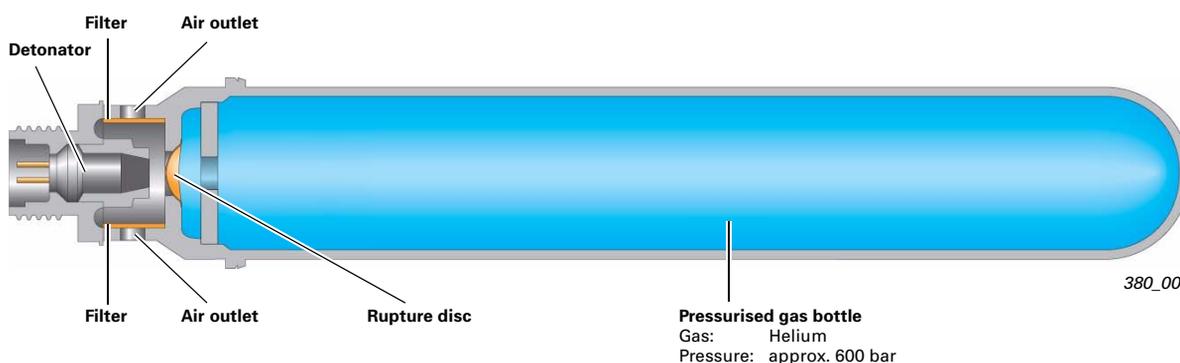
After the airbags are activated, the airbag unfolds between the dash panel and the occupants' legs.



380_006

Hybrid gas generators have the task of inflating the airbags with gas.

The airbag control unit J234 activates the igniter in the gas generator. The resultant pulsation wave is directed to the rupture disc. The rupture disc breaks and the helium from the pressurised gas bottle flows into the airbag.



380_009

Occupant protection

Belt force limiter, driver side G551

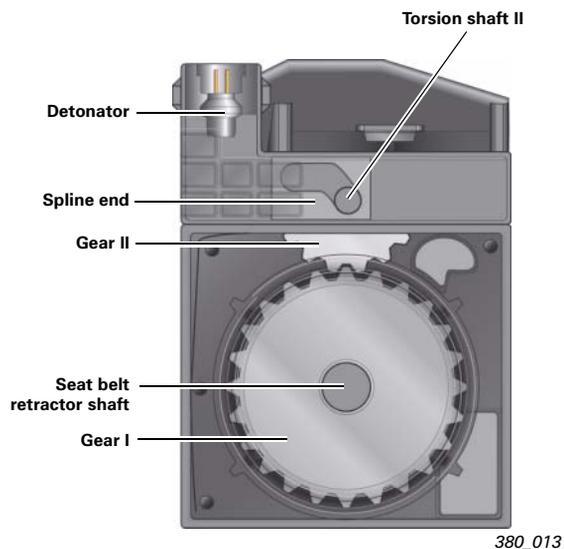
Belt force limiter, front passenger side G552

The front inertia-reel seatbelts have a two-stage belt force limiter. In the event of a collision, the belt tensioners (band tensioners) are ignited first. The inertia-reel seatbelt blocks the seat belt retractor shaft and prevents the seat belt from unreeling, which would occur due to the forwards movement of the occupants. The seat belt retractor shaft is designed as a torsion shaft. To limit the load which the seat belt places on the occupants, two torsion shafts allow controlled unreeling of the seat belt; belt force limiter.

After a defined interval, the airbag control unit activates the belt force limiter igniter.

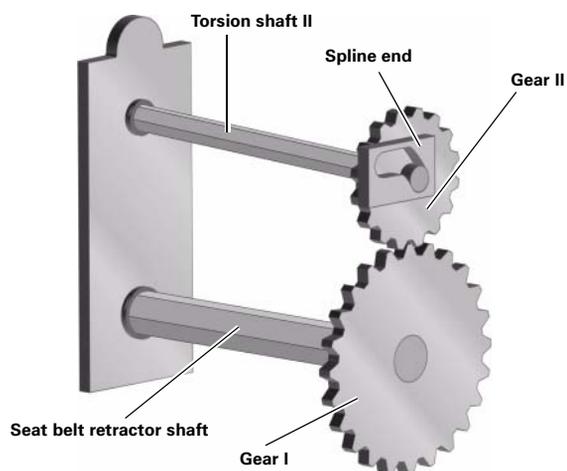
The second torsion shaft is decoupled. The seat belt retractor shaft now counteracts the force which the seat belt exerts.

To ensure that the occupants are afforded a good level of protection, the belt tensioning function, the belt force limiting function and the front airbags are coordinated with each other.



380_013

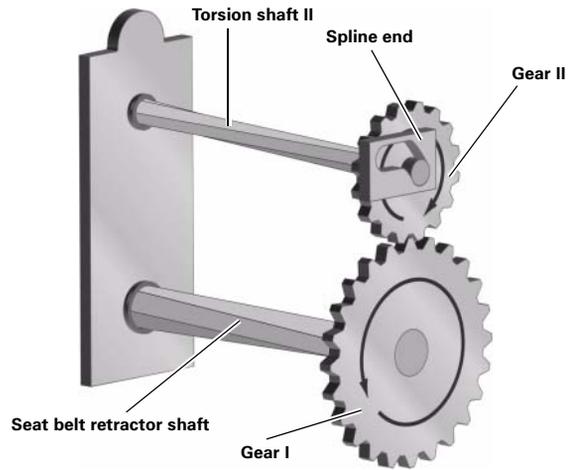
Gears I and II are permanently connected to the seat belt retractor shaft and the second torsion shaft respectively. In the initial state, both gears are in mesh with one another.



380_012

The belt tensioner retracts the seat belt to the extent possible, and the inertia-reel seatbelt locks the seat belt retractor shaft. The seat belt can no longer be pulled out.

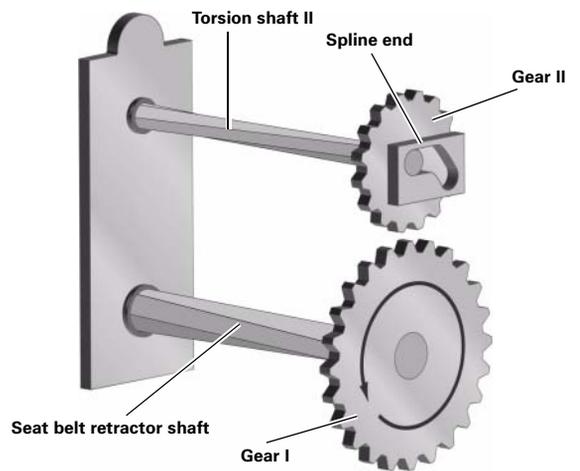
If the occupant's body now accelerates forwards due to centrifugal force, the belt force limiter allows the seat belt to unreel as of a certain force. Both torsion shafts are rotated.



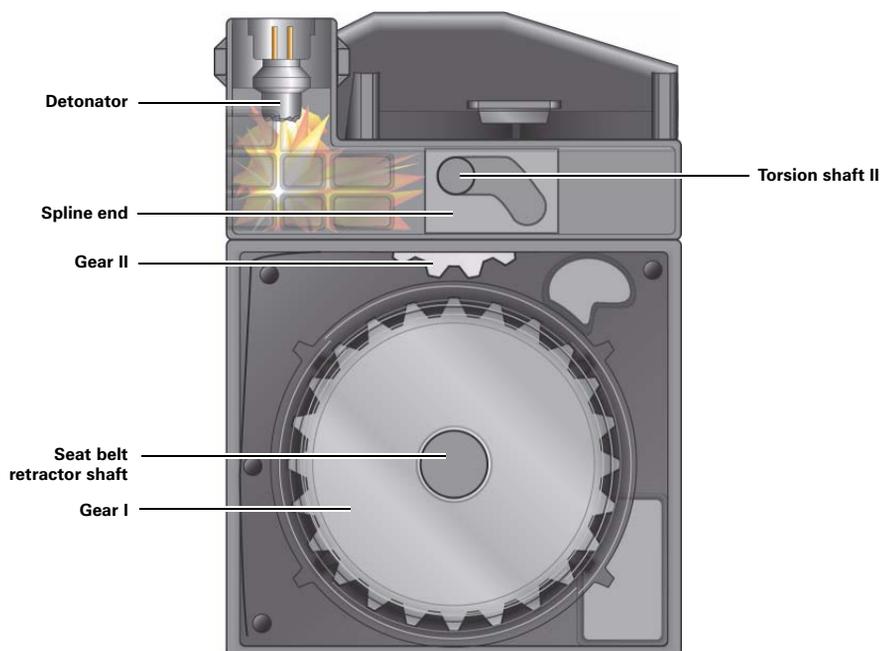
380_011

After a defined period of time, the belt force limiter igniter is activated. The spline end decouples gear II from gear I.

The belt force is now limited by the seat belt retractor shaft alone. The occupant can plunge into the fully inflated airbag.



380_010



380_016

Engine-gearbox combination

2.0l 4 cyl. TFSI



380_042

MQ 350 6F / DQ 250 6F



380_045



380_060

3.2l VR6 MPI



380_044

MQ 350 6A / DQ 250 6A



380_045



380_060

Reference



For information about the design and function on the s-tronic, please refer to Self-Study Programme 386 6-speed Direct Shift Gearbox 02E.

2.0I TFSI

The engine number is located at the rear left of the engine block in the area of the gearbox flange.

Technical features

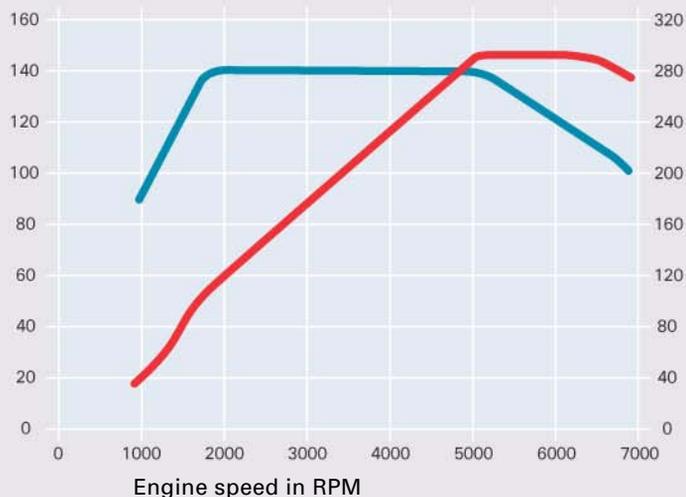
- Toothed belt drive with CTC toothed belt sprocket
- Selective petrol direct injection system (FSI)
- Turbocharging
- Pencil ignition coils
- 1 primary catalytic converter and 1 main catalytic converter
- 1 primary catalytic converter and 1 post-cat sensor



380_042

Torque/power curve

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



380_047

Specifications

Engine code	BWA
Type of engine	4-cylinder petrol engine
Displacement	1984 cm ³
Power output	147 kW (200 bhp) at 5100 RPM
Torque	280 Nm at 1800 - 5000 RPM
Bore	82.5 mm
Stroke	92.8 mm
Compression ratio	10.5 : 1
Cylinder spacing	90 mm
Weight	approx. 152 kg
Firing order	1 - 3 - 4 - 2
Engine management	Bosch Motronic MED 9.1
Exhaust gas recirculation	Internal exhaust gas recirculation
Exhaust emission control	1 ceramic pre-catalytic converter with heating function via homogeneous split dual injection, 1 main catalytic converter
Exhaust emission standard	EU 4 / ULEV

Engine

3.2I VR6 MPI

Technical features

- Chain drive on the transmission side
- Cylinder-selective injection system
- Fully variable adjustment of both camshafts
- Pencil ignition coils
- 2 primary catalytic converters and 2 main catalytic converters



380_044

Torque/power curve

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



380_046

Specifications

Engine code	BUB
Type of engine	VR6 petrol engine 15° vee angle
Displacement	3,189 cm ³
Power output	184 kW (250 bhp) at 6,300 RPM
Torque	320 Nm from 2500 to 3000 RPM
Bore	84.0 mm
Stroke	95.9 mm
Compression ratio	11.3 : 1
Offset	15°
Firing order	1 - 5 - 3 - 6 - 2 - 4
Engine management	Bosch ME 7.1.1
Camshaft adjustment range	Intake camshaft 52° crank angle Exhaust camshaft 42° crank angle
Exhaust gas recirculation	Internal exhaust gas recirculation
Exhaust emission control	2 primary catalytic converters and 2 main catalytic converters
Exhaust emission standard	EU 4

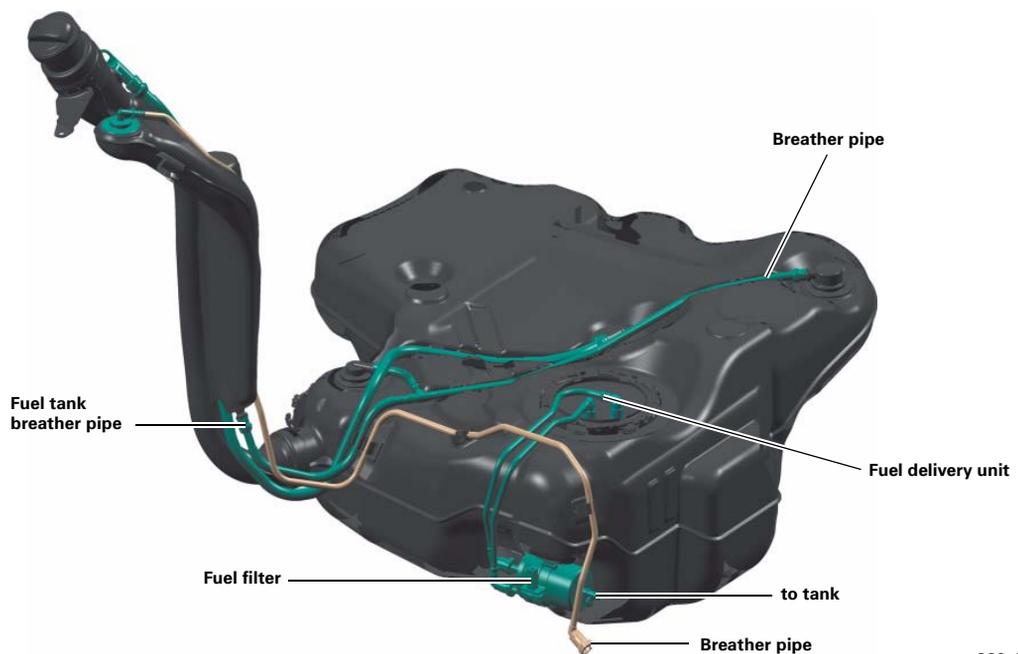
Fuel supply

The fuel system is basically adopted from the A3 '04.

The fuel tanks differ from one another in terms of their shape, which is dependent on the vehicle's drive concept.

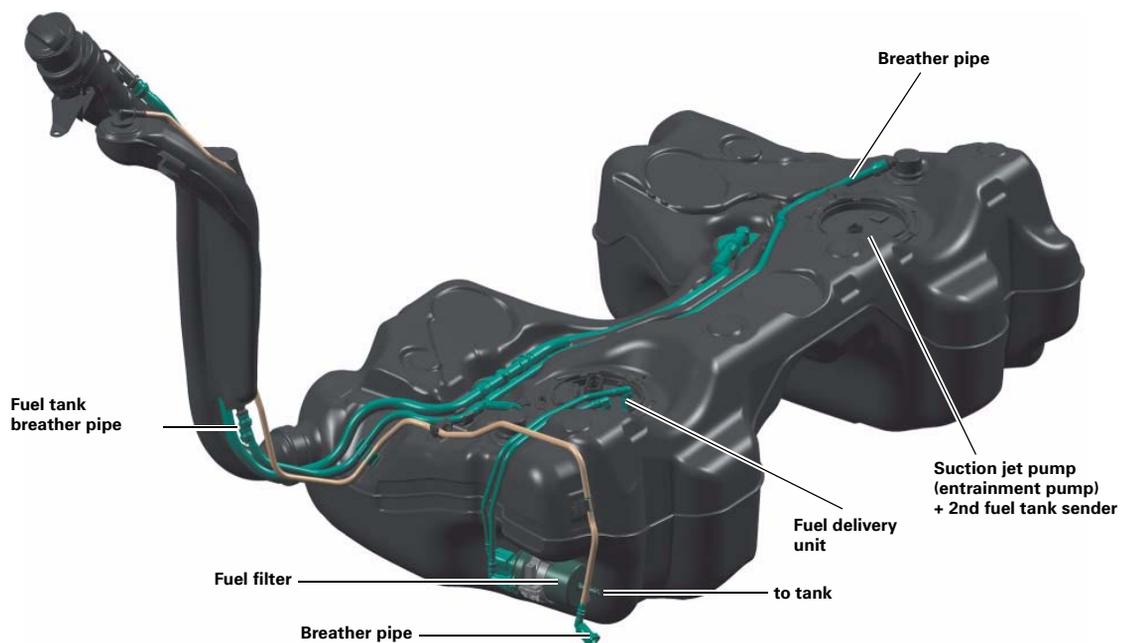
They are made of HPPE (high-pressure polyethylene). To safeguard the fuel tank against destruction in the event of an accident, it is mounted in front of the rear axle. Here it is fixed to the underbody by means of ratchet straps. It is not necessary to disassemble the rear axle to remove the fuel tank. The front tank has a capacity of 55 litres, the quattro tank 60 litres. The US spec quattro tank has a capacity of 55 litres, because a different breather system is used due to the different statutory requirements which apply.

Front tank



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quattro tank



380_001

Pressure regulation

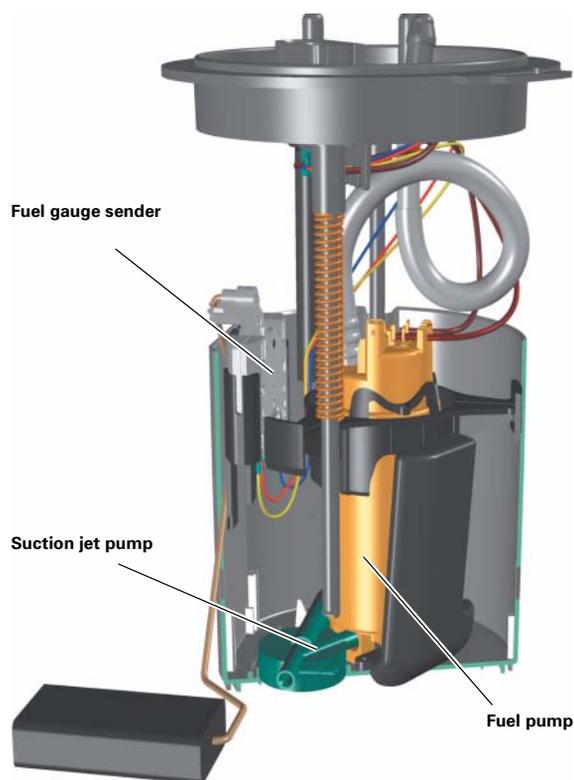
The fuel filter is bolted to the exterior of the fuel tank. The pressure regulator is integrated in the fuel filter. In case of excess pressure, the governed fuel is returned to the tank. The pressure regulator in the FSI engine cuts off fuel delivery at 6.4 bar (relative). In the case of the MPI engine, fuel cut-off is at 4 bar (relative). Both systems are returnless, with the distinction being that the pressure in the MPI engine is maintained at a constant 4 bar, while the FSI engine utilises a supply-on-demand fuel system.

Reference



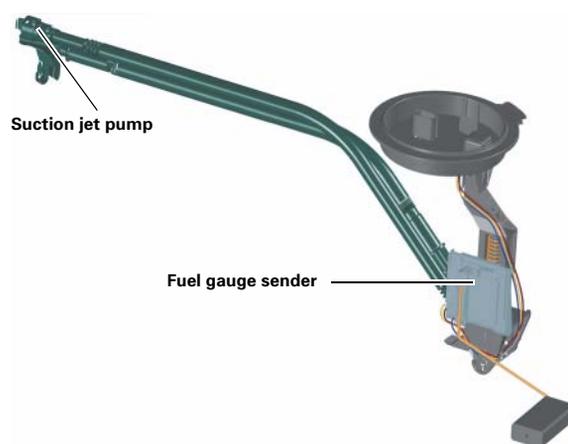
Pressure regulation in the 3.2l and 2.0l engines is described in Self-Study Programme 290 and Self-Study Programme 332 respectively.

For the MPI and FSI engines, a fuel delivery unit with integrated fuel gauge potentiometer and a suction jet pump are arranged inside the fuel tank.



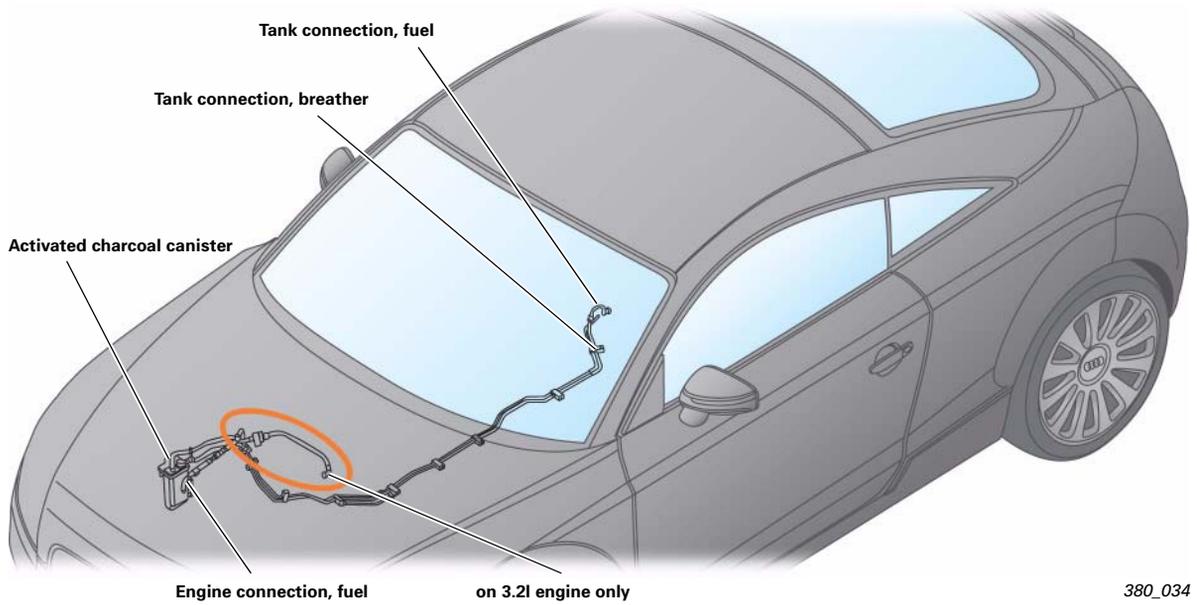
380_021

In the case of the quattro tank, a second fuel gauge potentiometer is arranged inside the second half of the fuel tank. The second half of the fuel tank also houses the suction jet pump, which pumps the fuel into the fuel delivery unit reservoir. The suction jet pump is attached securely to the sender flange by means of clips. The thin line is the propulsion jet line. It is driven by the suction jet pump. The thicker line is the mixing tube, in which the intake fuel is pumped to the fuel delivery unit. The fuel gauge senders are configured as slider potentiometers.

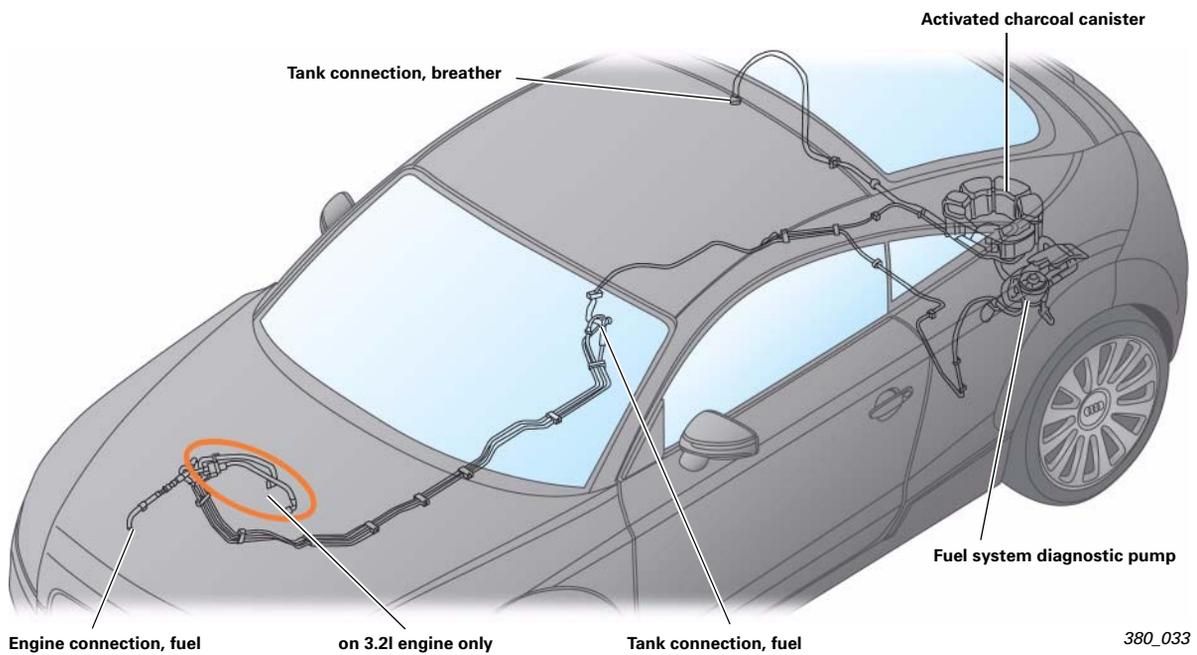


380_023

Fuel tank breather system, ROW spec (2.0l and 3.2l engines)



Fuel tank breather system, US spec (2.0l and 3.2l engines)

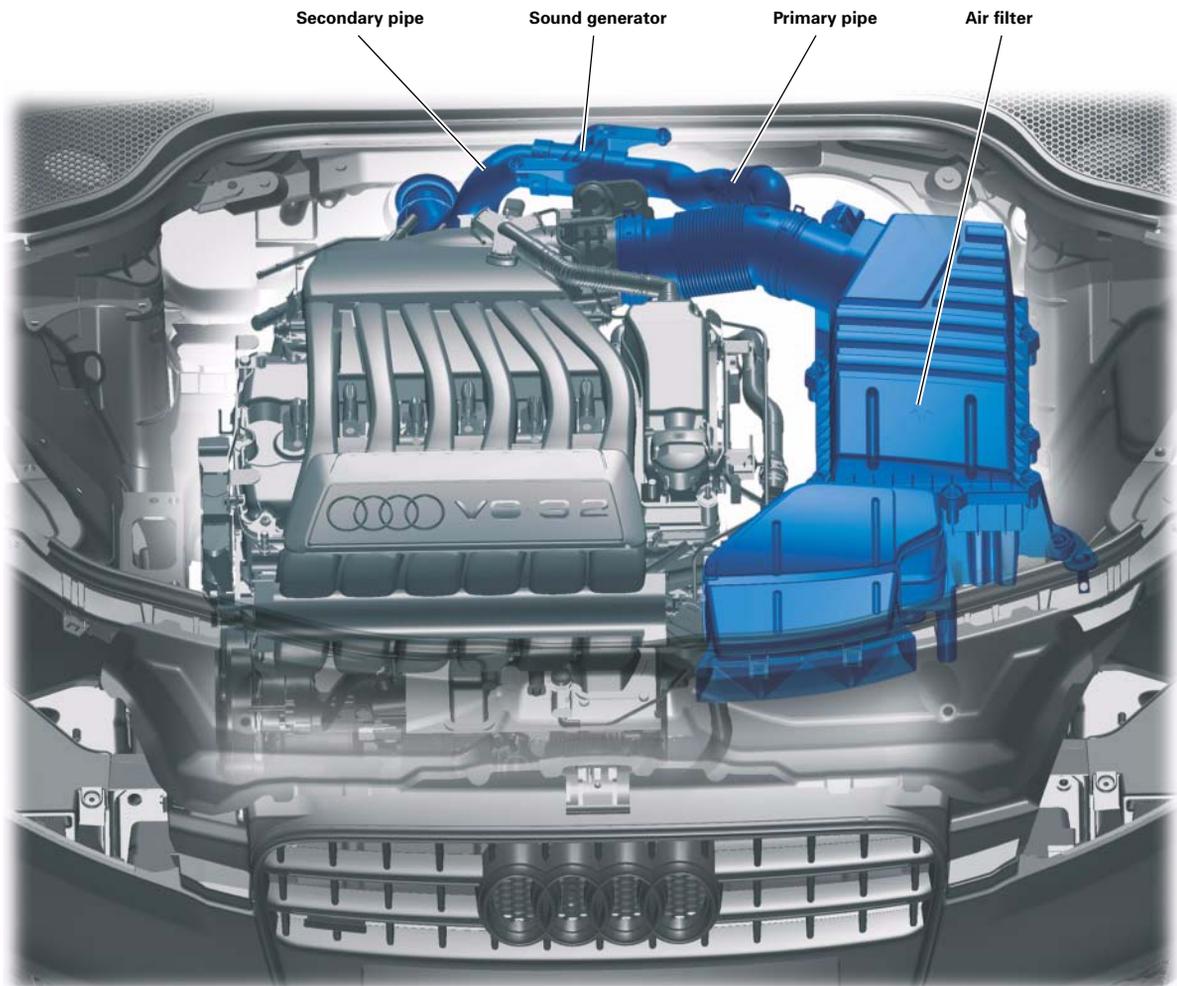


Engine

Soundpipe

A soundpipe is used on the 3.2l V6 engine to give the engine a sportier sound. The intake noise is transmitted to the vehicle body via a connecting line from the intake manifold to the plenum chamber and via a resonator.

The soundpipe has been developed to accentuate the dynamism and sportiness of the 3.2l engine. The soundpipe produces a sporty sound in the vehicle interior without impairing comfort. The pressure pulsations are amplified by the gas exchange cycle via the soundpipe without exceeding the exterior noise limits. Unwanted noise emission from ancillary units and tire noise are to a large extent avoided by the fact that the occupant cell is well-insulated. As a result, comfortable travelling is still possible.



380_014

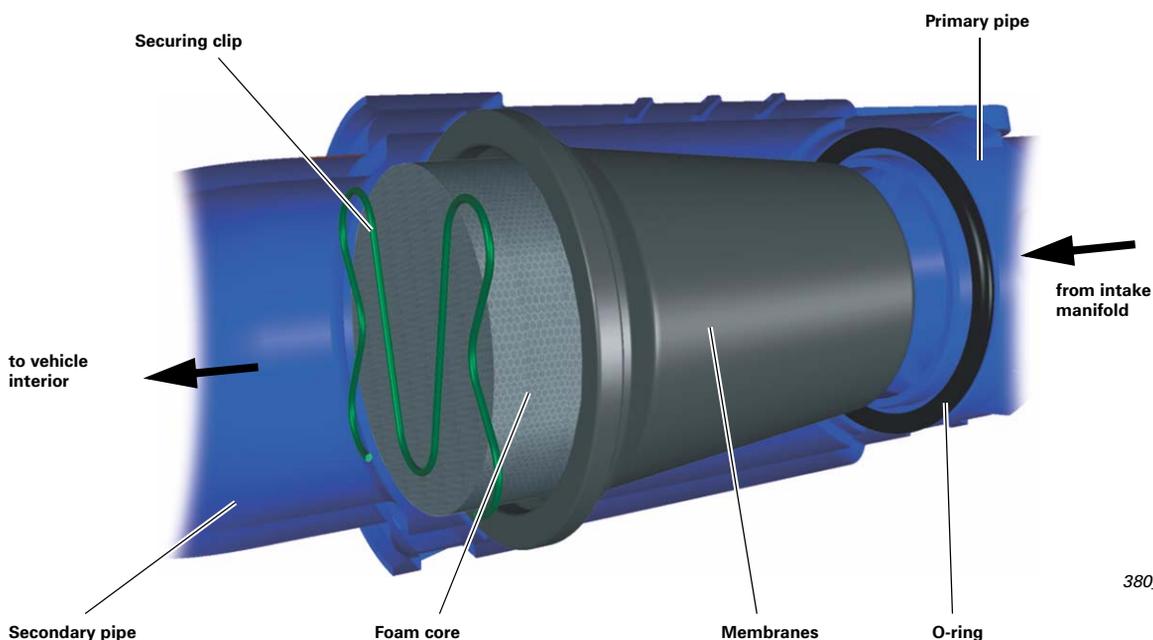
Function

A soundpipe is connected between the air mass meter and the throttle valve unit in the air intake tract. The soundpipe is made up of three parts: the primary pipe, which is connected to the air intake tract, the sound generator and the secondary pipe, which is connected to the vehicle interior via the engine bulkhead. The primary and secondary pipes as well as the sound generator are configured in such a way that it is possible to influence the "bandpass characteristic"*, and hence the acoustic transmission range. However, the sound generator is the key component. The system is designed such that the sound becomes meatier when the driver demands more power from the engine.

The pressure pulsations which during the gas exchange cycle are transmitted to the membranes in the sound generator, where they are amplified by the sound generator and relayed to the vehicle interior. Another further task the membranes is to seal the gas flow between the air intake tract and the vehicle interior. The foam core in the sound generator has the task of maintaining the shape and position of the membranes.

* A bandpass characteristic is produced, for example, by connecting the highpass and lowpass filters in series. Only a defined range of frequencies is allowed to pass, depending on the circuit configuration.

Sound generator



Suspension system

Suspension system

Overview

The Audi TT Coupé '07 is available with three different suspension systems. The dynamic suspension system represents the basic specification. The semi-active "Audi magnetic ride" suspension is optional. The driver can select between comfort and sport suspension settings at the touch of a button. quattro GmbH is also offering an S-Line suspension system, which is sportier than the dynamic suspension system. The main axle components are identical to those of the Audi A3 in respect of their design and function.

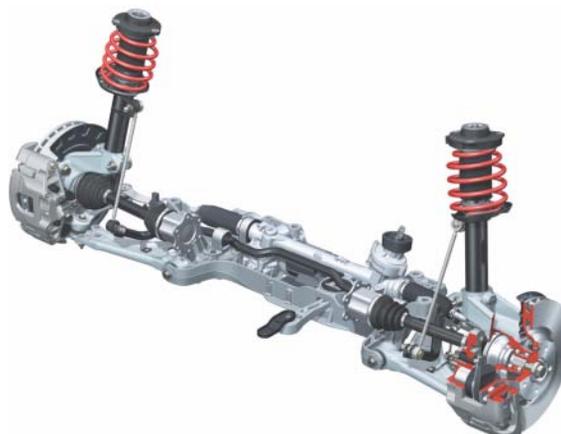


380_074

Front axle

An improved version of the McPherson suspension is used. The design of the front axle is identical to that of the Audi A3. Track width is 13 mm wider on each side than the Audi A3.

Detail modifications have been made to reflect the particularly sporty character of the Audi TT Coupé '07. In addition to the tuning parts (springs, dampers and anti-roll bars), the same axle components are used in all TT Coupé suspension variants.



380_066

Rear axle

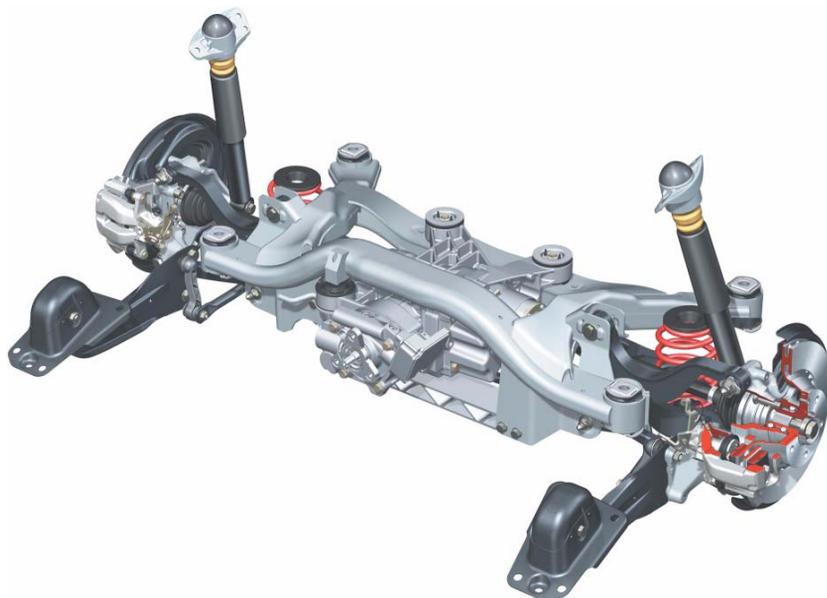
The rear axle of the Audi TT Coupé '07 is basically identical in design and function to the rear axle on the Audi A3. The wheel carriers, damper bearings and wheel bearings are modifications on the components on the Audi A3. Track width has been increased by 15 mm on each side compared to the Audi A3. The suspension and damping components (springs, dampers and anti-roll bars) were adapted to the specific requirements of the TT Coupé. Additional stone chip protection is provided for certain markets. The trailing arms and spring links on these models are protected by plastic claddings.

Rear axle for front-wheel drive



380_071

Rear axle for quattro models



380_072

Suspension system

Brake system

Overview

Front axle brake caliper

16" for all four-cylinder models
17" for all six-cylinder models

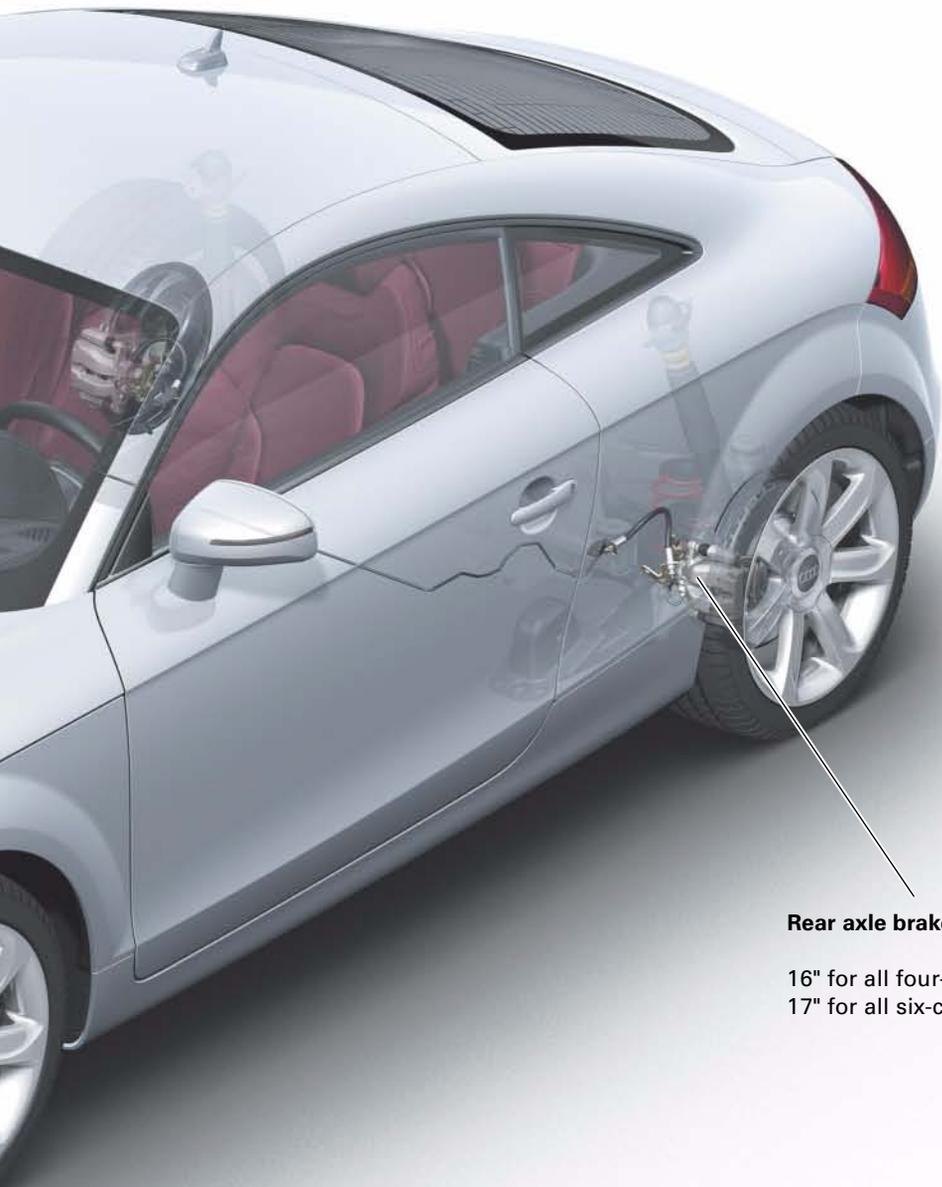
ESP

TEVES Mk60E1
with optional low tyre pressure indicator

Brake servo

10", 11", 7/8"
with contactless brake light switch
without dual rate characteristic





Rear axle brake caliper

16" for all four-cylinder models
17" for all six-cylinder models

380_073

Suspension system

Steering system

The electromechanical steering system EPS which has proved successful in the Audi A3 is also featured in the Audi TT Coupé '07. Various detail modifications have been made to adapt the steering system for use in the TT Coupé.



380_069

A mechanical steering column is fitted in the Audi TT Coupé '07. The steering column is basically identical in design and function to the steering column in the Audi A3. Various detail modifications have been made to adapt the steering column for use in the TT Coupé.



380_067

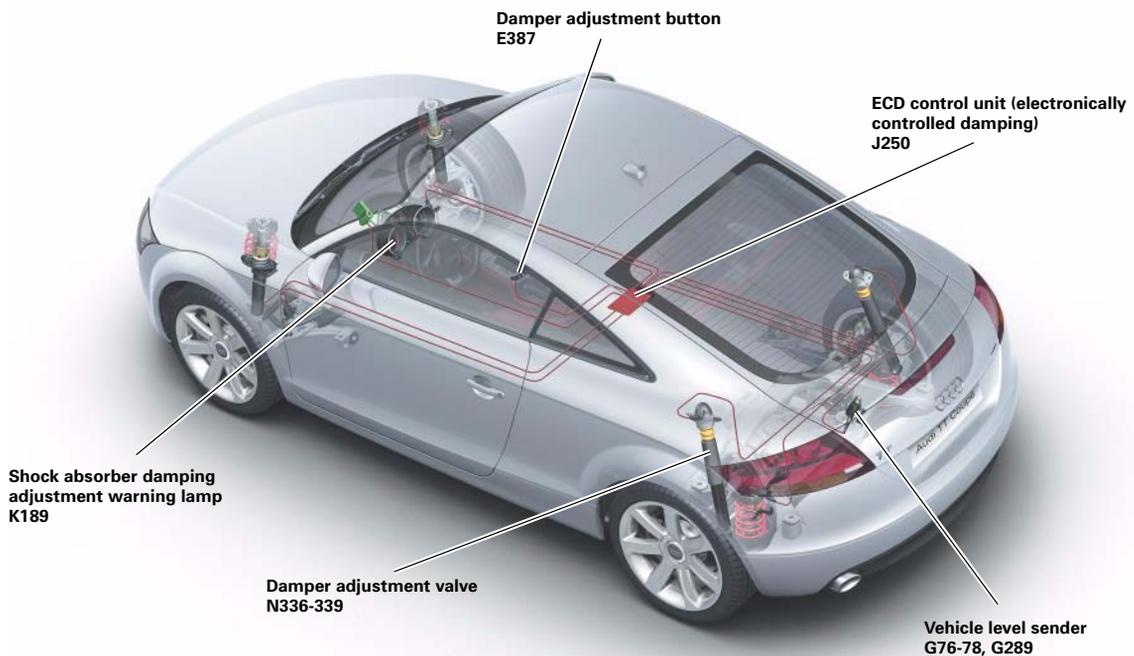
A redesigned steering wheel is used in the Audi TT Coupé '07. All models are fitted with three-spoke leather-bound steering wheels with an integral two-stage airbag module. In addition to the standard version, combinations are also available of multifunction, Tiptronic and leather stitching in various colours.



380_068

Audi magnetic ride

The Audi TT is the first Audi to feature Audi magnetic ride - a new semi-active suspension system with magneto-rheologically controlled dampers. A sport or comfort damper set-up can be activated at the touch of a button.



380_064

Audi magnetic ride improves **driving dynamics** and **driving comfort** for the following reasons:

- reduced body movement (pitch and roll)
- optimised vibration behaviour
- improved road-holding
- improved handling

Reference



For details of the design and function of the suspension system, refer to Self-Study Programme 381 Audi TT Coupé '07 - Suspension System.

Suspension system

Wheels and SST tyres (self supporting tires)



Engine	Basic wheels	Optional wheels		Winter wheels	
4-cylinder	7.5J x 126 ET 45 (1) Cast aluminium wheel painted 225/55 R 16	8J x 17 ET 47 (3) Cast aluminium wheel painted 225/50 R 17 *	9J x 18 ET 52 (5) Cast aluminium wheel polished bi-color 245/40 R 18 *	7J x 16 ET 47 (7) Cast aluminium wheel painted 225/55 R 16	9J x 18 ET 52 (9) Cast aluminium wheel painted 245/40 R 18 *
6-cylinder	8.5J x 17 ET 50 (2) Forged aluminium wheel painted 245/45 R 17 *	9J x 18 ET 52 (4) Cast aluminium wheel painted 245/40 R 18 *	8.5J x 17 ET 50 (6) Cast aluminium wheel painted 245/40 R 18 *	7J x 17 ET 47 (8) Forged aluminium wheel painted 225/50 R 17 *	

* also available optionally as SST wheel

380_075

SST tyres have run-flat capability because of their modified design compared to conventional tyres. Much stiffer tyre sidewalls enable the vehicle to drive on for up to 50 km at a maximum speed of 80 kph even after a total loss of pressure.

Special wheels are used for the SST tyres due to the modified tyre geometry. The special 17" wheels on the Audi TT Coupé '07 can be used both for conventional tyres and for SST tyres. In the case of the 18" wheels, conventional tyres are available in combination with conventional rims. SST tyres are always combined with the low tyre pressure indicator.

Low tyre pressure indicator

In all markets except North America, the Audi TT Coupé '07 comes with an upgraded version of the low tyre pressure indicator previously featured in the Audi A3. Being an indirect measuring system, no tyre pressure sensors are installed in the wheels.

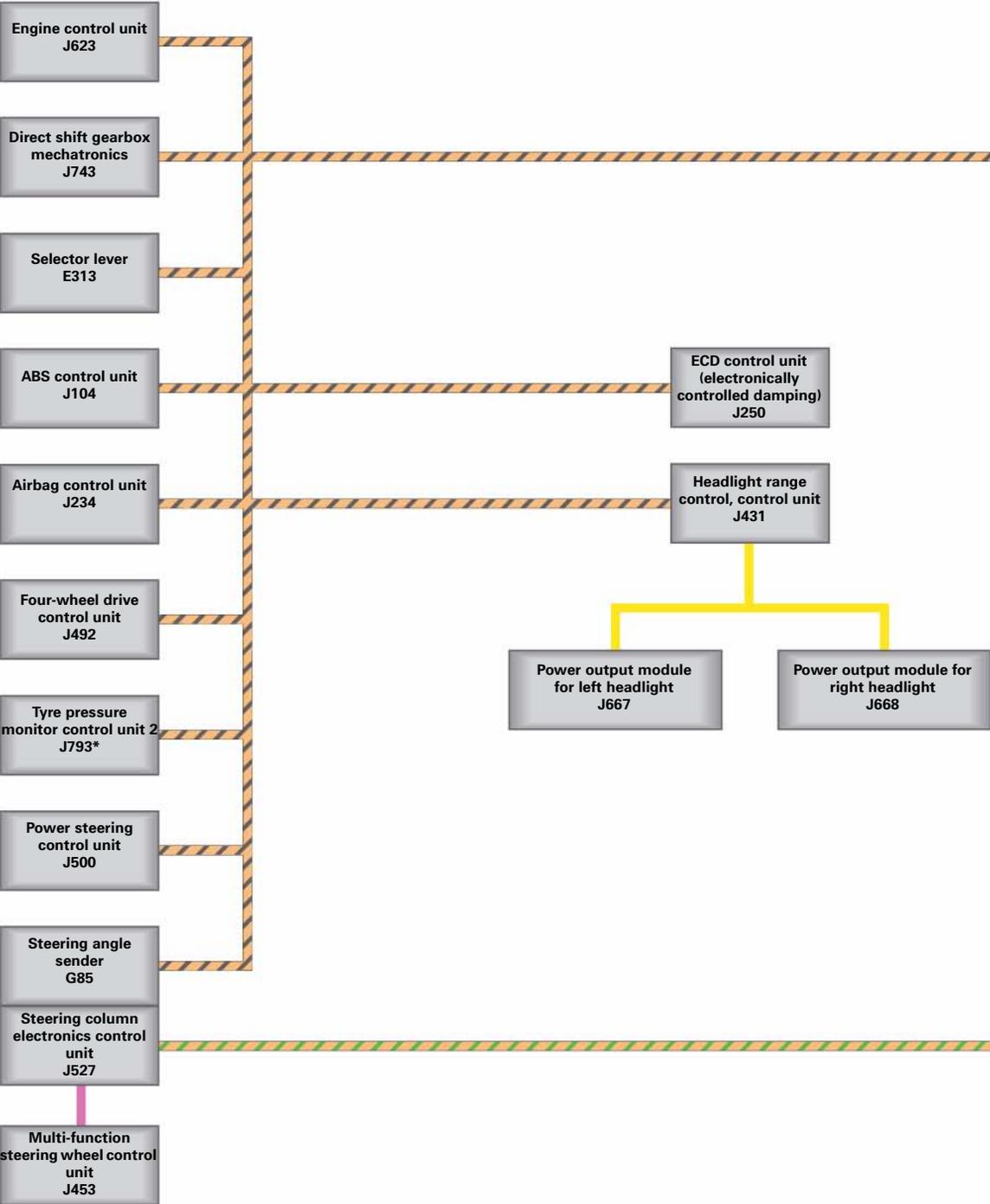
Using a new evaluation method, it is now possible to detect simultaneous pressure loss to at multiple wheels. Tyre pressures are monitored simultaneously using two different concepts.

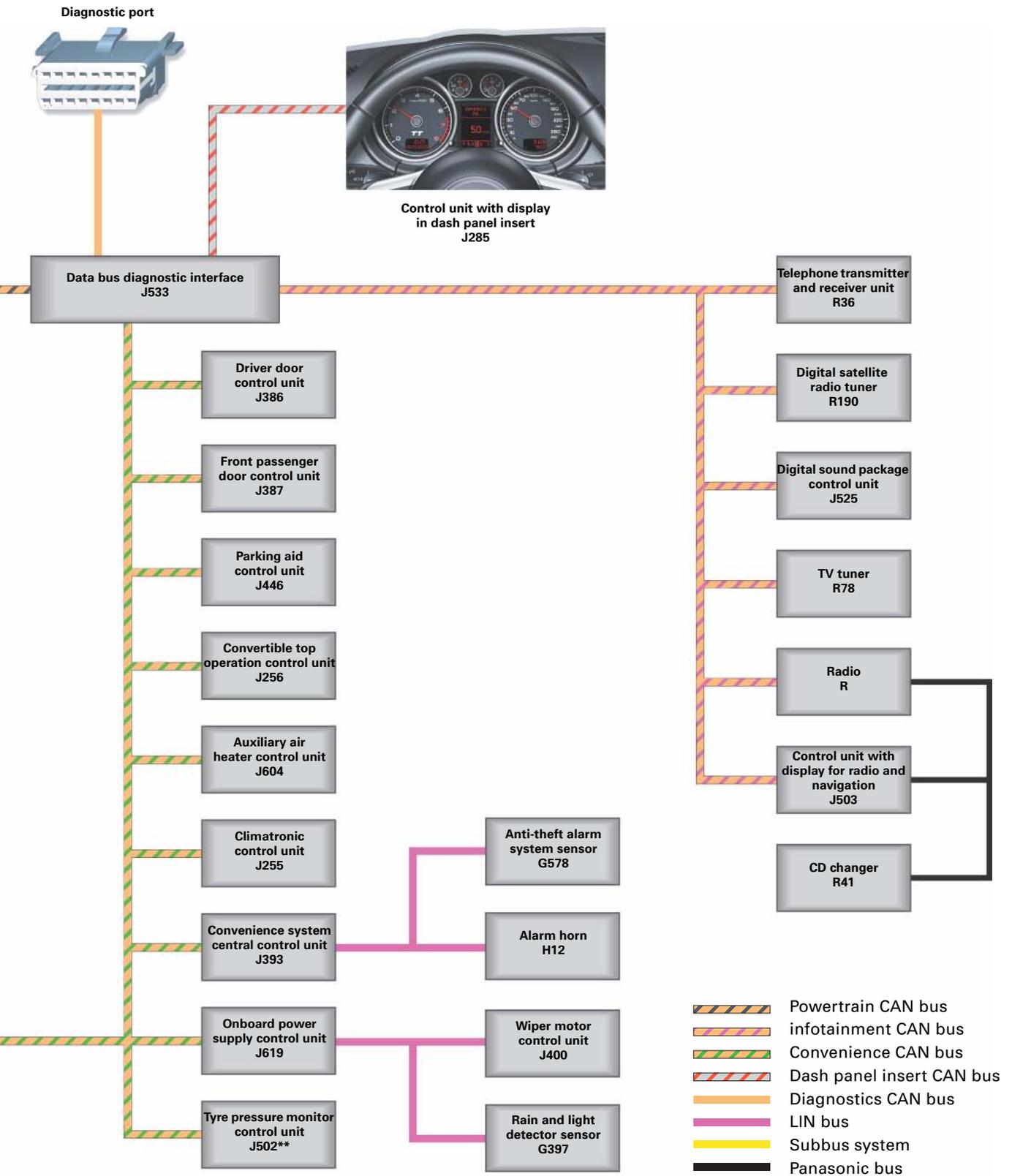


380_070

Electrical system

Topology and networking





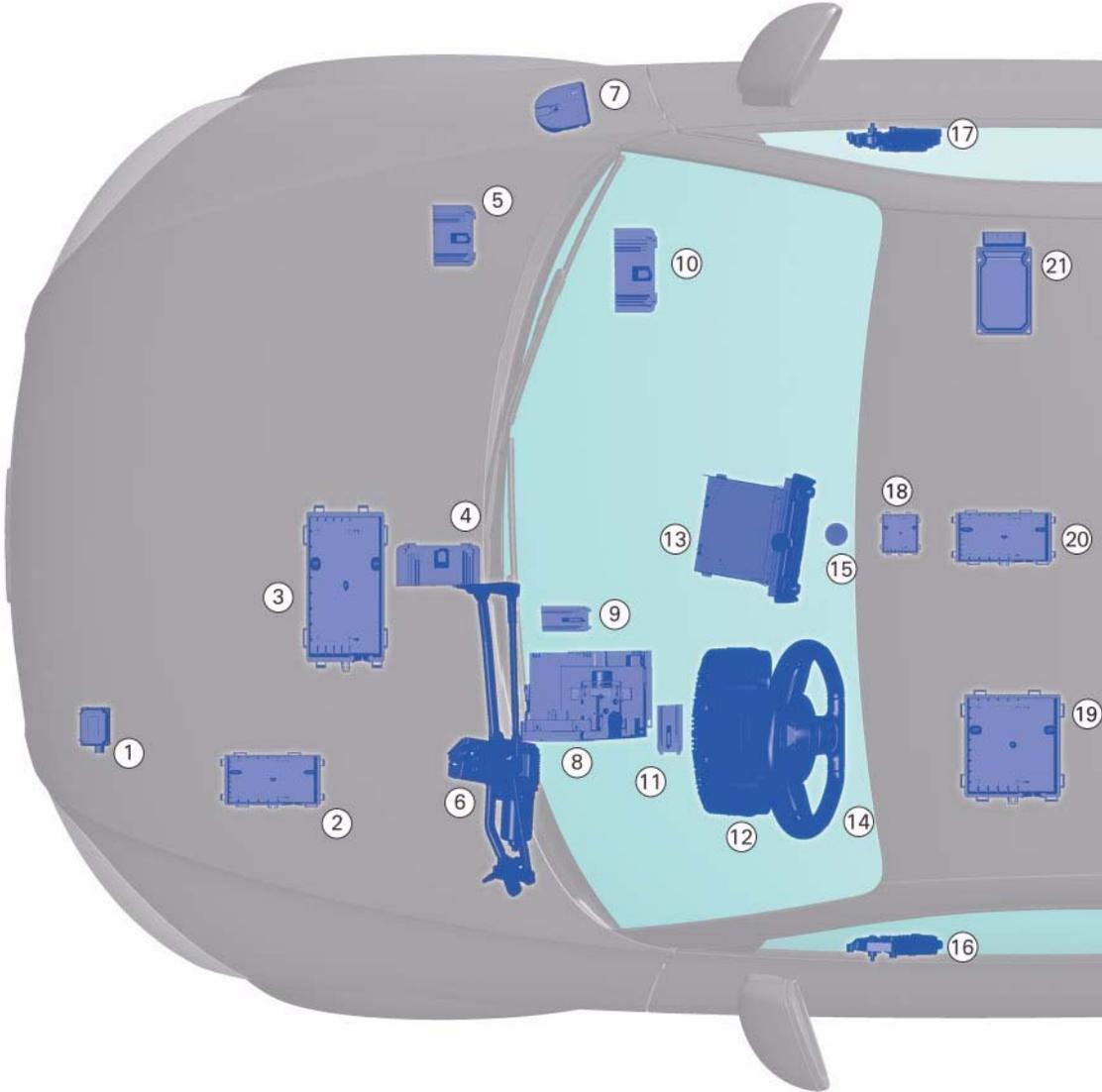
382_044

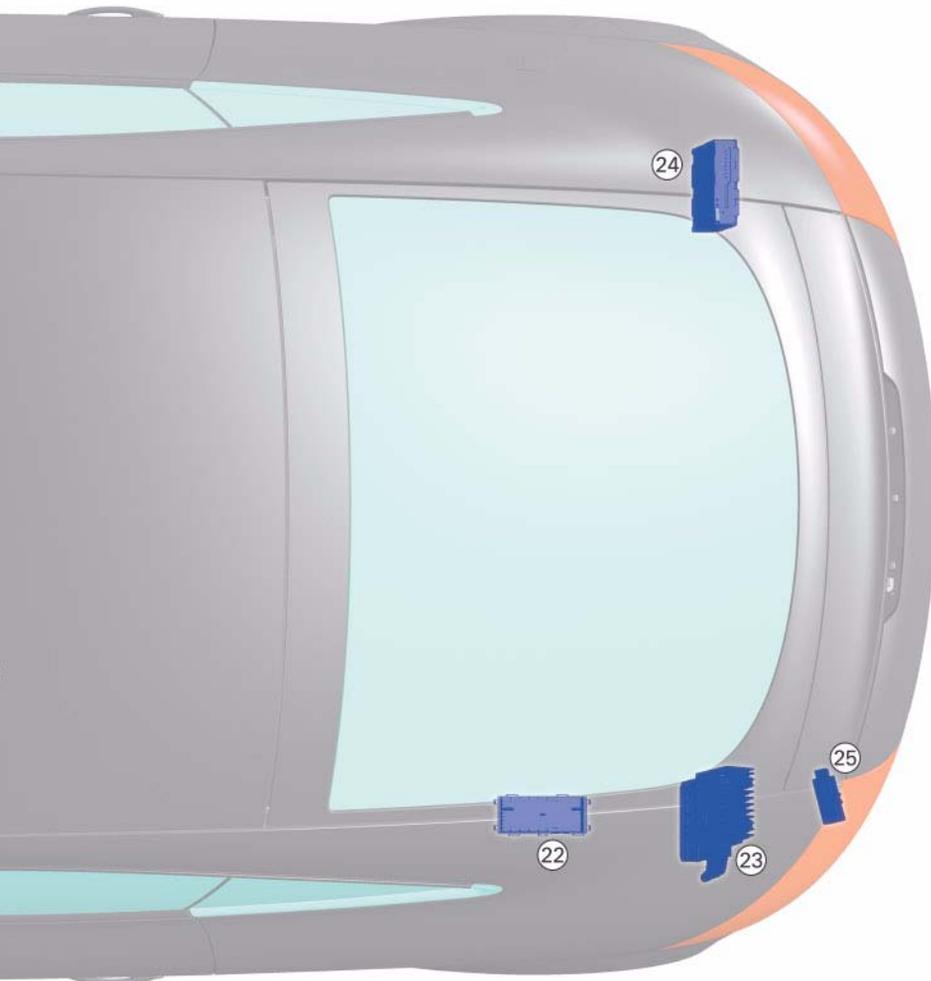
* for tyre pressure monitoring system 2 only (ECE = Europe)

** for tyre pressure monitor only (SAE = North America)

Electrical system

Installation overview - control units





Legend

382_067

- | | |
|---|--|
| <ul style="list-style-type: none"> 1 Garage door operation control unit J530 2 Direct shift gearbox mechatronics J743 3 Power steering control unit J500 4 Engine control unit J623 5 ABS control unit J104 6 Wiper motor control unit J400 7 Alarm horn H12 8 Onboard power supply control unit J519 Headlight range control, control unit J431 9 Data bus diagnostic interface J533 10 CD changer R41 11 Tyre pressure monitor control unit 2 J793 /
Tyre pressure monitor control unit J502* 12 Control unit with display in dash panel insert
J285 13 Radio R
Control unit with display for radio and
navigation J503
Climatronic control unit J255 | <ul style="list-style-type: none"> 14 Steering column electronics control unit J527
Steering angle sender G85
Multi-function steering wheel control unit
J453 15 Rain and light detector sensor G397 16 Driver door control unit J386 17 Front passenger door control unit J387 18 Anti-theft alarm system sensor G578 19 Telephone transmitter and receiver unit R36 20 Airbag control unit J234 21 ECD control unit (electronically controlled
damping) J250 22 Digital satellite radio tuner R190 23 Digital sound package control unit J525 24 Convenience system central control unit J393
Parking aid control unit J446
TV tuner R78 25 Radio controlled clock receiver J489 |
|---|--|

* for tyre pressure monitor only SAE

Air conditioning

Overview

The air conditioning system of the Audi TT Coupé '07 is an improved version of the system used in the Audi A3 '04. The automatic air conditioning system is configured as a single-zone air conditioning system. The TT Coupé has only one climate zone with no temperature differential between the driver and front passenger sides.

The TT Roadster is available with a heating-only system, in addition to the automatic air conditioning system.

The TT vehicles with petrol engine have no auxiliary heater and, therefore, no electrical PTC heater element.

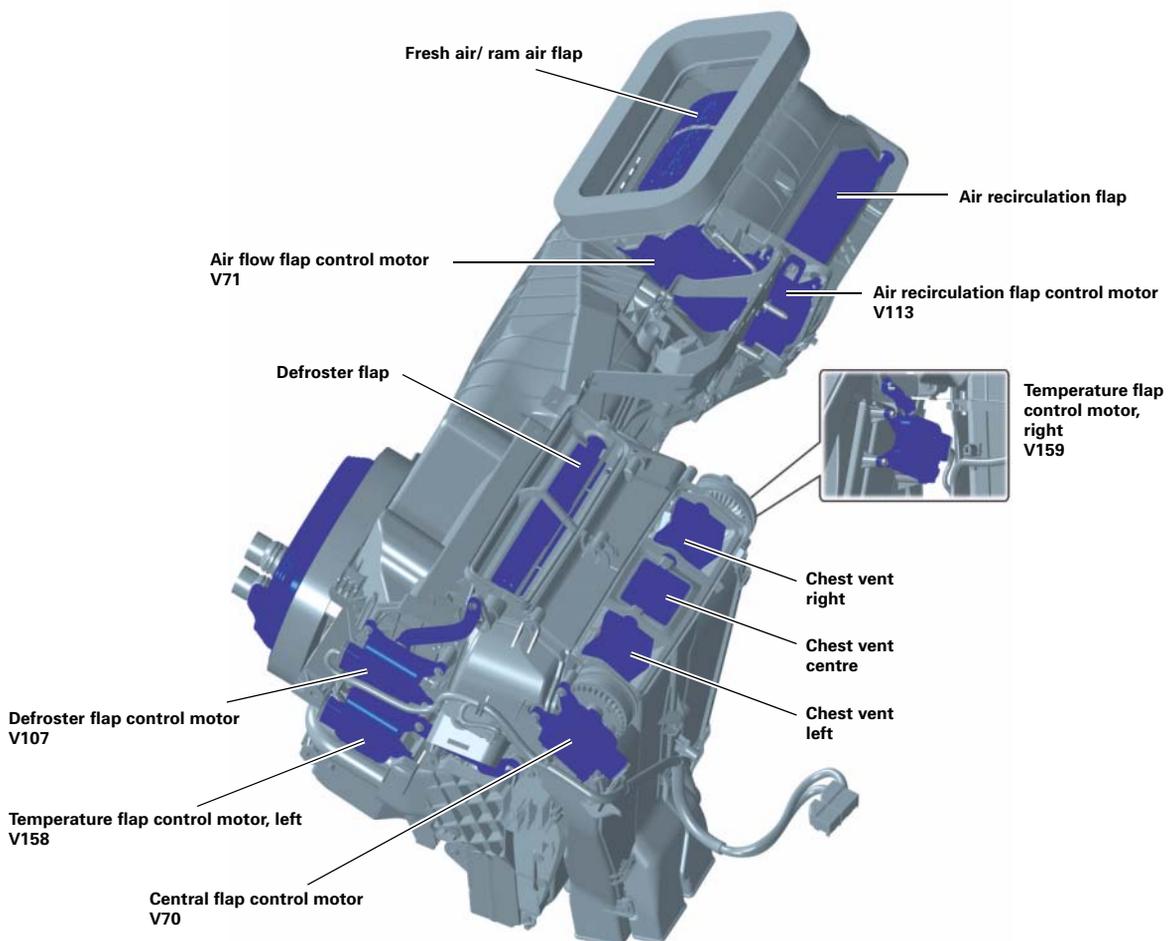
The Climatronic control unit J255 has a rotary knob for temperature selection, but no digital display.

The system has an air recirculation function, which can be activated either by the occupants or automatically as soon as the "on" conditions for air recirculation have been met.

The automatic air recirculation function by means of an air quality sensor G238 was not implemented; no air quality sensor G238 is fitted.

The fresh air intake duct temperature sensor G89 is not fitted. Information on ambient temperature is supplied only by the ambient temperature sensor G17 via CAN data bus from the dash panel insert.

Air conditioner in Audi TT Coupé '07



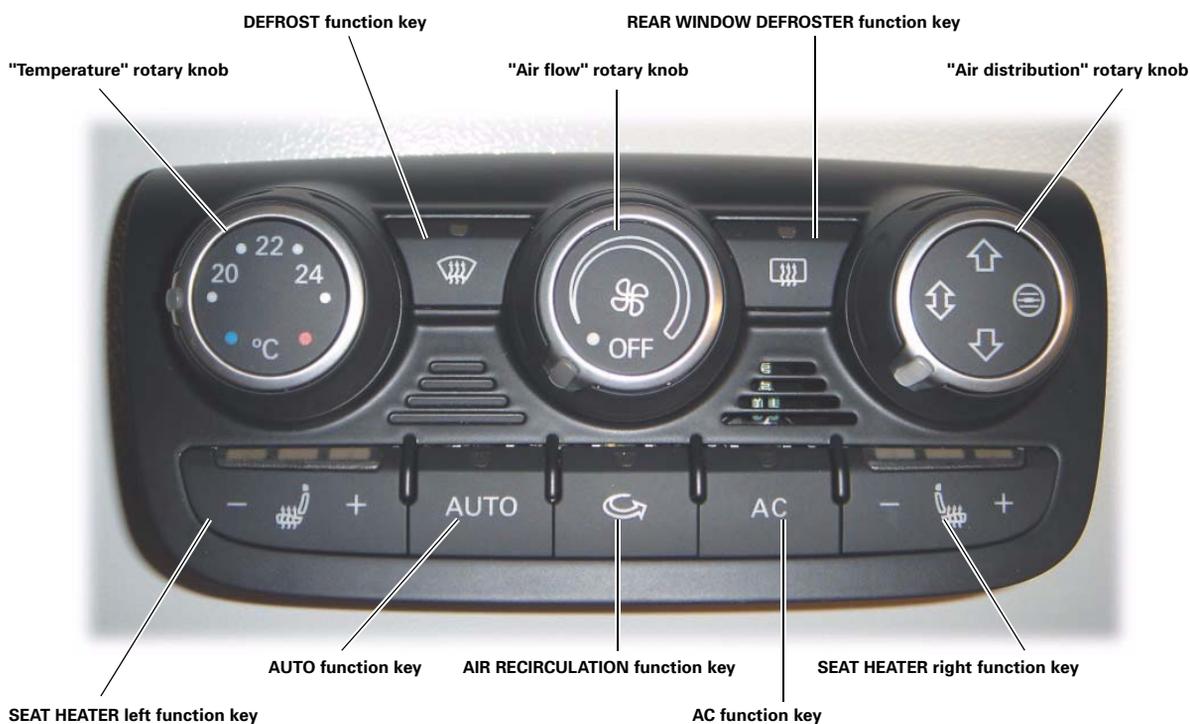
380_036

Climatronic control unit J255

The setpoint for the temperature flap is set using the "Temperature" rotary knob. The rotary knob is infinitely variable and activates the "Maximum cool" function in the lowest setting and the "Maximum heat" function in the highest setting.

Automatic mode of the air conditioning system can be deactivated with the "Air flow" or "Air distribution" rotary knob or by pressing the DEFROST or AC key.

The air conditioner compressor of the system can be switched on or off by pressing the AC key; the LED is on or off. The system is active without cooling function when the air conditioner compressor is off.



380_049

The seat heater is optional equipment with the Audi TT Coupé '07. The three heater settings can be set by pressing the function keys.

In setting 0 the seat heater is off; setting 0 cannot be selected directly from setting 3; it can only be activated by pressing the "Minus" key several times.

The function keys are backlit and currently active functions are indicated by integrated LEDs. The control unit with display in dash panel insert J285 provides the dimming signals terminal 58d for the function LEDs and terminal 58s for the key backlighting via CAN bus.

The LEDs of the function keys and the key backlighting cannot be switched individually.

Air conditioning

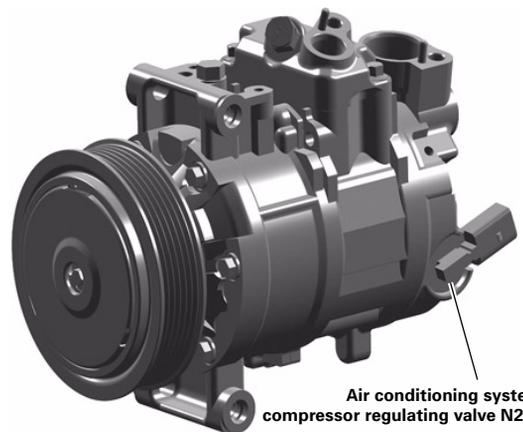
Components of the air conditioning system in the Audi TT Coupé '07

Air conditioner compressor

Single acting wobble plate compressor with 6 cylinders and variable delivery rate, without magnetic coupling, externally controlled.

The air conditioner compressor is not a carry-over part from the Audi A3.

The compressor stroke volume is regulated via the air conditioning system compressor regulating valve N280 by means of the PWM signal, depending on cooling power requirements.



Air conditioning system compressor regulating valve N280

380_053

Ambient temperature sensor G17

Only one ambient temperature sensor is used to evaluate the ambient temperature.

The ambient temperature sensor G17 is located at the front end, on the right-hand side behind the bumper, directly in front of the condenser.

Its value is provided by the control unit with display in dash panel insert J285 via CAN bus.

If the ambient temperature sensor G17 is faulty, the ECON function is activated. This means that the active cooling function is deactivated and the AC LED goes out.

Ambient temperature sensor (directly before the condenser)



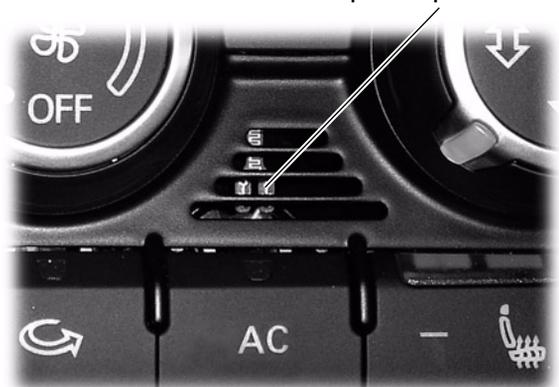
380_048

Dash panel temperature sensor G56

The dash panel temperature sensor is integrated in the housing of the Climatronic control unit J255 and is ventilated by a suction blower. The temperature sensor can take on values from -50 °C to +77 °C.

The dash panel temperature sensor is deactivated if the temperature sensor or ventilation motor is faulty. An entry is made in the data memory, and the Climatronic control unit J255 uses saved substitute values depending on the temperature set at the control panel.

Dash panel temperature sensor



380_052

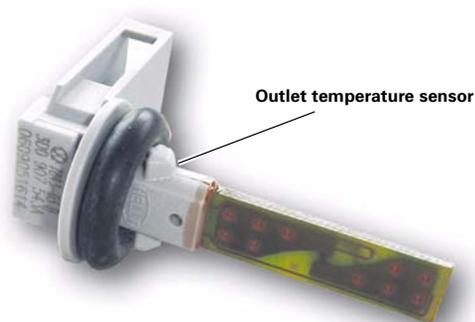
Outlet temperature sensor

For the driver side, one outlet temperature sensor is installed in the air duct of the chest vent and in the footwell duct. For the front passenger side, only the outlet temperature sensor is installed in the footwell duct.

The Climatronic control unit J255 evaluates the outlet temperature sensor in dependence on the air distribution and determines from this the actual outlet temperature.

If an outlet temperature sensor is found to be faulty, the temperature control is generally not deactivated. Depending on the operating mode (Heat or Cool) and the side of the vehicle on which the fault occurs (the front passenger side has only one outlet temperature sensor, in the footwell duct), the Climatronic control unit J255 decides whether the temperature control can remain active or has to be deactivated.

If air distribution is in the DEFROST setting, the outlet temperature control is deactivated.



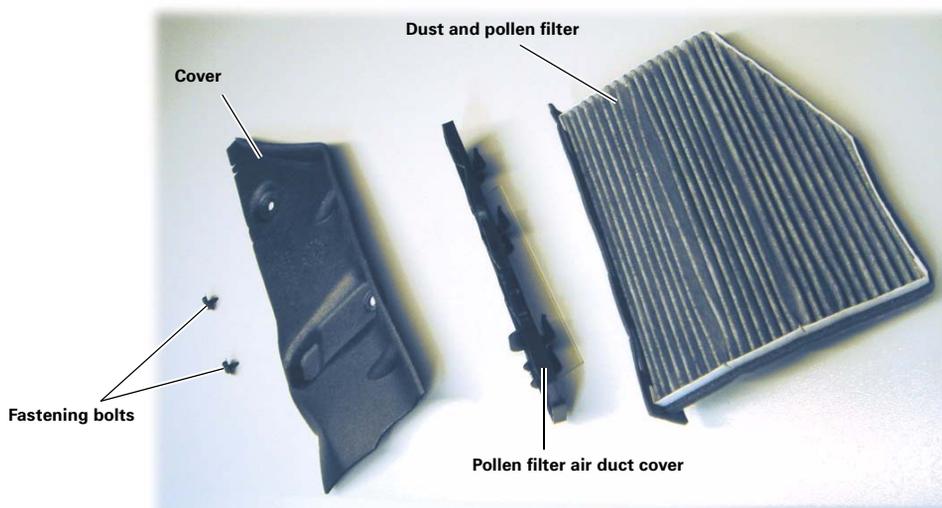
380_050

Combined filter in the Audi TT Coupé '07

A combined activated charcoal filter is standard on in the Audi TT Coupé '07.

The combined filter is accessible from the front passenger footwell. The filter can be replaced without tools. The cover in the front passenger footwell is fixed in place with two wing bolts and the pollen filter air duct cover is located in position using a slide mechanism.

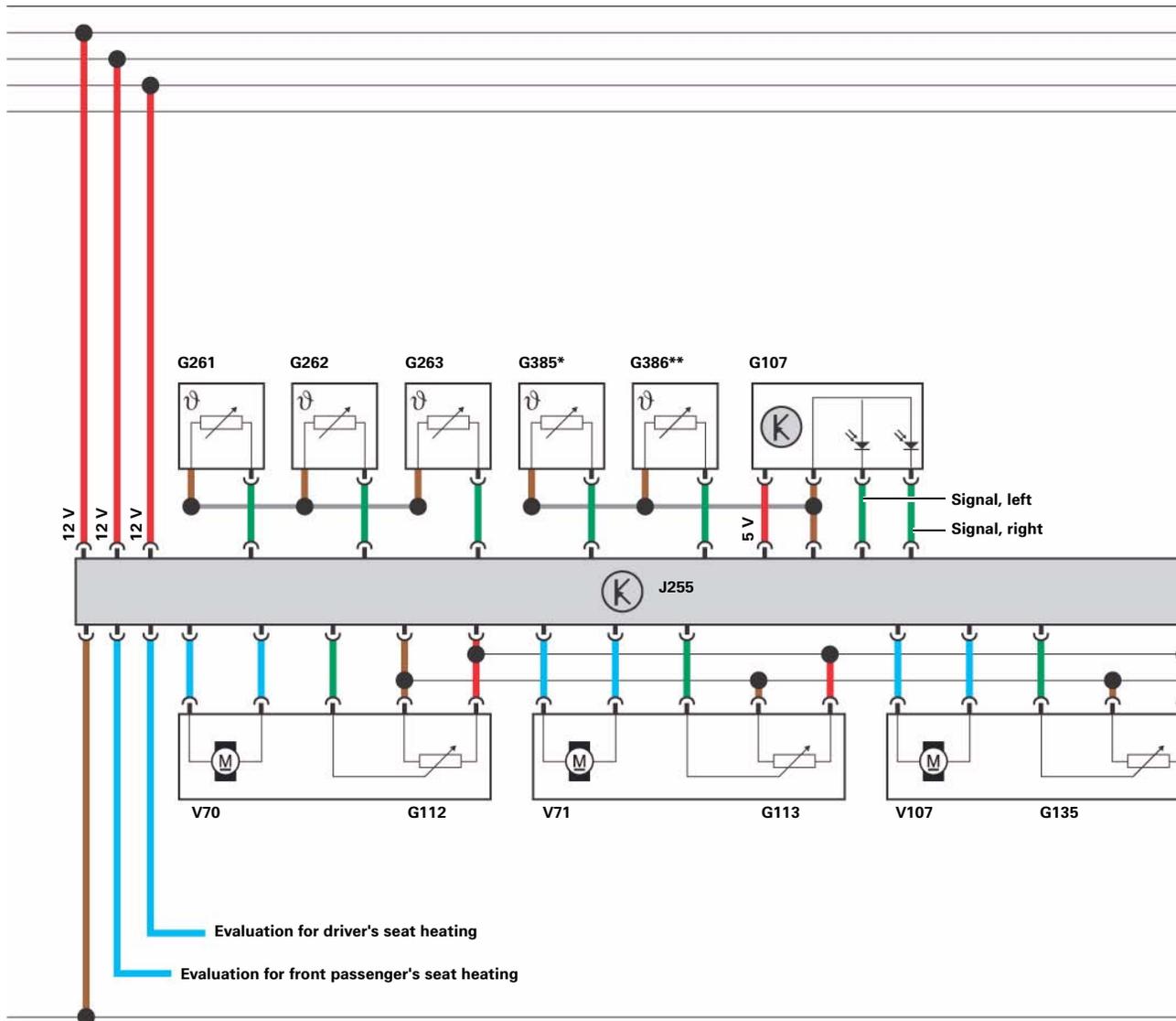
The combined filter has two predetermined bending points. This makes the filter easy to bend and simplifies installation of the filter into the air conditioner.



380_051

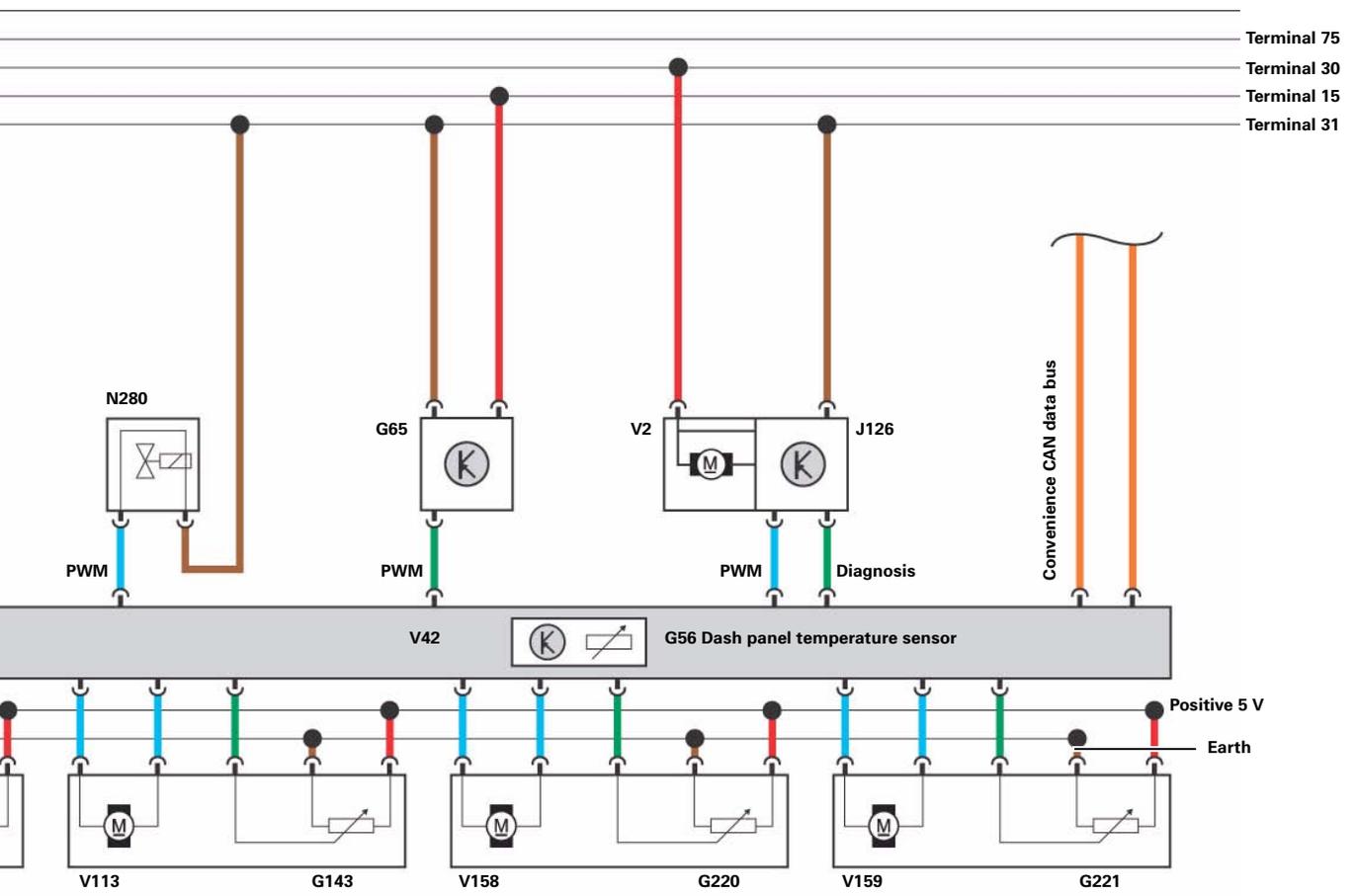
Air conditioning

Function diagram of the automatic air conditioning system



Legend

- | | |
|---|--|
| G56 Dash panel temperature sensor | G221 Right temperature flap control motor potentiometer |
| G65 High pressure sender | G261 Vent temperature sender, left footwell |
| G107 Sunlight penetration photo sensor | G262 Vent temperature sender, right footwell |
| G112 Central flap control motor potentiometer | G263 Evaporator out-flow temperature sender |
| G113 Air flow flap control motor potentiometer | *G385 Front left chest vent temperature sender (<i>left-hand-drive vehicles only</i>) |
| G135 Defroster flap control motor potentiometer | **G386 Front right chest vent temperature sender (<i>right-hand drive vehicles only</i>) |
| G143 Air recirculation flap control motor potentiometer | |
| G220 Left temperature flap control motor potentiometer | J126 Fresh air blower control unit |
| | J255 Climatronic control unit |



Terminal 75
Terminal 30
Terminal 15
Terminal 31

Termin
380_037

- N280 Air conditioning system compressor regulating valve
- V2 Fresh air blower
- V42 Temperature sensor blower
- V70 Central flap control motor
- V71 Air flow flap control motor
- V107 Defroster flap control motor
- V113 Air recirculation flap control motor
- V158 Temperature flap control motor, left
- V159 Temperature flap control motor, right

- Input signal for J255
- Output signal from J255
- Positive 5 V / 12 V
- Terminal 13 / earth
- CAN data bus

Radio navigation systems at a glance

	Audi Navigation (BNS 5.0)	Audi Navigation plus (RNS-E)
		
General	6 inch dot matrix display, monochrome	6.5 inch TFT colour display
	Light dimming via CAN bus	
	Display in driver information system	
	MMI operating logic	
	can be operated via optional multifunction steering wheel	
	6 function keys	8 function keys (incl. Name, Car)
	CD drive for navigation CD, audio CD or MP3 CD	DVD drive for navigation DVD or audio CD or MP3 CD
	9 languages German, English, French, Italian, Dutch, Portuguese, Swedish, Spanish and Czech can be loaded via CD	6 languages (German, English, French, Italian, Spanish, Portuguese)
	Clock in status bar	
	2-DIN housing	
	Integrated 2 x 20 W power module, Audi sound system with auxiliary amplifier as standard	
	Mute function via Power button (hierarchical mute function)	
	---	Version display via CAR menu
	---	Optional voice recognition system for radio, CD, navigation and telephone
Radio	2-tuner FM/MW/LW with TMC	
	Dynamically updated station list	
	Diversity aerials	
	---	TP Memo function
CD/MP3	Navigation CD drive reads audio CDs and MP3 CDs	
	6-CD autochanger or iPod connectivity	
	---	2 integrated MMC/SD card slots for MP3 files
	---	MP3 playlist support

Table cont'd



Audi Navigation (BNS 5.0)



Audi Navigation plus (RNS-E)

Navigation	CD navigation system incl. Major Roads of Europe	DVD navigation system, single-DVD drive
	Dynamic navigation system with RDS and TMC	
	Turning instructions and directional arrow display in driver information system	
	Destination input options: postcode, place name, street name, POIs, latitude and longitude	Destination input options: postcode, place name, street name, POIs, cursor, address book
	Shortest/optimum/quickest route are selectable	max. 3 route options are given
	max. 6 intermediate destinations are possible	max. 3 intermediate destinations are possible
	---	Colour screen incl. Birdview, split screen and POIs
	---	Geometric motorway exit display
	---	Intersections map
	---	List display of the next three route recommendations
	---	Intelligent Speller (last city history)
Corridor function allows audio or MP3 CDs to be played while navigating	---	
Telephone	Mute function for hands-free telephone via cable or CAN	
	Loudspeaker control unit for hands-free telephone, adjustable volume control unit for calls	
Telephone (with optional Audi mobile phone adaptor)	Display of reception level, network provider and roaming symbol	
	"accept call", "reject call" and "hang up" functions	
	Telephone number entry via Speller	
	Telephone number selection from the mobile phone phonebook	
	Bluetooth symbol appears in the status bar if the mobile phone is connected to the mobile phone adaptor via Bluetooth.	
	Voice control functions of mobile phone adaptor active	Voice control system integrated in mobile phone adaptor or voice recognition system
	---	Telephone number selection from the address book
Options	BOSE sound system	
	Mobile phone adaptor	
	---	Analog TV tuner
	No auxiliary input (AUX-In)	
Service	All amplifiers can be encoded for GALA, while BOSE Sound amplifiers are encoded as standard for Audio-Pilot	Audi Sound System has GALA while the BOSE Sound System has Audio Pilot
	Vehicle-specific sound curves can be encoded	
	Diagnostics via CAN (A3, TT) or L-wire (A4)	
	4-digit radio code incl. convenience code	
	Transport mode via CAN	Transport mode via adaption channel or CAN
	System software is flashable by CD in service workshops	System software is flashable by navigation DVD

Radio systems at a glance



2-DIN housing		
Three-line graphic display, light dimming via CAN		
can be operated via optional multifunction steering wheel		
Station frequency display in the driver information system		
FM/AM tuner		
FM tuner with phase diversity		
RDS (Radio Data System) with EON (Enhanced Other Network)		
---	---	Traffic Information Messages (TIM = TP Memo)
Integrated single-CD drive, CD text capable	Integrated single-CD drive for audio CDs and MP3 CDs, CD text capable	Integrated 6-disc CD changer for audio CDs and MP3 CDs, CD text capable
Control unit for external 6-disc CD changer or auxiliary iPod adaptor		
AUX input (code-activatable)		
Mute function for hands-free telephone		
Loudspeaker control unit for hands-free telephone		
Diagnostics via CAN (A3 8P, TT) or L-wire (A4 8E)		
Transport mode (reduced power demand)		
Anti-theft device with convenience coding		
Integrated 2 x 20 watts power module (not used for concert and symphony radios in the Audi TT)		
---	Auxiliary sound amplifier connected	
---	Connectivity for optional auxiliary BOSE Surround Sound amplifier	
Volume adjustment as a function of road speed (GALA)		
Basic sound set-up via encoding of vehicle type (saloon/Avant/Cabrio), interior trim (fabric/leather) and engine type (petrol/diesel engine)		

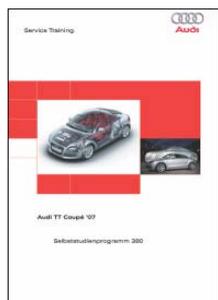
US variant
RDBS FM/AM radio (FM/MW)
Control unit for optional digital satellite tuner



Reference

For detailed descriptions of radios and navigation systems, refer to Self-Study Programme 382 Audi TT Coupé '07 - Electrical and Infotainment Systems

Self-study programmes on the TT Coupé



SSP 380 Audi TT Coupé '07

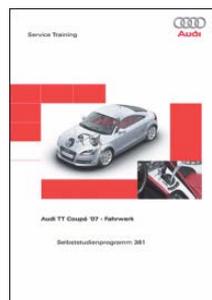
- Body
- Occupant protection
- Engine
- Suspension system
- Electrical system
- Air conditioning
- Infotainment

Order number: A06.5S00.25.20

SSP 381 Audi TT Coupé '07 - Suspension System

- Front axle
- Rear axle
- Shock absorber system
- Brake system

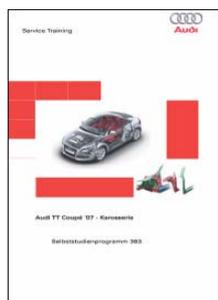
Order number: A06.5S00.26.20



SSP 382 Audi TT Coupé '07 - Electrical and Infotainment Systems

- Networking
- Bus topology
- Convenience electronics
- Infotainment

Order number: A06.5S00.27.20



SSP 383 Audi TT Coupé '07 - Body

- Audi Space Frame
- Production processes and joining methods
- Surface finish
- Electromechanical rear spoiler
- Repair concept
- Passive safety concept

Order number: A06.5S00.28.20

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