

The 2016 Audi TT Introduction Sales and After Sales

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Always check Technical Bulletins and the latest electronic service repair literature for information that may supersede any information included in this booklet.

eMedia



This eSSP contains video links which you can use to access interactive media.

Contents

Introduction	1
Model history for the World-wide market	2
Body	8
Joining technology	10
Thermal "hot" and mechanical "cold" joining techniques	12
Fuel Filler	14
Passive safety	16
Components	16
Front Passenger Airbag -disabled- Indicator lamp	16
Engine	19
Engine transmission combination	20
Power transmission	21
Overview	21
quattro drive	21
6-speed DSG transmission - S tronic	23
Chassis	25
Overall concept	25
Axles and wheel alignment	26
Brake system	30
Electronic Stability Control (ESC)	31
Steering system	32
Wheels and tires	35
Audi virtual cockpit	36
Audi drive select	38
Headlights	41
Tail lights	41
Climate control	42
Introduction	42
A/C operating and display unit	43
Seat systems	44
Notes	45
Infotainment	46
Overview of versions	46
Service	47
Inspection and maintenance	47
Self-study programs	48
Knowledge assessment	49

This eSelf Study Program teaches a basic knowledge of the design and functions of new models, new automotive components or technologies.

It is not a Repair Manual! All values given are intended as a guideline only.

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



Note



Reference

Introduction

The TT was a revolutionary car design when it was first unveiled in 1995. Its strictly geometrical, formally coherent design language made it an icon with huge charisma. For the third TT generation, the Audi designers have returned to many of these ideas and placed them in a new context that is as dynamic as it is diverse.

The central motif was the circle – embodied in the curves of the roof line, and the front and the rear overhangs with their resolutely horizontal lines. From the side, many details of the new Audi TT are reminiscent of the first-generation classic in many respects.

The third generation of the compact sports car again commands attention with its emotional design and dynamic attributes. Standout features of the new coupe are its innovative driveline technology as well as its new operating and display concept.



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Model history for the World-wide market

In 1995 Audi presented a pioneering study: the Audi TT. The Coupe (IAA Frankfurt, 1995) and Roadster (Tokyo Motor Show, 1995) showcars were followed by the production versions of the Audi TT Coupe in 1998 and Audi TT Roadster in 1999. When the first-generation Audi TT came on the market in 1998 it was a design revolution. Radical in design, but suitable for everyday use – that was the motto for the first Audi TT.

The third generation of this classic has adopted many of the design elements that characterized the first-generation TT – coupled with innovative technology. Between the first and third generation of the TT lie nearly 20 years of development in technology and design. Here, in brief, are the key milestones in the model history of the Audi TT.

2007

A new edition of the Roadster also went into production a year after the Coupe.



2000 – 2003

The TT-R racing car prototype provided the basis for the successful reentry of Audi into the German Touring Car Championship (DTM).



1998

Start of production of the Audi TT Coupe in Ingolstadt and Győr.



2006

The second generation of the Audi TT (Type 8J) is rolled out featuring a new design and new technology.



1999

Start of production of the Audi TT Roadster in Ingolstadt and Győr.



1995

Presentation of the Audi TT study as a Coupe at the IAA in Frankfurt.

eMedia



Find out more about the model history of the Audi TT.



2010

The second generation of the TT makes a successful entry into motor racing, in the Long Distance Championship.



2012

Audi reveals the Audi TT RS plus, the most powerful version of the sports car, powered by a 5-cylinder TFSI engine.



2008

Audi presents the Audi TT clubsport quattro study with shorter windscreen and sporty attachments.



2014

The allroad shooting brake study provides a glimpse into the design of the new Audi TT.



2014

The third generation of the Audi TT is released – first as a Coupe and shortly afterwards as a TTS in Europe.

The 2016 Audi TT has many features which are explained in detail in this Self-Study Program. Here is a quick summary:

Engine

4-cylinder engines with turbocharger :

- ▶ 2.0L TFSI
 - ▶ Horsepower: 220 hp (162 kW)
@ 4500 - 6200 rpm
 - ▶ Torque: 258 lb ft (350 Nm)
@ 1600 - 4400 rpm

Assistance systems

The following systems are optionally available:

- ▶ Audi side assist
- ▶ Park assist system with ambient display



Air conditioning

All control functions are integrated into the air vents. The automatic air conditioning system has small displays which show the selected setting.

Body

Audi Space Frame (ASF) body made from aluminum and steel with high-strength and ultra-high-strength steel alloys, die-cast aluminum nodal elements and side panels as well as a roof made of aluminum.

Power transmission

Full-time quattro drive – systematically developed and refined for the TT – with electro-hydraulic multiplate clutch on the rear axle. It is possible to customize the all-wheel drive characteristics by networking the quattro drive with Audi drive select.



Displays and operation

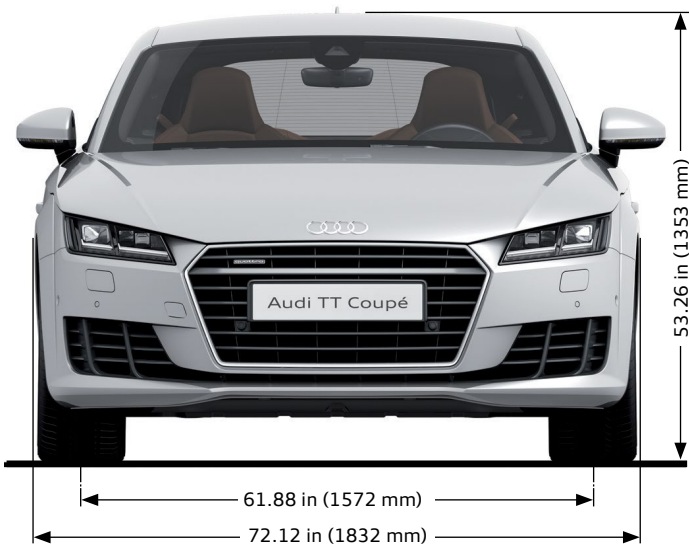
Fully digital Audi virtual cockpit instrument cluster with dynamic animations and graphics. New MMI control panel on the center tunnel console. On each side of the central rotary pushbutton, there are two buttons together with a main menu button and a back button. Touch-sensitive touch pad on the top of the rotary pushbutton.

Suspension

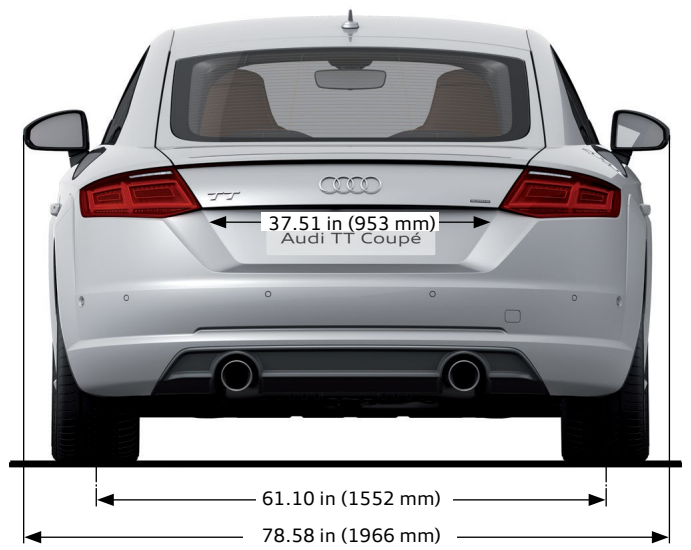
Third-generation Audi magnetic ride adaptive damper control as optional suspension version on the TTS. Audi magnetic ride is adjustable in 3 stages via Audi drive select. Electro-mechanical progressive steering, where the steering ratio becomes more direct with increasing steering input.

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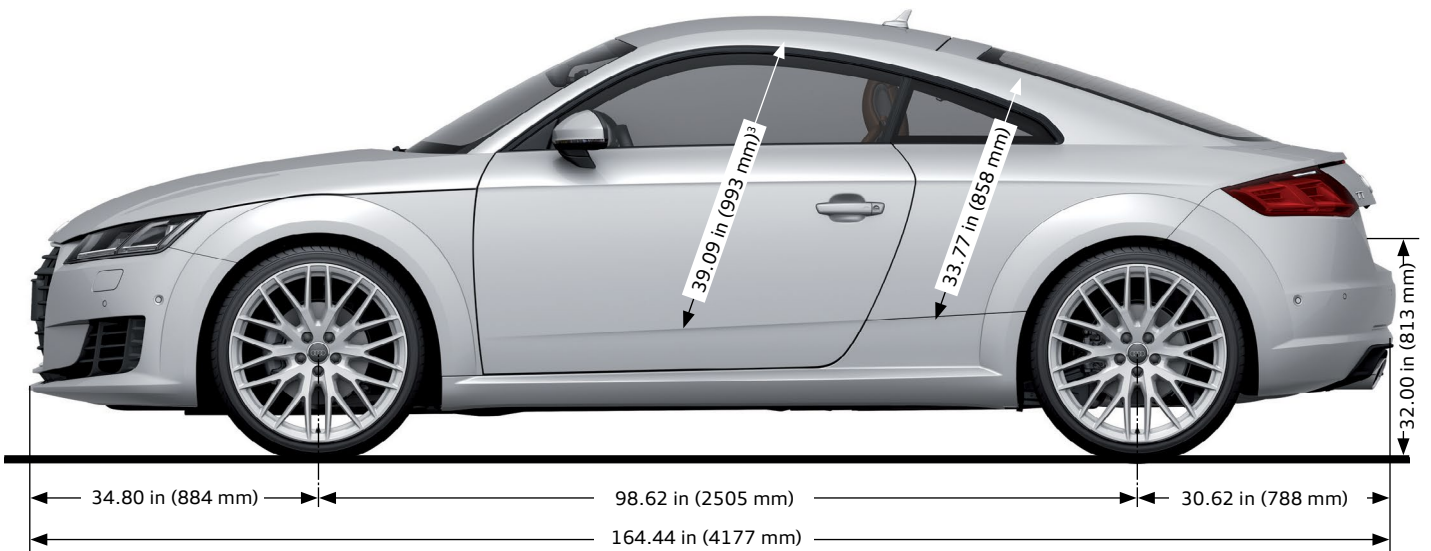
Dimensions



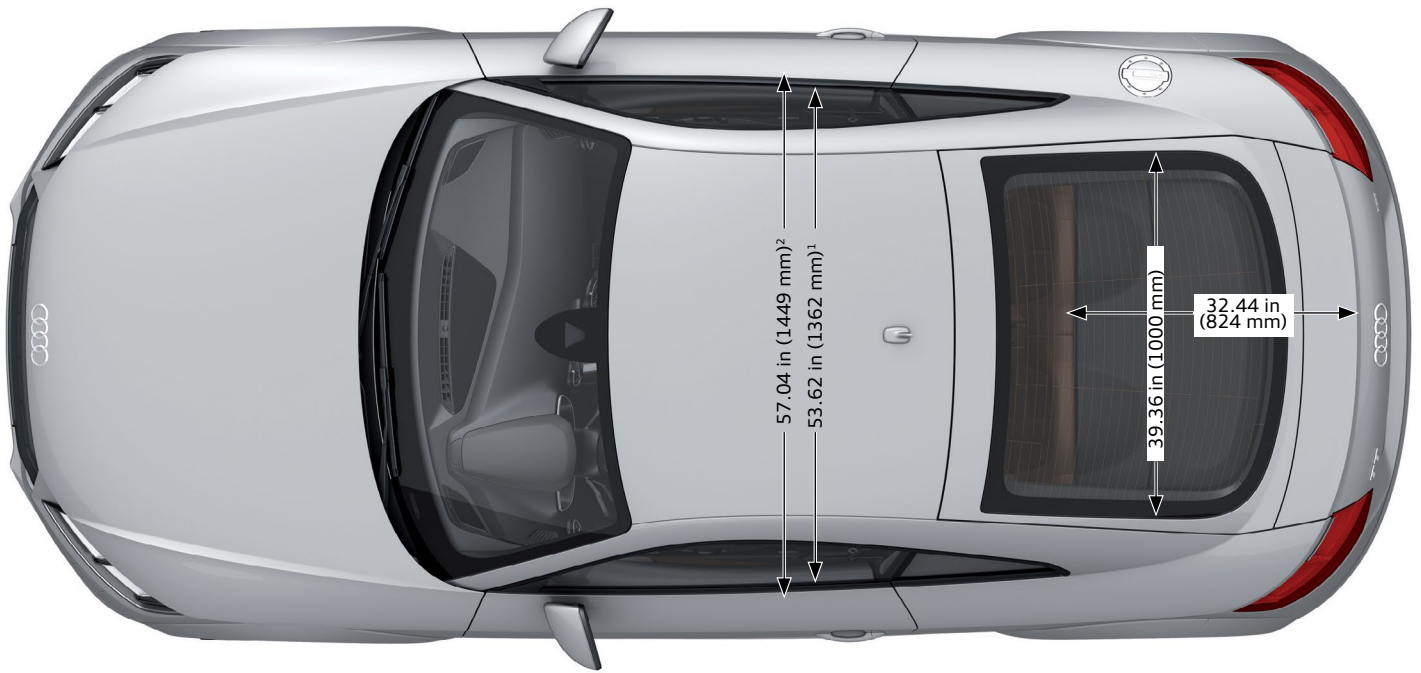
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Exterior dimensions and weights

Length in (mm)	164.44 (4177)
Width in (mm)	72.12 (1832) ⁴⁾
Height in (mm)	53.26 (1353)
Front track width in (mm)	61.88 (1572)
Rear track width in (mm)	61.10 (1552)
Wheelbase in (mm)	98.62 (2505)
Curb weight lb (kg)	3186 (1445) ⁵⁾
Gross vehicle weight lb (kg)	4001 (1814)

Inner dimensions and other specifications

Front cabin width in (mm)	57.04 (1449) ²⁾
Front headroom in (mm)	39.09 (993) ³⁾
Front shoulder width in (mm)	53.62 (1362) ¹⁾
Rear headroom in (mm)	33.77 (858)
Through-loading width in (mm)	39.36 (1000)
Load sill height in (mm)	32.00 (813)
Trunk capacity cu ft (liters)	10.77/25.14 (305/712) ⁶⁾
Drag coefficient c_w	0.30
Capacity of fuel tank gal (l)	14.53 (55)

¹⁾ Shoulder room width

²⁾ Elbow room width

³⁾ Maximum headroom

⁴⁾ Excluding mirror

⁵⁾ With 2.0l TFSI engine

⁶⁾ With rear backrest folded down

All dimensions are given in inches and millimeters and refer to the unladen weight of the vehicle.

Body

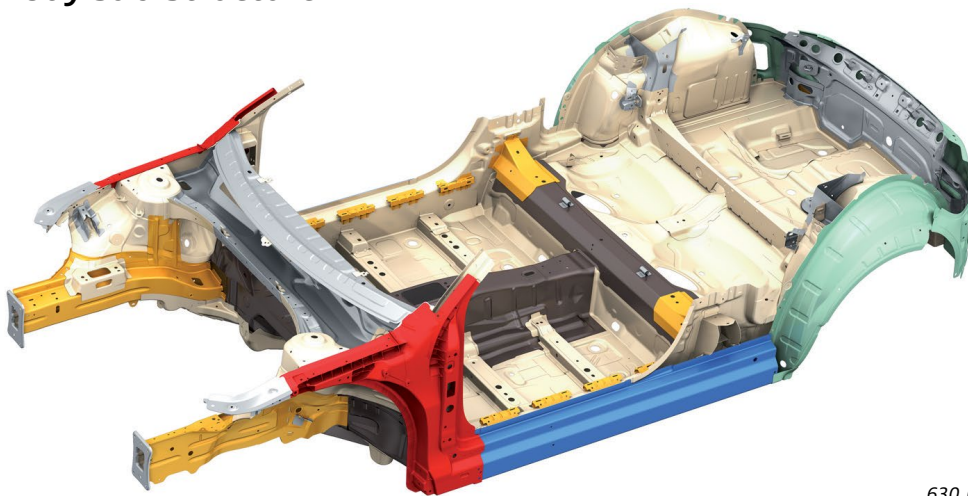
With its hybrid material concept, the bodysell of the Audi TT represents a new evolutionary stage of Audi Space Frame technology (ASF). The bodysell of the 3rd generation uses components of the Modular Transverse Platform (MQB) At 99 in (2505 mm), the TT has the shortest wheel-base of any vehicle in the MQB concept.

The substructure is formed from the cross members, sections of the A-pillars, the bulkhead, floor pan, rear wheel arches and the rear tail panel. The hot-formed steel in the sub-structure weighs 87 lb (39.5 kg) and accounts for almost a quarter of the total structural weight.

Prior to forming, the steel is heated to approximately 1832 °F (1000 °C). It is then cooled immediately to about 392 °F (200 °C) in a water cooled pressing tool during the forming process. This drastic change in temperature produces an extremely strong iron-carbon micro-structure. The form-hardened steel has a relatively low wall thickness and is correspondingly light.

Advanced high strength, cold-formed steel components together with extruded aluminum sections for the outer sills and aluminum panels for the rear wheel arches complete the sub-structure of the Audi TT.

Body sub-structure




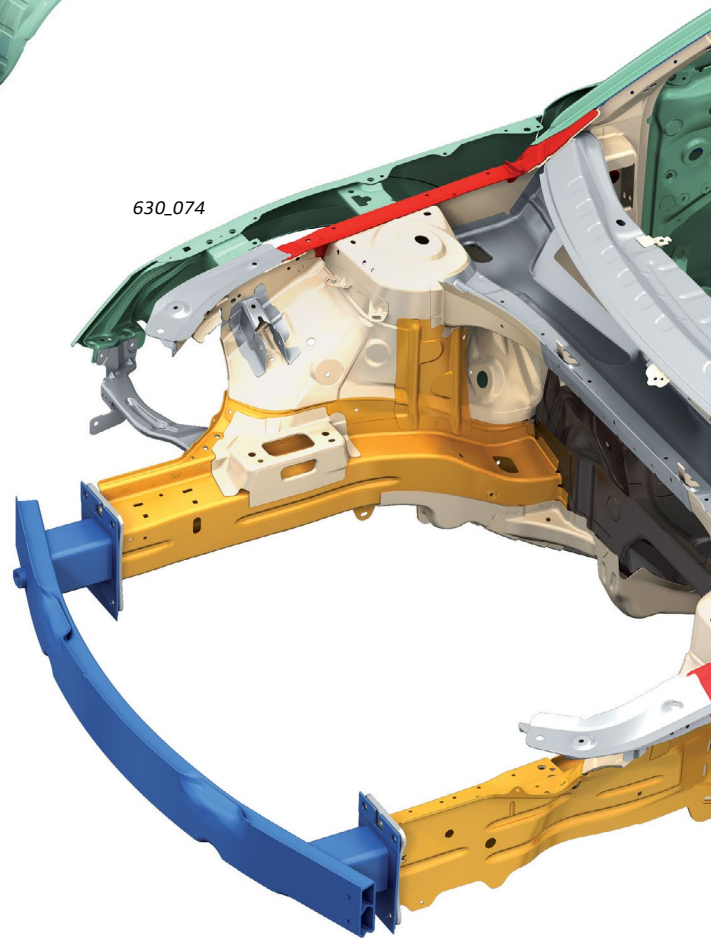
Sub-structure integrated into the MQB platform

Torsional rigidity

Compared to the predecessor model, the hybrid ASF of the new TT has a 23% higher static torsional rigidity while retaining a high level of dynamic rigidity.

Key:

-  Sheet aluminum
-  Die-cast aluminum
-  Aluminum section
-  Ultra-high strength steel (hot-formed)
-  Advanced high strength steel
-  High strength steel
-  Low strength steel



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Find out more about the bodysell of the Audi TT.

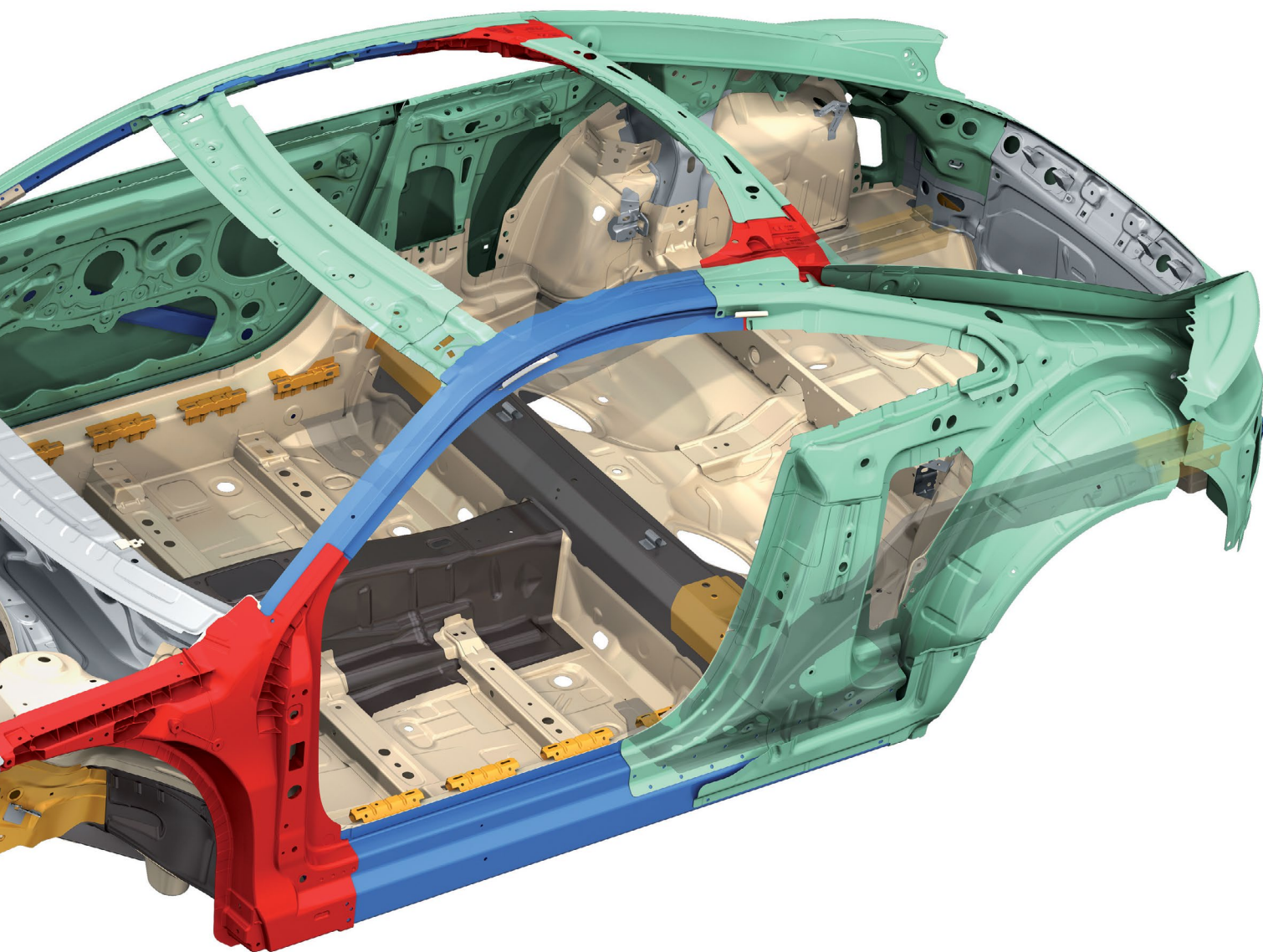
The occupant cell, which weighs only 149 lb (68 kg), is an aluminum lattice with four castings that form the nodal elements of the body shell. Large nodal sections of the A-pillars connect the side roof frame profile, sill, window cross member and the upper longitudinal section at the front end.

Two smaller cast nodal elements above the rear window connect the roof arch to the flat C-pillars and the rear roof cross member.

The entire outer skin of the Audi TT is made from aluminum:

- ▶ Front fenders.
- ▶ Sidewalls.
- ▶ Roof.
- ▶ Attachments: hood, doors and trunk lid.

In total, the complete bodysell with attachments weighs approximately 608 lb (276 kg).



Joining technology

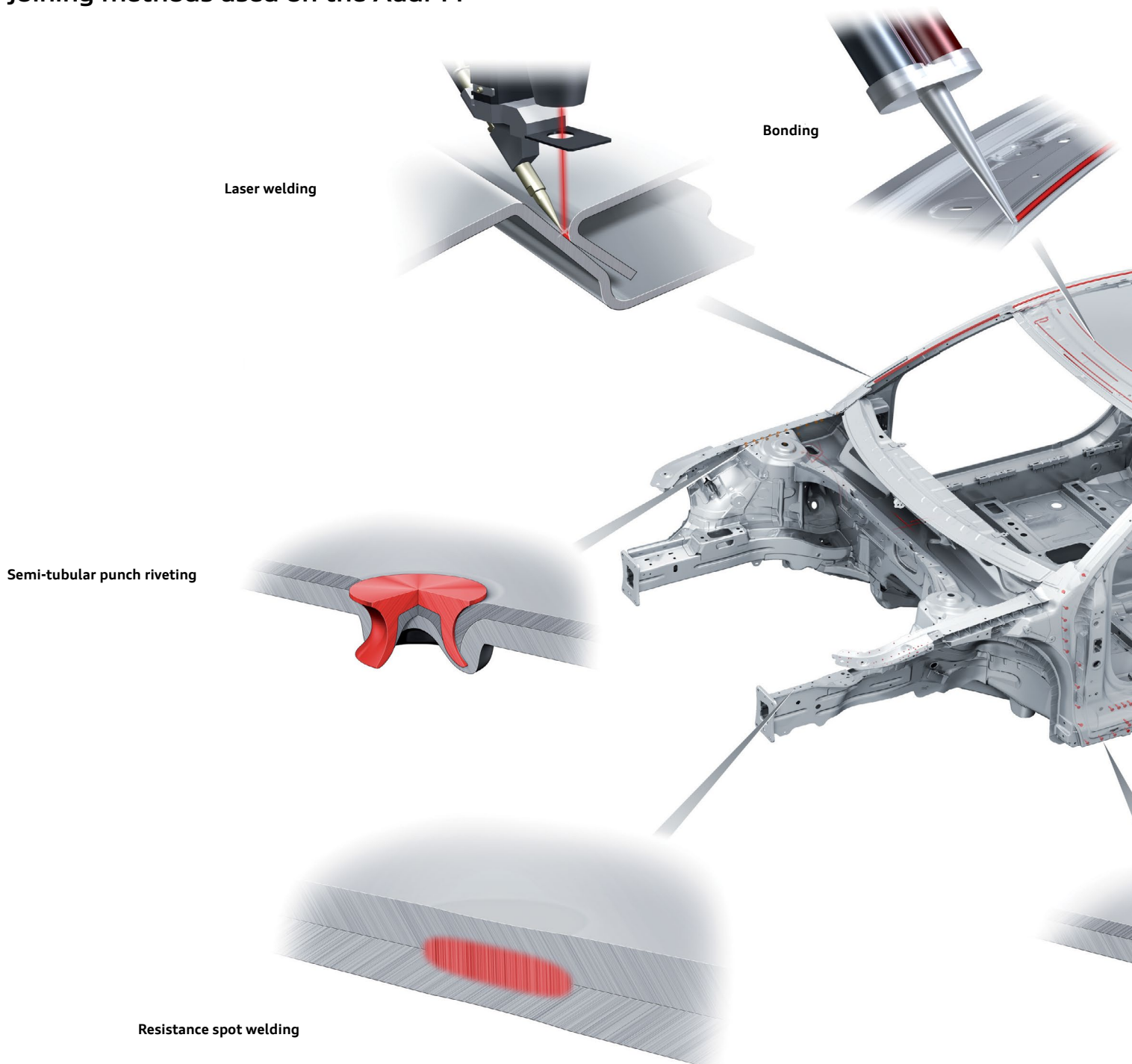
The key to optimizing the body structure is using "the right materials in the right place". The resulting challenge for the joining technology was to develop universal and reliable solutions for the large variance in material/thickness combinations in the body. On the TT, Audi uses "cold" joining techniques such as riveting, flow-drill screwing and clinching to create the aluminum/steel hybrid structure.

Adhesive is also used to strengthen the connection and to prevent contact corrosion of the aluminum/steel joint.

The body is constructed using the following types of joining methods:

- ▶ 3020 spot welds.
- ▶ 1113 punch rivets.
- ▶ 44 solid punch rivets.
- ▶ 128 flow-drill screws.
- ▶ 199 clinching points.
- ▶ 6 ft (1.9 m) of MIG/MAG welds (metal inert gas/metal active gas).
- ▶ 16.07 ft (4.9 m) of laser-welded seams.
- ▶ 249 ft (76 m) of adhesive.

Joining methods used on the Audi TT



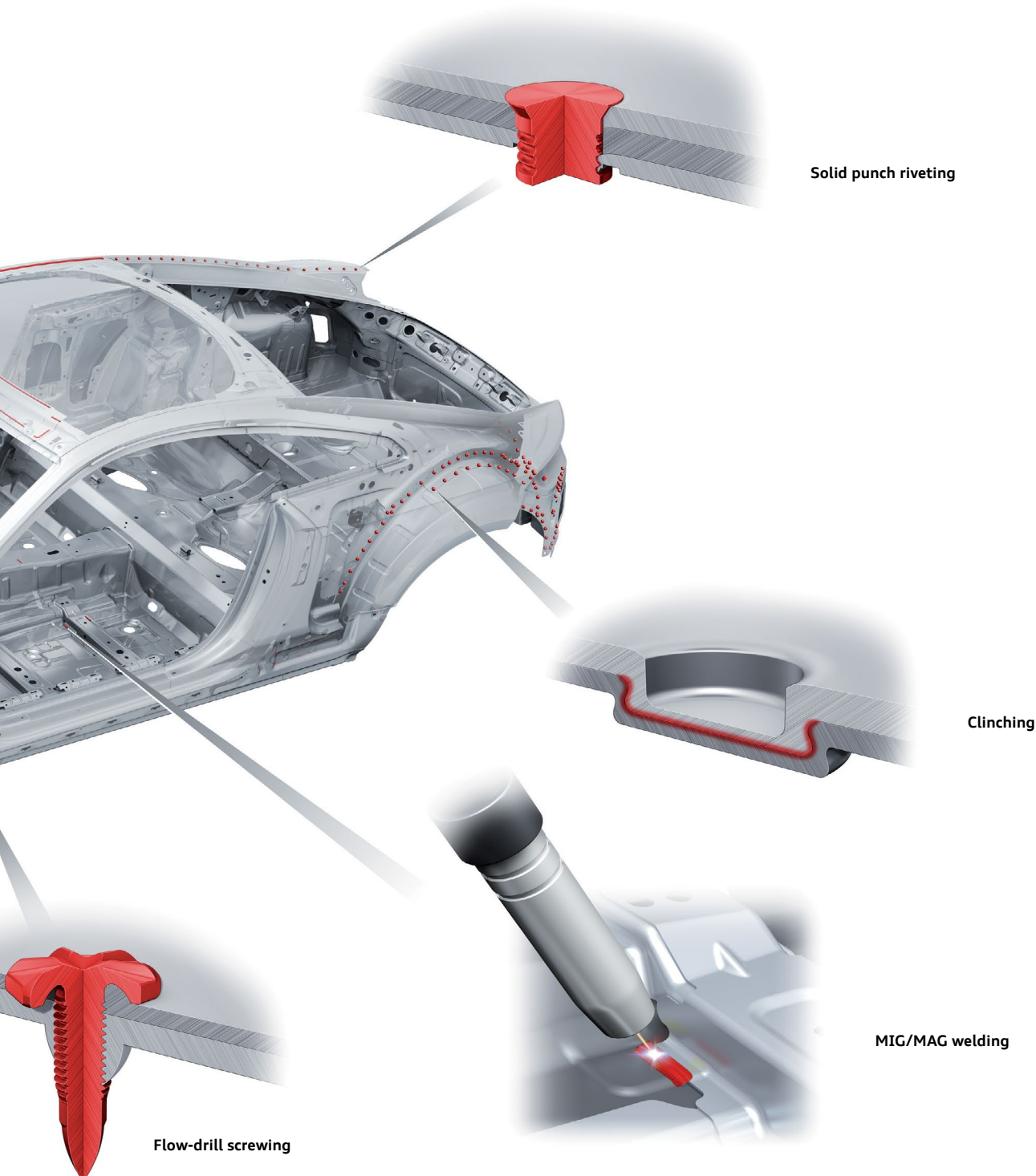
Safety precautions against contact corrosion

Aluminum has a naturally occurring (passivating) surface oxide layer that protects the underlying material from corrosion. This is why an unpainted aluminum component does not normally corrode.

However, if aluminum comes into contact with a metal which has a positive electrical potential relative to aluminum and is in an electrolyte, such as salt water, contact corrosion will occur.

The greater the difference in electrical potential, the greater the corrosion will be. Since aluminum is usually the less noble metal, it is degraded.

Contact corrosion can also occur if unsuitable connecting elements (screws, nuts, washers, etc.) are used. Therefore, a number of precautions must be taken in order to prevent this process from occurring during body production and repair work. Audi uses only connecting elements with a special surface coating for the aluminum/steel hybrid construction used in the TT. In addition, all rubber and plastic parts and all adhesives are made of non-conductive materials. As a further precaution, all hybrid metal connections are sealed with polyvinyl chloride (PVC) or with wax after cathaphoretic dip primer coating. The cathaphoretic coating (sometimes referred to as E-coat) is an electrically induced surface treatment that provides resistance to corrosion and oxidation. See the complete definition on the following page.



Thermal "hot" and mechanical "cold" joining techniques

The choice of the right joining technique in modern body construction is material-dependent. Welding similar materials is still the most frequently used joining technique. These welding and soldering techniques are called "hot" joining techniques and have a large variety of applications. However, the heat input causes high internal stresses in the component, which often can only be compensated through time-consuming re-work.

The mechanical "cold" joining technique has the decisive advantage over the thermal joining technique in that hybrid joints can be reliably produced between different types of materials. The positive properties of the material are not adversely affected by thermal influences.

"Hot" joining technique in the Audi TT

MIG/MAG welding

With the MIG/MAG (MIG = metal insert gas, MAG = metal active gas) welding technique, an electric arc forms between the automatically fed welding wire (electrode) and the workpiece. A shielding gas protects the electric arc and the welded surface against the ingress of ambient air. The inert gas and welding wire have to be adapted to the basic material.

Advantages:

- ▶ Versatility in use.
- ▶ High weld seam strength.
- ▶ Outstanding thin panel properties.

Resistance spot welding

In the case of resistance spot welding, panels are welded together using opposed electrodes under the application of force, pressure and electrical current.

Advantages:

- ▶ No additional connecting element.
- ▶ No heat influence zone.
- ▶ Short welding time.

Laser welding

With laser welding, the focused laser beam serves as an energy source. In the welding head, the laser beam is focused by a lens and reflected back onto the workpiece by mirrors. At the point of contact, the laser beam melts the workpiece. Welding can be performed both with and without welding filler material.

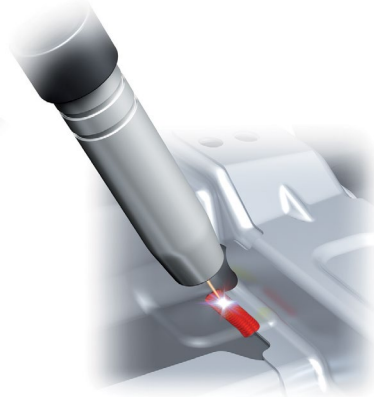
Advantages:

- ▶ Less influence of heat.
- ▶ Less thermal distortion.
- ▶ Less time spent on re-work.

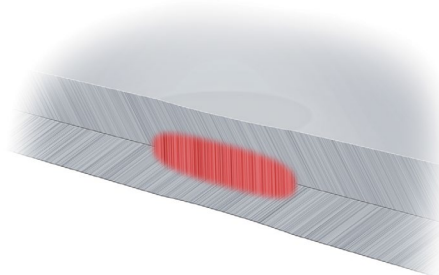
The following "cold" joining techniques are used:

- ▶ Punch riveting.
- ▶ Clinching.
- ▶ Flow-drill screwing.
- ▶ Seaming.
- ▶ Bonding.

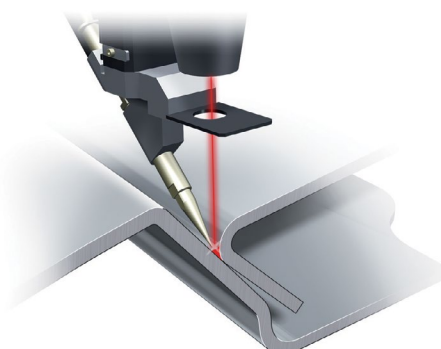
It makes good sense to combine the mechanical spot joining techniques with bonding methods. First, it increases the strength of the joint and, second, the adhesive also acts as insulation in the case of hybrid aluminum/steel joints. This, in combination with seam sealing, prevents direct contact between the metals and ensures that corrosion cannot occur. In addition, a carefully selected adhesive concept also helps to absorb the differing degrees of thermal expansion of the individual materials. Cataphoresis is a fully automated process of painting by immersion, which is based on the movement of charged particles in an electric field (paint) towards an oppositely charged pole (metallic surface to be painted). The main objective of the coating process is to protect the surfaces from corrosion, and its properties make it the ideal treatment for this purpose. This technique also allows areas which are hard to reach, such as recessed areas, piping etc to be painted.



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"Cold" joining technique in the Audi TT

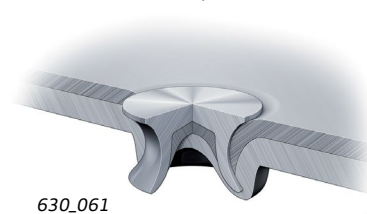
Punch riveting

Punch welding is a method where pieces that have not been pre-punched are joined together by inserting a rivet (semi-tubular rivet or solid punch rivet) into two or more layers of the workpiece, the rivet piercing the upper workpiece layers and then expanding in the lower workpiece layer.

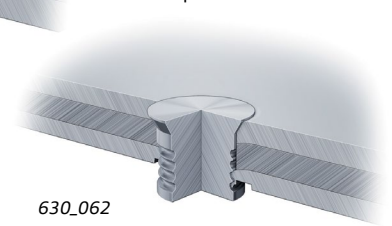
Advantages:

- ▶ No pre-punching needed.
- ▶ High dynamic strength.
- ▶ Form-fitting and non-positive connection.
- ▶ Ideal for hybrid joining.

Semi-tubular punch rivet



Solid punch rivet

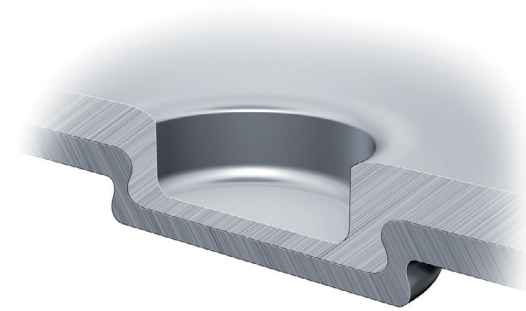


Clinching

With clinching, panels or sections are joined together by cold-forming the materials to produce a form-fitting and non-positive connection without the need for an auxiliary joining element such as a rivet. In this case, the connections can have two or more layers.

Advantages:

- ▶ No additional connecting element.
- ▶ Protects the surfaces of coated workpieces.



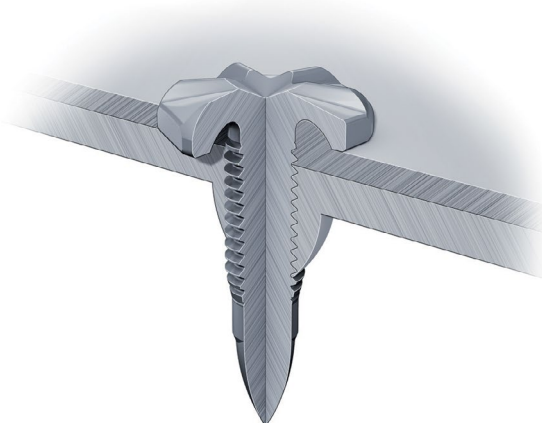
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Flow-drill screwing

A special, coated screw is inserted through partially non-pre-punched workpieces by applying high contact pressure. Due to the high pressure and high RPM, the screw forms a thermoflow hole without producing a burr. The screw penetrates the material and, in the process, cuts its own thread.

Advantages:

- ▶ High strength through thermo-flow process.
- ▶ Ideal for applications in which the material is accessible on one side only.
- ▶ Easy to disconnect.



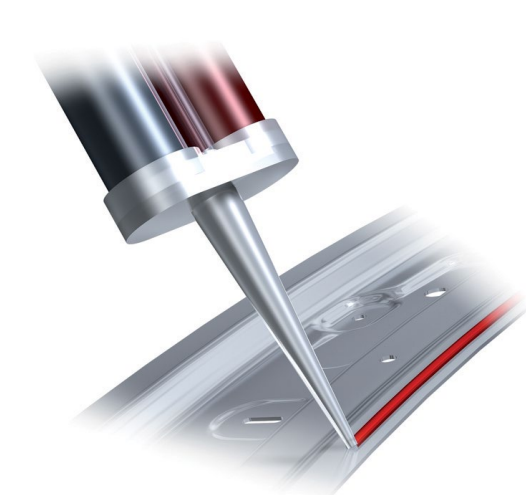
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Bonding

In addition to punch riveting, clinching, solid punch riveting, flow-drill screwing and resistance spot welding, additional adhesive bonds are used in certain areas. These bonds increase the strength of the connection. Adhesive is also used in seamed connections, as is the case at the rear wheel arch. In other areas of the bodyshell, use is made of adhesive beads to provide sealing and insulation between aluminum and steel, as well as for noise reduction.

Advantages:

- ▶ Large area connections are possible.
- ▶ Unchanged surface and micro-structure.
- ▶ Suitable for connecting different materials.
- ▶ Sealing connection.



630_078

Fuel Filler

Filler flap module

The new TT is the first Audi model to eliminate the fuel filler cap. The fuel filling nozzle slots directly into the filler neck. Two flaps are pushed to the side when the nozzle enters the filler neck and seal the neck after refueling has been completed.

The fuel filler flap is opened by lightly tapping on the embossed TT logo. The flap is locked and unlocked automatically when the central locking system is actuated.



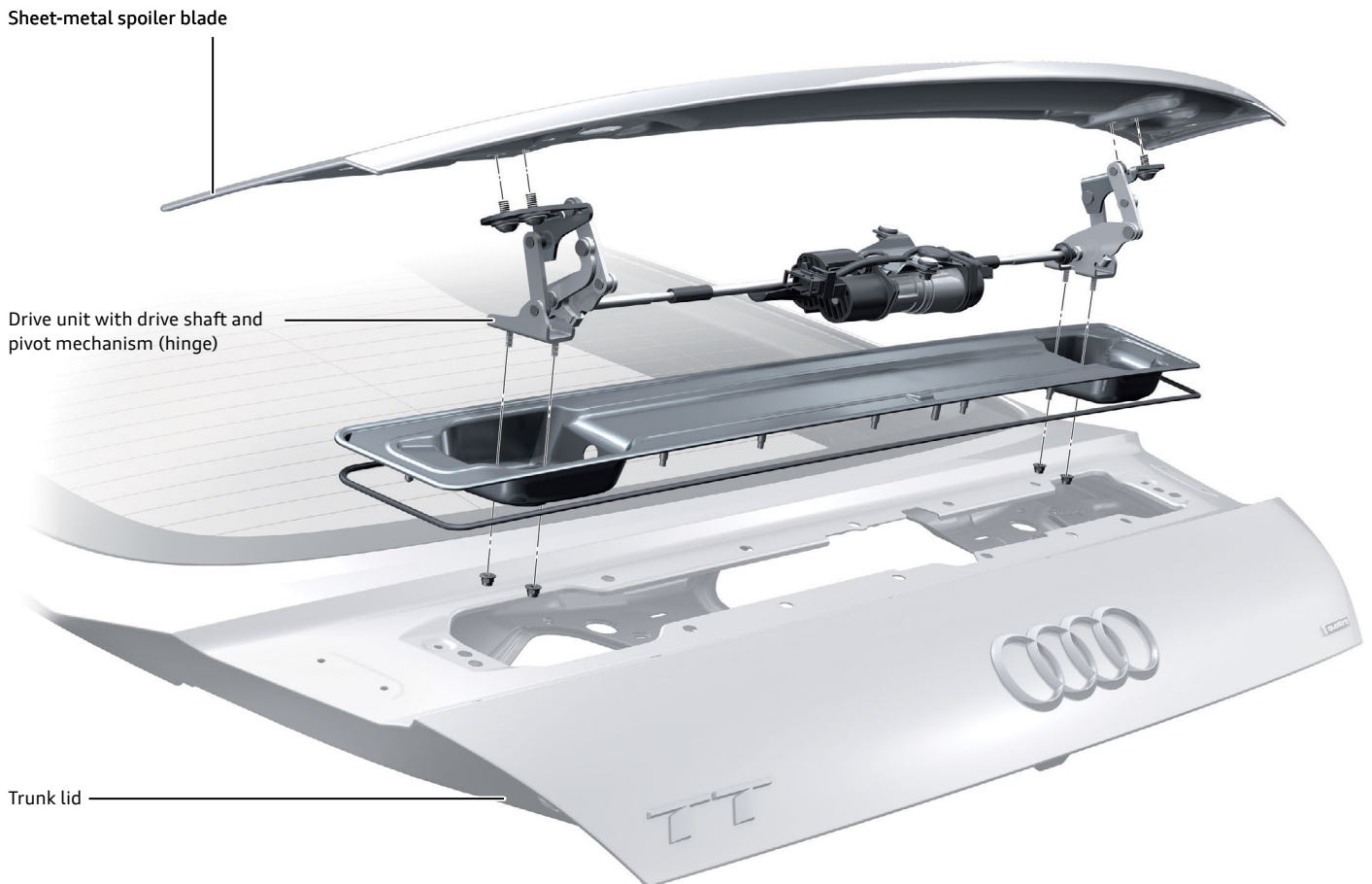
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Rear spoiler

The Audi TT has an electrically retractable rear spoiler as standard. There is a choice of 2 operating modes for extending and retracting the rear spoiler.

Driving stability is increased significantly at high speeds when the rear spoiler is extended.

Operating mode	Function
Automatic mode	Automatic extension and retraction: The rear spoiler is automatically extended when a speed of approximately 75 mph (120 km/h) is exceeded and retracted again at about 50 mph (80 km/h).
Manual mode	Manual extension: The rear spoiler can be extended fully with a short touch of the rear spoiler button in the center console. Manual retraction: <ul style="list-style-type: none">▶ At a speed of up to about 12 mph (20 km/h), the rear spoiler can be retracted by holding the button down.▶ At a speed of between 12 mph (20 km/h) and 75 mph (120 km/h), the rear spoiler can be retracted fully by touching the button.



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Passive safety

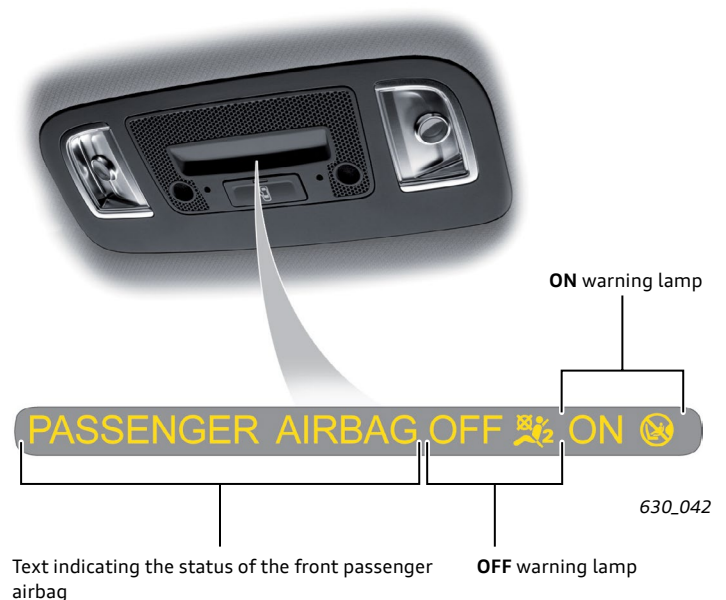
Components

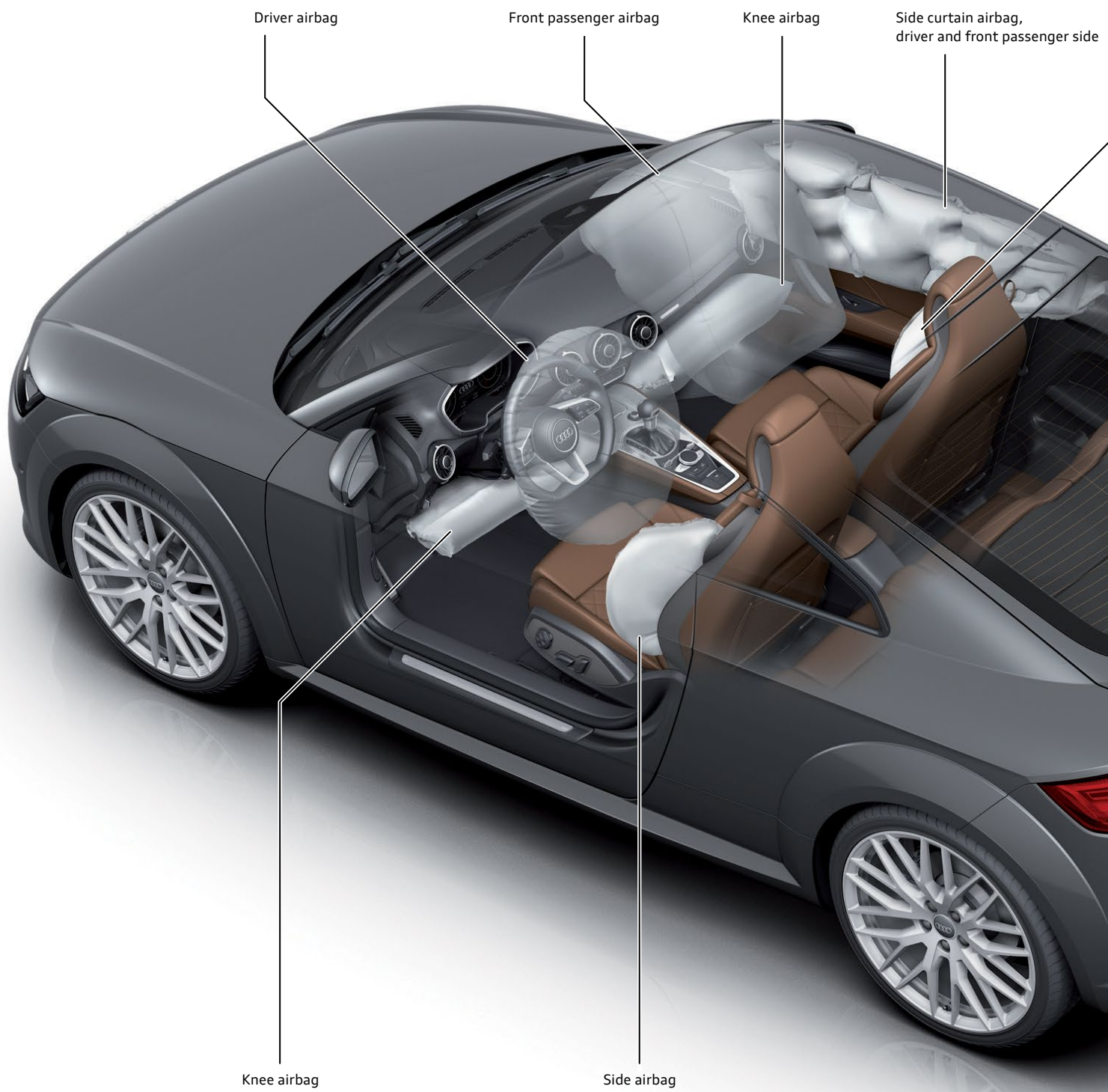
Depending on country version and trim level, the passive occupant protection system in the Audi TT may have the following components and systems:

- ▶ Airbag Control Module.
- ▶ Driver airbag.
- ▶ Front passenger airbag.
- ▶ Front side airbags.
- ▶ Head airbags.
- ▶ Knee airbag, driver and front passenger sides.
- ▶ Front airbag crash sensors (acceleration sensors).
- ▶ Front crash sensors for side crash detection (pressure sensors).
- ▶ Rear crash sensor for side crash detection (acceleration sensor).
- ▶ Front inertia-reel seat belts with pyrotechnic belt tensioners.
- ▶ Inertia-reel safety belts with active belt force limiters.
- ▶ Rear inertia-reel safety belts with pyrotechnic belt tensioners, driver and front passenger sides.
- ▶ Safety belt warning for all seats.
- ▶ Safety belt switches on all seats in the safety belt buckles.
- ▶ Seat occupancy sensor in front passenger seat.
- ▶ Airbag disabling switch, front passenger side.
- ▶ Front passenger airbag **OFF** and **ON** warning lamps.
- ▶ Driver and front passenger seat position sensors.
- ▶ Battery disconnect.

Front Passenger Airbag -disabled- Indicator lamp

A new front passenger airbag OFF warning lamp is used on the 2016 TT. It is integrated into the interior light module. The new warning lamp now indicates when the airbag is ON as well as OFF.





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Side curtain airbag

The Audi TT is equipped with side curtain airbags for the first time. The limited installation space resulting from the shape of the bodyshell presented a number of engineering challenges.

Despite the lack of installation space and the absence of a B-pillar, the Audi TT meets the 2013 US statutory requirements according to **FMVSS 226 - Ejection Mitigation**.

Description of FMVSS 226 - Ejection Mitigation

- ▶ **FMVSS** = Federal Motor Vehicle Safety Standards.
- ▶ **226 - Ejection Mitigation** = the protection of vehicle occupants from ejection through the side windows, particularly in a rollover accident.

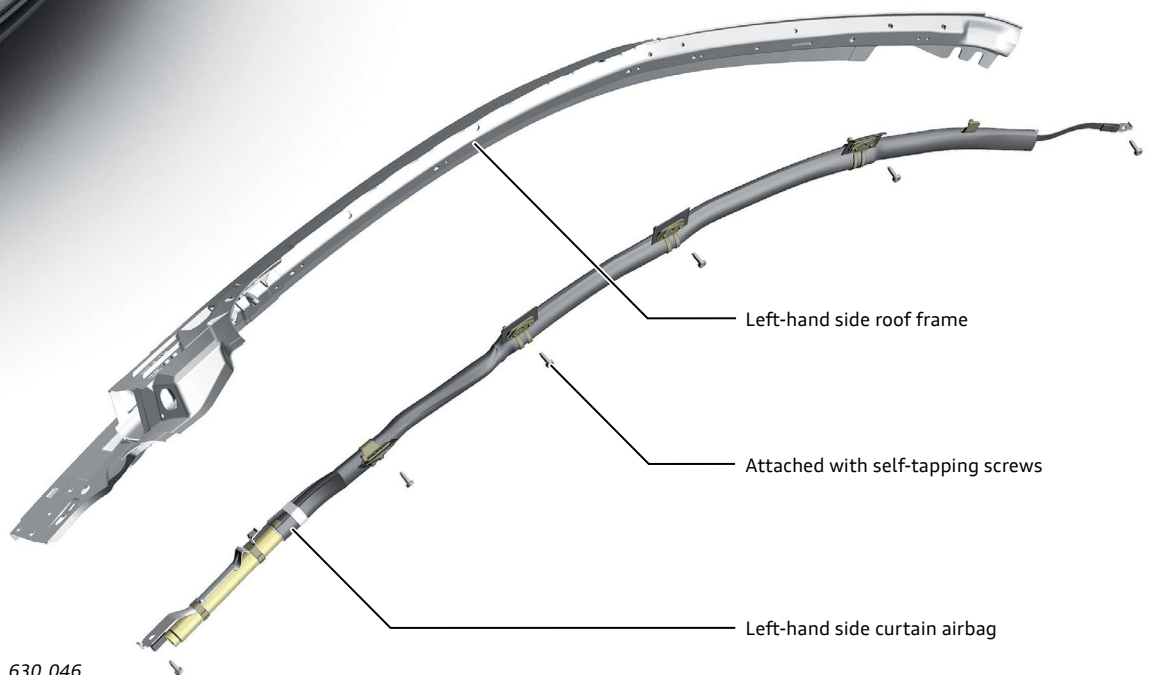
Side airbag

The side airbag in the Audi TT is designed as a thorax-pelvis airbag, and not as a head-thorax airbag. Head airbags and head-thorax airbags would obstruct each other if installed together and thus be less effective in protecting the vehicle occupants.

Side curtain airbag attachment

Due to the requirements of **FMVSS 226 - Ejection Mitigation** and the absence of a B-pillar, the side curtain in the Audi TT is attached by self-tapping screws.

Side airbag



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Engine

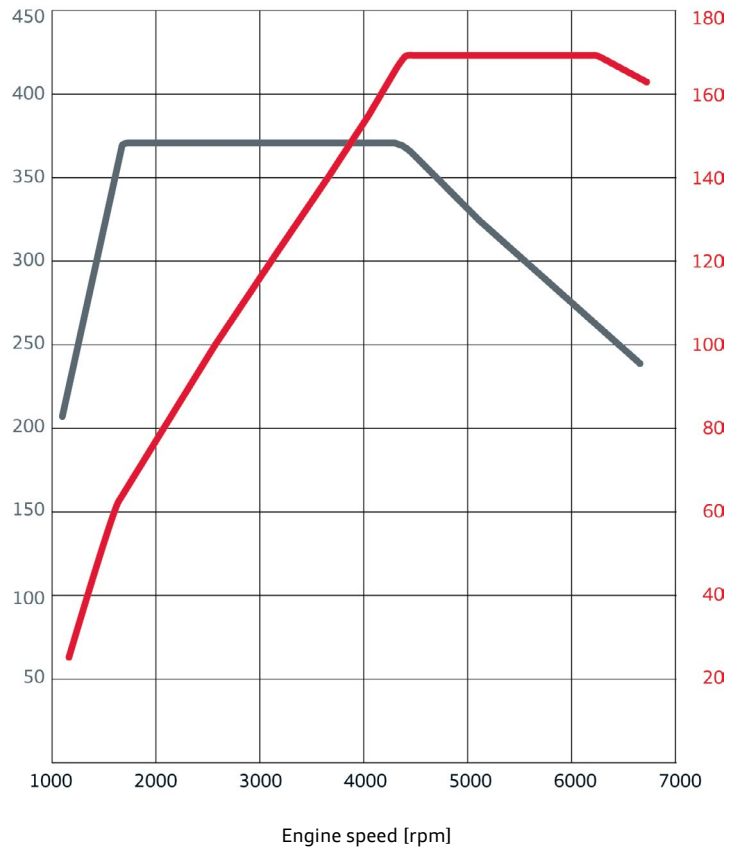
Torque/power curve of 2.0l TFSI engine

Engine with engine code CHHC

- Power output in hp (kW)
- Torque in lb ft (Nm)

The following modifications have been made to the engine for use in the Audi TT:

- ▶ Oil pan top section with 2 oil return lines.
- ▶ Crankcase breather with modified fine oil separator.
- ▶ Modified aluminum coolant pump.



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Features	Specifications
Engine code	CHHC
Type	4-cylinder inline engine
Displacement in cm ³	1984
Stroke in (mm)	3.65 (92.9)
Bore in (mm)	3.24 in (82.5 mm)
Number of valves per cylinder	4
Firing order	1-3-4-2
Compression ratio	9.6 : 1
Power output in hp (kW) at rpm	220 (162) at 4500 - 6200
Torque in lb ft (Nm) at rpm	258.1 (350) at 1600 - 4300 rpm
Fuel type	Regular
Engine management system	Simos 18.1
Emission standard	SULEV



Note

The Audi TTS will also use the third generation EA888 engine but will have 292 hp and 280 lb ft of torque. Complete specifications unavailable at time of printing.



Reference

For more information on the 2.0l TFSI engine, please refer to [eSelf-Study Program 920243, The Audi 1.8L and 2.0L Third Generation EA888 Engines.](#)

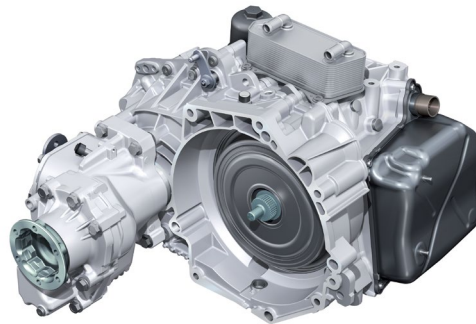
Engine transmission combination

Engines

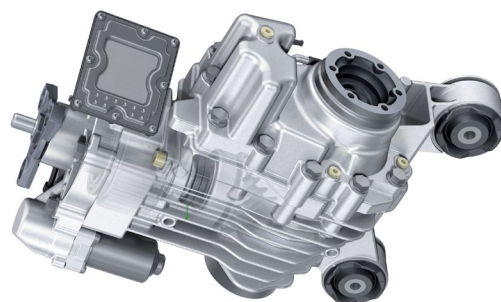
2.0l TFSI engine (CHHC)



6-speed quattro double-clutch transmission S tronic



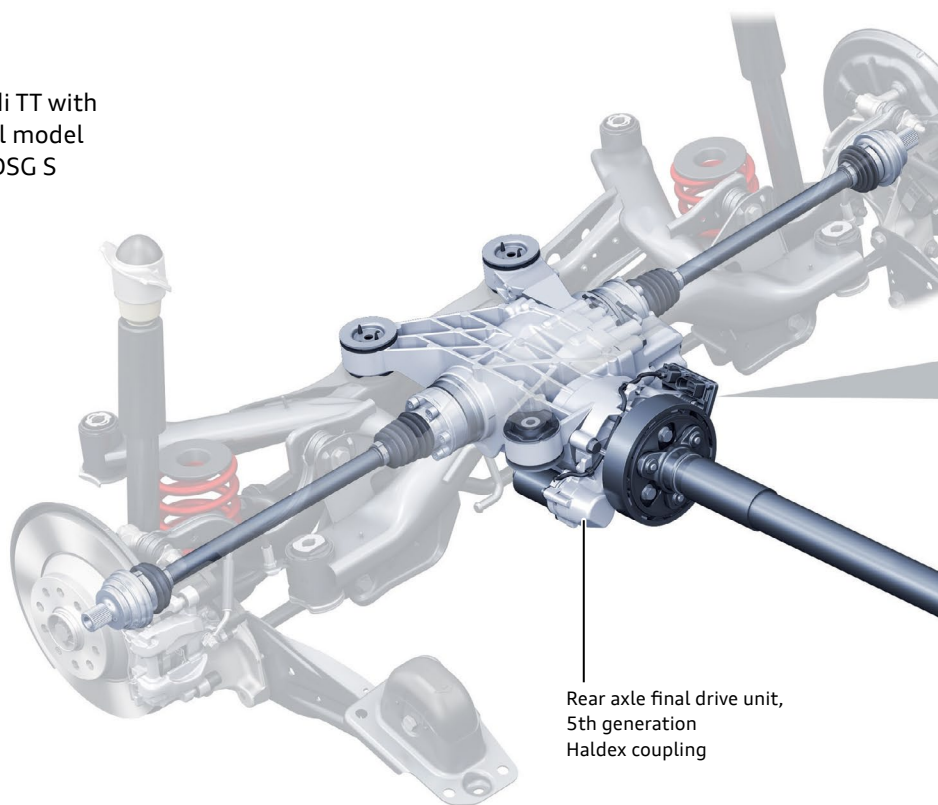
Rear axle drive OCQ
5th generation Haldex coupling



Power transmission

Overview

This illustration shows the quattro drive of the Audi TT with 6-speed DSG transmission and Haldex coupling. All model versions of the 2016 Audi TT will use the 6-speed DSG S tronic transmission and Haldex coupling.



quattro drive

The Haldex coupling software has been specially adapted for the Audi TT. The new software provides both enhanced driving dynamics and higher efficiency.

The Haldex software now makes more intensive use of driving dynamics data measurement while closely monitoring driver input and vehicle driving status, reducing reaction time significantly.

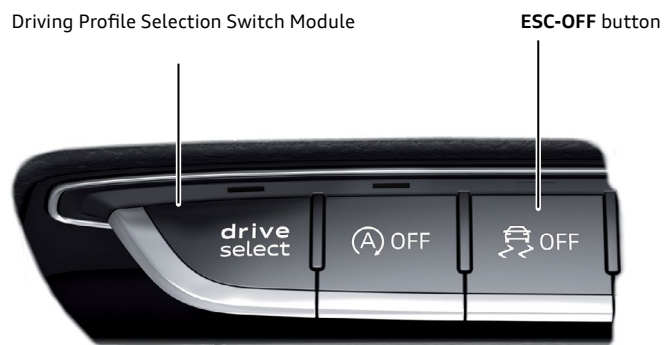
To utilize the potential of this new technology, quattro drive is coupled with Audi drive select. Audi drive select can be used to select between different vehicle configurations. A specific Haldex coupling setup is assigned to each configuration.

auto/comfort

The Haldex coupling setup matches the known driving behavior and the quattro-typical traction of the 2015 Audi A3.

dynamic

This setup provides more agile steering response. The coupling is engaged as soon as the driver steers into the corner, allowing it to react more quickly to the closing of the coupling when accelerating out of the corner. The result is a smaller decrease in torque in response to oversteer and load changes.



(no start stop in the US TT)

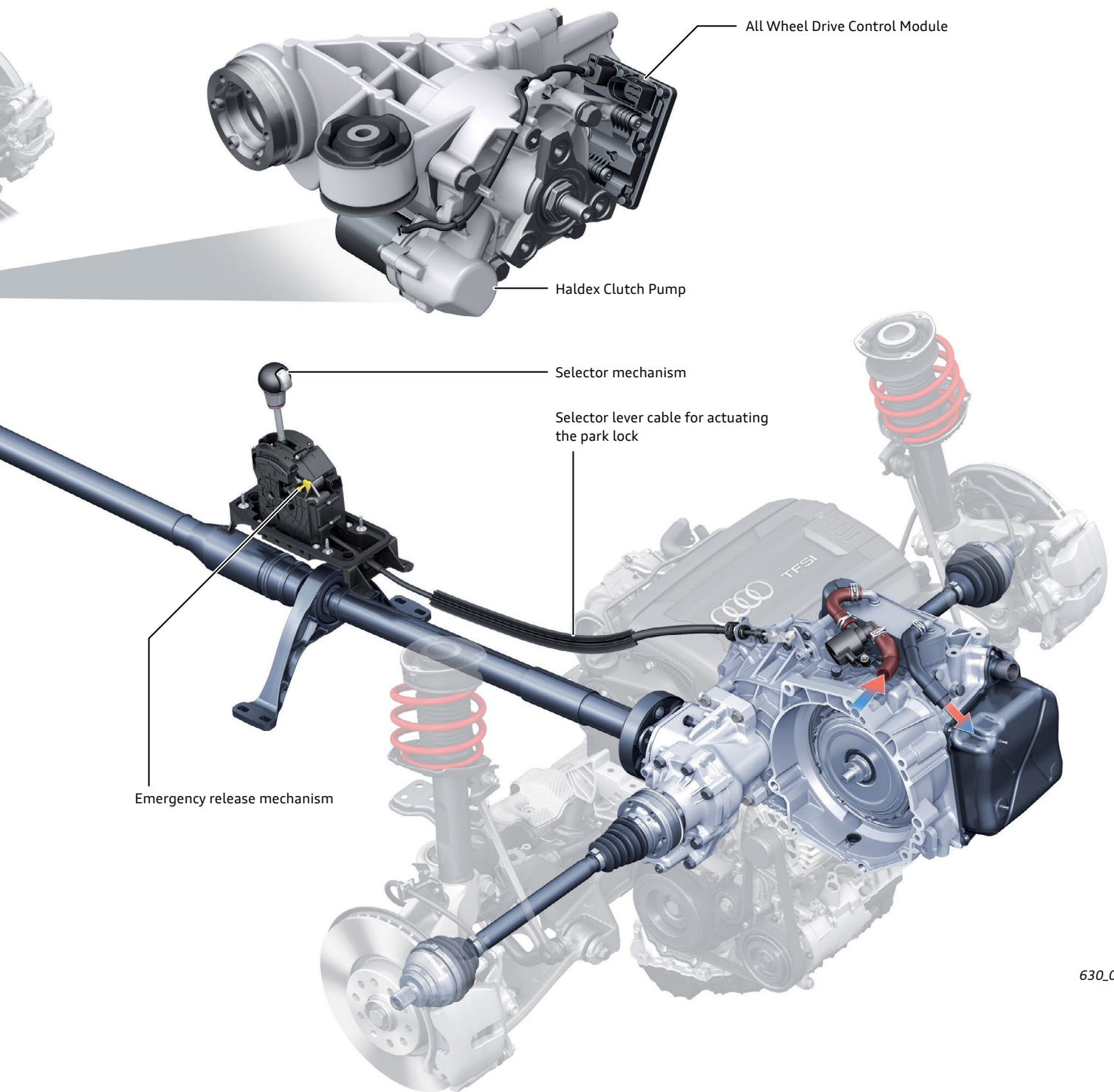
630_049

In **individual** mode, the driver can choose a Haldex coupling setup independent of other vehicle systems.

eMedia



Find out more about the quattro drive of the Audi TT.



630_048



Reference

For more information about the 5th generation Haldex coupling and the thermal management system of the OD9 transmission, please refer to [eSelf-Study Program 990143, The 2015 Audi A3 Introduction.](#)

6-speed DSG transmission - S tronic

When the Audi TT is launched, the transmission will only be available with quattro drive. A front-wheel drive version will be available at a later date.

Vehicles with quattro drive (all 2016 Audi TT vehicles in North America) are equipped as standard with Audi drive select.

In addition to familiar transmission functions such as starter lock, selector lever lock, software shiftlock, parking lock, tiptronic mode and kick-down, this SSP explains in depth the selector mechanism, downhill assist, the launch control program and the start assist systems.

Selector mechanism

The selector mechanism of the transmission has been adapted to the interior of the Audi TT. The operating logic is identical to the 2015 A3. In addition to the selector lever positions "P", "R", "N", "D" and "S", it is possible to shift gear manually in tiptronic mode using the selector lever or the shift paddles on the steering wheel. The gear selected and the active gear are displayed in the Audi virtual cockpit.



630_052

The parking lock emergency release mechanism can be accessed by unclipping the selector lever cover from the center console and pushing the insulating foam to the side.



630_053



Reference

For more information about the selector mechanism and the emergency release mechanism of the selector lever, please refer to [eSelf-Study Program 990143, The 2015 Audi A3 Introduction.](#)

Downhill assist

The downhill assist functions aids the driver on downhill gradients. In selector lever positions "D" and "S", it is activated when the brake pedal is depressed or when the speed is set on the cruise control system. Downhill assist tries to maintain the reduced speed within the bounds of physical and drive limitations. The transmission selects a gear appropriate to the gradient. It may be necessary to additionally correct the vehicle's speed with the foot brake.

Given that downhill assist shifts down into no lower than 3rd gear, it is advisable to switch to tiptronic mode on very steep gradients. This allows the vehicle to be shifted manually into 2nd or 1st gear to make use of the engine braking effect and relieve the load on the brakes. Downhill assist cuts out again as soon as the gradient lessens or the accelerator pedal is pressed.

Launch control program

The launch control program enables maximum acceleration.

Conditions:

- ▶ The engine is at operating temperature.
- ▶ The wheels and the steering wheel are in the straight-ahead position.
- ▶ The **ESC-OFF** button was briefly pressed once while the engine was running.
- ▶ Selector lever is in the "S" position or in the tiptronic gate or **dynamic** mode is selected using Audi drive select.
- ▶ Depress the brake pedal firmly for 1 second and hold it down.
- ▶ Depress the accelerator pedal fully and hold it down.
- ▶ Ease off the brake.

When using the launch control program, the transmission temperature will rise sharply. It is possible that the launch control program will be unavailable until the transmission has cooled sufficiently.

The launch control program puts maximum strain on parts of the drivetrain, resulting in increased wear.

Hill start assist systems

The hill start assist systems utilize the capabilities of the ESC system and the parking brake. They assist the driver by stopping the vehicle from inadvertently rolling away.

Hill start assist and **integrated start assist** are standard. The requirements for system operation are that the driver's door is closed, the driver's safety belt is fastened and the engine is running.

Hill start assist is available when the brake pedal is depressed and the vehicle is at a gradient of 5% or steeper.

When the vehicle stops on a gradient, the current brake pressure is maintained by the ESC control valves. If the brake pedal is released in order to drive away, brake pressure is maintained for about 1.5 seconds. As soon as enough drive torque is available to move the vehicle, the brake is released.

This function aids starting on gradients because the vehicle is largely prevented from rolling back. Hill start assist is also available in reverse gear.

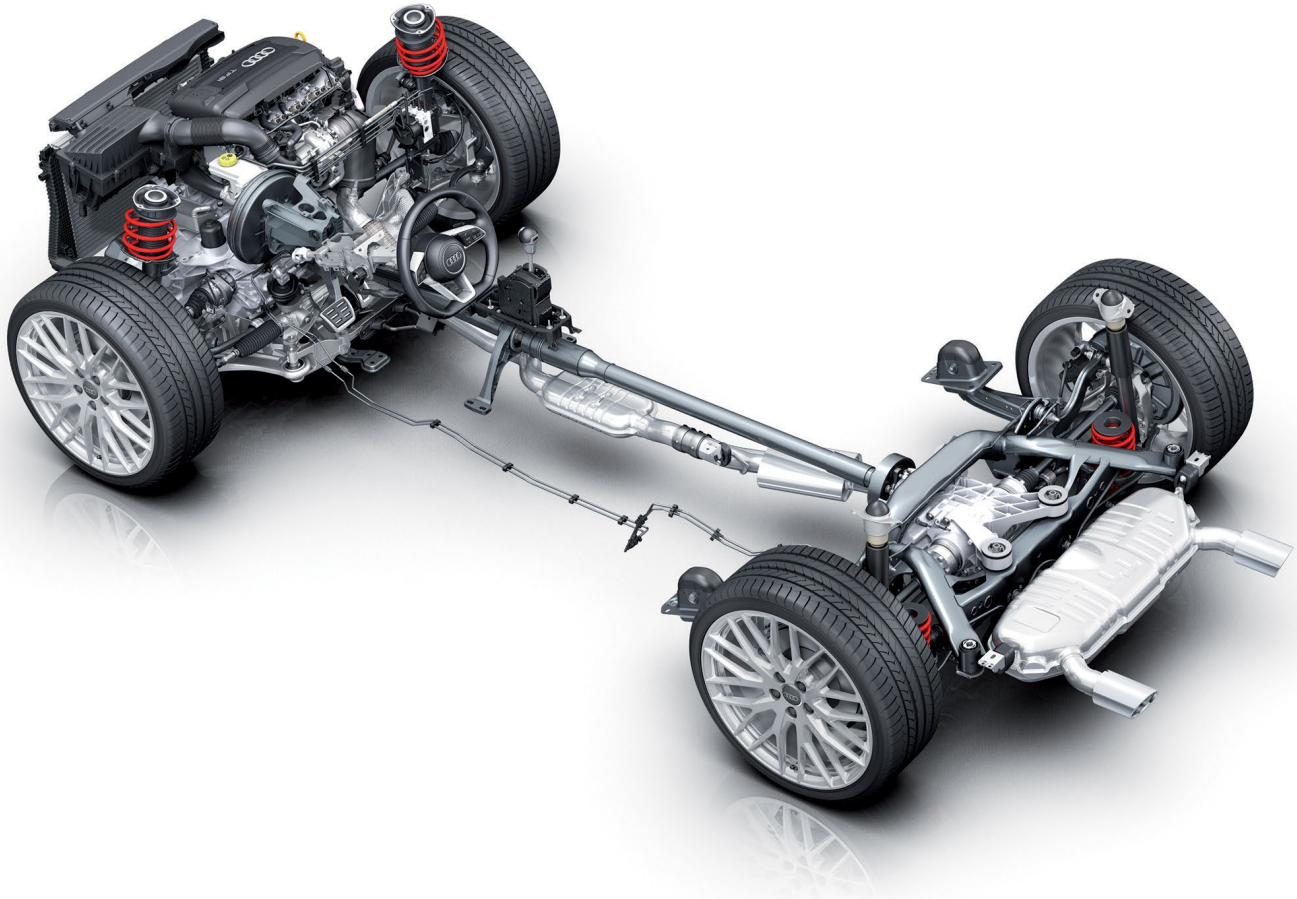
Integrated start assist is effective when the parking brake is actuated. It is released at drive-away as soon as enough drive torque is available to set the vehicle in motion. Integrated start assist is only operational when the driver's safety belt is fastened.

Chassis

Overall concept

One key focus of development work on the chassis of the Audi TT was on achieving sporty driveability combined with dynamic and highly precise handling. This was achieved through a highly engineered suspension system with a front axle based on the MacPherson concept and a redesigned four-link rear axle.

In keeping with the sporty setup, use is made of progressive steering as standard. Torque vectoring also makes a major contribution to excellent handling. The use of generously sized brake systems with vented brake discs at the front and the electro-mechanical parking brake at the rear underscore the sporty overall concept.



630_082

The following suspension variants are available for the Audi TT:

Suspension/steering versions	Features
Standard suspension (1BA) ¹⁾	The standard suspension as basic equipment features steel springs and unregulated damping.
Suspension with electronic damper control (1BQ) ¹⁾	This suspension has been set up specially for the Audi TTS and is standard equipment.

¹⁾ Production control number

Axles and wheel alignment

Front axle

The front axle is based on the Modular Transverse Platform (MQB). The MacPherson concept used in the predecessor model has been adopted for the 2016 TT.

To achieve a high level of driving dynamics, the Audi TT has special suspension setups.

Spring

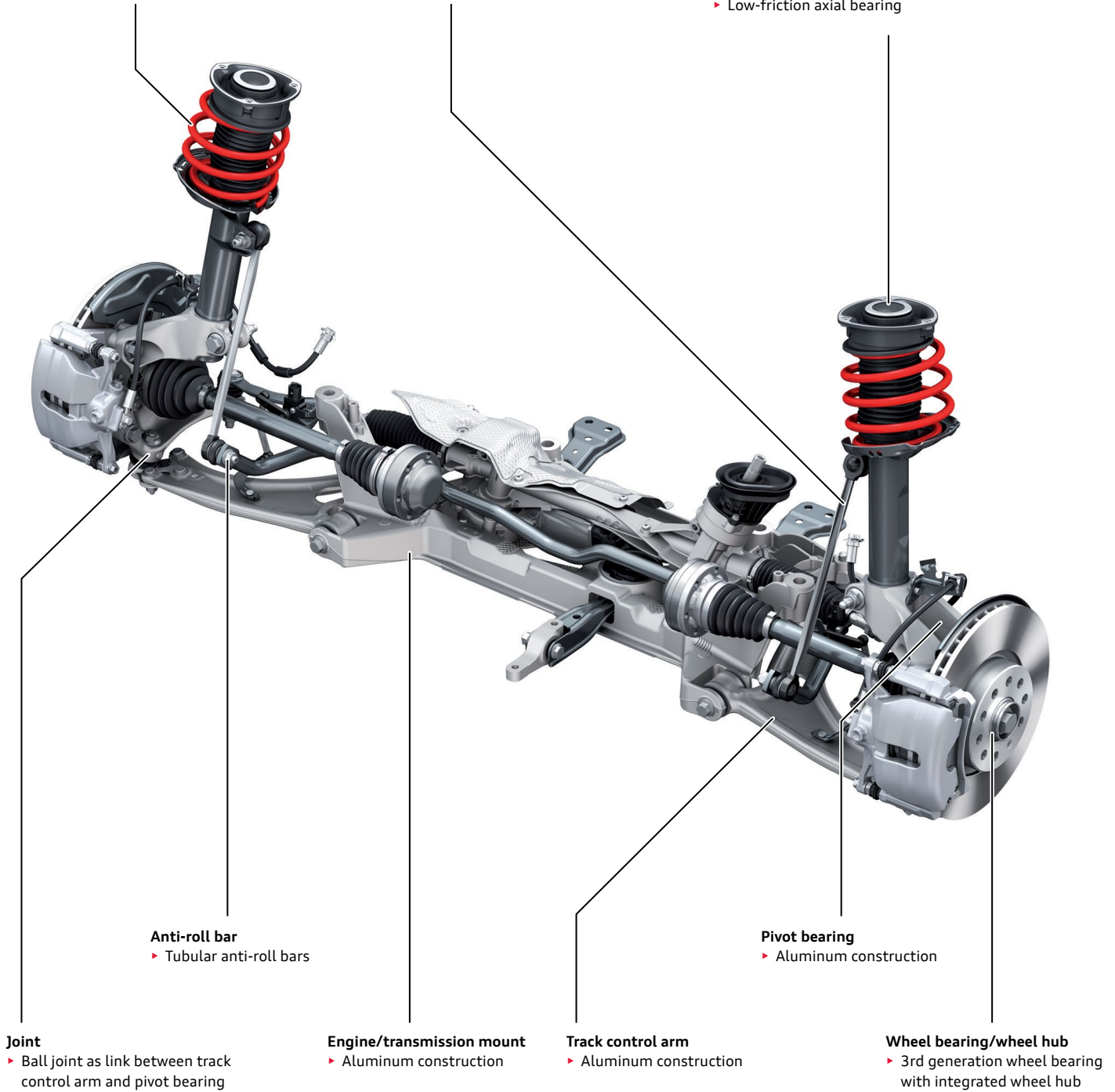
- ▶ Steel spring with linear characteristic
- ▶ TT-specific setup

Sway bar link

- ▶ Steel construction with plastic ball joints

Damper

- ▶ 2-tube damper with polyurethane auxiliary spring
- ▶ TT-specific setup
- ▶ Low-friction axial bearing



Anti-roll bar

- ▶ Tubular anti-roll bars

Joint

- ▶ Ball joint as link between track control arm and pivot bearing

Engine/transmission mount

- ▶ Aluminum construction

Track control arm

- ▶ Aluminum construction

Pivot bearing

- ▶ Aluminum construction

Wheel bearing/wheel hub

- ▶ 3rd generation wheel bearing with integrated wheel hub

Rear axle

The rear axle is also based on the Modular Transverse Platform (MQB). The proven multi-link axle concept for vehicles with quattro drive was adopted from the predecessor model.

Upper track control arm

- ▶ Steel construction

Wheel carrier

- ▶ Aluminum casting

Spring link

- ▶ High-tensile steel construction

Damper

- ▶ 2-tube damper with polyurethane auxiliary spring
- ▶ TT-specific setup

Spring

- ▶ Steel spring with linear characteristic
- ▶ TT-specific setup

Trailing arm

- ▶ Steel construction

Tie rod

- ▶ Plastic part (not shown)

Anti-roll bar

- ▶ Tubular anti-roll bars

Wheel bearing/wheel hub

- ▶ 3rd generation wheel bearing with integrated wheel hub

Mounting bracket

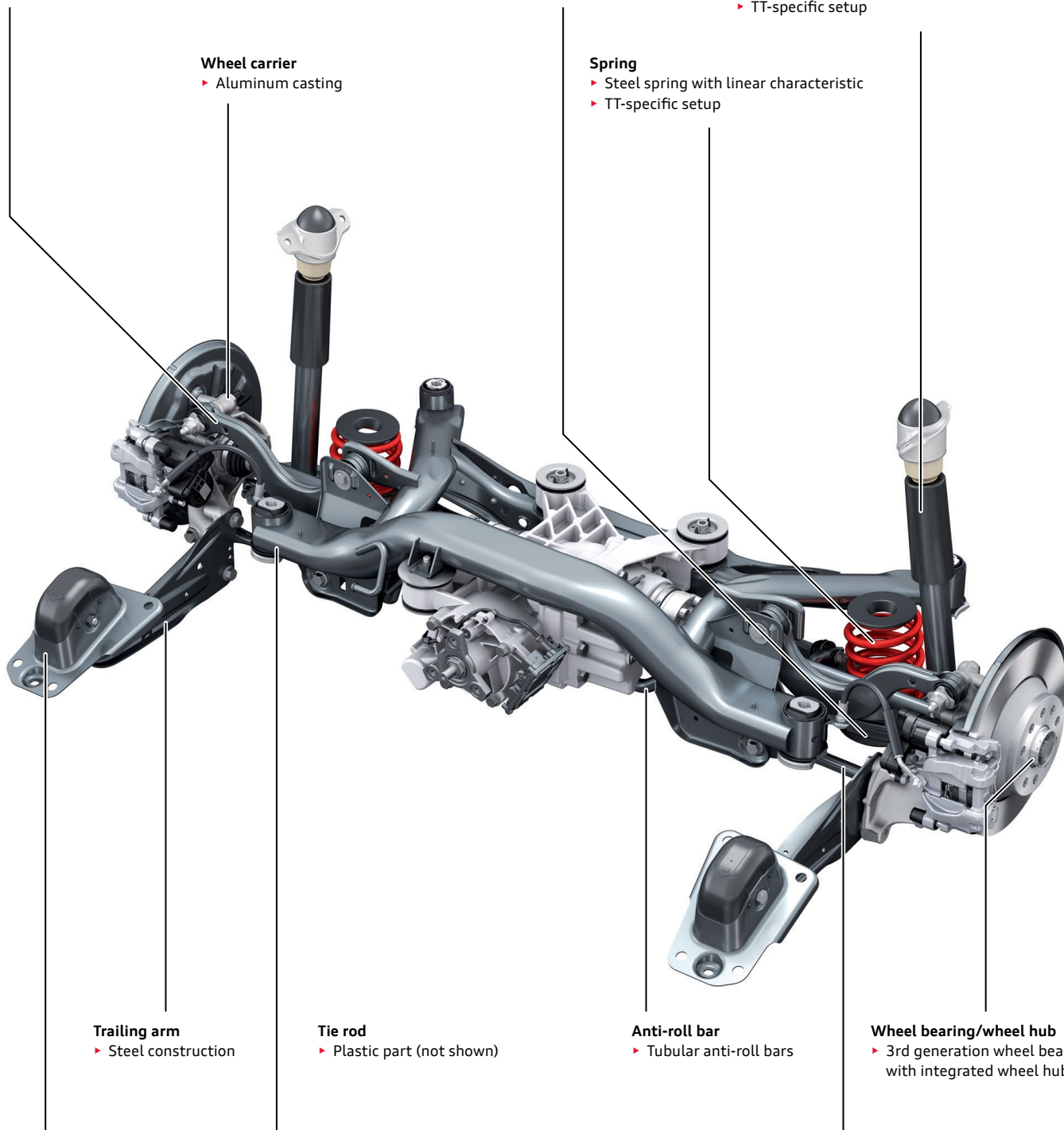
- ▶ Steel construction

Rear cross member

- ▶ Steel construction
- ▶ Rigid body attachment for front-wheel drive models
- ▶ Elastic connection for models with quattro drive, achieved using rubber-metal bearing

Track link

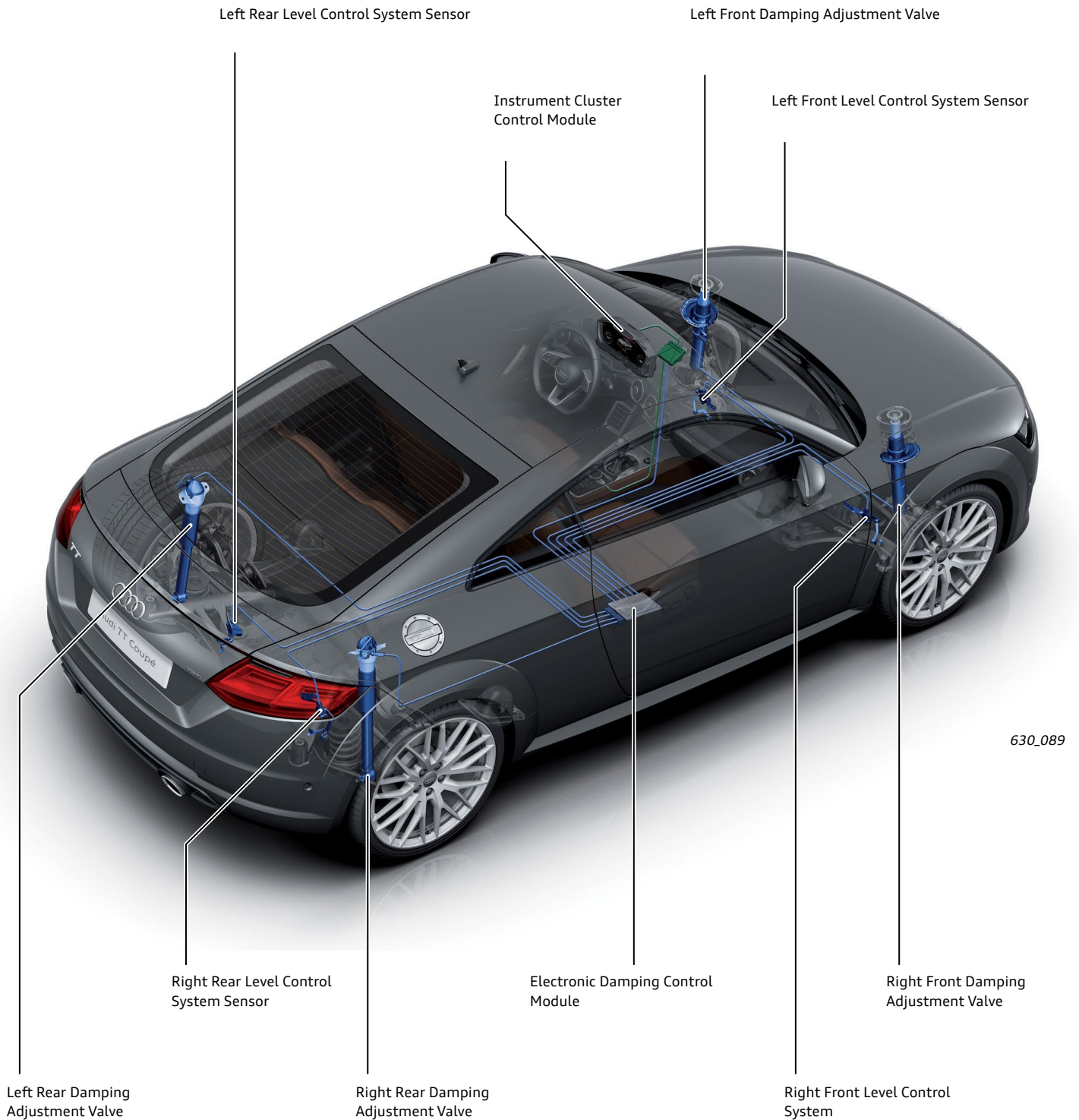
- ▶ Steel construction



630_084

Suspension with electronic damper control

The optional electronic damper control for the TTS is based on the Audi magnetic ride system previously available for the predecessor model.



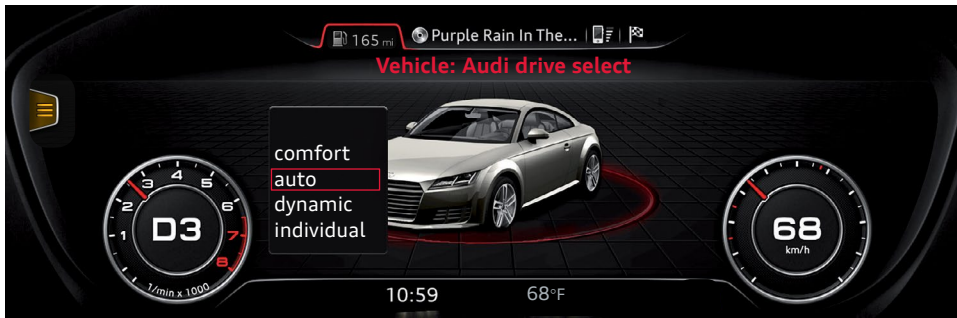
Reference

For more information about the design and general functional principle of Audi magnetic ride, please refer to [eSelf-Study Program 993703, The 2008 Audi TT Running Gear](#).

Damping characteristic

Three different damping characteristics are available. They can only be set by selecting the relevant mode in Audi drive select. Depending on preference, the driver can choose between comfortable (**comfort**), sporty (**dynamic**) and balanced (**auto**) damping characteristics.

Depending on the degree of damping, the coils in the damper pistons are activated by the output stages of the control module by applying up to about 5 A of current (maximum damping). The damper is not permanently activated when the vehicle is stationary.



630_096

System response to faults

As a fully integrated system, the damper control system has self-diagnostic capability. Any detected system faults are indicated to the driver by a fault message in the instrument cluster. Depending on the nature of the fault, the system response can range from a partial shut-down to a full shut-down of the system.



630_103

Brake system

Depending on the model, the 2016 TT will use 16" or 17" brake systems on the front and rear axles. Larger-diameter brake pistons are used on all models.

The result is a more sporty pedal feel (short idle travel, defined bite point). The electro-mechanical parking brake (EPB) is used for the first time in the Audi TT. The brake booster and foot controls are the same as those on the 2015 A3. The TT is also equipped with the Continental ESC Mk 100 ABS/ESP system as found on the 2015 A3.

Brake system, front axle

Engine type	2.0l TFSI 220 hp (162 kW)	2.0l TFSI 292 hp (220 kW)
Minimum wheel size	16"	17"
Brake type	Floating caliper brake TRW PC57WE	Fixed caliper brake Conti 4MF 42/30/11
Number of pistons	1	4
Piston diameter	2.24 in (57 mm)	1.65 in (42 mm)
Brake disc diameter	12.28 in (312 mm)	13.30 in (338 mm)



630_101



630_113

Brake system, rear axle

Engine type	2.0l TFSI 220 hp (162 kW)	2.0l TFSI 292 hp (220 kW)
Minimum wheel size	16"	17"
Brake type	Floating caliper brake Conti FNC-M38/12/11	Floating caliper brake Conti FNC-M42/22/11
Number of pistons	1	1
Piston diameter	1.10 in (38 mm)	1.65 in (42 mm)
Brake disc diameter	11.81 in (300 mm)	12.20 in (310 mm)



630_102

Electronic Stability Control (ESC)

Operation

The Sport mode can be activated by briefly pressing the **ESC-OFF** button (for less than 3 seconds). The TSC function is deactivated in vehicles with quattro drive. The parameters for stabilizing ESC intervention are adapted accordingly, allowing a more sporty style of driving. If the **ESC-OFF** button is pressed for longer than 3 seconds, TCS and ESC are fully deactivated.



(no start stop in the US TT)

630_114

ESC-OFF button

Steering system

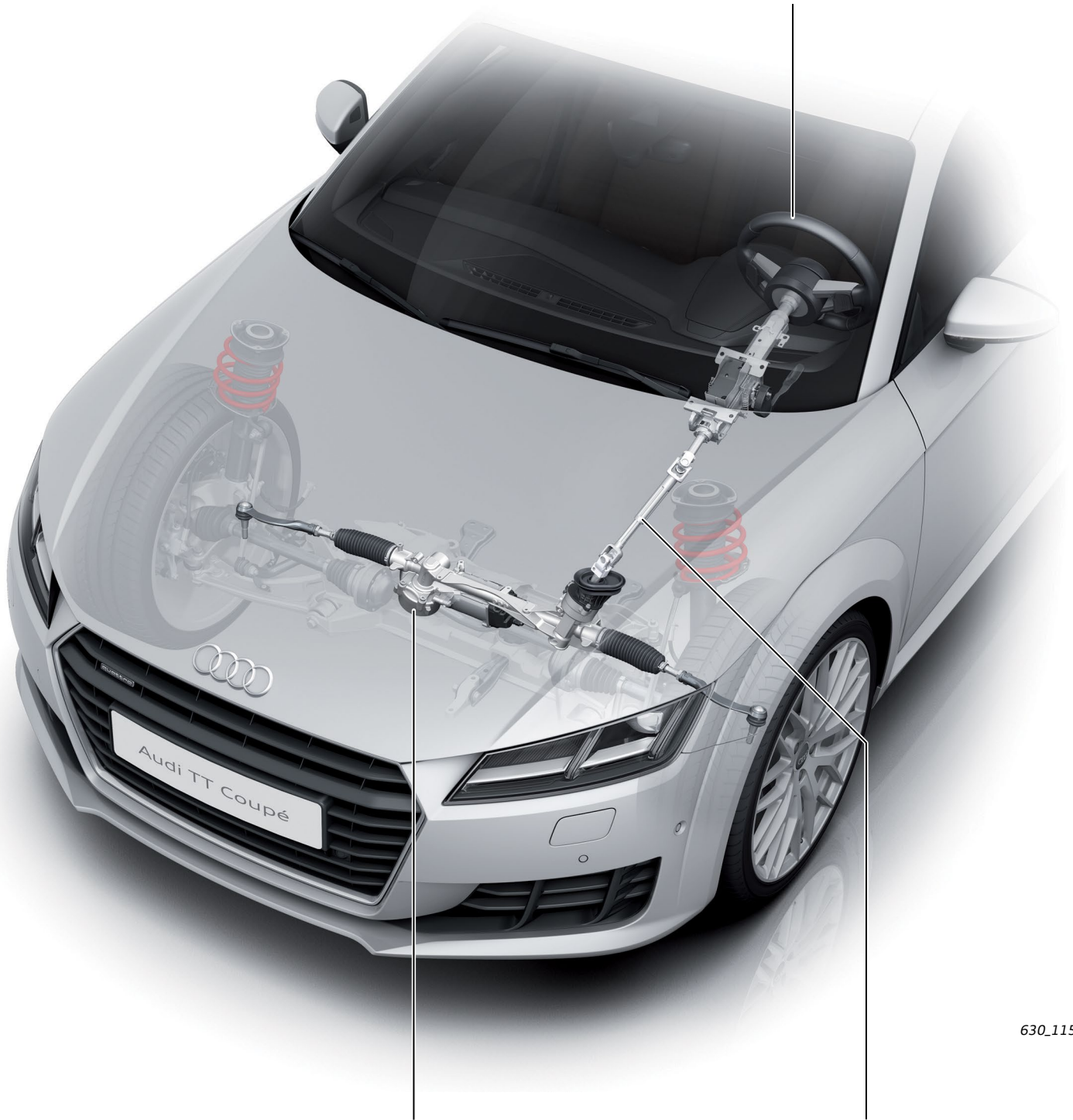
Overview

The Audi TT is equipped with the 3rd generation electro-mechanical power steering system previously used in the Audi A3. Special steering maps have been developed for the Audi TT. To ensure a high level of driving comfort, the Audi TT is equipped as standard with the progressive steering system used in the Audi A3.

The mechanically adjustable steering column is also a carry-over from the Audi A3. Standard equipment consists of a newly developed three-spoke steering wheel featuring a new, sporty design.

Steering wheel

- ▶ Standard equipment: Three-spoke steering wheel with "Sport rim" for Audi TT



Electro-mechanical power steering

- ▶ Carry-over from Audi A3
- ▶ Use of special, Audi TT specific maps
- ▶ Progressive steering as standard equipment

Steering column

- ▶ Mechanically adjustable
- ▶ Height adjustment: +/- 0.98 in (25 mm)
- ▶ Longitudinal adjustment: +/- 1.18 in (30 mm)
- ▶ Carry-over from Audi A3

630_115

Electro-mechanical power steering (EPS)

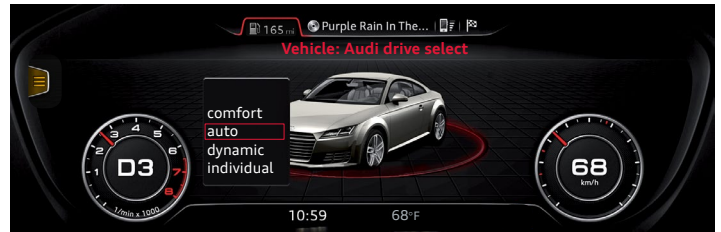
In terms of its design, functional principle and service operations, the electro-mechanical power steering system is identical to the system already implemented in the 2015 A3.



630_116

Operation

Depending on whether **auto**, **dynamic** or **comfort** mode is selected, the system activates steering maps which provide universal, dynamic or comfort-oriented power steering. When **individual** mode is selected, the driver can freely select one of three maps.



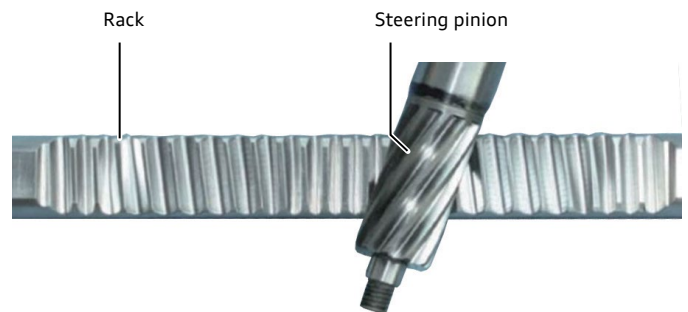
630_096

Progressive steering

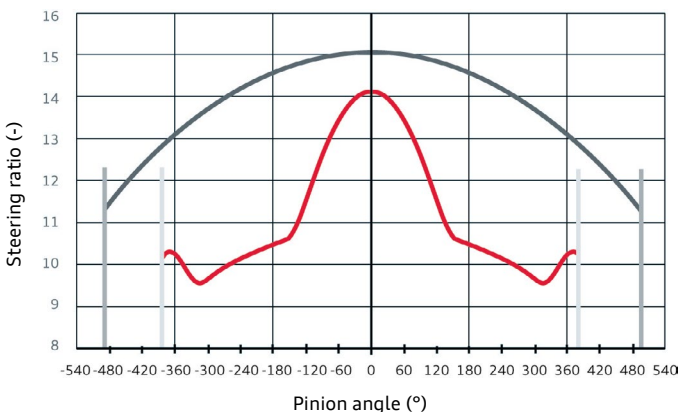
The Audi TT receives progressive steering as standard. Progressive steering is provided by a variable steering ratio using a special rack spline geometry. The steering ratio is at its highest when driving in a straight line and during minor steering inputs around the center position. Rotation of the steering wheel through an angle of about 14° produces a steering angle of about 1° at the front wheels (steering ratio of approximately 14). The ratio decreases with increasing steering angle, and thus becomes more direct. This gives the Audi TT agile and precise handling in city traffic and on windy country roads with little steering effort.

At large steering angles (for example, in inner-city areas or when parking), the steering ratio is reduced to significantly reduce steering effort for the driver. The diagram below clearly shows that with progressive steering, the steering wheel has to be moved much less in order to turn the front wheels to full lock.

This reduces amount of steering input required and gives significantly better dynamics during sporty driving maneuvers.



630_109



Key:

- Steering lock with progressive steering
- Steering lock with conventional steering
- Progressive steering in the Audi TT
- Conventional steering in the Audi A3

630_090




Reference

For more information about the electro-mechanical power steering (EPS), refer to [eSelf-Study Program 960143, The 2015 Audi A3 Running Gear and Suspension System](#).


Steering wheels

Newly developed steering wheels are used in the Audi TT. A very sporty look is achieved by using a combination of aluminum, plastic and leather in visible areas.

Race steering wheel

Steering wheel	Equipment
	Option <ul style="list-style-type: none"> ▶ Multifunction steering wheel (high version) ▶ Smooth napa leather ▶ tiptronic

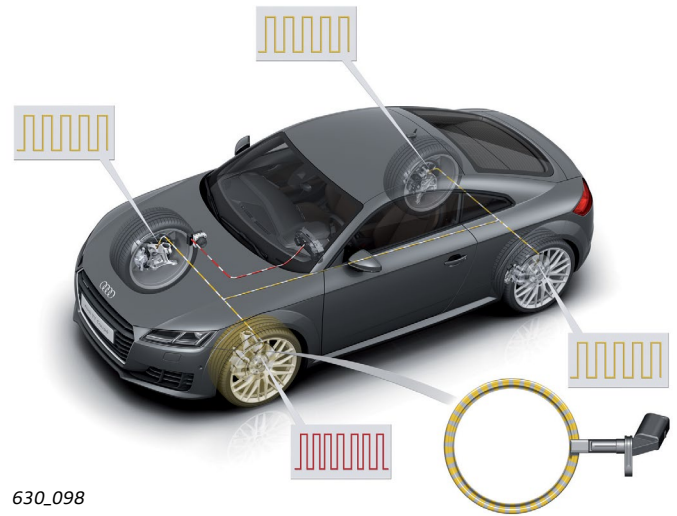
Race steering wheel (for TTS)

TTS Steering wheel	Equipment
	Option <ul style="list-style-type: none"> ▶ Multifunction steering wheel (high version) ▶ Smooth napa leather with S seam ▶ TTS badge ▶ tiptronic

630_117

Tire Pressure Monitoring System




The 2nd generation TPMS system (RKA+) is basic equipment for the Audi TT. In terms of design and function, operation and driver information as well as service and diagnosis functions, the system is identical to the systems already in use in other Audi vehicles.



630_098

Wheels and tires

The Audi TT comes with 17" wheels as standard (the TTS has 18" wheels). 17" to 19" wheels are optional (20" wheels are available through quattro GmbH). The range of tires extends from the 225/50 R17 to the 245/35 R19.

Standard wheels	Optional wheels
 <p data-bbox="368 544 547 656">Cast aluminum wheel 8.5J x 18 ET50 245/40 R18</p> <p data-bbox="368 748 395 775">TT</p>	 <p data-bbox="844 544 1023 656">Forged aluminum wheel 9.0J x 19 ET52 245/35 R19</p> <p data-bbox="844 748 871 775">TT</p>
 <p data-bbox="368 819 547 931">Forged aluminum wheel 9.0J x 19 ET52 245/35 R19</p> <p data-bbox="368 1023 411 1050">TTS</p>	

630_118

Audi virtual cockpit

Introduction

The market launch of the Audi TT sees the rollout of a high-resolution display as a central display instrument for the first time in an Audi vehicle: Audi virtual cockpit. The display has a resolution of 1440 x 540 pixels. The display diagonal measures an impressive 12.3 inches, (31.2 cm).

The Audi virtual cockpit replaces the previous instrument cluster with its classic instrument gauges and is standard equipment in the Audi TT. It also replaces the MMI display unit in the center console. Navigation maps and other infotainment content are now displayed directly behind the steering wheel in the Audi virtual cockpit.

Classic and infotainment views

The customer can choose from two basic display views in Audi virtual cockpit:

- ▶ The **classic view**

and

- ▶ The **infotainment view**

The customer can toggle back and forth between both views using the VIEW button on the multifunction steering wheel. The VIEW button is available both with the standard multifunctional steering wheel (entry version) and with the high version of the multifunctional steering wheel.

The **classic view** is based heavily on the design of previous instrument clusters.

The layout and size of display content are very similar to the design of conventional instrument clusters.



Display of Audi virtual cockpit in the classic view

628_006

In the **infotainment view** the central display area between the two gauges is noticeably larger because the gauges are shown smaller.

The larger display panel offers new possibilities for the display of infotainment and vehicle information.



Display of Audi virtual cockpit in the infotainment view

628_007

Display contents

The customer decides which content is displayed by selecting one of the available main functions. The number of main functions depends on the actual vehicle specification and will be limited to a maximum of ten at launch of the Audi TT.

The desired main function can be selected either directly in the main menu or in the tab bar. The tab bar is a display bar positioned at top center of Audi virtual cockpit.



Main menu in the Audi virtual cockpit central display

628_013



Reference

For more information about Audi virtual cockpit, please refer to Self-Study Program [600277, Audi Virtual Cockpit and Infotainment Sales and After Sales.](#)

Audi drive select

Equipment

The Audi TT is equipped with the Audi drive select system. The driver can select from the following operating modes:

- ▶ **comfort**
- ▶ **auto**
- ▶ **dynamic**
- ▶ **individual**

In addition, the vehicle setup can be custom-configured in **individual** mode.

Displays and operation

The Audi drive select system is configured by using the Driving Profile Selection Switch Module in the center console. Depending on the Infotainment equipment installed, it may be possible to configure the system using the Multi-media System Control Head.

In this case, the Audi drive select mode can be selected in the Car menu.

Operating elements



(no start stop in the US TT)

630_085

Driving Profile Selection Switch Module

Multi-media System Control Head



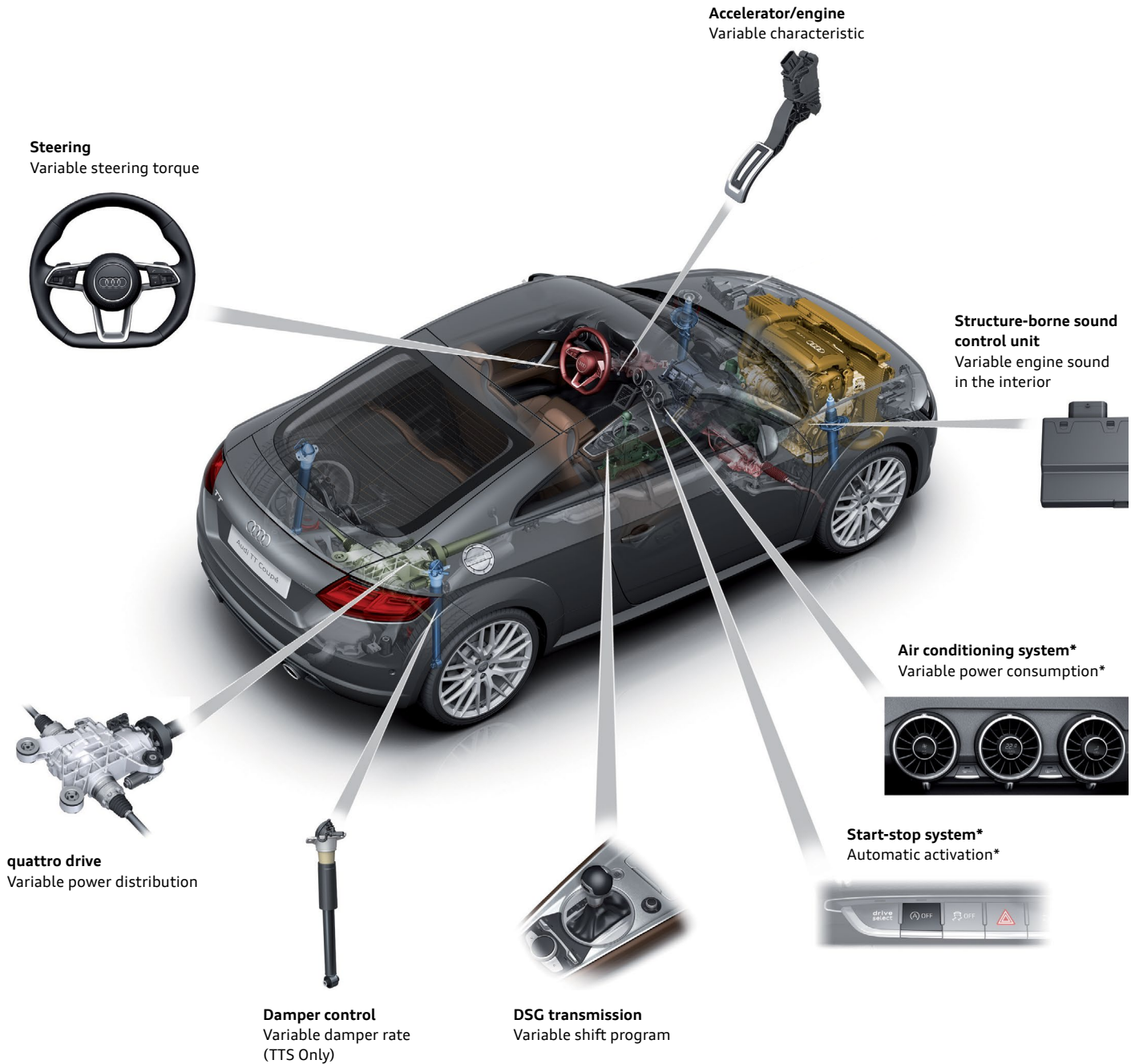
Display

Audi virtual cockpit

630_086



Controllable systems



*not applicable for the North American market.

630_088

Functional features

- ▶ The mode previously selected is restored when the vehicle restarts. Exception: In **dynamic** mode, the DSG transmission is set from "S" back to "D".
- ▶ The settings in **individual** mode are automatically assigned to the car key in use.
- ▶ The mode can be changed when the vehicle is stationary or while driving.
- ▶ To activate a newly selected mode for the engine, the accelerator must be briefly released (idle position) or pushed down into the full-throttle position.
- ▶ To activate the newly selected mode for the steering, the steering wheel must also be moved into the straight-ahead position (zero position).

Audi drive select function

Vehicles with DSG transmission

	comfort		auto		dynamic	
Selector lever position	D	S	D	S	D	S
Engine Power/torque	normal	normal	normal	normal	normal	normal
Load change	balanced	sporty	balanced	sporty	balanced	sporty
Accelerator	balanced	sporty	balanced	sporty	balanced	sporty
Transmission Shift characteristics	D ³⁾	S ²⁾	D ³⁾	S ²⁾	D ³⁾	S ²⁾

²⁾ sporty

³⁾ balanced

Drive-independent vehicle systems

	comfort	auto	dynamic
Steering	comfortable	balanced	sporty
Damper control	comfortable	balanced	sporty
Engine sound	normal	normal/sporty (depending on selector lever position)	sporty
quattro drive	balanced	balanced	sporty

Exterior Lights

Headlights

Full LED headlights are now standard equipment for the 2016 TT. All functions, including low beam, high beam, daytime running lights, side lights, and turn signal indicator use LED technology.



LED headlight

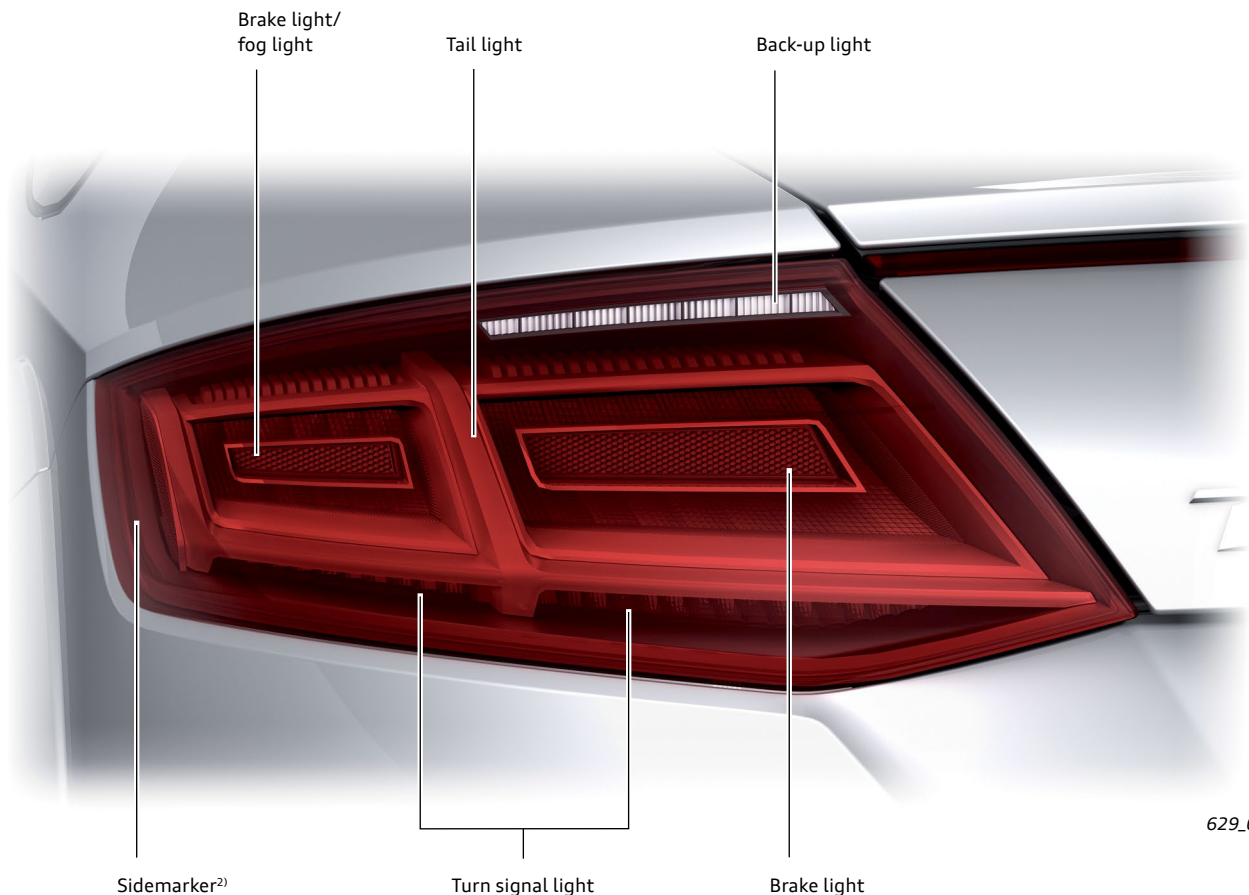
629_040

Tail lights

The tail lights of the Audi TT use only LEDs. Two versions of tail lights are available:

- ▶ High version (used with LED headlights)

The tail light versions are geometrically identical. The only functional difference is the additional side marker for the SAE version.



629_046

Climate control

Introduction

The climate control system in the Audi TT is based on the air conditioning system of the Modular Transverse Platform (MQB).

The Audi TT is available with single-zone automatic air conditioning.

For the first time in an Audi TT, the operating controls are separate from the Climatronic Control Module.

Heater and air conditioner

The heating and A/C system of the TT is based on the 2015 A3. This system is used on vehicles of the Modular Transverse Platform (MQB) with several model specific modifications.

The system was adapted for the TT because it is specifically designed to provide heating and cooling for the front passengers. There are no rear A/C ventilation ducts.

A/C operating and display unit

In the 2016 TT, the controls for operating the Climatronic system are separate from Climatronic Control Module.

The controls are integrated in the air vents. Controls for seat heating, air circulation, temperature, air flow distribution and intensity are located in the center air vents of the instrument panel.

The centers of the air vents are always aligned straight, regardless of the position of the rotating outer rings for opening and closing the individual air vents.

Installation locations and tasks



630_070

Designation	Installation location (on left-hand drive models)	Air conditioning function
Front A/C Display Control Head 1	Left instrument panel air vent	▶ Left seat heater button
Front A/C Display Control Head 2	Center left instrument panel air vent	▶ Rotary fan control ▶ Button: A/C on/off
Front A/C Display Control Head 3	Center instrument panel air vent	▶ Rotary temperature control with display ▶ Button: Automatic function AUTO
Front A/C Display Control Head 4	Center right instrument panel air vent	▶ Rotary air distribution control ▶ Button: Defrost
Front A/C Display Control Head 5	Right instrument panel air vent	▶ Right seat heater button

Seat systems

A variety of sport seats are available for the Audi TT. In the basic trim, the sport seat has sporty side bolsters and is manually adjustable for length.

The optional Multicontour S sport seat (TTS model only) has an integrated head restraint and an electrical lumbar support.

This seat is available with pneumatically adjustable backrest side bolsters and a pneumatic lumbar support.

The multi-contour seat control unit controls the following functions:

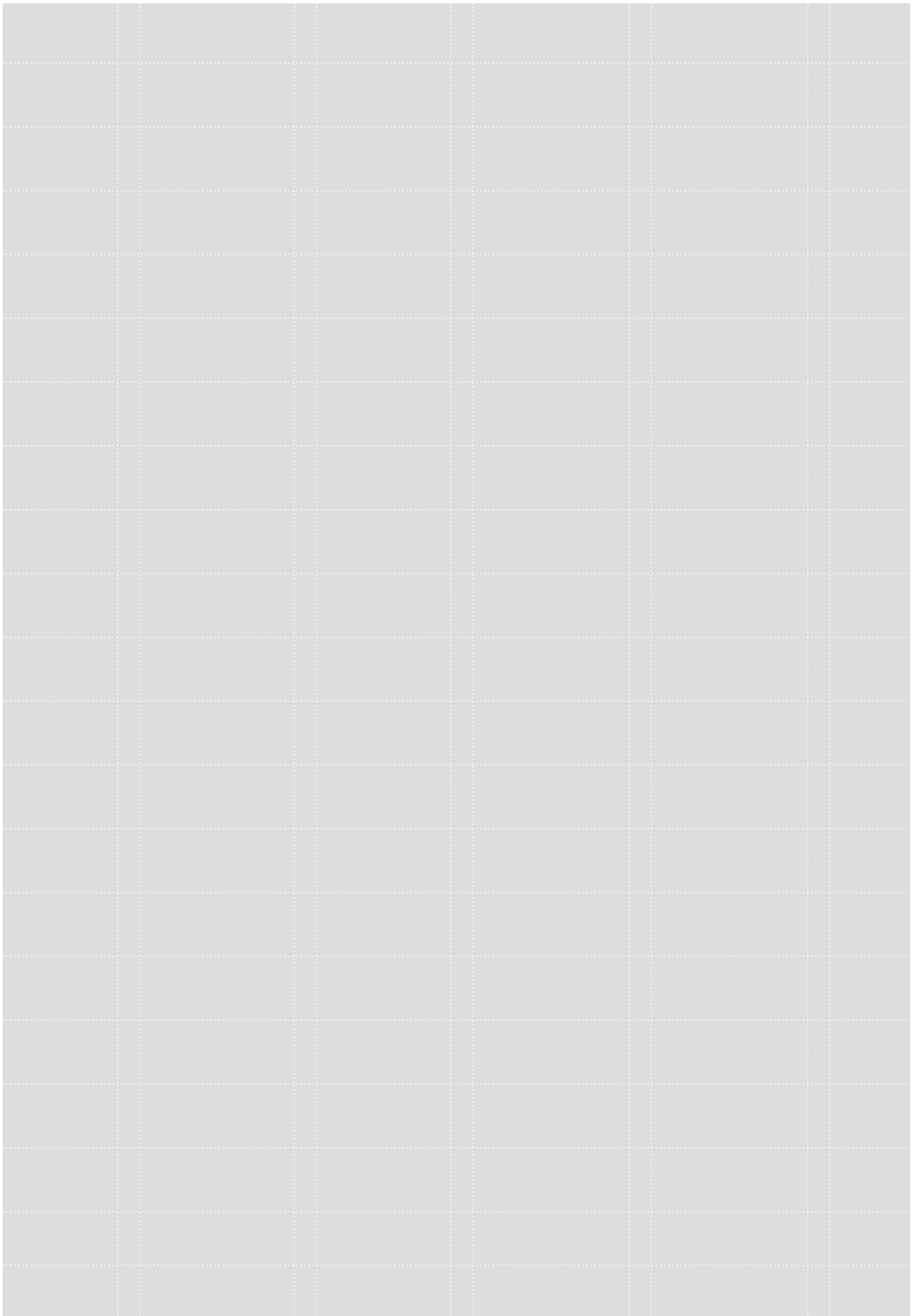
- ▶ When entering and leaving the vehicle, the bolster cushions are filled with air or vented in order to ensure a more comfortable entry and exit.
- ▶ All cushions are vented a short time after switching off the ignition.
- ▶ The selected settings for inflating the backrest side bolsters and the lumbar support in the driver's seat are saved to the vehicle key.

For the backrest side bolsters, one valve is used per cushion to prevent pressure equalization when cornering.

Design of a Multicontour S sport seat



Notes



Infotainment

The Audi TT introduces the next generation of Audi infotainment systems. The Audi TT is the first vehicle to be equipped with the second-generation Modular Infotainment System (MIB) in its full specification.

The Audi TT features the new Audi operating concept which allows even more intuitive operation. Due to the complete restructuring of the menu, each function can be accessed with no more than three clicks. The high version of the multifunction steering wheel enables the driver to control virtually all functions without looking away from the road.





Overview of versions

Two versions of the MMI are available in the Audi TT:

- ▶ MMI radio.
- and
- ▶ MMI Navigation plus.

From a technical point of view, the MMI radio and MMI Navigation plus correspond to the second-generation MIB High.

The customer can order the optional connectivity package for the MMI radio. The package also includes pre-wiring for a navigation unit.

MMI radio (i8E) with connectivity package (7UH)	MMI Navigation plus (i8H) with Audi connect (EL3)
	
	
Standard equipment	Standard equipment
Audi virtual cockpit (9S8)	Audi virtual cockpit (9S8)
Pre-wiring for navigation unit (7UH)	3D SSD navigation system (7UG)
MMI touch (UJ1)	MMI touch (UJ1)
Multifunction steering wheel, high version (2PF)	Multifunction steering wheel, high version (2PF)
AM/FM radio with phase diversity and background tuner	AM/FM radio with phase diversity and background tuner
CD drive (MP3, WMA, AAC)	Jukebox (approx. 11 GB)
Two SDXC card readers	DVD drive (audio/video)
Audi music interface with two USB ports and AUX-in jack (UE7)	Two SDXC card readers
Audi sound system (9VD)	Audi music interface with two USB ports and AUX-in jack (UE7)
Bluetooth interface for HFP and A2DP (9ZX)	Audi sound system (9VD)
Audi sound system (9VD)	Bluetooth interface for HFP and A2DP (9ZX)
Digital radio (SDARS) (QV3)	Audi connect (EL3)
Optional equipment	Optional equipment
Bang & Olufsen Sound System (9VS)	Digital radio (SDARS) (QV3)
	Optional equipment
	Bang & Olufsen Sound System (9VS)



Reference

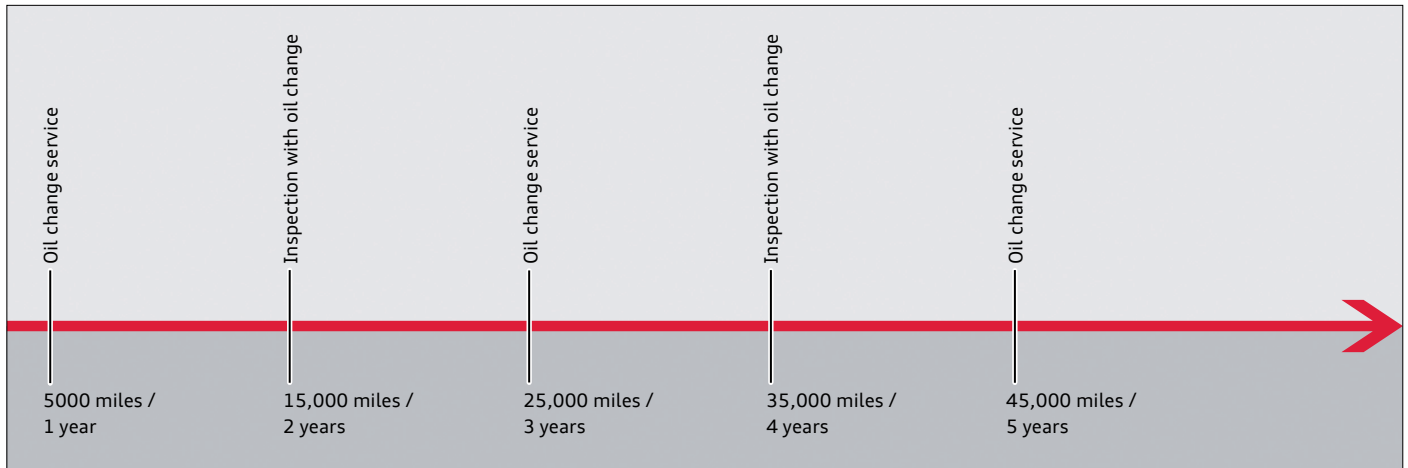
For more information about the infotainment system on the Audi TT, please refer to eSelf-Study Program [600277, Audi Virtual Cockpit and Infotainment Sales and After Sales.](#)

Service

Inspection and maintenance

The Audi TT is subject to fixed inspection and maintenance intervals in the USA.

The value indicated for the next oil change is 5,000 miles / 365 days for new vehicles. The next oil change after this is fixed at 10,000 miles / 365 days.



630_023

2.0l TFSI	
Oil change	According to service interval display, between 15,000 km / 1 year and 30,000 km / 2 years depending on driving style and conditions of use.
Inspection	30,000 km / 2 years
Pollen filter change interval	60,000 km / 2 years
Air filter change interval	90,000 km
Brake fluid change interval	Change after 3, 5, ... years
Spark plug change interval	60,000 km / 6 years
Fuel filter change interval	-
Timing gear	Chain (lifetime)
Gear oil change interval ¹⁾	60,000 km

¹⁾ S tronic



Note

Always consult ElsaPro for the latest information about maintenance schedules and service procedures.

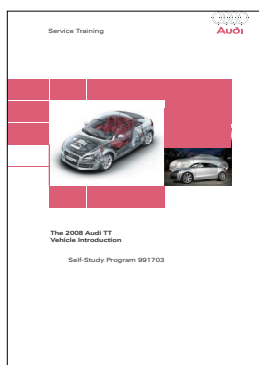


Note

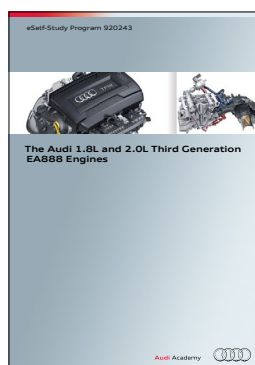
Always check the Fluid Capacity Chart in ServiceNet for the correct oil specification and fluid level before changing oil. Always use special tool T40178 when measuring the engine oil level.

Self-study programs

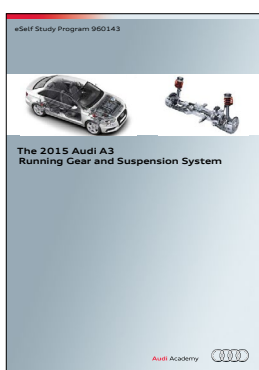
For more information about the technology of the Audi TT, please refer to the following self study program.



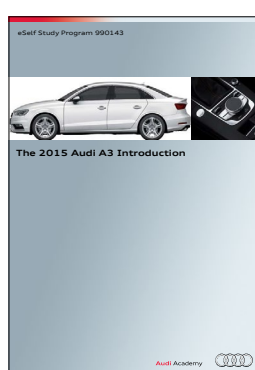
991703
The 2008 Audi TT Vehicle Introduction



920243
The Audi 1.8L and 2.0L Third Generation EA888 Engines



960143
The 2015 Audi A3 Running Gear and Suspension System



990143
The 2015 Audi A3 Introduction



600277
Audi Virtual Cockpit and Infotainment Sales and After Sales



600275
The 2016 Audi TT Roadster Sales and After Sales

Knowledge assessment

An On-Line Knowledge Assessment (exam) is Available for this eSelf-Study Program.

The Knowledge Assessment is required for Certification credit.

You can find this Knowledge Assessment at:

www.accessaudi.com

From the accessaudi.com Homepage:

- ▶ Click on the “ACADEMY” tab
- ▶ Click on the “Academy site” link
- ▶ Click on the Course Catalog Search and select “600276 - The 2016 Audi TT Introduction Sales and After Sales”

Please submit any questions or inquiries via the Academy CRC Online Support Form which is located under the “Support” tab or the “Contact Us” tab of the Academy CRC.

Thank you for reading this eSelf-Study Program and taking the assessment.

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