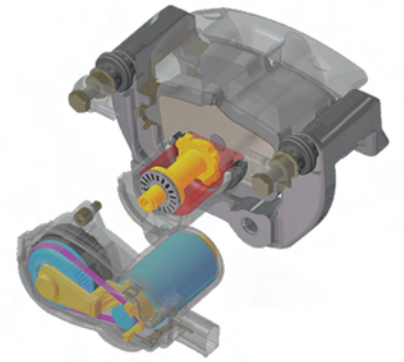
Service Training





The 2008 Audi A5/S5 Running Gear

Self-Study Program 999703

Audi of America, Inc.
Service Training
Printed in U.S.A.
Printed 9/2007
Course Number 997703

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The Self-Study Program teaches the design and function of new vehicle models, automotive components, and technologies.

The Self-Study Program is not a Repair Manual!
The values given are only intended as a guideline. 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.

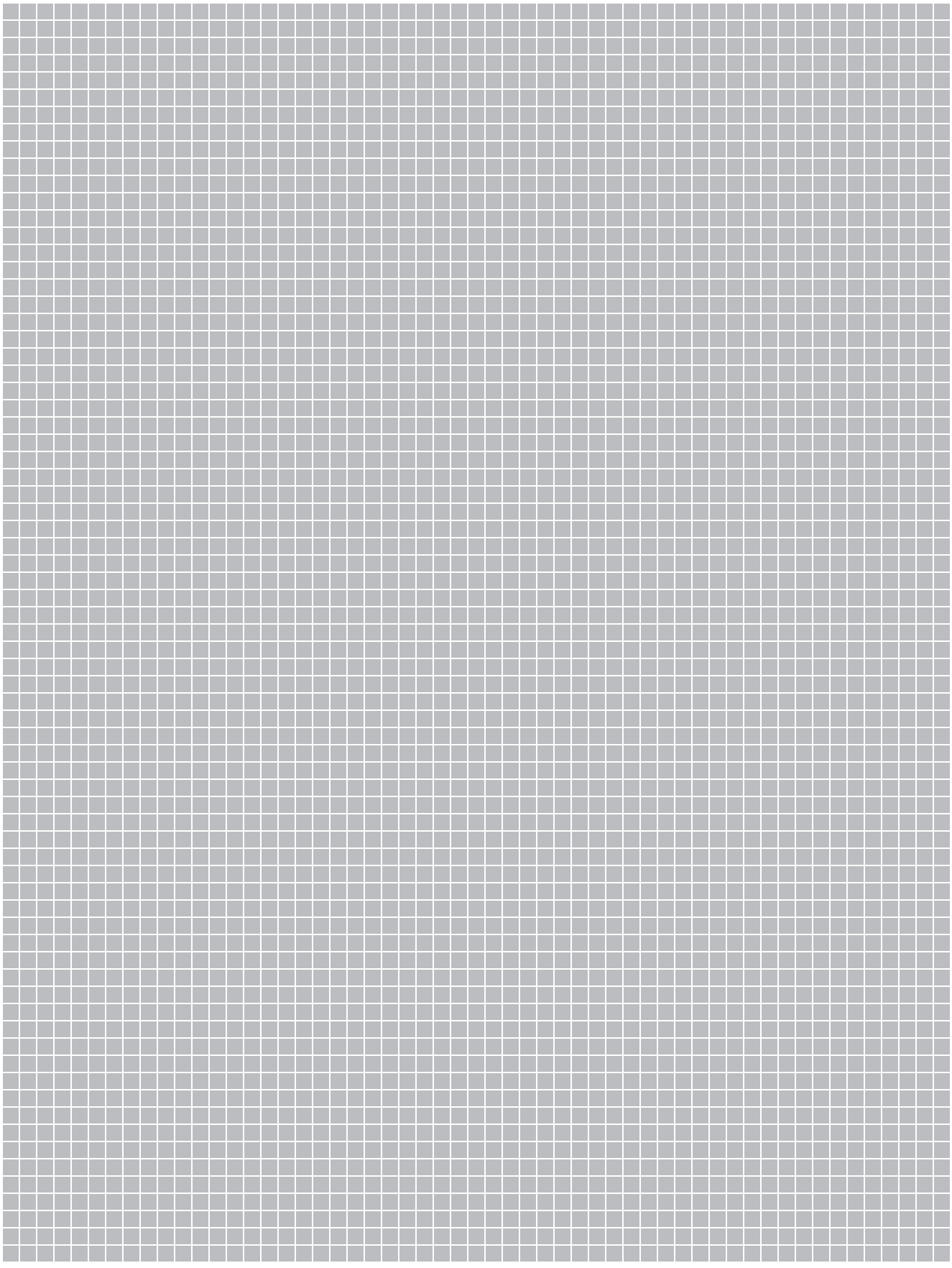
Reference



Note



Notes



Overview

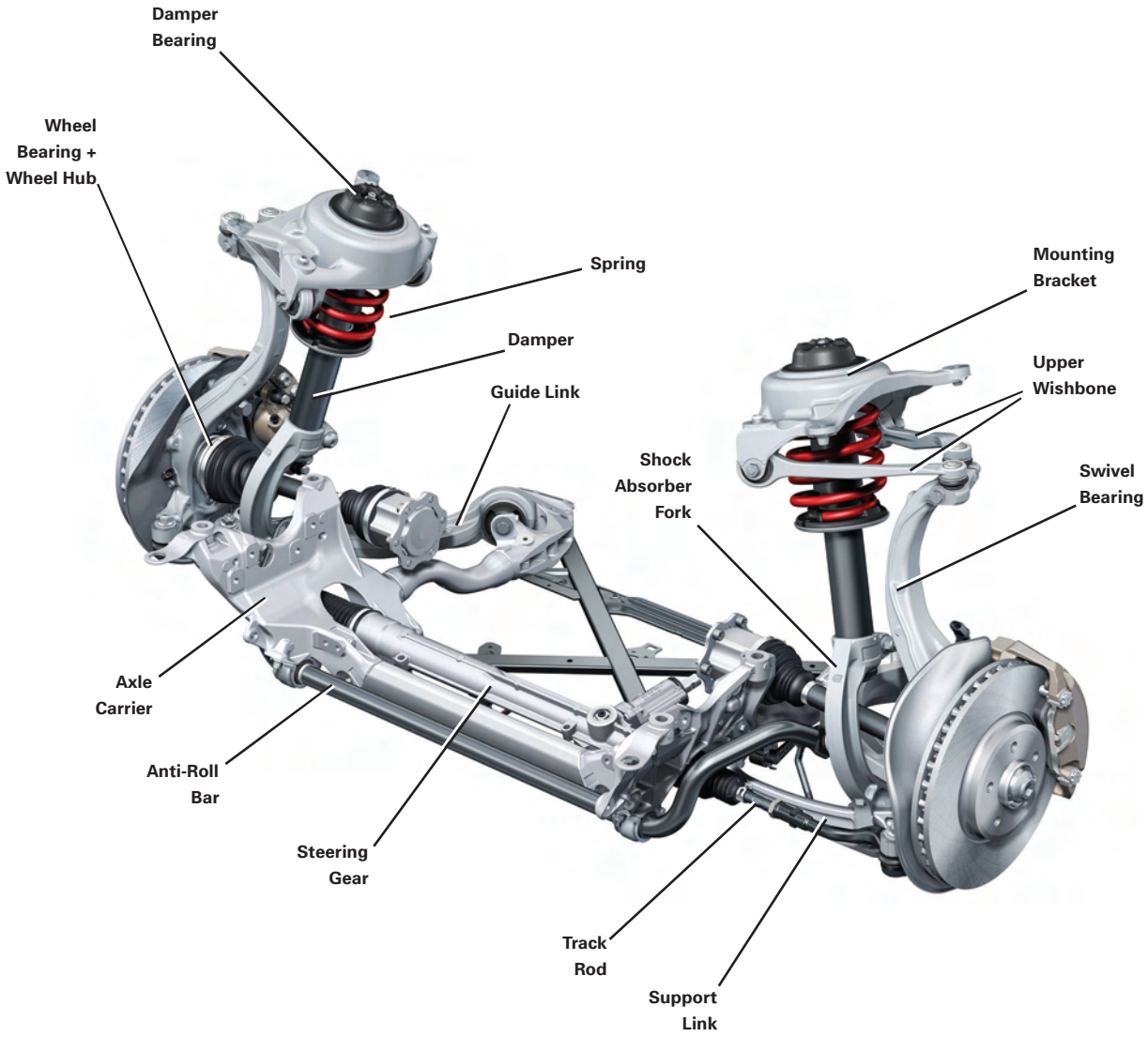
A newly developed five-link front axle is used on the A5/S5. Compared to the 2007 A4, the axle is 5.9 in (152 mm) further forward in the vehicle. This optimizes axle load distribution and reduces the front overhang, giving the car a more dynamic look.

The steering gear is now bolted to the axle carrier. The track rod constitutes the fifth wishbone. The axle carrier is rigidly attached to the vehicle body. This ensures a high level of transverse rigidity, resulting in immediate and precise steering response.

The kingpin inclination angle and the caster angle have been enlarged compared to the 2007 Audi A4.

The new axle geometry provides good steering self-centering when travelling in a straight line. The suspension kinematics have been designed with the aim of achieving the smallest possible turning circle despite the much larger wheelbase compared to the 2007 Audi A4.

The design and geometric arrangement of the wishbone bearing components provide sporty handling characterized by exceptional agility, outstanding steering precision, and high driving stability to within the vehicle's dynamic limit range.



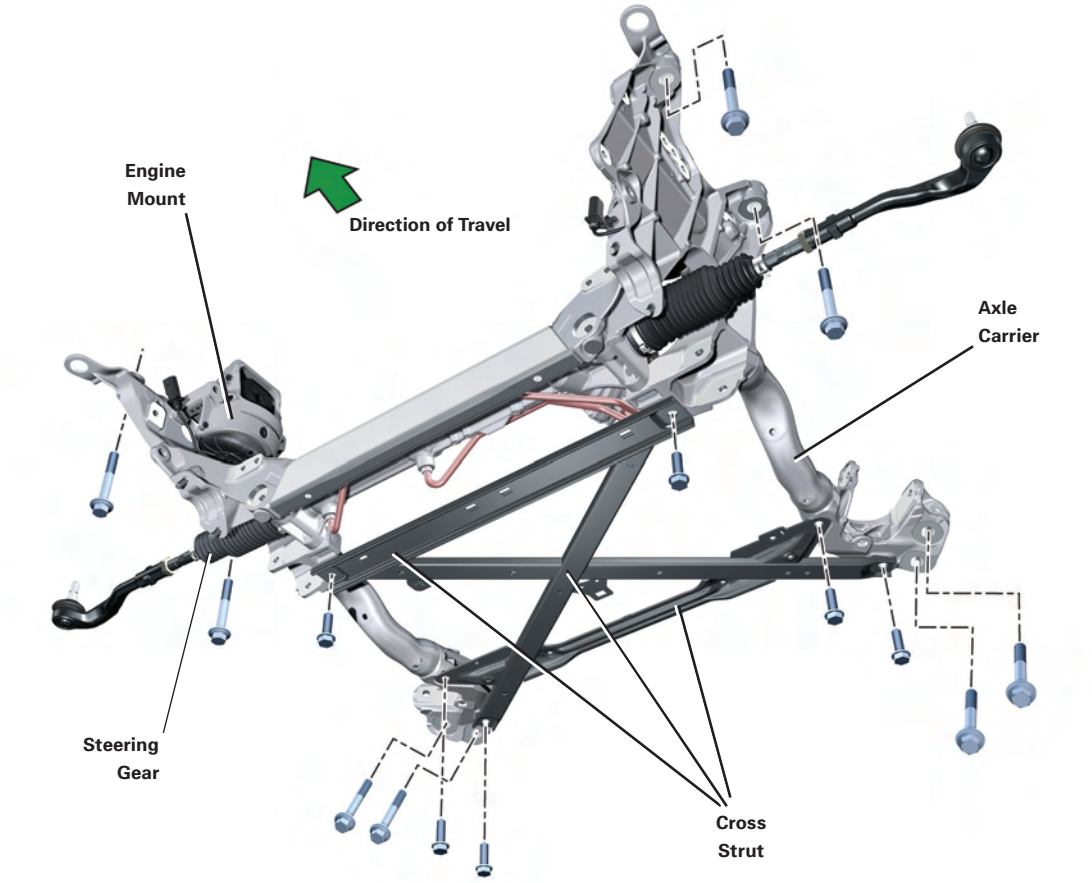
System Components

Axle Carrier

The axle carrier is made of aluminum and is rigidly bolted to the body at eight attachment points. The front and rear cast nodes are welded to aluminum tubes as cross members. The axle carrier is additionally reinforced by a bolted cross strut. These modifications greatly reduce tire noise inside the vehicle.

The engine mounts are bolted to axle carriers and couplings by means of screw couplings.

The steering gear is mounted on the axle carrier. As a result, steering power is transmitted more directly to the wheels to give improved steering response. The rigidly mounted axle carriers assist the rapid build-up of steering power.



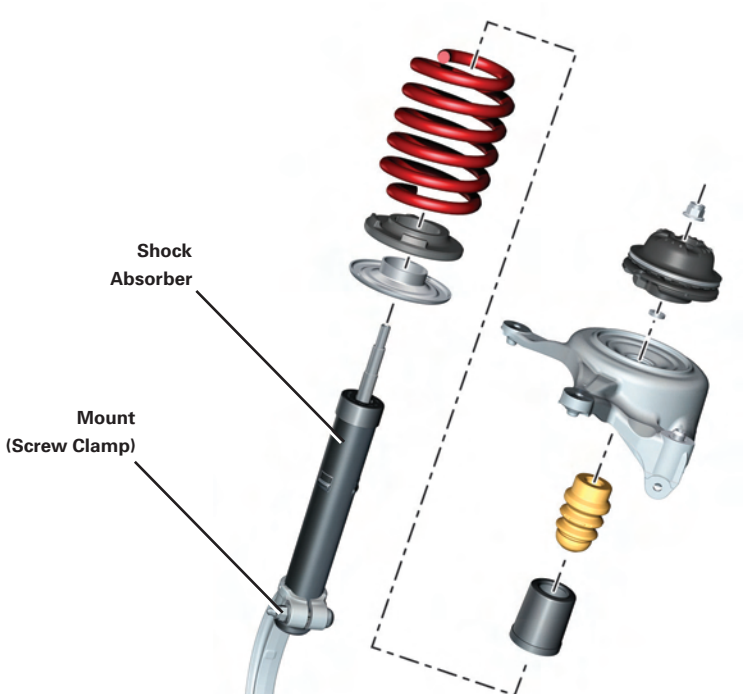
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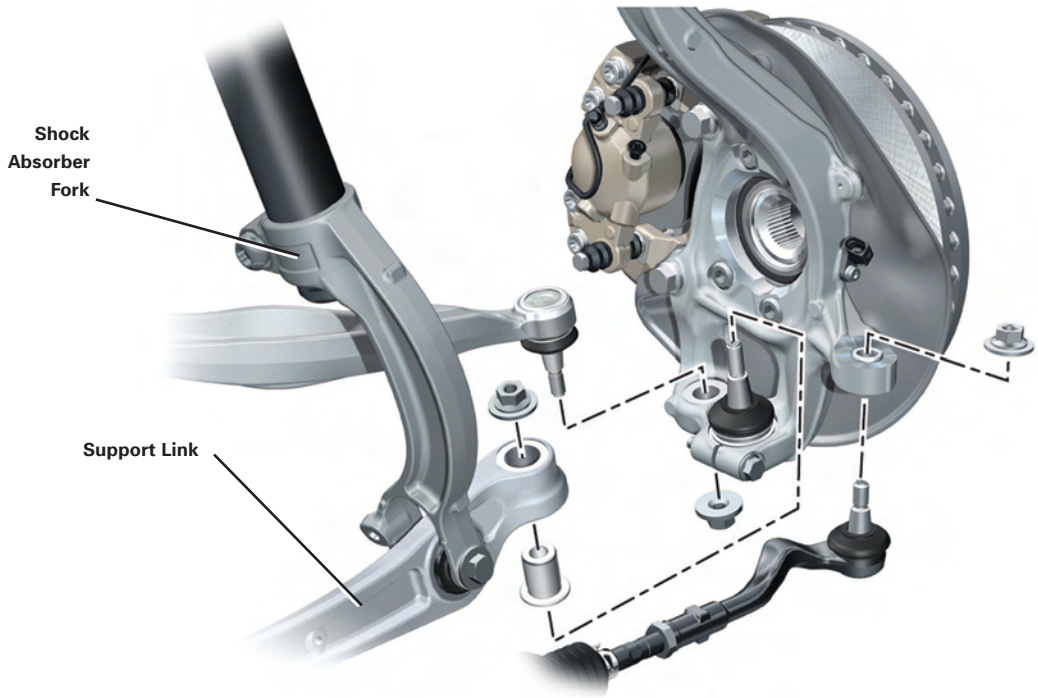
The vehicle must not be set down on its wheels unless the axle carrier, engine mounts, steering gear, and cross strut are mounted properly.

Springs and Shock Absorbers

In order to allow free movement of the drive shaft, cast shock absorber forks are used.

The shock absorber is clamped and bolted to the shock absorber fork. The shock absorber fork is then bolted to the support link





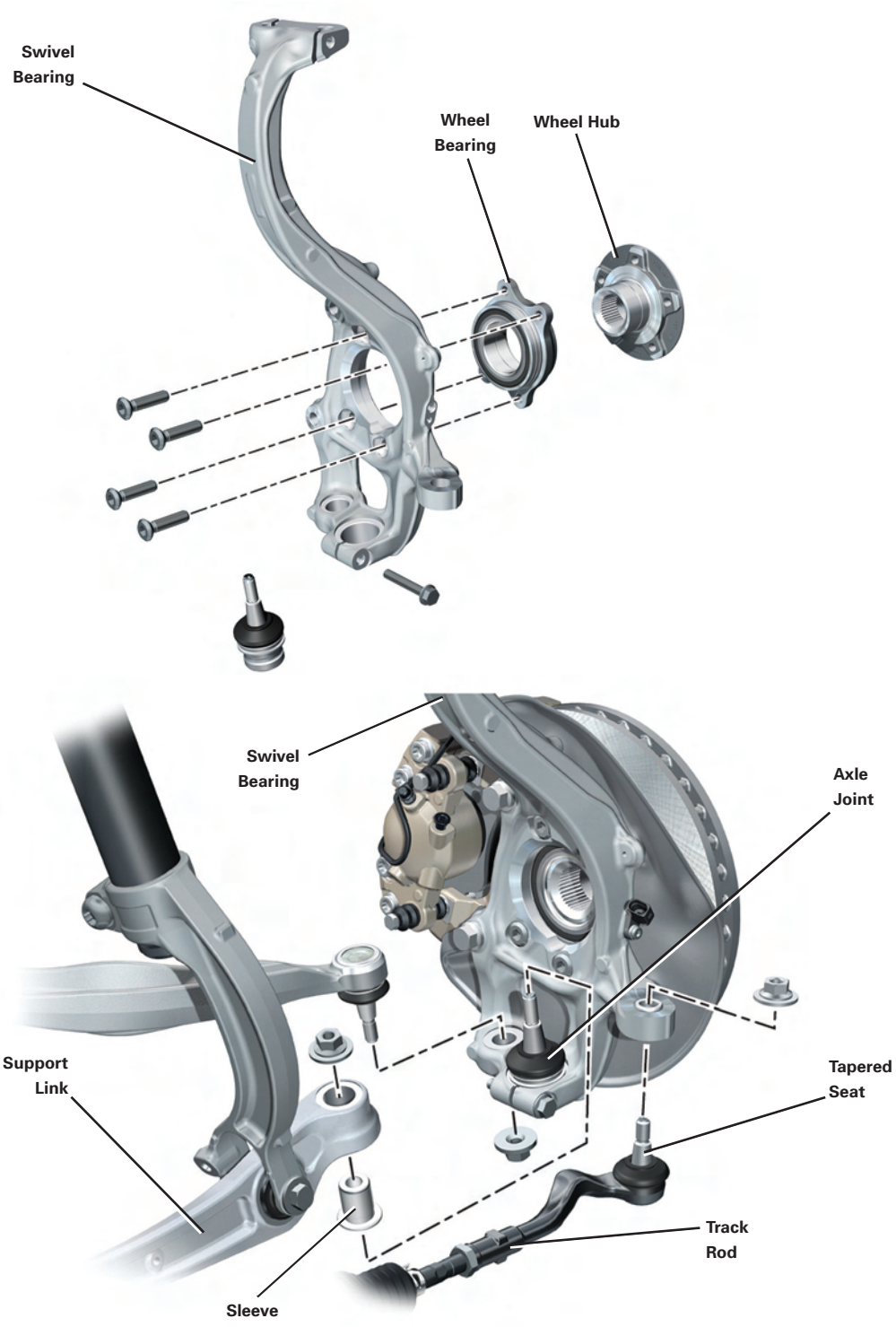
Swivel Bearing, Wheel Bearing, Wheel Hub

The swivel bearing is made of aluminum. The second generation wheel bearing is bolted to the swivel bearing.

The Audi A5 has larger wheel bearings than the 2007 Audi A4.

The track rod is mounted lower on the swivel bearing because of the new location of the steering gear. The track rod joint is now mounted in a tapered seat in the steering arm.

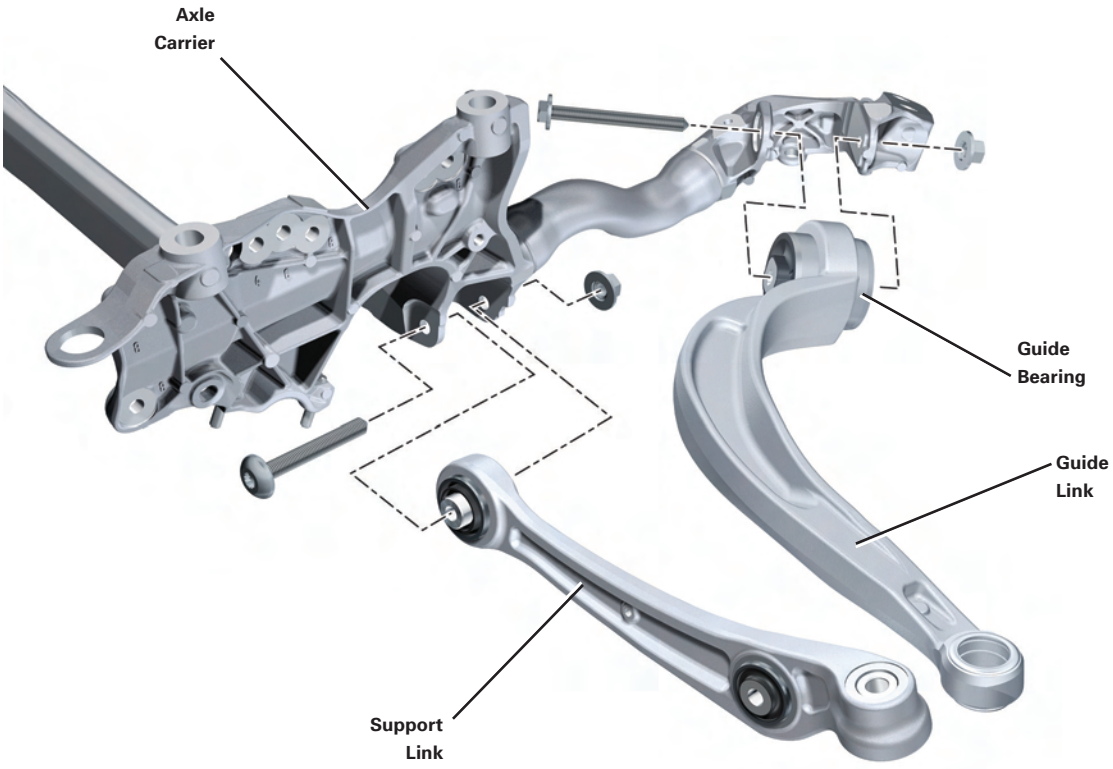
The support link is connected to the swivel bearing by a new axle joint. The axle joint is a separate component and is clamped in the swivel bearing.



Lower Wishbone

The support link and the guide link are aluminum forgings.

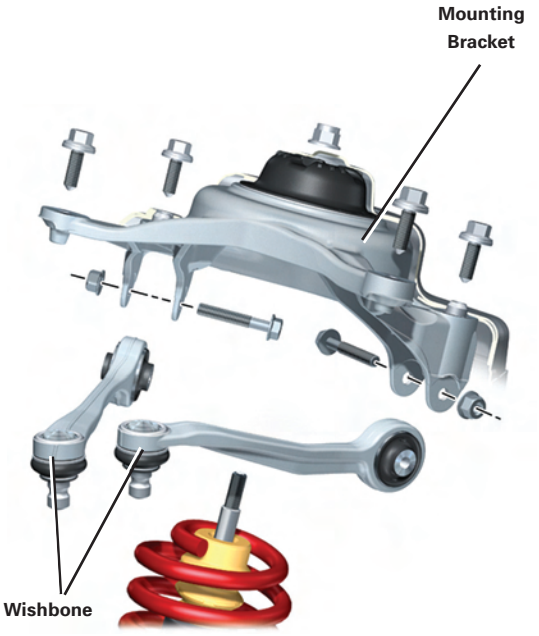
The guide link is mounted in large guide bearings to the axle carrier.



The mounting bracket which holds the upper wishbone is now attached to the body by four bolts.

The bolts used for attaching the wishbone to the mounting bracket are now inserted from the inside. This allows individual wishbones to be removed without dismantling the complete mounting bracket.

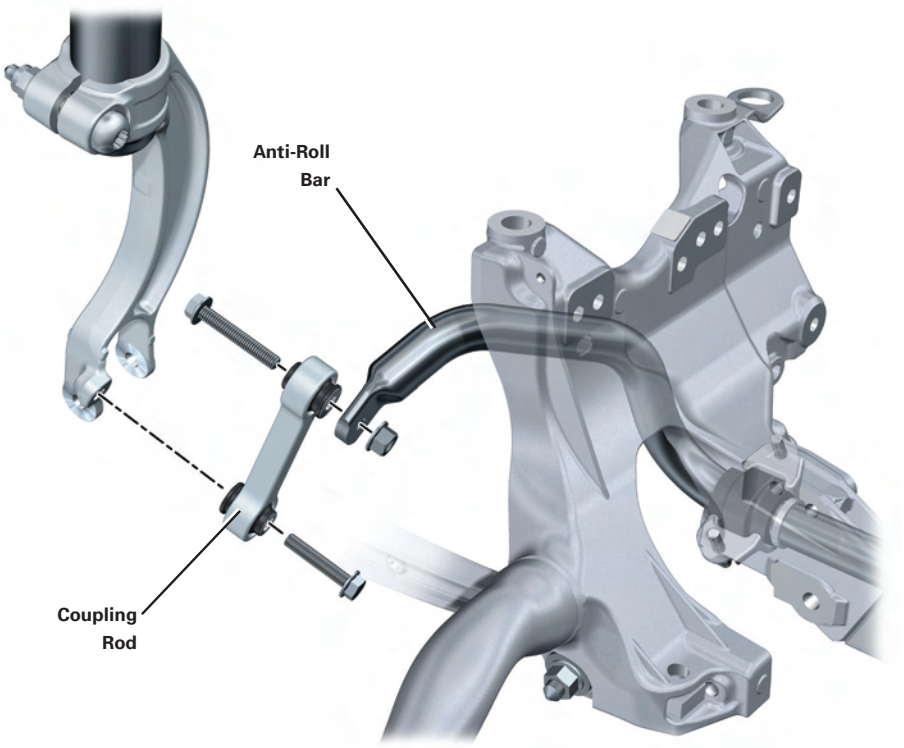
The mounting bracket is made of cast aluminum and the wishbones are aluminum forgings.

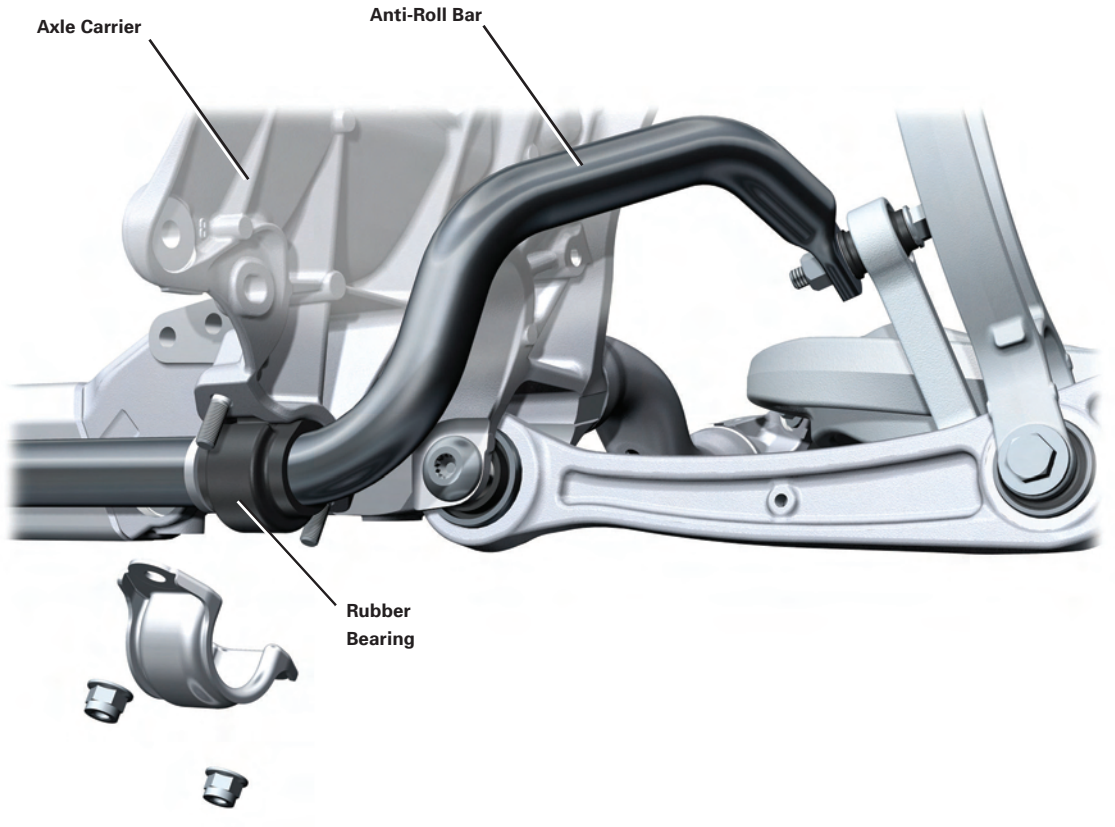


Anti-Roll Bar

The tubular anti-roll bar is attached to the shock absorber fork by a coupling rod and mounted in rubber bearings at the axle carrier.

Optimum response is ensured by attaching the anti-roll bar to the far outside of the suspension strut. This allows the use of small-gauge tubing and saves weight.



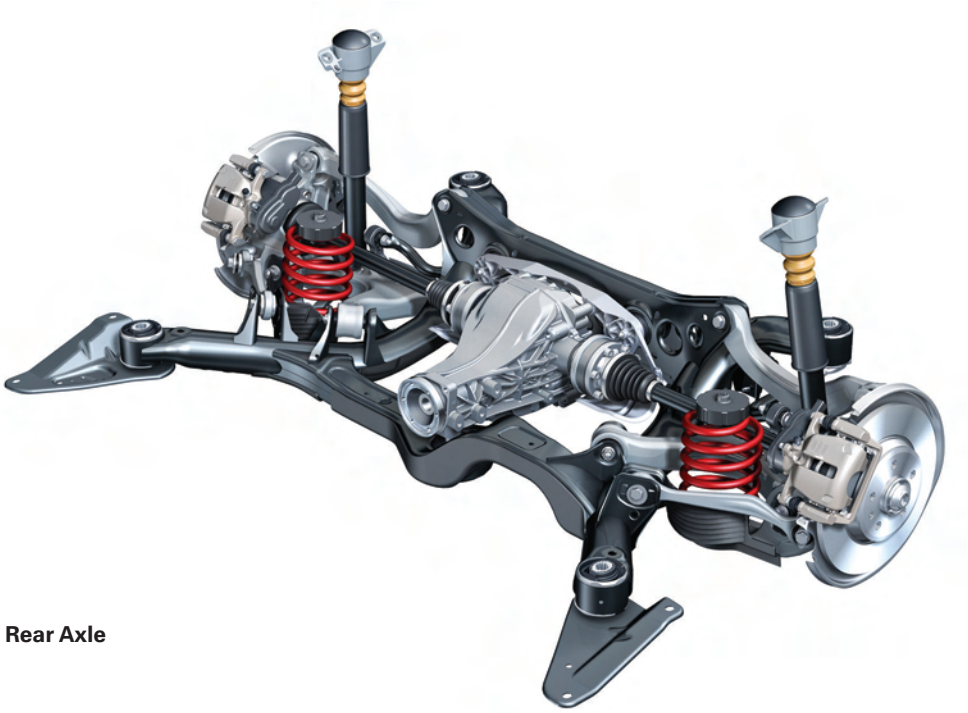


Overview

A newly developed trapezoidal link rear axle is used on the A5/S5.

The development goal was to create a compact axle requiring a minimum of installation space. The result is a high luggage compartment volume as well as a large through-loading width and a low luggage compartment floor.

The kinematic axle design provides good anti-dive behavior. The spatial arrangement of the wishbones and the design of the link bearings result in increased toe angle under bump, lateral, and longitudinal forces. This track-stabilizing feature provides high driving safety and driving stability to within the vehicle's dynamic limit range.



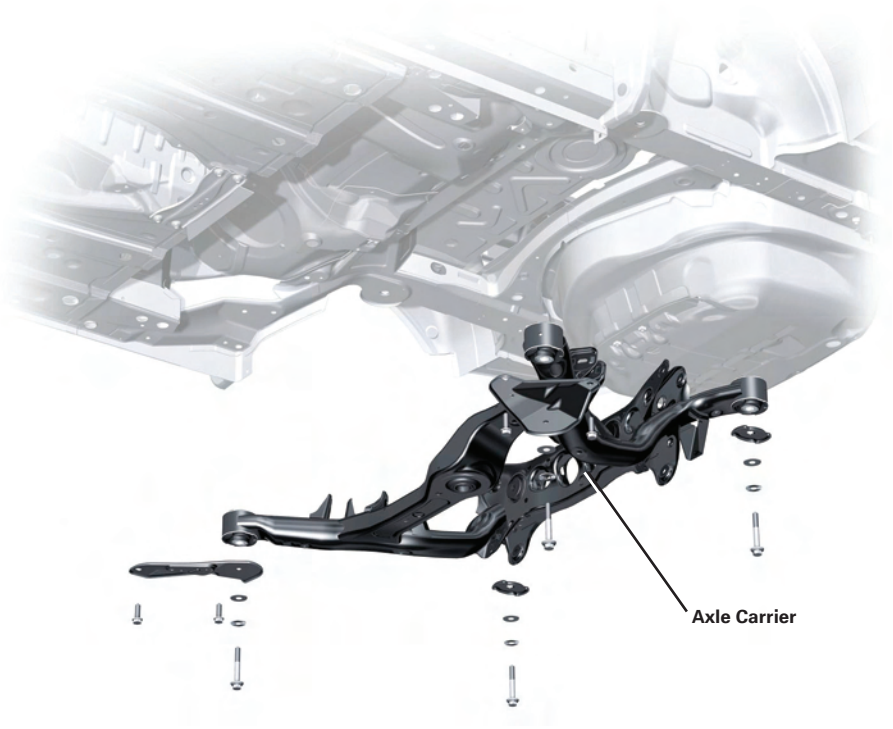
Rear Axle

System Components

Axle Carrier

The axle carrier is a welded steel construction. It serves as a carrier for the wishbones and rear axle differential. It isolates the axle from the body, both acoustically and vibrationally.

For this purpose, the axle carrier is attached to the body by bonded rubber bushings.

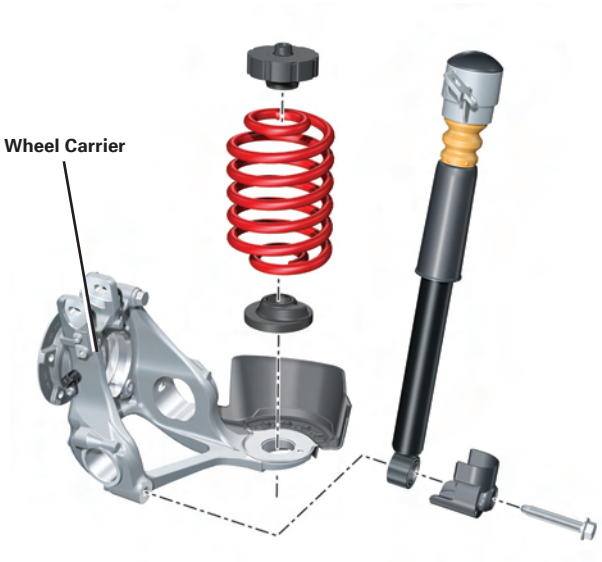


Wheel Carrier

The wheel carrier is an aluminum casting. It carries the wheel bearing and is connected to the wishbones. A new feature is that the coil spring is supported by the wheel carrier.

The shock absorber is also bolted directly to the wheel carrier. This provides very good kinematic ratios for suspension and damping, which in turn translates to optimal suspension comfort and crisp handling.

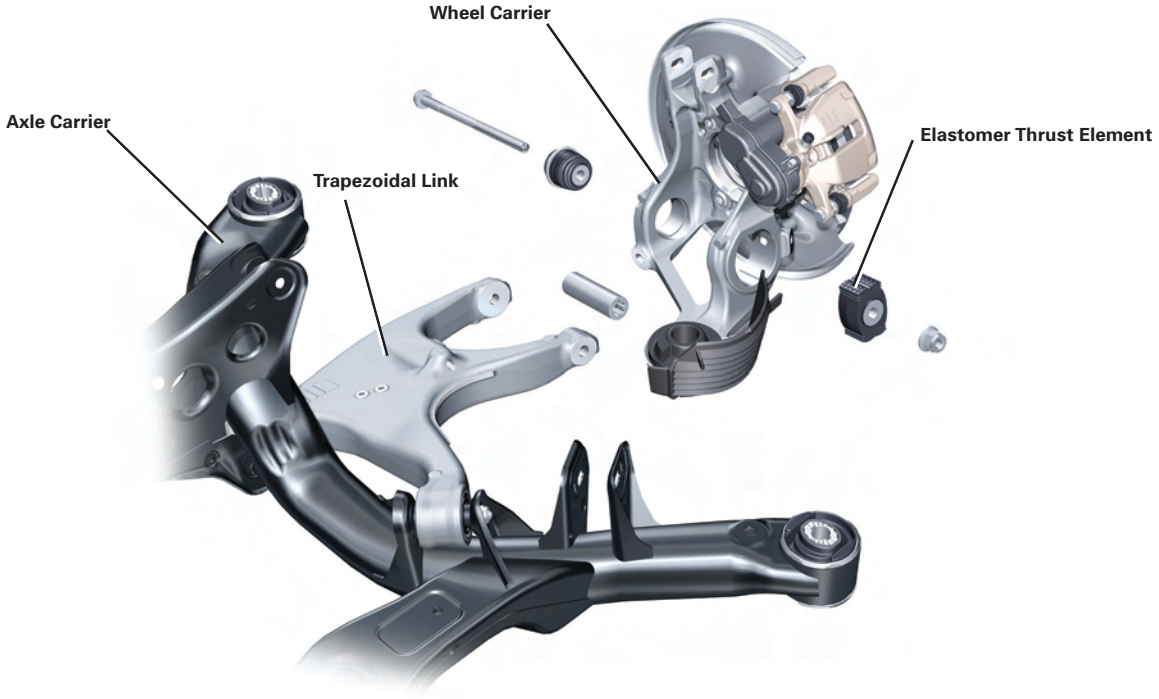
The highly sensitive shock absorber system responds to even the smallest bump and rebound movements. Moreover, this component layout permits a very compact design, as well as a large through-loading width and a flat luggage compartment floor.



Wheel Carrier, Trapezoidal Link

The trapezoidal link is an aluminum casting. It is seated in two bonded rubber bushings on the axle carrier. The trapezoidal link and the wheel carrier are connected by a ball joint and a bonded rubber bushing with an integrated elastomer thrust element. This entirely new component allows relative movement between the trapezoidal link and the wheel carrier.

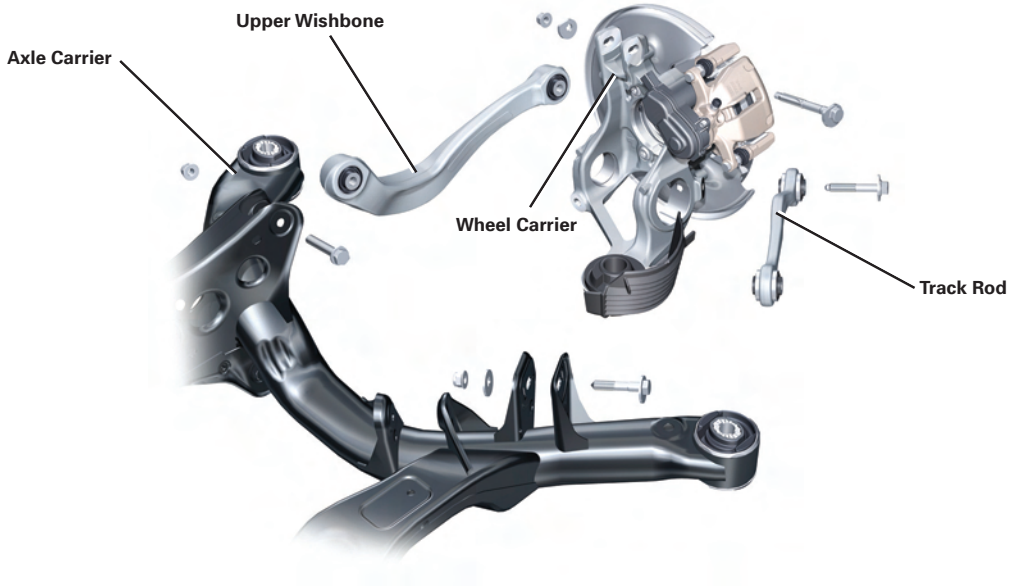
This complex bearing system has elasto-kinematic advantages and allows controlled adaptation of the axle geometry under external forces. In addition, the linkage for the headlight range control sensor (optional) is bolted to the trapezoidal link.



Upper Wishbone, Track Rod

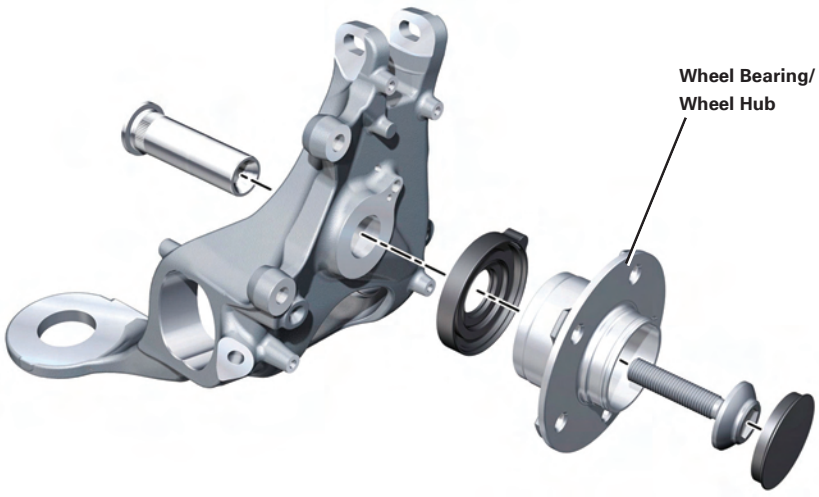
Both links are aluminum forgings. They are mounted in bonded rubber bushings on the axle carrier and wheel carrier.

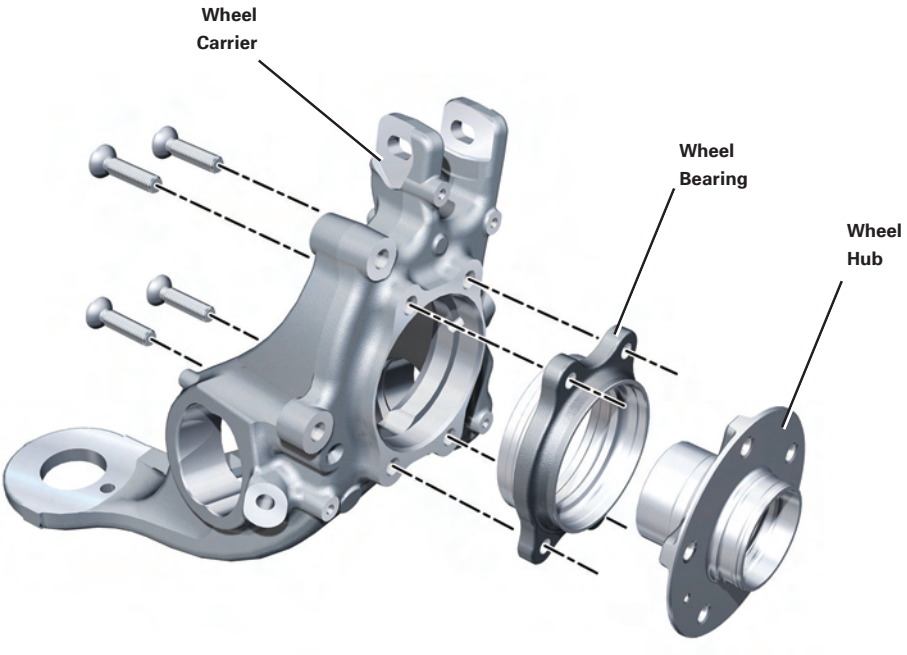
These components are notable for their very high rigidity, which ensures precise wheel location in all driving situations.



Wheel Bearing and Wheel Hub

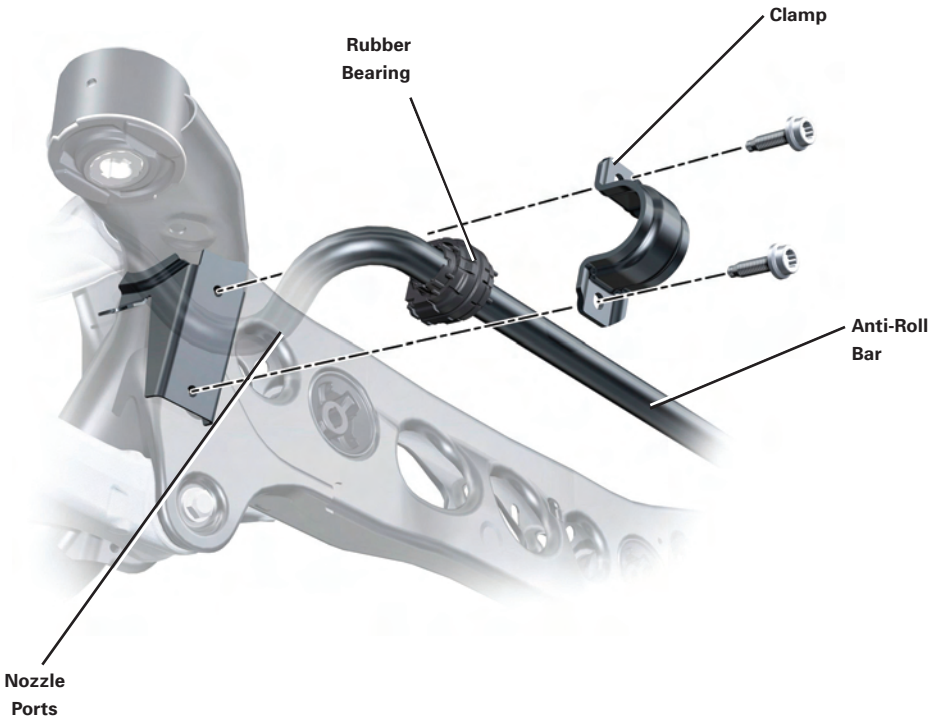
A second generation wheel bearing with rotating inner ring is used on the A5/S5. The wheel bearing is bolted to the wheel carrier. The wheel hub is a separate component.

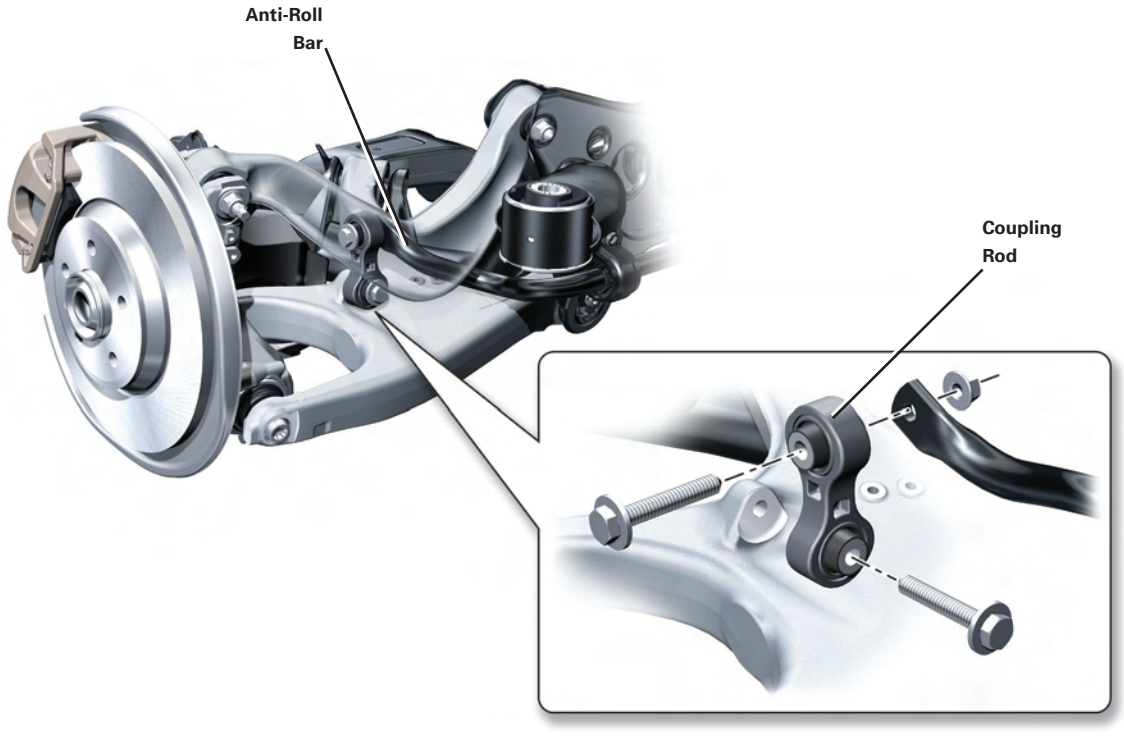




Anti-Roll Bar

Tubular anti-roll bars are used to save weight. The anti-roll bar is mounted on the axle carrier by means of rubber bearings and clamps. The roll bars are connected to the trapezoidal links by plastic coupling rods.



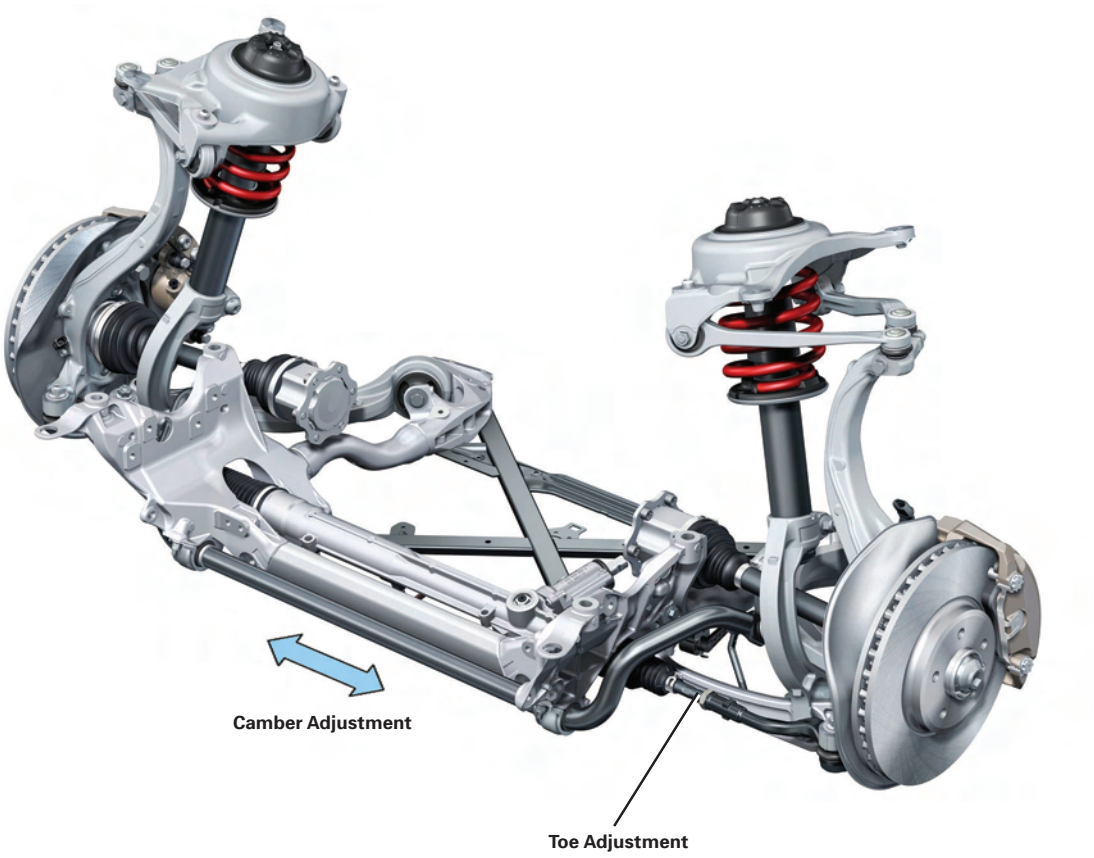


Front Axle

Camber can be adjusted slightly at the front axle by shifting the axle carrier sideways within the bore tolerances.

Toe-out can be adjusted individually at the track rods.

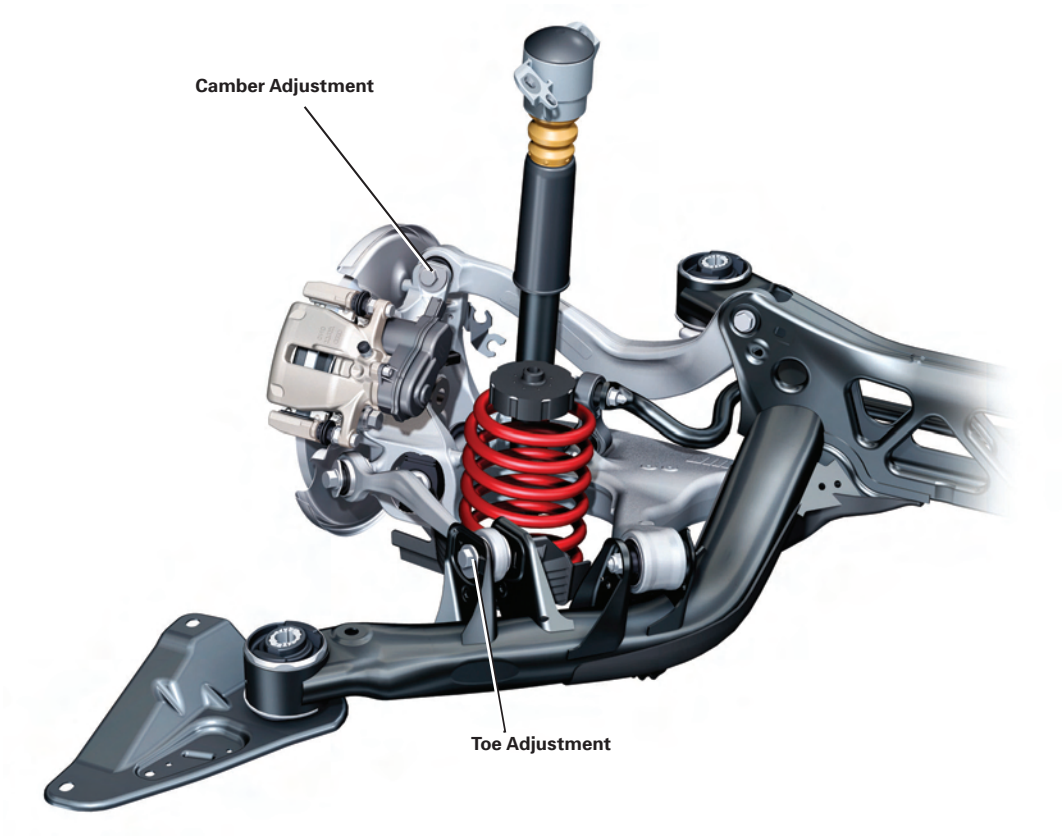
Adjustment of the S-point is no longer needed due to arrangement of the steering gear on the axle carrier.



Rear Axle

It is possible to set the individual toe values at the rear axle. For this purpose, an eccentric adjustment is provided at the track rod/axle carrier joint.

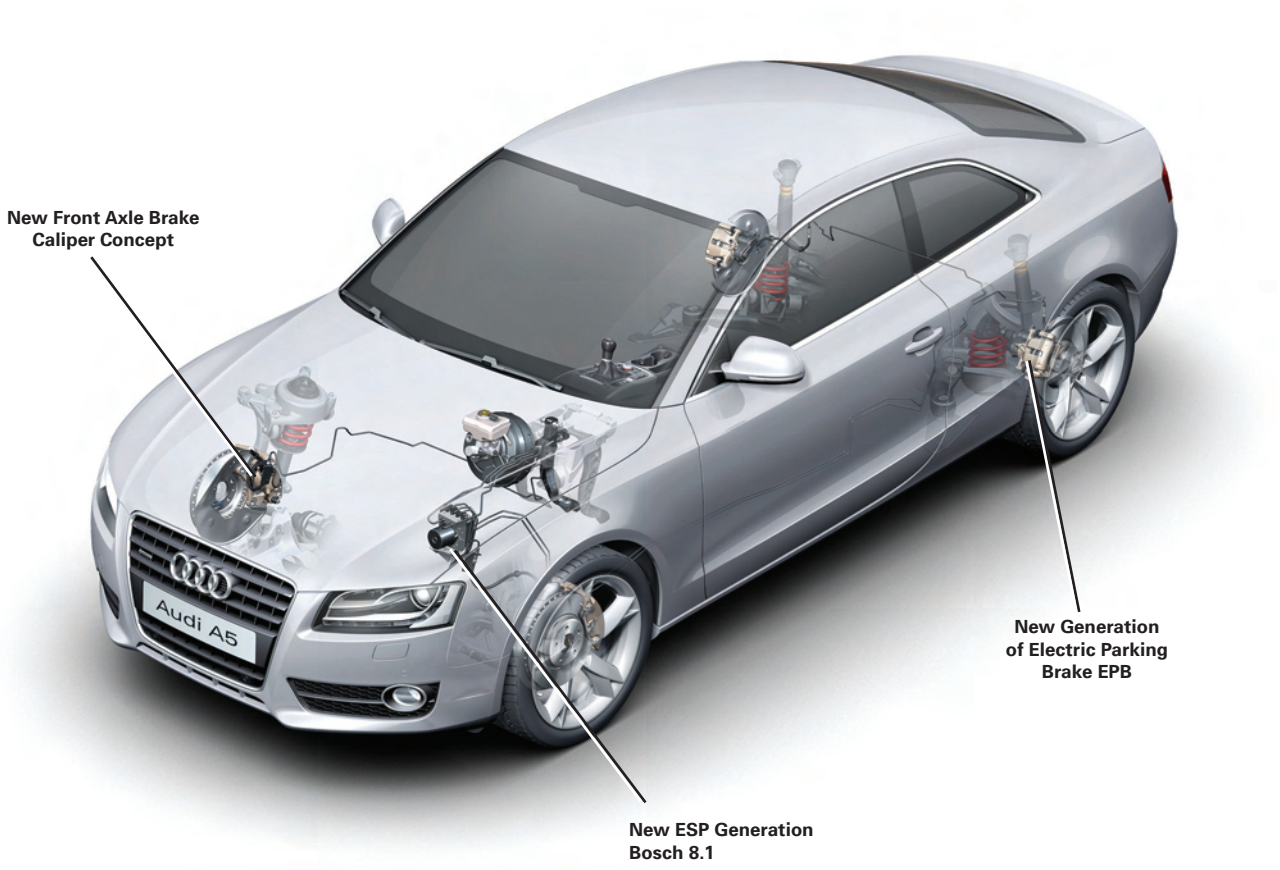
The individual camber values can be set at the upper wishbone/wheel carrier joint.



Overview

The A5/S5 has a dual circuit, diagonally split brake system with Brake Assist (automatically applies maximum brake force during emergency braking).

It features a tandem servo, ventilated front discs, solid rear discs, and brake pad wear indicators in the front brake pads.



Service Brakes - Overview

Front Axle

Engine	V6 3.2l FSI AVS	V8 4.2l FSI
Minimum Wheel Size	16”	17”
Brake Type	TRW FBC-57 16”	TRW FBC-57 17”
Number of Pistons	1	1
Piston Diameter	2.24 in (52 mm)	2.24 in (52 mm)
Brake Disc Diameter	12.5 in (320 mm)	13.6 in (347 mm)

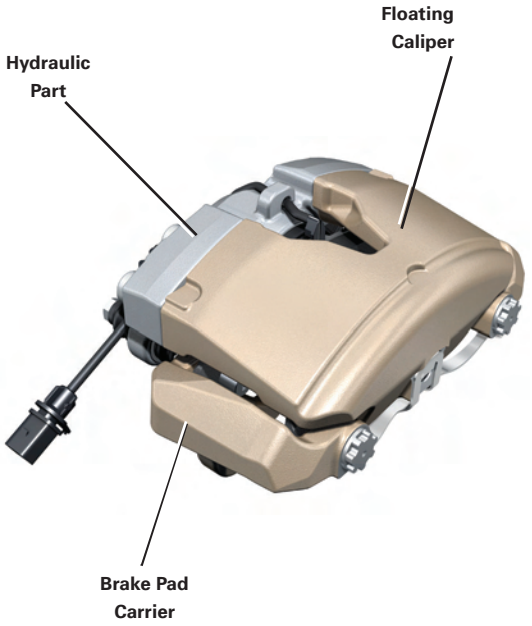
Rear Axle

Engine	V6 3.2l FSI AVS	V8 4.2l FSI
Minimum Wheel Size	16”	17”
Brake Type	TRW CII-43 EPB 16“	TRW CII-43 EPB 17“
Number of Pistons	1	1
Piston Diameter	1.6 in (43 mm)	1.6 in (43 mm)
Brake Disc Diameter	11.8 in (300 mm)	12.9 in (330 mm)

Service Brakes - Front Axle

FBC Brake Caliper

The new FBC (foundation brake compound) concept brake caliper is used on the A5/S5. The caliper for the S5 is painted black and bears the S5 logo.



Design

The brake caliper is comprised of two components: a floating caliper of spheroidal graphite cast iron and a hydraulic part made from aluminum.

The cast material allows high component strength and compact design.

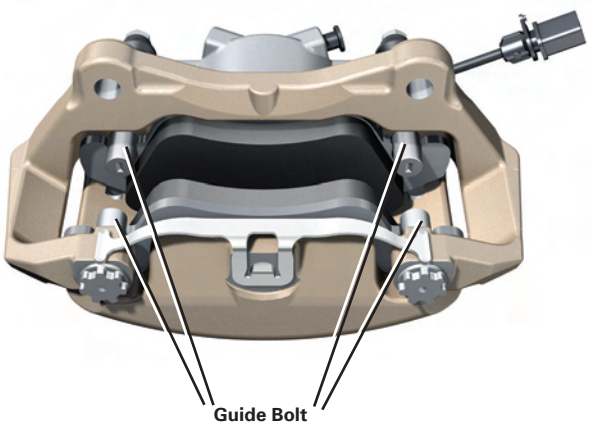
The use of aluminum for the hydraulic part provides a lightweight design and, in turn, reduced unsprung masses.

Note

Important! The threaded connections between the hydraulic part and the floating caliper must not be removed during servicing! In the event of a fault, the complete brake caliper housing must be replaced.

Four guide bolts are inserted into the pad carrier.

The small points of contact between the pad carrier and the guide bolts allow easy brake pad movement. Brake pad sticking caused by corrosion is also prevented.

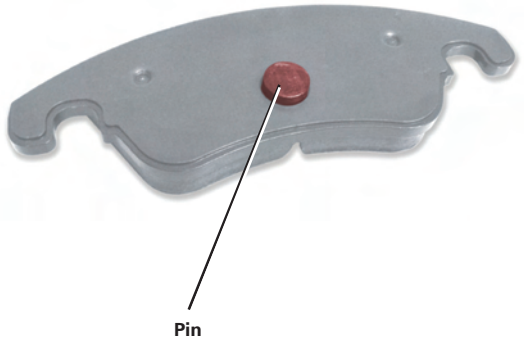


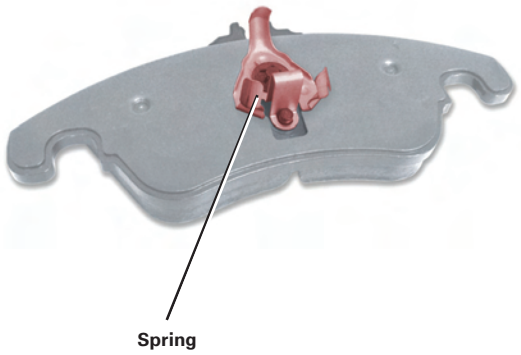
FBC Brake Pads and Caliper

Design

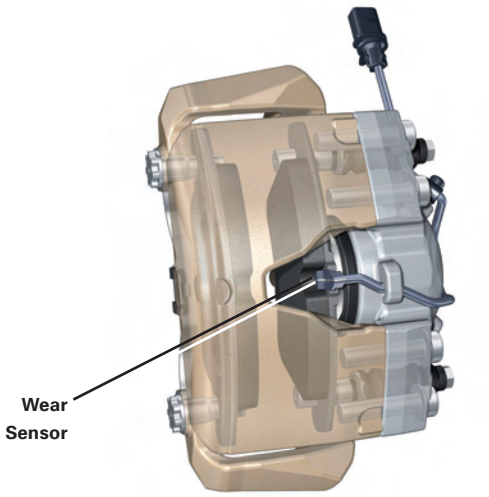
The brake pad on the floating caliper is supported by a pin on the pad carrier which engages a recess in the floating caliper.

The brake pad on the piston side is held in place in the brake piston by a stainless steel spring.





The brake pad wear indicator sensor is located in the front left wheel brake pad. The signal from this sensor is read by Electrical System Control Module J519.



Very light brake discs are used in combination with the FBC brake calipers. As a result, the brake discs cool down very quickly and any fading tendency is considerably reduced.

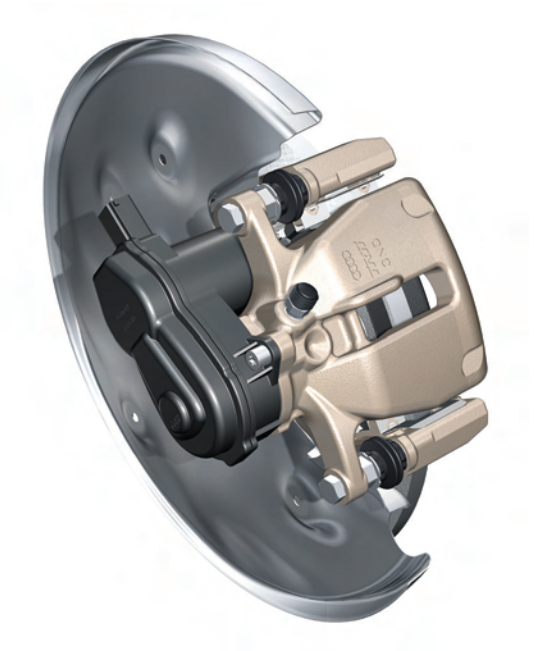
The brake discs are attached to the wheel hubs by locking screws.



Service Brakes - Rear Axle

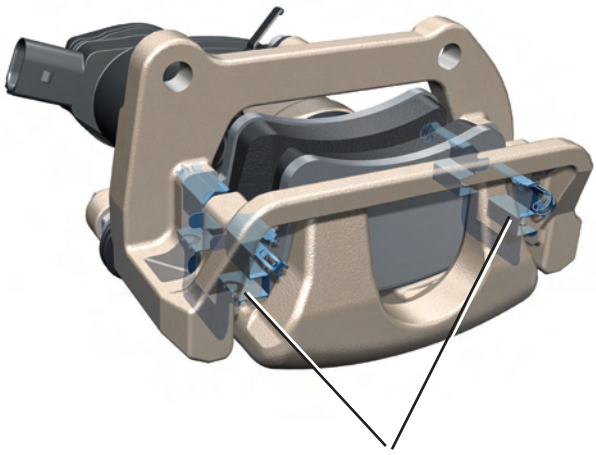
Brake Caliper

TRW Colette II brake calipers are used in combination with the electromechanical parking brake (EPB) on the rear axle.



A new feature is the use of stainless steel springs between the brake pad and the pad carrier.

The brake pad springs ensure a symmetrical distribution of pad play between the brake pads and the brake disc. This effectively prevents premature one-sided brake pad wear.



Brake Pad Springs

Note

Special attention must be paid to proper installation of the brake pad springs when replacing the brake pads! For detailed information, refer to the current workshop manual.

Brake Servo

Design and Function

A conventional 8/9 inch TRW tandem brake servo is used.



The Reed switch for the brake fluid level warning indicator is now integrated in the cap of the brake fluid reservoir. In earlier versions, the electrical contact was open in the neutral position. Therefore, if a switch failed, a low brake fluid level was not indicated.

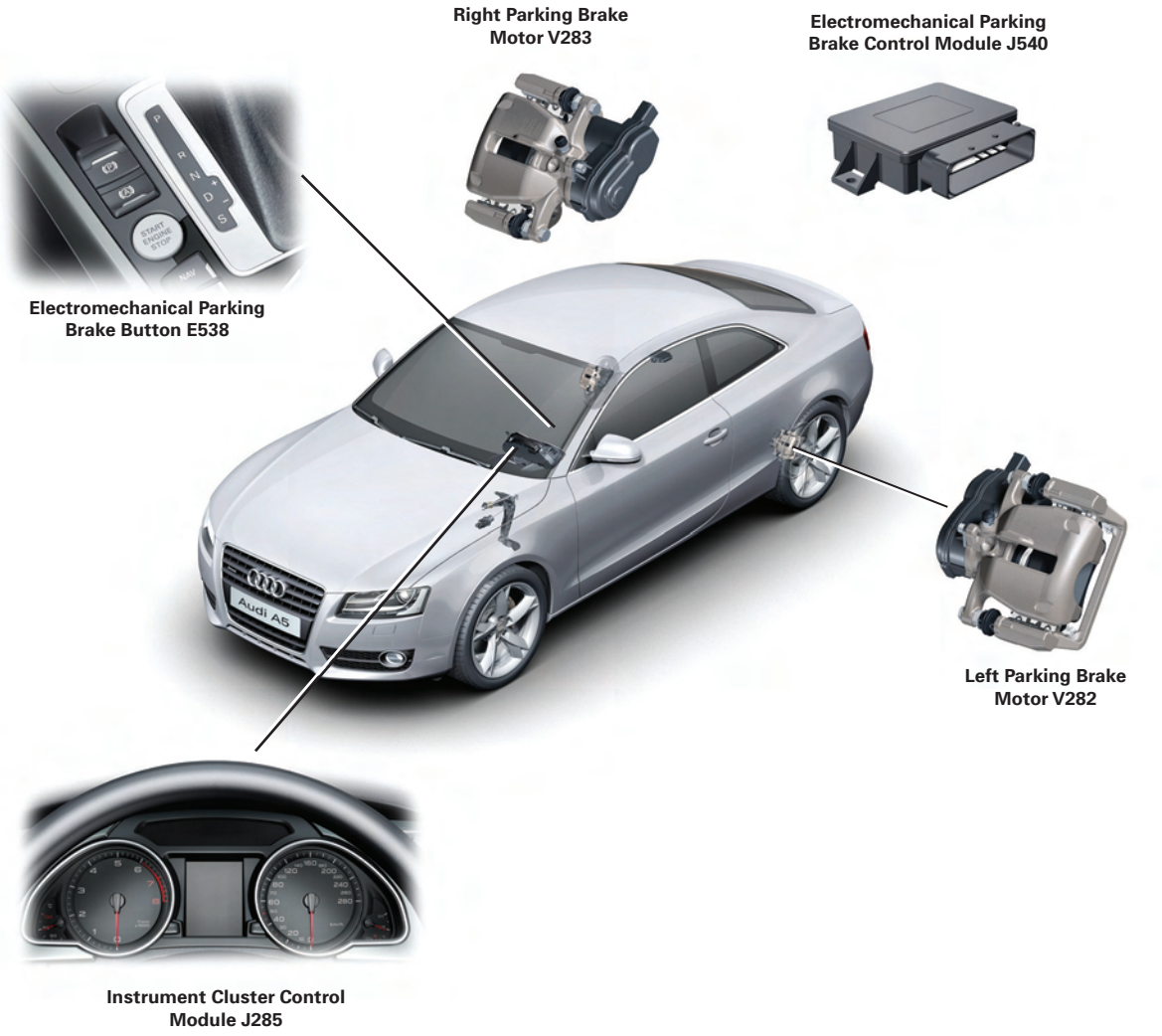
Due to the modified installation position of the switch, the reed-type switch contact is closed in the neutral position, i.e. when the brake fluid level is OK.

The warning is activated by opening of the contact. In this way, switch failure and open circuit are detected and indicated.



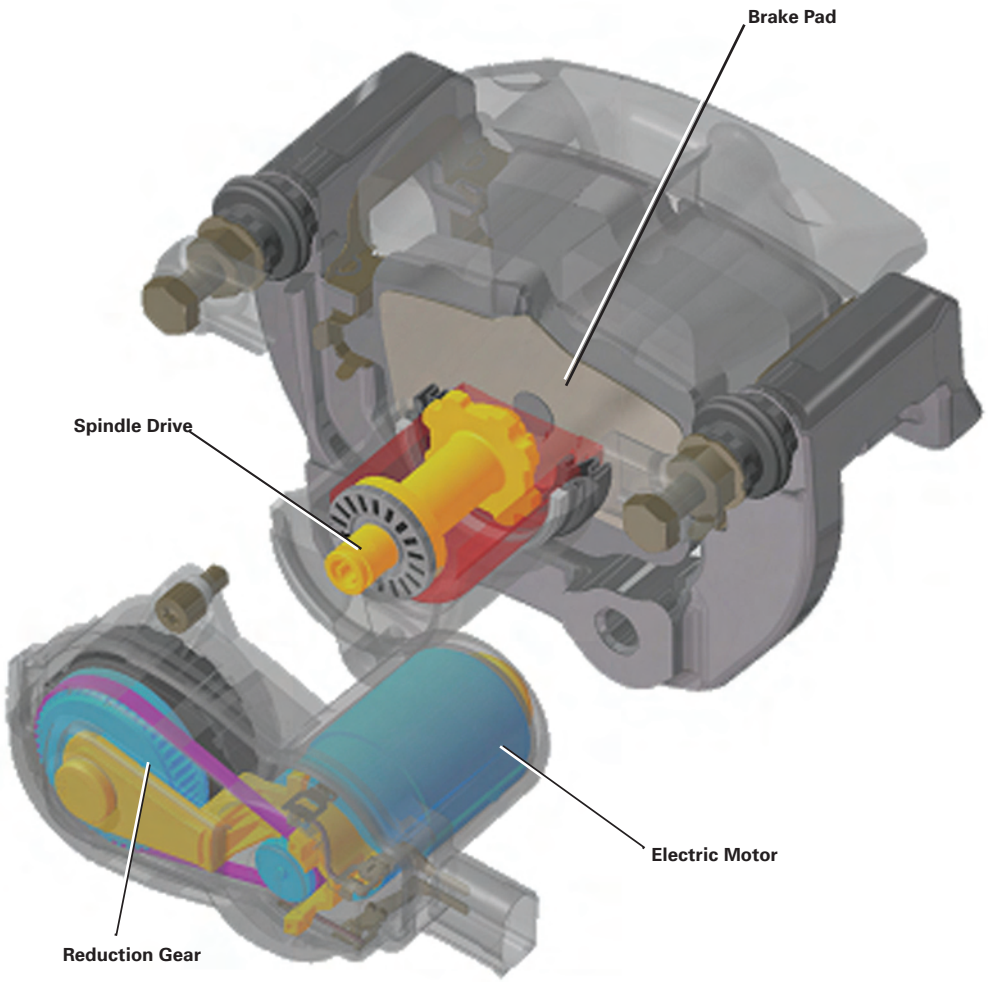
Electromechanical Parking Brake EPB

System Components - Overview



System Components - Parking Brake Motors V282/283

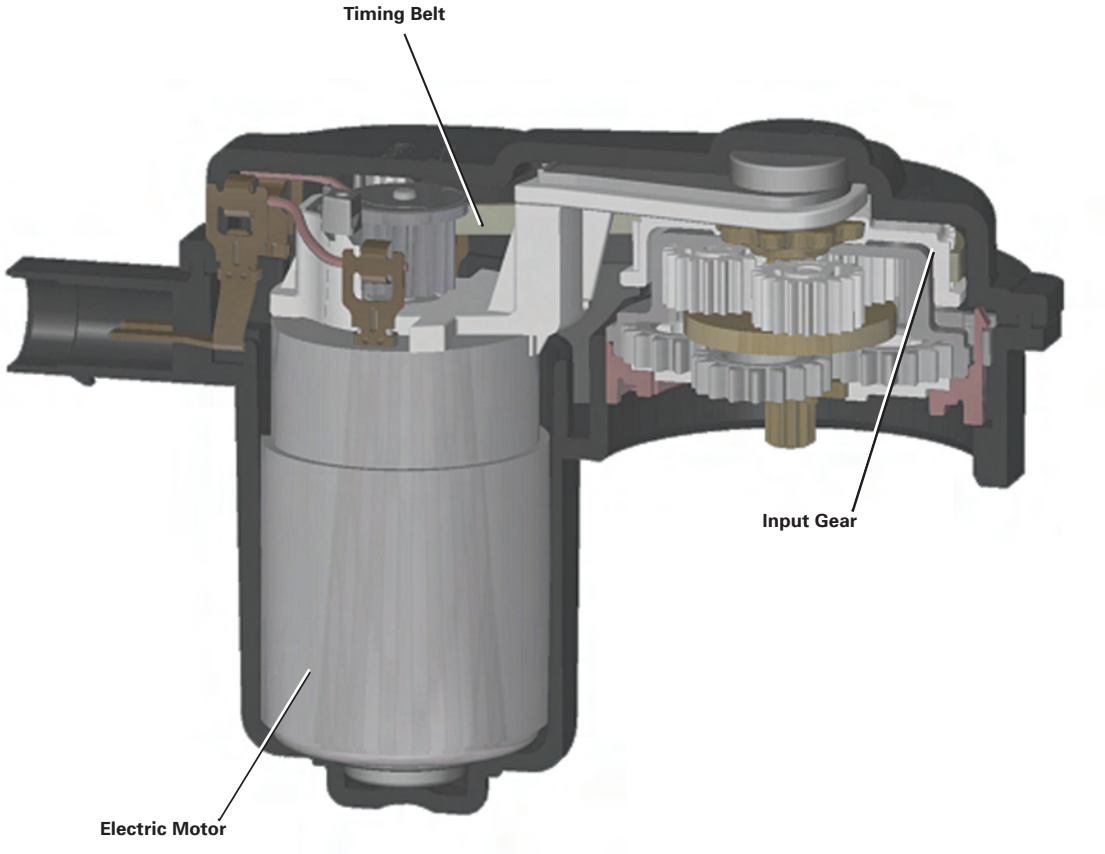
The brake pads are tensioned against the brake discs by a spindle drive. The spindle drive has the same design and functional principle as the systems already in use on the Audi A8 and Audi A6.



System Components - Parking Brake Motors V282/283

The reduction gear is a new feature. A planetary gear is now used in place of a wobble-plate gear. Drive is provided by an electric motor via a helical-cut timing belt.

The planetary gear offers acoustic advantages and requires less installation space.



The overall ratio of approximately. 1:150 is achieved in three stages by means of the following:

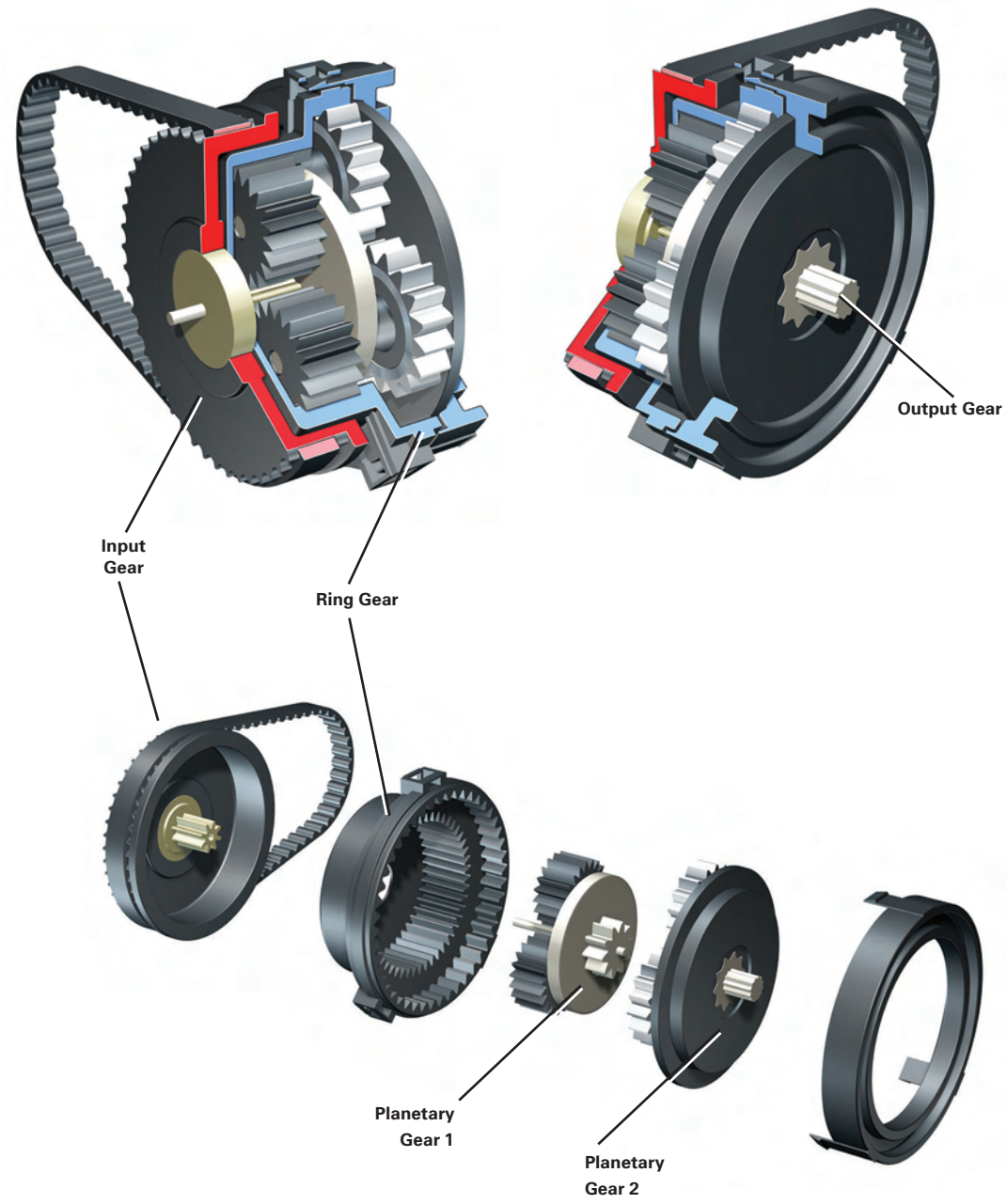
1. Toothed belt drive between the engine and `transmission input (1:3)
2. Planetary gear (1:50)
3. Spindle drive (1:1.25)

System Components - Parking Brake Motors V282/283

Power Flow

The large reduction ratio is implemented by two serial planetary gears. The input gear driven by the timing belt acts as the sun gear for the first planetary gear train. The ring gear is rigidly connected to the housing. In this way, the rotational movement of the driven sun gear is reduced to the planetary gear.

The planetary gear is designed as a pinion on the output side and serves as the sun gear for the second planetary gear train. The planetary gear of the second reduction step is the output gear and is connected directly to the spindle drive.

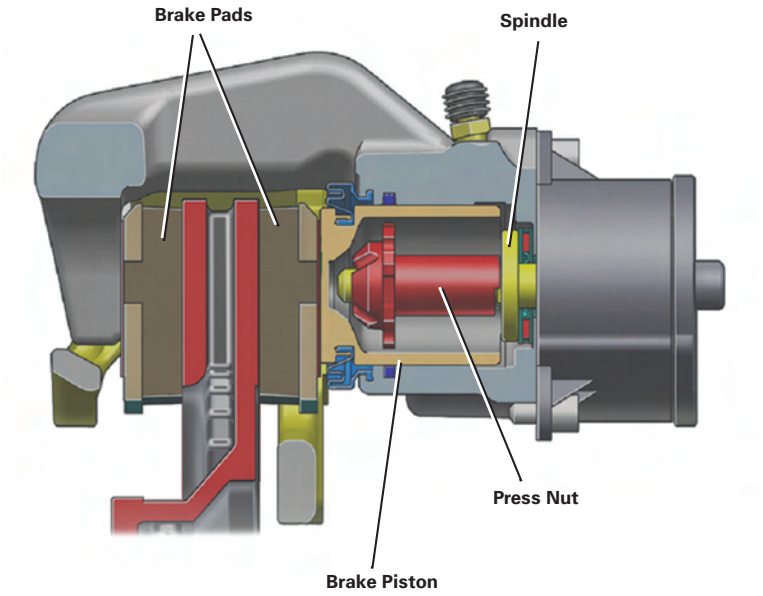


System Components - Electromechanical Parking Brake Control Module J540

Functional Principle

The brake pad is controlled through the activation of Electromechanical Parking Brake Control Module J540.

The activation current increases sharply when the brake pads come into contact with the brake disc. The switch-off point and maximum tension, are determined by evaluation of the voltage and current characteristics. Movement of the brake pad is not directly measured.



The control module is installed in the luggage compartment on the right. As in the Audi A6 and Audi A8, Parking Brake Motors V282/283 are separately activated.



Two processors are implemented in the control module. Enabling decisions are always made by both processors. A micromechanical inclination sensor is integrated in the control module. J540 also determines the actual longitudinal acceleration of the vehicle from the sensor signal.

This value is utilized by the ESP control module. Control module J540 has its own internal run-on cycle, irrespective of the CAN run-on cycle. This cycle has a minimum duration of 20 seconds. This ensures the display remains active for an additional 20 seconds after the ignition is switched OFF if the parking brake is applied.

Electromechanical Parking Brake Control Module J540 is now flash programmable.

It is no longer necessary to encode Electromechanical Parking Brake Control Module J540 after servicing.

Functions - Overview

The EPB functions implemented on the Audi A5 are basically identical to those of the EPB on the Audi A6 and Audi A8.

In addition to the actual parking brake function, and dynamic emergency brake function, a Hill Start Assist function is also implemented.

Reference

For detailed information, please refer to SSP 997303 and 993403.

Functions - Overview

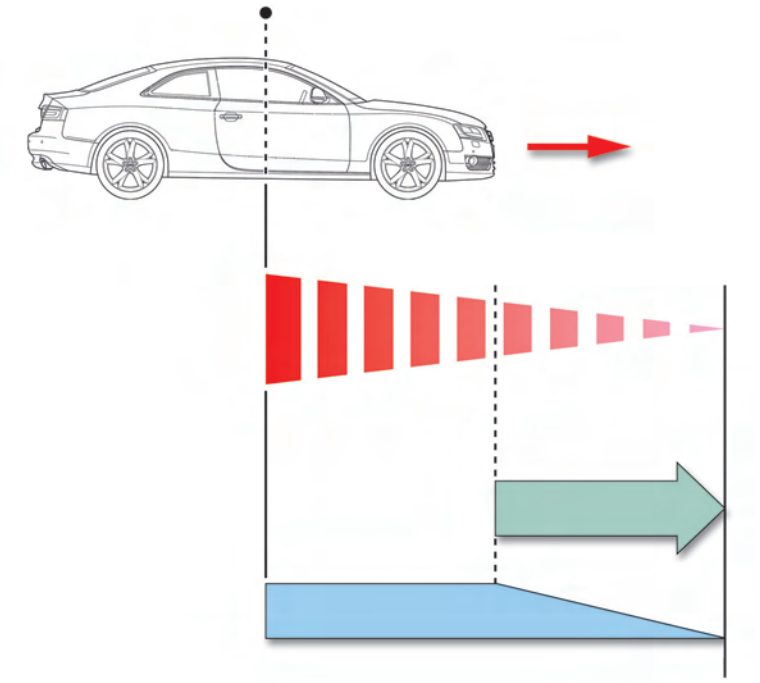
The dynamic emergency brake of the A5/S5 has the same functional principle as the systems on the Audi A6 and A8L.

If Electromechanical Parking Brake Button E538 is pressed while the vehicle is travelling at a speed greater than 4.3 mph (7 kph), the ESP brakes the vehicle by actively building up brake pressure at the rear wheels. If the vehicle is then braked to a speed less than 4.3 mph (7 kph), the electromechanical parking brake is activated and ESP reduces the brake pressure.

The ESP builds up brake pressure at the command of Electromechanical Parking Brake Control Module J540. In certain circumstances, ABS Control Module J04 may not be able to execute this command. For example, when very high temperatures are detected at the service brakes or in the event of certain ESP faults.

The dynamic emergency brake function is unavailable on the Audi A6 and Audi A8 at road speeds of greater than 4.3 mph (7 kph).

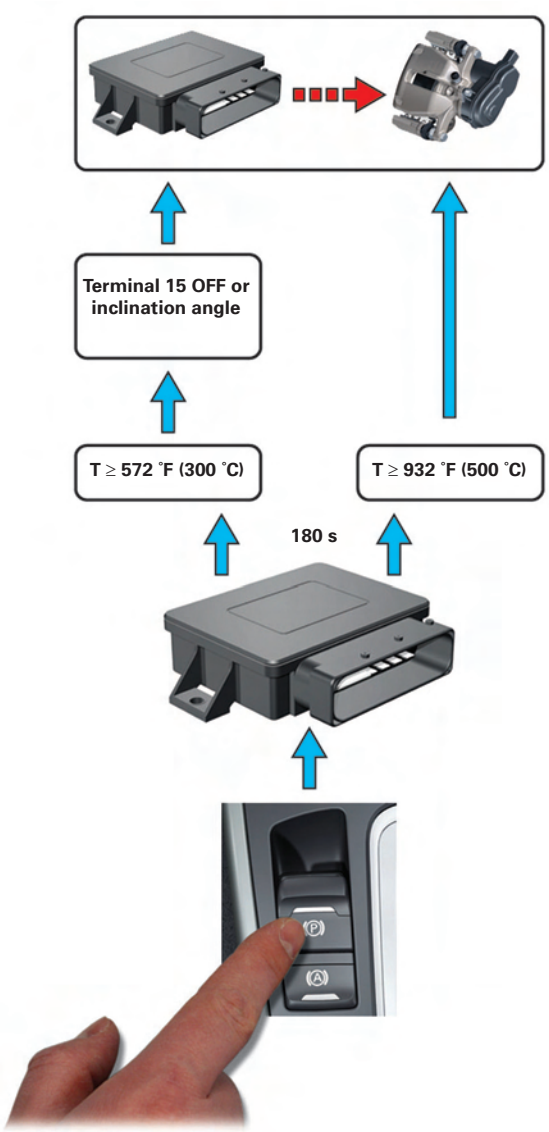
In this case, EPB assumes the ESP function on the Audi A5. Even at speeds of greater than 7 kph, the vehicle is braked by rapid alternate closing and opening of the parking brake (at a maximum rate of approximately 2 Hz). The wheel speeds at the front and rear axles are continuously compared to avoid over-braking the rear axle and thereby prevent instability.



Functions - Automatic Retensioning at High Brake Disc Temperature

The parking brake is automatically retensioned when the vehicle is stationary and at high brake disc temperature. The brake disc temperature is measured by the EPB control module using a temperature model. J540 measures the actual brake disc temperature three minutes after applying the parking brake.

The brake disc is retensioned at a disc temperature greater than 572 degrees F (300 degrees C), when the ignition is turned off and if the inclination angle is greater than 15%. The brake disc is retensioned at a disc temperature of 932 degrees F (500 degrees C) or higher regardless of whether the ignition is on or off. This is indicated by the flashing of the warning lamp.



Automatic Brake Pad Clearance Correction

This function has been adopted from the Audi A6. If the driver does not use the parking brake for a lengthy period of time, the distance which the spindle drive must travel to apply the brake pads will increase. This is caused by brake pad wear. When the parking brake is actuated, it may under certain circumstances take much longer to close.

To prevent this, the parking brake function is activated automatically if it has not been activated during the last 620 mi (1000 km) driven. The condition for this is that the vehicle is parked with the parking brake not applied and the ignition OFF.

Operation and Displays

The parking brake function is activated by pressing Electromechanical Parking Brake Button E538.

The conditions for activation, deactivation, and indication by the warning lamps and display are identical to those of the EPB on the Audi A6 and Audi A8.

A new feature is the activation of the parking brake warning lamp via CAN bus.

The yellow warning lamp in the instrument cluster is activated via CAN, as is the case on the Audi A6.

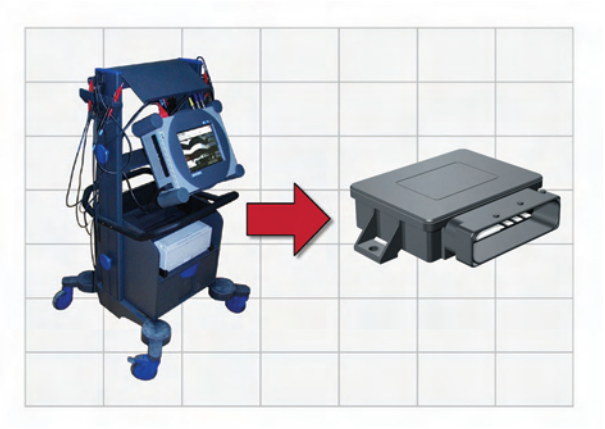


Servicing

The following changes had been made compared to the Audi A6 and Audi A8.

Encoding of Electromechanical Parking Brake Control Module J540

Encoding of J540 is no longer necessary. After replacing the control module, the inclination sensor must be calibrated (Basic setting 20) and Basic setting 10 (closing and opening the parking brake three times) must be performed. In the Guided Fault Finding program, these functions are automatically incorporated into the test plan, which must be carried out when the control module is replaced.



Reverse Polarity Test Cable VAS 1598/55

In case of failure of Parking Brake Motors V282/283, special tool VAS 1598/55 is used to determine whether the parking brake motor or the control module is the cause.



Measuring Value Blocks

The peak brake disc temperature is stored in new Measuring Value Blocks (8 and 9).

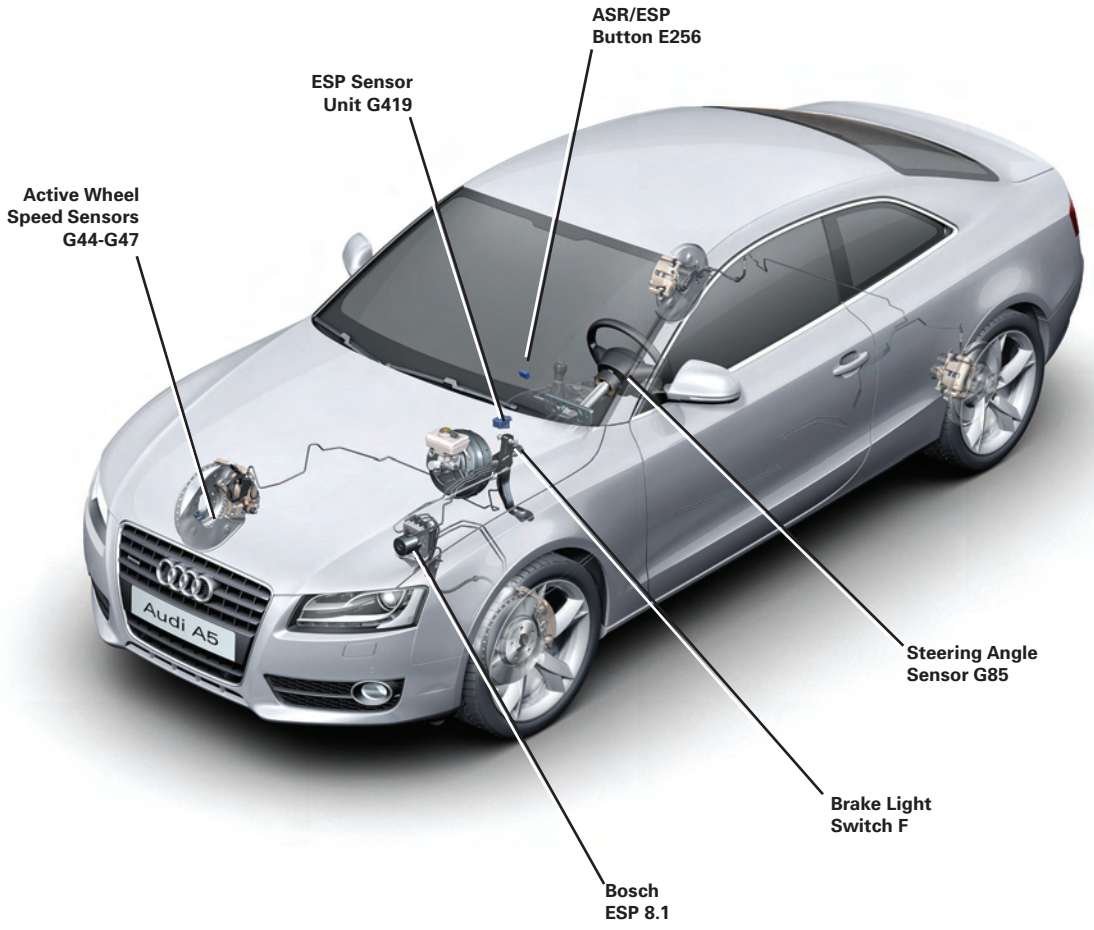
Reference

For detailed information, refer to the current workshop manual and Guided Fault Finding in the Scan Tool.

ESP

Overview

The Bosch ESP 8.1 system is used in the Audi A5/S5. It differs from ESP 8.0 with modified valves and a wider range of functions. The system uses active wheel speed sensors.



System Components - ESP Unit

The ESP 8.1 has the same outer dimensions as the ESP 8.0.

The tightness of the control valves when closed has been optimized.

The ESP control module has run-on capability and can be actively kept awake via the powertrain CAN bus.



Note

The control module must not be separated from the hydraulic unit.

System Components - Wheel Speed Sensors

Active wheel speed sensors are used. They are identical in design and functional principle to the sensors already used on the Audi A8 and Audi A6.



Reference

For detailed information, please refer to SSP 997303.

System Components - ESP Sensor Unit G419

G419 is identical in design and functional principle to the unit on Audi A4 and Audi A6.

On the Audi A5, data is transferred to and from the ESP control module via the sensor CAN bus.

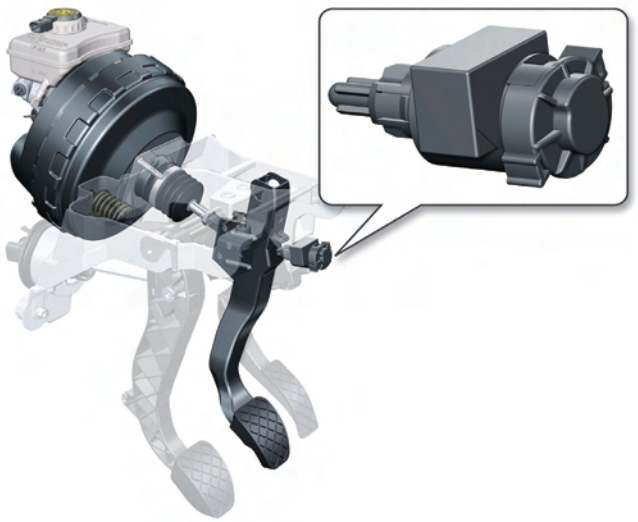


System Components - Brake Light Switch F

An electronic brake light switch is attached to the brake pedal. Actuation of the brake pedal moves a tappet within the sensor. A permanent magnet is attached to the tappet. Magnetic field strength is measured by a Hall sensor.

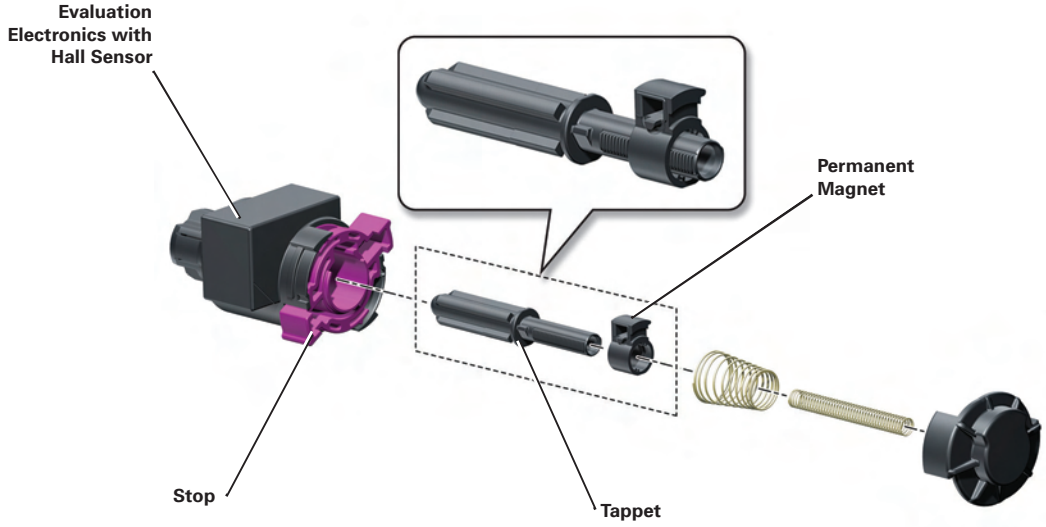
The evaluation electronics supply two inverse signals from the brake light switch (BLS) and brake test switch (BTS).

Only the BLS signal is utilized as an input signal on the Audi A5. This signal is checked for plausibility through evaluation of the brake pressure. The brake pressure is measured by Brake Pressure Sensor 1 G201 in the ESP hydraulic unit.



The sensor is fixed in place in the holder on the pedal bracket by rotating the stop. The permanent magnet is rotated at the same time. The tappet is located within the housing and maintains its position.

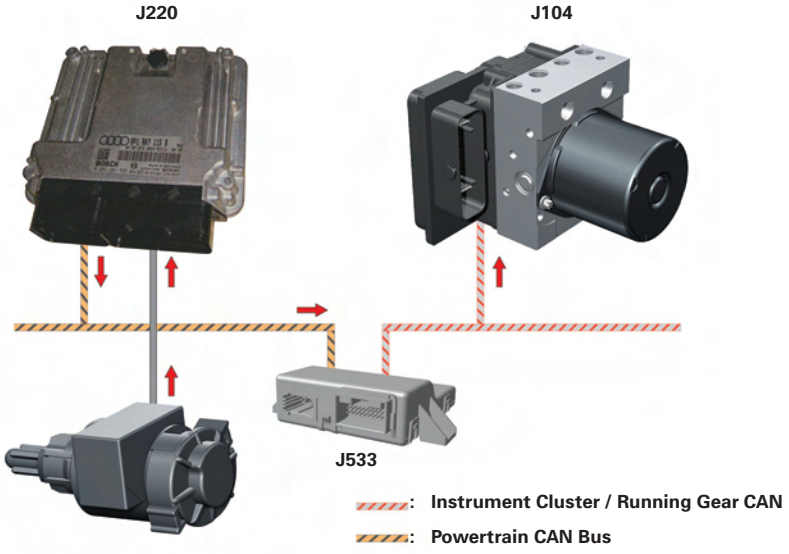
The two components interlock through the rotation of the permanent magnet against the tappet. The permanent magnet is fixed in position through the actuation of the stop on the tappet. Thus, the sensor is positioned relative to the brake pedal.



System Components - Brake Light Switch F

The signal from the brake light switch is read in by the Engine Control Module and output to the CAN bus.

Here, it is read in by ABS Control Module J104.

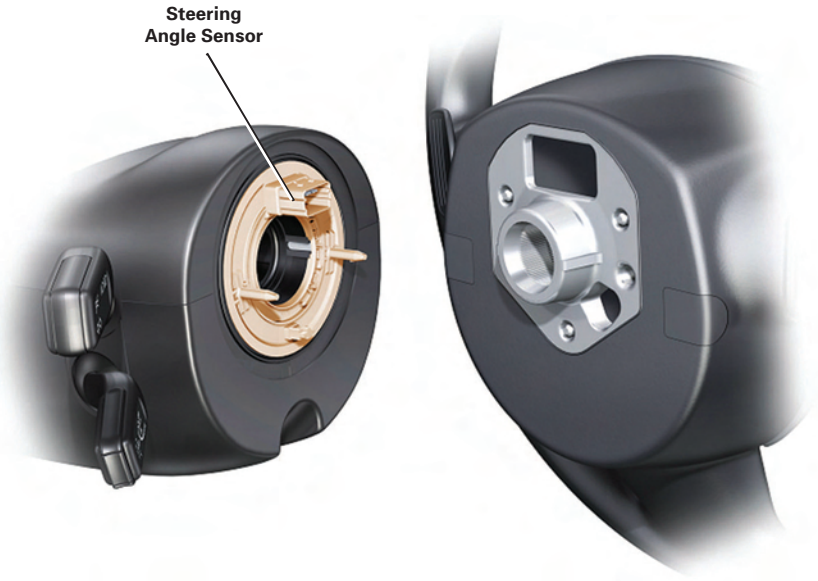


System Components - Steering Angle Sensor G85

A newly modified steering angle sensor is used on the A5/S5. It is still installed in the switch module together with the steering column electronics control module.

The switch module on the Audi A5 is positioned on the steering column crash tube by means of a locating key. Installation tolerances are minimized in this way.

The code disc on the steering angle sensor is now “driven” directly by the steering wheel. Steering movements were previously transmitted from the steering wheel to the steering tube and in turn to the sensor code disc. Measuring accuracy is higher because the code disc is driven directly.



Functions

ESP 8.1 has all of the following functions:

ESP (Electronic Stabilization Program)

ABS (Anti-lock Braking System)

EBD (Electronic Brake Pressure Distribution)

TCS (Traction Control System)

EDL (Electronic Differential Lock)

EBC (Engine Braking Control)

HBA (Hydraulic Brake Assist)

FBS (Fading Brake Support)

Emergency Brake Signal

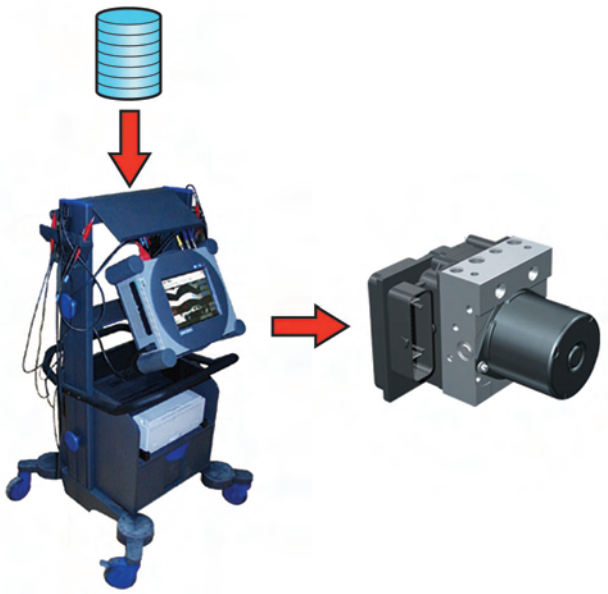
Brake Disc Cleaning

Servicing

The following are modifications which have been made when compared to the ESP 8.0 on the Audi A6.

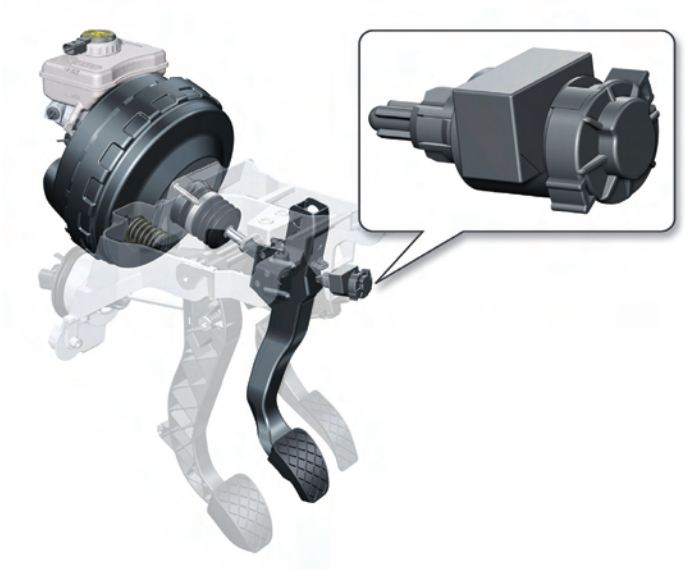
Control Module Encoding

The control module is now encoded online.

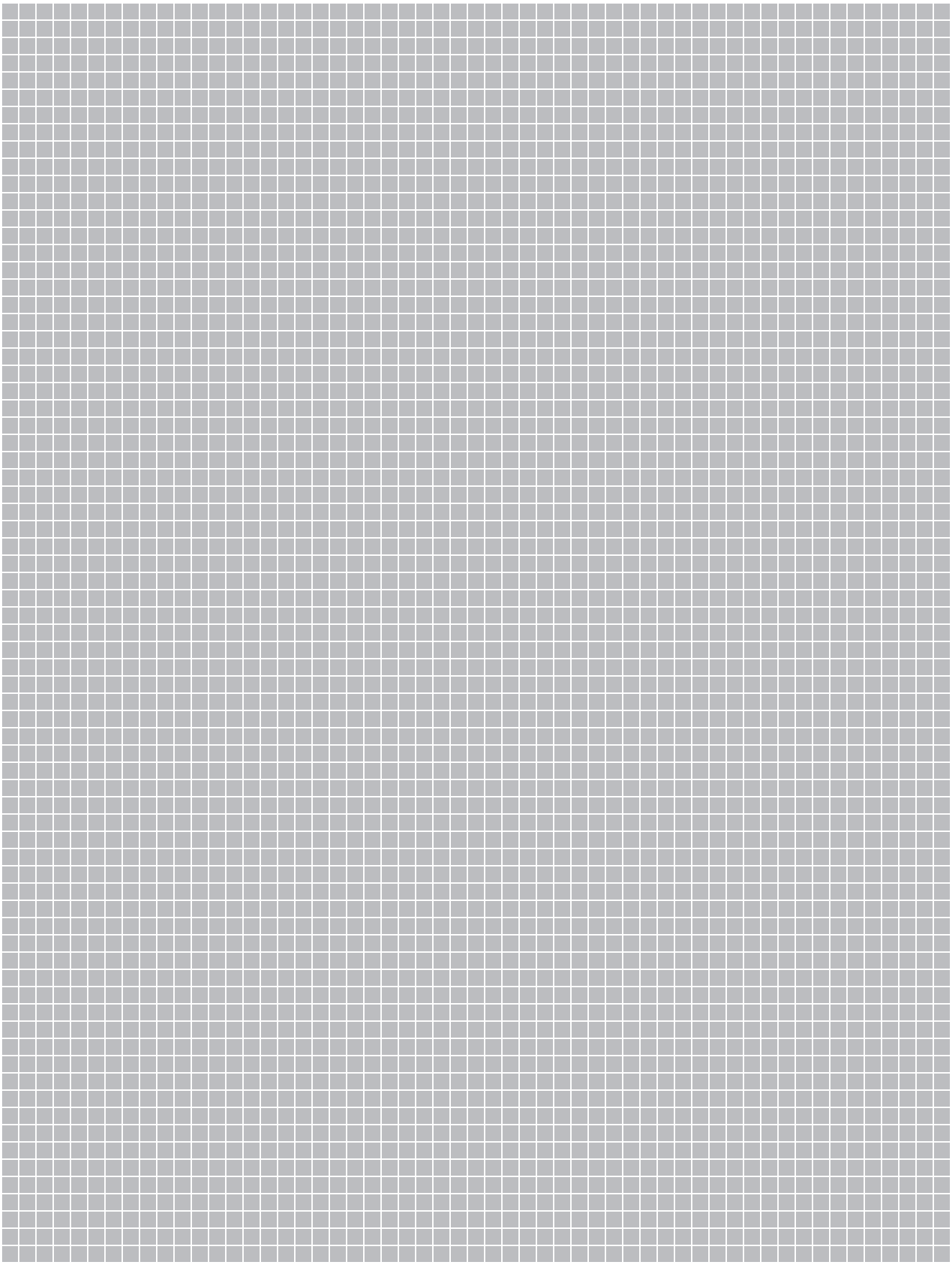


Brake Light Switch

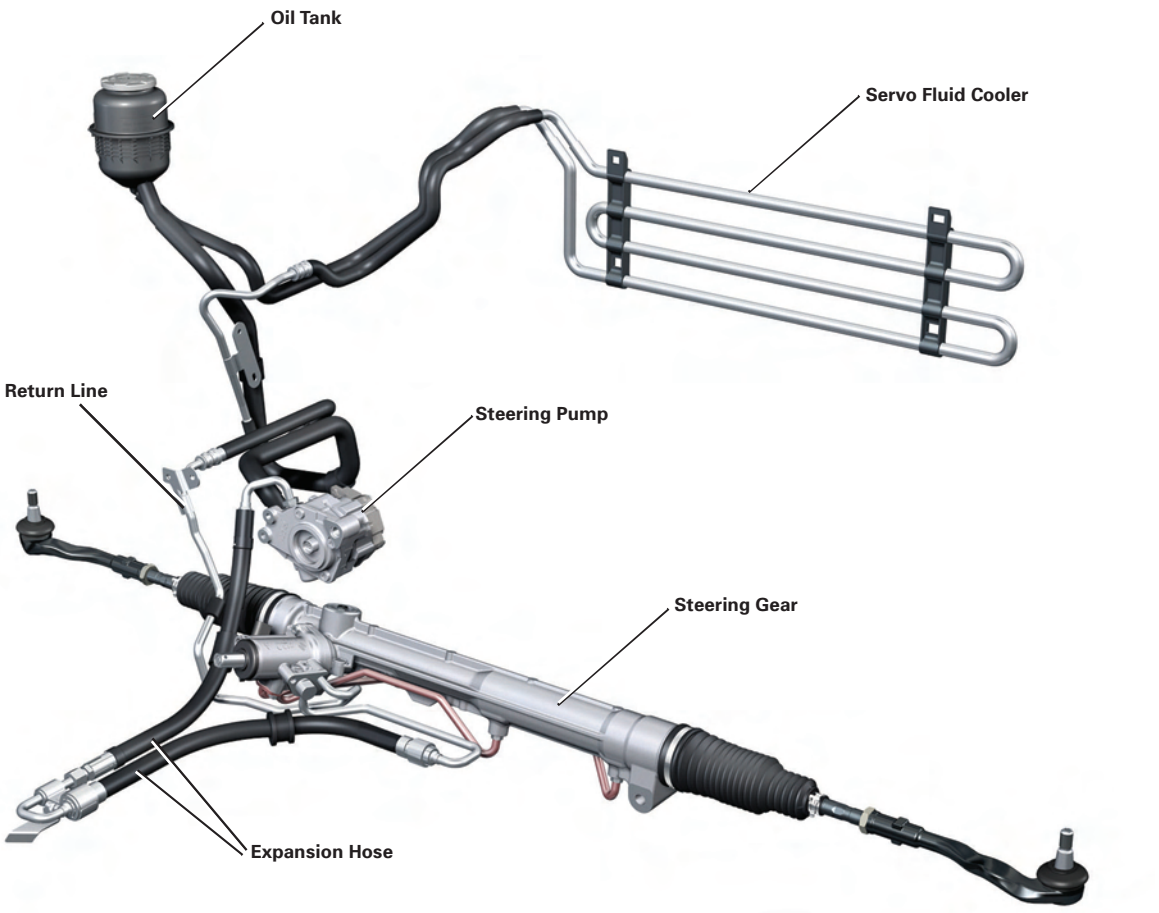
The brake light switch is self-adapting. It is not necessary to calibrate the switch after replacing parts.



Notes



Overview


Oil Tank
Servo Fluid Cooler
Return Line
Steering Pump
Steering Gear
Expansion Hose

System Components

Steering Gear

A hydraulic rack-type steering gear is used. The system features speed sensitive Servotronic power assist. The steering gear ratio is constant.

Due to the arrangement of the steering gear on the axle carrier, the track rods have a smaller flex angle than those on the 2007 Audi A4. As a result, reduced transverse forces act on the rack.

As on the Audi A6, the steering valve is bolted to the steering gear housing. The couplings of the expansion hose and the return line on the steering valve are designed as block couplings.

There is no steering rack centering facility. A center mark is cast onto the steering valve boss at the top and, when centred, is in alignment with the mark on the end cap.



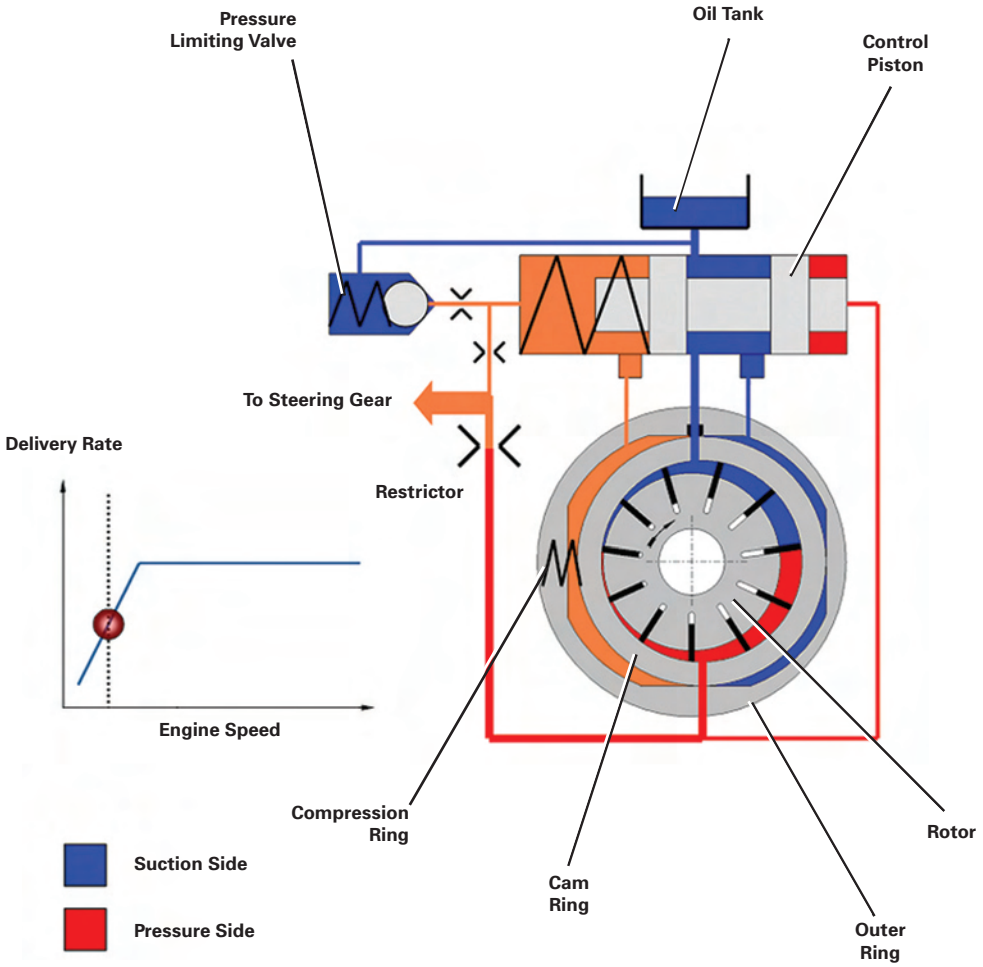
Steering Pump

A direct-driven open-loop ZF FP6 pump is used on the Audi S5. This pump rotates in counter-clockwise direction and, as on the 2007 Audi A4, is attached to the chain housing.

Flow Control

At idling speed, the cam ring in the pump is pressed against the outer ring by the spring force and the internal pressure conditions.

This maximizes the possible delivery rate on the suction and pressure sides. The delivery rate increases in proportion to engine speed.

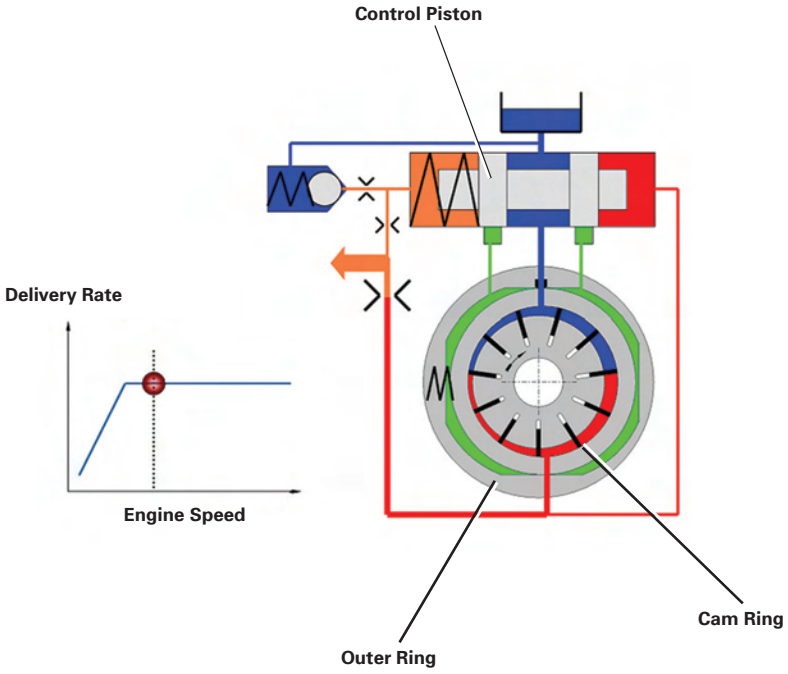


Steering Pump

The pressure inside the pump also rises with increasing engine speed. Pump pressure is applied to the control piston on one side, and when the pressure rises, the control piston is displaced to the left against the pressure of the spring.

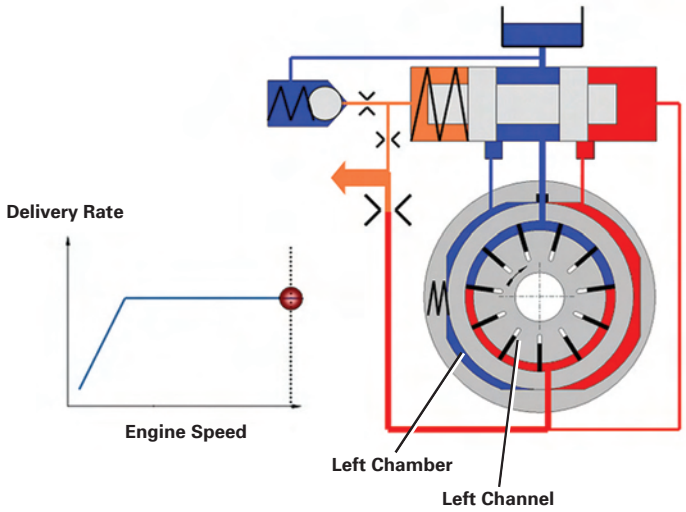
The control piston closes the channels leading to the spaces between the outer ring and the cam ring within a defined medium engine speed range.

The pressure between the two spaces is thus equalized. The cam ring is held in a defined mid position and the delivery rate is near-constant.

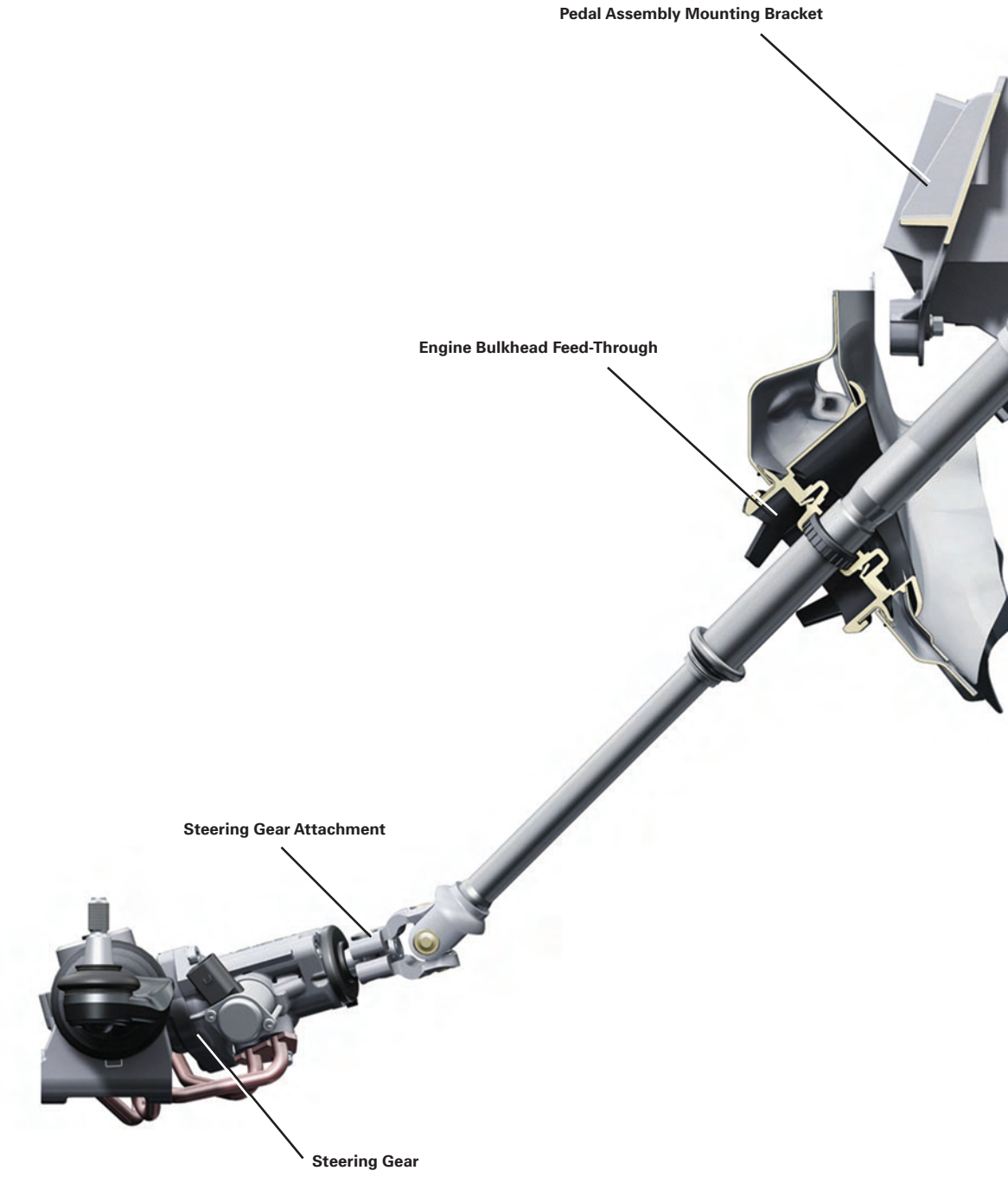


If engine speed continues to increase, both the delivery rate and pressure increase. The control piston displaced further to the left is against the pressure of the spring. As a result, the channel leading to the left chamber is connected to the suction line. The pump pressure flows into the right chamber on the opposite side. The cam ring is displaced to the left against the pressure of the spring.

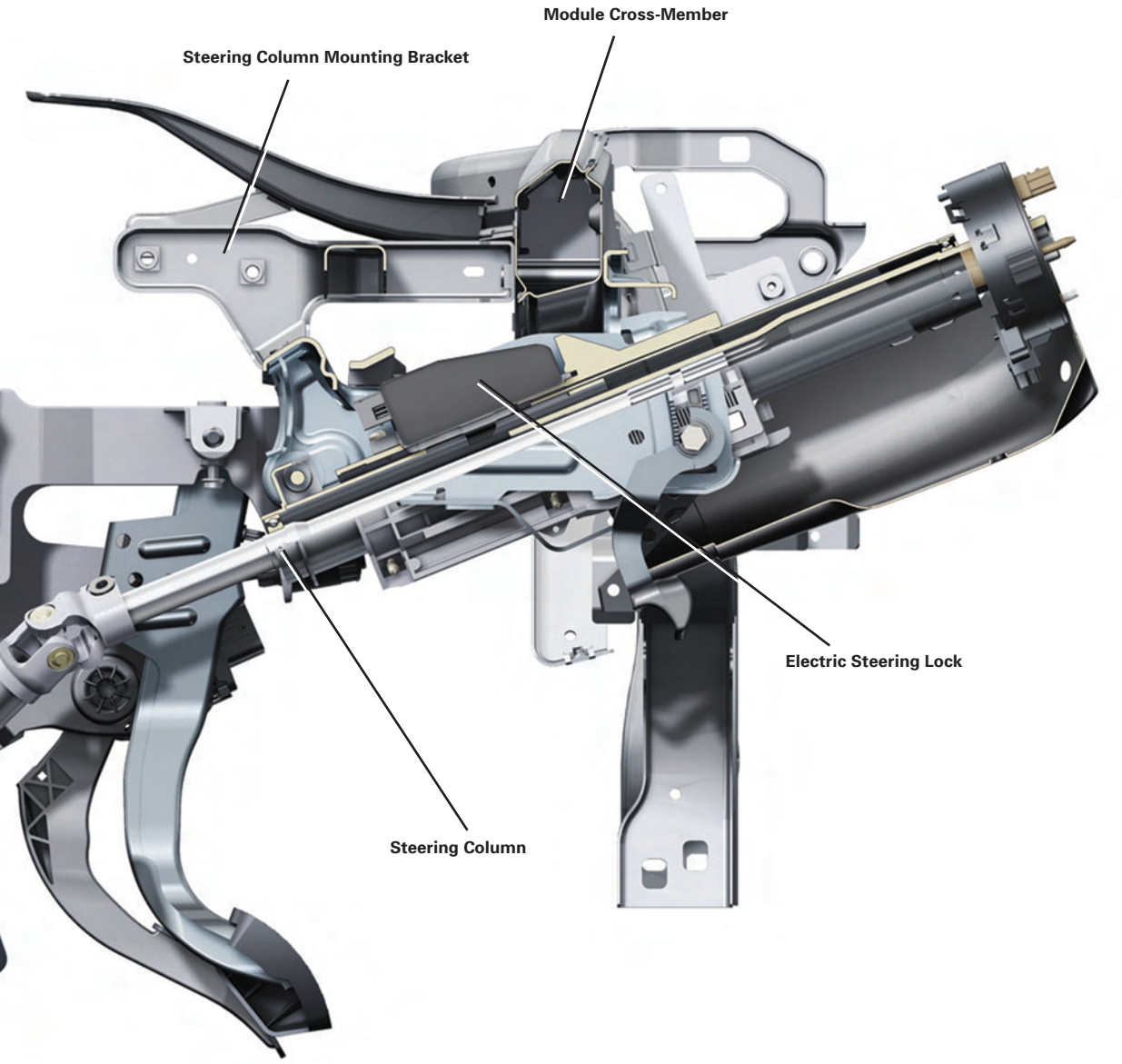
As a result, eccentricity between the rotor and cam ring is reduced. The delivery rate is reduced, and the “overproduction” of hydraulic oil is avoided. Energy consumption is significantly reduced due to the associated reduction in pump power consumption.



Steering Column - Overview



Cutaway view of the steering column as installed


Module Cross-Member
Steering Column Mounting Bracket
Electric Steering Lock
Steering Column

Steering Column

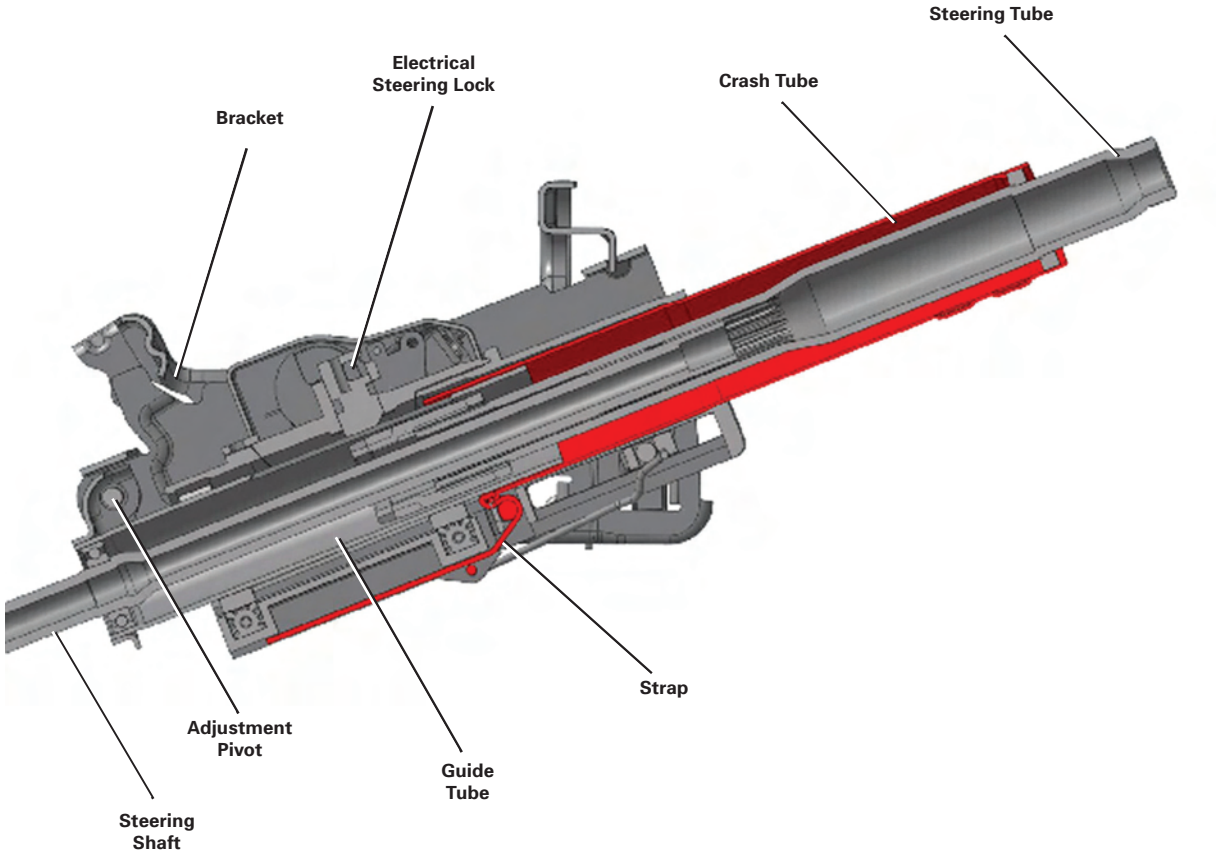
A newly developed mechanically adjustable steering column is used on the A5/S5. The adjustment range is 2.4 in (60 mm) in the horizontal direction and 2.0 in (50 mm) in the vertical direction.

The steering column is mounted in a sheet-steel bracket.

The roller carriage for displacement of the steering column in a crash is no longer used. A “tube in tube” system is used instead.

The steering tube is mounted in roller bearings in the crash tube. The steering shaft runs in a roller bearing in the guide tube. The steering shaft is inserted into the longitudinal toothing on the steering tube. The crash tube is seated on the guide tube.

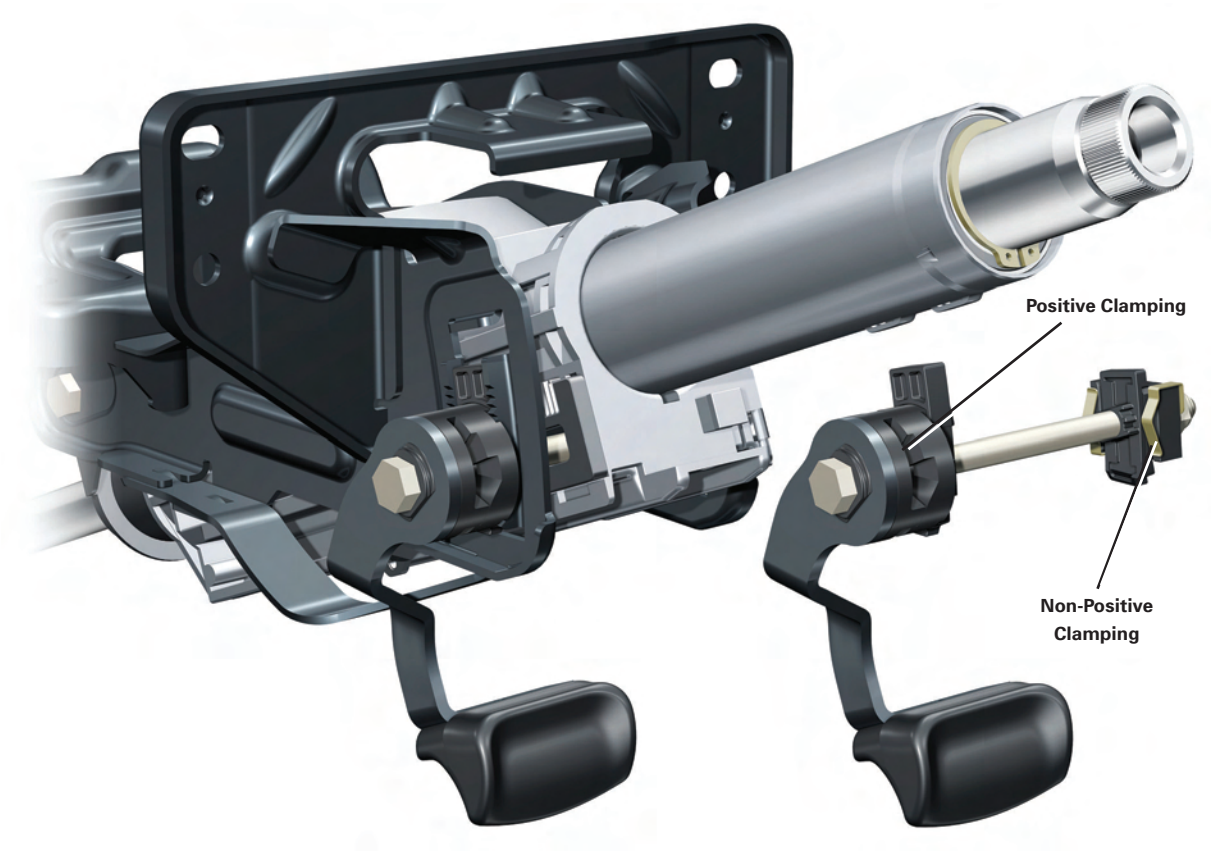
The electrical steering lock ELV is now bolted to the bracket and can be replaced.



Steering Column

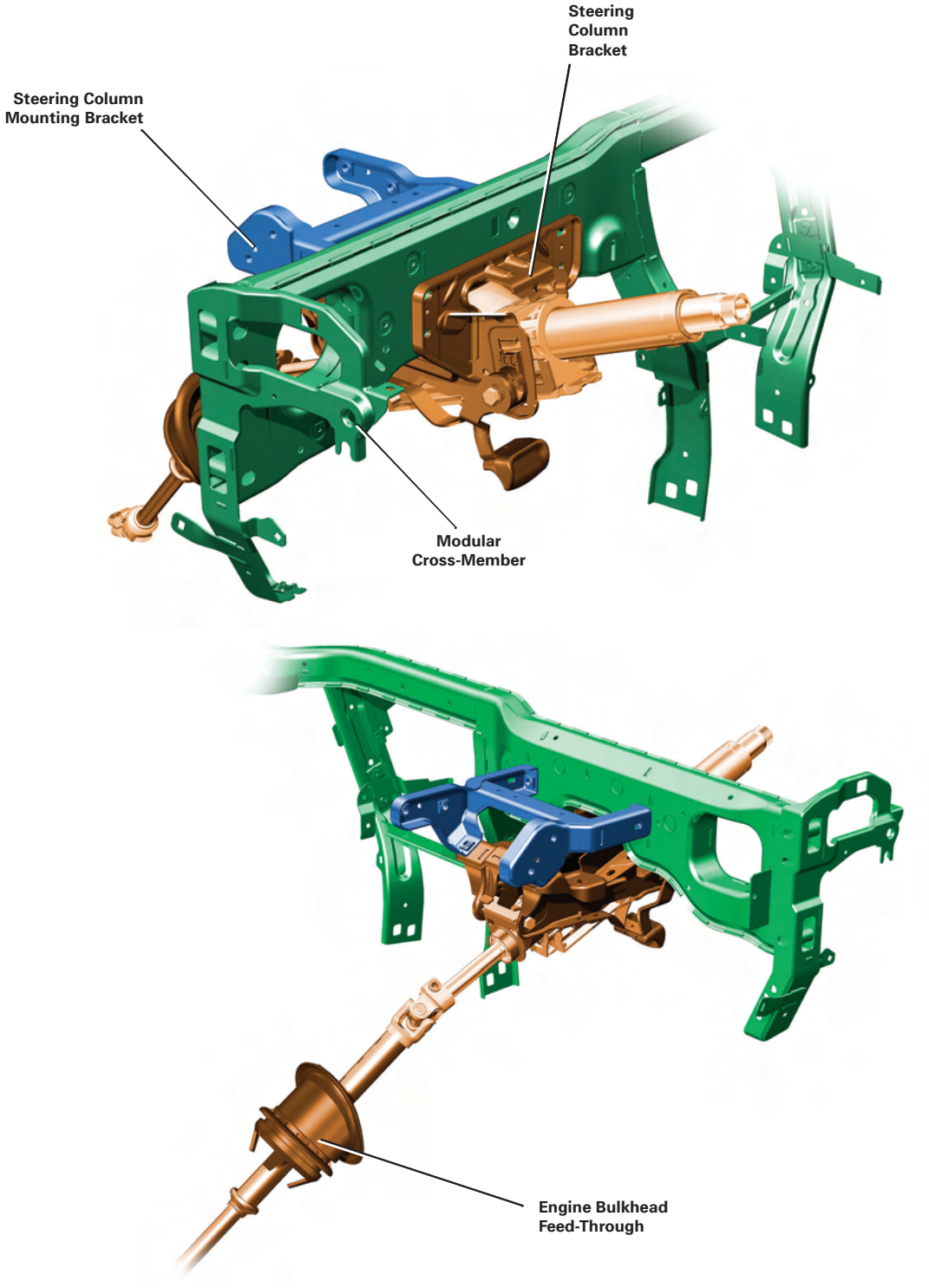
The steering column is now adjusted in steps. Tensioning is by means of a lever actuated eccentric. On the right-hand side, the steering column is clamped in a non-positive manner by frictional engagement.

On the left-hand side, the steering column is located in a positive manner by interlocking tooth segments.



The steering column bracket is connected to the modular cross-member at two attachment points. The steering column mounting bracket is bolted to the modular cross-member, while the steering column bracket is bolted to the mounting bracket.

As a result, the steering column attachment points are relatively far apart, creating a broad base which has a positive effect on the vibrational characteristics of the steering column.

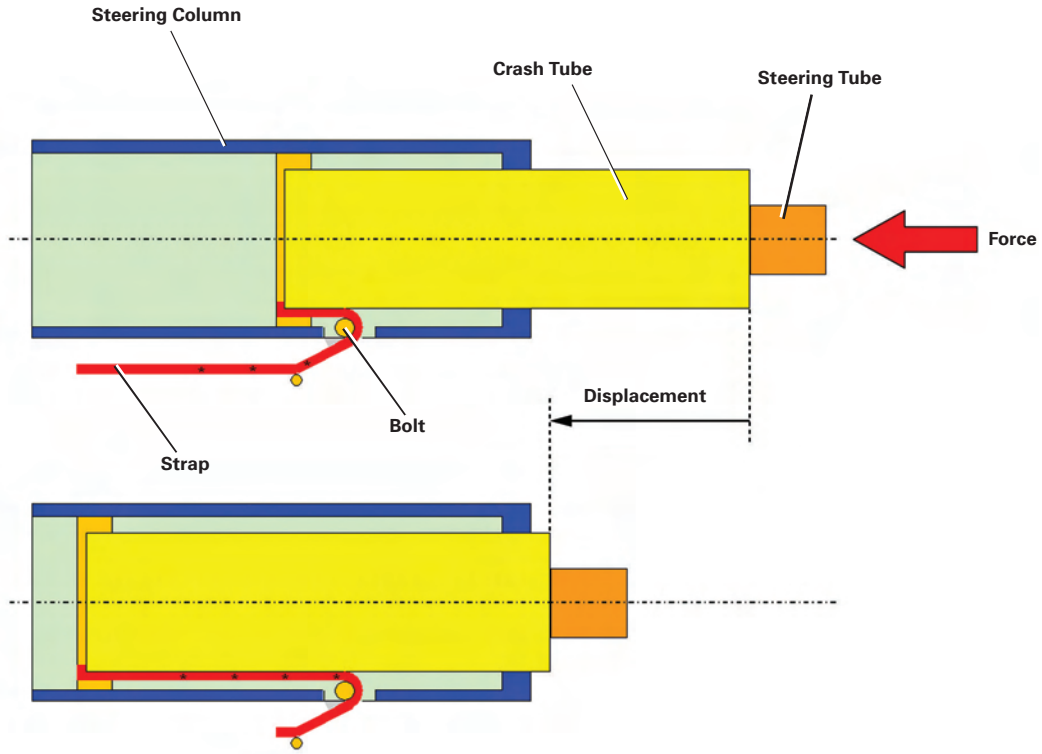


Steering Column - Function During a Crash

In the event of a crash, the driver's torso impacts the steering wheel. The steering wheel together with the steering tube and the crash tube are displaced towards the instrument panel. The crash tube compresses into the steering column tube. The steering tube simultaneously compresses onto the longitudinal toothing of the steering shaft.

These movements are governed by a defined force-distance characteristic. The characteristic is defined by the geometry of the strap. The strap is connected securely to the lower part of the crash tube.

The upper part of the strap is guided by a bolt which is connected securely to the steering column tube. Due to the "immersive" movement of the crash tube, the strap wraps itself around the stationary bolt. The force required for this purpose is predefined by the geometry of the strap and designed in such a way as to minimize the risk of injury to the driver.

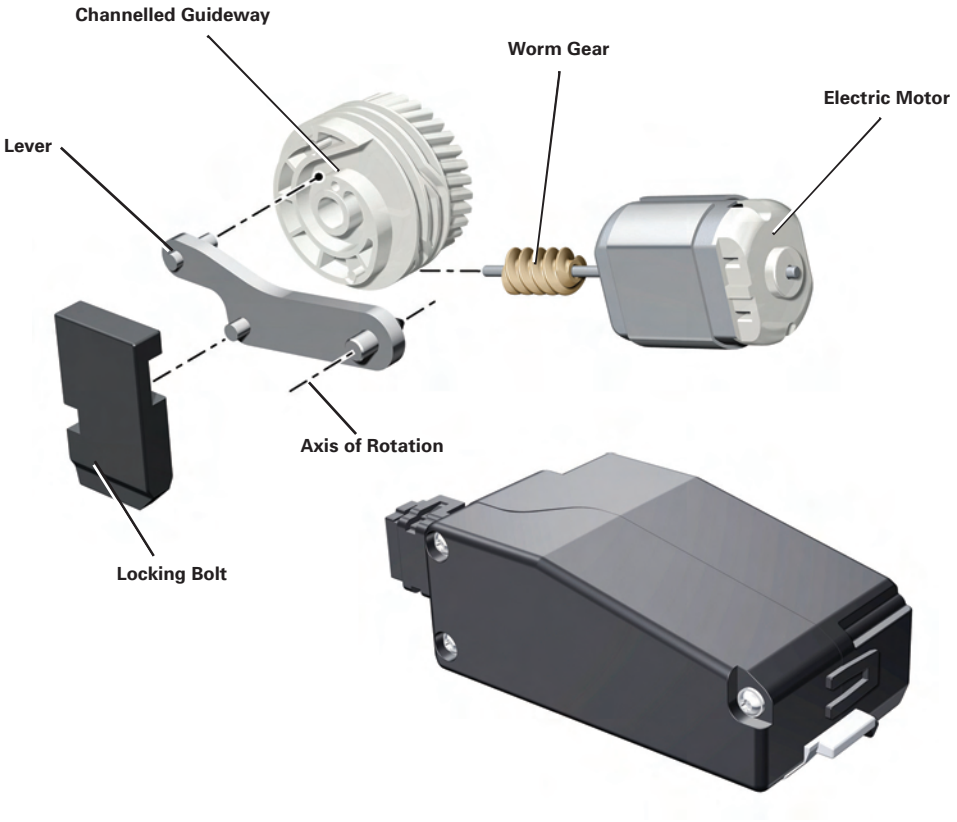


Electrical Steering Lock ELV

Design

A new ELV system is used on the Audi A5. Locking is provided by a locking bolt moved by an electric motor. The back of the spur gear on the worm drive is designed as a channeled guide. A trunnion on the lever engages in this channel. A second trunnion on the opposite side of the lever engages into a slot in the locking bolt.

The spur gear is driven by the worm gear of the electric motor. The trunnion slides along the guideway, and the lever is actuated. This movement is transmitted by the trunnion on the opposite side of the lever to the locking bolt. The limit positions are monitored by two microswitches.



Reference

The functional principle of the ELV and the electrical control device are described in SSP 998703.

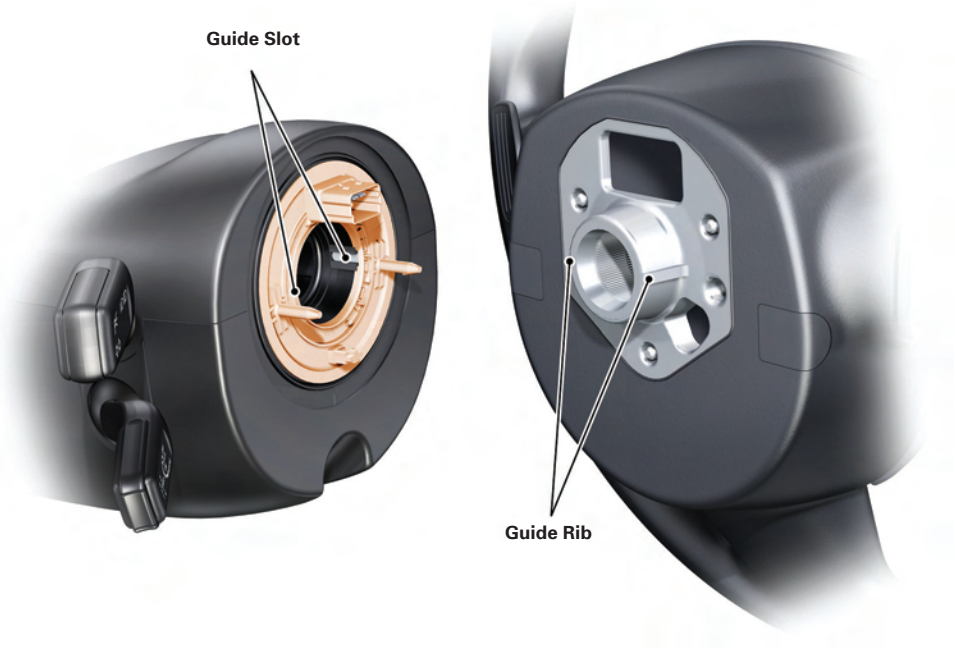
Steering Wheel

A newly developed TRW three-spoke steering wheel is used on the Audi A5. A new feature is that steering wheel movements are transmitted directly from the steering wheel to the code disc on the steering angle sensor.

Guide ribs cast onto the steering wheel hub engage in the guide slots in the code disc of the steering angle sensor. This concept halves the tolerances during measurement of the steering movement by the steering angle sensor. Previously, the steering movement was transmitted from the steering wheel to the steering tube and in turn to the code disc of the steering angle sensor. Tolerances are further minimized by the use of a fitting key to position the switch module with Steering Column Electronic Systems Control Module J527 on the crash tube.

The steering center point is defined at the factory by marks on the steering wheel hub and steering tube.

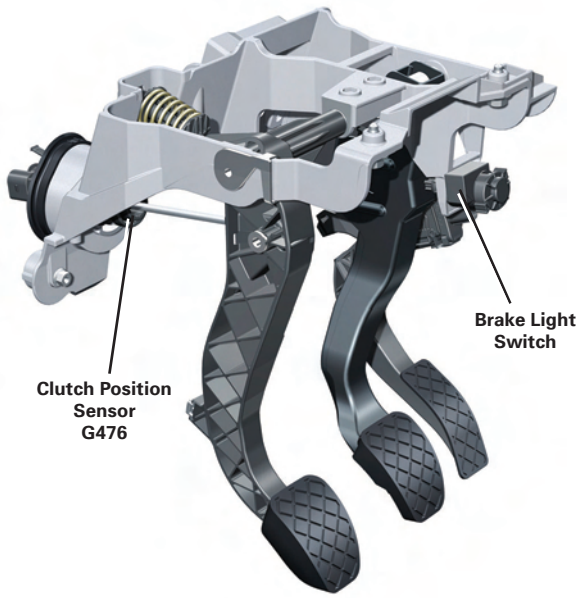




Foot Controls

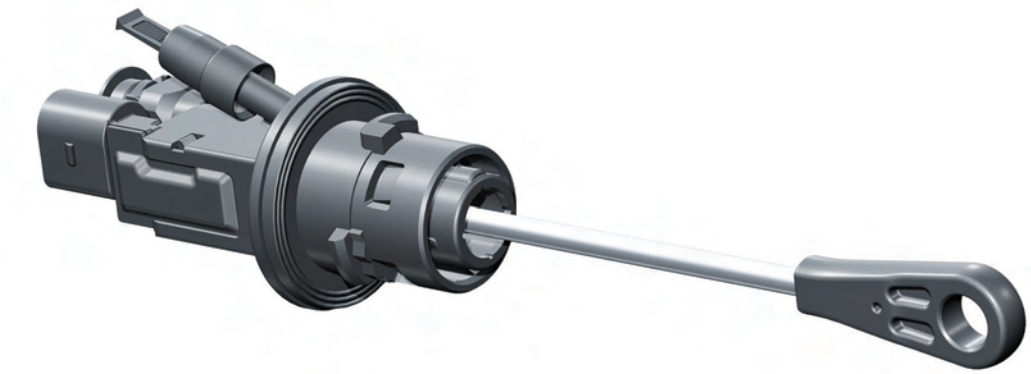
The mounting bracket is made of aluminum. In addition to serving as a mounting for the pedals, the mounting bracket is used for the first time to attach the front part of the steering column. The brake pedal is made of sheet steel. As previously on the Audi A3 and Audi TT, actuation of the pedal is detected by an electronic contactless brake light switch.

The accelerator pedal and clutch pedal are plastic.



Clutch Position Sensor G476

The position of the clutch pedal must be determined in order to implement the Hill Start Assist function of the EPB. The EPB control module determines the brake opening point by evaluating the clutch pedal position, gear selection, inclination of the road, and engine torque.

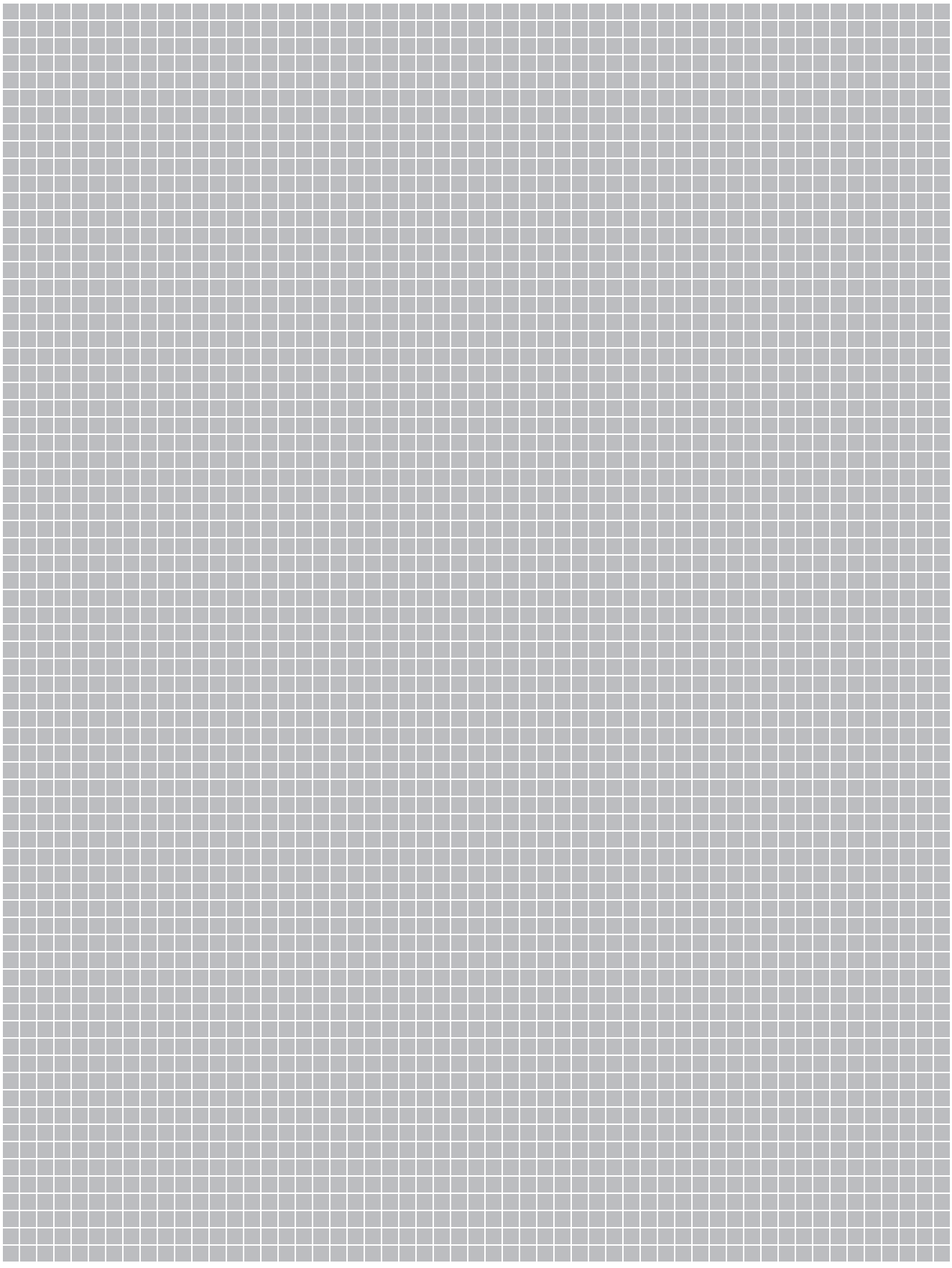




Standard Wheels	Optional Wheels
A5 - 18″ 245/40 All-Season Tires 8.5Jx18″ 5-Spoke Alloy Wheel.	
A5 S Line Package - 19″ 255/35 High-Performance Tires 8.5J x 19″ 5-Spoke Y-Design Alloy Wheel.	A5 - 19″ 255/35 High-Performance Tires 8.5Jx19″ 5-Spoke Y-Design Alloy Wheel
S5 - 19″ 255/35 High-Performance Tires 8.5Jx19″ 5 Twin-Spoke Alloy Wheel	

All vehicles will have a Space Saver spare wheel and tire.

Notes



The following Self-Study Programs have been prepared for the Audi A5:

– SSP 997703 The 2008 Audi A5/S5 - Vehicle Introduction
– SSP 998703 The 2008 Audi A5/S5 - Convenience Electronics
– SSP 999703 The 2008 Audi A5/S5 - Running Gear
– SSP 99A703 The 2008 Audi A5/S5 - Networking



SSP 997703
The 2008 Audi A5/S5 - Vehicle Introduction

– Body
– Occupant Protection
– Engine
– Running Gear
– Electrical System
– Infotainment
– Air Conditioning
– Service
– Diagnostics



SSP 998703
The 2008 Audi A5/S5 - Convenience Electronics

– Instrument Cluster
– Door Control Module
– Convenience System Control Module
– Electronic Ignition Lock
– Audi Service Key



SSP 999703
The 2008 Audi A5/S5 - Running Gear

– Front Axle
– Rear Axle
– Brake System
– Steering System



SSP 99A703
The 2008 Audi A5/S5 - Networking

– Networking/Topology
– Battery Monitoring
– Onboard Power Supply Control Module
– Outside Lights

Knowledge Assessment

An on-line Knowledge Assessment (exam) is available for this SSP.

The Knowledge Assessment may or may not be required for Certification.

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 ”CRC Certification” Link

For assistance, please call:

Audi Academy

Learning Management Center Headquarters

1-877-AUDI-LMC (283-4562)

(8:00 a.m. to 8:00 p.m. EST)

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**Audi of America, Inc.
3800 Hamlin Road
Auburn Hills, Michigan 48326**