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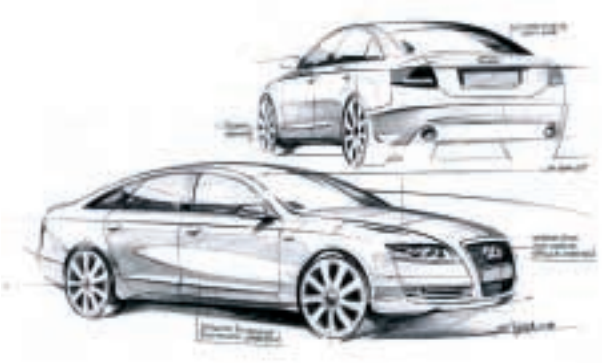
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The New Audi A6 – the Most Progressive Vehicle Takes the Lead

Design and performance are the main driving elements on its way to the top position. Furthermore, the new Audi A6 embodies the consequent continuation of the familiar Audi brand values, sports appeal, progressiveness and intrinsic quality, which are evident in the fourth generation of this sporty business limousine.





"Vorsprung durch Technik" - this guiding principle is consistently maintained in the new 2005 Audi A6 through its innovative technologies.

The MMI operating system in the interior of the vehicle is the central control for the extensive functionalities. The driver-orientated cockpit design provides a perfect workplace, which is both stylish and sophisticated. The high functionality is emphasized by the customer-orientated features in the safety and convenience function areas.



Front Suspension

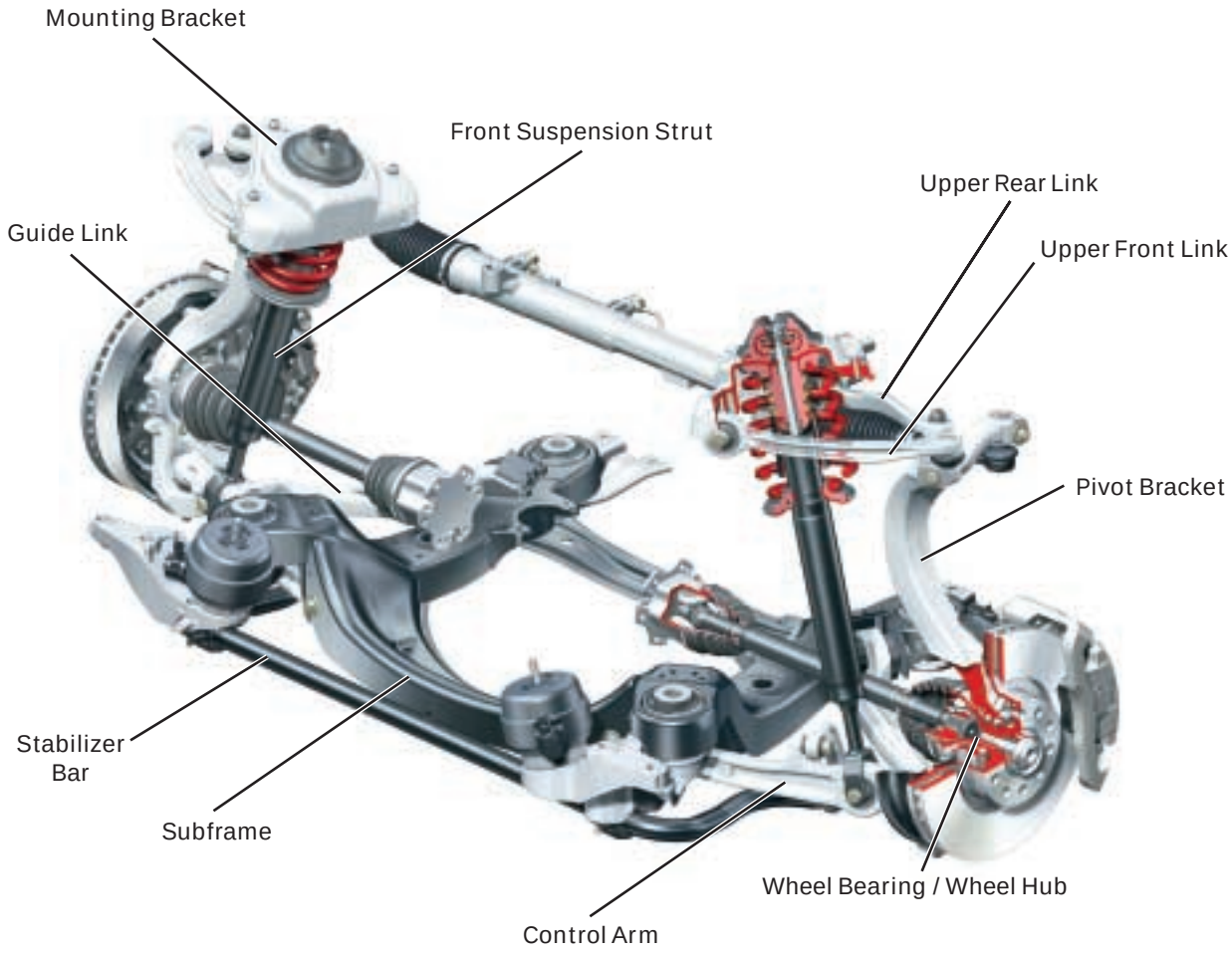
Overview

The familiar four-link front suspension is used on the new 2005 Audi A6. Two versions will be offered in the North American market. The sport version (designation 1 BE) will be .78 in (20 mm) lower than the normal suspension (designation 1 BA.)

A rough terrain version (designation 1 BRO) that is .51 in (13 mm) higher than the normal suspension will be offered in other markets in the world but not offered in North America.

In addition to improved spring and shock absorber settings, spring travel has been increased by 1.18 in (30 mm). This results in a significant improvement in driving comfort and driving stability.

Relative to the passenger compartment, the front axle was moved forward by 3.27 in (83 mm). This provides better axle load distribution and has advantages from the point of view of driving dynamics.



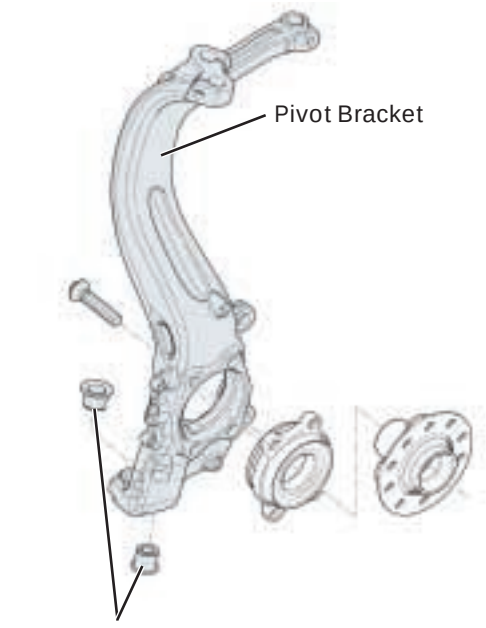
System Components

Pivot Bracket

The pivot bracket is an aluminum forged part, while the support for the trailing arm mount for the guide and supporting joints is formed from pressed zinc/iron-coated bushings. Because of the different wheel bearing dimensions, there are two types of pivot brackets.

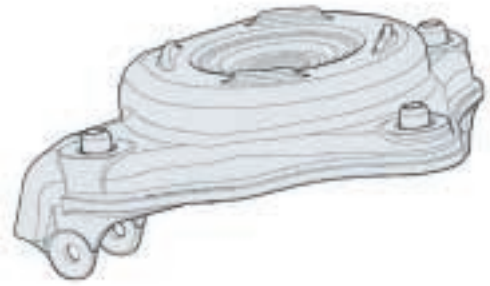
Wheel Bearings

Because of the different axle loads, an 85 mm bearing is used for all 6-cylinder engines. All other engines (higher axle loads) have a bearing diameter of 92 mm. The wheel speed sensor rotor is part of the wheel bearing.



Mounting Bracket

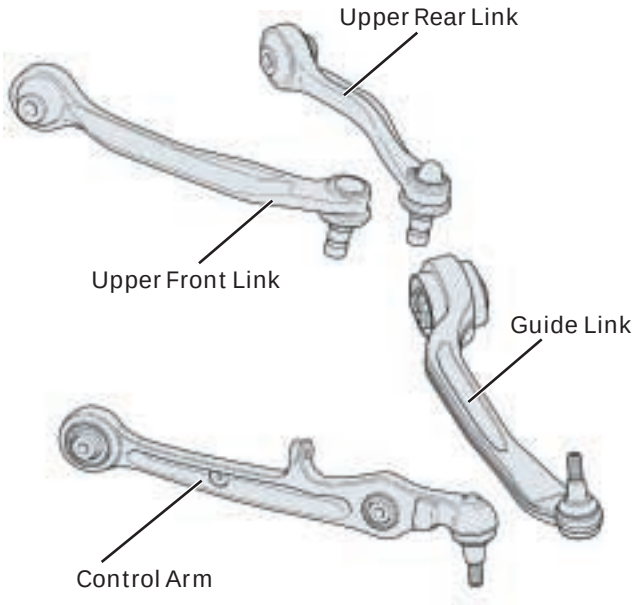
The mounting bracket is made of aluminum poral casting. It is bolted to the body and is used to support the Front and Rear Upper Links and the spring/shock absorber unit.



Note
Always follow the tightening sequence for securing the bolts of the mounting bracket to the body. See the Repair Manual for complete details.

Control Arms

The Upper Front and Rear Links, Control Arm and Guide Link are forged aluminum components. The Control Arms and Guide Link are larger because of the higher maximum axle load.

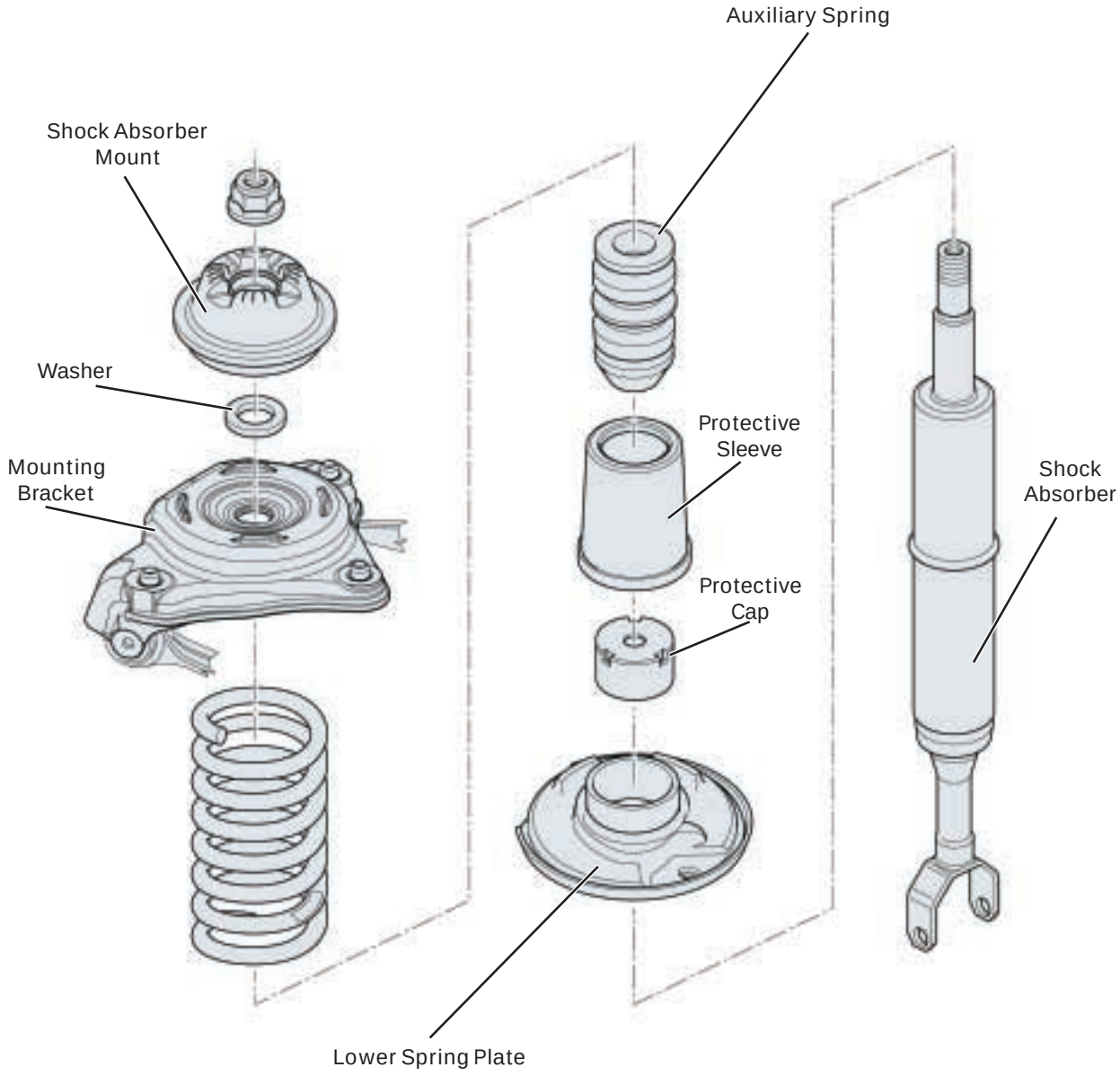


Note
Special tool T 40067 is used to secure the top control arms to the pivot bracket during repair procedures.

Spring/shock Absorber Unit

Twin-tube shock absorbers with linear steel springs are used.

The more vertical spring strut setting, compared to the previous A6 as well as the increased spring travel, results in significantly better response characteristics.



Note

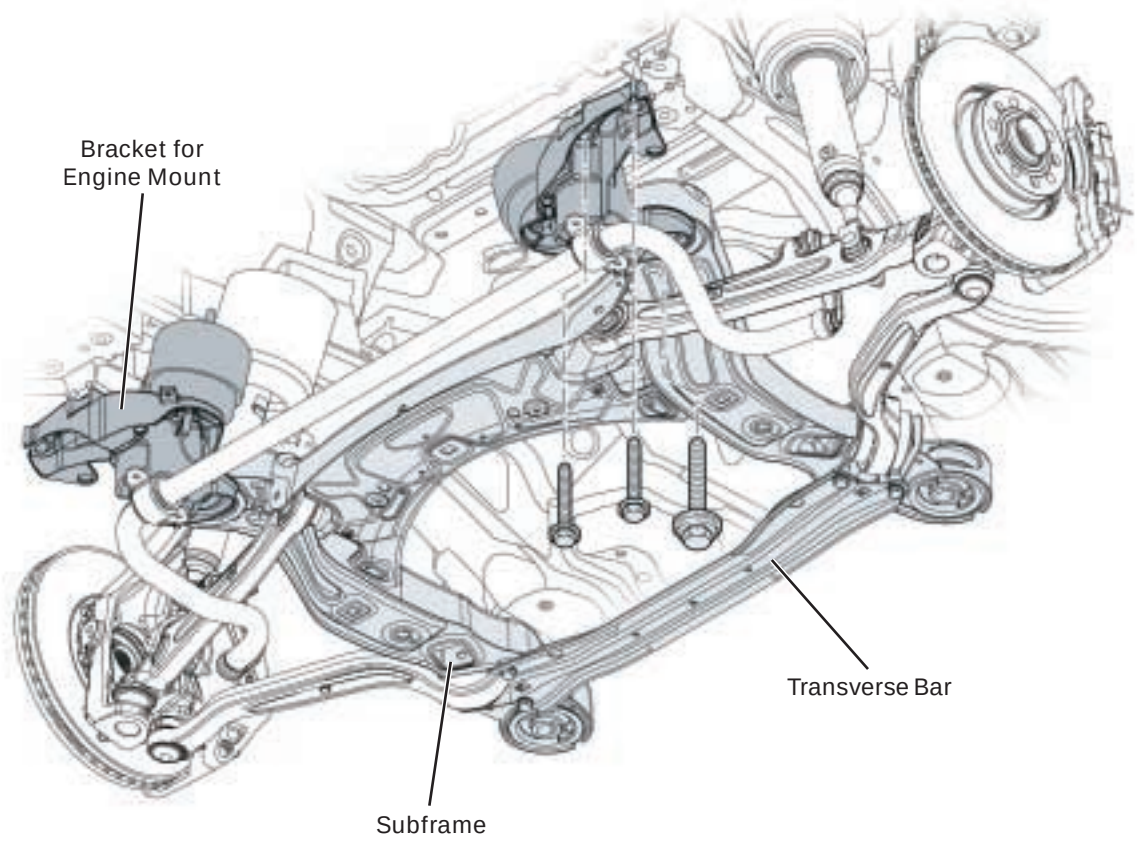
Different suspension version are available for the 2005 Audi A6. Always refer to the PR numbers on the vehicle data sticker to determine correct suspension.

Subframe

The subframe is a monocoque-constructed, welded part made of high-strength steel. To make it more rigid, the U shape is closed using a transverse bar bolted at the back.

A modified subframe is used for all vehicles with the 09L transmission. This transmission is mounted on two additional subframe brackets.

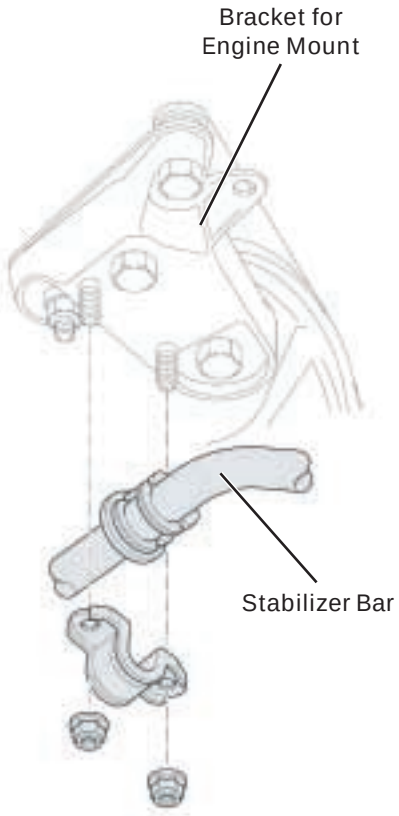
Larger rubber-metal mounts, ensure improved passenger compartment comfort in all driving conditions.

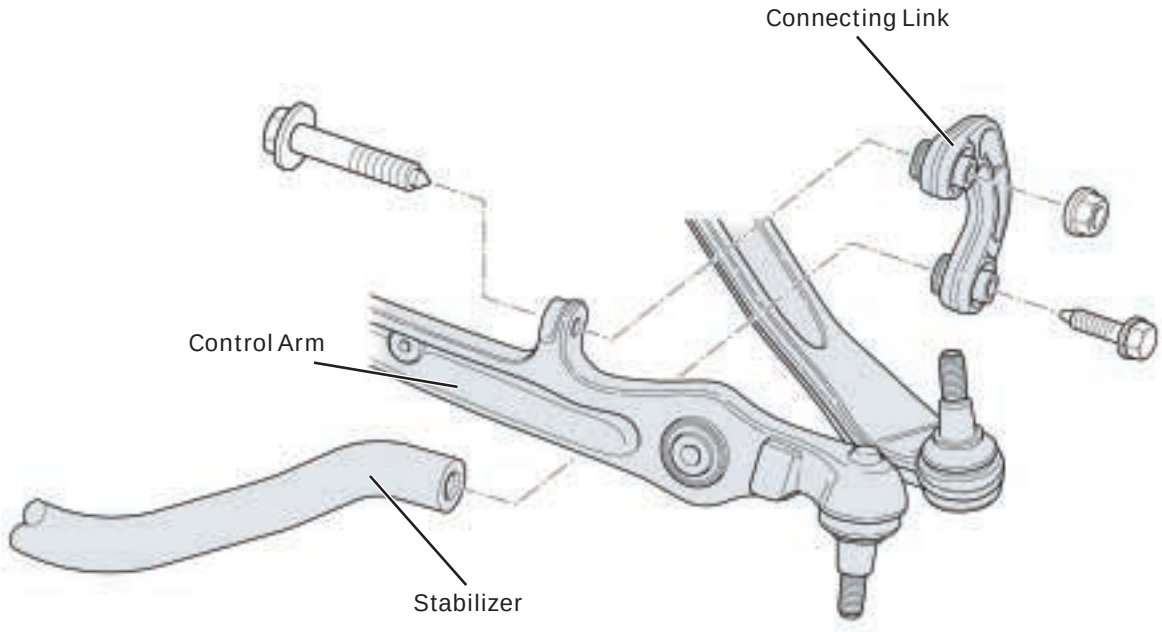


Front Stabilizer Bar

A tubular stabilizer bar is used on the 2005 Audi A6 to reduce weight.

The connecting Links that attach the Stabilizer Bar to the Control Arm are now made of a plastic composite material.





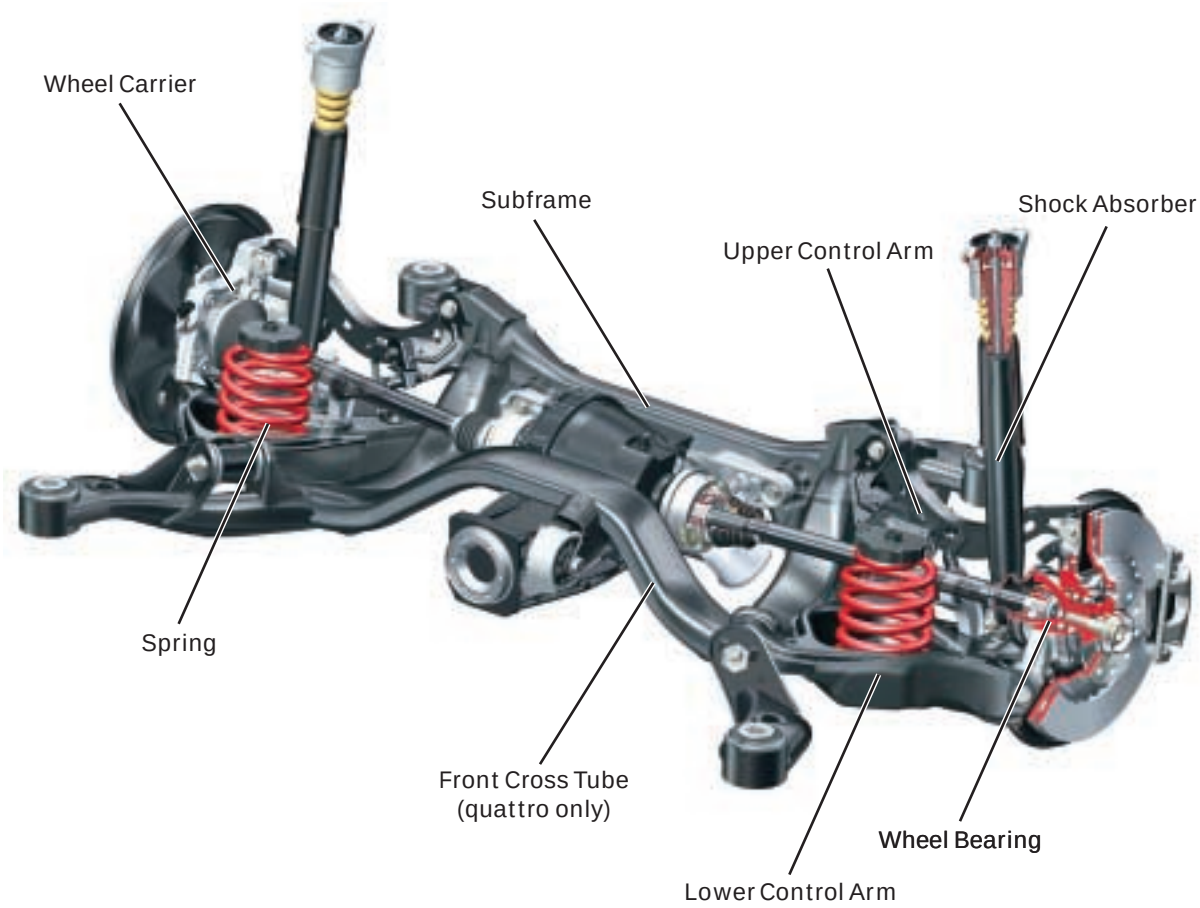
Rear Suspension

Overview

The rear axle is a further development of the familiar trapezoidal link design.

While similar in function and appearance, the change in geometric and kinematic characteristics necessitated new components.

The rear axle design will be similar for both quattro and FrontTrak® models. The quattro model will have an additional front cross tube for support and as a mounting point for the rear differential.

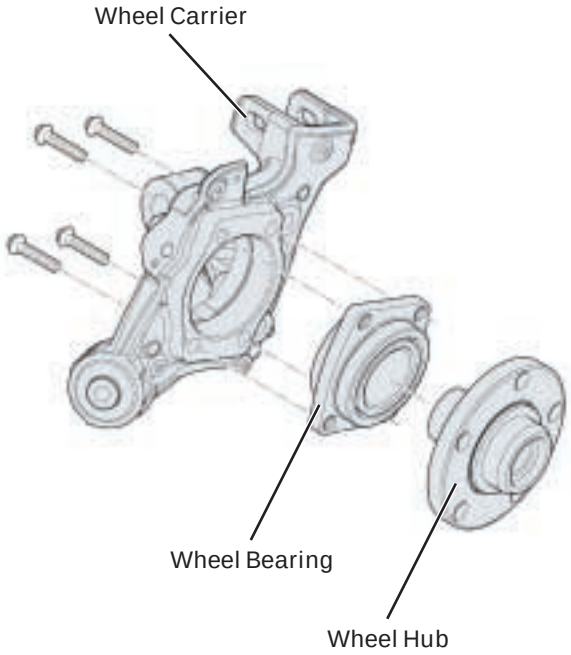


System components

Wheel Carrier

The wheel carrier is made of cast aluminum.

It is manufactured using the Cobapress method. A subsequent forging procedure is then performed while it is still hot. This achieves a very homogeneous material structure with high component strength.

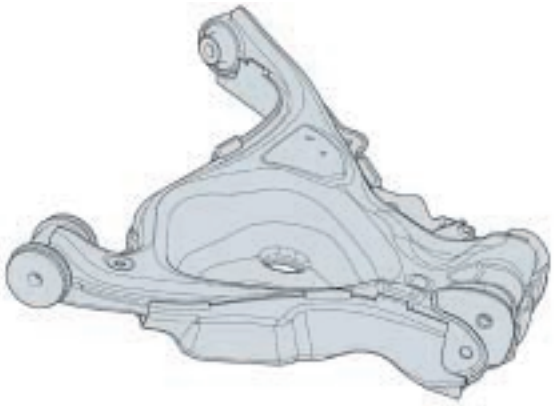


Wheel Bearings and Wheel Hubs

The wheel bearing and wheel hub form one structural unit. The wheel bearing diameters are different between frontrack and quattro models.

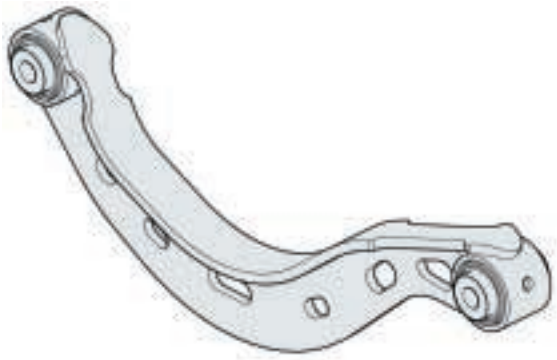
Lower Control Arm

The lower control arm is a trapezoidal design made of high-strength steel. It is the connecting element between the wheel carrier and the subframe. The control arms also have a plastic cover to protect it against stone/chipping damage.



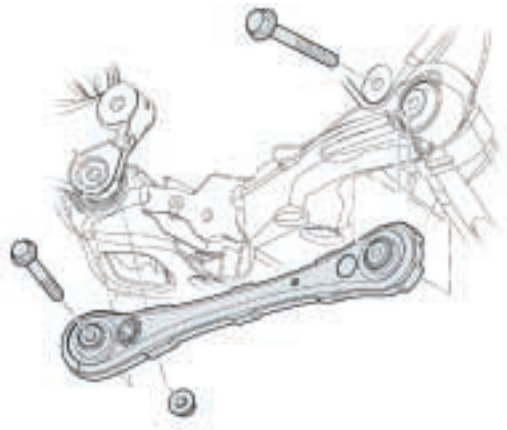
Upper Control Arm

The upper control arm is a steel welded part. The same parts are now used on the right and left axle side.



Toe Control Arm

The toe control arm is a steel part. It is used to control toe angle changes during suspension movement.

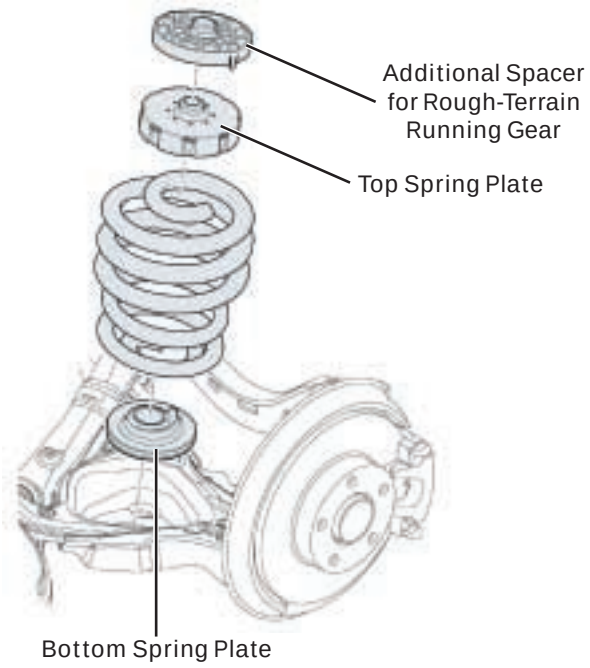


Spring

The spring has a linear operational characteristic. On vehicles with the optional rough-terrain running gear (not available in the North American market) additional spacers are mounted between the springs and body. This raises the ride height of the vehicle approximately 0.55 in (13 mm).

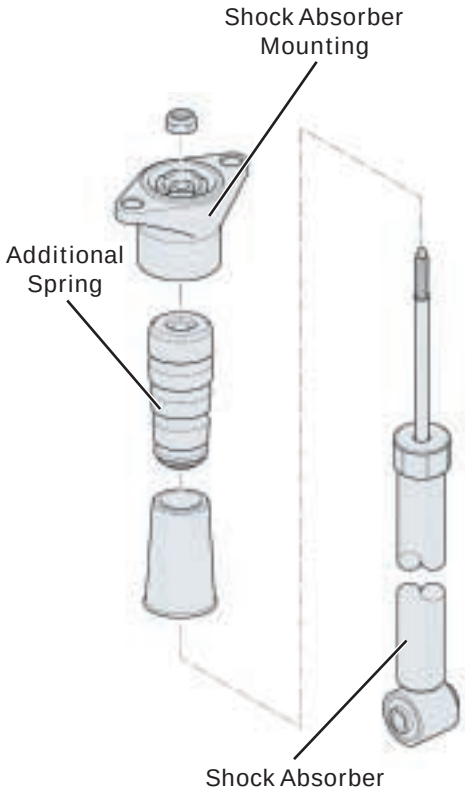
Note
Special tool VAS 6274 is used to compress the rear spring for removal.

See the Repair manual for the proper removal procedures.



Shock Absorber

A conventional twin-tube shock absorber is used.

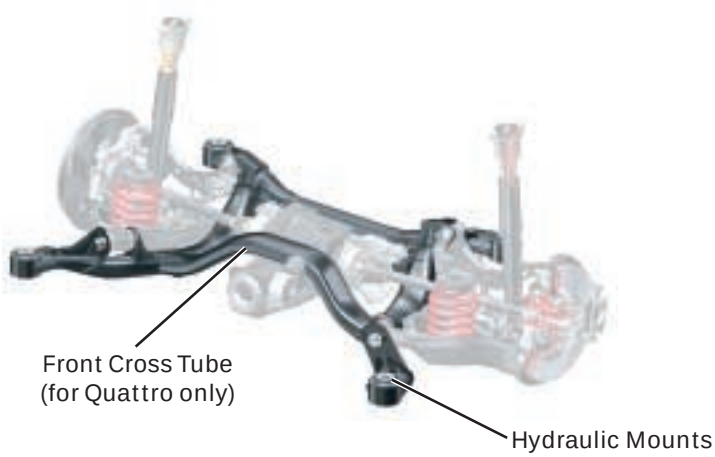


Subframe

The subframe is a welded construction made of internal high-pressure recast (IHU) parts.

The quattro subframe is only different from the front-wheel-drive variant in that it has a front cross tube, which is used for mounting the rear differential.

Four hydraulic mounts are used for mounting on the body. The mounts are not the same - the front and rear mounts have different elastic properties. The same mounts are used for front-wheel-drive and quattro vehicles.

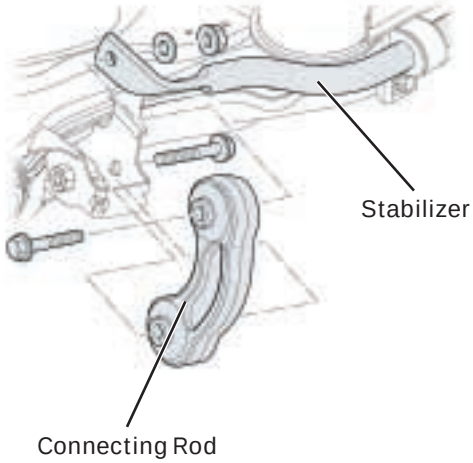


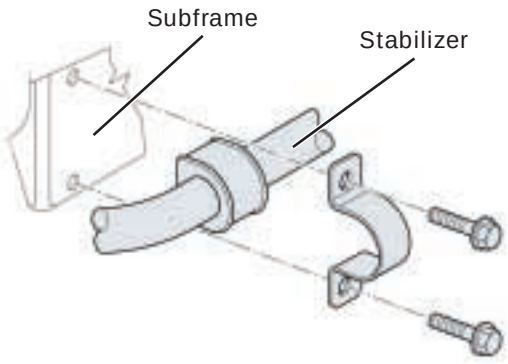
Note

The installation position of the mounts in the subframe is critical. Always refer to the Repair Manual for the correct installation procedures.

Stabilizer Bar

The stabilizer bar is mounted on the subframe in rubber mounts and is secured to the trapezoid control arms with rubber-cushioned connecting rods. Two different stabilizers are used. The stabilizer for the optional sport suspension vehicle has a higher torsion resistance.



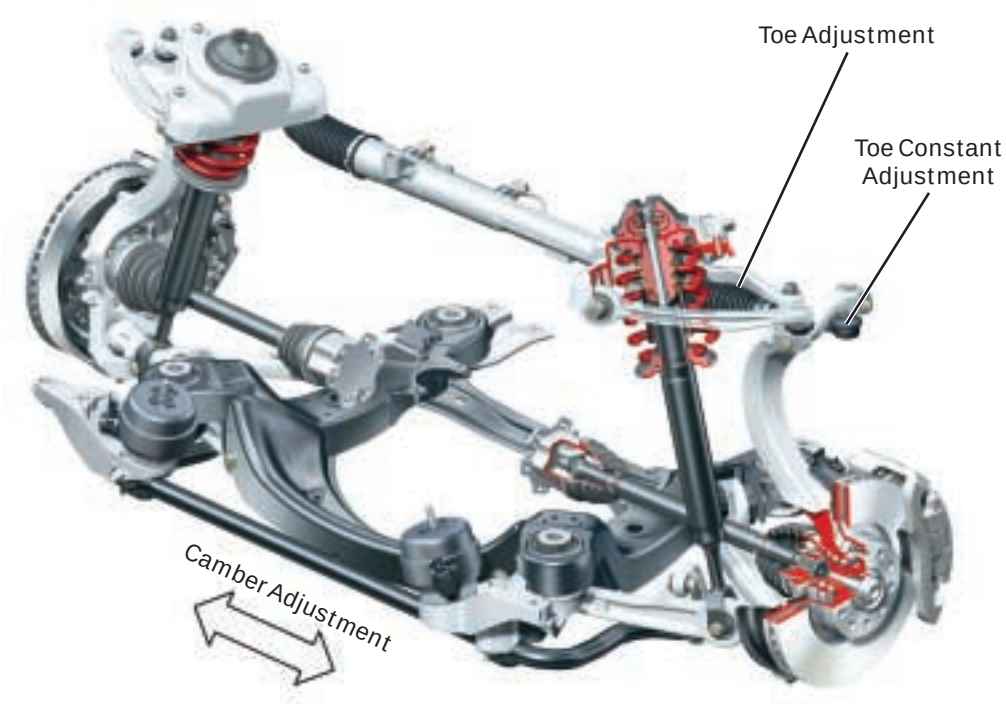


Adjusting the Front Axle

The basic procedure for aligning and adjusting the front axle is still the same.

Caster angles are not adjustable. Camber adjustment (equalizing camber to the proper specification) is accomplished by shifting the subframe and engine mounting brackets.

Individual toe angle adjustment and the raised toe angle adjustment must also be done. The alignment procedure must be performed on the VAS 1944.

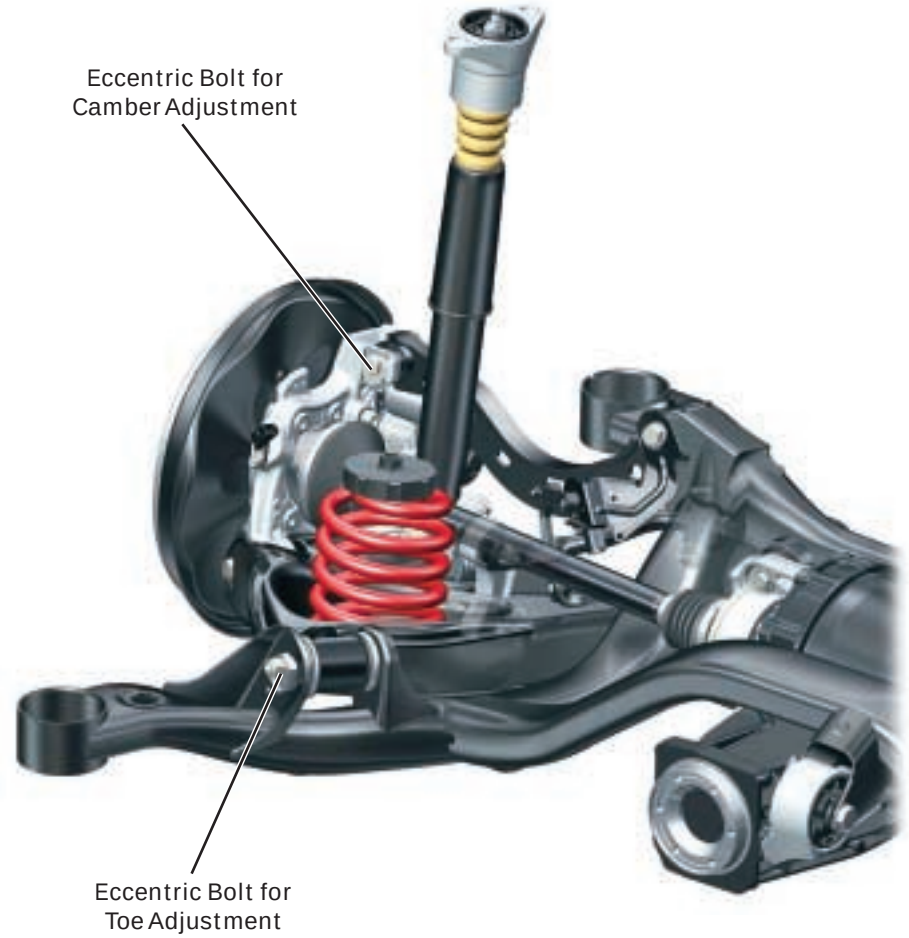


Adjusting the Rear Axle

The camber adjustment is performed with an eccentric bolt at the position at which the lower control arm is bolted to the wheel carrier.

Toe adjustment is performed at the front bolt securing the lower control arm to the subframe.

The adjust requires the use of a special tool. The toe adjustment bolt also has a protective cover that must be removed before adjustment can be done.



Front Brakes

Engine	3.2 V6 FSI	4.2 V8 MPI	3.0 V6 TDI
Minimum wheel size	16”	17”	16”
Brake type	FNR-G 60 16”	FNR-G 60 17”	FNR-G 60 16”
Number of pistons	1	1	1
Piston diameter (mm)	60	60	60
Brake disc diameter (mm) x thickness (mm)	321 x 30 Ventilated	347 x 30 Ventilated	321 x 30 Ventilated



Rear Brakes

Engine	3.2 V6 FSI	4.2 V8 MPI	3.0 V6 TDI
Minimum wheel size	16”	17”	16”
Brake type	Colette II C41	Colette II C43	Colette II C41
Number of pistons	1	1	1
Piston diameter (mm)	41	43	41
Brake disc diameter (mm) x thickness (mm)	302 x 12 Not Ventilated	330 x 32 Not Ventilated	302 x 12 Ventilated



Brake Master Cylinder

The piston diameter has been increased from 1.0 inch (25.44mm) to 1.06 inches (26.9 mm). The brake master cylinder is the same design as S4 and RS6.

By optimizing the internal design, it was possible to improve brake pressure metering.



Brake Booster

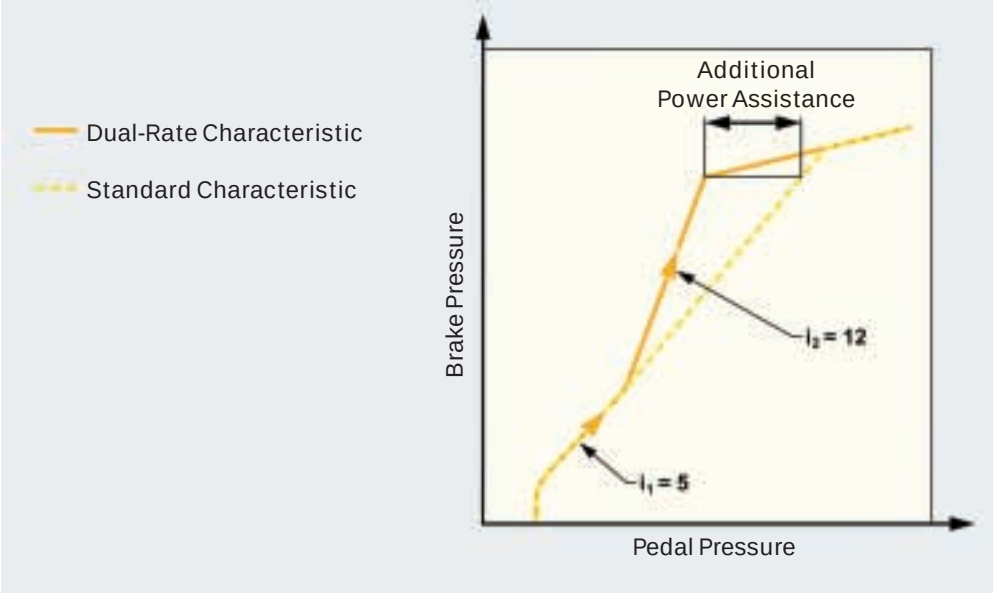
The brake booster operates according to the dual-rate principle.

The vacuum is supplied by the intake manifold.

The well-known electric vacuum pump UP-28 is used for the V8 engine with automatic transmission to improve the vacuum supply during engine warm-up.
A mechanical vacuum pump is used for the V6 and diesel engines.

Brake Fluid Reservoir

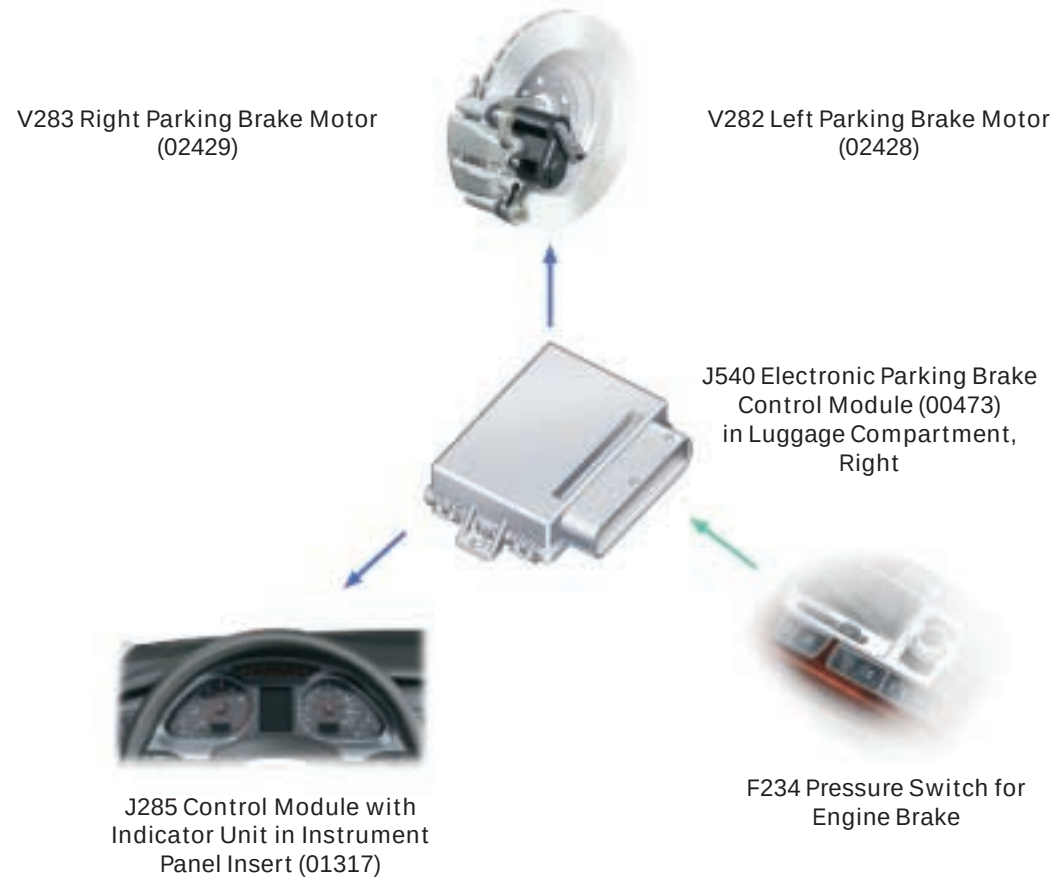
The brake fluid reservoir was adopted from the A4.



Electromechanical Parking Brake – EPB

Following its initial introduction in the Audi A8L, the electric parking brake EPB is now used in the 2005 Audi A6. The basic mechanical design, the boost factor levels and the general functionality are still the same. The adaptation of the EPB to suit the A6 has resulted in the new features described on the following pages.

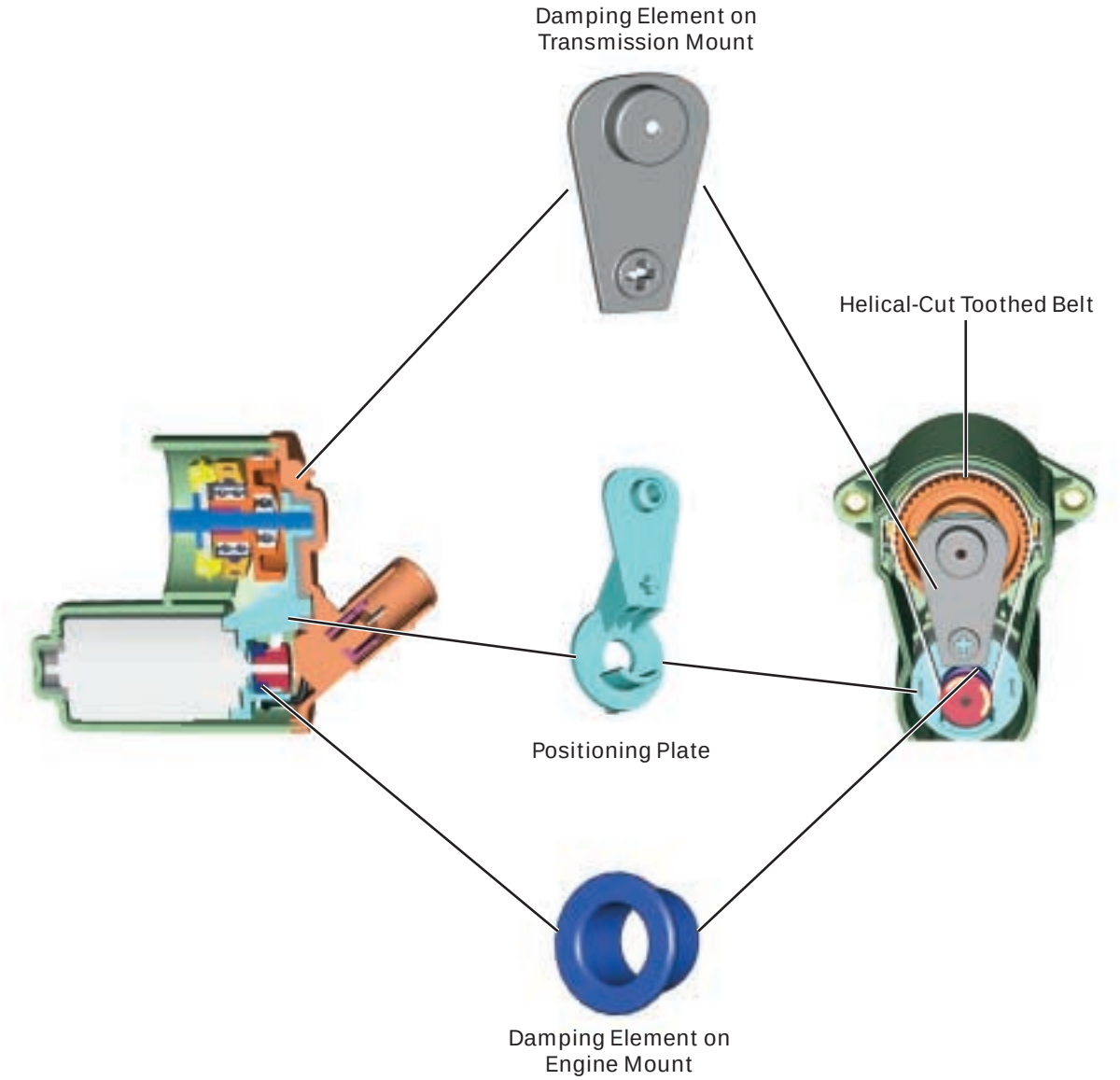




Left/Right Brake Motors V282/283

The actuating motor and gearbox are now mounted separately in two damping elements and thus separated from the brake housing.

The toothed belt for the gearbox drive is now helical-cut at a 2° angle. These measures significantly reduce the noise characteristic during operation.



The electrical connector is now plugged in directly at the locking motor. This makes assembly easier.

The number of revolutions and the current rotor position of the electric motor is no longer recorded. The control module essentially determines the motor cut-off point when the brakes are closed by evaluating the power consumption of the motor.

The correct amount of free play between the brake pad and the disc is set by evaluating the power and voltage pattern when the motor is activated. Complex control algorithms are stored in the control module for this purpose.



Note

Rear brake pad wear is no longer measured.

If the Electronic Parking Brake is not actuated for a long period of time, the free play increases as a result of brake pad wear from normal braking.

The Electronic Parking Brake Control Module J540 will initiate an automatic adjustment if no parking brake activation has occurred during the last 620 miles (1000 km) of driving. The adjustment is only carried out if the ignition is switched off, the gear selector lever is in the ‘P’ position, the steering column is locked and the parking brake not actuated.

EPB Fault Displays

The EPB fault displays in the instrument cluster and audible signal (gong) are now activated by the CAN Instrument Cluster. Without the discrete activation function, the driver in the control module with indicator unit in instrument panel J285 is no longer needed.

If faults occur with the Electronic Parking Brake system, the driver is alerted by displays in the instrument cluster and by an audible signal (gong).



DriveAssist

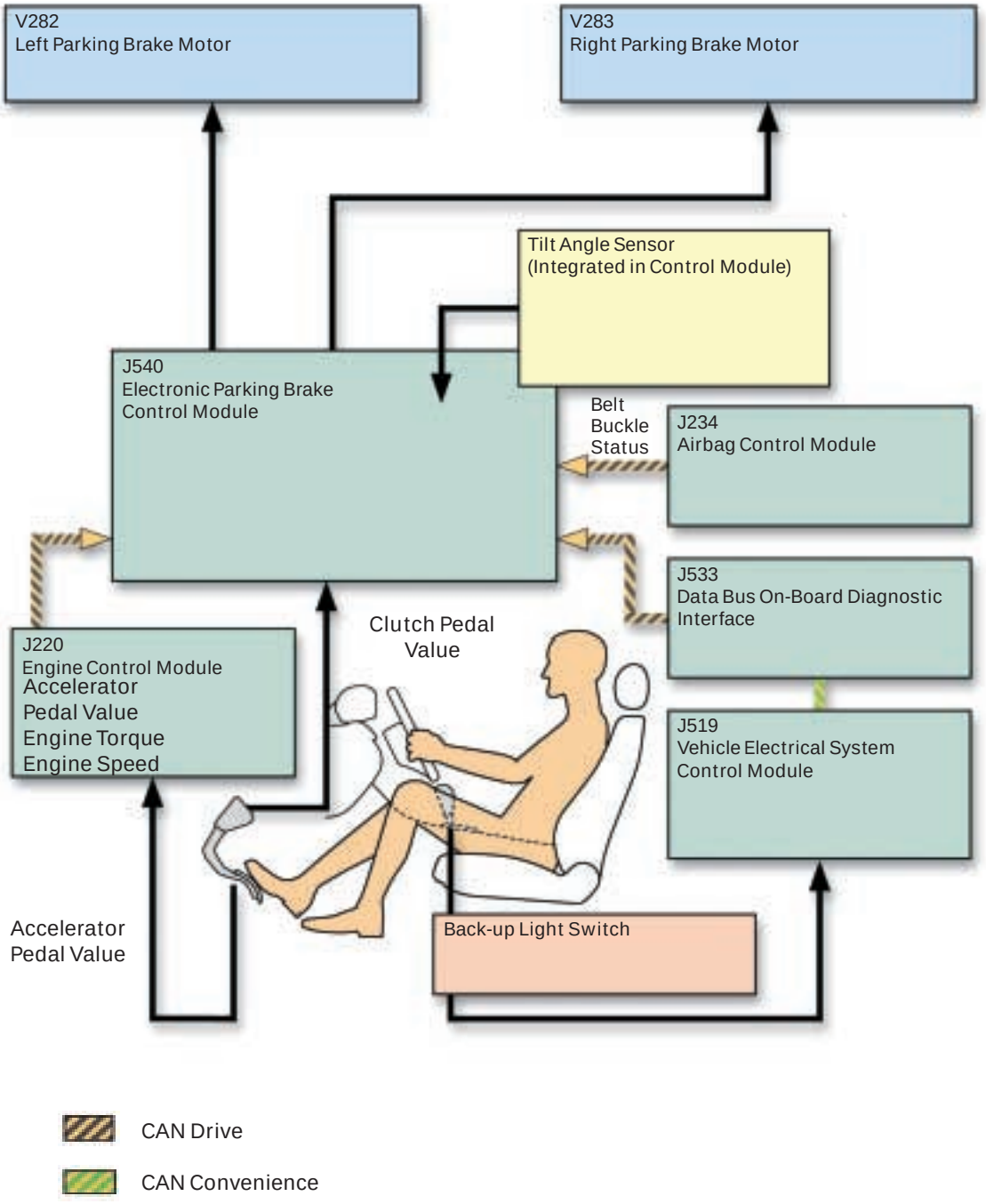
DriveAssist is a feature of ESP 8.0 that maintains the brake application for a short period of time while the driver moves his foot from the brake pedal to the accelerator pedal.

This feature is now available on vehicles equipped with manual transmissions. The release time of the brake application depends on the vehicle tilt angle, accelerator pedal position, clutch pedal position and clutch pedal movement speed.

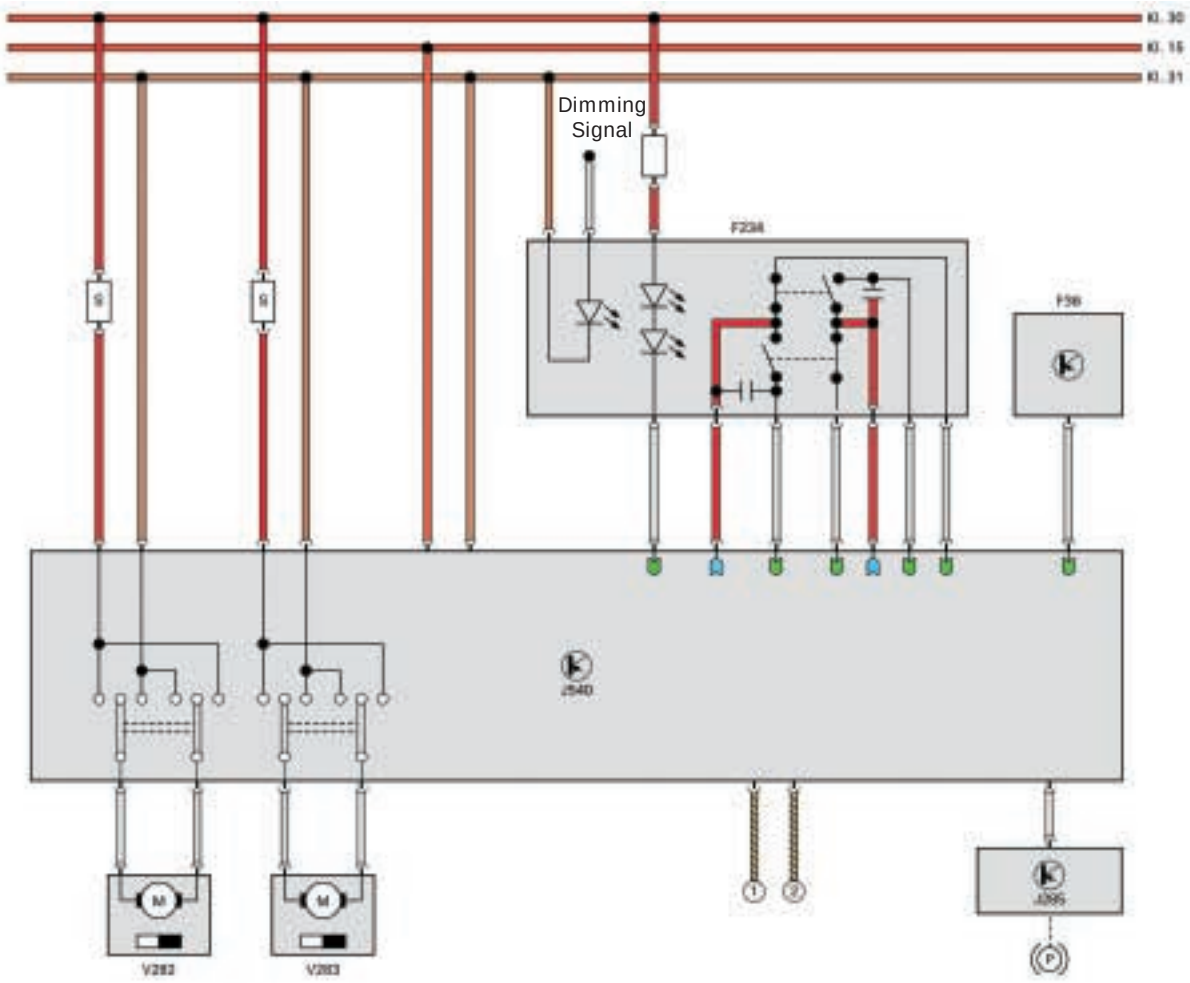
Electronic Parking Brake Control Module J540 calculates the clutch pedal movement speed through a specially developed contact-free sensor.

The control module also determines if the vehicle is moving forwards or backwards. By evaluating a CAN message from Central Control Module for comfort System J393, the Electronic Parking Brake Control Module can determine if the back up lights are on.

The DriveAssist function is only activated if the driver safety belt is fastened.


V282
Left Parking Brake Motor
V283
Right Parking Brake Motor
Tilt Angle Sensor
(Integrated in Control Module)
J540
Electronic Parking Brake
Control Module
Belt
Buckle
Status
J234
Airbag Control Module
J533
Data Bus On-Board Diagnostic
Interface
J519
Vehicle Electrical System
Control Module
J220
Engine Control Module
Accelerator
Pedal Value
Engine Torque
Engine Speed
Clutch Pedal
Value
Accelerator
Pedal Value
Back-up Light Switch
CAN Drive
CAN Convenience

Function Diagram



F234	Pressure Switch for Engine Brake
F36	Clutch Pedal Switch (00650)
J540	Electronic Parking Brake Control Module (00473)
J285	Control Module with Indicator Unit in Instrument Panel Insert (01317)
V282	Left Parking Brake Motor (02428)
V283	Right Parking Brake Motor (02429)

Input Signal

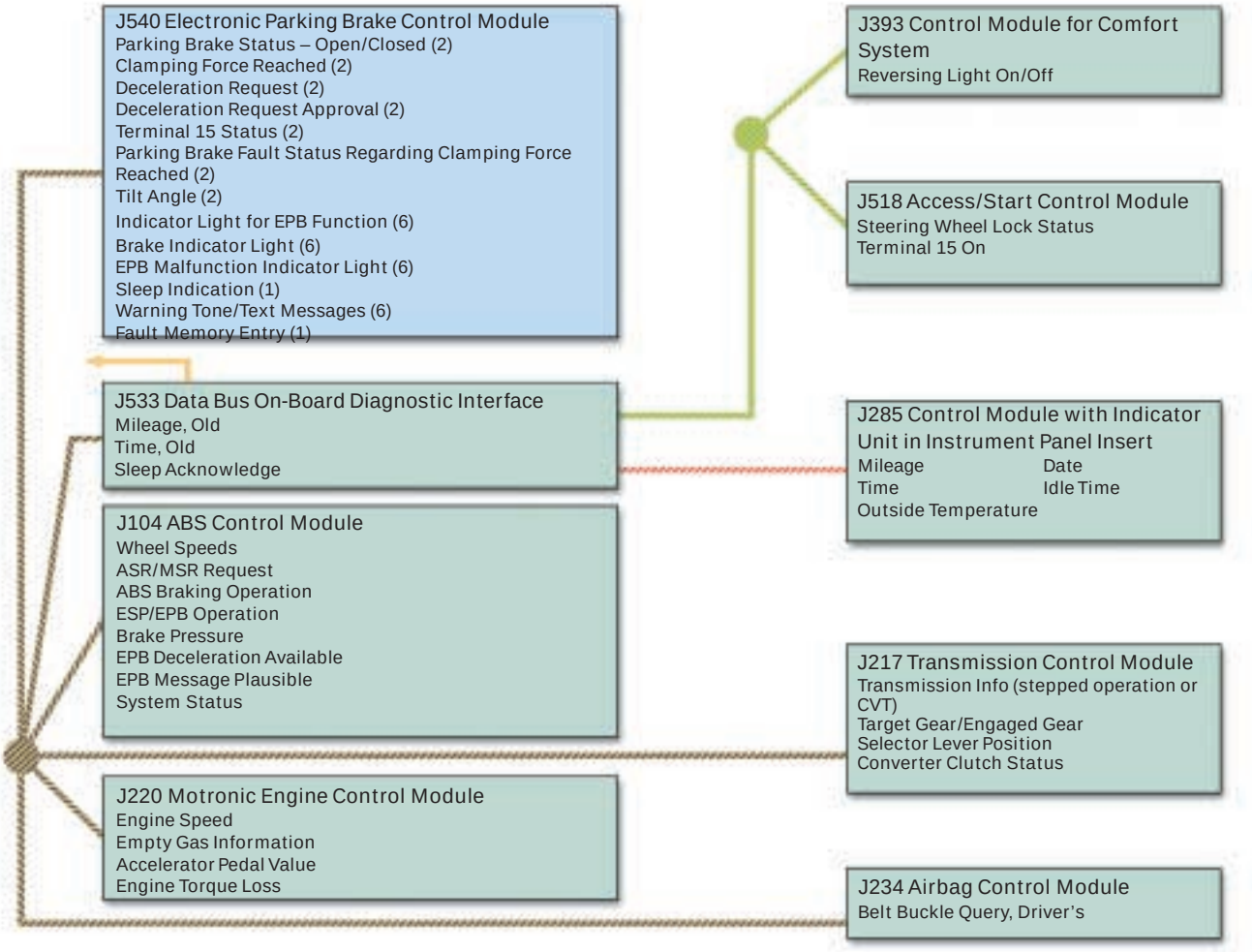
Output Signal

Positive

Ground

CAN Drive

CAN Data Exchange



Information Sent by Control Module J540

Information Received and Evaluated by Control Module J540

CAN Drive

CAN Convenience

CAN Instrument Cluster

CAN Diagnosis

A new ESP generation from Bosch in the form of ESP 8.0 is used in the 2005 Audi A6.

The basic functions from other Audi models have been adapted to suit the A6.

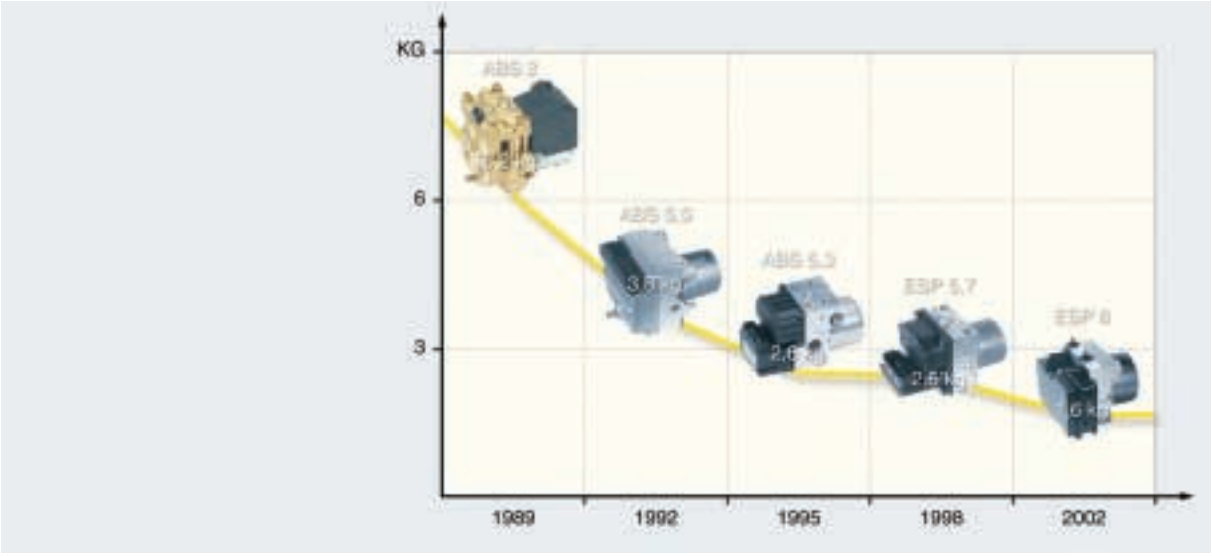
The basic functionalities of the sub-functions EBV, ABS, ASR, MSR, EDS, ESP and ECD are the same as in the ESP version 5.7.

Design and Function

Changes Compared with ESP 5.7

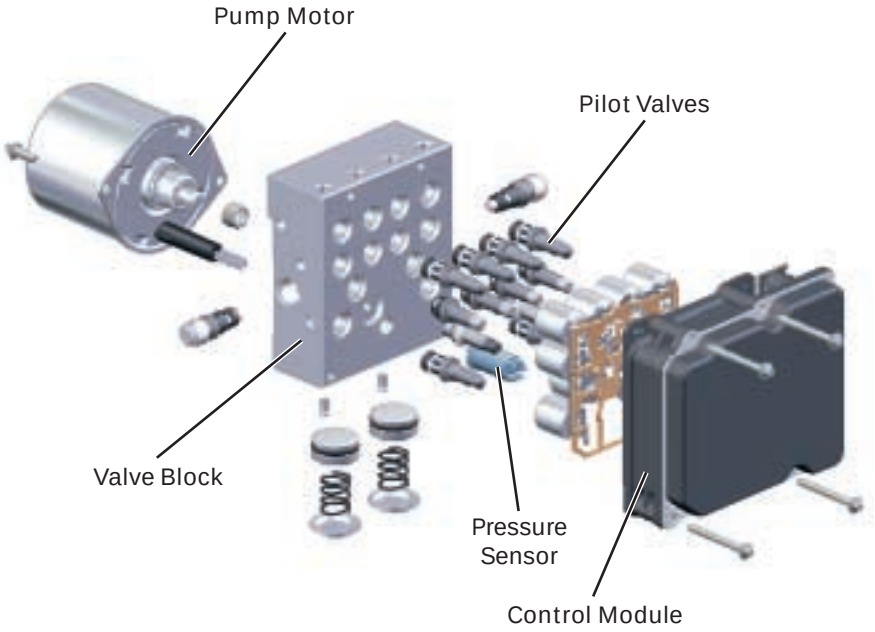
The hydraulic unit and ABS Control Module J104 are now lighter 3.52 lb. (1.6 kg) and smaller as a result of further miniaturization of the electronics. At the same time, the hydraulic efficiency has been improved significantly.

The computing power has been increased significantly through the use of a new micro-controller family and a more efficient processor. Now, the control module can be flashed.



The control module and hydraulic unit cannot be separated. This aids in reducing the amount of wiring and ancillary components needed. Two versions of ESP 8.0 are used depending on whether the vehicle is a quattro of Frontrack model.

The sensor measures the brake pressure at the input of the Hydraulic Control Unit in the primary circuit.



The ESP-Sensor Unit G419 still contains the sensors G200 Sensor for traverse acceleration, and G202 Sender for Rotation Rate. It is installed on the tunnel in the center console. The sensor unit now communicates with the control module through a private CAN.

The Private CAN is a high-speed CAN, which supports real time. In spite of nominally similar data transfer rates to those on the CAN Drive, the private CAN assures very fast data transmission between the sensor unit and the ABS Control Module at a virtually constant speed.



Additional Features

While traveling in rain or snow, the front brake pads are applied periodically (every 185 seconds) to the brake discs at a minimum pressure 7.25 psi - 21.8 psi (0.5 - 1.5 bar) for a short time (approx. 2.5 seconds). This cleans the brake pads and discs, thereby improving braking response. However, the windshield wiper must be switched on and the vehicle speed must be greater than 43.5 m.p.h. (70 km/h).

The “hill holder” function is used for vehicles with Multitronic transmission. If the driver takes his foot off the brake pedal after stopping on a slope, the momentary braking pressure is kept constant by closing the ABS outlet valves. If the driver puts his foot on to the accelerator pedal within a time period of max. one second, the brake is then opened if the available engine torque is sufficient to prevent the vehicle from rolling back.

If the accelerator pedal is not pressed immediately after letting off the brake pedal, the brake is opened again after one second. This function helps the driver to take off again after stopping for a short time on a slope. Unlike “traditional” automatic transmissions, Multitronic transmissions do not have a creep function for when the vehicle is stationary and in gear.

The opening cross-section of the ESP switch-over valves can now be varied by changing the activating signal as required. As a result, the brake pressure can be regulated more specifically, operating noise is reduced and pulsations on the brake pedal are significantly reduced.

Pushing the ASB/ESP Button E256 has the following results:

Pressing the button quickly (3 seconds) at a driving speed of less than 31 m.p.h. (50 km/h) deactivates ASR. ASR is automatically activated again if a driving speed of 31 m.p.h. (50 km/h) is exceeded. Improved traction for driving on loose ground (e.g. snow) is achieved by deactivating ASR.

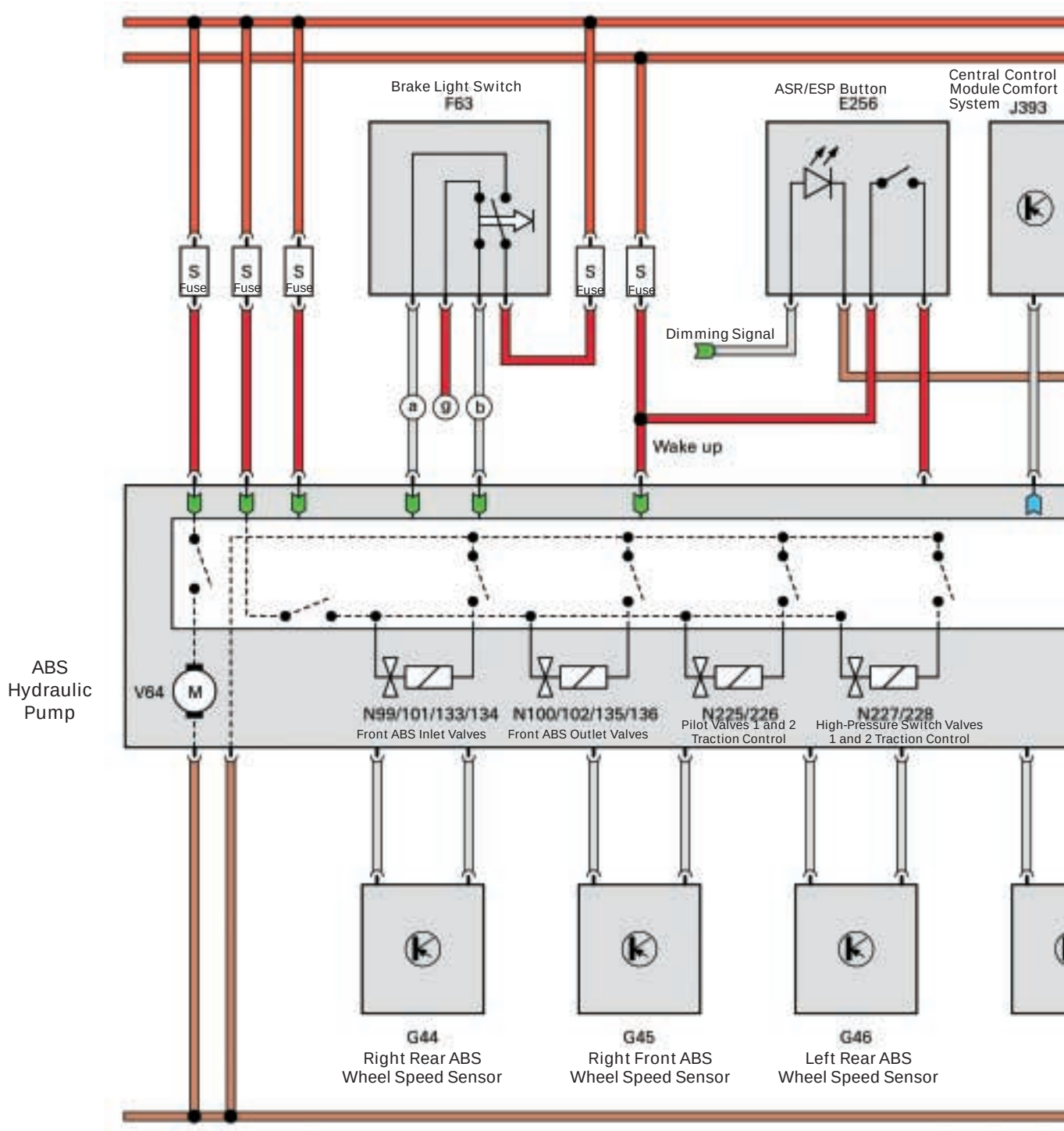


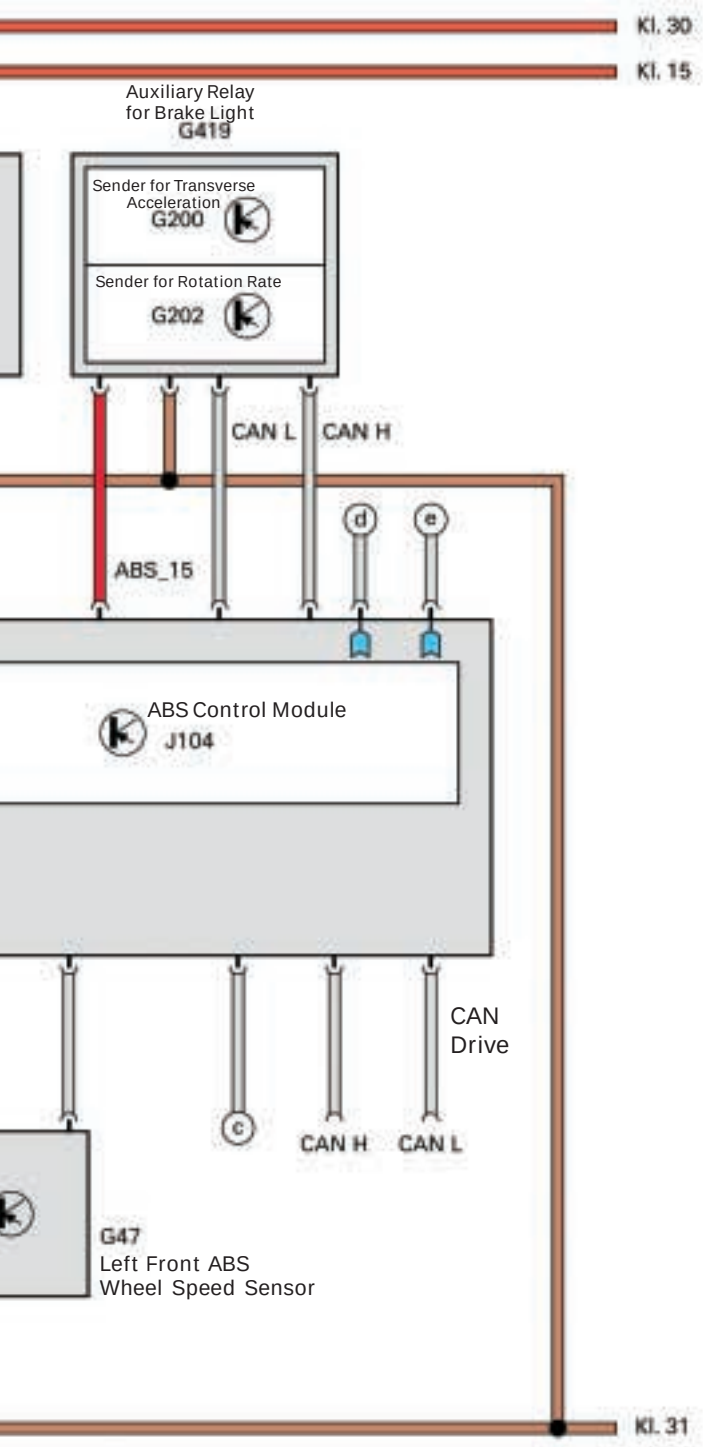
If the button is pressed for longer than 3 seconds, the ESP function is deactivated. ESP remains deactivated, even with subsequent braking. The deactivation of these functions is also indicated in the central display of the instrument panel insert.



If the button is pressed for longer than 10 seconds, ESP is automatically activated again and can only be deactivated again by switching the ignition off and then back on.

Functional Diagram





J104	ABS Control Module
J393	Central Control Module for Comfort System
G419	ESP Sensor Unit
G200	Sensor for Transverse Acceleration
G202	Sender for Rotation Rate
E256	ASR/ESP Button
F63	Brake Light Switch
S	Fuse
G44/45/ 46/47	ABS Wheel Speed Sensors
V64	ABS Hydraulic Pump
N99/101/ 133/134	ABS Inlet Valves
N100/102/ 135/136	ABS Outlet Valves
N225	Pilot Valve 1 Traction Control
N226	Pilot Valve 2 Traction Control
N227	High-Pressure Switch Valve 1 Traction Control
N228	High-Pressure Switch Valve 2 Traction Control
a	Brake Light Switch Signal
b	Brake Test Switch Signal
c	Plug Coupling for Retrofitting, Wheel Speed Gauge Signal
d	Signal from Rear Right Speed Sensor
e	Signal from Rear Left Speed Sensor
g	Motronic Power Supply Relay

Input Signal

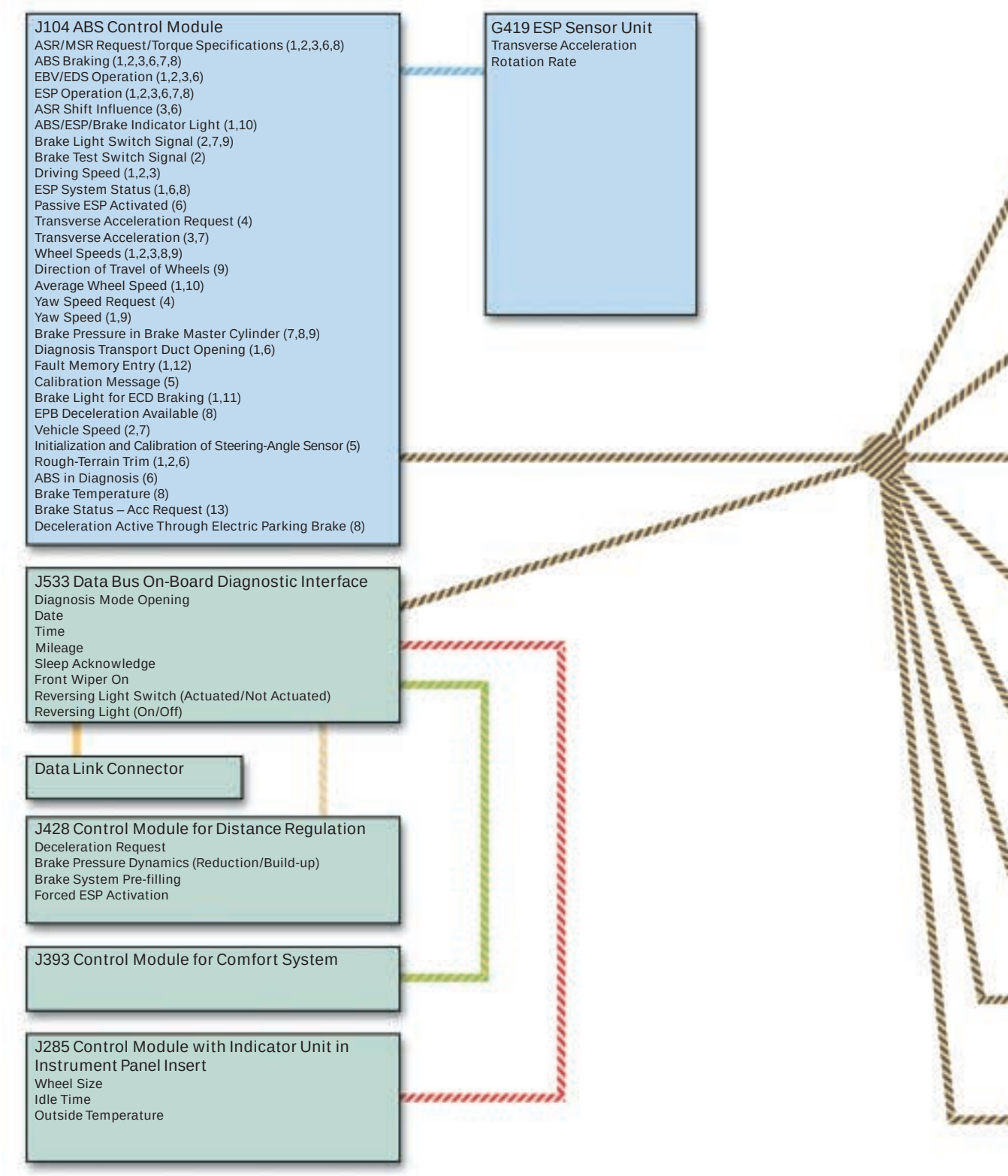
Output Signal

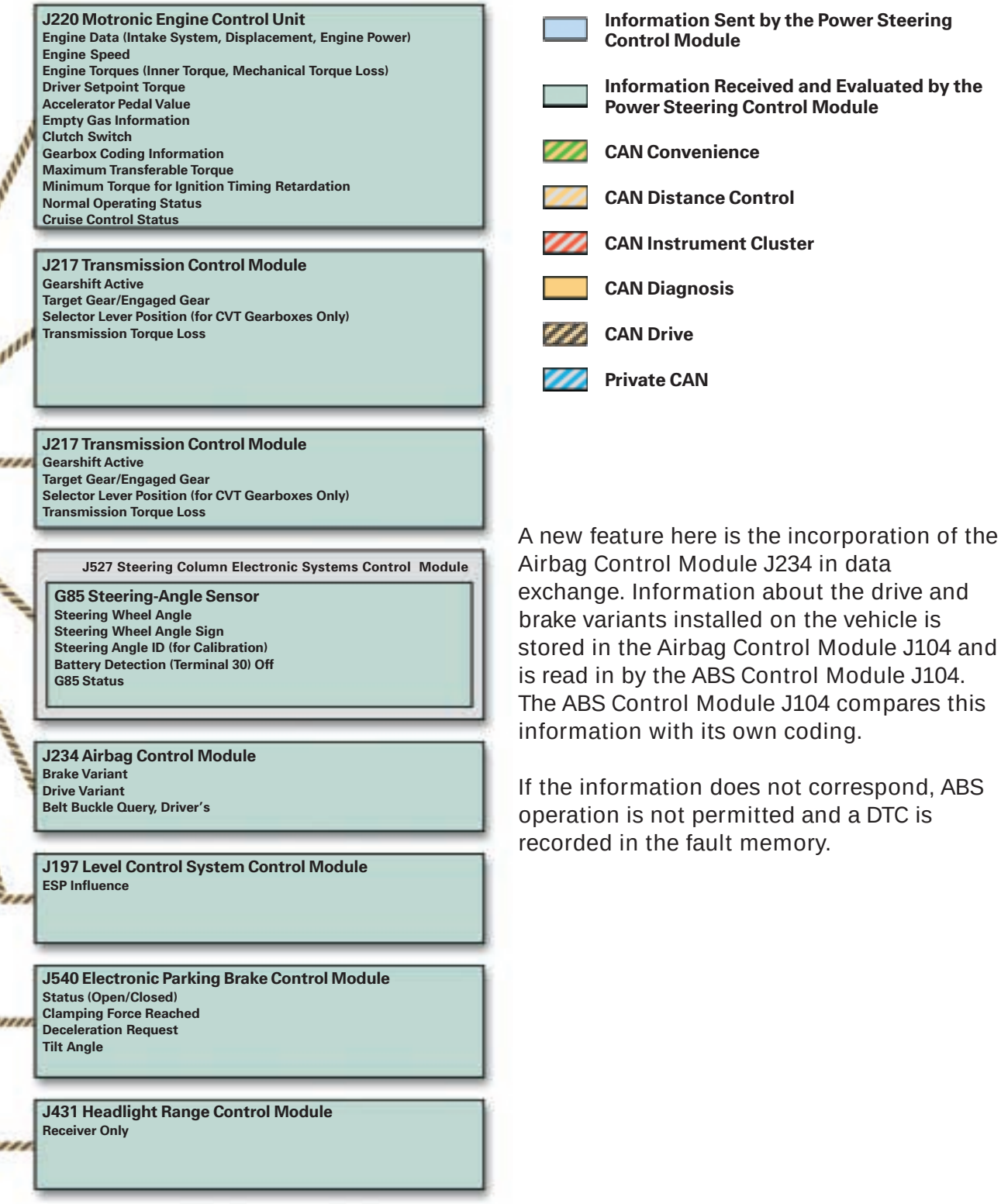
Positive

Ground

CAN Drive

CAN Data Exchange





A new feature here is the incorporation of the Airbag Control Module J234 in data exchange. Information about the drive and brake variants installed on the vehicle is stored in the Airbag Control Module J104 and is read in by the ABS Control Module J104. The ABS Control Module J104 compares this information with its own coding.

If the information does not correspond, ABS operation is not permitted and a DTC is recorded in the fault memory.

Significant Changes Compared with ESP 5.7

The following service topics have been changed significantly compared with ESP 5.7:

- Calibration of the Steering Angle Sensor G85 is no longer tied in with coding the ABS Control Module J104.
- The login code is no longer entered for coding the ABS Control Module J104 Vehicle Self Diagnosis. Before coding the ABS Control Module J104, the drive and brake variants must be coded in the ABS Control Module J104.
- Measured-Value Blocks with extended scope.



Reference

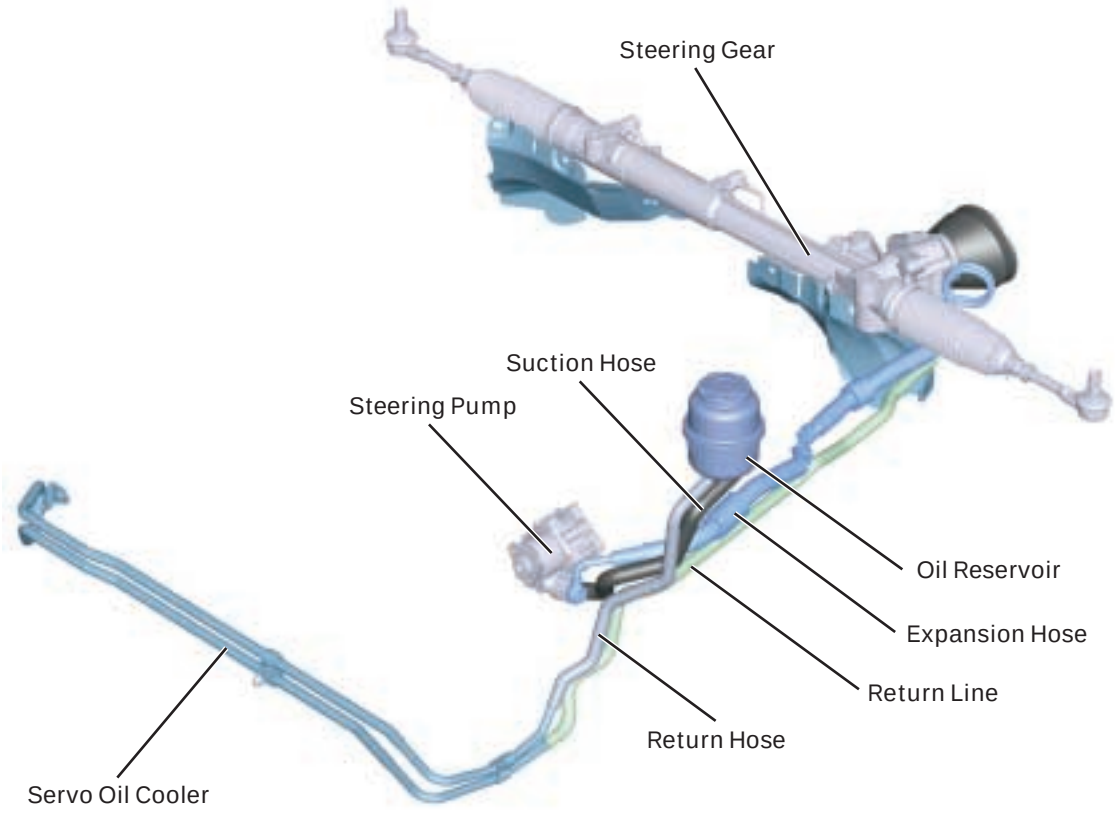
For a detailed description of the range of services available, see current Repair Manual.

Overview

The 2005 Audi A6 has Servotronic II power steering as standard equipment. Different steering gears are used depending on the engine and transmission variation being used in the vehicle. However, both versions function exactly the same way.

The hydraulic oil return system has been modified to reduce oil temperature when the steering wheel is held in a lock position. New manufacturing processes have minimized the tolerances of the operating valves.

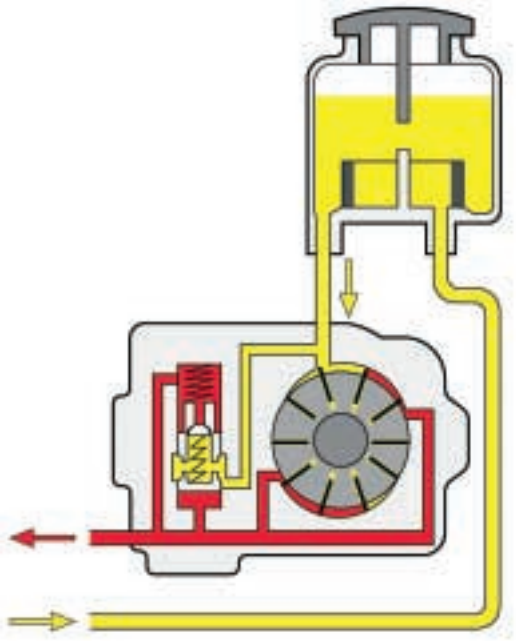
In addition, a new lubricant is used on the tie rod ends.



System Components

Steering Pump

The vane-type pumps FP4 and FP6 are used in the 2005 Audi A6. The operation is similar to that of the Audi A8L.



Engine	Pump Type	Maximum Pump Pressure (Bar)	Feed Volumes (cm^3/rev)	Direction of Rotation
3.2 liter V6	FP4	120	125	Right
4.2 liter V8 MPI	FP6 Chain Drive	123	13	Left
3.0 liter V6 TDI	FP4	123	11	Right

Steering Gear

Four different types of steering gear are used. There are geometric differences between right and left-hand drive vehicles.

In addition, steering gears with more direct transmission ratios and bigger track rod joints are used for the eight-cylinder engine.

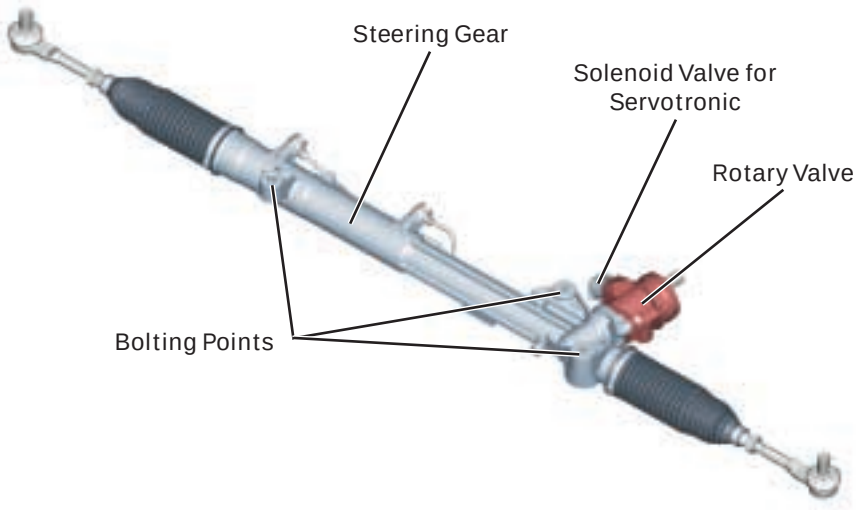
Generally, a constant conversion of steering wheel movement into track rod stroke movement is achieved.

The piston diameter of the steering gear is 1.7 inches (44 mm).

The rotary valve is bolted to the aluminum-cast steering gear housing as a separate component. The steering gear is connected to the bottom of the radiator tank with three bolts.

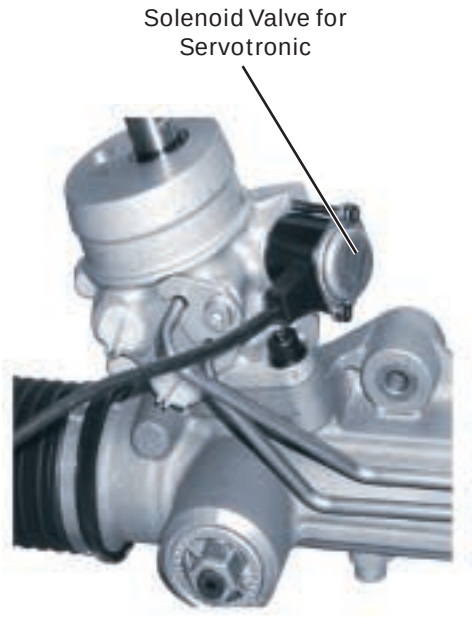
Note

If repairs are needed, the entire steering gear/rotary valve unit must be replaced.



Servotronic Solenoid Valve

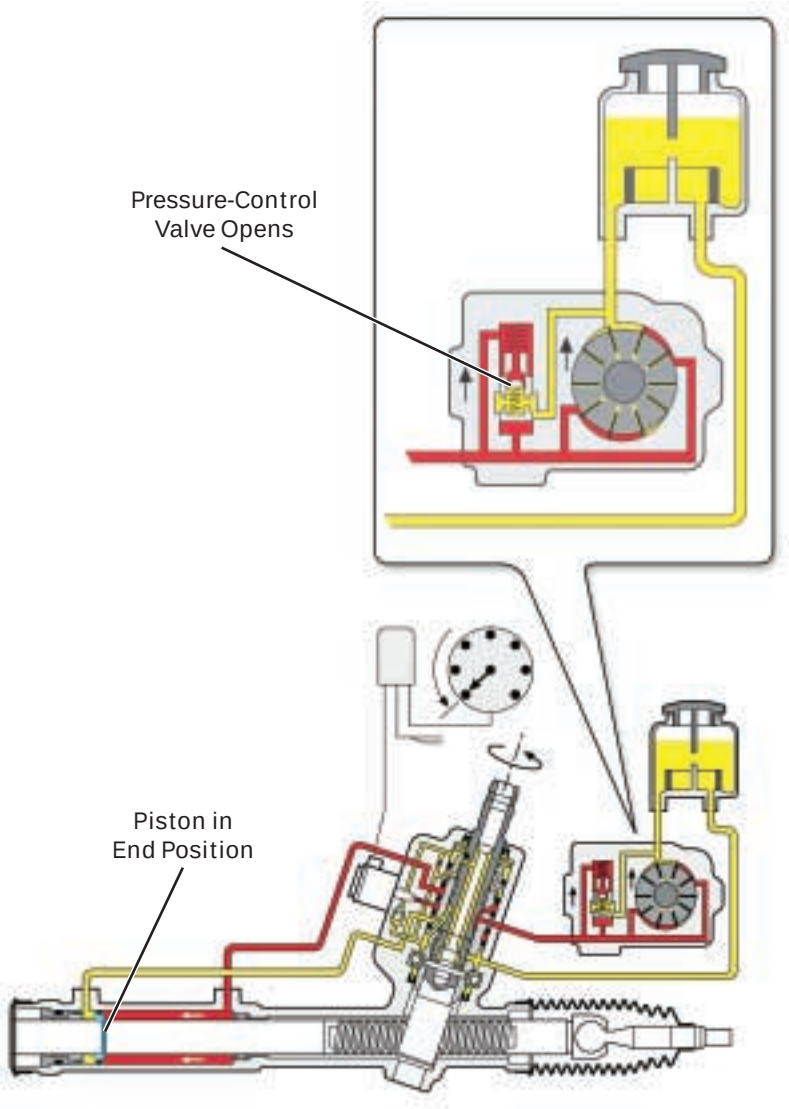
The Vehicle Electrical System Control Module J520 activates the Solenoid Valve for Servotronic. The speed input signal for the control module is from ABS Control Module J104.



The functionality of the solenoid valve for Servotronic is also used in the 2005 A6 for the first time to reduce the thermal load of the steering pump.

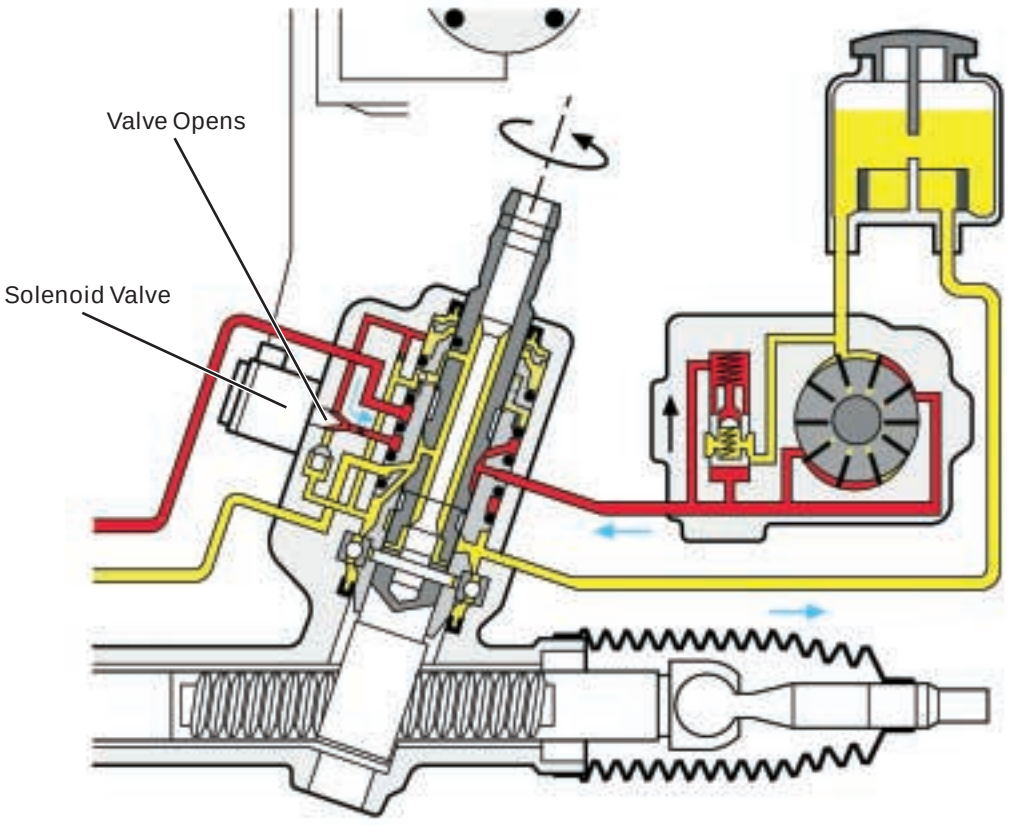
The highest thermal load on the pump occurs when the steering is held at the lock position. The end position of the piston in the steering gear is then reached, but the pump continues to supply oil.

This increases the pressure until the pressure-control valve in the pump opens. The pump then feeds via short circuit. This means that the supplied oil travels back to the intake side of the pump the short way via the pressure-control valve. This increases the oil temperature significantly in a short space of time.



In this situation, the control module supplies more power to the solenoid valve. The opening cross-section of the valve becomes larger than the actual driven speed requires. As a result, an additional oil stream flows to the tank via the open valve. On its way, the oil gives off heat to the surrounding area.

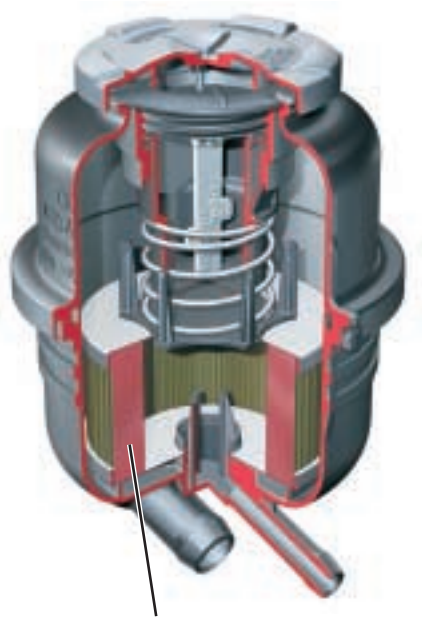
This reduces the oil temperature. The control module determines the time and amperage for activating the solenoid valve based on the steering angle CAN message from the Steering Angle Sensor G85. Control is only active at speeds of up to 6.2 m.p.h. (10 km/h)



Additional Oil Stream through the Open Solenoid Valve for Servotronic

Oil Reservoir

The oil reservoir is equipped with a fine filter. Thus, dirt and wear particles are effectively kept out of the hydraulic system. This significantly reduces wear, especially on the pump, steering valve and piston seals.



Mechanically Adjustable Steering Column

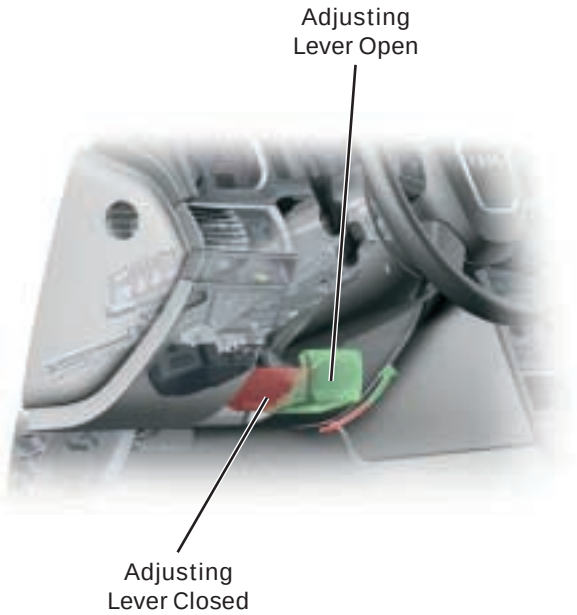
The steering column can be adjusted smoothly in both length and height.

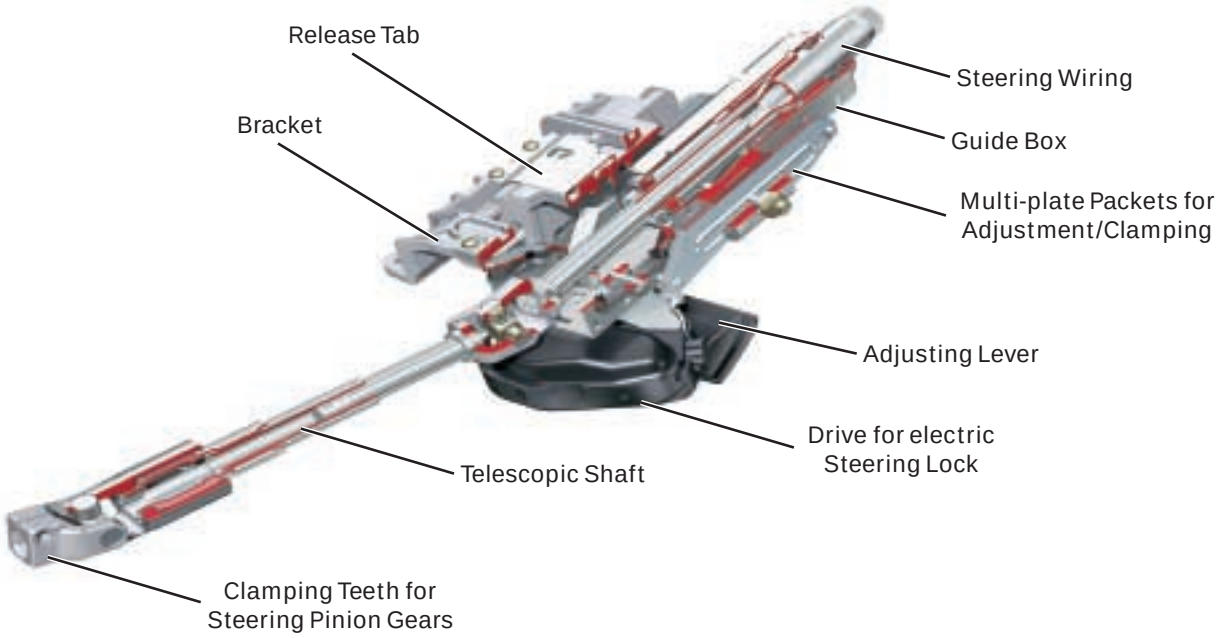
The adjustment range is 1.9 in (50 mm) length-wise and 1.5 in (40 mm). in height.

The steering column is locked by multi-plate packets. When the steering column is locked, the plates are locked together by an eccentric bolt.

The actuating lever for adjustment is located outside of the critical area for knee impact in the event of a front crash. The opening kinematics were adapted in order to implement this position.

The lock is now opened by pulling the lever towards the driver.





Electrically Adjustable Steering Column

The basic design is the same as the mechanically adjustable steering column.

The electrically adjustable column functions the same a the system used on the 2004 A8L. For further details, please see Self-Study Program 997303, A8L Chassis.



The design and function of the electrically adjustable steering column for the 2005 A6 is the same as the of the 2004 A8L.

Vehicles equipped with the Advanced Key System are only available with the electrically adjustable steering column. The only significant difference is that the electric drive for the lock has been modified.

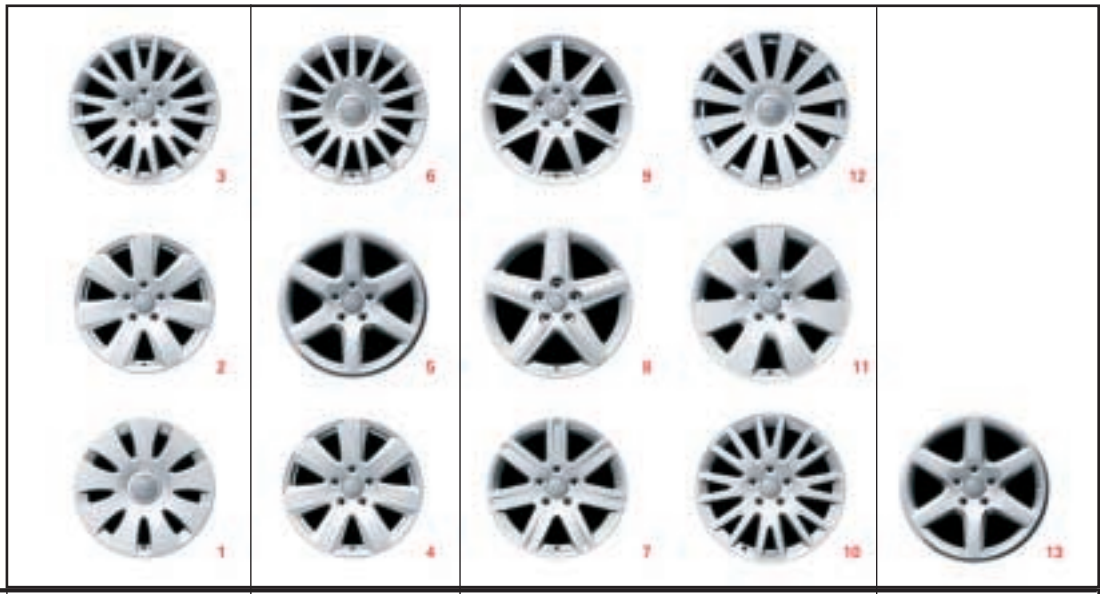
The control module for the lock drive now also performs all the functions for the vehicle access/start authorization.

Steering wheels for the 2005 Audi A6 feature not only the familiar Audi rings but also the outline of the new front grille. The technical design and operation of the wheel and airbag is similar to that of the 2004 A8L.





Wheel Program

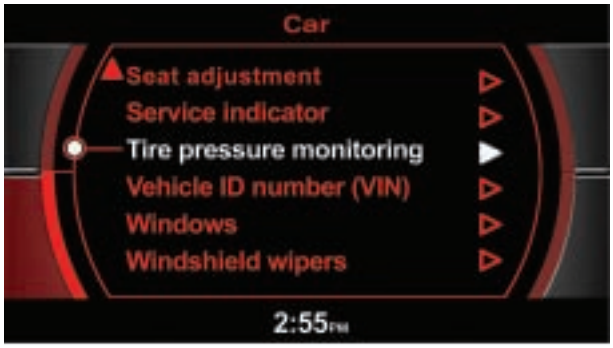


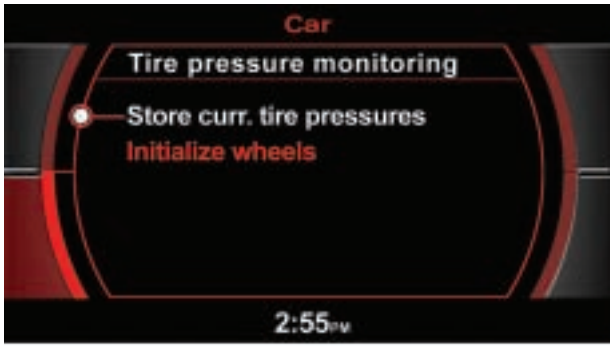
Engine	Basic Wheels	Winter Wheels	Optional Wheels		PAX Emergency-Run Systems
4 and 6-cylinder	7J x 16 ET 35 (1) Cast alum. wheel 205/60 R16	7J x 16 ET 42 (4) Forged alum. wheel 205/60 R16 or 225//55 R16	7.5J x 16ET 45 (7) Cast alum. wheel 225/55R16	8J x 17 ET 48 (10) Cast alum. wheel 245/45 R17	225 x 460 ET 46 (13) Cast alum. wh. (PAX) 235/660 - R460
	7.5J x 16ET 45 (2) Forged alum. wheel 225/55 R16	225 x 460 ET 46 (5) Cast alum. wh. (PAX) 225/650 - 460	7.5 x 17 ET 45 (8) Cast alum. wheel 225/50 R17	8J x 18 ET 48 (11) Cast alum. wheel 245/40 R18	
8 -cylinder	7.5 x 17 ET 45 (3) Cast alum. wheel 225/50 R17	7J x 17 ET 42 (6) Cast alum. wheel 225/50 R17 98 M+S	7.5J x 17 ET 45 (9) Cast alum. wheel 225/50 R17	8J x 18 ET 48 (12) Forged alum. wheel 245/40 R18	

Overview

A new generation of the tire pressure monitoring system has been introduced for the 2005 Audi A6 . It is modular in design and is significantly different from the systems used up to now at Audi from the point of view of functionality and design.

A modified system, adapted according to the national legislation in force in the USA, is used exclusively for the US market.





Tire Pressure Monitoring System (except North American market)

Design

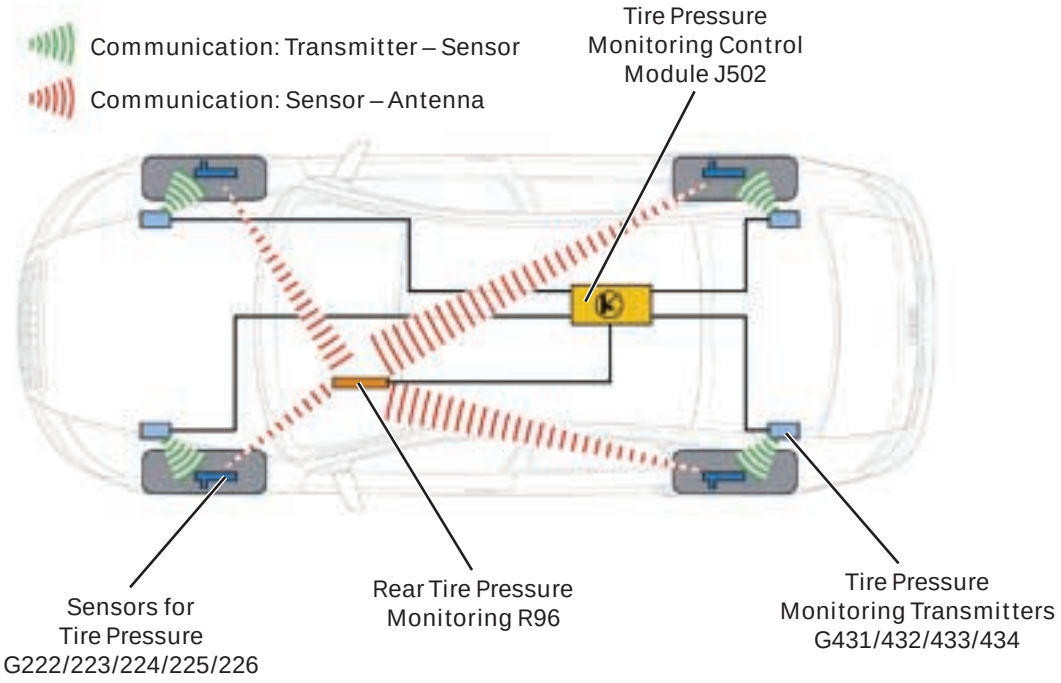
The Tire Pressure Monitoring Control Module J502 is connected to CAN Convenience. A pressure monitoring transmitter G431/432/433/434 is installed in each wheel housing.

The Rear Tire Pressure Monitoring Antenna R96 is located between the interior lamp and the sliding roof module in the roof area.

The transmitters and the antenna are linked to the control module via LIN bus.

A sensor for tire pressure G222/223/224/225/226 is installed in each wheel. As before, there are two country variants for the sensors and the antenna (433 and 315 MHz).

Tire Pressure Monitoring



How It Works

The system's initialization phase begins on opening the driver's door or when terminal 15 is on. The control module then sends a special LIN address at offset times to each transmitter for Tire Pressure Monitoring Transmitters G431/432/433/434 and to the Rear Tire Pressure Monitoring Antenna R96. Following initialization, each transmitter in turn receives a message from the control module. The currently addressed transmitter then sends a once-off radio signal at a frequency of 125 kHz. Given the limited range of this radio signal, it is only received by the related sensors for tire pressure G222/223/224/225/226. The signal prompts the sensor to send the current measured values for pressure and temperature. This signal is recorded by the antenna and transmitted to the control module via LIN bus.

Following this, no further communication takes place as long as the vehicle is stationary. The sensors for tire pressure G222/223/224/225/226 are fitted with centrifugal sensors for the detection of rotary movement for this purpose.

The possibility of immediately displaying a warning as soon as terminal 15 comes on and the increased service life of the transmitters are distinct advantages compared to earlier systems.

At the start of a journey, the sensors are allocated to wheel positions in approx. 2 minutes. Once a driving speed of around 12.4 m.p.h. (20 km/h) is reached, each sensor automatically sends its current measured values without having to wait for a signal from the related transmitter. The radio signal that is sent also contains the ID of the relevant sensor. This allows the control module to differentiate between the individual sensors and their positions in the vehicle. In normal operation, each transmitter sends a signal periodically approx. every 30 seconds. If the sensor measures a fast change in pressure (greater than 2.9 psi/min (0.2 bar/min)), it automatically switches to fast-send mode and sends the current measured values once per second.

Operation and Displays
(except North American market)

The system is operated through the MMI.

The relevant tire pressures must always be displayed as nominal values when the air-pressure levels in the tires/wheels fitted on the vehicle have been changed.



If wheel positions on the vehicle are interchanged, or if wheels are changed, the position-based nominal pressure values must be re-learned. The MMI includes a new menu item for this purpose. As is already the case in the 2004 A8L, the pressure and temperature values are only displayed in the MMI. The driver can no longer deactivate the tire pressure monitoring system.

As before, there is a difference between a “hard warning” (red display) for a large loss of pressure (7.3 psi (0.5 bar) or more below the nominal pressure when the cold-fill pressure is adjusted in accordance with the specification in the filler flap as nominal pressure levels) and a “soft warning” (yellow display) for a lower loss of pressure (4.4 psi (0.3 bar) or more below the nominal pressure). If the difference from the nominal value is at least 4.4 psi (0.3 bar), the control module “observes” the difference for a while without immediately issuing a warning. If the difference of at least 4.4 psi (0.3 bar) remains unchanged, a “soft warning” is issued after 17 minutes.





If the control module detects a difference from the nominal pressure of at least 7.3 psi (0.5 bar) for two directly consecutive measured values, a “hard warning” is issued.

In addition to the optical display, an audible warning is also issued in the form of gongs.

Tire Pressure Monitoring System (for North American market)

Design

The Tire Pressure Monitoring Transmitters G431/432/433/434 are not used. The sensors for tire pressure G222/223/224/225 and the Rear Tire Pressure Monitoring Antenna R96 are the same parts that are used in the system for all other markets. The Tire Pressure Monitoring Control Module J502 has a different software part number due to the modified software.

How It Works

This system essentially works in the same way as the known systems that are already in use:

The sensors for tire pressure G222/223/224/225 send regular radio signals containing their individual IDs and the current tire pressure levels and tire temperatures. These signals are then received by the shared Rear Tire Pressure Monitoring Antenna R96 and transmitted to the control module via LIN bus.

No position detection is performed. The control module merely allocates the sensors to the vehicle. A driving time of up to 20 minutes is required for this following “wheel change” confirmation in the MMI. The vehicle speed must be more than 24.9 mph (40 km/h). The current measured values are compared with the nominal values released by the driver. If defined limit values are exceeded, a warning is issued to the driver.

Operation and Display

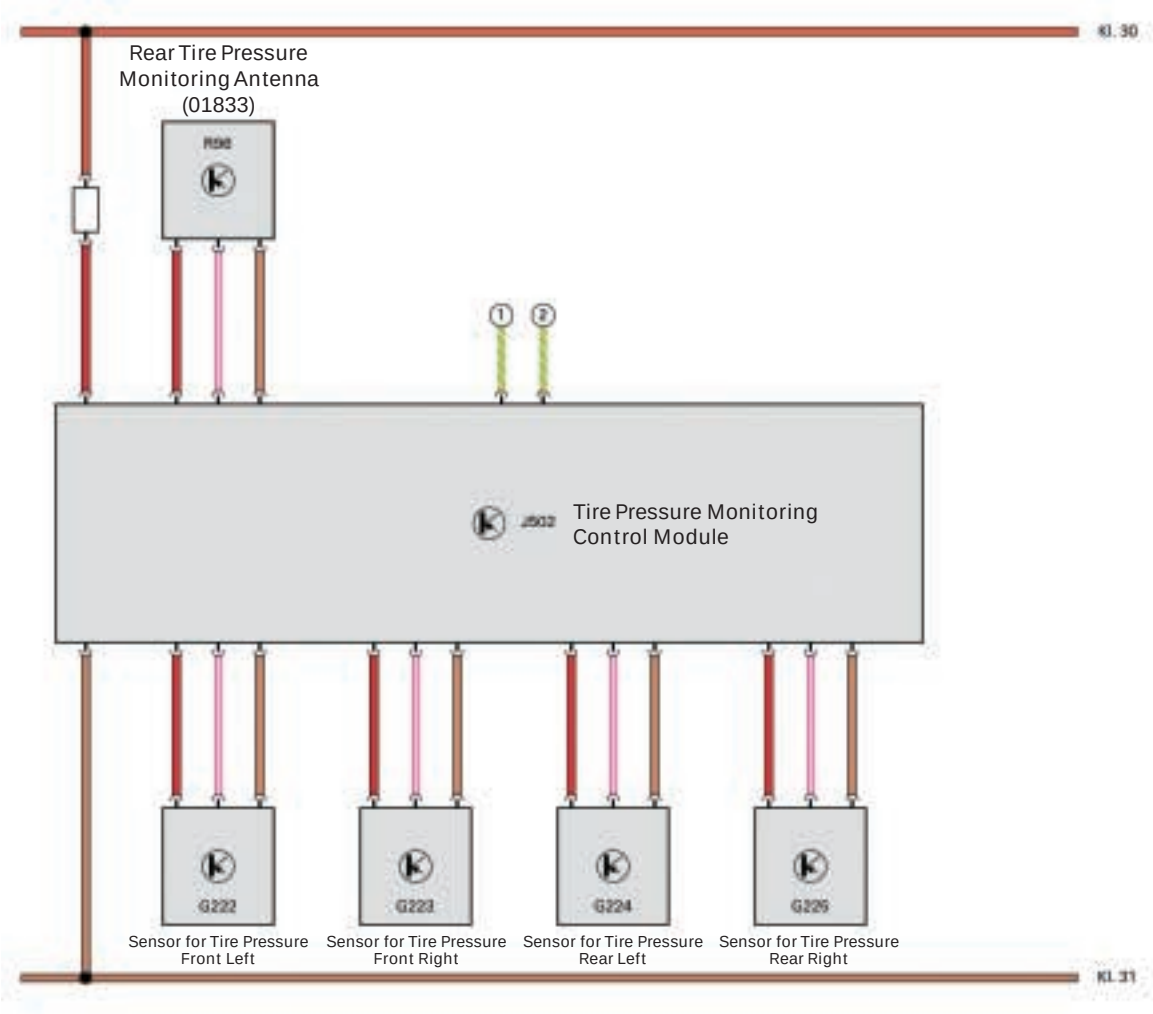
The current tire pressure levels are displayed as nominal values in the MMI. Warnings are indicated by the legally required yellow indicator lamp for tire pressure monitoring in the instrument panel insert.

In the North America, a warning is issued in the event of a loss in pressure of more than 75% of the pressure placard (nominal pressure in the filler flap:= coded value), if the loss in pressure is more than 5.8 psi (0.4 bar) at vehicle speeds of more than 99.4 mph (160 km/h), or if the loss in pressure is greater than 7.3 psi (0.5 bar), depending on which condition applies.



Functional Diagram

CAN Data Exchange



J502	Tire Pressure Monitoring Control Module
R96	Rear Tire Pressure Monitoring Antenna
G222/223/ 224/225	Sensors for Tire Pressure

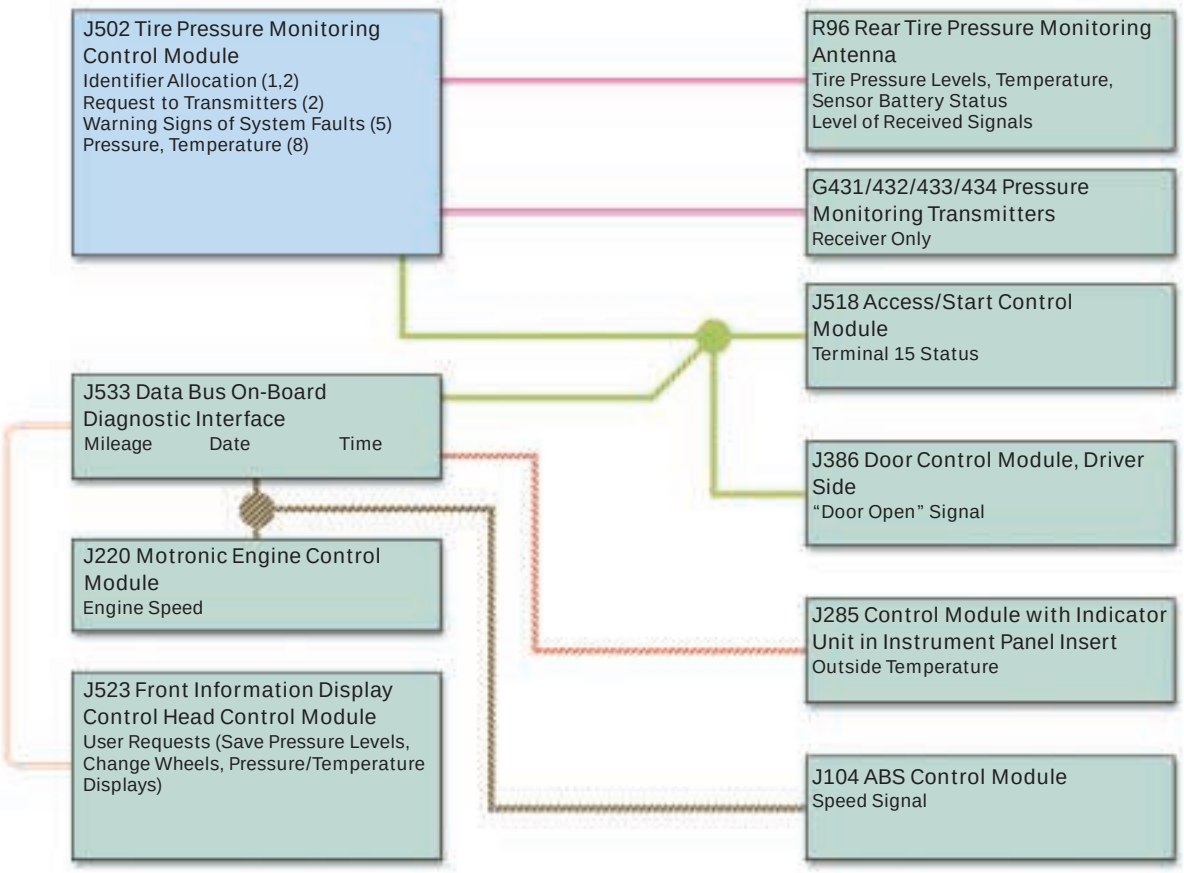
LIN Bus

CAN Convenience

Positive

Ground

Tire Pressure Monitoring



* Not for North American version

Information Sent by Control Module J502

Information Received and Evaluated by Control Module J502

CAN Drive

CAN Convenience

CAN Instrument Cluster

MOST Bus

LIN Bus

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

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

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