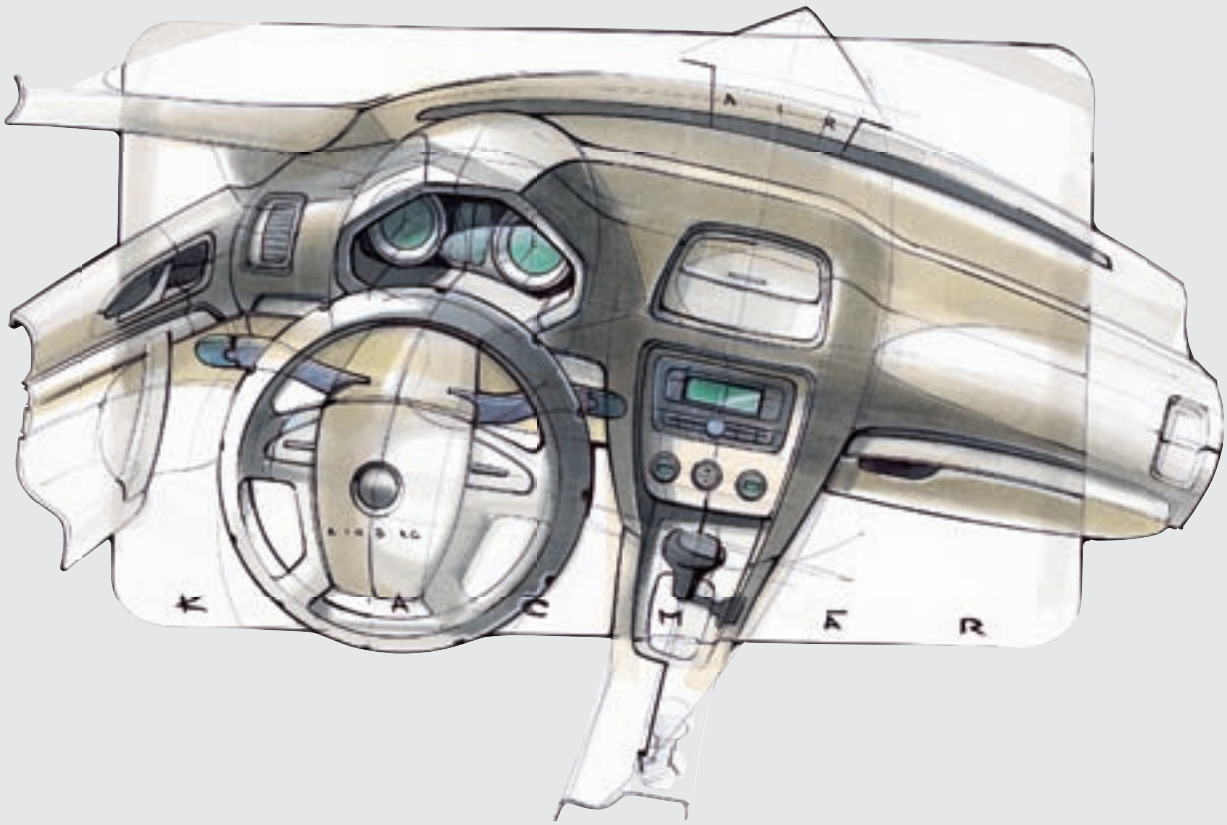
ŠkodaOctavia

The second generation

Electrical components



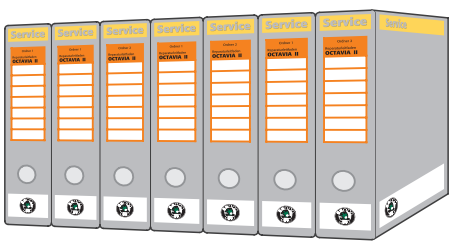
Self-study programme

This self-study programme informs you about the design and the function of certain components of the electrical components for the second generation of **Škoda**Octavia.

Contents

You will find detailed inspection, setting and repair instructions in the provided repair manuals.

The time of going to press was on the 22.3.2004. The contents are not updated.



Onboard supply

The fuse boxes and relay positions in the onboard supply

The onboard supply in the second generation of **Škoda**Octavia is designed decentralized.

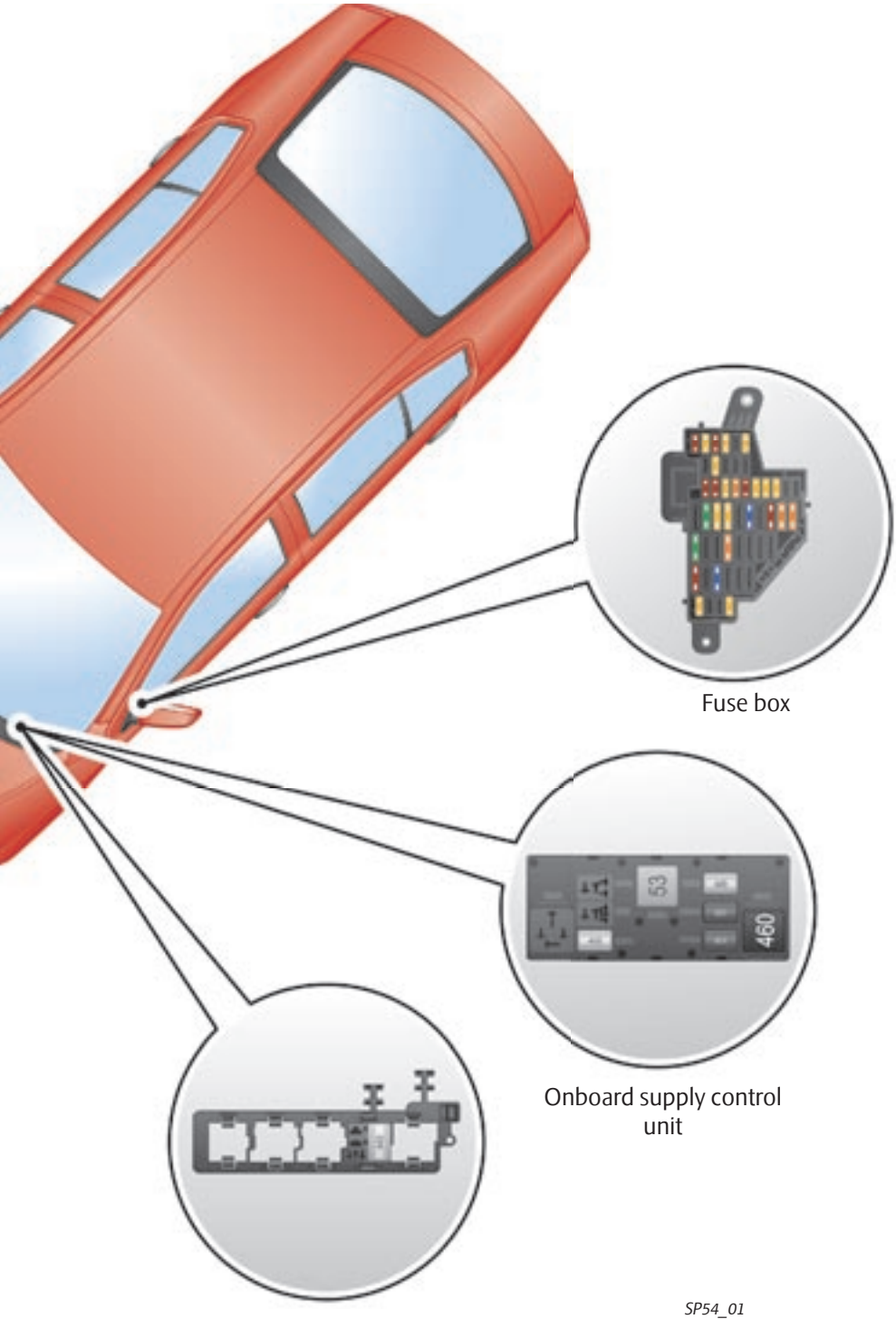
Because of the diffferent installation conditions, the fuse boxes and the relay positions are located at different locations in the vehicle.

These components are mounted decentralized. This means, they are located close to their relevant components and functional groups.

The functioning of the entire system in the vehicle is controlled by a series of specialised control units.

The communication between the control units and other functional groups of the electrical system is performed via CAN databus line.

Electric box in engine compartment (E-box)



Fuse box

Onboard supply control unit

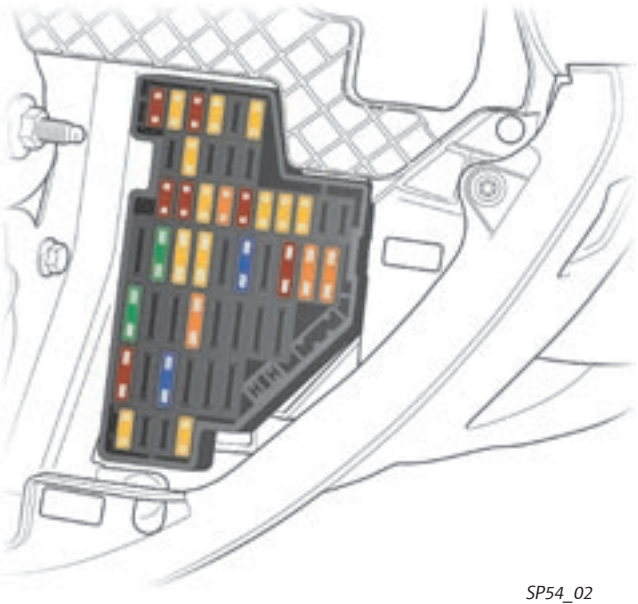
Additional relay carrier below the dash panel

SP54_01

The fitting locations in the onboard supply – overview and characteristics

The fuse box

The fuse box is located in the left dash panel.

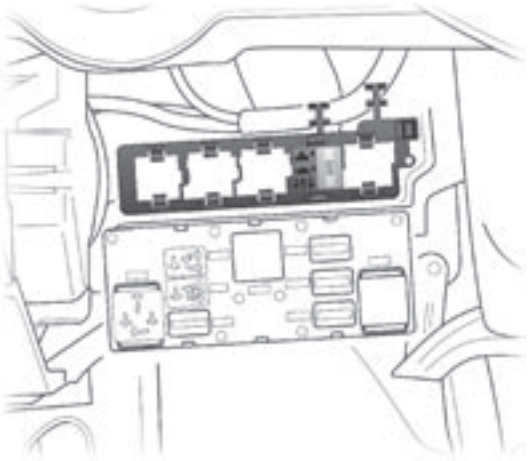


SP54_02

The relay

The additional relay carrier below the dash panel comprises the following components:

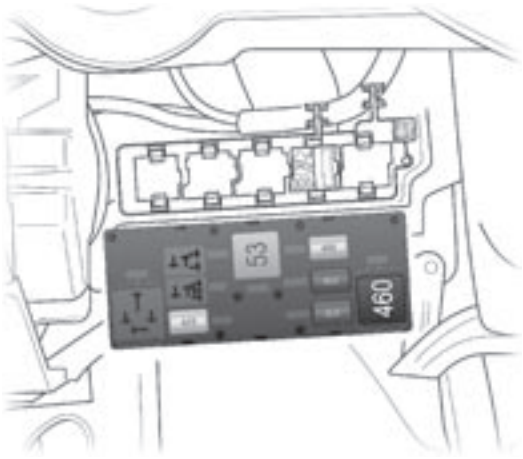
- Thermal protection for the driver seat memory.
- Headlight washer system relay.
- Fuel pump relay.



SP54_03

The following relays are located on the front side of the onboard supply control unit:

- Terminal 30 voltage supply relay.
- Heated rear window relay J9.
- Dual tone horn relay J4.
- Double washer pump relay -1- J729.
- Double washer pump relay -2- J730.
- Terminal 75X X-contact relay.

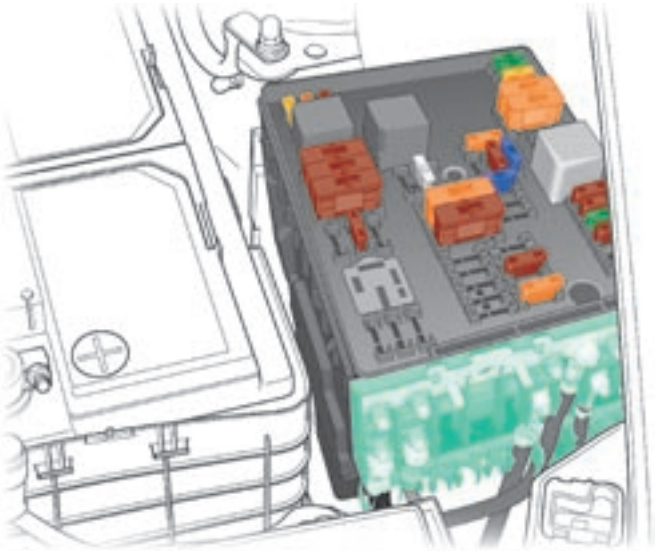


SP54_04

The electric box (E-box)

Because of a large number of electronic components, a number of fuses and relays had to be increased for better accessibility as well as the improvement of the self-diagnosis.

Certain fuses and relays are placed in the E-box located on the left in the engine compartment. The fuses and relays placed in the E-box assist the function in particular of the electrical components located in the engine compartment.



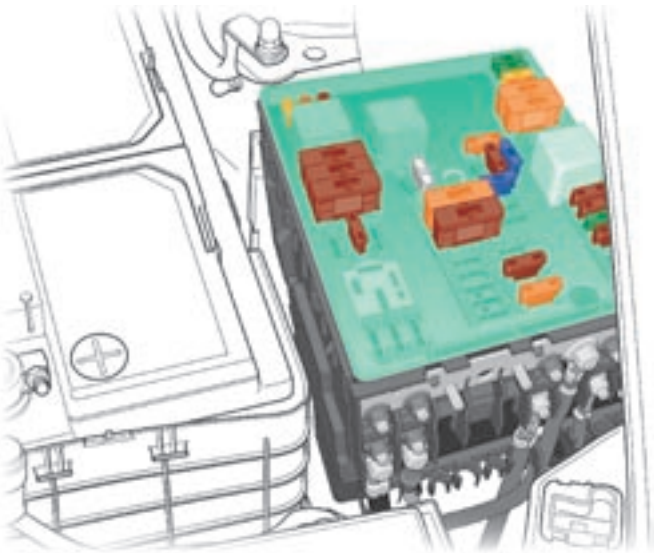
SP54_05

On the front side of the E-box are the main fuses of the electrical system, which supply the current to the following electrical components:

- Generator.
- Electro/mechanical power steering.
- Radiator fan.
- Terminal X.
- Electrical auxiliary air heater.
- Terminal 30.

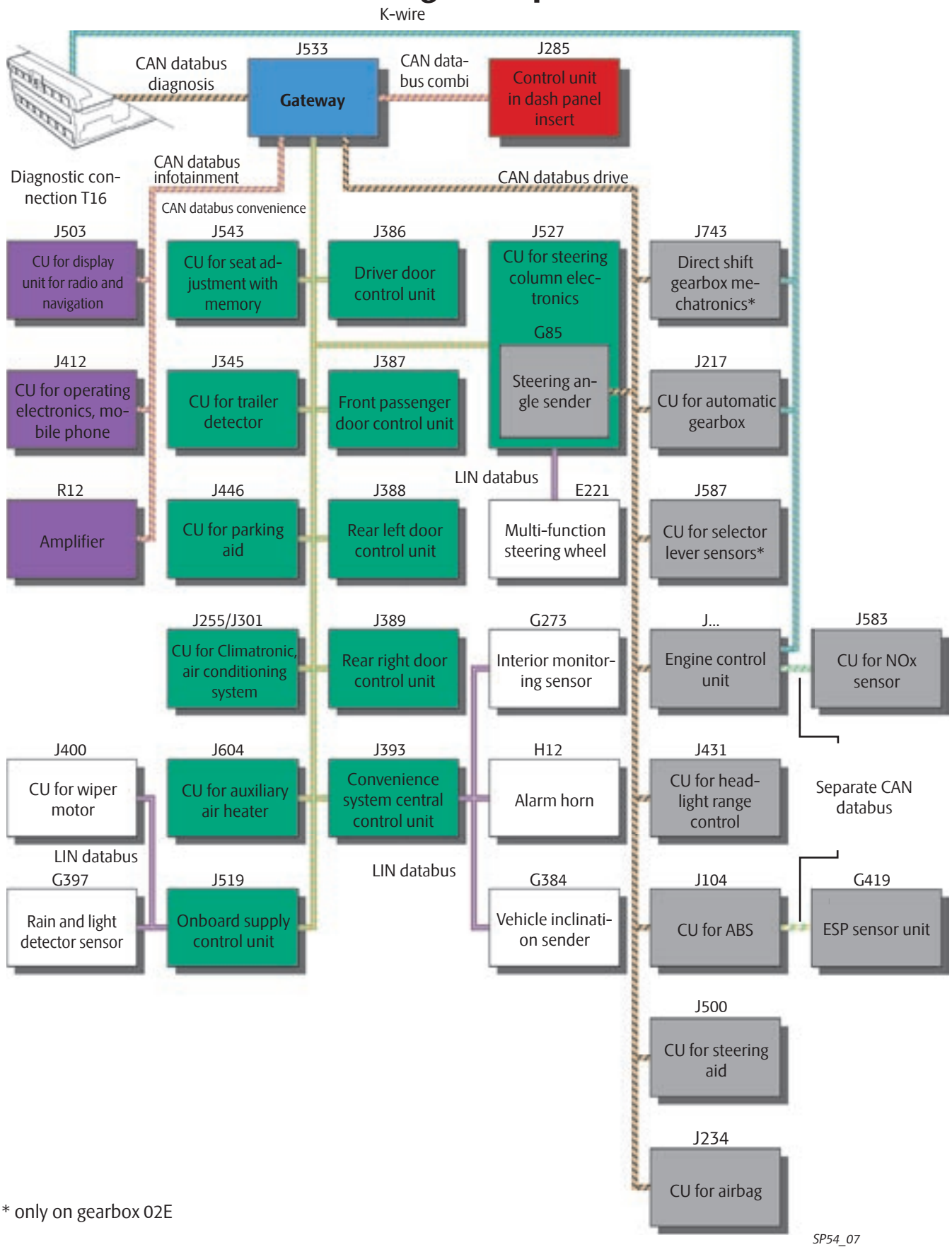
Depending on the equipment, the fuses as well as the following relays are placed in the E-box:

- Voltage supply relay terminal J329 (terminal 15).
- Voltage supply relay terminal J682 (terminal 50).
- Fuel pump relay J17.
- Glow plug relay -J52.
- Voltage supply relay terminal J317 (terminal 30).



SP54_06

The CAN databus networking concept



SP54_07

* only on gearbox 02E

The networking of the CAN databus cables

CAN databus combi
Transmission speed 500 kbit/s

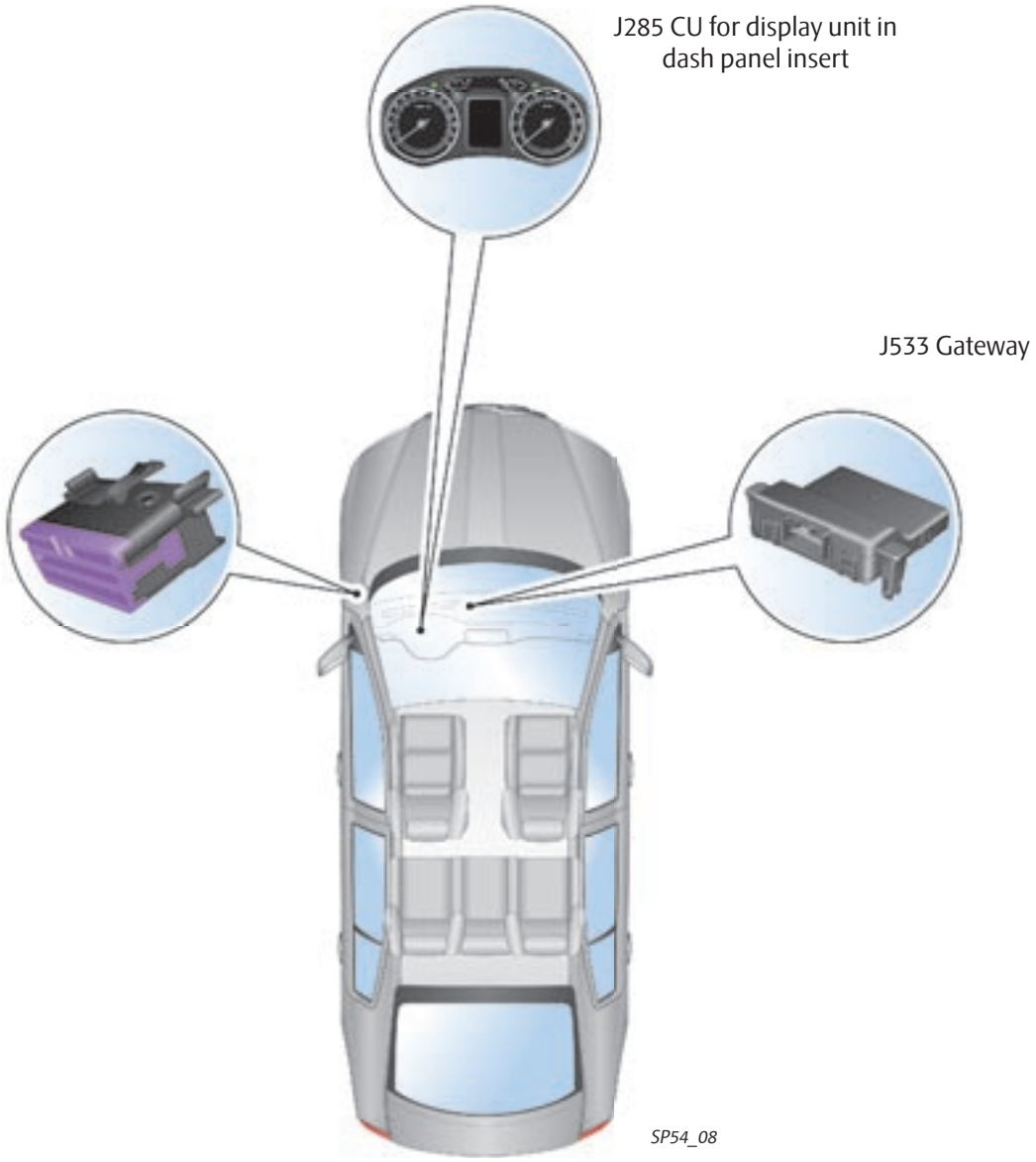
Cable colour
CAN H - orange/purple
CAN L - orange/brown

At the CAN databus combi, the communication is only performed between the Gateway and the dash panel insert.

CAN databus diagnosis
Transmission speed 500 kbit/s

Cable colour
CAN H - orange/black
CAN L - orange/brown

The CAN databus diagnosis serves as a data transfer between the diagnostic unit VAS 5051/5052 and the Gateway

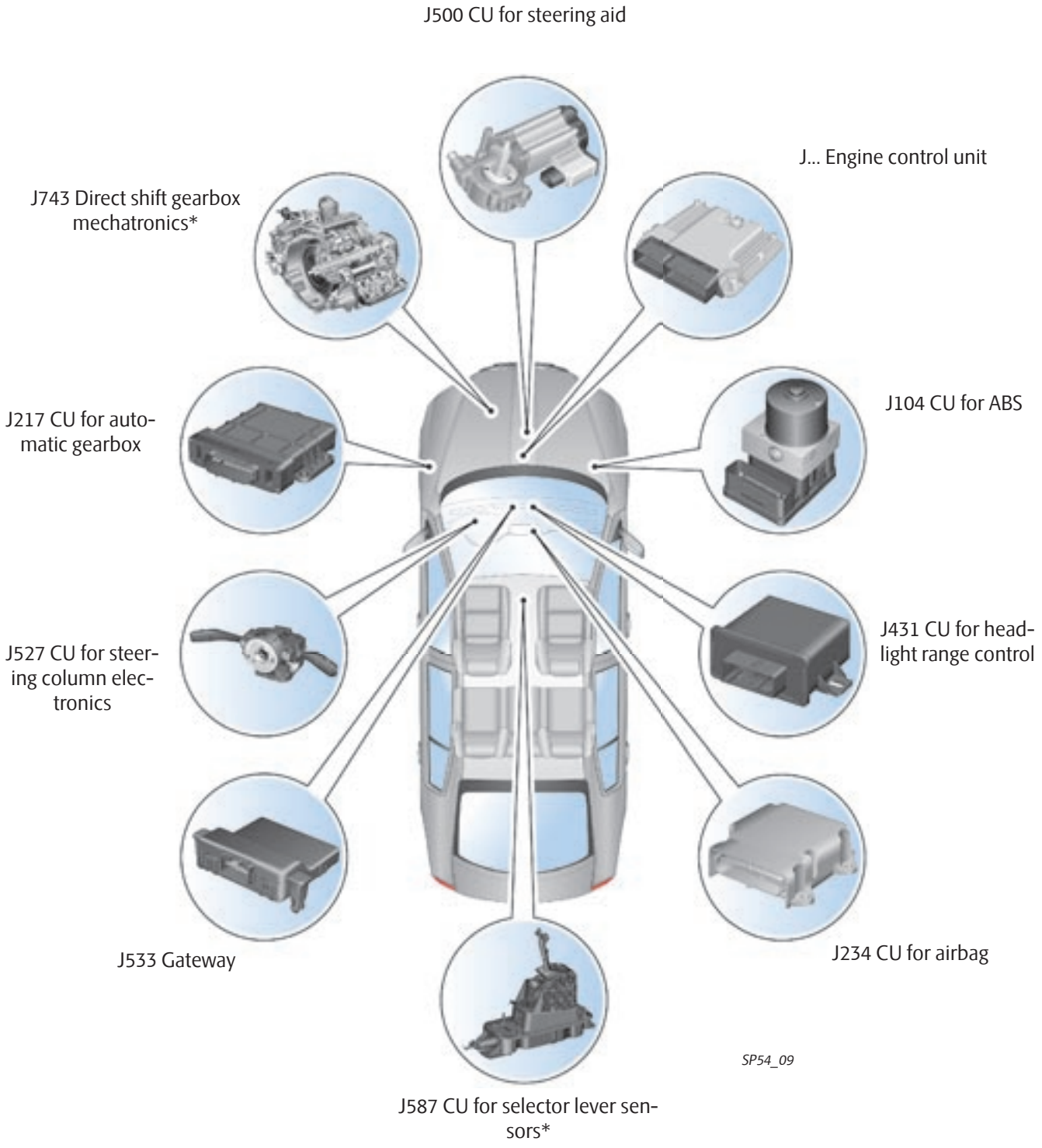


CAN databus drive

Transmission speed 500 kbit/s

Cable colour

CAN H - orange/black
CAN L - orange/brown



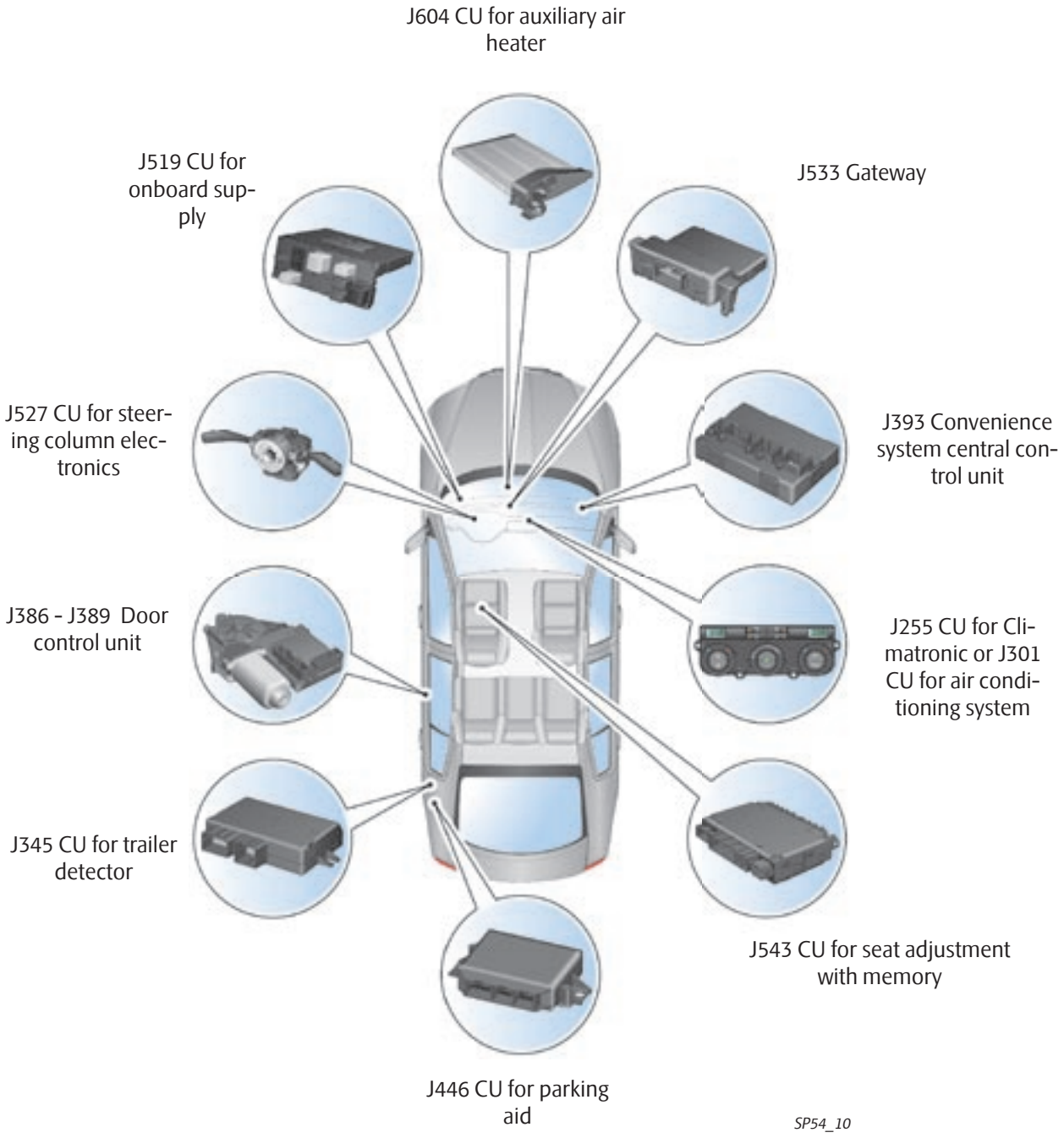
* only on gearbox 02E

CAN databus convenience

Transmission speed 100 kbit/s

Cable colour

CAN H - orange/green
CAN L - orange/brown

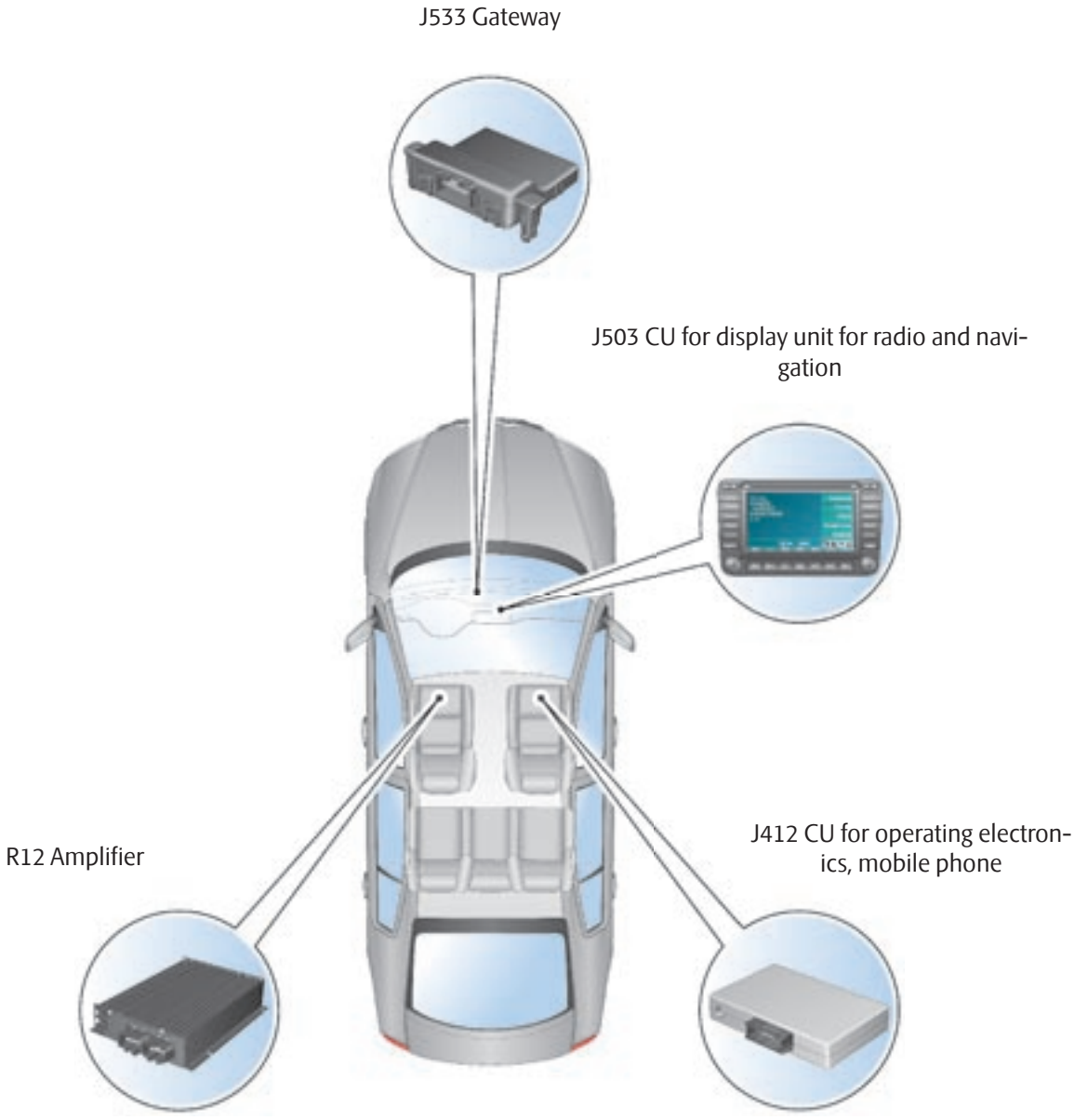


CAN databus infotainment

Transmission speed 100 kbit/s

Cable colour

CAN H - orange/purple
CAN L - orange/brown



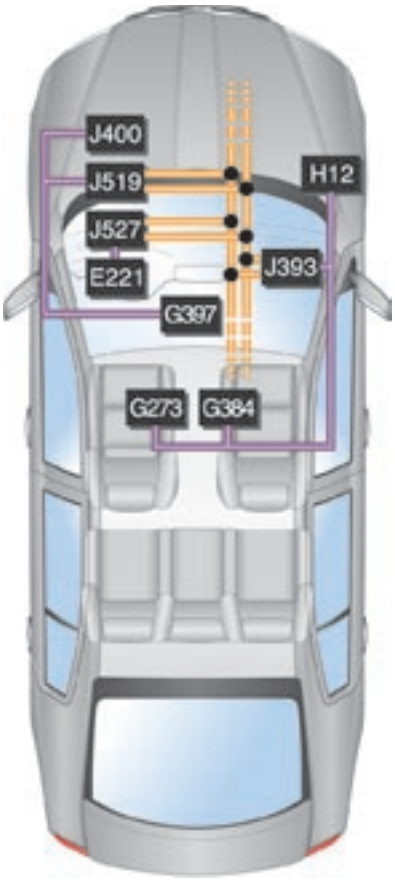
SP54_11

The modern vehicles of today are equipped with a lot of control units. In order to ensure their proper function, a mutual data transfer is absolutely necessary. The previous methods for transmitting information via individual line connections are already limited. The LIN databus (Local Interconnect Network) is therefore used more frequently together with the increasing number of control units connected directly via the CAN databus cable.

In the second generation of **Škoda**Octavia, the LIN databus is distributed in the following three subsystems:

- Onboard supply control unit.
- Convenience system central control unit.
- Steering column electronics control unit.

In contrast to the CAN databus cable, only one cable is sufficient for the correct function. Another one-wire purple cable with a white marking is used. The cable has neither a screening nor another malfunction protection.



SP54_12

E221 Operating unit in the steering wheel
G273 Interior monitoring sensor
G384 Vehicle inclination sender
G397 Rain and light detector sensor
H12 Alarm horn
J393 Convenience system central control unit
J400 Wiper motor control unit
J519 Onboard supply control unit
J527 Steering column electronics control unit

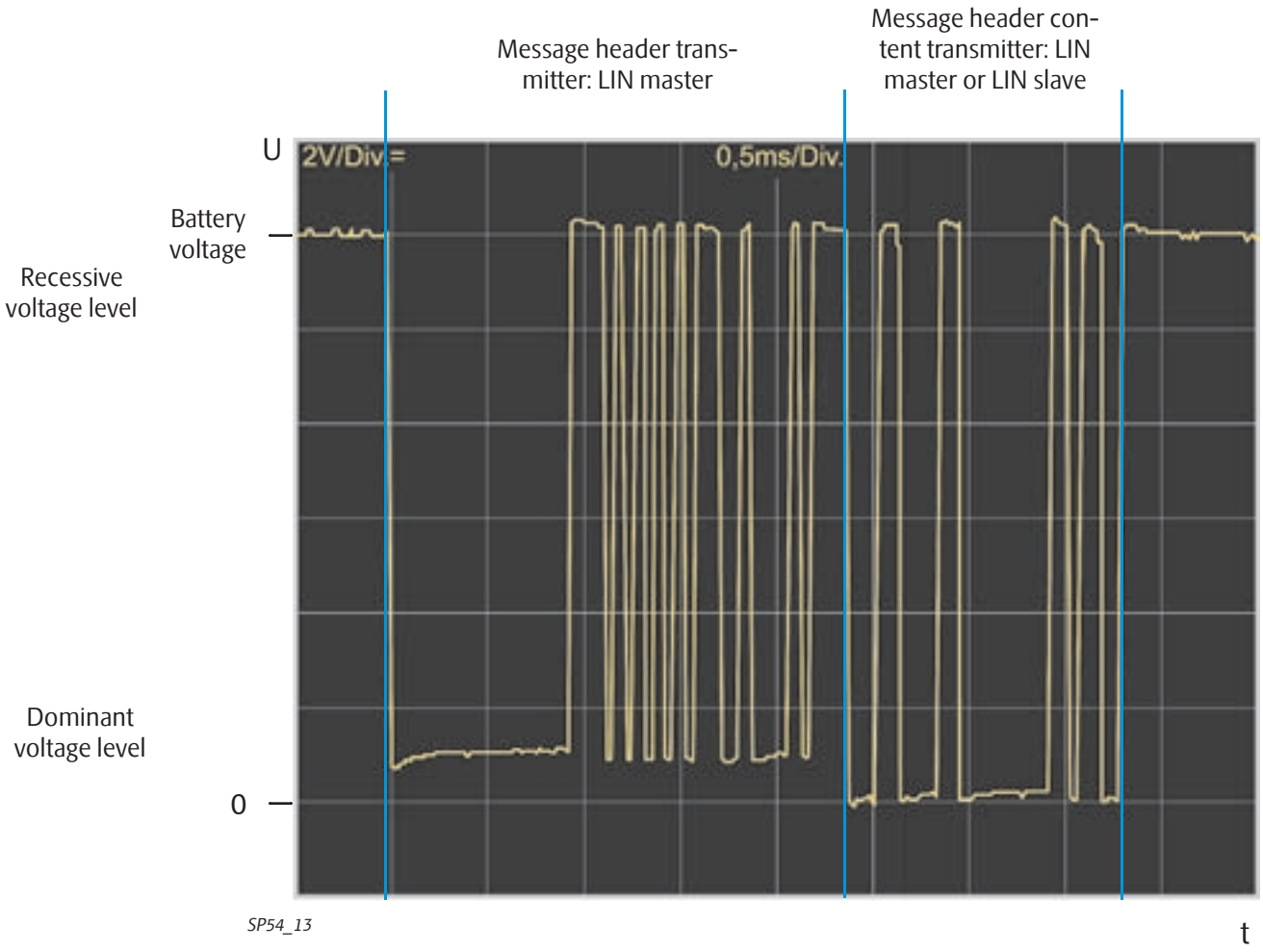
LIN databus

Its own communication is initiated exclusively by the master control unit, which is connected directly to the CAN databus cable. This control unit is also independently self-diagnostic and controls simultaneously the complete communication process. The slave control unit cannot respond without request for data transfer. It is fully dependent on the master control unit.

The master control unit can control up to 16 control units. The transmission speed of the LIN databus in the second generation of **Škoda**Octavia is 19.2 kbit/s.

Tasks of the master control unit

- Ratio and data transmission between LIN and CAN databus.
- Monitoring of the data ratio and the speed of the data transmission.

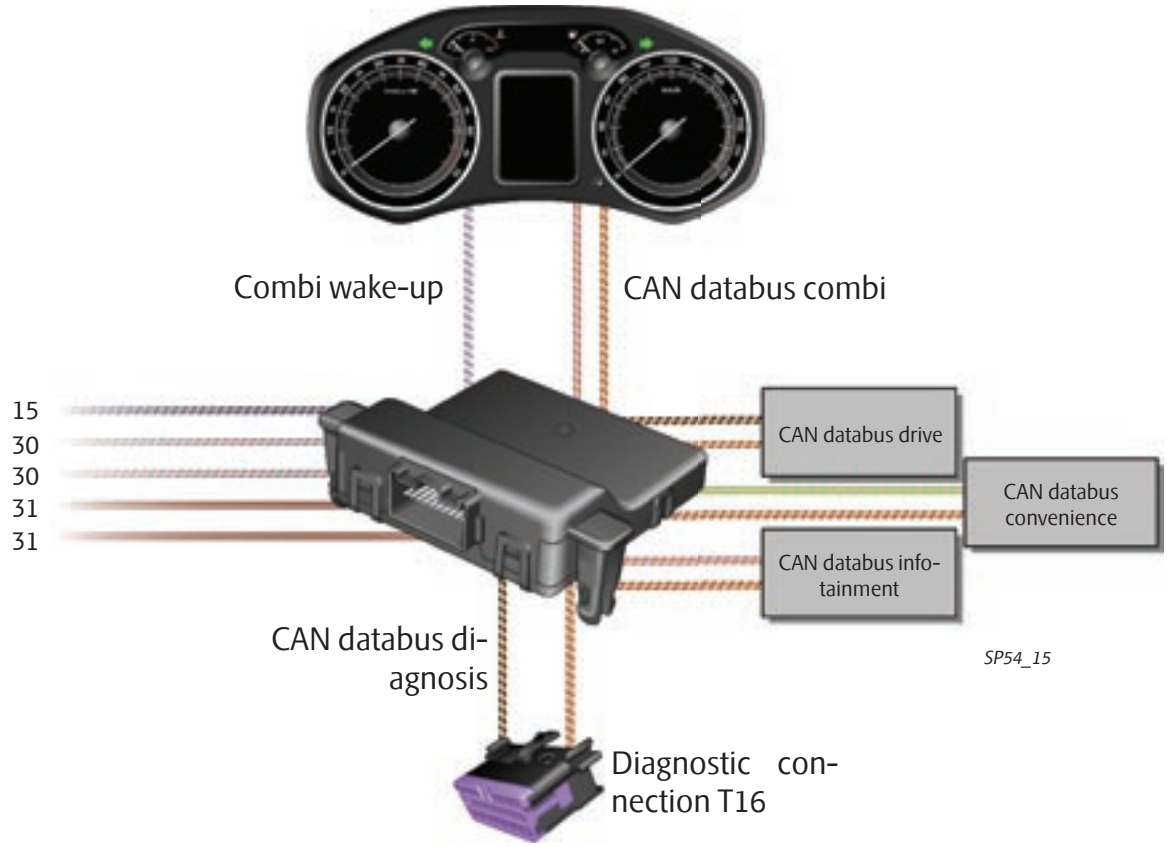


The Gateway is an independent control unit, which is fitted under the dash panel above the accelerator pedal.

The function of the Gateway control unit is in principal identical to the previous model.

The control unit transmits information between the individual CAN databus cables.

SP54_14



SP54_15

Gateway

The control units connected to the CAN databus are in home position when the ignition is switched off. Through this it is possible to achieve a low current consumption. The control of these conditions is carried out by the Gateway control unit.

Master functions

The Gateway control unit controls at the CAN databus cable the following functions:
- Terminal 15 castor.
- Sleep mode.
- Wake-up mode.
- Transport mode.

Terminal 15 castor

Certain control units also need the possibility to continue communicating after „ignition off". This is why a message for controlling the castor is transmitted to the CAN databus cable. The control units switch internally a connection from terminal 30 to terminal 15 and continue to communicate.

Control units which participate in the castor:

- Engine control unit.
- ABS control unit.
- Steering aid control unit.
- Automatic gearbox control unit.
- Steering column electronics control unit.
- Control unit for selector lever sensors.

Control units which do not participate in the castor:

- Airbag.
- Control unit for headlight range control.

Sleep mode

As soon as the last control unit of the CAN databus convenience and infotainment has transmitted its sleep mode readiness, the Gateway control unit gives the sleep command.

If the CAN databus drive does not go into sleep mode, the CAN databus convenience and the CAN databus infotainment also do not go into sleep mode. If the CAN databus convenience does not go into sleep mode, the CAN databus infotainment also does not go into sleep mode. This is how a control unit can stop the vehicle from going into sleep mode.

Wake-up mode

If the control unit detects a pulse for activation, it sends a signal to the CAN databus cable.

The Gateway control unit finally activates the other control units at the CAN databus cable.

The CAN databus drive is activated after the ignition is switched on. The CAN databus convenience and CAN databus infortainment are activated by opening the doors, switching on the hazard warning system, opening the tailgate, switching on the ignition etc.

The coding of the Gateway

The coding of the Gateway control unit differs completely from the previous coding of the Gateway or from the new long coding of the convenience system central control unit and the onboard supply control unit.

When coding the Gateway control unit, the mechanic must first of all have an overall view of the control units connected to the CAN databus cable. Then he must inspect the control units or assign them to the Gateway listed in the list. This is required for the mutual communication of the control units. Afterwards the manufacturer, the body version, the steering type and the number of doors have to be selected. However the end code cannot be found. In case of an incorrect coding, only one message regarding an incorrectly performed coding is displayed in the fault memory.

01 - Motor electronics	coded
02 - Gearbox electronics	not coded
22 - Four-wheel drive electronics	not coded
42 - Driver door electronics	coded
52 - Front passenger door electronics	coded
62 - Rear left door electronics	coded
72 - Rear right door electronics	coded
03 - Brake electronics	coded
44 - Steering aid	coded
15 - Airbag	coded
25 - Immobiliser	coded
55 - Headlight range control	not coded
65 - Tyre pressure monitoring	not coded
75 - Emergency call module	not coded

SP54_16

SP54_17

coded - the Gateway control unit is coded for the communication with the respective control unit

The battery transport mode

The transport mode enables a reduction of the current consumption of the battery for transportation to the dealers. This function is controlled by the Gateway control unit.

The transport mode is set in the self-diagnosis. The switching on of the transport mode is the result of the number of kilometers driven. After the first 150 km, the transport mode can no longer be switched on.

The transport mode deactivates the following systems:

- Radio.
- Interior lighting.
- Interior monitoring.
- Inclination sensor.
- Save LED in the driver's door.

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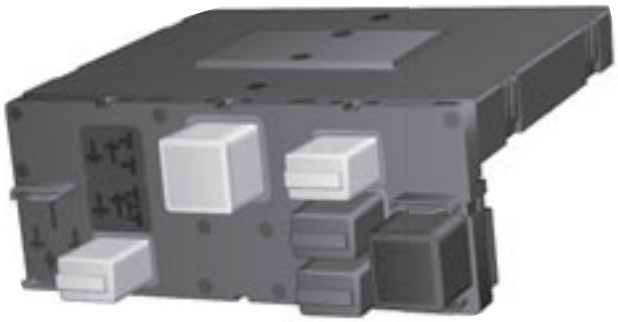
Display of the battery transport mode

Onboard supply control unit

The onboard supply control unit is located on the driver side under the dash panel. Relays are mounted on its front side.



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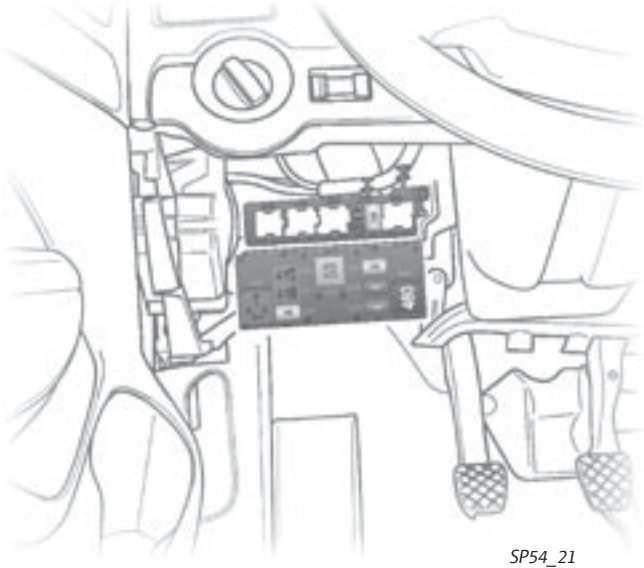
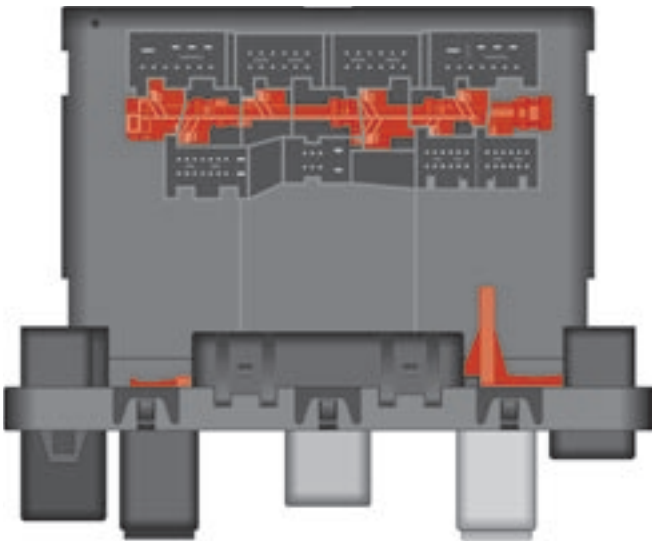


SP54_21

The onboard supply control unit is obtainable in two versions:
- For vehicles with fog lights and personalization.
- For all other vehicles.

The individual versions differ only in their indexes.



SP54_22

Main functions of the control unit:

- Electrical load management.
- Interior and exterior light control.
- Reversing lights.
- Bulb monitoring.
- Fuel pump feed (pressure build-up).
- Windscreen wiper and washer system.
- Dual tone horn.
- Function enable for seat heating and sliding/ tilting roof.
- Heated rear window.
- Terminal control 15, 75X, 50.

Note!

In the lower part of the control unit there is a mechanical fuse, which should prevent disconnection of most of the plugs.

Dash panel insert

SP54_23

The following components are integrated in the dash panel insert:

- Control unit for display unit in the dash panel insert J285.
- Immobilizer control unit J362.
- Speedometer.
- Rev counter.
- Fuel gauge display.
- Coolant temperature gauge.
- Warning lights.
- Multifunction display.

All warning lights are in the LED version.

Note!

After changing the dash panel insert, the coding and the adaptation have to be carried out on the other vehicle systems.

In the control unit J285 all information is processed by the monitoring functions and passed on to the warning lights as pulses for lighting up, flashes or permanent lights.

The lighting up of certain warning lamps is performed in combination with an acoustic signal.

Self-diagnosis of the dash panel insert

The diagnosis of the control unit in the dash panel insert is carried out via CAN databus diagnosis using the diagnostic unit VAS 5051/5052.

In the self-diagnosis, the following components can be checked with the function „actuator test“:

- Rev counter.
- Coolant temperature gauge.
- Fuel gauge display.
- Speedometer.
- Read out on the display.
- Warning light for immobiliser.
- Warning light for overheating.
- Warning light for brake pad wear.
- Warning light for fuel reserve.
- Warning light for oil pressure.
- Warning light for oil level.
- Warning light for driver seat belt.
- Warning light for two-circuit brake system and handbrake.
- Gong.
- Warning buzzer.
- Turn signal system, audible feedback.

Warning light symbols

The readout on the display varies depending on the dash panel insert version.

Versions

- Lowline - Basic version
- Midline - with multifunction display
- Highline - with Maxi DOT display

Symbol	Warning light	Lowline	Midline	Highline	Meaning
	Right turn signal system	✔	✔	✔	flashes simultaneously with the right turn signal
	Left turn signal system	✔	✔	✔	flashes simultaneously with the left turn signal
	Generator	✔	✔	✔	fault in the vehicle recharging system
	Engine hood	✔	✔	DOT	open engine hood *
	Bulb failure	✔	✔	✔	bulb filament for side, low beam or brake light destroyed
	Tyre pressure monitoring	✔	✔	✔	tyre pressure too low *
	Main beam light	✔	✔	✔	main beam light
	Low beam light	✔	✔	✔	low beam light
	Rear fog light	✔	✔	✔	rear fog light
	Airbag	✔	✔	✔	fault at airbag
	Electronic Power Control (electronic throttle)	✔	✔	✔	fault in EPC system
	TCS = Traction control system ESP = Electronic stability program	✔	✔	✔	lights up - TCS off, ESP off or fault in the system; flashes - system active
	Preglowing	✔	✔	✔	flashes - fault in the motor electronics (diesel engine)
	ABS	✔	✔	✔	fault in ABS system

Dash panel insert

Symbol	Warning light	Lowline	Midline	Highline	Meaning
	OBD - Onboard diagnosis (on-board diagnosis)	✔	✔	✔	lights up, fault in the exhaust gas relevant engine electronics; flashes, possible catalytic converter damage
	Steering aid	✔	✔	✔	fault in the system of the electro/mechanical power steering
	Immobiliser	✔	✔	✔	when lighting up, there is a start attempt with an unauthorised key
	Coolant level or overheating	✔	✔	**DOT**	coolant shortage or overheating *
	Brake monitoring	✔	✔	✔	brake fluid shortage, handbrake applied *
	Washing water	✔	✔	**DOT**	washing water shortage
	Brake pad	✔	✔	**DOT**	authorised brake pad minimum thickness
	Fuel reserve	✔	✔	**DOT**	reserve in fuel reservoir *
	Oil pressure	✔	✔	**DOT**	oil pressure in engine lubrication system too low
	Oil level	✔	✔	**DOT**	lights up, engine oil level too low *; flashes, fault in the oil level/temperature sender

DOT - the symbol of the warning light is shown as pictograph in the DOT display

✔ - the warning light is shown in the dash panel insert outside the DOT display

* The lighting up of the warning lamp is performed in combination with an acoustic signal - peep

Note!

The activation of the symbol on the display occurs in most cases when the engine is running or when driving.

The 4th generation of immobiliser improves the protection against unauthorized operation of the vehicle. The system ensures an electronic protection for the engine control unit.

Design

The system consists of a transponder in the key, an engine control unit and an immobiliser control unit.

The vehicle key contains:
- Electronic transponder with fixed code.
- Specific vehicle code of immobiliser.
- Manufacturer code for certain vehicle makes (e.g. the VW keys cannot be used for Škoda).

The engine control unit contains:
- Password for the engine control unit.
- Blocking code for the engine control unit (prevents the adaptation of another control unit instead of the original engine control unit).
- Code for certain vehicle makes.
- Specific vehicle code for the communication with the immobiliser.

The immobiliser control unit contains:
- Specific vehicle code.
- Password of the immobiliser control unit.
- Blocking code for the engine control unit (prevents the adaptation of another control unit instead of the original engine control unit).
- Code for certain vehicle makes.

Explanations
- Specific vehicle code – defines the behaviour of the immobiliser.
- Password (random digit code) of the immobiliser control unit or the engine control unit.
- Blocking code for the engine control unit – prevents the adaptation of another control unit instead of the original engine control unit.
- Code for certain vehicle makes – e.g. Škoda, VW, etc.

Adaptation

The prerequisite for the correct function of the system is the adaptation of the components to each other. First the engine control unit has to be adapted, which takes over the specific vehicle code and the password of the immobiliser control unit from the immobiliser control unit and in return transmits the password for the engine control unit and the blocking code of the engine control unit to the immobiliser control unit. After checking the correct code for certain vehicle makes, the keys are adapted (they take over the specific vehicle code from the immobiliser control unit and the immobiliser control unit takes over the fixed code of the key).

SP54_24

Differences between the 3rd and 4th generation

- The use of the code for certain group makes, which prevents the use of different components amongst Škoda, VW, etc.
- All versions of the engine control unit have the so-called „Tuning protection" (prevents the engine control unit being replaced with a control unit with higher power output).
- Coded data transfer between the immobiliser control unit and the engine control unit.
- Different cryptic algorithm for the key and the engine control unit.

Note!

The waiting time for the adaptation of the new components to the system is 5 minutes for the keys and the immobiliser control unit and 10 minutes for the engine control unit.

Convenience electrics

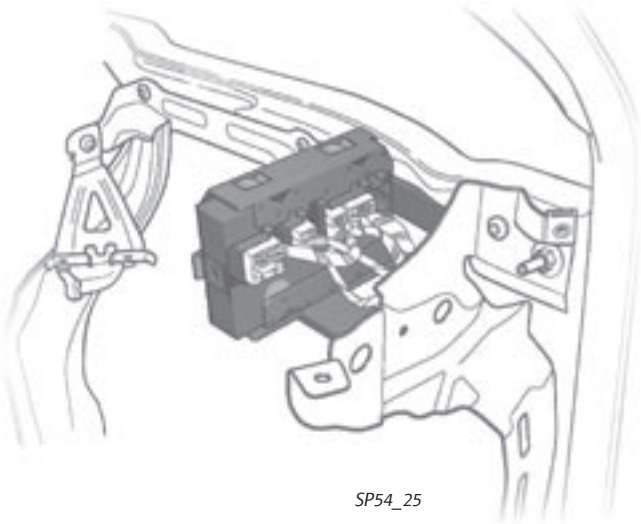
The convenience electrics ressembles the one in the first generation of **Škoda**Octavia.

The self-diagnosis of the door control units, a complete new type of coding for the convenience system central control unit (the so-called „long coding“) and the introduction of the LIN databus are part of the essential changes.

The convenience system central control unit is located under the dash panel above the glove compartment, next to the airbag holder.

Amongst the important functions of the convenience system central control unit are:

- Control and inspection of the central locking.
- Actuation of the rear doors.
- Actuation of the tailgate release
- Actuation of the tank release.
- Actuation of the anti-theft alarm system via LIN databus.



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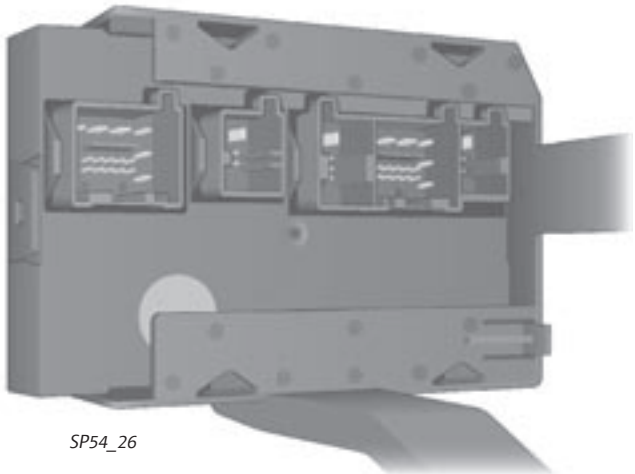
Note!

Before pulling the plug out of the convenience system central control unit, first of all the control unit must be slightly pushed out of the holder.

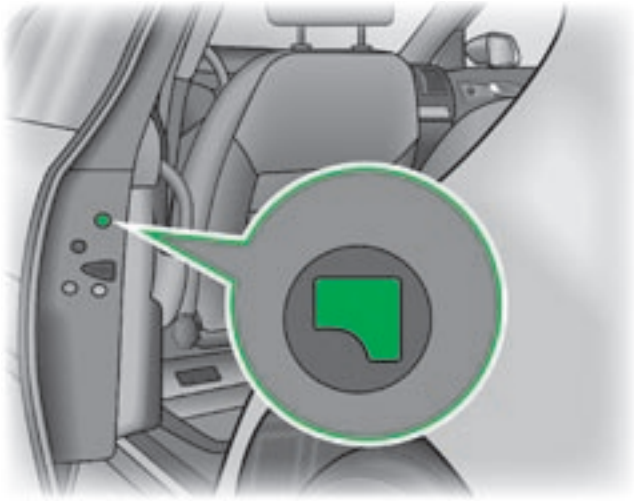


SP54_26

The door control units

Just as for all the other control units at CAN databus these control units are also about the self-diagnosis. However the „long coding“ is not used for coding the door control units.

The innovation represents the use of two control motors in the locking unit. Thus a lower malfunction susceptibility as well as a faster locking is achieved.



SP54_27

Emergency running function

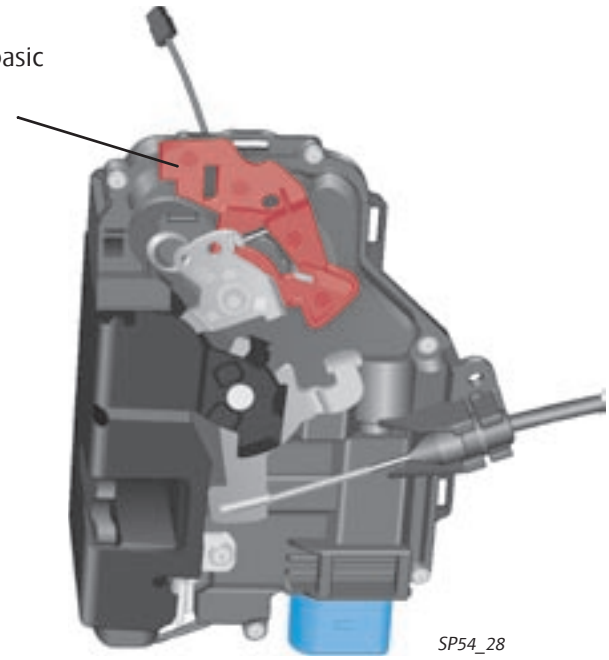
The following emergency running functions are started, if a door control unit is disconnected from the CAN databus cable.

- If all the control units receive five times consecutively no message from the convenience system central control unit, the driver side door control unit ensures the control.

- If a door control unit is supplied with current and cannot communicate via the CAN databus, then the window can still be operated ten minutes after the last message from the CAN databus with the switch for the electrical window actuation which is connected to this control unit.

- In case of a failure of the CAN databus communication between the convenience system central control unit and the door control unit, the vehicle can be locked by pressing down the stopping lever up to the inner stop. The stopping lever is located under a panel on the front side of the door.

Stopping lever in basic position



SP54_28

The self-diagnosis of the door control units is performed via the following address words:

- 42 – Driver door electronics.
- 52 – Front passenger door electronics.
- 62 – Rear left door electronics.
- 72 – Rear right door electronics.

The long coding

This new type of coding was installed up to now only at the convenience system central control unit, the onboard supply control unit and the Gateway. The coding of the Gateway control unit is however different in comparison to the other two control units.

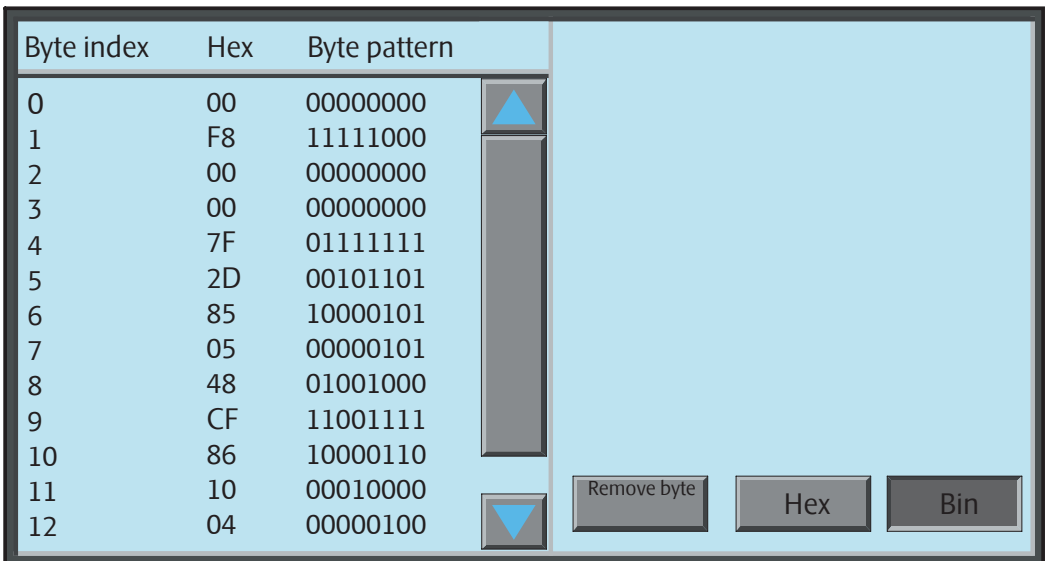
The coding of the convenience system central control unit and the onboard supply control unit is in principal identical. The difference exists only in the length of the hexadecimal code. The hexadecimal code for the convenience system central control unit has only 26 digits, but the code for the onboard supply control unit has 34 digits.

After the diagnostic unit VAS 5051/5052 is connected and the function „long coding" was selected, the table with the current coding of the control unit appears. If the convenience system central control unit is coded, 13 bytes are shown on the left of the screen, from which each consists of an eight digit number block. Each position (byte) in this number block has its specific meaning.

E.g . the 0 in the 10th byte on the position 4 from the left means, that it concerns a vehicle with a left-hand drive The meaning of the individual bytes is determined by the code table dependent on the vehicle equipment.

The new control unit already has the group basic coding. This coding must be adapted however in accordance with the individual equipment and specification from Škoda.

The mechanic can code with the help of either the binary code or the hexadecimal code.



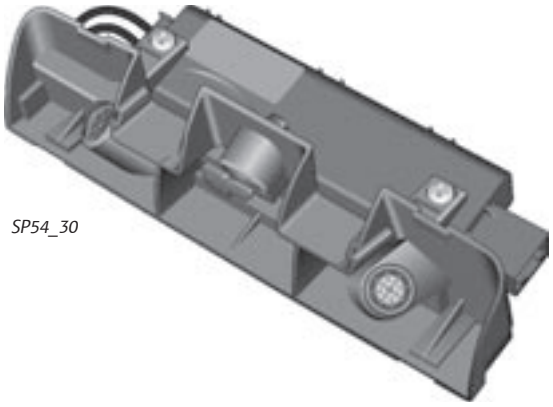
SP54_29

SP54_17

The vehicle inclination sender

With its function in active condition, it protects the vehicle against undesirable towing.

It is located together with the interior monitoring sensor under a cover in the area of the front interior lighting.



SP54_30

The switch for deactivation of the vehicle inclination sender is located on the driver side, in the bottom „B-pillar", together with the switch for deactivation of the interior monitoring sensor.

The function of the vehicle inclination sender can only be deactivated with the switch when leaving the vehicle. The vehicle inclination sender is deactivated by pressing the switch when the ignition is switched off (terminal 15), the key is removed from the ignition lock (S-contact) and the driver door is opened. Then the vehicle must be locked within 30 seconds.

Switching off the vehicle inclination sender is only carried out for one locking cycle.

Operation:

The function of the sender consists of measuring the vehicle inclination angle and analysing each random change of this angle. If an inclination change is detected above the limit value, the sender control unit carries out a more detailed analysis of the inclination angle. Then the sender control unit measures this angle with extreme sensitivity and checks continuously, if the limit value for the alarm activation was exceeded. If the determined inclination angle is above the limit value, the anti-theft warning system is activated.

The convenience system central control unit monitors the complete course of communication.

The communication between the convenience system central control unit and the vehicle inclination sender is performed via the LIN databus.

The inclination angle of the sender can be checked in the measured value block. For the correct display of the current value, the sender must be in the active condition.

SP54_31

SP54_32

SP54_17

The interior monitoring

The interior monitoring is performed by three ultrasound sensors. The sensors are located under a cover in the area of the front interior lighting.

After the vehicle is locked, the anti-theft alarm system and the interior monitoring are activated automatically. If one of the doors is open when activating the anti-theft alarm system, its monitoring is activated with a time delay of 5 seconds after closing the door. The interior monitoring is only activated after closing all the monitoring points and after the activation time of 20 seconds has elapsed.

Depending on the input signals (window open, installation of auxiliary heater) the control unit sets the sensitivity threshold for the alarm triggering.

If the vehicle is locked by radio control, this condition of the convenience system central control unit is also transmitted to the CAN databus. The convenience system central control unit activates the interior monitoring sensor via the LIN databus.

If there is a possibility that an alarm could be triggered through movement in the locked vehicle, the interior monitoring must be deactivated when leaving the vehicle.

The switch for deactivation of the interior monitoring sensor is located on the driver side, in the bottom „B-pillar“. The interior monitoring can only be deactivated by means of the switch when leaving the vehicle. The vehicle inclination sender is deactivated by pressing the switch when the ignition is switched off (terminal 15), the key is removed from the ignition lock (S-contact) and the driver door is opened. Then the vehicle must be locked within 30 seconds.

Switching off the interior monitoring is only carried out for one locking cycle.

SP54_33

The function of the ultrasound system

Phase „A" deactivation status inactive

The microprocessor of the ultrasound system is normally in idle state.
It evaluates no ultrasound signals and blocks the emission of the ultrasound.

The microprocessor is actuated regularly by a timer or by the convenience system central control unit. The system communicates with the convenience system central control unit via LIN databus and under its command it moves into the phase „Analysis of an activation attempt".

Phase „B" connected in monitoring status

The microprocessor of the ultrasound system is normally in idle state.
It is actuated every 200 milliseconds by the monitoring timer. In active condition, the system transmits interrupted ultrasound signals and evaluates their response signals which are received by three sensors. If the receiving signal matches the previously received signals, the microprocessor returns to idle state. If the receiving signal is different in comparison to the previous signal, the system moves into the phase „Analysis of an activation attempt".

This analysis can trigger the alarm. Otherwise the system returns to the cyclic analysis of the response signals.

The sensitivity of this system is regulated automatically when working with response signals. After the activation the maximum sensitivity is decreased in stages, until no further signal changes indicating a movement inside the vehicle are detected. This automatic control is performed within two minutes after the activation.

The microprocessor is actuated every second by the LIN databus, which transmits the messages regarding the current operating state. Under command of the convenience system central control unit, it can move into the phase „Deactivation" or „Diagnosis".

The system evaluates the voltage and the operating temperature in regular intervals of one minute.

If the measured values are within the tolerance, the system moves into the phase „ Analysis of an activation attempt". The system sends an error message to the convenience system central control unit. The convenience system control unit informs about the error for 28 seconds by means of the light diode in the driver door. The system moves into the deactivation state.

Phase „C" analysis of an activation attempt

The microprocessor of the ultrasound system is in operating condition.
It generates the frequency for the transmission of an ultrasound signal, which is generated by one of the sensors.

It generates signals, which are indispensable for the incidental demodulation of the received ultrasound signals.

It evaluates signals, which come from 4 analog channels (2 per receiver). The alarm is activated, if the signals have the same frequency and are out of phase by 90°.

In the case of an authorized alarm, the ultrasound system transmits a message via the LIN databus to the convenience system central control unit.

While deciding about the alarm triggering, the system remains in this phase or exits it. If these signals do not lead to an alarm triggering, the system returns to the monitoring phase. The convenience system central control unit can bring the system into the phase „Deactivation „ or „Diagnosis" via the LIN databus.

Phase „D" diagnosis

The microprocessor of the ultrasound system is in operating condition. It is controlled by the convenience system central control unit.

The system is set to the phase „Deactivation" or „Analysis of an activation attempt".

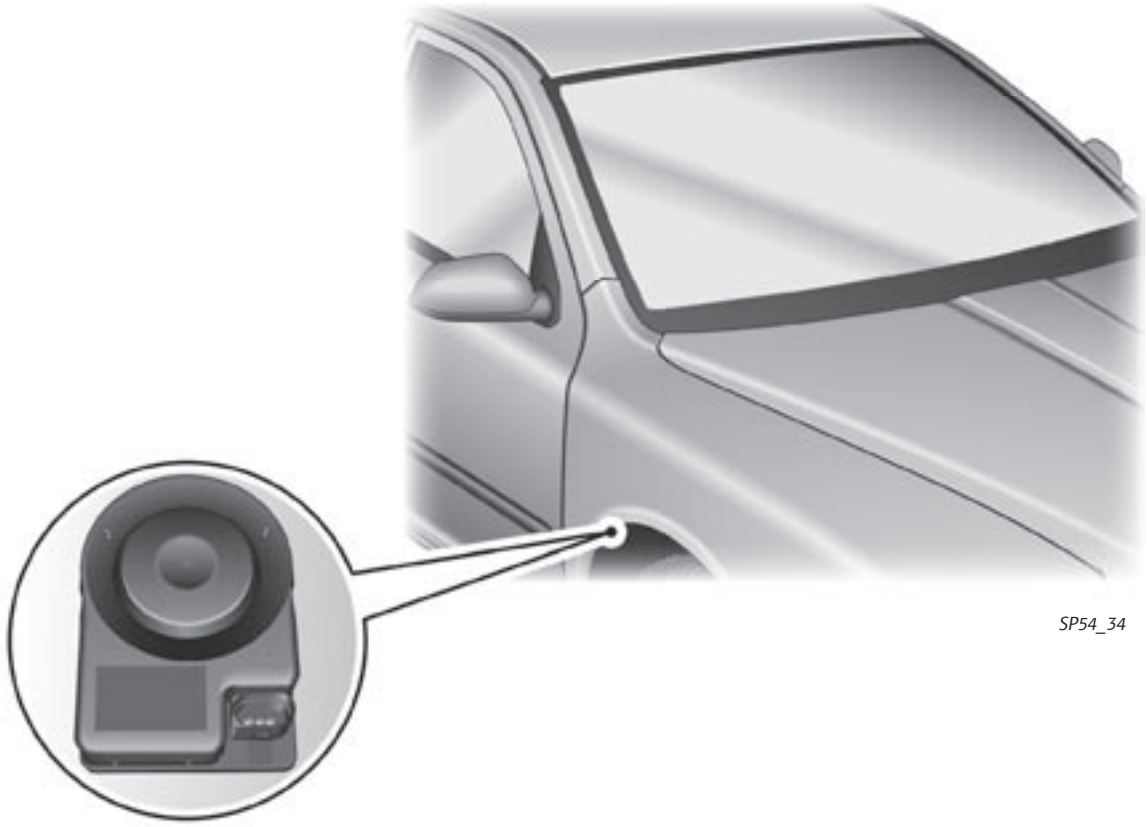
The alarm horn

The alarm horn is located in the front right wheelhouse above the wheelhouse liner.

After locking the vehicle, the LIN databus performs an active communication between the convenience system central control unit and the alarm horn.

The convenience system central control unit transmits a message every second to the alarm horn regarding the current vehicle status. The message is evaluated by the alarm horn and the anti-theft alarm system is activated on command for alarm triggering or when communication is interrupted.

The alarm horn has its own Ni-MH-cells. These are supplied directly with current from the fuse box.



SP54_34

The locking inspection

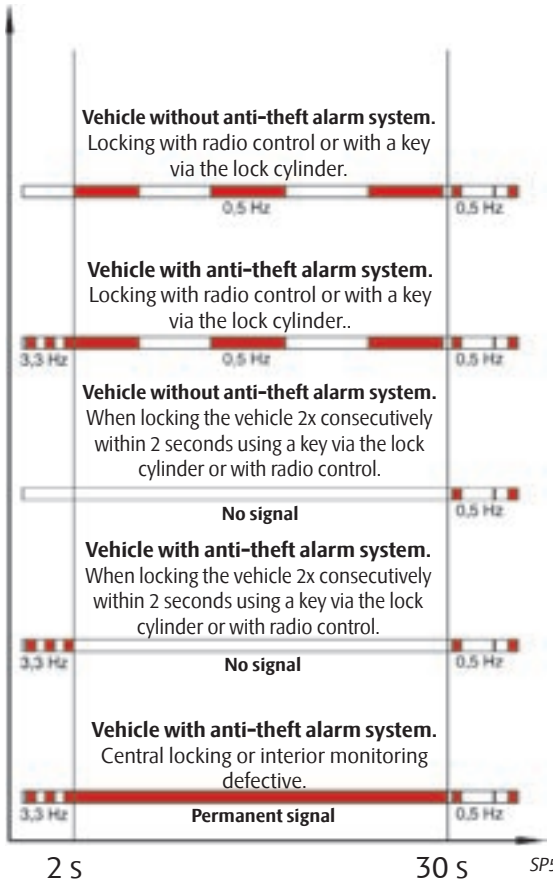
Outside locking

In the second generation of **Škoda**Octavia, the safety knob is no longer a component of the door lock.

The message regarding the status of the safety knob for central locking is partially ensured by the locking warning light, which is connected directly to the driver side door control unit. In the initial condition the warning light informs precisely about the status of the central locking.

The control signal of the warning light is activated by the convenience system central control unit.

If the vehicle is locked and the anti-theft alarm system is deactivated or there is a fault, the warning light shows various conditions.



SP54_35

For reasons of secrecy, the locking warning light is always actuated with a 0.5 Hz pulse after 30 seconds.

Inside locking

The warning light for inside locking informs the customer about the condition of the inside locking. The warning light serves as illumination of the central lokking switch, which is located in the centre console.

The switch lights up orange:

- If the vehicle is locked automatically.
- If the vehicle is locked 2x consecutively within 2 seconds using the key via the lock cylinder or with the radio control.
- If the vehicle with the central locking switch is lokked centrally.

SP54_36

The Memory seat

Three differently set seated positions can be stored with the seat memory function The settings are stored in the control unit, which is located in the lower part of the seat.

In contrast to the first generation of **Škoda**Octavia, the lumbar is also controlled additionally by the control unit.

The stored settings can be requested using the position buttons at the driver seat or after adaptation of the radio control by pressing the button „Unlock" on the radio control or after opening the driver door.

Each time the control unit for seat adjustment with memory is changed, a setting must be carried out, which is absolutely necessary for the correct functioning of the memory seat.

The limit values are stored in the „EEPROM memory", so that no other setting is required. When connecting to the onboard supply for the first time, all senders and actuators are automatically read and assigned by the control unit. The position of the exterior mirrors is stored together with the current seated position.

Setting

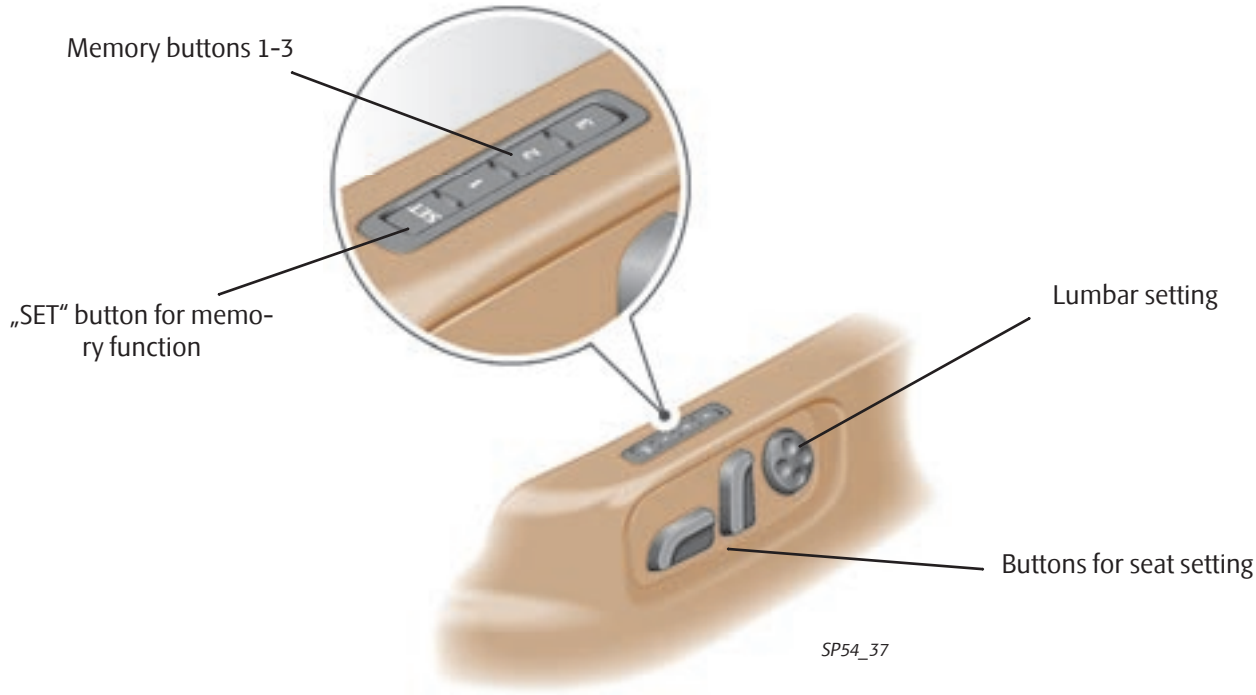
Position the backrest up to the front stop when the ignition is switched on. The Gong in the dash panel insert confirms that the setting has been carried out.

Store seat position

Press the „SET" button for one second when the ignition is switched on. Then press one of the memory buttons within 10 seconds for 1 to 3 seconds.

Adapt the radio control to the seat position:

Switch off the ignition (terminal 15), pull the ignition key out of the ignition lock (S-contact) and press the button „Unlock" on the radio control within 10 seconds after pressing one of the memory buttons 1 to 3.



Characteristic

The steering column switch integrates the operating elements which are located at the steering column in one unit. At the same time it communicates between the operating elements located at the steering column and other vehicle systems. This communication is ensured by the steering column electronics control unit (J527), which is a component of the steering column switch.

The steering column electronics control unit detects and processes all signals from the operating elements at the steering column and transmits them to the individual vehicle systems.

In direction of the steering wheel the communication is performed via the LIN databus, in direction of the vehicle it is performed via CAN databus convenience and CAN databus drive.

SP54_38

SP54_39

1. Ignition lock – ignition starter switch
- The ignition lock transmits the movement from the lock cylinder to the ignition starter switch and closes the steering rod.
- The ignition starter switch switches the signals for the onboard supply of the vehicle.

2. Connection line
- It serves as a connection of the steering column electronics control unit with the ignition starter switch and the electronic ignition key withdrawal lock on an automatic gearbox (not a component of the ignition starter switch).

3. Carrier body

4. Turn signal lever
- It operates the turn signal lights, headlight flasher, main beam, side light and cruise control system.

5. Windscreen wiper lever
- It operates the front and rear windscreen wiper and washer system.

6. Steering angle sender
- It measures the steering angle values for the steering aid and also for the ESP.

7. Restoring ring with slip ring
- They transfer signals between the steering wheel, signal horn, multifunction steering wheel and airbag.

8. Steering column electronics control unit (J527)
- It evaluates the signals from the individual components and communicates with the other vehicle systems.

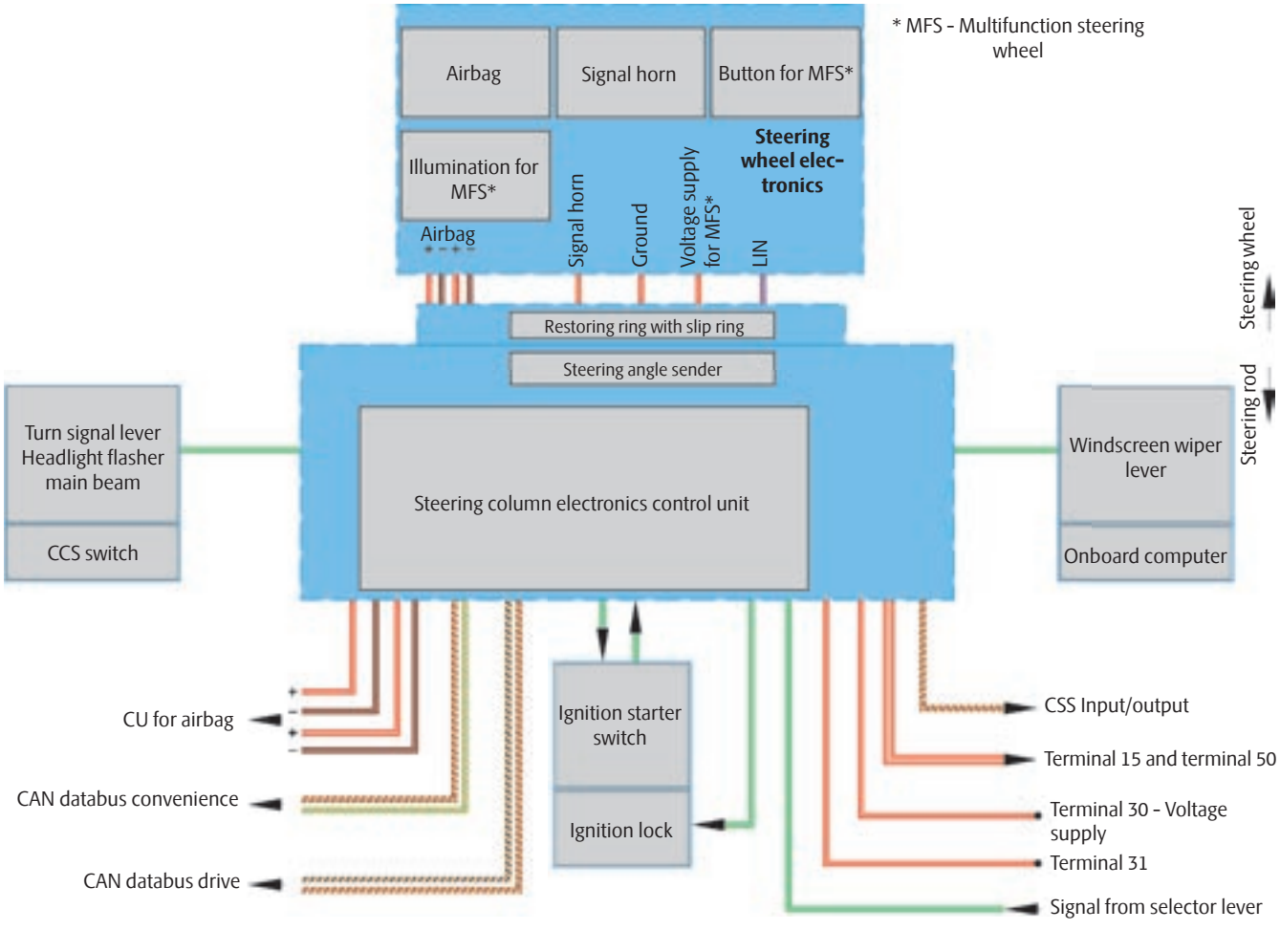
Steering column switch

Operation:

- Switching of base signals for the onboard supply by the ignition starter switch.
- Transmitting signals between the vehicle and the steering wheel (signal horn, multifunction steering wheel - communication via LIN databus, airbag).
- Operating turn signal lights, headlight flasher and main beam.
- Operating windscreen wiper and washer system.
- Operating onboard computer.
- Operating cruise control speed (at turn signal lever).
- Measuring steering angle and signal transmission in the vehicle.
- Ignition key withdrawal lock (for automatic gearbox), if the selector lever is not in position „P" (lock function).

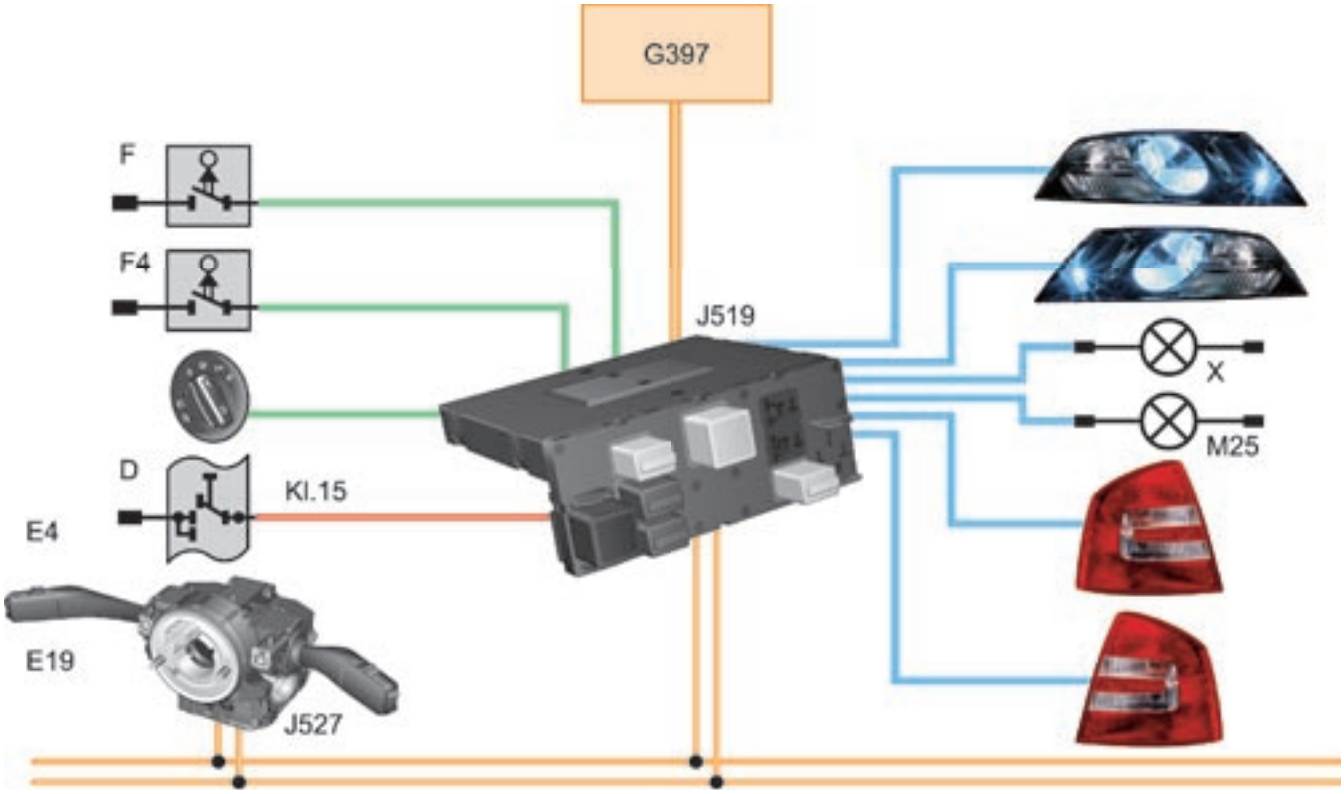
Note!

The steering column electronics control unit is self-diagnostic under the address word 16 – steering wheel electronics.



SP54_40

The onboard supply control unit J519 evaluates the signals directly from the light switch or from the light sensor. The information about switching on the turn signal light, the main beam and the headlight flasher is transmitted via the steering column electronics control unit via the CAN databus cable to the onboard supply control unit J519.



SP54_41

D Ignition lock
E19 Parking light switch
E4 Headlight dipper/flasher switch
F Brake light switch
F4 Reversing light switch
G397 Rain and light detector sensor
J527 Steering column electronics control unit
J519 Onboard supply control unit
M25 Additional brake light
X Number plate light

Headlight

The clear glass is made out of plastic.

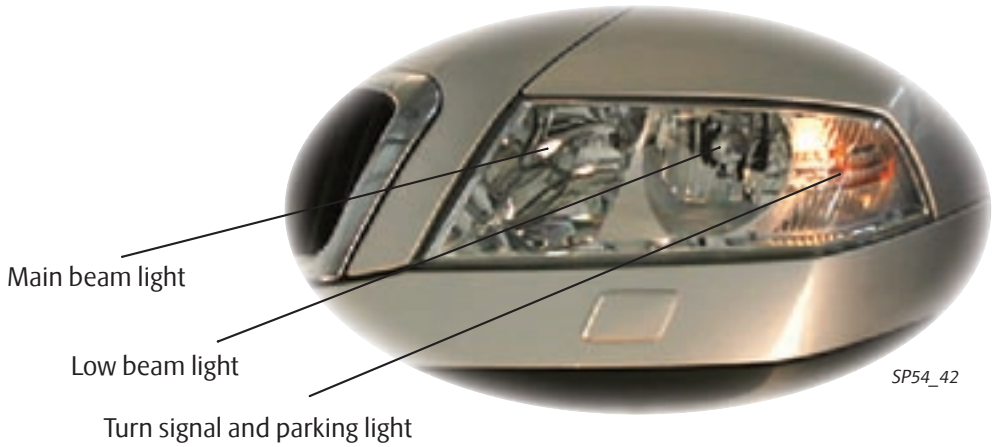
The headlight forms a unit, which is divided in three reflex surfaces:
- Main beam light.
- Low beam light.
- Parking and turn signal light.

For the second generation of **Škoda**Octavia two headlight versions are obtainable as an option.

The parking and turn signal lights are covered with a scattering filter.

The bulb for the turn signal is orange.

Two chamber headlight



Headlight with dioptric-eliptic element

Depending on equipment, either a halogen or a xenon lamp can be inserted in the headlight with dioptric-elipitic element.

Reversing lights

The reversing lights are designed so that the tail light at the entire outer circumference of the reversing light lights up and creates the so-called C-effect. 4 bulbs are used for the tail light - two single-filament bulbs for the tail light, one two-filament bulb for the tail light and brake light and one two-filament bulb for the tail light and fog light.

The clear glass is inserted for the turn signal and reversing light. The component of the reversing light lens forms a reflector.

SP54_44

Direction indicators

They are installed in the exterior mirrors. They consist of three LED diodes.

SP54_45

Light sensor

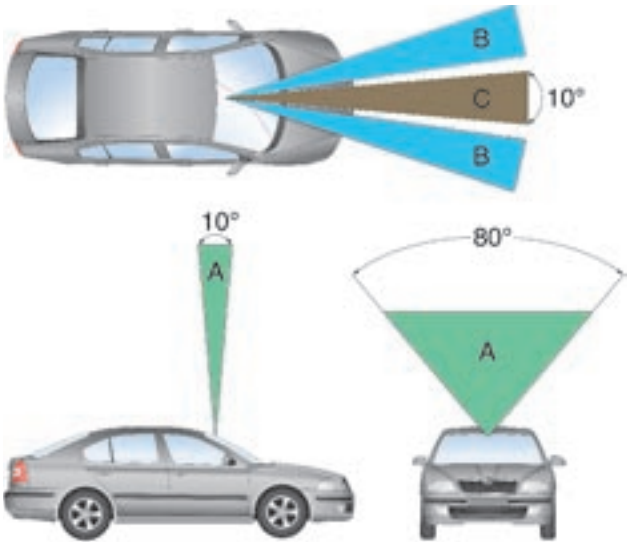
The light sensor is fitted in the foot of the interior mirror. It forms together with the rain sensor one unit.

The vehicles equipped with the light sensor can automatically detect the surrounding brightness and on the basis of this the driving light is switched on or off .

The light sensor measures the light values at three different levels in front of the vehicle. Because of the difference between these light values, it can detect the current surrounding brightness (darkness, daylight, fog, driving into a tunnel, driving out of tunnel, driving in an alley etc.)

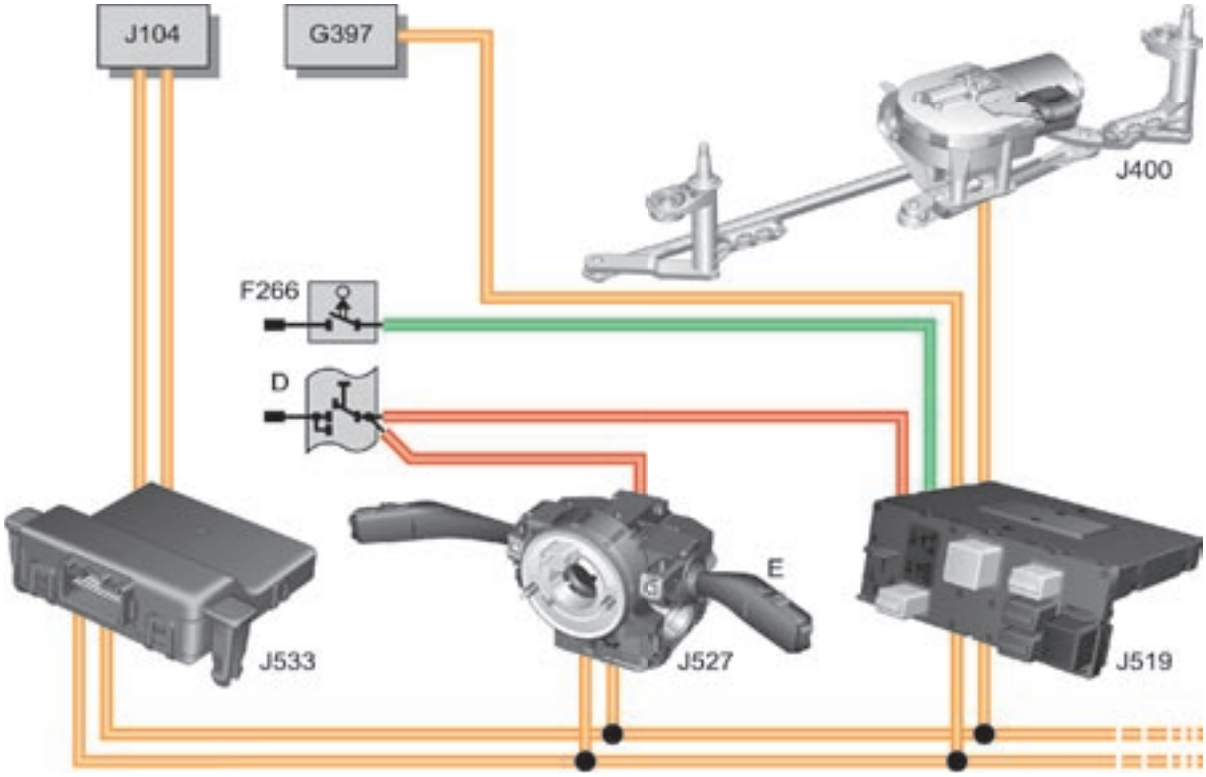
Darkness			Light			Surrounding brightness	Light
A	B	C	A	B	C		
X	X	X				Darkness	on
			X	X	X	Daylight	off
	X	X	X			Driving into a tunnel, a forest, a garage etc.	on
	X		X		X	Bridge, Alley	on
X				X	X	Driving out of a tunnel, a forest, a garage etc.	on

Function of the light sensor



SP54_46

Windscreen wiper

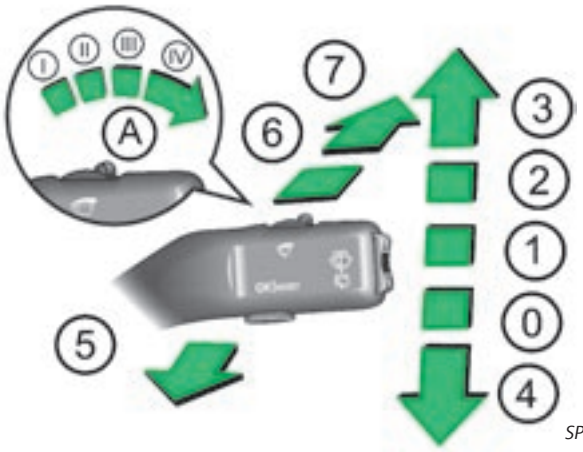


SP54_47

D Ignition lock
E Windscreen wiper lever
F266 Contact switch for engine hood
G397 Rain and light detector sensor
J104 ABS control unit
J400 Wiper motor control unit
J519 Onboard supply control unit
J527 Steering column electronics control unit
J533 Gateway

The signal of the position of the windscreen lever is passed on by the steering column electronics control unit via the CAN databus convenience to the onboard supply control unit J519. The onboard supply control unit transmits the signal about the current position of the windscreen wiper lever via the LIN databus to the wiper motor, where this signal is processed.

Positions of the windscreen wiper lever



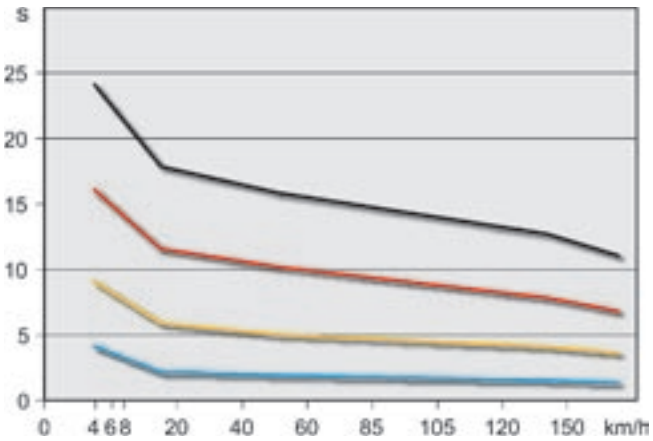
SP54_48

0 - Basic position
1 - Interval wipe, controlled by the rain sensor
2 - Slow wipe
3 - Fast wipe
4 - Flick wipe, setting and service position
5 - Automatic wipe/wash
6 - Rear window wipe
7 - Automatic wipe/wash for rear window
A - Switch for interval wipe and for sensitivity setting of the rain sensor

Wiper functions

Speed dependent interval stages

The wiping can be set using the windscreen wiper lever in four interval stages. The speed of the individual interval stages is dependent on the vehicle speed. The rest periods between the individual wiping intervals vary between 1.28 seconds in stage „I“ at approx. 150 km/h and 24 seconds in stage „IV“ at approx. 4 km/h.



SP54_49

Wiping vehicles fitted with rain sensor

The wiper frequency is controlled by the rain sensor. The windscreen wiper lever must be in the position for interval wipes. The setting of the sensor sensitivity can be performed with the windscreen wiper lever (position A).

Speed dependent wiping stage resetting

If the vehicle speed drops below 4 km/h (e.g when stopping at a traffic light post), the selected wiper speed is automatically decreased from stage 3 to stage 2 or from stage 2 to interval wipe (stage 1). When increasing the speed over 8 km/h the wiper speed returns to the selected stage.

One time washing of the windscreen

If the button for the wash function is operated for more than 0.8 seconds, the fast wipe is switched on. If the operating time is low, the slow wipe is switched on.

Antiblock function

If the wiper on the windscreen encounters an obstacle, it can detect it. Then it attempts to push away this obstacle. If it cannot remove the obstacle, the wiping stops automatically after 5 wiping intervals and the wiper remains in front of the obstacle. After removing the obstacle and switching on the wipe system again, the wiper begins to wipe again.

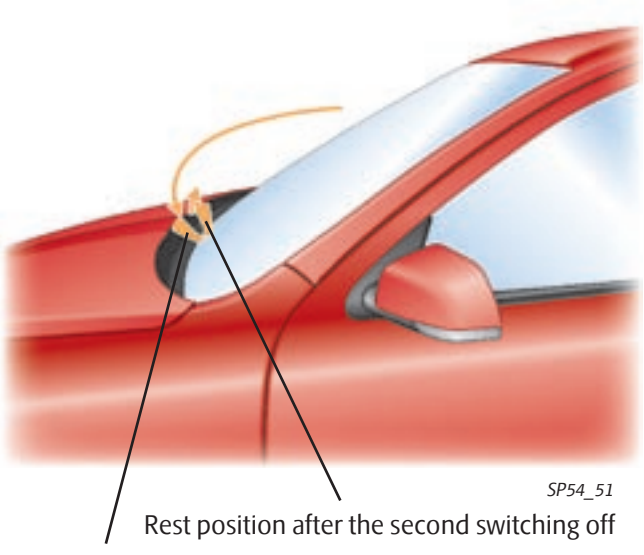
SP54_50

Windscreen wiper

Automatic wash/wipe for windscreen
If the windscreen wiper lever at the steering wheel is pulled back into the position of the wash function, the wash system begins to operate immediately, the wiper wipes with a time delay (800 milliseconds). At a vehicle speed above 120 km/h the wash and wipe system operates simultaneously. After releasing the lever, the wash pump stops and another 3 to 4 wiping intervals are carried out (depending on the duration of washing)

Rewipe the windscreen
At a vehicle speed above 120 km/h and when activating the wash system, another rewipe occurs again 5 seconds after the last rewipe.

Alternative rest position
After each second time when the windscreen wiper is switched off or after each fifth time when the ignition is switched off, the rest position of the windscreen wiper is newly defined, which should prevent a deformation of the wiper blades. In order to facilitate the setting of the windscreen wipers at the works or for the pre-sale service, this function is switched off during the first 100 wiping intervals.

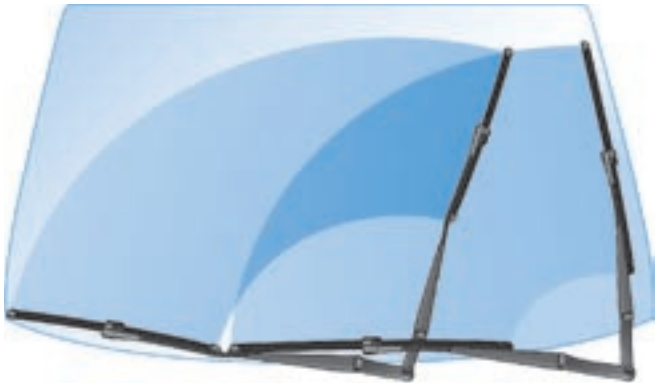


SP54_51

Rest position after the second switching off

Rest position after the first switching off

Service position for replacing the wiper blades
This function cannot be activated if the engine hood is open.
After activating this function, the wipers move into the position where the wiper blades can be replaced without damage. The function is activated by the windscreen wiper lever set in the position for flick wiping within 20 seconds after switching off the ignition. The wipers then move into service position.



SP54_52

Switching off the wipers when the engine hood is open
This function was introduced for the purpose of safety increase during service work .

If the engine hood is opened when the vehicle is in standstill or at a vehicle speed below 2 km/h, the wipers do not operate. The wipers only start wiping, after the engine hood is closed and the windscreen wiper lever was set in the position for wiping.

If the engine hood opens at a speed of 2 km/h up to 16 km/h, the wipers stop. However, they can be switched on again by setting the windscreen wiper lever once again in the position for wiping.

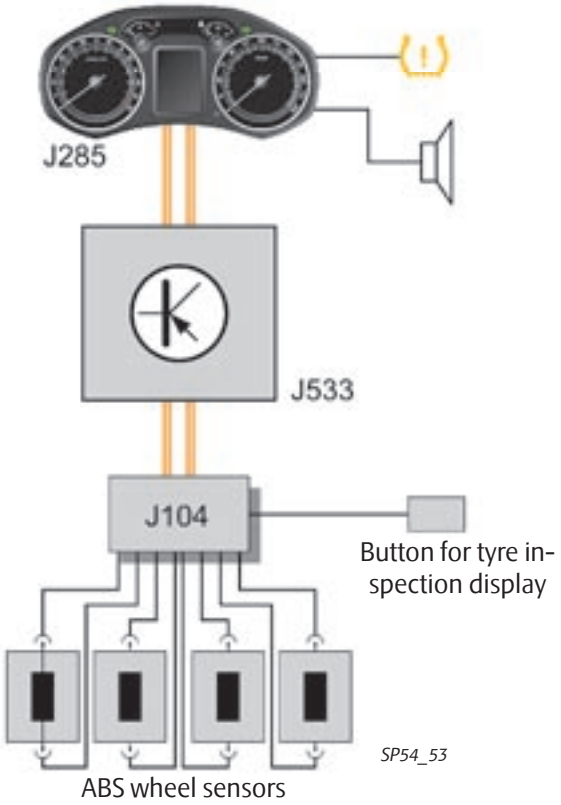
If the engine hood opens at a speed of more than 16 km/H, the signal from the hood contact is not accepted by the wipers.

The tyre inspection is a software module in the ABS control unit. The ABS control unit compares the circumferential speed on all 4 wheels and determines on the basis of the determined values and their possible deviations the pressure loss in the tyres.

The roll-off circumference of a tyre depends on its inflation pressure. When changing the tyre inflation pressure, the roll-off circumference of the tyre changes as well.

If a pressure loss is detected, the driver is made aware of this through the warning light lit up permanently in the dash panel as well as a brief buzzing tone.

The warning is only set back after a new calibration.



J104 ABS control unit
J285 Control unit in dash panel insert
J533 Onboard supply control unit

Note!

In case of extremely fast cornering, when braking or activating an ABS system, the tyre inspection display temporarily switches off automatically.

Basic setting (calibration)

For determining the reference data, a calibration must be carried out after each change of the inflation pressure or after a tyre change.

Calibration drive

The button for the tyre inspection display must be pressed in order to start a calibration drive. The warning lamp for the tyre inspection display lights up and the flashing of the warning lamp confirms the start of the calibration.

The system can only conduct a major monitoring after several minutes in a specific speed category, which is important in order to collect reference data in different speed categories. The system is fully operational only when sufficient data has been collected. The driving distance for the calibration drive should be performed on country roads or motorways.

Calibration status

The status of the calibration can be read out with the diagnostic unit VAS 5051/5052 via the „targeted fault finding“.

SP54_54

Button for tyre inspection display

System fault

If a fault occurs in the ABS control unit, the tyre inspection is rendered non-operational and the warning lamp for the tyre inspection display flashes.

Operation

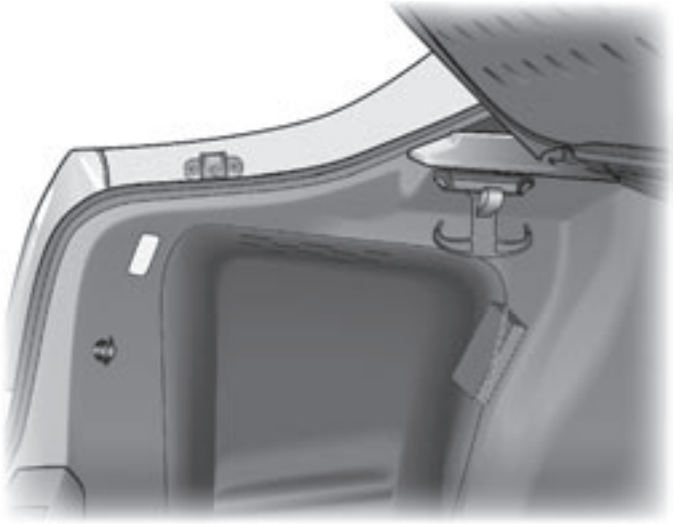
- It detects if a trailer is attached.
- It switches and monitors the lights of the trailer.
- It indicates defective bulbs in the lights of the trailer (tail light, brake light and turn signal light): The reverse and rear fog light cannot be indicated.
- It ensures the automatic deactivation of the rear fog light on the vehicle, if a trailer is attached.

The trailer detector control unit is located in the luggage compartment on the left wheelhouse below the trim panel.

The trailer detector control unit is self-diagnostic. The diagnosis is carried out using the diagnostic unit VAS 5051/5052.

The lighting up of the trailer lights can be set by the coding.

The trailer lighting is activated by the onboard supply control unit via the CAN databus.
The lighting is switched through semi-conductors; no power load takes place for the control elements of the vehicle illumination.



SP54_55

Personalization

With the help of the information display, the user has the possibilty to change certain settings. The current setting is displayed in the information display on the respective point at the top below the line.

The setting is conducted using the buttons on the windscreen wiper lever. The menu selection is requested, when the rocker switch is held pressed for more than 1 second. The personalized menu is shown via the display in the dash panel insert. The transmission of the selected settings to the control units is performed via CAN databus convenience or CAN databus combi.

By means of adaptation, the user can set the following system profiles:

- Display language.
- Warning for winter tyres.
- Setting of the control units.
- Light setting.
- Time.
- Setting of the functions for the convenience system central control unit.

SP54_56

SP54_57

SP54_58

Rocker switch for menu request and choice of the individual menu fields

Display of the selected data

Coming Home

In contrast to the first generation of **Škoda**Octavia, where this function was connected to several control elements, in the second generation of **Škoda**Octavia this function is controlled completely by the onboard supply control unit.

This function enables the switching on of the low beam light when the ignition is switched off.

Activation:

- Switch off the ignition when the low beam light is switched on.
- Keep the light switch in the position of the low beam light.

The light goes off as soon as the set and active time constant with the help of personalization has expired.

If one of the doors or the tailgate remains open, the light goes off 90 seconds after switching off the ignition.

For vehicles with automatic light, when the light switch is in the position of the automatic light, the light is controlled by the light sensor in the foot of the interior mirror.

If the intensity of the light is higher than the value set at the light sensor, the light is not activated by the onboard supply control unit after switching off the ignition.

Leaving Home

This function enables the light to be switched on by radio control for a brief period after unlocking the vehicle. This ensures an easy and safe getting in the vehicle.

The light is controlled by the light sensor in the foot of the interior mirror. If the intensity of the light is higher than the value set at the light sensor, the Leaving Home function is not activated after unlocking the vehicle..

The function is deactivated by switching on the ignition or locking the vehicle.

Depending on the equipment, the following components of the **Coming Home/Leaving Home function** are switched on:

- Side light.
- Low beam light.
- Exterior mirror light.
- Number plate light.

Mobile phone–Voice control system

A mobile phone-voice control system was developed for the second generation of **Škoda**Octavia.

The operating electronics control unit processes the acoustic signals received by the microphone. Then it compares these signals with the databank of the other known commands (voice commands) and decides which voice commands have to be carried out. If a voice command is not detected, the system answers „**Pardon?**" and a new entry can be performed. After the 3rd attempt, the answer „**Cancel**" is performed and the dialogue is ended.

The voice control of the mobile phone is only possible for vehicles, which are equipped with maxi DOT Display and radio Audience, Stream, or with radio-navigation system.

The information about the telephone conversation is shown on the display of the radio and on the information display in the dash panel insert.

With the help of the voice control, pre-defined commands as well as commands defined by the user (names) can be entered.

The voice control has a system for suppressing surrounding noises. This enables also the voice control at a relatively high surrounding sound level when driving the vehicle.

Depending on the vehicle equipment, the voice control is activated by pressing the push-button **PTT** (push to talk) on the telephone adapter or the push-button on the multifunction steering wheel.

Incoming phone conversations are accepted with the push-button and are ended by pressing again the push-button .

The period of time, in which the telephone system is ready to accept and carry out voice commands, is called **DIALOGUE**.

By pressing the push-button the dialogue is ended.

In case of incoming conversation, the dialogue is immediately interrupted, because the conversation has a higher priority.

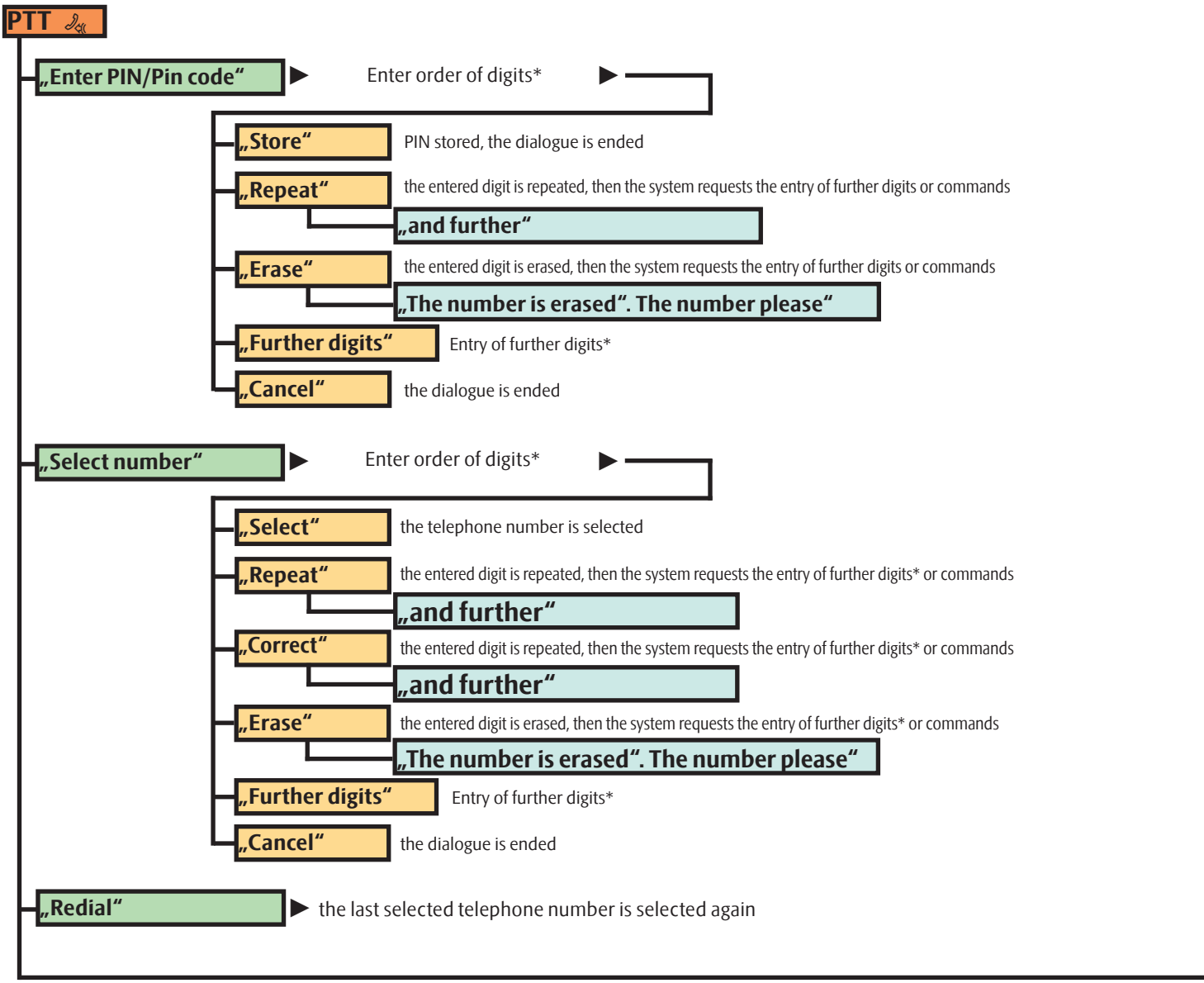
A phone phonebook is a component of the voice control system. In the phone phonebook there are 50 free memory locations available. This phone phonebook is independent of the appliance used for the telephone. Separate phonebook entries, which are stored on the SIM card of the telephone, can be called up additionally via the control buttons of the telephone. For vehicles fitted with multifunction steering wheel, the operation is performed via the function buttons on the steering wheel.

With the **GALA** function of the radio, the volume of the voice response/telephone calls is automatically controlled according to the vehicle speed. Furthermore the volume can be changed individually at any time with the button for setting the radio or with function buttons on the steering wheel.

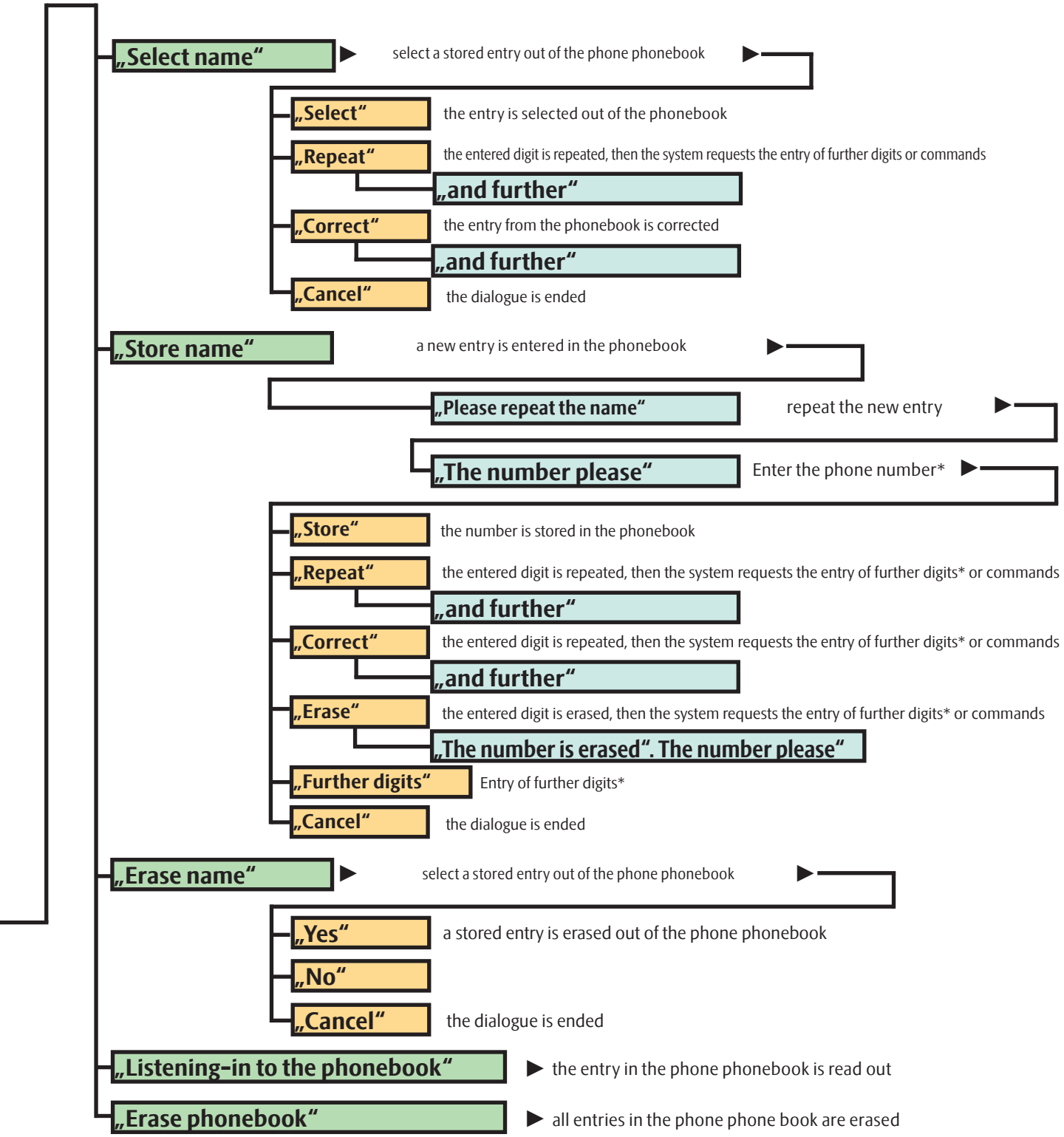
System

R38 Telephone microphone
J412 Control unit for operating electronics, mobile phone

Mobile phone-Voice control system



* The digits zero to nine are permitted. The system detects no continuous digit combinations (such as „twenty-five“). The digits can be entered in a row (┌0123456789┐), in a block (┌012┐ ┌34┐ ┌5┐ ┌6789┐) or individually (┌0┐ ┌1┐ ┌2┐ ┌3┐ ┌4┐ ┌5┐ ┌6┐ ┌7┐ ┌8┐ ┌9┐).


„Select name“
select a stored entry out of the phone phonebook
„Select“
the entry is selected out of the phonebook
„Repeat“
the entered digit is repeated, then the system requests the entry of further digits or commands
„and further“
„Correct“
the entry from the phonebook is corrected
„and further“
„Cancel“
the dialogue is ended
„Store name“
a new entry is entered in the phonebook
„Please repeat the name“
repeat the new entry
„The number please“
Enter the phone number*
„Store“
the number is stored in the phonebook
„Repeat“
the entered digit is repeated, then the system requests the entry of further digits* or commands
„and further“
„Correct“
the entered digit is repeated, then the system requests the entry of further digits* or commands
„and further“
„Erase“
the entered digit is erased, then the system requests the entry of further digits* or commands
„The number is erased“. The number please“
„Further digits“
Entry of further digits*
„Cancel“
the dialogue is ended
„Erase name“
select a stored entry out of the phone phonebook
„Yes“
a stored entry is erased out of the phone phonebook
„No“
„Cancel“
the dialogue is ended
„Listening-in to the phonebook“
the entry in the phone phonebook is read out
„Erase phonebook“
all entries in the phone phone book are erased

Self-diagnosis

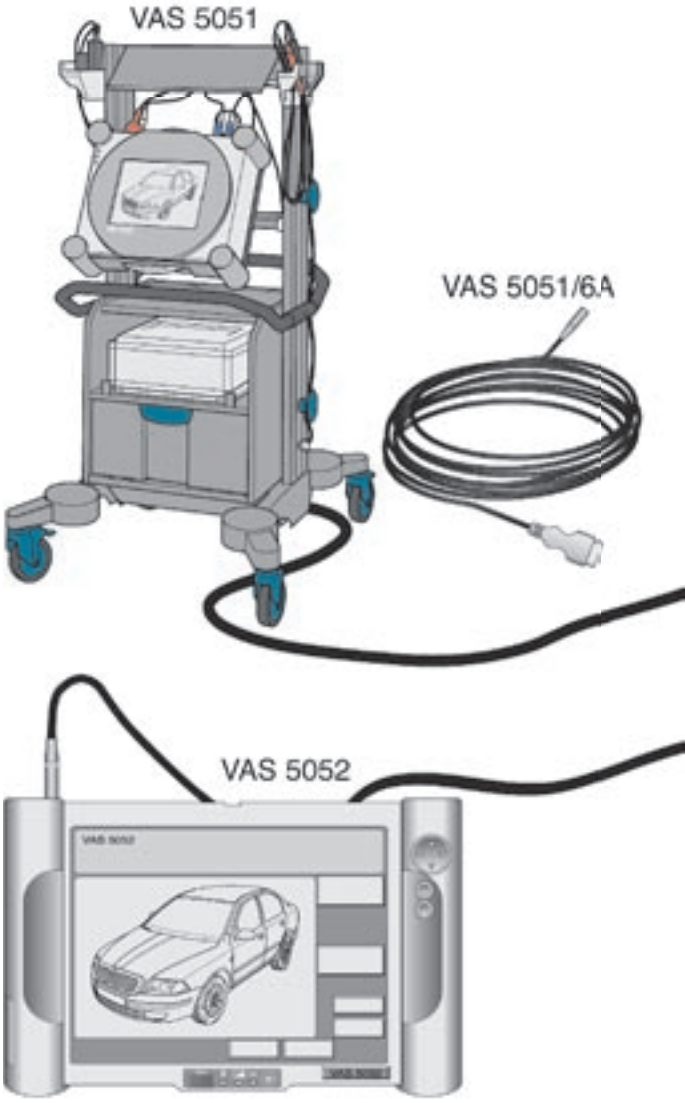
The exchange of the data required for the self-diagnosis is performed between the diagnostic unit VAS 5051 or VAS 5052 via the Gateway.

The data transmission in the diagnostic unit VAS 5051 is only possible via the diagnostic cables VAS 5051/5A or VAS 5051/6A.

The diagnostic cables VAS 50552/3 are suitable for data transmission via the databus diagnosis.

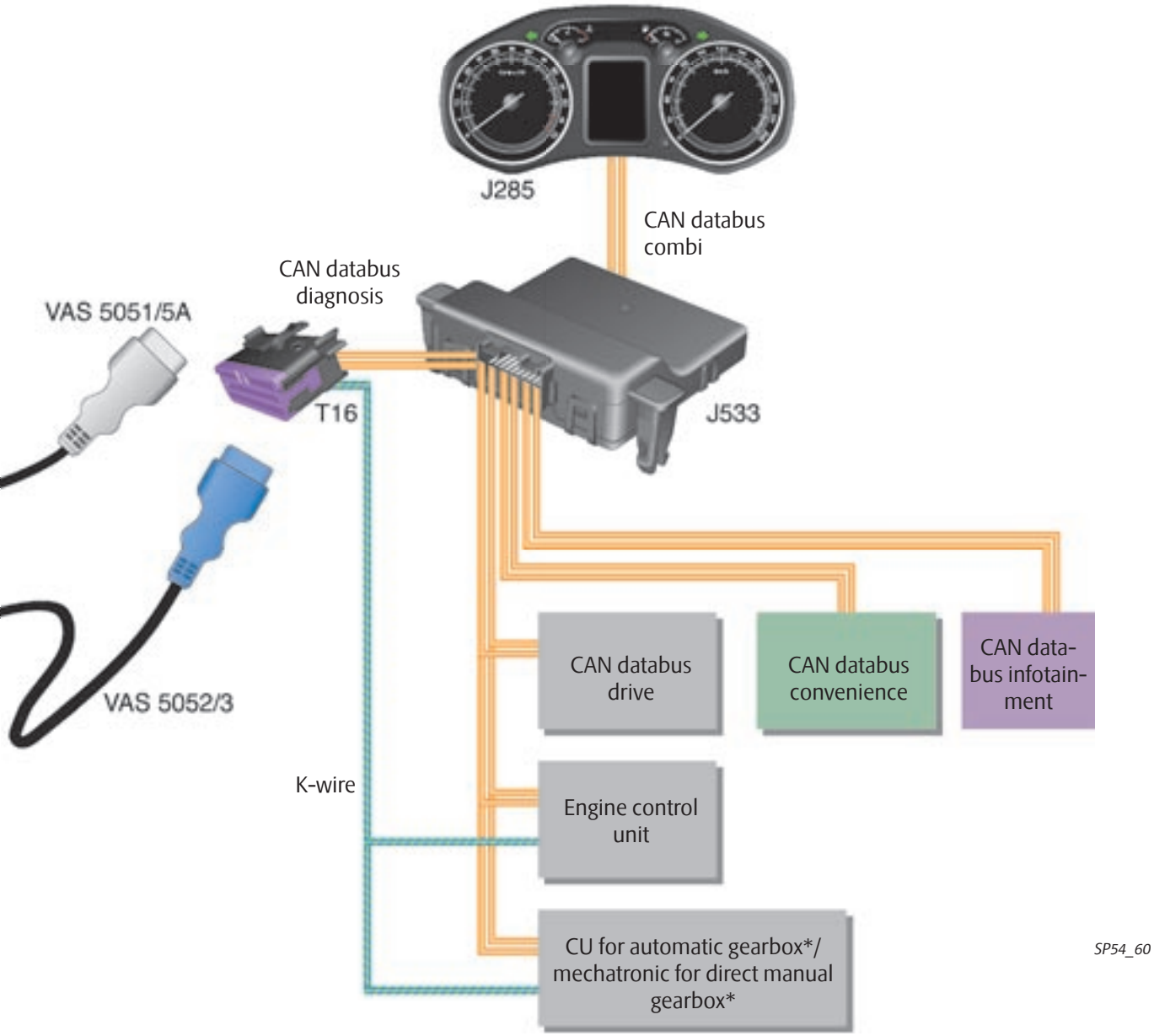
The K-wire can only be used for the self-diagnosis of the engine control unit and the automatic gearbox control unit or the mechatronic for direct manual gearbox.

The diagnostic unit V.A.G 1552 can also be used for the self-diagnosis of the engine control unit and the automatic gearbox control unit or the mechatronic for direct manual gearbox.



Innovation!

The functions „Targeted fault finding“ and „Targeted functions“ were integrated for the first time in the diagnostic unit VAS 5052.



* depending on gearbox version

J285	Control unit in dash panel insert
J533	Gateway
T16	Diagnostic connection
VAS 5051	Diagnostic unit
VAS 5051/5A	Diagnostic cable 3 m
VAS 5051/6A	Diagnostic cable 5 m
VAS 5052	Diagnostic unit
VAS 5051/3	Diagnostic cable 3 m

List of Self-Study Programmes so far

No.	Title
01	Mono-Motronic
02	Central locking
03	Anti-Theft Alarm
04	Working with current flow diagrams
05	ŠKODA FELICIA
06	ŠKODA-Vehicle safety
07	Principles of ABS - not published
08	ABS-FELICIA
09	Immobilizer with transponder
10	Air conditioning in vehicles
11	FELICIA Air conditioning
12	1.6-ltr. Engine with MPI
13	1.9-ltr. Naturally aspirated diesel engine
14	Power-assisted steering
15	ŠKODA OCTAVIA
16	1.9-ltr.TDI engine
17	OCTAVIA Convenience electronic system
18	OCTAVIA Manual gearbox 02K/02J
19	1.6-ltr./1.8-ltr. Petrol engines
20	Automatic gearbox - fundamentals
21	Automatic gearbox 01M
22	1.9-ltr./50 kW SDI, 1.9-ltr./81 kW TDI
23	1.8-ltr. 110 kW turbo petrol engine; 1.8-ltr. 92 kW petrol engine
24	OCTAVIA, CAN databus
25	OCTAVIA - CLIMATRONIC
26	OCTAVIA - Vehicle safety
27	OCTAVIA - 1.4-ltr. Engine and Gearbox 002
28	OCTAVIA - ESP
29	OCTAVIA - 4x4
30	Petrol engine 2.0-ltr. 85 kW/88 kW
31	OCTAVIA - Radio/navigation system
32	ŠKODA FABIA
33	ŠKODA FABIA - Vehicle electrics
34	ŠKODA FABIA - Power-assisted steering
35	Petrol engines 1.4-ltr. - 16V 55/74 kW
36	ŠKODA FABIA - 1.9-ltr. TDI Unit injection
37	5-Speed manual gearbox 02T and 002
38	ŠkodaOctavia - Model 2001
39	Euro-On-Board-Diagnosis
40	Automatic gearbox 001
41	6-speed manual gearbox 02M
42	**Škoda**Fabia - ESP
43	Exhaust emissions
44	Extended maintenance interval
45	1.2-ltr. 3-cylinder petrol engines
46	**Škoda**Superb; Presentation of the vehicle part I
47	**Škoda**Superb; Presentation of the vehicle part II
48	**Škoda**Superb; 2.8-ltr./142 kW V6 petrol engine
49	**Škoda**Superb; 2.5-ltr./114 kW TDI V6 Diesel engine
50	**Škoda**Superb; Automatic gearbox 01V
51	2.0-ltr./85 kW Petrol engine with balance shaft transmission and 2-stage switching intake manifold
52	**Škoda**Fabia; 1.4-ltr. TDI engine with unit injection system
53	**Škoda**Octavia; Presentation of the vehicle
54	**Škoda**Octavia; Electrical components

S00.2003.54.20 (GB) ETechnical status. 03/04