KESSY system

in Škoda vehicles

Self-study programme

It allows you to open the doors, start or switch off the engine and to exit the vehicle after closing and locking the doors without taking the vehicle key out of your trouser pocket. The KESSY system (**K**eyless **E**ntry **S**tart and Exit **SY**stem) combines the benefits of this exclusive comfort feature in the model range Superb. We would like to introduce you to this modern system presented in this study material.

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Contents

You will find notes for the assembly and disassembly, repair and diagnostics as well as detailed user information in the workshop manuals, in the diagnostic unit VAS 505x and in the on-board literature.

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KESSY system

The models Superb and Superb Combi are fitted with the KESSY system (**K**eyless **E**ntry **S**tart and Exit **Sy**stem) which allows convenient opening/locking as well as start-up of the vehicle without actively using a remote control key (it is sufficent that the key is inside the vehicle, for example in the trouser pocket of the driver, in order to start the vehicle). The central locking function can still be activated by means of the remote control button on the key, furthermore a component is integrated in the key to enable the communication with the KESSY system.

The Electrical Steering Column Lock ESCL is a component of the KESSY system and replaces the mechanical steering wheel lock. Another element is the start button which replaces the ignition lock.

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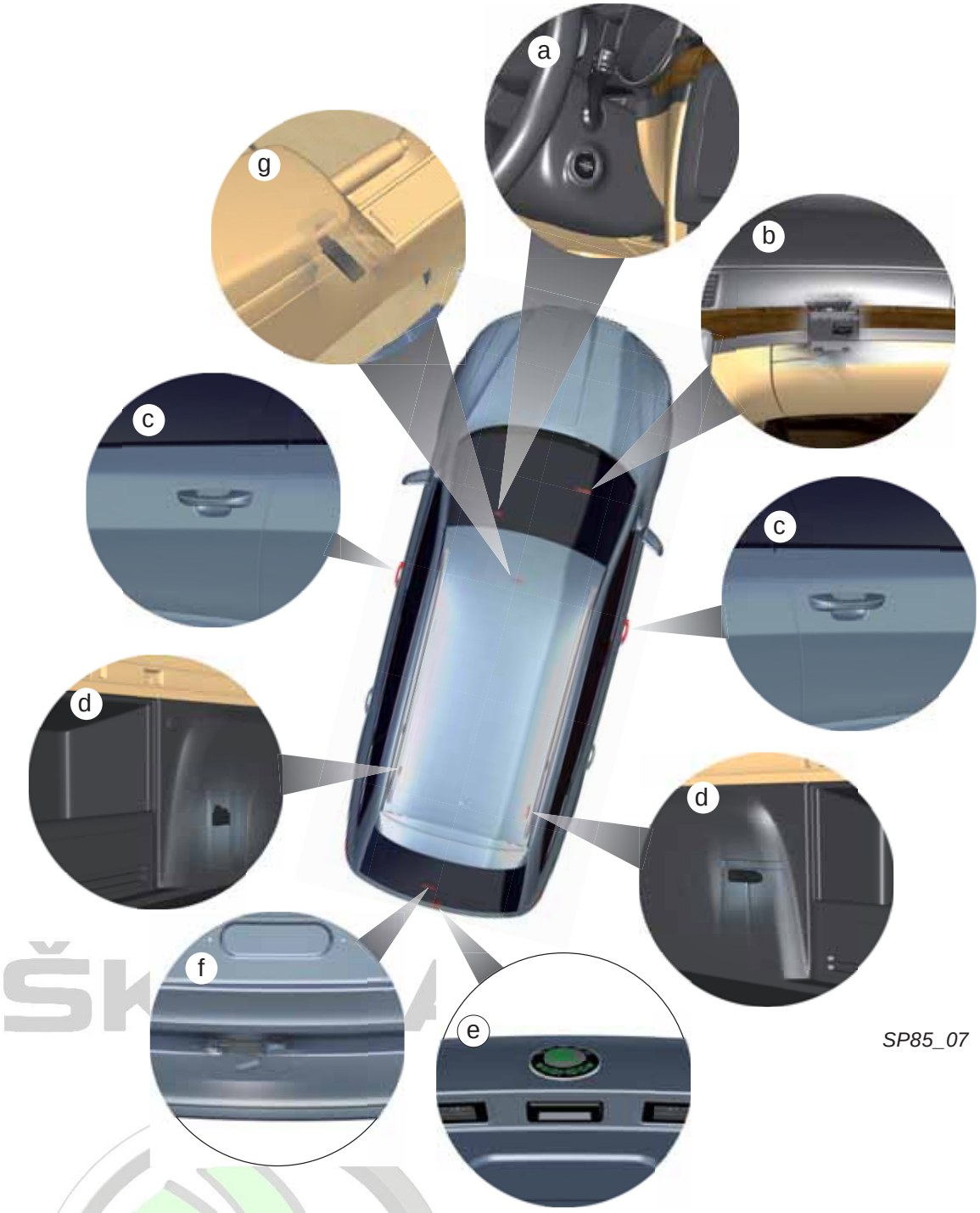
Installation of the components for the KESSY system in the vehicle



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a - start button
b - control unit of the KESSY system
c - capacitive sensors in the handles of the front doors/external antenna of the KESSY system
d - internal antenna of the KESSY system
e - micro switch of the luggage compartment flap
f - external antenna of the KESSY system
g - internal antenna of the KESSY system

Components of the KESSY system

Start button

- serves to switch on/off the ignition (15) and to start/stop the engine

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Control unit of the KESSY system

- controls the wireless communication of the system with the key
- evaluates the position of the key using the antennas
- responds upon contact with the capacitive sensors

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Capacitive sensors

- detect the contact with the exterior handles of the front doors based on the change in capacitance

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Antennas of the KESSY system

- The ferrite antennas serve to detect the exact position of the key when starting the vehicle and operate the central locking system

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Micro switch of the luggage compartment flap

- is used for keyless opening of the luggage compartment flap

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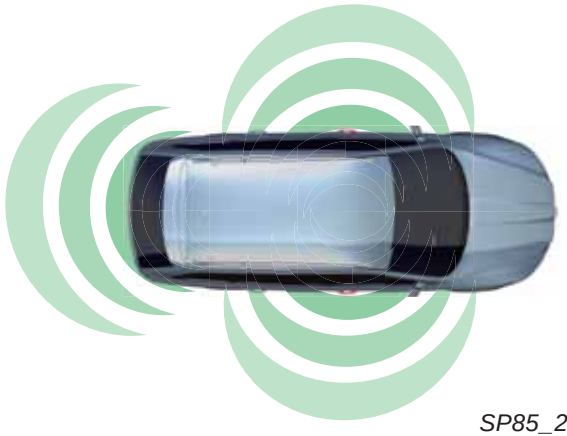
Wiring diagram of the KESSY system

a - dash panel insert
b - onboard supply control unit BCM
c - control unit of the KESSY system
d - electrical Steering Column Lock ESCL
e - start button
f - capacitive sensors in the handles of the front doors
g - antenna
h - key
i - reading coil

CAN bus
Transmitter
wireless data transmission (125 kHz)
wireless data transmission (433 kHz)
wireless data transmission

Keyless unlocking and locking of the vehicle

Capacitive sensors, integrated in the exterior door handles of the front doors, are used for keyless unlocking or locking of the vehicle.
The KESSY system is notified whether the driver wishes to open or close the vehicle doors by touching the exterior door handles of the vehicle. Then the control unit of the KESSY system searches for the authorised key. This key must be located on the side of the vehicle where the door handle was touched, however not exceeding a distance of 1.5 m.



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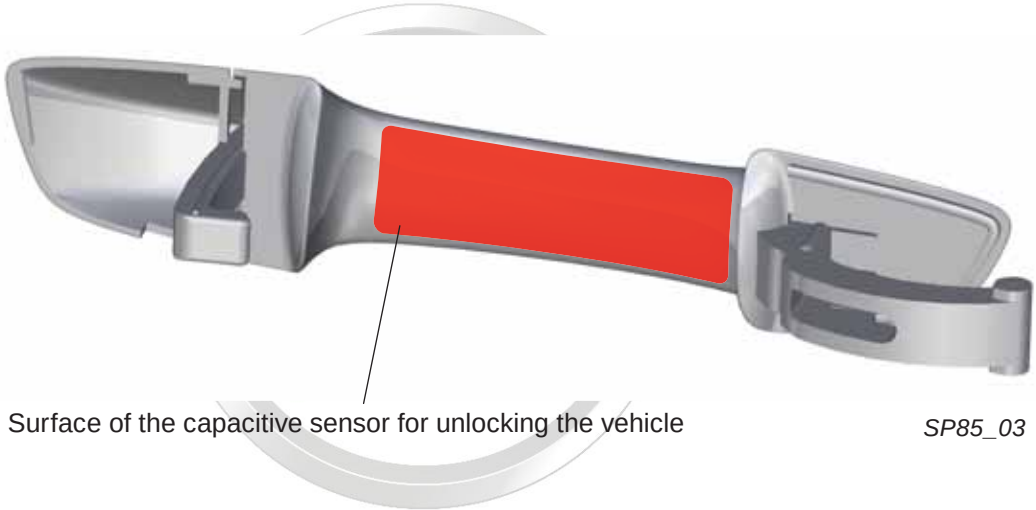
Unlocking the vehicle

For keyless unlocking of the vehicle, it is sufficient to pull on the door handle or to touch the capacitive sensor on the inside of the door handle, resulting in a two-way communication between the vehicle and the key. This communication is performed in two steps.
During the first step, the KESSY keys located in the proximity of the relevant door handle are assigned to the KESSY control unit. During the second step, the keys belonging to the vehicle receive a command from the control unit of the KESSY system and are authorised. After successful authorisation, the door locks are unlocked by the onboard supply control unit BCM.



Surface of the capacitive sensor for unlocking the vehicle

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Locking the vehicle

For keyless locking of the vehicle after closing the doors, it is necessary to touch the capacitive sensor on the surface of the exterior door handle of the front door. This ensures that communication is established between the vehicle and the key, which is performed in two steps just as for unlocking the vehicle.
During the first step, the KESSY keys located in the proximity of the relevant door handle are assigned to the KESSY control unit. During the second step, the keys belonging to the vehicle receive a command from the control unit of the KESSY system and are authorised. After the successful authorisation, the locking of the doors is ensured by the onboard supply control unit BCM.

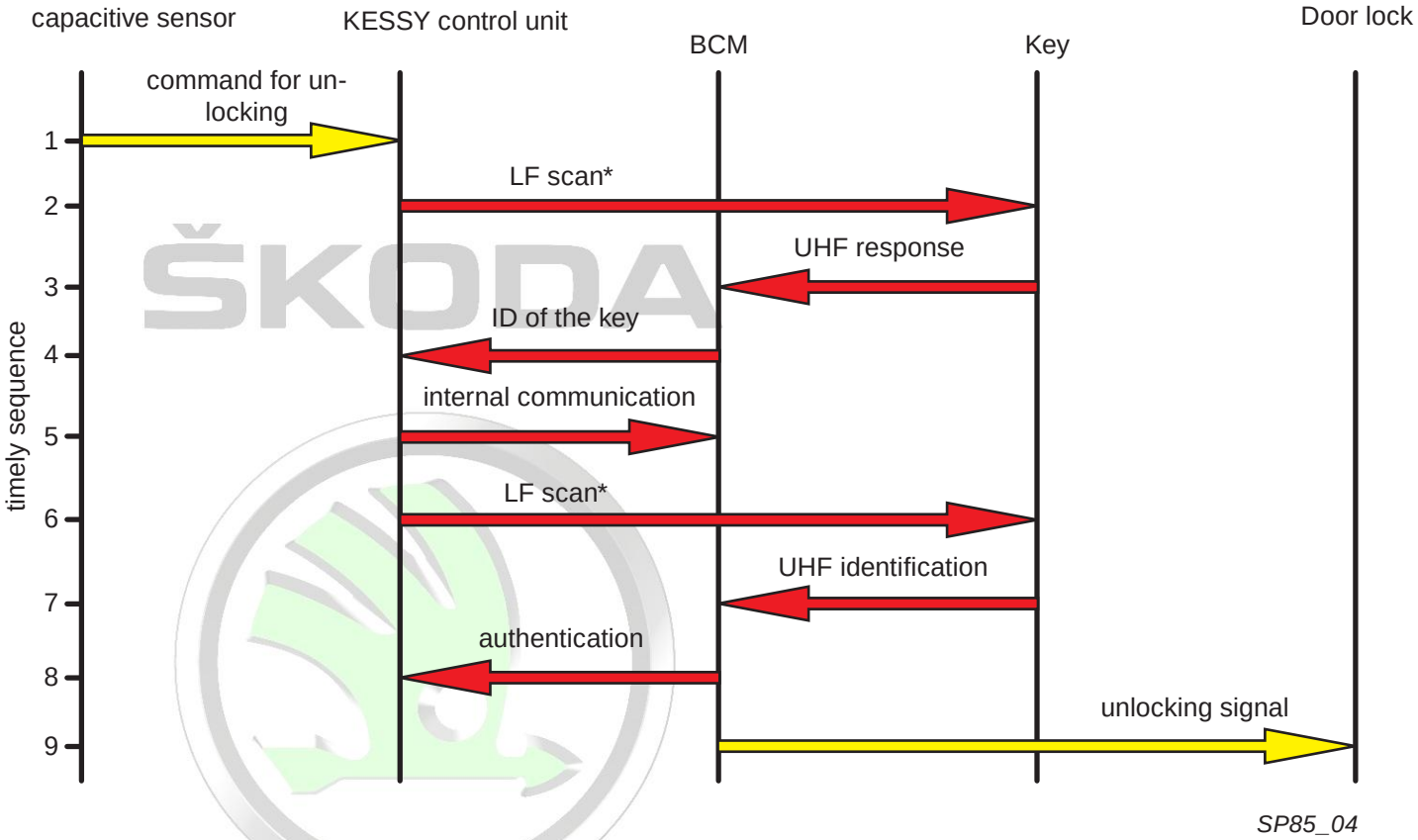
When the first command is given to lock the vehicle via the capacitive sensor, the system changes to the locked state "SAFE" in accordance with the standard. When the second command is given to lock the vehicle, the system changes to the state "externally locked" (the lock is deactivated) within 5 s.

Surface of the capacitive sensor for locking the vehicle

Check the locking of the vehicle

After locking the vehicle via the capacitive sensor, it is not possible to unlock the vehicle again by touching this sensor on the same door handle for a period of 2 s. This enables to check whether the vehicle is in fact locked without the need to unlock the door locks again.

Course of communication of the KESSY system when unlocking/locking the vehicle



*LF scan - signal sent by the KESSY control unit for checking the authorisation of the key

Switching off the capacitive sensors in the door handles of the vehicle

If nobody enters the vehicle for a certain period of time, the capacitive sensors in the door handles of the vehicle are deactivated.
The capacitive sensors in the door handle on the front passenger side are deactivated after 60 hours. They are reactivated after fulfilling one of the following conditions:

- keyless opening via the driver's door or the luggage compartment flaps
- pressing the remote control button of the central locking system within the range of the vehicle
- mechanical unlocking of the vehicle (using the lock below the trim panel in the door handles of the front doors)

The capacitive sensors in the door handle on the driver's side are deactivated after 90 hours. They are reactivated after fulfilling one of the following conditions:

- pressing the remote control button of the central locking system within the range of the vehicle
- mechanical unlocking of the vehicle (using the lock below the trim panel in the door handles of the front doors)

Keyless unlocking of the luggage compartment flap

The keyless unlocking of the luggage compartment flap can be carried out by pressing the "Soft-Touch" micro switch for opening the luggage compartment flap. This ensures that communication is established between the vehicle and the key, which is performed in two steps just as for unlocking and locking the vehicle.
During the first step, the KESSY keys located in the proximity of the relevant door handle are assigned to the KESSY control unit. During the second step, the keys belonging to the vehicle receive a command from the control unit of the KESSY system and are authorised. After successful authorisation, the lock of the luggage compartment flap is unlocked by the onboard supply control unit BCM.
In the case of the Superb Combi model, which is fitted with the system for the electrical operation of the luggage compartment flap, this flap is opened after pressing the micro switch. On the Superb Limousine model, which is fitted with the TWINDOOR system, the adjustment of the lock actuators is carried out after pressing the right micro switch for opening the large flap. Then the middle micro switch must be pressed for unlocking the flap lock.

Protection against locking the key inside the vehicle

A function is implemented in the KESSY system which prevents locking the key accidentally inside the vehicle. After locking the vehicle and subsequently closing the last door contact including the luggage compartment flap, the KESSY system detects if a key which was previously used for locking the vehicle is left inside the vehicle. If this is the case, the vehicle is unlocked again by the KESSY system. The occupants are informed about the activation of the protection against locking the key inside the vehicle by means of visual signalling of the warning lights, a message on the information display of the dash panel insert and also by an acoustic signal in the event that the vehicle is fitted with an alarm system.

Convenience closing of the windows

If the vehicle is locked via the capacitive sensor for closing the vehicle and the capacitive sensor remains active after touching it, while one of the windows is open, this window will close. The closing function of the window is carried out as long as the capacitive sensor is active. If, during the convenience closing of the windows, the capacitive sensor for unlocking the vehicle is touched and thus activated at the same time, the windows will open.

Display on the information display of the dash panel insert

Information and warning messages of the KESSY system displayed on the information display of the dash panel insert.

An overview of the warning and information messages displayed on the information display of the dash panel insert can be found in the user manual of the vehicle.

Diagnostics

The control unit of the KESSY system can be diagnosed by means of the UDS protocol.

Electrical Steering Column Lock ESCL

Electrical Steering Column Lock ESCL

The electrical steering wheel lock replaces the mechanical steering wheel lock and is used for unlocking/locking the steering column by generating the following commands:
- switching on and off the S-contact, i.e the voltage supply of the components such as radio/ navigation, telephone preinstallation etc.
- switching on and off the ignition (15), i.e the voltage supply of all the electrical components of the vehicle
- starting the engine

Then the onboard supply control unit BCM converts these commands into real signals for the other components of the vehicle.

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Unlocking the steering column

Command for unlocking the steering column:
- The driver enters the vehicle with an authorised key:
  The steering column is unlocked after opening the driver's door, increasing the number of keys inside the vehicle (additional authorised keys may be present in the interior of the vehicle as well as in the luggage compartment) and subsequently closing the driver's door.
- Pressing the start button, in the event that the authorised key is inside the vehicle:
  If at least one authorised key is present inside the vehicle (between opening and closing the driver's door, the number of authorised keys inside the vehicle must increase for example when leaving a key on the rear seats or in the luggage compartment), the steering column is unlocked after pressing the start button (the S-contact and the ignition are switched on as well).

If the steering column is in the blocked state (for example, if the front wheels rest against the kerbside) and the electrical steering wheel lock cannot immediately release the lock of the steering column, then the attempt to unlock the steering column is repeated twice. In the event that these attempts prove unsuccessful, the message **"Move steering wheel!"** appears on the information display of the dash panel insert and after 2 s the system automatically makes 3 further attempts for unlocking the steering column. If the steering wheel lock is not unlocked after these 3 attempts, the message **"Steering wheel still locked"** appears on the information display of the dash panel insert for approx. 10 s. The steering column remains locked so that neither the S-contact nor the ignition (15) is switched on. To unlock the steering column and thus to switch on the S-contact as well as the ignition, measures must be taken in order to eliminate the cause which obstructs the unlocking of the steering column, whereby subsequently the attempt for unlocking the steering column is repeated.

Steering column lock

Conditions for locking the steering column and switching off the S-contact:
- stopping the vehicle
- switching off the engine and the ignition (15) by pressing the start button
and subsequently
- opening the driver's door

After fulfilling these conditions, the steering column is locked within 2 s.

If the driver's door is already opened when switching off the engine or the ignition, the S-contact is switched off at the same time, however without locking the steering column.
The steering column is always locked at the latest when locking the complete vehicle.

If the selector lever is not in the position "P" on vehicles with automatic gearbox, the steering column is not locked and the message "selector lever in position P" appears on the information display of the dash panel insert.

Display on the information display of the dash panel insert

Information messages and possible defects of the electrical steering column lock are shown on the information display of the dash panel insert.

An overview of the information messages and defects displayed on the information display of the dash panel insert can be found in the user manual of the vehicle.

Diagnostics

The electrical steering column lock can be diagnosed by means of the UDS protocol.

Keyless start-up of the vehicle

The KESSY system enables to switch on/off the ignition and to start the vehicle without actively using the key. It is sufficient that a key, which was authorised by the KESSY control unit, is located in the interior of the vehicle.
The ingition is switched on/off and the engine is started/switched off with the button which is integrated in the plastic trim panel of the steering column instead of the ignition lock.

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Switching on the ignition

Conditions for switching on the ignition:
- presence of the authorised key in the interior of the vehicle
- steering column unlocked

The ignition is switched on (15) by pressing the start button.

If the S-contact is switched off at the same time the command for switching on the ignition is given, the S-contact as well as the ignition is switched on after operating the start button once.

If the steering column is locked and the S-contact is switched off at the same time the command for switching on the ignition is given, the steering wheel lock is unlocked, the S-contact as well as the ignition is switched on after operating the start button once.

Starting the vehicle

Conditions for starting the vehicle:
- presence of the authorised key in the interior of the vehicle
- steering column unlocked
- ignition switched on (15)
- depress the clutch pedal (vehicles with manual gearbox)
- depress the brake pedal (vehicles with automatic gearbox)

The vehicle is started by holding the start button pressed (the start button must be held pressed during the entire duration of the start-up of the engine).

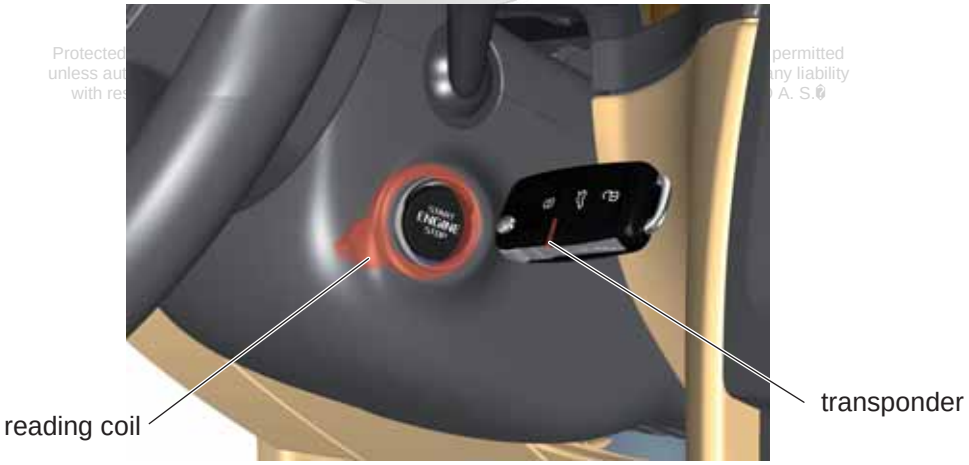
If the S-contact is switched off at the same time the command for starting the vehicle is given, the S-contact as well as the ignition are switched on and the engine is started after operating or pressing the start button once.

If the steering column is locked and the S-contact is switched off at the same time the command for starting the vehicle is given, the steering column is unlocked, the S-contact as well as the ignition are switched on and the engine is started after operating or pressing the start button once.

On diesel engines, the start-up depends on the preheating of the engine. If the command for start-up is given, the ignition is switched on and the glow period warning lamp lights up on the dash panel insert. The engine can only be started after the glow period warning lamp goes out (the start button must be held pressed during the entire time). However, the engine can also be started before the glow period warning lamp goes out by releasing the start button and pressing it again.

Starting the vehicle in case of emergency

In the event that the authorised key is checked unsuccessfully, the vehicle must be started in the emergency mode. For this purpose a reading coil, which ensures the synchronisation of the immobiliser control unit with the transponder in the key, is integrated in the plastic trim panel of the steering column.
Starting the vehicle in case of emergency is possible by pressing the start button and subsequently holding the key close to the button. A second possibility is to directly press the start button with the key. It is important to respect the orientation of the key to the start button.



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Keyless start-up of the vehicle

Switching off the ignition

Conditions for switching off the ignition:
- vehicle speed up to 2 km/h
- selector lever in the position "P" or "N" (vehicle with automatic gearbox)

If these conditions are met, the ignition (15) and thus also the engine are switched off after pressing the start button.

If the driver's door is opened when switching off the ignition, the S-contact is switched off as well.

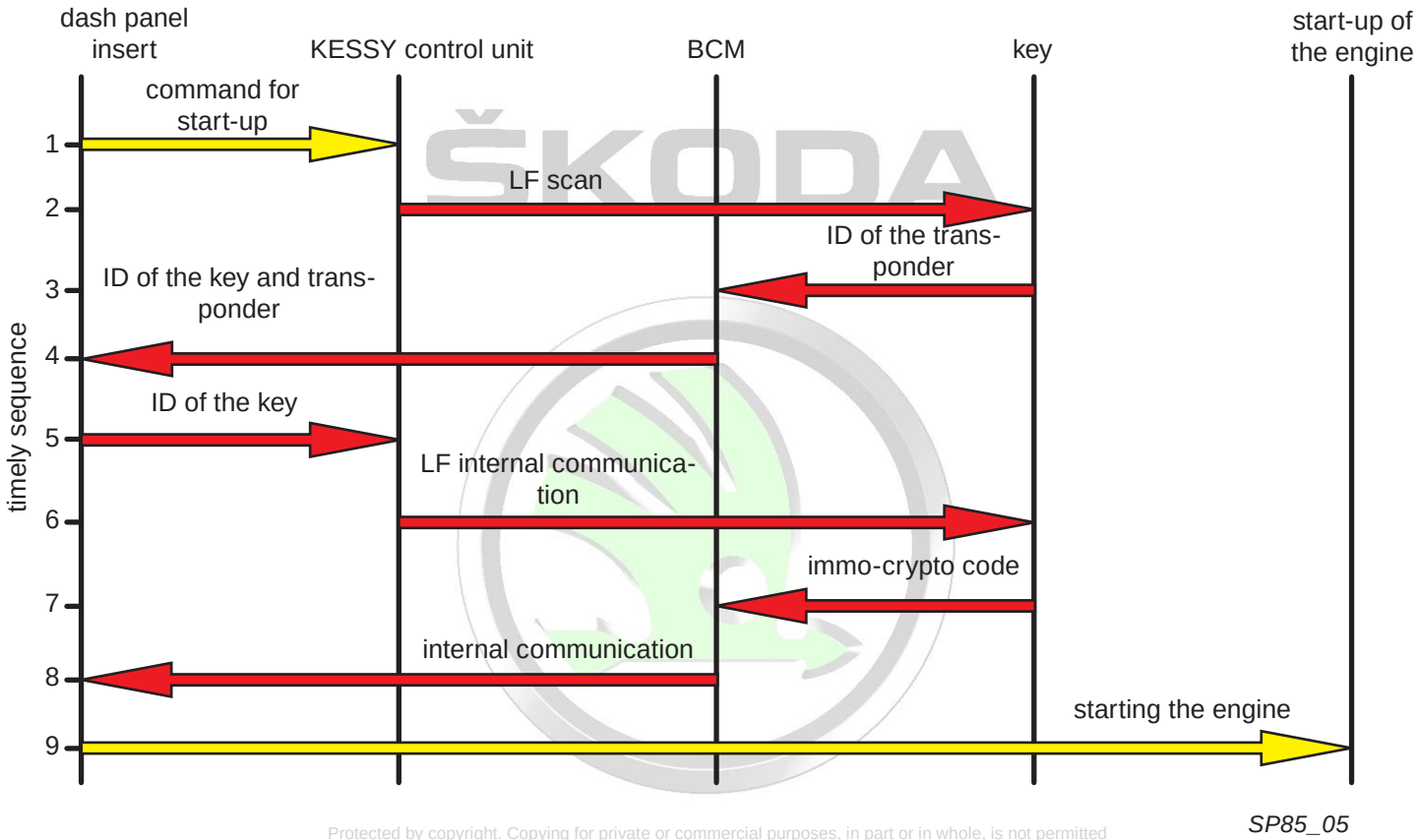
If the driver's door is closed when switching off the ignition, the S-contact remains switched on until the command for locking the steering column is given (see steering column lock).

Switching off the ignition in case of emergency

the ignition (15) can be switched off (for example, in case of imminent danger) even at a speed of more than 2 km/h. In case of emergency, the ignition is switched off by pressing the start button for more than 1 s or at least 2 times within 1 s.

Information regarding the vehicle speed can be obtained from the CAN bus or the ESP control unit.

Course of communication of the KESSY system when starting the vehicle



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*LF scan - signal sent by the KESSY control unit for checking the authorisation of the key

Notes

Overview of the previously edited self-study programmes

No.	Designation
1	Mono-Motronic
2	Central locking
3	Vehicle alarm
4	Working with wiring diagrams
5	ŠKODA FELICIA
6	Safety of the ŠKODA vehicles
7	Principles of ABS - were not published
8	ABS - FELICIA
9	System for safe start-up with transponder
10	Air conditioning in the vehicle
11	Air conditioning FELICIA
12	1.6 engine - MPI 1AV
13	Four-cylinder diesel engine
14	Power-assisted steering
15	ŠKODA OCTAVIA
16	1.9 ltr. TDI diesel engine
17	ŠKODA OCTAVIA Convenience electronic system
18	ŠKODA OCTAVIA Manual gearbox 02K, 02J
19	1.6 ltr. and 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 diesel engines
23	1.8 ltr./110 kW and 1.8 ltr./92 kW petrol engines
24	OCTAVIA, CAN BUS
25	OCTAVIA - CLIMATRONIC
26	OCTAVIA - safety of the vehicle
27	OCTAVIA - 1.4 ltr./44 kW engine and gearbox 002
28	OCTAVIA - ESP - fundamentals, design, function
29	OCTAVIA 4 x 4 - all-wheel drive
30	2.0 ltr. 85 kW and 88 kW petrol engines
31	Radio navigation system - design and functions
32	ŠKODA FABIA - technical information
33	ŠKODA FABIA - electrical systems
34	ŠKODA FABIA - electro-hydraulic power-assisted steering
35	1.4 ltr. - 16 V 55/74 kW petrol engines
36	ŠKODA FABIA - 1.9 ltr. TDI Unit injection
37	Manual gearbox 02T and 002
38	ŠkodaOctavia; model 2001
39	Euro-On-Board-Diagnosis
40	Automatic gearbox 001
41	6-Speed gearbox 02M
42	**Škoda**Fabia - ESP
43	Exhaust emissions
44	Extended service intervals
45	Three-cylinder petrol engines 1.2 ltr.
46	**Škoda**Superb; Vehicle presentation; part I
47	**Škoda**Superb; Vehicle presentation; part II
48	**Škoda**Superb; 2.8 ltr./142 kW V6 petrol engine
49	**Škoda**Superb; 2.5 ltr./114 kW TDI V6 petrol engine
50	**Škoda**Superb; automatic gearbox 01V
51	2.0 ltr./85 kW petrol engine with balancing shafts and two-stage intake manifold
52	**Škoda**Fabia; 1.4 ltr. TDI engine with unit injection system
53	**Škoda**Octavia; Vehicle presentation
54	**Škoda**Octavia; Electrical Components
55	FSI petrol engines; 2.0 ltr./110 kW and 1.6 ltr./85 kW
56	Automatic gearbox DSG-02E
57	Diesel engine; 2.0 ltr./103 kW TDI with pump-nozzle units, 2.0 ltr./100 kW TDI with pump-nozzle units
58	**Škoda**Octavia, Chassis and electromechanical power-assisted steering
59	**Škoda**Octavia RS, 2.0 ltr./147 kW FSI turbo engine
60	2.0 ltr./103 kW 2V TDI diesel engine; particle filter with additive
61	Radio navigation systems in the **Škoda**
62	**Škoda**Roomster; Vehicle presentation part I
63	**Škoda**Roomster; Vehicle presentation part II
64	**Škoda**Fabia II; Vehicle presentation
65	**Škoda**Superb II; Vehicle presentation part I
66	**Škoda**Superb II; Vehicle presentation part II
67	Diesel engine; 2.0 ltr./125 kW TDI with Common Rail injection system
68	1.4 ltr./92 kW TSI petrol engine with turbocharger
69	3.6 ltr./191 kW FSI petrol engine
70	All-wheel drive with Haldex coupling of the IV. generation
71	**Škoda**Yeti; Vehicle presentation part I
72	**Škoda**Yeti; Vehicle presentation part II
73	LPG system in Škoda vehicles
74	1.2 ltr./77 kW TSI petrol engine with turbocharger
75	7-speed dual-clutch automatic gearbox 0AM
76	Greenline vehicles
77	Geometry
78	Passive safety
79	Additional heating
80	2.0 ltr., 1.6 ltr., 1.2 ltr. diesel engines with Common Rail injection system
81	Bluetooth in Škoda vehicles
82	Sensors in Škoda vehicles – engine
83	1.4 ltr./132 kW TSI petrol engine with dual-charging (compressor, turbocharger)
84	**Škoda**Fabia II RS; Vehicle presentation
85	KESSY system in Škoda vehicles

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