



SEAT

SEAT Leon

Self Study Programme no. 155



The design of the third SEAT Leon generation is new and it includes many cutting edge technology systems.

As for the new **design**, the new SEAT Leon is an elegant and functional car, highly functional even though it is more compact than the previous model - 5 centimetres less- the passenger compartment has more room because wheelbase has been increased almost by six centimetres.

Short overhangs enhance the visual presence of the wheels. On the outside, its characteristic Dynamic Line draws a continuous arch that reaches the rear wheel arch as if it were a muscle in tension.

As for the rear end, the wedge shaped tail lights enhance the width of the car.

The new SEAT Leon has plenty of new **technology**:

- New, more efficient and more powerful petrol and diesel engines.
- Infotainment systems with Easy Connect and SEAT Sound System.
- Advanced driver assist systems (lane assist, fatigue alert...).

The new SEAT Leon is the beginning of a new family in SEAT. This family starts with the 5-door version. A generation of cars that perfectly combine maximum practicality, beautiful design and extraordinary dynamic performance. The new 5-door SEAT Leon represents the maximum expression of the SEAT Brand values.



D155-01

Note: The exact instructions for checking, adjusting and repair are included in the ELSA-Pro application.

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DESIGN

SAFETY EQUIPMENT:

- Driver and front passenger airbag.
- Side airbags for the front and rear seats.
- Head airbags.
- Driver knee airbag.
- Front passenger airbag disconnection.
- Occupied passenger seat detection.
- Fastened seatbelt detection in all seats.

POWERTRAINS:

- TSI engines complying with the demanding EURO6 standard.
- Range of efficient TDI CR engines.
- ECOMOTIVE technology.
- Start&Stop system.

DRIVETRAIN:

- Two types of rear axles available – integrated links and multilink –, depending on the engine selected.
- Mk100 brakes management system.
- Series fitted ESC in all finishing versions.



D155-02

The new SEAT Leon family begins with the 5-door version, new versions to be launched shortly.

The SEAT Leon is an absolutely new car in all aspects:

- Its concept.
- Technology incorporated.
- Maintenance.

It is new in its **conceiving** as it has been developed from the “**modular transversal platform**” MQB (from the German *Modulare Querbaukasten*). The architecture of MQB platform allows combining components based on the modularity principle, so that technological new

features can be implemented in the highest number of cars in the “Group”.

The **technology incorporated** in the new SEAT Leon makes it a cutting-edge vehicle. It includes the latest novelties in all aspects of the vehicle:

- Safety.
- Powertrain.
- Drivetrain.
- Electrical system.
- Infotainment.
- And, climate control system.

EQUIPMENT:

- SEAT Drive Mode.
- Fatigue alert.
- Main beam light assist.
- Lane departure assist.
- Full LED headlights.
- LED technology tail lights.
- 4 electric windows.
- Rain and light sensor.
- Cornering light.

CLIMATE CONTROL SYSTEM:

- Electrical heating.
- Manual electrical climate control system.
- Climatronic.

**INFOTAINMENT:**

- Wide range of radios.
- Navigator.
- SD and CD player
- USB port and Aux. connection.
- Bluetooth.
- Seat Sound System.

DESIGN AND COMFORT:

- 4 finishing levels: Leon, Reference, Style, FR.
- Panoramic roof.
- Park assist.
- Front distance control and rear OPS.

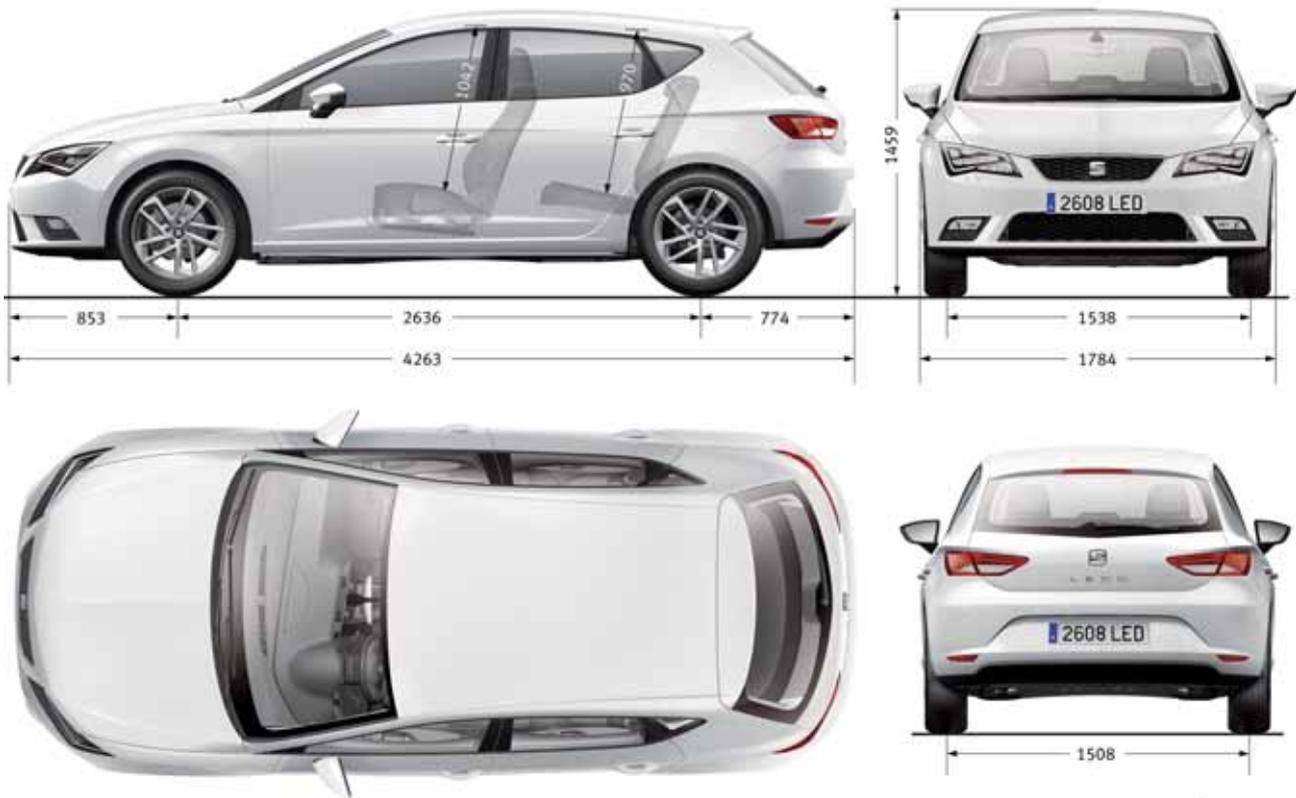
D155-03

Regarding **maintenance** it is also new in two aspects:

- A new maintenance concept where two types of jobs are differentiated: “Oil servicing” and “Inspection”.
- And, the need to use the ODIS application to check and diagnose all the vehicle’s control units.

All these new technical features are combined with a surprising exterior design where the new lateral dynamic lines are perfectly integrated into a stunning rear end.

CAR BODY



D155-04

DIMENSIONS

The most relevant SEAT Leon exterior dimensions are:

- Total length: 4263 mm.
- Wheelbase: 2636 mm.
- Total height: 1459 mm.
- Total width: 1784 mm.
- Front track width: 1538 mm.
- Rear track width: 1508 mm.

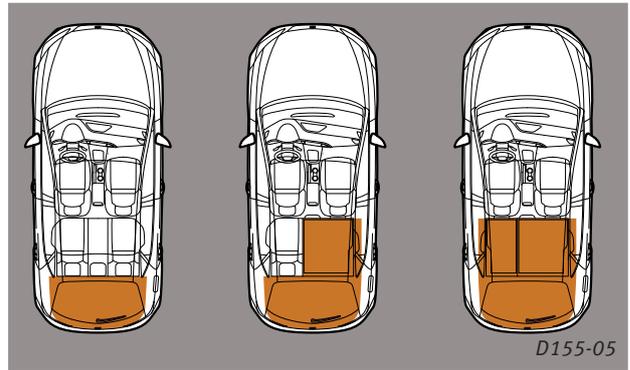
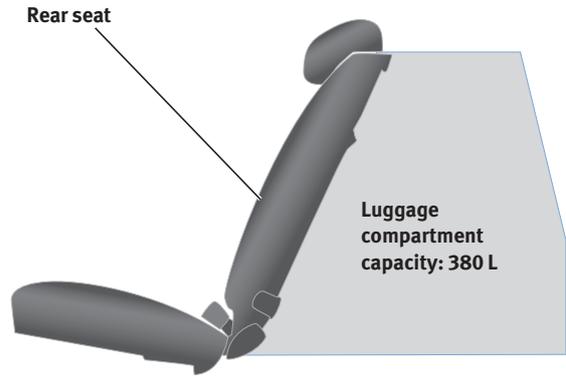
The SEAT Leon passenger compartment is roomy thanks to the wheelbase and interior dimensions, aspects which positively influence roominess and comfort for occupants.

LUGGAGE COMPARTMENT CAPACITY

The luggage compartment capacity is 380 L with the seats in normal position.

Luggage compartment capacity is measured with the rear seats at zero position and up to shoulder height.

Luggage compartment capacity can be extended, depending on the position of the rear seat backrests.



HIGH EFFICIENCY UNDERFLOOR

The SEAT Leon body underfloor provides improved acoustics and aerodynamics. As well as positively contributing to body protection and thermal management of the engine.

Careful study of aerodynamics for the SEAT Leon has provided it with a low drag coefficient (Cx). Thanks to this, lower resistance to air penetration is achieved and as a result lower fuel consumption.

Vehicle with integrated links rear axle



Vehicle with multilink rear axle



D155-06

BODY

BODY STRUCTURE

The SEAT Leon self-supporting car body is light weight.

Several aspects have been taken into account in its design and build, such as:

- Passive safety.
- Anti-torsion stiffness.
- Comfort with vibrations.
- Acoustic comfort.

To achieve the expected results careful work has been done in selecting the most adequate type of steel for each body structure component.

The most relevant **steels** used are:

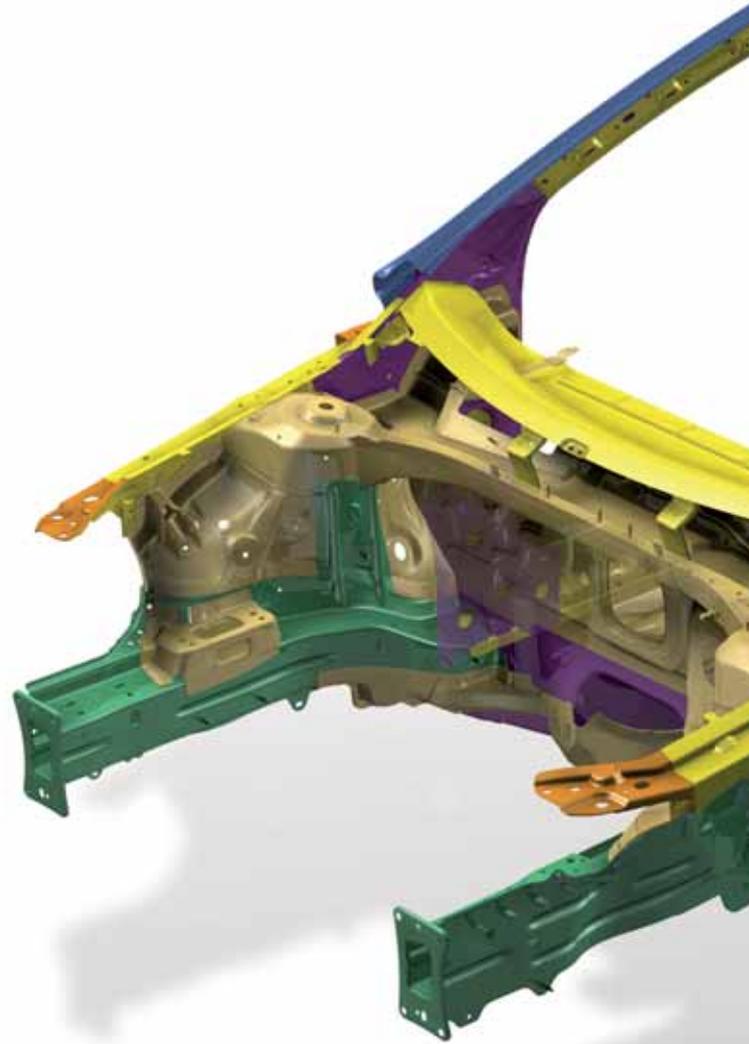
- Deep embedded steels.
- High resistance steels.
- Very high resistance steels.
- Ultra high resistance steels.
- Hot conformed ultra high elasticity limit steels.

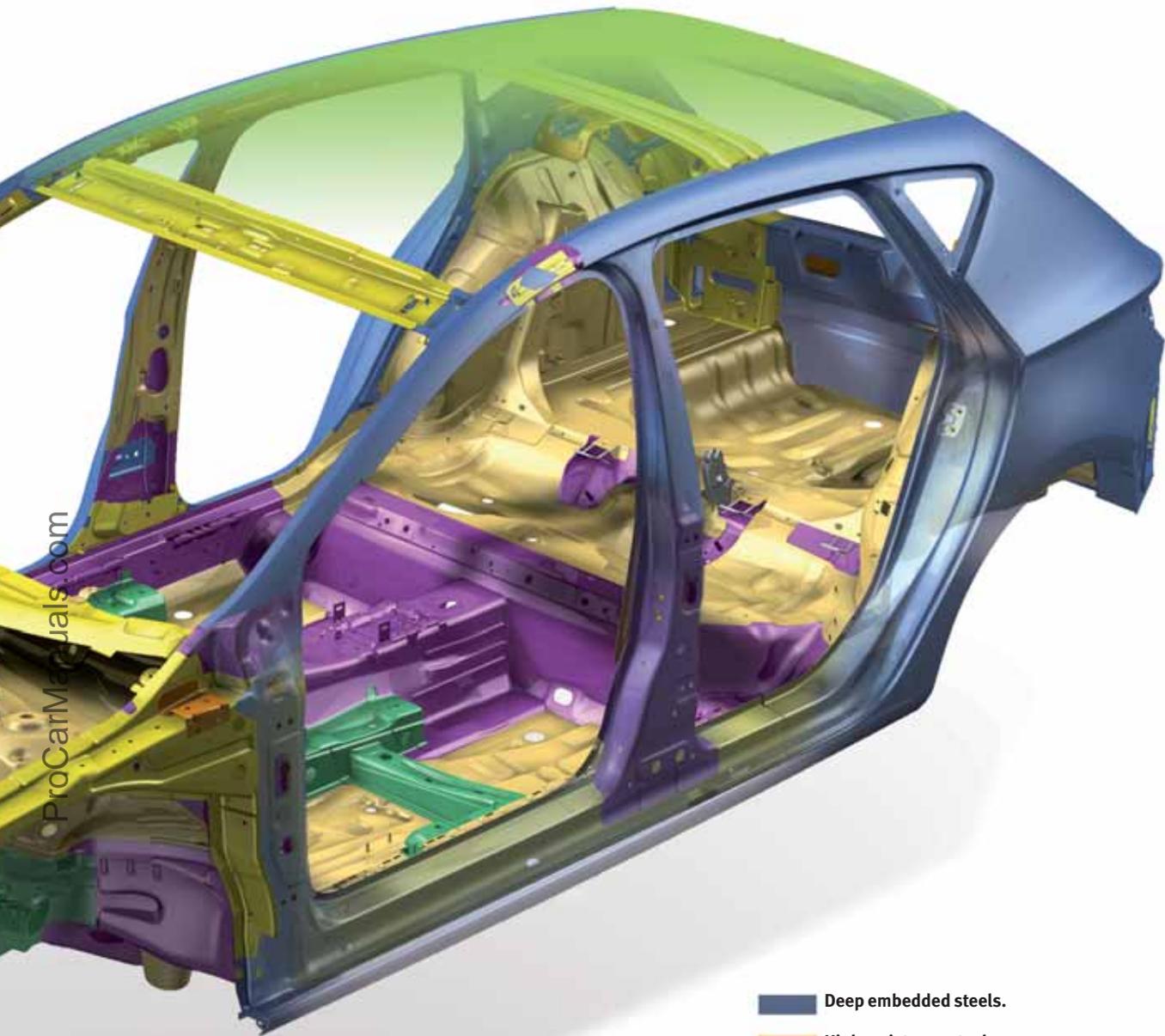
Using the latter type of steels allows maintaining the body safety cell and reducing weight at the same time.

Hot conforming process of steels basically is about:

- Introducing the metal plate in the press at approximately 950 °C.
- Keeping the part in the press for about 5 seconds as the components is being cooled so that temperature drops to approximately 180 °C.

As a result is one pressing the part is fully conformed/shaped. As when the steel hardens it will not admit any fore flexing.





- Deep embedded steels.
- High resistance steels.
- Very high resistance steels.
- Ultra high resistance steels.
- Hot conformed ultra high elasticity limit steels.

D155-07

OCCUPANT PROTECTION

The SEAT Leon uses the VW20 airbag management system as a passive occupant protection system.

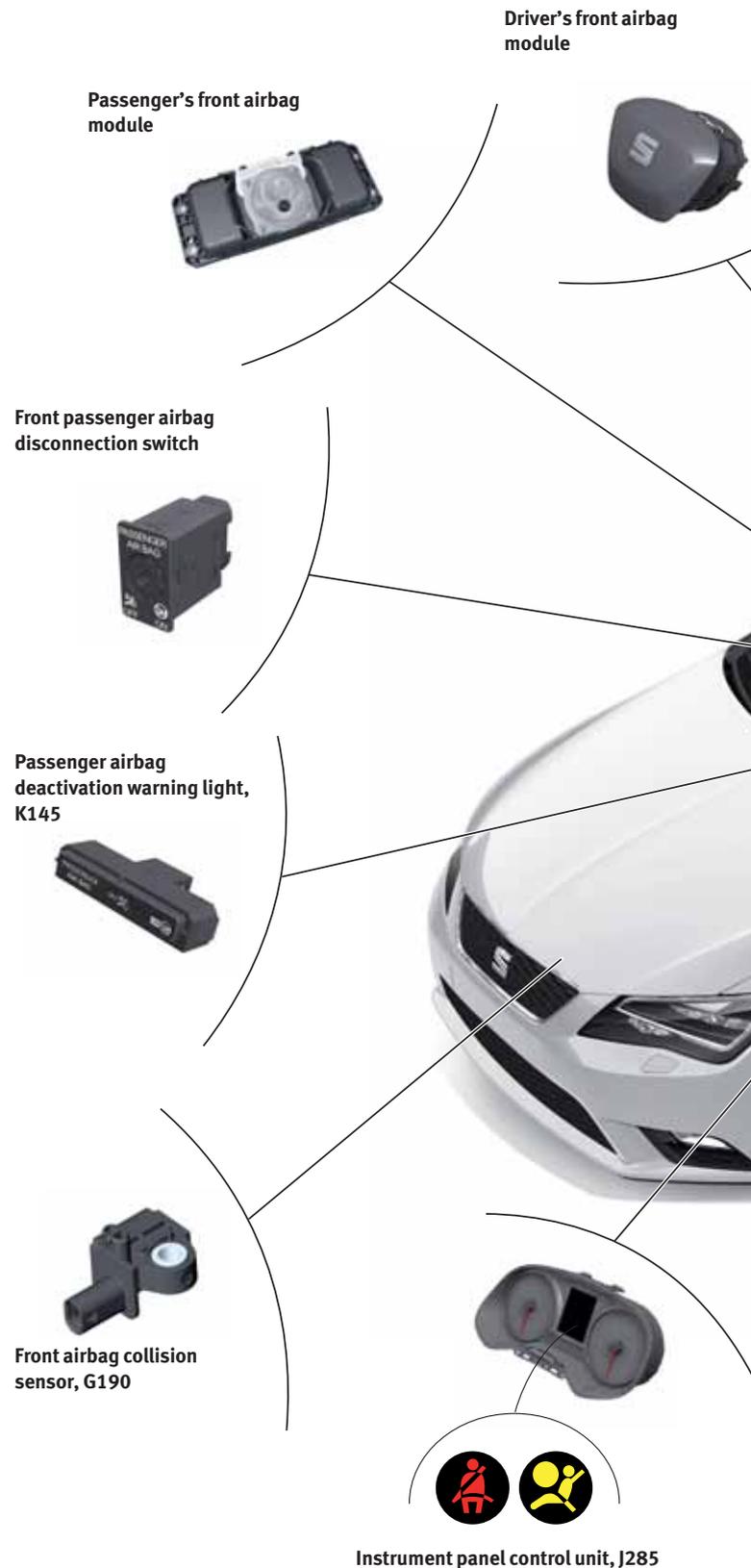
The airbag system is available in two configurations, basic and full.

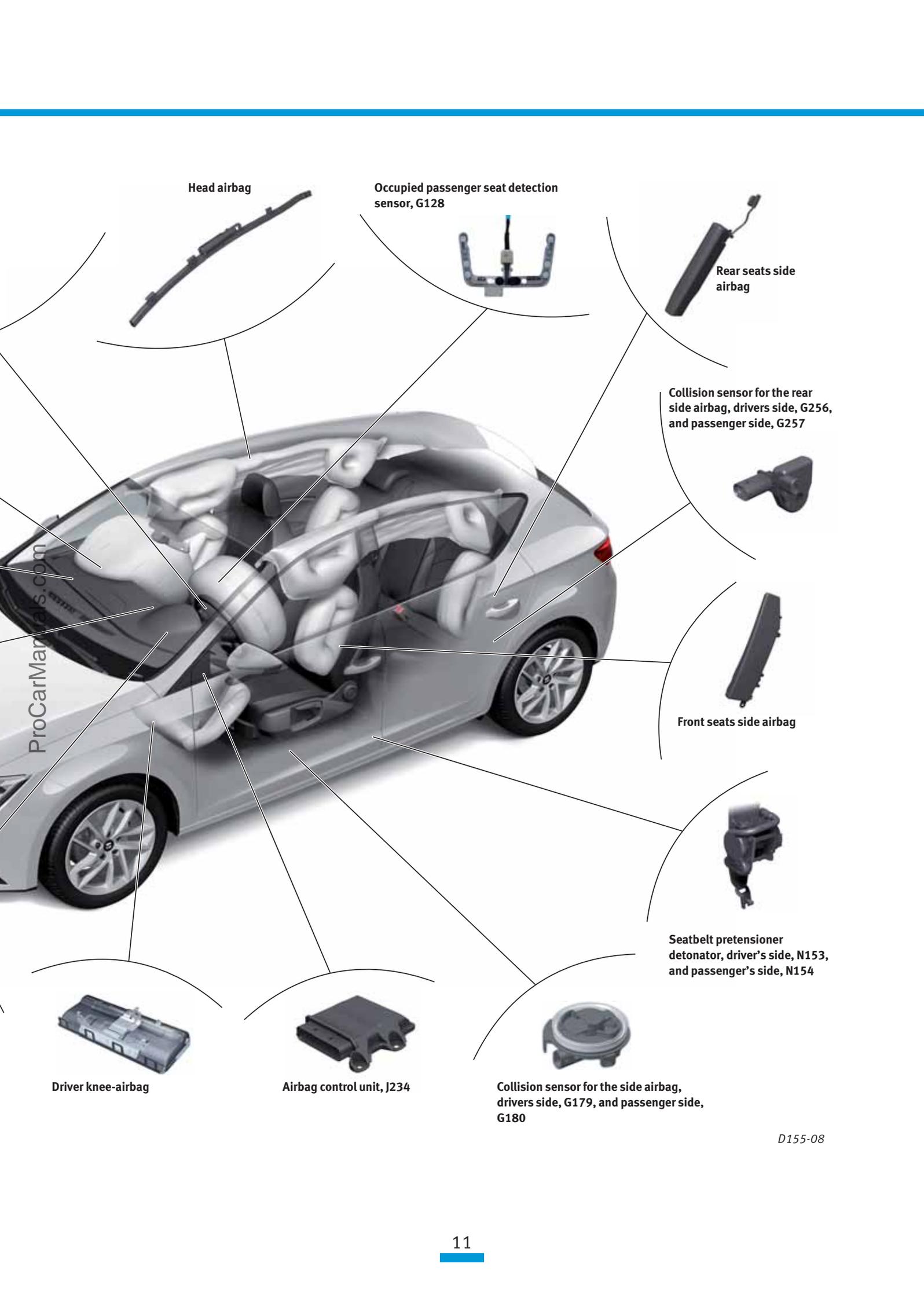
The **basic configuration** includes:

- Driver and passenger front airbag modules.
- Front seat side airbag modules.
- Head airbags.
- Driver knee-airbag.
- Occupied passenger seat detection sensor.
- Front seat pyrotechnical pretensioner seatbelts.
- Depending on the market where it is being sold, the airbag system might incorporate a key switch for disconnecting the front passenger airbag.

The **full configuration** includes the components of the basic configuration plus the rear seats' side airbags.

As an option, the vehicle can be equipped with fastened seatbelt detectors for the rear seats.





Head airbag

Occupied passenger seat detection sensor, G128

Rear seats side airbag

Collision sensor for the rear side airbag, drivers side, G256, and passenger side, G257

Front seats side airbag

Seatbelt pretensioner detonator, driver's side, N153, and passenger's side, N154

Collision sensor for the side airbag, drivers side, G179, and passenger side, G180

Airbag control unit, J234

Driver knee-airbag

D155-08

OCCUPANT PROTECTION

The main new features of the SEAT Leon's **airbag VW20 management** system are:

- Side airbag collision sensor, G179-G180.
- Occupied passenger seat detection sensor, G128.
- Airbag module connectors.
- Passenger airbag deactivation warning light, K145.
- Passenger's front airbag module.
- Driver knee-airbag.

All these components are explained in detail in the next pages.

As for the structure and operation of the rest of components and management systems that participate in the airbag management it is similar to other SEAT range cars.

Front airbag collision sensor, G190



Side airbag collision sensor, driver side, G179



Side airbag collision sensor, passenger side, G180



Rear side airbag collision sensor, driver side (C pillar), G256



Rear side airbag collision sensor, passenger side (C pillar), G257



Key switch for deactivating the passenger side airbag (Optional), E224



Occupied passenger seat detection sensor, G128



Driver's side seatbelt switch E24



Passenger side seatbelt switch E25



Rear seat switch, driver side, E258

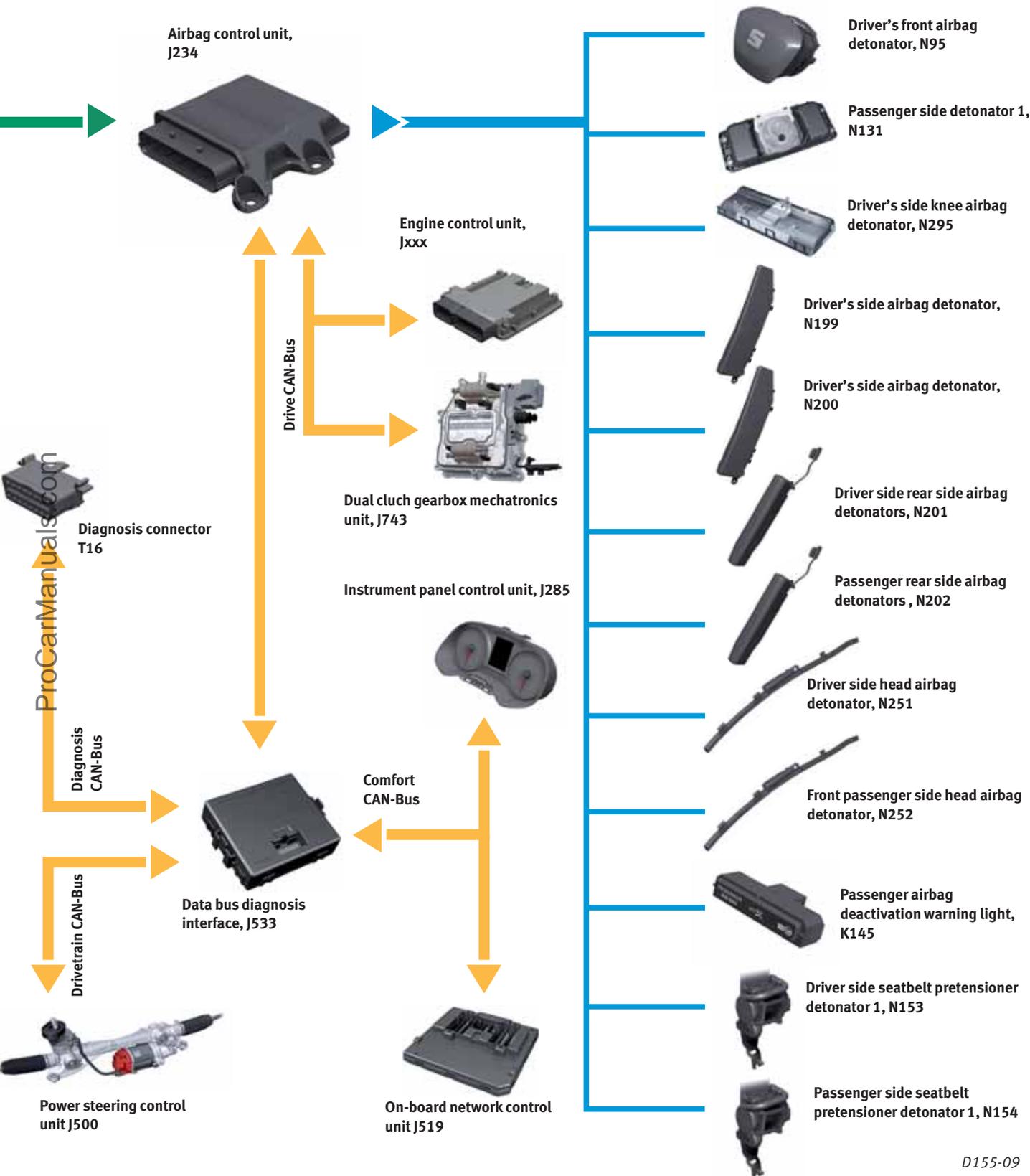


Rear central seatbelt switch, E609



Rear seat switch, passenger side, E259



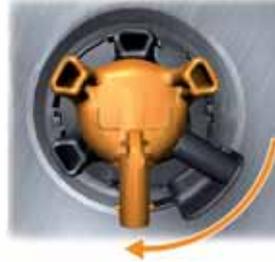


D155-09

OCCUPANT PROTECTION



View after removing the door trim



View from the inside of the door



Bayonet attachment fitting (fastener)

Side airbag collision sensor, G179-G180

Door control unit



D155-10

SIDE AIRBAG COLLISION SENSOR, G179-G180

The sensor is fitted on the front doors with a new fixation concept: bayonet type fastener, so that there is no need to use screws.

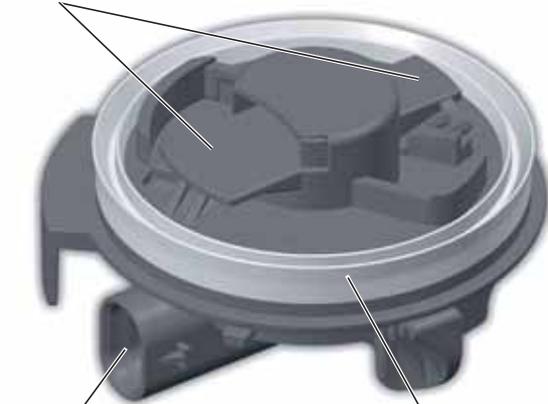
The result is that the sensors are inserted in the driver and front passenger door metal panels.

It is a **capacitive sensor** and it detects sudden variations of pressure inside the door.

The airbag control unit utilises this signal to **detect side collisions**.

Bayonet fastener

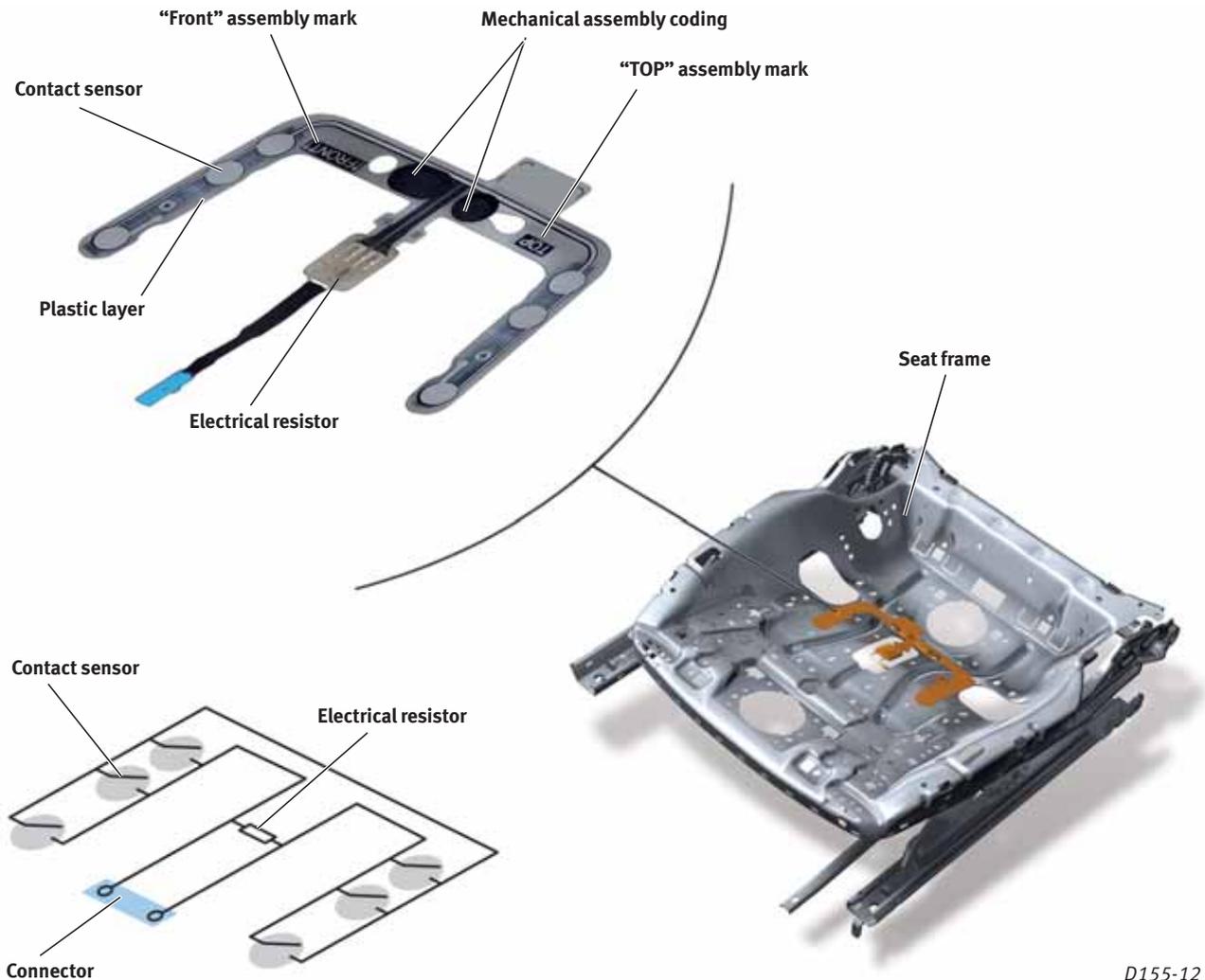
Inside of the door



Electrical connector

Tightness seal

D155-11



D155-12

OCCUPIED PASSENGER SEAT DETECTION SENSOR, G128

The detection sensor is fitted on the **metal frame** of the passenger's seat, under the cushion. To ensure proper assembly, the sensor is **mechanically coded** and includes the marks "Top" and "Front".

The sensor includes two plastic layers bonded to each other.

The insides of the plastic layers have printed traces, **six contact sensors**, and, one **resistance** of approximately 470 ohm.

The six contact sensors are held separately by a distancer layer. This makes that when at rest non of the contact sensors closes.

When there is a passenger on the seat, the contact sensor layers close the circuit.

To consider the **seat as occupied** it is necessary for at least one contact sensor to be compressed at each side. As a result the total resistance of the circuit drops below **120 ohm**.

If the passenger seat is free, the circuit resistance is approximately 470 ohm.

The occupied front passenger seat detector signal is used to remind about the need to fasten the seatbelt.

OCCUPANT PROTECTION

AIRBAG CONNECTOR

To protect the airbags that are not attached to the car body, a third **earth cable** has been added to the modules.

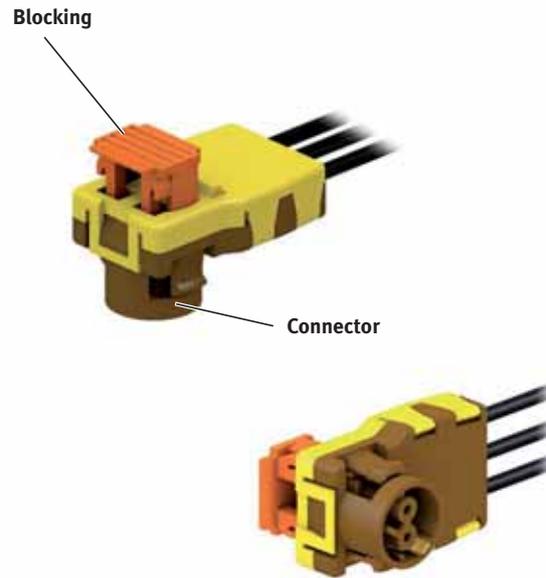
The airbags with the earth cable are:

- Driver and passenger front airbag modules.
- Front and rear seat side airbag modules.

The object of the earth cable is **to protect** the pyrotechnical charge of the airbag in the event of **electro-static discharges** taking place.

Each connector is mechanically coded to prevent possible assembly mistakes.

The head airbags and the driver knee airbag do not require this third cable as they are screwed onto the car body.



D155-13



D155-14

PASSENGER AIRBAG DEACTIVATION WARNING LIGHT, K145

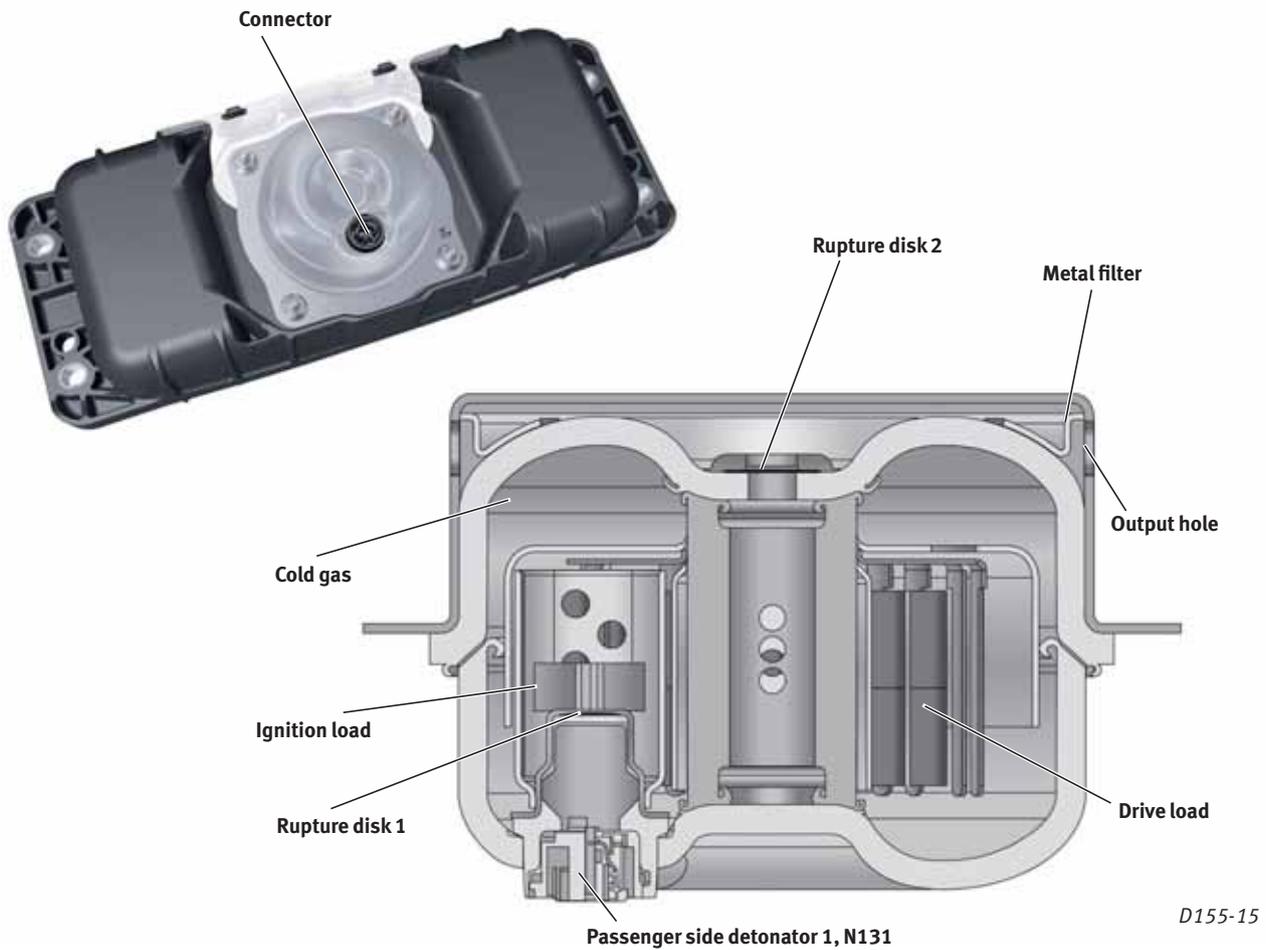
The warning light is located in the central console, between the audio set and the air conditioning controls.

What's new about the **warning light is the new pictograms.**

When switching on the ignition both serigraphies are lit up. After a few seconds only the front passenger airbag status remains on.

If the airbag is enabled, the "ON" light remains activated for 60 seconds.

If the front passenger airbag is disabled the "OFF" light remains activated.



PASSENGER FRONT AIRBAG

The front passenger airbag is attached with four screws to the dashboard.

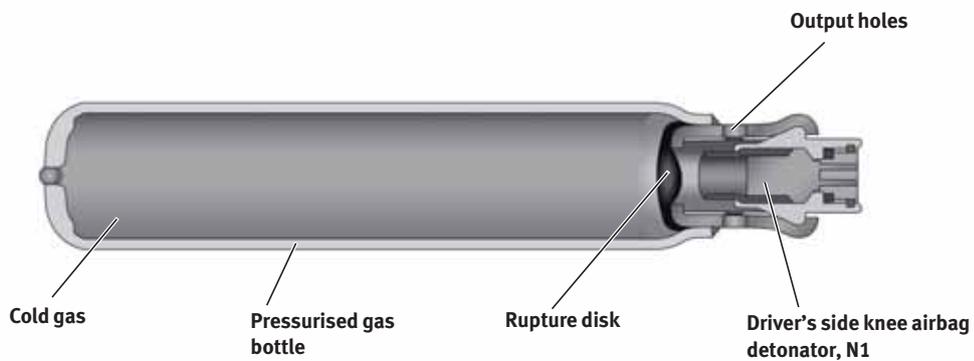
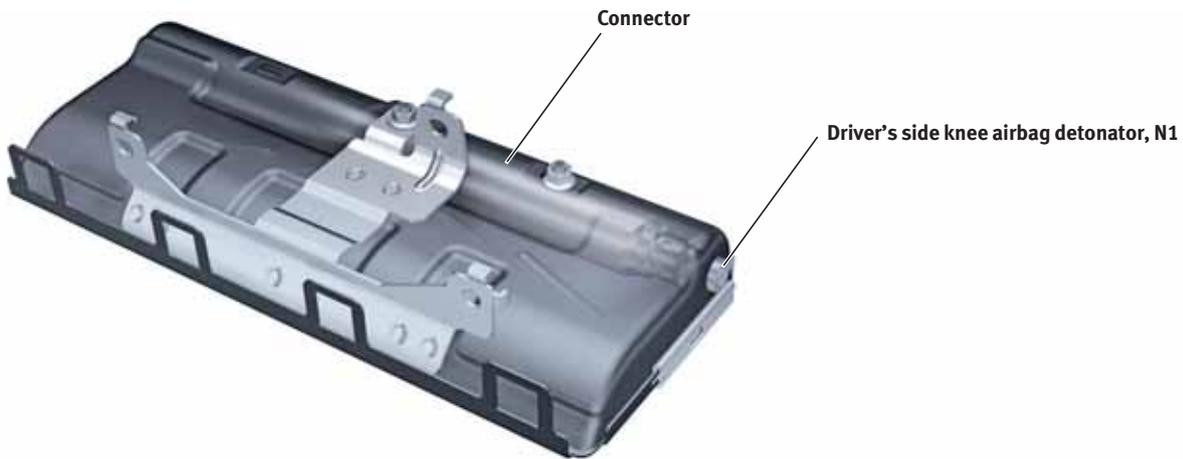
A new internal configuration of the module has allowed reducing its weight (compared to the previous Leon).

The operation principle is that of a **single phase airbag**.

When the airbag control unit, J234, sends the detonation signal, the passenger side airbag detonator 1, N131, detonates and brakes the rupture disk 1 to ignite the ignition charge, which in turn activates the driving load.

The pressurised gas generated mixes with the cold gas. The rise in pressure brakes the rupture disk 2 and it flows to the bag through the metal filter and output hole. The front passenger airbag swells.

OCCUPANT PROTECTION



D155-16

DRIVER KNEE-AIRBAG

The knee airbag incorporates a gas generator, that is, it uses **compressed gas** stored in a tube to make the airbag deploy.

When the airbag control unit, J234, sends the detonation signal, the driver's side knee airbag detonator, N295, detonates and perforates the rupture disk.

The high pressure compressed gas inside the tube is released to the airbag through the output holes and the driver side knee airbag deploys.

The knee airbag is electrically connected to the body through the supports. For electrical conductivity to be active make sure enough contact is being made.

POWERTRAIN

EA211 PETROL FAMILY ENGINES



1.2 L TSI and 1.4 L TSI engines

EA888 PETROL FAMILY ENGINES
3rd. generation



Two 1.2 L TSI engines

EA288 FAMILY DIESEL ENGINES



1.6 L TDI CR and 2.0 L TDI CR engines

D155-17

NEW ENGINE FAMILIES

The SEAT Leon includes the new engine families, all of which comply with the following requirements:

- Reduced consumption and emissions.
- Torque and power increase.
- Weight reduction
- New dimensions.

The new families of engines are named as: EA211, EA888 3rd. generation and EA288.

The **EA211 family** includes the 1.2 L and 1.4 L TSI petrol engines. Its features are:

- The engine block is made of aluminium.
- The cylinder head exhaust side is fitted facing the rear end of the car.
- The exhaust manifold is integrated in the cylinder head.
- It is a toothed belt timing.
- It uses 4 valves per cylinder.
- Double circuit cooling.
- Crankshaft sump breathing integrated in the engine block.

The **EA888 3rd. generation** family includes the 1.8 L TSI petrol engines. The main features are:

- Weight reduction in structural components.
- Optimising of friction and light build mobile components.

- Cylinder head with integrated exhaust manifold.
- Thermal management with coolant electronic regulation.
- Dual injection system FSI/MPI.

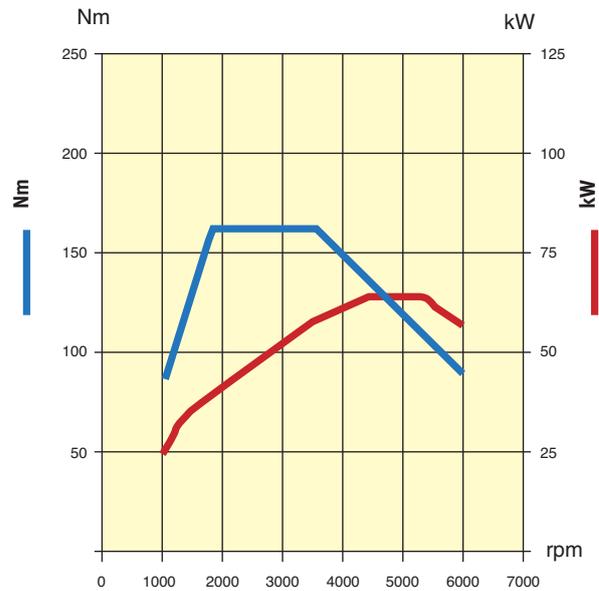
The **EA288 family** groups the diesel engines: 1.6 L TDI TDi CR and 2.0 L TDi CR. The particulars of these engines are:

- Engine block with integrated balance shafts (only for the 2.0L TDI engine).
- Inlet manifold module with integrated intercooler.
- Variable camshaft adjusting cylinder head.
- Oil pump with integrated vacuum pump.
- Switchable coolant pump.
- Oxidation catalyst and diesel particulate filter (fitted transversally).

POWERTRAIN

1.2 L TSI 63 kW ENGINE (CJZB)

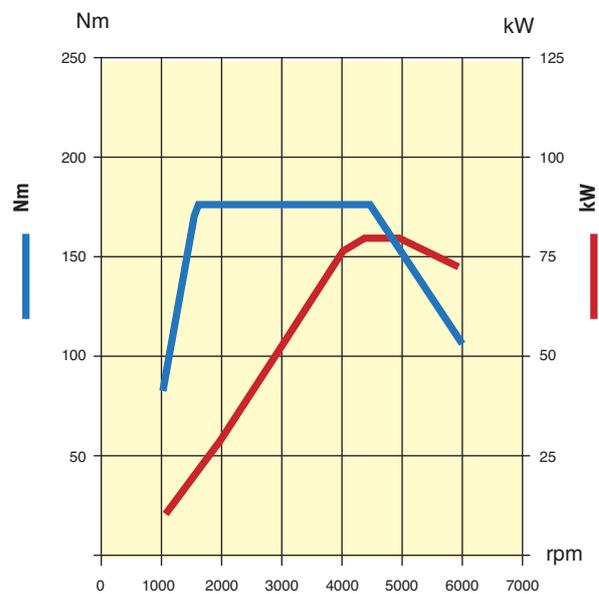
Engine designation letters CMBA
 Engine family EA211
 Capacity (cc) 1197
 Bore & stroke (mm) 71.0 × 75.6
 Maximum power (kW) 63
 Maximum torque (Nm) 160
 Compression ratio 10.5:1
 Valves per cylinder 4
 Emission standards EU5
 Fuel Unleaded 95 octane petrol



D155-18

1.2 L TSI 77 kW ENGINE (CJZA)

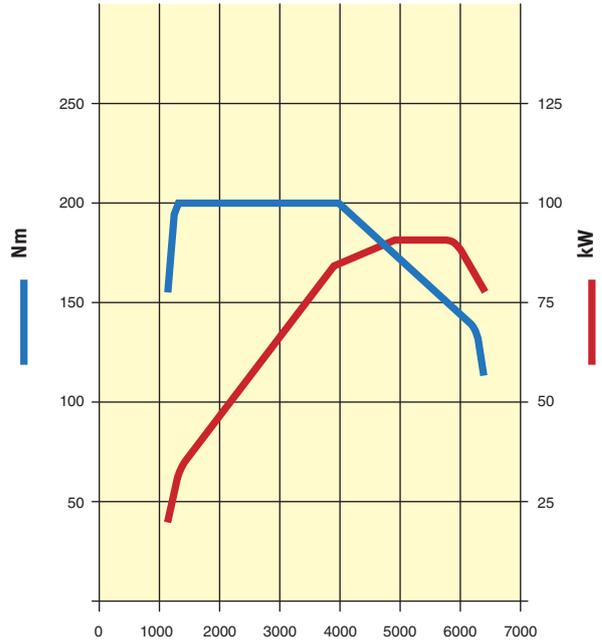
Engine designation letters CJZA
 Engine family EA211
 Capacity (cc) 1197
 Bore & stroke (mm) 71.0 × 75.6
 Maximum power (kW) 77
 Maximum torque (Nm) 175
 Compression ratio 10.5:1
 Valves per cylinder 4
 Emission standards EU5 plus
 Fuel Unleaded 95 octane petrol



D155-19

1.4 L TSI 90 kW ENGINE (CMBA)

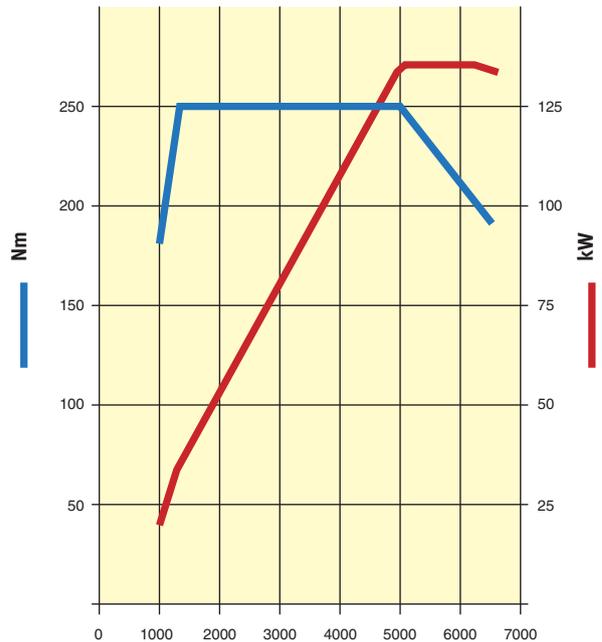
Engine designation letters CMBA
 Engine family EA211
 Capacity (cc) 1395
 Bore & stroke (mm) 74.5 × 80.0
 Maximum power (kW) 90
 Maximum torque (Nm) 200
 Compression ratio 10.5:1
 Valves per cylinder 4
 Emission standard EU5 plus
 Fuel Unleaded 95 octane petrol



D155-20

1.8 L TSI 132 kW ENGINE (CJSA)

Engine designation letters CJSA
 Engine family EA888
 Capacity (cc) 1798
 Bore & stroke (mm) 82.5 × 84.1
 Maximum power (kW) 132
 Maximum torque (Nm) 250
 Compression ratio 9.6:1
 Valves per cylinder 4
 Emission standard EU6
 Fuel Unleaded 95 octane petrol

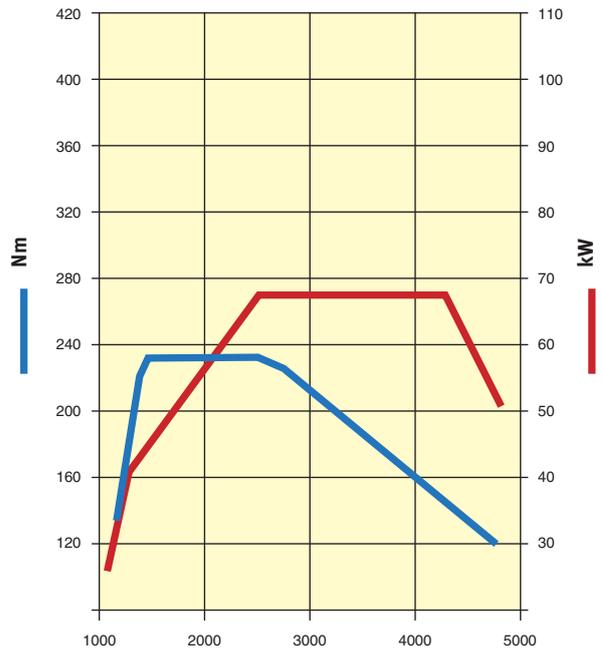


D155-21

POWERTRAIN

1.6 L TDI CR 66 kW ENGINE (CLHB)

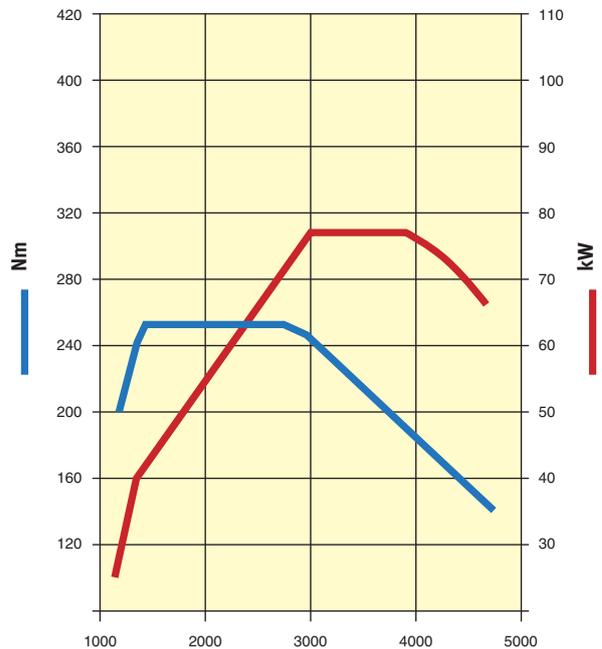
Engine designation lettersCLHB
 Engine familyEA288
 Capacity (cc)1598
 Bore & stroke (mm) 79.5 × 80.5
 Maximum power (kW)66
 Maximum torque (Nm)230
 Compression ratio 16.2:1
 Valves per cylinder 4
 Engine management systemBosch 17
 Emission standard EU5 plus
 Fuel Diesel (EN 590)



D155-22

1.6 L TDI CR 77 kW ENGINE (CLHA)

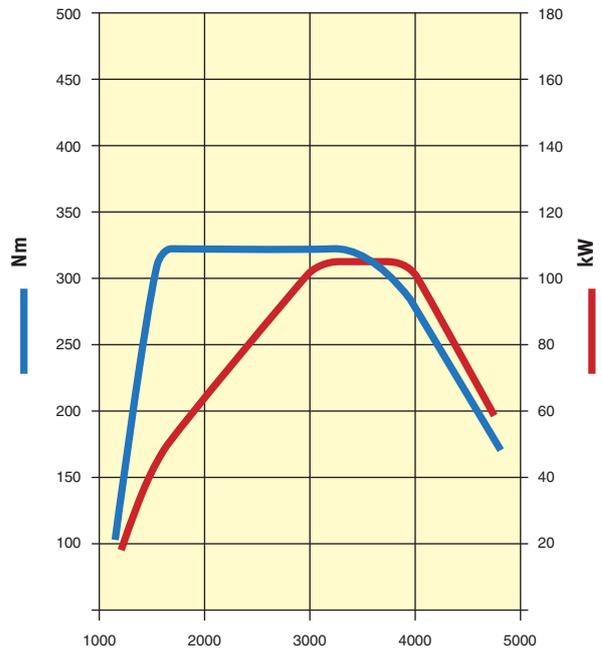
Engine designation lettersCLHA
 Engine familyEA288
 Capacity (cc)1598
 Bore & stroke (mm) 79.5 × 80.5
 Maximum power (kW)77
 Maximum torque (Nm)250
 Compression ratio 16.2:1
 Valves per cylinder 4
 Engine management systemBosch 17
 Emission standard EU5 plus
 Fuel Diesel (EN 590)



D155-23

2.0 L TDI CR 110 kW ENGINE (CKFB)

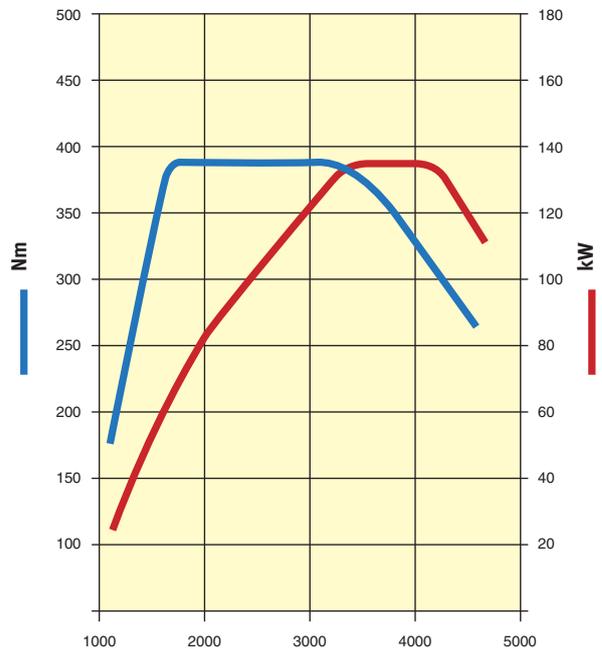
Engine designation letters CKFB
 Engine family EA288
 Capacity (cc) 1968
 Bore & stroke (mm) 81.0 × 95.5
 Maximum power (kW) 110
 Maximum torque (Nm) 320
 Compression ratio 16:1
 Valves per cylinder 4
 Engine management system Bosch EDC 17
 Emission standard EU5 plus
 Fuel Diesel (EN 590)



D155-24

2.0 L TDI CR 135 kW ENGINE (CUPA)

Engine designation letters CUPA
 Engine family EA288
 Capacity (cc) 1968
 Bore & stroke (mm) 81.0 × 95.5
 Maximum power (kW) 135
 Maximum torque (Nm) 380
 Compression ratio 15.8:1
 Valves per cylinder 4
 Engine management system Bosch EDC 17
 Emission standard EU5 plus
 Fuel Diesel (EN 590)



D155-25

POWERTRAIN

6 speed DSG 0D9 Gearbox
(DQ250-6F)



7 speed DSG 0CW Gearbox
(DQ200-7F)



D155-26

DSG GEARBOX

Vehicles equipped with DSG gearbox (6-speed 0D9 and 7-speed 0CW) incorporate the “**Inertia mode**”.

The purpose of this new function is to reduce engine consumption and increase the vehicle’s efficiency in the deceleration phase.

The “Inertia mode” is automatically activated under certain conditions. When it comes into action the gearbox disengages the clutches allowing the vehicle to free-wheel. While the car is moving the engine is idling.

When the function is active, “E” is displayed on the instrument panel instead of the gear selected.

The “Inertia mode” is **activated** when the following conditions comply simultaneously:

- Shift lever set in position D”.
- “Eco” driving profile activated, which can be accessed through the infotainment equipment “SEAT Drive Mode” .
- Driving speed higher than 20 km/hr.

- Driving on a ramp/hill of less than 8%.
- Accelerator pedal at rest.

When the function is activated the indication is displayed on the **instrument panel**.

To **interrupt** the “Inertia mode” when it is active all that needs to be done is:

- Activate brake pedal.
- Or, one of the activation conditions not being complied with.

While the “Inertia mode” is active the gearbox control unit analyses the vehicle’s driving speed and selects the appropriate speed accordingly to permit a comfortable engaging of the clutch when required.

COMBINATION OF ENGINES AND GEARBOXES

PETROL ENGINES

1.2 L TSI 63 kW
(CJZB)

0AF Manual gearbox
(MQ200-5F)

1.2 L TSI 77 kW
(CJZA)

0AH Manual gearbox
(MQ200-5F)

0AJ Manual gearbox
(MQ200-6F)

DSG 0CW Gearbox
(DQ200-7F)

1.4 L TSI 90 kW
(CMBA)

0AJ Manual gearbox
(MQ200-6F)

1.8 L TSI 132 kW
(CJSA)

02S Manual gearbox
(MQ250-6F)

DSG 0CW Gearbox
(DQ200-7F)

DIESEL ENGINES

1.6 L TDI CR 66 kW
(CLHB)

0A4 Manual gearbox
(MQ250-5F)

1.6 L TDI CR 77 kW
(CLHA)

0A4 Manual gearbox
(MQ250-5F)

DSG 0CW Gearbox
(DQ200-7F)

2.0 L TDI CR 110 kW
(CKFF)

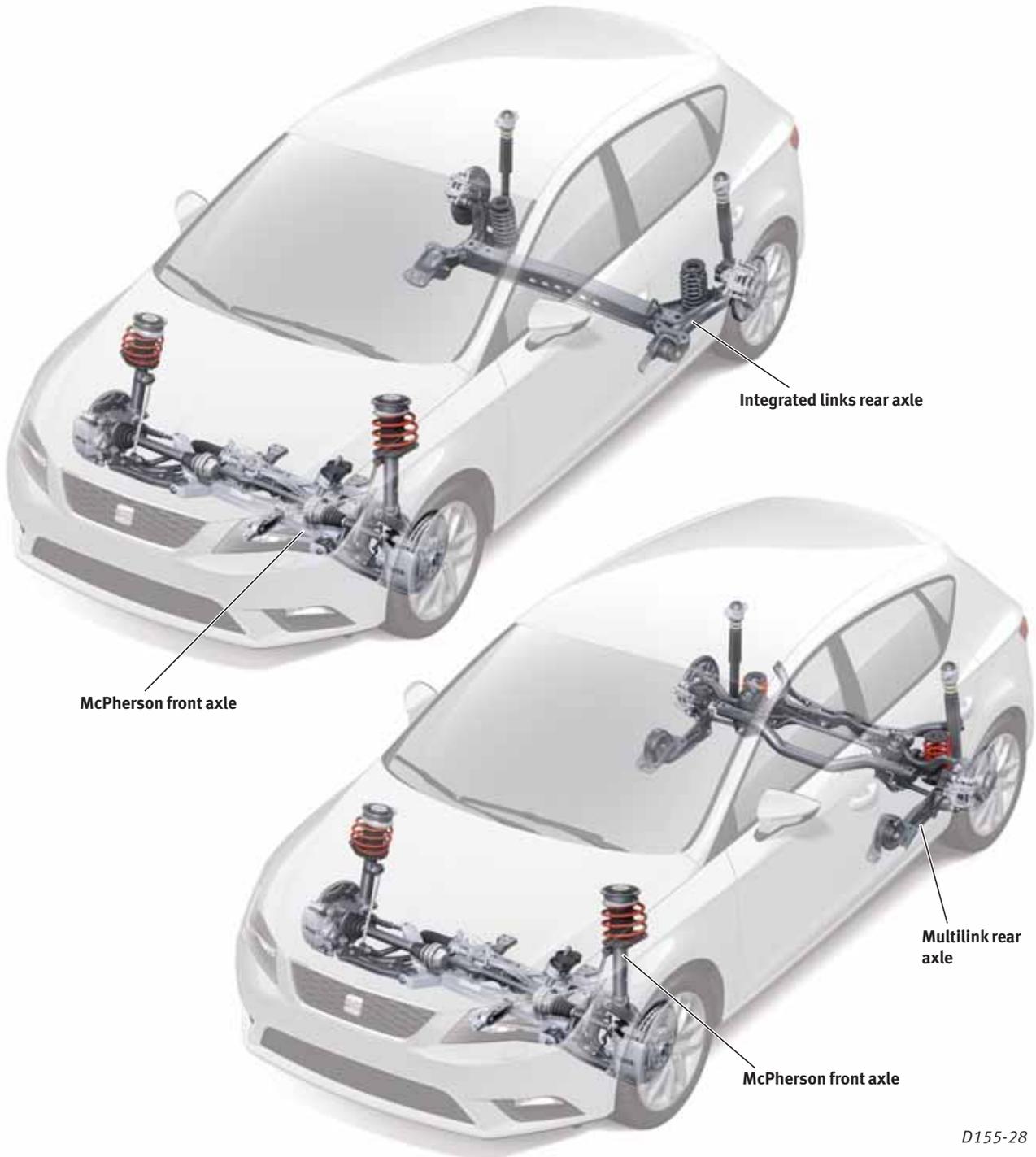
02Q Manual gearbox
(MQ350-6F)

DSG 0CW Gearbox
(DQ250-6F)

2.0 L TDI CR 135 kW
(CUPA)

0FB Manual gearbox
(MQ350-6F)

DRIVETRAIN



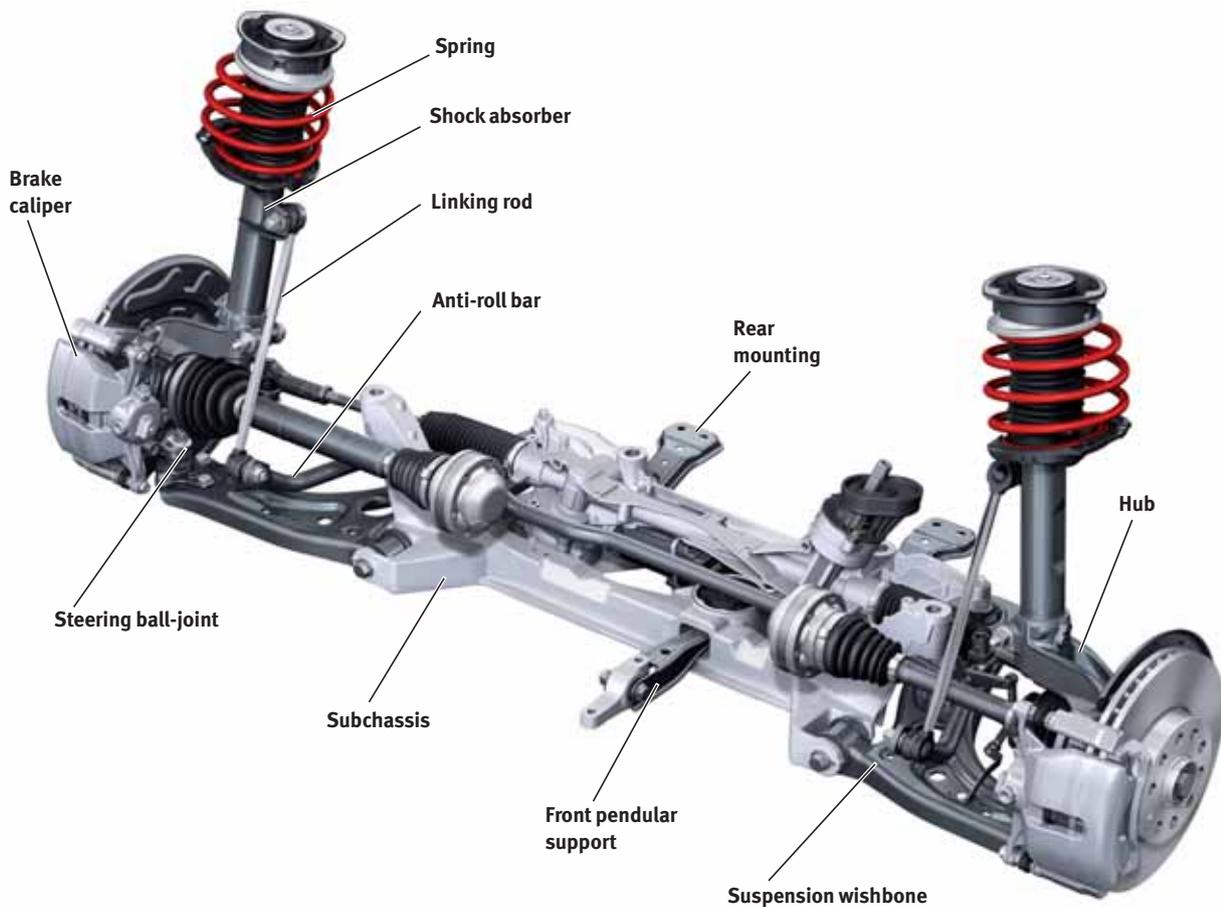
The **front** drivetrain of the SEAT Leon is always **McPherson**.

The **rear** drivetrain can be one of two types, depending on the engine power.

For powers of up to 110 kW it is an **integrated links** drivetrain.

For powers above 110 kW, it is a **multilink** drivetrain.

Both the front drivetrain and the two rear drivetrain versions are available as “Comfort” and “FR” versions.



D155-29

FRONT AXLE

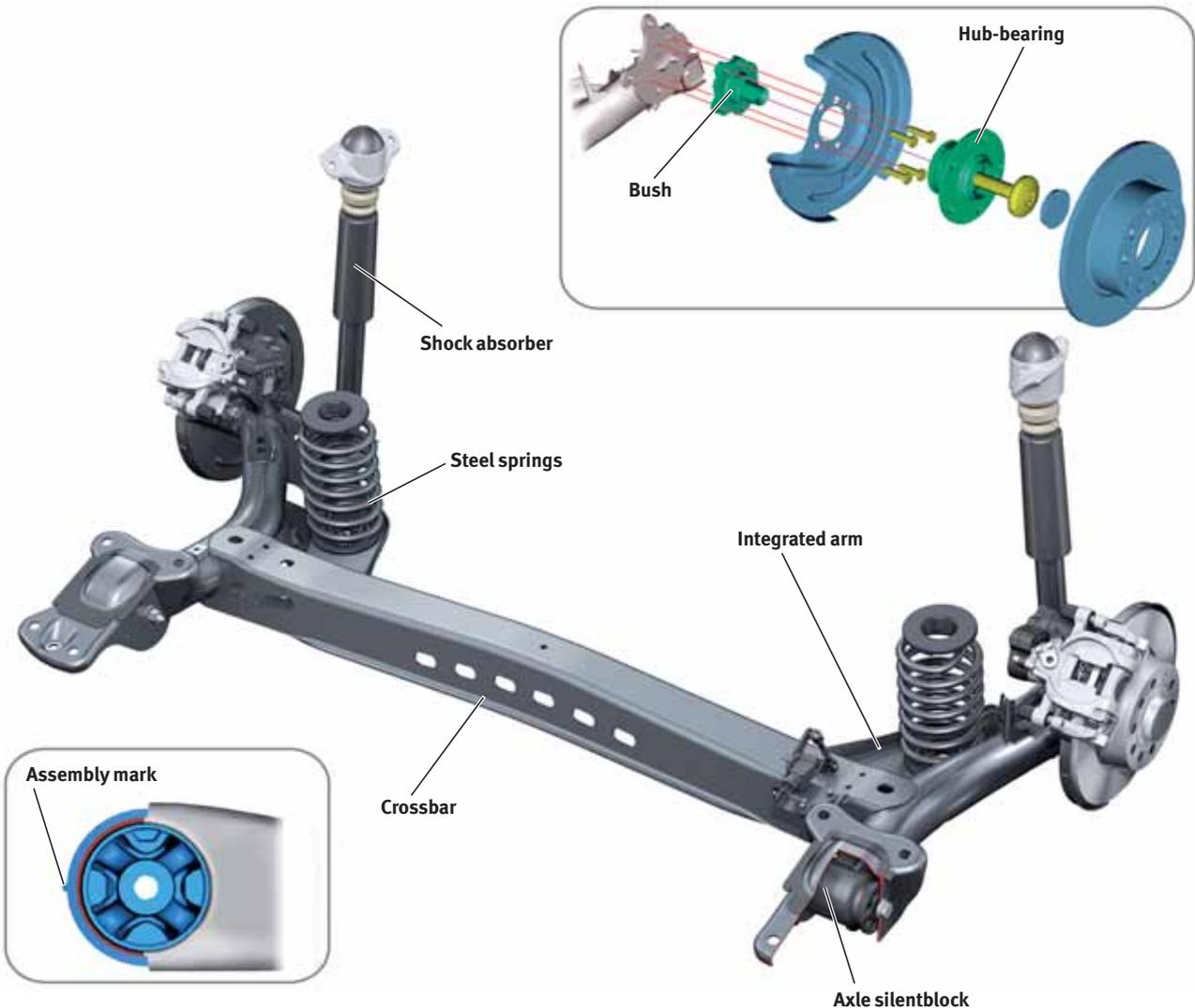
The front drivetrain configuration is Mc Pherson (suspension trapeze and strut).

The main components of the front drivetrain are:

- The **suspension trapeze (or wishbone)**, is made of a single part metal sheet.
- The **front silentblock of the wishbone** is longitudinally placed and does not require any specific assembly position.
- The **rear silentblock of the wishbone** requires respecting its assembly position. The mark on the rubber bush has to be lined up with the marks on the trapeze and make sure that the wider channelling is facing the centre of the vehicle.
- The **strut** is attached to the turret in the car body with three screws and must respect its assembly position.
- The **steering ball-joint** is screwed on to the strut.

- The **subchassis** is attached to the car body with four bolts.
 - The **anti-roll bar** is attached by its ends to the linking rod.
 - The **steering box** is attached to the subchassis with two screws.
 - The **wheel bearing and bush** are a single assembly and are attached to the steering axis with three bolts from the inside.
 - One **front pendular support**, attached to the engine with a bolt.
 - Two **rear mountings** join the auxiliary subchassis to each of the lower members.
- The settings that can be adjusted on the front axle of the SEAT Leon are:
- Camber compensation.
 - Toe adjusting.

DRIVETRAIN



D155-30

INTEGRATED LINKS REAR AXLE

An integrated links axle is fitted in vehicles with a power output of up to 110 kW.

Basically, it is an axle onto which the integrated links are attached.

The **crossbar** acts as the torsional element of the axle. It is an inverted “U” shaped steel profile (the open part facing downwards). This design allows eliminating the anti-roll bar.

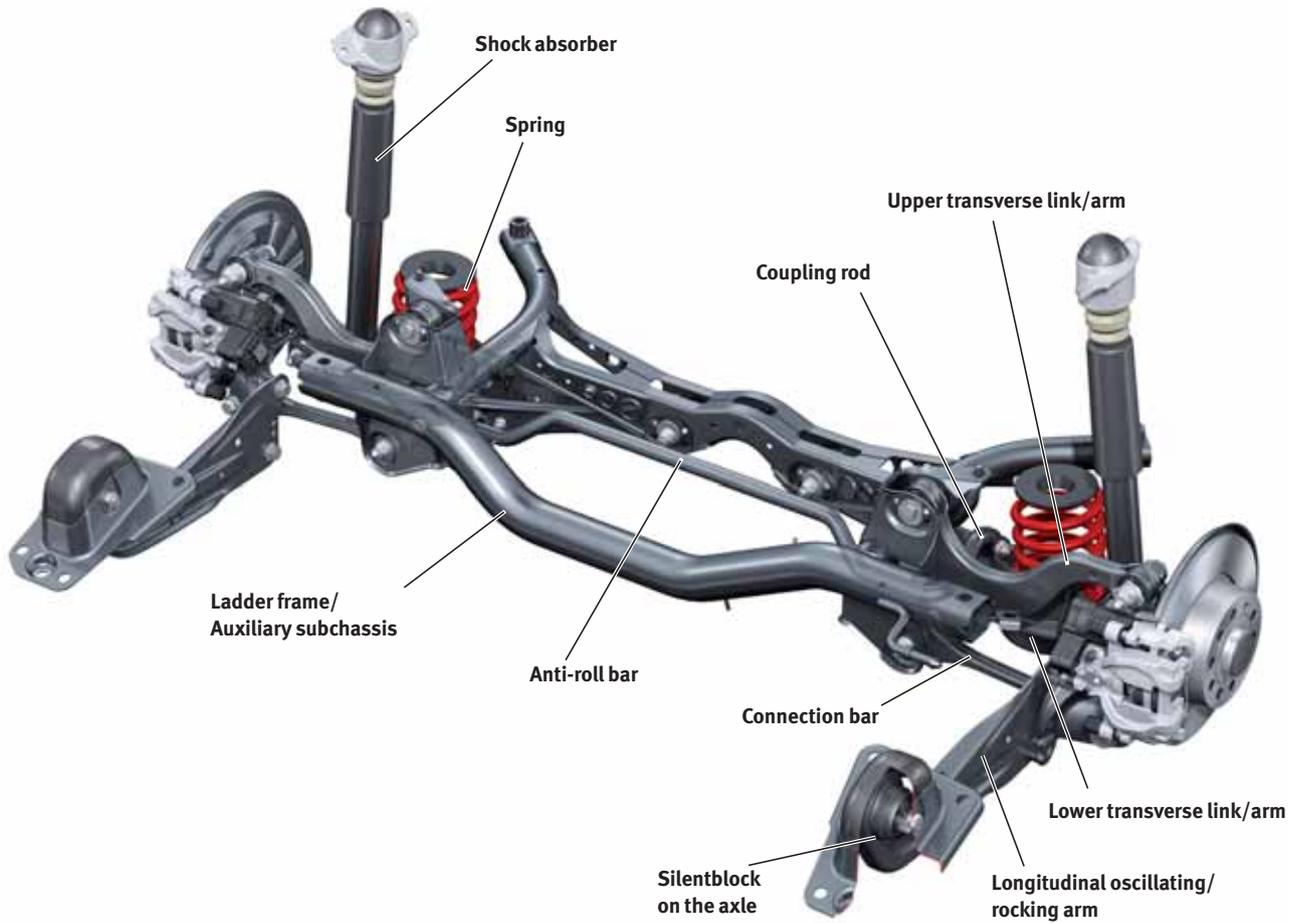
The **silentblocks** of the axle have a specific assembly position – due to their almost rigid transversal performance – in order to achieve fast generation of lateral forces.

The **hub** is bolted to the “integrated link” from the outside with four screws.

The **hub-bearing** is fitted on the hub and is attached to it with one single screw.

The layout of the **spring** and the **shock absorber** – one after the other – allow for a wider luggage compartment.

The integrated links rear axle **does not allow for any type of setting adjustments.**



D155-31

MULTILINK REAR AXLE

This type of axle is used in vehicles with engine powers higher than 110 kW.

The multilink rear axle is made of three transversal links and one longitudinal link attached to the wheel's steering axis:

- **Lower transverse arm**, made of high elasticity limit steel. The suspension spring leans on the lower transversal arm – onto which the shock absorbers are screwed on – and the anti-roll bar is attached to it with linking rods.
- **Upper transversal arm**, made of steel.
- **Coupling bar** or toe arm, made of steel.
- **Longitudinal rocking arm**, made of steel.
- **Integrated wheel bearing**, which becomes a single assembly with the bush.

- **Silentblock on the axle**, assembly position to be respected.

The settings that can be adjusted on the rear multilink axle of the SEAT Leon are:

- Camber.
- Toe.

DRIVETRAIN

BRAKES TABLE

The tables below show the types of brakes fitted in the SEAT Leon. Using one or another equipment basically depends on:

- Whether it is front or rear axle.
- The type of rear axle.
- And, the engine power.

FRONT AXLE BRAKES

BRAKES CALIPER	BRAKE DISK SIZE	ENGINE POWER DELIVERY	WHEEL RIM SIZE	PR no.
PC 57-25/14	288 × 25 mm	From 63 to 110 KW	15"	1ZE
	312 × 25 mm	From 110 kW	16"	1ZA

REAR AXLE BRAKES

BRAKES CALIPER	BRAKE DISK SIZE	ENGINE POWER DELIVERY	TYPE OF AXLE	PR no.
CI 38 HR-A1510	253 × 10 mm	From 63 to 110 KW	Stiff	1KD
PC 38 HR-1510	272 × 10 mm	From 110 kW	Multilink	1KS

D155-32

BRAKE SERVO

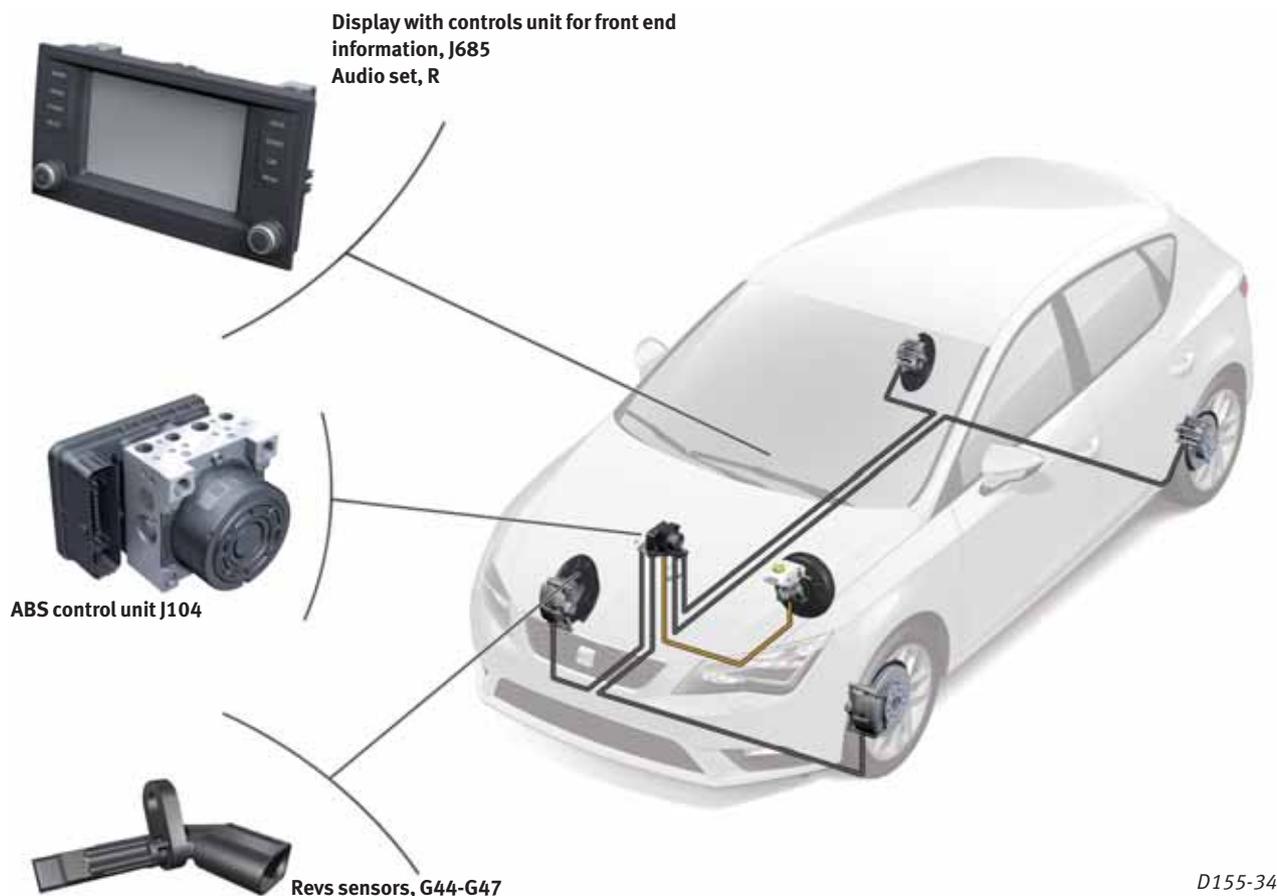
The SEAT Leon brake servo varies depending on whether the car is right or left hand drive and on the powertrain fitted:

- **11" diameter single brake servo:** for left hand drive vehicles with TSI engines.
- **10" diameter single brake servo:** for left hand drive vehicles with TDI engines.
- **7"/8" diameter tandem brake servo:** for right hand drive vehicles with any type of engine.



Single brake servo

D155-33



D155-34

MK100 BRAKES

For all the SEAT Leon versions the MK100 brakes management system is used; it is made by Continental.

Features of the **MK100 management system** are:

- Reduced size and weight.
- High number of components integrated in the actual control unit.
- High degree of integration with other management systems.

The ABS control unit, J104, is a single assembly with the hydraulic unit, N55, and it contains the necessary solenoid valves to regulate the braking pressure. This assembly is fitted in the engine compartment on the right front member.

It must be taken into account that vehicles equipped with radio or navigator do not include:

- ASR/ESC switch, E256.
- Tyres pressure monitoring indicator switch, E492.

Enabling and disabling these functions is done by using **virtual switches** on the radio or navigation system.

DRIVETRAIN

ASSUMED FUNCTIONS

The brakes management system MK100 has four new functions additional to the ones already known.

The **new functions** are:

- **HVV:** Maximum retention of rear axle. The braking pressure increases until it makes the ABS come into action on the rear wheels. It only comes into action when the ABS is already acting on the front axle.
- **GMB:** Influences the yaw movement torque. This function prevents the vehicle losing stability when braking on uneven adherence surfaces. The function limits – in a differentiated and limited duration way – the braking pressure on each wheel during braking. This is how the steering moments – the yaw moments – generated when braking on uneven adherence surfaces are counteracted.
- **MKB:** Multicollision. This function reduces the risk of more collisions after an accident, thanks to the car remaining braked. The MKB function is activated in front, lateral and head-on collisions, as long as the following conditions comply:
 - Car driving at more than 10 km/h at the moment of collision.
 - Activation threshold reached at the collision.
 - The control unit, the hydraulic circuit and the on-board network not damaged in the accident.
- **Pre-priming:** This function reduces the car's braking time as, under certain circumstances, pressure is generated in the brakes hydraulic circuit before the driver actually activates the brake pedal.

The **already known functions** of the brakes management system are:

- **ABS:** Brakes anti-lock system.
- **EBV:** Electronic distribution of the braking force.
- **HBA:** Hydraulic brake assist.
- **ESC:** Electronic stabilization program. Formerly named ESP.
- **BSW:** Drying of brake disks.
- **TSA:** Trailer stabilisation.
- **DSR:** Assisted countersteering or steering wheel rotation recommendation.

Rear right wheel revs sensor, G44



Front right wheel revs sensor, G45



Rear left wheel revs sensor, G46



Front left wheel revs sensor, G47



Brake servo pressure sensor, G608



Tyres pressure monitoring press button E226

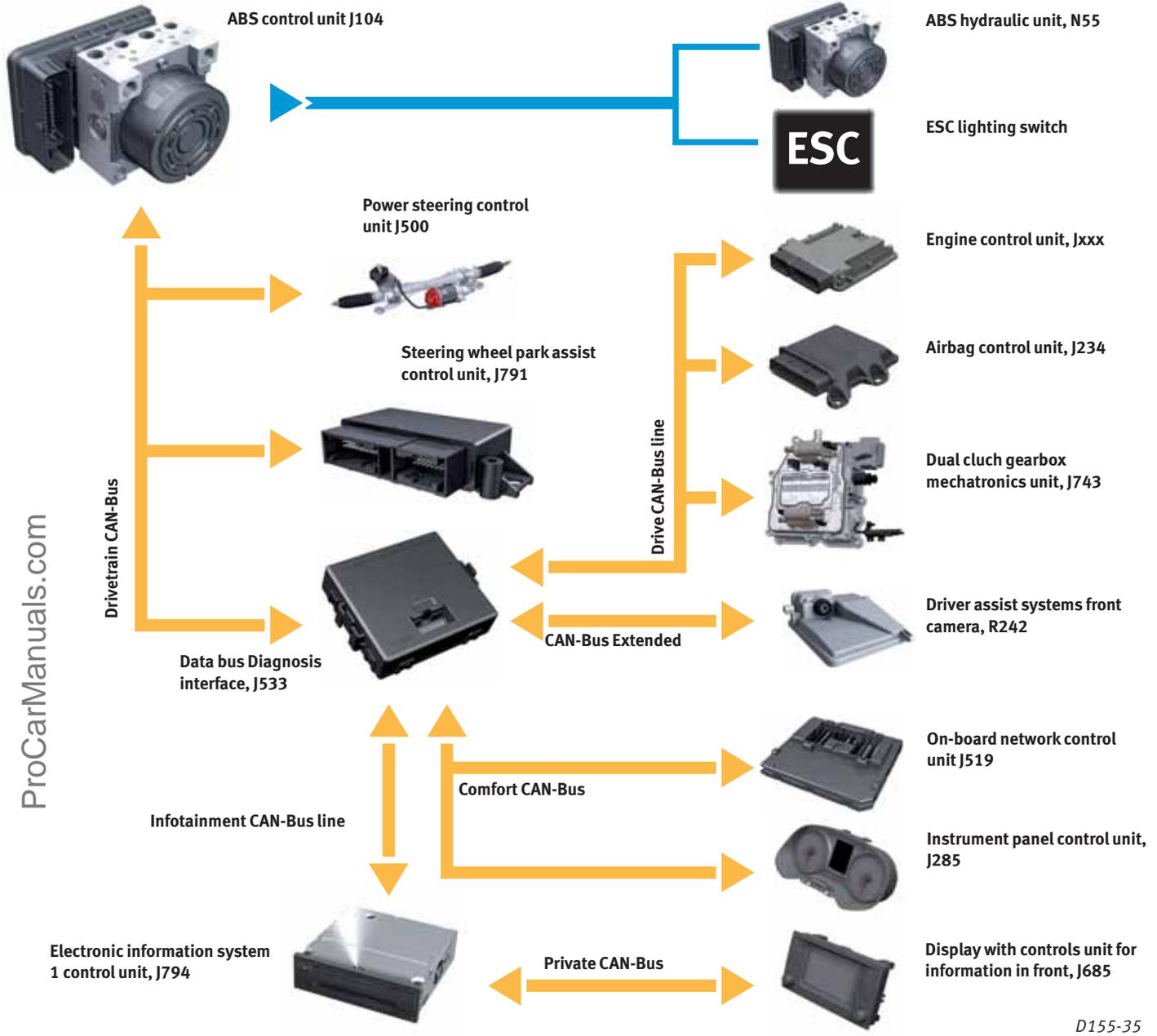


ASR/ESC switch, E256



ESC

- **HBV:** Hydraulic servo assistance to the brakes Formerly O-HBV.
- **FBS:** Formerly named Overboost.
- **HHC:** Hill hold control.
- **ASR:** Anti slipping regulation (“Antriebs-Schlupf-Regelung”).
- **MSR:** Engine inertia torque regulation.
- **EDS:** Electronic Differential Blocking.



D155-35

- **XDS:** Extended Electronic Differential Blocking.
- **CBC:** Electronic braking stabilisation system. Formerly ESBS.
- **Emergency braking signalling.**
- **RKA+:** Tyres pressure monitoring.

DRIVETRAIN



D155-36

VIRTUAL SWITCHES

Vehicles equipped with radio or navigator do not have:

- ASR/ESC switch, E256.
- Tyres pressure monitoring indicator switch, E492.

Enabling and disabling these functions is done by using the radio or navigation system.

ESC

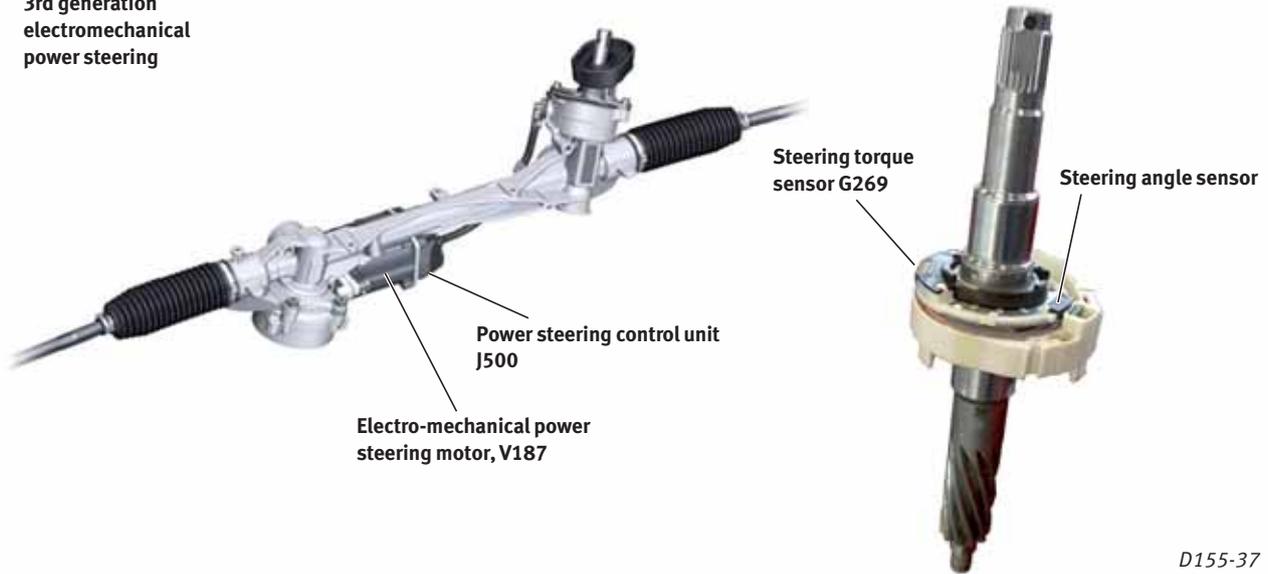
Access the screen "Menu" select "Settings", "ESC Systems" shows up and the function is activated or deactivated.

TYRES PRESSURE MONITORING

It can be adjusted in two ways:

- Access the "Menu" screen, select "Settings" and "Calibrate- Tyres" will come up automatically.
- Access the "Menu" screen, select "Vehicle", then select "Tyres", and "Calibrate- Tyres" will come up.

3rd generation
electromechanical
power steering



D155-37

POWER STEERING

The power steering version equipped by the new SEAT Leon is the third generation electromechanical version, similar to the one used in the preceding model.

The **components** that take part in the power steering management, which are located in the steering box, are:

- Steering torque sensor G269.
- Steering angle sensor.
- Power steering motor rotor revs sensor.
- Thermal sensor.
- Power steering control unit J500.
- Electro-mechanical power steering motor, V187.

The power steering control unit, J500, knows the exact position and travel of the steering wheel based on the following signals:

- Steering angle sensor (it recognizes the direction of steering and the number of steering wheel rotations).
- Power steering engine revs sensor (it recognises the steering angle).

For proper operation of the system, the power steering control unit exchanges **information** with other units via **CAN-Bus**:

- ABS control unit, J104.
- Engine control unit, Jxxx.
- Data bus diagnosis interface J533.
- On-board network control unit J519.
- Instrument panel J285.

The **functions assumed** by the power steering management are:

- Drive assist.
- Active counter-rotation.
- Steering stops.
- Straight path correction.
- DSR (driver steering recommendation).

The power steering also participates in the operation of the systems:

- Lane departure assist.
- And in SEAT Drive Mode.

ELECTRICAL SYSTEM

ELECTRICAL INSTALLATION

The electrical installation layout of the SEAT Leon is a decentralised configuration.

The main components are:

- Battery.
- Electrical box in the engine compartment.
- Fuse-box and relay holder in the passenger compartment.
- Coupling stations.

BATTERY

Depending on the powertrain and if the car is equipped with Start&Stop there are three different types of battery available: conventional, EFB and AGM:

- **Conventional:** cars without Start&Stop.
- **EFB:** petrol engine cars with Start&Stop.
- **AGM:** diesel engine cars with Start&Stop.

ELECTRICAL BOX

All the fuses are located in this box (**SA** and **SB**). There are new fuses in the electrical box named “**J-Case**”, which act as thermal fuses.

FUSE-BOX AND RELAY HOLDER

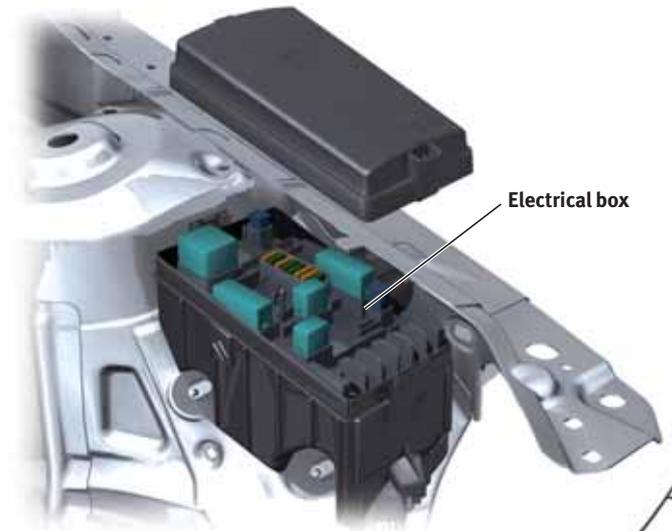
The (**SC**) fuses, the “**J-Case**” fuses and the **relays** for the electrical components are located in this box.

The **On-board network control unit**, J519, is fitted on one of the sides of this box.

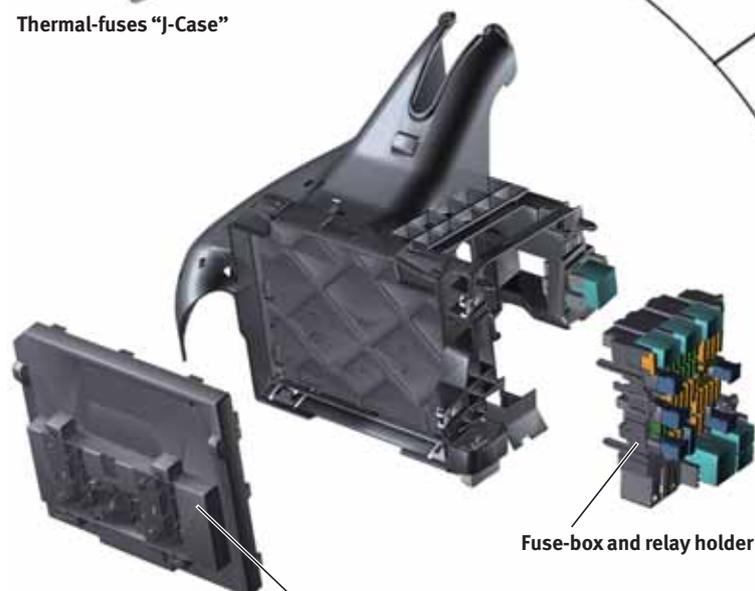
COUPLING STATIONS

The coupling stations are used for connecting the different wiring looms. There are coupling stations on the doors, the tailgate, under the seats and between the passenger compartment and the engine compartment installations.

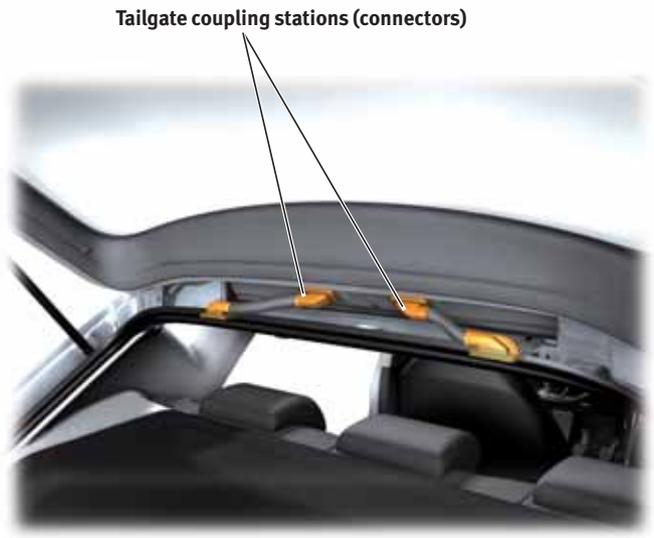
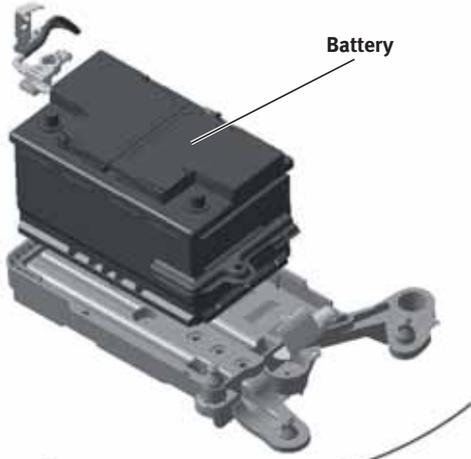
Note: For further information about the SEAT Leon electrical system consult the SSP no. 154 “Leon electrical system”.



Thermal-fuses “J-Case”



On-board network control unit J519



ELECTRICAL SYSTEM

DATA BUSES

The drawing on the right shows the interconnections between the control units linked to the different SEAT Leon CAN-Bus and LIN-Bus lines.

All the CAN-Bus lines meet at the Databus diagnosis interface (Gateway), J533, which -among other functions- converts messages between the CAN-Bus lines.

The SEAT Leon has different high speed data transfer **CAN-Bus** lines (500 kBit/s), which are:

- Drive CAN-Bus line.
- Drivetrain CAN-Bus.
- CAN-Bus Extended.
- Comfort CAN-Bus.
- Infotainment CAN-Bus.
- Diagnosis CAN-Bus.

Depending on the equipment the number of units linked to the CAN-Bus lines varies.

Also, depending on the vehicle's equipment there might be more CAN-Bus lines; in fact they are the lines known as Private CAN-Bus lines.

There are two **new features** in the SEAT Leon CAN-Bus topology:

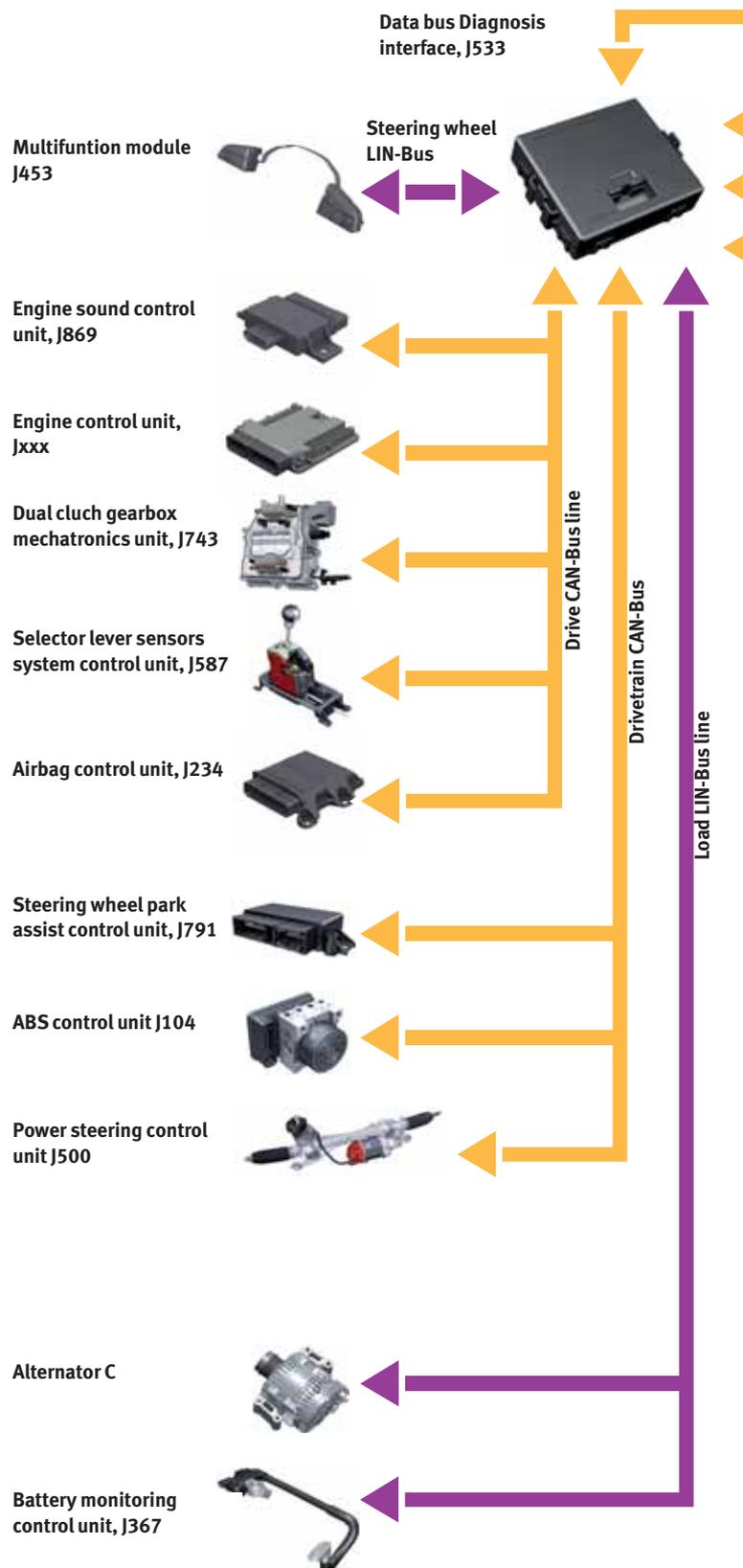
- The data transmission protocol: ISO TP.
- The diagnosis protocol: UDS.

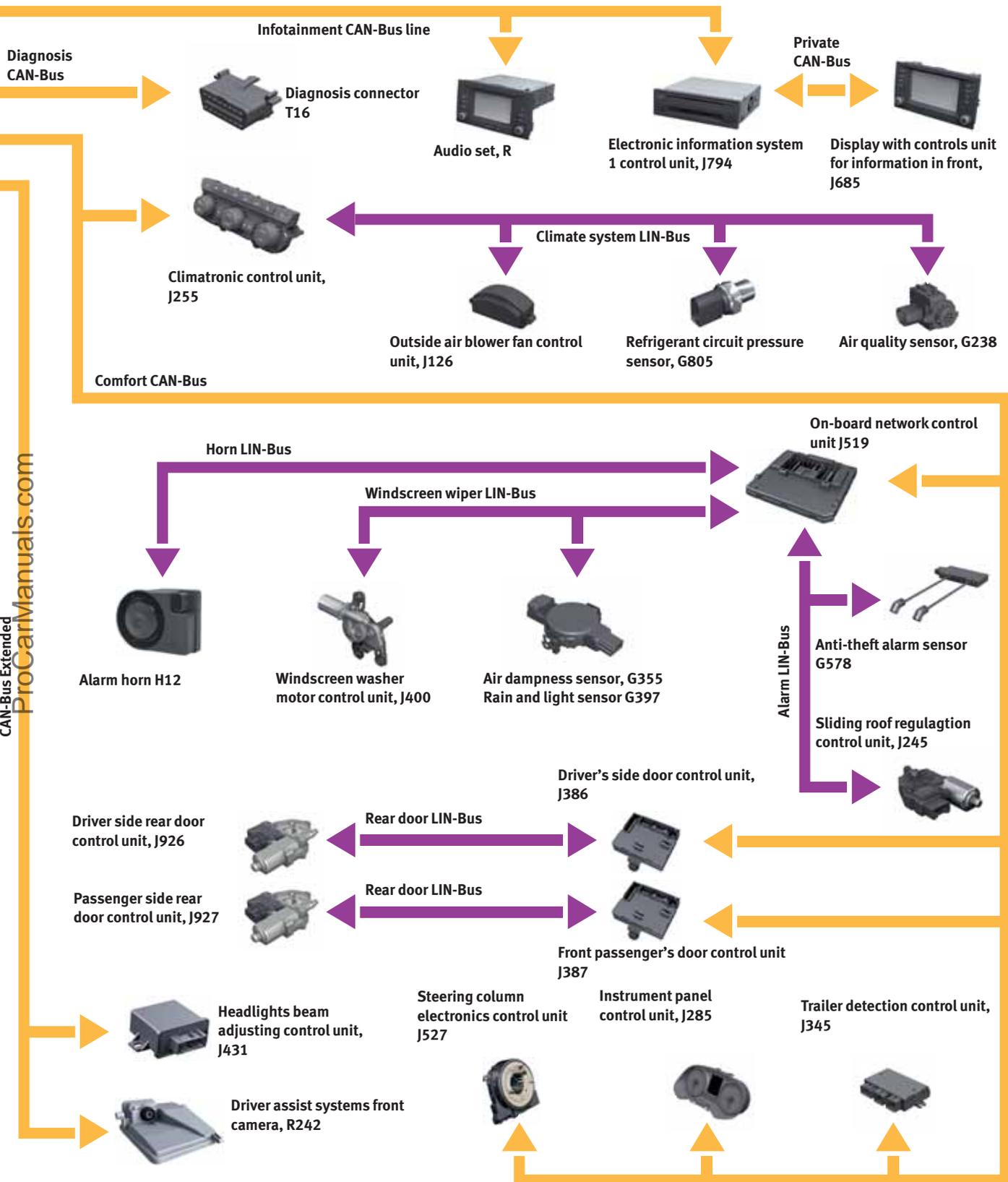
From a Service perspective, this means that to diagnose the car it is necessary to use ODIS on the diagnosis tester.

The SEAT Leon can include up to eight **LIN-Bus** lines (data transmission speed 20 kBit/s). The number of lines or units connected might not be as many, depending on the equipment version.

The eight LIN-Bus lines are:

- Climate system LIN-Bus.
- Rear right door LIN-Bus.
- Rear left door LIN-Bus.
- Load LIN-Bus.
- Steering wheel LIN-Bus.
- Windscreenwiper LIN-Bus.
- Alarm LIN-Bus.
- Horn LIN-Bus.





D155-39

ELECTRICAL SYSTEM

DATA BUS DIAGNOSIS INTERFACE, J533

It is located under the dashboard.

The unit is linked to all the vehicle's CAN-Bus lines (except to the private CAN-Bus lines).

The unit also acts as master unit for the LIN-Bus lines:

- Load LIN-Bus.
- Steering wheel LIN-Bus.

The **functions assumed** by the databus diagnosis interface, J533, are:

- Message conversion between CAN-Bus lines.
- Battery energy management (Start&Stop).
- Fatigue alert.
- Transportation mode.
- Protection through software.

TRANSPORTATION MODE

The objective of the transportation mode is to reduce the vehicle's electrical consumption before the delivery inspection.

When the transportation mode is active the "TRA" indication is activated on the instrument panel and certain consumers such as the remote control, the radio and the navigator are disabled.

The transportation mode can be deactivated manually by using the VAS 505x tester, or automatically when the car has driven more than 50 km.

PROTECTION THROUGH SOFTWARE. "SWaP"

It is a security **function implemented** in the databus diagnosis interface, J533, that allows activating existing functions in the car but which have not been activated at the factory:

- Cruise control, "GRA".
- Fatigue recognition "MKE".
- Navigation data update.

These functions are activated at the Service by using an unlocking code "FSC" the customer has to buy as an Accessory.

Data bus diagnosis interface, J533



D155-40

Transportation mode active indication



D155-41

It modifies the vehicle's PR list, it is registered in the gateway and is updated in the ElsaPro database.

FUNCTIONS ASSUMED BY THE ON-BOARD NETWORK CONTROL UNIT, J519



D155-42

ON-BOARD NETWORK CONTROL UNIT J519

The unit is located under the dashboard, on the left of the fusebox.

There are two versions, according to the frequency (315 MHz and 434 MHz).

There are three variants of the 315 MHz version: Basis, Medium, High.

And, there are four variants for the 434 MHz version: Basis, Medium, Medium+, High.

The unit is linked to the Comfort CAN-Bus and it is the master unit of the LIN-Bus lines:

- Alarm LIN.
- Horn LIN-Bus.
- Windscreenwiper LIN.

The **functions assumed** by the on-board network control unit, J519, are:

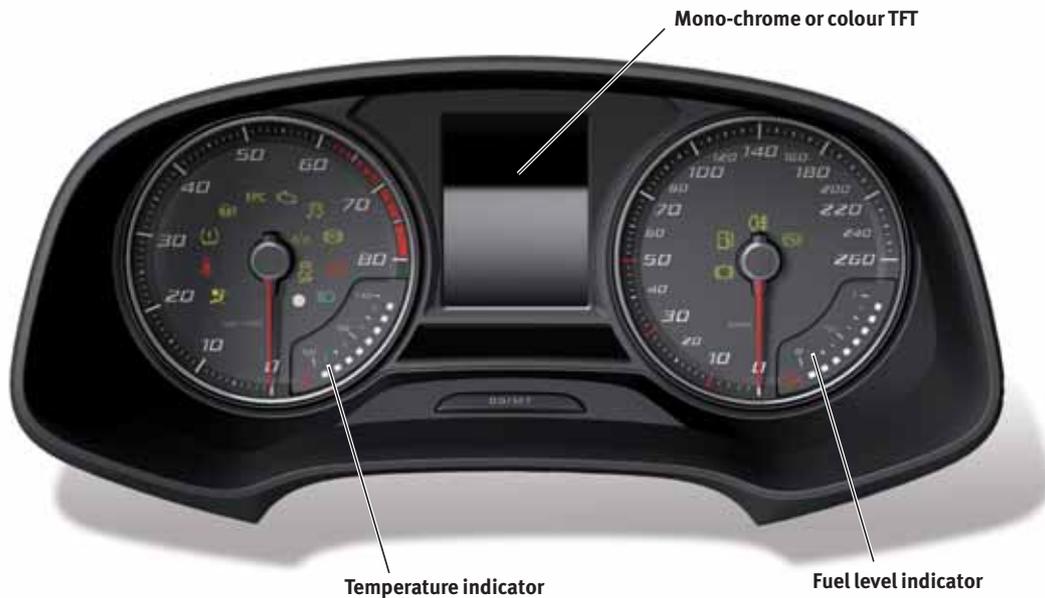
- Terminal management.
- Load management function.
- Control of LIN-Bus lines (windscreenwiper LIN-Bus, Alarm LIN-Bus, and Horn LIN-Bus).
- Windscreen wipers.
- Comfort system.
- Interior lighting.
- Heated rear window.

ELECTRICAL SYSTEM

BASIC



MEDIUM



D155-43

INSTRUMENT PANEL

The SEAT Leon has two instrument panel versions available: Basic and Medium.

The **Basic version** has:

- A group of warning lights in the revs counter clock/gauge, on the left.
- In the middle there is a LCD segments display.
- Another group of warning lights in the revs gauge clock, on the right.

The **Medium version** has:

- The engine temperature indicator and a group of warning lights in the revs gauge, on the left.

- In the middle, the TFT display which can be mono-chrome or colour, depending on the finishing version.
- The fuel level indicator and another group of warning lights in the revs gauge, on the right.

5A IMMOBILISER

The SEAT Leon Immobiliser function is assumed by the **instrument panel (or cluster), J285**, direction code 17.

In this new 5A generation, as well as the instrument panel, the keys and the reader coil, the following components also participate:

- The engine control unit, Jxxx.
- Double clutch gearbox control unit, J743.

The immobiliser 5A components are specific to it, meaning that they are not compatible with other immobiliser components.

To replace one or several immobiliser components it is necessary to:

- Have a diagnosis tester connected to the network.
- Have a GEKO user code.

Next, in the diagnosis tester access “Guided Functions” and after “Adapt immobiliser”. The diagnosis tester will indicate the steps to follow.

Two **particulars** about the 5A immobiliser are:

- When new keys are adapted, the remote control is also adapted.
- Two components can be replaced at the same time.

IMMOBILISER A5 COMPONENTS



D155-44

COMPONENT PROTECTION

The purpose of the component protection system is to protect the control units from possible theft or illegal use.

This is done through the identification and follow-up of some control units in the vehicle's central data base (FAZIT).

With the diagnosis tester and by accessing “Guided Functions” it is possible to access and activate the “Component protection” function.

At first, the **participating units** are:

- Airbag control unit, J234.
- Instrument panel J285.
- On-board network control unit J519.
- Electronic information system control unit, J794.

ELECTRICAL SYSTEM



D155-45

HEADLIGHTS

The SEAT Leon has two types of headlights:

- Halogen.
- Full LED.

HALOGEN

The halogen headlights are double optics headlights and incorporate:

- Daytime running light.
- Side indicator light.
- Dipped beam.
- Full beam.
- Side indicator light.

Vehicles with halogen headlights can be equipped with foglights and cornering light.

FULL LED

These headlights only use light emitting diodes (LEDs) as light source and incorporate:

- Daytime running light.
- Side indicator light.
- Low (Dipped) beam.
- Full beam.
- Side indicator.

BULB TAIL LIGHTS

LED TAIL LIGHTS



D155-46

REAR LIGHTS

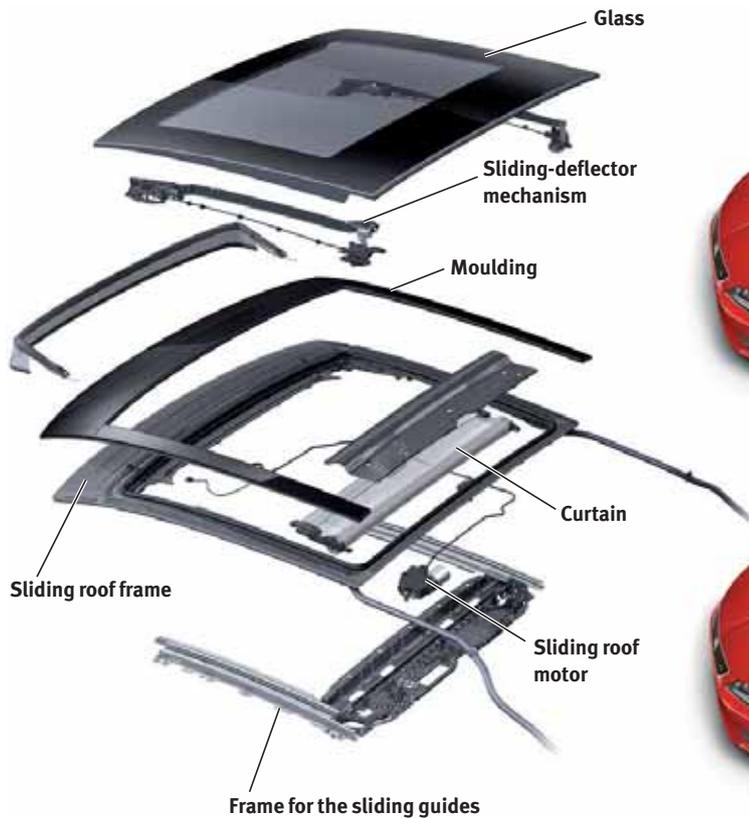
The SEAT Leon tail lights can be either bulbs or LEDs. Both options include two fixed lights and two mobile lights.

Both the bulb and LED tail lights assume the same type of lighting:

- Brake light.
- Side indicator light.

- Rear fog-light.
- Reverse speed light.
- Side indicator.

ELECTRICAL SYSTEM



D155-47

PANORAMIC SLIDING ROOF

The SEAT Leon can be equipped with the “sliding-deflector” panoramic roof.

This type of roof provides occupants with a great feeling of amplitude in the passenger compartment thanks to the large dimensions.

The panoramic roof **movements** are:

- Lifting the rear part of the glass panel.
- Opening the roof.
- And, closing the roof.

The panoramic deflector roof basically **includes**:

- One activation control.
- One electrical motor for the different movements.
- A sliding roof frame stuck on to the body to provide greater stiffness to the body.
- One moulding.
- A frame for the sliding guides.
- Two sliding-deflector mechanisms.

- A glass panel.

- A deflector.

- And, a manual activation curtain. Opening and closing of the curtain is independent from the position of the glass.

The glass cover provides a high degree of thermal protection as it is tinted and its high reflection values (99% UV radiation, 92% heat radiation and 90% light radiation).

DRIVER ASSIST SYSTEMS

The SEAT Leon includes several driving assist systems; some are completely new, such as:

- Fatigue alert.
- SEAT Drive Mode.
- Lane departure assist (Lane Assist).
- Main beam light assist.

And, other assist systems already known from other SEAT range cars:

- Park assist.
- Front distance control and rear OPS.
- Cruise control GRA.



D155-48

FATIGUE ALERT

This function warns the driver through an indication on the instrument panel when driving fatigue symptoms are detected.

The pause recommendation indication is visualised on the instrument panel display for approximately 5 seconds. If the driver does not stop within a set time, the warning will be activated again. After activating this second warning, no more warnings will take place in the same driving cycle.

This function can be **enabled** and **disabled** through the infotainment system when accessing the “Car-Menú” screen.

The following situations can **limit the operation** of the Pause recommendation:

- Driving at speeds below 65 km/h.
- Driving at speeds above 200 km/h.

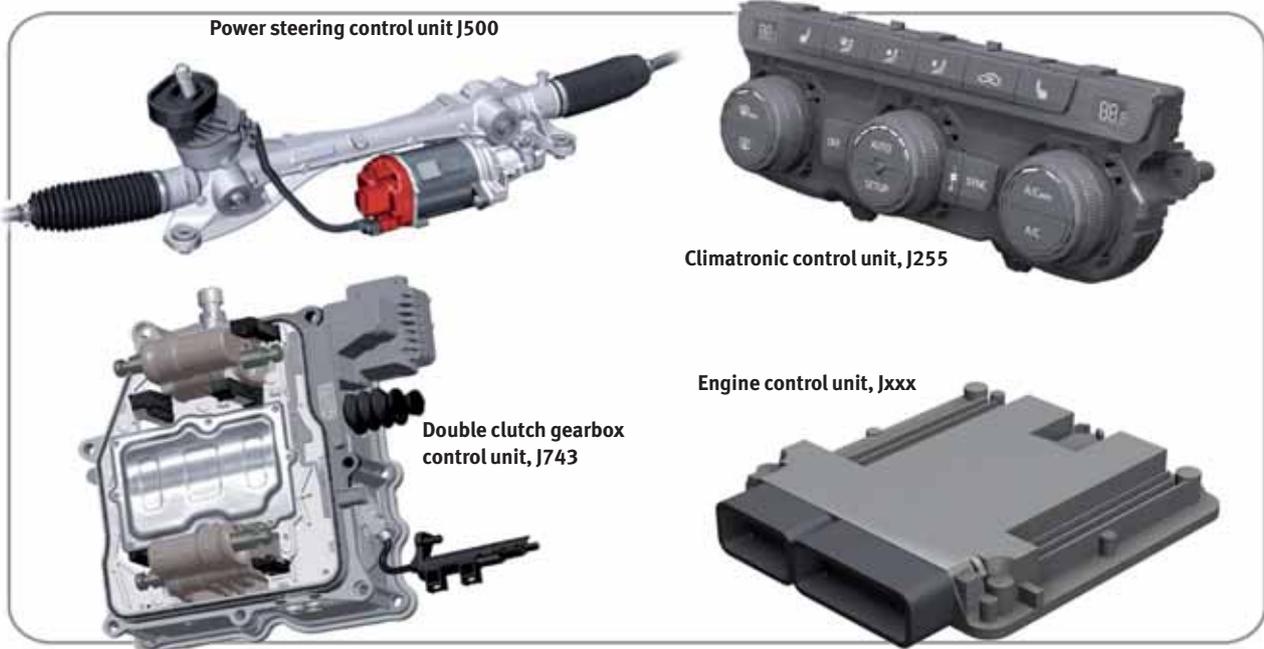
- Roads with many curves. (Bendy roads).
- Road surfaces in bad condition.
- Unfavourable climate conditions.
- Sporty driving style.

Fatigue alert **is reset** when any of the following conditions comply:

- The car is stopped for over 15 minutes.
- Disconnection of the ignition.
- The driver unfastens his seatbelt and opens the door.
- In slow driving (below 65 km/h) for long time.

DRIVER ASSIST SYSTEMS

IMMOBILISER A5 COMPONENTS



D155-49

SEAT DRIVE MODE

The “SEAT Drive Mode” system offers the driver the choice of selecting between three pre-set driving profiles and a personalised profile. By varying the profile the steering, automatic gearbox and climate system response is modified.

The profiles that can be selected are:

- Normal.
- Sport.
- Eco.
- Individual (custom mode).

In the “**Normal**” mode vehicle performance provides maximum comfort.

In the “**Sport**” mode, the vehicle performs in a more dynamic and agile way.

In the “**Eco**” mode the vehicle goes into a configuration aimed at reducing vehicle consumption while it informs on the display about the main consumers.

In the “**Individual**” mode the vehicle’s performance can be configured according to the driver’s personal preferences.

The “SEAT Drive Mode” system acts in the operation of: the steering, the engine, the SG gearbox and the climate system.

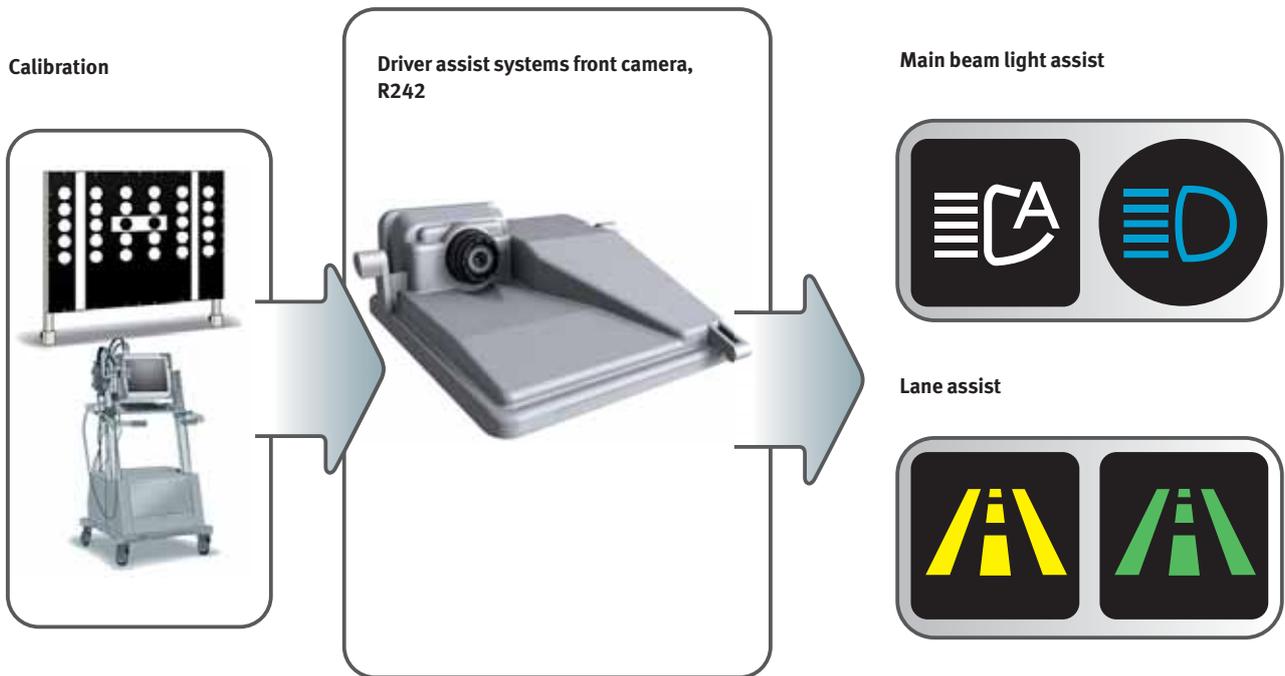
Address: The power steering modifies the degree of assist depending on the profile selected.

Engine: According to the selected profile the engine will respond in a more energetic or moderate way to the load demand. If the “Eco” profile is selected the Start&Stop function is activated.

DSG Gearbox: Vehicles equipped with this type of gearboxes modify the gearbox shifting points to set them at lower revs (eco) or higher (sport).

Additionally, the eco mode activates the inertia mode thus reducing consumption even more.

Climate system: In vehicles equipped with Climatronic, it can run in “Eco” mode, consumption becoming clearly lower.



D155-50

DRIVER ASSIST SYSTEMS FRONT CAMERA, R242

The SEAT Leon includes a new camera with incorporated control unit. In other SEAT cars different cameras were necessary for each assist system.

This **camera** is used by **two driver assist systems**:

- Main beam light assist.
- Lane assist.

The front driver assist system camera, R242, is linked to the Extended CAN-Bus line.

Correct camera operation requires correct system calibration.

MAIN BEAM LIGHT ASSIST

This system improves night vision as it keeps the high beam lights on as long as traffic and environment conditions allow.

Through the camera the system recognizes the ambience light ahead of the vehicle.

LANE ASSIST

The lane assist system detects the car's track, the road track and the lane the car is driving along optically.

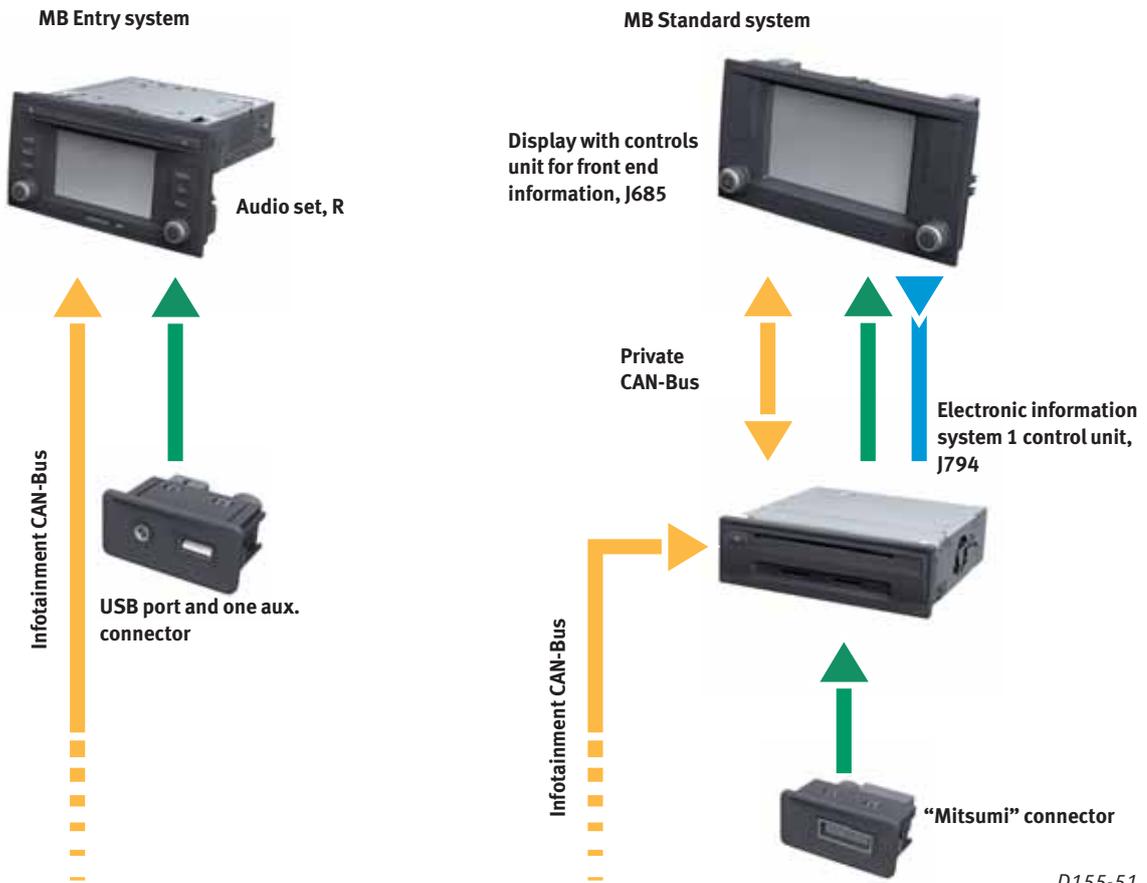
This assist system helps the driver not to depart from the driving lane involuntarily.

If the car loses the track calculated by the system the lane assist acts in two phases.

- In the first place it corrects the steering to keep the car on the track detected by the camera.
- If this phase is not enough, the steering wheel is made vibrate by the power steering motor, V187.

The assist under NO circumstance replaces the driver at the steering wheel.

INFOTAINMENT



INFOTAINMENT MODULAR SYSTEM

The modular infotainment system MIB (*Modulare Infotainment-Baukasten*) offers two types of system for the SEAT Leon launch:

- MIB Entry.
- MIB Standard.

The **MIB Entry** system includes three radio sets:

- Media System Touch.
- Media System Touch with Bluetooth.
- Media System Color.
- As well as the possibility of having a USB port and an aux connector in the glovebox.

The **MIB Standard** system includes two sets:

- Media system plus (Standard radio).
- Navi system (Standard navigation).

Both MIB Standard have the following architecture:

- Electronic information system control unit 1, J794, located in the glovebox.
- Display with front end information handling unit, J685, located in the central area of the dashboard.
- Also, the glovebox includes a "Mitsumi" connector for a USB port or iPod adaptor.

MEDIA SYSTEM TOUCH

The main characteristics of this set are:

- Unit linked to the Infotainment CAN-Bus.
- Car-Menu available.
- 5 inch touch mono-chrome screen.
- SD player.
- Glovebox USB and Aux. connector.
- Four 20 W channels.
- Available with 4 speakers.
- 3.5" basic instrument panel multifunctions display.



D155-52

MEDIA SYSTEM TOUCH WITH BLUETOOTH

The main characteristics of this set are:

- Unit linked to the Infotainment CAN-Bus.
- Car-Menu available.
- 5 inch touch mono-chrome screen.
- SD player.
- Glovebox USB and Aux. connector.
- Four 20 W channels.
- Available with 4 speakers.
- 3.5" basic instrument panel multifunctions display.
- With **Bluetooth** and without voice recognition.



D155-53

MEDIA SYSTEM COLOR

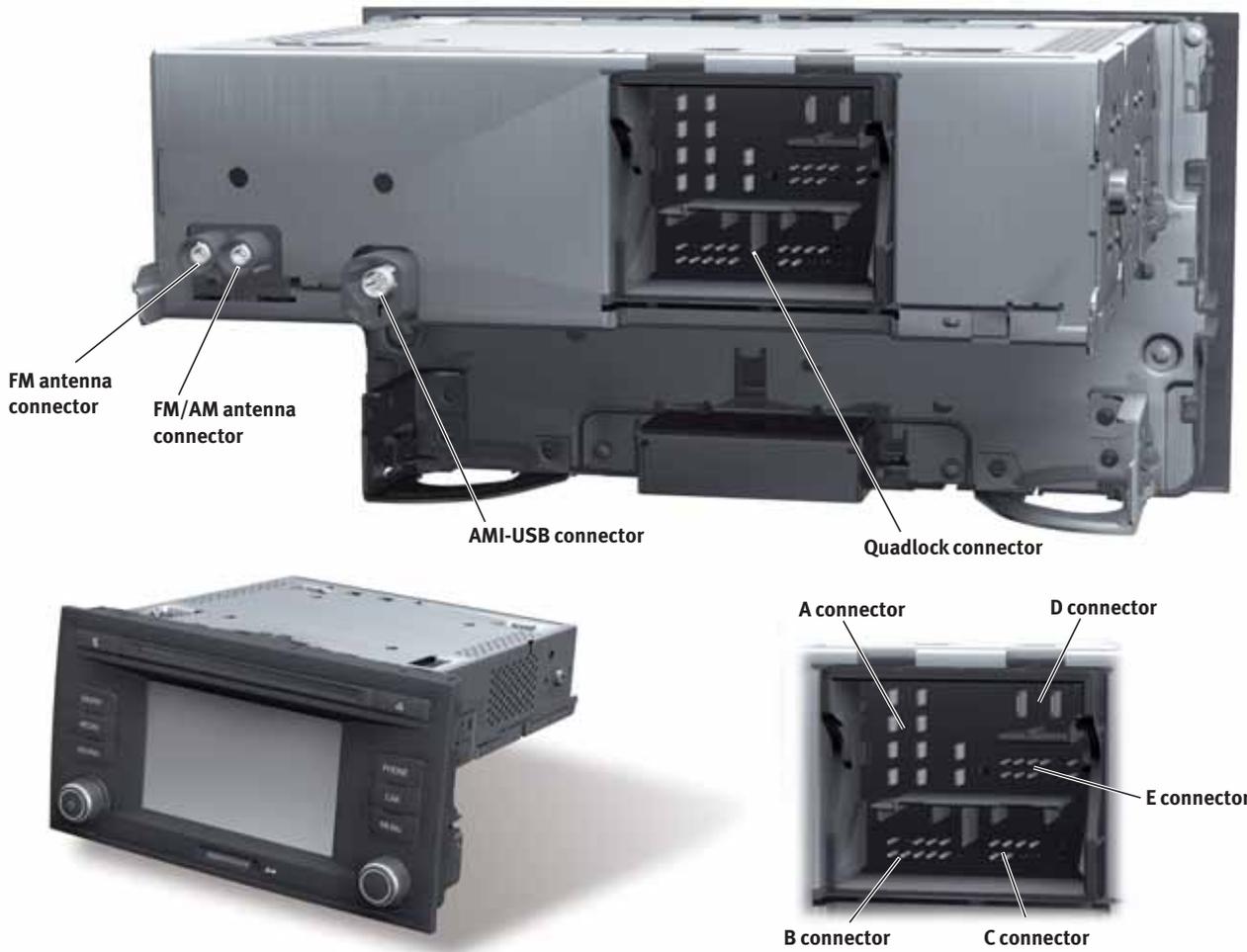
The main characteristics of this set are:

- Unit linked to the Infotainment CAN-Bus.
- Car-Menu available.
- 5 inch colour touch screen.
- **CD player.**
- SD player.
- Glovebox USB and Aux. connector.
- Four 20 W channels.
- Available with 6 or 8 speakers.
- 3.5" basic instrument panel multifunctions display.
- With **Bluetooth** and without voice recognition.



D155-54

INFOTAINMENT



D155-55

CONNECTORS

All the MIB Entry configuration radio sets have the same connectors. They are:

- FM antenna.
- FM/AM antenna.
- AMI-USB.
- “Quadlock”.

The **FM** and **FM/AM** connectors are used for receiving and sending out the signals from the rear window antennae module.

The **AMI-USB** connector connects the radio set to the USB port in the glovebox.

The “**Quadlock**” connector is made up of five connectors and includes the equipment supply terminals, the speakers, the CAN communication and the microphone, among others.

None of these radio sets have DAB tuner.

REMOVING THE RADIO SET

To remove any of the radio sets it is basic to use special tool T10057.

The tools have to be set in the slots shown on the image.

During the removal (or disassembly) process it is necessary to be extremely careful so that no marks are made on the radio set.



T10057 tools setting place

D155-56

MENUS

By clicking on the “Menu” key of any of the “MIB Entry” sets access is provided to the “Car-Menu” display. Which provides access to:

- Radio menu.
- Media.
- Sound.

- Vehicle status.
- Settings.
- Phone.

By accessing “Car-menu” the equipment can be customised according to the user’s desire.

RADIO MENU:

- Band
- Stations
- TP
- Sound adjustments
- Manual

MEDIA MENU:

- CD
- USB
- Auxiliar

SOUND MENU:

- Equaliser
- Media
- Silence
- Sound settings
- Reset



VEHICLE STATUS MENU:

- On-board computer
- Status
- Tyres
- Settings
- ECO

SETTINGS MENU:

- Screen off
- Display settings
- Sound adjustments
- Language
- Date and time
- Units
- Bluetooth settings
- System information

PHONE MENU:

- A-Z
- Menu
- Pins
- Dial number
- Settings
- Calls

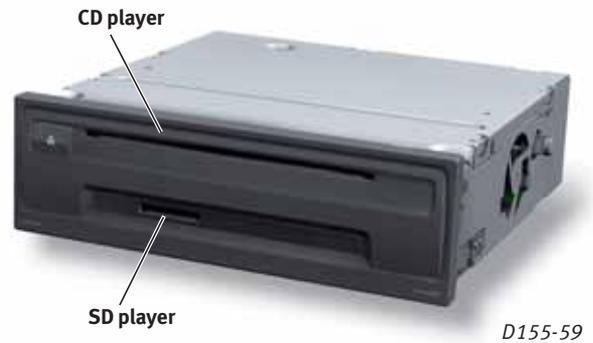
D155-57

INFOTAINMENT

MEDIA SYSTEM PLUS

The main features of the set are:

- Unit linked to the Infotainment CAN-Bus.
- Car-Menu available.
- 5.8 inch colour touch screen.
- CD player.
- 1 SD reader.
- Glovebox USB and Aux. connector.
- Four 20 W channels, plus 2 × 35 W if combined with SEAT Sound System.
- Available with 8 speakers.
- 3.5" basic instrument panel multifunctions display.
- Bluetooth and voice recognition.



NAVI SYSTEM

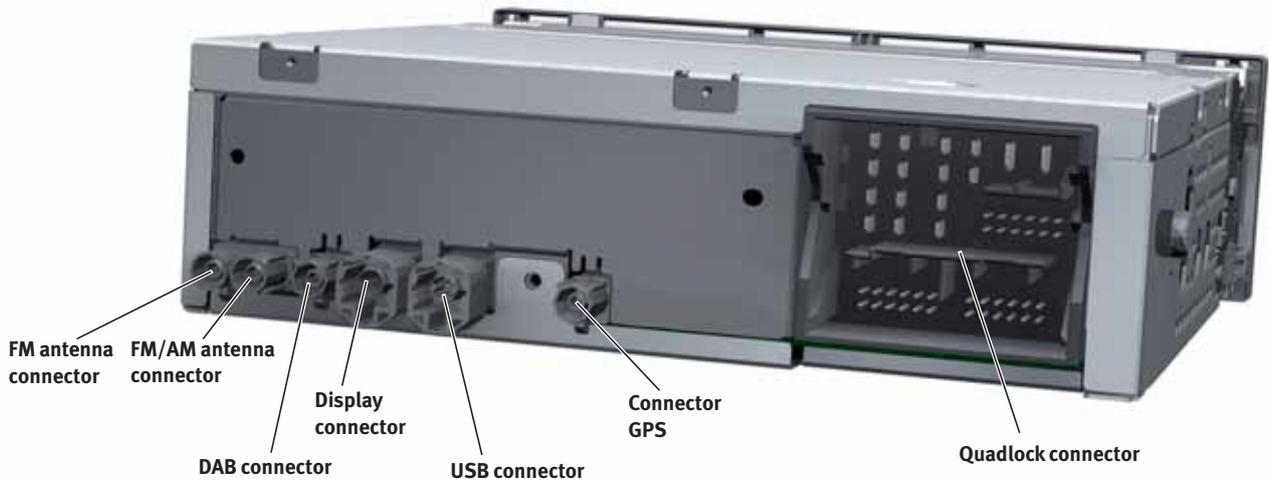
The main features of the set are:

- Unit linked to the Infotainment CAN-Bus.
- Car-Menu available.
- 5.8 inch colour touch screen.
- CD player.
- 2 SD players.
- Glovebox USB and Aux. connector.
- Four 20 W channels, plus 2 × 35 W if combined with SEAT Sound System.
- Available with 8 speakers.
- 3.5" colour instrument panel multifunctions display.
- Bluetooth and voice recognition.
- With navigator.
- The cartography is in the SD card. To navigate, the SD card must be in the player.

The next table shows a comparison between the different specs of the Media System Plus and the Navi System.

	Media system plus	Navi system
Display:	TFT colour screen. Size: 5.8". Touch screen.	
Radio:	AM, FM, DAB, and TMC tuners. TP message reception.	
Sound:	Channels: 4 × 20 W + 2 × 35 W. Soound settings adapted to the car. Equalising. GALA function (volume increases as speed increases). GADK function (volume increases as speed increases the vlume and modifies equalising).	
Connectivity:	Audio Bluetooth (play and equipment control). Hands-free Bluetooth. Phone agenda access.	
Medioplayer:	1 SD reader.	2 SD players.
	1 Mitsumi port in the glovebox. Supported formats: MP3, WMA, AAC, AAC+.	
Voice:	Voice command for the phone and navigation functions.	
Navigation:	Not available.	Cartography/maps supplied in SD card. It includes the steering magnitude (yaw moment) sensor for the coupled navigation function. Map view in 2D and 2.5D. Destination selection on map. Multi route guide: there are 3 routes (economic, fast, and, short). Dynamic navigation (TMC). Shows points of interest. Empty tank function, the navigaor indicates the closest filling station.

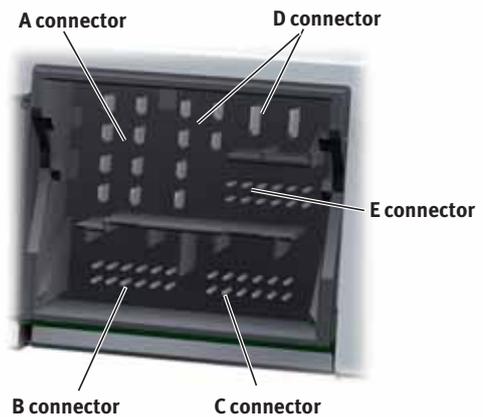
INFOTAINMENT



MEDIA SYSTEM PLUS



NAVI SYSTEM



D155-63

ELECTRONIC INFORMATION SYSTEM 1 CONTROL UNIT, J794

SEAT has two electronic information system control units, J794. One for the Media system plus and another one for the Navi system, which are in the glovebox.

Each unit communicates with the front information handling unit display, J685, through a Private CAN-Bus (high speed) and discretionary wires.

Both sets have the same connectors at the back:

- FM antenna.
- FM/AM antenna.
- DAB antenna.
- Display.
- AMI-USB.
- "Quadlock".

The **USB** connector connects the set with the Mitsumi port in the glovebox.

The **"Quadlock"** connector has five different connectors and it includes the equipment supply terminals, the speakers, the microphone, the Infotainment CAN-Bus communication and the Private CAN-Bus among others.

Also, in the "D connector" there are four pins for the 2 × 35 W channels, these channels are only used in cars equipped with SEAT Sound System.

MEDIA SYSTEM PLUS



NAVI SYSTEM



D155-64

DISPLAY WITH HANDLING UNIT FOR FRONT END INFORMATION, J685

It is a 5.8" touch screen.

The display is located between the central air vents.

There are two connectors at the back of the screen:

- 5 pin HSD connector.
- 12 pin connector.

The wiring of both connectors connect the screen and the electronic information control unit 1, J794.

The HSD connector exchanges the necessary signals for transferring images.

The 12 pin connector includes pins for supplying the set and the Private CAN-Bus.

INFOTAINMENT

REMOVING THE RADIO SET

To remove any of the radio sets the special tool T10057 must be used.

The tools have to be set in the slots shown on the image.

During the removal (or disassembly) process it is necessary to be extremely careful so that no marks are made on the radio set.



Slots to set the T10057 removal tools

D155-65

MITSUMI ADAPTORS

The “Media system plus” and “Navi system” sets include a “Mitsumi” connector in the glovebox.

SEAT supplies two types of adaptor cables, one for USB and one for iPod.

allows communicating the infotainment equipment to the external device.



iPod adaptor



USB adaptor

D155-66



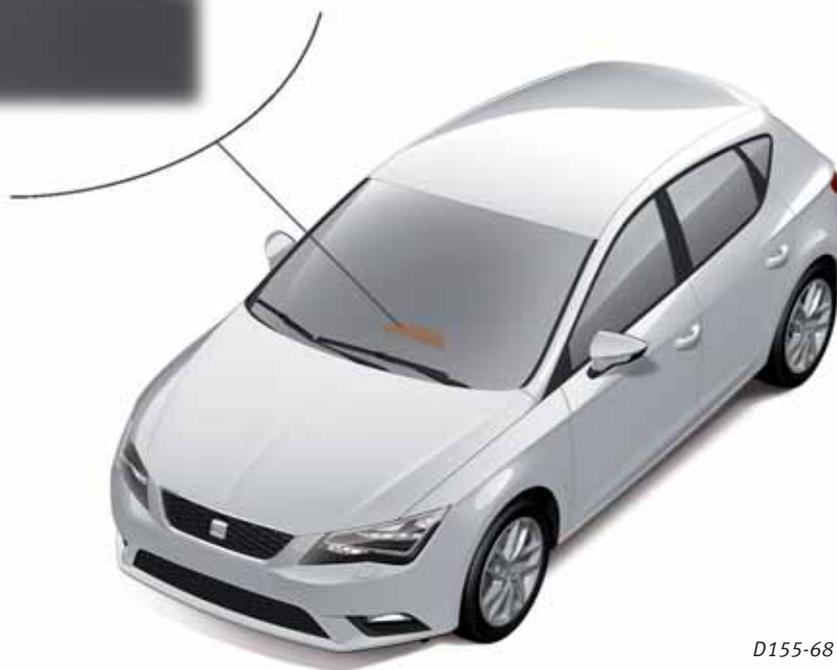
D155-67

MENUS

By clicking on the “Menu” key of any of the “MIB Standard” sets you will access the “Car-Menu” display. Depending on the vehicle’s equipment the following can be accessed:

- Radio menu.
- Media.
- Sound.
- Radio.
- Vehicle status.
- Vehicle settings.
- Phone.

INFOTAINMENT



D155-68

GPS R50 ANTENNA

The navigator antenna is located at the upper central part of the dashboard, under the central speaker grille.

The GPS antenna wire is connected to the electronic information control unit, J794. This unit processes the GPS signal.



D155-69

RADIO ANTENNAE

The radio antenna and the necessary filters for correct signal reception are fitted on the rear window for maximum reception surface.

Depending on the radio equipment the vehicle includes:

- O AM/FM1 and FM2 antennae.
- O AM/FM1 and FM2 + DAB antennae.

The electronics for the radio antennae is connected to the navigator or to the audio set through coaxial wires.

The following electronic components are fitted on the tailgate:

- Antenna amplifier R24.
- Frequency filter for frequency modulation (FM) R178.

- 2 R111 antenna amplifier.
- Frequency filter for frequency modulation (FM) R179.
- Frequency filter for amplitude modulation (AM) R177.

The antiparasite filters prevent interferences with the radio signal reception when connecting the heated rear window. They can be either series fitted or one at each side of the heated rear window.

INFOTAINMENT

SPEAKERS

The SEAT Leon speakers configuration varies depending on the audio equipment and the market where it is sold.

There are four speaker configurations available. The SEAT Sound System configuration (10 speakers) is only offered with the Media System Plus or Navi System.

CENTRAL SPEAKER:

Diameter: 80 mm.
Impedance: 4 ohm.
Frequency range: 150-15 kHz.
Attachment: 2 screws.
Connector: 2 poles.



A PILLAR TWEETER PILAR:

Diameter: 32 mm.
Impedance: 4 ohm.
Frequency range: 1-20 kHz.
Attachment: Three spot thermal welding.
Connector: 2 poles.

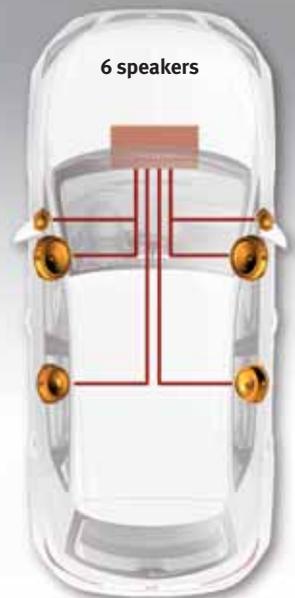
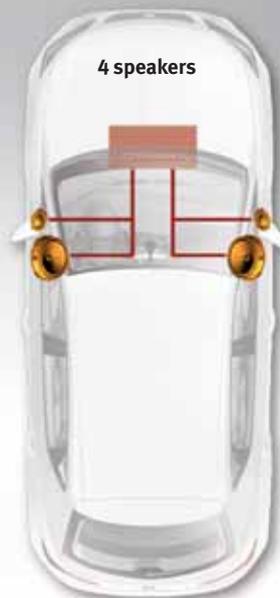


FRONT DOOR WOOFER:

Diameter: 200 mm.
Impedance: 4 ohm.
Frequency range: 50-6 kHz.
Attachment: 4. screws.
Connector: 2 poles.



CONFIGURATION OF SPEAKERS:





LUGGAGE COMPARTMENT SUBWOFFER:

Diameter: 160 mm.
 Impedance: 2 ohm.
 Capacity: 10.5 L.
 Frequency range: 45-300 Hz.
 Attachment: Spare wheel attachment.
 Connector: 2 poles.

REAR DOOR TWEETER:

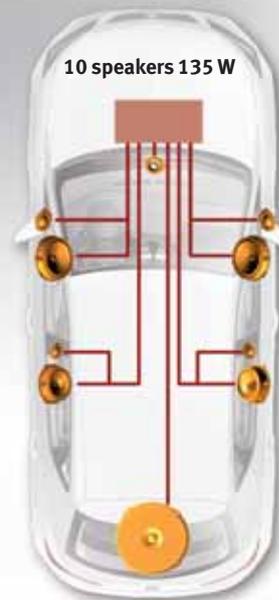
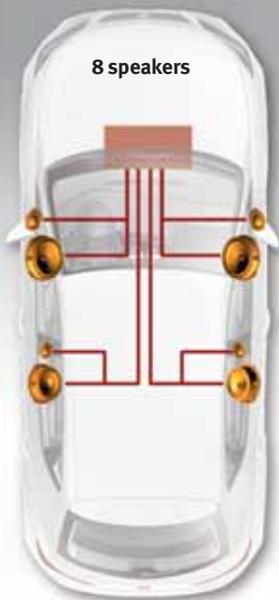
Diameter: 25 mm.
 Impedance: 4 ohm.
 Frequency range: 4.5-20 kHz.
 Attachment: Three spot thermal welding.
 Connector: 2 poles.

REAR DOOR WOOFER:

Diameter: 168 mm.
 Impedance: 4 ohm.
 Frequency range: 55-12.5 kHz.
 Attachment: 3. screws.
 Connector: 2 poles.

FULL-RANGE IN REAR DOOR:

Diameter: 168 mm.
 Impedance: 4 ohm.
 Frequency range: 75-15 kHz.
 Attachment: 3. screws.
 Connector: 2 poles.



D155-70

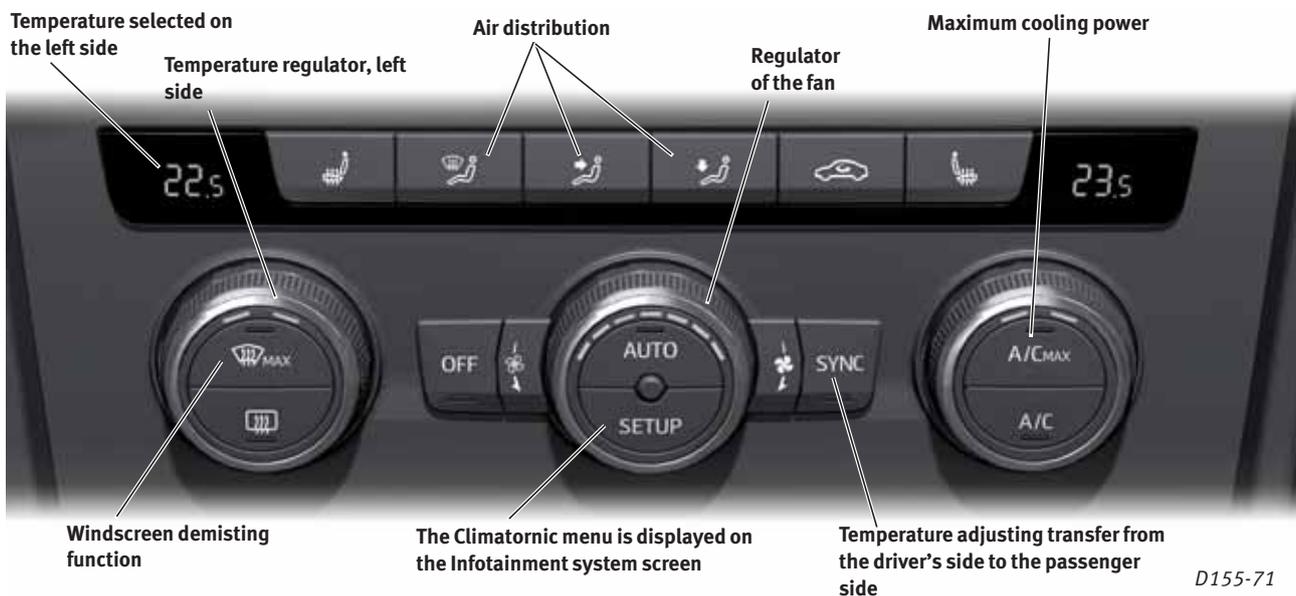
CLIMATE CONTROL SYSTEM

There are three versions available of SEAT Leon climate control system:

- Climatronic.
- Manual electrical climate control system.
- Electrical heating.

All the variants can be combined with the heated seats. There are three levels of seat heating, and the level selected is shown by a LED.

CLIMATRONIC



It is an automatic dual zone climate system. It assumes the temperature regulation, air distribution, air flow depending on sun radiation and interior and exterior temperature.

Particulars to be highlighted about the SEAT Leon Climatronic variant are:

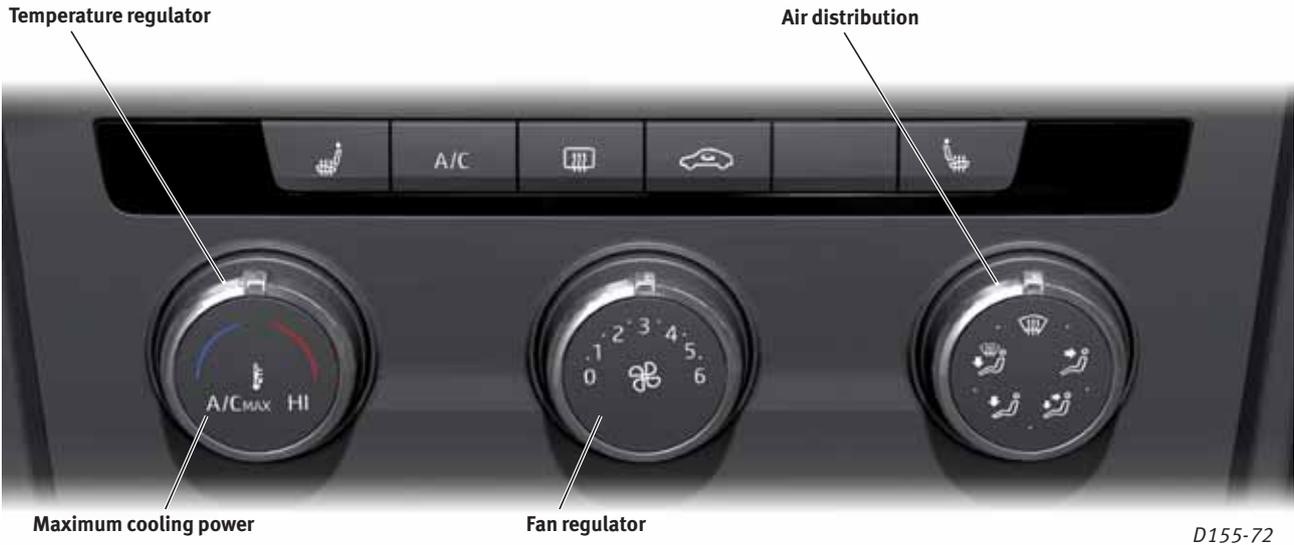
- Two warning lights to indicate the temperature selected in each zone.
- "A/Cmax" function, maximum cooling power demand.

- The SETUP key transfers the temperature selection from the driver's to the front passenger's side.
- BAP communication with the radio; the Climatronic menu is shown on the Infotainment system display.
- There are two versions of the Climatronic control unit, depending on whether it incorporates the heated seats controls or not.

MANUAL ELECTRICAL CLIMATE CONTROL SYSTEM

Particulars to be highlighted about the SEAT Leon manual electrical Climate system variant are:

- All the flaps are activated by electrical motors energised by the control unit.
- “A/Cmax” function, maximum cooling power demand.
- There are two versions of the manual electrical system control unit, depending on whether it incorporates the heated seats controls or not.



ELECTRICAL HEATING

Particulars to be highlighted about the SEAT Leon electrical variant are:

- All the flaps are activated by electrical motors energised by the control unit.
- There are two versions of the electrical system control unit, depending on whether it incorporates the heated seats controls or not.



CLIMATE CONTROL SYSTEM

CLIMATRONIC SYSTEM LAYOUT

The main component of the Climatronic is the Climatronic control unit, J255.

The control unit processes the signals it gets from its own sensors and from other management systems via CAN-Bus.

The Climatronic management has two particular features:

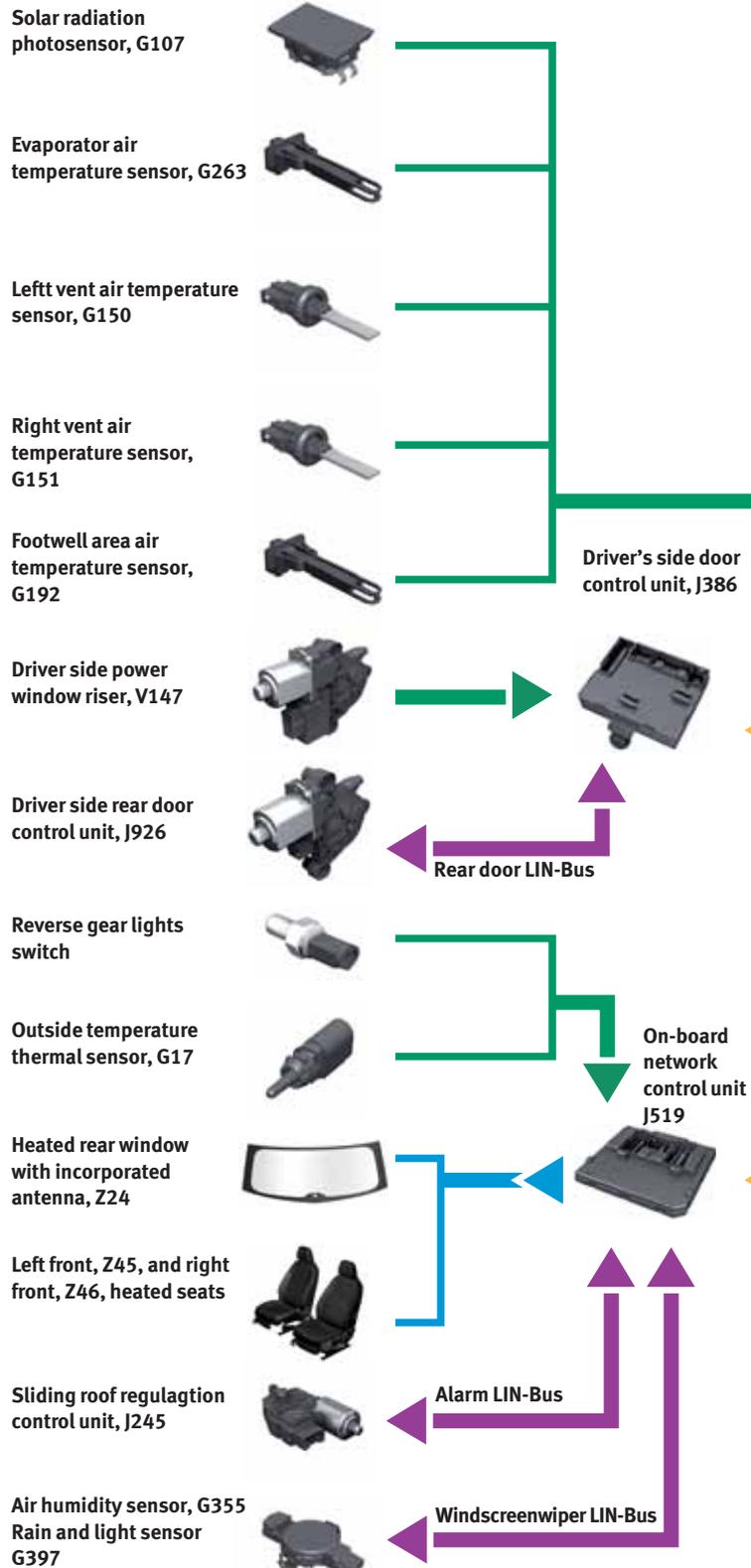
- It incorporates the air humidity sensor, G355, for vehicles equipped with Start&Stop.
- It acts as a master unit of the Climate LIN-Bus line.

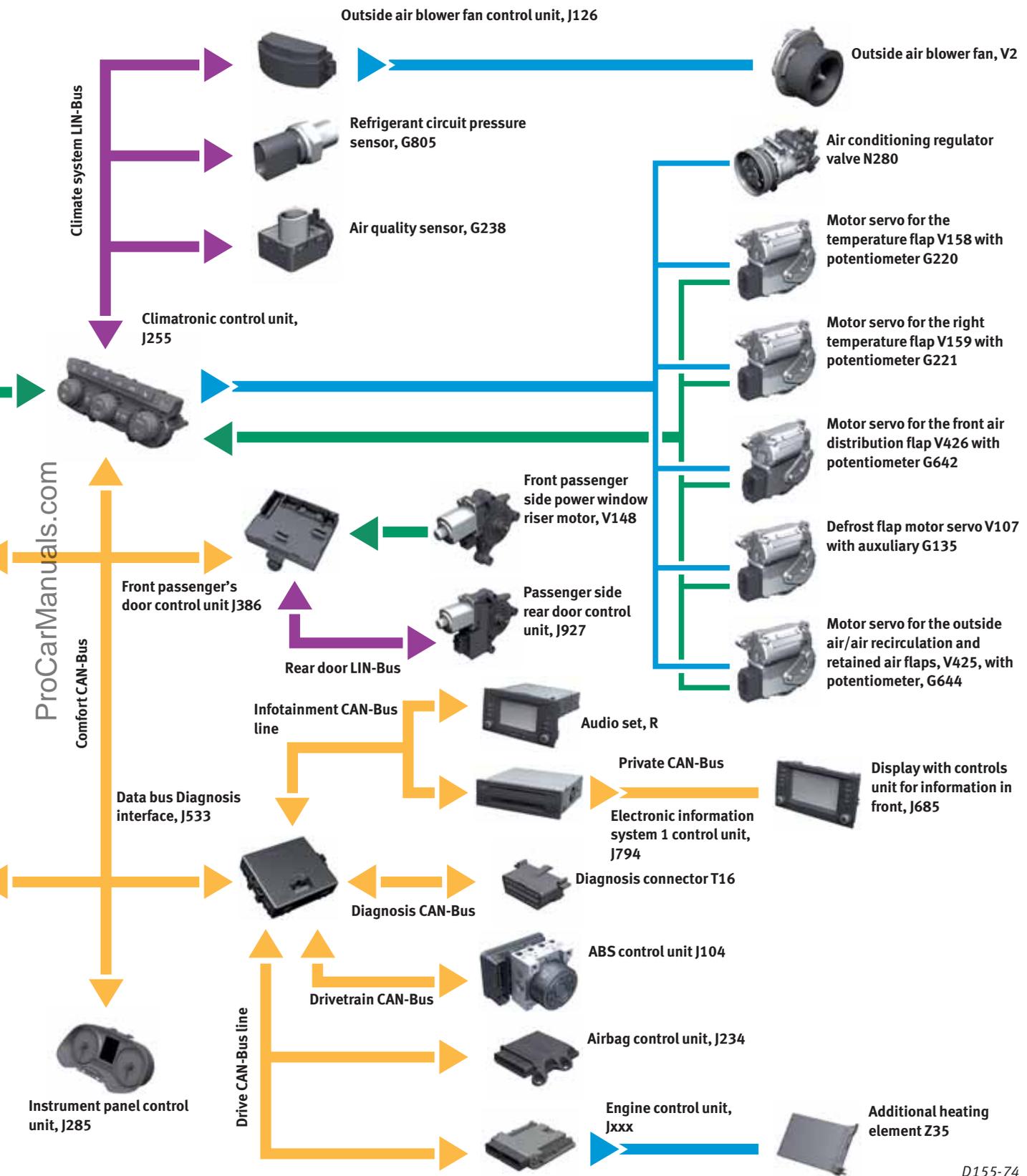
The **air humidity sensor, G355** is located at the base of the rear view mirror. And, it communicates through the Windscreen wiper LIN-Bus with the On-board network control unit, J519, which send the data into the Comfort CAN-Bus.

When the Climatronic control unit gets the signal from the air humidity sensor it activates the windscreen demist function automatically.

The components linked to the **Climate LIN-Bus** are:

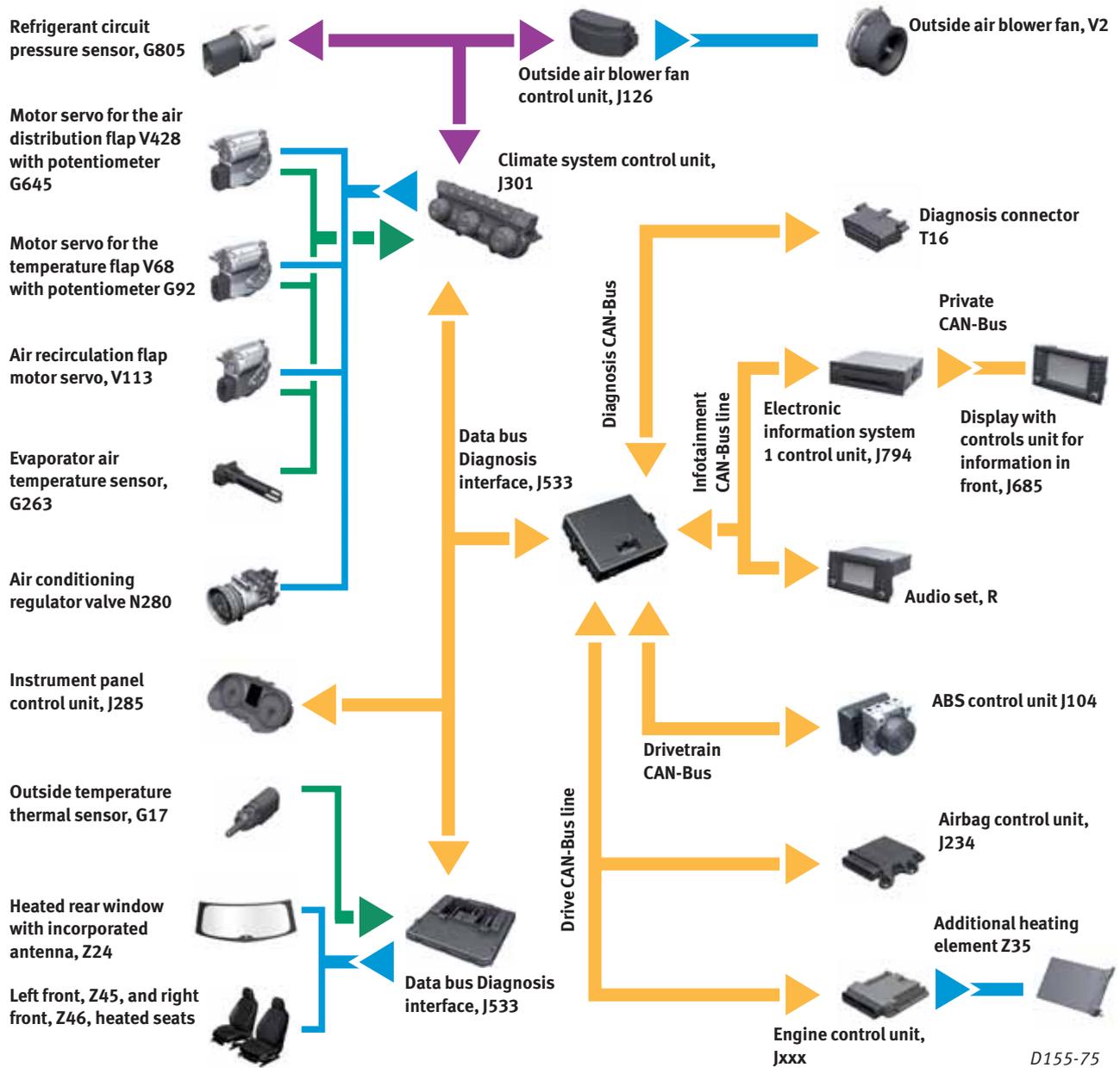
- Outside air blower fan control unit, J126.
- Refrigerant circuit pressure sensor, G805.
- Air quality sensor, G238.





D155-74

CLIMATE CONTROL SYSTEM



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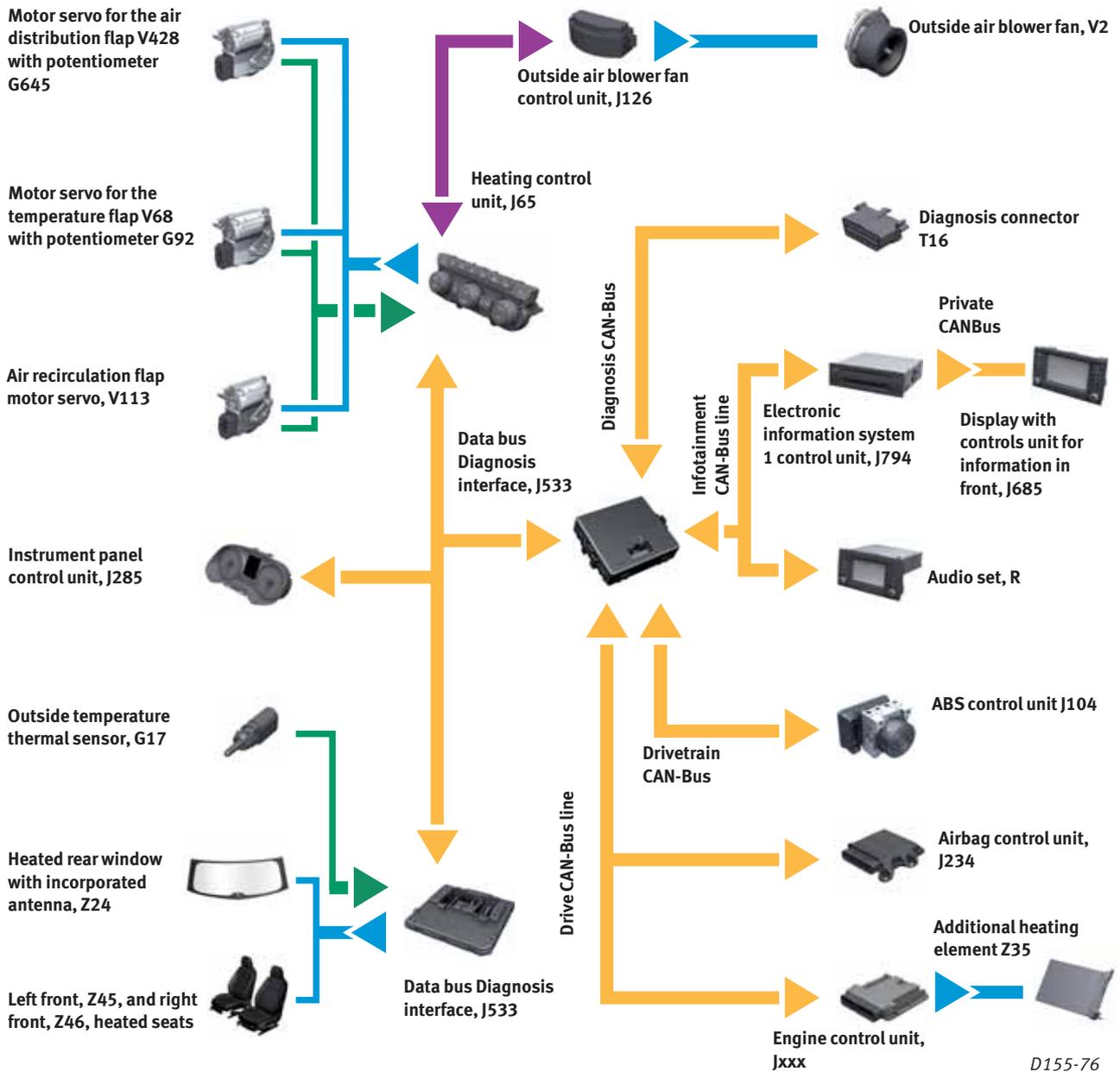
MANUAL ELECTRICAL CLIMATE CONTROL SYSTEM

The electrical manual climate system's main component is the climate system control unit, J301.

The control unit processes the signals it gets from its own sensors and from other management systems via CAN-Bus.

The manual electrical Climate system management has the following particulars:

- The climate assembly flaps are controlled electrically by the climate system control unit, J301.
- The climate system control unit, J301, acts a master unit to the Climate LIN-Bus line (Outside air blower fan control unit, J126, and Refrigerant circuit pressure sensor, G805).



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ELECTRICAL HEATING

The heating control unit, J65, assumes the control of the heating and the ventilation of this climate system.

The control unit processes the signals it gets from its own sensors and from other management systems via CAN-Bus.

To be highlighted about the electrical Heating management:

- The climate assembly flaps are controlled electrically by the climate system control unit, J301.
- The heating control unit, J65, is the Climate LIN-Bus line master unit. The outside air blower fan control unit, J126, behaves as a slave unit.

SERVICE

NEW MAINTENANCE

The SEAT Leon incorporates a new maintenance concept where the “Oil servicing” and the “Inspection” are differentiated.

For this, the car has two different counters/ gauges and their corresponding **warnings** to the driver:

- **Oil change.**
- **Inspection.**

These indications show up on the instrument panel display and on the infotainment set display.

To simplify the process, there is a new PR numbers family (QIx). These PR nos. determine the **engine oil servicing intervals**, depending on the market where the vehicle is sold. The “Oil service intervals” table shows the PRs available for the SEAT Leon, whether the car includes oil quality sensor, and whether it is fixed or flexible interval.

The new maintenance services have been reduced to:

- **Oil servicing.**
- **Inspection.**

In an inspection it might be necessary to carry out other jobs, depending on the mileage (km) or time:

- **Additional jobs to the inspection.**
- **Additional jobs.**

To know in detail all the jobs to be done for each type of service consult the ELSA application. As a summary, some examples are shown on the “Maintenance Services” table.

OIL SERVICE INTERVALS:

Technical PR numbers:

QG0	Without oil quality sensor.
QG1	With oil quality sensor.

PR numbers determining the oil service interval:

QI1	Service intervals indicator every 5000 km or 1 year (fixed interval).
QI2	Service intervals indicator every 7500 km or 1 year (fixed interval).
QI3	Service intervals indicator every 10000 km or 1 year (fixed interval).
QI4	Service intervals indicator every 15000 km or 1 year (fixed interval).
QI6	Service intervals indicator every 30000 km or 2 years (flexible interval).
QI7	Service intervals indicator every 10000 miles or 1 year (fixed interval).

D155-77

After the job has been done at the Service the corresponding counter has to be **reset to zero** – oil servicing, inspection or both.

MAINTENANCE SERVICES:	1st. service:	2o. service and further services:	Example of jobs to be done:
Oil servicing.	It depends on the vehicle's QIx.	It depends on the vehicle's QIx.	- Replace engine oil. - Replace engine oil filter.
Basic inspection.	30000 km or 2 years.	30000 km or 1 years.	- Check exterior lights. - Check the battery.
Additional jobs to the basic Inspection.	60000 km or 3 years.	60000 km or 2 years.	- Check the vehicle underfloor. - Check sun roof.
Additional jobs.	In every job, if necessary.	In every job, if necessary.	- Tighten straps. - Replace pollen filter.

D155-78

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ENJOYNEERING

We are Spanish and German. We are passionate perfectionists. We are emotional technologists. Everything we know, is everything you feel. We give design a purpose. We bring technology to life. We call it ENJOYNEERING. We are SEAT.

