



ibiza 2008

Self-Study Program No. 120



The new Ibiza brings a young and dynamic air, with a dynamic **trendy** and **emotional** external line of design. Roominess inside the new Ibiza is exclusive. Its design is aimed at maximum **ergonomics** and **functionality**, thanks to such elements as the exclusive instrument panel and central console, the controls on the steering column, the new infotainment system devices and the ample panoramic roof.

The engines offer in the new Ibiza covers a wide range of **petrol** and **diesel** engines that fully contribute to the dynamic possibilities of its new drivetrain, always with the **minimum level of emissions**.

Regarding passive safety, it includes a completely new chassis and an airbag system capable of recognising whether front seat occupants have their seatbelts fastened or not. As for active safety, it includes the new Bosch 8.2.i brakes management system with ABS and ESP with functions such as tyre pressure monitoring and hill holder control (HHC).

However, the **electrical system** is where the greatest number of technical new features of the new Ibiza are to be found: completely new layout of components, more control units, extended functionalities of some control units, which means new **CAN-Bus** and **LIN-Bus** lines. Such a layout of the electrical system makes it possible to have functions such as the coming home, the dynamic steering bixenon lights, and the cornering light.



SEAT

D120-01

Note: The exact instructions for checking, adjusting and repairing are included in the ELSA application and in the VAS 505X guided diagnostics.

SUMMARY OF CONTENTS

■	Presentation.....	4
■	Design	6
■	Bodywork	7
■	Occupant protection	10
■	Powertrain	14
■	Drivetrain	20
■	Brakes management system	22
■	Electrical system	27
■	Instrument panel	46
■	Infotainment.....	48
■	Climate control system	54

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PRESENTATION

DESIGN

The design of the front of the car enhances the Brand's image with 'almond-shaped' headlights and a large size oval grille.

POWERTRAIN

The New Ibiza offers a wide range of petrol and diesel engines, which combined with longer gear output gearboxes contribute to optimise fuel consumption and to reduce polluting emissions.



DESIGN

The exterior design of the New Ibiza has its own and differentiated image, bringing an air of renovation to the design of the current SEAT models. The new Ibiza will be marketed at first in the five-door version and at a further stage the commercial offer will also include the three-door model and the Cupra and FR finishing levels.

INFOTAINMENT

The latest trends in the field of infotainment are integrated in the new Ibiza with the "Ultra Low" radio, the multimedia control unit, the Bluetooth telephone system and the multifunction steering wheel control unit; all of which are communicated via the new CAN:BAP communication protocol used in the Comfort - Infotainment CAN-Bus.

ELECTRICAL SYSTEM

It is one of the technical sections with the most new features; the number of control units has increased and so has the number of CAN-Bus and LIN-Bus communication lines.

The On-board network control unit includes the comfort and gateway functions.

As for lightning, the front headlights use bixenon lamps with steering light and day driving light. They also include the cornering and coming home functions.

SAFETY

The structure of the new Ibiza bodywork always combines materials and bonding techniques in order to achieve the highest passive safety levels. In this regard, there are two types of side airbags for the front seats, depending on whether the vehicle is equipped with head airbag or not. The front passenger occupied seat detection device and the fastened seatbelts detection device are new features of the new Ibiza.

DESIGN

The rear of the new Ibiza stands out with an exclusive image compared to the other models in the Brand. On the 5 door version the rear lights are symmetrical and are placed on the rear wing panel.

The tailgate integrates a spoiler which includes the third brake light.

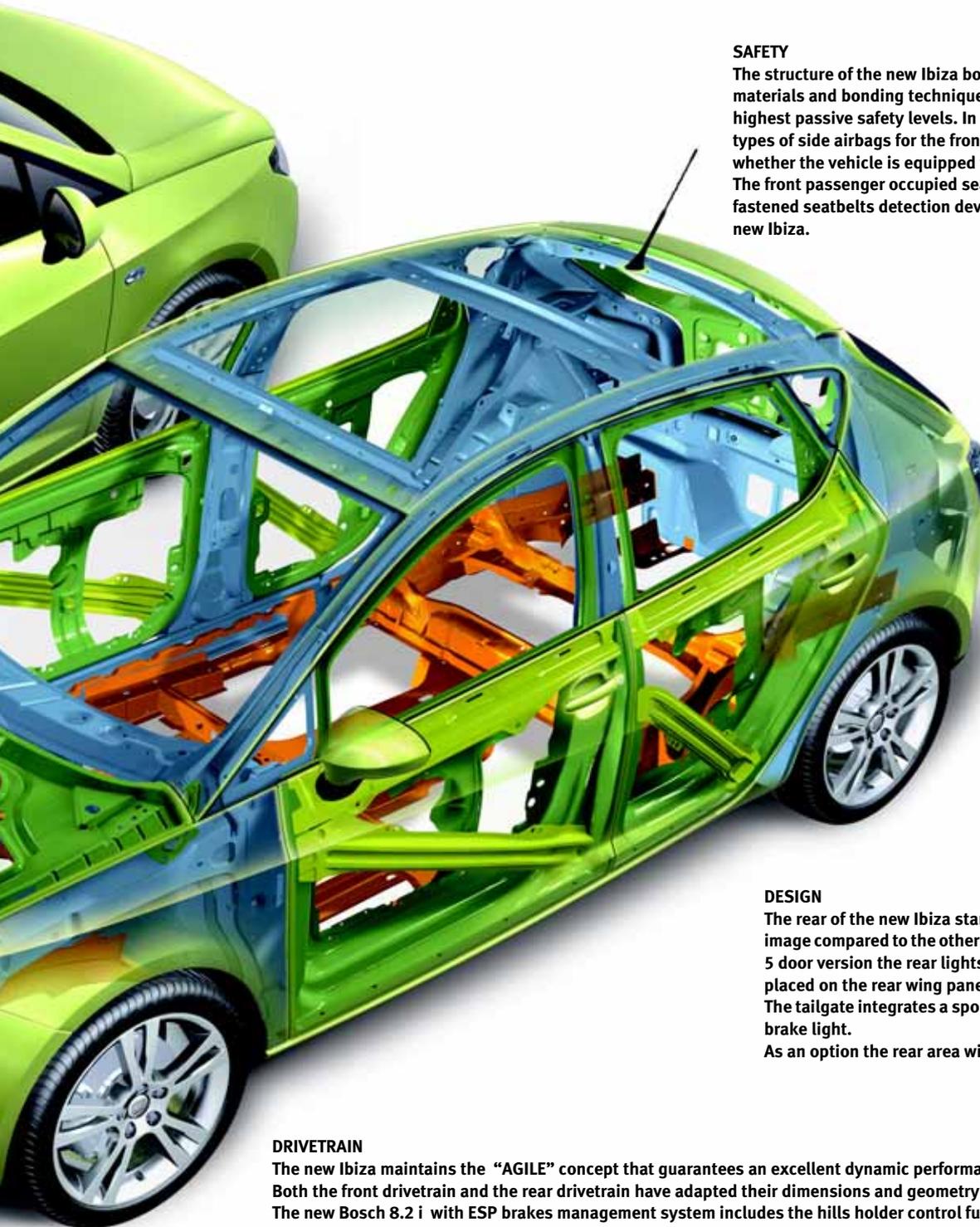
As an option the rear area windows can be tinted.

DRIVETRAIN

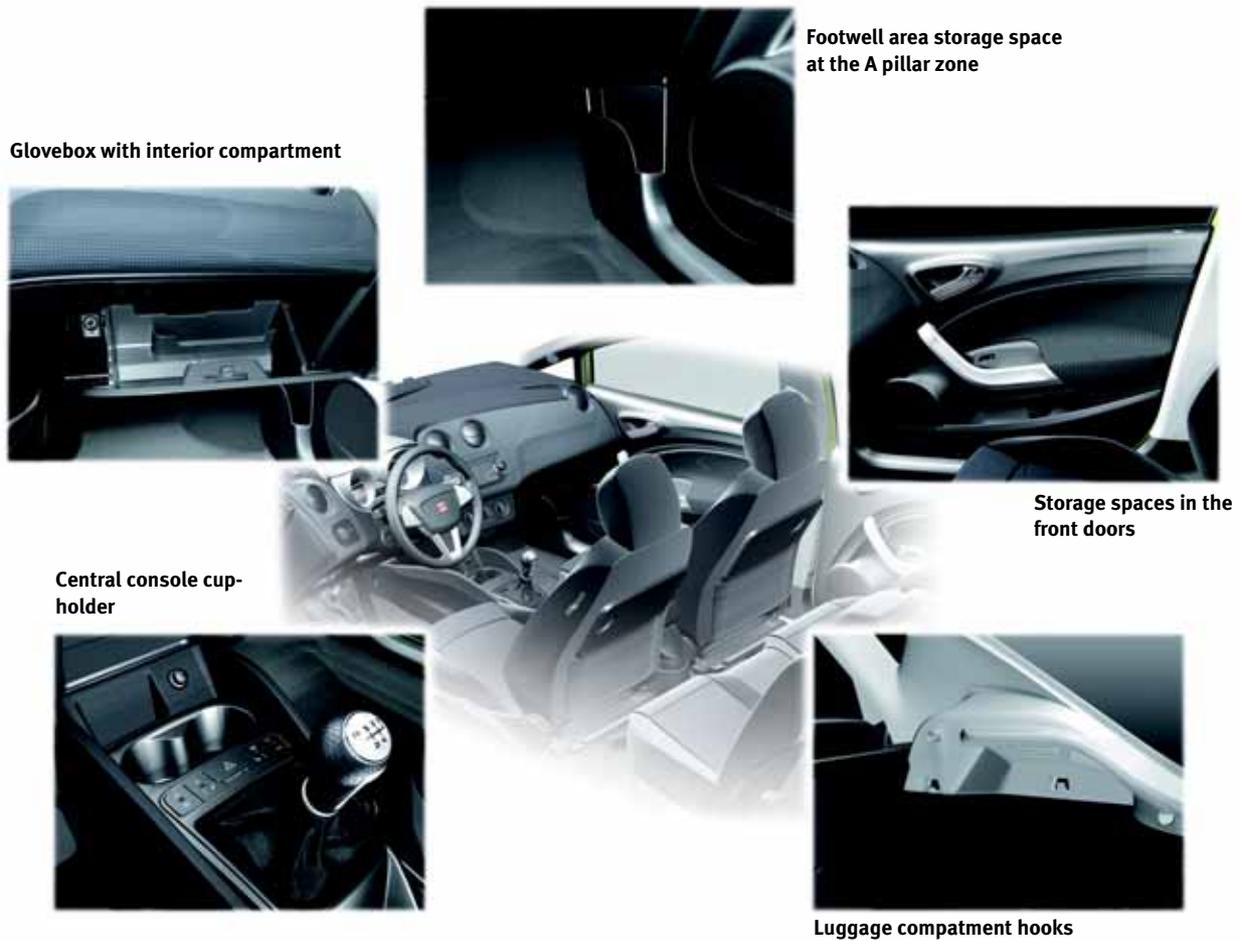
The new Ibiza maintains the "AGILE" concept that guarantees an excellent dynamic performance.

Both the front drivetrain and the rear drivetrain have adapted their dimensions and geometry to those of the new body.

The new Bosch 8.2 i with ESP brakes management system includes the hills holder control function "HHC" and the tyres pressure monitoring function "RKA".



DESIGN



Glovebox with interior compartment

Footwell area storage space at the A pillar zone

Storage spaces in the front doors

Central console cupholder

Luggage compartment hooks

D120-03

INTERIOR DESIGN.

The interior design of the new Ibiza is completely new and it provides a **cosier** and **more ergonomic ambience**. All dimensions are larger than in the previous model in order to improve roominess and to include **many storage spaces** throughout the passenger compartment.

The following items are series fitted:

- **Pockets** at the sides and backrest of the seats, in the Stylance and Sport finishing levels.
- **Attachments** for the safety triangles and spare bulbs box in the luggage compartment.
- Three **hooks** under the luggage compartment tray holder.
- A glovebox with an interior **compartment**.

- And, several **storage spaces** in the door panels, in the A pillar footwell area and in the central console.

As an option, the “Ablage” pack offers:

- **Cup holder** at the driver’s side.
- **Tray** under the glovebox.
- **Drawers** under the seats.
- And, **central armrest**.

The driver’s seat is always equipped with height adjusting.

There is a wide range of optionals such as the new **panoramic roof** or the controls for the radio and the telephone in the steering column.

BODYWORK

DIMENSIONS

The new Ibiza bodywork has grown in all its dimensions if compared to the previous generation. **Overall** length is 4052 mm, that is, 75 mm longer than its predecessor.

As for the **wheelbase track**, it is 1465 mm on the front axle, which is 46 mm wider, and 1457 mm at the rear axle, that is, 49 mm wider than its predecessor.

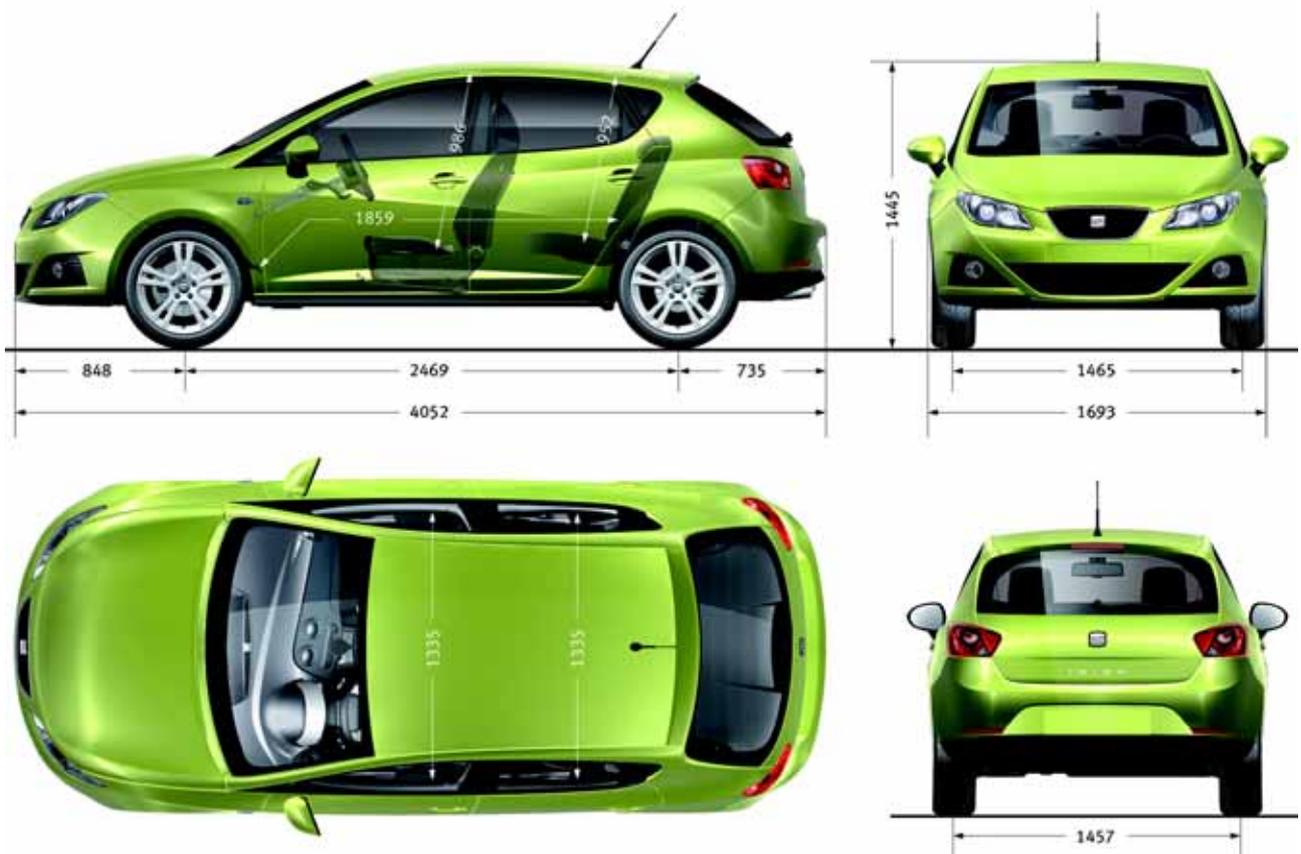
The new Ibiza bodywork geometry achieves a 0.3 **CW aerodynamic coefficient** with a **front area** of 2.04 m², which allows obtaining a **penetration resistance value** of 0.61, one of the lowest among the models in this segment.

The **luggage compartment** capacity has increased to 312 l.

The distance from the front seats' benches to the roof is 986 mm and 952 mm in the rear seats. Elbow distance in each of the seats is 1335 and 1335 mm respectively

Full tank overall unloaded **weight** ranges between 1021 and 1052 kg depending on the engine fitted.

Fuel tank capacity is 45 litres.



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D120-04

BODYWORK

BODYWORK STRUCTURE

The new Ibiza bodywork is of **new design**; it combines different feature steels with different types of shaping and bonding. This **allows increasing the safety of the body and reducing its weight**.

Increase of body rigidity and weight reduction are achieved by using metal sheets which are of a very high resistance to traction. The average resistance to traction value of the new Ibiza metal sheets is in the region of **500 MPa**.

Four systems are used for **bonding** the body metal sheets:

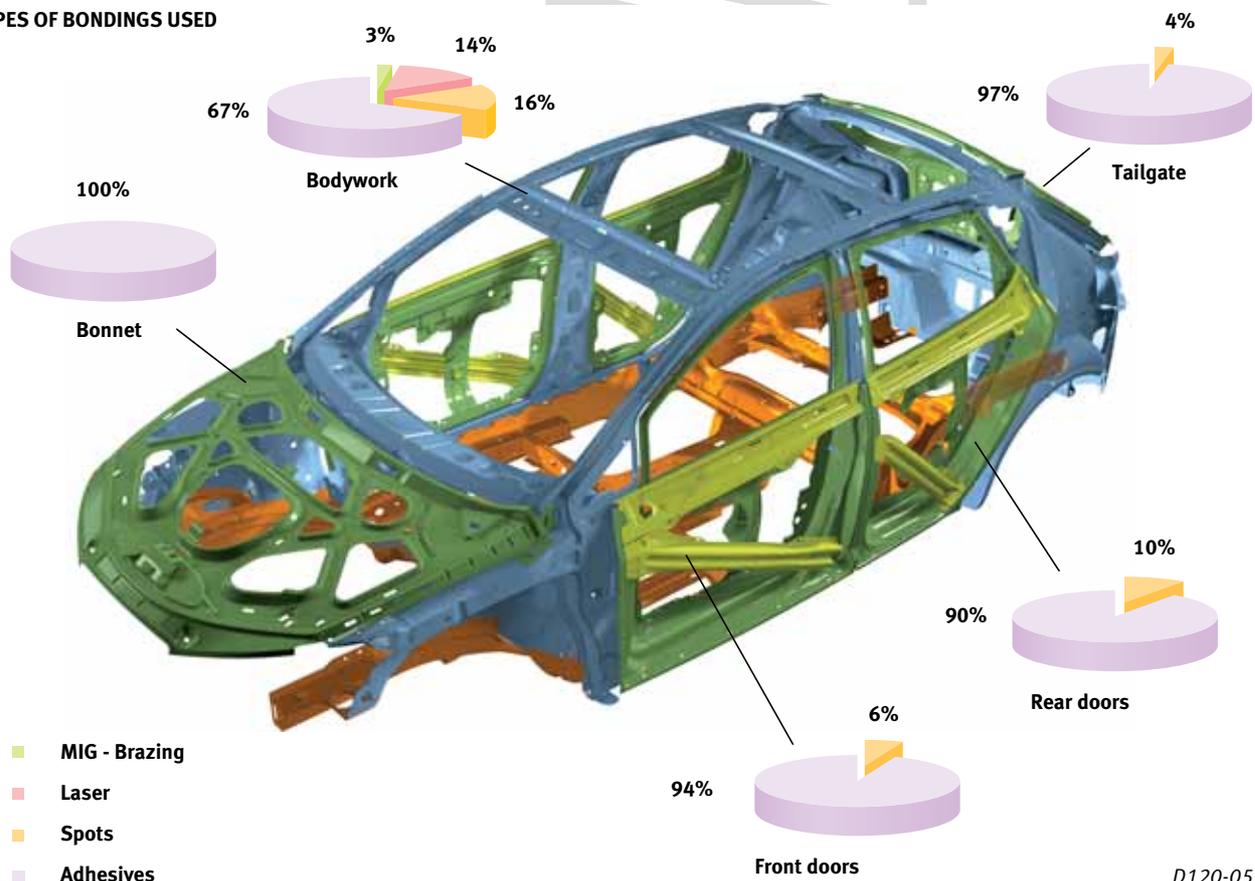
- **Welding spots with and without structural adhesive**, on the doors and the tailgate.
- **MIG - Brazing**, in members, A pillar reinforcements, wheelarches and front member end covers.
- **Laser welding**, at the upper side edges and at their bonding with the roof.
- And, **structural and semistructural adhesives, and butyl**, in sides, door sheets, tailgate and bonnet.

There are **two five-door body versions** depending on whether the car is equipped with **conventional or panoramic roof**.

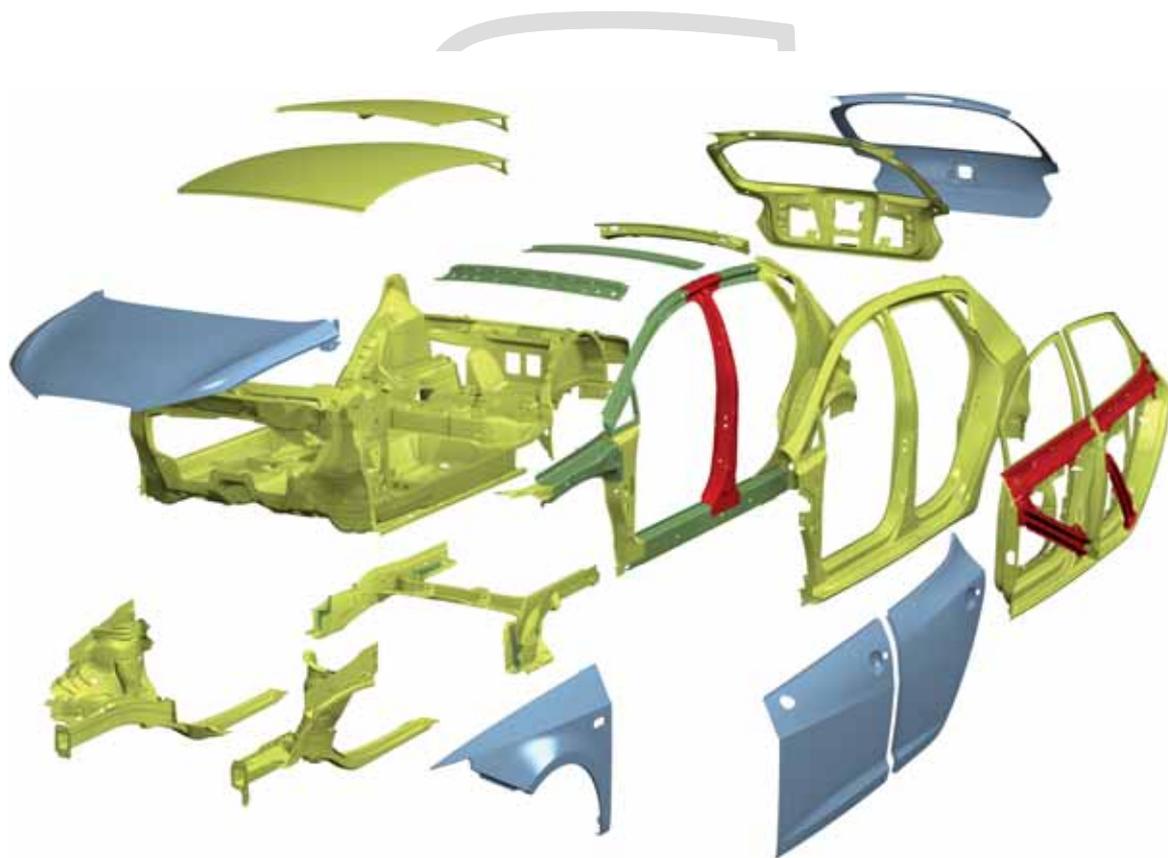
The front side-windows have improved visibility at the A pillar zone. In order to not reduce efficiency in the event of a collision, the A pillar is made of a combination of high and very high resistance to traction steels.

The **B pillar reinforcement** is made of lightweight and ultra high traction resistance steel (1250 MPa), named **USIBOR 1500**. It is a type of steel with a high content of **Magnesium and Boron**, cold pressed and then submitted to a thermal treatment where an outside layer of **Aluminium and Silica** is applied in order to enhance resistance against corrosion. This is how a **light structural component with extreme rigidity and resistance to corrosion** is achieved.

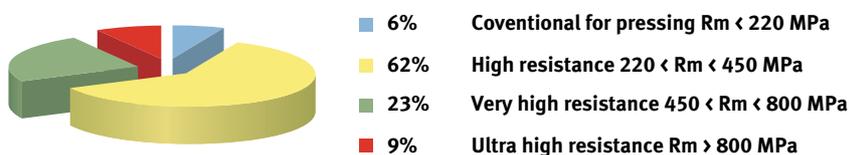
TYPES OF BONDINGS USED



D120-05



PERCENTAGE OF STEELS PER RESISTANCE TO TRACTION Rm



D120-06

The **C pillar** combines different types of steel and bonding methods in order to maintain a rigid and light structure assembly.

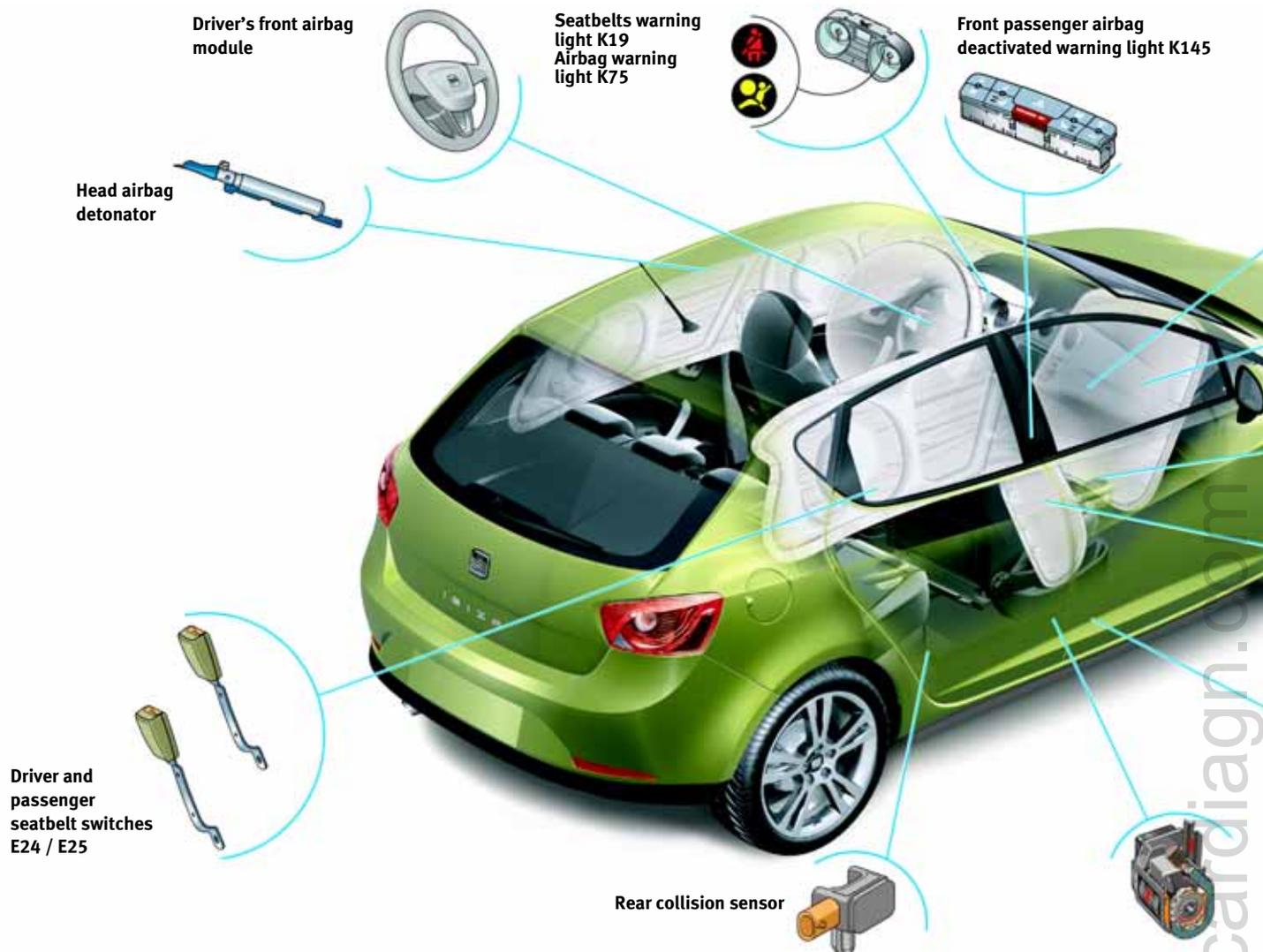
The **front and rear** doors **have diagonal reinforcements** of a similar inclination.

The front doors' protection bars are made of 1.2 mm thick "Dual Phase" steel and with a rate of 780 MPa traction resistance rate.

The target of achieving a high EURONCAP qualification for **pedestrian protection** has

influenced the design and the materials used for the front area trims, the headlights, the bonnet and the windscreen. This aspect has also been taken into account when designing other components that could be classisied as "agressive" in the event of running-over, such as the shock absorber struts, bonnet reinforcements and hinges, front wings, engine cover, battery terminals, etc.

OCCUPANT PROTECTION



AIRBAG

As for passive safety, the new Ibiza incorporates the **VW10 management system** for control and activation of the airbags.

This management system is offered in three versions, depending on the finishing version of the car and of the country where it is marketed.

The **basic configuration (4X0)** is made up by:

- **Front seatbelts** with electronic activation pyrotechnical pretensioner and power limiter.
- **Rear seatbelts** with three attachment points without pretensioner and with power limiter.
- **Front airbag** for the **driver** and for the **front passenger**.
- And, two **isofix attachments** in the rear side seats.

The intermediate configuration (4X1) is the basic configuration plus a **side airbag for the front seats**. The capacity of this airbag is **16 litres** and it protects the **thorax** and **head** zones.

The most complete configuration (4X3) is like the basic configuration plus **front seats side airbags** and **head airbags**. In this configuration, the side airbags have a capacity of **13 litres** and protect the **pelvis** and **thorax areas**.

The fabric of all the airbags is covered with silicon in order to avoid occupant burns from friction.



Driver and front passenger seatbelts pretensioners detonators N153 / N154

D120-07

The front passenger airbag disconnection switch E224 is an option that depends on the vehicle configuration and on the market where it is sold.

The front passenger's airbag disconnection K145 warning light is integrated in the central console.

All the vehicles are equipped with the new front passenger occupied seat sensor G128. The fastened seatbelts switches E24 and E25 are series fitted for both seats.

For the most complete airbag configuration the system uses acceleration activated collision sensors, two placed at the B pillars and two more on each of the rear wheel arches.

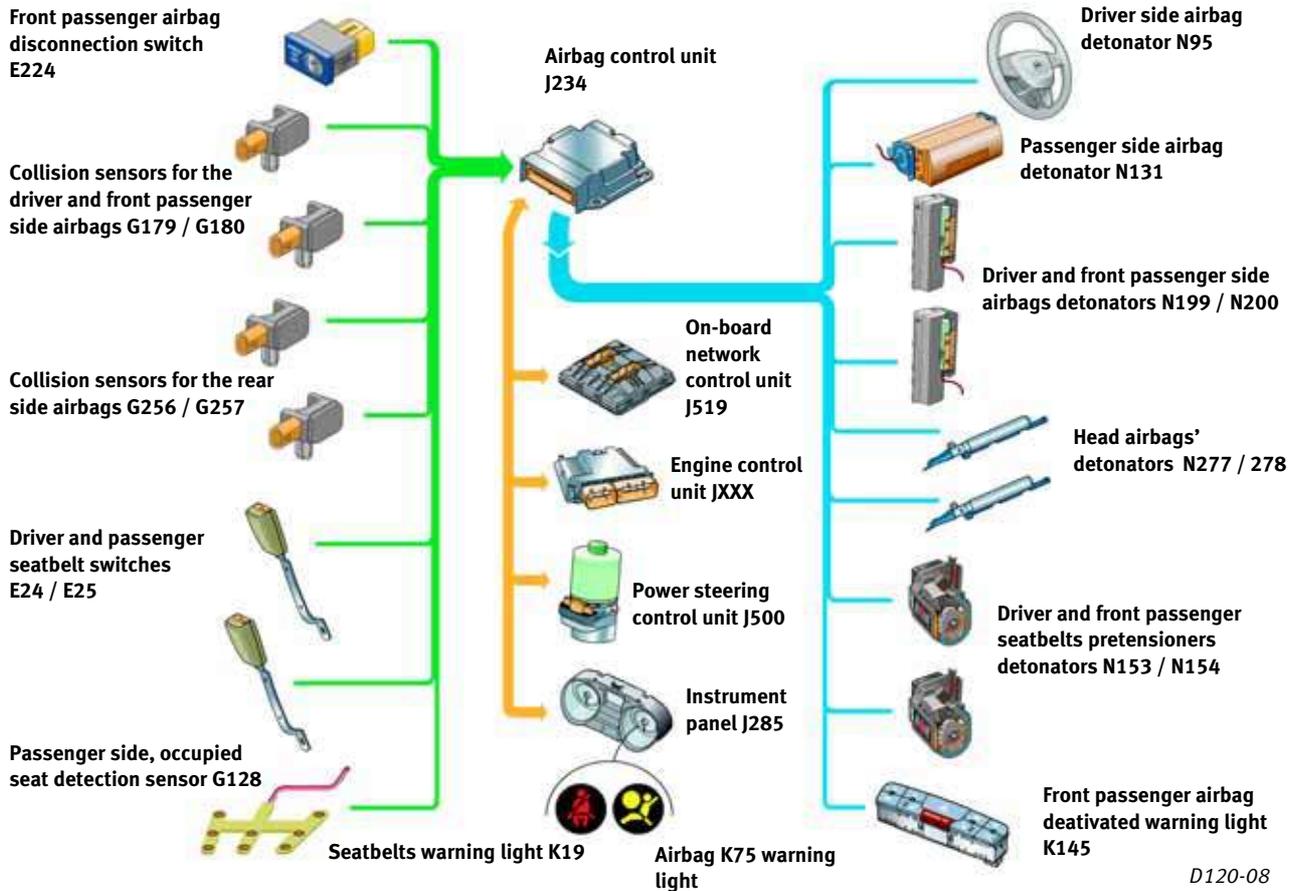
If the vehicle is equipped with driver and passenger front and side airbag, the system only uses the two collision sensors placed on the B pillars.

However, if the vehicle is fitted with the basic option, this means that it is not equipped with any of these sensors, as they are not necessary for activating the front airbags.

PRs	4X0	4X1	4X3
Side airbag collision sensors G179/180	---	X	---
Rear side airbag collision sensors G256/257	---	---	X
Passenger side, occupied seat detection sensor G128.	X	X	X
Front airbag	X	X	X
Side airbag (thorax-head)	---	X	---
Side airbag (thorax-pelvis)	---	---	X
Head airbag	---	---	X
Front seats with pretensioner and power limiter	X	X	X
Rear seatbelts with power limiter	X	X	X
Fastened seatbelts switches E24 and E25	X	X	X
Passenger's front airbag disconnection switch E224	S/M	S/M	S/M

S/M: According to Markets

OCCUPANT PROTECTION



The components used for the VW10 airbag are similar to the ones already used on other SEAT models, with the exception of:

- The front G179-G180 and rear collision sensors G256-G257
- The **passenger side, occupied seat detection sensor G128**.
- And the **airbag control unit J234**.

FRONT G179 / G180 AND REAR G256 / G257 SIDE AIRBAGS' COLLISION SENSORS

Although the **collision sensors** are of new design, they still operate under the accelerations detection principle.

The control unit uses the signal from the sensors to read the direction and magnitude of the side collisions.

It is important to respect the assembly position of these sensors in order to guarantee correct reading.

PASSENGER SIDE, OCCUPIED SEAT DETECTION SENSOR G128

Placed between the cushion and the upholstery/fabric of the front passenger seat.

It is made up by a 450 ohm resistance placed in parallel between two plates with conductor disks; both plates are identical and are separated from each other.

When the seat is occupied the disks come into contact and the resistance is bridged.

The Airbag control unit uses this signal to read whether the passenger's seat is occupied or not and as a result activate the seatbelts warning light or not.

AIRBAG CONTROL UNIT J234

The main new feature is the **collision sensor**, which is now fully **electronic** and is at a **45°** angle in respect to the car's longitudinal axis.

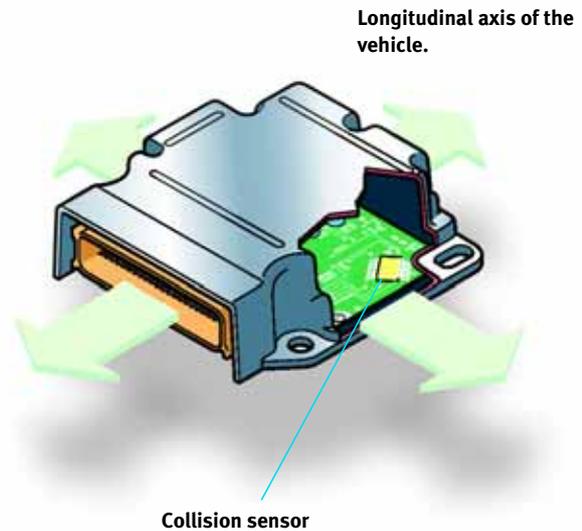
The control unit processes the signal to detect front and side collisions.

There are **three control unit versions**, depending on the number of airbags the car is equipped with. The 50 pin **connector** is **mechanically coded** to make sure that the unit is fitted in the proper car.

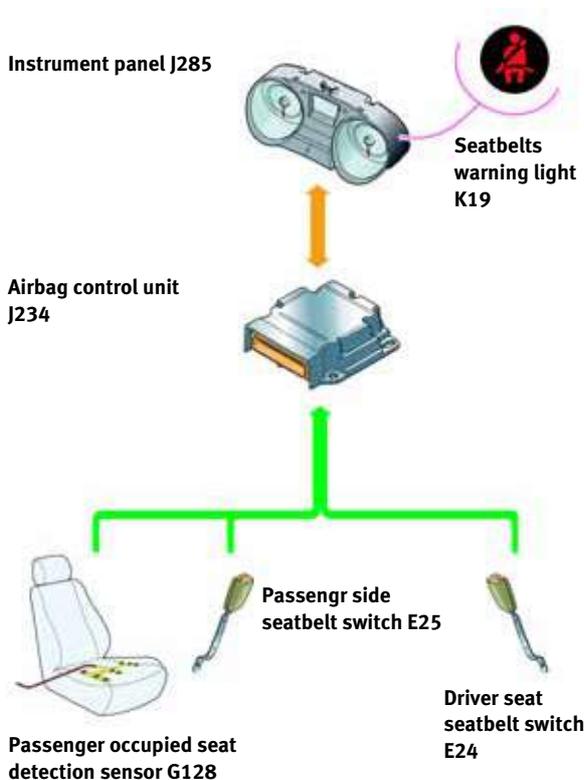
The control unit sends the following messages into the Drive CAN-Bus line:

- Fastened front seatbelts signal.
- Collision with airbag activation signal.
- System fault signal.

The airbag control unit offers complete diagnosis of the system.



D120-09



D120-10

SEATBELTS WARNING LIGHT K19 ACTIVATION

The warning light K19 is on the instrument panel. The instrument panel activates this warning light whenever it does not receive the "fastened front seats" message, sent by the airbag control unit through the drive CAN-Bus line.

For the airbag control unit to send the "fastened front seats" message, the following must comply:

- The "driver's side seatbelt switch E24" must be closed.
- And, the signals from the "passenger's occupied seat detection sensor G128" and from the "passenger's side seatbelt switch, E25" have to be plausible.

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POWERTRAIN

PETROL ENGINES AND GEARBOXES

The new Ibiza will be first marketed with three petrol engines belonging to the EA111 family and one belonging to the EA113 family. Their main evolutions are aimed at **increasing** the levels of **pedestrian protection** and at **reducing** carbon dioxide **emissions**.

Ordered by power output, the start engine is the **1.2 l** and **52 kW** powertrain, followed by two versions of the **1.4 l** and **63 kW** engine -depending on the emissions standard they comply with- and finally a **1.6 l** and **77 kW** engine.

Although none of these engines is equipped with exhaust gases recirculation system, they all comply with the EU4 emissions standard. There is a version of the 1.4 l engine that complies with the EU2 emissions standard -only available for certain markets.

In all the **petrol engines** it is still possible to run the **EOBD function** through the **K wire**; an option that will be available until the **EU5** emission standard comes into effect, when it will only be possible to do so by using the new **diagnostics CAN-BUS**.

All the control units include the **phase 4** immobiliser system with the **“download”** function, meaning that any job on the immobiliser system has to be carried out through the **“FAZIT”** application.

In these already-known engines, certain components have been modified in order to improve classification in pedestrian protection tests.

For starters, all these engines are combined with the **5 speed 02T gearbox**, which adapts its transmission ratios to the different torque curves of each of them, thus obtaining several versions of the same gearbox with different outputs. Only for the **Mexico** market the already known **2.0 l 85 kW** engine is offered, which complies with the **TIER 1B** emissions standard.

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“BTS” 1.6 L 16 V ENGINE



“BXW” 1.4 L 16 V ENGINE

erWin

"CEKA" 2.0 L ENGINE



02T GEARBOX



"BZG" 1.2 L 12 V ENGINE

POWERTRAIN

1.2 L 12V ENGINE

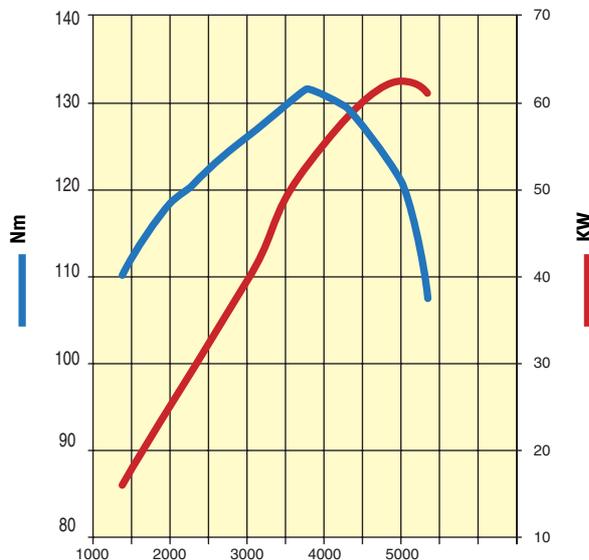
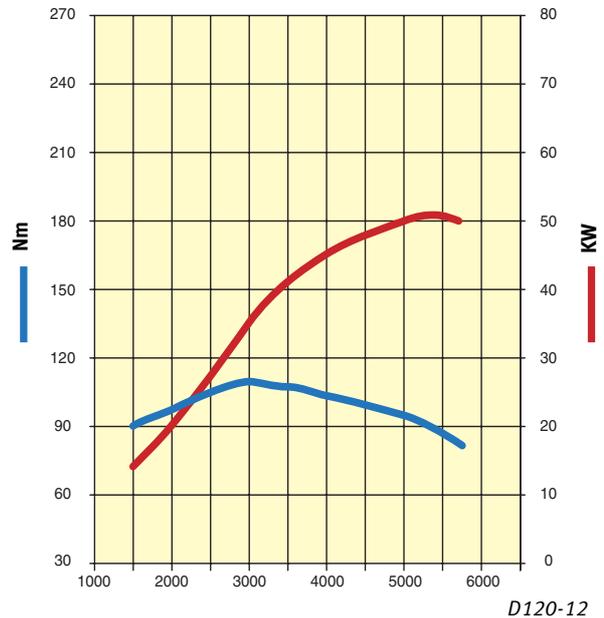
The 1.2 l and 12 valves **BZG engine** is a variation of the BXV engine used in the Ibiza 02.

The **gas butterfly throttle** and the **oil plug** of the timing chain cover have been modified in this engine. The air filter is now placed on the engine cover, next to the battery. The **AKF valve** is now on the engine.

The engine management system is **Simos 9.1**, which delivers and output of **51 kW** at 5400 rpm and a maximum torque of **112 Nm** at 3000 rpm.

The engine control unit has 80 pins, meaning that you have to use the **VAG 1598/22** for checking.

This engine complies with the EU4 emissions standard and is available for the "Reference" and "Stylance" finishing levels.



1.4 L 16V ENGINE

The engine designation letters of the 1.4 l 16 engine are **BXW**, which is already known in SEAT.

Its maximum power output is **63 kW** at 5200 rpm, and it delivers a maximum torque of **130 Nm** at 3800 rpm.

The engine management system is the **Magneti Marelli 4HV** and there are two versions available with the exact same engine designation letters, one complies with the **EU4 emissions standard** and the other one with the **EU2 emissions standard**.

This engine is available for the "Reference", "Stylance" and "Sport" finishing levels.

D120-13

1.6 L 16V ENGINE

The largest capacity petrol engine is the already-known 1.6 l engine with 16 valves and designation letter **BTS**, which complies with the **EU4** emissions standard.

To improve pedestrian protection, alterations to the chains cover, the inlet manifold and several tubes of the cooling system have been made.

Its maximum power output is **77kW** at 5600 rpm and it delivers a maximum torque of **153 Nm** at 3800 rpm.

This engine uses the **Motronic ME 7.5.20** engine management system.

This engine is available for all the versions with the 02T manual gearbox.



D120-14

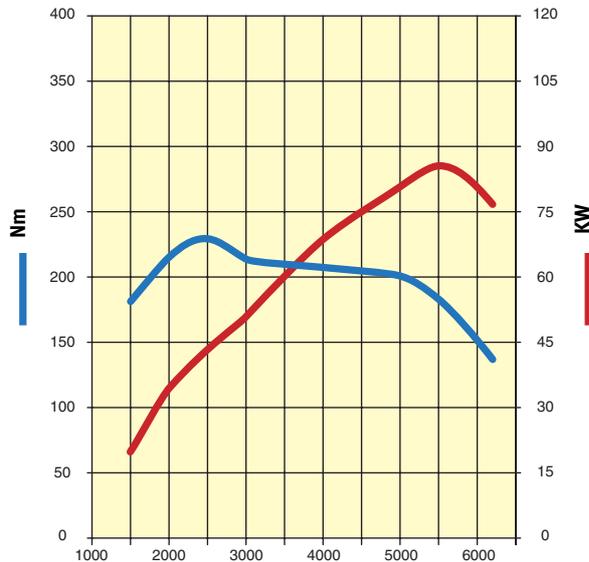
2.0 L ENGINE (MEXICO)

The 2.0 l MPI 85-kW engine is only available for Mexico. What is new about it is that the engine designation letters will be **CEKA**.

This engine complies with the **Tier 1B** emissions standard, delivers **85 kW** power output at 5200 rpm and **170 Nm** torque at 4000 rpm.

The **Motronic ME 7.5.20** is the engine management system used.

There is a 'bad roads' version combined with the 5 speed 02T manual gearbox.



D120-15

POWERTRAIN

DIESEL ENGINES AND GEARBOXES

The start-off diesel engines offered in the new Ibiza is limited to two versions of the **1.9 TDi** PD and 8 valves engine with particles filter, which comply with the **EU4** emissions standard.

The first engine available will be the **BLS** engine with the management system **EDC 17 U01 4.41** by **BOSCH**. This engine delivers **77 kW** power output at 4000 rpm and a maximum **240 Nm** engine torque at 1900 rpm.

At a later stage there will be a lower power version available with engine designation letters **BXJ**, which uses the same management system as the BLS engine but with a different software delivering **66 kW** at 4000 rpm and with a maximum torque of **210 Nm** at 1800 rpm.

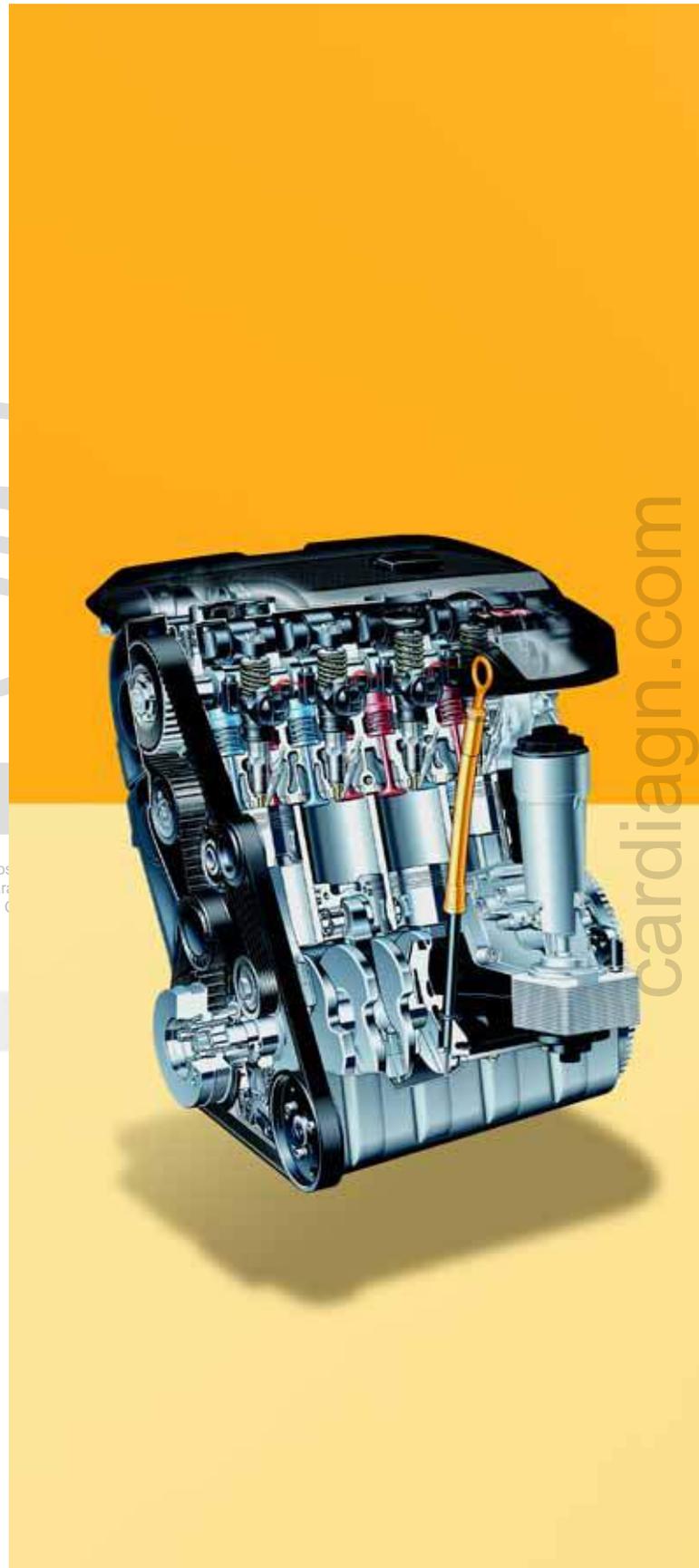
Both engines are equipped with the **02R 5** speed gearbox, but with different transmission ratios.

They both have a long gears' delivery in order to reduce the **carbon dioxide** emissions per kilometre driven.

It is possible to carry out the diagnostics in both versions by using the new diagnosis CAN-BUS as well as via the K wire.

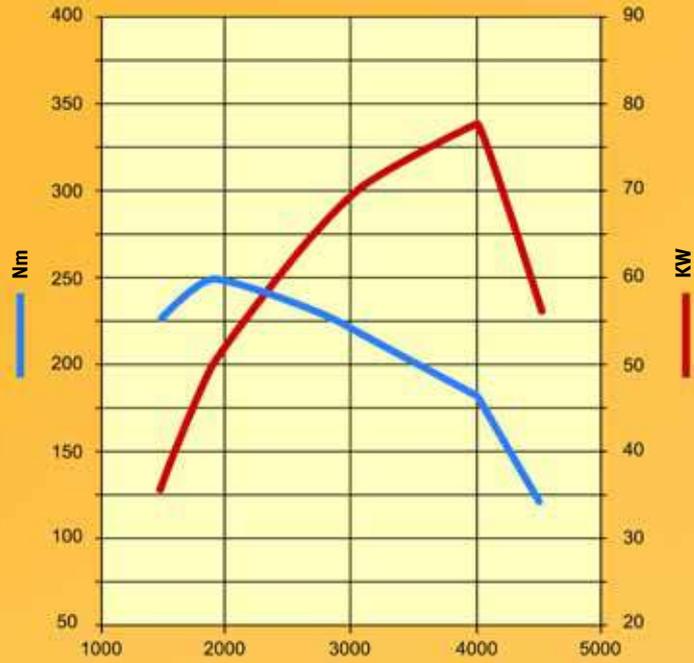
The phase 4 immobiliser system used includes the "download" and "FAZIT" functions for both engine versions.

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02T GEARBOX



BLS ENGINE



BXJ ENGINE

D120-16

DRIVETRAIN

FRONT DRIVETRAIN

The new Ibiza front drivetrain is a Mc Pherson with oscillating arm. It is 1465 mm wide, which is 46 mm wider than its predecessor.

The **subchassis** is made of **metal sheet** and integrates the brackets, which makes it a more compact and lightweight structure. It is directly bolted to the body at four points and also includes two supports at the rear zone. There are **two versions** depending as to whether the vehicle is equipped with petrol or diesel engine with pump injector. The difference between them is to be found at the exhaust pipe front section attachments.

The **oscillating arms** are a pressed **steel sheet** single part component. They are linked to the subchassis with two silentblocks. The **front silentblock** is placed longitudinally and does not have a set assembly position. The **rear silentblock** is new, it is set vertically and its correct assembly position must be respected.

The **ball joint** that joins each of the oscillating arms to the steering axis is new and has three fixed screws. Each of the ball joints is marked in order to identify correct assembly position.

There are two types of **steering axles**, one for **14"** disks, and another one for **15"** disks. Both use the same type of wheel hub with double ball-bearings.

The new Ibiza offers two types of **shock absorbing systems**: normal and sporty. The difference between them is got to do with the rating of the shock absorbers, the springs, the bump-stop lugs and the roll bar.

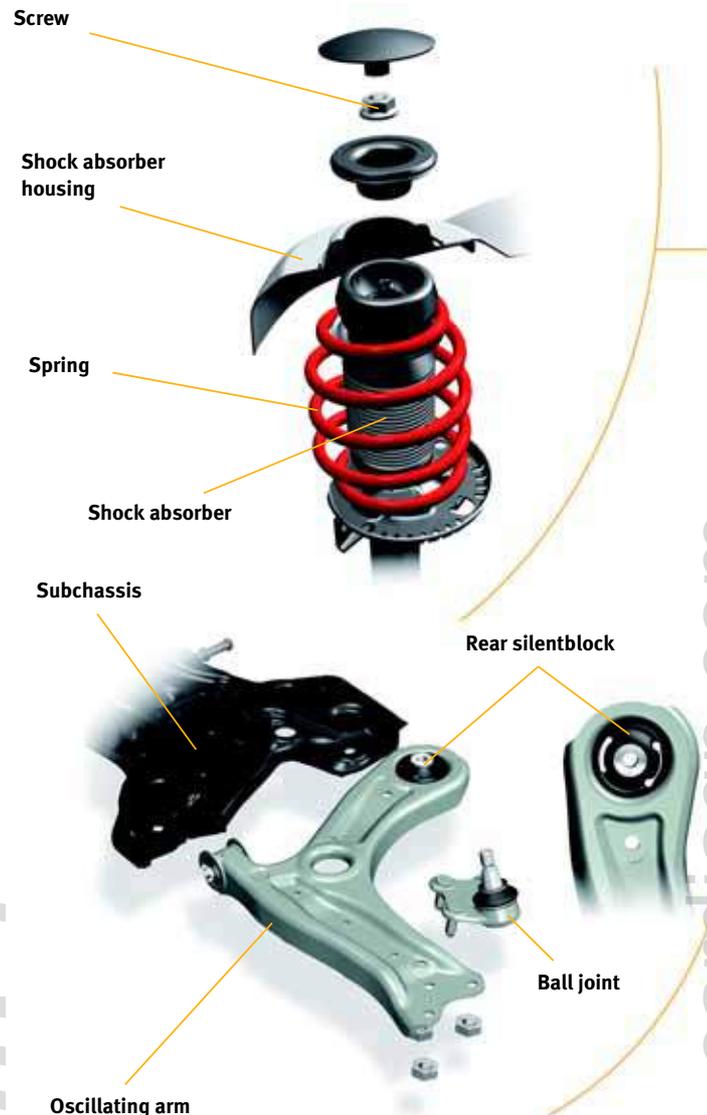
The shock absorbers are linked to the strut by a bearing with a single bolt.

It should be pointed out that each type of axle has different adjustment measures for the steering geometry.

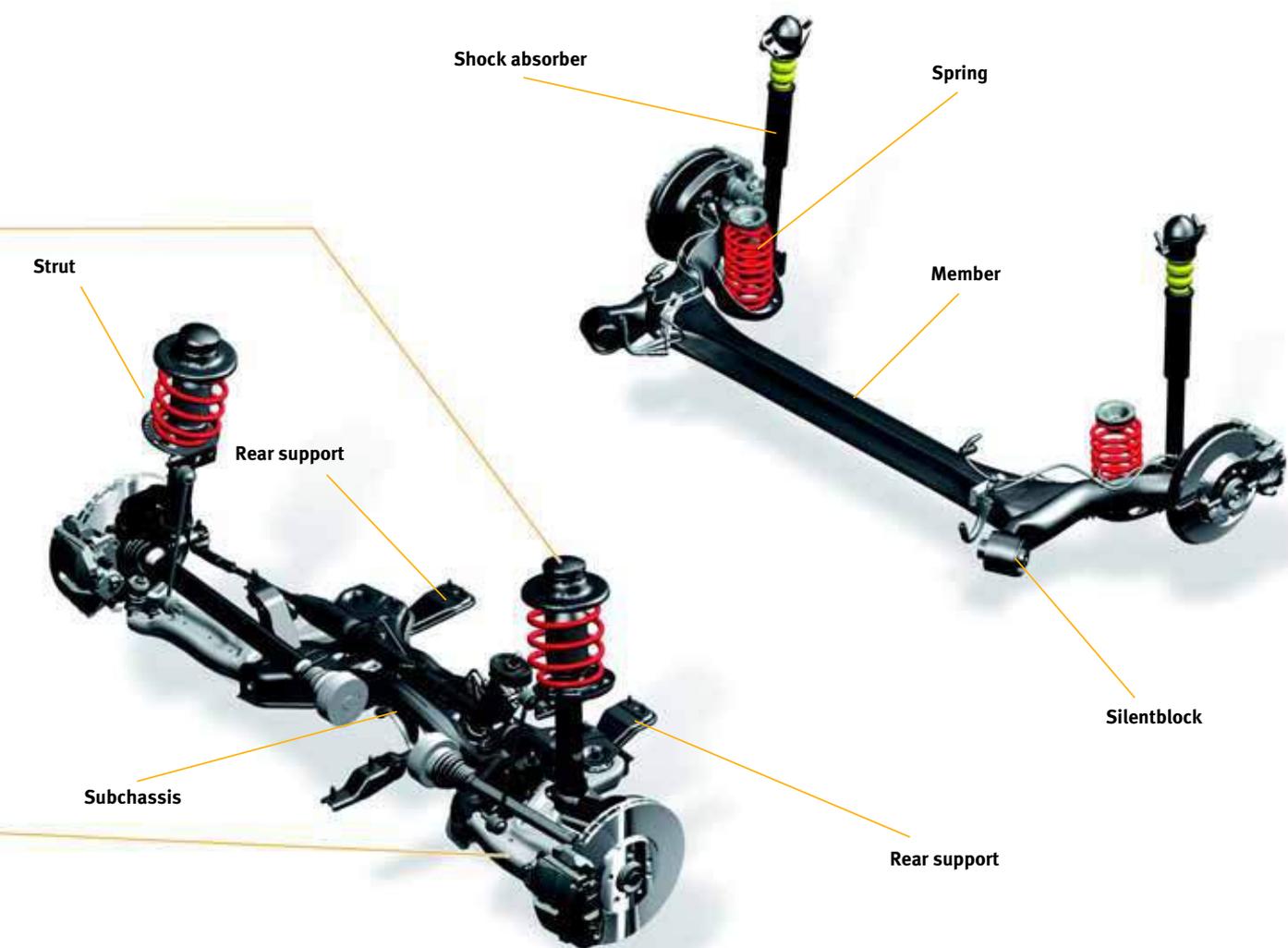
REAR DRIVETRAIN

The new Ibiza uses a **torsional type of rear axle** with integrated arms. Its **wheelbase width is 1457 mm**, that is, 49 mm wider than the previous Ibiza.

It is a variable section bar which adapts to the different body rocking torsion demands. Such a



rear axle architecture makes it necessary to use internal roll-bars. There are also **two rear shock absorbing versions**, a basic version and a sports version. This type of rear axle cannot be adjusted.



D120-17

BRAKES

There are two different types of brake disks used for the **front axle**.

The **14"** wheel rims are fitted with **256 mm** diameter and 22 mm thick brake disks. These brake disks are fitted with FSIII - 22/14 type callipers.

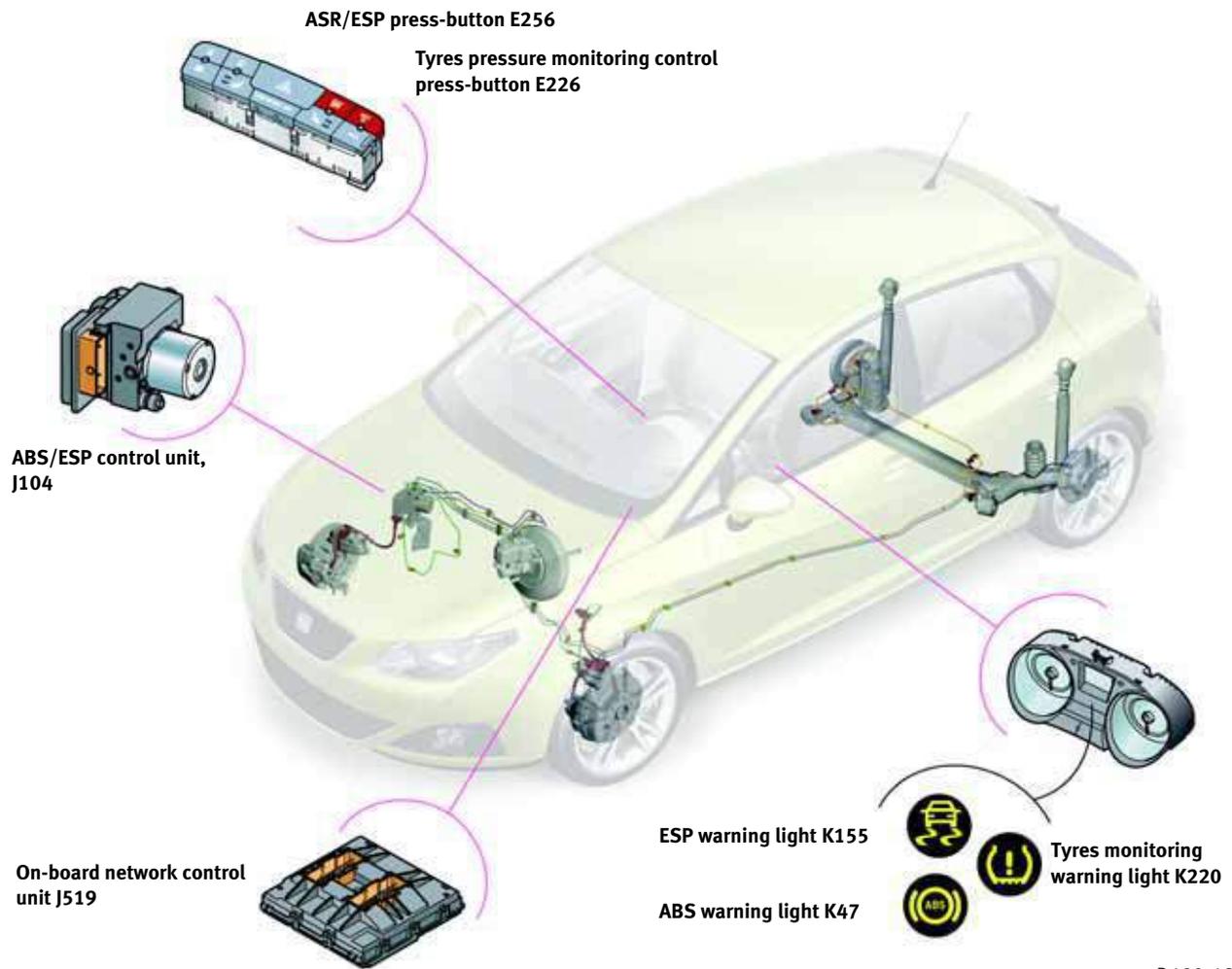
The **15"** wheel rims are combined with **288 mm** diameter and 25 mm thick brake disks. This configuration uses FN3 54/25/14 type brake callipers.

The **rear axle** can be fitted with brake drums or disks.

If it is the first option, then **200 mm** diameter and 40 mm thickness drums are used.

If it is the second option, then **232 mm** diameter and 9 mm thick disks with C38-HR type brake callipers are used.

BRAKES MANAGEMENT SYSTEM



D120-18

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The new Ibiza brakes management system is the new Bosch 8.2 system.

The control unit is smaller and lighter, and it processes data at higher speed, meaning that calculations are carried out faster and that it can assume **a larger number of functions**, such as the tyres pressure monitoring or the ramps braking monitoring.

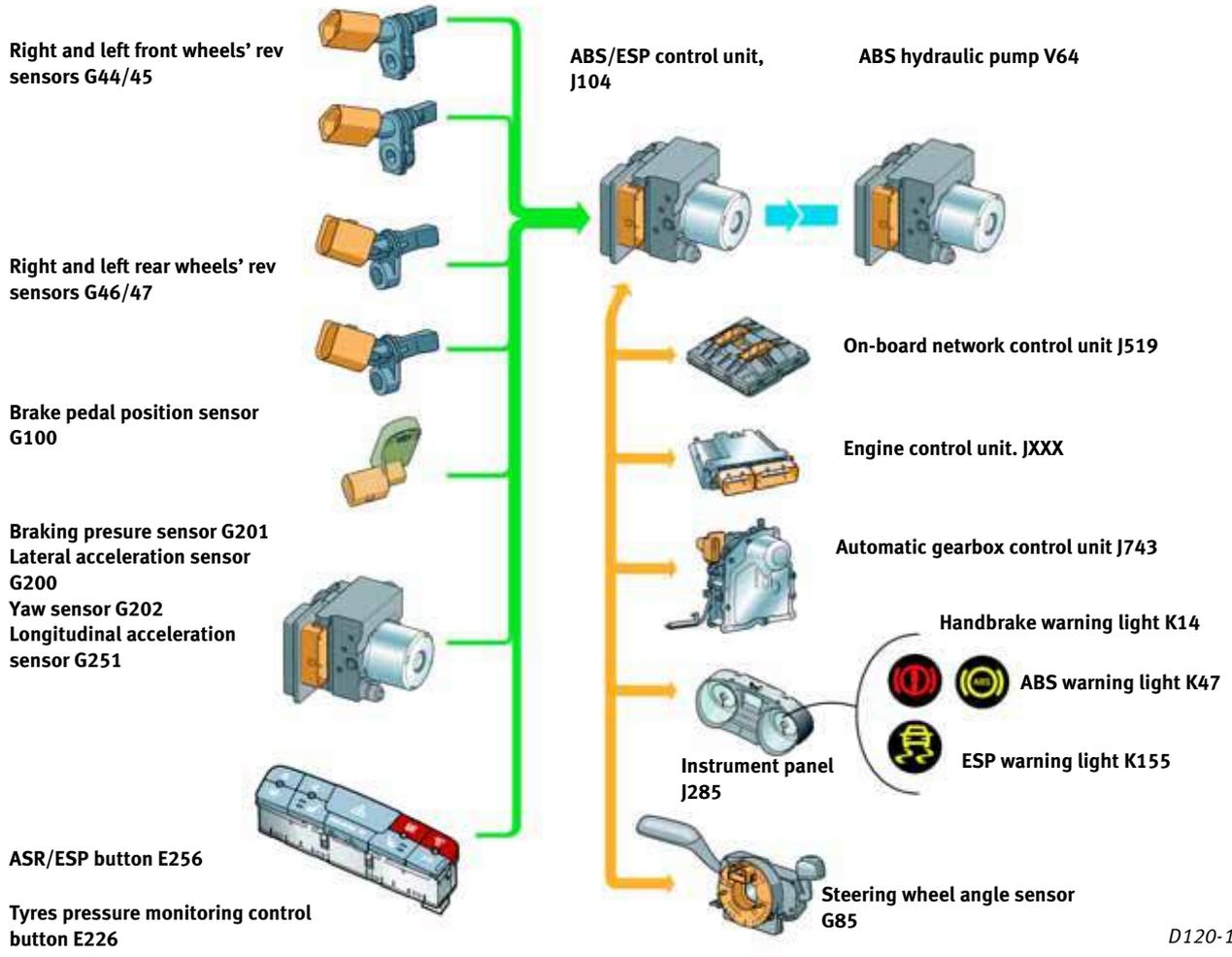
If the car is only equipped with **ABS**, it uses the new **Bosch 8.2**. management system. This system provides the following functions:

- **ABS**,
- **EBV**.

For vehicles with **ESP**, the brakes management system used is the **Bosch 8.2.i**, which -as well as providing the above functions- also offers:

- **ESP**,
- **EDS**,
- **ASR**,
- **MSR**,
- **HBA**,
- **RKA** (Tyres pressure monitoring),
- **HHC** (Hills Holder Control).

With this new brakes management system, when the ASR disconnection switch is pressed only this function is deactivated and the ESP function will always remain active.



D120-19

The main feature of the **Bosch 8.2.i** brakes management system focuses upon a large calculation capacity and fully integrated functions, which means reducing wiring and a simpler system.

The number of external components is reduced by including four sensors inside the control unit:

- Lateral acceleration sensor G200.
- Longitudinal acceleration sensor G251.
- Yaw sensor G202.
- And the brake pressure sensor G201

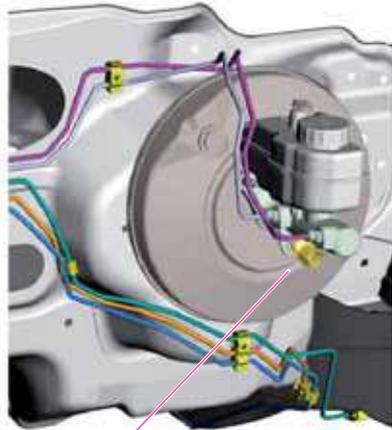
For perfect performance of the system, the Bosch 8.2.i. brakes management system requires information from:

- the wheels revs sensors **G44 - 47**,
- the steering wheel steering angle sensor **G85**,
- the brake pedal position sensor **G100**,
- the braking pressure sensor **G201**,
- the ESP press button **E256**,
- the tyres pressure monitoring button **E226**,
- the instrument panel **J285**,
- the on-board network control unit **J519**, and
- the engine and automatic gearbox control units, if equipped.

BRAKES MANAGEMENT SYSTEMS

BRAKE PEDAL POSITION SENSOR

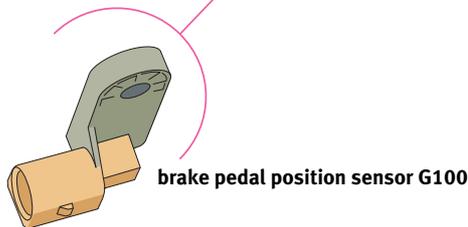
G100



The brake pedal lights switch has been replaced in the new Ibiza by the brake pedal position sensor **G100**, placed at the lower area of the brake pump.

It is a sensor that operates under the **Hall** operation principle, similar to the one used in the Altea, Toledo or Leon.

It has a four pin connector, where pin 4 refers to terminal 15, pin 2 to terminal 31, and pin 3 is used for sending the brake activated signal to the ABS control unit J104.



brake pedal position sensor G100

D120-20

ABS-ESP BOSCH 8.2 I CONTROL UNIT

The new ABS / ESP control unit J104 used by the **Bosch 8.2.i** brakes management system includes the lateral and longitudinal acceleration sensors, the yaw moment sensor and the braking pressure sensor in its interior.

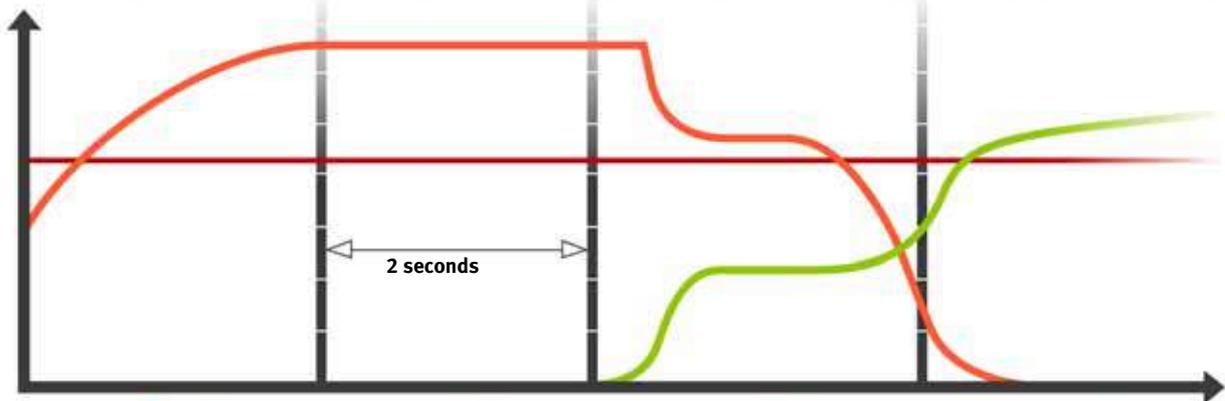
Because of the highly accurate or precise components it integrates, **correct assembly position** is a **major requirement**.

To make sure that the ABS / ESP control unit J104 is within the assembly tolerance, there is a **special support bracket** screwed onto the front passenger wheelarch and member. The unit is screwed onto the support bracket with three rubber silentblocks.



assembly position

D120-21



— Force needed to prevent car moving backwards
 — Braking force
 — Eng. torque

D120-22

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HILL HOLDER CONTROL 'HHC' BRAKING SYSTEM

The Hill Holder Control 'HHC' braking system helps the driver shift into first gear when the car is stopped on a ramp. This function locks the wheels for approximately 2 seconds in order to prevent the car from going backwards before starting to climb up the ramp or hill.

For the ABS control unit to activate this function it needs the following information:

- Vehicle stopped.
- **Doors closed** signal.
- Reverse gear disengaged.
- **Brake pedal** not activated.
- **Clutch pedal** activated.
- And, **inclination signal**.

The system operates as follows:

When driving uphill if the driver wants to stop, he puts his foot on the brake pedal and the car stops.

To start moving the car either forwards or backwards, the driver lifts his foot from the pedal and puts his foot on the accelerator. At that point, **the system holds the braking pressure** needed in order to prevent the wheels from turning downhill.

Once the gear has been engaged, the driver puts pressure on the accelerator pedal to start climbing uphill. The system reduces the braking pressure at the same progression pace as engine torque is being transmitted from the gearbox.

When the system detects that the torque delivered is enough to start climbing uphill, the braking pressure is cut-off.

BRAKES MANAGEMENT SYSTEM

TYRES PRESSURE MONITORING RKA

This function **detects pressure loss** of the tyres via the wheel rev sensors.

When the ABS/ESP control unit J104 detects this situation, it sends a message to the Drive CAN-Bus line so that the instrument panel activates the tyres pressure monitoring indication warning light **K220** and the buzzer **H3**.

The system reads a loss of pressure from a **30%** drop or if the running diameter of a wheel is different to the rest.

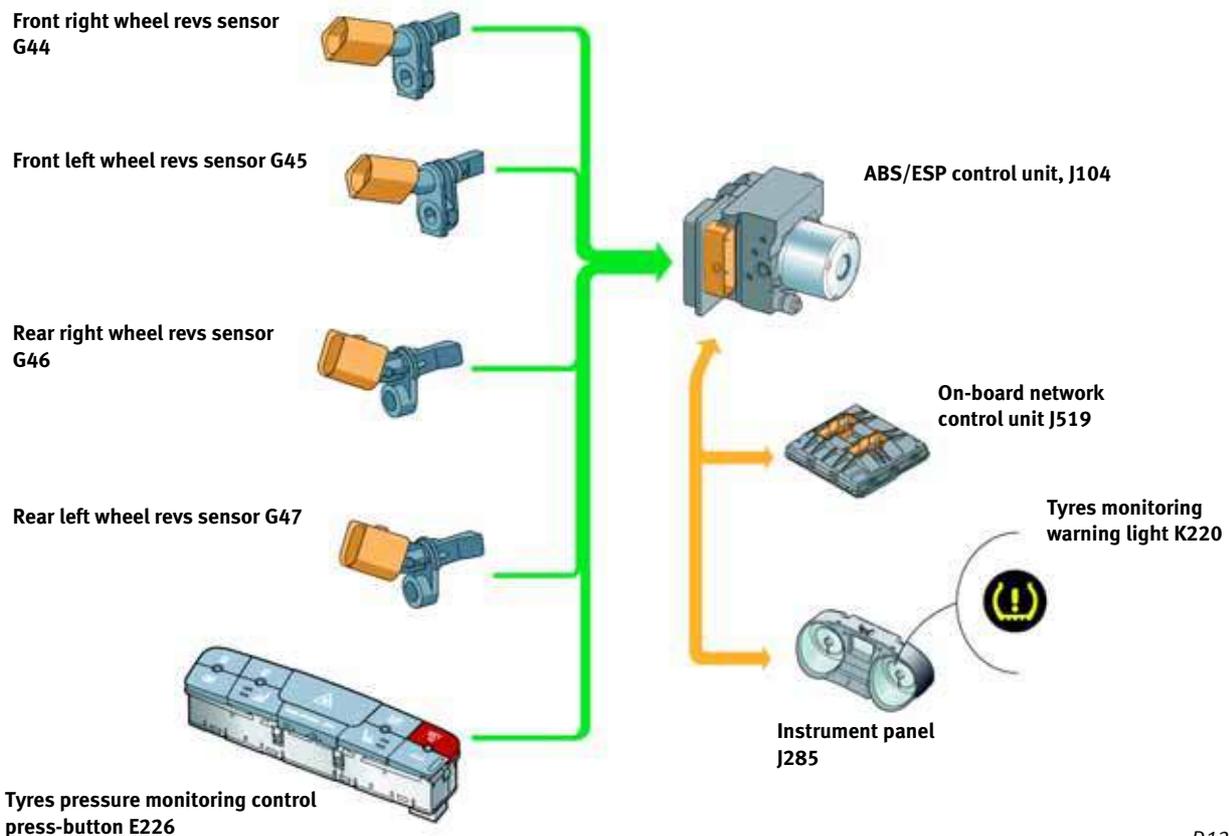
The system might have difficulties in reading the pressure loss if:

- the air loss is uniform in all four wheels.
- towing a trailer,
- driving with the emergency wheel.

The tyres pressure monitoring system can be momentarily deactivated when driving at high speeds in bends, or when driving with snow-chains or on uneven surfaces.

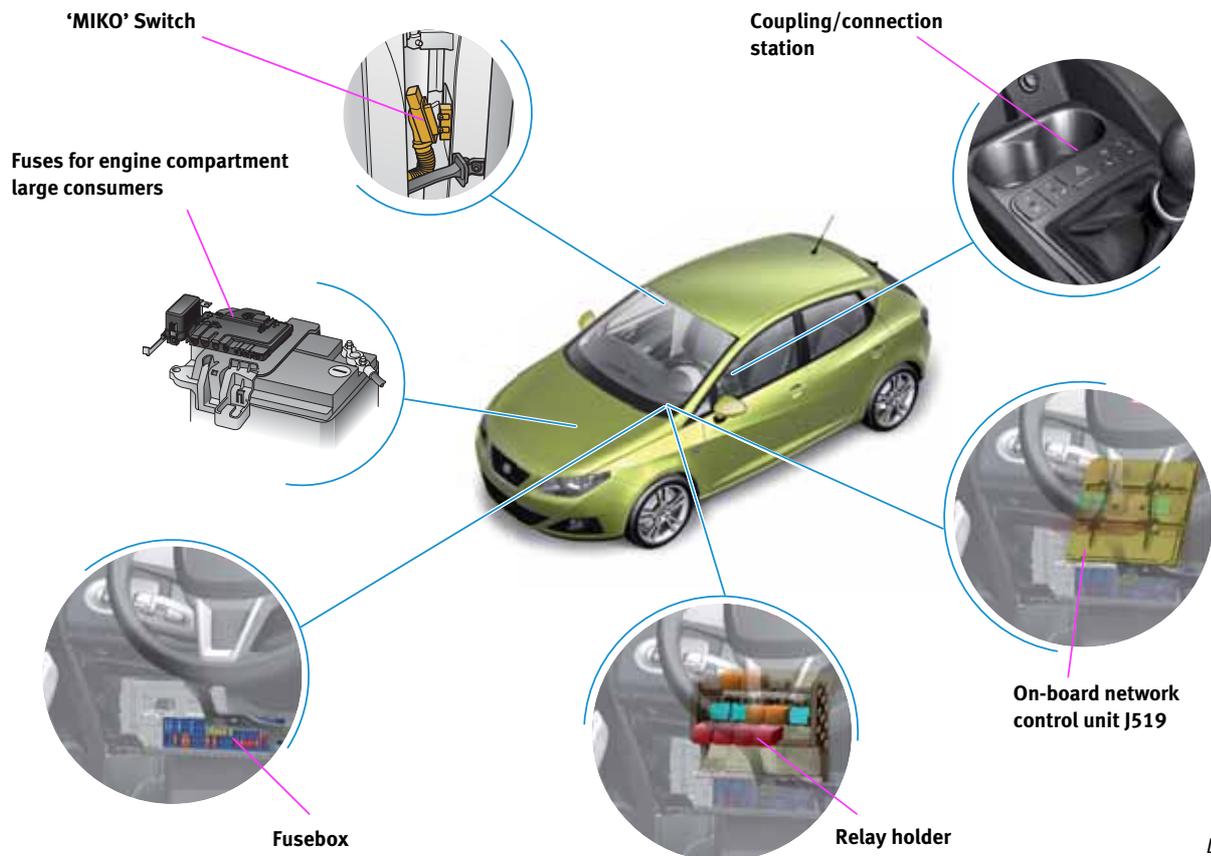
The tyres pressure monitoring can be calibrated with the press button. Calibration has to be done when replacing the tyres, when checking the inflation pressure of the four wheels, and it requires holding the button down until you hear an acoustic warning.

Note: For further information about the tyres pressure monitoring, please refer to SSP No. 109 "Leon 06 presentation".



D120-23

ELECTRICAL SYSTEM



D120-24

ELECTRICAL INSTALLATION

The Ibiza has a decentralised electrical installation, but with **new CAN-Bus and LIN-Bus lines** compared to its predecessor.

Such an increase of communication lines is associated to the increase in number of control units that manage new functions and optimise the existing ones, reducing the overall wiring and increasing the speed of response to the user's demand.

In this sense, the **comfort or convenience control unit** has been removed from the electrical system, and its functions -together with the gateway functions- have been **assumed by** the On-board network control unit **J519**.

The **fuses** for the large consumers, and six fuses for the ABS, On-board network and climate system control units are on top of the battery

The **fusebox** and the **relay holder**, which includes the terminal, the auxiliary heating and the engine relays are placed under the instrument panel, at the driver's side. What is new is that

behind three relay holders house fuses for terminal 30, 58 and 87 consumers.

There are new electrical activation components such as the **"Switches module"** on the central console or on the multifunction module J453.

There are new **connection or coupling stations** on each of the doors which are easier to handle.

Note: For further information about the electrical installation, please refer to SSP No. 121 "Ibiza 08 On-board network".

ELECTRICAL SYSTEM

WIRING LOOMS

The new Ibiza wiring is grouped into seven main wiring looms:

- Passenger compartment wiring, which connects the on-board network control unit to the various passenger compartment components and to the door, tailgate and engine compartment wiring looms.

- Doors wiring, there are different versions depending as to whether the cars are equipped with two or four electric windows, or if the mirrors are electrical, or depending on the speakers available

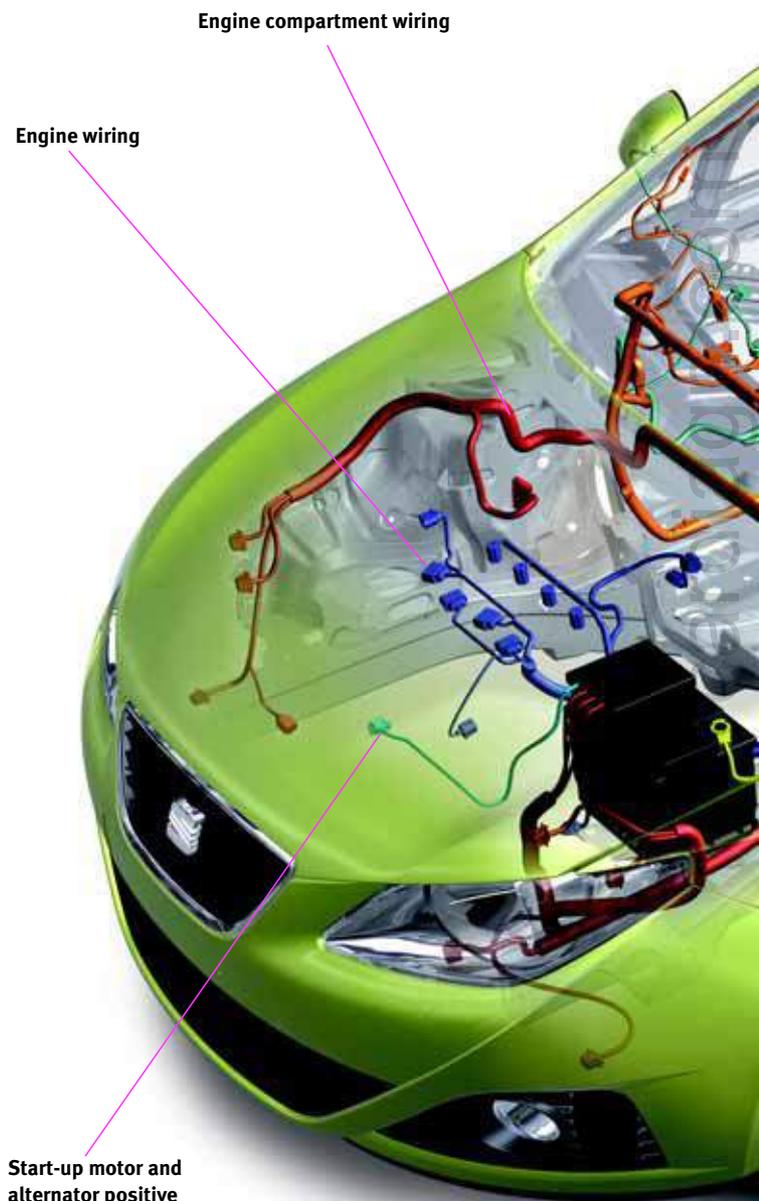
- **Tailgate wiring.**

- **Engine compartment wiring**, which connects the different components placed in the engine compartment such as the ABS control unit, power steering, headlights, etc.

- **Engine wiring**, it is the engine specific electrical installation which links up the various components and the engine control unit.

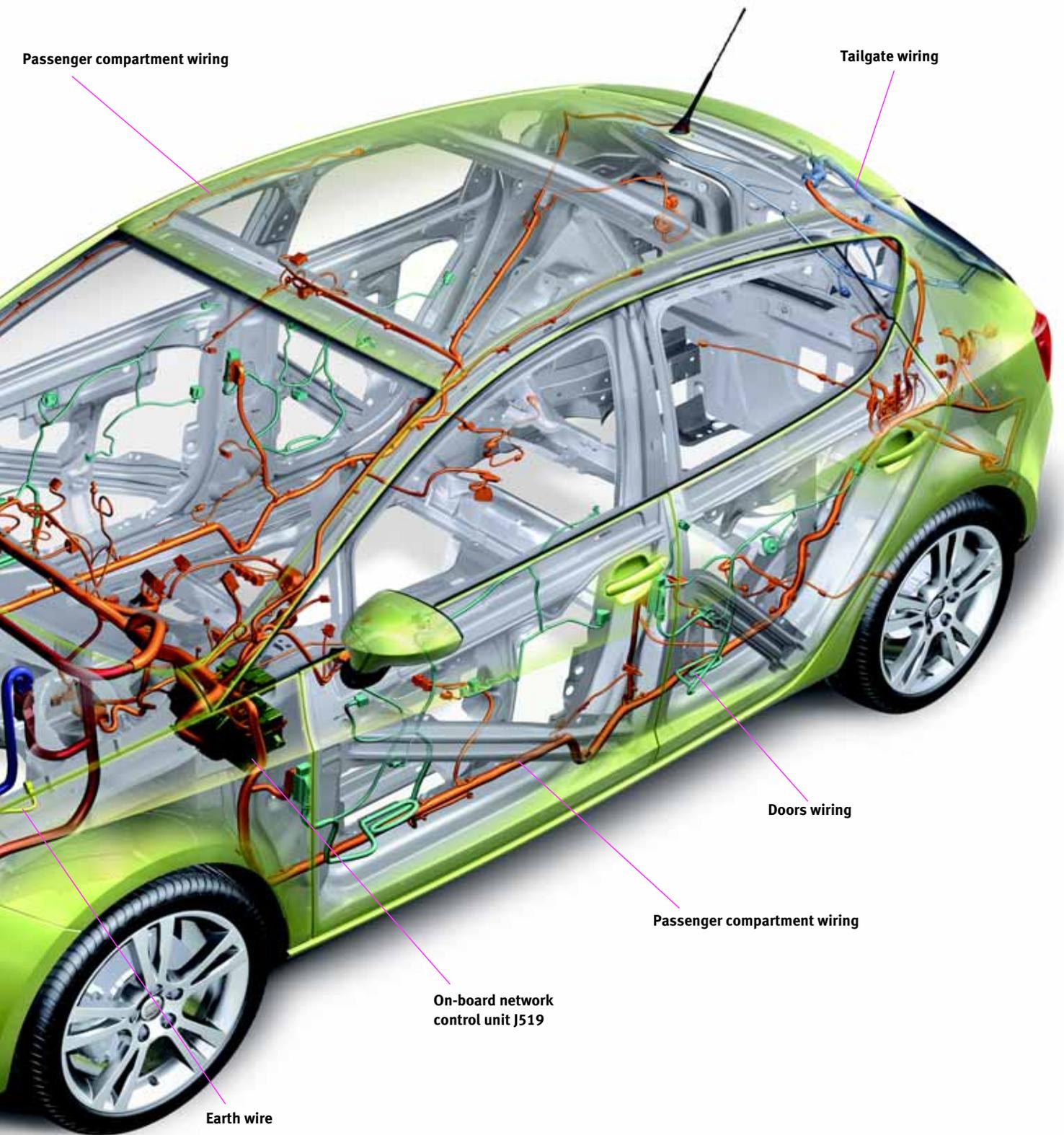
- **Earth (ground) wiring**, which connects the battery's negative terminal to the body of the car

- **Start-up motor and alternator positive**, which groups the wires that run from the battery to the alternator.

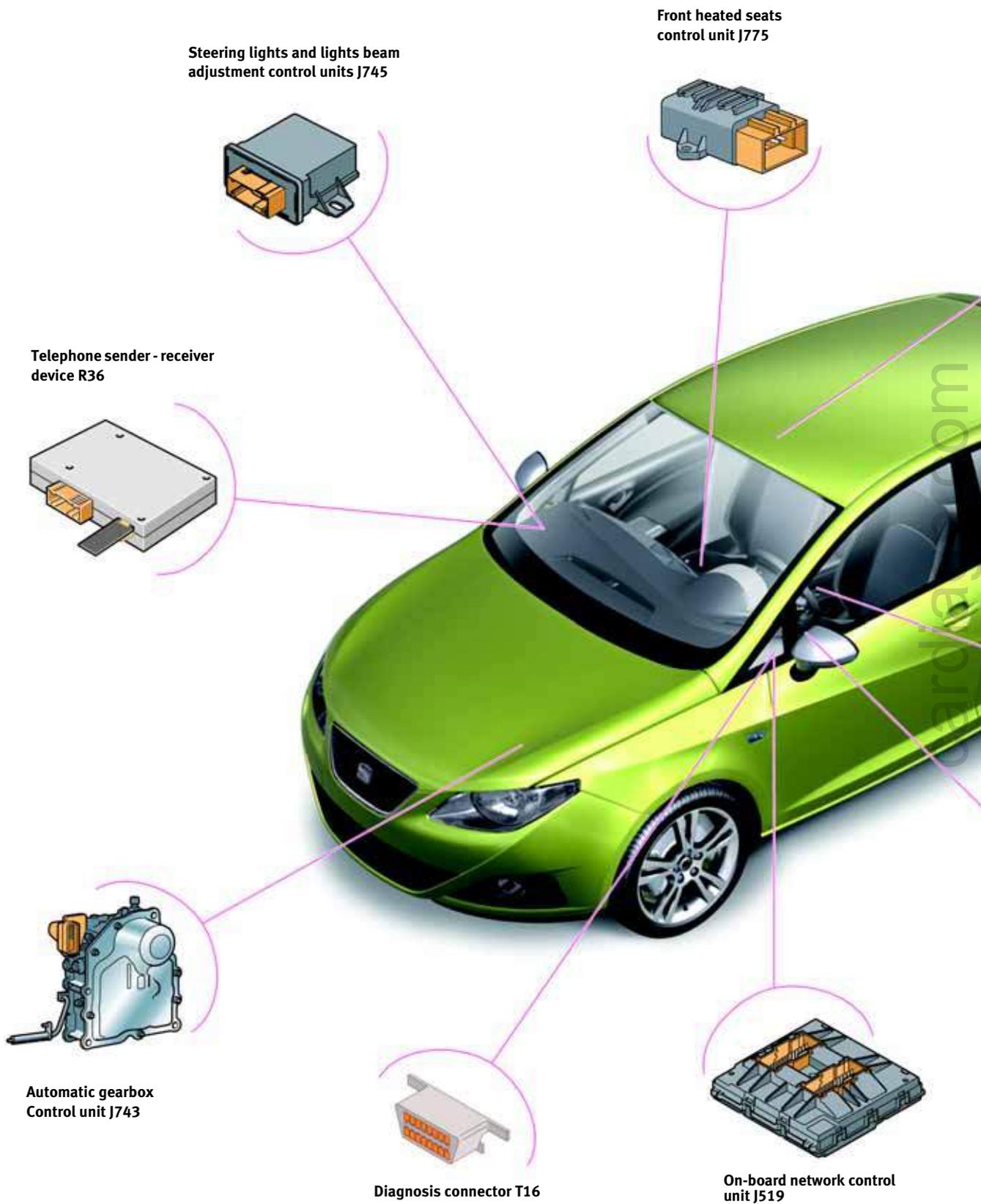


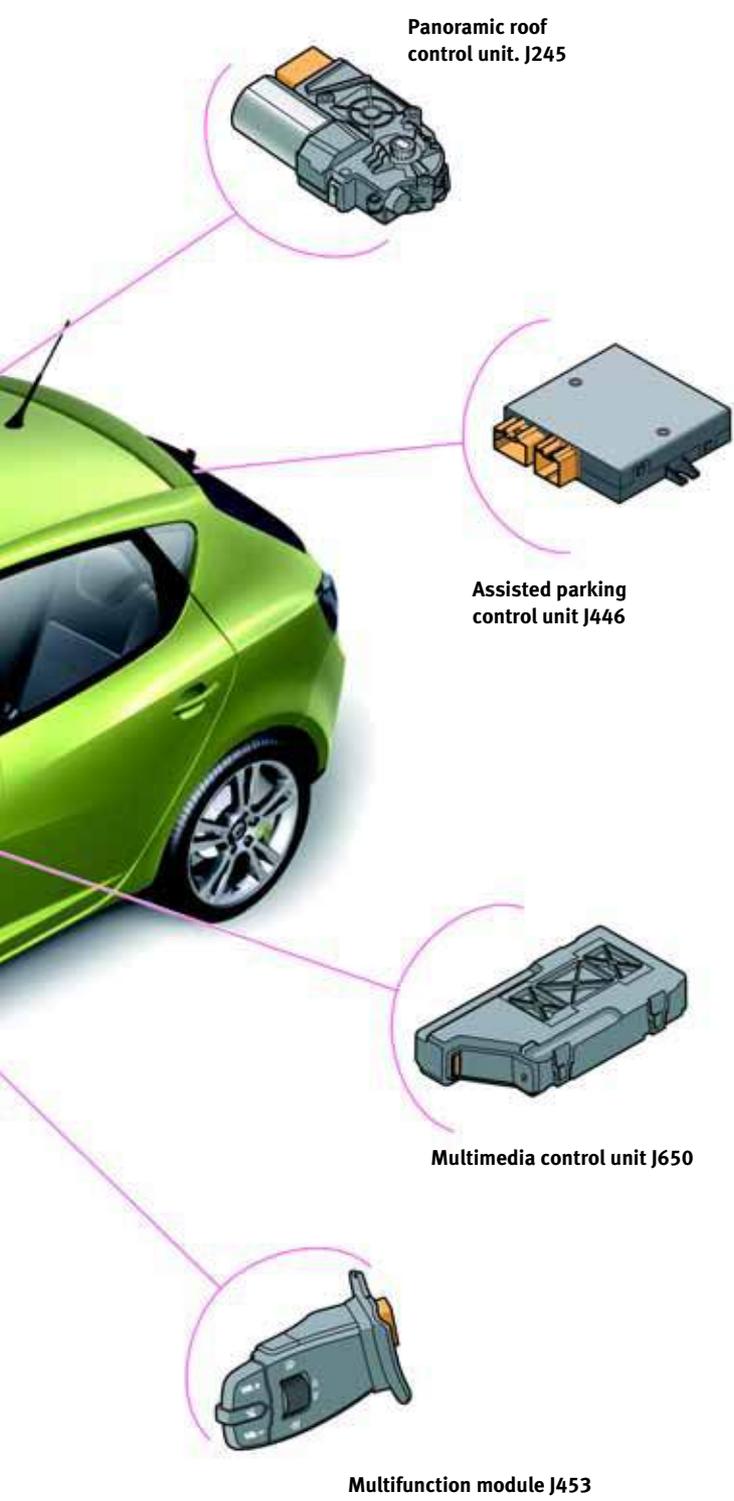
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Note: For further information about the electrical installation, please refer to SSP No. 121 "Ibiza 08 On-board network".



ELECTRICAL SYSTEM



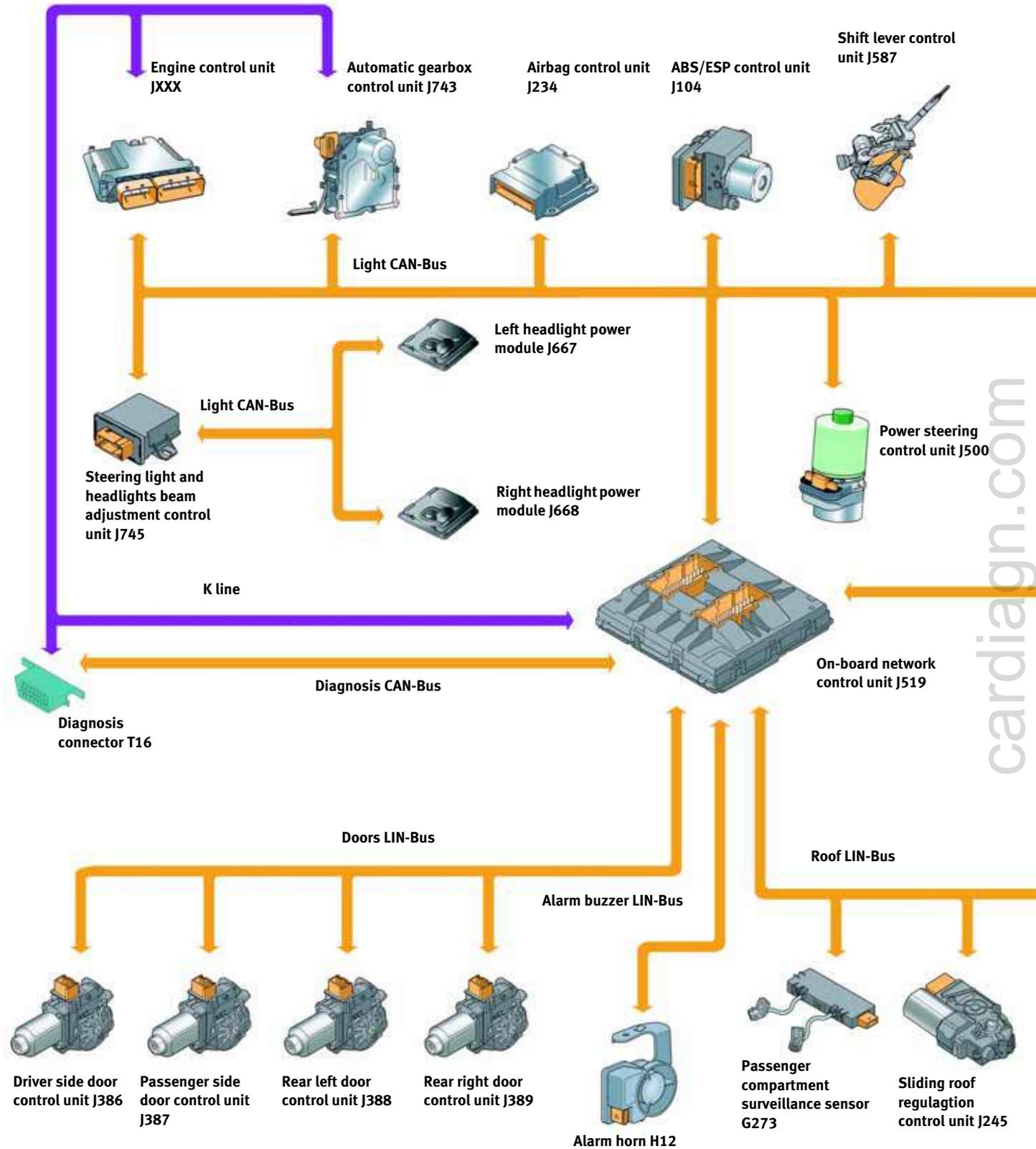


LOCATION OF UNITS

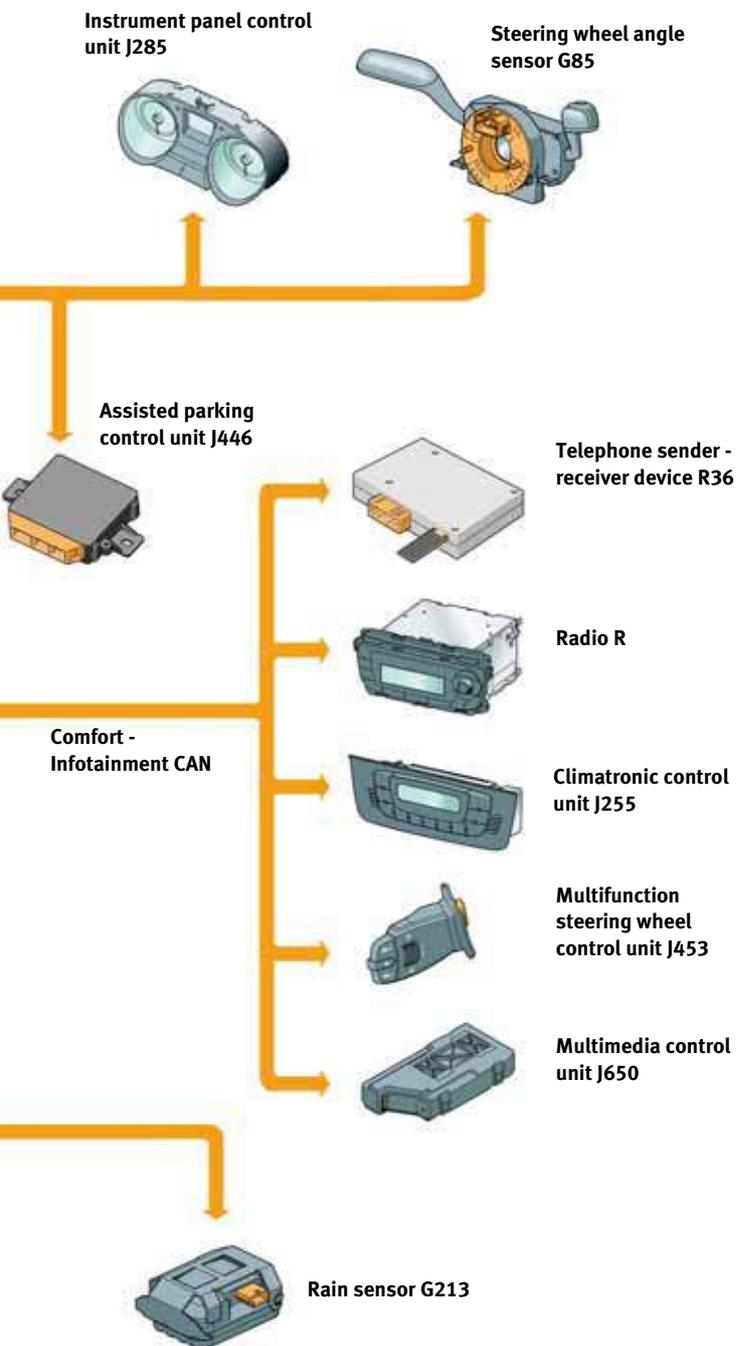
There are up to 28 control units in the new Ibiza. The image shows both the position of the new control units, and the ones which were already being used in the Ibiza 02 that have moved place. Which are:

- **On-board network control unit**, under the dashboard, on the driver's side, behind the fusebox and the relay-holder.
 - **Steering light and lights beam adjustment control unit J745**, at the side of the dashboard, on the front passenger side.
 - **Telephone sender-receiver device R36**, just next to the steering light and headlights beam adjustment control unit J745.
 - **Multifunction steering wheel control unit J453**, attached to the steering column trim.
 - **Multimedia control unit J650**, on the central zone of the dashboard.
 - **Front heated seats control unit J775**, under the passenger's seat.
 - **Assisted parking control unit J446**, under the left side trim of the luggage compartment.
 - **Panoramic roof control unit J245**, attached to its frame, on the front area of the roof.
 - **Automatic gearbox control unit J743**, fitted on the automatic gearbox.
 - **Shift lever control unit J587**, on the automatic gearbox shift lever.
- The **diagnosis connector** is placed next to the passenger compartment fusebox.

ELECTRICAL SYSTEM



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DATA BUSES

The high number of existing control units in the new Ibiza has required an innovative and functional solution in order to guarantee correct operation of the On-board net.

This is the new concept “**On-board network control unit J519**”, which now assumes all the functions related with the “Gateway”, the On-board network, and comfort. And it is also the meeting point for all the CAN-Bus and LIN-Bus lines.

The following are the existing **CAN-Bus** lines in the new Ibiza:

- **Drive** CAN-Bus.
- **Comfort-Infotainment** CAN-Bus.
- **Diagnosis** CAN-Bus.
- And, **Light** CAN-Bus, if the vehicle is equipped with bixenon headlights.

The speed of data transmission is **500 kbits/s** for all the lines, except for the Comfort-Infotainment, which is **100 kbits/s**.

The number of **LIN-Bus** lines in the new Ibiza varies depending on the equipment of the car. The “**On-board network control unit J519**” is prepared for operating as **master unit** for three lines:

- **Doors** LIN-Bus, to which all the door control units are linked up.
- **Roof** LIN-Bus, to which the “Passenger compartment monitoring sensor G273”, the “Rain sensor G213” and the “Panoramic roof regulation control unit” are linked up.
- **Alarm horn** LIN-Bus, only the “Alarm horn H12” is linked up to this line.

The speed of data transmission in the three LIN-Bus lines is **19.2 kbits/s**.

The **K line** continues to be available for the EOBD diagnostics function. The “Engine control unit Jxxx”, the “Automatic gearbox control unit J743” and the “On-board network control unit J519” are connected to this line.

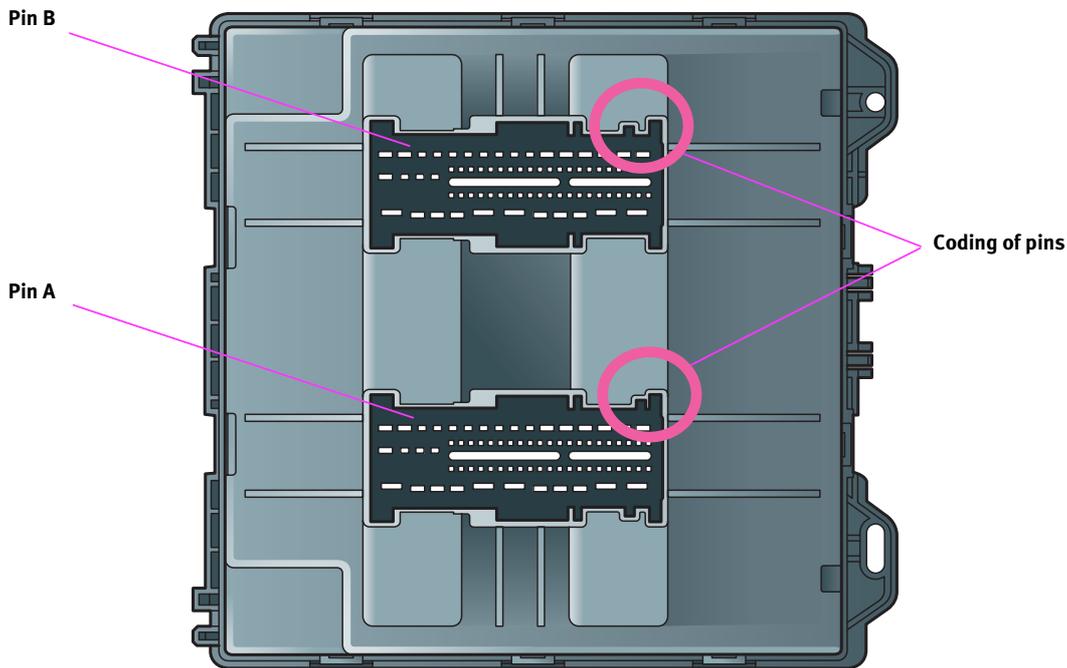
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Note: For further information about the electrical installation, please refer to SSP No. 121 “Ibiza 08 On-board network”.

D120-27

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ELECTRICAL SYSTEM



D120-28

ON-BOARD NETWORK CONTROL UNIT J519

The new On-board network control unit J519 is placed at the lower zone of the dashboard, at the driver's side, just behind the fusebox and the additional relay holder. To fix it to its support it has an attachment at the top and two flaps at the bottom.

There are two On-board network control unit J519 versions available, depending on the equipment of the car, "**Medium ++**" and "**High +**". Both versions have two 73 pins connectors each, mechanically coded.

The On-board network control unit assumes the Gateway, the confort and the On-board network functions:

- **Gateway** (Messages conversion, processing of messages, control of the lines, transportation mode and production mode)

- **Exterior lighting** (position, parking, brakes, fog, reverse, change of direction indication, hazards,

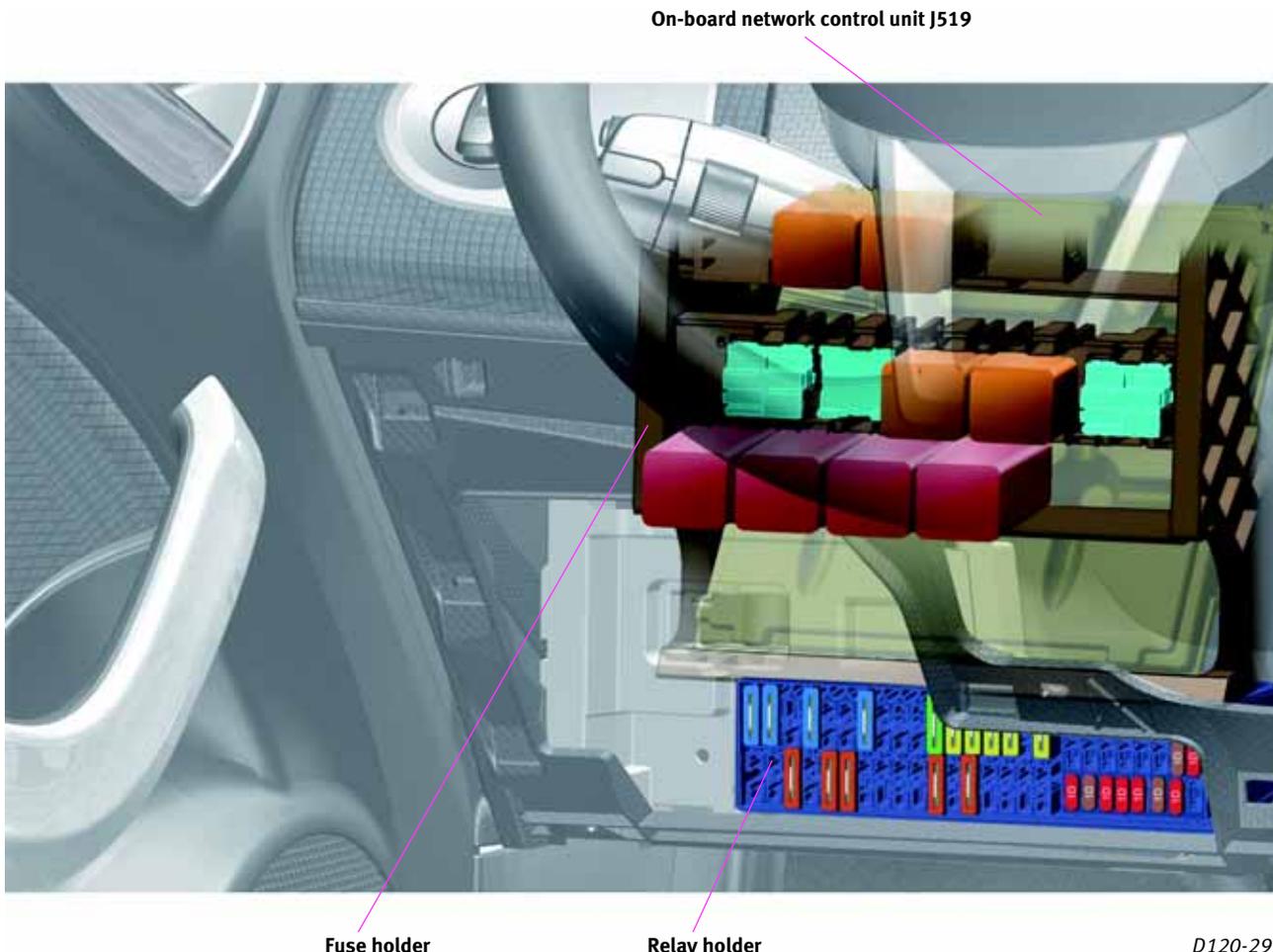
- collision, anti-theft alarm, central locking, emergency braking signalling and cornering lights).

- Interior lighting.

- **Windscreen wipers** (Activation, safety locking, windscreen wiper activation after windscreen washing, thermal protection, headlights washer control and service position).

- **Central locking** (Single locking, double locking, automatic doors locking from speed or from contact S signal, individual and global unlocking, unlocking because of airbag activation, tailgate opening, and activation of the central locking warning light "Safe" K133).

- **Wing mirrors** (Direction, folding-up, and heating).



Fuse holder

Relay holder

D120-29

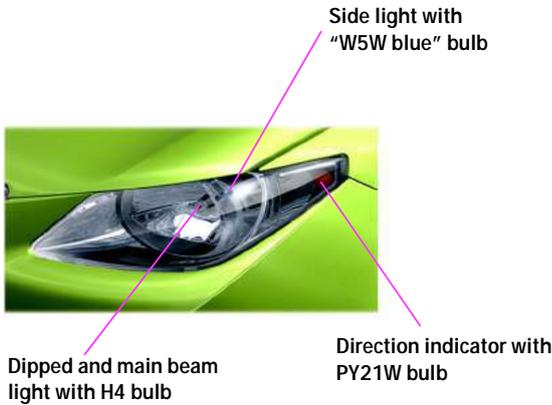
- **Electric windows** (Manual and automatic opening and closing, rear windows locking, anti-trap, smooth stop, smooth entering in the upper limit, convenience opening and closing, emergency rising, and thermal protection).
 - **Heated rear window.**
 - **Re-supplying of fuel.**
 - **Electric load management** (idle control and activation/deactivation of consumers)
 - **Horn.**
 - **Additional functions**, they are the functions that depend on the equipment each car is fitted with (alarm system, controls lighting, start-up locking, speed control, opening sun-roof and front heated seats).

- **Self-diagnosis** is carried out separately, on the one hand all the aspects related to the "Gateway", direction code 19, and the rest of issues via "On-board network" direction code 09.

Note: For further information about the On-board network control unit J519, please refer to SSP No. 121 "Ibiza 08 On-board network".

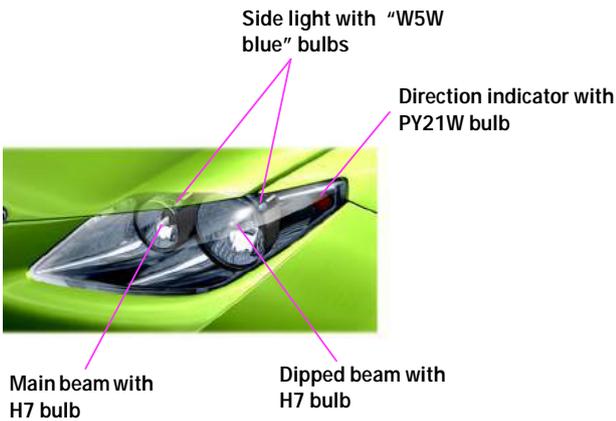
ELECTRICAL SYSTEM

SINGLE HALOGEN HEADLIGHTS



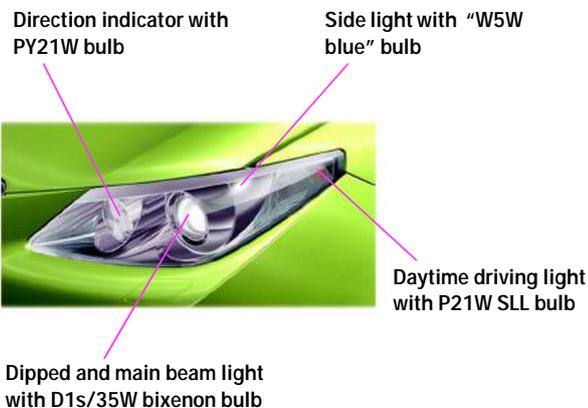
D120-30

DOUBLE HALOGEN HEADLIGHTS



D120-31

BIXENON HEADLIGHTS AFS AND DAYTIME RUNNING LIGHTS



D120-32

FRONT LIGHTS

The new Ibiza uses **three types of** headlights. The Reference finishing level only has **single optics** halogen headlights with a **H4** bulb for dipped and full beam lights.

The Stylance and Sport finishing levels are equipped with series fitted headlights **with double reflector optics** with two bulbs **H7**, one for full beam and another one for the dipped beam. Each of these headlight use two **W5W "Blue"** bulbs for the position lights.

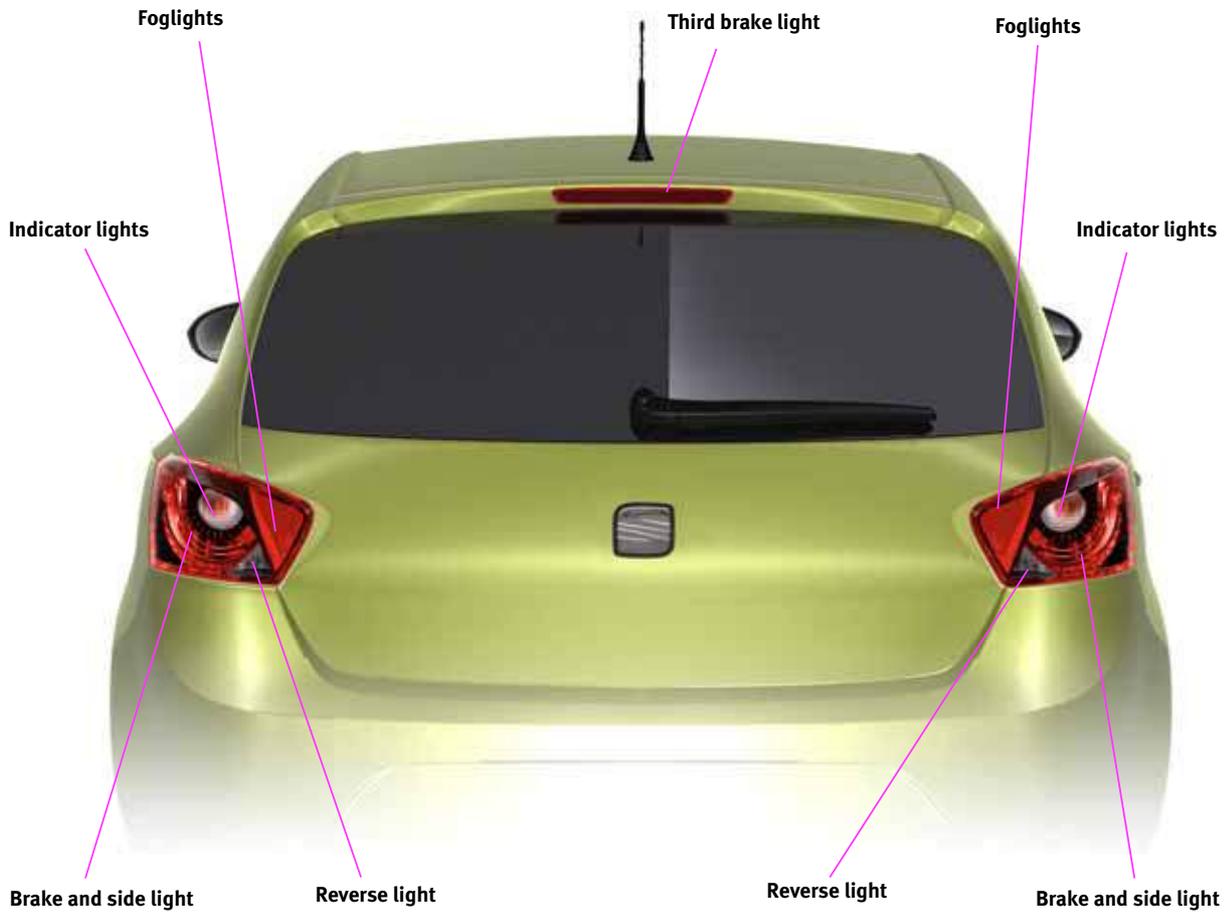
As an option, these finishing levels can be equipped with **bixenon with AFS** (Adaptive Forward Lighting System or Dynamic Steering Lights -as named in the Group) headlights.

The bixenon headlights use **D1s 35 W** bulbs and always include a special **P21W SLL** (Super Long Life) type of bulb for the **daytime running light** function.

Foglights with **cornering light** function are series fitted available for the Stylance and Sport versions. They are optionals in the Reference version.

Thanks to the new Ibiza On-board network, its lighting system has greater possibilities such as the bixenon headlights with adaptive forward light system, the **"Coming Home"** or the **"Cornering light"**.

It or in whole, is not accept any liability with by SEAT S.A.



D120-33

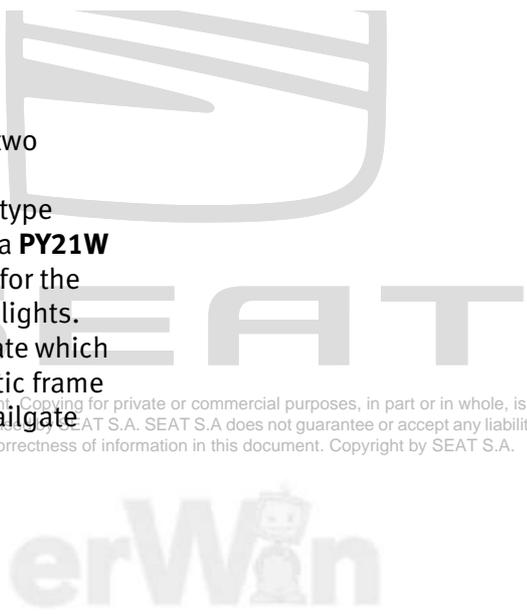
REAR LIGHTS

The new Ibiza rear lighting is made by two **symmetrical fixed tail lights**.

Each of them has two double **P21/5 W** type bulbs for the brake and dipped position, a **PY21W** bulb for the side indicators, a **10 W** bulb for the reverse light, and a **21 W** bulb for the foglights.

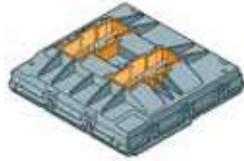
The **third brake light** is an electronic plate which contains **12 leds** integrated in a red plastic frame fitting. The assembly is attached to the tailgate spoiler, in a similar way to the Altea.

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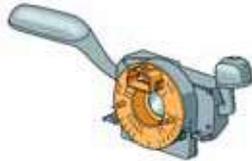


ELECTRICAL SYSTEM

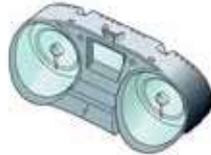
On-board network control unit J519



Steering wheel angle sensor G85



Instrument panel control unit J285



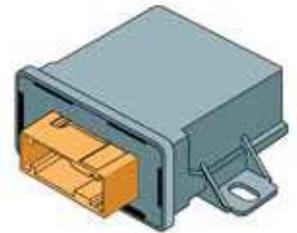
ABS/ESP control unit J104



Engine control unit JXXX



Steering light and lights' beam adjusting C.U. J745



Terminal 15



Rear level sensor G76



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BIXENON WITH DYNAMIC STEERING LIGHT (AFS)

The bixenon headlights with dynamic steering light are optional for the Stylance and Sport finishing levels.

Two control units are involved in the operation of these headlights:

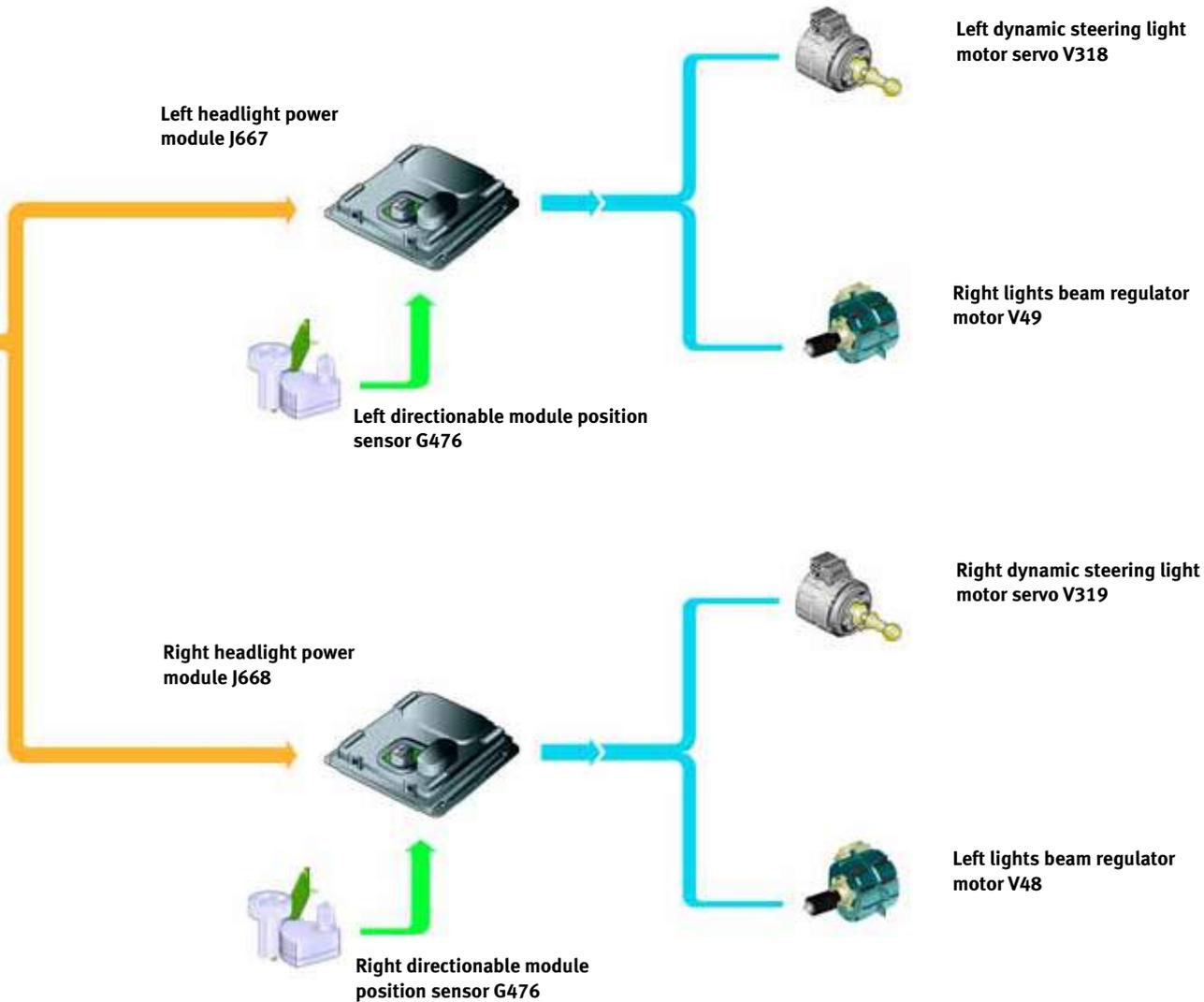
- On-board network J519.
- Steering light and lights' beam adjustment J745.

The layout of the system is similar to the one used in the Leon, Altea/Toledo, with the exception that it only uses the level sensor on the rear axle.

The steering light and headlights beam adjustment control unit **J745** assumes the following functions:

- Lights beam **dynamic adjusting**.
- Dynamic **steering adjusting**.
- **Emergency functions**.
- And **self-diagnosis**.

This unit communicates with the power modules of each headlight through the new **Light CAN-Bus** line, which is exclusive to the vehicles with bixenon headlights. This communication line has



D120-35

the same data transmission features as the Drive CAN-Bus, but only transports information related to the light beam regulator motors and to the dynamic steering light motor servos.

The gas bulbs **activation** is carried out by the gas discharge bulb control unit.

Switching between **dipped and main (full) beam** lights is carried out through the dipped /main beam lights switch.

And the **flash lights** function needs the combined work of the dipped / main beam lights switch or the flash lights relay.

Note: For further information about the bixenon system with dynamic steering light, please refer to SSP No. 108 "Bixenon lights with dynamic steering lights"

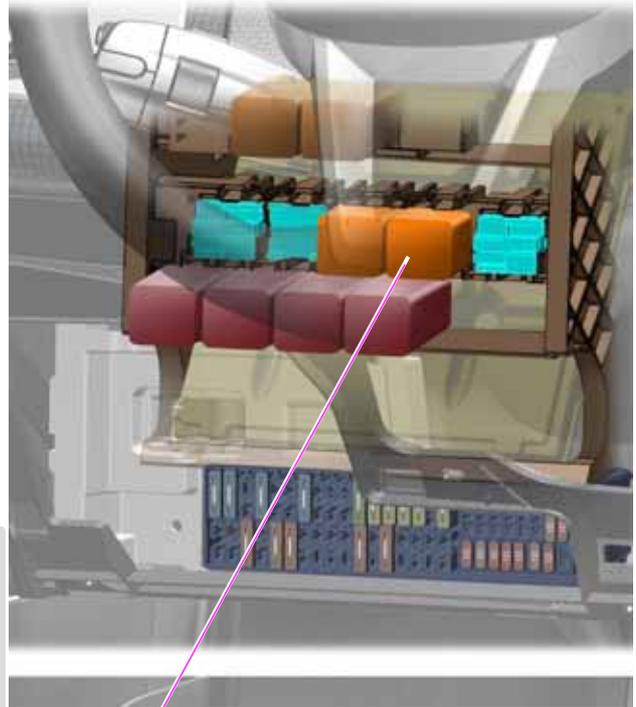
ELECTRICAL SYSTEM

FLASH LIGHTS RELAY

The floodlights relay is only used for the Bixenon headlights, as these lights do not have an exclusive bulb for flashing, and it is the D1s xenon light that assumes this function.

This relay is interspersed in the flash activation wire (terminal **56a**), between the dipped beam and flash lights switch E4 and the power modules for the gas discharge bulb J343 and J344.

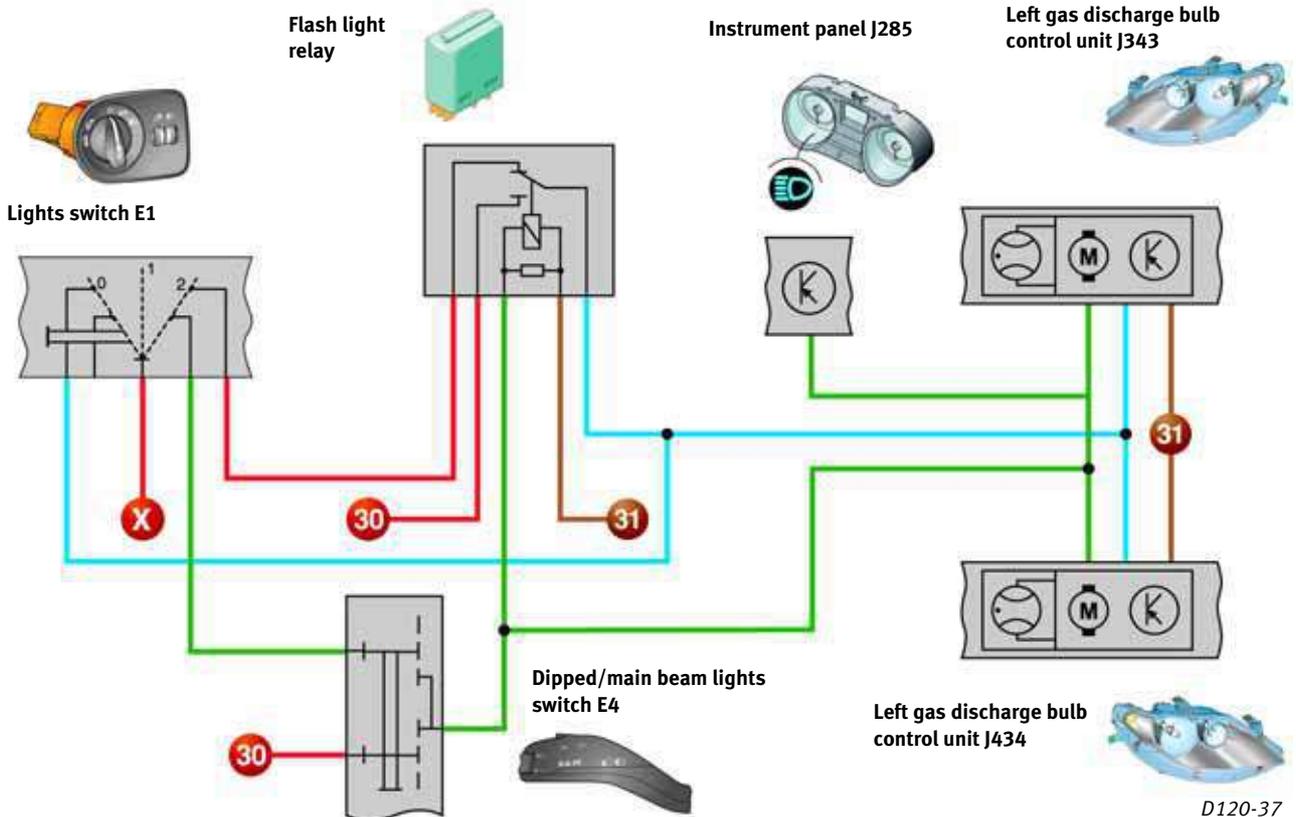
When at rest, it allows for supply to the headlights power modules through **terminal X** and when it is activated by the flood lever, it supplies the modules with **terminal 30**. This is how flash lights are available even if the lights are not activated.



Flash light relay

D120-36

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D120-37

COMING HOME

This function is carried out by means of a relay named **dipped beam activation/deactivation control unit J665**, placed on the relay holder, under the dashboard, on the driver's side.

To activate the "Coming Home" function, the following steps have to take place within **two minutes**:

- **Switch** the ignition off (**terminal 15**).
- **Switch** the dipped beam **lights** off (lights switch E1).
- **Activate** the flash lights **once** (dipped and flash lights switch E4).
- And, **open the** driver's door (driver's side door contact switch F2).

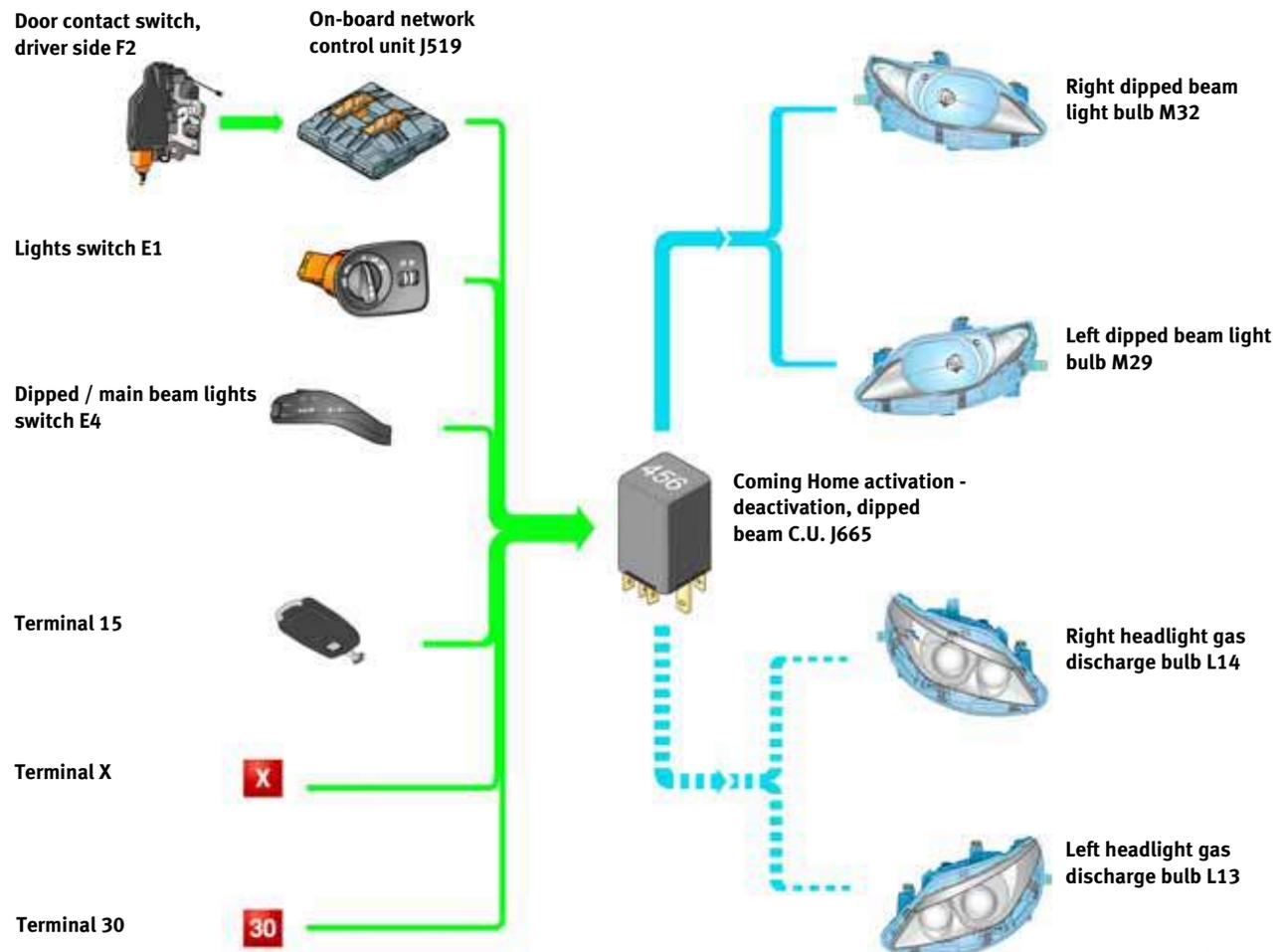
Once this process has been carried out, the dipped beam lights will be activated.

If the driver's door remains open, the light will go off in 3 minutes. If the door is closed during that period, the light will go off 30 seconds after closing it - it does not wait up to 3 minutes.

If, during the 30 seconds period the door is opened again, then the lights will remain on up to 3 minutes.

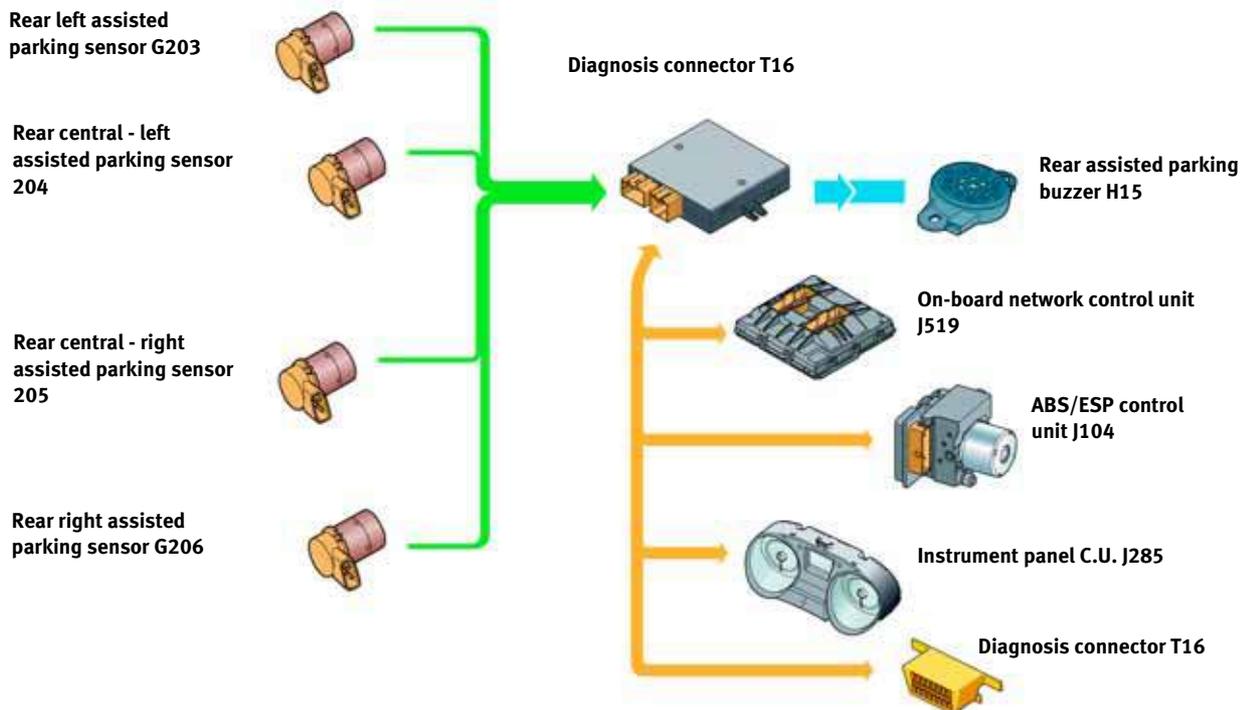
To interrupt the function all you need to do is to switch the ignition on (terminal 15)

These activation **times cannot be modified**.



D120-38

ELECTRICAL SYSTEM



D120-39

ASSISTED PARKING

The new Ibiza includes as an optional, a rear parking aid system similar to the one used by the Altea/Toledo or Leon.

The system **includes**:

- Four ultrasound sensors **G203 - G206**, integrated in the rear bumper skin.
- An assisted parking control unit **J446**, placed over the rear left wheelarch.
- And, buzzer **H15**, next to the control unit.

Detection of obstacles is only activated when engaging into reverse, unless this condition complies the system will remain disconnected.

The system's working range varies depending on the sensors. The first beep is set at **160 cm** for the **central sensors** and at **60 cm** for the **side sensors**. The second continuous beep starts from **30 cm** for **all sensors**.

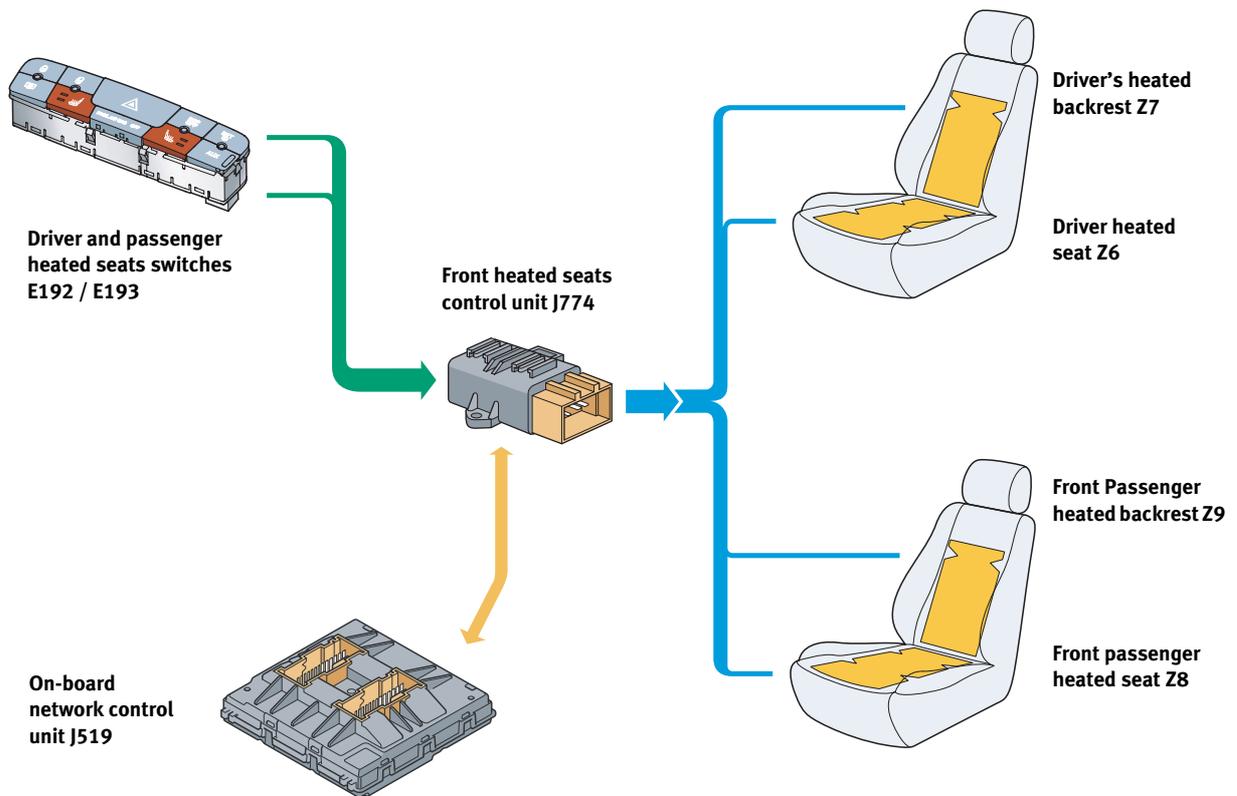
If the car is equipped with a tow bar, the assisted parking control unit J446 will always offset it **5 cm** from these working ranges.

The assisted parking control unit. J446 is connected to the Drive CAN-Bus line, through which it **receives information** about reverse gear engaged, vehicle speed, or even outside temperature, which is information it uses to compensate for the effects on the sensors of the air temperature variations.

Through the Drive CAN-Bus line, the assisted parking control unit J446 **sends information** about the system's performance and allows carrying out a **complete self-diagnosis** through the guided fault finding.

The following parameters can be coded with the guided functions:

- Type of bumper.
- Automatic or manual gearbox.
- Buzzer H15 volume and frequency.
- And, trailer coupled or uncoupled (attached or not).



D120-40

FRONT HEATED SEATS

The heated seats are controlled by the **front heated seats control unit J774**, placed under the passenger's seat. The following components are involved in this system:

- The front heated seats control unit **J774**.
- The driver and passenger heated seat switches **E192** and **E193**.
- The driver's heated seat and backrest **Z6** and **Z7**.
- The passenger's heated seat and backrest **Z8** and **Z9**.
- And, the on-board network control unit **J519**.

The switches placed on the central console activate the **two regulation possibilities** closing a circuit that informs the front seats control unit J774.

This unit activates the appropriate seat resistance with the selected intensity, and at the same time supplies the led of the switch indicating the intensity.

Intensities are selected in a **cyclical mode**, that is to say, one pulse corresponds to the low level, the next pulse to the high level and the next pulse disconnects the heating.

If when switching off the ignition there is one heating level selected, this level will be disconnected when the ignition is switched on again.

The On-board network control unit J519 supplies with terminal 75 the heated seats control unit J774 via a single cable, and controls its consumption through the load control function.

None of the components of this system has self-diagnosis

ELECTRICAL SYSTEM

PANORAMIC ROOF

The New Ibiza can include the new panoramic roof as an option.

The panoramic roof has the option of **rising** it from the rear up to a maximum of **40mm**. Compared to a conventional type of sun roof, it offers a larger glass surface that creates a feeling of amplitude.

It is made up by a **5 mm** thick grey **tempered glass** cover linked to two side guides activated through cables by an electrical motor that includes the **sliding roof control unit J245**. The assembly also includes a manually activated **shade curtain** to keep the light out.

All these components are fitted on a metal frame bonded to the body with PUR adhesive. The front of this frame has a shiny black varnished plastic cover, which fits tightly against the upper part of the windscreen to give the impression of continuity with the roof glass cover.

The contour between the panoramic roof and the body is sealed with a rubber weather-strip.

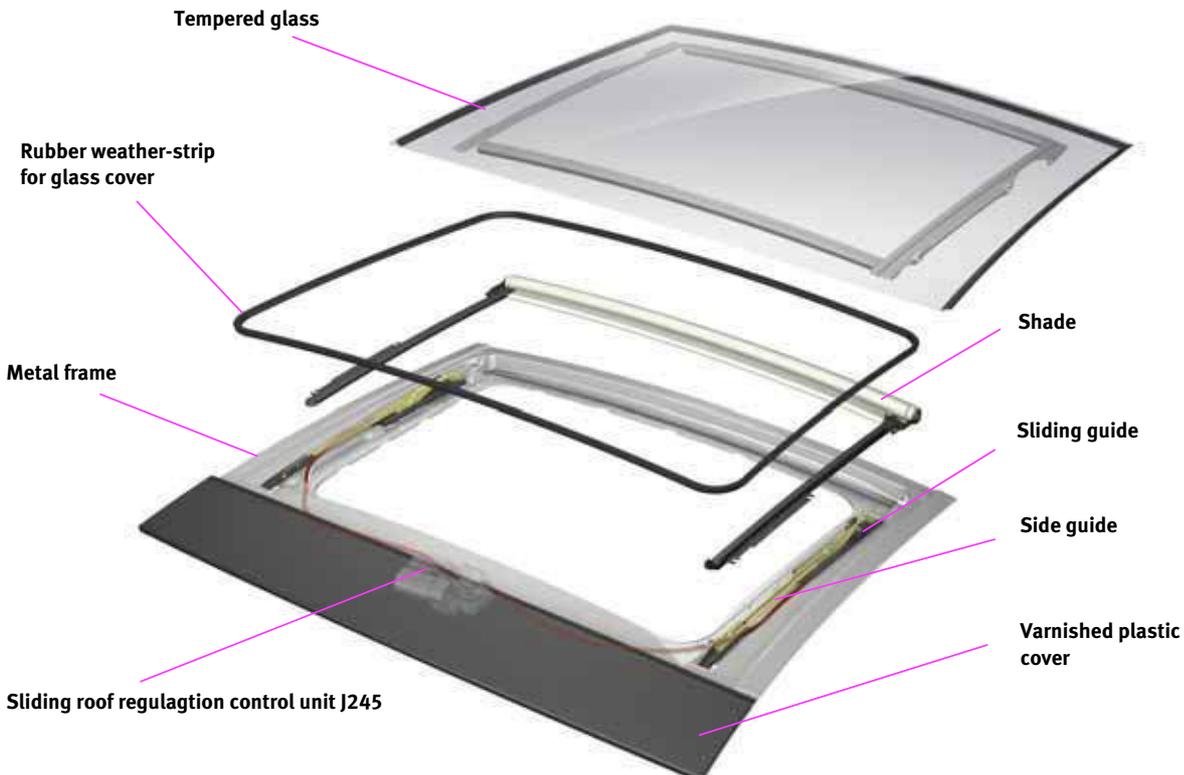


D120-41

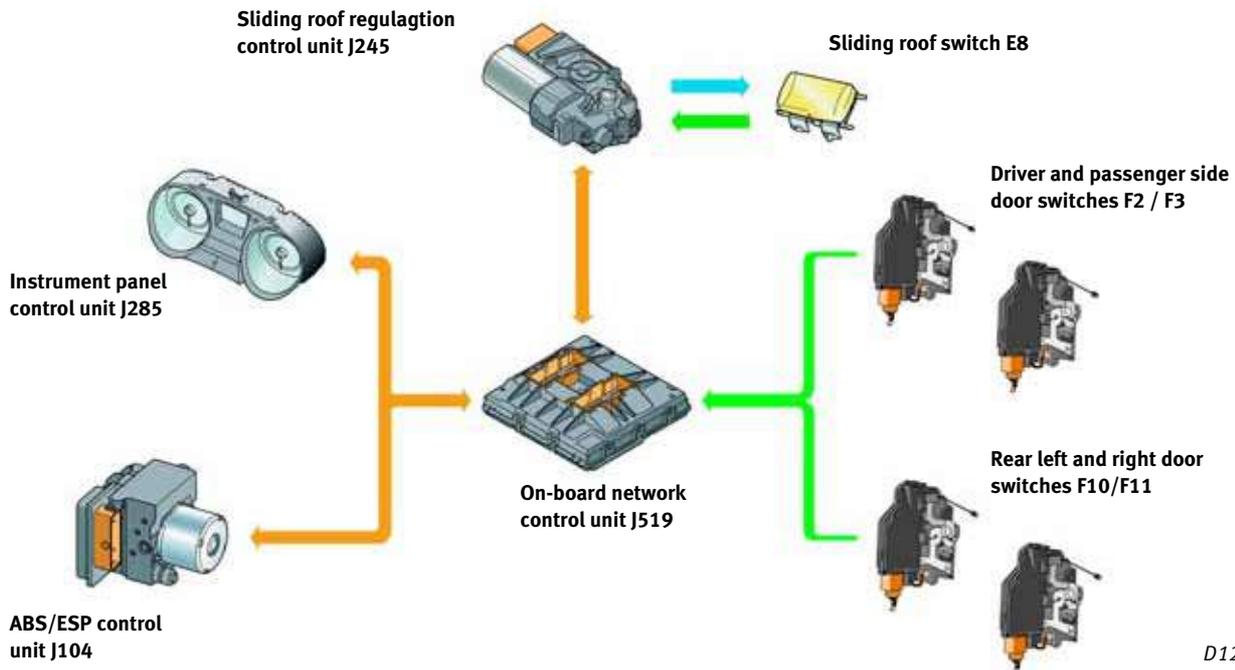
OPERATION

The panoramic roof can be fully opened or closed by just pressing the **panoramic roof switch E8**.

To set the roof glass at intermediate positions between fully open or closed, you just have to keep pressing the switch until it reaches the position of your choice.



D120-42



D120-42

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The system is equipped with the **anti-trap function**, which detects any obstacle in the way when closing the glass and brings it back automatically to the fully open position.

The **comfort function** includes full opening or closing of the windows and panoramic roof when opening or closing the vehicle. This function is only activated through the driver's door lock or with the remote key.

To carry out the anti-trap and comfort functions it is necessary for the panoramic roof regulation control unit J245 to have the **position of the glass memorised**.

To do so, hold the panoramic roof switch E8 pressed for over **10 seconds**. It is then that the panoramic roof regulation control unit J245 starts a complete opening and closing cycle and reads the end stops of the roof. If the memorising

process is interrupted, the system is out of configuration again.

For perfect adjusting of the system, three conditions must comply:

- Vehicle stopped.
- Outside temperature signal.
- Terminal 15 signal activated.

This signal is absolutely necessary for roof activation, except 10 minutes after removing the contact key, as long a no door is opened.

The **roof glass activation motor temperature** is controlled by the panoramic roof control unit J245, which shuts it down if it overheats.

Through the guided fault finding and the guided functions it is possible to access the system to carry out the basic setting, the coding, read measure values block or carry out the actuators diagnosis.

INSTRUMENT PANEL

Symbol	Function
	EPC
	Pre-heat (Diesel)
	Particles filter (Diesel)
	Oil dynamic pressure
	Bulbs failure
	Rear foglight
	Main beam / flash light.
	EOBD
	Battery
	Electro-mechanical power
	Coolant level and over-temperature
	Coolant level



The Ibiza instrument panel is completely new. The **revs** clock is on the **left** and the **speedometer** clock on the **right**, both have light indicators inside.

The **multifunction indicator**, direction indicators, and two buttons are placed on the **central zone**. One of the buttons is for accessing the multifunction display and the other one is for okaying the various options selected from the menu, and for resetting to zero the partial mileage/km counter.

There is a version of the instrument panel for petrol engines with the 5750 to 8000 rpm. zone in red. For diesel engines there is another version

with the red zone between 4500 and 6000 rpm. For both versions the maximum speed printed on the speedometer is 240 km/h.

For countries still using the miles system there are two versions, one for petrol engines and one for diesel engines, where the maximum speed printed is 140 Mph.

The instrument panel manages direct signals for several indicators and is linked to the **Drive CAN-Bus** line.

The new Ibiza uses the **phase 4 immobiliser** with **download** function and **FAZIT**, and with the same functionalities as the one used in other models of the Brand.

- Clock
- Automatic gearbox speed
- Gear shifting recommendation



- MFA
- Outside temperature
- Days to next maintenance service

- Fuel level indicator



- trip clock
- total km or miles
- km/miles to next maintenance service

Symbol	Function
	Airbag
	Seatbelts
	ABS
	ESP
	Brakes system
	Door open
	Tailgate open
	Tyres pressure monitoring
	Gear lock
	Fuel reserve

D120-4

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MULTIFUNCTION DISPLAY

The multifunction indicator is divided into **four zones or sections**

The **fuel level indicator** is on **the left**, and is made up by ten segments, four to indicate the first quarter fill-up and six for the rest.

The time is displayed at the **top section**, as well as the gear engaged and the gear selection recommendation for the automatic gearbox. As an example, on the image you can see the recommendation for downshifting from third to second gear.

On the **middle section** there is information about the outside temperature, the on-board computer options (MFA) and the days remaining to the next service interval.

At the **bottom section** there is information about the total and partial mileage/km, and also the km/miles remaining to the next service interval.

INFOTAINMENT

Telephone sender - receiver R36



Radio Ultralow



Multimedia control unit J650



Multifunction module J453

D120-45

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The new Ibiza offers a wide range of combinations for the infotainment system.

The most complete option includes:

- A new design **radio** set.
- **Four subwoofers** distributed throughout the front and rear door trims, and **two tweeters** integrated in each of the A pillar trims.
- **Multifunction module J4533**, attached to the steering column trim.
- **Multimedia control unit J6500**, placed in the central area of the instrument panel, under the air conditioning controls.

- and, the **SEAT Bluetooth** telephone system, whose control unit is placed behind the instrument panel.

All these components, except the speakers, are linked up via the new **Comfort-Infotainment CAN-Bus** line.

CAN:BAP PROTOCOL

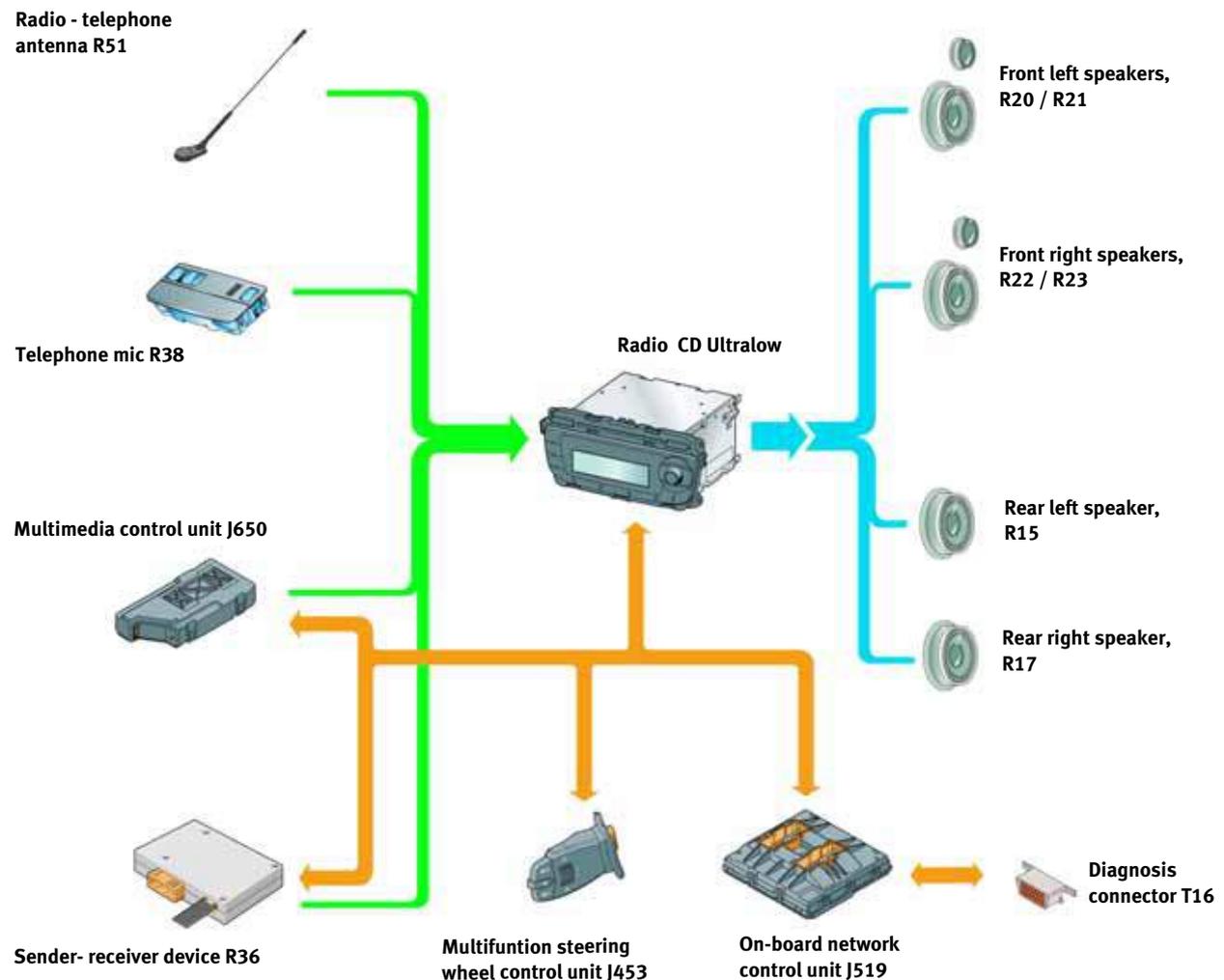
The main new feature about the Comfort-Infotainment CAN-Bus is that it allows transmission of **two different types of messages**: from the **conventional CAN-Bus** and the new **CAN:BAP** messages.

The first are messages sent into the CAN-bus line with information about the state of the system but with no particular addressee.

However, the **CAN:BAP** messages use the same type of communication protocol but they include information about the **sender** and the **receiver** of the message, that is: a specific unit sends specific information or instructions to another specific unit.

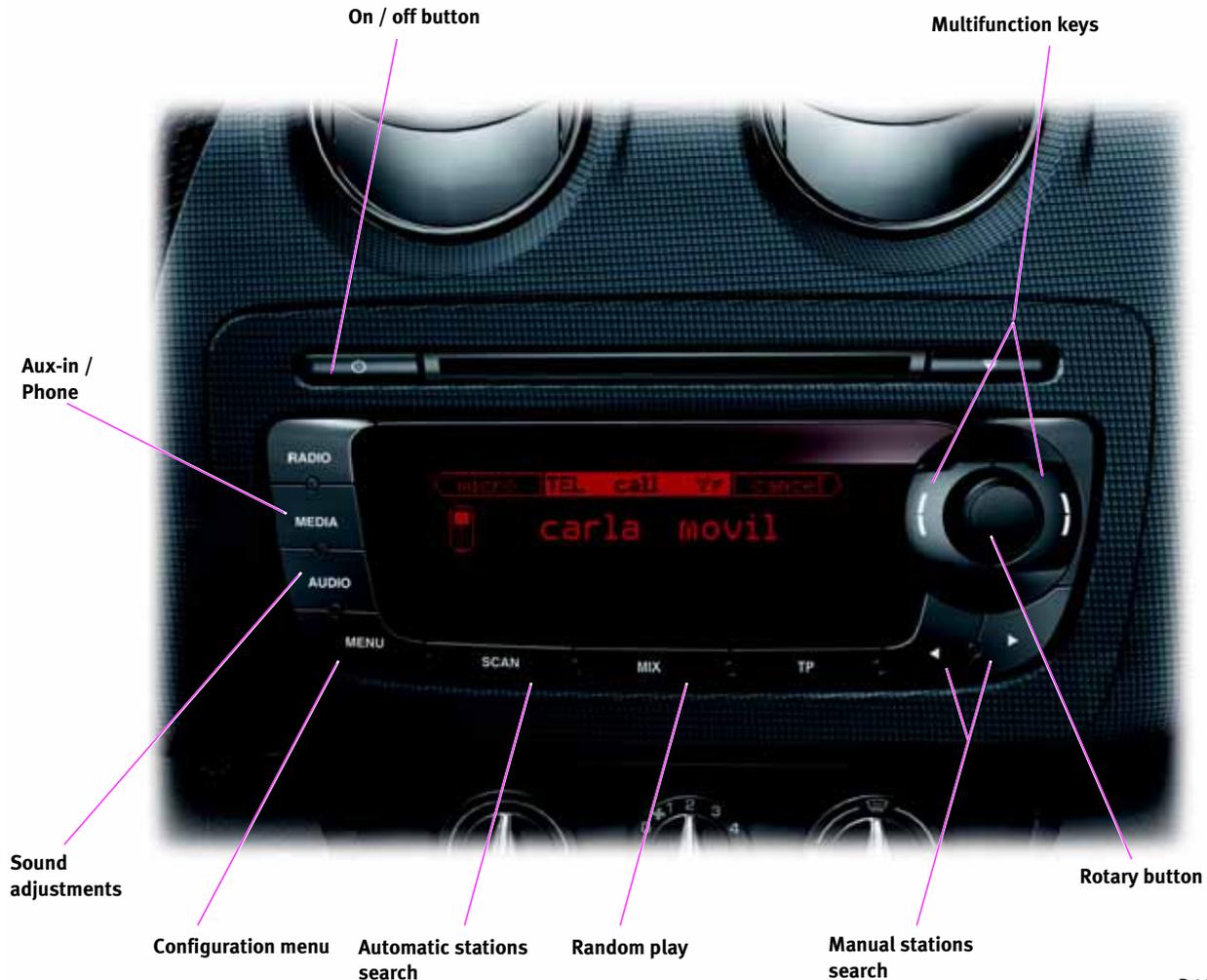
The object of these messages is to prevent jamming of the communication line with repetitions of a specific messages, as the CAN:BAP message **is only transmitted once** by the sender device and is received by a single receiver.

To illustrate how the CAN:BAP messages work we can think of the R36 sender-receiver device sending the "mute" instruction to the radio when it receives an incoming call or of when the radio receives the instruction to rise the volume from the multifunction steering wheel control unit J453.



D120-46

INFOTAINMENT



D120-47

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RADIO SET

A distinctive feature of the new Ibiza radio set is its large size **monochrome display**. It has a **117 x 33 mm** display screen with a black background and red pictograms. The lighting of the display cannot be dimmed or intensified when switching the lights on.

The new radio is integrated in the instrument panel and is attached to it by four screws, which means that **it is not necessary** to use any type of **special tool** to remove it.

The main features of the radio set are:

- CD player with **MP3**.

- Output power: **4 x 20 W**.

- Possibility of **control** through **the steering wheels controls**.

- **Momentarily** disconnection of the **telephone microphone**.

- Reception of **TP** traffic announcements .

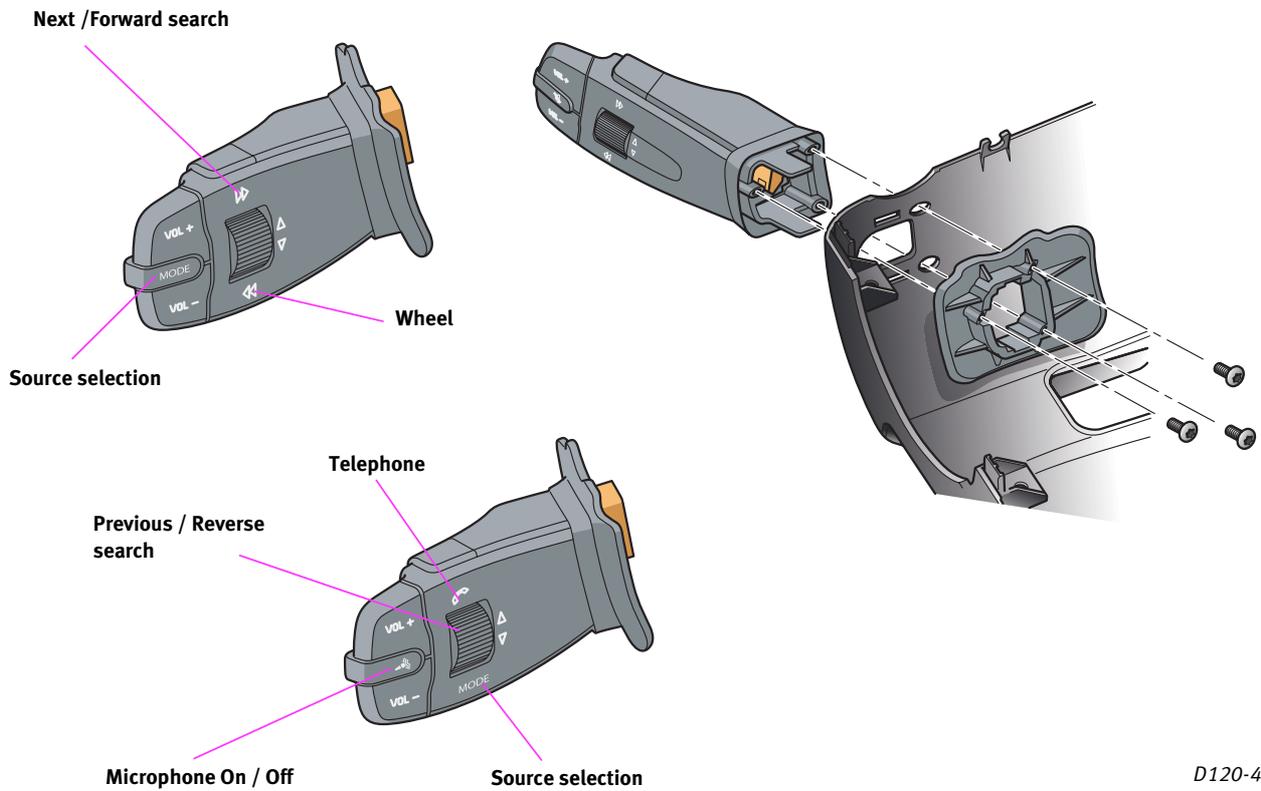
- Search of specific programs **PTY**.

- Complete **information displayed** about audio and telephone messages.

- And, use of the **comfort code**.

It is also possible to **monitor** the multimedia control unit J650 and to manage the **telephone**.





D120-48

MULTIFUNCTION MODULE J453

One of the main new features of the infotainment system of the new Ibiza is that a **single control** is used to control the functions of the rest of the devices of the system, that is; the radio, the telephone and the audio source available through the USB port.

There are **two versions** of the multifunction module J453, one which controls the telephone functions, and another version which does not.

The module is placed on the left of the steering column, screwed onto the trim. It uses a four pin connector, one for terminal 30 positive, another one for terminal 31 negative and two for the **Comfort - Infotainment CAN-Bus line**.

Therefore, communication with the rest of the components of the system is only carried out via CAN-Bus, and does not use any analogical signal.

The **version that only controls the radio set** allows:

- Setting the volume up or down.

- Selecting the audio source (radio, CD, USB,...)
- Searching audio tracks back or forward, radio presetting, etc.
- Forward or back search.

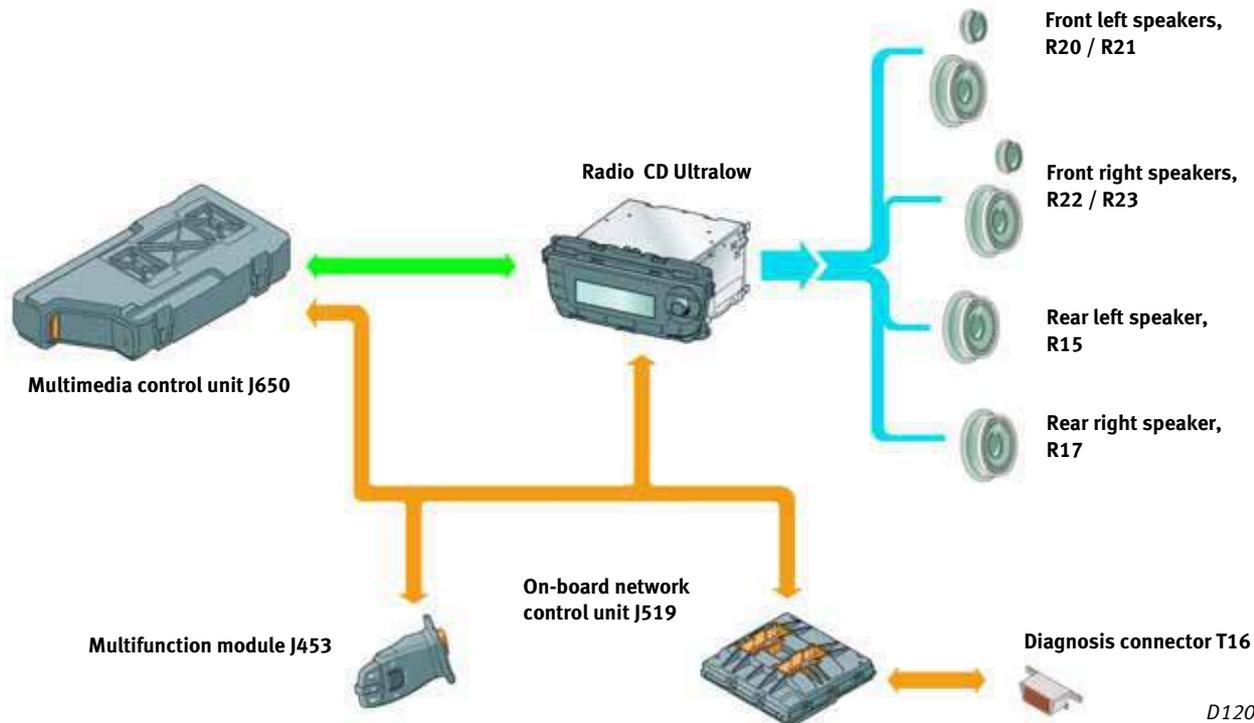
Except for the forward and back search function, the **version** that controls the **telephone** also allows:

- Activation or deactivation of the telephone microphone.

- Confirming the action previously selected.

Through the guided fault finding and the guided functions it is possible to carry out a complete **diagnosis** of this device, as well as consulting the fault memory, reading the measure values block and diagnosing actuators.

INFOTAINMENT



D120-49

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MULTIMEDIA CONTROL UNIT J650

In the new Ibiza infotainment system it is possible to use different **external sound devices** through the multimedia control unit **J650**.

The multimedia control unit J650 has an “AUX-IN” socket with a **3.5 mm “mini-jack”** connector and a **USB** port. On the first one it is possible to connect any sound playing device with headphones jack, and on the second one you can connect audio digital storage devices.

The multimedia control unit connector has 12 pins, but only 7 are used for:

- Terminal 30.
- Terminal 31.
- Comfort-Infotainment CAN-Bus, High and Low lines

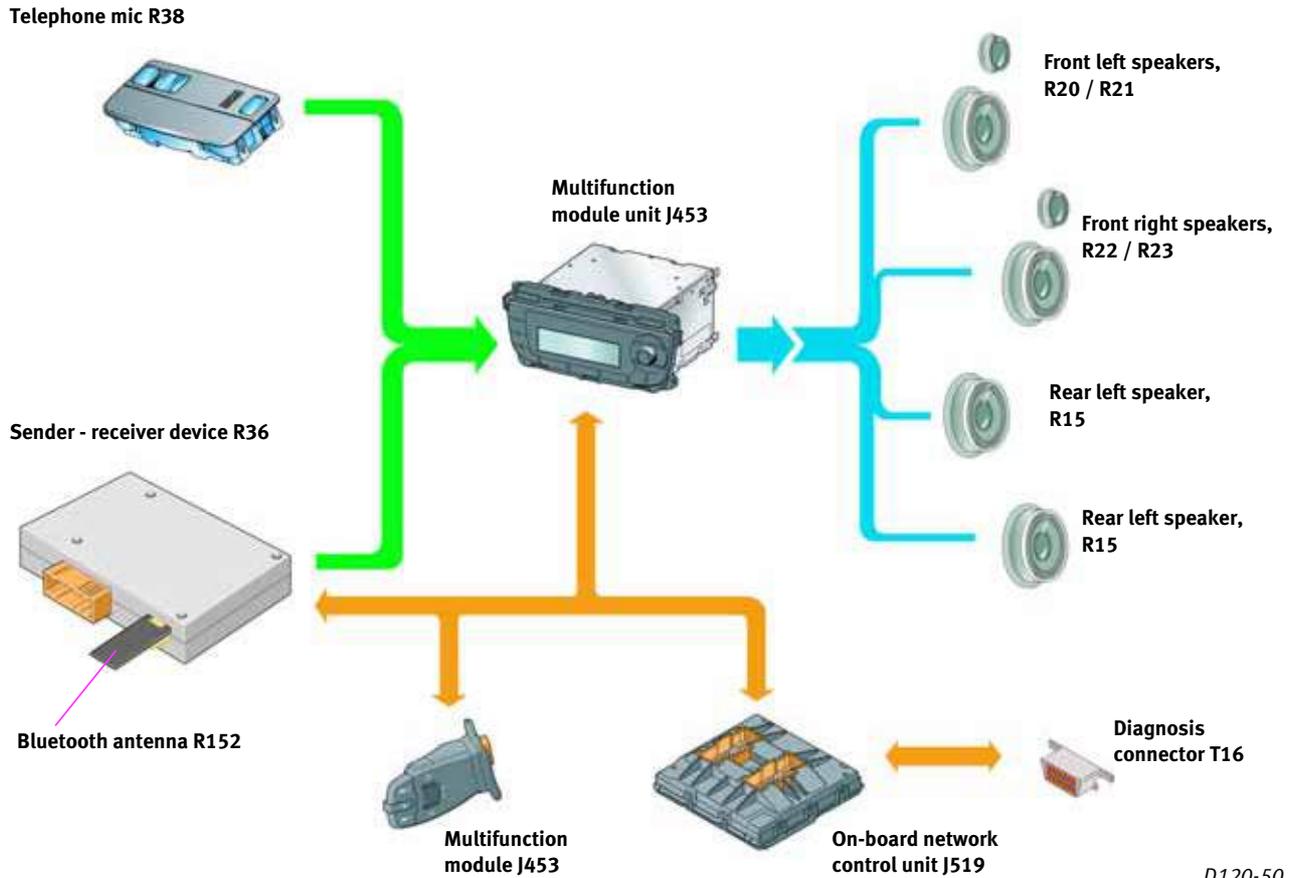
- Audio signals for the left and right channels.
- And, common audio signal.

If the external device is connected by using the AUX-IN socket, it can neither be controlled from the radio nor from the steering column controls.

If the external device uses the USB port, the multimedia control unit J650 converts the digital signal into an audio signal and picks up the signal from the track being played at the time.

The **analogical sound signal** is sent along the audio cables so that it can be amplified to the speakers, and the **signal with the track information** is sent into the Comfort-Infotainment CAN-Bus line so that it can be seen on the radio display.

There is complete diagnosis for this device through the guided fault finding, as well as the possibility of coding different options through the guided functions.



D120-50

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SEAT BLUETOOTH TELEPHONE SYSTEM

The new Ibiza incorporates **Bluetooth technology** to the infotainment system; for this, it uses two components:

- A telephone sender-receiver device **R36**, integrated in the instrument panel frame, at the front passenger's side.
- and, a microphone for the telephone **R38**, in the courtesy lights dome.

The telephone can be controlled either by voice using the interior microphone, or by using the keys on the telephone itself.

The telephone R36 sender-receiver has a very large memory capacity that leaves open the possibility of extending compatibility to a great number of Bluetooth profiles, manage calls in real time, and also extend the telephone agenda capacity.

It is possible to synchronise a maximum of **4 telephones**.

The use of the **CAN:BAP** optimises communication and control among the infotainment devices.

This allows showing on the radio display all the information about the telephone functions:

- Correct synchronising of the telephone with the R36 sender-receiver device, including a loss of signal warning.
- State of the telephone network coverage.
- Recognition of incoming and outgoing calls. If the call belongs to a number registered in the memory, the name will show up. Otherwise it will show the number.

CLIMATE CONTROL SYSTEM

The options available for the passenger compartment climate system of the new Ibiza are:

- **Heating / Ventilation:** Air temperature regulation, blower fan speed setting, and selection of vents is completely mechanical

- **Manual Air conditioning:** The user can select the passenger compartment temperature by using the rotary knob and the system regulates: itself automatically. Selection of the speed and the output vents is manual.

- **Climatronic:** The system regulates the passenger compartment temperature automatically under any ambience condition and guarantees maximum windows visibility regardless of the number of occupants.

The Climatronic control unit J255 is completely new. It has a new design display. Temperature selection and manual regulation of the air blower fan is done by using the button.

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CLIMATRONIC

HEATING / VENTILATION



MANUAL AIR CONDITIONING



CLIMATE CONTROL SYSTEM

HEATING / VENTILATION

The **temperature regulation** and the air distribution is carried out by bowden cables that act directly on the climate assembly flaps. The **blower fan speed** is selected with another four-position rotary knob, which supplies a positive signal to the blower fan N24 additional resistance.

Recirculation is activated by using a button that activates the fresh air/recirculation flap motor V154. The function is deactivated when **windscreen defrost** is selected. This situation is recognised by a microswitch placed in the air output vent selection control.

The **auxiliary heating** in diesel vehicles is connected when the temperature rotary knob is set at the maximum temperature position. This position is recognised by a micro-switch. When this function is activated, the fresh air/recirculation control unit J251 sends a positive signal to the engine control unit J248 to activate the necessary PTC resistances through the low and high power relays.

The controls are lit up from pin 58b supplied by the on-board network control unit J519.

MANUAL AIR CONDITIONING

The control panel includes three rotary knobs, a button for connecting the compressor and another one for the passenger compartment air recirculation. It also includes the air conditioning control unit **J301**, which is connected to the Comfort-Infotainment CAN-Bus.

The temperature rotary knob includes a potentiometer to inform the air conditioning control unit about the temperature selected by the user. It is also connected to a bowden cable for temperature regulation flap activation.

The system **regulates** the **temperature** automatically by using **characteristic curves**, taking into account the temperature regulation potentiometer, the evaporator output temperature sensor reading **G263** and the compressor operation requirements.

When the minimum temperature is selected, the system closes the air recirculation flap automatically, as long as the compressor is connected, in order to carry out a fast climatizing

Outside temperature thermal-sensor G17



Outside temperature thermal-sensor G17



Air output sensor, evaporator output G263



High pressure sensor G65



* Only for heating/ventilation

SEAT

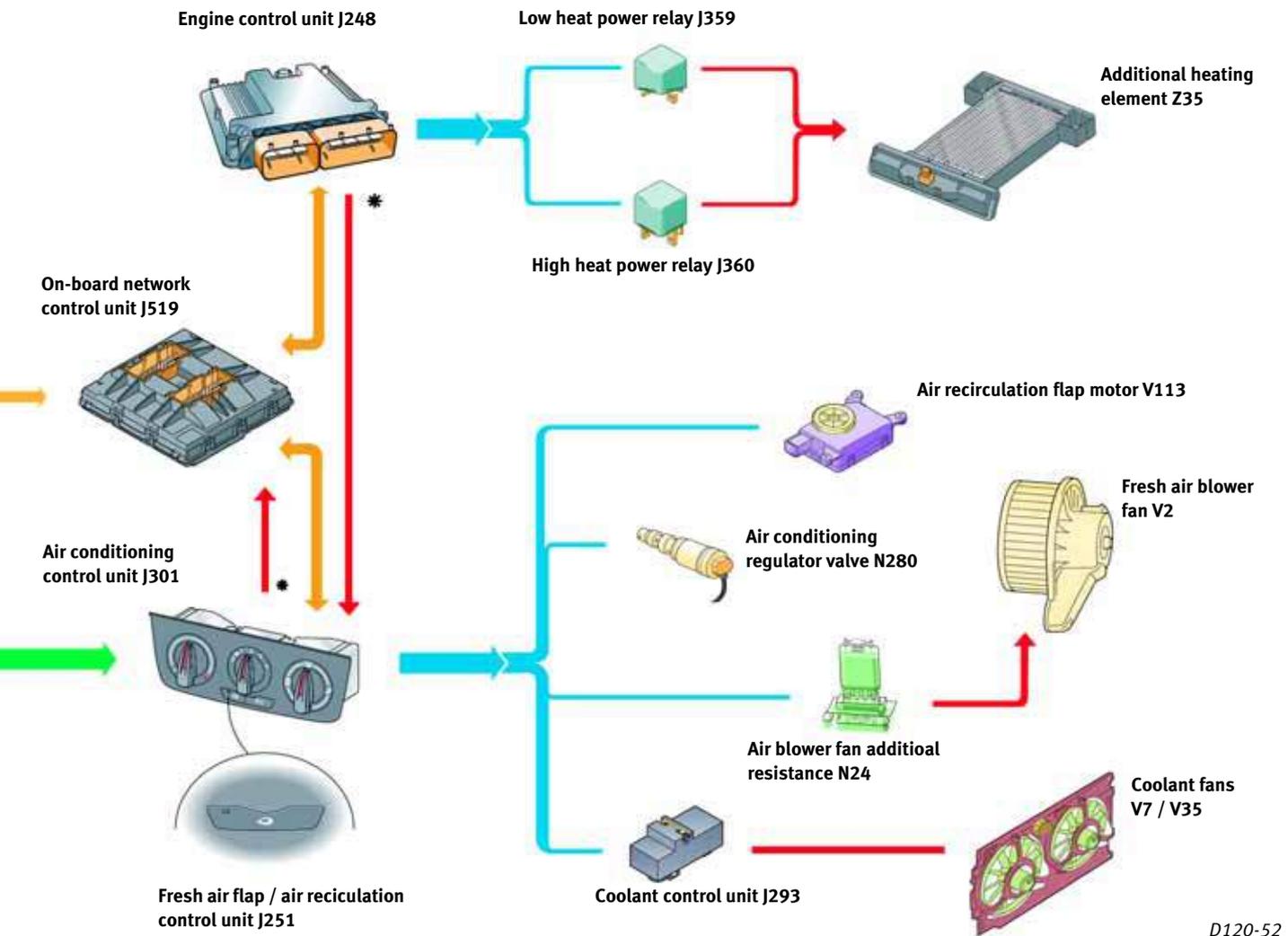
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of the passenger compartment. Automatic closing of the recirculation flap is indicated by the activation of the warning light on the button.

When engaging into reverse, air recirculation is activated but the warning light does not go on.

In any case, automatic recirculation is only possible when the windscreen defrost function is not activated.

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D120-52

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For **diesel vehicles**, if you select heat at over **90%** the additional heating is activated, and if heat demand drops below **80%** it disconnects. These signals are sent by the **Comfort-Infotainment CAN-Bus** to the On-board network control unit **J519**, and from there to the engine control unit **J248** so that it connects the auxiliary heating through the low and high heating power relays **J359** and **J360**.

The lighting of the controls activates the air conditioning control unit **J301** when it receives the message of lights connected from the On-board network control unit **J519** through the Comfort-Infotainment CAN-Bus line.

CLIMATE CONTROL SYSTEM

CLIMATRONIC

For automatic regulation of the passenger compartment temperature the Climatronic control unit needs to have information from the following sensors:

- Outside temperature sensor G17.
- Evaporator output air temperature sensor

G263.

- Footwell area vent temperature sensor **G192**.
- Central vent temperature sensor G191.
- High pressure sensor **G65**.
- And the solar radiator photosensor **G107**.

The control unit takes into account the temperature selected by the user and **recognises the position of the flaps** through the following potentiometers:

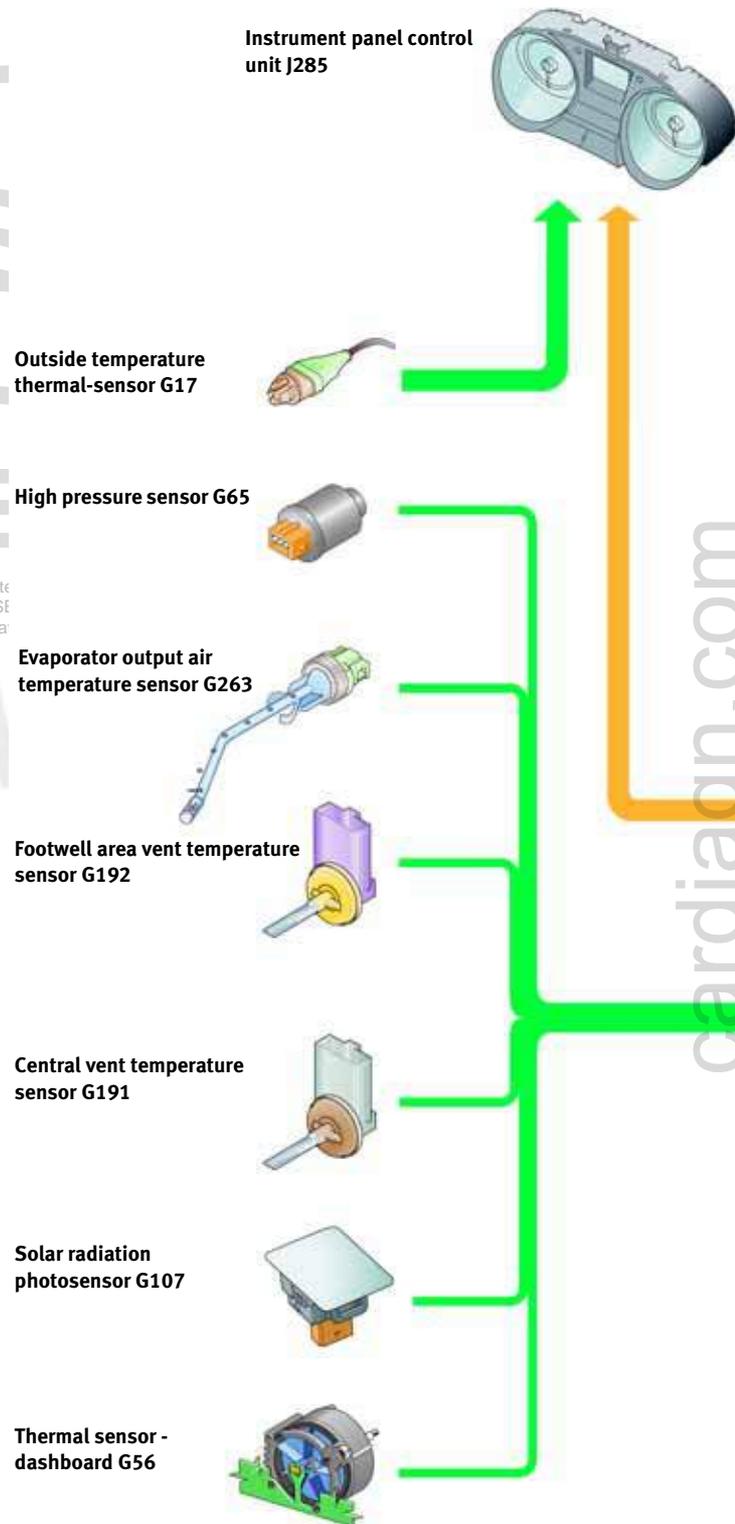
- Air recirculation flaps potentiometer **G143**.
- Defrost flaps potentiometer **G135**.
- Temperature flaps potentiometer **G92**.
- Central flap potentiometer **G113**.

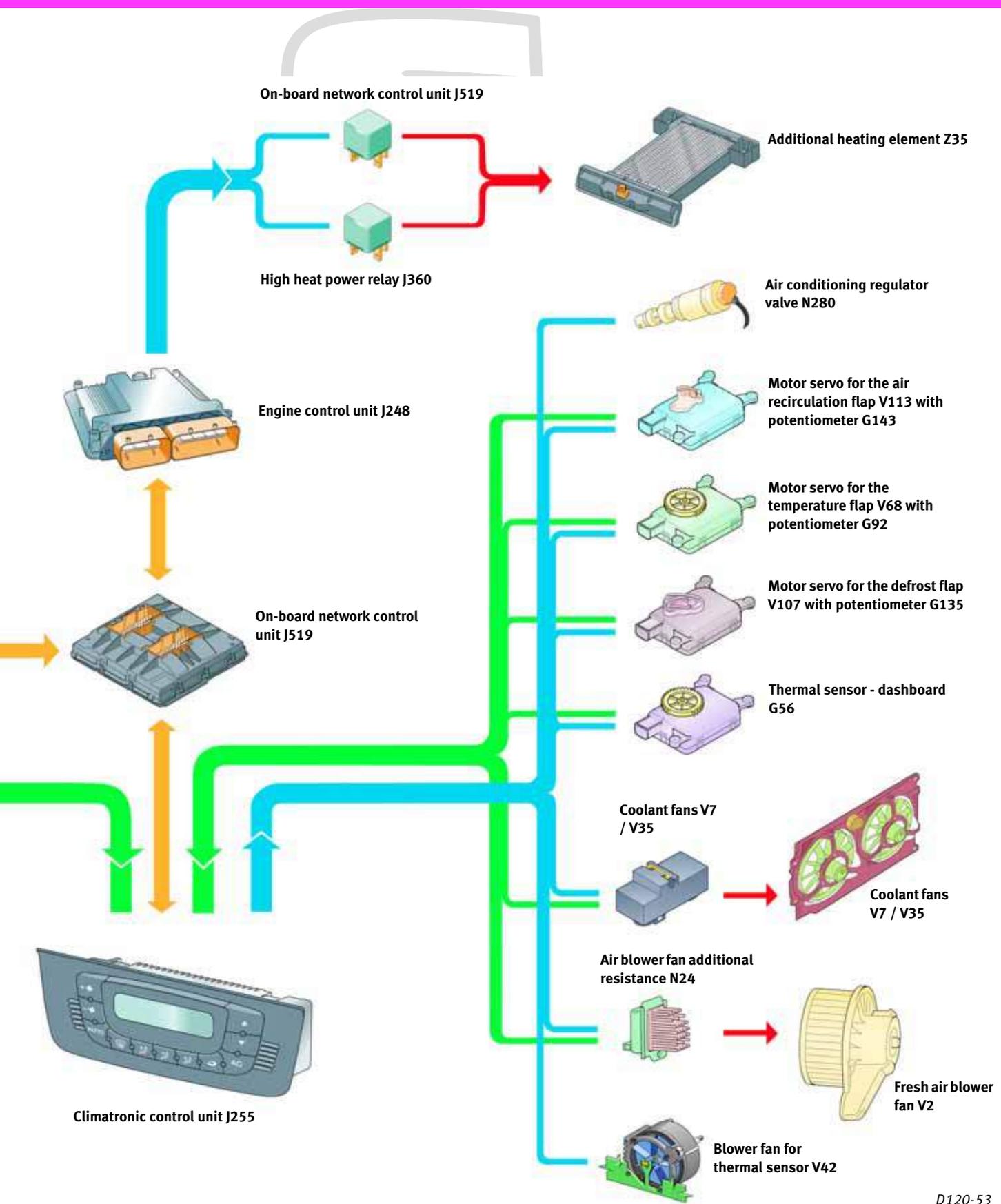
With these parameters the Climatronic control unit calculates the output values of the different flaps, the blower fan speed and the compressor regulator valve **N280**, in order to guarantee a correct sharing of the flows and adequate air temperature and speed.

If the user acts manually on any of the parameters, the system will automatically maintain the rest of the parameters programmed.

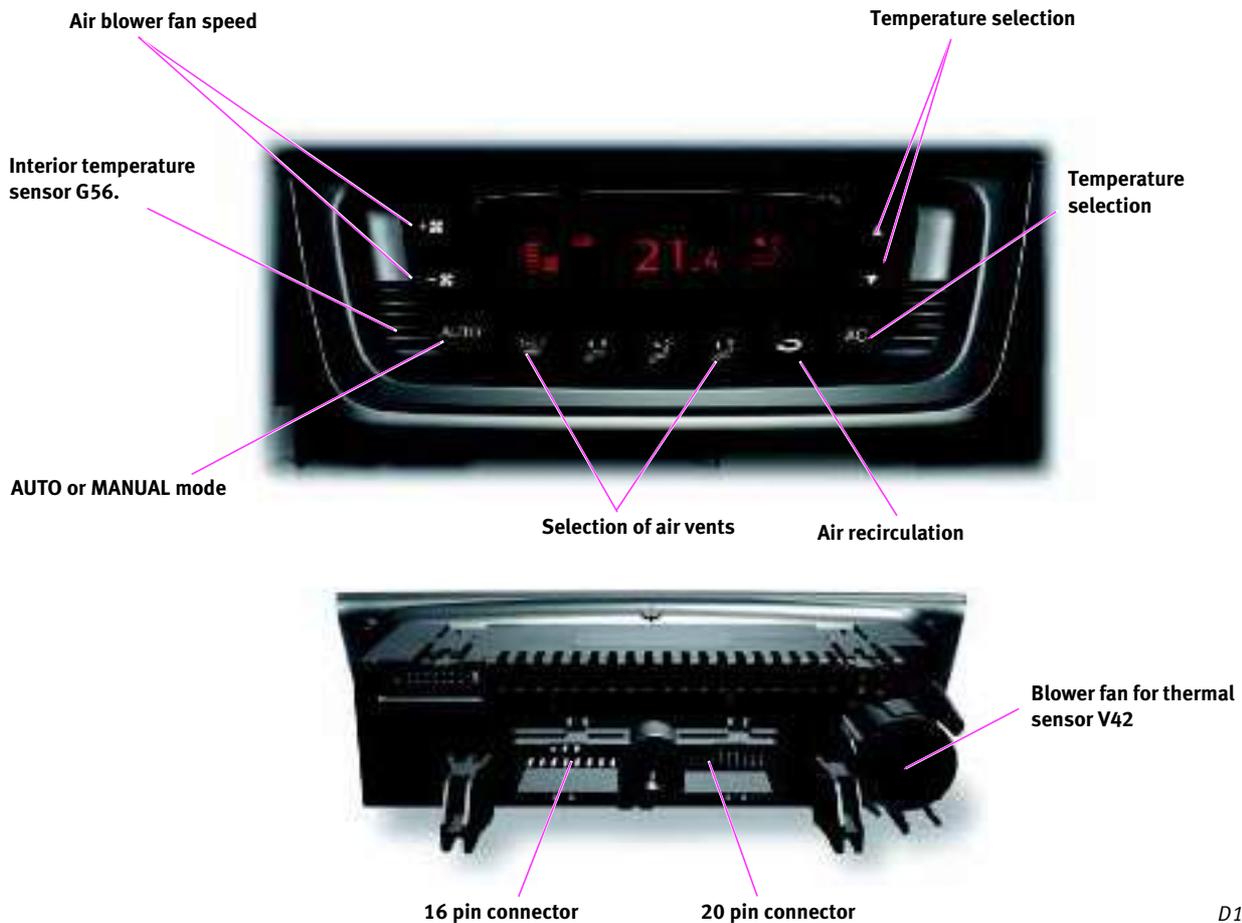
If the windscreen defrost option is selected manually, the **“panic defrost”** function is activated for fast windscreen defrosting. For it, the system adopts the following values:

- Minimum evaporator temperature **below 2° C**.
- Defrost flap **100%** open.
- Fan voltage at **10.5 V**.
- **Recirculation** off.
- And, the temperature flap depending on the temperature regulator.





CLIMATE CONTROL SYSTEM



D120-54

CLIMATRONIC J255 CONTROL UNIT

The Climatronic control unit **J255** is completely new. It is characterised by the absence of rotary controls and for the exclusive LCD display named **“Black Panel”**.

It provides information about temperature selection -in Celsius or Fahrenheit-, cooled air output vents, fan speed, recirculation activated, and selected operation mode: **automatic or manual**.

The air blower fan temperature and speed are selected by buttons at the right and left of the unit, respectively.

Under the display are the buttons that activate **recirculation**, windscreen **defrost** function and manual selection of the **air vent output**.

The **“AUTO”** button is used to switch between the passenger compartment automatic and manual climate systems, and the **“AC”** button is used to connect and disconnect the compressor

Placed on the grille -next to the blower fan speed adjusting buttons- is the passenger compartment temperature sensor **G56**, which is an NTC resistance, next to the suction pump **V42** that moves a flow of air of between 9 and 10 L/min.

The controls lighting is activated by the unit when it receives the lights on message from the BCM via the Comfort CAN-Bus.

NOTES:

A large grid of graph paper for taking notes. The grid consists of 20 columns and 30 rows of small squares. A faint, light gray curved shape is visible at the top center of the page, overlapping the top edge of the grid.



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