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Safety

The car is equipped with safety systems which are activated in the case of an accident.

Safety systems (Fig. 1)**AIRBAG**

- | | |
|-----------|---|
| A. | Driver front airbag module and pigtail connection |
| B. | Passenger front airbag module |
| C. | Airbag diagnostic connector |
| D. | SDM control unit |

**Fig.1**

If an accident occurs, the following parts must always be replaced:

- Exploded modules;
- Pigtail connection if the driver side module exploded;
- Control ECU;
- Wiring harness control (even in the case of replacement).



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Airbag

The airbag is a safety device consisting of a bag that automatically inflates in a frontal collision, placing itself between the driver or passenger's body and the structure of the vehicle.

This is a "passive safety system" since it comes into action once a certain deceleration value is exceeded (which can only result from impacting into an obstacle) without the occupant acting in any way.

The deployment conditions of the airbag are governed by an electronic control unit (SDM) which continuously processes vehicle deceleration. An electric pulse is sent when a predefined threshold is exceeded. This heats an electrical resistance housed in the gas generator which ignites. This causes a chemical firing reaction which in turn fires the pyrotechnic charge.

The pyrotechnic charge reaction generates inert gas which is filtered and cooled by metal filters and is then let out from the holes on the gas generator casing, causing the bag to inflate. The bag places itself between the front internal structure of the vehicle and the occupant's head (driver or passenger).

The inflated bag is a soft barrier that slows down the occupant's head during the collision. The bag is deflated by the gas which is let out from a hole in the back of the bag by the action of the occupant moving forwards. The system deployment times are in the order of thousandths of a second to anticipate the forward movement of the body during the deceleration caused by the impact.

The pyrotechnic charge is contained in a sealed container in the gas generator. Its only purpose is to inflate the bag. In no case can the device transmit a form of energy which can fire any other gas generators stored in the immediate proximity.



Please note that the gas generator is the only airbag system component containing a pyrotechnic charge.

The SDM is the control unit governing all the airbag system functions. The SDM is the only control unit in the system. It contains both the accelerometer and the error memory.

If the airbag warning light on the dashboard turns on during normal vehicle operation, it indicates the airbag system malfunction. The malfunction will be stored in the SDM control unit as soon as the dashboard warning light turns on.

The airbag warning light indicates a failure without specifying its nature. Run the SDM control unit diagnostic procedure (**PC Diag. System**) to verify the cause of the error.

For this purpose, a computer is connected to the SDM control unit via the RS232 serial interface. The interface is firstly connected to the OBD II connector which has a direct communication line to the SDM and then to the computer.

Restore the system after discovering the cause of the failure. The troubleshooting tables can be used for this purpose.



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The driver airbag module consists in: a gas generator fitted with a bag folded into a container which is riveted to a metal plate. The metal plate connects all the components together to form a module installed on the centre of the steering wheel.

The bag is made of silicon-coated nylon. Its internal volume when fully deployed is approximately 60 litres. The bag is folded in a special way. The plastic container has a pre-cut breaking line (film hinge) in horizontal position in the middle. This allows the container to break and the bag to be let out when deployed.

Driver airbag (Fig. 2)	
A.	Driver airbag module
B.	Steering column mount
C.	Steering wheel
D.	Driver airbag module mounts
E.	Pigtail Connection

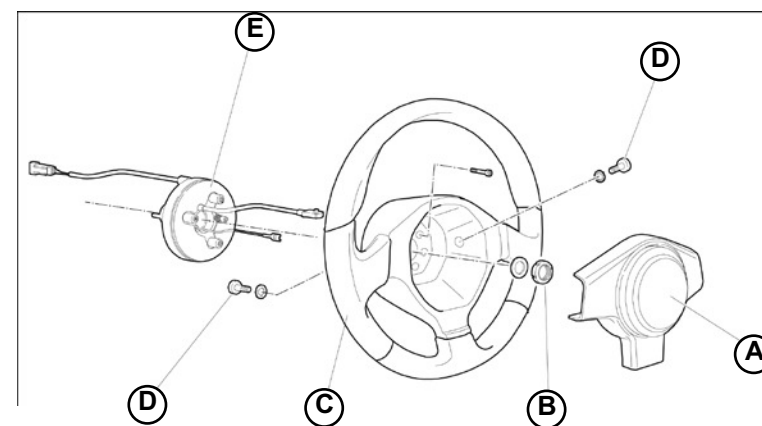


Fig.2

The gas generator on driver's side is pyrotechnic and cylindrical.

The gas generator consists of the following parts:

- a container consisting of two welded half-casings, one of which is perforated to let out the gas. The following components are arranged inside the container:
- propellant contained in a sealed metal cylinder: when heated, this substance releases a considerable amount of gas and a restricted amount of solid particulate;
- an electric resistance or trigger which transforms the control unit electric pulse into a spark;
- a primer heats the propellant: it is activated by the spark generated by the electrical resistance;
- a metal mesh filter is used to uniform pressure, withhold solid particulate and cool the gas which fills the bag



Do not subject the module to temperatures exceeding 107°C or lower than -35°C to prevent permanent damage to the components with consequent system malfunctioning.

It transmits an electrical signal from the electric cables on the control unit to the driver AIRBAG module, guaranteeing electric continuity while the steering wheel is used normally. Therefore, it is located inside the steering column switch unit.

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**CAUTION!**

- Any inspection, removal, installation or repair work must be carried out by qualified technicians.
- Do not carry out tests using light signallers, voltmeters or ohmmeters.
- Remove the electrostatic charge before the technician removes or touches the airbag unit. Electrostatic charges occur when particular metal elements are touched, such as a water pipe, heating pipe or a metal structure.
- Only inspect the airbags if they are installed on the vehicle. Use the specially designed diagnostics system (Pc Diag).
- Always disconnect the electricity power supply when working on an airbag.
- Follow the battery disconnection instructions provided.
- Disconnect the battery disconnect in the engine compartment.
- After disconnecting the battery, wait for at least 2-3 minutes to give the condensers enough time to discharge.
- Ensure no one is inside the vehicle when the battery is re-connected.
- Follow the instructions provided after connecting the battery.
- The airbag modules must be installed as soon as they are unpacked.
- If the work session is stopped, it is advisable to replace the unit containing the airbag module in its packaging.
- Never leave the airbag module unattended.
- Following removal, keep the padded side of the airbag module facing upwards.
- Never open or repair any airbag components. Always use new components.
- Never use airbag modules that have been subjected to damage or that have fallen on hard surfaces.
- Mark any unopened airbag modules and send to the manufacturer to ensure they are destroyed (send using the new airbag module package).
- Do not use grease, detergent or similar products on airbag modules.
- Always replace the module if the fabric is contaminated with oil, grease, paint, solvents or similar products.



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Airbag module replacement



Whenever carrying out any type of work on the airbag system, always disconnect the battery by acting on the switch in the engine compartment. Wait for approx. 2-3 minutes. It is now possible to work inside the car with the due precaution.

When replacing airbag modules, always follow the procedure illustrated below:

1. Remove the old airbag module and position with the padded side facing upwards.
2. Remove the new airbag module from its packaging and position with the padded side facing upwards.
3. Immediately place the old airbag module in the package.
4. Install the new airbag module on the vehicle.



CAUTION!

- The airbag system modules must be changed at least 14 years after the vehicle date of manufacture. This expiry term must absolutely be complied with to ensure the airbag system remains operational.
- Mark any unopened airbag modules and send to the manufacturer to ensure they are destroyed (send using the new airbag module package).
- Do not use grease, detergent or similar products on airbag modules.
- Never expose airbag modules to temperatures above 212°F (100°C), not even for short periods of time.
- Always replace the module if the fabric is contaminated with oil, grease, paint, solvents or similar products.



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Airbag module replacement after an accident



The metal components of a recently deployed airbag are very hot. Do not touch these components for at least twenty minutes after the airbag deployment.

Disconnect the battery disconnect in the engine compartment. Wait for approx. 2-3 minutes. It is now possible to work inside the car with the due precaution.

Conditions:

- Special equipment, diagnosis instrument and other elements required **(000200)** (ABS/AIRBAG interface cable)
- PC DIAG vehicle diagnosis and control.



The airbag control module may be used once only. Following an accident, it must be replaced.

The airbag control module must be replaced:

- After deployment of the driver/passenger airbag (always replace every deployed airbag module).
- If the housing is damaged.

If the driver/passenger airbag is deployed, the following rules apply:

- Replace the airbag module.
- Replace the pigtail connection (driver side).
- Re-upholster the dashboard (passenger side).
- Inspect the wiring harness, replace if damaged.
- Check the condition of the seatbelts; replace if necessary.
- Replace the airbag control unit.
- If necessary, replace any damaged components (visual inspection).
- Remove the steering wheel and position on a level surface (ensure the edge is correctly supported). Every section must rest perfectly on the level surface. If this is not the case, replace the steering wheel.
- Ensure the steering wheel does not feature any traces of explosive material (dust) If there is any dust on the steering wheel, it needs to be replaced.

In the case of an accident where the airbag is not deployed:

- There is no need to replace the airbag components if the malfunction pilot lamp (MIL) K75 does not signal any faults. Inspect the seatbelts separately and check for any error codes in the control unit.

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Storing and handling airbag modules.

Airbag modules are classed as PT 1 explosive elements. They must be stored and handled in compliance with the safety regulations governing explosive materials.

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Disposal of airbag modules

 **Explosive safety devices deployed during an accident may be disposed of with industrial waste.**
Dispose of airbag modules in compliance with the standards in effect in the country where the disposal procedure is carried out.

Airbag modules may not be scrapped unless they have been deployed.

Airbag modules that have never been deployed must not be scrapped with the vehicle. They must be removed beforehand and sent to specialized firms for disposal.

The device should be considered potentially operative after an accident in which the airbag has not deployed. Handle with care.

First aid

The surface of a deployed airbag and the vehicle interior may be covered with dusty residue. The dust contains by-products of the reaction that generated the gas.

The gas generating material essentially consists of: 5-Aminotetrazole, strontium nitrate and potassium nitrate.

The gas generated by the reaction consists of nitrogen, water and carbon dioxide.

The dust may irritate the skin and the eyes. For this reason, protective clothing, including gloves and goggles, should be worn when removing deployed airbag modules.

Wash with mild soap and water in the event of exposure to the dust. Call a doctor.

The following first aid treatments should be applied after the exposure to the gas-generating product:

- **SWALLOWING:** induce vomit if the patient is conscious.
- **CONTACT WITH SKIN:** wash immediately with soap and water. Wash contaminated clothes before wearing them again.
- **CONTACT WITH EYES:** Rinse immediately under running water for at least 15 minutes. Remove contact lenses to ensure complete rinsing.
- **INHALATION:** Take the person who breathed in the gas into the open air. Deal with irritations according to the symptoms.

Always call a doctor after any type of exposure to the gas product.

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The following instructions are given to ensure the correct sequence for the airbag installation on the vehicle.

The assembly and disassembly operations must always be carried out by skilled, expert personnel authorized by Lamborghini.

Following an accident involving the control unit mount, make sure that the correct dimensional and structural conditions of the mount are restored.

The sensors arranged inside the control unit were calibrated by means of crash tests. Do not change the structural stiffness of the chassis, the bumpers or any other structural component since this could vary the airbag deployment conditions.

While working on the vehicle, take care not to subject the airbag modules and/or control unit to knocks or heat; such as. during welding, brazing, percussion, drilling or mechanical machining.

Disconnect the electronic control unit or the battery terminals and wait for at least one minute if you need to carry out jobs on the vehicle involving considerable current variations (e.g. welding).

Never carry out work on the airbag system parts (e.g. module and/or control unit). Send any faulty airbag components to the manufacturer.

Always carry out this operation in a clean and tidy working area. Always make sure that no object or foreign material has got or can get inside or near the module.

Component replacement - traceability

The airbag system, SDM control unit, passenger's module and driver's module components have a label which is split into two parts and a code.

Before replacing these components:

- Remove the detachable part of the label from the new part.
- Apply the label in the space on the form provided with the component.
- Fill in the form providing the required information.
- Send the form to Automobili Lamborghini.
- The form will be attached to the vehicle form by Automobili Lamborghini.



Be careful not to stick the detachable part of the label on the part to be installed.

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