Supplementary restraints system

PRINCIPLE OF OPERATION

Introduction
In the event of a collision, the air bag control unit monitors the rate of deceleration caused by the collision. This information is then used to determine whether air bags should be deployed.

Air bag deployment is dependent on the rate at which the passenger compartment changes velocity following the collision. The circumstances affecting different collisions (vehicle speed, angle of impact, type and size of object hit, etc.), vary considerably and will affect the rate of deceleration accordingly.

The Supplementary Restraint System (SRS) components include:-
- SRS warning indicator.
- Rotary coupler.
- Air bag modules.
- Seat belt pre-tensioners (front seat belts).
- Restraints control module.
- Crash sensors.
- Air bag wiring harnesses.
- Seat occupancy sensor.

The SRS is not designed to operate as a result of:
- Rear impacts.
- Minor front impacts.
- Minor side impacts.
- Heavy braking.
- Driving over bumps and pot holes.

Therefore, it follows that considerable superficial damage to the vehicle can occur, without causing the air bags to deploy.

WARNINGS

National Highway Traffic Safety Administration (NHTSA) recommends a minimum distance of 25 cm (10 inches) between an occupant’s chest and the driver’s air bag module.

High speed impacts may cause serious injury or death irrespective of safety features fitted to a vehicle.

Always drive with caution and consideration for the vehicle’s characteristics, road and weather conditions.

The airbag cannot provide protection in some types of impact, therefore seat belts should be worn at all times by the driver and passengers in all seating positions.

Air bags inflate at high speeds, and can cause injuries. To minimise the risk of injury, ensure that all vehicle occupants wear correctly positioned seat belts, sit correctly in the seats, and position the seats as far back as practical.

Sitting centrally and correctly in each seating position helps ensure that a gap is maintained between the side of the vehicle, and the head and torso. This will aid inflation of the curtain and the seat mounted side air bags.

Air bag inflation takes place instantaneously. Not all air bags are designed to protect against the effects of secondary impacts. During secondary impact, a level of protection may be provided by a correctly worn seat belt.
Supplementary restraints system

Air bags

1. Driver’s air bag.
2. Front passenger air bag.
4. Curtain air bags.

**Note:** The general location of air bags fitted to the vehicle are marked by the word AIRBAG.

Always contact your Dealer if:-
- An air bag inflates.
- The front or sides of the vehicle are damaged.
- Any part of the SRS shows signs of cracking or damage, including trim covering air bags.

**WARNINGS**

- Phone systems should only be installed by qualified persons familiar with the operation of, and requirements for, vehicles fitted with SRS. If you are in any doubt, seek advice from your Jaguar Dealer.

**Air bag operation**

**WARNINGS**

- For the air bags to operate correctly the roof lining and door post trims must be in good condition, correctly fitted, and free from obstruction. Any damage, wear, or incorrect fitment should be referred to your Dealer as soon as possible for examination and repair.

- Do not allow passengers to obstruct the operation of the air bags by placing any part of their person, or any objects, in contact with, or close to, an air bag module. Air bags deploy at very high speeds and can cause serious injury or death if objects or occupants are within the area of deployment.
Supplementary restraints system

Air bags cannot deploy correctly if they are obstructed. Examples of obstruction are:-

- Any part of an occupant’s body in contact with, or close to, an airbag covering.
- Objects placed on, or close to, an airbag cover.
- Clothing, sun screens or other material hanging from grab handles.
- Clothing, cushions or other material, covering seat mounted air bags.
- Seat covers which are not approved by Jaguar or specifically designed for use with seat mounted air bags.
- Luggage that intrudes into the area that will be occupied by a deploying airbag system.

The list is not exhaustive and it remains the responsibility of the driver and passengers to ensure that the air bags are not obstructed in any way.

Deployment and deflation
In the event of a collision, the restraints control system monitors the rate and direction of deceleration. If required to supplement the seat belts, air bags will be deployed as appropriate. After operation, frontal air bags do not retain pressure.

Front air bags
The front passenger’s and driver’s air bags are able to deploy in two stages, depending on the severity of the frontal impact. In a severe impact, the air bags inflate fully to offer maximum protection. In a lower severity impact, less inflation may be required, so the air bags inflate in a different manner.

Side and curtain air bags

<table>
<thead>
<tr>
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</tr>
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<tbody>
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</tbody>
</table>

To ensure that the side and curtain air bags are fully effective:

- Do not sit too close to, lean or sleep against the door trim. The side and curtain air bags could injure you as they deploy.
- Do not lean out of the window.
- Only use Jaguar approved accessories (e.g. seat covers).
- Due to the function of the curtain air bag deployment, consult your Dealer prior to installing any accessories in the upper environment/pillar trim area (e.g. hands-free telephone kits).

Side and curtain air bags are designed to offer increased protection for the torso and head in a side impact. The curtain air bags deflate at a slower rate than the front or side air bags, to afford prolonged protection.
Supplementary restraints system

Air bag deployment effects

**WARNINGS**

⚠️ When an air bag inflates, a by-product of the gas generation may be released as small particles. It is possible that this may cause irritation and should be thoroughly flushed from the eyes and any cuts or abrasions.

⚠️ After inflation, some air bag components are at high temperatures. To prevent injury, do not touch the air bag components until they have cooled.

⚠️ In order to react with sufficient speed, air bags are deployed by a pyrotechnic device. Consequently, air bag deployment is accompanied by a very loud noise which may cause discomfort and temporary loss of hearing.

**AIR BAG WARNING INDICATOR**

The air bag warning indicator is mounted in the instrument pack, and will illuminate as a bulb check when the starter switch is turned on.

**WARNING**

⚠️ If the warning indicator signals that a fault is present in the system, do not use a child restraint on the front passenger seat. Doing so will increase the risk of death or serious injury to the child.

If any of the following warning indicator conditions occur, the vehicle should be checked by your Dealer immediately.

- The warning indicator fails to illuminate when the starter switch is initially turned on.
- The warning indicator fails to extinguish within six seconds of the starter switch being turned on.
- The warning indicator illuminates at any time other than the bulb check, when the starter switch is on.

**WHIPLASH PROTECTION**

Both front seats are equipped with Active Head Restraints (AHR), which reduce the risk of neck and spinal injury (whiplash) in the event of a rear impact.

When activated, the head restraint moves upwards and forwards, supporting the occupant’s head.

After activation, the whiplash protection mechanism automatically resets and does not need to be replaced.
Supplementary restraints system

**OCCUPANT SENSING**

Occupancy classification sensor

A weight sensor is located in the front passenger seat, to determine the weight acting upon the seat. In certain conditions, e.g. where no passenger is present, the appropriate air bags will be deactivated. In a collision these air bags would not be deployed.

The occupancy weight sensor operates as follows:

<table>
<thead>
<tr>
<th>Front passenger occupancy status</th>
<th>Front passenger air bag status</th>
<th>Indicator active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely empty</td>
<td>Deactivated</td>
<td>No*</td>
</tr>
<tr>
<td>Low weight occupant/object</td>
<td>Deactivated</td>
<td>Yes**</td>
</tr>
<tr>
<td>Heavy occupant/object</td>
<td>Activated</td>
<td>No</td>
</tr>
</tbody>
</table>

* It is possible to receive an intermittent indicator illumination with an empty seat condition. This is part of the system’s adaptive behaviour and does not affect the status of the front passenger air bag. However, if the indicator remains illuminated when the seat is unoccupied or an adult occupant is seated, contact your Jaguar Dealer immediately.

** In some cases a small child placed in a child seat will not activate the PASS AIR BAG OFF lamp. If this occurs the front passenger air bag status will be as described above for an empty seat, i.e. front passenger air bag is not active but the PASS AIR BAG OFF lamp will not illuminate.

The occupancy sensing system is designed to confirm that a front passenger is properly seated as recommended:

- Always sit centrally in the seat, remaining in contact with the seat back which for comfort should be rearwards of the vertical position.
- Adjust the seat to be as far back from the facia as is practical.
- Always wear seat belts.

**WARNINGS**

- Do not use a child restraint on a seat protected by an operational air bag in front of it. There is a risk of death or serious injury when the air bag deploys.
- The safest place for children is properly restrained in the rear seats.
Supplementary restraints system

Air bag deactivation indicator

The air bag deactivation indicator, on the overhead console, is associated with the deployment status for front seat passenger air bags only.

Whenever the air bag deactivation indicator is illuminated, the front passenger air bag will not be deployed in the event of an impact. Where the air bags are not deployed, protection is provided by the seat belts.

*Note:* The air bag deactivation indicator will illuminate as a bulb check when the starter system initially comes on and will extinguish after approximately six seconds.

AIR BAG LABELS

Air bag warning information is printed on the driver and passenger sun visors.

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