

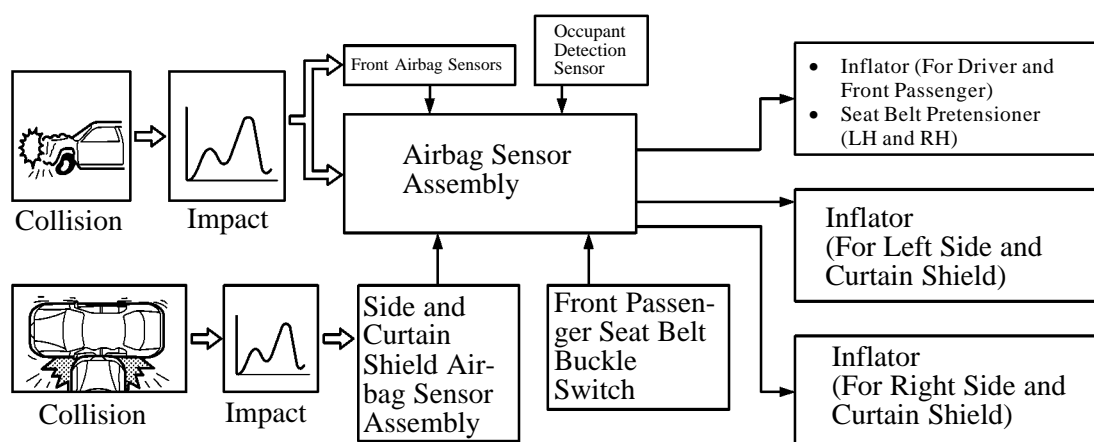
■ SRS AIRBAG SYSTEM

1. General

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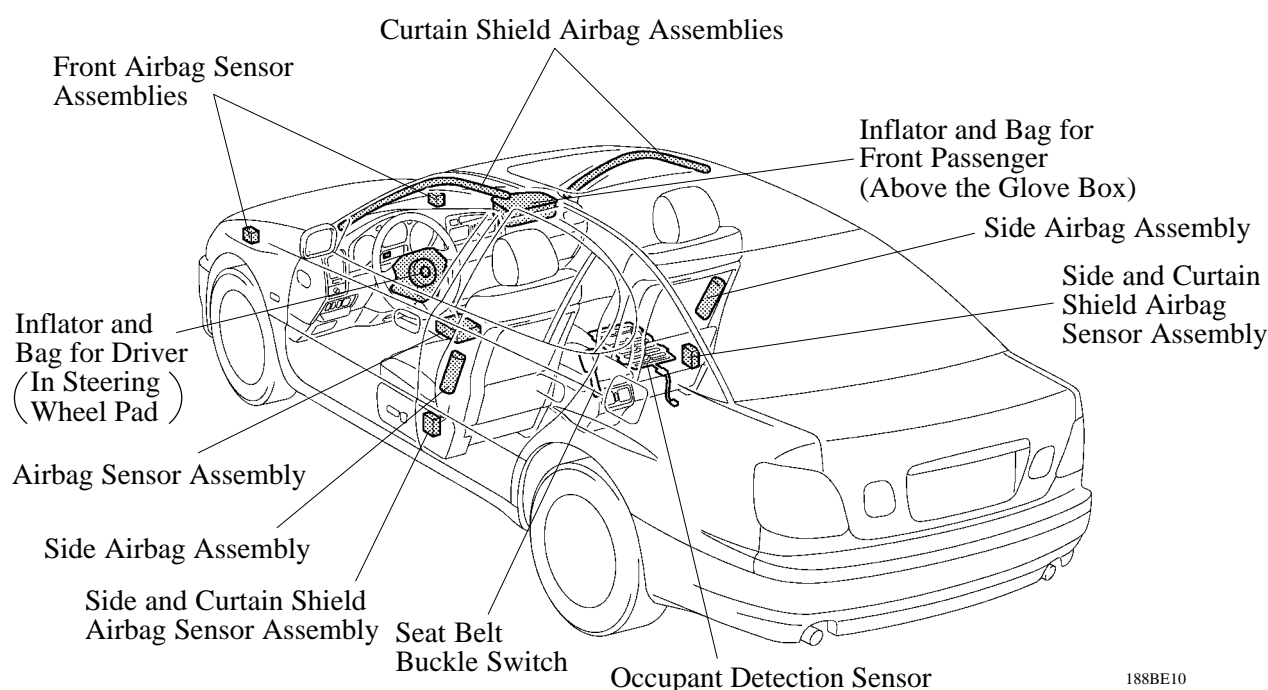
- A curtain shield airbag has been adopted as the SRS (Supplementary Restraint System) of the '01 GS430/300. This curtain shield airbag operates under the same condition as the side airbag.
- A function that detects whether or not the front passenger seat is occupied and prohibits the deployment of the front passenger airbags (front, side and curtain shield) if the seat is unoccupied, has been adopted in the SRS airbag system.
- The airbag sensor assembly has been added to the BEAN (Body Electronics Area Network).
- The GS430/300 have adopted a fuel cut control that stops the fuel pump if the driver's and front passenger's airbags have been deployed.

► System Diagram ◀



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2. Layout of Component

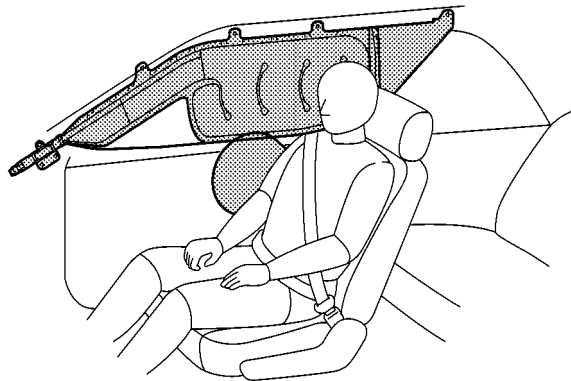


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3. SRS Curtain Shield Airbag

General

- In conjunction with impact absorbing structure for side collision, the SRS (Supplemental Restraint System) curtain shield airbag has been designed to help reducing the impact energy that it transmitted to the driver and front passenger in the event of a side collision. In a side collision, the side and curtain shield airbag sensor detects the shock and if the side-to-side shock is greater than a specified value, and the curtain shield airbag stored in the front pillar and roof side for the driver or front passenger inflate instantly to help preventing the driver's or front passenger's head from directly hitting against the door trim and window or surroundings.
- Each SRS curtain shield airbag operate independently for the driver's side and front passenger's side.
- An electrical type SRS side and curtain shield airbags, in which the side and curtain shield airbags are activated by the ignition signal emitted by the airbag sensor assembly, have been adopted.



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Construction and Operation

1) Side and Curtain Shield Airbag Sensor

The side and curtain shield airbag sensor assembly is mounted on the right and left center pillars. The side and curtain shield airbag sensor assembly has the side and curtain shield airbag sensor and safing sensor. The side and curtain shield airbag sensor detects the deceleration that occurs during the collision of the vehicle, converts it into an electrical signal and sends it to the airbag sensor assembly. The safing sensor turns ON if an acceleration force that is higher than a predetermined value is applied to the safing sensor as a result of a side collision. The basic construction and operation are the same of the side airbag sensor assembly used in the '00 GS400/300.

2) Airbag Sensor Assembly

The airbag sensor assembly is mounted on the center floor under the instrument panel. The airbag sensor assembly receives signals from the side and curtain shield airbag sensor enclosed in the side and curtain shield airbag sensor assembly and judges whether the side and curtain shield airbags must be activated or not.

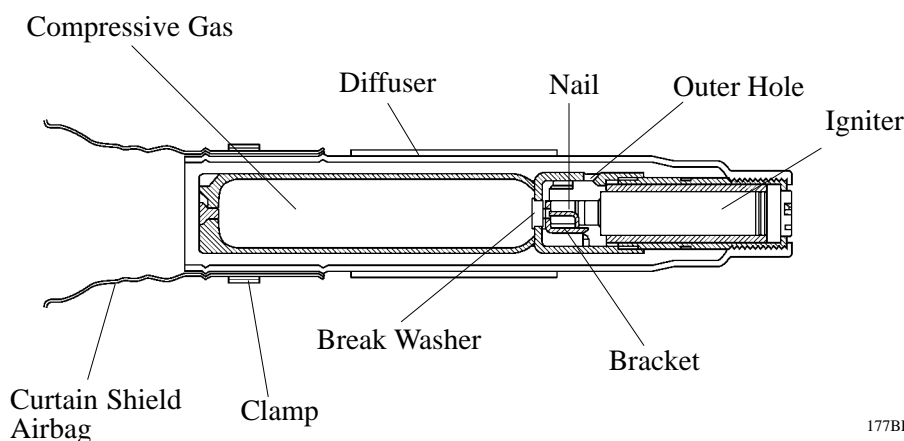
Furthermore, the airbag sensor assembly diagnoses a system malfunction of the side and curtain shield airbag system. The basic construction and operation are the same as in the '00 GS400/300.

However, a diagnostic trouble code for the curtain shield airbag has been added. For details on the diagnosis system, refer to the '01 GS430/300 Repair Manual (Pub. No. RM791U).

3) Inflator and Bag

a. Construction

The inflator is installed on the instrument panel reinforcement. The inflator is comprised of an igniter, bracket, nail, break washer, container, and compressive gas. The construction of the inflator for the curtain shield airbag is basically the same as that of the inflator for the side airbag.

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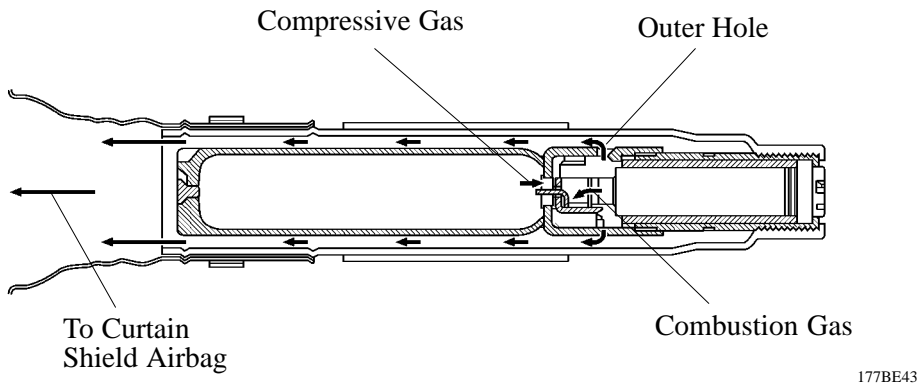
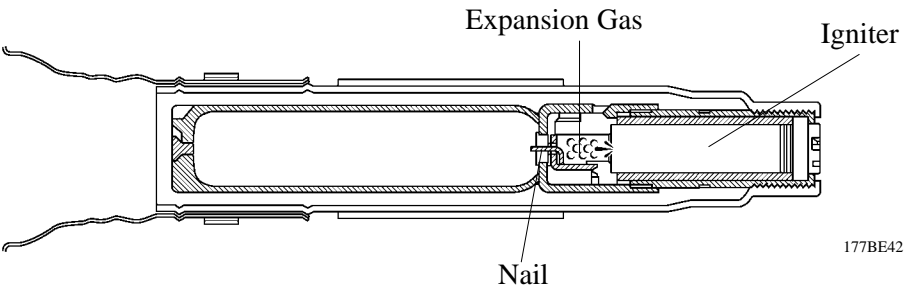
CAUTION

The igniter is ignited even by a feeble current. As it is dangerous, never measure the resistance of the igniter with a volt/ohmmeter, etc.

b. Operation

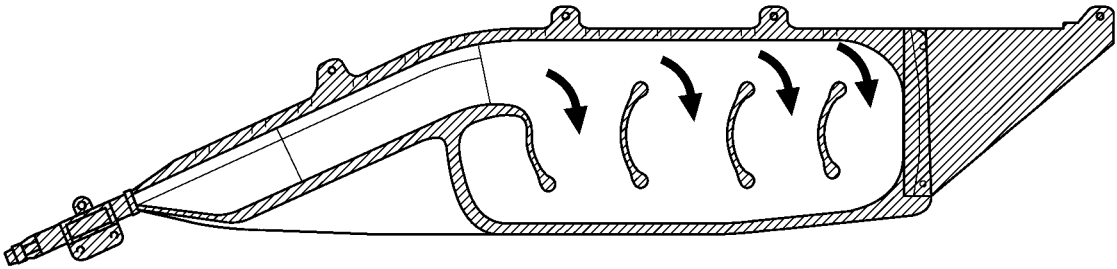
If the side and curtain shield airbag sensor is turned on by acceleration due to a side collision, electric current then ignites the igniter in the inflator. The combustion of the igniter causes the gas to expand and the bracket and nail to move. The movement of the bracket and nail causes the compressive gas to tear the break washer and enables the gas to be discharged. The discharged gas mixes with the igniter's combustion gas and flows into the bag through the outer hole and container. Then the curtain shield airbag tears open the front pillar garnish to further expand and to help to reduce the impact applied to the head of the driver/front passenger.

► Inflater ◀



► Bag ◀

➡ : Compressive Gas



4. Airbag Develop Prohibition Function

General

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This function uses an occupant detection sensor to detect whether or not the front passenger seat is occupied. If the airbag sensor assembly has determined that the front passenger seat is unoccupied, it prohibits the deployment of the front passenger airbags (front, side, and curtain shield).

Occupant Detection Sensor

The occupant detection sensor, which is enclosed in the seat cushion of the front passenger seat, is used to detect whether or not the front passenger seat is occupied. This sensor, which is shaped as illustrated below, consists of a construction in which two sheets of electrodes sandwich a spacer. When the occupant is seated, the electrode sheets come in contact with each other through the hole that is provided in the spacer portion, thus enabling the current to flow. As a result, the airbag sensor assembly detects the presence of the occupant. This sensor is basically the same as the occupant detection sensor of the conventional seat belt warning system, except that it is shaped differently.

