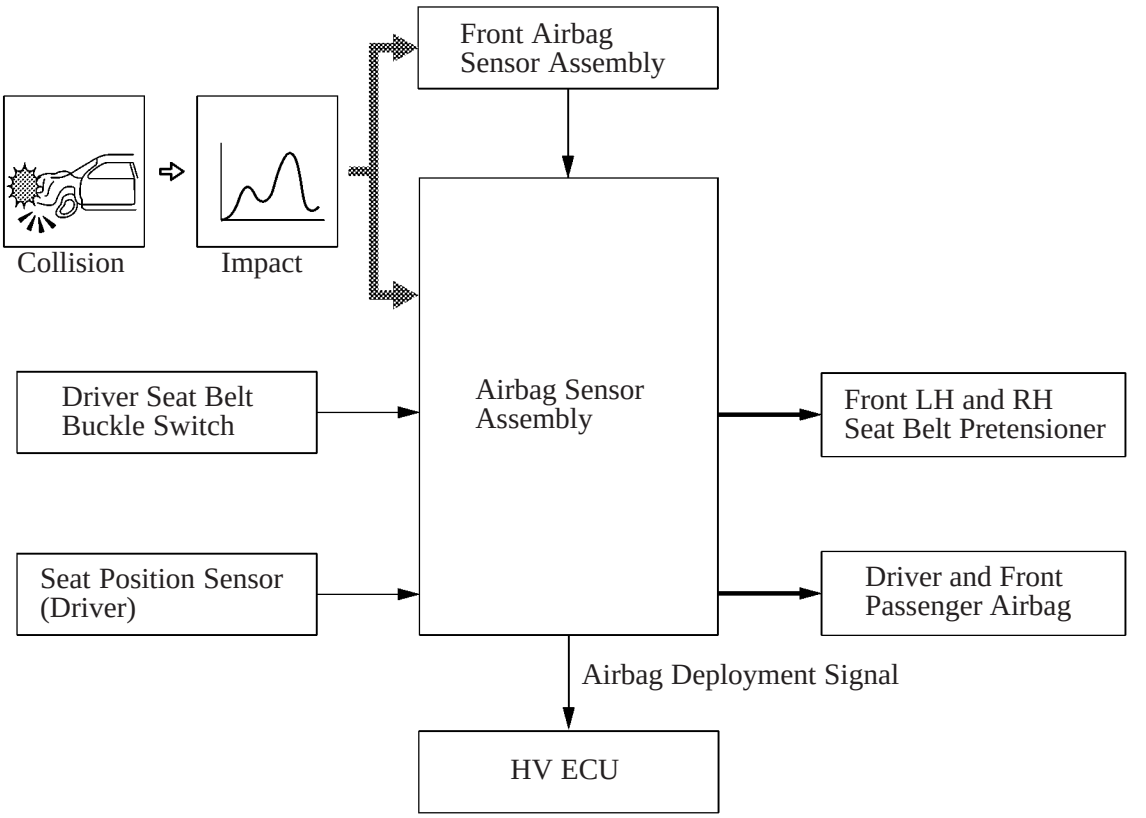
■AIRBAGS FOR FRONT COLLISION

1. General

- In conjunction with impact absorbing structure for front collision, the driver and front passenger dual-stage SRS airbags have been designed to help reduce the impact to the head and chest in the event of a front collision. These airbags all deploy with the same timing, and are supplements to the seat belts.
- The previous mechanical type front airbag sensor (consisting of movable and stationary contact points) has been changed to an electrical (deceleration sensor) type front airbag sensor.
- The deceleration sensor is enclosed in the front airbag sensor. Based on the deceleration of the vehicle during a front collision, a distortion is created in the sensor and converted into an electrical signal. Accordingly, the extent of the initial collision can be detected in detail.

▶ System Operation ◀



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2. Dual-stage SRS Airbags

General

In this system, when the front airbag sensors and airbag sensor assembly detect the front collision, the airbag sensor assembly judges the extent of impact, driver seat position and whether or not the driver seat belt is fastened, thus making the airbag inflating output optimum by delaying the inflating timing of the 2nd initiator and the 1st initiator.

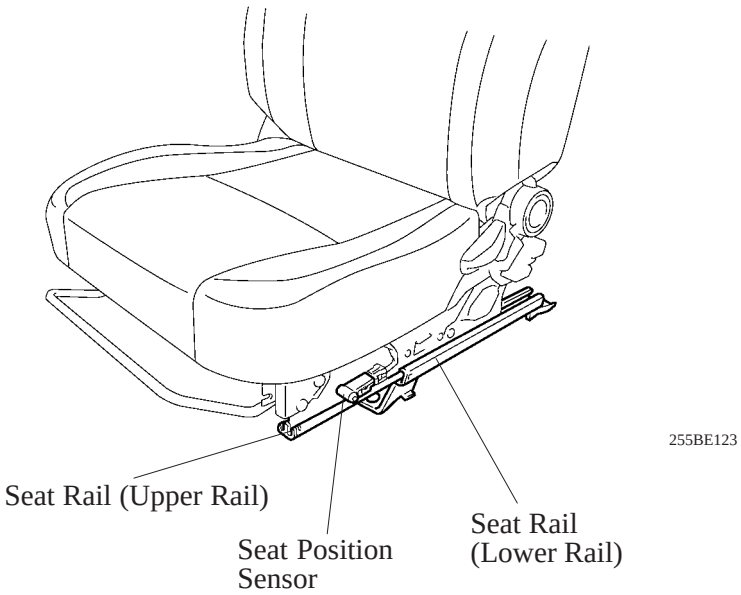
Service Tip

In accordance with the structure change of the driver and front passenger inflators on new Prius, a SST (09082-00802) used for scrapping driver and front passenger airbag assemblies of the vehicle has been newly established.

Seat Position Sensor

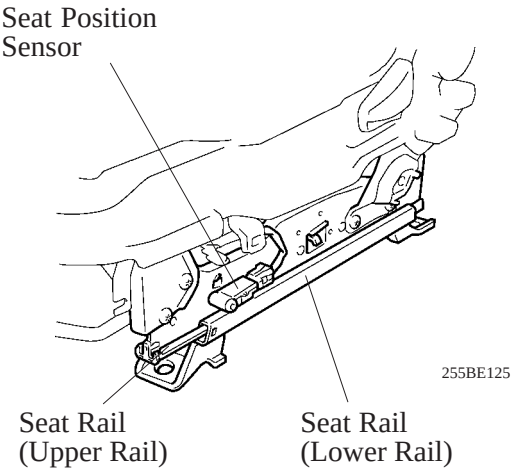
1) General

The seat position sensor is mounted on the upper rail portion of the driver seat rail, and includes a Hall IC and a magnet. This sensor is used to detect a sliding position of the driver seat.

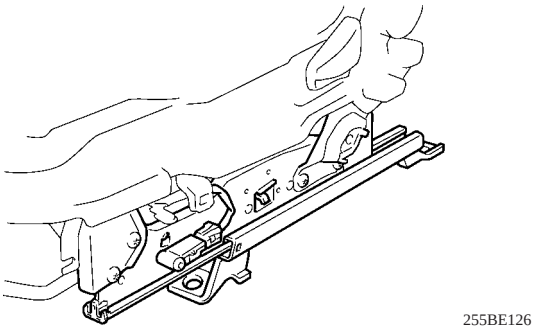


2) Operation

When a seat is in rearward position, the lower rail portion of the seat rail is close to the seat position sensor. When it is in the forward position, distance between the lower rail portion and the sensor becomes longer. Thus, magnetic flux of the magnet inside the seat position sensor will vary depending on the seat position. The Hall IC detects this variation of the magnetic flux and outputs signals to the airbag sensor assembly.



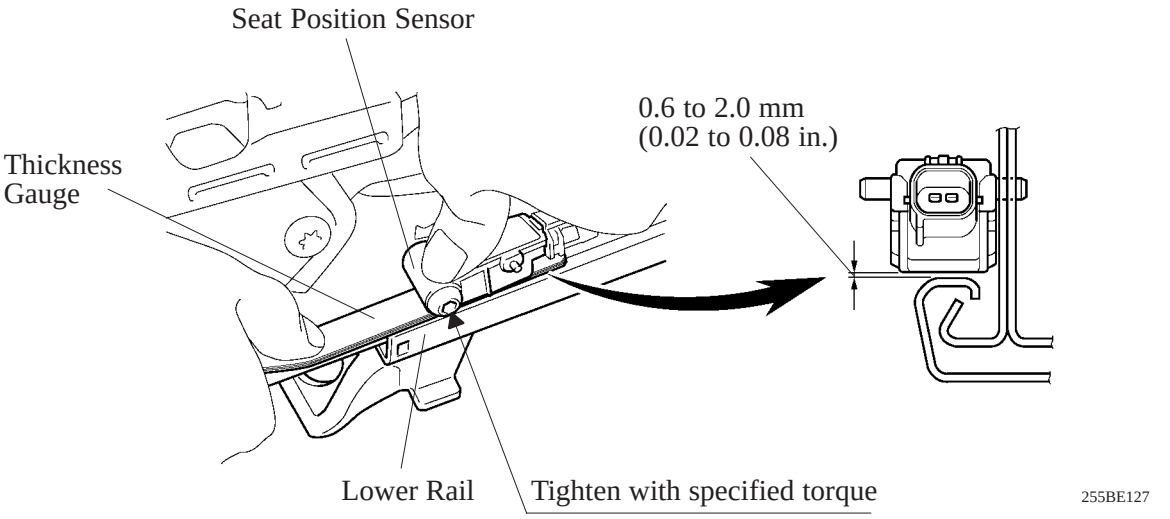
Seat position is rearward



Seat position is forward

Service Tip

When installing the seat position sensor, first insert a 1 mm (0.04 in.) thickness gauge between the seat position sensor and the lower rail portion. And then, tighten the mounting bolt to the specified torque with the seat position sensor pushed down as shown.
For details, see the Prius Repair Manual (Pub. No. RM1076E).



Seat Belt Buckle Switch

- The following two types of seat belt buckle switches have been adopted on the driver's seat of the new Prius:
  - A no-contact type buckle switch, which uses a Hall IC, has been newly adopted for controlling the driver's dual stage SRS airbag.
  - As on the previous Prius, a contact type seat belt buckle switch is used for controlling the driver's seat belt reminder light.
- The no-contact type seat belt buckle switch is provided only for the driver's seat. The front passenger seat is provided with the contact type as on the previous Prius.
- The no-contact type seat belt buckle switch comprises a Hall IC and 2 magnets, installed into the front seat inner belt assembly.
  The ejector inside the front seat inner belt assembly and the plate installed to the ejector move when the seat belt is removed or applied. The movement of the plate cuts off the magnetic flux density of the seat belt buckle switch magnet. The Hall IC detects the changes in the magnetic flux density as seat belt removal or application, and outputs the signal to the airbag sensor assembly.

