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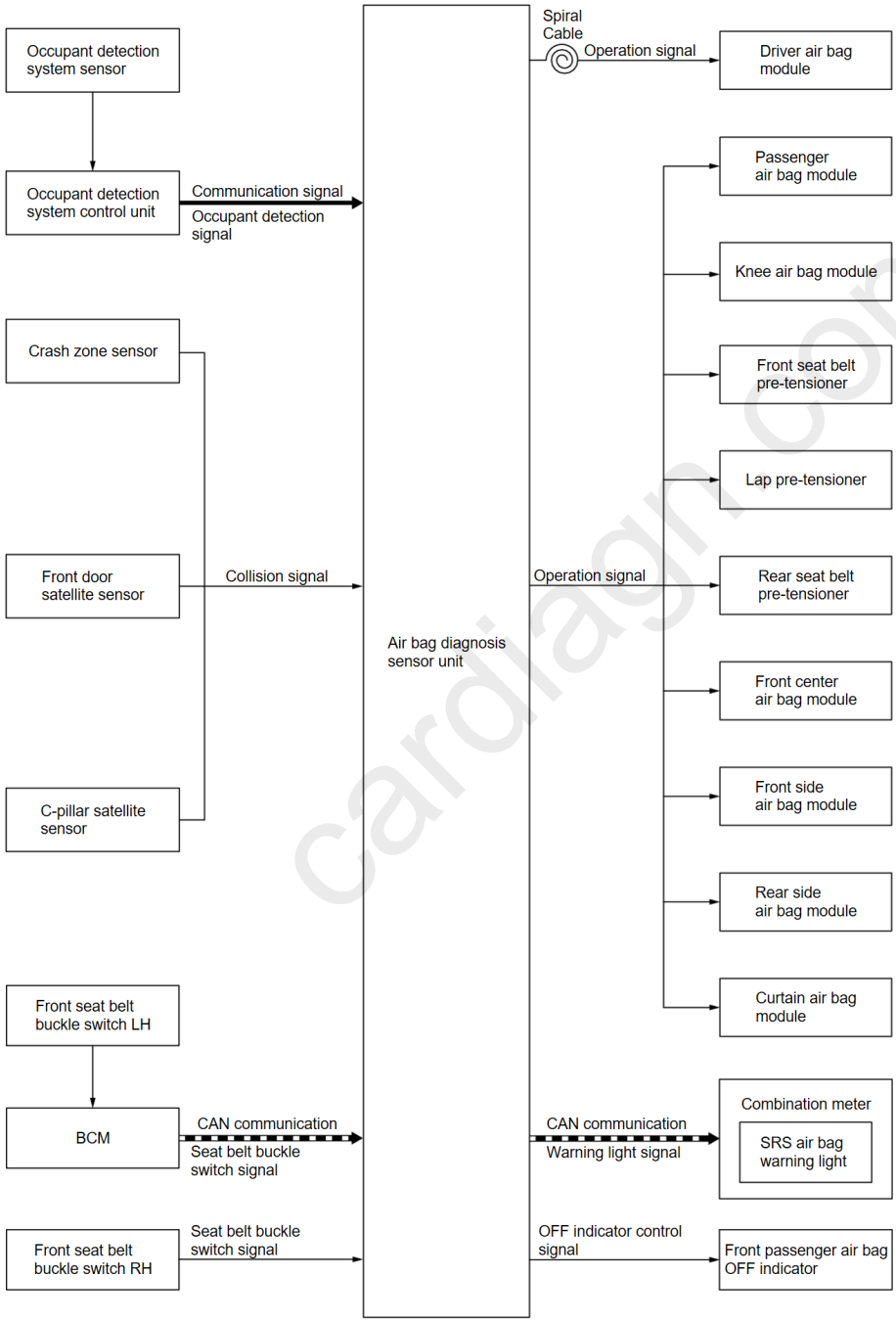
System Description

SYSTEM DIAGRAM



Component	Function
Occupant detection system sensor	Refer to Occupant Detection System Sensor .
Occupant detection system control unit	Refer to Occupant Detection System Control UnitOccupant detection system control unit

Component	Function
	.
Crash zone sensor	Refer to Crash Zone Sensor.
Front door satellite sensor	Refer to Satellite SensorSatellite Sensor.
C-pillar satellite sensor	Refer to Satellite SensorSatellite Sensor.
Front seat belt buckle switch	Fastening or not fastening of seat belt judged. This judge is used for control of front air bag system.
BCM	BCM transmits the front seat belt buckle switch LH signal to air bag diagnosis sensor unit via CAN communication.
Air bag diagnosis sensor unit	Refer to Air Bag Diagnosis Sensor Unit.
Spiral cable	Refer to Spiral Cable.
Driver air bag module	Refer to Driver Air Bag Module.
Passenger air bag module	Refer to Passenger Air Bag Module.
Knee air bag module	Refer toDriver Knee Air Bag Module and Passenger Knee Air Bag Module.
Front seat belt pre-tensioner	Refer to Seat Belt Pre-tensioner with Load Limiter.
Lap pre-tensioner	Refer to Double Pre-tensioner Seat Belt.
Rear seat belt pre-tensioner	Refer to Seat Belt Pre-tensioner with Load Limiter.
Front center air bag module	Refer to Front Center Air Bag Module.
Front side air bag module	Refer to Front Side Air Bag Module.
Rear side air bag module	Refer to Rear Side Air Bag Module.
Curtain air bag module	Refer to Curtain Air Bag Module.
Combination meter (SRS air bag warning light)	Refer to Air Bag Warning LightAir Bag Warning Lamp.
Front passenger air bag OFF indicator	Refer to Front Passenger Air Bag OFF Indicator.

SYSTEM DESCRIPTION

Supplemental Restraint System (SRS) activates air bag module and seat belt pre-tensioner when it detects a collision that is more than the specified limit. Together with other safety devices, it reduces the impact that occupant receives when vehicle collision occurs. Air bag diagnosis sensor unit supplies power supply to air bag module and pre-tensioner seat belt when deceleration that is

more than the specified limit is detected by G sensor in air bag diagnosis sensor unit, crash zone sensor and each satellite sensor. Air bag module is composed of electric igniter (squib), filter, pyrotechnic material, and gas generating material. When air bag module receives a signal from air bag diagnosis sensor unit, air bag module ignites pyrotechnic material using electric igniter (squib) so that gas generating material generates high temperature nitrogen gas. The gas through filter activates air bag. At the same time, pre-tensioner seat belt receives power supply from air bag diagnosis sensor unit, gas generator is activated, and then gas is generated. The pressure of the generated gas causes the balls inside of pipe to move and the shaft to rotate and retract the shoulder belt. Similarly, the piston inside of pipe moves, and retracts the lap belt connected to the wire.

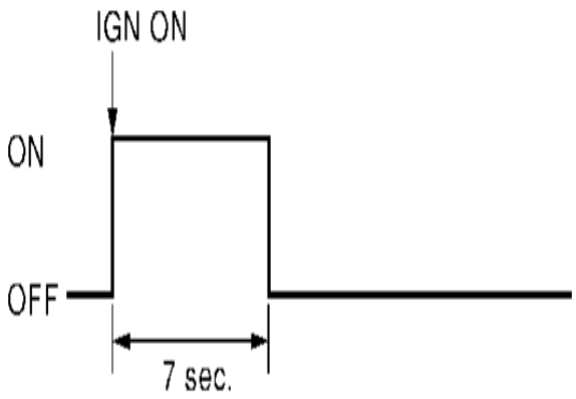
AIR BAG DIAGNOSIS SENSOR UNIT FUNCTIONS

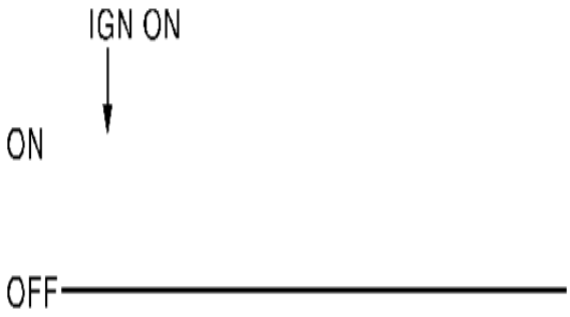
Air bag diagnosis sensor unit has the following functions.

- Detects a collision and supplies the energy for deploying air bag and seat belt pre-tensioner.
- Detects and records electrical malfunction in air bag system and seat belt pre-tensioner system, and turns SRS air bag warning light ON.
- Detects and records the deployment of air bag and seat belt pre-tensioner, and turns ON SRS air bag warning light.
- Indicates the malfunction record via M.U.T.-III SE.

SRS AIR BAG WARNING LIGHT

- Detects electrical malfunction in air bag system and seat belt pre-tensioner system, and turns SRS air bag warning light ON.
- Detects deployment malfunction in air bag system and seat belt pre-tensioner system, and turns SRS air bag warning light ON.
- Air bag diagnosis sensor unit warns the driver by turning SRS air bag warning light ON when air bag diagnosis sensor unit detects battery low voltage. SRS air bag warning light turns ON when a voltage value at which air bag diagnosis sensor unit cannot operate normally (9 V or less) is detected. After starting to turn ON, SRS air bag warning light turns OFF when air bag diagnosis sensor unit detects the normal value of battery voltage.
- Air bag diagnosis sensor unit warns the driver by turning SRS air bag warning light ON when air bag diagnosis sensor unit detects battery high voltage. SRS air bag warning light turns ON when a voltage value at which air bag diagnosis sensor unit cannot operate normally (16 V or more) is detected. After starting to turn ON, SRS air bag warning light turns OFF when air bag diagnosis sensor unit detects the normal value of battery voltage.

SRS air bag warning light operation	SRS condition
	No malfunction is detected
	• Air bag is deployed • Seat belt pre-tensioner is deployed • Air bag diagnosis sensor unit is malfunctioning • Air bag power supply circuit is malfunctioning • SRS air bag warning light circuit is malfunctioning • Each sensor is malfunctioning • Each module is malfunctioning • Battery voltage is low (9 V or less) or high battery voltage (16 V or more) • Occupant detection system is malfunctioning • Zero point reset not yet performed

SRS air bag warning light operation	SRS condition
	• Air bag diagnosis sensor unit is malfunctioning • SRS air bag warning light circuit is malfunctioning • Combination meter is malfunctioning

COLLISION MODES

The operation of SRS is different depending on the collision modes applications.
SRS configurations that are activated for the following collision modes.

×: Apply —: Not apply

SRS configuration	Frontal collision	Left side collision	Right side collision	Rollover	Rear collision
Driver air bag module	×	—*1	—*1	—*1	—*1
Passenger air bag module	×	—*1	—*1	—*1	—*1
Knee air bag module LH	×	—*1	—*1	—*1	—*1
Knee air bag module RH	×	—*1	—*1	—*1	—*1
Front seat belt pre-tensioner LH	×	×	×	×	—*1*2*3
Front seat belt pre-tensioner RH	×	×	×	×	—*1*2*3
Lap pre-tensioner LH	×	×	×	×	—*1*2*3
Lap pre-tensioner RH	×	×	×	×	—*1*2*3
Rear seat belt pre-tensioner	×	×	×	×	—*1*2*3

SRS configuration	Frontal collision	Left side collision	Right side collision	Rollover	Rear collision
LH					
Rear seat belt pre-tensioner RH	×	×	×	×	—*1*2*3
Front center air bag module	—*2*3	×	×	×	—*2*3
Front side air bag module LH	—*2	×	—*2	—*2	—*2
Front side air bag module RH	—*3	—*3	×	—*3	—*3
Rear side air bag module LH	—*2	×	—*2	—*2	—*2
Rear side air bag module RH	—*3	—*3	×	—*3	—*3
Curtain air bag module LH	—*2	×	—*2	×	—*2
Curtain air bag module RH	—*3	—*3	×	×	—*3

*1: SRS may be activated when an excessive impact is applied toward the front of the vehicle.
*2: SRS may be activated when an excessive impact is applied toward the left of the vehicle.
*3: SRS may be activated when an excessive impact is applied toward the right of the vehicle.

OCCUPANT DETECTION SYSTEM

This Occupant Detection System has the following functions.

- Suppress the deployment of passenger air bag and knee air bag (passenger side) when front passenger seat is empty, or when occupied by child and child-seat. Turns ON front passenger air bag OFF indicator when front passenger seat is occupied by child-seat and child.
- Indicates the malfunctioning record by M.U.T.-III SE.
- When “zero point reset” for occupant detection system is incomplete, M.U.T.-III SE indicates that “zero point reset” is incomplete.
  This function is applied to Mitsubishi Motors genuine parts only.

note	• The following table shows operation of air bag diagnosis sensor unit when air bag diagnosis sensor unit receives information from Occupant Detection System. • Even if zero point reset is “complete”, always perform zero point reset after the removal and installation of seat or the removal of control unit harness connector.

Status (front passenger seat)	Passenger air bag and knee air bag (passenger side)	Front passenger air bag OFF indicator	SRS air bag warning light
Empty	Suppress	ON	OFF
An object	Suppress	ON	OFF
Child/ child-seat	Suppress	ON	OFF
Adult	Enable to deploy	OFF	OFF
Malfunction	Suppress	ON	ON
Zero point reset Not yet performed (Mitsubishi Motors genuine parts only)	Suppress	ON	ON

Active Vent Function

Air bag diagnosis sensor unit opens vent of passenger air bag module by passenger side occupant detecting condition if necessary. The pressure of the deployed air bag falls, and the passenger side occupant is take care of appropriately.