The vehicle should help protect people in the event an accident occurs. Impact Safety is aimed at improving safety by helping reduce the risk or severity of human injury in an accident. This is accomplished by design features that help protect the occupants of both one’s own vehicle and other vehicles involved in an accident and also by containing post-accident damage.

**Zone Body**

Nissan is working on developing vehicle bodies based on its own Zone Body Concept. With this concept, a vehicle body is divided into two zones; the first is a crushable zone to help absorb impact energy and the second is a safety restraint zone that is designed to help maintain sufficient space for occupants. The Zone Body developed around this concept now complies with the side collision standards scheduled to go into effect in Japan and Europe in October 1998. The Zone Body, with a world-class, high-strength body, is the result of extensive testing and computer analysis simulating not just full-wrap, frontal collisions but also offset, diagonal, side rear-end and other types of collisions.

Body structure based on the Zone Body Concept

- In the event of a frontal or rear-end collision, the front and rear crushable zones efficiently help absorb the impact energy, thereby reducing the impact on the vehicle’s occupants. At the same time, the safety restraint zone is designed to help maintain survival space.

- In the event of a side collision, vehicle body deformation is reduced by the side door beams and the doors themselves, which disperse the lateral impact energy and transmit it to the reinforced body side. In addition, impact-absorbing doors with an improved energy-absorbing capability have been adopted to mitigate post-accident damage.

The Zone Body Concept
Dual Airbags SRS for the Driver and Front Passenger

Airbag SRS* for Driver

When certain types of frontal impacts are detected by a sensor installed in the vehicle body, the inflator instantaneously sends gas to the airbag housed in the steering wheel, which inflates to help protect the driver’s head from the impact. Combined with the use of a seatbelt, the airbag SRS is effective in helping reduce injury risk or severity.

Airbag SRS for Front Passenger

Similar to the airbag SRS for the driver, the airbag housed in the instrument panel helps protect the front seat passenger from impact. Because of the passenger’s position relative to the instrument panel, the airbag SRS for the front passenger has a larger volume than the airbag SRS for the driver. Combined with the use of a seatbelt, the airbag SRS is effective in helping reduce injury risk and severity.

Seatbelts must be worn in order to make airbags SRS most effective.

The airbag SRS is a supplemental system designed to protect occupants during certain types of head-on collisions, when those occupants are wearing their seatbelts. For airbags to be most effective, seatbelts must be worn all the time whenever the vehicle is in motion.

[Image: Diagram showing the impact of a collision into a wall at 50 km/h, showing the effects of different restraints (without seatbelt, with seatbelt, with seatbelt and airbag).]

* SRS = Supplemental Restraint System
The side airbag SRS is designed to help protect front vehicle occupants during certain side impact collisions. This newly developed side airbag system features larger airbags that are designed to help protect not only the chest but also the head, which may be exposed to injury in a side collision. Because the airbags are located inside the front seats, they offer protection whether the seat is in the forward or rear position. Side airbags are also available in the rear seat of some passenger car models.

**System configuration**

- Warning lamp
- IGN
- Front seat module (left and right sides)
- Satellite impact sensor (left and right sides)
- Center control unit
- Rear seat module (left and right sides)

**Deployment of side airbag SRS**

Each airbag module is housed in the seatback.

**An image of the side airbag SRS being deployed**

The SRS side airbag system is not designed to deploy in the following situations: 1) When the impact is too small. 2) In the event of head-on or rear-end impact, overturn or fall, etc., in which impact falls below the limit described in Item 1 above. 3) In the event of impact that occurs after the airbags have already deployed.
**Front Seatbelts with Pre-tensioners and Load Limiters**

The seatbelt system contains a pre-tensioner mechanism and a load limiter mechanism. Both mechanisms are incorporated in the seatbelt retractor housed at the bottom of the center pillar. In a collision, the pre-tensioner mechanism, working with the retractor, helps tighten the seatbelt to quicken the onset of occupant restraint. Subsequently, as the impact of the collision moves the occupant in the interior, causing the load on the seatbelt to increase, the load limiter mechanism functions to help control the force on the occupant to help reduce the chance or severity of injury.

How the pre-tensioner mechanism works

How the load limiter mechanism works

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**Rear Seatbelts with a Child Seat Locking Mechanism in the Outboard Positions**

When rear seatbelts with a child seat locking mechanism in the outboard positions is pulled all the way out and then released, the seatbelt’s lock catches, securely restraining the child’s seat at the desired seatbelt length. This feature is simple to use, as the seatbelt can be locked without a locking clip. The lock is released by unlatching the seatbelt and allowing it to retract completely.

For small children, we recommend baby seats for infants up to 1 year of age, child’s safety seats for children about 4 months to 4 years old, and junior safety seats for children 4 to 10. Children 12 and under should always be restrained in the rear seat.

Note: A rear facing child safety seat should not be placed in the front seat of a vehicle equipped with an airbag SRS.
There are numerous accident scenarios with varying conditions, such as collision speed, direction of collision and the state of the passengers. To evaluate vehicle performance, Nissan each year expends hundreds of vehicles to perform a wide range of collision tests, such as full-lap (head-on) collisions, offset collisions, oblique collisions, side collisions, and rear-end collisions.

<table>
<thead>
<tr>
<th>Type of collision</th>
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<tr>
<td>Full-lap collision</td>
<td><img src="image" alt="Full-lap collision" /></td>
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<td>Offset collision</td>
<td><img src="image" alt="Offset collision" /> Deformable barrier collisions</td>
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<td>Oblique collision</td>
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<tr>
<td>Pole collision</td>
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<tr>
<td>Vehicle collision</td>
<td><img src="image" alt="Vehicle collision" /> $\alpha = 0^\circ$ or $23^\circ$</td>
</tr>
<tr>
<td>Pole Collision</td>
<td><img src="image" alt="Pole Collision" /> Static testing</td>
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<td>Vehicle collision</td>
<td><img src="image" alt="Vehicle collision" /></td>
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<tr>
<td>Rollover</td>
<td><img src="image" alt="Rollover" /> Static testing</td>
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The primary testing procedures used by Nissan in collision tests with actual vehicles.
Water-resistant Power Window Switch System

The water-resistant power window switch system enables the windows to be opened for a period of time by operating the control switches even in the event a vehicle should plunge into a body of water. Previous power window systems have tended to short-circuit if the switches were submersed in water, making it impossible at times to open the windows. The newly adopted water-resistant switch system features an improved circuit that allows the windows to be opened in the interval while sufficient battery voltage is available to operate the power windows. This interval may vary depending on the condition when the vehicle plunges into the water, the battery capacity, the battery state of charge and other factors.

- Making it a practice to drive safely at all times is the first precaution in avoiding situations where a vehicle might plunge into a body of water.
- In the event a vehicle plunges into a body of water, occupants should remain calm and take suitable action to escape from the vehicle.
- The water-resistant power window switch system is a technology that is intended to lessen potential danger because it can extend the time for escaping from a submerged vehicle.
- The Japan Automobile Manufacturers Association, Inc. (JAMA) has put out a brochure for the general public which explains how to escape from a vehicle that has plunged into a body of water.