

## Adaptive Damper System Description

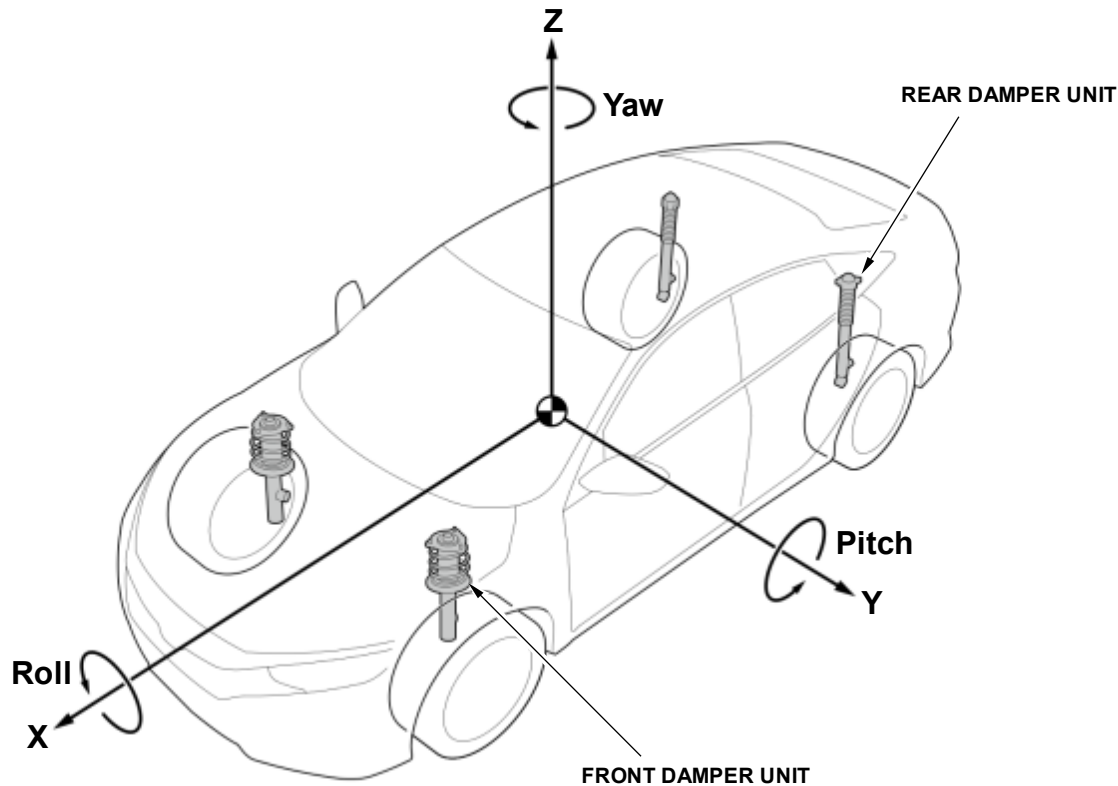
### Overview

The adaptive damper system provides optimal damping force for all driving conditions by adjusting the damping force of each damper independently, improving the driving performance.

The system is controlled by the adaptive damper control unit.

With the adaptive damper system, roll-, pitch-, and yaw- motion of the vehicle can be controlled resulting in different driving characteristics.

The adaptive damper control unit controls each damper solenoid with vehicle motion signals from other control units.

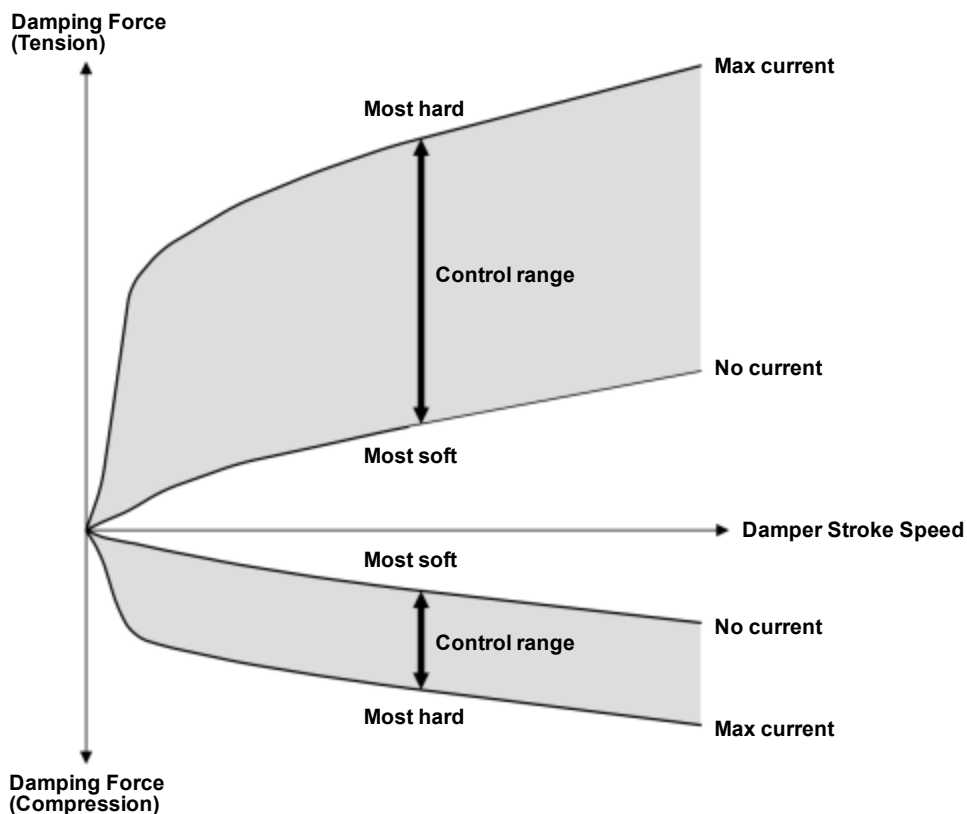


This illustration shows an example.

### Control

The adaptive damper adjusts the damping force as in the following graph, depending on the change of the amount of electric current output from the adaptive damper control unit.

### Damping Force Characteristics Image



**Integrated Dynamics System**

The damping force control is changed by the integrated dynamics system. When the integrated dynamics system is in the INDIVIDUAL mode, the adaptive damper system can select each mode individually.

**Fail Safe Mode**

Depending on the severity of the error, the adaptive damper system will switch to one of four possible fail safe modes. In case of each fail safe mode a DTC is stored in the adaptive damper control unit.

Fail Safe Mode	Failure State	Action	Failure Indication
A	<ul style="list-style-type: none"> <li>Power source (IG) failure</li> <li>Control unit failure</li> <li>Damper unit failure</li> <li>SVCC voltage failure</li> </ul>	The current for all dampers are switched off.	ON
B	<ul style="list-style-type: none"> <li>Vertical acceleration sensor failure</li> <li>Suspension stroke sensor failure</li> </ul>	A fixed current (0 A or 0.4 A) is set for all dampers.	ON
C	<ul style="list-style-type: none"> <li>Power source (+B) failure</li> <li>CAN communication failure (except integrated dynamics system mode signal)</li> </ul>	A fixed current (0 A or 0.4 A) is set for all dampers.	OFF
D	<ul style="list-style-type: none"> <li>CAN communication failure (integrated dynamics system mode signal)</li> </ul>	The control mode is fixed in the mode when the failure occurred.	OFF

NOTE: The failure state is listing examples of possible failures.