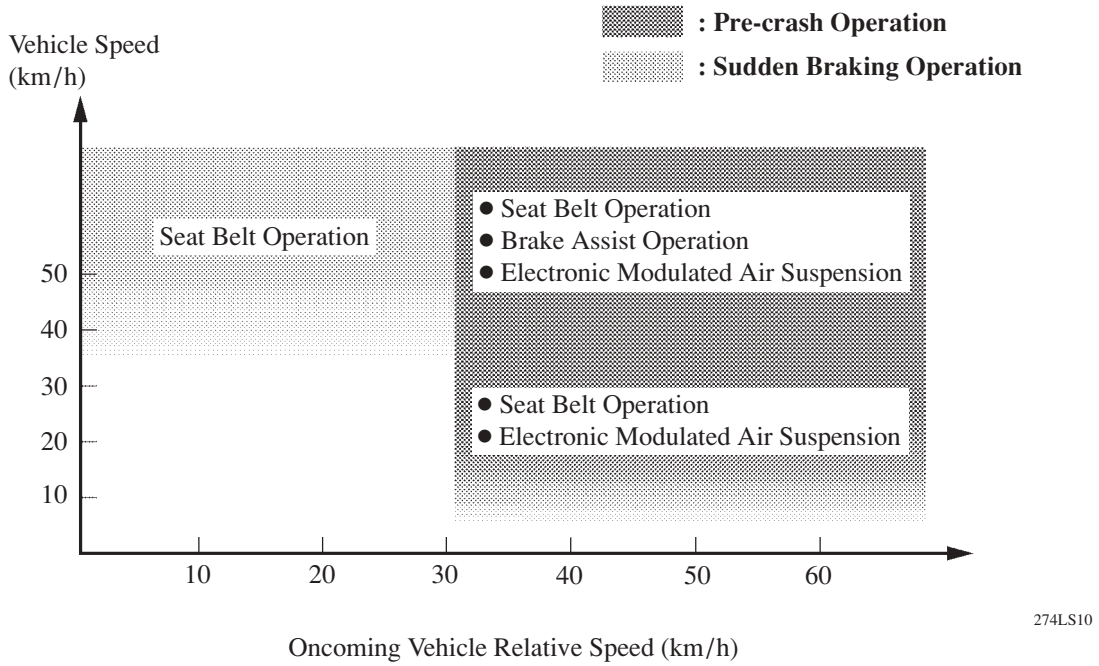
6. System Operation

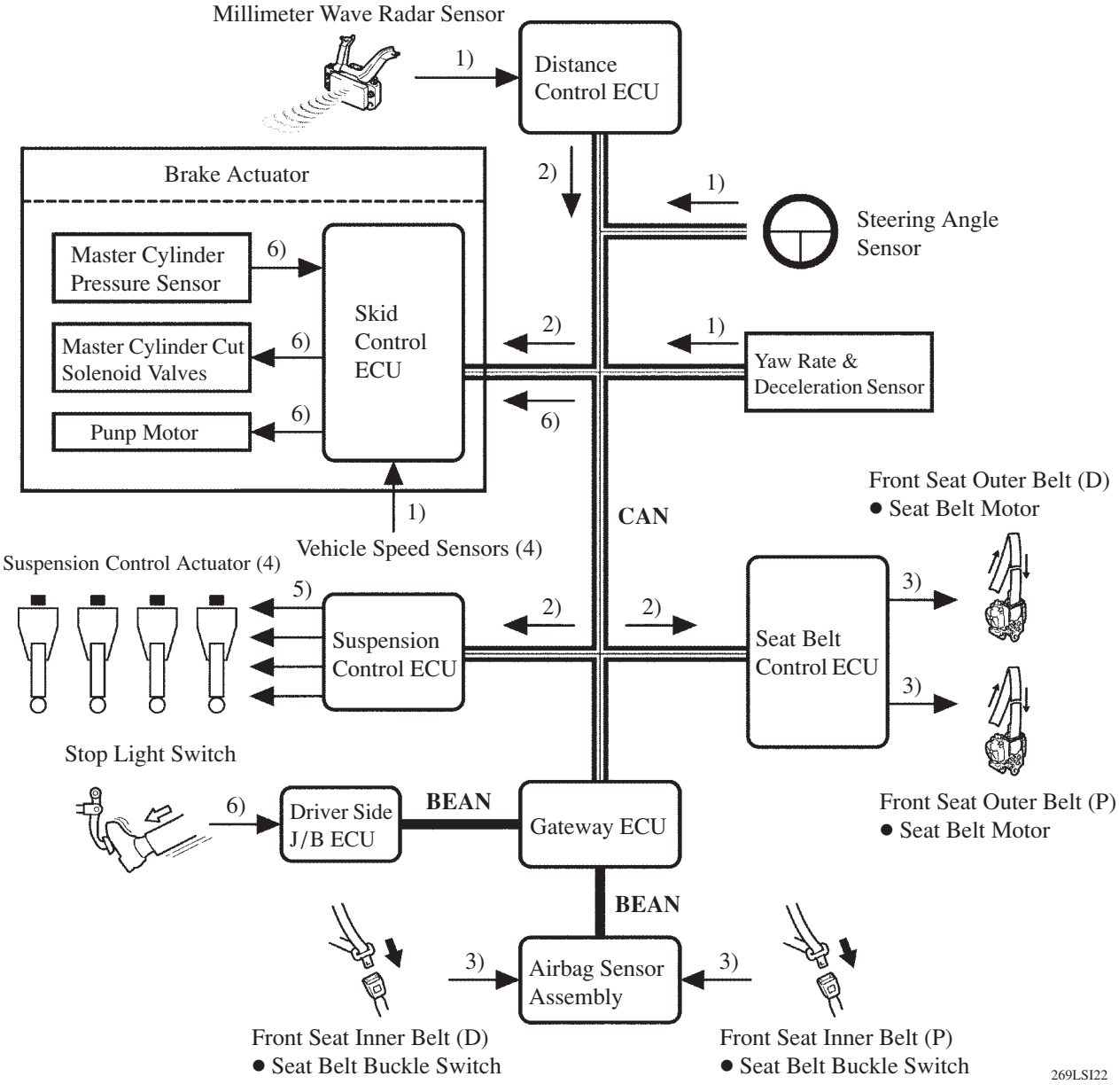
General

The pre-crash safety system consists of the following two operations: a pre-crash (unavoidable collision) operation and sudden braking operation. The impact dampening components consists of the operation ranges indicated below.



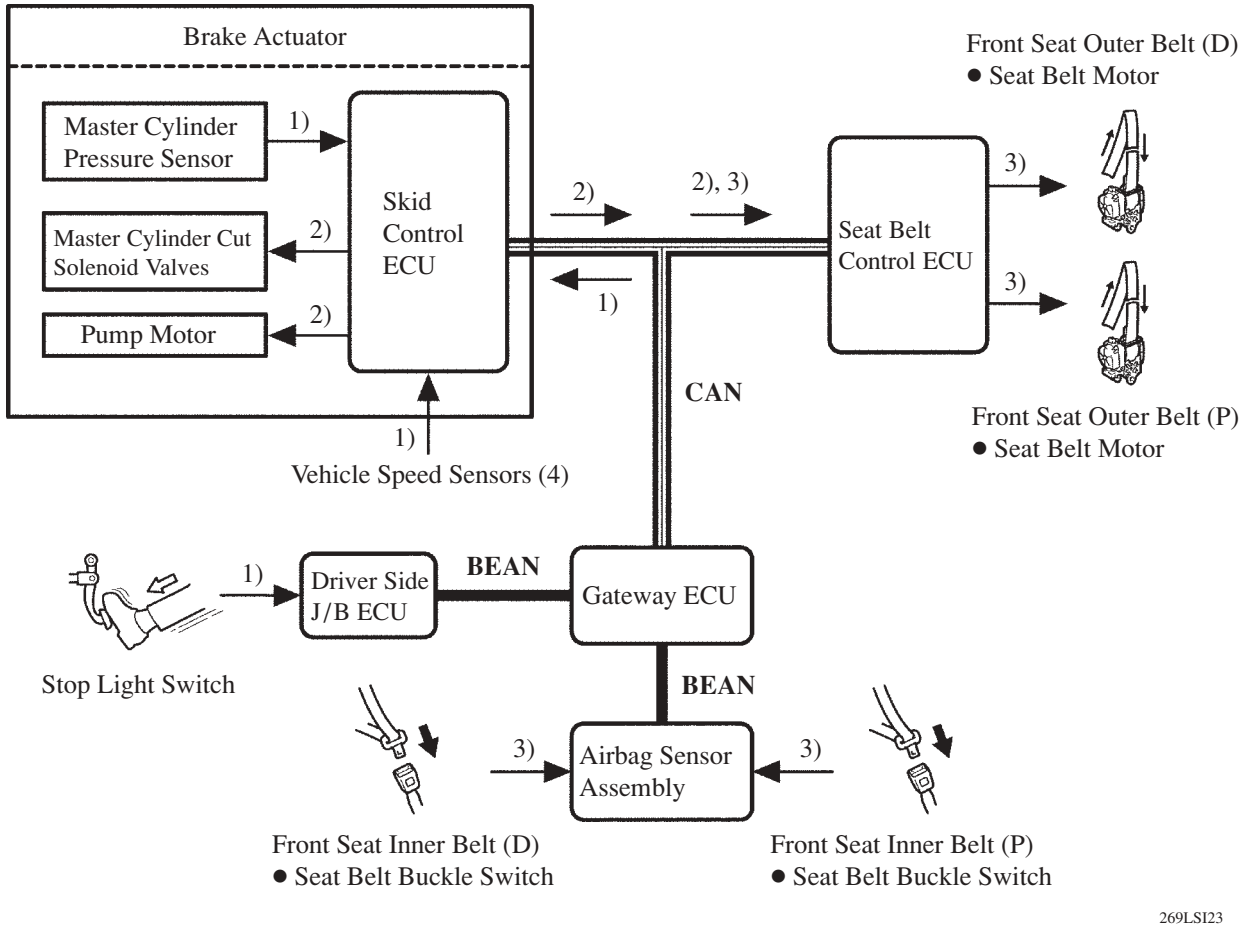
Pre-crash Operation

1) The distance control ECU determines that an unavoidable collision condition exists based on the signals received from the millimeter wave radar sensor, speed sensor, steering angle sensor, and yaw rate & deceleration sensor.
2) At this time, the distance control ECU outputs a seat belt operation request signal to the seat belt control ECU, a Brake Assist operation standby request signal to the skid control ECU, and a damping force control request signal to the suspension control ECU.
3) The seat belt control ECU determines the seat belt motor operation condition based on this signal and the seat belt buckle switch signal, and retracts the seat belt by operating the seat belt motor.
4) Upon receiving this signal, the skid control ECU switches the Brake Assist in the standby mode.
5) Upon receiving this signal, the suspension control ECU changes the damping force of the shock absorbers by controlling the suspension control actuator.
6) When the Brake Assist is in the standby mode and the stop light switch ON signal is input into the skid control ECU, this ECU operates the Brake Assist based on the master cylinder pressure sensor signal.
7) If no collision occurs, the seat belts, the shock absorbers, and the brake assist will return to their normal state.



Sudden Braking Operation

1) While the vehicle is traveling at approx. 30 km/h (20 mph) or above, the skid control ECU determines the sudden braking condition based on the signals from the master cylinder pressure sensor and the stop light switch.
2) At this time, the skid control ECU operates the brake assist, and outputs a seat belt operation request signal to the seat belt control ECU.
3) The seat belt control ECU determines the seat belt motor operation conditions based on this signal and the seat belt buckle switch signal. Then, it retracts the seat belts by operating the seat belt motors.
4) The seat belts return to the normal state when the brake pedal is released.



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