

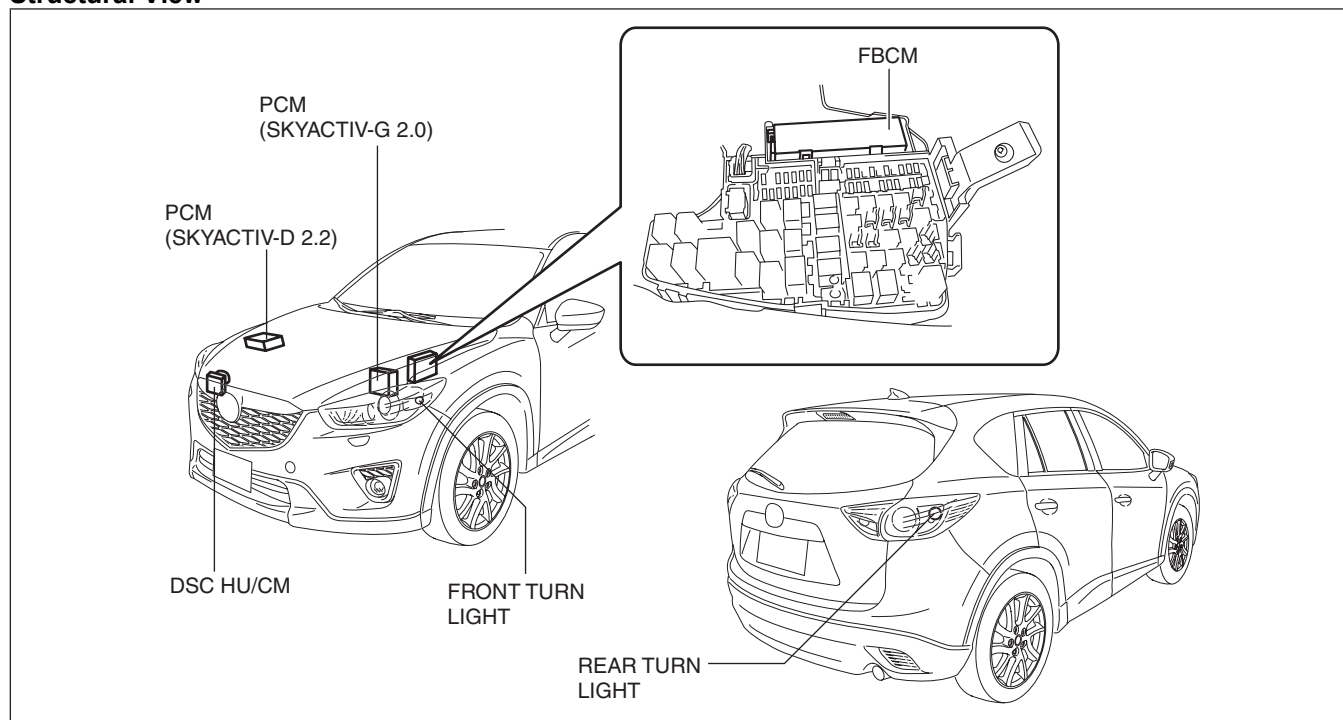
## EMERGENCY STOP SIGNAL SYSTEM (ESS)

id091800014600

### Outline

- The emergency stop signal system (ESS) is designed to caution the driver of a vehicle following behind of an emergency braking situation by automatically and rapidly flashing the hazard warning lights when the vehicle decelerates suddenly.
- The front body control module (FBCM) performs ESS fail-safe. (See FRONT BODY CONTROL MODULE (FBCM).)

### Structural View



ac5wzn00001241

HAZARD 25 A FUSE

B+

PCM

DSC HU/CM

START STOP UNIT

INSTRUMENT CLUSTER

CPU

FBCM

1A, 1B, 3K, 3L, 1G, 1F, 1E, 2B, 2F, 2D

FRONT TURN LIGHT (RH)

SIDE TURN LIGHT (RH)

REAR TURN LIGHT (RH)

FRONT TURN LIGHT (LH)

SIDE TURN LIGHT (LH)

REAR TURN LIGHT (LH)

: HS-CAN

- The front body control module (FBCM) gives priority to the emergency signal system (ESS) operation even if the turn switch is turned on during the emergency signal system (ESS) operation.
- When the hazard warning switch is turned on during the emergency signal system (ESS) operation, the front body control module (FBCM) stops the emergency signal system (ESS) operation and gives priority to the hazard warning light flashing operation.
- The front body control module (FBCM) controls the emergency signal system (ESS) based on the following CAN signals:

- The emergency signal system (ESS) has two warning modes; the sudden deceleration hazard warning mode in which the hazard warning lights flash rapidly, and the emergency stop hazard warning mode in which the hazard warning lights flash normally.

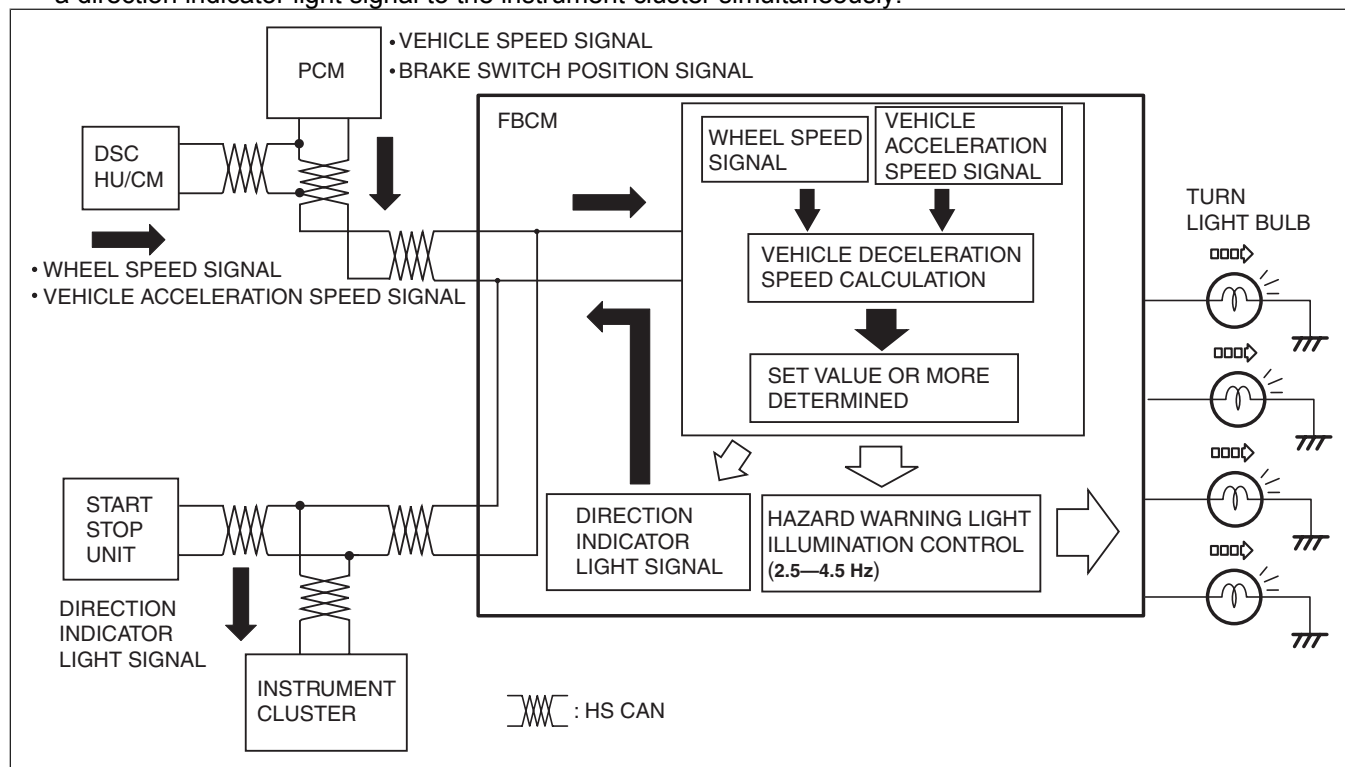
- The sudden deceleration hazard warning mode operates when the brake pedal is depressed while driving at a vehicle speed of 50 km/h {31 mph} or more and emergency braking is determined based on the vehicle's deceleration.
- When the sudden deceleration hazard warning mode operates the hazard warning lights flash at 2.5—4.5 Hz.

- The mode switches from the sudden deceleration hazard warning mode to the emergency stop hazard warning mode after certain conditions are met.

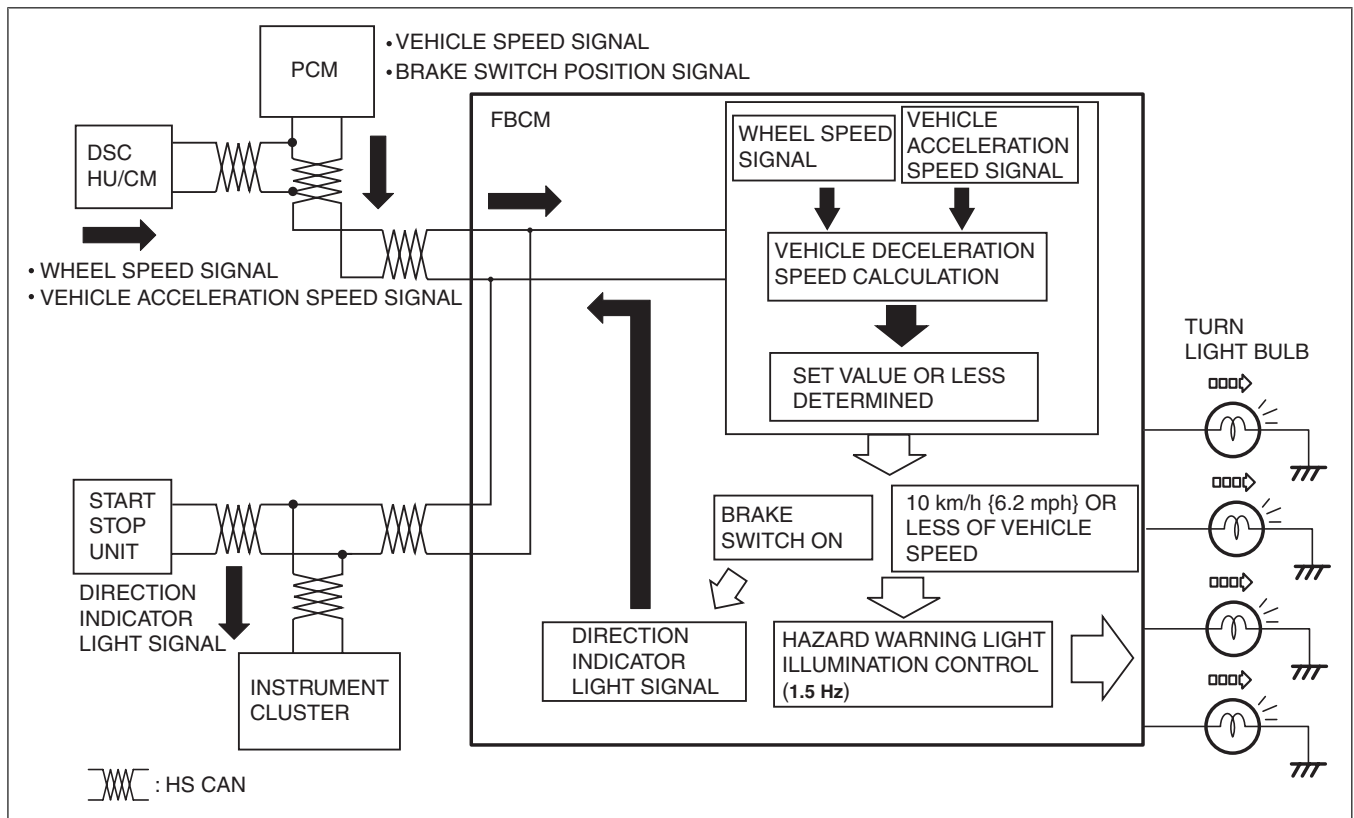
- The emergency stop hazard warning mode operates when the vehicle speed is 10 km/h {6.2 mph} or less and the brake pedal is depressed after the sudden deceleration hazard warning mode is cancelled.

### Operation

- If the brake pedal is depressed and the vehicle is decelerated while the vehicle speed is 50 km/h {31 mph} or more, the front body control module (FBCM) calculates the vehicle deceleration speed based on the wheel speed signal and vehicle acceleration speed signal.
- If the calculated deceleration speed is the set value or more for the sudden deceleration hazard warning mode, the front body control module (FBCM) controls the flashing of the hazard warning lights at 2.5—4.5 Hz and sends a direction indicator light signal to the instrument cluster simultaneously.



- If the calculated deceleration speed is the set value or less for the sudden deceleration hazard warning mode, the front body control module (FBCM) stops the operation of the sudden deceleration warning mode.
- If the vehicle speed is 10 km/h {6.2 mph} or less and the brake switch ON (brake pedal depressed) signal is sent after the sudden deceleration hazard warning mode operates, the front body control module (FBCM) controls the flashing of the hazard warning lights at 1.5 Hz (same as normal flashing).



5. If the brake switch OFF (brake pedal not depressed) signal is sent, the front body control module (FBCM) stops the operation of the emergency stop hazard warning mode and turns off the hazard warning lights.