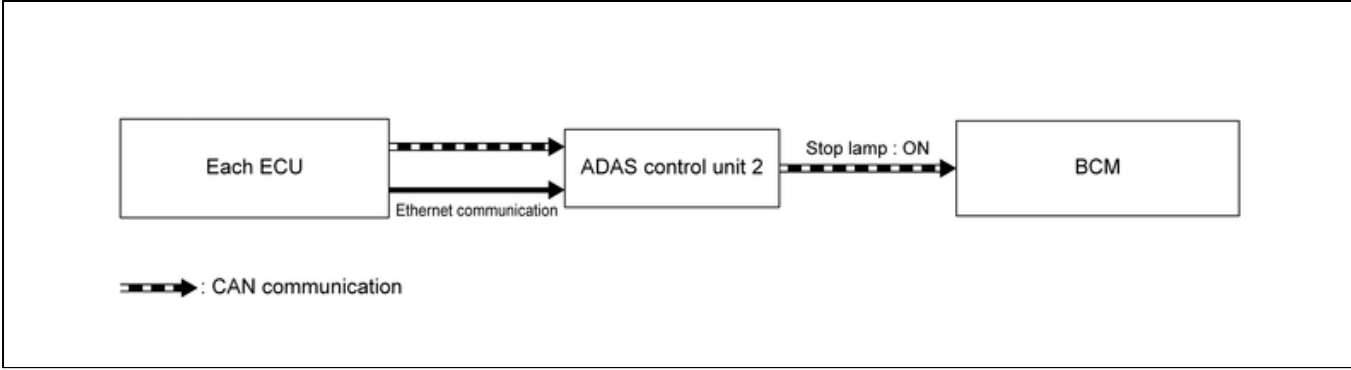


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## 2018 Nissan Altima Service and Repair Manual

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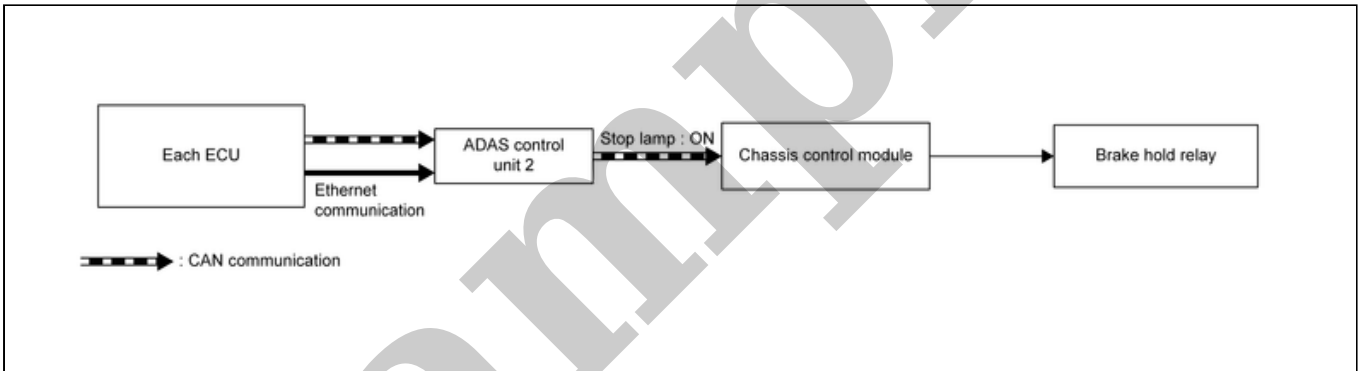


SIEMD-7254563-12-000399764

Control/Operation	Control unit/Component	Description
Stop lamp ON	BCM	Turns on stop lamps based on signal from ADAS control unit 2.

## STOP LAMP OPERATION (BCM) SYSTEM ERROR

- ADAS control unit 2 transmits stop lamp request signal to chassis control module.
- Chassis control module operates brake holding relay and turns on stop lamps.
- When ADAS control unit 2 judged that driver operates steering wheel, it cancels backup function.



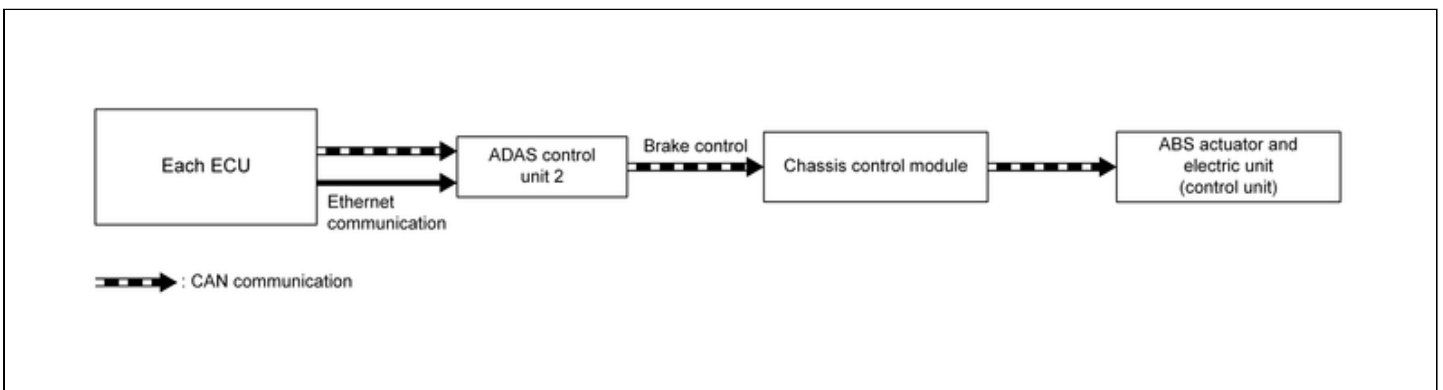
SIEMD-7254563-13-000399765

Control/Operation	Control unit/Component	Description
Stop lamp ON	Chassis control module → Brake holding relay	Turns on stop lamps based on signal from ADAS control unit 2.

## BACKUP FOR STOP HOLDING CONTROL SYSTEM ERROR

### STOP HOLDING CONTROL SYSTEM NORMAL

When stop holding control system is normal, ADAS control unit 2 transmits stop holding control signal to ABS actuator and electric unit (control unit) via chassis control module, and controls stop holding.

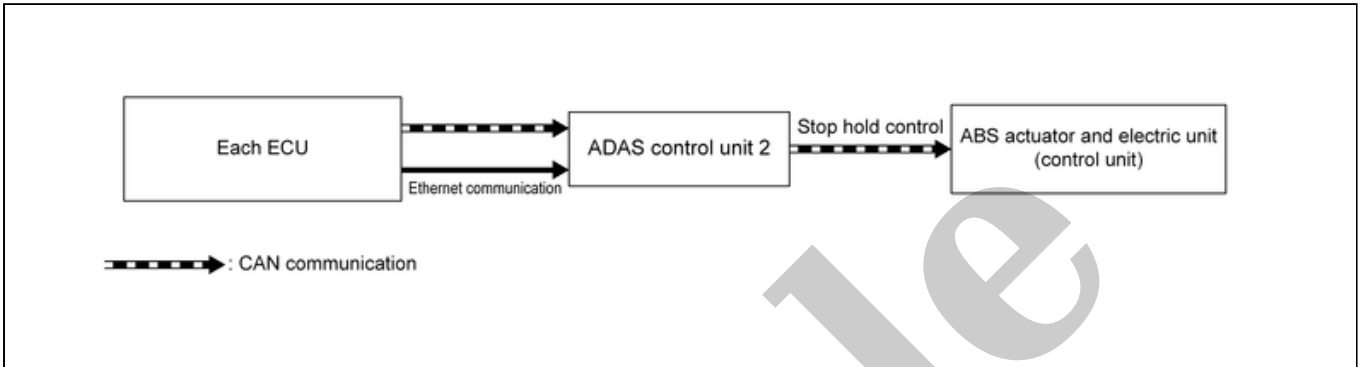


SIEMD-7254563-14-000399762

Control/Operation	Control unit/Component	Description
Stop holding control	Chassis control module → ABS actuator and control unit (control unit)	Operates electric parking brake based on signal from ADAS control unit 2.

## STOP HOLDING CONTROL (CHASSIS CONTROL MODULE) SYSTEM ERROR

- ADAS control unit 2 transmits stop holding control signal to ABS actuator and electric unit (control unit) and controls stop holding.
- When ADAS control unit 2 judged that driver operates steering wheel, it cancels backup function.

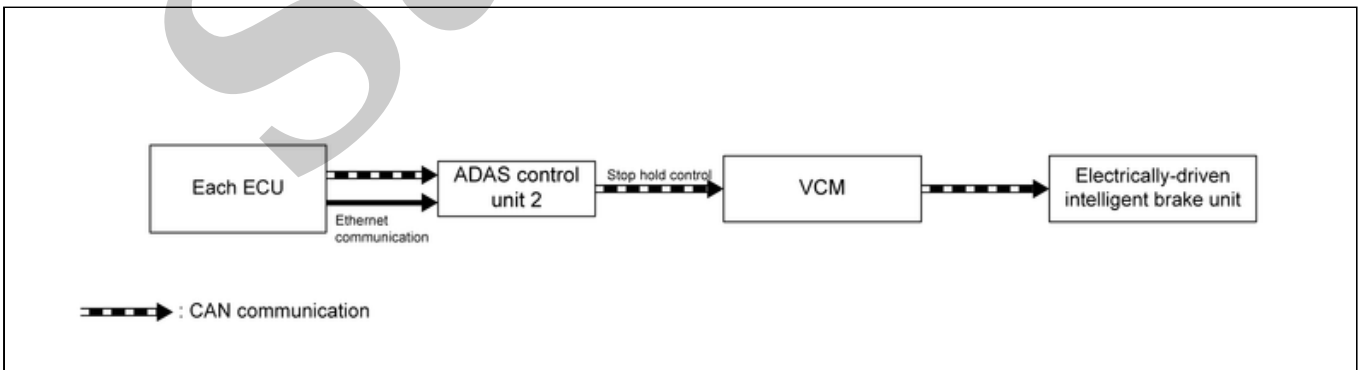


SIEMD-7254563-15-000399766

Control/Operation	Control unit/Component	Description
Stop holding control	ABS actuator and electric unit (control unit)	Operates electric parking brake based on signal from ADAS control unit 2.

## STOP HOLDING CONTROL [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)] SYSTEM ERROR

- ADAS control unit 2 transmits target shift position signal to electric shift control module via VCM and sets shift position to "P".
- When ADAS control unit 2 judged that driver operates steering wheel, it cancels backup function.



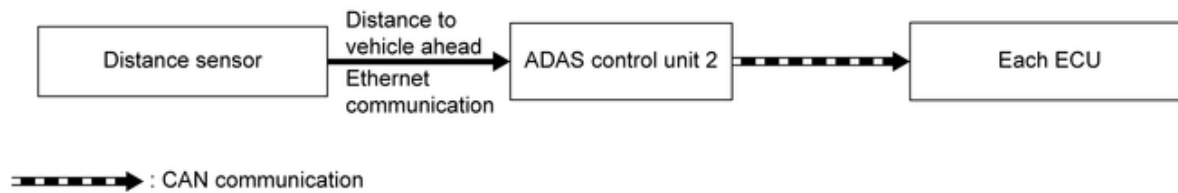
SIEMD-7254563-16-000399767

Control/Operation	Control unit/Component	Description
Stop holding control	VCM → Electric shift control module	Sets shift position to "P" based on signal from ADAS control unit 2.

## BACKUP FUNCTION FOR DISTANCE SENSOR MALFUNCTION

### DISTANCE SENSOR NORMAL

When distance sensor is normal, ADAS control unit 2 measures distance to vehicle ahead with distance sensor.

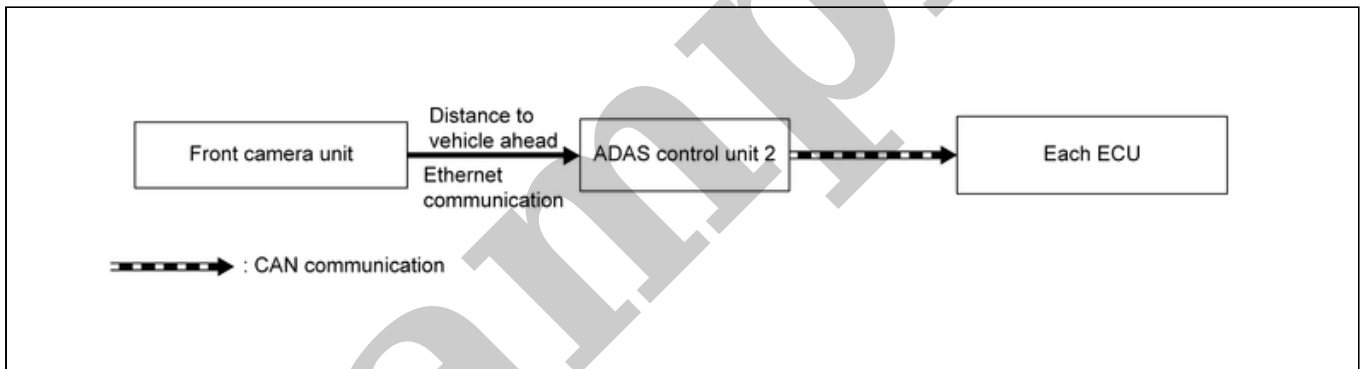


SIEMD-7254563-17-000399768

Control/Operation	Control unit/Component	Description
Vehicle ahead distance calculation	Distance sensor	ADAS control unit 2 recognizes distance to vehicle ahead based on signal from distance sensor.

## DISTANCE SENSOR MALFUNCTION

- ADAS control unit 2 recognizes distance to vehicle ahead based on signal from front camera unit.
- When ADAS control unit 2 judged that driver operates steering wheel, it cancels backup function.



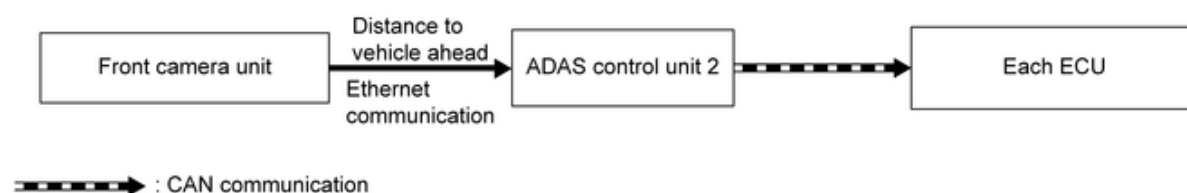
SIEMD-7254563-18-000399769

Control/Operation	Control unit/Component	Description
Vehicle ahead distance calculation	Front camera unit	ADAS control unit 2 recognizes distance to vehicle ahead based on signal from front camera unit via HD map module.

## BACKUP FUNCTION FOR FRONT CAMERA UNIT MALFUNCTION

### FRONT CAMERA UNIT NORMAL

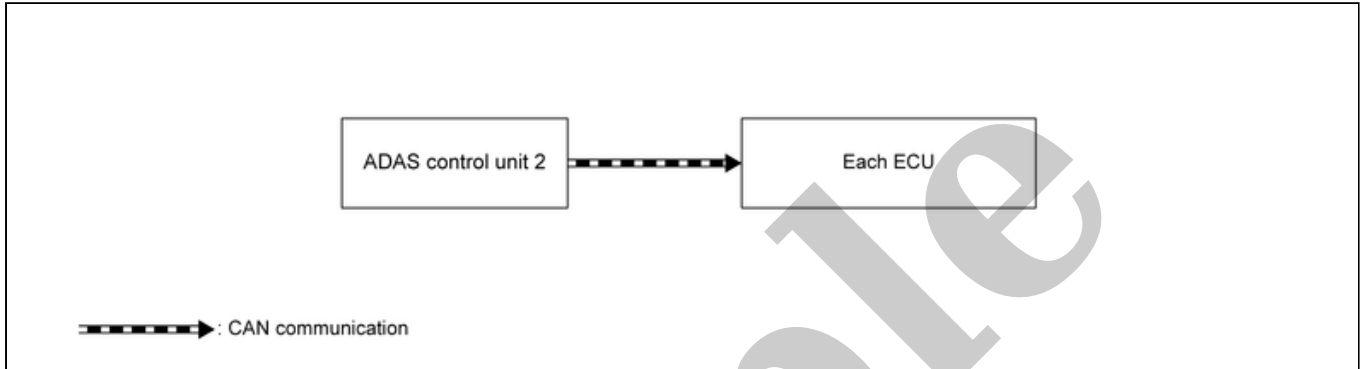
When front camera is normal, ADAS control unit 2 receives image signal from front camera unit, controls ProPILOT Assist 2.0 system.



Control/Operation	Control unit/Component	Description
Image detection	Front camera unit	ADAS control unit 2 recognizes distance to vehicle ahead based on signal from front camera unit via HD map module.

## FRONT CAMERA MALFUNCTION

- ADAS control unit 2 controls ProPILOT Assist 2.0 system with HD map data in ADAS control unit 2.
- When ADAS control unit 2 judged that driver operates steering wheel, it cancels backup function.



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Control/Operation	Control unit/Component	Description
HD map data	ADAS control unit 2	ADAS control unit 2 uses HD map data in ADAS control unit 2.

## FUNCTION DESCRIPTION

### Overtaking support function description

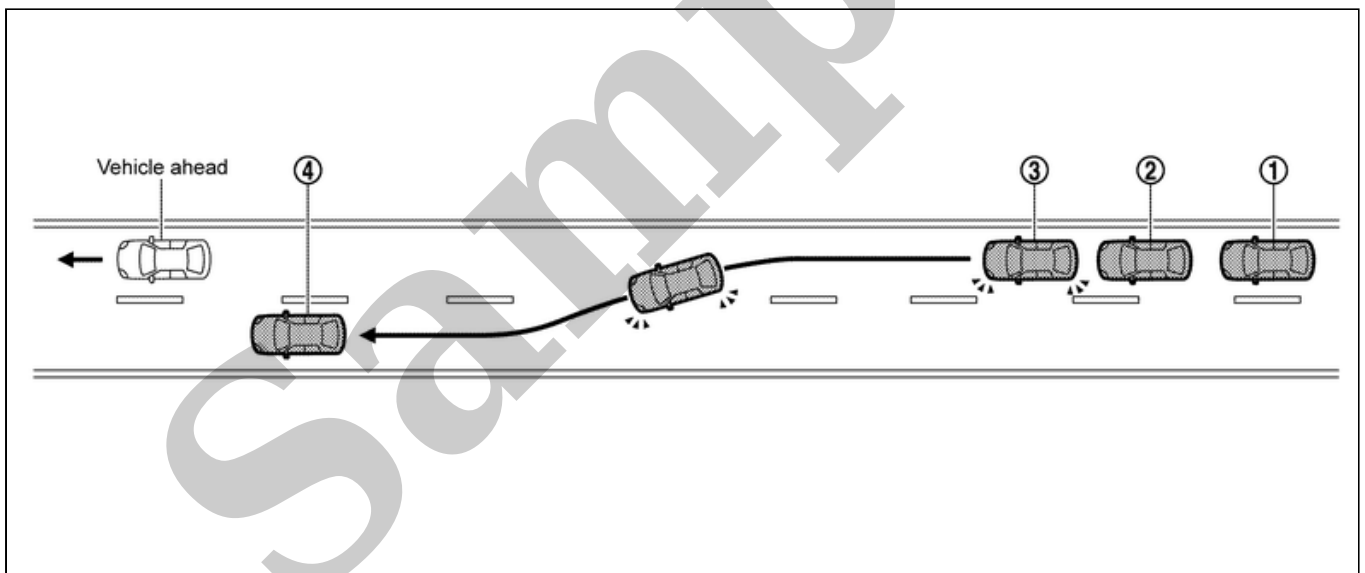
When vehicle slower than set vehicle speed is detected ahead, display suggests overtaking to driver. When driver presses lane change support switch, steering and turn signal lamps are controlled to support overtaking operation.

#### CAUTION:


- **Driver is responsible for making safe lane changes depending on road, traffic and vehicle conditions.**
  - **When changing lane, be sure to check surrounding conditions and move safely to the desired lane.**
- **Overtaking support function does not have steering control function to avoid collision.**
  - **Always hold steering wheel when changing lane and safely move to desired lane.**

### OPERATION DESCRIPTION

- When slow vehicle is detected ahead.



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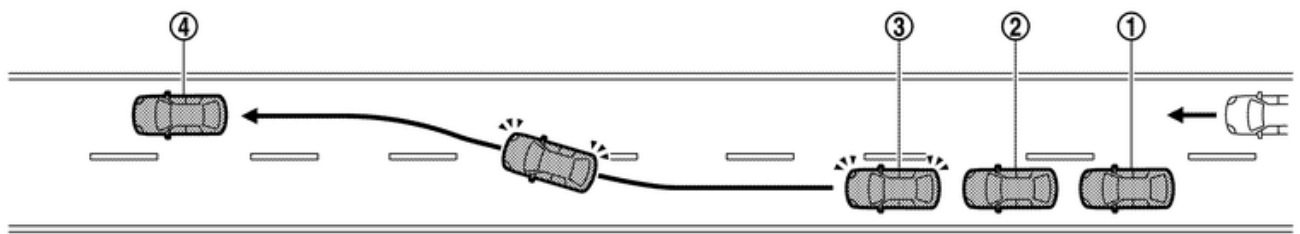
- ① When slow vehicle is detected ahead, lane change support operation display turns on in white in head-up display, and message of "Change lane to the right with  " is displayed.
- ② Check visually right lane for safety, hold steering wheel and press lane change support switch.
- ③ Lane change support operation display flashes in green, turn signal lamps are turned on, and then steering control supports movement to right lane.
- ④ When movement to right lane is completed, turn signal lamps are turned off and lane keeping function is operated again.




#### NOTE:

**Driver's steering operation is always prioritized**

- When overtaking slow vehicle with overtaking support function



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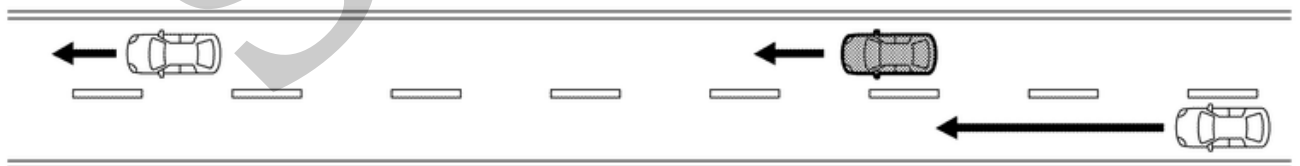
- ① When slow vehicle is detected ahead, lane change support operation display turns on in white in head-up display, and message of "Change lane to the left with  " is displayed.
- ② Check visually left lane for safety, hold steering wheel and press lane change support switch.
- ③ Lane change support operation display flashes in green, turn signal lamps are turned on, and then steering control supports movement to right lane.
- ④ When movement to left lane is completed, turn signal lamps are turned off and lane keeping function is operated again.



**NOTE:**

**Driver's steering operation is always prioritized.**

- When lane change support switch is pressed while detecting vehicle in the desired lane



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- When lane change support switch is pressed while detecting vehicle in the desired lane, lane change support operation is displayed as white animation, and detects enough space to change lane in the desired lane for maximum 10 seconds approx.
- When sufficient space for changing lanes is detected in the desired lane, lane change support operation display flashes in green and turn signal lamps are turned on, and then movement to the desired lane is supported by steering control.



**NOTE:**

- **The driver's steering operation is always prioritized.**

- **When lane change support switch is pressed while detecting vehicle in the desired lane, lane change support operation is displayed as white animation.**
- **When sufficient space for changing lanes cannot be detected within maximum 10 seconds approx. after pressing lane change support switch, lane change support operation is cancelled.**

## OPERATION DESCRIPTION

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### When detecting slow vehicle ahead

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- When ADAS control unit 2 satisfies conditions, lane change support operation lamps of combination meter and head-up display are turned on in blue.
- When there is no vehicle on right side of own vehicle or when vehicle slower than the set vehicle speed is detected ahead while lane change support lamp is turned on blue, ADAS control unit 2 transmits signals the head-up display and suggest overtaking to driver.
- ADAS control unit 2 controls overtaking support function as follows.
  - ADAS control unit 2 detects driver's steering operation based on steering torque signal from power steering control module and signal from steering wheel touch sensor.
  - When ADAS control unit 2 receives that lane change support switch is pressed based on steering SW signal from VCM, ADAS control unit 2 transmits turn signal request signal to BCM via CAN communication.
  - ADAS control unit 2 then transmits steering angle command signal to power steering control module via CAN communication to change lane.
  - Power steering control module receives steering angle command signal from ADAS control unit 2 and steers the steering.
  - When ADAS control unit 2 determines that lane change to desired lane is completed, it transmits signal to BCM to turn off turn signal lamps.
  - ADAS control unit 2 resumes control of lane keeping function when operating conditions of lane keeping function are satisfied.

### When overtaking slow vehicle with overtaking support function

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- When ADAS control unit 2 detects that there is no vehicle on the left side of own vehicle during lane change support operation lamp in blue, it transmits signal to head-up display, and suggests driver to return to original lane.
- ADAS control unit 2 controls overtaking support function as follows.
  - ADAS control unit 2 detects driver's steering operation based on steering torque signal from power steering control module and signal from steering wheel touch sensor.
  - When ADAS control unit 2 receives that lane change support switch is pressed based on steering switch signal from VCM, ADAS control unit 2 transmits turn signal request signal to BCM via CAN communication.
  - ADAS control unit 2 then transmits steering angle command signal to power steering control module via CAN communication to change lane.
  - Power steering control module receives steering angle command signal from ADAS control unit 2 and steers the steering.
  - When ADAS control unit 2 determines that lane change to desired lane is completed, it transmits signal to BCM to turn off turn signal lamps.
  - ADAS control unit 2 resumes control of lane keeping function when operating conditions of lane keeping function are satisfied.

## OPERATION CONDITION

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- When the following conditions are satisfied, overtaking is suggested to driver.
  - When lane change support lamp is blue
  - When detecting vehicle ahead slower than set vehicle speed
  - When there is no vehicle in the right lane
- When driver holds steering wheel and presses lane change support switch, steering is controlled and moving to right lane is supported.



**NOTE:**

**When the setting of "Overtaking support" is OFF in the combination meter, overtaking support function does not suggest to change lane.**

- When the following conditions are satisfied, the driver is suggested to move to left lane.
  - When lane change support lamp is blue
  - When there is no vehicle in left lane
  - When left lane is not the climbing lane
  - When left lane ahead is not decreased
- When driver holds steering wheel and presses lane change support switch, lane change support to the left lane is started by overtaking support function.



**NOTE:**

**Overtaking support function suggests driving in left lane when there is no vehicle surroundings.**

## CANCEL CONDITION

- Cancel lane change support by overtaking support function due to any of the following operations.
  - When lane change support switch is pressed (press longer)
  - When turn signal switch is operated in the direction opposite to the desired direction
  - When operating steering
- When overtaking support function is cancelled, lane change support display turns off.
- In the following conditions, lane change support display turns off with sound, and lane change support by overtaking support function is cancelled.
  - When sufficient space for lane change cannot be detected within 10 seconds approx. after pressing lane change support switch
  - When vehicle is detected in the desired lane after turn signal lamps are operated
  - When lane markers cannot be detected
  - When vehicle speed drops below 60 km/h (37 MPH) approx
  - When driver's steering holding is not detected
  - When vehicle speed/vehicle-to-vehicle distance control function is canceled
  - When shield is detected near the lane markers in the direction of the desired lane



**NOTE:**

- When lane change support is cancelled in lane where lane change support is started, steering is controlled in the direction of returning to almost center of lane where lane change support is started.
- When lane change support by overtaking support function is cancelled, turn signal lamps are automatically turned off.

## ALARM/WARNING

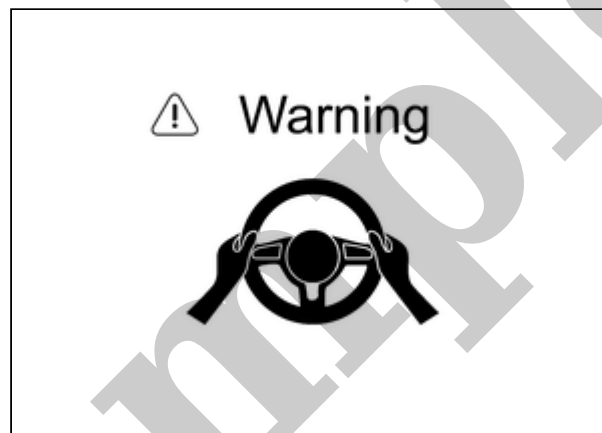
### When driver is judged not to hold steering wheel

- Monitors whether driver holds or operates steering wheel

**CAUTION:**

**When changing lanes, be sure to hold steering wheel while driving.**

- When driver is judged not to hold or operate steering wheel while assisting lane change, driver is warned by display to operate steering wheel.



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- When driver does not operate steering even after warning display, the driver is gradually warned by sound, display and short-time brake control.
- When driver continues not to operate steering, emergency warning sounds and "Deceleration" is displayed in the head-up display and combination meter to decelerate and make emergency stop.



**NOTE:**

- **Steering wheel holding detection not accurate in the following conditions. Therefore, even if steering wheel is held, a warning may be displayed.**
  - When driver is wearing gloves
  - When cover is attached to steering wheel
  - When gripping leather joints or spokes