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2018 NISSAN Altima (Thailand) OEM Service and Repair Workshop Manual

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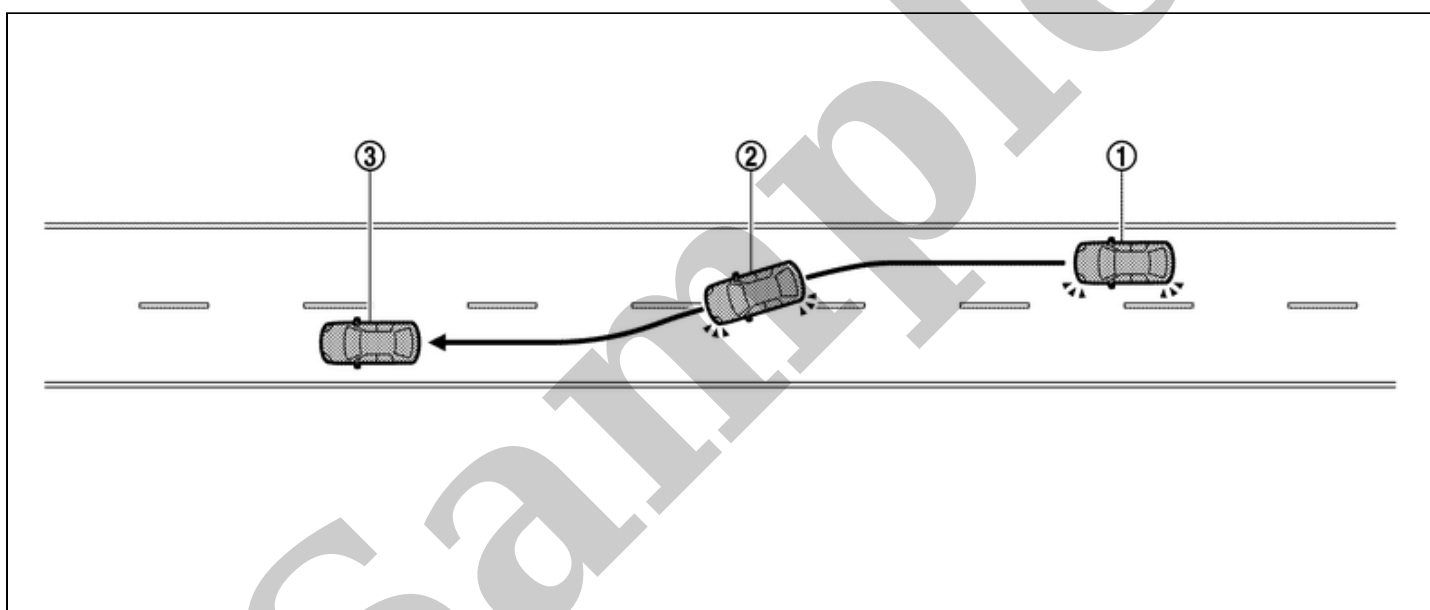
FUNCTION DESCRIPTION

When driver holds and operates steering wheel, and operates turn signal switch in the direction of the desired lane while lane change support operation lamps in combination meter and head-up display are turned ON in blue, lane change support is started.

CAUTION:

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

LANE CHANGE SUPPORT FUNCTION



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- ① Check visually desired lane for safety, hold steering wheel, operate turn signal switch, and activate turn signal in the direction of desired lane.
- ② Lane change support display blinks in green, and then steering control assists to move to desired lane.



NOTE:

Driver's steering operation is always prioritized.

- ③ When the change to desired lane is completed, turn signal lamps automatically turn off and lane keeping function is activated again.

OPERATION DESCRIPTION

- When ADAS control unit 2 satisfies conditions, lane change support operation lamps of combination meter and head-up display are turned on in blue.
- ADAS control unit 2 controls lane change 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 driver operates turn signal switch, BCM transmits turn signal indicator signal to ADAS control unit 2 via CAN communication.
- When ADAS control unit 2 CAN receives turn signal indicator signal while detecting driver's steering operation ADAS control unit 2 transmits steering angle command signal via CAN communication to the power steering control module to change lanes in the direction in which turn signal switch is operated.
- 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

When the following conditions are satisfied, lane change support lamp is turned ON in blue.

- When ProPILOT Assist 2.0 display is blue
- When traveling at vehicle speed of 60 km/h (37 MPH) approximately or higher
- When driving on a road with two or more lanes
- When either the left or right or both lane markers are dashed white
- When driving on a straight or a gentle curve roads.
- When driving on road with speed limit of 70 km/h (43 MPH) or more



NOTE:

When the setting of "Turn signal switch is linked" is OFF in the combination meter, lane change support function by operating turn signal switch does not operate, even if lane change support operation lamp is turned ON in blue.

CANCEL CONDITION

Cancel supporting lane changes by any of the following operations.

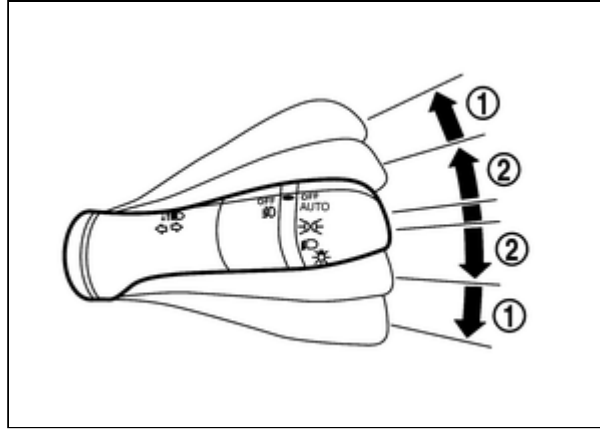
(The lane change support display turns off)

- When operating the steering
- When turn signal switch is operated in the direction opposite to the desired direction.



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 is started by operation other than comfort flasher function position ① the turn signal does not turn off even if the lane change is cancelled.
- When lane change support is started by operating comfort flasher function position ② and operation is cancelled after turn signal lamps are turned ON three or more times, operation is cancelled and turn signal lamps are turned OFF.



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In the following conditions, lane change support display turns off with sound, and lane change support is cancelled.

- When vehicle is detected in the desired lane
- When lane marker cannot be detected
- When vehicle speed drops below 60 km/h (37 MPH) approx.
- When it detects that driver does not hold steering wheel
- When vehicle speed/vehicle-to-vehicle distance control function is canceled
- When shield is detected near lane marker in the direction of the desired lane

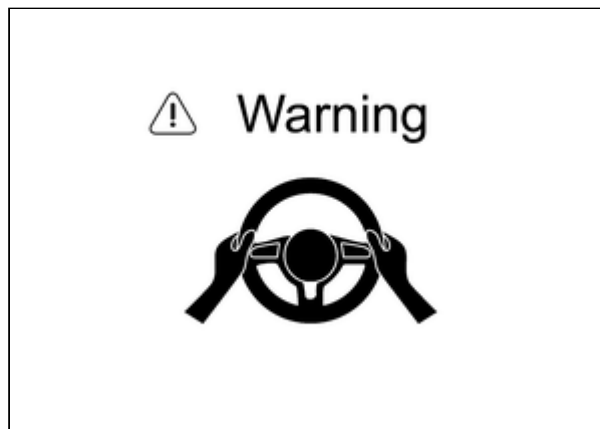
ALARM/WARNING

When driver is judged not to hold steering wheel

CAUTION:

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

- Monitors whether driver holds or operates steering wheel, when assisting lane change.
- 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.

For warning message, refer to [Operation](#).



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

Sample

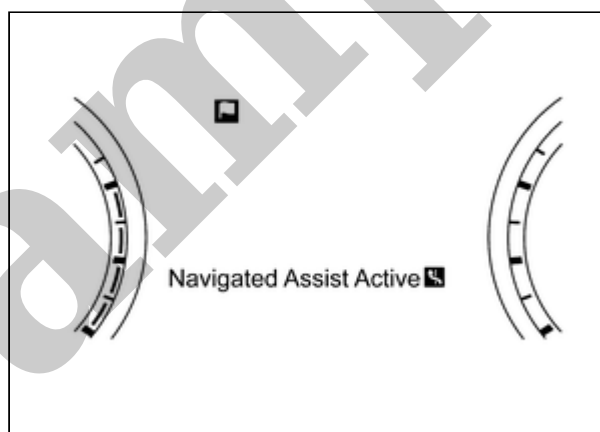
FUNCTION DESCRIPTION

ROUTE DRIVING SUPPORT FUNCTION DESCRIPTION

- Display suggests driver to change lane when approaching lane change point required according to navigation route during driving to destination set to navigation system.

CAUTION:

- **Driver is responsible for making safe lane changes depending on road, traffic and own vehicle conditions.**
 - **When changing lanes, be sure to check the surrounding conditions and move safely to the desired lane.**
 - **The lane change support function does not have a steering control function to avoid a collision.**
 - **When changing lanes, be sure to hold the steering wheel and safely move to the desired lane.**
- When driver presses lane change support switch, steering is controlled to support the lane change operation.
 - When destination is set to navigation system and drive on the main road for motor way with ProPILOT Assist 2.0, navigation link control lamp turns on.
 - When navigation link control operation lamp is on, "Navigation link control in progress" is displayed in combination meter.



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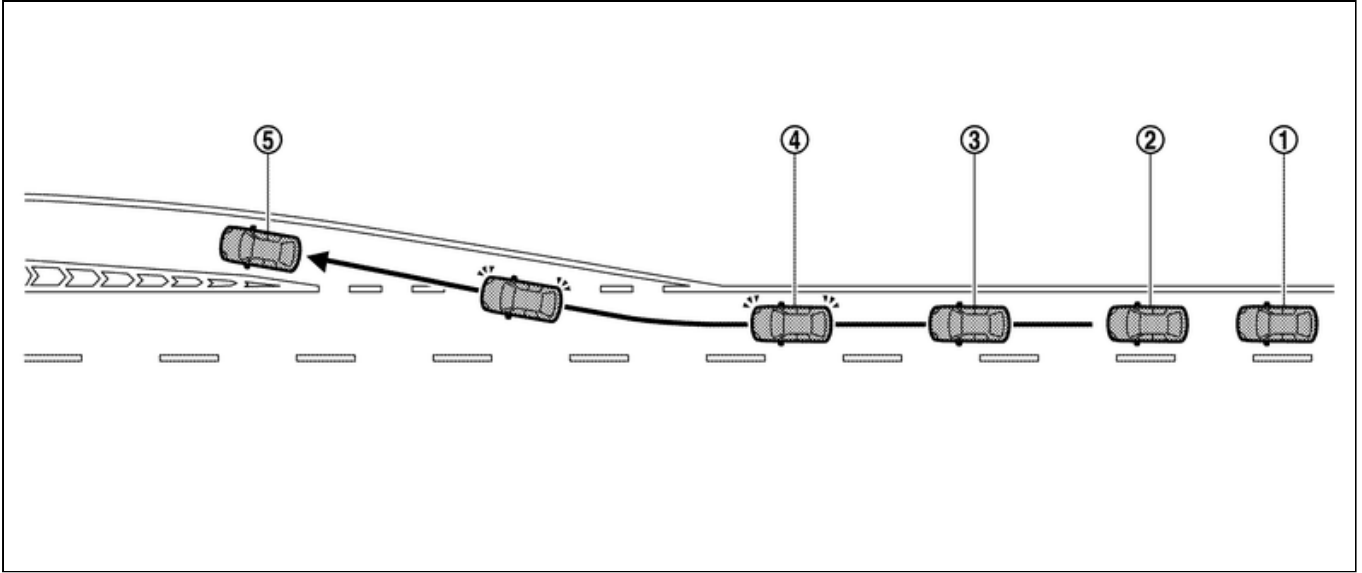
- When approaching exit, road split, or point where number of lanes decreases during blue lamp of lane change support, display suggests driver to change lanes.
- When driver holds steering wheel and presses lane change support switch, route driving support function starts lane change support.

**NOTE:**

- **Even if navigation link control lamp is turned on blue, when lane change support lamp is not turned on blue, route change support function does not propose a lane change.**
- **If "Route driving support" setting in the combination meter is OFF, route driving support function does not suggest lane change.**

ROUTE DRIVING SUPPORT FUNCTION OPERATION

- When driving in the first lane and approaching to exit on the left or road split



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CAUTION:

When there is a vehicle stopped at exit or road split, movement to exit or road split cannot be supported by the route driving support function.

- **Driver always checks surrounding conditions, operates steering according to the situation, and drives to exit or road split.**

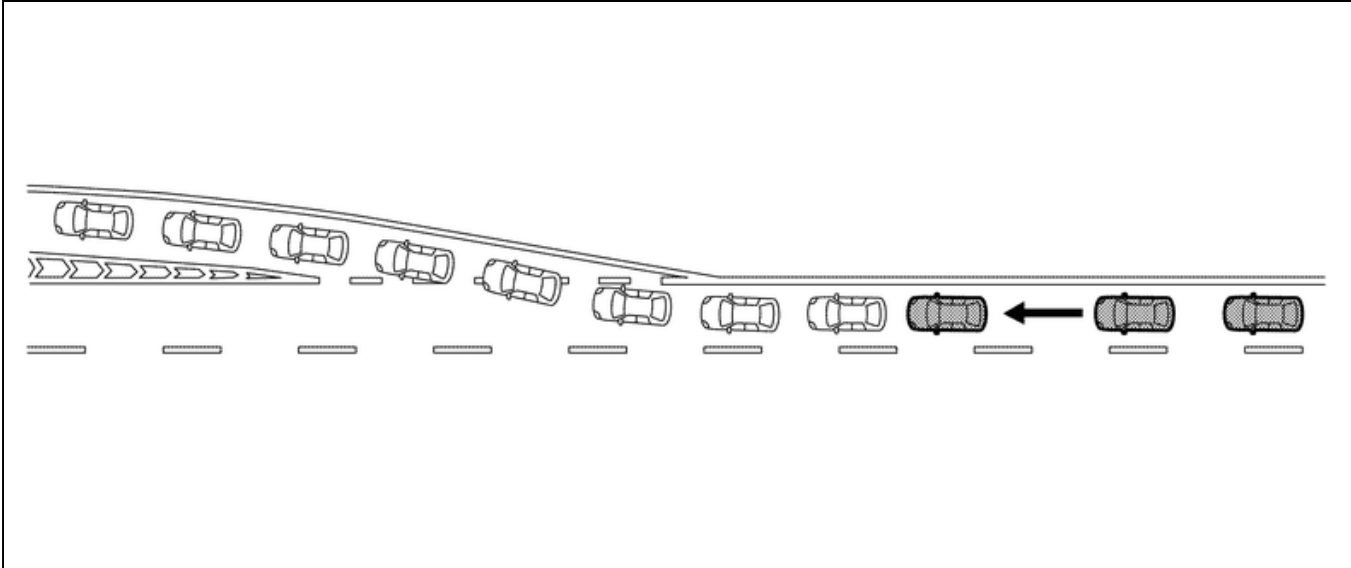
- ① When approaching to exit or road split on the navigation route, white lane change support indicator and message of "Soon left at road split . Check safety. Go to road split at [icon]" are displayed in head-up display with sound.
- ② Check visually left lane for, hold steering wheel and press lane change support switch.
- ③ Lane change support display shows white animation.
- ④ In front of exit or road split, lane change support display flashes in green and the turn signal lamps are turned on, and then steering control assists movement to exit or road split.
- ⑤ When movement to exit or road split is completed, turn signal lamps are automatically turned off and lane keeping function is operated again.



NOTE:

- **Driver's steering operation is always prioritized.**
- **When not approaching to the exit or road split, do not press lane change support switch. Lane change support display turns off just before exit or road split, and the route driving support function is canceled. After that, new route is set by navigation, and when operating conditions are satisfied again, operation of route driving support function is restarted.**

- When driving in the first lane and approaching to exit or road split. (when exit or road split is congested)



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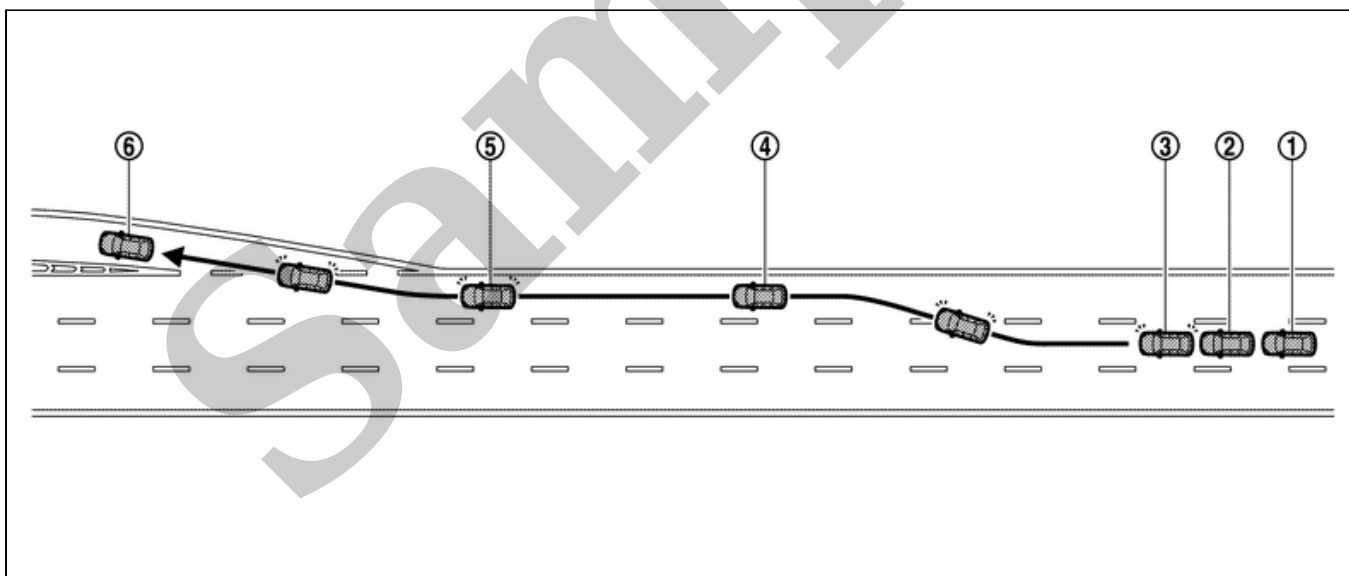
After pressing lane change support switch and starting operation of route driving support function, when vehicle speed drops below 60 km/h approx., lane change support display turns off with sound, message of "Lane change support is cancelled" in combination meter, and then support for moving to exit and road split is cancelled.



NOTE:

When conditions are satisfied again after support for movement to exit or road split is cancelled, driver is suggested to change lanes to follow the route.

- When driving in the second lane and approaching to exit on the left or road split



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CAUTION:

When there is a vehicle stopped at exit or road split, movement to exit or road split cannot be supported by the route driving support function.

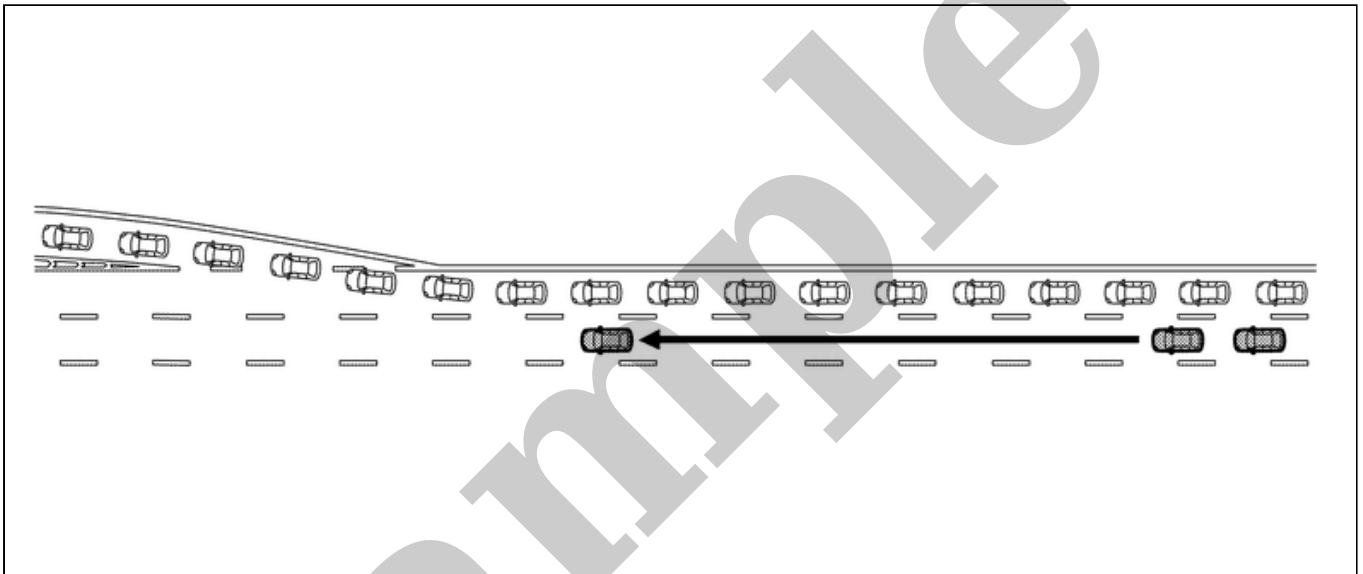
- Driver always checks surrounding conditions, operates steering according to the situation, and drives to exit or road split.
- ① When approaching to exit or road split on the navigation route, white lane change support indicator and message of "Soon left at road split . Check safety. Go to road split at [icon]" are displayed in head-up display with sound.
- ② Check visually left lane for, hold steering wheel and press lane change support switch.
- ③ Lane change support operation display flashes in green and turn signal lamps are turned on , and then steering control assists movement to the first lane.

- ④ When movement to the first driving lane is completed, turn signal lamps are automatically turned off and lane change support operation display shows white animation.
- ⑤ In front of exit or road split, lane change support display flashes in green and the turn signal lamps are turned on, and then steering control assists movement to exit or road split.
- ⑥ When movement to exit or road split is completed, turn signal lamps are automatically turned off and lane keeping function is operated again.



NOTE:

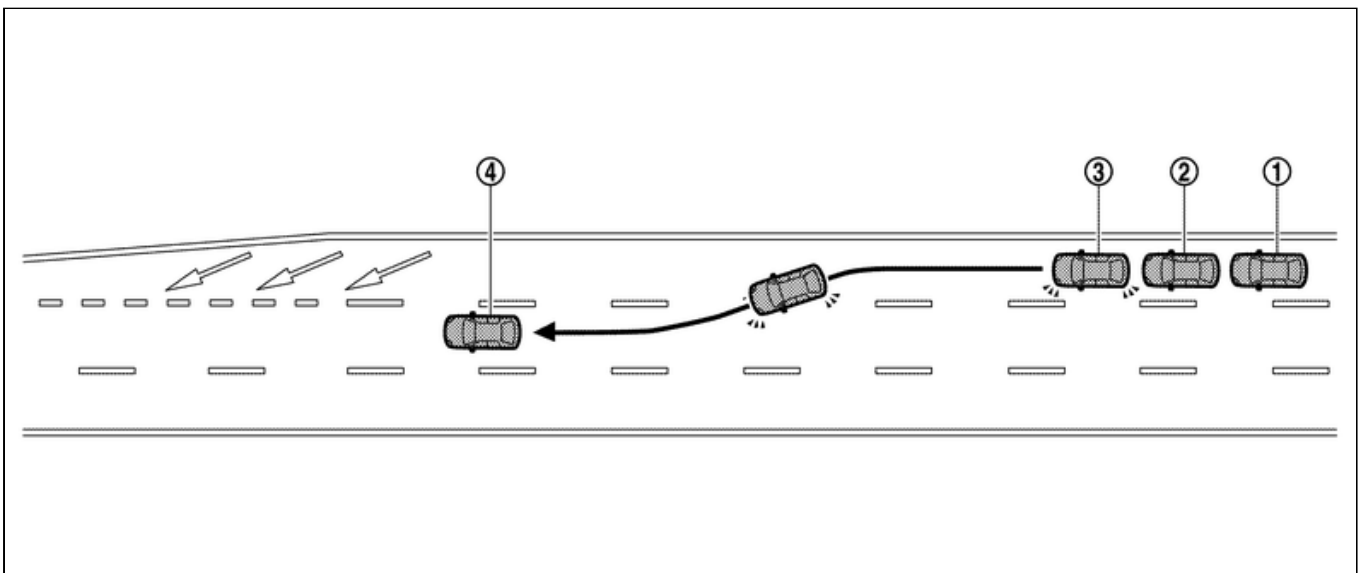
- **Driver's steering operation is always prioritized.**
 - **When already moved to the first driving lane by route driving support function but there is still distance to exit or road split, the display of ProPILOT Assist 2.0 may turn blue if conditions are satisfied.**
 - **Lane change support function can be set in the combination meter as one by one or continuous lane change.**
- When driving in the second lane and approaching to exit or road split. (when exit or road split of the first lane is congested)



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When space required to change lane in the direction of exit or road split cannot be detected during approaching to exit or road split, lane change support display turns off with sound, and message of "Lane change support is cancelled" is displayed, and support for moving to exits and road split is cancelled. Then driver decides route according to surrounding traffic conditions and operates turn signal switch and steering.

- When the driving lane disappears



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- ① When driving on the navigation route and the driving lane disappears, lane change support display turns on white with a sound, message of "Lane reduction Check check ahead for safety . Lane change to the right at  " is displayed in head-up display.
- ② Check visually right lane for safety, hold steering wheel and press lane change support switch.
- ③ Lane change support display flashes green and turn signal lamp is turned on, after that steering control assists moving to right lane.
- ④ When movement to right lane is completed, turn signal lamps are automatically turned off and lane keeping function is operated again.



NOTE:

The driver's steering operation is always prioritized.

OPERATION DESCRIPTION

- When vehicle reaches to lane change point based on route guide signal from AV control unit and information of HD map data while destination is set in the navigation system, ADAS control unit 2 transmits signal to head-up display to suggest driver to change lanes.
- ADAS control unit 2 controls route driving 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.



NOTE:

Even if the Lane Change Assist switch is pressed , the turn signal lamp may not blink immediately depending on the road conditions.

OPERATION CONDITION

- When driver sets destination in the navigation system, display suggests driver to change lanes when reaching lane change point required to drive according to the navigation route.
- When driver presses lane change support switch, it controls steering and support lane change operation.

CANCEL CONDITION

- Lane change support by route driving support function is cancelled due to any of the following operations.
 - When pressing lane change support switch (press longer)
 - When turn signal switch is operated in the direction opposite to desired direction.
 - When operating steering wheel.