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2021 NISSAN GT-R Service and Repair Manual

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- Side radar starts the control as follows, based on a reverse gear signal and vehicle detection signal.
- Side radar detects a vehicle approaching.

OPERATION CONDITION

Side radar performs the control when the following conditions are satisfied:

- RCTA system: ON
- Vehicle speed: Approximately 8 km/h (5 MPH) or less
- Selector lever: “R” position

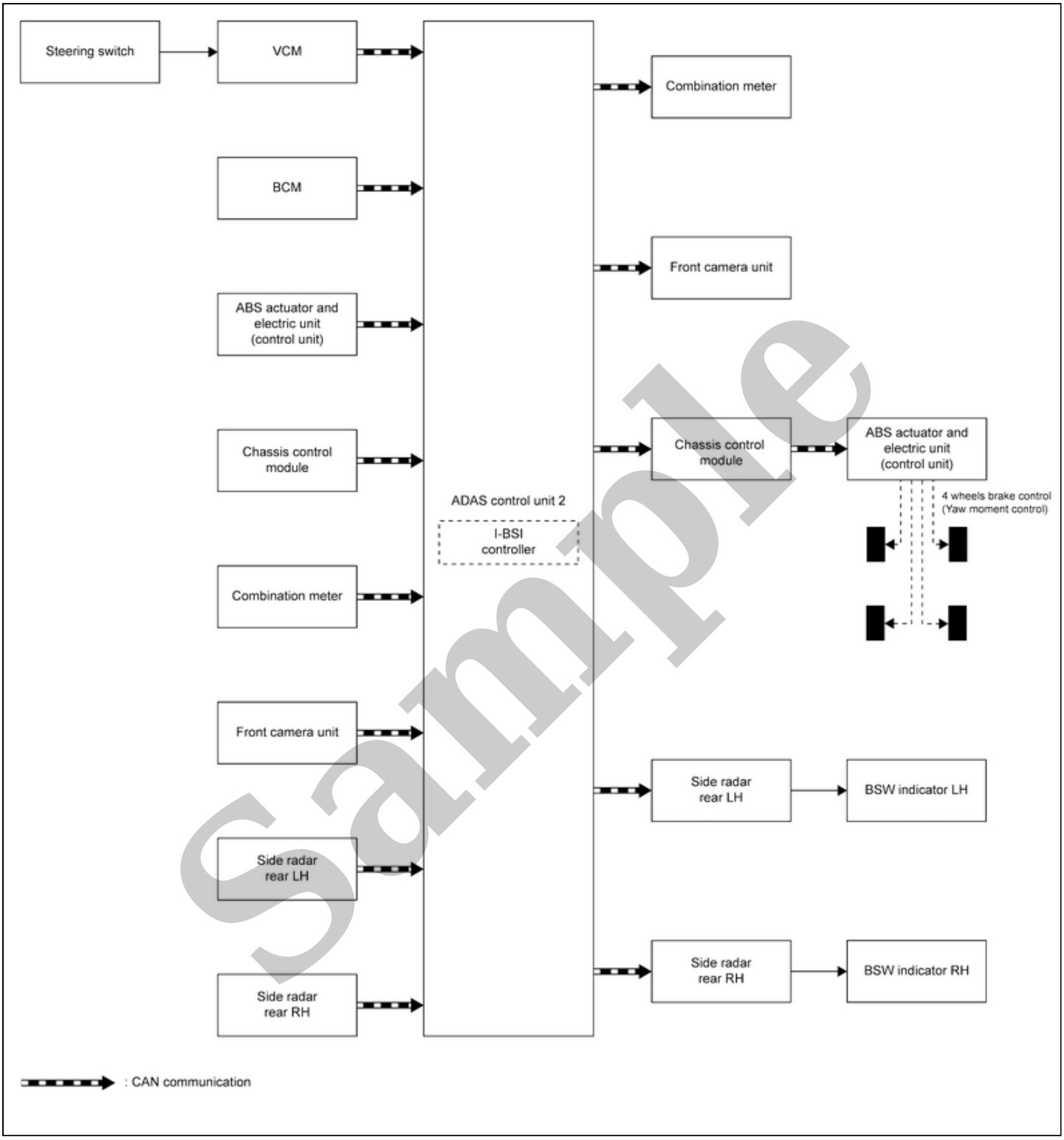
CANCEL CONDITION

The side radar cancels the operation when the system is under any conditions of the operation cancellation condition.

- When the system malfunction occurs.
- When the area around the side radar is dirty.

SIEMD-7109734

SYSTEM DIAGRAM



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Component	Description
VCM	Component Description
ABS actuator and electric unit (control unit)	Component Description
BCM	System Description
Combination meter	Combination Meter
ADAS control unit 2	ADAS Control Unit 2
Side radar rear LH/RH	Component Description
Front camera unit	Front camera unit

Component	Description
BSW indicator LH, RH	BSW Indicator LH/RH
Chassis control module	Component Description

ADAS CONTROL UNIT 2 INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

Transmit unit	Signal name		Description
VCM	CAN communication	Accelerator pedal position signal	Receives accelerator pedal position (angle)
		Steering switch signal	Receives the operational state of the steering switch
ABS actuator and electric unit (control unit)	CAN communication	ABS malfunction signal	Receives a malfunction state of ABS
		ABS operation signal	Receives an operational state of ABS
		TCS malfunction signal	Receives a malfunction state of TCS
		TCS operation signal	Receives an operational state of TCS
		VDC OFF signal	Receives an ON/OFF state of ESP
		VDC malfunction signal	Receives a malfunction state of ESP
		VDC operation signal	Receives an operational state of ESP
		Vehicle speed signal (ABS)	Receives wheel speeds of four wheels
		Yaw rate signal	Receives yaw rate acting on the vehicle
		Side G sensor signal	Receives lateral G acting on the vehicle
		Electric parking brake operation signal	Receives an operational state of the parking brake
BCM	CAN communication	Turn indicator signal	Receives an operational state of the turn signal lamp and the hazard lamp
		Dimmer signal	Receives ON/OFF state of dimmer signal
Chassis control module	CAN communication	Steering angle sensor signal	Receives the number of revolutions, turning direction of the steering wheel
Combination meter	CAN communication	System selection signal	Receives a selection state of each item selected with the information display
Front camera unit	CAN communication	Detected lane condition signal	Receives detection results of lane marker
Side radar rear LH/RH	CAN communication	Vehicle detection signal	Receives vehicle detection condition of detection zone

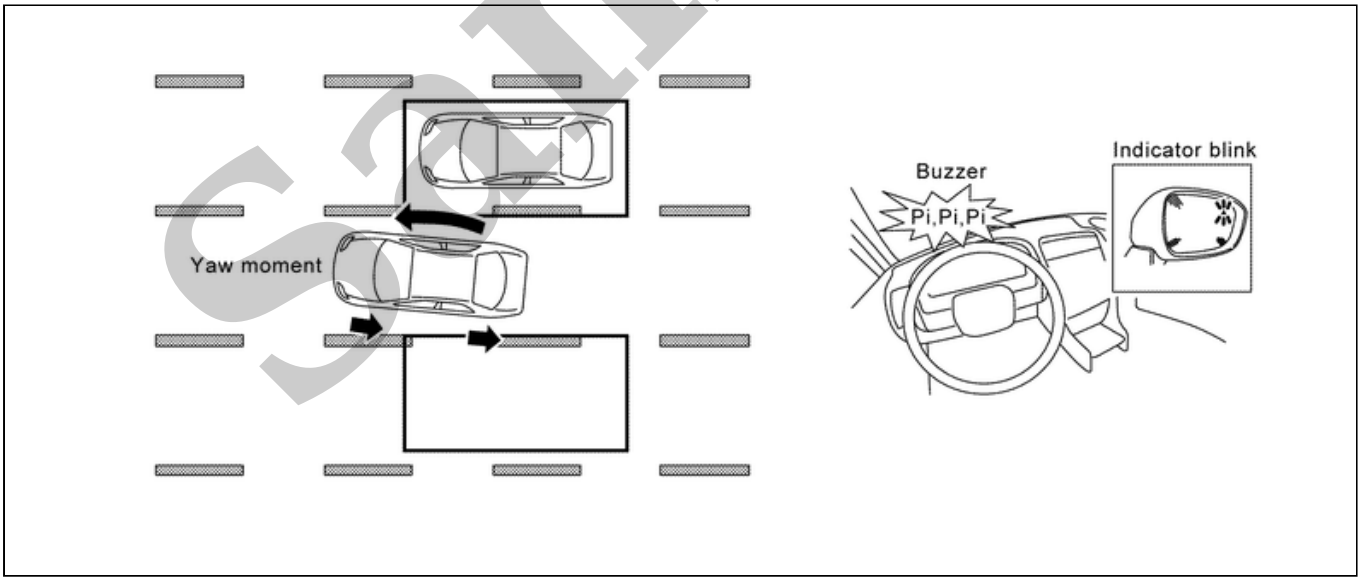
Output Signal Item

Reception unit	Signal name		Description
ABS actuator and electric unit (via chassis control module)	CAN communication	Target yaw moment signal	Transmits a target yaw moment signal to generate yaw moment to the vehicle
Combination meter	CAN communication	Meter display signal	Transmits a signal to display a state of the system on the information display
		Buzzer output signal	Transmits a signal to activate buzzer

Reception unit	Signal name		Description
Side radar rear LH/RH	CAN communication	Vehicle speed signal	Transmits a vehicle speed calculated by the ADAS control unit 2
		BSW indicator signal	Transmits a BSW indicator signal to turn ON the BSW indicator
		BSW indicator dimmer signal	Transmits a BSW indicator dimmer signal to dimmer BSW indicator
Front camera unit	CAN communication	Vehicle speed signal	Transmits a vehicle speed calculated by ADAS control unit 2
		Turn indicator signal	Transmits a turn indicator signal received from BCM

FUNCTION DESCRIPTION

- The I-BSI system can help alert the driver of other vehicles in adjacent lanes when changing lanes. I-BSI always operates together with Blind Spot Warning.
- The I-BSI system operates above approximately 60 km/h (37 MPH).
- The I-BSI system uses side radar installed near the rear bumper to detect other vehicles beside vehicle in an adjacent lane.
- The side radar can detect vehicles on either side of vehicle within the detection zone shown as illustrated.
- This detection zone starts from the outside mirror of vehicle and extends approximately 10 ft (3.0 m) behind the rear bumper, and approximately 10 ft (3.0 m) sideways.
- If the BSW indicator is illuminated while vehicle is approaching a lane marker, the BSW indicator blinks and an audible warning will sound three times. Then the system applies the brakes on one side of the vehicle for a short period of time to help return the vehicle back to the center of the lane.



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- I-BSI operates regardless of turn signal usage.
- The brightness of BSW indicator lights is adjusted automatically depending on the brightness of the ambient light.

NOTE:

- **I-BSI is typically activated earlier than I-LI when getting closer to the lane marker.**
- **Warning and brake control will only be activated if the BSW indicator is already illuminated when vehicle approaches a lane marker.**
- **If another vehicle comes into the detection zone after vehicle has crossed a lane marker, no warning or brake control will be activated.**

OPERATION DESCRIPTION

- ADAS control unit 2 enables I-BSI system.
- Turn ON the dynamic driver assistance switch, and I-BSI system setting on the information display.
- Combination meter turns I-BSI system display ON/OFF according to the signals from ADAS control unit 2 via CAN communication.
- Side radar detects a vehicle in the adjacent lane, and transmits the vehicle detection signal to ADAS control unit 2 via CAN communication.
- Side radar receives vehicle speed signal from ADAS control unit 2 and changes its detecting function.
- Front camera unit monitors lane markers of the traveling lane and transmits the detected lane condition signal to ADAS control unit 2 via CAN communication.
- ADAS control unit 2 starts the control as follows, based on a vehicle detection signal, lane condition signal, turn signal and position light request signal transmitted from BCM via CAN communication:
    - BSW indicator signal and BSW indicator dimmer signal transmission to side radar.
    - Calculation of necessary yaw moment and transmission of the target yaw moment signal to ABS actuator and electric unit (control unit).
- Side radar transmits an indicator operation signal to the BSW indicator according to BSW indicator operation signal and BSW indicator dimmer signal.
- ABS actuator and electric unit (control unit) controls brake pressure of four wheels respectively according to the target yaw moment signal.

OPERATION CONDITION

- I-BSI system: ON
- Vehicle speed: Approximately 60 km/h (37 MPH) or more

NOTE:

- **I-BSI system ON/OFF can be set on the information display.**
- **The I-BSI system may not function properly, depending on the situation. Refer to Handling Precaution.**
- **I-BSI braking will not operate or will stop operating and only a warning chime will sound under the following conditions.**
    - **When the brake pedal is depressed.**
    - **When the accelerator pedal is depressed while brake control assist is provided.**
    - **When steering quickly.**
    - **When the ProPILOT Assist or AEB warnings sound.**
    - **When the hazard warning flashers are operated.**
    - **When driving on a curve at a high speed.**
- **Under the following conditions, the I-BSI system will be turned off automatically, a beep will sound and the I-BSI system display will change color to yellow. The BSW system is still available, but the I-BSI system will not be available until the conditions no longer exist.**
    - **When the VDC system (except TCS function) or ABS operates.**
    - **When the VDC system is turned OFF.**

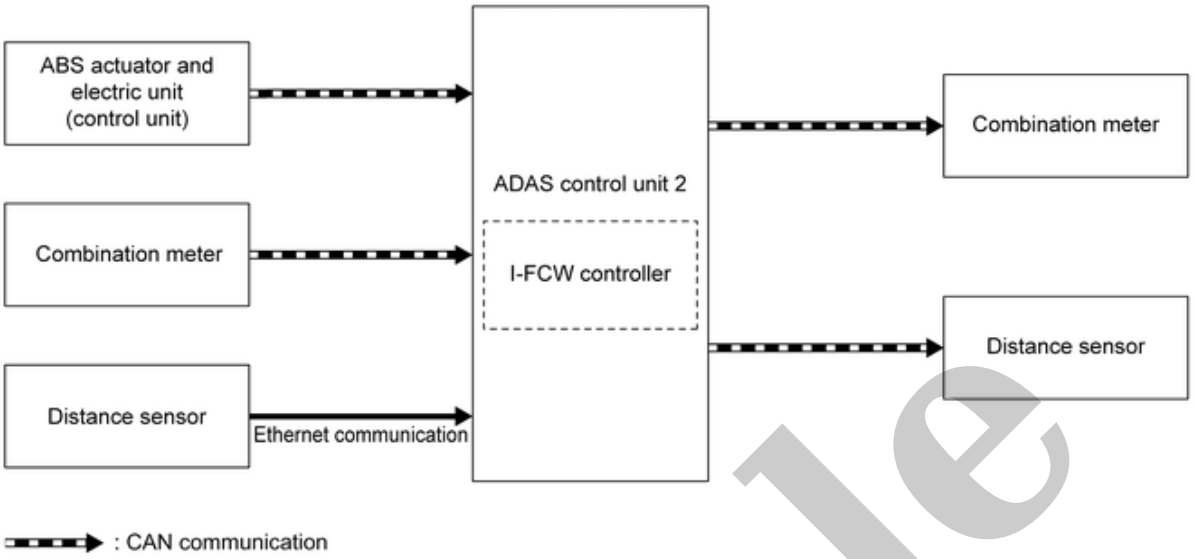
CANCEL CONDITION

The ADAS control unit 2 cancels the operation when the system is under any conditions of the operation cancellation condition.

- When the system malfunction occurs.
- When the front camera unit becomes high temperature [over approximately 40 °C (104 °F)].
- When the area around the side radar is dirty.
- When the VDC or ABS (Including the TCS) operates.
- When the VDC is turned OFF
- When the SNOW mode and the OFF-ROAD mode is selected (AWD models).

SIEMD-7109471

SYSTEM DIAGRAM



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Component	Description
ABS actuator and electric unit (control unit)	Component Description
Combination meter	Combination Meter
Distance sensor	Distance Sensor
ADAS control unit 2	ADAS Control Unit 2

ADAS CONTROL UNIT 2 INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

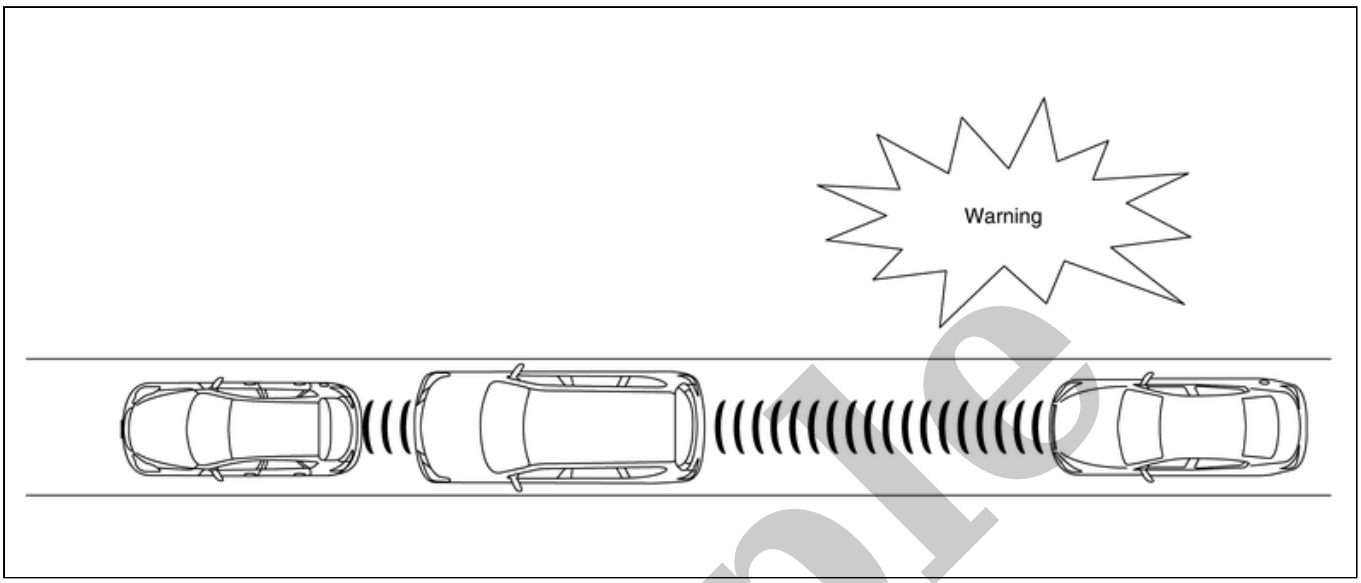
Transmit unit	Signal name		Description
ABS actuator and electric unit (control unit)	CAN communication	Vehicle speed signal (ABS)	Receives wheel speeds of four wheels
Combination meter	CAN communication	System selection signal	Receives a selection state of each item in “Driving Assistance” selected with vehicle information display
Distance sensor	Ethernet communication	Distance sensor signal	Receives detection results, such as the presence or absence of a leading vehicle and distance from the vehicle

Output Signal Item

Reception unit	Signal name		Description
Combination meter	CAN communication	Meter display signal	Transmits a signal to display a state of the system on the information display
		Buzzer output signal	Transmits a signal to activate buzzer
Distance sensor	CAN communication	Vehicle speed signal	Transmits a vehicle speed calculated by the ADAS control unit 2

FUNCTION DESCRIPTION

- The Intelligent Forward Collision Warning (I-FCW) system will function when the vehicle is driven at speeds of approximately 5 km/h (3 MPH) and above.
- The Intelligent Forward Collision Warning (I-FCW) system alerts the driver by the vehicle ahead detection indicator and chime when the distance between own vehicle and a vehicle in front of the vehicle ahead becomes closer.



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OPERATION DESCRIPTION

The distance from the vehicle in front of the vehicle ahead and a relative speed are calculated by using the distance sensor and an distance sensor signal is transmitted to the ADAS control unit 2 via CAN communication. When judging the necessity of warning according to the received distance sensor signal, the ADAS control unit 2 transmits a meter display signal and a buzzer output signal to the combination meter via CAN communication.

OPERATION CONDITION

ADAS control unit 2 performs the control when the following conditions are satisfied.

- I-FCW system: ON
- Vehicle speed: Approximately 5 km/h (3 MPH) and above.
- Vehicle in front of the vehicle ahead: Detected.

NOTE:

- **ON/OFF of I-FCW system is performed with the information display.**

CANCEL CONDITION

The ADAS control unit 2 cancels the operation when the system is under any conditions of the operation cancellation condition.

- When the system malfunction occurs.
- When the distance sensor picks up interference from another radar source and making it impossible to detect a vehicle ahead.
- When the distance sensor area of the front grill is dirty and the measurement of the distance between the vehicles becomes difficult.

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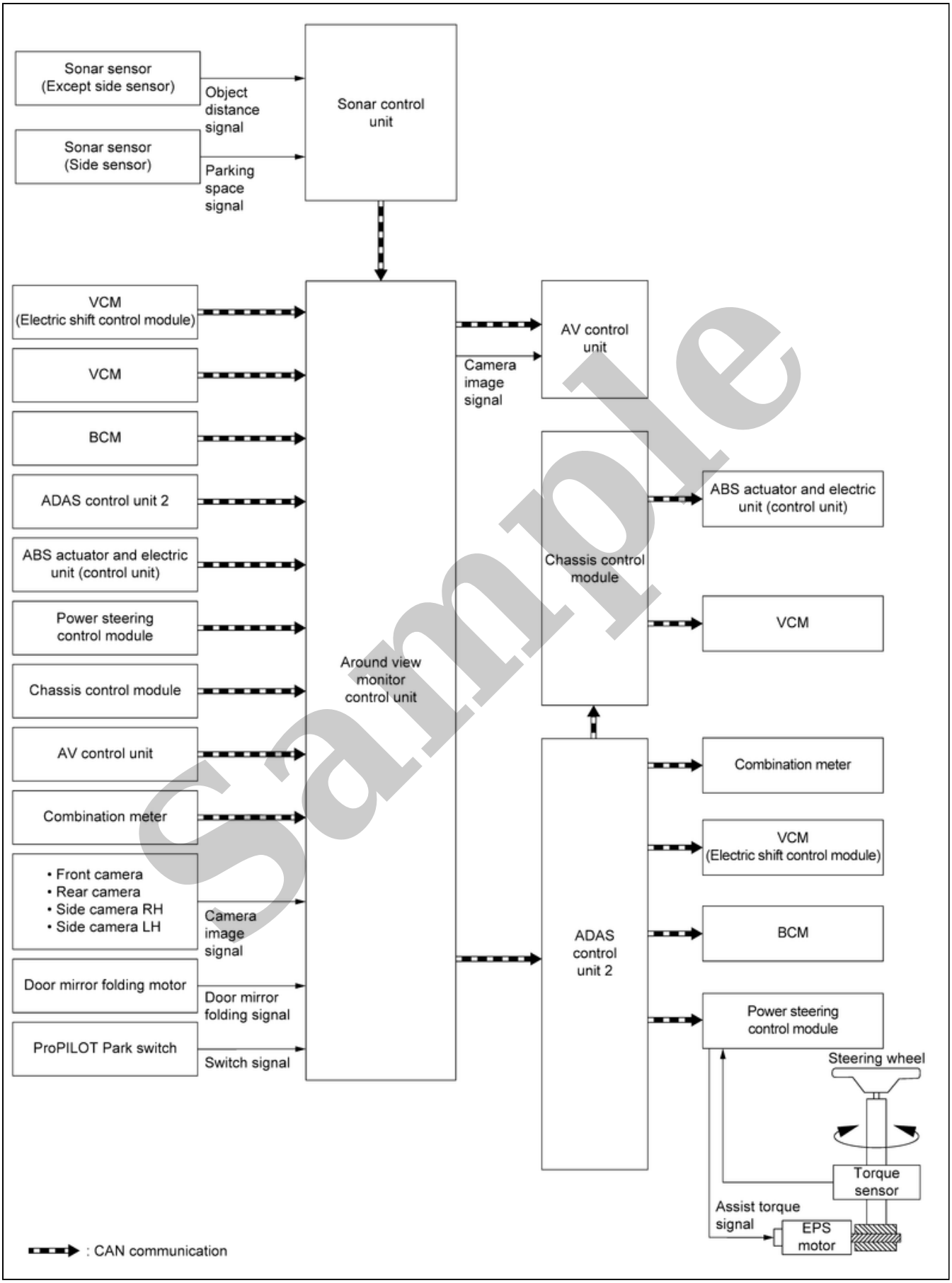
SYSTEM DIAGRAM



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Component	Function
ADAS control unit 2	Refer to ADAS Control Unit 2.
Around view monitor control unit	Refer to Around View Monitor Control Unit.