

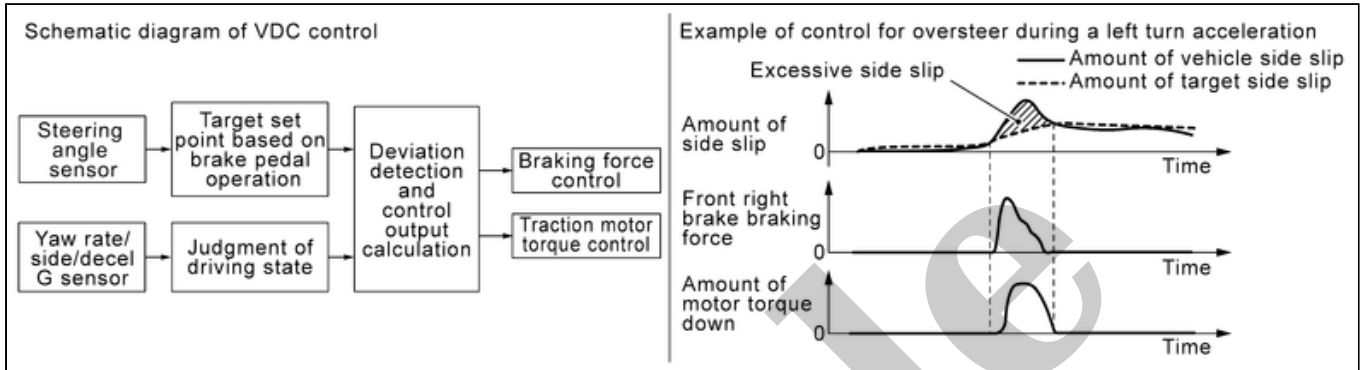
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1996 NISSAN Primera Sedan OEM Service and Repair Workshop Manual

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- Side slip or tail slip may occur while driving on a slippery road or intending an urgent evasive driving. VDC function detects side slip status using each sensor when side slip or tail slip is about to occur and improves vehicle stability by brake control and traction motor output control during driving.
- In addition to TCS function, ABS function, and EBD function target side slip amount is calculated according to steering operation amount from steering angle sensor and brake operation amount from pressure sensor. By comparing this information with vehicle side slip amount that is calculated from information from yaw rate/side G sensor and wheel sensor, vehicle driving conditions (conditions of understeer or oversteer) are judged and vehicle stability is improved by brake force control on all 4 wheels and traction motor output control.



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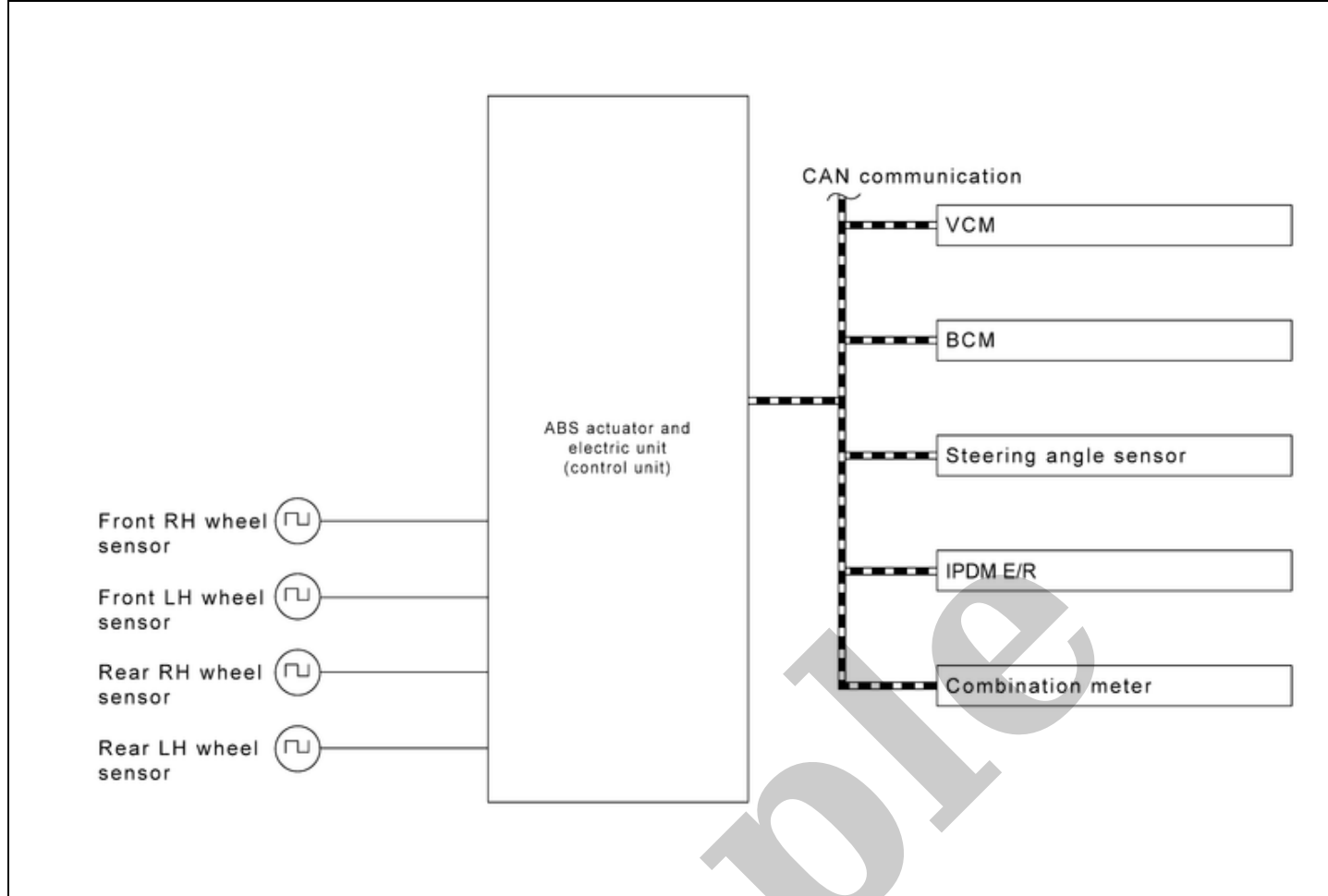
- VDC function can be switched to non-operational status (OFF). In this case, VDC OFF indicator lamp turns ON.
- Control unit portion automatically improves driving stability by performing brake force control as well as traction motor output control, by transmitting drive signal to actuator portion according to difference between target side slip amount and vehicle side slip amount.
- VDC warning lamp blinks while VDC function is in operation and indicates to the driver that the function is in operation.
- CONSULT can be used to diagnose the system diagnosis.
- Fail-safe function is adopted. When a malfunction occurs in VDC function, the control is suspended for VDC function, TCS function, hill start assist function, brake limited slip differential (BLSD) function, brake assist function, brake force distribution function and cooperative regenerative brake function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function, brake limited slip differential (BLSD) function, brake assist function, brake force distribution function and cooperative regenerative brake function. However, ABS function and EBD function are operated normally. Refer to [Fail-safe](#).



NOTE:

VDC has the characteristic as described here, This is not the device that helps reckless driving.

SYSTEM DIAGRAM



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INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

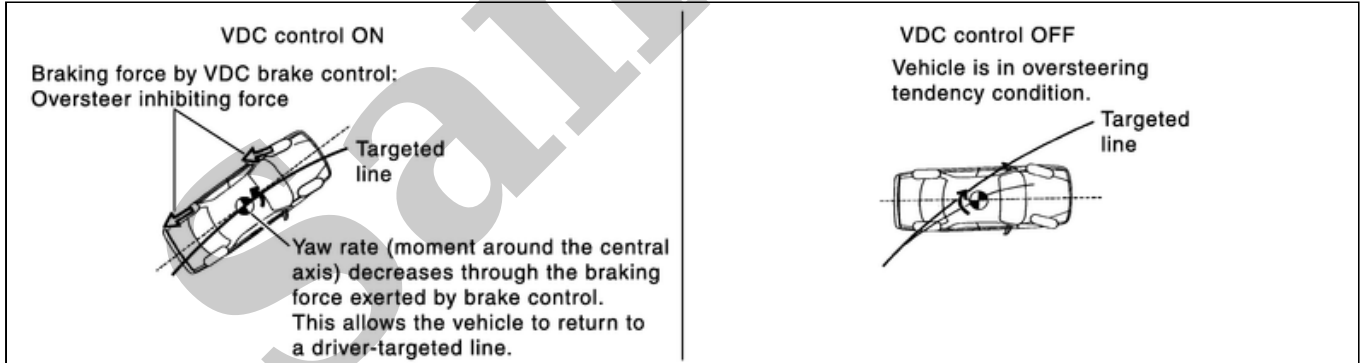
Component parts	Signal description
VCM	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • VCM status signal • Accelerator pedal position signal • Traction motor status signal • Traction motor torque request signal • Shift position signal
BCM	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Stop lamp switch signal <p>Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Stop lamp request signal
Steering angle sensor	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Steering angle sensor signal

Component parts	Signal description
IPDM E/R	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. <ul style="list-style-type: none"> • Power switch ON signal
Combination meter	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. <ul style="list-style-type: none"> • VDC setting signal • Brake fluid level switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication. <ul style="list-style-type: none"> • ABS warning lamp signal • Brake warning lamp signal • VDC OFF indicator lamp signal • VDC warning lamp signal

OPERATION CHARACTERISTICS

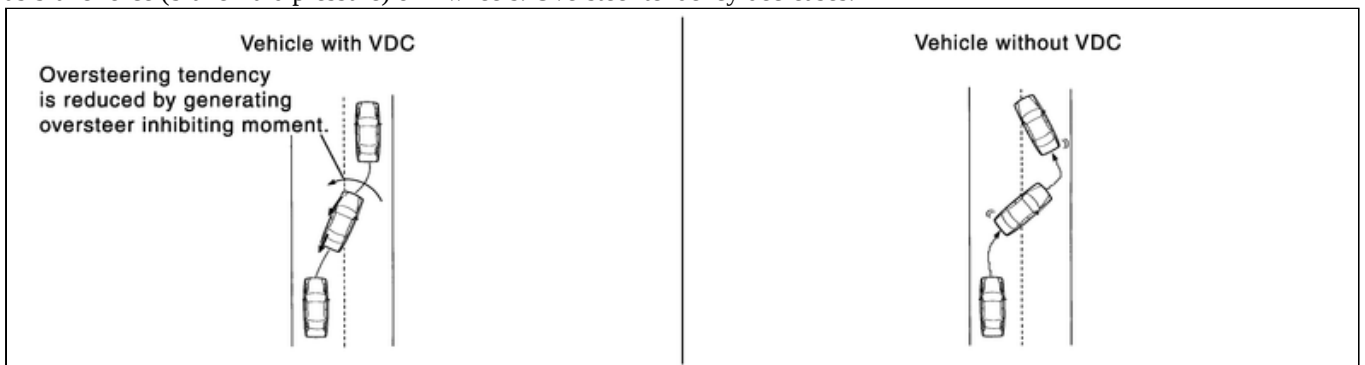
VDC Function That Prevents Oversteer Tendency

- During a cornering, brake force (brake fluid pressure) is applied on front wheel and rear wheel on the outer side of turn. Moment directing towards the outer side of turn is generated. Oversteer is prevented.



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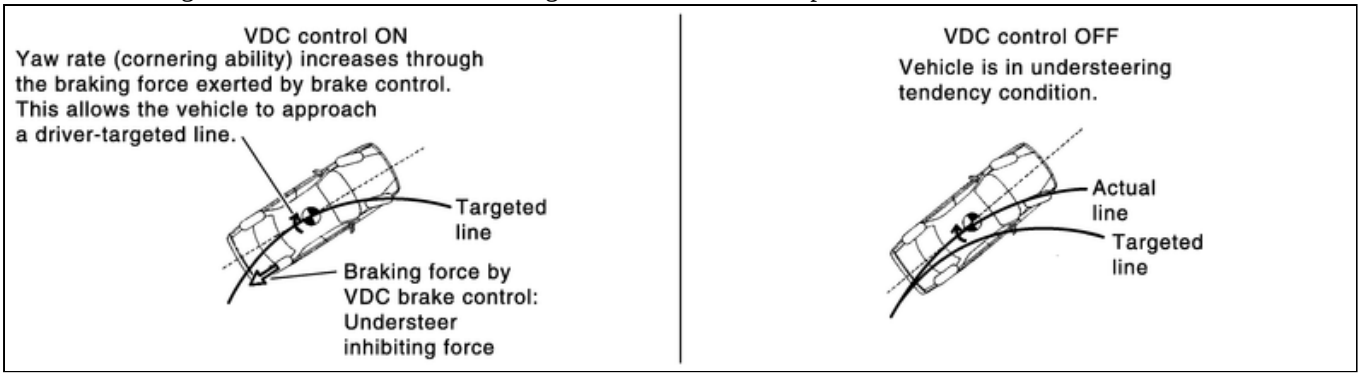
- Changing driving lane on a slippery road, when oversteer tendency is judged large, traction motor output is controlled as well as brake force (brake fluid pressure) of 4 wheels. Oversteer tendency decreases.



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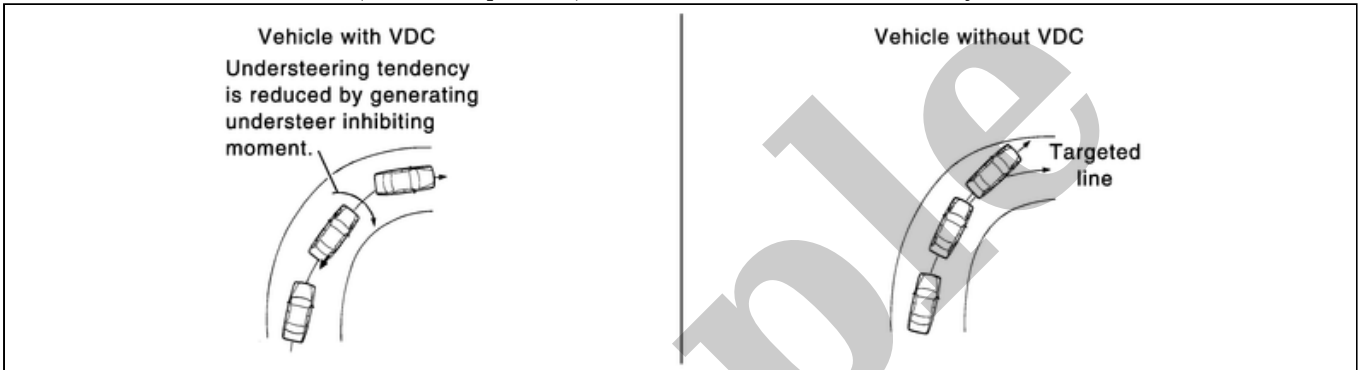
VDC Function That Prevents Tendency

- During a cornering, brake force (brake fluid pressure) is applied on front wheel and rear wheel on the inner side of turn. Moment directing towards the inner side of turn is generated. Understeer is prevented.



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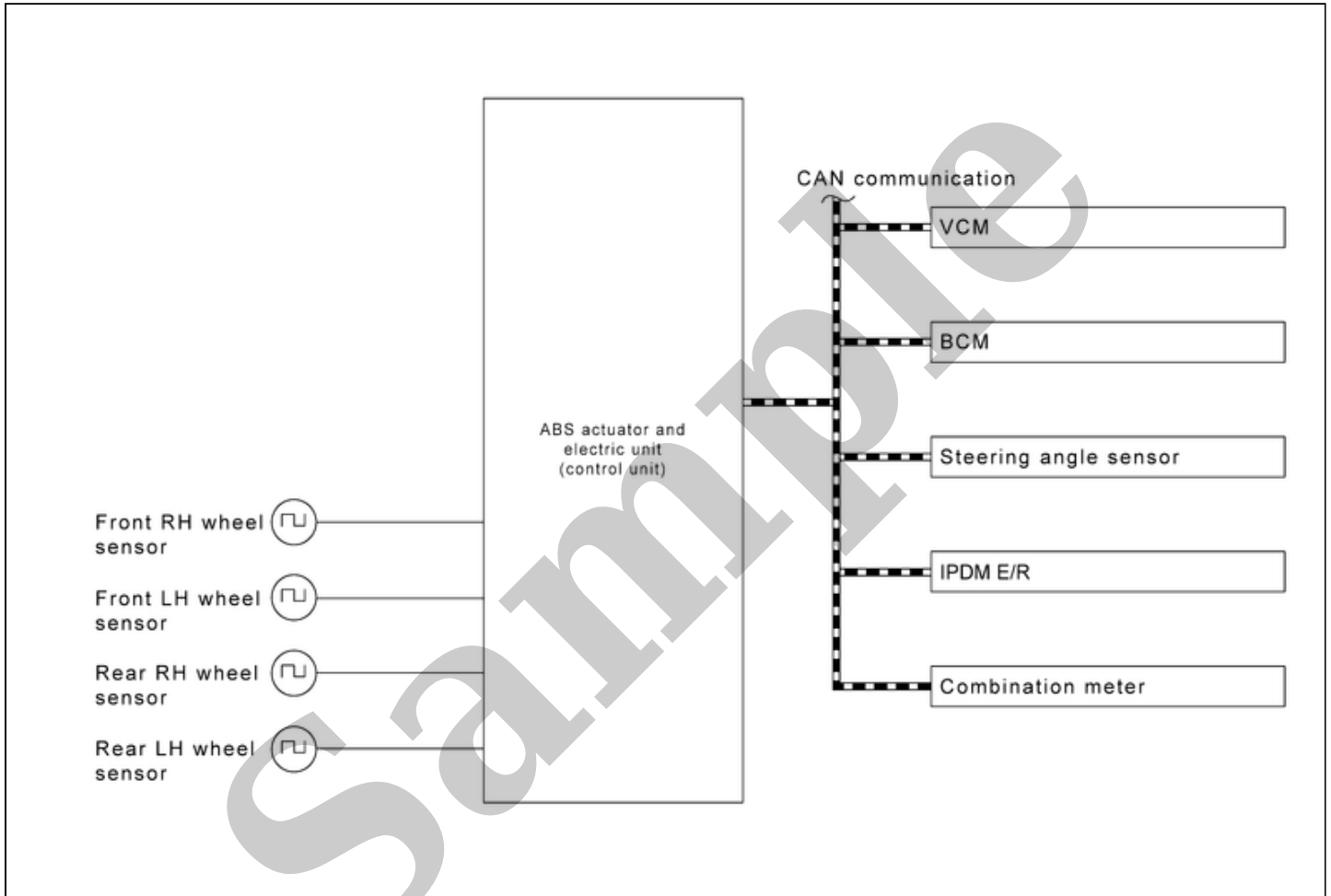
- Applying braking during a cornering on a slippery road, when understeer tendency is judged large, traction motor output is controlled as well as brake force (brake fluid pressure) of four wheels. Understeer tendency decreases.



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- When the driver brakes hard in an emergency, the stopping distance is reduced by increasing brake fluid pressure.
- Fail-safe function is adopted. When a malfunction occurs in brake assist function, the control is suspended for VDC function, TCS function, hill start assist function, brake limited slip differential (BLSD) function, brake assist function, brake force distribution function and cooperative regenerative brake function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function, brake limited slip differential (BLSD) function, brake assist function, brake force distribution function and cooperative regenerative brake function. However, ABS function and EBD function are operated normally. Refer to [Fail-safe](#).

SYSTEM DIAGRAM



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INPUT SIGNAL AND OUTPUT SIGNAL

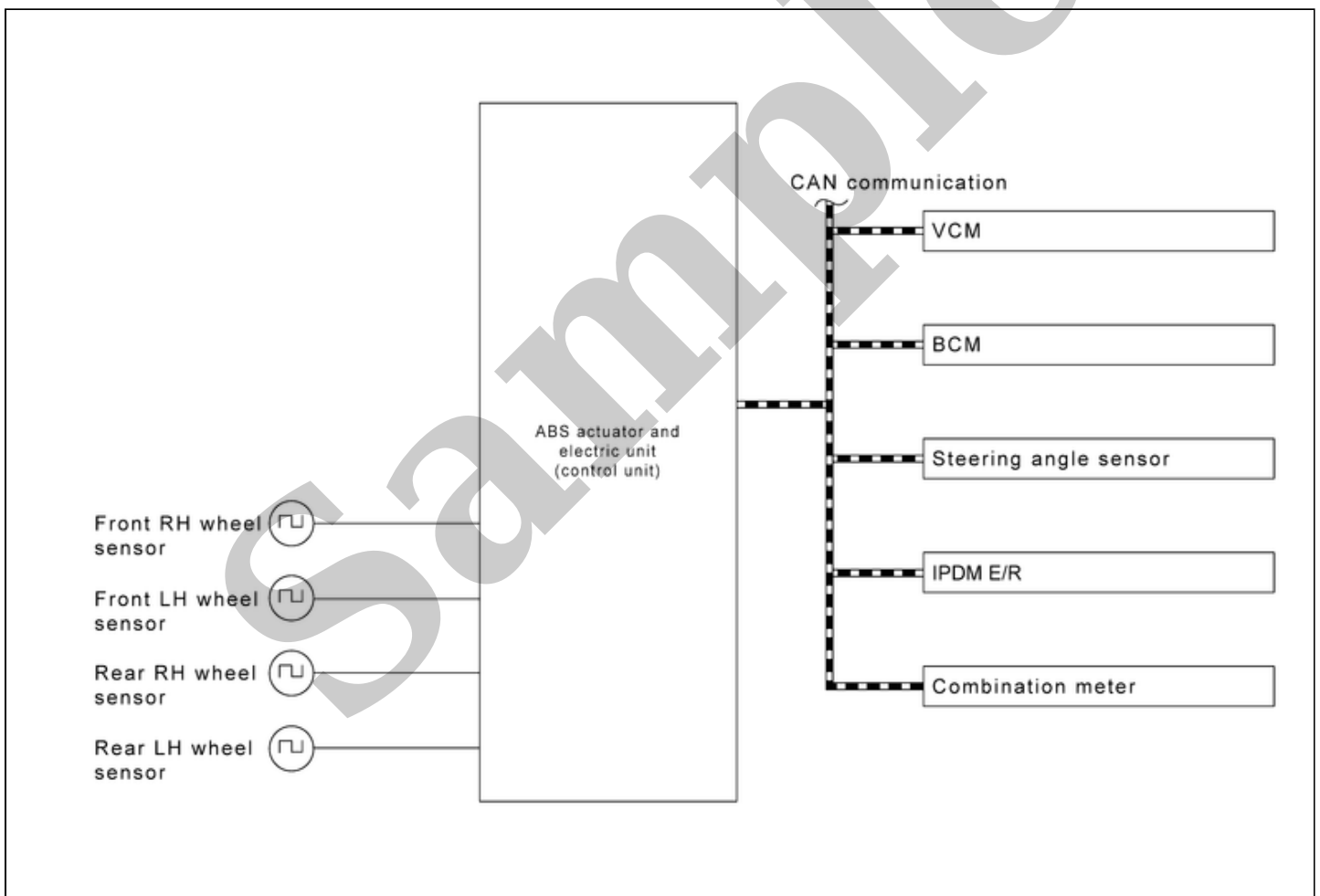
Major signal transmission between each unit via communication lines is shown in the following table.

Component parts	Signal description
VCM	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • VCM status signal • Accelerator pedal position signal • Traction motor status signal • Traction motor torque request signal • Shift position signal

Component parts	Signal description
BCM	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Stop lamp switch signal <p>Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Stop lamp request signal
Steering angle sensor	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Steering angle sensor signal
IPDM E/R	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Power switch ON signal
Combination meter	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Brake fluid level switch signal <p>Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • ABS warning lamp signal • Brake warning lamp signal • VDC OFF indicator lamp signal • VDC warning lamp signal

- This function maintains brake fluid pressure so that the vehicle does not move backwards even if brake pedal is released to depress accelerator pedal to start the vehicle while it is stopped on an uphill slope by depressing brake pedal.
- This function operates when the vehicle is in stop status on an uphill slope of slope ratio 10% or more and electric shift selector is in the position other than P or N.
- hill start assist function is only for the start aid. It maintains the brake fluid pressure for approximately 2 seconds after releasing the brake pedal, and then decreases the pressure gradually. If the vehicle can start by the accelerator operation, the brake is released automatically and a smooth start can be performed.
- Fail-safe function is adopted. When a malfunction occurs in hill start assist function, the control is suspended for VDC function, TCS function, hill start assist function, brake limited slip differential (BLSD) function, brake assist function, brake force distribution function and cooperative regenerative brake function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function, brake limited slip differential (BLSD) function, brake assist function, brake force distribution function and cooperative regenerative brake function. However, ABS function and EBD function are operated normally. Refer to [Fail-safe](#).

SYSTEM DIAGRAM



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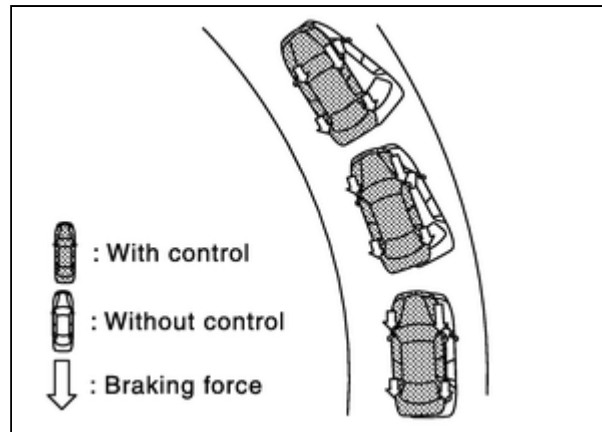
INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component parts	Signal description
VCM	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • VCM status signal • Accelerator pedal position signal

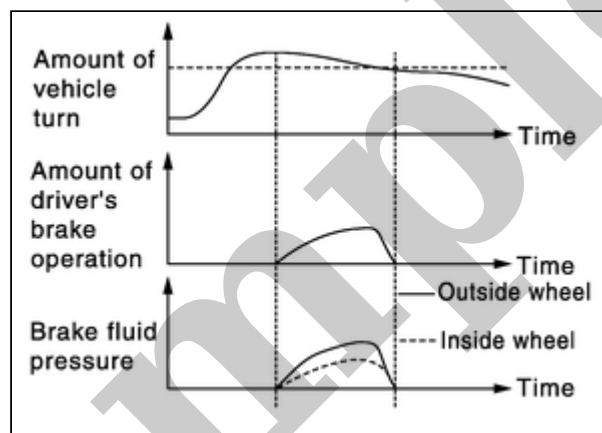
Component parts	Signal description
	<ul style="list-style-type: none"> • Traction motor status signal • Traction motor torque request signal • Shift position signal
BCM	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Stop lamp switch signal <p>Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Stop lamp request signal
Steering angle sensor	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Steering angle sensor signal
IPDM E/R	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Power switch ON signal
Combination meter	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Brake fluid level switch signal <p>Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • ABS warning lamp signal • Brake warning lamp signal • VDC OFF indicator lamp signal • VDC warning lamp signal

- Brake force distribution function helps provide a more stable and secure feeling.



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- During cornering, when brake operation is performed brake fluid pressure of each wheel is controlled based on steering operation amount by the driver and vehicle cornering status amount detected by each sensor.



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- Fail-safe function is adopted. When a malfunction occurs in brake force distribution function, the control is suspended for VDC function, TCS function, hill start assist function, brake limited slip differential (BLSD) function, brake assist function, brake force distribution function and cooperative regenerative brake function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function, brake limited slip differential (BLSD) function, brake assist function, brake force distribution function and cooperative regenerative brake function. However ABS function and EBD function are operated normally. Refer to [Fail-safe](#).

**NOTE:**

Brake force distribution function may not always be operates in all driving conditions.

SYSTEM DIAGRAM