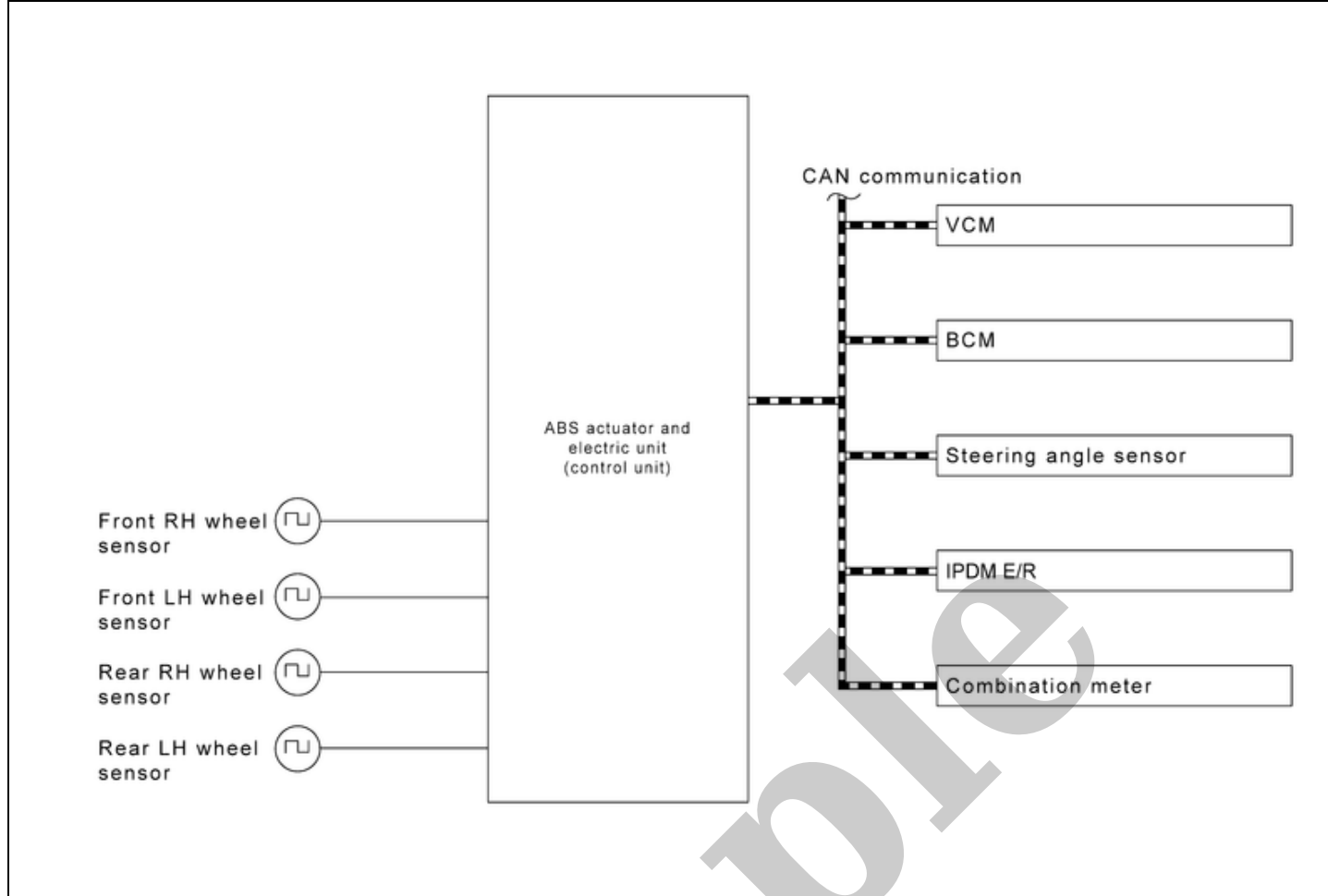


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1996 NISSAN Primera Wagon OEM Service and Repair Workshop Manual

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SIEMD-7262742-03-000382428

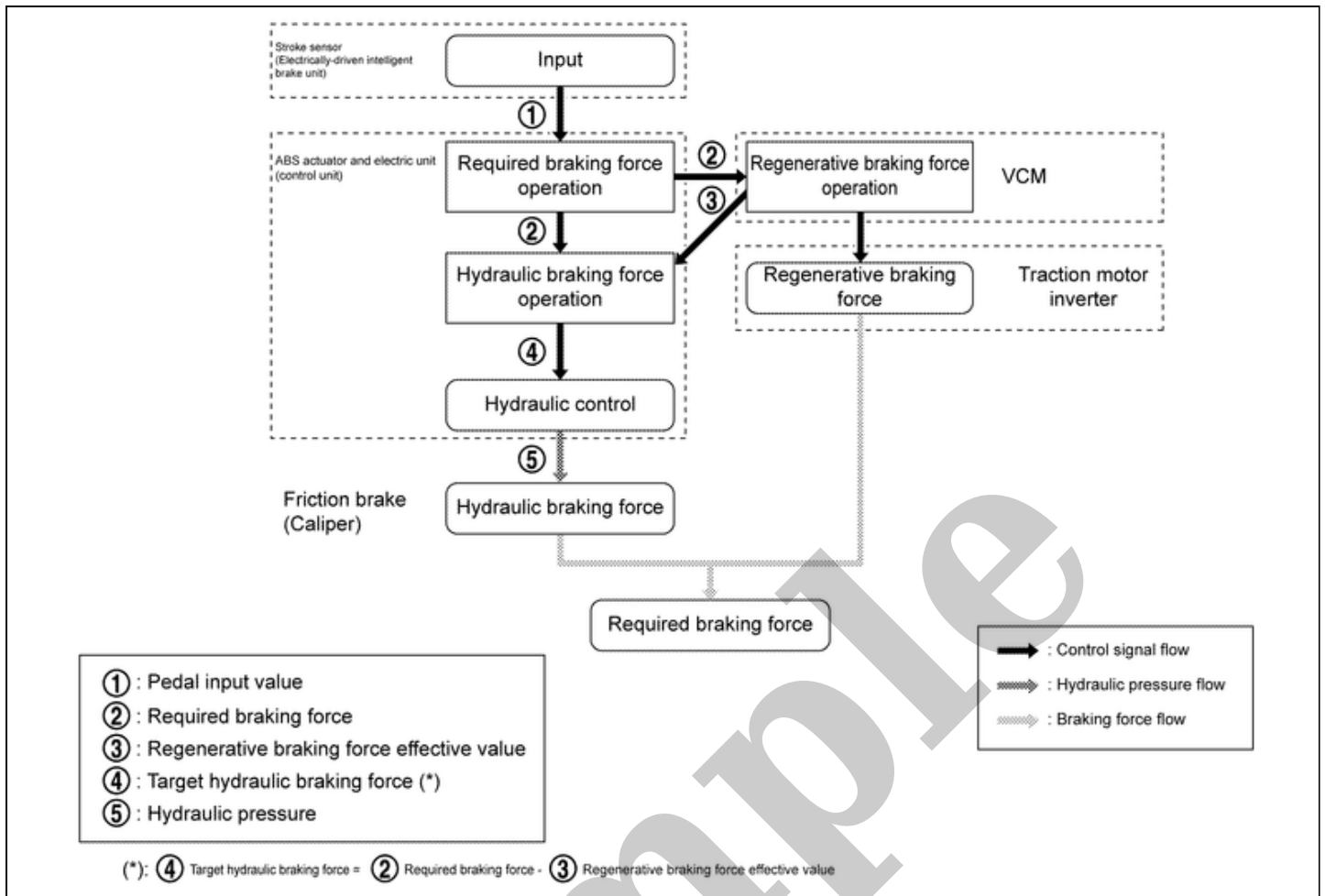
INPUT SIGNAL AND OUTPUT SIGNAL

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	<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

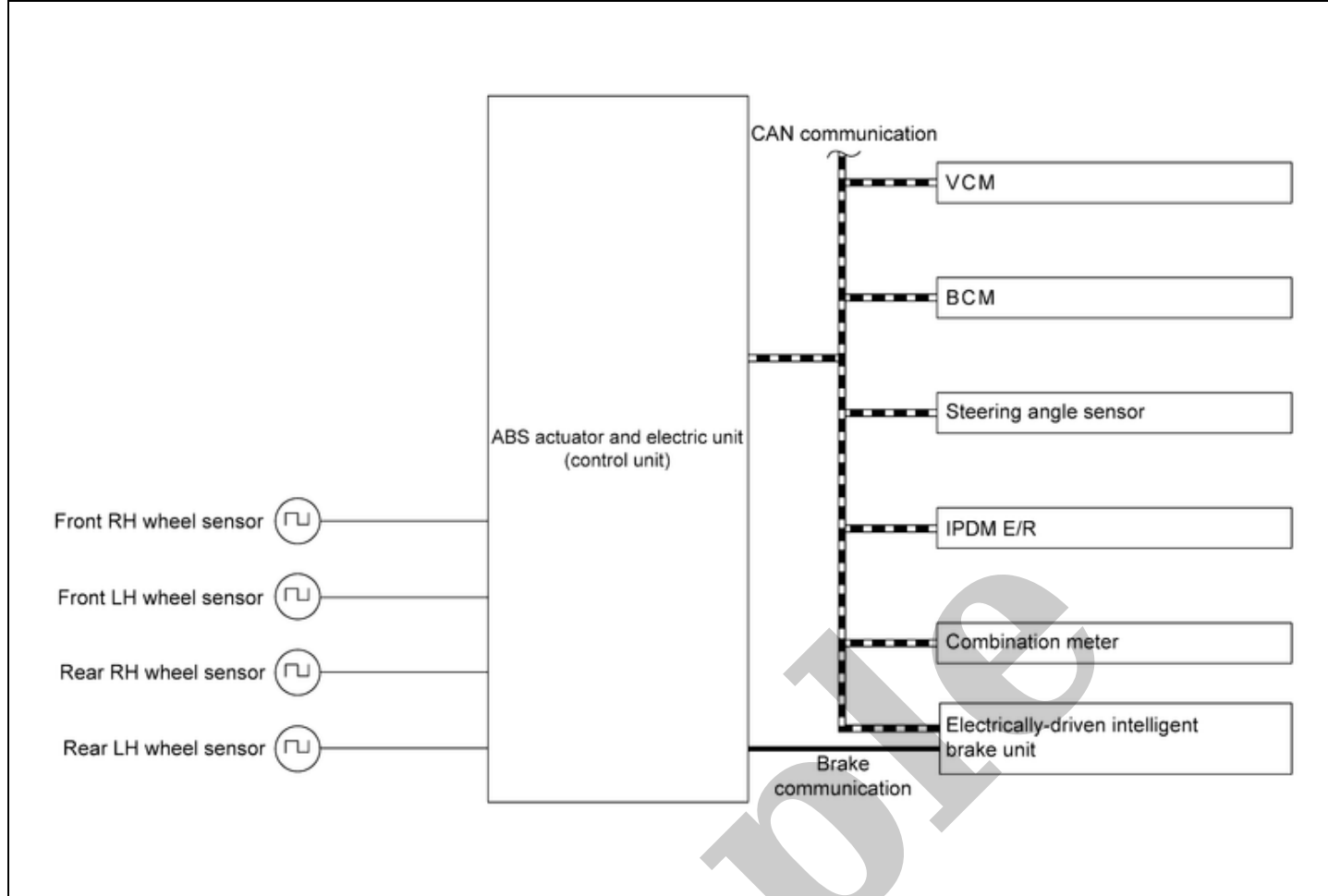
Sample



SIEMD-7262745-01-000382430

- A regenerative brake drives the traction motor to act as an alternator, and converts the kinetic energy produced by rotation of the tires into electrical energy. The converted electrical energy charges to the Li-ion battery. In addition, as the engine brake, the load on the normal brake can be reduced.
- When the brakes are operated (during driving), the ABS actuator and electric unit (control unit) calculates the required braking force based on the input value from the stroke sensor (electrically-driven intelligent brake unit), and it sends the result to the VCM. At the same time, it calculates the hydraulic braking force needed to produce the required braking force.
- The VCM calculates the regenerative braking force needed to produce the required braking force, and sends the result to the traction motor inverter, and uses the traction motor to perform regenerative braking. At the same time, transmits the regenerative cooperative executable torque signal to ABS actuator and electric unit (control unit).
- The ABS actuator and electric unit (control unit) calculates the hydraulic braking force again based on the regenerative braking force result from the VCM and the calculated result for hydraulic braking force.
- ABS actuator and electric unit (control unit) adjusts the fluid pressure actually applied to each brake caliper to match the target fluid pressure based on the calculation result of the fluid pressure braking force.
- When brake control is stopped (immediately before vehicle stop or while vehicle is stopped), cooperative regenerative brake control is not performed.

SYSTEM DIAGRAM



SIEMD-7262745-02-000382431

INPUT SIGNAL AND OUTPUT SIGNAL

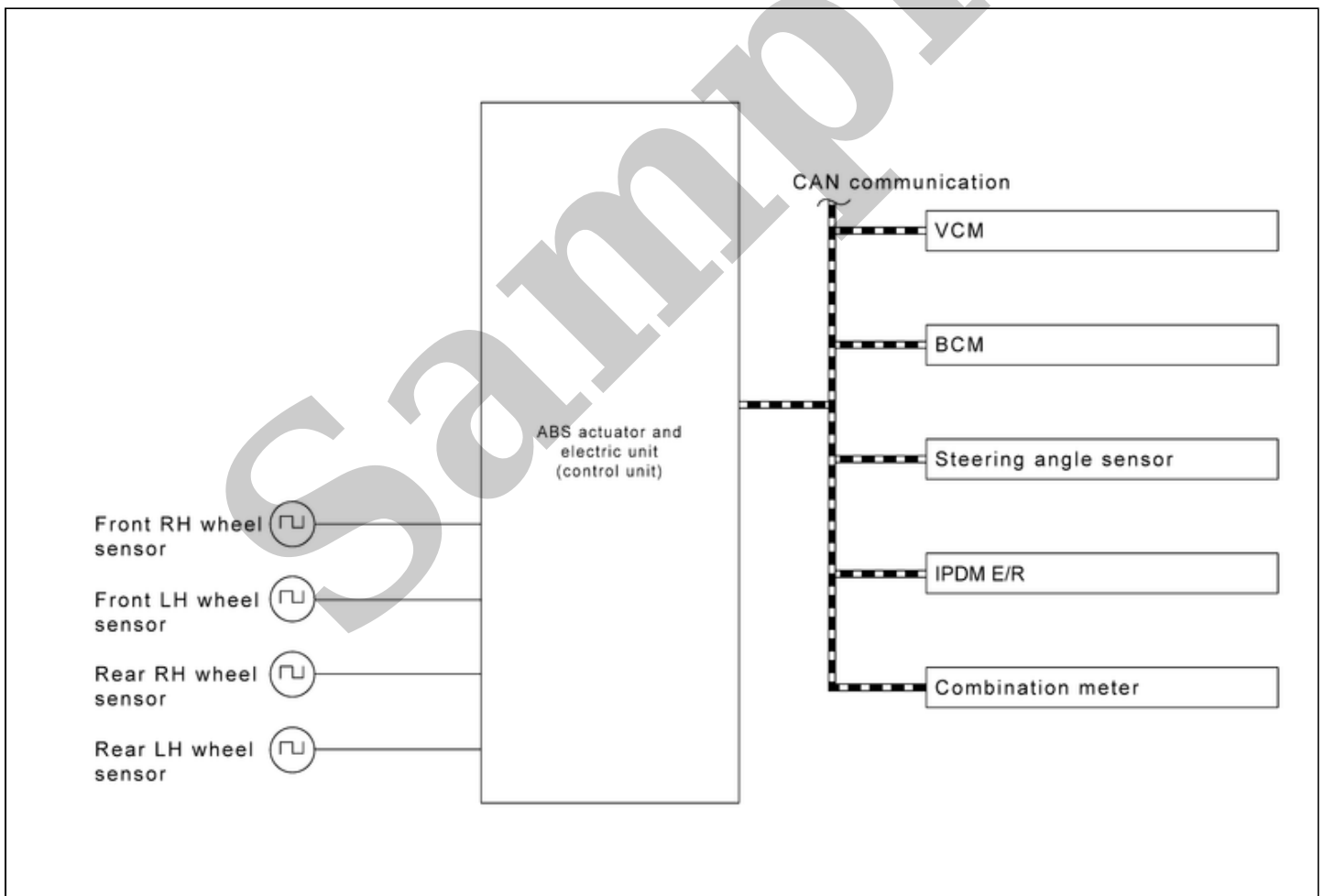
Major signal transmission between each unit via communication lines is shown in the following table:

Component	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 • Target regenerative torque signal • Current regenerative torque 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"> • Regenerative cooperative executable torque signal • Brake control 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

Component	Signal description
	<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
Electrically-driven intelligent brake unit	<p>Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication.</p> <ul style="list-style-type: none"> • Stroke sensor 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"> • Electrically-driven intelligent brake control signal

- LH and RH driving wheel spin is always monitored. If necessary, appropriate brake force is independently applied to LH or RH driving wheel so that one-sided wheel spin is avoided and traction is maintained. Mainly starting ability is improved.
- Brake limited slip differential (BLSD) function operates while VDC function is in non-operational status (OFF) by information display of combination meter.
- VDC warning lamp blinking while brake limited slip differential (BLSD) function is in operation and indicates to the driver that the function is in operation.
- Slight vibrations are felt on the brake pedal and the operation noises occur, when brake limited slip differential (BLSD) function operates. This is not a malfunction because it is caused by brake limited slip differential (BLSD) function that is normally operated.
- Fail-safe function is adopted. When a malfunction occurs in brake limited slip differential (BLSD) 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



SIEMD-7262738-01-000382428

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

Component parts	Signal description
	<ul style="list-style-type: none"> • 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
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"> • VDC setting signal • 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

APPLICATION ITEMS

CONSULT can display each diagnostic item using the diagnostic test modes as follows.

Diagnosis mode	Description
Self Diagnostic Result	Display DTC which ABS actuator and electric unit (control unit) memorizes
Data monitor	Displays ABS actuator and electric unit (control unit) input/output data in real time
Active test	Enables an operational check of a load by transmitting a driving signal from the ABS actuator and electric unit (control unit) to the load
Work support	Displays causes of automatic system cancellation occurred during system control
ECU Identification	Displays ABS actuator and electric unit (control unit) part number
Replace ECU	Write the vehicle specification when replacing ABS actuator and electric unit (control unit)

SELF DIAGNOSTIC RESULT

Refer to [DTC Index](#).

When “CRNT” is displayed on self-diagnosis result

- The system is presently malfunctioning.

When “PAST” is displayed on self-diagnosis result

- System malfunction in the past is detected, but the system is presently normal.

Freeze frame data (FFD)

When DTC is detected, a vehicle state shown below is recorded and displayed on CONSULT.

Item	Unit	Description
Odometer/Trip meter	km	Displays the total mileage (Odometer value) of the moment a particular
DTC count	—	Displays the number of times DTC is detected.

DATA MONITOR



NOTE:

- The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.
- Perform all self-diagnosis and delete stored DTC after execute Data monitor.

Item	Unit	Note
Steering angle	deg	Displays the steering angle.
Battery voltage	V	Displays the power supply voltage value.
Front LH wheel speed	km/h	Displays the wheel speed of front LH.
Front RH wheel speed	km/h	Displays the wheel speed of front RH.
Rear LH wheel speed	km/h	Displays the wheel speed of rear LH.

Item	Unit	Note
Rear RH wheel speed	km/h	Displays the wheel speed of rear RH.
Vehicle speed	km/h	Displays the vehicle speed.
Odometer	m	Displays the tire diameter.
Decel G sensor	m/s ²	Displays the decel G.
Side G sensor	G	Displays the side G.
Yaw rate sensor	deg/s	Displays the yaw rate.
Master cylinder pressure	bar	Displays the brake fluid pressure.
Valve, pump motor	On/Off	Displays the operation status of valve, pump, motor.
Front left / Rear right valve	On/Off	Displays the operation status of front LH valve, rear RH valve.
Front right / Rear left valve	On/Off	Displays the operation status of front RH valve, rear LH valve.
Front left / Rear right pump	On/Off	Displays the operation status of front LH pump, rear RH pump.
Front right / Rear left pump	On/Off	Displays the operation status of front RH pump, rear LH pump.
Rear right ABS OUT valve*	On/Off	Displays the operation status of rear RH wheel ABS OUT valve.
Rear right ABS IN valve*	On/Off	Displays the operation status of rear RH wheel ABS IN valve.
Rear left ABS OUT valve*	On/Off	Displays the operation status of rear LH wheel ABS OUT valve.
Rear left ABS IN valve*	On/Off	Displays the operation status of rear LH wheel ABS IN valve.
Front right ABS OUT valve*	On/Off	Displays the operation status of front RH wheel ABS OUT valve.
Front right ABS IN valve*	On/Off	Displays the operation status of front RH wheel ABS IN valve.
Front left ABS OUT valve*	On/Off	Displays the operation status of front LH wheel ABS OUT valve.
Front left ABS IN valve*	On/Off	Displays the operation status of front LH wheel ABS IN valve.
Front tire diameter	mm	Displays the tire diameter.
Transmission type	M/T/A/T/CVT/DCT/Not	Displays the transmission type.
Parking brake type	1/2/3/4	Displays the parking brake type.
Electric parking brake mode	Mode 1/Mode 2	Displays the mode of electric parking function.
Actuator voltage (right)	V	Displays the power supply voltage of parking brake actuator (RH).
Actuator voltage (left)	V	Displays the power supply voltage of parking brake actuator (LH).
Actuator current (right)	A	Displays the operating current of parking brake actuator (RH).
Actuator current (left)	A	Displays the operating current of parking brake actuator (LH).
Slope ratio	%	Displays the slope ratio.