

# Your Ultimate Source for OEM Repair Manuals

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## **2010 NISSAN NP300 Pickup King Cab OEM Service and Repair Workshop Manual**

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## FUNCTIONS WITHIN THE SYSTEM

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VCM transmits the cooling fan control signal to IPDM E/R.

The cooling fan control module drives the cooling fan motor so that the cooling fan speed is controlled in accordance with the control signal from IPDM E/R.

## INDIVIDUAL FUNCTION WITHIN THE SYSTEM

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The cooling fan control module is drives the cooling fan motor.

## INDIVIDUAL OPERATION

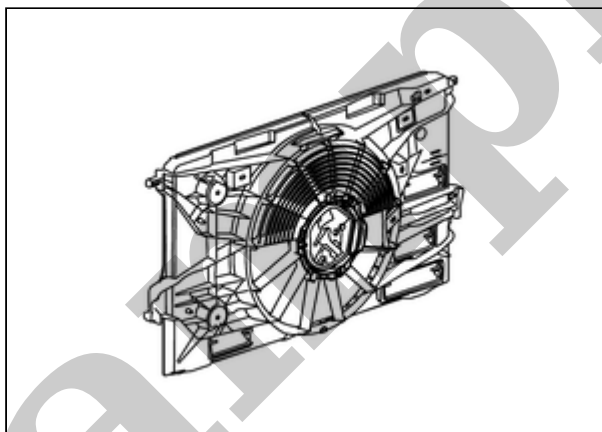
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The cooling fan control module receives control signal from IPDM E/R.

## COMPONENT PARTS LOCATION

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The cooling fan control module is integrated into the cooling fan.



SIEMD-16212115364060-01-000368968

## FUNCTIONS WITHIN THE SYSTEM

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VCM calculates refrigerant pressure based on the voltage signal from refrigerant pressure sensor transmits a refrigerant pressure signal to the A/C auto amp. via EV system CAN communication.

## INDIVIDUAL FUNCTION WITHIN THE SYSTEM

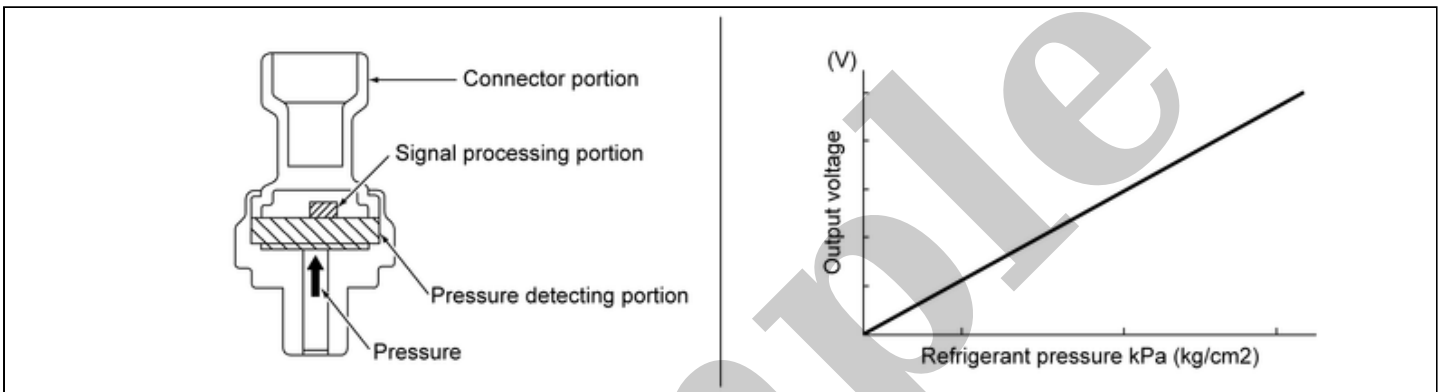
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The refrigerant pressure sensor converts refrigerant pressure to a voltage.

## INDIVIDUAL OPERATION

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The refrigerant pressure sensor uses an electrostatic volume pressure transducer to convert refrigerant pressure to voltage.



SIEMD-16212134775650-01-000109892

## COMPONENT PARTS LOCATION

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The refrigerant pressure sensor is installed on the refrigerant piping of rear part of motor room.

## FUNCTIONS WITHIN THE SYSTEM

The accelerator pedal sensor is integrated with the accelerator pedal. This sensor is a potentiometer that detects the acceleration pedal stroke, converts it to a voltage signal, and transmits the signal to VCM.

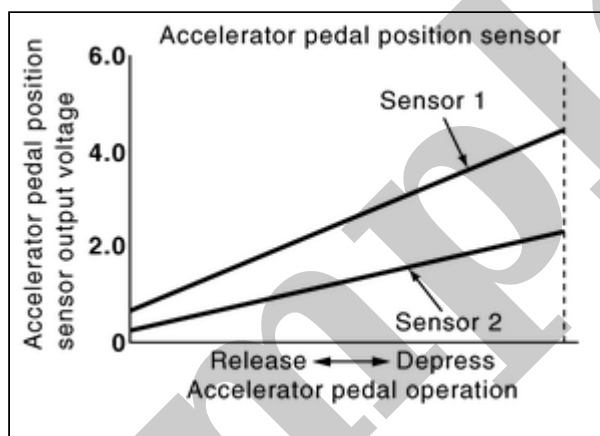
Upon a POWER ON cycle, VCM learns the fully closed position of the acceleration pedal from the accelerator pedal position sensor signal.

## INDIVIDUAL FUNCTION WITHIN THE SYSTEM

Detects the amount that the accelerator pedal is depressed.

## INDIVIDUAL OPERATION

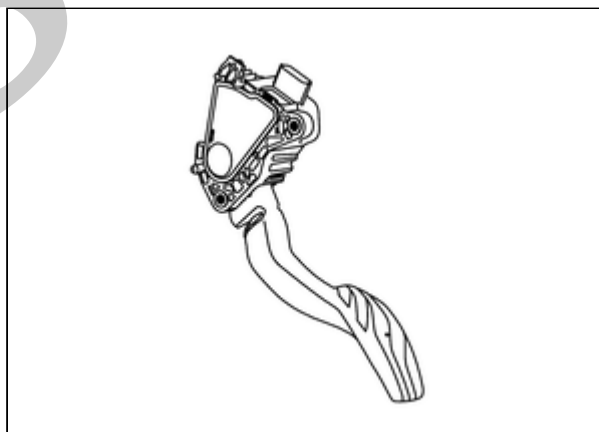
The sensor transmits its signals through dual lines, providing a minimum driving function even if either line malfunctions.



SIEMD-16209787674720-01-BIB1741E

## COMPONENT PARTS LOCATION

The accelerator pedal position sensor is installed on the upper end of the accelerator pedal assembly.



SIEMD-16209787674720-03-000368967

# Diagnosis Description

SIEMD-7196745

In this system, "Power switch is turned OFF⇒ON" is defined as 1 trip. VCM detects malfunctions while saving the DTC and freeze frame data and continues saving this data for a maximum of 40 trips. In addition, if a DTC that is the same as the saved DTC is detected again, the counter is reset and the count up starts from "0" again.

Sample

## FUNCTION

Diagnostic test mode	Function
ECU Identification	VCM part number is displayed.
Self Diagnostic Result	DTCs and freeze frame data can be read and erased quickly. *1
Data Monitor	Input/Output data in the VCM can be read.
Active Test	Diagnostic Test Mode in which CONSULT drives some actuators apart from VCM and also shifts some parameters in a specified range.
Work Support	This mode enables a technician to adjust some devices faster and more accurately by following the indications on the CONSULT.

\*1: The following diagnosis information is cleared when the VCM memory is erased.

- DTC
- Freeze frame data
- Applicable operational history and count

## SELF-DIAGNOSIS RESULT MODE

### SELF-DIAGNOSIS ITEM

For DTC item, Refer to [DTC Index](#).

### How to delete the self-diagnosis result

- If the power switch remains on after detecting DTC, press and hold the power switch for at least 2 seconds to turn off the high voltage system and check that the charge indicator is off. After turning off the high voltage system, open the driver's door, get out the car, close the driver's door, wait for 5 minutes or more, turn on the power switch again, and then erase the DTC.
- Check all self-diagnosis screens and make sure there are no DTCs on other ECUs.

#### CAUTION:

**When the VCM is self-shut off while the power switch is turned off, never operate the door lock and the door open and close. If the vehicle is operated, wait at least 5 minutes again from that point.**

## Freeze Frame Data

The Freeze Frame Data shows the state of the vehicle at the time a DTC is detected and is useful in re-creating the circumstances that caused the malfunction.

### Freeze Frame Data Item List

Freeze frame data item	Unit	Function
Odometer/Trip meter	km	Displays the mileage (odometer value) when DTC is detected.
DTC count	count	Displays the number of times DTC was detected.
Error code	A	This item is displayed but not used.
DC/DC input current (CAN)	V	This item is displayed but not used.
DC/DC voltage (CAN)	%	Displays charge status of high voltage battery

Freeze frame data item	Unit	Function
High voltage battery level	V	Displays voltage of inverter side of high voltage line.
Inverter side voltage	V	Displays voltage of high voltage battery side of high voltage line.
High voltage battery side voltage	A	Displays voltage of high voltage battery side of high voltage line.
Emergency alert	—	This item is displayed but not used.
Front traction motor inverter request	—	Displays inverter (front) operation request status.
Minimum cell voltage	V	Displays minimum voltage of high voltage battery cell
DC/DC status (CAN)	—	Displays CAN communication error state of DC/DC converter
C/U sleep status	—	This item is displayed but not used.
High voltage battery maximum cell voltage	V	Displays maximum voltage of high voltage battery cell
Front traction motor torque	N·m	Displays torque value of front traction motor
High voltage battery maximum temperature	°C	Displays maximum temperature of high voltage battery
High voltage battery minimum temperature	°C	Displays minimum temperature of high voltage battery
Inverter side current	A	Displays current of inverter side of high voltage line
System main relay 1 request	—	Displays operation request status of system main relay 1
High voltage connection state	—	Displays high voltage connection status
Pre-charge relay request	—	Displays operation request status of pre- charge relay
LBC status (CAN)	—	Displays CAN communication error state of LBC
Front traction motor inverter status	—	Displays inverter (front) status.
Available charge power (high voltage battery)	kW	Displays chargeable power to high voltage battery
Front traction motor inverter voltage	V	Displays voltage of inverter side of high voltage line.
LBC activation status	—	Displays start status of LBC
High voltage battery state request	—	This item is displayed but not used.
High voltage connection enable state	—	Displays permission and prohibition status of high voltage connection
High voltage ready available status	—	Displays high voltage availability status
Port lid open close command	—	This item is displayed but not used.
Power consumption (A/C)	W	This item is displayed but not used.
Charge type	—	Displays charge type
Charge connector unlock request	—	Displays charge connector lock cancel request status
Charge connector connection detecting	—	Displays lock status of AC charge plug (normal charge) or DC CCS charge plug (quick charge)
Charge request status	—	Displays status upon charge request
On-board charger status	—	Displays charge status of in-vehicle charger
Quick charge port high voltage	—	Displays whether there is high voltage in quick charge port.
AC charge voltage	V	Displays effective voltage of AC charging inlet.
On-board charger error	—	Displays error status of in-vehicle charger
Charger communication (Vehicle)	—	Displays communication status between charger and vehicle. Especially, means status of vehicle in the charging sequence.
Charger request current	A	Displays charge current value requested by the vehicle for the charger during charging.

<b>Freeze frame data item</b>	<b>Unit</b>	<b>Function</b>
Charger communication (Charger)	—	Displays communication status between charger and vehicle. Especially, means status of vehicle in the charging sequence.
High voltage battery target voltage (Vehicle)	V	Displays target voltage value of high-voltage battery of the vehicle, which the vehicle informs the charger at the start of charging.
CCS normal charge permit switch (Backup)	—	Displays switch (backup) operation command that the vehicle indicates the charge permission to the charger during AC / CCS charge.
CCS normal charge permit switch	—	Displays switch operation command that the vehicle indicates the charge permission to the charger during AC / CCS charge.
Possible charge maximum current (Charger)	A	Displays maximum current value allowed by charger and informed to vehicle by charger.
Vehicle compatible normal charger	—	Displays type of normal charger that is applicable to the vehicle.
Normal charge input current	A	Displays normal charge input current
AC charge available power	kW	Displays AC charge available power
Insulation resistance (high voltage battery)	Ohm	Displays insulation resistance value of high voltage battery
Insulation check for charge feedback	—	This item is displayed but not used.
Power consumption (PTC)	W	Displays power consumption of PTC heater
READY status	—	Displays READY status
Refrigerant pressure sensor voltage	V	Displays refrigerant pressure sensor voltage
IGN switch signal	—	Displays ignition switch signal status
Vehicle speed	km/h	Displays vehicle speed that is calculated based on front traction motor speed received from inverter (front)
12V battery voltage	V	Displays 12 V battery voltage
Brake pedal state	—	Displays brake pedal status
Sensor power supply voltage 4	mV	This item is displayed but not used.
Front traction motor inverter status (CAN)	—	Displays CAN communication error status of inverter (front)
Sensor power supply voltage 1	mV	Displays voltage of sensor power supply system 1
Sensor power supply voltage 2	mV	Displays voltage of sensor power supply system 2
Sensor power supply voltage 3	mV	Displays voltage of sensor power supply system 3
Accel pedal ratio	—	Displays accelerator pedal ratio
Ambient temperature	°C	Displays ambient temperature received from A/C auto amp
Cruise control status	—	This item is displayed but not used.
DC/DC activation	—	This item is displayed but not used.
High voltage battery SOC	%	Displays high voltage battery charge level
DC/DC temperature	°C	This item is displayed but not used.
Front traction motor inverter input water temperature	°C	This item is displayed but not used.
Battery fan PWM	Hz	This item is displayed but not used.
Front traction motor inverter output water temperature	°C	This item is displayed but not used.
Ambient temperature	°C	Displays ambient temperature
Available power in discharge	kW	Displays dischargeable power
Refrigerant pressure	bar	Displays A/C refrigerant pressure



Freeze frame data item	Unit	Function
System main relay ON state	—	Displays main relay ON permission status from high voltage battery
HSG Inverter Current	A	This item is displayed but not used.
Absolute time since first ignition	min	This item is displayed but not used.
Grille shutter 1 set position	%	Displays active grill shutter opening angle
Front traction motor inverter cooling pump	—	Displays ON / OFF request for water pump of inverter (front) cooling.
Driver side door state	—	Displays open / close status of the driver's door.
Shift position	—	Displays shift position
Water pump 2 request duty	%	Displays rotation command duty status of electric water pump
Charge connector lock request	—	Displays command status from charge connector to lock actuator
PHEV pump 1 counter	s	This item is displayed but not used.
PHEV pump 3 counter	s	This item is displayed but not used.
High voltage battery maximum voltage (Vehicle)	V	Displays maximum voltage value of high-voltage battery of the vehicle, which the vehicle informs the charger at the start of charging.
High voltage battery maximum current (Vehicle)	A	Displays maximum current value allowed by the vehicle, which the vehicle informs the charger at the start of charging.
Quick charge relay (-) command	—	Displays quick charge relay (-) operation command
Quick charge relay (+) command	—	Displays quick charge relay (+) operation command
Charge connector status	—	Displays charge connector status
CCS quick charge terminal temperature	°C	Displays high voltage terminal temperature of quick charge port in CCS charge
DC box temperature	°C	This item is displayed but not used.
Possible charge maximum power (Charger)	W	Displays maximum power value allowed by the charger, which the charger informs the vehicle at the start of charging,
CCS quick charge communication	—	Displays status where communication with the charger is established in CCS charge,
Possible charge maximum voltage (Charger)	V	Displays maximum voltage value allowed by the charger, which the charger informs the vehicle at the start of charging,
Possible charge minimum current (Charger)	A	Displays minimum current value allowed by the charger, which the charger informs the vehicle at the start of charging,
Vehicle states	—	This item is displayed but not used.
Engine drying has timed out	—	This item is displayed but not used.
Engine drying request	—	This item is displayed but not used.
Rear traction motor inverter permission regenerative torque 2	N·m	Displays regeneration torque 2 that permitted to inverter (rear)
Rear traction motor inverter permission regenerative torque 1	N·m	Displays regeneration torque 1 that permitted to inverter (rear)
High voltage battery temperature	°C	Displays high voltage battery temperature
High voltage battery external available power	kW	Displays externally available power of high voltage battery
High voltage connection request	—	Displays high voltage connection request status
System main relay 2 operation request	—	Displays rotation command status to system main relay 2 (-)
Front traction motor speed	rpm	Displays front traction motor speed
Rear traction motor speed	rpm	Displays rear traction motor speed
Rear traction motor inverter permission power torque	N·m	Displays powering torque permitted to inverter (rear).

Freeze frame data item	Unit	Function
Front traction motor inverter permission power torque	N·m	Displays powering torque permitted to inverter (front).
Control pilot frequency	Hz	Displays frequency of control pilot signal utilized for normal charge or quick charge (CCS)
Control pilot duty	%	Displays duty value of control pilot voltage utilized for normal charge or quick charge (CCS)
Control pilot voltage	V	Displays control pilot voltage utilized for normal charge or quick charge (CCS)
Charge connector connection detecting voltage	V	Displays voltage value of lock detection line of charge connector of normal charger.
PT-FD frame loss (AIRB)	—	Displays CAN communication status
PT-FD clock error (AIRB)	—	Displays CAN communication status
PT-FD frame loss (CCU)	—	Displays CAN communication status
PT-FD frame loss (ADAS)	—	Displays CAN communication status
PT-FD clock error (ADAS)	—	Displays CAN communication status
PT-FD CRC error (ADAS)	—	Displays CAN communication status
PT-CAN frame loss (ADAS)	—	Displays CAN communication status
HV2-CAN frame loss (BCB)	—	Displays CAN communication status
HV2-CAN clock error (BCB)	—	Displays CAN communication status
Connection detecting 1	—	Displays interlock 1 open / close status
Connection detecting 2	—	Displays interlock 2 open / close status
HV1-CAN clock error (BMS)	—	Displays CAN communication status
PT-FD frame loss (HFM)	—	Displays CAN communication status
Pump1 cooling flow rate	—	This item is displayed but not used.
Driver seat belt status	—	Displays driver's seat belt status
Driver seat belt buckle status	—	Displays driver's seat belt buckle status
HV2-CAN CRC error (BCB)	—	Displays CAN communication status
HV1-CAN frame loss (BMS)	—	Displays CAN communication status
HV1-CAN CRC error (BMS)	—	Displays CAN communication status
HV1-CAN frame loss (BMS2)	—	Displays CAN communication status
HV1-CAN clock error (BMS2)	—	Displays CAN communication status
HV1-CAN CRC error (BMS2)	—	Displays CAN communication status
PT-FD CRC error (CDM)	—	Displays CAN communication status
PT-CAN frame loss (CDM)	—	Displays CAN communication status
PT-FD frame loss (CGW)	—	Displays CAN communication status
PT-FD clock error (CDM)	—	Displays CAN communication status
PT-FD frame loss (CDM)	—	Displays CAN communication status
PT-FD CRC error (CCU)	—	Displays CAN communication status
PT-FD clock error (CCU)	—	Displays CAN communication status
PT-FD CRC error (CPLC)	—	Displays CAN communication status
PT-FD frame loss (IP)	—	Displays CAN communication status
PT-FD frame loss (HVAC)	—	Displays CAN communication status
PT-CAN CRC error (SCU)	—	Displays CAN communication status