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2013 NISSAN 370Z Roadster OEM Service and Repair Workshop Manual

Go to manual page

REAR TRACTION MOTOR SYSTEM : Precautions

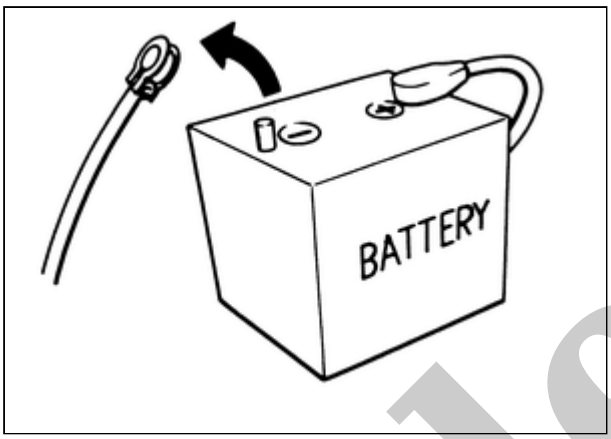
RDE-002037791

CAUTION:

- **After the inverter (rear) or rear traction motor was replaced, make sure to write the adjustment value for the rear traction motor resolver and the rotor resistance value. Refer to Work Procedure.**
- **When servicing the inverter (rear) and rear traction motor, prevent dust or foreign particles from entering the components.**

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the Intelligent Key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.

- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing “How to disconnect 12V battery terminal” described below.



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NOTE:
ECU may be active for several minutes after the power switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- Disconnect 12V battery terminal according to the following steps. Even when the power switch is OFF, the 12V battery automatic charge control may automatically start.

- **CAUTION:**
  Do not remove the battery during the update as the software update cannot be completed normally if the battery is removed during the software update.

WORK PROCEDURE

1. Open the hood (LHD models) or the back door (RHD models).

2. Check that charge cable (including EVSE) is not connected to the charge port.

NOTE:
If charge cable (including EVSE) is connected, the air conditioning system may be automatically activated by the timer A/C function.

3. Turn the power switch OFF → ON → press the power switch for at least 2 seconds to turn the high voltage system OFF, and then check that the charging status indicator is not illuminated.

NOTE:
When the high voltage system is turned ON, the charging status indicator blinks green with a frequency of 1 second.

4. Get out of the vehicle. Close all doors {except the hood (LHD models) or the back door (RHD models)}.

5. Check that the combination meter turns OFF and wait for 5 minutes or more.

CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

NOTE:
If the battery is removed within 5 minutes after the power switch is turned OFF, plural DTCs may be detected.

6. Check that the followings are not illuminated.
    - Charging status indicator
    - Electric parking brake warning lamp
7. Remove 12V battery terminal within 60 minutes after the power switch is turned OFF at Step 3.

CAUTION:
- **After all doors (including hood and back door) are closed, if a door (including hood and back door) is opened before battery terminals are disconnected, start over from Step 3.**
- **After turning the power switch OFF, if “Remote A/C” is activated by user operation, stop the air conditioner and start over from Step 3.**

NOTE:
Once the power switch is turned ON → OFF, the 12V battery automatic charge control does not start for approximately 1 hour.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the power switch.

NOTE:
If the power switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:
The removal of 12V battery may cause a DTC detection error.

RDE-002037797

OPERATION PROHIBITION

WARNING:

- **Parts with strong magnet is used in this vehicle.**
- **Technicians using a medical electric device such as pacemaker must never perform operation on the vehicle, as magnetic field can affect the device function by approaching to such parts.**

NORMAL CHARGE PRECAUTION

WARNING:

- **If a technician uses a medical electric device such as an implantable cardiac pacemaker or an implantable cardioverter defibrillator, the possible effects on the devices must be checked with the device manufacturer before starting the charge operation.**
- **As radiated electromagnetic wave generated by PDM (Power Delivery Module) at normal charge operation may affect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not approach motor room [PDM (Power Delivery Module)] at the hood-opened condition during normal charge operation.**

PRECAUTION AT TELEMATICS SYSTEM OPERATION

WARNING:

- **If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.**
- **The electromagnetic wave of TCU might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), when using the service, etc.**
- **If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of TCU might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before TCU use.**

PRECAUTION AT INTELLIGENT KEY SYSTEM OPERATION

WARNING:

- **If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.**
- **The electromagnetic wave of Intelligent Key might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), at door operation, at each request switch operation, or at engine starting.**
- **If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of Intelligent Key might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before Intelligent Key use.**

PRECAUTIONS CONCERNING ON-BOARD SERVICING OF EV SYSTEMS : Precautions

RDE-002037798

CAUTION:

When hood is opened, power supply (charge) to 12V battery is stopped even during power switch ON state. Therefore, never leave hood opened for long time with power switch ON, when servicing vehicle.

Also, lock hood unless necessary to prevent 12V battery voltage from dropping.

NOTE:

During READY state, power is supplied (charged) to 12V battery even if hood is opened.

PRECAUTIONS FOR SUPPLEMENTAL RESTRAINT SYSTEM (SRS) AIR BAG AND SEAT BELT PRE-TENSIONER : Precautions

RDE-002037795

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision.

Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

WARNING:
Always observe the following items for preventing accidental activation.

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper repair, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

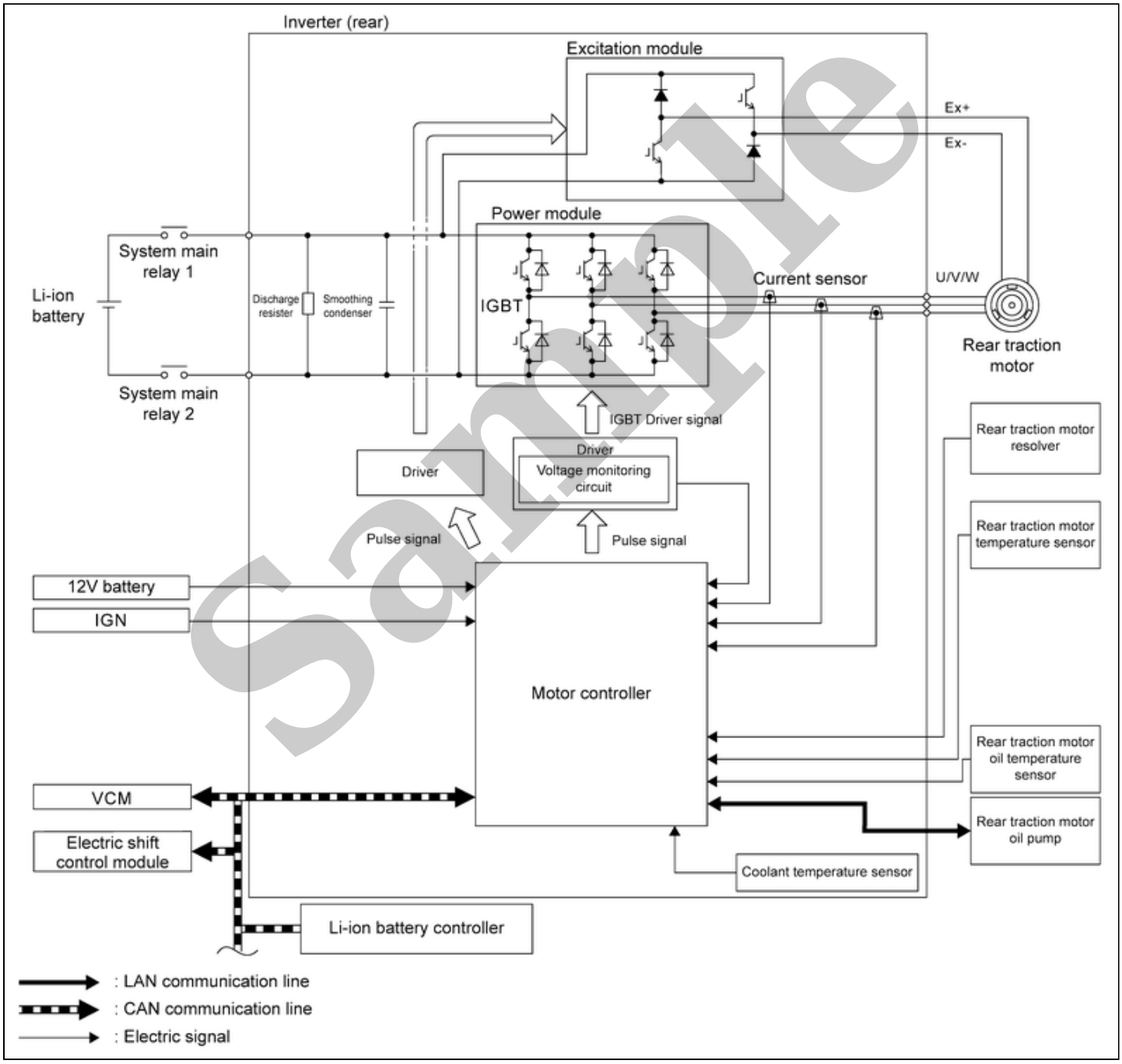
WARNING:
Always observe the following items for preventing accidental activation.

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition/power switch ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition/power switch OFF, disconnect the 12V battery or batteries, and wait at least 3 minutes before performing any service.**

SIEMD-7504784

- The inverter (rear) controls the rear traction motor based on the target motor torque signal transmitted by EV system CAN from the VCM.
- Inverter (rear) converts DC power from Li-ion battery to AC power, and drives rear traction motor accurately based on resolver detection signal and current sensor detection signal.
- At deceleration, rear traction motor is used as generator. It converts kinetic energy generated by rotary motion of tires (AC power) to electric energy (DC power) and charges Li-ion battery.
- If malfunction is detected, the system enters fail-safe mode. Refer to Fail-safe.

SYSTEM DIAGRAM



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Component	Description
VCM	• The inverter (rear) transmits the following signals to the VCM via the EV system CAN. ◦ Rear motor speed signal

Component	Description
	◦ Rear motor torque limit signal ◦ Motor discharge status signal ◦ Input high voltage signal ◦ Coolant temperature sensor signal • The inverter (rear) receives the following signals from the VCM via the EV system CAN. ◦ HV battery relay ON permit signal ◦ Inverter (rear) operation command signal ◦ Inverter (rear) traction limitation signal ◦ HV sleep wake up signal ◦ Power switch ON signal ◦ Coolant flow rate signal ◦ Total mileage signal ◦ Safety torque signal ◦ Target rear motor torque signal ◦ Pulse signal OFF signal ◦ System cut off signal ◦ Vibration control switching signal ◦ Motor discharge request signal ◦ Regenerative torque command signal
LBC	The inverter (rear) receives the following signals from the LBC via the EV system CAN. • HV battery total voltage signal • DTC signal
Inverter (rear) • Motor controller • Driver • Power module • Excitation module • Smoothing condenser • Current sensor • Discharge resister • Power module temperature sensor • Driver print circuit board temperature sensor • Excitation print circuit board temperature sensor	Component Description

Component	Description
• Coolant temperature sensor	
Rear traction motor • Rear traction motor resolver • Rear traction motor temperature sensor • Rear traction motor oil temperature sensor • Rear traction motor oil pump	Component Description