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2014 Nissan 370Z Service and Repair Manual

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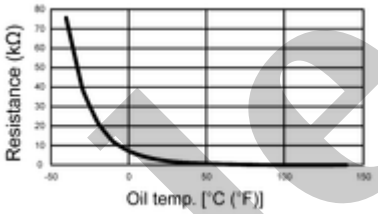
Replace the inverter (front). Refer to INVERTER (FRONT) : Removal & Installation.

NO>>

Repair or replace the malfunctioning parts.

1. INSPECTION OF THE OIL TEMPERATURE SENSOR OF THE FRONT TRACTION MOTOR

1. Disconnect the harness connector of the front traction motor.
2. Check the resistance between terminals in the front traction motor connector.

Front traction motor		Resistance
Terminal		
10	9	Within ±50% of the temperature characteristics chart  SIEMD-7197794-MD-7058703-01-000379916OffOff-46B891C5-000379916

Is the inspection result normal?

YES>>

INSPECTION END

NO >>

The oil temperature sensor of the front traction motor has malfunctioned. Replace the front traction motor. Refer to FRONT TRACTION MOTOR : Removal & Installation.

Component Inspection

SIEMD-7197786

WARNING:

Since hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.

WARNING:

- **Be sure to remove the service plug in order to disconnect the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.**
- **The removed service plug must always be carried in a pocket of the responsible worker or placed in the tool box during the procedure to prevent the plug from being connected by mistake.**
- **Be sure to wear insulating protective equipment before beginning work on the high voltage system.**
- **Never allow workers other than the responsible person to touch the vehicle containing high voltage parts. To keep others from touching the high voltage parts, these parts must be covered with an insulating sheet except when using them.**
- **Refer to HIGH VOLTAGE PRECAUTIONS : Precautions.**

CAUTION:

Never bring the vehicle into the READY status with the service plug removed unless otherwise instructed in the Service Manual. A malfunction may occur if this is not observed.

1. PRECONDITIONING

WARNING:

Follow the instructions below before starting the procedure.

1. **Disconnect high voltage circuit. Refer to HOW TO DISCONNECT HIGH VOLTAGE : Precautions.**
2. **Check voltage in high voltage circuit. Refer to CHECK VOLTAGE IN HIGH VOLTAGE CIRCUIT : Precautions.**

>>

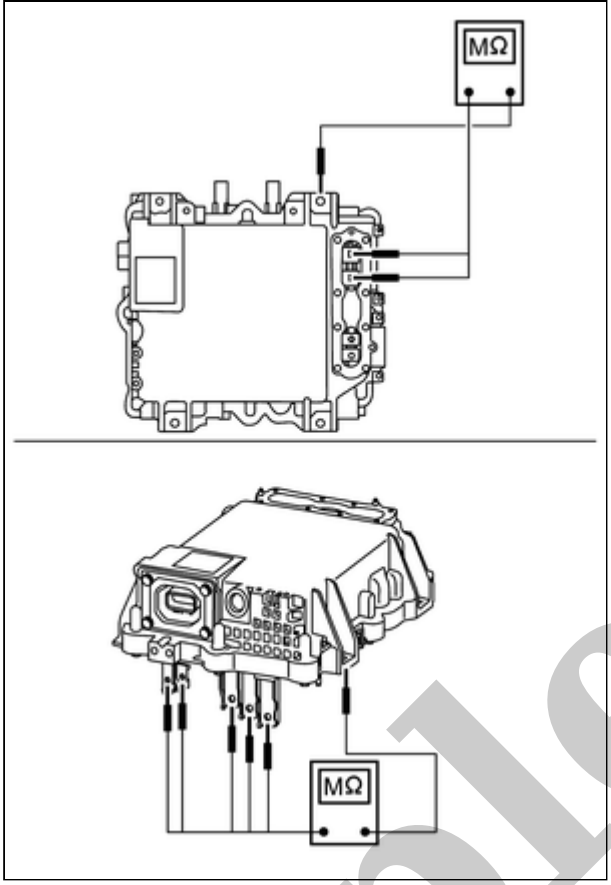
GO TO 2.

2. CHECK OF THE INSULATION RESISTANCE VALUE AT THE INVERTER (FRONT)

WARNING:

Unlike normal tester resistance meters, an insulation resistance tester (multi-tester) is for measuring an insulation resistance with 500 V applied to an insulating area, so its incorrect use may cause electric shock. Also note that using this tester on the 12V battery system for the vehicle may damage the power electronics. Carefully read the instruction manual for the insulation resistance tester (multi-tester) and perform the tasks safely.

1. Remove the inverter (front). Refer to INVERTER (FRONT) : Removal & Installation.
2. Inspect the insulation resistance in the inverter (front) with an insulation resistance tester (multi-tester).



SIEMD-7197786-02-000359590

CAUTION:

- **Set an insulation resistance tester (multi-tester) to the 500 V range.**
- **Never use an applied voltage of 500 V or more in a component, which may damage it.**
- **Wait for approx. 30 seconds until the value stabilizes.**

Inverter (front)		**-**	**Resistance**
Item	**Terminal**		
High voltage bus bar	P	Inverter (front) case	14 MΩ or more
	N		
Three-phase bus bar	U-phase		
	V-phase		
	W-phase		
Excitation bus bar	Ex+		
	Ex-		

Is the inspection result normal?

YES>>

INSPECTION END

NO>>

Replace the inverter (front). Refer to INVERTER (FRONT) : Removal & Installation.

Component Inspection

SIEMD-7197785

WARNING:

Since hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.

WARNING:

- **Be sure to remove the service plug in order to disconnect the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.**
- **The removed service plug must always be carried in a pocket of the responsible worker or placed in the tool box during the procedure to prevent the plug from being connected by mistake.**
- **Be sure to wear insulating protective equipment before beginning work on the high voltage system.**
- **Never allow workers other than the responsible person to touch the vehicle containing high voltage parts. To keep others from touching the high voltage parts, these parts must be covered with an insulating sheet except when using them.**
- **Refer to HIGH VOLTAGE PRECAUTIONS : Precautions.**

CAUTION:

Never bring the vehicle into the READY status with the service plug removed unless otherwise instructed in the Service Manual. A malfunction may occur if this is not observed.

1. PRECONDITIONING

WARNING:

Follow the instructions below before starting the procedure.

1. **Disconnect high voltage circuit. Refer to HOW TO DISCONNECT HIGH VOLTAGE : Precautions.**
2. **Check voltage in high voltage circuit. Refer to CHECK VOLTAGE IN HIGH VOLTAGE CIRCUIT : Precautions.**

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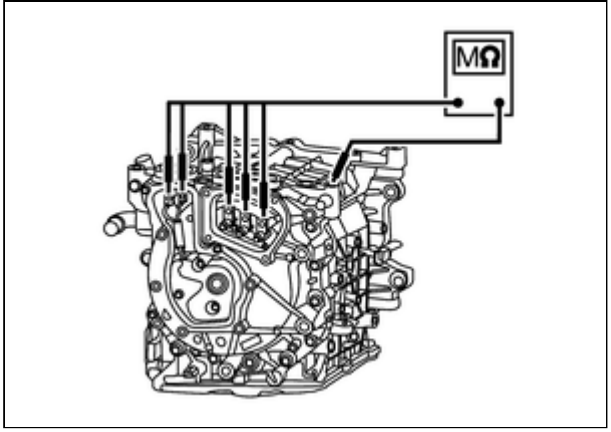
GO TO 2.

2. CHECK OF THE INSULATION RESISTANCE VALUE AT THE FRONT TRACTION MOTOR

WARNING:

Unlike normal tester resistance meters, an insulation resistance tester (multi-tester) is for measuring an insulation resistance with 500 V applied to an insulating area, so its incorrect use may cause electric shock. Also note that using this tester on the 12V battery system for the vehicle may damage the power electronics. Carefully read the instruction manual for the insulation resistance tester (multi-tester) and perform the tasks safely.

1. Remove the front traction motor. Refer to FRONT TRACTION MOTOR : Removal & Installation.
2. Inspect the insulation resistance in the front traction motor with an insulation resistance tester (multi-tester).



SIEMD-7197785-01-000359589

CAUTION:

- **Set an insulation resistance tester (multi-tester) to the 500 V range.**
- **Never use an applied voltage of 500 V or more in a component, which may damage it.**
- **Wait for approx. 30 seconds until the value stabilizes.**

NOTE:

- **Since each bus bar (U-phase, V-phase, W-phase) is in contact with each other inside the traction motor, inspect any one of the phases.**
- **Because the excitation terminals (Ex+, Ex-) are in contact inside the traction motor, check one of the phases.**

Front traction motor Terminal	Ground	Resistance
U-phase	Front traction motor case	1 GΩ or more
V-phase		
W-phase		
Ex+		
Ex-		

Is the inspection result normal?

YES>>

INSPECTION END

NO>>

Replace the front traction motor. Refer to FRONT TRACTION MOTOR : Removal & Installation.

SIEMD-7197784

1. INSPECTION OF THE HARNESS CONNECTOR

1. Power switch OFF.
2. Check mating conditions of the harness connector for the inverter (front).

Is the inspection result normal?

YES>>

GO TO 2.

NO>>

Repair or replace the malfunctioning parts.

2. INSPECTION OF THE CONNECTOR TERMINAL

1. Disconnect the harness connector of the inverter (front).
2. Check the inverter (front) connector for water intrusion, or damage or corrosion of the terminals.

Is the inspection result normal?

YES>>

GO TO 3.

NO>>

Repair or replace the malfunctioning parts.

3. INSPECTION OF 12V BATTERY POWER SUPPLY CIRCUIT 1

Check the voltage between the harness connector of the inverter (front) and the body ground.

+		−	Voltage
Inverter (front)			
Connector	Terminal		
F14	18	Body ground	9 - 16 V
	28		

Is the inspection result normal?

YES>>

GO TO 5.

NO>>

GO TO 4.

4. INSPECTION OF 12V BATTERY POWER SUPPLY CIRCUIT 2

Inspect the following items:

- Disconnection or short circuit in the wiring harness between the 12V battery and the inverter (front).
- Battery

- 10A fuse (#93)

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Repair or replace the malfunctioning parts.

5. INSPECTION OF POWER SWITCH CIRCUIT 1

1. Power switch ON.
2. Check the voltage between the harness connector of the inverter (front) and the body ground.

+		−	Voltage
Inverter (front)			
Connector	Terminal		
F14	30	Body ground	9 - 16 V

Is the inspection result normal?

YES >>

GO TO 9.

NO>>

GO TO 6.

6. INSPECTION OF POWER SWITCH CIRCUIT 2

1. Power switch OFF.
2. Disconnect the IPDM E/R harness connector.
3. Check continuity between the IPDM E/R harness connector and inverter (front) harness connector.

IPDM E/R		Inverter (front)		Continuity
Connector	Terminal	Connector	Terminal	
E40	25	F14	30	Existed

Is the inspection result normal?

YES>>

GO TO 7.

NO>>

Repair or replace the malfunctioning parts.

7. INSPECTION OF POWER SWITCH CIRCUIT 3

Check continuity between the IPDM E/R harness connector and body ground.

IPDM E/R		−	Continuity
Connector	Terminal		
E40	25	Body ground	No existed

Is the inspection result normal?

YES>>

GO TO 8.

NO>>

Repair or replace the malfunctioning parts.

8. INSPECTION OF POWER SWITCH CIRCUIT 4

Inspect the following items:

- Disconnection or short circuit in the wiring harness between the power switch and IPDM E/R
- IPDM E/R
- 5A fuse (#144)

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Repair or replace the malfunctioning parts.

9. INSPECTION OF THE GROUND CIRCUIT FOR THE INVERTER (FRONT)

Check continuity between the harness connector of the inverter (front) and the body ground.

Inverter (front)		–	Continuity
Connector	Terminal		
F14	4	Body ground	Existed
	14		

Is the inspection result normal?

YES>>

Perform the troubleshoot simulation test. Refer to Intermittent Incident.

NO>>

Repair or replace the malfunctioning parts.