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2010 NISSAN Frontier OEM Service and Repair Workshop Manual

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- When probe is put on the battery lower case, put it on the part that is not corroded or soiled.

Is the inspection result normal?

YES>>

[GO TO 6.](#)

NO>>

[GO TO 4.](#)

4. CHECK BUS BAR BETWEEN HIGH VOLTAGE CONNECTOR AND JUNCTION BOX.

1. Remove high voltage connector (front) and high voltage connector (quick charge).
2. Remove each connector of junction box.
3. Remove the following bus bar.
 - Bus bar (Bus bar 1) between high voltage connector (Front) and junction box.
 - Bus bar (Bus bar 20) between high voltage connector (Quick charge) and junction box.
4. Check that each bus bar shield have no scratches and cracks.

Is the inspection result normal?

YES>>

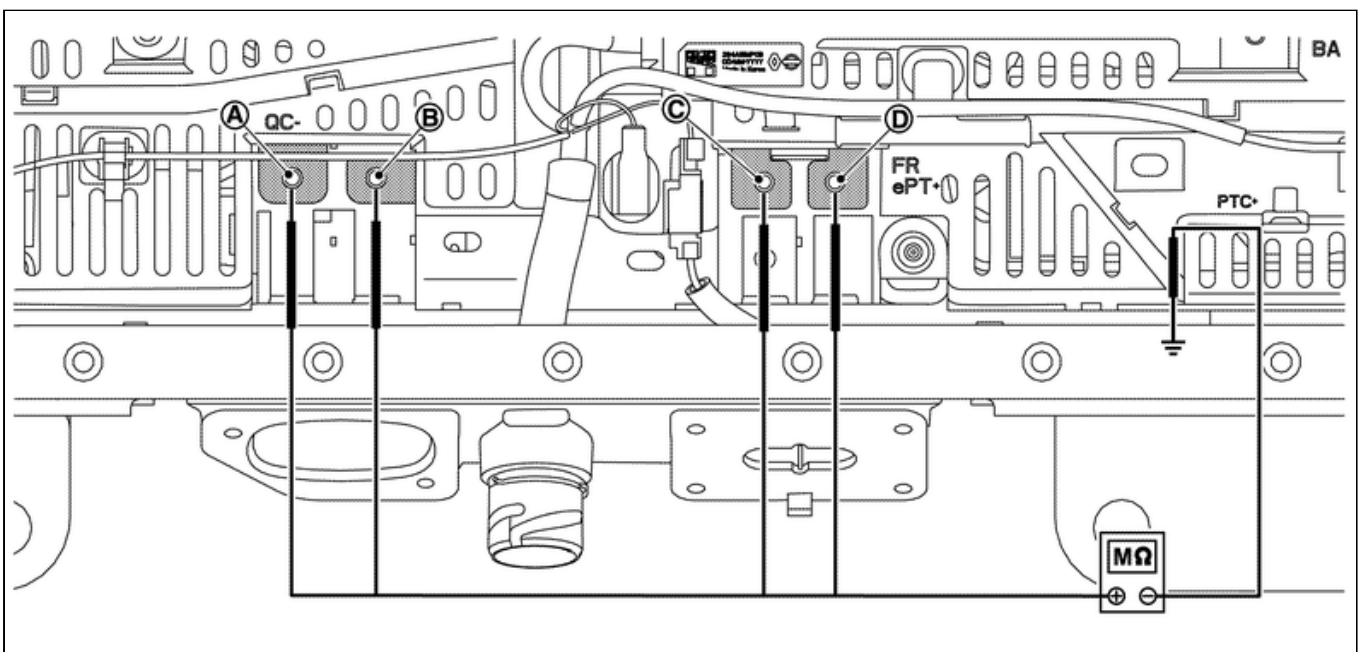
[GO TO 5.](#)

NO>>

Take note about replaced malfunction parts. Then [GO TO 5.](#)

5. BATTERY JUNCTION BOX INSULATION RESISTANCE-1

1. Remove high voltage connector (Front) and high voltage connector (Quick charge).
2. Remove each connector of junction box.
3. Using insulation resistance tester, measure insulation resistance between battery junction box terminals and battery pack ground.



Probe		Resistance
+	-	
Battery junction box terminals (P1) (A)	Battery pack lower case	1000 MΩ or more
Battery junction box terminals (P3) (B)		
Battery junction box terminals (P5) (C)		
Battery junction box terminals (P6) (D)		

WARNING:

Unlike the ordinary tester, the insulation resistance tester applies 500 V when measuring. If used incorrectly, there is the danger of electric shock. If used in the vehicle 12 V system, there is the danger of damage to electronic devices. Read the insulation resistance tester instruction manual carefully and be sure to work safely.

CAUTION:

- Be sure to set the insulation resistance tester to 500 V when performing this test.
- Using a setting higher than 500 V can result in damage to the component being inspected.
- When probe is put on the battery lower case, put it on the part that is not corroded or soiled.

Is the inspection result normal?

YES>>

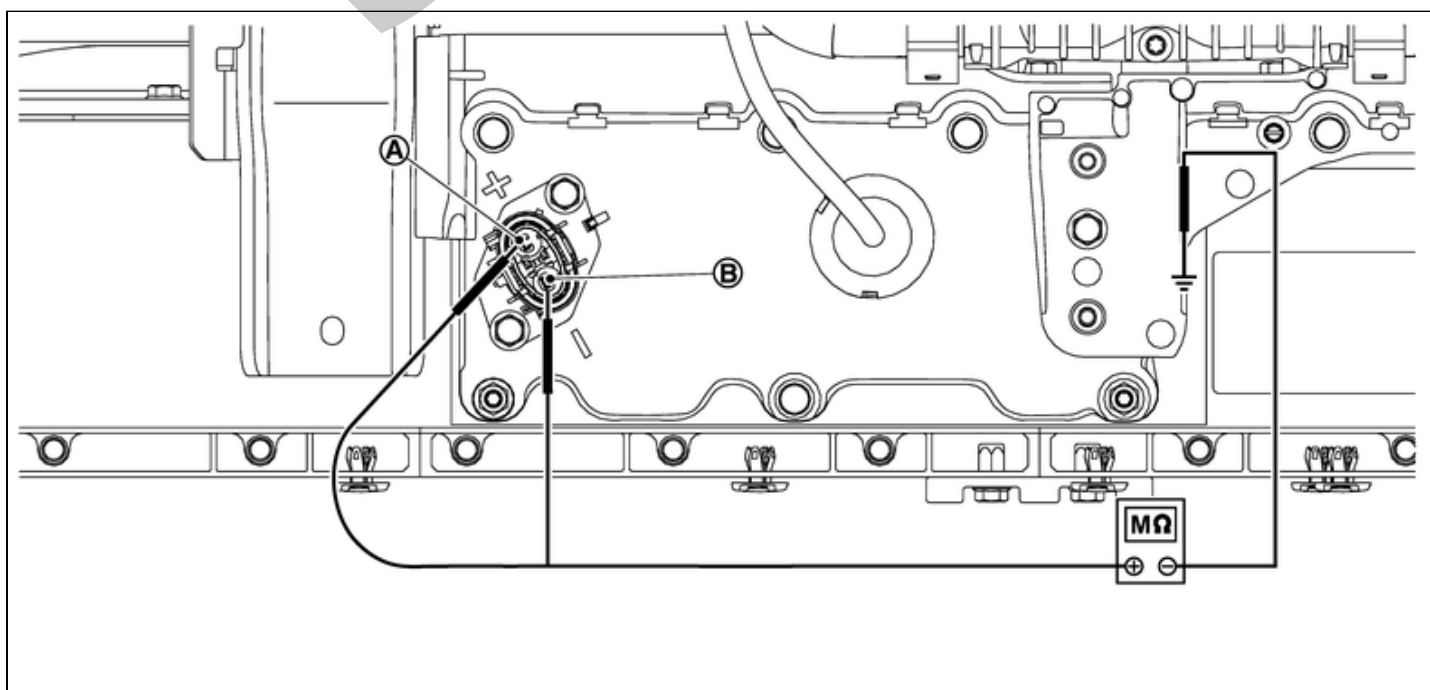
Take note about replacement of high voltage connector (Front) and high voltage connector (Quick charge) Then [GO TO 6](#).

NO>>

Take note about malfunction parts. Then [GO TO 6](#).

6. CHECK INSULATION RESISTANCE OF HIGH VOLTAGE CONNECTOR (BATTERY PTC CONNECTOR)

Using insulation resistance tester, measure insulation resistance between high-voltage connector (Battery PTC) terminals and battery pack ground (battery pack lower case).



Probe		Resistance
+	-	
High-voltage connector (Battery PTC) terminal (A)	Battery pack lower case	1000 MΩ or more
High-voltage connector (Battery PTC) terminal (B)		

WARNING:

Unlike the ordinary tester, the insulation resistance tester applies 500 V when measuring. If used incorrectly, there is the danger of electric shock. If used in the vehicle 12V system, there is the danger of damage to electronic devices. Read the insulation resistance tester instruction manual carefully and be sure to work safely.

CAUTION:

- Be sure to set the insulation resistance tester to 500 V when performing this test.
- Using a setting higher than 500 V can result in damage to the component being inspected.
- When probe is put on the battery lower case, put it on the part that is not corroded or soiled.

Is the inspection result normal?

YES>>

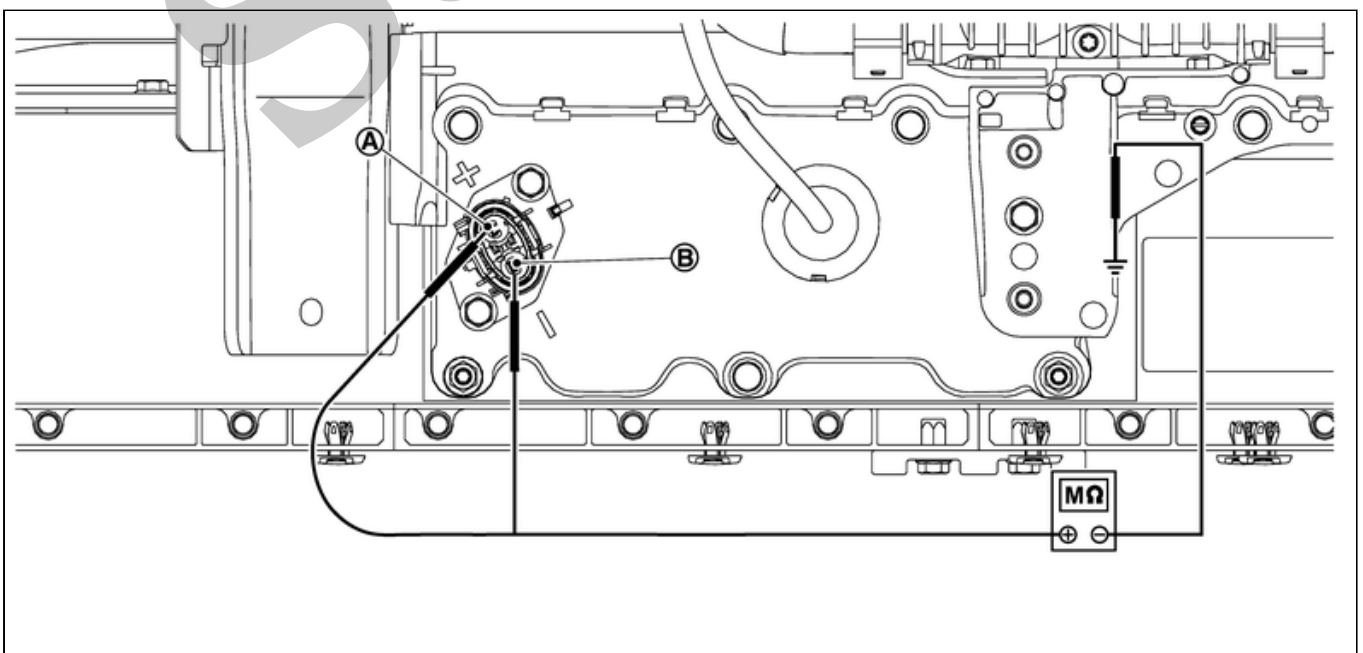
[GO TO 8.](#)

NO>>

[GO TO 7.](#)

7. CHECK INSULATION RESISTANCE BETWEEN HARNESES OF BATTERY PTC AND JUNCTION BOX

1. Remove battery PTC connector of junction box.
2. Using insulation resistance tester, measure insulation resistance between battery PTC harness and battery pack lower case.



Probe		Resistance
+	-	
High-voltage connector (Battery PTC) terminal (A)	Battery pack lower case	1000 MΩ or more
High-voltage connector (Battery PTC) terminal (B)		

WARNING:

Unlike the ordinary tester, the insulation resistance tester applies 500 V when measuring. If used incorrectly, there is the danger of electric shock. If used in the vehicle 12 V system, there is the danger of damage to electronic devices. Read the insulation resistance tester instruction manual carefully and be sure to work safely.

CAUTION:

- Be sure to set the insulation resistance tester to 500 V when performing this test.
- Using a setting higher than 500 V can result in damage to the component being inspected.
- When probe is put on the battery lower case, put it on the part that is not corroded or soiled.

Is the inspection result normal?

YES>>

Record replacement of high voltage connector (Battery PTC) Then [GO TO 8.](#)

NO>>

Record replacement of harnesses between battery PTC and junction box. Then [GO TO 8.](#)

8. CHECK BUS BAR BETWEEN JUNCTION BOX AND MODULE

1. Remove the following parts.

- Bus bar (bas bar2) between junction box and module No.1.
- Bus bar (bas bar19) between junction box and module No.12.

2. Check that each bus bar shield have no scratches and cracks.

Is the inspection result normal?

YES>>

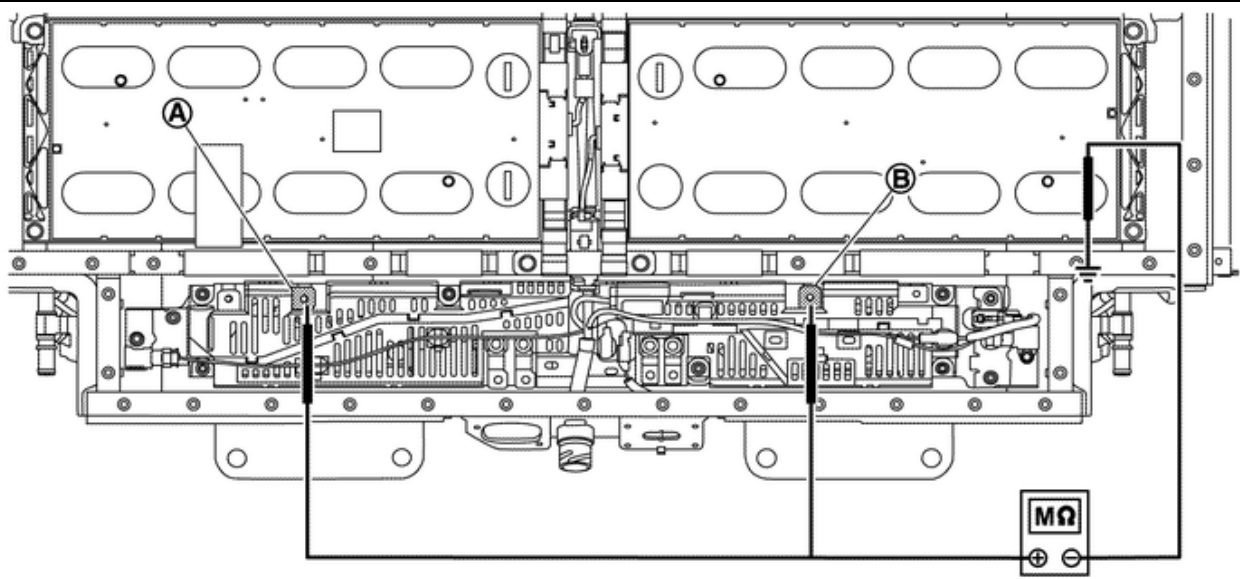
[GO TO 9.](#)

NO>>

Record replacement of malfunction parts. Then [GO TO 9.](#)

9. CHECK INSULATION RESISTANCE OF BATTERY JUNCTION BOX

Using insulation resistance tester, measure insulation resistance between battery junction box and battery pack lower case.



SIEMD-7377271-09-000367604

Probe		Resistance
+	-	
Battery junction box terminals (P2) (A)	Battery pack lower case	1000 MΩ or more
Battery junction box terminals (P4) (B)		

WARNING:

Unlike the ordinary tester, the insulation resistance tester applies 500 V when measuring. If used incorrectly, there is the danger of electric shock. If used in the vehicle 12V system, there is the danger of damage to electronic devices. Read the insulation resistance tester instruction manual carefully and be sure to work safely.

CAUTION:

- Be sure to set the insulation resistance tester to 500 V when performing this test.
- Using a setting higher than 500 V can result in damage to the component being inspected.
- When probe is put on the battery lower case, put it on the part that is not corroded or soiled.

Is the inspection result normal?

YES>>

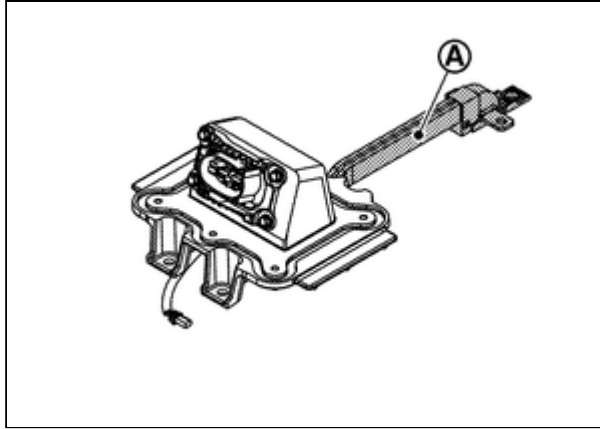
[GO TO 10.](#)

NO>>

Record replacement of junction box. Then [GO TO 10.](#)

10. CHECK INSULATION RESISTANCE OF SERVICE PLUG SWITCH

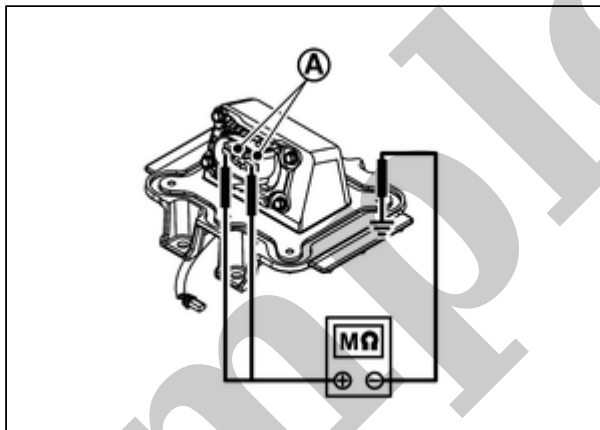
1. Remove service plug switch bracket together with bus bar.
2. Remove bus bar **(A)** from service plug.



SIEMD-7377271-MD-7161678-02-000392159OnOff-61F1C822-000392159

3. Check that each bus bar shield have no scratches and cracks.

4. Using insulation resistance tester, measure insulation resistance between service plug switch terminal **A** and service plug switch bracket.



SIEMD-7377271-04-000392160

WARNING:

Unlike the ordinary tester, the insulation resistance tester applies 500 V when measuring. If used incorrectly, there is the danger of electric shock. If used in the vehicle 12 V system, there is the danger of damage to electronic devices. Read the insulation resistance tester instruction manual carefully and be sure to work safely.

CAUTION:

- Be sure to set the insulation resistance tester to 500 V when performing this test.
- Using a setting higher than 500 V can result in damage to the component being inspected.
- When probe is put on the battery lower case, put it on the part that is not corroded or soiled.



NOTE:

Check service plug switch and service plug switch bracket as an assembly.

+	-	Resistance
Service plug switch terminals	Service plug switch bracket.	1000 MΩ or more

Is the inspection result normal?

YES>>

[GO TO 12.](#)

NO>>

11. CHECK EACH BUS BAR (2ND FLOOR)

1. Remove the following bus bars.
 - Bus bar (Bus bar 9) between module No.6 and module No.7
 - Bus bar (Bus bar 10) between module No.7 and module No.8
 - Bus bar (Bus bar 14) between module No.10 and module No.9
 - Bus bar (Bus bar 15) between module No.11 and module No.10
2. Check that each bus bar shield have no scratches and cracks.

Is the inspection result normal?

YES>>

[GO TO 12.](#)

NO>>

Record replacement of malfunction parts. Then [GO TO 12.](#)

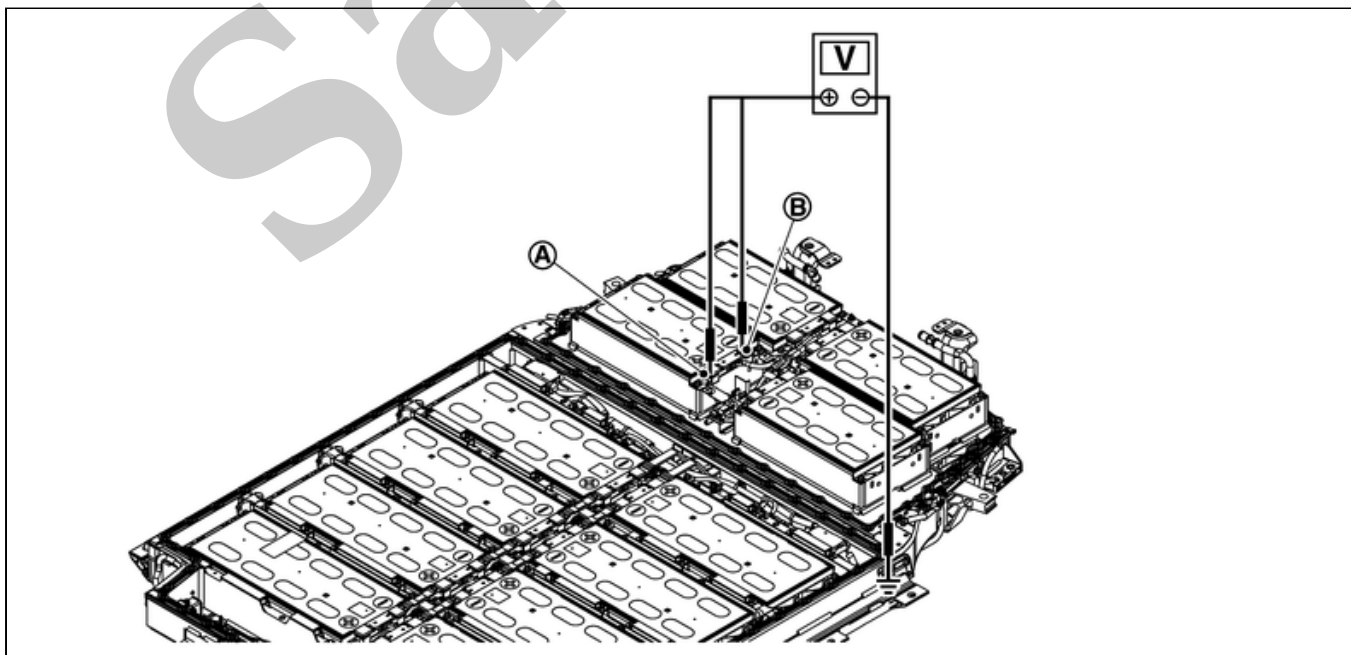
12. CHECK INSULATION VOLTAGE OF MODULE (2ND FLOOR)

1. Disconnect cell voltage detecting connector of each module.
2. Measure voltage between positive and negative terminal of each module and battery lower case ground.



NOTE:

The figure shows module No. 10 as an example. Measure voltage of each module in the same procedure.



SIEMD-7377271-05-000392161

Probe		Resistance
+	-	
Module positive terminal (A)	Battery pack lower case	0 V approx.
Module negative terminal (B)		

Is the inspection result normal?

YES>>

[GO TO 13.](#)

NO>>

[GO TO 17.](#)

13. REMOVE BATTERY PACK 2ND FLOOR

Remove the battery pack 2nd floor.

>>

[GO TO 14.](#)

14. CHECK EACH BUS BAR (1ST FLOOR)

1. Remove the following bus bars.

- Bus bar (Bus bar 3) between module No.1 and module No.2
- Bus bar (Bus bar 4) between module No.2 and module No.3
- Bus bar (Bus bar 5) between module No.3 and module No.4
- Bus bar (Bus bar 6) between module No.4 and module No.5
- Bus bar (Bus bar 7) between module No.5 and module No.6
- Bus bar (Bus bar 8) between module No.6/11 and module No.7/10
- Bus bar (Bus bar 16) between module No.11 and module No.12
- Bus bar (Bus bar 17) between module No.12 and module No.13
- Bus bar (Bus bar 18) between module No.13 and module No.14
- Bus bar (Bus bar 19) between module No.14 and module No.15
- Bus bar (Bus bar 20) between module No.15 and module No.16

2. Check that each bus bar shield have no scratches and cracks.

Is the inspection result normal?

YES>>

[GO TO 15.](#)

NO>>

Record replacement of malfunction parts. Then [GO TO 15.](#)

15. CHECK INSULATION VOLTAGE OF MODULE (1ST FLOOR)

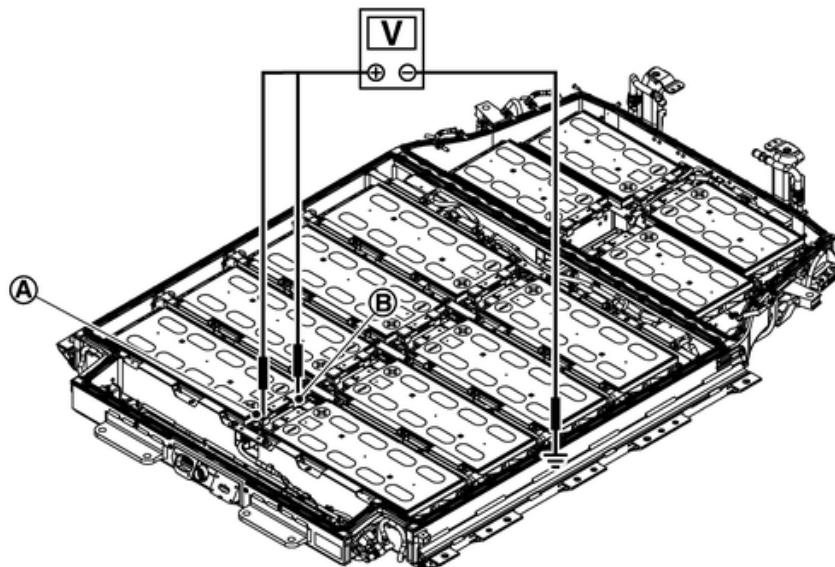
1. Disconnect cell voltage detecting connector of each module.

2. Measure voltage between positive and negative terminal of each module and battery lower case ground.



NOTE:

The figure shows module No. 16 as an example. Measure voltage of each module in the same procedure.



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Probe		Resistance
+	-	
Module positive terminal (A)	Battery pack lower case	0 V approx.
Module negative terminal (B)		

Is the inspection result normal?

YES>>

[GO TO 16.](#)

NO>>

[GO TO 17.](#)

16. CHECK RESULT CONFIRMATION

Confirm malfunction parts written or record by check.

Is there malfunction parts?

YES>>

Replace all parts written down or recorded.

NO>>

Replace LBC.

17. MODULE APPEARANCE CHECK

1. Remove the module that has malfunction at voltage leak check from battery pack lower case.
2. Check the module for any of the following abnormalities by comparing its appearance with other normal modules.
 - There are dents or deformation on the module surface.
 - Liquid adheres to the module surface.
 - Module emits a strong organic solvent-like odor and continues.

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