2102K–01

ON–VEHICLE INSPECTION

1. INSPECT INVERTER

NOTICE:

Wear insulating gloves.

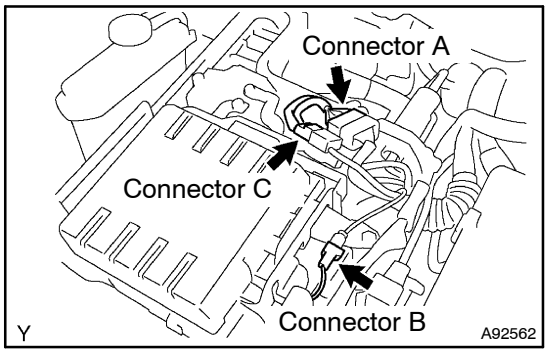
HINT:

Check the DTCs before performing the inspections of the converter and inverter, and perform the appropriate troubleshooting.

(a) Turn the power switch OFF.

(b) Remove the service plug grip (see page 21–120).

(c) Remove the inverter cover (see page 21–25).



(d) Disconnect the connectors A and B shown in the illustration.

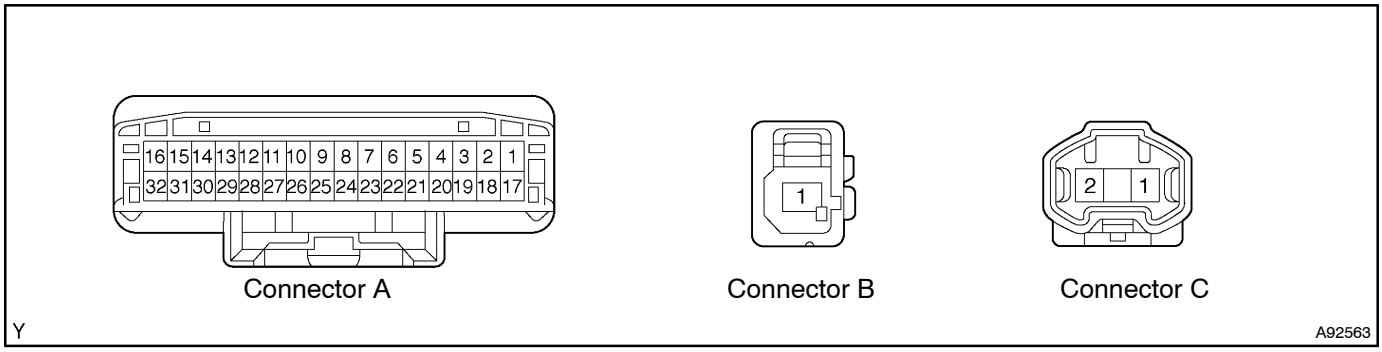
(e) Turn the power switch ON (IG).

If turning the power switch ON (IG) with the service plug grip removed, the DTC of the inter lock switch system will be output.

(f) Using a voltmeter, measure the voltage. Also, using an ohmmeter, measure the resistance.

NOTICE:

The inspection should be performed on the wire harness side, not on the terminal side.



Standard:

Tester Connection	Measuring Condition	Specified Condition
A2 – A16 (GIVA – GINV)	–	Approximately 0 V
A3 – A16 (GIVB – GINV)	–	Approximately 0 V
A4 – A16 (GUU – GINV)	–	Approximately 14 to 16 V
A5 – A16 (GVU – GINV)	–	Approximately 14 to 16 V
A6 – A16 (GWU – GINV)	–	Approximately 14 to 16 V
A7 – A16 (MIVA – GINV)	–	Approximately 0 V
A8 – A16 (MIVB – GINV)	–	Approximately 0 V

Tester Connection	Measuring Condition	Specified Condition
A9 – A16 (MUU – GINV)	–	Approximately 14 to 16 V
A10 – A16 (MVU – GINV)	–	Approximately 14 to 16 V
A11 – A16 (MWU – GINV)	–	Approximately 14 to 16 V
A12 – A16 (VH – GINV)	–	Approximately 0.5 V
A13 – A32 (CPWM – GCNV)	–	Approximately 0 V
A14 – A32 (GSDN – GCNV)	–	Approximately 2 to 4.5 V
A15 – A32 (VL – GCNV)	–	Approximately 0.5 V
A16 – C2 (GINV – GND)	–	Approximately 0 V
A18 – A16 (GIWA – GINV)	–	Approximately 0 V
A19 – A16 (GIWB – GINV)	–	Approximately 0 V
A20 – A16 (CT – GINV)	–	Approximately 0 V
A21 – A16 (GIVT – GINV)	–	Approximately 2 to 4.5 V
A22 – A16 (GFIV – GINV)	–	Approximately 5 to 8 V
A23 – A16 (MIWA – GINV)	–	Approximately 0 V
A24 – A16 (MIWB – GINV)	–	Approximately 0 V
A25 – A16 (MSDN – GINV)	–	Approximately 0 V
A26 – A16 (MIVT – GINV)	–	Approximately 2 to 4.5 V
A27 – A16 (MFIV – GINV)	–	Approximately 5 to 8 V
A28 – A16 (OVH – GINV)	–	Approximately 5 to 8 V
A29 – A32 (CSDN – GCNV)	–	Approximately 0 V
A30 – A32 (FCV\ – GCNV)	–	Approximately 13.5 to 16.5 V
A31 – A32 (OVL – GCNV)	–	Approximately 13.5 to 16.5 V
A32 – C2 (GCNV – GND)	–	Approximately 0 V
B1 – Body ground (ILK – Body ground)	After installing the probe to the terminal, temporarily install the inverter cover. It does not have to be tightened with the bolts at this point.	Below 1 Ω
C1 – C2 (IGCT – GND)	–	Approximately 8 to 16 V
C2 – Body ground (GND – Body ground)	–	Below 1 Ω

If the standards are not met, replace the w/ inverter converter assembly.

Combination Meter:



Master Warning Lamp

Y A77554

2. INSPECT CONVERTER

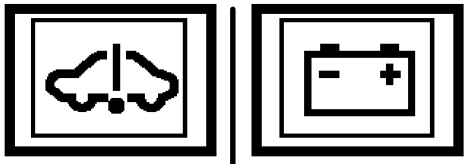
NOTICE:

Wear insulating gloves.

HINT:

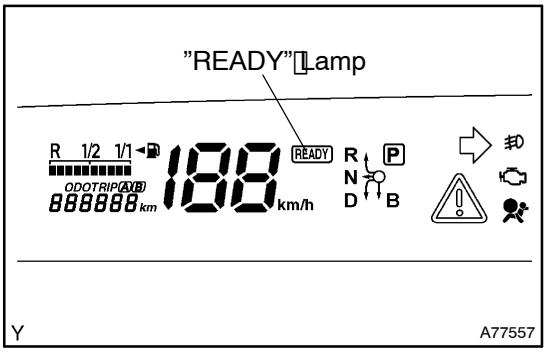
If the HV system warning, master warning lamp and charge warning come on at the same time, check the DTCs and perform the appropriate troubleshooting.

Multi Information Display:



HV System Warning Charge Warning

A77558



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(a) Check the operation.

(1) Using a voltmeter, measure the voltage of the auxiliary battery terminal when the "READY" lamp is OFF and ON.

Standard:

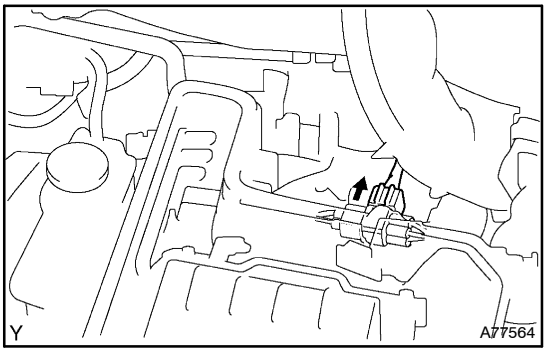
"READY" Lamp	Voltage
ON	14 V
OFF	12 V

HINT:

When the "READY" lamp is ON, the converter outputs the voltage. When it is OFF, the auxiliary battery outputs the voltage.

(b) Inspect the output current.

(1) Disconnect the MG1 and MG2 power cables from the inveter (see page 21–25).



Y A77564

(2) Install a voltmeter and the AC/DC 400 A probe to the locations shown in the illustration.

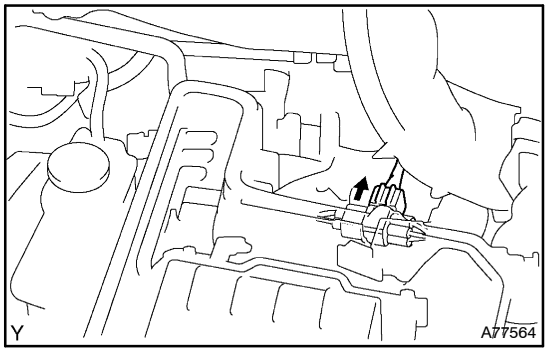
(3) Connect the MG1 and MG2 power cables to the inverter (see page 21–25).

(4) With the "READY" lamp ON, operate the 12 V electrical devices one by one, then measure the output current.

Standard: Approximately 80 A or less

HINT:

If the output current is 0 A or greater than 80 A, check the input/output signal.



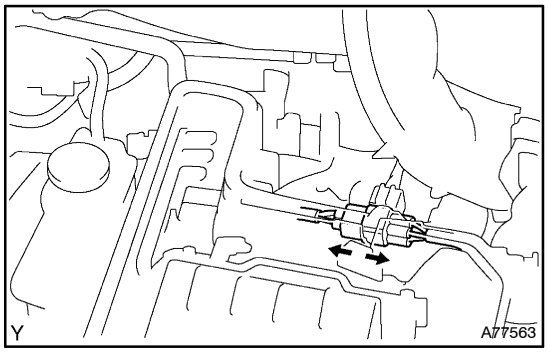
(c) Check the input/output signal.

(1) Disconnect the connectors shown in the illustration.

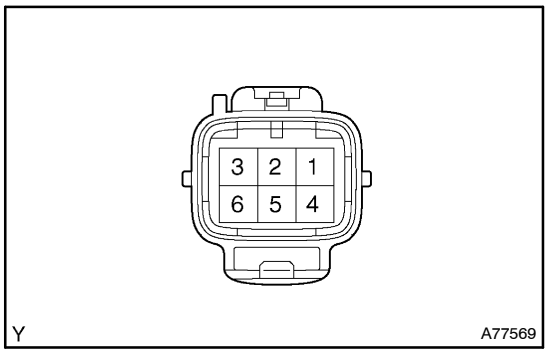
(2) Using a voltmeter, measure the voltage between the body ground and the terminal of the vehicle–side wire harness connector.

Standard:

Equal to the auxiliary battery terminal voltage



(3) Disconnect the connectors shown in the illustration.

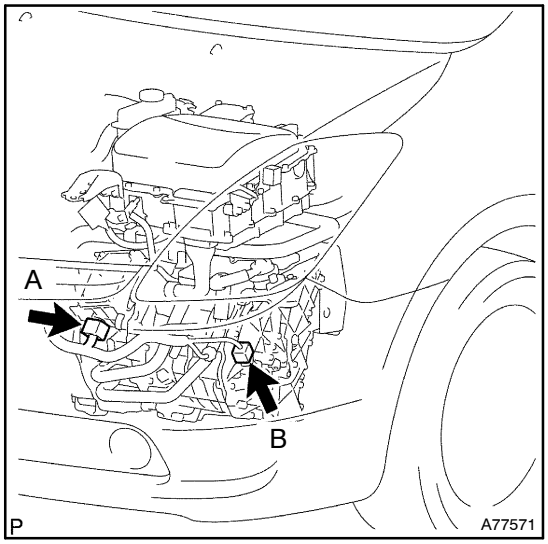


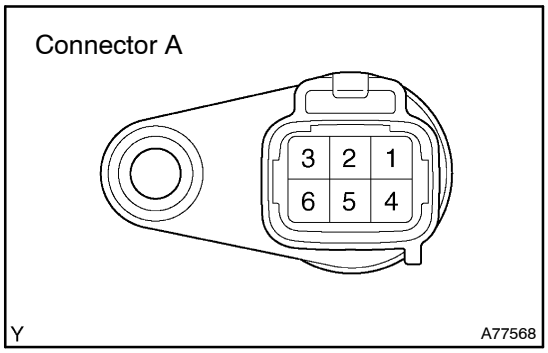
(4) Turn the power switch ON (IG). Using a voltmeter and ohmmeter, measure the voltage and resistance between the connector terminals on the vehicle harness side.

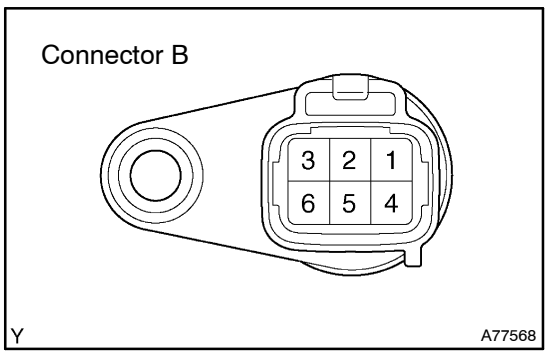
Standard:

Tester Connection	Specified Condition
Terminal 5 – Body ground (IGCT – Body ground)	8 to 16 V
Terminal 3 – Body ground (S – Body ground)	Equal to the auxiliary battery voltage
Terminal 1 – Body ground (S – Body ground)	120 to 140 Ω

If the standards are not met, replace the with inverter converter assembly.







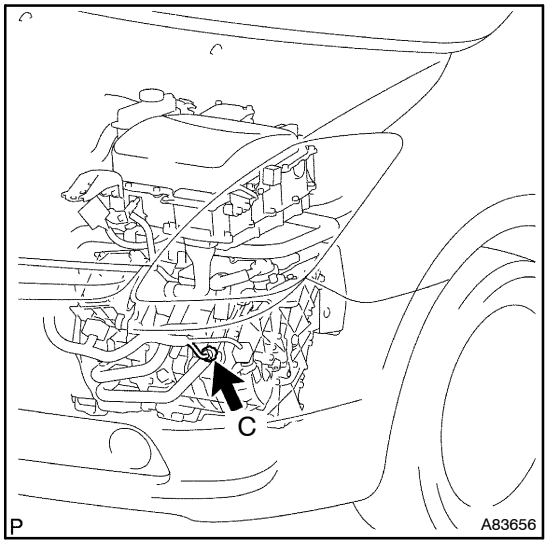
3. INSPECT SPEED SENSOR (RESOLVER)

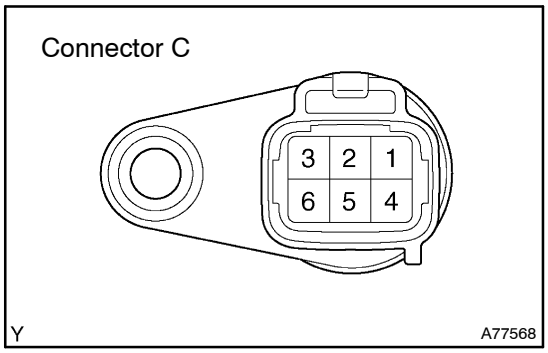
(a) Using an ohmmeter, measure the resistance between the terminals.

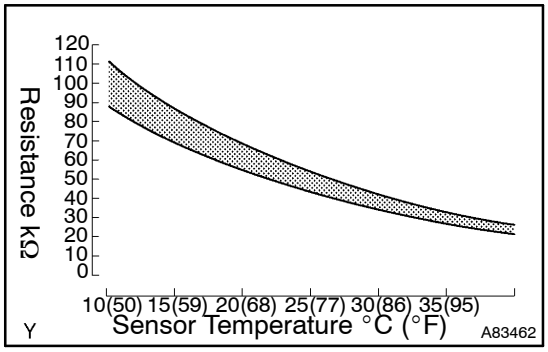
Standard:

Tester Connection	Specified Condition
A1 – A4 (GCS – GCSG)	12.6 to 16.8 Ω
A2 – A5 (GSN – GSNG)	12.6 to 16.8 Ω
A3 – A6 (GRF – GRFG)	7.65 to 10.2 Ω
B1 – B4 (MRF – MRFG)	7.65 to 10.2 Ω
B2 – B5 (MSN – MSNG)	12.6 to 16.8 Ω
B3 – B6 (MCS – MCSG)	12.6 to 16.8 Ω
All of the above terminals – Transaxle housing	10 kΩ or higher

If the standards are not met, replace the hybrid vehicle transaxle assembly.







4. INSPECT TEMPERATURE SENSOR

(a) Using an ohmmeter, measure the resistance between the terminals.

Standard:

Tester Connection	Specified Condition
C1 – C4 (MMT – MMTG)	87.3 to 110.5 kΩ at 10°C(50°F) 23.8 to 28.5 kΩ at 40°C (104°F)
C3 – C6 (OMT – OMTG)	87.3 to 110.5 kΩ at 10°C(50°F) 23.8 to 28.5 kΩ at 40°C (104°F)
All of the above terminals – Transaxle housing	1 MΩ or higher

HINT:

The standard varies according to the sensor temperature.

If the standards are not met, replace the hybrid vehicle transaxle assembly.

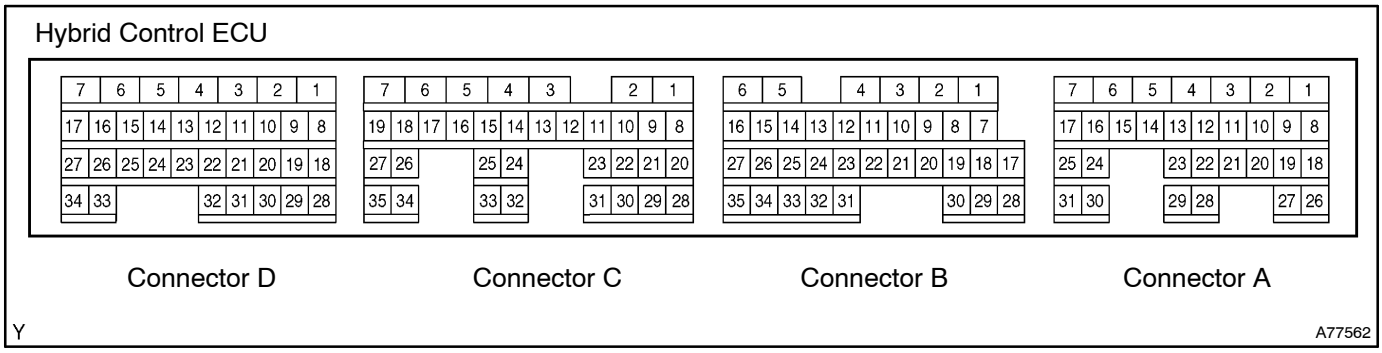
5. INSPECT ACCELERATOR POSITION

NOTICE:

- **Do not remove the accelerator position sensor from the accelerator pedal.**
- **Perform the inspection on the hybrid vehicle control ECU side of the connector.**

(a) Turn the power switch ON (IG).

(b) Using a voltmeter, measure the voltage between the terminals.



Standard:

Terminals	Measuring Condition	Specified Condition
B25 – B27 (VCP1 – EP1)	Normal	4.5 to 5.5 V
B26 – B27 (VPA1 – EP1)	Do not depress the accelerator pedal	0.5 to 1.1 V
B26 – B27 (VPA1 – EP1)	Gradually depress the accelerator pedal	The voltage increases slowly
B26 – B27 (VPA1 – EP1)	Fully depress the accelerator pedal	2.6 to 4.5 V
B33 – B35 (VCP2 – EP2)	Normal	4.5 to 5.5 V
B34 – B35 (VPA2 – EP2)	Do not depress the accelerator pedal	1.2 to 2.0 V
B34 – B35 (VPA2 – EP2)	Gradually depress the accelerator pedal	The voltage increases slowly
B34 – B35 (VPA2 – EP2)	Fully depress the accelerator pedal	3.4 to 5.3 V

If the standards are not met, replace the accelerator pedal rod assembly.