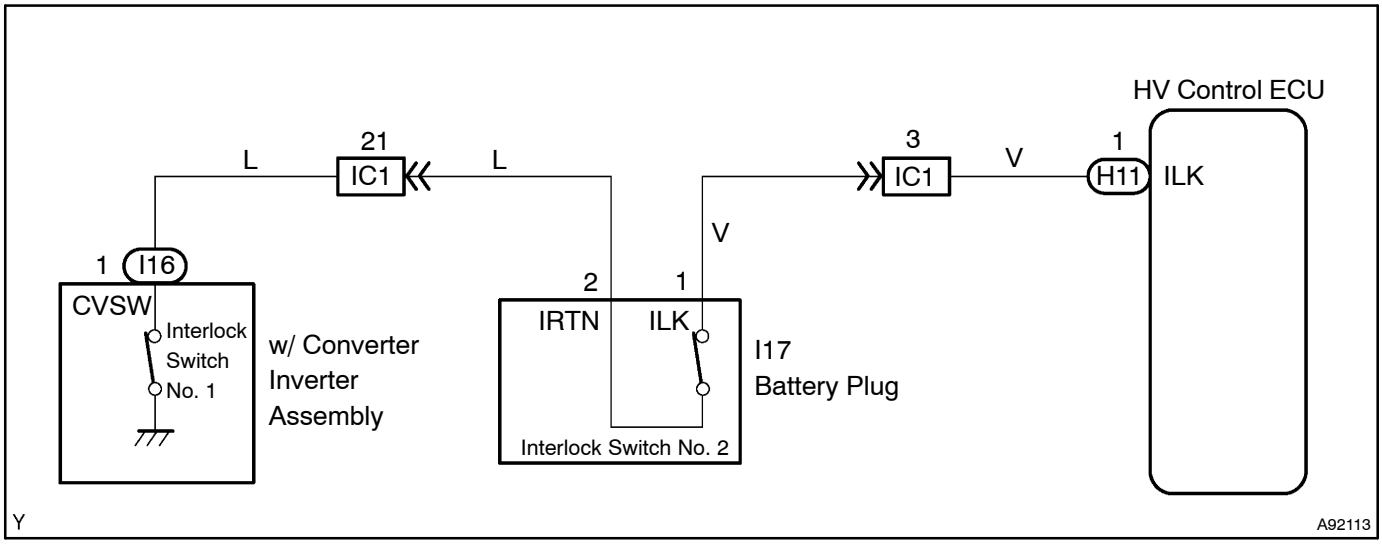
DTC P3143/351 HV INTERLOCK SWITCH OPEN/SHORT

CIRCUIT DESCRIPTION

A short pin for the interlock switch is provided on the service plug grip and the inverter cover. Therefore, the interlock signal line circuit opens when the service plug grip or the inverter cover is removed.
If the HV control ECU detects an open circuit in the interlock signal line while the vehicle is in motion (vehicle speed above 5 km/h [3 mph]), it stores the information (INF) code 351 in its memory and alerts the driver. While the vehicle is in motion, the HV control ECU will not shut down the high–voltage system even if an open circuit in the interlock system is detected.

DTC No.	INF Code	DTC Detection Condition	Trouble Area
P3143	351	Open in interlock signal circuit while vehicle is running	• Wire harness or connector • Battery plug (interlock switch No. 2) • w/ converter inverter assembly (interlock switch No. 1)

WIRING DIAGRAM



INSPECTION PROCEDURE

CAUTION:

- **Before inspecting the high–voltage system, take safety precautions to prevent electrical shocks, such as wearing insulated gloves and removing the service plug grip. After removing the service plug grip, put it in your pocket to prevent other technicians from reconnecting it while you are servicing the high–voltage system.**
- **After disconnecting the service plug grip, wait at least for 5 minutes before touching any of the high–voltage connectors or terminals.**

HINT:
At least 5 minutes is required to discharge the high–voltage condenser inside the inverter.

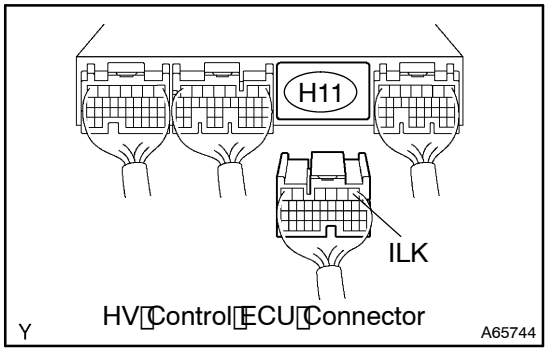
1	CHECK INVERTER COVER INSTALLATION

(a) Check that the inverter cover has been installed properly.
Standard: The inverter cover has been installed properly

NG → **CORRECTLY REINSTALL**

OK

2	CHECK HARNESS AND CONNECTOR(HYBRID VEHICLE CONTROL ECU – INTERLOCK SWITCH NO.2)



(a) Disconnect the H11 HV control ECU connector.
(b) Disconnect the I17 interlock switch No.2 connector.
(c) Check the resistance between the wire harness side connectors.

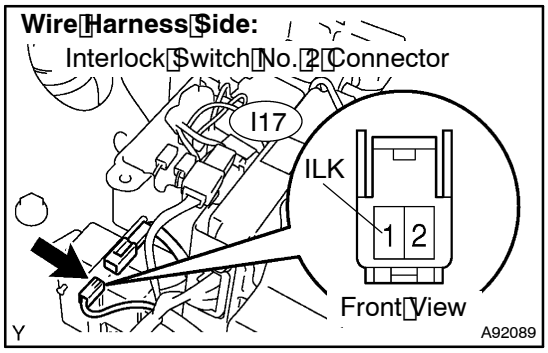
Standard (Check for open):

Tester Connection	Specified Condition
ILK (H11–1) – ILK (I17–1)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
ILK (H11–1) or ILK (I17–1) – Body ground	10 kΩ or higher

(d) Reconnect the interlock switch No.2 connector.
(e) Reconnect the HV control ECU connector.

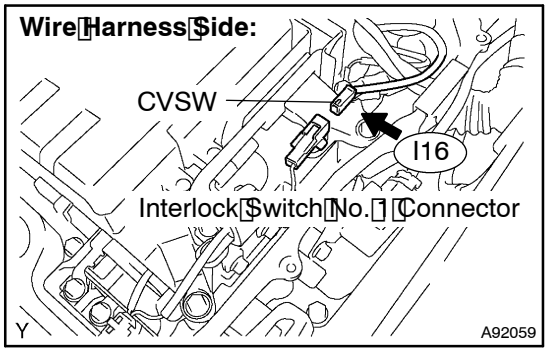


NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

3	CHECK HARNESS AND CONNECTOR(INTERLOCK SWITCH NO. 1 – INTERLOCK SWITCH NO.2)

CAUTION:
Wear insulated gloves before performing the following operation.
(a) Turn the power switch OFF.
(b) Remove the service plug grip (see page 21–120).
NOTICE:
Turning the power switch ON (READY) with the service plug grip removed could cause malfunction. Therefore, never turn the power switch ON (READY) in this state.
(c) Remove the inverter cover (see page 21–25).



(d) Disconnect the I16 interlock switch No. 1 connector.
(e) Disconnect the I17 interlock switch No. 2 connector.
(f) Check the resistance between the wire harness side connectors.

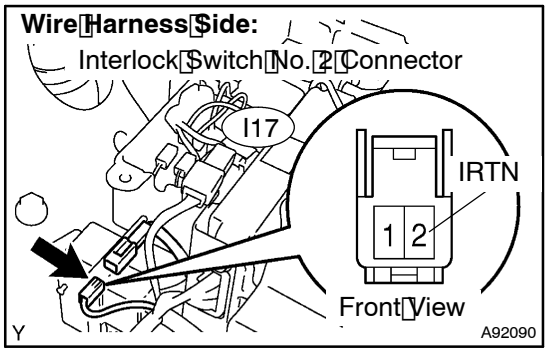
Standard (Check for open):

Tester Connection	Specified Condition
CVSW (I16–1) – IRTN (I17–2)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
CVSW (I16–1) or IRTN (I17–2) – Body ground	10 kΩ or higher

(g) Reconnect the interlock switch No. 1 connector.
(h) Reconnect the interlock switch No. 2 connector.



NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

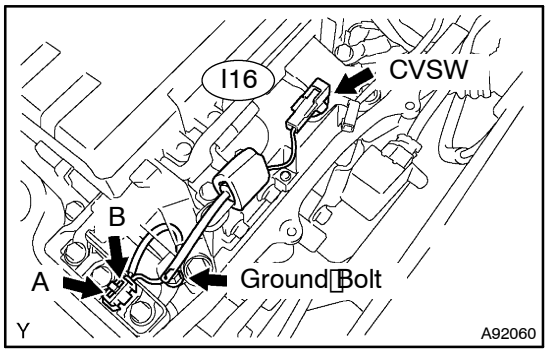
4 INSPECT W/CONVERTER INVERTER ASSY

CAUTION:
Wear insulated gloves before performing the following operation.

(a) Check that the service plug grip and inverter cover have been removed.
(b) Disconnect the I16 interlock switch No. 1 connector.
(c) Check that the ground bolt for the interlock switch is tightened to the specified torque.
Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)
(d) Connect terminals A and B as shown in the illustration.
(e) Check the resistance between the I16 interlock switch No. 1 connector and body ground.

Standard:

Tester Connection	Specified Condition
CVSW (I16–1) – Body ground	Below 1 V



(f) Reconnect the interlock switch No. 1 connector.
(g) Reinstall the inverter cover (see page 21–25).
(h) Reinstall the service plug grip (see page 21–120).

NG → **REPAIR WIRE HARNESS OR CONNECTOR, OR REPLACE W/CONVERTER INVERTER ASSY (See page 21–25)**

OK

REPLACE BATTERY PLUG (See page 21–79)