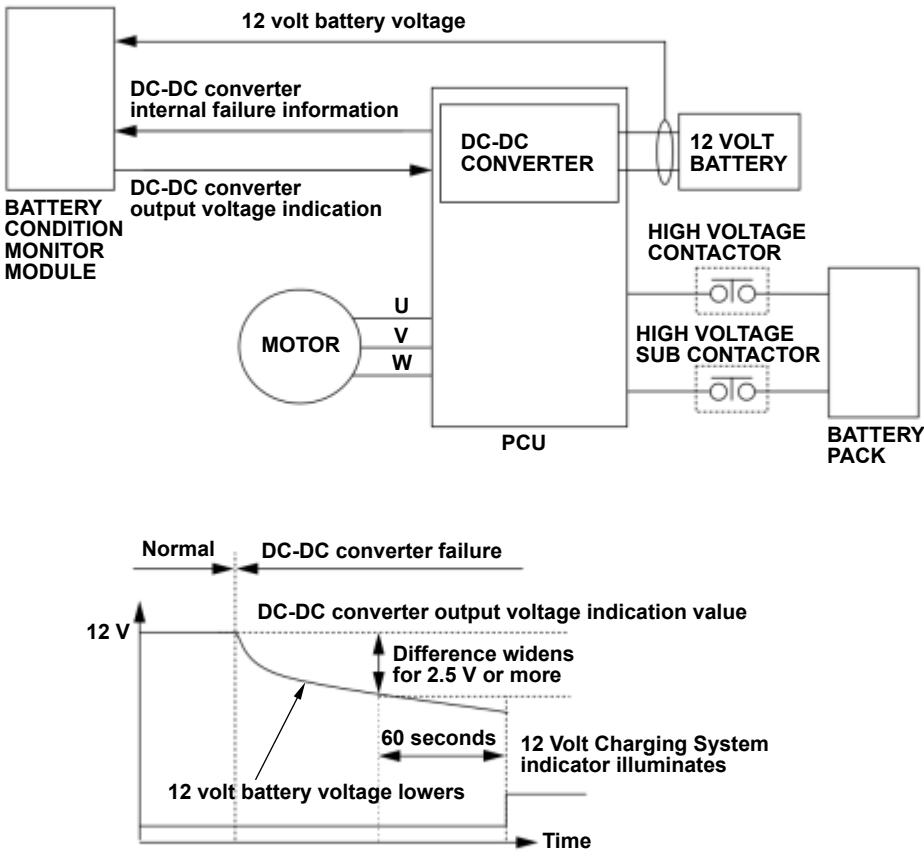


DTC P0A94: DC-DC Converter Performance

General Description



The 12 volt battery voltage and the output voltage measured by the battery condition monitor module become within a prescribed value if the DC-DC converter is normally operating. In the event of malfunction of the DC-DC converter or if the DC-DC converter protection is activated (output is stopped) due to overheating, the 12 volt battery voltage is decreased. Malfunction of the DC-DC converter is detected and a DTC is stored when any one of the following conditions is met:

- Malfunction judgment 1
The value of the DC-DC converter output power instructed by the battery condition monitor module and the 12 volt battery voltage measured by the battery condition monitor module are compared and when the difference in the voltage is equal to or more than the prescribed value continuously for the prescribed time or more or when the battery condition monitor module has received internal failure information similarly determined within the DC-DC converter.
- Malfunction judgment 2
When the DC-DC converter output voltage is equal to or less than the voltage instructed by the battery condition monitor module continuously for the prescribed time or more.
- Malfunction judgment 3
When the 12 volt battery voltage is equal to or less than the prescribed value continuously for the prescribed time.

Monitor Execution, Sequence, Duration, DTC Type

Execution	Continuous
Sequence	None

*: Malfunction judgment 1
**: Malfunction judgment 2
***: Malfunction judgment 3

Duration	60 seconds or more*, *** 2.0 seconds or more**
DTC Type	One drive cycle, MIL off, POWER SYSTEM indicator off, 12 Volt Charging System indicator on

*: Malfunction judgment 1
**: Malfunction judgment 2
***: Malfunction judgment 3

Enable Conditions

Condition	Minimum	Maximum
Battery condition monitor module power-supply voltage	10.2 V	–
Motor power inverter (MPI) module voltage	157.0 V	250.8 V
Vehicle	ON mode	

Malfunction Threshold

- Malfunction judgment 1
The difference between the commanded DC-DC converter voltage and the battery condition monitor module voltage is 2.5 V or more for at least 60 seconds.
- Malfunction judgment 2
The battery condition monitor module receives the internal malfunction information from the DC-DC converter for at least 2.0 seconds.
- Malfunction judgment 3
When the 12 volt battery voltage detected by the battery condition monitor module is less than 11 V continuously for 60 seconds or more.

Possible Cause

NOTE: The causes shown may not be a complete list of all potential problems, and it is possible that there may be other causes.

- DC-DC converter output line open
- DC-DC converter internal circuit failure
- Battery condition monitor module internal circuit failure

Confirmation Procedure

Operating Condition

Turn the vehicle to the READY TO DRIVE mode, and wait 100 seconds.

With the HDS

None.

Diagnosis Details

Conditions for setting the DTC

When a malfunction is detected, the 12 Volt Charging System indicator comes on and a Pending DTC, a Confirmed DTC, and the freeze data are stored in the battery condition monitor module memory. The MIL does not come on.

Conditions for clearing the DTC

The 12 Volt Charging System indicator is cleared if the malfunction does not return in the next trip in which the diagnostic runs. The 12 Volt Charging System indicator, the Pending DTC, the Confirmed DTC, and the freeze data can be cleared with the scan tool Clear command or the battery condition monitor module reset.