



Technical Service BULLETIN

April 23, 2007

Title:

M.I.L. "ON" DTC P3130, INFORMATION CODE 346

Models:

'01 – '03 Prius

ENGINE
EG023-07

TSB UPDATE NOTICE:

The information contained in this TSB supersedes TSB No. EG022-04. TSB No. EG022-04 is now obsolete and should be discarded.

Introduction Some 2001 – 2003 model year Prius vehicles may exhibit a Master, Hybrid, and M.I.L. warning light "ON" with Diagnostic Trouble Code (DTC) P3130, information code 346 (Inverter Cooling System Malfunction). This may be caused by reduced HV water pump performance or by the design of the Inverter Assembly during high ambient air temperature driving conditions. Follow the diagnostic procedures in this TSB to determine the appropriate repair to perform based on the conditions below.

- **Condition A:** DTC detection from a reduction in HV cooling system performance due to reduced or no water flow from the water pump. The HV Water Pump Assembly has been improved to correct this condition.
- **Condition B:** DTC detection from excessive HV cooling system temperature after prolonged operation in heavy stop-and-go traffic or sustained high speeds in ambient temperatures above 90°F (32°C). The Inverter Assembly has been improved to correct this condition.

NOTE:

DTC P3125 (Converter and Inverter Assembly Malfunction) with information code 264 may also be present as a result of DTC P3130, information code 346. Do NOT diagnose the P3125 DTC.

Applicable Vehicles

- 2001 – 2003 model year **Prius** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFF	T1	T2
EG5049	R & R Water w/Motor & Bracket Pump Assembly	1.6	G9020—47021	8A	99
Combo A	Connection of Toyota Diagnostic Tester	0.2			
890201	R & R Inverter Assembly w/Converter	2.0	G9200—47070		
Z—Hours	Connection of Toyota Diagnostic Tester	0.2			

Applicable Warranty*:

- **Op Code EG5049:** This repair is covered under the Toyota Powertrain Warranty. This warranty is in effect for 60 months or 60,000 miles, whichever occurs first, from the vehicle's in-service date.
- **Op Code 890201:** This repair is covered under the Hybrid Vehicle System Component Warranty. This warranty is in effect for 96 months or 100,000 miles, whichever occurs first, from the vehicle's in-service date.



* Warranty application is limited to correction of a problem based upon a customer's specific complaint.



**Parts
Information**

REPAIR PROCEDURE	PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
A	G9020-47020	G9020-47021	Pump Assembly, Water w/Motor & Bracket	1
B	G9200-47070	G9200-47071	Inverter Assembly, w/Converter	1
A & B	00272-1LLAC	Same	Long Life Coolant	1

**Required
SSTs**

SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QTY	DRW**
Toyota Diagnostic Tester Kit* NOTE: <ul style="list-style-type: none"> All components from this kit/set are required. 12 Megabyte Diagnostic Tester Program Card (P/N 01002593-005) with version 14.0a Software (or later) is required. 	TOY220036	1	9
Electrical Insulating Gloves 	00002-03100-S (Small) 00002-03200-M (Medium) 00002-03300-L (Large)	1 pr	9

* Essential SSTs.

** Drawer number in SST Storage System.

NOTE:

Additional Diagnostic Tester Kits, Program Cards, or other SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Diagnostic Procedure

Verify proper operation of the following systems:

- Check for coolant flow or air obstructions to the inverter heat exchanger and proper radiator seal condition. Make sure the coolant hoses are NOT kinked where they form turns.
- Check coolant level in the inverter reservoir tank. If the fluid is low, examine the cooling system components for leakage.
- Check for the presence of air bubbles in the cooling system.
- Confirm the proper mix of coolant and water.
- Confirm the operation of the HV coolant pump per the Repair Manual. Turbulent flow should be visible in the reservoir when the pump is operating.

After completing the checks above, proceed with one of the following:

- If any other problems are found with the HV cooling system, correct them and confirm that the DTC does NOT reset.
- If the pump has reduced or NO water flow, follow Repair Procedure A.
- If NO other HV cooling system problems are found and the DTC set while the vehicle was operated in high ambient air temperature conditions described in Condition B (page 1), proceed with Repair Procedure B.

Repair Procedure A

Remove and replace the HV coolant pump assembly (Water W/Motor & Bracket Pump Assembly, P/N G9020–47021).

Refer to the Technical Information System (TIS), applicable model year Prius Repair Manual, *Engine/Hybrid System – Cooling* – “1NZ–FXE: HV Water Pump: Removal” and “1NZ–FXE: HV Water Pump: Installation”

NOTE:

An improperly bled coolant system can cause a repeat of DTC P3130. Refer to Repair Procedure B for coolant bleeding procedure.

Repair Procedure B

Remove and replace the inverter assembly w/converter (P/N G9200–47071).

CAUTION:

A repair operation incorrectly performed on the hybrid vehicle (HV) could cause an electrical shock, leakage or explosion. Be sure to perform the repair operations correctly.

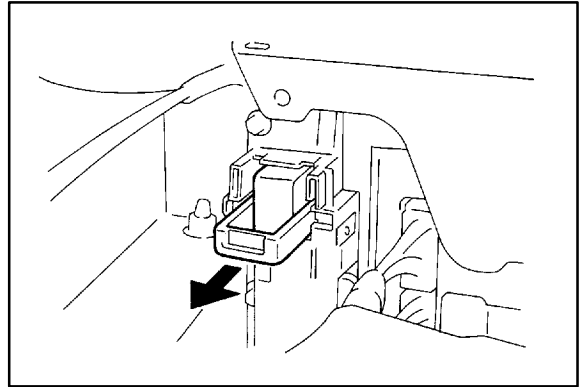
- Remove the key from the ignition switch.
- Ensure that the charge connector is disconnected.
- ALWAYS wear insulating gloves.
- Disconnect the negative (–) terminal cable from the auxiliary battery.

**Repair
Procedure B**
(Continued)

1. Remove service plug and **WAIT 5 MINUTES** before starting any repair operation.

CAUTION:

- Due to the discharge resistance, it takes at **LEAST 5 minutes** before the 273.6 V electricity is sufficiently discharged from the capacitor in the inverter circuit.
- Even after the 5 minutes have passed, the following precaution should be observed:
Before touching a 273.6 V cable or any other cable which you cannot identify, use the tester to confirm that the voltage through the cable is 12 V or less.
- After removing the service plug, cover the plug connector using rubber or vinyl electrical insulation tape.



2. After removing 273.6 V cable, be sure to cover each terminal using vinyl electrical insulation tape.
3. Do NOT leave tools or parts (bolts, nuts, etc.) inside cabin.
4. Remove pocket screwdrivers, jewelry, or other metallic objects that may fall into the work area.

CAUTION:

A metallic object may drop and cause a short-circuit.

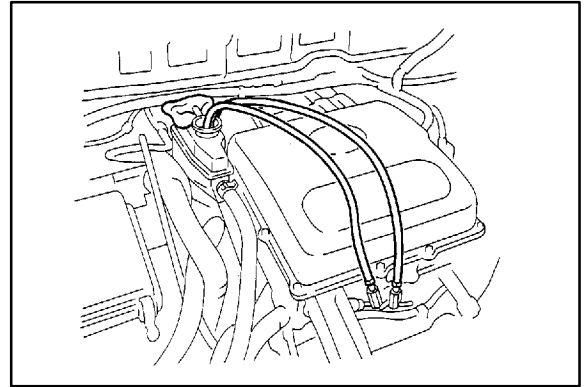
5. Drain coolant.
6. Remove and replace the inverter assembly w/converter.
Refer to TIS, applicable model year Prius Repair Manual, *Engine/Hybrid System – Hybrid/Battery Control System* – “1NZ-FXE: Converter and Inverter Assembly: Removal” and “1NZ-FXE: Converter and Inverter Assembly: Installation”.

**Repair
Procedure B**
(Continued)

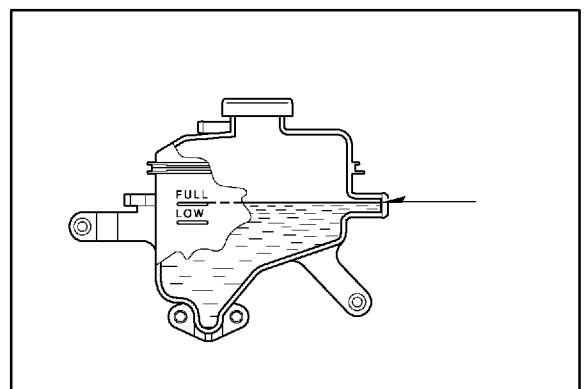
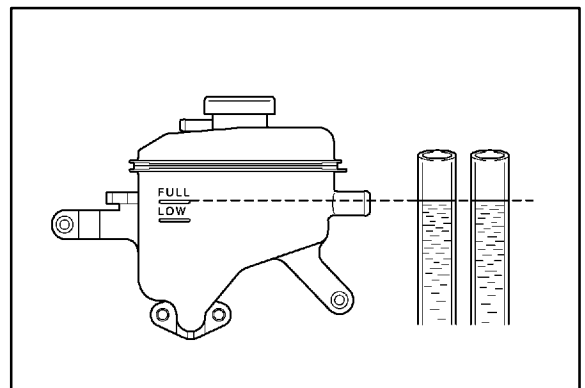
7. Bleed coolant system of air.
- A. Loosen the bleeder plug. Attach 3 – 4 mm (0.12 – 0.16 in.) internal diameter clear vacuum tubing between bleeder fitting and coolant reservoir.

NOTE:

- Use Toyota Long Life Coolant mixed 50/50 with distilled water.
- To prevent coolant from splashing, place a shop rag on the overflow pipe as shown in the illustration.



- B. Fill the reservoir until the coolant level in the hose connected to the bleeder plugs reaches the same level as the FULL mark on the reservoir tank as shown in the illustration.
- C. Tighten the 2 bleeder plugs.
- D. Activate water pump by turning ignition switch to ON position. Allow pump to operate for 20 seconds, then turn the ignition switch to the OFF position.
- E. Loosen the 2 bleeder plugs to bleed air.
- F. Close the 2 bleeder plugs again.
- G. Repeat steps D – F until the operation sound of the pump decreases and the coolant in the reservoir tank moves faster.
- H. With the ignition switch ON, wait for approximately 5 minutes.
- I. Adjust the coolant level inside the reservoir tank as shown in the illustration.



**Repair
Procedure B**
(Continued)

8. After replacing the inverter assembly w/converter, clear DTC(s).
Even if the master warning light is NOT lit, clear the DTC(s) using a Toyota Diagnostic Tester.

NOTE:

If a Toyota Diagnostic Tester CANNOT be used, disconnect the auxiliary battery for 1 minute or more and connect it again.

9. Verify operation of the inverter assembly w/converter after replacement.
Depressing the accelerator pedal to a degree of 50%, increase the speed up to approximately 9 mph (15 km/h) 3 or 4 times to check that there is NO problem in the inverter operation.
10. Test drive the vehicle to ensure that all repairs are satisfactory.