

M.I.L. "ON" DTC P0AC0, P0A1F, P0A7F, and/or P0AFA

Service Category Engine/Hybrid System

Section Hybrid/Battery Control System

Market USA

Toyota Supports
 ASE Certification 

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2004 – 2009	Prius	

Introduction

Some vehicles may exhibit a M.I.L. "ON" condition with one or more of the following Diagnostic Trouble Codes (DTCs):

- P0AC0 – Hybrid Battery Pack Current Sensor Circuit Range/Performance
- P0A1F – Battery Energy Control Module
- P0A7F – Hybrid Battery Pack Deterioration
- P0AFA – Hybrid Battery System Voltage Low

Improvements have been made to the HV ECU and battery ECU hardware to correct these conditions.

Production Change Information

This TSB applies to vehicles produced **BEFORE** the Production Change Effective VINs shown below.

MODEL	PLANT	PRODUCTION CHANGE EFFECTIVE VIN
Prius	Tsutsumi	JTDKB2#U#93518624
	Toyota Auto Body	JTDKB2#U#97878525

Parts Information

MODEL YEAR	PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
2004	89890-47073	Same	Computer, Assembly, Battery	1
2005–2009	89890-47092	Same		1
2004	89981-47350	Same	Computer, Hybrid Vehicle Control	1
2005	89981-47390	Same		1
2006–2009	89981-47212	Same		1

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Warranty Information

OP CODE	DESCRIPTION	TIME	OFF	T1	T2
EG9011	R & R Battery Computer Assembly and R & R Hybrid Vehicle Control Computer	1.9	89890-470##	8A	74

APPLICABLE WARRANTY

- This repair is covered under the Toyota Hybrid Vehicle System Warranty. This warranty is in effect for 96 months or 100,000 miles, whichever occurs first, from the vehicle's in-service date.
- For California specification vehicles sold, registered, and operated in California, Connecticut (starting with '05 MY), Maine, Massachusetts, New Hampshire (starting with '05 MY), New Jersey (starting with '05 MY), New York, Oregon (starting with '08 MY), Rhode Island (starting with '05 MY), and Vermont, this repair is covered under the California Emissions Warranty. This warranty is in effect for 180 months or 150,000 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.

Required Tools & Equipment

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
TIS Techstream* NOTE: Software version 4.11.000 or later is required.	ADE	TSPKG1	1

* Essential SST.

NOTE

Additional TIS Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.

M.I.L. "ON" DTC P0AC0, P0A1F, P0A7F, and/or P0AFA

Inspection Procedure

1. Using TIS Techstream, check for Diagnostic Trouble Codes (DTCs).
2. Are only codes P3000 (Information Code 123), P0AC0, P0A1F, P0A7F, or P0AFA present?
 - **YES** — Continue to step 3.
 - **NO** — Diagnose other DTC(s) first.
3. Review the Freeze Frame Data (FFD) for P3000 (Information Code 123), P0AC0, P0A1F, P0A7F, or P0AFA DTC(s). Inspect the Battery State of Charge (Figure 1) and Battery Block Voltages 1-14 (Figure 2).

Figure 1.

Freeze Frame Data P0AC0 Hybrid Battery Pack Current Sensor Circuit			
Parameter	Value	Unit	
Engine Coolant Temp	46	F	
Engine Revolution	0	rpm	
Vehicle Spd	0	MPH	
Engine Run Time	0	s	
+B	11.550	V	
DTC Clear Warm Up	79		
Battery State of Charge	0.0	%	
Delta SOC	0.0	%	
Batt Pack Current Val	0.03	A	
Inhaling Air Temp	50.9	F	
VMF Fan Motor Voltage	0.0	V	
Auxiliary Battery Vol	11.4	V	
Charge Control Val	-15.5	KW	
Discharge Control Val	15.5	KW	
Cooling Fan Mode	0		
ECU Control Mode	0		
Charge Control Signal	ON		
Equal Charge Out Rly Sig	OFF		
EQTR Charge Perm Sig	OFF		
Standby Blower Request	OFF		
Temp of Batt TB1	48.6	F	
Temp of Batt TB2	49.5	F	
Temp of Batt TB3	48.9	F	
Battery Block Vol -V01	16.53	V	
Battery Block Vol -V02	16.50	V	
Battery Block Vol -V03	16.47	V	
Battery Block Vol -V04	16.44	V	
Battery Block Vol -V05	16.48	V	
Battery Block Vol -V06	16.44	V	
Battery Block Vol -V07	16.45	V	
Battery Block Vol -V08	16.45	V	
Battery Block Vol -V09	16.48	V	
Battery Block Vol -V10	16.44	V	
Battery Block Vol -V11	16.44	V	
Battery Block Vol -V12	16.42	V	
Battery Block Vol -V13	16.51	V	
Battery Block Vol -V14	16.51	V	
Calculate Load	0.0		
Throttle Position	14.1	%	

Figure 2.

Freeze Frame Data P0AC0 Hybrid Battery Pack Current Sensor Circuit			
Parameter	Value	Unit	
Engine Coolant Temp	32	F	
Engine Revolution	0	rpm	
Vehicle Spd	0	MPH	
Engine Run Time	0	s	
+B	0.000	V	
DTC Clear Warm Up	255		
Battery State of Charge	69.0	%	
Delta SOC	0.0	%	
Batt Pack Current Val	0.00	A	
Inhaling Air Temp	32.0	F	
VMF Fan Motor Voltage	0.0	V	
Auxiliary Battery Vol	0.0	V	
Charge Control Val	0.0	KW	
Discharge Control Val	0.0	KW	
Cooling Fan Mode	0		
ECU Control Mode	0		
Charge Control Signal	OFF		
Equal Charge Out Rly Sig	OFF		
EQTR Charge Perm Sig	OFF		
Standby Blower Request	OFF		
Temp of Batt TB1	32.0	F	
Temp of Batt TB2	32.0	F	
Temp of Batt TB3	32.0	F	
Battery Block Vol -V01	0.00	V	
Battery Block Vol -V02	0.00	V	
Battery Block Vol -V03	0.00	V	
Battery Block Vol -V04	0.00	V	
Battery Block Vol -V05	0.00	V	
Battery Block Vol -V06	0.00	V	
Battery Block Vol -V07	0.00	V	
Battery Block Vol -V08	0.00	V	
Battery Block Vol -V09	0.00	V	
Battery Block Vol -V10	0.00	V	
Battery Block Vol -V11	0.00	V	
Battery Block Vol -V12	0.00	V	
Battery Block Vol -V13	0.00	V	
Battery Block Vol -V14	0.00	V	
Calculate Load	0.0		
Throttle Position	0.0	%	

M.I.L. "ON" DTC P0AC0, P0A1F, P0A7F, and/or P0AFA

Inspection Procedure (Continued)

4. Is the Battery State of Charge 0.0% or do ALL Battery Blocks equal 0.00V?

- **YES** — Proceed to step 5.
- **NO** — This TSB does NOT apply.

For additional diagnostics, refer to the Technical Information System (TIS), applicable model year Prius Repair Manual:

- [2004](#) / [2005](#) Prius:
Engine/Hybrid System – Hybrid/Battery Control System – “Hybrid Control System: Diagnostic Trouble Code Chart”
- [2006](#) / [2007](#) / [2008](#) / [2009](#) Prius:
Engine/Hybrid System – Hybrid/Battery Control System – “P112 Hybrid Vehicle Control: Hybrid Control System: Diagnostic Trouble Code Chart”

5. Clear the DTC(s) and road test the vehicle.

Do the DTC(s) reset?

- **YES** — This TSB does NOT apply.

For additional diagnostics, refer to TIS, applicable model year Prius Repair Manual:

- [2004](#) / [2005](#) Prius:
Engine/Hybrid System – Hybrid/Battery Control System – “Hybrid Control System: Diagnostic Trouble Code Chart”
- [2006](#) / [2007](#) / [2008](#) / [2009](#) Prius:
Engine/Hybrid System – Hybrid/Battery Control System – “P112 Hybrid Vehicle Control: Hybrid Control System: Diagnostic Trouble Code Chart”
- **NO** — Perform the Repair Procedure.

Repair Procedure

1. Replace the HV ECU.

For complete disassembly and reassembly procedures refer to TIS, applicable model year Prius Repair Manual:

- [2004](#) / [2005](#) Prius:
Engine/Hybrid System – Hybrid/Battery Control System – “Hybrid Vehicle Control ECU: Replacement”
- [2006](#) / [2007](#) / [2008](#) / [2009](#) Prius:
*Engine/Hybrid System – Hybrid/Battery Control System – “P112 Hybrid Vehicle Control: Hybrid Vehicle Control ECU: **Removal**”*

M.I.L. "ON" DTC P0AC0, P0A1F, P0A7F, and/or P0AFA

Repair Procedure (Continued)

- [2006](#) / [2007](#) / [2008](#) / [2009](#) Prius:
*Engine/Hybrid System – Hybrid/Battery Control System – “P112 Hybrid Vehicle Control: Hybrid Vehicle Control ECU: **Installation**”*

2. Replace the battery ECU.

For complete disassembly and reassembly procedures refer to TIS, applicable model year Prius Repair Manual:

- [2004](#) / [2005](#) Prius:
Engine/Hybrid System – Hybrid/Battery Control System – “Battery ECU Assy: Replacement”
- [2006](#) / [2007](#) / [2008](#) / [2009](#) Prius:
*Engine/Hybrid System – Hybrid/Battery Control System – “P112 Hybrid Battery Control: Battery ECU: **Removal**”*
- [2006](#) / [2007](#) / [2008](#) / [2009](#) Prius:
*Engine/Hybrid System – Hybrid/Battery Control System – “P112 Hybrid Battery Control: Battery ECU: **Installation**”*