

MIL "ON" P0A7A with Information Code 122

Service Category Engine/Hybrid System

Section Hybrid/Battery Control System

Market USA

Toyota Supports
 ASE Certification 

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2012 - 2016	Avalon HV, Camry HV, RAV4 HV	

Introduction

Some 2012 – 2016 model year Avalon HV, Camry HV and RAV4 HV vehicles may exhibit a MIL "ON" condition with DTC P0A7A with information code 122 (Generator Inverter Fail Signal Detection). Follow the procedure in this bulletin to address this condition.

NOTE

This TSB applies **ONLY** if information code 122 is present.

Warranty Information

OP CODE	DESCRIPTION	MODEL	TIME	OFF	T1	T2
EL1623	R & R Hybrid Inverter with Converter Assembly & Hybrid Transaxle Assembly	Avalon HV	9.8	G92A0-33021	8A	74
		Camry HV	9.7	G92A0-33021		
		RAV4 HV	11.3	G92A0-42050		

APPLICABLE WARRANTY

- This repair is covered under the Toyota Hybrid System 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 occurrence of the specified condition described in this bulletin.
- For California specification vehicles sold, registered, and operated in California, Arizona (12MY only), Connecticut, Delaware* (starting with 14MY), Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania*, Rhode Island, Vermont, and Washington*, warranty is in effect for 120 months or 150,000 miles, whichever occurs first, from the vehicle's in-service date.

*In DE, PA, and WA, California Long-Term Emission Warranty coverage for Camry HV is 84 months or 70,000 miles, whichever occurs first.

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Parts Information

MODEL	PART NUMBER		PART NAME	QTY
	PREVIOUS	NEW		
Avalon HV	G92A0-33020	G92A0-33021	Inverter w/ Converter Assembly	1
	30900-33051	30900-33053	Hybrid Transaxle Assembly	1
Camry HV	G92A0-33020	G92A0-33021	Inverter w/ Converter Assembly	1
	30900-33040	30900-33030	Hybrid Transaxle Assembly	1
RAV4 HV	G92A0-42050		Inverter w/ Converter Assembly	1
	30900-48121		Hybrid Transaxle Assembly	1
-	-	00272-SLLC2	Super Long Life Coolant (SLLC)	1

Required Tools & Equipment

SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
Electrical Insulating Gloves*	01413-00072 (Medium)	1
	01413-00073 (Large)	
	01413-00074 (Extra Large)	

CAUTION

Always inspect Electrical Insulating Gloves before use for cracks, ruptures, tears, pinholes, or damage. Do NOT wear if damaged.

NOTE

Additional SSTs may be ordered by calling 1-800-933-8335.

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream 2.0*	ADE	TS2UNIT	1
Techstream Lite		TSLITEPDLR01	
Techstream Lite (Green Cable)		TSLP2DLR01	

* Essential SST.

NOTE

- Only ONE of the Techstream units listed above is required.
- Software version 11.20.019 or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.

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Repair Procedure

1. Confirm if the following DTC and information code is present:
 - P0A7A – Generator Inverter Performance
 - Information code 122 – Generator inverter fail signal detection (overcurrent due to system malfunction)

If ANY other DTCs are present or the information code is NOT present, this Service Bulletin does NOT apply. Continue diagnosis per Repair Manual procedures.

2. Using the available freeze frame data for DTC P0A7A – 122 (there will be freeze frame available for this information code), confirm the values of the following data list parameters:
 - Generator (MG1) Rev
 - MG1 Control Mode

Confirm Generator (MG1) Rev is out of range between 6,000 – 10,000 AND MG1 Control Mode is 1 or 2. If either of the freeze frame values are NOT within the specified targets, this Service Bulletin does NOT apply. Continue diagnosis per Repair Manual procedures.

See the screen shots below for an example of the freeze frame data:

Figure 1.

DTC Code: P0A7A		Information Code: 122				
Export to CSV						
Info Code / Freeze Frame Data						
Parameter	Units	-3.0	-2.0	-1.0	0.0	1.0
Motor Temp No1	F	144	144	144	144	144
Power Resource VB	V	279.0	282.0	283.0	276.0	297.0
Boost Ratio	%	44.0	43.0	40.0	45.0	34.0
Engine Run Time	s	540	541	541	541	542
+B	V	14.31	14.31	14.31	14.31	14.33
M(MG2) Trq Exec Val	Nm	72.25	65.00	61.62	0.00	-14.75
Generator(MG1) Rev	rpm	7666	7712	7576	9554	10168
G(MG1) Trq Exec Val	Nm	-36.88	-33.88	-40.50	-0.13	-23.75
Inverter Temp-(MG2)	F	117	117	115	109	108
Engine Rev (Sensor)	rpm	3063	3119	3135	3619	3850

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Repair Procedure (Continued)

Figure 2.

Request Power	W	51880	52560	52450	0	53250
Target Engine Rev	rpm	3111	3146	3143	3196	3532
Master Cylinder Ctrl Trq	Nm	0.0	0.0	0.0	0.0	0.0
MG1 Control Mode		2	2	2	0	2
MG1 Carrier Frequency	kHz	5.00	5.00	5.00	5.00	5.00
MG2 Control Mode		0	0	0	0	0
Shift Sensor SW - D		ON	ON	ON	ON	ON
Inhaling Air Temp	F	79.7	79.7	79.7	79.7	79.7
Auxiliary Battery Vol	V	14.26	14.26	14.26	14.22	14.28

3. Replace the inverter assembly and transaxle assembly.

Refer to the Technical Information System (TIS), applicable model, and model year Repair Manual.

- 2013 Avalon HV:

Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter: [Removal](#) / [Installation](#)”

Drivetrain – Hybrid Transmission/Transaxle – “P314 Hybrid Transmission/Transaxle: Hybrid Vehicle Transaxle: [Removal](#) / [Installation](#)”

- 2014 Avalon HV:

Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter: [Removal](#) / [Installation](#)”

Drivetrain – Hybrid Transmission/Transaxle – “P314 Hybrid Transmission/Transaxle: Hybrid Vehicle Transaxle: [Removal](#) / [Installation](#)”

- 2015 Avalon HV:

Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter: [Removal](#) / [Installation](#)”

Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle (When Not Using the Engine Support Bridge): [Removal](#) / [Installation](#)”

Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle (When Using the Engine Support Bridge): [Removal](#) / [Installation](#)”

- 2016 Avalon HV:

Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter: [Removal](#) / [Installation](#)”

Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle (When Not Using the Engine Support Bridge): [Removal](#) / [Installation](#)”

Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle (When Using the Engine Support Bridge): [Removal](#) / [Installation](#)”

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Repair Procedure (Continued)

- 2012 Camry HV:
 - Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter: [Removal](#) / [Installation](#)”*
 - Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle: [Removal](#) / [Installation](#)”*
- 2013 Camry HV:
 - Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter: [Removal](#) / [Installation](#)”*
 - Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle: [Removal](#) / [Installation](#)”*
- 2014 Camry HV:
 - Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter [08/2013 – 12/2013]: [Removal](#) / [Installation](#)”*
 - Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter [12/2013 - Current]: [Removal](#) / [Installation](#)”*
 - Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle: [Removal](#) / [Installation](#)”*
- 2015 Camry HV:
 - Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter: [Removal](#) / [Installation](#)”*
 - Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle (When Not Using the Engine Support Bridge): [Removal](#) / [Installation](#)”*
 - Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle (When Using the Engine Support Bridge): [Removal](#) / [Installation](#)”*
- 2016 Camry HV:
 - Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control: Inverter with Converter: [Removal](#) / [Installation](#)”*
 - Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle (When Not Using the Engine Support Bridge): [Removal](#) / [Installation](#)”*
 - Drivetrain – Hybrid Transmission/Transaxle – “Drivetrain: Hybrid Vehicle Transaxle (When Using the Engine Support Bridge): [Removal](#) / [Installation](#)”*

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Repair Procedure (Continued)

- 2016 RAV4 HV:

*Engine/Hybrid System – Hybrid/Battery Control System Service – “Hybrid/Battery Control:
Inverter with Converter: [Removal](#) / [Installation](#)”*

*Drivetrain – Hybrid Transmission/Transaxle – “P314 Hybrid Transmission/Transaxle:
Hybrid Vehicle Transaxle: [Removal](#) / [Installation](#)”*

4. Clear the DTCs and test drive the vehicle to confirm the repair.