18. Diagnostic Procedure with Diagnostic Trouble Code (DTC) A: DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-11, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOW-ER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control

CAUTION:

	Step	Check	Yes	No
1	 CHECK DTC. Read DTCs of the following system. Engine Hybrid powertrain control system <ref. to<br="">HEV(diag)-24, HYBRID POWERTRAIN CON- TROL SYSTEM, OPERATION, Read Diagnos- tic Trouble Code (DTC).></ref.> 	Are any other DTCs detected? (current malfunction)	First perform the diagnosis accord- ing to other DTCs.	Go to step 2.
2	 CHECK AIR CLEANER ELEMENT. 1) Turn the ignition switch to OFF. 2) Check the air cleaner element. 	Is there excessive clogging on air cleaner element?	Replace the air cleaner element. <ref. to<br="">IN(H4DO(w/o HEV))-4, Air Cleaner Element.></ref.>	Go to step 3.
3	CHECK ELECTRONIC THROTTLE CON- TROL. 1) Remove the electronic throttle control. <ref. to FU(H4DO(w/o HEV))-14, REMOVAL, Throt- tle Body.> 2) Check the electronic throttle control.</ref. 	Are foreign matter found inside electronic throttle control?	Remove foreign matter from elec- tronic throttle con- trol.	Perform the diag- nosis of DTC P2101 of engine. <ref. en(h4do<br="" to="">HEV)(diag)-335, DTC P2101 THROTTLE ACTUATOR CON- TROL MOTOR CIRCUIT RANGE/ PERFORMANCE, Diagnostic Proce- dure with Diagnos- tic Trouble Code (DTC).></ref.>

B: DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-12, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control

CAUTION:

	Step	Check	Yes	No
1	CHECK DTC. Read DTCs of the following system. • Engine • Hybrid powertrain control system <ref. to<br="">HEV(diag)-24, HYBRID POWERTRAIN CON- TROL SYSTEM, OPERATION, Read Diagnos- tic Trouble Code (DTC).></ref.>	Are any other DTCs detected? (current malfunction)	First perform the diagnosis accord- ing to other DTCs.	Go to step 2.
2	 CHECK AIR INTAKE SYSTEM. 1) Start and idle the engine. 2) Check the following items. Loose installation of intake manifold and throttle body Cracks of intake manifold gasket and throttle body gasket Disconnection of vacuum hoses 	Is there any fault in air intake system?	Repair air suction and leaks.	Go to step 3.
3	 CHECK ELECTRONIC THROTTLE CONTROL. 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control. <ref. body.="" fu(h4do(w="" hev))-14,="" o="" removal,="" throttle="" to=""></ref.> 3) Check the electronic throttle control. 	Are foreign matter found inside electronic throttle control?	Remove foreign matter from elec- tronic throttle con- trol.	Perform the diag- nosis of DTC P2101 of engine. <ref. en(h4do<br="" to="">HEV)(diag)-335, DTC P2101 THROTTLE ACTUATOR CON- TROL MOTOR CIRCUIT RANGE/ PERFORMANCE, Diagnostic Proce- dure with Diagnos- tic Trouble Code (DTC).></ref.>

C: DTC P0516 BATTERY TEMPERATURE SENSOR CIRCUIT LOW

DIAGNOSIS:

- Detects short circuit to ground of 12 volt auxiliary battery temperature sensor harness.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Engine electrical system <Ref. to WI(HEV)-100, WIRING DIAGRAM, Engine Electrical System.>



Step	Check	Yes	No
 CHECK CURRENT DATA. Start the engine. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «12V Auxiliary Battery Temperature». <ref. hev(diag)-40,="" hybrid<br="" to="">POWERTRAIN CONTROL SYSTEM, OPERA- TION, Read Current Data.></ref.> 	Is the value 100°C (212°F) or more?	Go to step 2.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

HEV(diag)-96

Step	Check	Yes	No
 2 CHECK HARNESS (SHORT TO GROUND). 1) Turn the ignition switch to OFF. 2) Disconnect the ECM connector and battery temperature sensor connector. 3) Using a tester, measure the resistance between the ECM connector and chassis ground. Connector & terminal (B137) No. 24 — Chassis ground: 	Is the resistance 1 MΩ or more?	Replace the bat- tery temperature sensor. <ref. to<br="">SC(H4DO(HEV))- 62, Battery Tem- perature Sensor.></ref.>	Repair the short circuit to ground in the harness between the ECM connector and bat- tery temperature sensor connector.

D: DTC P0517 BATTERY TEMPERATURE SENSOR CIRCUIT HIGH

DIAGNOSIS:

- Detects open circuit and short circuit of 12 volt auxiliary battery temperature sensor harness.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Engine electrical system <Ref. to WI(HEV)-100, WIRING DIAGRAM, Engine Electrical System.>



1 CHECK CURRENT DATA. Is the value -40°C (-40°F) or Go to step 2. Even if DTC is detected, the circuit has returned a normal conditionation system, the value of «12V Auxiliary Battery Temperature». <ref. control="" current="" data.="" hev(diag)-40,="" hybrid="" operation,="" powertrain="" read="" system,="" to=""> Is the value -40°C (-40°F) or less? Go to step 2. Even if DTC is detected, the circuit has returned a normal conditionation at this time. Reprise of which are the failure, and then perform the diagnosis again. NOTE: In this case, term</ref.>	Step	Check	Yes	No
porary poor co tact of connecto temporary open short circuit of ha	Step 1 CHECK CURRENT DATA. 1) Start the engine. 2) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «12V Auxiliary Battery Temperature». <ref. control="" current="" data.="" hev(diag)-40,="" hybrid="" opera-tion,="" powertrain="" read="" system,="" to=""></ref.>	Check Is the value –40°C (–40°F) or less?	Yes Go to step 2.	No Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har-

HEV(diag)-98

	Step	Check	Yes	No
2	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the ECM and battery temperature sensor. 3) Using a tester, measure the resistance of harness between ECM connector and battery temperature sensor connector. Connector & terminal (B137) No. 24 — (B523) No. 1: (B135) No. 30 — (B523) No. 2: 	Is the resistance less than 1 Ω?	Go to step 3.	Repair the open circuit in the har- ness between the ECM connector and battery tem- perature sensor connector.
3	 CHECK HARNESS (SHORT TO POWER). 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B137) No. 24 (+) — Chassis ground (-): 	Is the voltage 5 V or more?	Repair the short circuit to power in harness between ECM connector and battery tem- perature sensor connector.	Replace the bat- tery temperature sensor. <ref. to<br="">SC(H4DO(HEV))- 62, Battery Tem- perature Sensor.></ref.>

E: DTC P0556 BRAKE BOOSTER PRESSURE SENSOR CIRCUIT RANGE/PER-FORMANCE

DIAGNOSIS:

- Detects abnormal conditions of brake booster pressure sensor range/performance.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Vacuum pump fail lamp illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:



	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. hev(diag)-24,="" hybrid<br="" to="">POWERTRAIN CONTROL SYSTEM, OPERA- TION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs (brake booster pressure sensor related) detected? (current malfunction)	First diagnose other DTCs.	Go to step 2.
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «Power Sensor Voltage 1» «Power Sensor Voltage 2». <ref. hev(diag)-<br="" to="">40, HYBRID POWERTRAIN CONTROL SYS- TEM, OPERATION, Read Current Data.></ref.>	Is the value approx. 5 V?	Go to step 3.	Go to step 9 .

	Step	Check	Yes	No
3	 CHECK CURRENT DATA. 1) Turn the ignition switch to ON. 2) Depress the brake pedal 10 times. 3) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Brake Booster Pressure 1» «Brake Booster Pressure 2» «Atmosphere Pressure». <ref. control="" current="" data.="" hev(diag)-40,="" hybrid="" opera-tion,="" powertrain="" read="" system,="" to=""></ref.> 	Do «Brake Booster Pressure 1» «Brake Booster Pressure 2» «Atmosphere Pressure» match?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 4.
4	 CHECK SENSORS. 1) Interchange brake booster pressure sensor 1 and brake booster pressure sensor 2. 2) Turn the ignition switch to ON. 3) Depress the brake pedal 10 times. 4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Brake Booster Pressure 1» «Brake Booster Pressure 2». <ref. li="" to<=""> HEV(diag)-40, HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.> </ref.>	Did those two values inter- change each other?	Replace the brake booster. <ref. to<br="">BR-50, Brake Booster.></ref.>	Go to step 5.
5	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «Brake Booster Pressure Sen- sor Voltage 1» «Brake Booster Pressure Sensor Voltage 2». <ref. hev(diag)-40,<br="" to="">HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value between 0.3 — 4.7 V?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	If 0.3 V or less Go to step 6 . If 4.7 V or more Go to step 7 .
6	 CHECK HARNESS (SHORT TO GROUND). 1) Disconnect the connectors of brake booster pressure sensor 1 and brake booster pressure sensor 2 and the HPCM connector. 2) Using a tester, measure the resistance between brake booster pressure sensor 1 and brake booster pressure sensor 2 connectors and chassis ground. Connector & terminal (B565) No. 2 — Chassis ground: (B600) No. 2 — Chassis ground: 	Is the resistance 1 MΩ or more?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Repair the ground short circuit of har- ness between HPCM connector and brake booster pressure sensor connector.

	Step	Check	Yes	No
7	CHECK HARNESS (OPEN CIRCUIT).	Is the resistance 1 Ω or less?	Go to step 8.	Repair the open
	1) Disconnect the connectors of brake booster			circuit of harness
	pressure sensor 1 and brake booster pressure			between HPCM
	sensor 2.			connector and
	2) Using a tester, measure the resistance			Drake Dooster
	between brake booster pressure sensor 1 and			pressure sensor
	and the HPCM connector			connector.
	Connector & terminal			
	(B565) No. 2 - (B606) No. 3			
	(B600) No. 2 — $(B606)$ No. 4:			
8	CHECK HABNESS (SHORT TO POWER)	Is the voltage 5 V or less?	Benlace the	Renair short cir-
Ŭ	1) Turn the ignition switch to ON		HPCM < Ref to	cuit to power in
	2) Using a tester measure the voltage		HEV-37 Hybrid	harness between
	between brake booster pressure sensor 1 and		Powertrain Control	HPCM connector
	brake booster pressure sensor 2 connectors		Module.>	and brake booster
	and chassis ground.			pressure sensor
	Connector & terminal			connector.
	(B565) No. 2 (+) — Chassis ground (–):			
	(B600) No. 2 (+) — Chassis ground (–):			
9	CHECK CURRENT DATA.	Is the value approx. 5 V?	Go to step 10.	Replace the
	1) Disconnect the HPCM connector (B606).			HPCM. <ref. td="" to<=""></ref.>
	Turn the ignition switch to ON.			HEV-37, Hybrid
	3) Using the Subaru Select Monitor, confirm			Powertrain Control
	the current data of hybrid powertrain control			Module.>
	system, the value of «Power Sensor Voltage 1»			
	«Power Sensor Voltage 2».			
10	CHECK HARNESS (OPEN CIRCUIT).	Is the resistance 1 Ω or less?	Go to step 11.	Repair the open
	1) Disconnect the connectors of brake booster			circuit of harness
	pressure sensor 1 and brake booster pressure			between HPCM
	sensor 2.			connector and
	2) Using a tester, measure the resistance			brake booster
	between brake booster pressure sensor 1 and			pressure sensor
	ond the UDCM connector			connector.
	Connector & terminal			
	$(B565) No_3 - (B606) No_7$			
	(B600) No. 3 — $(B606)$ No. 17:			
11	CHECK HARNESS (SHORT TO GROUND)	Is the resistance 1 MO or	Replace the	Repair the ground
··	1) Disconnect the connectors of brake booster	more?	HPCM. <ref. td="" to<=""><td>short circuit of har-</td></ref.>	short circuit of har-
	pressure sensor 1 and brake booster pressure		HEV-37. Hybrid	ness between
	sensor 2.		Powertrain Control	HPCM connector
	2) Using a tester, measure the resistance		Module.>	and brake booster
	between brake booster pressure sensor 1 and			pressure sensor
	brake booster pressure sensor 2 connectors			connector.
	and chassis ground.			
	Connector & terminal			
	(B565) No. 3 — Chassis ground:			
	(B600) No. 3 — Chassis ground:			

F: DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW

DIAGNOSIS:

GENERAL DESCRIPTION <Ref. to GD(HEV)-13, DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Stop light system <Ref. to WI(HEV)-210, WIRING DIAGRAM, Stop Light System.>



	Step	Check	Yes	No
1	CHECK STOP LIGHT & BRAKE SWITCH. Check the stop light & brake switch. <ref. to<br="">CC-9, Stop Light & Brake Switch.></ref.>	Is the stop light & brake switch and installation position OK?	Go to step 2.	Replace the stop light & brake switch. Or adjust the installation position.
2	 CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the stop light & brake switch connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between the stop light & brake switch connector and chassis ground. Connector & terminal (B65) No. 3 (+) — Chassis ground (-): 	Is the voltage 10 V or more?	Go to step 3.	 Check fuse No. 8 (in fuse & relay box). Check for open or short in the har- ness between stop light & brake switch and fuse & relay box.
3	 CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the ECM connector. 3) Measure the resistance between the ECM connector and stop light & brake switch connector. Connector & terminal (B137) No. 7 – (B65) No. 4: 	Is the resistance less than 10 Ω?	Replace the ECM. <ref. to<br="">FU(H4DO(HEV))- 85, Engine Control Module (ECM).></ref.>	Repair the open circuit of harness between ECM con- nector and stop light & brake switch connector.

G: DTC P0573 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT HIGH

DIAGNOSIS:

GENERAL DESCRIPTION <Ref. to GD(HEV)-14, DTC P0573 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW". <Ref. to HEV(diag)-103, DTC P0572 BRAKE SWITCH "A" [STOP LAMP SWITCH] CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

H: DTC P057B BRAKE PEDAL POSITION SENSOR CIRCUIT RANGE/PERFOR-MANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-16, DTC P057B BRAKE PEDAL POSITION SENSOR CIR-CUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:



Step	Check	Yes	No
1 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <ref. hev(diag)-40,<br="" to="">HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed? Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 2.

	Step	Check	Yes	No
2	 CHECK CURRENT DATA. 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector (B606). 3) Turn the ignition switch to ON. 4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <ref. control="" current="" data.="" hev(diag)-40,="" hybrid="" operation,="" power-train="" read="" system,="" to=""></ref.> 	Is the value approx. 5 V?	Go to step 3.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
3	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the brake stroke sensor connector. 3) Using a tester, measure the resistance between the HPCM connector and brake stroke sensor connector. Connector & terminal (B601) No. 2 - (B606) No. 20: (B601) No. 4 - (B606) No. 11: (B601) No. 1 - (B606) No. 24: 	Is the resistance less than 1 Ω?	Go to step 4.	Repair the open circuit of the har- ness between the HPCM connector and the brake stroke sensor con- nector.
4	CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between brake stroke sensor connector and chassis ground. <i>Connector & terminal</i> (B601) No. 2 — Chassis ground: (B601) No. 4 — Chassis ground: (B601) No. 1 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 5.	Repair ground short circuit of har- ness between the HPCM connector and the brake stroke sensor con- nector.
5	 CHECK HARNESS (SHORT TO POWER). 1) Disconnect the brake stroke sensor connector. 2) Turn the ignition switch to ON. 3) Using a tester, measure the voltage between brake stroke sensor connector and chassis ground. Connector & terminal (B601) No. 2 (+) — Chassis ground (-): (B601) No. 4 (+) — Chassis ground (-): (B601) No. 1 (+) — Chassis ground (-): 	Is the voltage less than 1 V?	Replace the brake pedal assembly. <ref. br-70,<br="" to="">Brake Pedal.></ref.>	Repair the short circuit to power in harness between the HPCM connec- tor and the brake stroke sensor con- nector.

I: DTC P057C BRAKE PEDAL POSITION SENSOR CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-18, DTC P057C BRAKE PEDAL POSITION SENSOR CIR-CUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:



	• .	a t 1		
	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. hev(diag)-24,="" hybrid<br="" to="">POWERTRAIN CONTROL SYSTEM, OPERA- TION, Read Diagnostic Trouble Code (DTC).></ref.>	Is DTC P05DD detected? (current malfunction)	Go to step 6 .	Go to step 2.
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <ref. hev(diag)-40,<br="" to="">HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed? Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 3.

	Step	Check	Yes	No
3	 CHECK CURRENT DATA. 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector (B606). 3) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <ref. control="" current="" data.="" hev(diag)-40,="" hybrid="" operation,="" power-train="" read="" system,="" to=""></ref.> 	Is the value approx. 5 V?	Go to step 4 .	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
4	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the brake stroke sensor connector. 3) Using a tester, measure the resistance between the brake stroke sensor connector and the HPCM connector. <i>Connector & terminal</i> (B601) No. 2 - (B606) No. 20: (B601) No. 1 - (B606) No. 24: 	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit of the har- ness between the HPCM connector and the brake stroke sensor con- nector.
5	CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between brake stroke sensor connector and chassis ground. Connector & terminal (B601) No. 2 — Chassis ground: (B601) No. 1 — Chassis ground:	Is the resistance 1 MΩ or more?	Replace the brake pedal assembly. <ref. br-70,<br="" to="">Brake Pedal.></ref.>	Repair ground short circuit of har- ness between the HPCM connector and the brake stroke sensor con- nector.
6	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the brake stroke sensor connector and the HPCM connector. 3) Using a tester, measure the resistance between the brake stroke sensor connector and the HPCM connector. <i>Connector & terminal</i> (B601) No. 3 – (B606) No. 9: 	Is the resistance less than 1 Ω ?	Go to step 7.	Repair the open circuit of the har- ness between the HPCM connector and the brake stroke sensor con- nector.
7	CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between brake stroke sensor connector and chassis ground. Connector & terminal (B601) No. 3 — Chassis ground:	Is the resistance 1 MΩ or more?	Replace the brake pedal assembly. <ref. br-70,<br="" to="">Brake Pedal.></ref.>	Repair ground short circuit of har- ness between the HPCM connector and the brake stroke sensor con- nector.

J: DTC P057D BRAKE PEDAL POSITION SENSOR CIRCUIT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-19, DTC P057D BRAKE PEDAL POSITION SENSOR CIR-CUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:



Step	Check	Yes	No
1 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <ref. hev(diag)-40,<br="" to="">HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed? Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 2.

	Step	Check	Yes	No
2	 CHECK CURRENT DATA. 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector (B606). 3) Turn the ignition switch to ON. 4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <ref. control="" current="" data.="" hev(diag)-40,="" hybrid="" operation,="" power-train="" read="" system,="" to=""></ref.> 	Is the value approx. 5 V?	Go to step 3.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
3	 CHECK HARNESS (SHORT TO POWER). 1) Turn the ignition switch to ON. 2) Using a tester, measure the voltage between brake stroke sensor connector and chassis ground. Connector & terminal (B601) No. 2 (+) — Chassis ground (-): (B601) No. 1 (+) — Chassis ground (-): 	Is the voltage less than 1 V?	Replace the brake pedal assembly. <ref. br-70,<br="" to="">Brake Pedal.></ref.>	Repair the short circuit to power in harness between the HPCM connec- tor and the brake stroke sensor con- nector.

K: DTC P058D BATTERY MONITOR MODULE VOLTAGE MONITORING PER-FORMANCE

DIAGNOSIS:

- Detects open circuit and short circuit to ground of 12 volt auxiliary battery sensor.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition
- TROUBLE SYMPTOM:
- Normal control
- System operation check mode is prohibited. <Ref. to HEV(diag)-87, Fail-Safe Chart.>

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:



	Step	Check	Yes	No
1	CHECK FUSE. Check the fuse. <ref. and<br="" hev-12,="" relay="" to="">Fuse.></ref.>	Is the condition normal?	Go to step 2.	Replace the fuse. When the replaced fuse is blown immediately, repair ground short circuit of harness between HPCM connector and the battery.

	Step	Check	Yes	No
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «12V Auxiliary Battery Volt- age». <ref. hev(diag)-40,="" hybrid<br="" to="">POWERTRAIN CONTROL SYSTEM, OPERA- TION, Read Current Data.></ref.>	Is the value 6 V or more?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 3.
3	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector. 3) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 4) Disconnect the positive cable from the 12 volt auxiliary battery. 5) Using a tester, measure the resistance between the positive terminal of the 12 volt auxiliary battery and HPCM connector. Connector & terminal M/B fuse No. 16 — (B606) No. 18: 	Is the resistance 1 Ω or less?	Go to step 4.	Repair the open circuit of the har- ness between the HPCM connector and the positive terminal of the 12 volt auxiliary bat- tery.
4	CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between the positive terminal of the 12 volt auxiliary bat- tery and chassis ground. Connector & terminal M/B fuse No. 16 — chassis ground:	Is the resistance 1 MΩ or more?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Repair short cir- cuit to ground in harness between the HPCM connec- tor and the positive terminal of the 12 volt auxiliary bat- tery.

L: DTC P05DD BRAKE PEDAL POSITION SENSOR "B" CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-20, DTC P05DD BRAKE PEDAL POSITION SENSOR "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:



	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. hev(diag)-24,="" hybrid<br="" to="">POWERTRAIN CONTROL SYSTEM, OPERA- TION, Read Diagnostic Trouble Code (DTC).></ref.>	Is DTC P057C detected? (cur- rent malfunction)	Go to step 6 .	Go to step 2 .
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <ref. hev(diag)-40,<br="" to="">HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed? Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 3.

	Step	Check	Yes	No
3	 CHECK CURRENT DATA. 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector (B606). 3) Turn the ignition switch to ON. 4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <ref. control="" current="" data.="" hev(diag)-40,="" hybrid="" operation,="" power-train="" read="" system,="" to=""></ref.> 	Is the value approx. 5 V?	Go to step 4.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
4	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the brake stroke sensor connector. 3) Using a tester, measure the resistance between the brake stroke sensor connector and the HPCM connector. Connector & terminal (B601) No. 4 — (B606) No. 11: (B601) No. 1 — (B606) No. 24: 	Is the resistance less than 1 Ω?	Go to step 5.	Repair the open circuit of the har- ness between the HPCM connector and the brake stroke sensor con- nector.
5	CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between brake stroke sensor connector and chassis ground. Connector & terminal (B601) No. 4 — Chassis ground: (B601) No. 1 — Chassis ground:	Is the resistance 1 MΩ or more?	Replace the brake pedal assembly. <ref. br-70,<br="" to="">Brake Pedal.></ref.>	Repair ground short circuit of har- ness between the HPCM connector and the brake stroke sensor con- nector.
6	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the brake stroke sensor connector. 3) Using a tester, measure the resistance between the brake stroke sensor connector and the HPCM connector. Connector & terminal (B601) No. 3 – (B606) No. 9: 	Is the resistance less than 1 Ω ?	Go to step 7.	Repair the open circuit of the har- ness between the HPCM connector and the brake stroke sensor con- nector.
7	CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between brake stroke sensor connector and chassis ground. Connector & terminal (B601) No. 3 — Chassis ground:	Is the resistance 1 MΩ or more?	Replace the brake pedal assembly. <ref. br-70,<br="" to="">Brake Pedal.></ref.>	Repair ground short circuit of har- ness between the HPCM connector and the brake stroke sensor con- nector.

M: DTC P05DE BRAKE PEDAL POSITION SENSOR "B" CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-21, DTC P05DE BRAKE PEDAL POSITION SENSOR "B" CIRCUIT HIGH , Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:



Step	Check	Yes	No
1 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «Main Brake Pedal Position Sensor Voltage» «Sub Brake Pedal Position Sensor Voltage». <ref. hev(diag)-40,<br="" to="">HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value of «Main Brake Pedal Position Sensor Voltage» approximately 1 V, and the value of «Sub Brake Pedal Position Sensor Voltage» approximately 4 V when the pedal is not depressed? Also, do values of «Main Brake Pedal Position Sensor Voltage» and «Sub Brake Pedal Position Sensor Voltage» change when the pedal is depressed?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 2.

	Step	Check	Yes	No
2	 CHECK CURRENT DATA. 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector (B606). 3) Turn the ignition switch to ON. 4) Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control system, the value of «Power Sensor Voltage 3». <ref. control="" current="" data.="" hev(diag)-40,="" hybrid="" operation,="" power-train="" read="" system,="" to=""></ref.> 	Is the value approx. 5 V?	Go to step 3.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
3	 CHECK HARNESS (SHORT TO POWER). 1) Turn the ignition switch to ON. 2) Using a tester, measure the voltage between brake stroke sensor connector and chassis ground. Connector & terminal (B601) No. 4 — Chassis ground: (B601) No. 1 — Chassis ground: 	Is the voltage less than 1 V?	Replace the brake pedal assembly. <ref. br-70,<br="" to="">Brake Pedal.></ref.>	Repair the short circuit to power in harness between the HPCM connec- tor and the brake stroke sensor con- nector.

N: DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR

1. HYBRID POWERTRAIN CONTROL SYSTEM

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-22, DTC P0604 INTERNAL CONTROL MODULE RAN-DOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

CAUTION:

	Step	Check	Yes	No
1 CHE 1) HEV TRC Moc 2) ⁻ 3) 24, TEM Cod	ECK HPCM. Perform the Clear Memory Mode. <ref. to<br="">V(diag)-25, HYBRID POWERTRAIN CON- OL SYSTEM, OPERATION, Clear Memory de.> Turn the ignition switch to OFF → ON. Read the DTC again. <ref. hev(diag)-<br="" to="">HYBRID POWERTRAIN CONTROL SYS- M, OPERATION, Read Diagnostic Trouble de (DTC).></ref.></ref.>	Is DTC P0604 detected? (cur- rent malfunction)	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

2. DRIVE MOTOR CONTROL SYSTEM

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-22, DTC P0604 INTERNAL CONTROL MODULE RAN-DOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

	Step	Check	Yes	No
1 CHE 1) HE\ SYS 2) 24, OPE (DT	ECK DMCM. Perform the Clear Memory Mode. <ref. to<br="">V(diag)-25, DRIVE MOTOR CONTROL STEM, OPERATION, Clear Memory Mode.> Read the DTC again. <ref. hev(diag)-<br="" to="">DRIVE MOTOR CONTROL SYSTEM, PERATION, Read Diagnostic Trouble Code IC).></ref.></ref.>	Is DTC P0604 detected? (cur- rent malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

3. BATTERY ENERGY CONTROL SYSTEM

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-22, DTC P0604 INTERNAL CONTROL MODULE RAN-DOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Step)	Check	Yes	No
1 CHECK BECM. 1) Perform the Clea HEV(diag)-25, BATT SYSTEM, OPERATI 2) Turn the ignition 3) Read the DTC a 24, BATTERY ENEF OPERATION, Read (DTC).>	ar Memory Mode. <ref. to<br="">TERY ENERGY CONTROL ION, Clear Memory Mode.> switch to OFF → ON. gain. <ref. hev(diag)-<br="" to="">RGY CONTROL SYSTEM, Diagnostic Trouble Code</ref.></ref.>	Is the same DTC detected? (current malfunction)	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

O: DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR

1. HYBRID POWERTRAIN CONTROL SYSTEM

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-24, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

CAUTION:

Step	Che	ck	Yes	No
 CHECK HPCM. Perform the Clear Memory Mode HEV(diag)-25, HYBRID POWERTR. TROL SYSTEM, OPERATION, Clea Mode.> Turn the ignition switch to OFF – Read the DTC again. <ref. hi<br="" to="">24, HYBRID POWERTRAIN CONTF TEM, OPERATION, Read Diagnosti Code (DTC).></ref.> 	Is DTC P0605 d rent malfunction AIN CON- r Memory > ON. EV(diag)- ROL SYS- c Trouble	etected? (cur-	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

2. DRIVE MOTOR CONTROL SYSTEM

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-24, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Step	Check	Yes	No
CHECK DMCM. 1) Perform the Clear Memory Mode. <ref. to<br="">HEV(diag)-25, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Clear Memory Mode.> 2) Read the DTC again. <ref. hev(diag)-<="" td="" to=""> 24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.></ref.>	Is DTC P0605 detected? (cur- rent malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

3. BATTERY ENERGY CONTROL SYSTEM

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-24, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Step	Check	Yes	No
 CHECK BECM. Perform the Clear Memory Mode. <ref. to<br="">HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.></ref.> Turn the ignition switch to OFF. Wait for 30 seconds. Turn the ignition switch to ON. Read the DTC again. <ref. hev(diag)-<br="" to="">24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.> 	Is the same DTC detected? (current malfunction)	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

P: DTC P0620 GENERATOR CONTROL CIRCUIT

DIAGNOSIS:

- Detects open circuit, short circuit to ground, and short circuit to power in ISG INHCRK line.
- Immediately at fault recognition

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:



Step		Check	Yes	No
 CHECK HARNESS (OP Disconnect the HPCI Disconnect the integr connector. Disconnect the 12V e sensor connector. Using a tester, meass between the HPCM conr starter generator connect <i>Connector & terminal</i> (B606) No. 14 — (E1 (B606) No. 15 — (E1) 	EN CIRCUIT). M connector. rated starter generator engine restart battery ure the resistance nector and integrated stor. 63) No. 3: 63) No. 2:	Is the resistance less than 1 Ω?	Go to step 2.	Repair the open circuit of the har- ness between the HPCM connector and integrated starter generator connector, or repair the interme- diate connector.
2 CHECK HARNESS (SH Using a tester, measure t HPCM connector and ch <i>Connector & terminal</i> (<i>B606</i>) No. 14 — Cha (<i>B606</i>) No. 15 — Cha	ORT TO GROUND). he resistance between assis ground. assis ground: assis ground:	Is the resistance 1 MΩ or more?	Go to step 3.	Repair the short circuit to ground in the harness between the HPCM connector and integrated starter generator connector, or repair the interme- diate connector.

	Step	Check	Yes	No
3	 CHECK HARNESS (SHORT TO GROUND). 1) Turn the ignition switch to ON. 2) Using a tester, measure the voltage between the HPCM connector and chassis ground. Connector & terminal (B606) No. 14 (+) — Chassis ground (-): (B606) No. 15 (+) — Chassis ground (-): 	Is the voltage less than 1 V?	Replace the inte- grated starter gen- erator. <ref. to<br="">SC(H4DO(HEV))- 32, Integrated Starter Generator (ISG).></ref.>	Repair the short circuit to power in the harness between the HPCM connector and integrated starter generator connector, or repair the interme- diate connector.

Q: DTC P065A GENERATOR SYSTEM PERFORMANCE

DIAGNOSIS:

- Detects abnormal conditions in battery charging functions.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.> Power Supply Circuit <Ref. to WI(HEV)-21, WIRING DIAGRAM, Power Supply Circuit.>



	Step	Check	Yes	No
1	CHECK FUSE. Check the slow blow fuse of the 12 volt auxiliary battery.	Is the condition normal?	Go to step 2.	Replace the fuse. When the replaced fuse blows out eas- ily, repair short cir- cuit to ground in harness between DC/DC converter and the battery.
2	 CHECK DC/DC CONVERTER FASTENING AREA. 1) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 2) Disconnect the positive cable from the 12 volt auxiliary battery. 3) Remove the service disconnect plug. <ref. to HEV-15, Service Plug.></ref. 4) Wait for 10 minutes. 5) Check the fastening areas of the DC/DC converter 12 volt cable. 	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, trace of arc (burnt terminals) etc.)	Go to step 3.	Retighten the bolts.
3	 CHECK HARNESS (OPEN CIRCUIT). 1) Disconnect the 12 volt cable of the DC/DC converter. 2) Using a tester, measure the resistance between the positive terminal of the 12 volt auxiliary battery and the fastening area of the DC/DC converter power cable. Connector & terminal 12 volt auxiliary battery — DC/DC converter: 	Is the resistance less than 1 Ω?	Go to step 4.	Repair the open circuit of the power cable between the DC/DC converter and the positive terminal of the 12 volt auxiliary bat- tery.
4	CHECK BATTERY. Check the 12 volt auxiliary battery. <ref. to<br="">SC(H4DO(HEV))-39, Battery.> NOTE: Check for conditions such as loose terminals.</ref.>	Is the condition normal?	Go to step 5 .	Charge or replace the battery.
5	CHECK DCDC. Using the Subaru Select Monitor, perform «DCDC Converter Output Voltage Control» of System Operation Check Mode for the hybrid powertrain control system. <ref. hev(diag)-<br="" to="">71, HYBRID POWERTRAIN CONTROL SYS- TEM, OPERATION, System Operation Check Mode.></ref.>	Is the condition normal?	Go to step 6 .	Perform the diag- nosis of DTC P0A94. <ref. to<br="">HEV(diag)-229, DTC P0A94 DC/ DC CONVERTER PERFORMANCE, Diagnostic Proce- dure with Diagnos- tic Trouble Code (DTC).></ref.>
6	CHECK FUSE. Check the fuse. <ref. and<br="" hev-12,="" relay="" to="">Fuse.></ref.>	Is the condition normal?	Go to step 7.	Replace the fuse. If the fuse blows out easily, repair the short circuit of har- ness.
7	CHECK BELTS. Check the belt. <ref. hev))-<br="" me(h4do(w="" o="" to="">122, V-belt.></ref.>	Is the condition normal?	Go to step 8.	Adjust or replace the belt.

	Step	Check	Yes	No
8	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «ISG Control Mode Actual» «12V Engine Restart Battery Voltage» «ISG Terminal Voltage». <ref. hev(diag)-40,<br="" to="">HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is «12V Engine Restart Battery Voltage» «ISG Terminal Volt- age» 12 — 15 V when the engine speed is at 2000 rpm or more and «ISG Control Mode Actual» is generating power?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 9.
9	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «HPCM Check 40». <ref. to<br="">HEV(diag)-40, HYBRID POWERTRAIN CON- TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 30 m Ω or more?	Check for poor contact of 12 volt engine restart bat- tery terminals. <ref. nt-5,<br="" to="">BATTERY, NOTE, Note.></ref.>	Go to step 10.
10	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector. 3) Disconnect the integrated starter generator connector. 4) Using a tester, measure the resistance between the HPCM connector and integrated starter generator connector. Connector & terminal (B605) No. 2 — (E163) No. 1: (B605) No. 3 — (E163) No. 1: 	Is the resistance less than 1 Ω?	Go to step 11.	Repair the open circuit of the har- ness between the HPCM connector and the integrated starter generator terminal.
11	CHECK BATTERY. Check the 12 volt engine restart battery. <ref. to SC(H4DO(HEV))-39, Battery.></ref. 	Is the condition normal?	Replace the inte- grated starter gen- erator. <ref. to<br="">SC(H4DO(HEV))- 32, Integrated Starter Generator (ISG).></ref.>	Charge or replace the 12 volt engine restart battery.

R: DTC P06EF ENGINE RESTART PERFORMANCE

DIAGNOSIS:

- Detects communication error, open harness, engine restart system error due to trouble in starting devices.
- Immediately at fault recognition

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:



	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. hev(diag)-24,="" hybrid<br="" to="">POWERTRAIN CONTROL SYSTEM, OPERA- TION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-74, HYBRID POWER- TRAIN CONTROL SYSTEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK INTEGRATED STARTER GENERA- TOR (SHORT TO GROUND). 1) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""> 2) Check the installation condition of inte- grated starter generator. <ref. to<br="">SC(H4DO(HEV))-32, Integrated Starter Gener- ator (ISG).></ref.></ref.>	Is the condition normal?	Go to step 3.	Attach the inte- grated starter gen- erator securely.

	Step	Check	Yes	No
3	 CHECK HARNESS (OPEN CIRCUIT). 1) Disconnect the HPCM connector. 2) Disconnect the integrated starter generator connector. 3) Disconnect the 12V engine restart battery sensor connector. 4) Using a tester, measure the resistance between the HPCM connector and integrated starter generator connector. Connector & terminal (B606) No. 15 — (E162) No. 2: 	Is the resistance less than 1 Ω?	Go to step 4 .	Repair the open circuit of the har- ness between the HPCM connector and the integrated starter generator connector.
4	CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between HPCM connector and chassis ground. Connector & terminal (B606) No. 15 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 5.	Repair ground short circuit of har- ness between the HPCM connector and the integrated starter generator connector.
5	 CHECK HARNESS (SHORT TO POWER). Connect the disconnected battery. Turn the ignition switch to ON. Using a tester, measure the voltage between the HPCM connector and chassis ground. Connector & terminal (B606) No. 15 (+) — Chassis ground (-): 	Is the voltage less than 1 V?	Go to step 6 .	Repair the short circuit to power in harness between the HPCM connec- tor and the inte- grated starter generator connec- tor.
6	INSPECTION OF INTEGRATED STARTER GENERATOR UNIT. Check the integrated starter generator as a sin- gle part. <ref. inte-<br="" sc(h4do(hev))-32,="" to="">grated Starter Generator (ISG).></ref.>	Is the condition normal?	Go to step 7.	Replace the inte- grated starter gen- erator.
7	CHECK BATTERY. Check the 12 volt engine restart battery. <ref. to SC(H4DO(HEV))-39, Battery.></ref. 	Is the condition normal?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Charge or replace the battery.
S: DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW

DIAGNOSIS:

GENERAL DESCRIPTION <Ref. to GD(HEV)-26, DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.> WIRING DIAGRAM:

Stop light system <Ref. to WI(HEV)-210, WIRING DIAGRAM, Stop Light System.>



	Step	Check	Yes	No
1	CHECK STOP LIGHT & BRAKE SWITCH. Check the stop light & brake switch. <ref. to<br="">CC-9, Stop Light & Brake Switch.></ref.>	Is the stop light & brake switch and installation position OK?	Go to step 2.	Replace the stop light & brake switch. Or adjust the installation position.
2	 CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the stop light & brake switch connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between the stop light & brake switch connector and chassis ground. Connector & terminal (B65) No. 1 (+) — Chassis ground (-): 	Is the voltage 10 V or more?	Go to step 3.	 Check fuse No. 8 (in fuse & relay box). Check for open or short in the har- ness between stop light & brake switch and fuse & relay box.
3	 CHECK STOP LIGHT & BRAKE SWITCH CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the ECM connector. 3) Measure the resistance between the ECM connector and stop light & brake switch connector. Connector & terminal (B137) No. 3 – (B65) No. 2: 	Is the resistance less than 10 Ω ?	Replace the ECM. <ref. to<br="">FU(H4DO(HEV))- 85, Engine Control Module (ECM).></ref.>	Repair the open circuit of harness between ECM con- nector and stop light & brake switch connector.

T: DTC P0724 BRAKE SWITCH "B" CIRCUIT HIGH

DIAGNOSIS:

GENERAL DESCRIPTION <Ref. to GD(HEV)-28, DTC P0724 BRAKE SWITCH "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW". <Ref. to HEV(diag)-130, DTC P0719 BRAKE SWITCH "B" CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

U: DTC P0A1D HYBRID POWERTRAIN CONTROL MODULE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-29, DTC P0A1D HYBRID POWERTRAIN CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

Step	Check	Yes	No
 CHECK HPCM. Turn the ignition switch to OFF. Wait for 30 seconds. Turn the ignition switch to ON. Perform the Clear Memory Mode. <ref. clear="" control="" hev(diag)-25,="" hybrid="" memory="" mode.="" operation,="" powertrain="" system,="" to=""></ref.> Read the DTC again. <ref. (dtc).="" code="" control="" diagnostic="" hev(diag)-24,="" hybrid="" operation,="" powertrain="" read="" system,="" to="" trouble=""></ref.> 	Is DTC P0A1D detected? (current malfunction)	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

V: DTC P1C00 BATTERY "2" MONITOR MODULE PERFORMANCE

DIAGNOSIS:

- Detects functional errors of the 12 volt engine restart battery sensor.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- System operation check mode is prohibited. <Ref. to HEV(diag)-87, Fail-Safe Chart.>
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

Step	Check	Yes	No
1 CHECK DTC. Read the DTC. <ref. hev(diag)-24,="" hybrid="" i<br="" to="">POWERTRAIN CONTROL SYSTEM, OPERA- TION, Bead Diagnostic Trouble Code (DTC) ></ref.>	Is DTC P1C00 detected? (cur- rent malfunction)	Replace the 12V engine restart bat- tery sensor. <ref.< th=""><th>Even if DTC is detected, the cir- cuit has returned to a normal condition</th></ref.<>	Even if DTC is detected, the cir- cuit has returned to a normal condition
HON, Read Diagnostic Houble Code (DTC).>		SC(H4DO(HEV))- 60, Battery Sen- sor.>	at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

W: DTC P1C04 OUTPUT CLUTCH LINEAR SOLENOID CONTROL CIRCUIT LOW

DIAGNOSIS:

- Detects short circuit to ground of output clutch linear solenoid HPCM side circuit (LOW).
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



	Step	Check	Yes	No
1	CHECK DTC. Read DTCs of the following system. • Transmission <ref. cvt(hev)(diag)-19,<br="" to="">Read Diagnostic Trouble Code (DTC).></ref.>	Is either DTC P2719, P2720, or P2721 detected? (current mal- function)	Perform the diag- nosis according to DTC. <ref. to<br="">CVT(HEV)(diag)- 34, List of Diagnos- tic Trouble Code (DTC).></ref.>	Go to step 2 .
2	 CHECK HARNESS (OPEN CIRCUIT). 1) Disconnect the HPCM connector. 2) Remove the output clutch relay. 3) Using a tester, measure the resistance between the HPCM connector and output clutch relay connector. Connector & terminal (B605) No. 1 – (B608) No. 2: 	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of the har- ness between the HPCM connector and the output clutch relay con- nector.
3	CHECK RELAY. Check the output clutch relay. <ref. to<br="">CVT(TH58A)-160, Relay and Fuse.></ref.>	Is the output clutch relay OK?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Replace the output clutch relay.

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

X: DTC P1C05 OUTPUT CLUTCH LINEAR SOLENOID CONTROL CIRCUIT HIGH

DIAGNOSIS:

- Detects open circuit and short circuit to power in output clutch linear solenoid HPCM side circuit (LOW).
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



	Step	Check	Yes	No
1	 CHECK DTC. Read DTCs of the following system. Transmission <ref. cvt(hev)(diag)-19,<="" li="" to=""> Read Diagnostic Trouble Code (DTC).> </ref.>	Is either DTC P2719, P2720, or P2721 detected? (current mal- function)	Perform the diag- nosis according to DTC. <ref. to<br="">CVT(HEV)(diag)- 34, List of Diagnos- tic Trouble Code (DTC).></ref.>	Go to step 2 .
2	 CHECK HARNESS (SHORT TO GROUND). 1) Disconnect the HPCM connector. 2) Remove the output clutch relay. 3) Using a tester, measure the resistance between the output clutch connector and chassis ground. Connector & terminal (B608) No. 2 — Chassis ground: 	Is the resistance 1 MΩ or more?	Go to step 3.	Repair the short circuit to ground in harness between output clutch relay connector and chassis ground.
3	CHECK RELAY. Check the output clutch relay. <ref. to<br="">CVT(TH58A)-160, Relay and Fuse.></ref.>	Is the output clutch relay OK?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Replace the output clutch relay.

Y: DTC P1C06 12V BATTERY RELAY CLOSE CIRCUIT PERFORMANCE

DIAGNOSIS:

• Detects open circuit, short circuit to ground, and short circuit to power in the harness of 12V battery relay close circuit.

- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- (Engine does not restart under EV traveling/Auto Start Stop condition.)
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

NOTE:

If those trouble occurs, the 12 volt auxiliary battery may run out.

WIRING DIAGRAM:

Power Supply Circuit <Ref. to WI(HEV)-21, WIRING DIAGRAM, Power Supply Circuit.>



HEV(diag)-138

Step	Check	Yes	No
Step 1 CHECK HARNESS (OPEN CIRCUIT). 1) Disconnect the battery relay connector. 2) Disconnect the HPCM connector. 3) Using a tester, measure the resistance between the 12V battery relay connector and the HPCM connector and the HPCM connector and the resistance between 12V battery relay connector and chassis ground. Connector & terminal (B599) No. 1 — (B606) No. 22:	Is the resistance less than 1 Ω?	Go to step 2.	NO Repair open circuit in harness between the 12V battery relay con- nector and the HPCM connector and the harness between 12V bat- tery relay connec- tor and chassis
 (B606) No. 3 — Chassis ground: CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between 12V battery relay connector and chassis ground. Connector & terminal (B606) No. 22 — Chassis ground: 	Is the resistance 1 MΩ or more?	Go to step 3 .	ground. Repair the short circuit to ground in the harness between the 12V battery relay con- nector and the HPCM connector.
 3 CHECK HARNESS (SHORT TO POWER). 1) Turn the ignition switch to ON. 2) Using a tester, measure the voltage between 12V battery relay connector and chassis ground. Connector & terminal (B599) No. 1 — Chassis ground: (B606) No. 22 — Chassis ground: 	Is the voltage less than 1 V?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Repair the short circuit to power in the harness between the 12V battery relay con- nector and the HPCM connector.

Z: DTC P1C07 12V BATTERY RELAY OPEN CIRCUIT PERFORMANCE

DIAGNOSIS:

• Detects open circuit, short circuit to ground, and short circuit to power in the harness of 12V battery relay open circuit.

- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- (Engine does not restart under EV traveling/Auto Start Stop condition.)
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Power Supply Circuit <Ref. to WI(HEV)-21, WIRING DIAGRAM, Power Supply Circuit.>



Step	Check	Yes	No
 CHECK HARNESS (OPEN CIRCUIT). 1) Disconnect the 12V battery relay conr 2) Disconnect the HPCM connector. 3) Using a tester, measure the resistance between the 12V battery relay connector the HPCM connector and the resistance between 12V battery relay connector and sis ground. Connector & terminal (B599) No. 4 — (B606) No. 23: (B599) No. 3 — Chassis ground: 	ls the resistance less than 1 Ω? e and chas-	Go to step 2.	Repair open circuit in harness between the 12V battery relay con- nector and the HPCM connector and the harness between 12V bat- tery relay connec- tor and chassis ground
 CHECK HARNESS (SHORT TO GROUN Using a tester, measure the resistance being a tester relay connector and chassis ground. Connector & terminal (B599) No. 4 — Chassis ground: 	ND). Is the resistance 1 MΩ or tween more?	Go to step 3.	Repair the short circuit to ground in the harness between the 12V battery relay con- nector and the HPCM connector.
 CHECK HARNESS (SHORT TO POWEI 1) Turn the ignition switch to ON. 2) Using a tester, measure the voltage between 12V battery relay connector and sis ground. Connector & terminal (B599) No. 4 — Chassis ground: (B599) No. 3 — Chassis ground: 	R). Is the voltage less than 1 V?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Repair the short circuit to power in the harness between the 12V battery relay con- nector and the HPCM connector.

AA:DTC P1C08 12V BATTERY RELAY PERFORMANCE OR STUCK OFF

DIAGNOSIS:

- Detects a stuck condition in 12V battery relay open circuit.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

NOTE:

If those trouble occurs, the 12 volt auxiliary battery may run out.

WIRING DIAGRAM:

Power Supply Circuit <Ref. to WI(HEV)-21, WIRING DIAGRAM, Power Supply Circuit.>



	Step	Check	Yes	No
1	CHECK CONNECTOR. Check the connector (B598) of 12V engine restart battery sensor.	Is there looseness or poor con- tact of connector?	Repair the connec- tor.	Go to step 2 .
2	CHECK FUSE. Check the slow blow fuse of the 12 volt auxiliary battery and 12 volt engine restart battery.	Is the condition normal?	Go to step 3.	Replace the fuse. When the replaced fuse is blown immediately, repair ground short circuit of harness between 12 volt engine restart bat- tery and the 12 volt battery relay and the harness between 12 volt auxiliary battery and the 12V bat- tery relay.
3	CHECK RELAY. Using the Subaru Select Monitor, perform «12V Battery Relay Operation» of System Operation Check Mode for the hybrid powertrain control system. <ref. hev(diag)-71,="" hybrid="" pow-<br="" to="">ERTRAIN CONTROL SYSTEM, OPERATION, System Operation Check Mode.></ref.>	Does the relay operate?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 4.
4	CHECK RELAY. Check the 12V battery relay. <ref. to<br="">SC(H4DO(HEV))-64, 12V Battery Relay.></ref.>	Is the condition normal?	Go to step 5.	Replace the 12V battery relay.
5	CHECK TERMINALS. Check the 12V battery relay for loose bolts or corrosion.	Is the condition normal?	Go to step 6 .	Repair the termi- nals.
6	CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between 12V battery relay connector and each battery. Connector & terminal Positive terminal of 12 volt engine restart battery — 12V battery relay terminal (12 volt engine restart battery side): Positive terminal of 12 volt auxiliary bat- tery — 12V battery relay terminal (12 volt auxiliary battery side):	Is the resistance 1 Ω or less?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Repair the open circuit in harness between the 12V battery relay con- nector and each battery.

AB:DTC P1C09 12V BATTERY RELAY PERFORMANCE OR STUCK ON

DIAGNOSIS:

- Detects a stuck condition in 12V battery relay close circuit.
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

For the diagnostic procedure, refer to "DTC P1C08 12V BATTERY RELAY PERFORMANCE OR STUCK OFF". <Ref. to HEV(diag)-142, DTC P1C08 12V BATTERY RELAY PERFORMANCE OR STUCK OFF, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AC:DTC P1C10 VACUUM PUMP PERFORMANCE

DIAGNOSIS:

- Detects abnormal conditions in vacuum pump system functions.
- Judge as NG when the detection result is out of specification.
- The DTC is set when the condition occurs three times in total.

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Vacuum pump fail lamp illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

	Step	Check	Yes	No
1	CHECK VACUUM PRESSURE. 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, perform «Brake Vacuum Pump System Check» of Sys- tem Operation Check Mode for the hybrid pow- ertrain control system. <ref. hev(diag)-71,<br="" to="">HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, System Operation Check Mode.></ref.>	Is the result of operation check mode OK?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 2.
2	CHECK BRAKE VACUUM HOSE. Check the brake vacuum hose. (Check the hose for any external damage and also check that air only flows in one direction, when air is blown into or sucked from the hose.)	Is the condition normal?	Replace the brake vacuum pump. <ref. br-80,<br="" to="">Brake Vacuum Pump.></ref.>	Replace the brake vacuum hose. <ref. br-80,<br="" to="">Brake Vacuum Pump.></ref.>

AD:DTC P1C11 VACUUM PUMP SUPPLY VOLTAGE LOW

DIAGNOSIS:

- Detects a stuck condition in the vacuum pump supply voltage circuit (LOW).
- Judge as NG when the detection result is out of specification.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Vacuum pump fail lamp illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK FUSE. Check the fuse. <ref. and<br="" br-15,="" relay="" to="">Fuse.></ref.>	Is the condition normal?	Go to step 2.	Replace the fuse. When the replaced fuse blows out eas- ily, repair short cir- cuit to power in harness between 12 volt auxiliary battery and the brake vacuum pump relay.
2	CHECK BRAKE VACUUM PUMP RELAY. Check the relay. <ref. and<br="" br-15,="" relay="" to="">Fuse.></ref.>	Is the condition normal?	Go to step 3 .	Replace the relay. <ref. br-15,<br="" to="">Relay and Fuse.></ref.>

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	Step	Check	Yes	No
3	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector. 3) Remove the brake vacuum pump relay. 4) Using a tester, measure the resistance between HPCM connector and the brake vacuum pump relay connector. Connector & terminal (open) (B564) No. 5 — (B606) No. 16: (B564) No. 7 — (F134) No. 2: (F134) No. 1 — Chassis ground: 	Is the resistance less than 1 Ω?	Go to step 4.	Repair the open circuit of the har- ness between the HPCM connector and the brake vac- uum pump relay connector.
4	 CHECK HARNESS (SHORT TO POWER). 1) Turn the ignition switch to ON. 2) Using a tester, measure the voltage between the brake vacuum pump relay connector and chassis ground. Connector & terminal (open) (B564) No. 5 (+) — Chassis ground (-): 	Is the voltage less than 1 V?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Repair the short circuit to power in harness between the HP connector and the brake vac- uum pump relay connector.

AE:DTC P1C12 VACUUM PUMP SUPPLY VOLTAGE HIGH

DIAGNOSIS:

- Detects a stuck condition in the vacuum pump supply voltage circuit (HIGH).
- Judge as NG when the detection result is out of specification.
- · Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Vacuum pump fail lamp illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK BRAKE VACUUM PUMP RELAY. Check the relay. <ref. and<br="" br-15,="" relay="" to="">Fuse.></ref.>	Is the condition normal?	Go to step 2.	Replace the relay.
2	 CHECK HARNESS (SHORT TO GROUND). 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector. 3) Remove the brake vacuum pump relay. 4) Using a tester, measure the resistance between HPCM connector and chassis ground. <i>Connector & terminal</i> (B606) No. 16 — Chassis ground: 	Is the resistance 1 MΩ or more?	Go to step 3 .	Repair short cir- cuit to ground in harness between the HPCM connec- tor and the brake vacuum pump relay connector.

	Step	Check	Yes	No
3	 CHECK HARNESS (SHORT TO POWER). 1) Turn the ignition switch to ON. 2) Using a tester, measure the voltage between the brake vacuum pump relay connector and chassis ground. Connector & terminal (B564) No. 7 (+) — Chassis ground (-): 	Is the voltage less than 1 V?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Repair the short circuit to power in harness between the HP connector and the brake vac- uum pump relay connector.

AF:DTC P1C14 GENERATOR PERFORMANCE

DIAGNOSIS:

- Detects functional errors of the integrated starter generator.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- (Engine does not restart under EV traveling/Auto Start Stop condition.)
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. hev(diag)-24,="" hybrid<br="" to="">POWERTRAIN CONTROL SYSTEM, OPERA- TION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs (relating to ISG) detected? (current mal- function)	First diagnose other DTCs.	Go to step 2.
2	CHECK FUSE. Check the fuse. <ref. and<br="" hev-12,="" relay="" to="">Fuse.></ref.>	Is there any fault?	Replace the fuse. If the fuse blows out easily, repair the short circuit of har- ness.	Go to step 3.
3	CHECK BATTERY CABLE ASSEMBLY. Check the battery cable assembly. <ref. to<br="">SC(H4DO(HEV))-50, Battery Cable Assem- bly.></ref.>	Is there any fault?	Repair the battery cable assembly.	Go to step 4.
4	CHECK BATTERY. Check the 12 volt engine restart battery. <ref. to SC(H4DO(HEV))-39, Battery.></ref. 	Is there any fault?	Charge or replace the 12 volt engine restart battery.	Go to step 5 .

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Step	Check	Yes	No
5 CHECK DTC. Read the DTC. <ref. hev(diag)-24,="" hybrid<br="" to="">POWERTRAIN CONTROL SYSTEM, OPERA- TION, Read Diagnostic Trouble Code (DTC).></ref.>	Is DTC P1C14 detected? (cur- rent malfunction)	Replace the inte- grated starter gen- erator. <ref. to<br="">SC(H4DO(HEV))- 32, Integrated Starter Generator (ISG).></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

AG:DTC P1C16 IDLE CONTROL SYSTEM RPM LOWER THAN EXPECT-ED(HPCM)

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-29, DTC P1C16 IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED(HPCM), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control.

NOTE:

For the diagnostic procedure, refer to DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EX-PECTED. <Ref. to HEV(diag)-94, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EX-PECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AH:DTC P1C17 IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECT-ED(HPCM)

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-29, DTC P1C17 IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED(HPCM), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control.

NOTE:

For the diagnostic procedure, refer to DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EX-PECTED. <Ref. to HEV(diag)-95, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EX-PECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AI: DTC P1C18 GENERATOR SYSTEM "B" PERFORMANCE

DIAGNOSIS:

- Detects malfunctions due to open harness or trouble in the charging device.
- Detects abnormal conditions in the charging system for the 12 volt engine restart battery due to the integrated starter generator.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- (Engine does not restart under EV traveling/Auto Start Stop condition.)
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK FUSE. Check the fuse. <ref. and<br="" hev-12,="" relay="" to="">Fuse.></ref.>	Is the condition normal?	Go to step 2.	Replace the fuse. If the fuse blows out easily, repair the short circuit of har- ness.
2	CHECK BELTS. Check the belt. <ref. hev))-<br="" me(h4do(w="" o="" to="">122, V-belt.></ref.>	Is the condition normal?	Go to step 3 .	Adjust or replace the belt.

	Step	Check	Yes	No
3	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «ISG Control Mode Actual» «12V Engine Restart Battery Voltage» «ISG Terminal Voltage». <ref. hev(diag)-40,<br="" to="">HYBRID POWERTRAIN CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is «12V Engine Restart Battery Voltage» «ISG Terminal Volt- age» 12 — 15 V when the engine speed is at 2000 rpm or more and «ISG Control Mode Actual» is generating power?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 4 .
4	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of hybrid powertrain control sys- tem, the value of «HPCM Check 40». <ref. to<br="">HEV(diag)-40, HYBRID POWERTRAIN CON- TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 30 m Ω or more?	Check for poor contact of 12 volt engine restart bat- tery terminals. <ref. nt-5,<br="" to="">BATTERY, NOTE, Note.></ref.>	Go to step 5 .
5	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector. 3) Disconnect the integrated starter generator connector. 4) Using a tester, measure the resistance between the HPCM connector and integrated starter generator connector. Connector & terminal (B605) No. 2 - (E163) No. 1: (B605) No. 3 - (E163) No. 1: 	Is the resistance less than 1 Ω?	Go to step 6.	Repair the open circuit of the har- ness between the HPCM connector and the integrated starter generator terminal.
6	CHECK BATTERY. Check the 12 volt engine restart battery. <ref. to SC(H4DO(HEV))-39, Battery.></ref. 	Is the condition normal?	Replace the inte- grated starter gen- erator. <ref. to<br="">SC(H4DO(HEV))- 32, Integrated Starter Generator (ISG).></ref.>	Charge or replace the 12 volt engine restart battery.

AJ:DTC P1C1E AUTODISCONNECT EXPERIENCE

DIAGNOSIS:

Detects collision history of the vehicle.

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Vehicle speed is limited to 20 km/h (12.4 MPH) or below.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

NOTE:

- At normal condition, this cannot be deleted from the readiness code.
- The high voltage battery must not be reconnected until the repair is complete.

	Step	Check	Yes	No
1	CHECK VEHICLE. Check the vehicle conditions.	Are the vehicle conditions nor- mal? (Check for evidence of collision, etc.)	Go to step 2.	Repair the prob- lem.
2	 CHECK HPCM. 1) Perform the Clear Memory Mode. <ref. to<br="">HEV(diag)-25, HYBRID POWERTRAIN CON- TROL SYSTEM, OPERATION, Clear Memory Mode.></ref.> 2) Turn the ignition switch to OFF. 3) Wait for 30 seconds. 4) Turn the ignition switch to ON. 5) Read the DTC again. <ref. hev(diag)-<br="" to="">24, HYBRID POWERTRAIN CONTROL SYS- TEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.> 	Is DTC P1C1E detected? (cur- rent malfunction)	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

AK:DTC P2158 VEHICLE SPEED SENSOR "B"

DIAGNOSIS FOR DTC:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-30, DTC P2158 VEHICLE SPEED SENSOR "B", Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

NOTE:

For the diagnostic procedure, refer to the Vehicle Dynamics Control System (VDC) (DIAGNOSTICS). <Ref. to VDC(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

AL:DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-31, DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Warm up the engine. 2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Temperature A Sensor Voltage». <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.>	Is the value of «Drive Motor Temperature A Sensor Volt- age» 4.5 V or more when «A/T Oil Temperature» is 40°C (104°F) or more?	Go to step 2.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause
				porary poor co tact of connecto temporary open short circuit of ha ness may be th cause.

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
2	 CHECK HARNESS AND DRIVE MOTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the DMCM connector (R442). 3) Using a tester, measure the resistance between terminals in the DMCM connector. Connector & terminal (R442) No. 4 — (R442) No. 5: (R442) No. 3 — (R442) No. 5: 	Does the resistance between either two points show 218 k Ω or more?	Go to step 3.	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>
3	 CHECK DRIVE MOTOR. 1) Disconnect the drive motor assembly connector (R603). 2) Using a tester, measure the resistance between terminals in the drive motor assembly connector. Connector & terminal (T32) No. 18 — (T32) No. 17: (T32) No. 19 — (T32) No. 17: 	Does the resistance between either two points show 218 k Ω or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair the open circuit of harness between DMCM connector and drive motor assem- bly connector, or repair the interme- diate connector.

NOTE:

Characteristic curve of temperature sensor



(B) Resistance

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

Temp. (°C)	Temp. (°F)	Standard at Max. (k Ω)	Standard at Min. (k Ω)
-50	-58	9,847	7,755
-45	-49	6,735	5,383
-40	-40	4,682	3,796
-35	-31	3,282	2,698
-30	-22	2,334	1,945
-25	-13	1,676	1,414
-20	-4	1,219	1,041
-15	5	893.2	772.8
-10	14	662.4	579.8
-5	23	494.8	438.2
0	32	373.7	334.5
5	41	284.1	257
10	50	218.1	199.4
15	59	168.5	155.6
20	68	131.3	122.4
25	77	103	97
30	86	82.12	76.62
35	95	65.86	60.9
40	104	53.2	48.76
45	113	43.17	39.23
50	122	35.26	31.78
55	131	28.94	25.87
60	140	23.89	21.19
65	149	19.81	17.43
70	158	16.51	14.43
75	167	13.82	11.99
80	176	11.63	10.01
85	185	9.822	8.403
90	194	8.333	7.082
95	203	7.093	5.988
100	212	6.063	5.086
105	221	5.203	4.337
110	230	4.482	3.714
115	239	3.874	3.191
120	248	3.361	2.752
125	257	2.924	2.381
130	266	2.553	2.067
135	275	2.235	1.8
140	284	1.963	1.572
145	293	1.729	1.377
150	302	1.527	1.21
155	311	1.352	1.066
160	320	1.2	0.9427
165	329	1.068	0.835
170	338	0.9535	0.7417
175	347	0.8526	0.6602
180	356	0.7643	0.5892
185	365	0.6866	0.527
190	374	0.6183	0.4725
195	383	0.5578	0.4245

HEV(diag)-157

HYBRID ELECTRIC VEHICLE (DI	AGNOSTICS)
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Temp. (°C)	Temp. (°F)	Standard at Max. (k Ω)	Standard at Min. (k Ω)
200	392	0.5043	0.3822
205	401	0.4568	0.3448
210	410	0.4147	0.3117
215	419	0.3771	0.2824
220	428	0.3435	0.2563
225	437	0.3135	0.233
230	446	0.2866	0.2122
235	455	0.2624	0.1936
240	464	0.2407	0.177
245	473	0.2212	0.162
250	482	0.2035	0.1486
255	491	0.1876	0.1365
260	500	0.1731	0.1256
265	509	0.16	0.1157
270	518	0.1481	0.1067
275	527	0.1373	0.09867
280	536	0.1274	0.0913
285	545	0.1184	0.0846
290	554	0.1102	0.07849
295	563	0.1027	0.07292
300	572	0.09578	0.06784

AM:DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-32, DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



Step	Check	Yes	No
1 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Temperature A Sensor Voltage». <ref. drive<br="" hev(diag)-52,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value less than 0.23 V?	Go to step 2.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
2	 CHECK HARNESS AND DRIVE MOTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the DMCM connector (R442). 3) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body. Connector & terminal (R442) No. 4 — Ground bolt of inverter frame body: (R442) No. 3 — Ground bolt of inverter frame body: 	Does the resistance between either two points show 256.4 Ω or less?	Go to step 3.	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>
3	 CHECK DRIVE MOTOR. 1) Disconnect the drive motor assembly connector (B603). 2) Using a tester, measure the resistance between the drive motor assembly connector and chassis ground. Connector & terminal (T32) No. 18 — Chassis ground: (T32) No. 19 — Chassis ground: 	Does the resistance between either two points show 256.4 Ω or less?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair the short circuit to ground in harness between DMCM connector and drive motor assembly connec- tor.

NOTE:

Characteristic curve of temperature sensor



(B) Resistance

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

Temp. (°C)	Temp. (°F)	Standard at Max. (k Ω)	Standard at Min. (k Ω)
-50	-50 -58		7,755
-45	-45 -49 6,735		5,383
-40	-40	4,682	3,796
-35	-31	3,282	2,698
-30	-22	2,334	1,945
-25	-13	1,676	1,414
-20	-4	1,219	1,041
-15	5	893.2	772.8
-10	14	662.4	579.8
-5	23	494.8	438.2
0	32	373.7	334.5
5	41	284.1	257
10	50	218.1	199.4
15	59	168.5	155.6
20	68	131.3	122.4
25	77	103	97
30	86	82.12	76.62
35	95	65.86	60.9
40	104	53.2	48.76
45	113	43.17	39.23
50	122	35.26	31.78
55	131	28.94	25.87
60	140	23.89	21.19
65	149	19.81	17.43
70	158	16.51	14.43
75	167	13.82	11.99
80	176	11.63	10.01
85	185	9.822	8.403
90	194	8.333	7.082
95	203	7.093	5.988
100	212	6.063	5.086
105	221	5.203	4.337
110	230	4.482	3.714
115	239	3.874	3.191
120	248	3.361	2.752
125	257	2.924	2.381
130	266	2.553	2.067
135	275	2.235	1.8
140	284	1.963	1.572
145	293	1.729	1.377
150	302	1.527	1.21
155	311	1.352	1.066
160	320	1.2	0.9427
165	329	1.068	0.835
170	338	0.9535	0.7417
175	347	0.8526	0.6602
180	356	0.7643	0.5892
185	365	0.6866	0.527
190	374	0.6183	0.4725
195	383	0.5578	0.4245

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HYBRID ELECTRIC VEHICLE (DIAGNC	STICS)
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Temp. (°C)	Temp. (°F)	Standard at Max. (k Ω)	Standard at Min. (k Ω)
200	392	0.5043	0.3822
205	401	0.4568	0.3448
210	410	0.4147	0.3117
215	419	0.3771	0.2824
220	428	0.3435	0.2563
225	437	0.3135	0.233
230	446	0.2866	0.2122
235	455	0.2624	0.1936
240	464	0.2407	0.177
245	473	0.2212	0.162
250	482	0.2035	0.1486
255	491	0.1876	0.1365
260	500	0.1731	0.1256
265	509	0.16	0.1157
270	518	0.1481	0.1067
275	527	0.1373	0.09867
280	536	0.1274	0.0913
285	545	0.1184	0.0846
290	554	0.1102	0.07849
295	563	0.1027	0.07292
300	572	0.09578	0.06784

AN:DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-33, DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



Step	Check	Yes	No
1 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Temperature A Sensor Voltage». <ref. drive<br="" hev(diag)-52,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 4.6 V or more?	Go to step 2.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.
 CHECK HARNESS (SHORT). 1) Turn the ignition switch to OFF. 2) Disconnect the DMCM connector (R442, R443). 3) Disconnect the drive motor assembly connector (B603). 4) Using a tester, measure the resistance between terminals in the DMCM connector and between the terminals in the drive motor assembly connector. Connector & terminal DMCM side (R442) No. 3 — (R442) No. 1 — 22 (except No. 5): (R442) No. 3 — (R443) No. 1 — 26: (R442) No. 4 — (R443) No. 1 — 26: Drive motor side (B603) No. 18 — (B603) No. 1 — 19 (except No. 17): (B603) No. 19 — (B603) No. 1 — 19 (except No. 17): 	Does the resistance between either two points show 1 MΩ or more?	Go to step 3 .	Repair the short circuit to power in harness between DMCM connector and drive motor assembly connec- tor, or repair the intermediate con- nector.
 3 CHECK DRIVE MOTOR. Using a tester, measure the resistance between terminals in the drive motor assembly connector. Connector & terminal (T32) No. 18 — (T32) No. 1 — 19 (except No. 17): (T32) No. 19 — (T32) No. 1 — 19 (except No. 17): 	Does the resistance between either two points show 1 $M\Omega$ or more?	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>

AO:DTC P0A3C DRIVE MOTOR "A" INVERTER OVER TEMPERATURE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-34, DTC P0A3C DRIVE MOTOR "A" INVERTER OVER TEMPERATURE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Are DTC P0A5D, P0A60, and P0A63 detected? (current mal- function)	Perform a check according to the DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK HIGH VOLTAGE BATTERY COOL- ING FAN. Using the Subaru Select Monitor, perform «High Voltage Battery Cooling Fan» of System Operation Check Mode for the drive motor con- trol system. <ref. drive<br="" hev(diag)-73,="" to="">MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.></ref.>	Does the high voltage battery cooling fan operate?	Go to step 3.	Check the high voltage battery cooling fan as a single part. <ref. to HEV-60, High Voltage Battery Cooling System.></ref.
3	CHECK DUCT. Check the high voltage battery cooling fan ducts. <ref. battery<br="" hev-60,="" high="" to="" voltage="">Cooling System.></ref.>	Are the conditions of ducts nor- mal? (Check for clogging, dis- lodging of connections, etc.)	Go to step 4.	Repair the ducts.
4	CHECK DTC. 1) Replace the drive motor inverter. <ref. to<br="">HEV-42, Inverter.> 2) Perform the Clear Memory Mode. <ref. to<br="">HEV(diag)-25, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Clear Memory Mode.> 3) Check the freeze frame data and drive the vehicle to reproduce the same conditions. <ref. to HEV(diag)-65, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.> 4) Read the DTC again. <ref. hev(diag)-<br="" to="">24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.></ref. </ref.></ref.>	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter.
AP:DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-35, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



	Step	Check	Yes	No
1	CHECK HARNESS AND DRIVE MOTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the DMCM connector (R442). 3) Using a tester, measure the resistance between terminals in DMCM connector. <i>Connector & terminal</i> <i>R1-R2</i> (R442) No. 6 — (R442) No. 17: S1-S3 (R442) No. 10 — (R442) No. 8: S2-S4 (R442) No. 9 — (R442) No. 7:	Is each resistance value as shown in below? R1-R2: Is the value out of 7 — 23 Ω range? or S1-S3: Is the value out of 10 — 39 Ω range? or S2-S4: Is the value out of 11 — 40 Ω range?	Go to step 2.	Go to step 3.

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	Step	Check	Yes	No
2	 CHECK DRIVE MOTOR. 1) Disconnect the drive motor assembly connector. 2) Using a tester, measure the resistance between terminals in the drive motor assembly connector. Connector & terminal R1-R2 (T32) No. 14 — (T32) No. 15: S1-S3 (T32) No. 9 — (T32) No. 10: S2-S4 (T32) No. 12 — (T32) No. 11: 	Is each resistance value as shown in below? R1-R2: Is the value out of 7 — 23 Ω range? or S1-S3: Is the value out of 10 — 39 Ω range? or S2-S4: Is the value out of 11 — 40 Ω range?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair the open circuit and short circuit to ground in harness between DMCM connector and drive motor assembly connec- tor.
3	CHECK HARNESS AND DRIVE MOTOR. Using a tester, check the resistance between DMCM connector terminals and the ground bolt of inverter frame body. Connector & terminal (R442) No. 6 — Ground bolt of inverter frame body: (R442) No. 10 — Ground bolt of inverter frame body: (R442) No. 9 — Ground bolt of inverter frame body:	Does the resistance between either two points show 1 M Ω or less?	Go to step 4.	Go to step 5 .
4	 CHECK DRIVE MOTOR. 1) Disconnect the drive motor assembly connector. 2) Using a tester, measure the resistance between the drive motor assembly connector and chassis ground. Connector & terminal (T32) No. 14 — Chassis ground: (T32) No. 9 — Chassis ground: (T32) No. 12 — Chassis ground: 	Does the resistance between either two points show 1 M Ω or less?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair the short circuit to ground in harness between DMCM connector and drive motor assembly connec- tor.

Step	Check	Yes	No
5 CHECK HARNESS. 1) Disconnect the DMCM connector (R443	Does the resistance between). either two points show 1 $M\Omega$ or	Go to step 6.	Repair the short circuit of harness
2) Disconnect the intermediate connector	more?		between DMCM
(H436).			connector and
5) Using a lester, measure the resistance	and		bly connector or
between the terminals in the intermediate of			renair the interme-
nector (B436)			diate connector
Connector & terminal			
(R442) No. 10 — (R442) No. 1 — 22 (exc	ept		
No. 8):			
(R442) No. 10 — (R443) No. 1 — 26:			
(R442) No. 10 — (R436) No. 1 — 8:			
(R442) No. 8 — (R442) No. 1 — 22 (exc	ept		
No. 10):			
(H442) No. 8 — $(H443)$ No. 1 — 26: (H442) No. 8 — $(H426)$ No. 1 — 9:			
(R442) NO. 8 — $(R436)$ NO. 1 — 8: (R442) NO. 9 — $(R436)$ NO. 1 — 22 (220	ant		
(R442) NO. 9 - (R442) NO. 1 - 22 (excNo. 7):	epi		
(R442) No. 9 — (R443) No. 1 — 26:			
(R442) No. 9 — (R436) No. 1 — 8:			
(R442) No. 7 — (R442) No. 1 — 22 (exc	ept		
No. 9):			
(R442) No. 7 — (R443) No. 1 — 26:			
(R442) No. 7 — (R436) No. 1 — 8:			
(R442) No. 6 — (R442) No. 1 — 22 (exc	ept		
NO. 17): (P442) No. 6 (P442) No. 1 26;			
(R442) NO. 6 - (R443) NO. 1 - 20. (R442) No. 6 - (R436) No. 1 - 8:			
(R442) No. 0 - (R442) No. 1 - 22 (exc	ent		
No. 6):			
(R442) No. 17 — (R443) No. 1 — 26:			
(R442) No. 17 — (R436) No. 1 — 8:			
6 CHECK HARNESS.	Does the resistance between	Go to step 7.	Repair the short
 Disconnect the drive motor assembly consistent 	n- leither two points show 1 M Ω or		circuit of harness
nector.	more?		between DMCM
2) Using a tester, measure the resistance	bly		connector and drive motor assem-
connector	biy		bly connector or
Connector & terminal			repair the interme-
(B603) No. 9 — (B603) No. 1 — 20 (exc	ept		diate connector.
No. 10):			
(B603) No. 10 — (B603) No. 1 — 20 (exc	ept		
No. 9):			
(B603) No. 12 – (B603) No. 1 – 20 (exc	ept		
No. 11): (R602) No. 11 (R602) No. 1 20 (ava	ant		
(B003) NO. 11 - (B003) NO. 1 - 20 (excNo. 12):			
(B603) No. 14 — (B603) No. 1 — 20 (exc	ept		
No. 15):			
(B603) No. 15 — (B603) No. 1 — 20 (exc	ept		
No. 14):	-		

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

Step	Check	Yes	No
 7 CHECK DRIVE MOTOR. Using a tester, measure the resistance between terminals in the drive motor assembly connector. Connector & terminal (T32) No. 9 — (T32) No. 1 — 20 (except No. 10): (T32) No. 10 — (T32) No. 1 — 20 (except No. 9): (T32) No. 12 — (T32) No. 1 — 20 (except No. 11): (T32) No. 12 — (T32) No. 1 — 20 (except No. 11): (T32) No. 11 — (T32) No. 1 — 20 (except No. 12): (T32) No. 14 — (T32) No. 1 — 20 (except No. 15): (T32) No. 15 — (T32) No. 1 — 20 (except No. 15): (T32) No. 15 — (T32) No. 1 — 20 (except No. 15): 	Does the resistance between either two points show 1 MΩ or more?	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>

AQ:DTC P0A40 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT RANGE/PER-FORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-36, DTC P0A40 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT". <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AR:DTC P0A43 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT INTERMIT-TENT

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-37, DTC P0A43 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT INTERMITTENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



		i	i	i
	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Is DTC P0A3F detected? (cur- rent malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of</ref.>	Go to step 2.
			Code (DTC).>	

	Step	Check	Yes	No
2	 CHECK HARNESS AND DRIVE MOTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the DMCM connector (R442). 3) Using a tester, measure the resistance between terminals in DMCM connector. <i>Connector & terminal</i> <i>R1-R2</i> (R442) No. 6 — (R442) No. 17: S1-S3 (R442) No. 10 — (R442) No. 8: S2-S4 (R442) No. 9 — (R442) No. 7: 	Is each resistance value as shown in below? R1-R2: Is the value out of 7 — 23 Ω range? or S1-S3: Is the value out of 10 — 39 Ω range? or S2-S4: Is the value out of 11 — 40 Ω range?	Go to step 3.	Go to step 4.
3	 CHECK DRIVE MOTOR. 1) Disconnect the drive motor assembly connector. 2) Using a tester, measure the resistance between terminals in the drive motor assembly connector. Connector & terminal R1-R2 (T32) No. 14 — (T32) No. 15: S1-S3 (T32) No. 9 — (T32) No. 10: S2-S4 (T32) No. 12 — (T32) No. 11: 	Is each resistance value as shown in below? R1-R2: Is the value out of 7 — 23 Ω range? or S1-S3: Is the value out of 10 — 39 Ω range? or S2-S4: Is the value out of 11 — 40 Ω range?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair the open circuit and short circuit to ground in harness between DMCM connector and drive motor assembly connec- tor.
4	CHECK HARNESS AND DRIVE MOTOR. Using a tester, measure the resistance between DMCM connector terminals and the ground bolt of inverter frame body. Connector & terminal (R442) No. 6 — Ground bolt of inverter frame body: (R442) No. 10 — Ground bolt of inverter frame body: (R442) No. 9 — Ground bolt of inverter frame body:	Does the resistance between either two points show 1 M Ω or less?	Go to step 5.	Go to step 6.
5	 CHECK DRIVE MOTOR. 1) Disconnect the drive motor assembly connector. 2) Using a tester, measure the resistance between the drive motor assembly connector and chassis ground. Connector & terminal (T32) No. 14 — Chassis ground: (T32) No. 9 — Chassis ground: (T32) No. 12 — Chassis ground: 	Does the resistance between either two points show 1 M Ω or less?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair the short circuit to ground in harness between DMCM connector and drive motor assembly connec- tor.

	Step	Check	Yes	No
6	CHECK HARNESS. 1) Disconnect the drive motor assembly con- nector. 2) Using a tester, measure the resistance between terminals in the DMCM connector (R442, R443), between the terminals in the intermediate connector (R436), and between terminals in the drive restruction	Does the resistance between either two points show 1 MΩ or more?	Go to step 7.	Repair the short circuit of harness between DMCM connector and drive motor assem- bly connector, or repair the interme-
	terminals in the drive motor assembly connector. Connector & terminal (R442) No. 10 — (R442) No. 1 — 22 (except No. 8): (R442) No. 10 — (R443) No. 1 — 26: (R442) No. 10 — (R436) No. 1 — 8: (R442) No. 8 — (R442) No. 1 — 22 (except No. 10): (R442) No. 8 — (R443) No. 1 — 26: (R442) No. 9 — (R443) No. 1 — 22 (except No. 7): (R442) No. 9 — (R443) No. 1 — 26: (R442) No. 9 — (R436) No. 1 — 8: (R442) No. 9 — (R436) No. 1 — 8: (R442) No. 9 — (R436) No. 1 — 8: (R442) No. 9 — (R436) No. 1 — 22 (except			diate connector.
	No. 9): (R442) No. 7 — (R443) No. 1 — 26: (R442) No. 7 — (R436) No. 1 — 8: (R442) No. 6 — (R442) No. 1 — 22 (except No. 17): (R442) No. 6 — (R443) No. 1 — 26: (R442) No. 6 — (R436) No. 1 — 8: (R442) No. 17 — (R442) No. 1 — 22 (except No. 6): (R442) No. 17 — (R443) No. 1 — 26: (R442) No. 17 — (R436) No. 1 — 8:			
7	CHECK HARNESS. 1) Disconnect the drive motor assembly con- nector. 2) Using a tester, measure the resistance between terminals in the drive motor assembly connector. Connector & terminal (B603) No. 9 – (B603) No. 1 – 20 (except No. 10): (B603) No. 10 – (B603) No. 1 – 20 (except No. 9): (B603) No. 12 – (B603) No. 1 – 20 (except No. 11): (B603) No. 11 – (B603) No. 1 – 20 (except No. 12): (B603) No. 14 – (B603) No. 1 – 20 (except No. 15): (B603) No. 15 – (B603) No. 1 – 20 (except No. 14):	Does the resistance between either two points show 1 MΩ or more?	Go to step 8.	Repair the short circuit of harness between DMCM connector and drive motor assem- bly connector, or repair the interme- diate connector.

	Step	Check	Yes	No
8	CHECK DRIVE MOTOR.	Does the resistance between	Replace DMCM.	Replace the drive
	Using a tester, measure the resistance between	either two points show 1 M Ω or	<ref. th="" to<=""><th>motor assembly.</th></ref.>	motor assembly.
	terminals in the drive motor assembly connec-	more?	CVT(TH58A)-157,	<ref. th="" to<=""></ref.>
	tor.		Drive Motor Con-	CVT(TH58A)-217,
	Connector & terminal		trol Module.>	Drive Motor
	(T32) No. 9 — (T32) No. 1 — 20 (except No.			Assembly.>
	10):			
	(T32) No. 12 — (T32) No. 1 — 20 (except			
	No. 11):			
	(T32) No. 14 — (T32) No. 1 — 20 (except			
	No. 15):			

AS:DTC P0A44 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT OVERSPEED

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-38, DTC P0A44 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT OVERSPEED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



	Step	Check	Yes	No
1	CHECK DTC. Read DTCs of the following system. • Transmission <ref. cvt(hev)(diag)-19,<br="" to="">Read Diagnostic Trouble Code (DTC).></ref.>	Is DTC detected? (current mal- function)	Perform the diag- nosis according to DTC. <ref. to<br="">CVT(HEV)(diag)- 34, List of Diagnos- tic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Is either DTC P0A3F or P0A43 detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 3.

	Step	Check	Yes	No
3	CHECK HARNESS AND DRIVE MOTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the DMCM connector (R442). 3) Using a tester, measure the resistance between terminals in DMCM connector. Connector & terminal R1-R2 (R442) No. 6 — (R442) No. 17: S1-S3 (R442) No. 10 — (R442) No. 8: S2-S4	Is each resistance value as shown in below? R1-R2: Is the value out of 7 — 23Ω range? or S1-S3: Is the value out of 10 — 39Ω range? or S2-S4: Is the value out of 11 — 40Ω range?	Go to step 4.	Go to step 5.
	(R442) No. 9 — (R442) No. 7:			
4	 CHECK DRIVE MOTOR. 1) Disconnect the drive motor assembly connector. 2) Using a tester, measure the resistance between terminals in the drive motor assembly connector. Connector & terminal R1-R2 (T32) No. 14 — (T32) No. 15: S1-S3 (T32) No. 9 — (T32) No. 10: S2-S4 (T32) No. 12 — (T32) No. 11: 	Is each resistance value as shown in below? R1-R2: Is the value out of 7 — 23 Ω range? or S1-S3: Is the value out of 10 — 39 Ω range? or S2-S4: Is the value out of 11 — 40 Ω range?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair the open circuit and short circuit to ground in harness between DMCM connector and drive motor assembly connec- tor.
5	CHECK HARNESS AND DRIVE MOTOR. Using a tester, measure the resistance between DMCM connector terminals and the ground bolt of inverter frame body. Connector & terminal (R442) No. 6 — Ground bolt of inverter frame body: (R442) No. 10 — Ground bolt of inverter frame body: (R442) No. 9 — Ground bolt of inverter frame body:	Does the resistance between either two points show 1 M Ω or less?	Go to step 6 .	Go to step 7.
6	 CHECK DRIVE MOTOR. 1) Disconnect the drive motor assembly connector. 2) Using a tester, measure the resistance between the drive motor assembly connector and chassis ground. Connector & terminal (T32) No. 14 — Chassis ground: (T32) No. 9 — Chassis ground: (T32) No. 12 — Chassis ground: 	Does the resistance between either two points show 1 M Ω or less?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair the short circuit to ground in harness between DMCM connector and drive motor assembly connec- tor.

	Step	Check	Yes	No
7	CHECK HARNESS.	Does the resistance between	Go to step 8.	Repair the short
	1) Disconnect the drive motor assembly con-	either two points show 1 M Ω or	1° -	circuit of harness
	nector.	more?		between DMCM
	2) Using a tester, measure the resistance			connector and
	between terminals in the DMCM connector			drive motor assem-
	(R442, R443), between the terminals in the			bly connector, or
	intermediate connector (R436), and between			repair the interme-
	terminals in the drive motor assembly connec-			diate connector.
	tor.			
	Connector & terminal			
	(R442) No. 10 — (R442) No. 1 — 22 (except			
	No. 8):			
	(R442) No. 10 — (R443) No. 1 — 26:			
	(R442) No. 10 — (R436) No. 1 — 8:			
	(R442) No. 8 — (R442) No. 1 — 22 (except			
	No. 10):			
	(R442) No. 8 — (R443) No. 1 — 26:			
	(R442) No. 8 — (R436) No. 1 — 8:			
	(R442) No. 9 — (R442) No. 1 — 22 (except			
	No. 7):			
	(R442) No. 9 — (R443) No. 1 — 26:			
	(R442) No. 9 — (R436) No. 1 — 8:			
	(R442) No. 7 — (R442) No. 1 — 22 (except			
	No. 9):			
	(R442) No. 7 — (R443) No. 1 — 26:			
	(R442) No. 7 — (R436) No. 1 — 8:			
	(R442) No. 6 — $(R442)$ No. 1 — 22 (except			
	$(P_{4}A_{2}) N_{0} \in (P_{4}A_{2}) N_{0} = 1 - 26;$			
	(R442) NO. 0 - (R443) NO. 1 - 20. (R442) No. 6 - (R436) No. 1 - 8:			
	(R442) No. 0 — (R430) No. 1 — 0. (R442) No. 17 — (R442) No. 1 — 22 (excent			
	No 6):			
	(B442) No. 17 — (B443) No. 1 — 26:			
	(R442) No. 17 — (R436) No. 1 — 8:			
8	CHECK HABNESS	Does the resistance between	Go to step 9	Repair the short
ľ	1) Disconnect the drive motor assembly con-	either two points show 1 MQ or		circuit of harness
	nector.	more?		between DMCM
	2) Using a tester, measure the resistance			connector and
	between terminals in the drive motor assembly			drive motor assem-
	connector.			bly connector, or
	Connector & terminal			repair the interme-
	(B603) No. 9 — (B603) No. 1 — 20 (except			diate connector.
	No. 10):			
	(B603) No. 10 — (B603) No. 1 — 20 (except			
	No. 9):			
	(B603) No. 12 — (B603) No. 1 — 20 (except			
	No. 11):			
	(B603) No. 11 — (B603) No. 1 — 20 (except			
	No. 12):			
	(B603) No. 14 — (B603) No. 1 — 20 (except			
	No. 15):			
	(B603) NO. 15 — (B603) NO. 1 — 20 (except			
	No. 14):			

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
9	CHECK DRIVE MOTOR.	Does the resistance between	Replace DMCM.	Replace the drive
	Using a tester, measure the resistance between	either two points show 1 M Ω or	<ref. th="" to<=""><th>motor assembly.</th></ref.>	motor assembly.
	terminals in the drive motor assembly connec-	more?	CVT(TH58A)-157,	<ref. th="" to<=""></ref.>
	tor.		Drive Motor Con-	CVT(TH58A)-217,
	Connector & terminal		trol Module.>	Drive Motor
	(T32) No. 9 — (T32) No. 1 — 20 (except No.			Assembly.>
	10):			
	(T32) No. 12 — (T32) No. 1 — 20 (except			
	No. 11):			
	(T32) No. 14 — (T32) No. 1 — 20 (except			
	No. 15):			

AT:DTC P0C52 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "A" LOW DIAGNOSIS:

Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-68, DTC P0C52 DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "A" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT". <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AU:DTC P0C5C DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "B" LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-69, DTC P0C5C DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "B" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT". <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AV:DTC P0CDC DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-71, DTC P0CDC DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT". <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AW:DTC P0CDD DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-72, DTC P0CDD DRIVE MOTOR "A" POSITION SENSOR CIRCUIT "C" HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT". <Ref. to HEV(diag)-166, DTC P0A3F DRIVE MOTOR "A" POSITION SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

HEV(diag)-177

AX:DTC P0A5D DRIVE MOTOR "A" PHASE U CURRENT

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-39, DTC P0A5D DRIVE MOTOR "A" PHASE U CURRENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>





	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase U Amperage Sensor Voltage». <ref. con-<br="" drive="" hev(diag)-52,="" motor="" to="">TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 2.5 V ± 0.1 V with IG ON?	Go to step 3.	Perform the diag- nosis according to DTC P0BE6 and P06B1. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>

	Step	Check	Yes	No
3	CHECK HARNESS (GATE SIGNAL SHORT	Is the resistance 1 M Ω or	Go to step 4.	Repair short cir-
	TO POWER AND SHORT IN OTHER SIGNAL	more?	•	cuit in harness
	LINES).			between DMCM
	1) Turn the ignition switch to OFF.			connector and
	2) Disconnect the ground cable of the 12 volt			drive motor
	auxiliary battery, and as for the 12 volt engine			inverter, or repair
	restart battery, disconnect the ground cable			the intermediate
	from the 12V engine restart battery sensor.			connector.
	<ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.>			
	3) Remove the service disconnect plug. <ref.< td=""><td></td><td></td><td></td></ref.<>			
	to HEV-15, Service Plug.>			
	4) Wait for 10 minutes.			
	5) Disconnect the DMCM connector (R442,			
	R443).			
	6) Disconnect the intermediate connector			
	(R436).			
	7) Disconnect the drive motor inverter connec-			
	tor.			
	8) Using a tester, measure the resistance			
	between terminals in DMCM connectors (R442,			
	R443) and between each terminal in inverter			
	connector.			
	Connector & terminal			
	(R442) No. 2 — (R442) No. 1 — 22:			
	(R442) No. 2 — (R443) No. 1 — 26:			
	(R442) No. 2 — (R436) No. 1 — 8:			
	(R442) No. 2 — (R432) No. 7:			
	(R442) No. 1 — (R442) No. 1 — 22:			
	(R442) No. 1 — (R443) No. 1 — 26:			
	(R442) No. 1 — (R436) No. 1 — 8:			
	(R442) No. 1 — (R432) No. 7:			
	(R442) No. 15 — (R442) No. 1 — 22:			
	(R442) No. 15 — (R443) No. 1 — 26:			
	(R442) No. 15 — (R436) No. 1 — 8:			
	(R442) No. 15 — (R432) No. 7:			
	(R442) No. 14 — (R442) No. 1 — 22:			
	(R442) No. 14 — (R443) No. 1 — 26:			
	(R442) No. 14 — (R436) No. 1 — 8:			
	(R442) No. 14 — (R432) No. 7:			
	(R442) No. 13 — (R442) No. 1 — 22:			
	(R442) No. 13 — (R443) No. 1 — 26:			
	(H442) No. 13 — (R436) No. 1 — 8:			
	(H442) NO. 13 — (H432) NO. 7:			
	(H442) No. 12 — (R442) No. 1 — 22:			
	(H442) NO. 12 — (H443) NO. 1 — 26:			
	(H442) NO. 12 — (H436) NO. 1 — 8:			
	(H442) NO. 12 — (H432) NO. 7:			

	Step	Check	Yes	No
4	CHECK DRIVE MOTOR INVERTER (INTER-	Is there continuity?	Replace the drive	Go to step 5.
	NAL SHORT).		motor inverter.	
	1) Disconnects power cable terminals (HV2,		<ref. hev-42,<="" th="" to=""><th></th></ref.>	
	HV3) of the drive motor inverter and bus bar		Inverter.>	
	(HV5).		Go to step 13.	
	NOTE:			
	Be sure to use insulating tape.			
	2) Using a tester, check for continuity between			
	drive motor inverter terminals.			
	NOTE:			
	When checking continuity, always follow the			
	combinations as follows with correct polarities.			
	If polarities are reversed when checking, the			
	trouble may not be accurately diagnosed.			
	Connector & terminal			
	(HV5) P (+) — (HV2) U (–):			
	(HV2) U (+) — (HV5) N (–):			
	(HV5) P (+) — (HV2) V (–):			
	(HV2) V (+) — (HV5) N (-):			
	(HV5) P (+) — (HV2) W (–):			
	(HV2) W (+) — (HV5) N (-):			
	(HV5) P(+) - (HV5) N(-):			
	(HV2) U (+) - (HV2) V (-):			
	(HV2) U (+) - (HV2) W (-):			
	$(HV2) \vee (+) - (HV2) \vee (-):$			
	(HV5) P(+) - Chassis ground (-):			
	(HV3) N(+) = Chassis ground (-):			
	(HV2) U(+) - Chassis ground (-):			
	(HV2) V (+) - Chassis ground (-):			
-	(HVZ) W (+) = Chassis ground (-):		Developed the electron	0 a ta atau 0
5		Is "O.L" Indicated?	Replace the drive	Go to step b .
	LEASED).			
	insulation multimator, measure the veltage		$< \text{Rel. 10} \square \square V - 42,$	
	hotwoon the terminals of the drive motor		Go to stop 13	
	invortor			
	NUTE: When checking voltage values, always follow			
	the combinations as follows with correct polari-			
	ties If polarities are reversed when checking			
	the trouble may not be accurately diagnosed			
	Connector & terminal			
	(HV2) II (+) = (HV5) P (-)			
	(HV5) N (+) - (HV2) II (-):			
	(HV2) V (+) - (HV5) P (-)			
	(HV5) N (+) - (HV2) V (-)			
	(HV2) W (+) - (HV5) P (-):			
	(HV5) N (+) — (HV2) W (-):			

	Step	Check	Yes	No
6	StepCHECK HIGH VOLTAGE UNIT (SHORT).1) Remove electric noise filter, DC/DC converter, and electric oil pump inverter.2) Check continuity between each terminal of the unit.NOTE:• When checking voltage values, always follow the unit.NOTE:• When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.• For ground measuring points of electric noise filter, DC/DC converter, and electric oil pump inverter, refer to Notes in the margin.Connector & terminal(HV6) P (+) — (HV7) N (-):(HV6) P (+) — Electric noise filter ground (-):(HV6) P (+) — Electric noise filter ground (-):(HV6) P (+) — Electric noise filter ground (-):(HV3) P (+) — (HV10) V (-):(HV10) V (+) — (HV10) V (-):(HV10) V (+) — (HV10) V (-):	Check Is there continuity?	Yes Replace the unit that has continuity. Go to step 13.	No Go to step 7.
	ground (–): (HV10) U (+) — Electric oil pump inverter ground (–): (HV10) V (+) — Electric oil pump inverter ground (–): (HV10) W (+) — Electric oil pump inverter ground (–): (HV8) P (+) — (HV8) N (–): (HV8) P (+) — Chassis ground (–): (HV8) N (+) — Chassis ground (–):			

	Step	Check	Yes	No
7	CHECK POWER CABLE AND DRIVE MO-	Is the resistance 2 MO or	If you have a mil-	Go to step 9
-	TOR (SHORT TO GROUND).	more?	liohm tester at	
	Using an insulation multimeter (250 V range).		hand. Go to step 8.	
	measure the resistance between power cable		If a milliohm tester	
	terminal (HV2) of the drive motor inverter and		is not at hand. Go	
	the ground bolt of inverter frame body.		to step 11.	
	Connector & terminal			
	(HV2) U — Ground bolt of inverter frame			
	bodv:			
	(HV2) V — Ground bolt of inverter frame			
	body:			
	(HV2) W — Ground bolt of inverter frame			
	body:			
8	CHECK POWER CABLE AND DRIVE MO-	Is resistance between either	Go to step 10.	Replace DMCM.
-	TOR (SHORT).	lines less than 25 mQ?		<ref. th="" to<=""></ref.>
	Using a milliohm tester, measure the resistance			CVT(TH58A)-157.
	between terminals of drive motor inverter power			Drive Motor Con-
	cable.			trol Module.>
	Connector & terminal			
	(HV2) U — (HV2) V:			
	(HV2) U — (HV2) W:			
	(HV2) V — (HV2) W:			
9	CHECK DRIVE MOTOR (SHORT TO	Does the resistance between	Replace the drive	Repair or replace
	GROUND).	any points show less than 2	motor assembly.	the short circuit of
	1) Leave the vehicle under temperature of	MΩ?	<ref. th="" to<=""><th>the power cable.</th></ref.>	the power cable.
	40°C (104°F) or less for 10 minutes.		CVT(TH58A)-217,	Go to step 13.
	2) Disconnect the drive motor power cable		Drive Motor	
	(HV1).		Assembly.>	
	NOTE:			
	The gasket is not reusable.			
	3) Using an insulation multimeter (250 V			
	range), measure the resistance between each			
	terminal and chassis ground.			
	Connector & terminal			
	(HV1) U — Chassis ground:			
	(HV1) V — Chassis ground:			
	(HV1) W — Chassis ground:			
10	CHECK DRIVE MOTOR (SHORT).	Is resistance between either	Replace the drive	Repair or replace
	 Leave the vehicle under temperature of 	lines less than 20 m Ω ?	motor assembly.	the short circuit of
	40°C (104°F) or less for 10 minutes.		<ref. th="" to<=""><th>the power cable.</th></ref.>	the power cable.
	2) Disconnect the drive motor power cable		CVT(TH58A)-217,	Go to step 13.
	(HV1).		Drive Motor	
	NOTE:		Assembly.>	
	The gasket is not reusable.			
	3) Using a milliohm tester, measure the resis-			
	tance between power cable terminals.			
	Connector & terminal			
	(HV1) U — (HV1) V:			
	(HV1) U — (HV1) W:			
	(HV1) V — (HV1) W:			

	Step	Check	Yes	No
11	 CHECK DRIVE MOTOR (SHORT). 1) Replace the removed/disconnected parts back to the vehicle. 2) With the 12 V battery connected, remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> CAUTION: Watch for an electrical short at each harness because the 12 V battery is connected. 3) Lift up the vehicle. 4) Start the engine, and set the shift lever to "D" range. 5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> 	Are any of the following state- ments relevant? •«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Tempera- ture» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. •Abnormal noise and changes in rotation speed occur near 600 rpm.	Go to step 12.	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>
12	 CHECK POWER CABLE (SHORT). 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. 6) Disconnect the power cable (HV2) of drive motor inverter. 7) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals. Connector & terminal (HV2) U - (HV2) V: (HV2) U - (HV2) W: (HV2) V - (HV2) W: 	Does the resistance between any points show 2 MΩ or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair or replace the short circuit of the power cable. Go to step 13 .

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
13	CHECK OF DRIVE MOTOR (DEMAGNETIZA-	«Drive Motor Inverter Input	Even if DTC is	Replace the drive
	TION).	High Voltage Sensor (Serial)»	detected, the cir-	motor assembly.
	1) Replace the removed/disconnected parts	is within the standard specified	cuit has returned to	<ref. th="" to<=""></ref.>
	back to the vehicle.	in Note when «ATF Tempera-	a normal condition	CVT(TH58A)-217,
	2) With the 12 V battery connected, remove	ture» is 20 — 60°C (68 —	at this time. Repro-	Drive Motor
	the service disconnect plug. <ref. hev-15,<="" th="" to=""><th>140°F) and «Drive Motor</th><th>duce the failure,</th><th>Assembly.></th></ref.>	140°F) and «Drive Motor	duce the failure,	Assembly.>
	Service Plug.>	Speed» is 600 — 1400 rpm.	and then perform	
	CAUTION:		the diagnosis	
	Watch for an electrical short at each har-		again.	
	ness because the 12 V battery is connected.		NOTE:	
	Lift up the vehicle.		In this case, tem-	
	4) Start the engine, and set the shift lever to		porary poor con-	
	"D" range.		tact of connector,	
	5) Using the Subaru Select Monitor, confirm		temporary open or	
	the current data of drive motor control system,		short circuit of har-	
	the values of «A/T Oil Temperature» «Drive		ness may be the	
	Motor Speed» «Drive Motor Inverter Input High		cause.	
	Voltage Sensor (Serial)». <ref. hev(diag)-<="" th="" to=""><th></th><th></th><th></th></ref.>			
	52, DRIVE MOTOR CONTROL SYSTEM,			
	OPERATION, Read Current Data.>			

NOTE:

Ground measuring points

• Electric noise filter



(A) Ground measuring points

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

• DC/DC converter



(A) Ground measuring points

• Electric oil pump inverter



(A) Ground measuring points

NOTE:

Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed». • 1000 rpm: 18 V — 37 V

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)



(B) Drive Motor Inverter Input High Voltage Sensor (Serial)

AY:DTC P0A60 DRIVE MOTOR "A" PHASE V CURRENT

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-40, DTC P0A60 DRIVE MOTOR "A" PHASE V CURRENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>





	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Is DTC P0A78 detected? (cur- rent malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase V Amperage Sensor Voltage». <ref. con-<br="" drive="" hev(diag)-52,="" motor="" to="">TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 2.5 V \pm 0.1 V with IG ON?	Go to step 3.	Perform the diag- nosis according to DTC P0BE6 and P06B1. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>

	Step	Check	Yes	No
3	CHECK HARNESS (GATE SIGNAL SHORT	Does the resistance between	Go to step 4.	Repair short cir-
	TO POWER AND SHORT IN OTHER SIGNAL	either two points show 1 M Ω or		cuit in harness
	LINES).	more?		between DMCM
	 Turn the ignition switch to OFF. 			connector and
	2) Disconnect the ground cable of the 12 volt			drive motor
	auxiliary battery, and as for the 12 volt engine			inverter, or repair
	restart battery, disconnect the ground cable			the intermediate
	from the 12V engine restart battery sensor.			connector.
	<ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.>			
	3) Remove the service disconnect plug. <ref.< th=""><th></th><th></th><th></th></ref.<>			
	to HEV-15, Service Plug.>			
	Wait for 10 minutes.			
	5) Disconnect the DMCM connector (R442,			
	R443).			
	6) Disconnect the intermediate connector			
	(R436).			
	7) Disconnect the drive motor inverter connec-			
-	tor.			
	8) Using a tester, measure the resistance			
	between terminals in DMCM connectors (R442,			
	R443) and between each terminal in inverter			
	connector.			
	Connector & terminal			
	(R442) No. 2 — (R442) No. 1 — 22:			
	(R442) No. 2 — (R443) No. 1 — 26:			
	(R442) No. 2 — (R436) No. 1 — 8:			
	(R442) No. 2 — (R432) No. 7:			
	(R442) No. 1 — $(R442)$ No. 1 — 22:			
	(R442) No. 1 — $(R443)$ No. 1 — 26:			
	(R442) NO. 1 — $(R436)$ NO. 1 — 8: (R442) No. 1 — $(R436)$ No. 7:			
	(R442) NO. 1 — $(R432)$ NO. 7: (R440) No. 15 (R440) No. 1 (R440)			
	(R442) No. 15 — $(R442)$ No. 1 — 22: (P442) No. 15 — $(P442)$ No. 1 — 26;			
	(R442) No. 15 – $(R443)$ No. 1 – 20: (R442) No. 15 – $(R426)$ No. 1 – 8:			
	(P442) No. 15 - (P430) No. 1 - 0.			
	(R442) No. 13 - (R432) No. 1.			
	(R442) No. 14 — $(R443)$ No. 1 — 26:			
	(R442) No. 14 — (R436) No. 1 — 8:			
	(R442) No. 14 — (R432) No. 7.			
	(R442) No. 13 — $(R442)$ No. 1 — 22:			
	(B442) No. 13 — (B443) No. 1 — 26:			
	(R442) No. 13 — (R436) No. 1 — 8:			
	(R442) No. 13 — (R432) No. 7:			
	(R442) No. 12 — (R442) No. 1 — 22:			
	(R442) No. 12 — (R443) No. 1 — 26:			
	(R442) No. 12 — (R436) No. 1 — 8:			
	(R442) No. 12 — (R432) No. 7:			
L	· -/····	I		

	Step	Check	Yes	No
4	CHECK DRIVE MOTOR INVERTER (INTER- NAL SHORT).	Is there continuity?	Replace the drive motor inverter.	Go to step 5.
	1) Disconnects power cable terminals (HV2,		<ref. hev-42,<="" td="" to=""><td></td></ref.>	
	HV3) of the drive motor inverter and bus bar		Inverter.>	
	(HV5).		Go to step 13.	
	NOTE:			
	Be sure to use insulating tape.			
	2) Using a lester, check for continuity between drive motor invertor terminals			
	When checking continuity always follow the			
	combinations as follows with correct polarities			
	If polarities are reversed when checking, the			
	trouble may not be accurately diagnosed.			
	Connector & terminal			
	(HV5) P (+) — (HV2) U (–):			
	(HV2) U (+) — (HV5) N (–):			
	(HV5) P (+) — (HV2) V (–):			
	(HV2) V (+) — (HV5) N (–):			
	(HV5) P (+) — (HV2) W (–):			
	(HV2) W (+) — (HV5) N (–):			
	(HV5) P (+) — (HV5) N (–):			
	(HV2) U (+) — (HV2) V (-):			
	(HV2) U (+) - (HV2) W (-):			
	$(\Pi VZ) V (+) - (\Pi VZ) W (-):$ (HV5) $P(x)$ Chassis ground ():			
	(HV5) P (+) - Chassis ground (-):			
	(HV2) II (+) — Chassis ground (-):			
	(HV2) V (+) — Chassis around (-):			
	(HV2) W (+) — Chassis ground (–):			
5	CHECK DRIVE MOTOR INVERTER (RE-	Is "O.L" indicated?	Replace the drive	Go to step 6.
	LEASED).		motor inverter.	
	Using diode voltage measuring mode on an		<ref. hev-42,<="" td="" to=""><td></td></ref.>	
	insulation multimeter, measure the voltage		Inverter.>	
	between the terminals of the drive motor		Go to step 13.	
	inverter.			
	NOTE:			
	When checking voltage values, always follow			
	the combinations as follows with correct polari-			
	ties. If polarities are reversed when checking,			
	Connector & terminal			
	(HV2) II (+) = (HV5) P (-)			
	(HV5) N (+) - (HV2) II (-)			
	(HV2) V (+) - (HV5) P (-):			
	(HV5) N (+) — (HV2) V (-):			
	(HV2) W (+) — (HV5) P (–):			
	(HV5) N (+) — (HV2) W (–):			

	Step	Check	Yes	No
6	StepCHECK HIGH VOLTAGE UNIT (SHORT).1) Remove electric noise filter, DC/DC converter, and electric oil pump inverter.2) Check continuity between each terminal of the unit.NOTE:• When checking voltage values, always follow the unit.NOTE:• When checking voltage values, always follow the combinations as follows with correct polarities. If polarities are reversed when checking, the trouble may not be accurately diagnosed.• For ground measuring points of electric noise filter, DC/DC converter, and electric oil pump inverter, refer to Notes in the margin.Connector & terminal(HV6) P (+) — (HV7) N (-):(HV6) P (+) — Electric noise filter ground (-):(HV6) P (+) — Electric noise filter ground (-):(HV6) P (+) — Electric noise filter ground (-):(HV3) P (+) — (HV10) V (-):(HV10) V (+) — (HV10) V (-):(HV10) V (+) — (HV10) V (-):	Check Is there continuity?	Yes Replace the unit that has continuity. Go to step 13.	No Go to step 7.
	ground (–): (HV10) U (+) — Electric oil pump inverter ground (–): (HV10) V (+) — Electric oil pump inverter ground (–): (HV10) W (+) — Electric oil pump inverter ground (–): (HV8) P (+) — (HV8) N (–): (HV8) P (+) — Chassis ground (–): (HV8) N (+) — Chassis ground (–):			

	Step	Check	Yes	No
7	CHECK POWER CABLE AND DRIVE MO-	Is the resistance 2 MO or	If you have a mil-	Go to step 9
-	TOR (SHORT TO GROUND).	more?	liohm tester at	
	Using an insulation multimeter (250 V range).		hand. Go to step 8.	
	measure the resistance between power cable		If a milliohm tester	
	terminal (HV2) of the drive motor inverter and		is not at hand. Go	
	the ground bolt of inverter frame body.		to step 11.	
	Connector & terminal			
	(HV2) U — Ground bolt of inverter frame			
	bodv:			
	(HV2) V — Ground bolt of inverter frame			
	body:			
	(HV2) W — Ground bolt of inverter frame			
	body:			
8	CHECK POWER CABLE AND DRIVE MO-	Is resistance between either	Go to step 10.	Replace DMCM.
-	TOR (SHORT).	lines less than 25 mQ?		<ref. th="" to<=""></ref.>
	Using a milliohm tester, measure the resistance			CVT(TH58A)-157.
	between terminals of drive motor inverter power			Drive Motor Con-
	cable.			trol Module.>
	Connector & terminal			
	(HV2) U — (HV2) V:			
	(HV2) U — (HV2) W:			
	(HV2) V — (HV2) W:			
9	CHECK DRIVE MOTOR (SHORT TO	Does the resistance between	Replace the drive	Repair or replace
	GROUND).	any points show less than 2	motor assembly.	the short circuit of
	1) Leave the vehicle under temperature of	MΩ?	<ref. th="" to<=""><th>the power cable.</th></ref.>	the power cable.
	40°C (104°F) or less for 10 minutes.		CVT(TH58A)-217,	Go to step 13.
	2) Disconnect the drive motor power cable		Drive Motor	
	(HV1).		Assembly.>	
	NOTE:			
	The gasket is not reusable.			
	3) Using an insulation multimeter (250 V			
	range), measure the resistance between each			
	terminal and chassis ground.			
	Connector & terminal			
	(HV1) U — Chassis ground:			
	(HV1) V — Chassis ground:			
	(HV1) W — Chassis ground:			
10	CHECK DRIVE MOTOR (SHORT).	Is resistance between either	Replace the drive	Repair or replace
	 Leave the vehicle under temperature of 	lines less than 20 m Ω ?	motor assembly.	the short circuit of
	40°C (104°F) or less for 10 minutes.		<ref. th="" to<=""><th>the power cable.</th></ref.>	the power cable.
	2) Disconnect the drive motor power cable		CVT(TH58A)-217,	Go to step 13.
	(HV1).		Drive Motor	
	NOTE:		Assembly.>	
	The gasket is not reusable.			
	3) Using a milliohm tester, measure the resis-			
	tance between power cable terminals.			
	Connector & terminal			
	(HV1) U — (HV1) V:			
	(HV1) U — (HV1) W:			
	(HV1) V — (HV1) W:			

	Step	Check	Yes	No
11	 CHECK DRIVE MOTOR (SHORT). 1) Replace the removed/disconnected parts back to the vehicle. 2) With the 12 V battery connected, remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> CAUTION: Watch for an electrical short at each harness because the 12 V battery is connected. 3) Lift up the vehicle. 4) Start the engine, and set the shift lever to "D" range. 5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> 	Are any of the following state- ments relevant? •«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Tempera- ture» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. •Abnormal noise and changes in rotation speed occur near 600 rpm.	Go to step 12.	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>
12	 CHECK POWER CABLE (SHORT). 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. 6) Disconnect the power cable (HV2) of drive motor inverter. 7) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals. Connector & terminal (HV2) U - (HV2) V: (HV2) U - (HV2) W: (HV2) V - (HV2) W: 	Does the resistance between any points show 2 MΩ or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair or replace the short circuit of the power cable. Go to step 13 .

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	Step	Check	Yes	No
13	CHECK OF DRIVE MOTOR (DEMAGNETIZA-	«Drive Motor Inverter Input	Even if DTC is	Replace the drive
	TION).	High Voltage Sensor (Serial)»	detected, the cir-	motor assembly.
	1) Replace the removed/disconnected parts	is within the standard specified	cuit has returned to	<ref. th="" to<=""></ref.>
	back to the vehicle.	in Note when «ATF Tempera-	a normal condition	CVT(TH58A)-217,
	2) With the 12 V battery connected, remove	ture» is 20 — 60°C (68 —	at this time. Repro-	Drive Motor
	the service disconnect plug. <ref. hev-15,<="" th="" to=""><th>140°F) and «Drive Motor</th><th>duce the failure,</th><th>Assembly.></th></ref.>	140°F) and «Drive Motor	duce the failure,	Assembly.>
	Service Plug.>	Speed» is 600 — 1400 rpm.	and then perform	
	CAUTION:		the diagnosis	
	Watch for an electrical short at each har-		again.	
	ness because the 12 V battery is connected.		NOTE:	
	Lift up the vehicle.		In this case, tem-	
	4) Start the engine, and set the shift lever to		porary poor con-	
	"D" range.		tact of connector,	
	5) Using the Subaru Select Monitor, confirm		temporary open or	
	the current data of drive motor control system,		short circuit of har-	
	the values of «A/T Oil Temperature» «Drive		ness may be the	
	Motor Speed» «Drive Motor Inverter Input High		cause.	
	Voltage Sensor (Serial)». <ref. hev(diag)-<="" th="" to=""><th></th><th></th><th></th></ref.>			
	52, DRIVE MOTOR CONTROL SYSTEM,			
	OPERATION, Read Current Data.>			

NOTE:

Ground measuring points

• Electric noise filter



(A) Ground measuring points

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

• DC/DC converter



(A) Ground measuring points

• Electric oil pump inverter



(A) Ground measuring points

NOTE:

Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed». • 1000 rpm: 18 V — 37 V

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)



(B) Drive Motor Inverter Input High Voltage Sensor (Serial)

AZ:DTC P0A63 DRIVE MOTOR "A" PHASE W CURRENT

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-41, DTC P0A63 DRIVE MOTOR "A" PHASE W CURRENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>





	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Is DTC P0A78 detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase W Amperage Sensor Voltage». <ref. con-<br="" drive="" hev(diag)-52,="" motor="" to="">TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 2.5 V ± 0.1 V with IG ON?	Go to step 3 .	Perform the diag- nosis according to DTC P0BE6 and P06B1. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>

	Step	Check	Yes	No
3	CHECK HARNESS (GATE SIGNAL SHORT	Does the resistance between	Go to step 4.	Repair short cir-
-	TO POWER AND SHORT IN OTHER SIGNAL	either two points show 1 M Ω or		cuit in harness
	LINES).	more?		between DMCM
	 Turn the ignition switch to OFF. 			connector and
	2) Disconnect the ground cable of the 12 volt			drive motor
	auxiliary battery, and as for the 12 volt engine			inverter, or repair
	restart battery, disconnect the ground cable			the intermediate
f	from the 12V engine restart battery sensor.			connector.
	<ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.>			
:	3) Remove the service disconnect plug. <ref.< th=""><th></th><th></th><th></th></ref.<>			
1	to HEV-15, Service Plug.>			
	Wait for 10 minutes.			
	5) Disconnect the DMCM connector (R442,			
	R443).			
	6) Disconnect the intermediate connector			
	(R436).			
	7) Disconnect the drive motor inverter connec-			
1	tor.			
	8) Using a tester, measure the resistance			
	between terminals in DMCM connectors (R442,			
	R443) and between each terminal in inverter			
	connector.			
	Connector & terminal			
	(R442) No. 2 — (R442) No. 1 — 22:			
	(R442) No. 2 — (R443) No. 1 — 26:			
	(R442) No. 2 — (R436) No. 1 — 8:			
	(R442) No. 2 — (R432) No. 7:			
	(R442) No. 1 — $(R442)$ No. 1 — 22:			
	(R442) No. 1 — $(R443)$ No. 1 — 26:			
	(R442) NO. 1 — $(R436)$ NO. 1 — 8: (R442) No. 1 — $(R436)$ No. 7:			
	(R442) NO. 1 — $(R432)$ NO. 7: (R440) No. 15 (R440) No. 1 (R440)			
	(R442) No. 15 — $(R442)$ No. 1 — 22: (P442) No. 15 — $(P442)$ No. 1 — 26;			
	(R442) No. 15 – $(R443)$ No. 1 – 20: (R442) No. 15 – $(R426)$ No. 1 – 8:			
	(P442) No. 15 - (P430) No. 1 - 0.			
	(R442) No. 13 - (R432) No. 1.			
	(R442) No. 14 — $(R443)$ No. 1 — 26:			
	(R442) No. 14 — (R436) No. 1 — 8:			
	(R442) No. 14 — (R432) No. 7.			
	(R442) No. 13 — $(R442)$ No. 1 — 22:			
	(B442) No. 13 — (B443) No. 1 — 26:			
	(R442) No. 13 — (R436) No. 1 — 8:			
	(R442) No. 13 — (R432) No. 7:			
	(R442) No. 12 — (R442) No. 1 — 22:			
	(R442) No. 12 — (R443) No. 1 — 26:			
	(R442) No. 12 — (R436) No. 1 — 8:			
	(R442) No. 12 — (R432) No. 7:			
L	· -/····	I		

	Step	Check	Yes	No
4	CHECK DRIVE MOTOR INVERTER (INTER-	Is there continuity?	Replace the drive	Go to step 5.
	NAL SHORT).		motor inverter.	
	1) Disconnects power cable terminals (HV2,		<ref. hev-42,<="" th="" to=""><th></th></ref.>	
	HV3) of the drive motor inverter and bus bar		Inverter.>	
	(HV5).		Go to step 13.	
	NOTE:			
	Be sure to use insulating tape.			
	2) Using a tester, check for continuity between			
	drive motor inverter terminals.			
	NOTE:			
	When checking continuity, always follow the			
	combinations as follows with correct polarities.			
	If polarities are reversed when checking, the			
	trouble may not be accurately diagnosed.			
	Connector & terminal			
	(HV5) P (+) — (HV2) U (–):			
	(HV2) U (+) — (HV5) N (–):			
	(HV5) P (+) — (HV2) V (–):			
	(HV2) V (+) — (HV5) N (-):			
	(HV5) P (+) — (HV2) W (–):			
	(HV2) W (+) - (HV5) N (-):			
	(HV5) P(+) - (HV5) N(-):			
	(HV2) U (+) - (HV2) V (-):			
	(HV2) U (+) - (HV2) W (-):			
	$(HV2) \vee (+) - (HV2) \vee (-):$			
	(HV5) P(+) - Chassis ground (-):			
	(HV3) N(+) = Chassis ground (-):			
	(HV2) U(+) = Chassis ground (-):			
	(HV2) V (+) - Chassis ground (-):			
-	(HVZ) W (+) = Chassis ground (-):		Developed the electron	0 a ta atau 0
5		Is "O.L" Indicated?	Replace the drive	Go to step b .
	LEASED).			
	insulation multimator, measure the veltage		$< \text{Rel. 10} \square \square V - 42,$	
	hotwoon the terminals of the drive motor		Go to stop 13	
	invortor			
	NUTE: When checking voltage values, always follow			
	the combinations as follows with correct polari-			
	ties If polarities are reversed when checking			
	the trouble may not be accurately diagnosed			
	Connector & terminal			
	(HV2) II (+) = (HV5) P (-)			
	(HV5) N (+) - (HV2) II (-)			
	(HV2) V (+) - (HV5) P (-):			
	(HV5) N (+) - (HV2) V (-)			
	(HV2) W (+) - (HV5) P (-);			
	(HV5) N (+) — (HV2) W (-):			
	Step	Check	Yes	No
---	--	----------------------	----------------------	---------------
6	CHECK HIGH VOLTAGE UNIT (SHORT).	Is there continuity?	Replace the unit	Go to step 7.
	1) Remove electric noise filter, DC/DC con-		that has continuity.	
	verter, and electric oil pump inverter.		Go to step 13.	
	2) Check continuity between each terminal of		-	
	the unit.			
	NOTE:			
	When checking voltage values, always follow			
	the combinations as follows with correct polari-			
	ties. If polarities are reversed when checking,			
	the trouble may not be accurately diagnosed.			
	For ground measuring points of electric noise			
	filter, DC/DC converter, and electric oil pump in-			
	verter, refer to Notes in the margin.			
	Connector & terminal			
	(HV6) P (+) — (HV7) N (–):			
	(HV6) P (+) — Electric noise filter ground (–):			
	(HV6) N (+) — Electric noise filter ground (–):			
	(HV3) P (+) — (HV3) N (–):			
	(HV3) P (+) — DC/DC converter ground (–) :			
	(HV3) N (+) — DC/DC converter ground (–):			
	(HV9) P (+) — (HV9) N (–):			
	(HV9) P (+) — (HV10) U (–):			
	(HV9) P (+) — (HV10) V (–):			
	(HV9) P (+) — (HV10) W (–):			
	(HV10) U (+) — (HV9) N (–):			
	(HV10) V (+) — (HV9) N (–):			
	(HV10) W (+) — (HV9) N (–):			
	(HV10) U (+) — (HV10) V (–):			
	(HV10) U (+) — (HV10) W (–):			
	(HV10) V (+) — (HV10) W (–):			
	(HV9) P (+) — Electric oil pump inverter			
	ground (–):			
	(HV9) N (+) — Electric oil pump inverter			
	ground (–):			
	(HV10) U (+) — Electric oil pump inverter			
	ground (–):			
	(HV10) V (+) — Electric oil pump inverter			
	ground (–) :			
	(HV10) W (+) — Electric oil pump inverter			
	ground (–):			
1	(HV8) P (+) — (HV8) N (–):			
1	(HV8) P (+) — Chassis ground (–):			
	(HV8) N (+) — Chassis ground (–):			

	Sten	Check	Ves	No
7				
ľ		ns the resistance 2 Mis2 of	li you nave a mi-	
	Licing an insulation multimator (250 V range)		hand Go to stop 9	
	measure the resistance between power cable		If a milliohm tester	
	torminal (HV/2) of the drive motor inverter and		is not at hand. Go	
	the ground helt of inverter frame hody		to stop 11	
	Connector & terminal		io siep 11.	
	(HV2) II — Ground bolt of inverter frame			
	(1172) 0 — Ground bolt of inverter name			
	(HV2) V Ground bolt of inverter frame			
	(nv2) v — Ground bon or inverter name			
	/UV/2) W Ground bolt of invertor from a			
	(HV2) W — Ground bolt of inverter frame			
	body:			
8	CHECK POWER CABLE AND DRIVE MO-	Is resistance between either	Go to step 10 .	Replace DMCM.
	IOR (SHORI).	lines less than 25 m Ω ?		<ref. th="" to<=""></ref.>
	Using a milliohm tester, measure the resistance			CVI(IH58A)-157,
	between terminals of drive motor inverter power			Drive Motor Con-
	cable.			trol Module.>
	Connector & terminal			
	(HV2) U = (HV2) V:			
	(HV2) U = (HV2) W:			
	(HV2) V — (HV2) W:			
9	CHECK DRIVE MOTOR (SHORT TO	Does the resistance between	Replace the drive	Repair or replace
	GROUND).	any points show less than 2	motor assembly.	the short circuit of
	 Leave the vehicle under temperature of 	ΜΩ?	<ref. th="" to<=""><th>the power cable.</th></ref.>	the power cable.
	40°C (104°F) or less for 10 minutes.		CVT(TH58A)-217,	Go to step 13.
	Disconnect the drive motor power cable		Drive Motor	
	(HV1).		Assembly.>	
	NOTE:			
	The gasket is not reusable.			
	Using an insulation multimeter (250 V			
	range), measure the resistance between each			
	terminal and chassis ground.			
	Connector & terminal			
	(HV1) U — Chassis ground:			
	(HV1) V — Chassis ground:			
	(HV1) W — Chassis ground:			
10	CHECK DRIVE MOTOR (SHORT).	Is resistance between either	Replace the drive	Repair or replace
	 Leave the vehicle under temperature of 	lines less than 20 m Ω ?	motor assembly.	the short circuit of
	40°C (104°F) or less for 10 minutes.		<ref. th="" to<=""><th>the power cable.</th></ref.>	the power cable.
	Disconnect the drive motor power cable		CVT(TH58A)-217,	Go to step 13.
	(HV1).		Drive Motor	
	NOTE:		Assembly.>	
	The gasket is not reusable.			
	3) Using a milliohm tester, measure the resis-			
	tance between power cable terminals.			
	Connector & terminal			
	(HV1) U — (HV1) V:			
	(HV1) U — (HV1) W:			
	(HV1) V — (HV1) W:			

	Step	Check	Yes	No
11	 CHECK DRIVE MOTOR (SHORT). 1) Replace the removed/disconnected parts back to the vehicle. 2) With the 12 V battery connected, remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> CAUTION: Watch for an electrical short at each harness because the 12 V battery is connected. 3) Lift up the vehicle. 4) Start the engine, and set the shift lever to "D" range. 5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> 	Are any of the following state- ments relevant? •«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Tempera- ture» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. •Abnormal noise and changes in rotation speed occur near 600 rpm.	Go to step 12.	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>
12	 CHECK POWER CABLE (SHORT). 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. 4) Wait for 10 minutes. 5) Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. 6) Disconnect the power cable (HV2) of drive motor inverter. 7) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals. <i>Connector & terminal</i> (HV2) U - (HV2) V: (HV2) U - (HV2) W: (HV2) V - (HV2) W: 	Does the resistance between any points show 2 MΩ or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair or replace the short circuit of the power cable. Go to step 13 .

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
13	CHECK OF DRIVE MOTOR (DEMAGNETIZA-	«Drive Motor Inverter Input	Even if DTC is	Replace the drive
	TION).	High Voltage Sensor (Serial)»	detected, the cir-	motor assembly.
	1) Replace the removed/disconnected parts	is within the standard specified	cuit has returned to	<ref. th="" to<=""></ref.>
	back to the vehicle.	in Note when «ATF Tempera-	a normal condition	CVT(TH58A)-217,
	2) With the 12 V battery connected, remove	ture» is 20 — 60°C (68 —	at this time. Repro-	Drive Motor
	the service disconnect plug. <ref. hev-15,<="" th="" to=""><th>140°F) and «Drive Motor</th><th>duce the failure,</th><th>Assembly.></th></ref.>	140°F) and «Drive Motor	duce the failure,	Assembly.>
	Service Plug.>	Speed» is 600 — 1400 rpm.	and then perform	
	CAUTION:		the diagnosis	
	Watch for an electrical short at each har-		again.	
	ness because the 12 V battery is connected.		NOTE:	
	Lift up the vehicle.		In this case, tem-	
	4) Start the engine, and set the shift lever to		porary poor con-	
	"D" range.		tact of connector,	
	5) Using the Subaru Select Monitor, confirm		temporary open or	
	the current data of drive motor control system,		short circuit of har-	
	the values of «A/T Oil Temperature» «Drive		ness may be the	
	Motor Speed» «Drive Motor Inverter Input High		cause.	
	Voltage Sensor (Serial)». <ref. hev(diag)-<="" th="" to=""><th></th><th></th><th></th></ref.>			
	52, DRIVE MOTOR CONTROL SYSTEM,			
	OPERATION, Read Current Data.>			

NOTE:

Ground measuring points

• Electric noise filter



(A) Ground measuring points

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

• DC/DC converter



(A) Ground measuring points

• Electric oil pump inverter



(A) Ground measuring points

NOTE:

Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed». • 1000 rpm: 18 V — 37 V

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)



(B) Drive Motor Inverter Input High Voltage Sensor (Serial)

BA:DTC P0A78 DRIVE MOTOR "A" INVERTER PERFORMANCE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-42, DTC P0A78 DRIVE MOTOR "A" INVERTER PERFOR-MANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>





	Step	Check	Yes	No
1	CHECK DETAIL CODE. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Detail code». <ref. hev(diag)-52,<br="" to="">DRIVE MOTOR CONTROL SYSTEM, OPERA- TION, Read Current Data.></ref.>	Is «Detail code» displayed?	If 500 is displayed, Go to step 2 . If 501, 502 are dis- played, Go to step 17 . If 503 — 508 is dis- played, Go to step 19 . NOTE: Check all the counting codes.	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Serial Check». <ref. con-<br="" drive="" hev(diag)-52,="" motor="" to="">TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Does the value show «Abnor- mal»?	Perform the diag- nosis according to DTC P1C30. <ref. to HEV(diag)-267, DTC P1C30 LOST COMMUNICA- TION WITH DRIVE MOTOR INVERTER, Diag- nostic Procedure with Diagnostic Trouble Code (DTC).></ref. 	Go to step 3.

Step	Check	Yes	No
3 CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 4 .
4 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Phase U Amperage Sensor Voltage» «Phase V Amperage Sensor Voltage». «Phase W Amperage Sensor Voltage». <ref. to<br="">HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 2.5 V±0.1 V?	Go to step 5 .	Perform the diag- nosis according to DTC P0BE6 and P06B1. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>
 5 CHECK HARNESS (GATE SIGNAL SHORT TO POWER AND SHORT IN OTHER SIGNAL LINES). Turn the ignition switch to OFF. Disconnect the DMCM connector. Disconnect the drive motor inverter connec tor. Disconnect the intermediate connector (R436). Using a tester, measure the resistance between DMCM connector and individual con- nectors. Connector & terminal (R442) No. 2 - (R442) No. 1 - 22: (R442) No. 2 - (R443) No. 1 - 26: (R442) No. 2 - (R436) No. 1 - 8: (R442) No. 2 - (R432) No. 7: (R442) No. 2 - (R432) No. 7: (R442) No. 1 - (R443) No. 1 - 26: (R442) No. 1 - (R443) No. 1 - 26: (R442) No. 1 - (R443) No. 1 - 26: (R442) No. 1 - (R432) No. 7: (R442) No. 15 - (R432) No. 7: (R442) No. 15 - (R433) No. 1 - 26: (R442) No. 15 - (R433) No. 1 - 26: (R442) No. 15 - (R433) No. 1 - 26: (R442) No. 14 - (R432) No. 7: (R442) No. 14 - (R433) No. 1 - 26: (R442) No. 14 - (R434) No. 1 - 26: (R442) No. 14 - (R432) No. 7: (R442) No. 14 - (R433) No. 1 - 26: (R442) No. 14 - (R433) No. 1 - 26: (R442) No. 13 - (R433) No. 1 - 26: (R442) No. 12 - (R433) No. 1 - 26:	Is the resistance 1 MΩ or more?	Go to step 6.	Repair short cir- cuit in harness between DMCM connector and drive motor inverter connector, or repair the inter- mediate connector.

Step	Check	Yes	No
6 CHECK DRIVE MOTOR INVERTER (SHORT)	Is there continuity?	Replace the drive	Go to step 7.
1) Disconnect the ground cable of the 12 volt		motor inverter.	
auxiliary battery and as for the 12 volt engine		<bef hev-42<="" td="" to=""><td></td></bef>	
restart battery disconnect the ground cable		Inverter >	
from the 12V engine restart battery sensor		Go to sten 15	
<pre> < Ref to NT-5_BATTERY_NOTE_Note ></pre>			
2) Bemove the service disconnect plug <bef< td=""><td></td><td></td><td></td></bef<>			
to HEV-15. Service Plug >			
3) Wait for 10 minutes			
 4) Disconnects power cable (HV2, HV3) and 			
bus bar (HV5) from the drive motor inverter			
NUTE: Require to use insulating tone			
E Sure to use insulating tape.			
5) Using a tester, check continuity between			
unve motor inverter terminals.			
NOTE:			
When checking voltage values, always follow	/		
the combinations as follows with correct polari	-		
ties. If polarities are reversed when checking	,		
the trouble may not be accurately diagnosed.			
Connector & terminal			
(HV5) P (+) — (HV2) U (–):			
(HV5) P (+) — (HV2) V (–):			
(HV5) P (+) — (HV2) W (-):			
(HV2) U (+) — (HV5) N (–):			
(HV2) V (+) — (HV2) N (–):			
(HV2) W (+) — (HV2) N (-):			
(HV5) P (+) — (HV5) N (–):			
(HV2) U (+) — (HV2) V (-):			
(HV2) U (+) — (HV2) W (–):			
(HV2) V (+) — (HV2) W (-):			
(HV5) P (+) — Chassis ground (–):			
(HV5) N (+) — Chassis ground (–):			
(HV2) U (+) — Chassis ground (–):			
(HV2) V (+) — Chassis ground (–):			
(HV2) W (+) — Chassis ground (–):			
7 CHECK DRIVE MOTOR INVERTER (RE-	Is "O.L" indicated?	Replace the drive	Go to step 8.
LEASED).		motor inverter.	
Using diode voltage measuring mode on an		<ref. hev-42,<="" td="" to=""><td></td></ref.>	
insulation multimeter, measure the voltage		Inverter.>	
between the terminals of the drive motor		Go to step 15.	
inverter.			
NOTE:			
When checking voltage values, always follow	/		
the combinations as follows with correct polari	•		
ties. If polarities are reversed when checking	,		
the trouble may not be accurately diagnosed.			
Connector & terminal			
(HV2) U (+) — (HV5) P (–):			
(HV5) N (+) — (HV2) U (–):			
(HV2) V (+) — (HV5) P (–):			
(HV5) N (+) — (HV2) V (–):			
(HV2) W (+) — (HV5) P (–):			
(HV5) N (+) — (HV2) W (–):			

	Sten	Check	Yes	No
8		le there continuity?	Replace the unit	Go to stop 9
0	1) Bemove electric poise filter DC/DC con-	is there continuity?	that has continuity	
	verter and electric fill nump inverter		Go to stop 1 /	
	2) Using a tester check for continuity between			
	terminals of each unit			
	NOTE: • When checking voltage values, always follow			
	the combinations as follows with correct polari			
	ties If polarities are reversed when checking			
	the trouble may not be accurately diagnosed			
	For ground measuring points of electric poise			
	filter. DC/DC converter, and electric oil pump in-			
	verter, refer to Notes in the margin.			
	Connector & terminal			
	(HV6) P (+) — (HV7) N (–):			
	(HV6) P (+) — Electric noise filter ground (–):			
	(HV6) N (+) — Electric noise filter ground (–):			
	(HV3) P (+) — (HV3) N (–):			
	(HV3) P (+) — DC/DC converter ground (–) :			
	(HV3) N (+) — DC/DC converter ground (–):			
	(HV9) P (+) — (HV9) N (–):			
	(HV9) P (+) — (HV10) U (–):			
	(HV9) P (+) — (HV10) V (–):			
	(HV9) P (+) — (HV10) W (-):			
	(HV10) U (+) — (HV9) N (–):			
	(HV10) V (+) (HV9) N (-):			
	(HV10) W (+) - (HV9) N (-):			
	(HV10) U (+) (HV10) V (-):			
	(HV10) V (+) = (HV10) W (-).			
	(HV9) P (+) — Electric oil numn inverter			
	around (-):			
	(HV9) N (+) — Electric oil pump inverter			
	ground (–):			
	(HV10) U (+) — Electric oil pump inverter			
	ground (–):			
	(HV10) V (+) — Electric oil pump inverter			
	ground (–) :			
	(HV10) W (+) — Electric oil pump inverter			
	ground (–):			
	(HV8) P (+) — (HV8) N (–):			
	(HV8) P(+) - Chassis ground (-):			
	(HV8) N (+) — Chassis ground (-):			
Э		IS THE RESISTANCE 2 MO OF $marce^2$	li you nave a mil-	GO TO STEP 11.
	Using an insulation multimeter (250 V range)		hand Go to stop	
	measure the resistance between nower cable		10	
	terminals and chassis ground		If a milliohm tester	
	Connector & terminal		is not at hand. Go	
	(HV2) U — Chassis ground:		to step 13 .	
	(HV2) V — Chassis ground:			
	(HV2) W — Chassis ground:			
10	CHECK POWER CABLE AND DRIVE MO-	Is either resistance value less	Go to step 12.	Go to step 16.
	TOR (SHORT).	than 25 m Ω ?		
	Using a milliohm tester, measure the resistance			
	between power cable terminals.			
	Connector & terminal			
	(HV2) U - (HV2) V:			
	(HV2) U - (HV2) W:			
1	(HV2) V — (HV2) W:		1	

	Step	Check	Yes	No
11	CHECK POWER CABLE AND DRIVE MO- TOR (SHORT TO GROUND). 1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes. 2) Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. 3) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals and chassis ground. <i>Connector & terminal</i> (HV1) U — Chassis ground: (HV1) W — Chassis ground:	Does the resistance between any points show less than 2 MΩ?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair or replace the short circuit of the power cable. Go to step 15 .
12	 CHECK POWER CABLE AND DRIVE MO- TOR (SHORT). 1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes. 2) Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. 3) Using a milliohm tester, measure the resis- tance between power cable terminals and chas- sis ground. Connector & terminal (HV1) U — Chassis ground: (HV1) V — Chassis ground: (HV1) W — Chassis ground: 	Is resistance between either lines less than 20 mΩ?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair or replace the short circuit of the power cable. Go to step 15 .
13	 CHECK DRIVE MOTOR (SHORT). 1) Replace the removed/disconnected parts back to the vehicle. 2) With the 12 V battery connected, remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> CAUTION: Watch for an electrical short at each harness because the 12 V battery is connected. 3) Lift up the vehicle. 4) Start the engine, and set the shift lever to "D" range. 5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> 	Are any of the following state- ments relevant? •«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Tempera- ture» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. •Abnormal noise and changes in rotation speed occur near 600 rpm.	Go to step 14.	Go to step 16 .

ſ	Step	Check	Yes	No
	 14 CHECK DRIVE MOTOR AND POWER CA-BLE. 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Disconnect the power cable (HV2) of drive motor inverter. 4) Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. 5) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals. Connector & terminal (HV2) U - (HV2) V: (HV2) U - (HV2) W: (HV2) V - (HV2) W: 	Does the resistance between any points show 2 MΩ or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair or replace the short circuit of the power cable. Go to step 15 .
	 15 CHECK OF DRIVE MOTOR (DEMAGNETIZA- TION). 1) Replace the removed/disconnected parts back to the vehicle. 2) With the 12 V battery connected, remove the service disconnect plug. <ref. hev-15,<br="" to="">Service Plug.></ref.> CAUTION: Watch for an electrical short at each har- ness because the 12 V battery is connected. 3) Lift up the vehicle. 4) Start the engine, and set the shift lever to "D" range. 5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <ref. hev(diag)-<br="" to="">52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.> 	«Drive Motor Inverter Input High Voltage Sensor (Serial)» is within the standard specified in Note when «ATF Tempera- ture» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>
	 16 CHECK DRIVE MOTOR INVERTER. 1) Replace the drive motor inverter. <ref. hev-42,="" inverter.="" to=""></ref.> 2) Perform drive cycle A. <ref. a,="" cycle="" cycle.="" drive="" hev(diag)-32,="" procedure,="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter.
	17 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Serial Check». <ref. con-<br="" drive="" hev(diag)-52,="" motor="" to="">TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Does the value show «Abnor- mal»?	Perform the diag- nosis according to DTC P1C30. <ref. to HEV(diag)-267, DTC P1C30 LOST COMMUNICA- TION WITH DRIVE MOTOR INVERTER, Diag- nostic Procedure with Diagnostic Trouble Code (DTC).></ref. 	Go to step 18 .

	Step	Check	Yes	No
18	 CHECK DRIVE MOTOR INVERTER. 1) Replace the drive motor inverter. <ref. hev-42,="" inverter.="" to=""></ref.> 2) Perform drive cycle A. <ref. a,="" cycle="" cycle.="" drive="" hev(diag)-32,="" procedure,="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter.
19	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 20 .
20	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Phase U Amperage Sensor Voltage» «Phase V Amperage Sensor Voltage» «Phase W Amperage Sensor Voltage». <ref. to<br="">HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 2.5 V±0.1 V?	Go to step 21.	Perform the diag- nosis according to DTC P0BE6 and P06B1. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>
21	 CHECK DRIVE MOTOR INVERTER (INTER-NAL SHORT). 1) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 2) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 3) Wait for 10 minutes. 4) Disconnect the DMCM connector. 5) Disconnect the drive motor inverter connector. 6) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body. <i>Connector & terminal</i> (R442) No. 2 — Ground bolt of inverter frame body: (R442) No. 15 — Ground bolt of inverter frame body: (R442) No. 13 — Ground bolt of inverter frame body: (R442) No. 13 — Ground bolt of inverter frame body: (R442) No. 12 — Ground bolt of inverter frame body: (R442) No. 12 — Ground bolt of inverter frame body: 	Is the resistance 1 MΩ or more?	Go to step 22.	Repair short to ground circuit in harness between DMCM connector and drive motor inverter connector, or repair the inter- mediate connector.

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	Step	Check	Yes	No
22	CHECK HARNESS (OPEN CIRCUIT). Using a tester, measure the resistance between the drive motor inverter connector and DMCM connector. <i>Connector & terminal</i> (R442) No. 2 — (R432) No. 5: (R442) No. 1 — (R432) No. 11: (R442) No. 15 — (R432) No. 4: (R442) No. 14 — (R432) No. 10: (R442) No. 13 — (R432) No. 3: (R442) No. 12 — (R432) No. 9:	Is the resistance less than 1 Ω ?	Go to step 23.	Repair open circuit in harness between DMCM connector and drive motor inverter connector, or repair the inter- mediate connector.
23	 CHECK POWER CABLE AND DRIVE MO- TOR (OPEN CIRCUIT). 1) Leave the vehicle for ten minutes under temperature of 40°C (104°F) or less. 2) Disconnect the power cable (HV2) from drive motor inverter. 3) Using a tester, measure the resistance between power cable terminals. Connector & terminal (HV2) U — (HV2) V: (HV2) U — (HV2) W: (HV2) V — (HV2) W: 	Is resistance between either lines 1 Ω or more?	Go to step 24.	Go to step 25.
24	CHECK DRIVE MOTOR (OPEN CIRCUIT). 1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes. 2) Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. 3) Using the tester, measure the resistance between drive motor terminals. <i>Connector & terminal</i> (HV1) U — (HV1) V: (HV1) U — (HV1) W: (HV1) V — (HV1) W:	Is resistance between either lines 1 Ω or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair or replace the open circuit of the power cable.
25	 CHECK DRIVE MOTOR INVERTER. 1) Replace the drive motor inverter. <ref. hev-42,="" inverter.="" to=""></ref.> 2) Perform drive cycle A. <ref. a,="" cycle="" cycle.="" drive="" hev(diag)-32,="" procedure,="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter.

NOTE: Ground measuring points

• Electric noise filter



(A) Ground measuring points

• DC/DC converter



(A) Ground measuring points

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• Electric oil pump inverter



(A) Ground measuring points

NOTE:

Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed».

- 1000 rpm: 18 V 37 V
- 1400 rpm: 25 V 52 V



(A) Drive motor speed

(C) Standard at Max.

(D) Standard at Min.

(B) Drive Motor Inverter Input High Voltage Sensor (Serial)

BB:DTC P0A82 HYBRID/EV BATTERY PACK COOLING FAN 1 PERFORMANCE/ STUCK OFF

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-43, DTC P0A82 HYBRID/EV BATTERY PACK COOLING FAN 1 PERFORMANCE/STUCK OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK HIGH VOLTAGE BATTERY COOL- ING FAN. Using the Subaru Select Monitor, perform «High Voltage Battery Cooling Fan» of System Operation Check Mode for the drive motor con- trol system. <ref. drive<br="" hev(diag)-73,="" to="">MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.></ref.>	Does the cooling fan speed change when the speed is switched across 4 steps (Stop, Steps 1 — 3)?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 2.
2	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the DMCM connector. 3) Disconnect the high voltage battery cooling fan connector. 4) Using a tester, measure the resistance between the high voltage battery cooling fan connector and the ground bolt of inverter frame body. Connector & terminal (R443) No. 21 — (R438) No. 3: (R443) No. 22 — (R438) No. 2: (R438) No. 1 — Ground bolt of inverter frame body: (R438) No. 4 — (R440) No. 11: 	Is the resistance less than 1 Ω?	Go to step 3.	Repair open circuit in harness between DMCM connector and high voltage battery cooling fan con- nector, or repair the intermediate connector.
3	CHECK HARNESS (SHORT TO POWER). Using a tester, measure the resistance between the high voltage battery cooling fan connector and other signal lines. Connector & terminal (R443) No. 21 — (R438) No. 4: (R443) No. 21 — (R443) No. 1 — 26: (R443) No. 21 — (R442) No. 1 — 22: (R443) No. 22 — (R436) No. 1 — 8: (R443) No. 22 — (R438) No. 4: (R443) No. 22 — (R443) No. 1 — 26: (R443) No. 22 — (R443) No. 1 — 26: (R443) No. 22 — (R443) No. 1 — 22: (R443) No. 22 — (R443) No. 1 — 22: (R443) No. 22 — (R443) No. 1 — 26: (R443) No. 22 — (R443) No. 1 — 22: (R443) No. 22 — (R443) No. 1 — 26: (R443) No. 22 — (R443) No. 20 = (R443) No. 1 — 26: (R443) No. 22 — (R443) No. 20 = (R443) No. 20	Is the resistance 1 MΩ or more?	Go to step 4.	Repair short cir- cuit to power in harness between DMCM connector and high voltage battery cooling fan connector, or repair the interme- diate connector.
4	 CHECK DTC. 1) Replace the high voltage battery cooling fan. <ref. battery="" cooling="" hev-60,="" high="" system.="" to="" voltage=""></ref.> 2) Perform drive cycle H. <ref. cycle="" cycle.="" drive="" h,="" hev(diag)-38,="" procedure,="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	There is an abnor- mal condition in the high voltage bat- tery cooling fan.

BC:DTC P0A83 HYBRID/EV BATTERY PACK COOLING FAN 1 STUCK ON

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

 GENERAL DESCRIPTION <Ref. to GD(HEV)-44, DTC P0A83 HYBRID/EV BATTERY PACK COOLING FAN 1 STUCK ON, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK HIGH VOLTAGE BATTERY COOL- ING FAN. Using the Subaru Select Monitor, perform «High Voltage Battery Cooling Fan» of System Operation Check Mode for the drive motor con- trol system. <ref. drive<br="" hev(diag)-73,="" to="">MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.></ref.>	Does the cooling fan speed change when the speed is switched across 4 steps (Stop, Steps 1 — 3)?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 2.
2	 CHECK HARNESS (SHORT TO GROUND). 1) Turn the ignition switch to OFF. 2) Disconnect the DMCM connector. 3) Disconnect the high voltage battery cooling fan connector. 4) Using a tester, measure the resistance between the high voltage battery cooling fan connector and the ground bolt of inverter frame body. Connector & terminal (R438) No. 2 — Ground bolt of inverter frame body: 	Is the resistance 1 MΩ or more?	Go to step 3 .	Repair short to ground circuit in harness between DMCM connector and high voltage battery cooling fan connector, or repair the interme- diate connector.
3	 CHECK DTC. 1) Replace the high voltage battery cooling fan. <ref. battery="" cooling="" hev-60,="" high="" system.="" to="" voltage=""></ref.> 2) Perform drive cycle H. <ref. cycle="" cycle.="" drive="" h,="" hev(diag)-38,="" procedure,="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	There is an abnor- mal condition in the high voltage bat- tery cooling fan.

BD:DTC P0A90 DRIVE MOTOR "A" PERFORMANCE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-45, DTC P0A90 DRIVE MOTOR "A" PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK DTC.	Are DTCs (relating to current	Perform the diag-	Go to step 2.
	Read the DTC. < Ref. to HEV(diag)-24, DRIVE	sensors, speed sensors)	nosis according to	
	MOTOR CONTROL SYSTEM, OPERATION,	detected? (current malfunction)	DTC. <ref. th="" to<=""><th></th></ref.>	
	Read Diagnostic Trouble Code (DTC).>		HEV(diag)-78,	
			DRIVE MOTOR	
			CONTROL SYS-	
			TEM, LIST, List of	
			Diagnostic Trouble	
			Code (DTC).>	

Step	Check	Yes	No
2 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Phase U Amperage Sensor Voltage» «Phase V Amperage Sensor Voltage». «Phase W Amperage Sensor Voltage». <ref. to<br="">HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 2.5 V±0.1 V?	Go to step 3.	Perform the diag- nosis according to DTC P0BE6. <ref. to HEV(diag)-235, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SEN- SOR CIRCUIT RANGE/PERFOR- MANCE, Diagnos- tic Procedure with Diagnostic Trouble Code (DTC).></ref.
 3 CHECK DRIVE MOTOR AND POWER CA- BLE (DEMAGNETIZATION, SHORT). 1) With the 12 V battery connected, remove the service disconnect plug. <ref. hev-15,<br="" to="">Service Plug.></ref.> CAUTION: Watch for an electrical short at each har- ness because the 12 V battery is connected. 2) Lift up the vehicle. 3) Start the engine, and set the shift lever to "D" range. 4) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <ref. hev(diag)-<br="" to="">52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.> 	Are any of the following state- ments relevant? •«Drive Motor Inverter Input High Voltage Sensor (Serial)» is out of the standard specified in Note when «ATF Tempera- ture» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm. •Abnormal noise and changes in rotation speed occur near 600 rpm.	If you have a mil- liohm tester at hand, Go to step 6 . If a milliohm tester is not at hand, Go to step 11 .	If you have a mil- liohm tester at hand, Go to step 4 . If a milliohm tester is not at hand, Go to step 10 .
 4 CHECK DRIVE MOTOR AND POWER CA-BLE (SHORT). Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Temperature A» «Drive Motor Temperature B» are 40°C (104°F) or less. <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> Turn the ignition switch to OFF. Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> Disconnect the power cable (HV2) of drive motor inverter. Using a milliohm tester, measure the resistance between power cable terminals. <i>Connector & terminal</i> (HV2) U — (HV2) V: (HV2) U — (HV2) W: (HV2) W:	Is either resistance value 25 mΩ or less?	Go to step 5.	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>

Stan	Chaok	Vee	No
	Спеск	Yes	NO
 CHECK DRIVE MOTOR (SHORT). Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. Using a milliohm tester, measure the resistance between power cable terminals. Connector & terminal (HV1) U - (HV1) V: (HV1) U - (HV1) W: 	Is either resistance value 20 mΩ or less?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Replace the power cable. <ref. to<br="">HEV-52, Power Cable.> Go to step 16.</ref.>
	Is the condition normal?	Go to step 7	Retighten the
 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. < Ref. to NT-5, BATTERY, NOTE, Note.> 3) Remove the service disconnect plug. < Ref. to HEV-15, Service Plug.> 4) Wait for 10 minutes. 5) Check the bus bar. 	(Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt ter- minals) etc.)		bolts. Or replace the bus bar.
7 CHECK DRIVE MOTOR AND POWER CA-	Is either resistance value out of	Go to step 8.	Go to step 9.
 I) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes. 2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Temperature B» are 40°C (104°F) or less. <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> 3) Turn the ignition switch to OFF. 4) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 5) Disconnect the power cable (HV2) of drive motor inverter. 6) Using a milliohm tester, measure the resistance between power cable terminals. <i>Connector & terminal</i> (HV2) U — (HV2) V: (HV2) U — (HV2) W: (HV2) V — (HV2) W: 			
 8 CHECK DRIVE MOTOR. Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. Using a milliohm tester, measure the resistance between power cable terminals. Connector & terminal (HV1) U - (HV1) V: (HV1) U - (HV1) W: (HV1) V - (HV1) W: 	Is either resistance value out of 20 — 70 mΩ range?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Replace the power cable. <ref. to<br="">HEV-52, Power Cable.> Go to step 16.</ref.>

	Step	Check	Yes	No
9	 CHECK DRIVE MOTOR INVERTER. 1) Replace the drive motor inverter. <ref. hev-42,="" inverter.="" to=""></ref.> 2) Replace the removed/disconnected parts back to the vehicle. 3) Perform drive cycle B. <ref. b,="" cycle="" drive="" drive<="" hev(diag)-34,="" li="" procedure,="" to=""> </ref.>	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter.
10	 CHECK POWER CABLE (SHORT). 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Disconnect the power cable (HV2) of drive motor inverter. 4) Using an insulation multimeter (250 V range), measure the resistance between power cable terminals. Connector & terminal (HV2) U — (HV2) V: (HV2) U — (HV2) W: (HV2) V — (HV2) W: 	Does the resistance between any points show 2 MΩ or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Replace the power cable. <ref. to<br="">HEV-52, Power Cable.> Go to step 16.</ref.>
11	CHECK BUS BAR. Check the bus bar.	Is the condition normal? (Check for loose bolts, insecure connection, foreign matter caught, trace of arc (burnt ter- minals) etc.)	Go to step 12.	Retighten the bolts. Or replace the bus bar.
12	 CHECK DRIVE MOTOR AND POWER CABLE. 1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes. 2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Temperature A» «Drive Motor Temperature B» are 40°C (104°F) or less. <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> 3) Turn the ignition switch to OFF. 4) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 5) Disconnect the power cable (HV2) of drive motor inverter. 6) Using an insulation multimeter, measure the resistance between power cable terminals. <i>Connector & terminal</i> (HV2) U - (HV2) V: (HV2) U - (HV2) W: (HV2) V - (HV2) W: 	Is either resistance value 0.3 Ω or more?	Go to step 13 .	Go to step 14 .

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	Step	Check	Yes	No
13	CHECK DRIVE MOTOR. 1) Disconnect the drive motor power cable (HV1). NOTE: The gasket is not reusable. 2) Using an insulation multimeter, measure the resistance between power cable terminals. Connector & terminal (HV1) U — (HV1) V: (HV1) U — (HV1) W: (HV1) V — (HV1) W:	Is either resistance value 0.3 Ω or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Replace the power cable. <ref. to<br="">HEV-52, Power Cable.></ref.>
14	 CHECK DRIVE MOTOR AND POWER CABLE. 1) Replace the drive motor assembly. <ref. assembly.="" cvt(th58a)-217,="" drive="" motor="" to=""></ref.> 2) Replace the power cable. <ref. cable.="" hev-52,="" power="" to=""></ref.> 3) Replace the removed/disconnected parts back to the vehicle. 4) Perform drive cycle B. <ref. b,="" cycle="" cycle.="" drive="" hev(diag)-34,="" procedure,="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Go to step 15.	Problem is present in drive motor assembly or power cable.
15	 CHECK DRIVE MOTOR INVERTER. 1) Replace the drive motor inverter. <ref. hev-42,="" inverter.="" to=""></ref.> 2) Perform drive cycle B. <ref. b,="" cycle="" cycle.="" drive="" hev(diag)-34,="" procedure,="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter.
16	 CHECK OF DRIVE MOTOR (DEMAGNETIZATION). 1) Replace the removed/disconnected parts back to the vehicle. 2) With the 12 V battery connected, remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> CAUTION: Watch for an electrical short at each harness because the 12 V battery is connected. 3) Lift up the vehicle. 4) Start the engine, and set the shift lever to "D" range. 5) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> 	«Drive Motor Inverter Input High Voltage Sensor (Serial)» is within the standard specified in Note when «ATF Tempera- ture» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>

NOTE:

Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed».

• 1000 rpm: 18 V — 37 V

Diagnostic Procedure with Diagnostic Trouble Code (DTC) HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)



(B) Drive Motor Inverter Input High Voltage Sensor (Serial)

BE:DTC P0A94 DC/DC CONVERTER PERFORMANCE

DIAGNOSIS:

• Detects abnormal conditions in DC/DC converter.

• If the DC/DC converter detects serial communication errors with the drive motor control module, or internal errors are detected in the DC/DC converter, it is judged as NG.

• Immediately at fault recognition

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK DETAIL CODE. Using the Subaru Select Monitor, confirm «Detail code» in the freeze frame data of the drive motor control system. <ref. hev(diag)-<br="" to="">65, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Is «Detail code» displayed?	If 0800 is dis- played, Go to step 3 . If 0801 — 0806 is displayed, replace the DC/DC con- verter. <ref. to<br="">HEV-38, DC/DC Converter.></ref.>	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>

	Step	Check	Yes	No
3	 CHECK HARNESS (SHORT TO GROUND). 1) Disconnect the DC/DC converter connector. 2) Disconnect the DMCM connector. 3) Using a tester, measure the resistance between DC/DC converter connector and the ground bolt of inverter frame body. Connector & terminal (R433) No. 2 — Ground bolt of inverter frame body: 	Is the resistance 1 MΩ or more?	Go to step 4.	Repair short to ground circuit in harness between DC/DC converter connector and DMCM connector, or repair the inter- mediate connector.
4	CHECK HARNESS (OPEN CIRCUIT). Using a tester, measure the resistance between DC/DC converter connector and DMCM con- nector. Connector & terminal (R433) No. 2 — (R443) No. 19:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair open circuit in harness between DC/DC converter connec- tor and DMCM connector, or repair the interme- diate connector.
5	CHECK HARNESS (SHORT TO OTHER SIG- NAL). Using the tester, measure the resistance in the DMCM connector. <i>Connector & terminal</i> (R443) No. 19 — (R442) No. 1 — 22: (R443) No. 19 — (R443) No. 1 — 26: (R443) No. 19 — (R436) No. 1 — 8: (R443) No. 19 — (R432) No. 7: (R443) No. 19 — DC/DC converter 12 V output line:	Is the resistance 1 MΩ or more?	Go to step 6 .	Repair short cir- cuit in harness between DC/DC converter connec- tor and DMCM connector, or repair the interme- diate connector.
6	CHECK DTC. 1) Replace the DC/DC converter. <ref. to<br="">HEV-38, DC/DC Converter.> 2) Perform the Inspection Mode. <ref. to<br="">HEV(diag)-27, Inspection Mode.></ref.></ref.>	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in DC/DC con- verter.

BF:DTC P0AED DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIR-CUIT

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-46, DTC P0AED DRIVE MOTOR INVERTER TEMPERA-TURE SENSOR "A" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

BG:DTC POAEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIR-CUIT RANGE/PERFORMANCE

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-47, DTC P0AEE DRIVE MOTOR INVERTER TEMPERA-TURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Turn the ignition switch to OFF and leave the vehicle 10 minutes unattended. 2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Operation Update Counter». <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> 	Has the value changed (when the ignition is turned to ON)?	Go to step 2.	Perform the diag- nosis according to DTC P0C0C and P1C30. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C». <ref. to<br="">HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is either value at 204°C (399°F)?	Replace the drive motor inverter. <ref. hev-42,<br="" to="">Inverter.></ref.>	Go to step 3.
3	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C». <ref. to<br="">HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the difference between each temperature 30°C (54°F) or less?	Go to step 4.	Replace the drive motor inverter. <ref. hev-42,<br="" to="">Inverter.></ref.>
4	 CHECK CURRENT DATA. 1) With the Subaru Select Monitor connected, drive the vehicle for 10 minutes or more. 2) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «Drive Motor Inverter Temperature A» «Drive Motor Inverter Temperature B» «Drive Motor Inverter Temperature C». <ref. control="" current="" data.="" drive="" hev(diag)-52,="" motor="" operation,="" read="" system,="" to=""></ref.> 	Have any of those values changed 10°C (18°F) or more from the temperature before driving the vehicle?	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Replace the drive motor inverter. <ref. hev-42,<br="" to="">Inverter.></ref.>

BH:DTC P0AF2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIR-CUIT

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-49, DTC P0AF2 DRIVE MOTOR INVERTER TEMPERA-TURE SENSOR "B" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

Step	Check	Yes	No
1 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Temperature B». <ref. con-<br="" drive="" hev(diag)-52,="" motor="" to="">TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 204°C (399°F)?	Replace the drive motor inverter. <ref. hev-42,<br="" to="">Inverter.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

BI: DTC P0AF3 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "B" CIR-CUIT RANGE/PERFORMANCE

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-50, DTC P0AF3 DRIVE MOTOR INVERTER TEMPERA-TURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE". < Ref. to HEV(diag)-232, DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BJ:DTC P0BD1 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIR-CUIT

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-52, DTC P0BD1 DRIVE MOTOR INVERTER TEMPERA-TURE SENSOR "C" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

Step	Check	Yes	No
1 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Inverter Temperature C». <ref. con-<br="" drive="" hev(diag)-52,="" motor="" to="">TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 204°C (399°F)?	Replace the drive motor inverter. <ref. hev-42,<br="" to="">Inverter.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

BK:DTC P0BD2 DRIVE MOTOR INVERTER TEMPERATURE SENSOR "C" CIR-CUIT RANGE/PERFORMANCE

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-53, DTC P0BD2 DRIVE MOTOR INVERTER TEMPERA-TURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE". < Ref. to HEV(diag)-232, DTC P0AEE DRIVE MOTOR INVERTER TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BL:DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT BANGE/PERFORMANCE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-55, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT •
- SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> **TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates. ٠

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". < Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase U Amperage Sensor Voltage». <ref. con-<br="" drive="" hev(diag)-52,="" motor="" to="">TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 2.5 V±0.1 V?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 2.
2	 CHECK HARNESS (SHORT TO GROUND). 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Disconnect the drive motor inverter amperage sensor connector. 7) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body. Connector & terminal (R443) No. 7 — Ground bolt of inverter frame body: (R443) No. 5 — Ground bolt of inverter frame body: (R443) No. 3 — Ground bolt of inverter frame body: 	Is the resistance 1 MΩ or more?	Go to step 3 .	Repair short to ground circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the inter- mediate connector.
3	CHECK HARNESS (OPEN CIRCUIT). Using a tester, measure the resistance between DMCM connector and the drive motor inverter amperage sensor connector. Connector & terminal: (R443) No. 7 — (R434) No. 8: (R443) No. 5 — (R434) No. 7: (R443) No. 3 — (R434) No. 6:	Is the resistance less than 1 $\Omega?$	Go to step 4.	Repair open circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the inter- mediate connector.

Step	Check	Yes	No
 CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES). Disconnect the drive motor inverter connector. Disconnect the intermediate connector (R436). Using a tester, measure the resistance within the DMCM connector and between the DMCM connector and the drive motor inverter connector. Connector & terminal:	Is the resistance 1 MΩ or more?	Go to step 5.	Repair short cir- cuit to power in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the inter- mediate connector.
 5 CHECK DRIVE MOTOR INVERTER AMPER- AGE SENSOR. 1) Replace the drive motor inverter amperage sensor. <ref. drive="" hev-27,="" inverter<br="" motor="" to="">Current Sensor.></ref.> 2) Perform the Inspection Mode. <ref. to<br="">HEV(diag)-27, Inspection Mode.></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter amperage sensor.
BM:DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

GENERAL DESCRIPTION < Ref. to GD(HEV)-56, DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM



Step	Check	Yes	No
1 CHECK CURRENT DATA.	Is the value 0.5 V or less?	Go to step 2.	Even if DTC is
Using the Subaru Select Monitor, confirm the		•	detected, the cir-
current data of drive motor control system, the			cuit has returned to
value of «Phase U Amperage Sensor Voltage».			a normal condition
<ref. con-<="" drive="" hev(diag)-52,="" motor="" td="" to=""><td></td><td></td><td>at this time. Repro-</td></ref.>			at this time. Repro-
TROL SYSTEM, OPERATION, Read Current			duce the failure,
Data.>			and then perform
			the diagnosis
			again.
			NOTE:
			In this case, tem-
			porary poor con-
			tact of connector,
			temporary open or
			short circuit of har-
			ness may be the
			cause.
2 CHECK HARNESS (SHORT TO GROUND).	Is the resistance 1 M Ω or	Go to step 3.	Repair short to
1) Turn the ignition switch to OFF.	more?		ground circuit in
2) Disconnect the ground cable of the 12 volt			harness between
auxiliary battery, and as for the 12 volt engine			DMCM connector
restart battery, disconnect the ground cable			and drive motor
from the 12V engine restart battery sensor.			inverter amperage
<ref. battery,="" n1-5,="" note,="" note.="" to=""></ref.>			sensor connector,
5) Remove the service disconnect plug. <rei.< td=""><td></td><td></td><td>or repair the inter-</td></rei.<>			or repair the inter-
() Wait for 10 minutes			mediate connector.
5) Disconnect the DMCM connector			
6) Disconnect the drive motor inverter amper-			
age sensor connector.			
7) Using a tester, measure the resistance			
between DMCM connector and the ground bolt			
of inverter frame body.			
Connector & terminal			
(R443) No. 7 — Ground bolt of inverter			
frame body:			
(R443) No. 5 — Ground bolt of inverter			
frame body:			
(R443) No. 3 — Ground bolt of inverter			
frame body:			
(R443) No. 8 — Ground bolt of inverter			
Trame body:			
(R443) NO. 6 — Ground bolt of Inverter			
		0 - + + 4	Densis en en sine it
Using a tester massure the resistance between	is the resistance less than 1 Ω ?	GO 10 SIEP 4.	nepair open circuit
DMCM connector and the drive motor inverter			hetween DMCM
amperade sensor connector			connector and
Connector & terminal			drive motor
(B443) No. 7 — (B434) No. 8:			inverter amperage
(B443) No. 5 — (B434) No. 7:			sensor connector
(R443) No. 3 — (R434) No. 6:			or repair the inter-
(R443) No. 8 — (R434) No. 2:			mediate connector.
(R443) No. 6 — (R434) No. 3:			

Step	Check	Yes	No
 CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES). Disconnect the drive motor inverter connector. Disconnect the intermediate connector (R436). Using a tester, measure the resistance within the DMCM connector and between the DMCM connector and the drive motor inverter connector. Connector & terminal:	Is the resistance 1 MΩ or more?	Go to step 5.	Repair short cir- cuit to power in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the inter- mediate connector.
 5 CHECK DRIVE MOTOR INVERTER AMPER- AGE SENSOR. 1) Replace the drive motor inverter amperage sensor. <ref. drive="" hev-27,="" inverter<br="" motor="" to="">Current Sensor.></ref.> 2) Perform the Inspection Mode. <ref. to<br="">HEV(diag)-27, Inspection Mode.></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter amperage sensor.

BN:DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-57, DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM



Step	Check	Yes	No
1 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Phase U Amperage Sensor Voltage». <ref. con-<br="" drive="" hev(diag)-52,="" motor="" to="">TROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 4.5 V or more?	Go to step 2 .	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.
 2 CHECK HARNESS (SHORT TO GROUND). Turn the ignition switch to OFF. Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> Wait for 10 minutes. Disconnect the drive motor inverter amperage sensor connector. Disconnect the drive motor inverter amperage sensor connector. Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body. Connector & terminal (R443) No. 18 – (R434) No. 1: (R443) No. 17 – (R434) No. 4: 	Is the resistance less than 1 Ω?	Go to step 3 .	Repair short to ground circuit in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the inter- mediate connector.
 CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES). Disconnect the drive motor inverter connector. Disconnect the intermediate connector (R436). Using a tester, measure the resistance within the DMCM connector and between the DMCM connector and the drive motor inverter connector. Connector & terminal: (R443) No. 7 - (R442) No. 1 - 22: (R443) No. 7 - (R436) No. 1 - 8: (R443) No. 7 - (R432) No. 7: (R443) No. 5 - (R442) No. 1 - 26: (R443) No. 5 - (R443) No. 1 - 26: (R443) No. 5 - (R436) No. 1 - 8: (R443) No. 5 - (R432) No. 7: (R443) No. 5 - (R432) No. 1 - 26: (R443) No. 5 - (R432) No. 7: (R443) No. 3 - (R436) No. 1 - 26: (R443) No. 3 - (R443) No. 1 - 26: (R443) No. 3 - (R443) No. 1 - 26: (R443) No. 3 - (R443) No. 1 - 26: (R443) No. 3 - (R443) No. 1 - 26: (R443) No. 3 - (R443) No. 1 - 26: (R443) No. 3 - (R443) No. 1 - 26: (R443) No. 3 - (R436) No. 1 - 8: (R443) No. 3 - (R432) No. 7: 	Is the resistance 1 MΩ or more?	Go to step 4 .	Repair short cir- cuit to power in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the inter- mediate connector.

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

Step	Check	Yes	No
 CHECK DRIVE MOTOR INVERTER AMPER- AGE SENSOR. 1) Replace the drive motor inverter amperage sensor. <ref. drive="" hev-27,="" inverter<br="" motor="" to="">Current Sensor.></ref.> 2) Perform the Inspection Mode. <ref. to<br="">HEV(diag)-27, Inspection Mode.></ref.> 	Is the same DTC detected?	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter amperage sensor.

BO:DTC POBEA DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE

DIAGNOSIS:

· Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-58, DTC P0BEA DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

Refer to DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFOR-MANCE. <Ref. to HEV(diag)-235, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIR-CUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BP:DTC P0BEB DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-59, DTC P0BEB DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

Refer to DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW. <Ref. to HEV(diag)-238, DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BQ:DTC POBEC DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

GENERAL DESCRIPTION <Ref. to GD(HEV)-60, DTC P0BEC DRIVE MOTOR "A" PHASE V CURRENT SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

Refer to DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH. <Ref. to HEV(diag)-241, DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BR:DTC P0BEE DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-61, DTC P0BEE DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

Refer to DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT RANGE/PERFOR-MANCE. <Ref. to HEV(diag)-235, DTC P0BE6 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIR-CUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BS:DTC P0BEF DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-62, DTC P0BEF DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

Refer to DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW. <Ref. to HEV(diag)-238, DTC P0BE7 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BT:DTC P0BF0 DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-63, DTC P0BF0 DRIVE MOTOR "A" PHASE W CURRENT SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

Refer to DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH. <Ref. to HEV(diag)-241, DTC P0BE8 DRIVE MOTOR "A" PHASE U CURRENT SENSOR CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BU:DTC P0BFD DRIVE MOTOR "A" PHASE U-V-W CURRENT SENSOR CORRE-LATION

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-64, DTC P0BFD DRIVE MOTOR "A" PHASE U-V-W CUR-RENT SENSOR CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the sum of those three values	Go to step 2.	Even if DTC is
	Using the Subaru Select Monitor, confirm the	45 A or more?		detected, the cir-
	current data of drive motor control system, the			cuit has returned to
	values of «Phase U Amperage» «Phase V			a normal condition
	Amperage» «Phase W Amperage». <ref. td="" to<=""><td></td><td></td><td>at this time. Repro-</td></ref.>			at this time. Repro-
	HEV(diag)-52, DRIVE MOTOR CONTROL			duce the failure,
	SYSTEM, OPERATION, Read Current Data.>			and then perform
				the diagnosis
				again.
				NOTE:
				In this case, tem-
				porary poor con-
				tact of connector,
				temporary open or
				short circuit of har-
				ness may be the
				cause.
2	CHECK HARNESS (OPEN CIRCUIT).	Is the resistance less than 1 Ω ?	Go to step 3.	Repair open circuit
	1) Turn the ignition switch to OFF.			in harness
	2) Disconnect the ground cable of the 12 volt			between DMCM
	auxiliary battery, and as for the 12 volt engine			connector and
	restart battery, disconnect the ground cable			drive motor
	Trom the 12V engine restart battery sensor.			Inverter amperage
	<rei. battery,="" note,="" note.="" nt-5,="" to=""></rei.>			sensor connector,
	5) Remove the service disconnect plug. < Ref.			or repair the inter-
	(0) E v = 10, Service Flug.>			
	5) Disconnect the DMCM connector			
	6) Disconnect the drive motor inverter amper-			
	age sensor connector			
	7) Using a tester, measure the resistance			
	between DMCM connector and the current sen-			
	sor connector. Connector & terminal			
	Connector & terminal:			
	(R443) No. 7 — (R434) No. 8:			
	(R443) No. 5 — (R434) No. 7:			
	(R443) No. 3 — (R434) No. 6:			
3	CHECK HARNESS (SHORT TO GROUND).	Is the resistance 1 $M\Omega$ or	Go to step 4.	Repair short to
	Using a tester, measure the resistance between	more?		ground circuit in
	DMCM connector and the ground bolt of			harness between
	inverter frame body.			DMCM connector
	Connector & terminal:			and drive motor
	(R443) No. 7 — Ground bolt of inverter			inverter amperage
	frame body:			sensor connector,
	(R443) No. 5 — Ground bolt of inverter			or repair the inter-
	trame body:			mediate connector.
	(H443) No. 3 — Ground bolt of inverter			
	frame body:			

	Step	Check	Yes	No
4	CHECK HARNESS (BATTERY SHORT AND SHORT IN OTHER SIGNAL LINES). 1) Disconnect the drive motor inverter connec- tor. 2) Disconnect the intermediate connector (R436). 3) Using a tester, measure the resistance between the DMCM connector, each signal pin of DMCM, and the inverter connector. <i>Connector & terminal:</i> (R443) No. 7 – (R442) No. 1 – 22: (R443) No. 7 – (R443) No. 1 – 26: (R443) No. 7 – (R436) No. 1 – 8: (R443) No. 5 – (R443) No. 1 – 26: (R443) No. 5 – (R443) No. 1 – 26: (R443) No. 5 – (R436) No. 1 – 8: (R443) No. 5 – (R436) No. 1 – 8: (R443) No. 5 – (R432) No. 7: (R443) No. 5 – (R436) No. 1 – 22: (R443) No. 5 – (R436) No. 1 – 26: (R443) No. 5 – (R443) No. 1 – 26: (R443) No. 3 – (R436) No. 1 – 8: (R443) No. 3 – (R436) No. 7 – 8: (R443) No. 3 – (R432) No. 7:	Is the resistance 1 MΩ or more?	Go to step 5.	Repair short cir- cuit to power in harness between DMCM connector and drive motor inverter amperage sensor connector, or repair the inter- mediate connector.
5	 CHECK DRIVE MOTOR INVERTER AMPER- AGE SENSOR. 1) Replace the drive motor inverter amperage sensor. <ref. drive="" hev-27,="" inverter<br="" motor="" to="">Current Sensor.></ref.> 2) Perform the Inspection Mode. <ref. to<br="">HEV(diag)-27, Inspection Mode.></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter amperage sensor.

BV:DTC P0C05 DRIVE MOTOR "A" PHASE U-V-W CIRCUIT/OPEN

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-65, DTC P0C05 DRIVE MOTOR "A" PHASE U-V-W CIR-CUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM





Step	Check	Yes	No
1 CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
 2 CHECK HARNESS (OPEN CIRCUIT IN IN- VERTER CONTROL GND). 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. to HEV-15, Service Plug.></ref. 4) Wait for 10 minutes. 5) Disconnect the drive motor inverter connec- tor. 7) Using a tester, measure the resistance between the drive motor inverter connector and the ground bolt of inverter frame body. <i>Connector & terminal:</i> (R432) No. 12 — Ground bolt of inverter frame body: 	Is the resistance less than 1 Ω?	Go to step 3.	Repair open circuit in harness between drive motor inverter con- nector and chassis ground, or repair the intermediate connector.

Step	Check	Yes	No
3 CHECK HARNESS (OPEN CIRCUIT). Using a tester, measure the resistance between the drive motor inverter connector and DMCM connector. Connector & terminal: (R442) No. 2 — (R432) No. 5: (R442) No. 1 — (R432) No. 11: (R442) No. 15 — (R432) No. 4: (R442) No. 15 — (R432) No. 10: (R442) No. 13 — (R432) No. 3: (R442) No. 12 — (R432) No. 9:	Is the resistance less than 1 $\Omega?$	Go to step 4 .	Repair open circuit in harness between drive motor inverter con- nector and DMCM connector, or repair the interme- diate connector.
 CHECK HARNESS (SHORT TO GROUND). Measure the resistance between drive motor inverter connector and chassis ground. Connector & terminal: (R432) No. 5 — Ground bolt of inverter frame body: (R432) No. 11 — Ground bolt of inverter frame body: (R432) No. 4 — Ground bolt of inverter frame body: (R432) No. 10 — Ground bolt of inverter frame body: (R432) No. 3 — Ground bolt of inverter frame body: (R432) No. 9 — Ground bolt of inverter frame body: (R432) No. 9 — Ground bolt of inverter frame body: 	Is the resistance 1 MΩ or more?	Go to step 5.	Repair or replace the circuit in har- ness and the inter- mediate connector.
 5 CHECK DRIVE MOTOR AND POWER CA-BLE (OPEN CIRCUIT). 1) Leave the vehicle under temperature of 40°C (104°F) or less for 10 minutes. 2) Disconnect the power cable (HV2) of drive motor inverter. 3) Measure the resistance between each terminal of the power cable. (HV2) U — (HV2) V: (HV2) W — (HV2) U: (HV2) V — (HV2) W: 	Is resistance between either lines 1 Ω or more?	Go to step 6 .	Go to step 7.
 6 CHECK DRIVE MOTOR (OPEN CIRCUIT). Disconnect the drive motor power cable (HV1). NOTE: Supply the gasket because it must be replaced. Measure the resistance between each terminal of the power cable. Connector & terminal: (HV1) U — (HV1) V: (HV1) W — (HV1) U: (HV1) V — (HV1) W: 	Is resistance between either lines 1 Ω or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Replace the power cable. <ref. to<br="">HEV-52, Power Cable.></ref.>
 7 CHECK DRIVE MOTOR INVERTER. 1) Replace the drive motor inverter. <ref. hev-42,="" inverter.="" to=""></ref.> 2) Perform drive cycle A. <ref. a,="" cycle="" cycle.="" drive="" hev(diag)-32,="" procedure,="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter.

BW:DTC P0C0C DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-66, DTC P0C0C DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM



	Step	Check	Yes	No
1	CHECK RELAY. Using the Subaru Select Monitor, perform «Drive Motor Inverter power supply relay» of System Operation Check Mode for the drive motor control system. <ref. hev(diag)-73,<br="" to="">DRIVE MOTOR CONTROL SYSTEM, OPERA- TION, System Operation Check Mode.></ref.>	Does the relay operate?	Go to step 2.	Go to step 3 .

	Step	Check	Yes	No
2	CHECK CURRENT DATA.	Does the value change?	Even if DTC is	Perform the diag-
	Using the Subaru Select Monitor, confirm the		detected, the cir-	nosis according to
	current data of drive motor control system, the		cuit has returned to	DTC P1C30, <ref.< th=""></ref.<>
	value of «Drive Motor Inverter Operation		a normal condition	to HEV(diag)-267,
	Update Counter». <ref. hev(diag)-52,<="" th="" to=""><th></th><th>at this time. Repro-</th><th>DTC P1C30 LOST</th></ref.>		at this time. Repro-	DTC P1C30 LOST
	DRIVE MOTOR CONTROL SYSTEM, OPERA-		duce the failure,	COMMUNICA-
	TION, Read Current Data.>		and then perform	TION WITH
			the diagnosis	DRIVE MOTOR
			again.	INVERTER, Diag-
			NOTE:	nostic Procedure
			In this case, tem-	with Diagnostic
			porary poor con-	Trouble Code
			tact of connector,	(DTC).>
			temporary open or	
			short circuit of har-	
			ness may be the	
			cause.	
3	CHECK RELAY.	Is the condition normal? (Check	Go to step 4.	Replace the relay.
	Check the inverter power supply relay as a sin-	for continuity between termi-		
	gle unit. <ref. and="" fuse.="" hev-12,="" relay="" to=""></ref.>	nals, damage, etc.)		
4	CHECK HARNESS (OPEN CIRCUIT).	Is the resistance less than 1 Ω ?	Go to step 5.	Repair open circuit
	1) Turn the ignition switch to OFF.			in harness
	2) Disconnect the ground cable of the 12 volt			between DMCM
	auxiliary battery, and as for the 12 volt engine			connector and
	restart battery, disconnect the ground cable			inverter power sup-
	from the 12V engine restart battery sensor.			ply relay connec-
	<ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.>			tor, or repair the
	3) Remove the service disconnect plug. <ref.< th=""><th></th><th></th><th>intermediate con-</th></ref.<>			intermediate con-
	to HEV-15, Service Plug.>			nector.
	4) Wait for 10 minutes.			
	5) Disconnect the DMCM connector.			
	6) Remove the inverter power supply relay.			
	7) Using a tester, measure the resistance			
	between the inverter power supply relay and			
	DMCM connector.			
	(B440) No. 10 (B442) No. 24			
	(R440) No. 10 — (R443) No. 24. (R440) No. 8 (R443) No. 12:			
	(R440) No. 8 — $(R443)$ No. 26:			
5		Is the resistance 1 MO or	Benlace DMCM	Benair short cir-
5	1) Using a tester measure the resistance	more?	-Ref to	cuit to ground in
	between the inverter power supply relay and the	inore:	$CVT(TH58\Delta)-157$	harness hetween
	ground bolt of inverter frame body		Drive Motor Con-	DMCM connector
	Connector & terminal		trol Module >	and inverter power
	(R440) No. 10 — Ground holt of inverter			supply relay con-
	frame body:			nector or between
	(R440) No. 8 — Ground bolt of inverter			inverter power sup-
	frame body:			ply relay and
				inverter connector.
				or repair the inter-
				mediate connector.

BX:DTC P0C0D DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-67, DTC P0C0D DRIVE MOTOR "A" INVERTER POWER SUPPLY CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM



Step	Check	Yes	No
1 CHECK CURRENT DATA.	Does «Drive Motor Inverter	Even if DTC is	Go to step 2.
1) Using the Subaru Select Monitor, perform	Operation Update Counter»	detected, the cir-	
«Drive Motor Inverter power supply relay» of	stop when «Drive Motor	cuit has returned to	
System Operation Check Mode for the drive	Inverter power supply relay» is	a normal condition	
motor control system. <ref. hev(diag)-73,<="" th="" to=""><th>OFF?</th><th>at this time. Repro-</th><th></th></ref.>	OFF?	at this time. Repro-	
DRIVE MOTOR CONTROL SYSTEM, OPERA-		duce the failure,	
TION, System Operation Check Mode.>		and then perform	
Confirm the current data of in System Oper-		the diagnosis	
ation Check Mode, the value of «Drive Motor		again.	
Inverter Operation Update Counter».		NOTE:	
		In this case, tem-	
		porary poor con-	
		tact of connector,	
		temporary open or	
		short circuit of har-	
		ness may be the	
		cause.	

	Step	Check	Yes	No
2	CHECK RELAY. Check the inverter power supply relay as a sin- gle unit. <ref. and="" fuse.="" hev-12,="" relay="" to=""></ref.>	Is the condition normal? (Check for continuity between termi- nals, damage, etc.)	Go to step 3.	Replace the relay.
3	 CHECK HARNESS (SHORT TO GROUND). 1) Disconnect the DMCM connector. 2) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body. Connector & terminal (R443) No. 24 — Ground bolt of inverter frame body: 	Is the resistance 1 MΩ or more?	Go to step 4.	Repair short cir- cuit to ground in harness between DMCM connector and inverter power supply relay con- nector, or repair the intermediate connector.
4	 CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES). 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Disconnect the drive motor inverter connector. 6) Disconnect the intermediate connector (R436). 7) Remove the inverter power supply relay. 8) Using a tester, measure the resistance between inverter power supply relay connector and all DMCM signal pins. Connector & terminal (R440) No. 12 - (R442) No. 1 - 22: (R440) No. 12 - (R443) No. 1 - 26: (R440) No. 10 - (R443) No. 1 - 26 (except No. 3): (R440) No. 10 - (R443) No. 1 - 26 (except No. 24): (R440) No. 10 - (R436) No. 1 - 8: (R440) No. 10 - (R432) No. 7: 	Is the resistance 1 MΩ or more?	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Repair short cir- cuit in harness between the inverter power sup- ply relay and DMCM, harness between inverter power supply relay and drive motor inverter, or repair the intermediate connector.

BY:DTC P0C79 DRIVE MOTOR "A" INVERTER VOLTAGE TOO HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-70, DTC P0C79 DRIVE MOTOR "A" INVERTER VOLTAGE TOO HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

	Step	Check	Yes	No
1	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «Contactor Signal(HPCM)» in the freeze frame data of the drive motor control sys- tem. <ref. drive="" hev(diag)-65,="" motor<br="" to="">CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Is either «OFF» or «Abnormal OFF» displayed?	Go to step 2.	Go to step 3.
2	 CHECK DTC. Read DTCs of the following system. Hybrid powertrain control system <ref. to<br="">HEV(diag)-24, HYBRID POWERTRAIN CON- TROL SYSTEM, OPERATION, Read Diagnos- tic Trouble Code (DTC).></ref.> Battery energy control system <ref. to<br="">HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trou- ble Code (DTC).></ref.> Drive motor control system <ref. to<br="">HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trou- ble Code (DTC).></ref.> Drive motor control system <ref. to<br="">HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trou- ble Code (DTC).></ref.> Engine <ref. en(h4do="" hev)(diag)-51,<br="" to="">Read Diagnostic Trouble Code (DTC).></ref.> Transmission <ref. cvt(hev)(diag)-19,<br="" to="">Read Diagnostic Trouble Code (DTC).></ref.> 	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-74, LIST, List of Diag- nostic Trouble Code (DTC).></ref.>	Go to step 3 .
3	 CHECK BUS BAR. 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Check the bus bar. 	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, trace of arc (burnt terminals) etc.)	Go to step 4.	Retighten the bolts. Or replace the bus bar.
4	 CHECK DRIVE MOTOR INVERTER. 1) Replace the drive motor inverter. <ref. hev-42,="" inverter.="" to=""></ref.> 2) Perform the Inspection Mode. <ref. hev(diag)-27,="" inspection="" mode.="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter.

BZ:DTC P0DA8 HYBRID/EV BATTERY VOLTAGE/DRIVE MOTOR "A" INVERT-ER VOLTAGE CORRELATION

DIAGNOSIS:

• Immediately at fault recognition

GENERAL DESCRIPTION < Ref. to GD(HEV)-73, DTC P0DA8 HYBRID/EV BATTERY VOLTAGE/DRIVE

MOTOR "A" INVERTER VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.> **TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	 CHECK DRIVE MOTOR INVERTER. 1) With the 12 V battery connected, remove the service disconnect plug. <ref. hev-15,<br="" to="">Service Plug.></ref.> CAUTION: Watch for an electrical short at each har- ness because the 12 V battery is connected. 2) Lift up the vehicle. 3) Start the engine, and set the shift lever to "D" range. 4) Using the Subaru Select Monitor, confirm the current data of drive motor control system, the values of «A/T Oil Temperature» «Drive Motor Speed» «Drive Motor Inverter Input High Voltage Sensor (Serial)». <ref. hev(diag)-<br="" to="">52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.> 	«Drive Motor Inverter Input High Voltage Sensor (Serial)» is within the standard specified in Note when «ATF Tempera- ture» is 20 — 60°C (68 — 140°F) and «Drive Motor Speed» is 600 — 1400 rpm.	Go to step 3.	Replace the drive motor inverter. <ref. hev-42,<br="" to="">Inverter.></ref.>
3	 CHECK BUS BAR. 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Check the bus bar. 	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, trace of arc (burnt terminals) etc.)	Go to step 4.	Retighten the bolts. Or replace the bus bar.
4	 CHECK DMCM. 1) Replace DMCM. <ref. cvt(th58a)-<="" li="" to=""> 157, Drive Motor Control Module.> 2) Perform the Inspection Mode. <ref. hev(diag)-27,="" inspection="" mode.="" to=""></ref.> </ref.>	Is the same DTC detected? (current malfunction)	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Problem is present in DMCM.

NOTE:

Value of «Drive Motor Inverter Input High Voltage Sensor (Serial)» is proportional to «Drive Motor Speed».

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

- 1000 rpm: 18 V 37 V
- 1400 rpm: 25 V 52 V



(A) Drive motor speed

(C) Standard at Max.

(D) Standard at Min.

(B) Drive Motor Inverter Input High Voltage Sensor (Serial)

CA:DTC P1C20 DRIVE MOTOR "A" INVERTER VOLTAGE TOO LOW

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-74, DTC P1C20 DRIVE MOTOR "A" INVERTER VOLTAGE TOO LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM



Step	Check	Yes	No
 CHECK DTC. Read DTCs of the following system. Battery energy control system <ref. to<br="">HEV(diag)-24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trou- ble Code (DTC).></ref.> 	Is DTC detected? (current mal- function)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-82, BATTERY ENERGY CON- TROL SYSTEM, LIST, List of Diag- nostic Trouble Code (DTC).></ref.>	Go to step 2.

Step	Check	Yes	No
2 CHECK READY. Start the engine.	Does READY come on?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Go to step 3 .
 3 CHECK DTC. With engine running, read DTCs of the following system. Hybrid powertrain control system <ref. (dtc).="" code="" control="" diagnostic="" hev(diag)-24,="" hybrid="" operation,="" powertrain="" read="" system,="" to="" trouble=""></ref.> Battery energy control system <ref. (dtc).="" battery="" code="" control="" diagnostic="" energy="" hev(diag)-24,="" operation,="" read="" system,="" to="" trouble=""></ref.> Drive motor control system <ref. (dtc).="" code="" control="" diagnostic="" drive="" hev(diag)-24,="" motor="" operation,="" read="" system,="" to="" trouble=""></ref.> Engine <ref. (dtc).="" code="" diagnostic="" en(h4do="" hev)(diag)-51,="" read="" to="" trouble=""></ref.> Transmission <ref. (dtc).="" code="" cvt(hev)(diag)-19,="" diagnostic="" read="" to="" trouble=""></ref.> 	Are any DTCs other than DTC P1C20 detected? (current mal- function)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-74, LIST, List of Diag- nostic Trouble Code (DTC).></ref.>	Go to step 4.
 CHECK BUS BAR. Turn the ignition to OFF. Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. Ref. to NT-5, BATTERY, NOTE, Note.> Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> Wait for 10 minutes. Check the bus bar. 	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, trace of arc (burnt terminals) etc.)	Go to step 5 .	Retighten the bolts. Or replace the bus bar.
 5 CHECK ELECTRIC NOISE FILTER (INTER- NAL SHORT). 1) Remove the electric noise filter. 2) Measure the resistance between each ter- minal of electric noise filter. Connector & terminal (HV6) P — (HV6) N: (HV6) P — Electric noise filter ground: (HV6) N — Electric noise filter ground: 	Is the resistance 1 MΩ or more?	Go to step 6.	Replace the elec- tric noise filter. <ref. hev-31,<br="" to="">Noise Filter.></ref.>

	Step	Check	Yes	No
6	CHECK DRIVE MOTOR INVERTER.	Is the same DTC detected?	Replace DMCM.	Problem is present
	1) Replace the drive motor inverter. < Ref. to	(current malfunction)	<ref. th="" to<=""><th>in drive motor</th></ref.>	in drive motor
	HEV-42, Inverter.>		CVT(TH58A)-157,	inverter.
	Perform the Inspection Mode. <ref. li="" to<=""></ref.>		Drive Motor Con-	
	HEV(diag)-27, Inspection Mode.>		trol Module.>	

CB:DTC P1C22 12V AUXILIARY BATTERY VOLTAGE TOO LOW

DIAGNOSIS:

• Detects drive motor control module voltage malfunction.

• If the drive motor control module detects that power supply voltage is out of the standard, it is judged as NG.

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM



	Step	Check	Yes	No
1	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Control Module Voltage». <ref. to<br="">HEV(diag)-52, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 9 V or less?	Go to step 2.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.
2	 CHECK BATTERY. 1) Turn the ignition switch to OFF. 2) Disconnect battery terminals. 3) Check the 12 volt auxiliary battery as a single part. <ref. battery.="" sc(h4do(hev))-39,="" to=""></ref.> 	Is the condition normal?	Go to step 3.	Charge or replace the battery.
3	 CHECK HARNESS (OPEN CIRCUIT). 1) Connect the 12 volt auxiliary battery. 2) Using a tester, measure the voltage between the DMCM power relay and the ground bolt of inverter frame body. Connector & terminal (R440) No. 2 (+) — Ground bolt of inverter frame body (-): 	Is the voltage 9 V or less?	Repair open circuit in harness between DMCM power supply relay connector and 12 volt auxiliary bat- tery, or repair the intermediate con- nector.	Go to step 4.
4	 CHECK HARNESS (SHORT TO GROUND). 1) Disconnect the DMCM connector. 2) Remove the DMCU power relay. <ref. to<br="">CVT(TH58A)-160, Relay and Fuse.></ref.> 3) Using a tester, measure the resistance between DMCM connector terminals and the ground bolt of inverter frame body. Connector & terminal (R443) No. 13 — Ground bolt of inverter frame body: (R443) No. 26 — Ground bolt of inverter frame body: 	Is the resistance 1 MΩ or more?	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Repair short to ground circuit in harness between DMCM power sup- ply relay connec- tor and 12 volt auxiliary battery, or repair the interme- diate connector.

CC:DTC P1C24 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-75, DTC P1C24 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIR-CUIT". <Ref. to HEV(diag)-155, DTC P0A2A DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CD:DTC P1C25 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT LOW DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-76, DTC P1C25 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIR-CUIT LOW". <Ref. to HEV(diag)-159, DTC P0A2C DRIVE MOTOR "A" TEMPERATURE SENSOR CIRCUIT LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CE:DTC P1C26 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-77, DTC P1C26 DRIVE MOTOR "B" TEMPERATURE SENSOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIR-CUIT HIGH". <Ref. to HEV(diag)-163, DTC P0A2D DRIVE MOTOR "A" TEMPERATURE SENSOR CIR-CUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CF:DTC P1C27 DRIVE MOTOR "A" AND "B" TEMPERATURE SENSOR CORRE-LATION

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-78, DTC P1C27 DRIVE MOTOR "A" AND "B" TEMPERA-TURE SENSOR CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM

CVT control system <Ref. to WI(HEV)-86, WIRING DIAGRAM, CVT Control System.>



	Step	Check	Yes	No
1	CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Are any other DTCs (related to temperature sensor) detected?	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.

Step		Check	Yes	No
 CHECK CURRENT DAT Warm up the engine. Using the Subaru Sel the current data of drive r the values of «Drive Moto «Drive Motor Temperatur HEV(diag)-52, DRIVE Mot SYSTEM, OPERATION, 	A. lect Monitor, confirm motor control system, or Temperature A» re B». <ref. to<br="">OTOR CONTROL Read Current Data.></ref.>	Is the difference in temperature between «Drive Motor Temper- ature A» «Drive Motor Temper- ature B» 20°C (36°F) or more when the temperature of «Drive Motor Temperature A» or «Drive Motor Temperature B» is in 30 — 140°C (86 — 284°F) range?	Go to step 3.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.
 CHECK HARNESS AND 1) Disconnect the DMCI 2) Using a tester, measubetween terminals in the Connector & terminal TMPA (R442) No. 4 — (R4 TMPB (R442) No. 3 — (R4 	D DMCM. M connector (R442). ure the resistance DMCM connector. 42) No. 5:	Is the difference in resistance between TMPA and TMPB 136 kΩ or more?	Go to step 4.	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>
 CHECK DRIVE MOTOR Disconnect the drive nector (B603). Using a tester, measu between terminals in the connector. Connector & terminal TMPA	motor assembly con- ure the resistance drive motor assembly 2) No. 17: 2) No. 17:	Is the difference in resistance between TMPA and TMPB 136 kΩ or more?	Replace the drive motor assembly. <ref. to<br="">CVT(TH58A)-217, Drive Motor Assembly.></ref.>	Repair the harness between DMCM connector and drive motor assem- bly connector.

CG:DTC P1C2A DRIVE MOTOR INVERTER CIRCUIT

DIAGNOSIS:

- Detect the malfunction of drive motor inverter.
- If malfunction is detected in the internal circuit of drive motor inverter, it is judged as NG.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

Step		Check	Yes	No
1 CHECK DTC.		Is DTC P0A78 detected? (cur-	Perform the diag-	Replace DMCM.
Read the DTC. <ref. hev(diag<="" th="" to=""><td>g)-24, DRIVE</td><td>rent malfunction)</td><td>nosis according to</td><td><ref. td="" to<=""></ref.></td></ref.>	g)-24, DRIVE	rent malfunction)	nosis according to	<ref. td="" to<=""></ref.>
MOTOR CONTROL SYSTEM, O	PERATION,		DTC. <ref. td="" to<=""><td>CVT(TH58A)-157,</td></ref.>	CVT(TH58A)-157,
Read Diagnostic Trouble Code (D	OTC).>		HEV(diag)-208,	Drive Motor Con-
			DTC P0A78	trol Module.>
			DRIVE MOTOR	
			"A" INVERTER	
			PERFORMANCE,	
			Diagnostic Proce-	
			dure with Diagnos-	
			tic Trouble Code	
			(DTC).>	
			Replace the power	
			cable after com-	
			pleting the diagno-	
			sis. <ref. hev-<="" td="" to=""><td></td></ref.>	
			52, Power Cable.>	

CH:DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-80, DTC P1C30 LOST COMMUNICATION WITH DRIVE MOTOR INVERTER, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM



	Step	Check	Yes	No
2	CHECK CURRENT DATA. 1) Using the Subaru Select Monitor, perform «Drive Motor Inverter power supply relay» of System Operation Check Mode for the drive motor control system. <ref. hev(diag)-73,<br="" to="">DRIVE MOTOR CONTROL SYSTEM, OPERA- TION, System Operation Check Mode.> 2) Confirm the current data of in System Oper- ation Check Mode, the value of «Drive Motor Inverter Operation Update Counter». CHECK RELAY.</ref.>	Does «Drive Motor Inverter Operation Update Counter» stop when «Drive Motor Inverter power supply relay» is OFF?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause. Go to step 3.	Go to step 2.
2	Check the inverter power supply relay as a sin- gle unit. <ref. and="" fuse.="" hev-12,="" relay="" to=""></ref.>	for continuity between termi- nals, damage, etc.)	GO 10 SIEP 3 .	neplace the relay.
3	 CHECK HARNESS (SHORT TO GROUND). 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Disconnect the drive motor inverter connector. 7) Using a tester, measure the resistance between the drive motor inverter connector and the ground bolt of inverter frame body: (R432) No. 2 — Ground bolt of inverter frame body: 	Is the resistance 1 MΩ or more?	Go to step 4.	Repair short cir- cuit to ground in harness between drive motor inverter connector and DMCM con- nector, or repair the intermediate connector.
4	CHECK HARNESS (OPEN CIRCUIT). Using a tester, measure the resistance between drive motor inverter connector and DMCM con- nector and between the ground bolt of inverter frame body and inverter power supply relay. <i>Connector & terminal:</i> (R442) No. 22 — (R432) No. 2: (R440) No. 11 — (R432) No. 7: (R432) No. 12 — Ground bolt of inverter frame body:	Is the resistance less than 1 Ω?	Go to step 5.	Repair open circuit in harness between drive motor inverter con- nector and DMCM connector or between drive motor inverter con- nector and inverter power supply relay, or repair the inter- mediate connector.

	Step	Check	Yes	No
5	 CHECK HARNESS (SHORT TO POWER AND SHORT TO OTHER SIGNAL LINES). 1) Disconnect the intermediate connector (R436). 2) Using a tester, measure the resistance within DMCM connector, between DMCM con- nector and intermediate connector (R436), and within drive motor inverter connector. <i>Connector & terminal:</i> (R442) No. 22 — (R442) No. 1 — 22: (R442) No. 22 — (R443) No. 1 — 26: (R442) No. 22 — (R436) No. 1 — 8: (R442) No. 22 — (R432) No. 7: 	Is the resistance 1 MΩ or more?	Go to step 6 .	Repair short cir- cuit in harness between drive motor inverter con- nector and DMCM connector or repair the intermediate connector.
6	 CHECK DRIVE MOTOR INVERTER. 1) Replace the drive motor inverter. <ref. hev-42,="" inverter.="" to=""></ref.> 2) Perform the Inspection Mode. <ref. hev(diag)-27,="" inspection="" mode.="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter or relay.

CI: DTC P1C31 INVALID DATA RECEIVED FROM DRIVE MOTOR INVERTER

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-81, DTC P1C31 INVALID DATA RECEIVED FROM DRIVE MOTOR INVERTER, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

Step	Check	Yes	No
1 CHECK DTC. Read the DTC. <ref. drive<br="" hev(diag)-24,="" to="">MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.>	Is DTC P1C31 detected? (current malfunction)	Go to step 2.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.
 CHECK GROUND WIRE. 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Check the fastening area shown in the margin. 	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, etc.)	Go to step 3.	Retighten the bolts. Or replace the harness.
 3 CHECK DRIVE MOTOR INVERTER. 1) Replace the drive motor inverter. <ref. hev-42,="" inverter.="" to=""></ref.> 2) Perform the Inspection Mode. <ref. hev(diag)-27,="" inspection="" mode.="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter.

Diagnostic Procedure with Diagnostic Trouble Code (DTC) HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)



HYBRID ELECTRIC VEHICLE (DIAGNOS

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HEV00201

CJ:DTC P1C34 LOST COMMUNICATION WITH DC/DC CONVERTER

DIAGNOSIS:

- Detects serial communication error with DC/DC converter.
- If serial data from the DC/DC converter is not received, it is judged as NG.
- Immediately at fault recognition

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM



	Step	Check	Yes	No
1	CHECK DTC.	Is DTC P1C34 detected? (cur-	Go to step 2.	Even if DTC is
	1) Start the engine.	rent malfunction)		detected, the cir-
	Read the DTC. <ref. hev(diag)-24,<="" li="" to=""></ref.>			cuit has returned to
	DRIVE MOTOR CONTROL SYSTEM, OPERA-			a normal condition
	TION, Read Diagnostic Trouble Code (DTC).>			at this time. Repro-
				duce the failure,
				and then perform
				the diagnosis
				again.
				NOTE:
				In this case, tem-
				porary poor con-
				tact of connector,
				temporary open or
				short circuit of har-
				ness may be the
				cause.

Step	Check	Yes	No
 2 CHECK CONNECTOR. Turn the ignition to OFF. Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> Wait for 10 minutes. Visually check each connector and fastening areas of the DC/DC converter. 	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, etc.)	Go to step 3.	Repair or replace faulty parts.
 3 CHECK HARNESS. Disconnect the DC/DC converter connector. Disconnect the DMCM connector. Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body. Connector & terminal	Is the resistance 1 MΩ or more?	Go to step 4.	Repair short to ground circuit in harness between DMCM connector and DC/DC con- verter connector, or repair the inter- mediate connector.
4 CHECK HARNESS. Using a tester, measure the resistance between DC/DC converter connector and DMCM con- nector. Connector & terminal (R443) No. 20 — (R433) No. 3:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair open circuit in harness between DMCM connector and DC/ DC converter con- nector, or repair the intermediate connector.
 5 CHECK HARNESS (SHORT TO OTHER SIGNAL). 1) Disconnect the drive motor inverter connector. 2) Disconnect the intermediate connector (R436). 3) Using a tester, measure the resistance between DMCM connector and individual connectors of drive motor inverter. Connector & terminal: (R443) No. 20 — (R442) No. 1 — 22: (R443) No. 20 — (R436) No. 1 — 8: (R443) No. 20 — (R432) No. 7: 	Is the resistance 1 MΩ or more?	Go to step 6 .	Repair short cir- cuit in harness between DMCM connector and DC/ DC converter con- nector, or repair the intermediate connector.
6 CHECK HARNESS (SHORT TO POWER). Using a tester, measure the resistance between DC/DC converter connector and DC/DC con- verter 12 V output line. Connector & terminal (R433) No. 3 — DC/DC converter 12 V out- put line:	Is the resistance 1 MΩ or more?	Go to step 7.	Repair short cir- cuit in harness between DMCM connector and DC/ DC converter 12 V output line or repair the intermediate connector.
 CHECK DC/DC CONVERTER. Replace the DC/DC converter. <ref. to<br="">HEV-38, DC/DC Converter.></ref.> Perform the Inspection Mode. <ref. to<br="">HEV(diag)-27, Inspection Mode.></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in DC/DC con- verter.
CK:DTC P1C35 INVALID DATA RECEIVED FROM DC/DC CONVERTER

DIAGNOSIS:

- Detects serial communication error with DC/DC converter.
- If an incorrect serial data is received from DC/DC converter, it is judged as NG.
- Immediately at fault recognition

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



Step	Check	Yes	No
1 CHECK DTC.	Is DTC P1C35 detected? (cur-	Go to step 2.	Even if DTC is
 Start the engine. 	rent malfunction)		detected, the cir-
Read the DTC. <ref. hev(diag)-24,<="" li="" to=""></ref.>			cuit has returned to
DRIVE MOTOR CONTROL SYSTEM, OPERA-			a normal condition
TION, Read Diagnostic Trouble Code (DTC).>			at this time. Repro-
			duce the failure,
			and then perform
			the diagnosis
			again.
			NOTE:
			In this case, tem-
			porary poor con-
			tact of connector,
			temporary open or
			short circuit of har-
			ness may be the
			cause.

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
2	 CHECK GROUND WIRE. 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Check the fastening area shown in the margin. 	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, etc.)	Go to step 3.	Retighten the bolts. Or replace the harness.
3	 CHECK HARNESS (SHORT TO OTHER SIGNAL). 1) Disconnect the drive motor inverter connector. 2) Disconnect the intermediate connector (R436). 3) Using a tester, measure the resistance between DMCM connector and individual connectors of drive motor inverter. Connector & terminal: (R443) No. 20 – (R442) No. 1 – 22: (R443) No. 20 – (R443) No. 1 – 26: (R443) No. 20 – (R436) No. 1 – 8: (R443) No. 20 – (R432) No. 7: 	Is the resistance 1 MΩ or more?	Go to step 4.	Repair short cir- cuit in harness between DMCM connector and DC/ DC converter con- nector, or repair the intermediate connector.
4	 CHECK DC/DC CONVERTER. 1) Replace the DC/DC converter. <ref. converter.="" dc="" hev-38,="" to=""></ref.> 2) Perform the Inspection Mode. <ref. hev(diag)-27,="" inspection="" mode.="" to=""></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in DC/DC con- verter.

NOTE:



CL:DTC P0A1B DRIVE MOTOR "A" CONTROL MODULE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-82, DTC P0A1B DRIVE MOTOR "A" CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to "DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR". <Ref. to HEV(diag)-118, DRIVE MOTOR CONTROL SYSTEM, DTC P0604 IN-TERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CM:DTC P06B1 SENSOR POWER SUPPLY "A" CIRCUIT LOW

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-83, DTC P06B1 SENSOR POWER SUPPLY "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Amperage Sensor Power Supply Voltage». <ref. hev(diag)-52,<br="" to="">DRIVE MOTOR CONTROL SYSTEM, OPERA- TION, Read Current Data.></ref.>	Is the value less than 4.536 V?	Go to step 2.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.
2	 CHECK HARNESS (SHORT TO GROUND). 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Disconnect the drive motor inverter amperage sensor connector. 7) Using a tester, measure the resistance between DMCM connector and the ground bolt of inverter frame body. Connector & terminal (R443) No. 8 — Ground bolt of inverter frame body: (R443) No. 6 — Ground bolt of inverter frame body: 	Is the resistance 1 MΩ or more?	Go to step 3.	Repair short cir- cuit in harness between drive motor inverter amperage sensor connector and DMCM connector or repair the inter- mediate connector.
3	CHECK DRIVE MOTOR INVERTER AMPER- AGE SENSOR. 1) Replace the drive motor inverter amperage sensor. <ref. drive="" hev-27,="" inverter<br="" motor="" to="">Current Sensor.> 2) Perform the Inspection Mode. <ref. to<br="">HEV(diag)-27, Inspection Mode.></ref.></ref.>	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter amperage sensor.

CN:DTC P06B2 SENSOR POWER SUPPLY "A" CIRCUIT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-84, DTC P06B2 SENSOR POWER SUPPLY "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



Step	Check	Yes	No
Step 1 CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of drive motor control system, the value of «Drive Motor Amperage Sensor Power Supply Voltage». <ref. hev(diag)-52,<br="" to="">DRIVE MOTOR CONTROL SYSTEM, OPERA- TION, Read Current Data.> 2 CHECK HARNESS (SHORT TO POWER AND</ref.>	Check Is the value more than 5.418 V?	Yes Go to step 2. Go to step 3.	No Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause. Repair short cir-
 SHORT TO OTHER SIGNAL LINES). 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Disconnect the drive motor inverter amperage sensor connector. 6) Disconnect the DMCM connector. 7) Disconnect the drive motor inverter connector. 8) Disconnect the intermediate connector (R436). 9) Using a tester, measure the resistance between DMCM connector. Connector & terminal (R443) No. 8 – (R442) No. 1 – 22 (except No. 6): (R443) No. 8 – (R443) No. 1 – 26: (R443) No. 6 – (R443) No. 1 – 22 (except No. 8): (R443) No. 6 – (R443) No. 1 – 26: (R443) No. 6 – (R443) No. 1 – 26: (R443) No. 6 – (R443) No. 1 – 26: (R443) No. 6 – (R443) No. 1 – 26: (R443) No. 6 – (R443) No. 1 – 26: (R443) No. 6 – (R443) No. 1 – 26: (R443) No. 6 – (R443) No. 1 – 8: (R443) No. 6 – (R443) No. 1 – 8: (R443) No. 6 – (R432) No. 7: 	more?		cuit in harness between drive motor inverter amperage sensor connector and DMCM connector or repair the inter- mediate connector.
 CHECK DRIVE MOTOR INVERTER AMPER- AGE SENSOR. 1) Replace the drive motor inverter amperage sensor. <ref. drive="" hev-27,="" inverter<br="" motor="" to="">Current Sensor.></ref.> 2) Perform the Inspection Mode. <ref. to<br="">HEV(diag)-27, Inspection Mode.></ref.> 	Is the same DTC detected? (current malfunction)	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>	Problem is present in drive motor inverter amperage sensor.

CO:DTC P062F INTERNAL CONTROL MODULE EEPROM ERROR

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-85, DTC P062F INTERNAL CONTROL MODULE EE-PROM ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Step	Check	Yes	No
 CHECK BECM. Perform the Clear Memory Mode. <ref. to<br="">HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.></ref.> Turn the ignition switch to OFF. Wait for 30 seconds. Turn the ignition switch to ON. Read the DTC again. <ref. hev(diag)-<br="" to="">24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.> 	Is the same DTC detected? (current malfunction)	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

CP:DTC P0A1F BATTERY ENERGY CONTROL MODULE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-86, DTC P0A1F BATTERY ENERGY CONTROL MOD-ULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Step	Check	Yes	No
 CHECK BECM. Perform the Clear Memory Mode. <ref. to<br="">HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.></ref.> Turn the ignition switch to OFF. Wait for 30 seconds. Turn the ignition switch to ON. Read the DTC again. <ref. hev(diag)-<br="" to="">24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.> 	Is the same DTC detected? (current malfunction)	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

CQ:DTC P0A7D HYBRID BATTERY PACK STATE OF CHARGE LOW

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-87, DTC P0A7D HYBRID BATTERY PACK STATE OF CHARGE LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

	Step	Check	Yes	No
1	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Amperage» in the freeze frame data of battery energy control system. <ref. battery<br="" hev(diag)-68,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Is the value 1A (discharge) or more?	Go to step 2.	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>
2	 CHECK DTC. Using the Subaru Select Monitor, read DTCs of the following system. Hybrid powertrain control system <ref. (dtc).="" code="" control="" diagnostic="" hev(diag)-24,="" hybrid="" operation,="" powertrain="" read="" system,="" to="" trouble=""></ref.> Drive motor control system <ref. (dtc).="" code="" control="" diagnostic="" drive="" hev(diag)-24,="" motor="" operation,="" read="" system,="" to="" trouble=""></ref.> CVT System <ref. (dtc).="" code="" cvt(hev)(diag)-19,="" diagnostic="" operation,="" read="" to="" trouble=""></ref.> 	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-74, LIST, List of Diag- nostic Trouble Code (DTC).> <ref. to<br="">CVT(HEV)(diag)- 34, LIST, List of Diagnostic Trouble Code (DTC).></ref.></ref.>	Go to step 3 .
3	 CHECK CURRENT DATA. 1) Turn the ignition to OFF. 2) Start the engine. 3) Check illumination of "DRIVING POSSIBLE (READY) INDICATOR" in the meter. 	Is the indicator illuminating?	Go to step 4.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
4	CHECK CURRENT DATA. 1) Drive approximately 2 km (1.2 miles) at a speed of 30 km/h (18.6 MPH) or more. 2) Using the Subaru Select Monitor, confirm the current data of battery energy control sys- tem, the value of «High Voltage Battery SOC». <ref. battery="" energy<br="" hev(diag)-58,="" to="">CONTROL SYSTEM, OPERATION, Read Cur- rent Data.></ref.>	Is the value 6% or more?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>

CR:DTC P0A7E HYBRID BATTERY PACK OVER TEMPERATURE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-88, DTC P0A7E HYBRID BATTERY PACK OVER TEM-PERATURE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

	Step	Check	Yes	No
1	 CHECK DTC. Using the Subaru Select Monitor, read DTCs of the following system. Drive motor control system <ref. (dtc).="" battery="" code="" control="" diagnostic="" energy="" hev(diag)-24,="" operation,="" read="" system,="" to="" trouble=""></ref.> 	Is either DTC P0A83 or P0A82 detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Cooling Fan Duty Target(HPCM)» in the freeze frame data of battery energy control system. <ref. to<br="">HEV(diag)-14, HIGH VOLTAGE BATTERY, ELECTRICAL SPECIFICATION, Control Mod- ule I/O Signal.></ref.>	Is the value 20% or more?	Go to step 3.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
3	CHECK HIGH VOLTAGE BATTERY COOL- ING FAN. Using the Subaru Select Monitor, perform «High Voltage Battery Cooling Fan» of System Operation Check Mode for the drive motor con- trol system. <ref. drive<br="" hev(diag)-73,="" to="">MOTOR CONTROL SYSTEM, OPERATION, System Operation Check Mode.></ref.>	Does the high voltage battery cooling fan operate?	Go to step 4.	Check the high voltage battery cooling fan as a single part. <ref. to HEV-60, High Voltage Battery Cooling System.></ref.
4	CHECK DUCT. Check the high voltage battery cooling fan ducts. <ref. battery<br="" hev-60,="" high="" to="" voltage="">Cooling System.></ref.>	Are the conditions of ducts nor- mal? (Check for clogging, dis- lodging, etc.)	Go to step 5.	Repair the ducts.
5	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Discharge Power Limit 1» in the freeze frame data of bat- tery energy control system. <ref. hev(diag)-<br="" to="">68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Is the value 0.5 kw or less?	Go to step 6 .	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>
6	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Charge Power 1» in the freeze frame data of battery energy control system. <ref. bat-<br="" hev(diag)-68,="" to="">TERY ENERGY CONTROL SYSTEM, OPER- ATION, Freeze Frame Data Display.></ref.>	Is the value 0.5 kw or less?	Go to step 7.	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
7	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control sys- tem. <ref. battery<br="" hev(diag)-68,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Tar- get(HPCM)» within the stan- dard in the margin?	Go to step 8 .	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
8	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Output Torque Actual» «Drive Motor Speed» in the freeze frame data of battery energy control system. <ref. to<br="">HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>

NOTE:



 $\mbox{(A)} \quad \mbox{Drive Motor Speed Target(HPCM) or Drive Motor Speed} \quad \mbox{(C)} \quad \mbox{Standard} \\$

(B) Drive Motor Torque Target (HPCM) or Drive Motor Output Torque Actual

CS:DTC P0A7F HYBRID BATTERY PACK DETERIORATION

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-89, DTC P0A7F HYBRID BATTERY PACK DETERIORA-TION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

CT:DTC P0A95 HIGH VOLTAGE FUSE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-92, DTC P0A95 HIGH VOLTAGE FUSE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

	Step	Check	Yes	No
1	CHECK SERVICE DISCONNECT PLUG. Check installation condition of service discon- nect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.>	Is the service disconnect plug securely installed? Is it locked?	Go to step 2 .	Securely install the service disconnect plug.
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «High Voltage Battery Fuse Condi- tion». <ref. battery<br="" hev(diag)-58,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Does the value show «Blow out»?	Go to step 3.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.
3	 CHECK SERVICE DISCONNECT PLUG. 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Measure the resistance between service disconnect plug terminals. 	Is the resistance less than 1 Ω?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Replace the ser- vice disconnect plug.

CU:DTC P0A9C HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-93, DTC P0A9C HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

CV:DTC P0A9D HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-94, DTC P0A9D HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

CW:DTC P0A9E HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-95, DTC P0A9E HYBRID BATTERY TEMPERATURE SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

CX:DTC P0AA4 HYBRID BATTERY NEGATIVE CONTACTOR CIRCUIT STUCK CLOSED

DIAGNOSIS:

- Immediately at fault recognition
- Detects welding in side contactor and precharge contactor.

• If the difference between the total voltage of the high voltage battery and the inverter voltage is greater than or equal to the standard when the contactor is open, it is judged as NG.

TROUBLE SYMPTOM:

Normal control

CAUTION:

Step	Check	Yes	No
 CHECK BECM. Perform the Clear Memory Mode. <ref. to<br="">HEV(diag)-25, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Clear Memory Mode.></ref.> Start the engine. Turn the ignition switch to OFF. Wait for 30 seconds. Turn the ignition switch to ON. Read the DTC again. <ref. hev(diag)-<br="" to="">24, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).></ref.> 	Is DTC P0AA4 detected? (cur- rent malfunction)	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

CY:DTC P0AA6 HYBRID BATTERY VOLTAGE SYSTEM ISOLATION FAULT

DIAGNOSIS:

- Detects leakage in high voltage system circuit.
- If hybrid system leakage resistance, leakage resistance in high voltage battery are smaller than the standard, it is judged as NG.

• Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



Step	Check	Yes	No
 CHECK CURRENT DATA. Turn the ignition switch to OFF → ON. Leave the vehicle 1 minute unattended. Using the Subaru Select Monitor, confirm the current data of battery energy control system, the values of «High Voltage Battery Pack Leakage Resistance (+)» «High Voltage Battery Pack Leakage Resistance (-)». <ref. battery="" control="" current="" data.="" energy="" hev(diag)-58,="" operation,="" read="" system,="" to=""></ref.> 	Is the value of «High Voltage Battery Pack Leakage Resis- tance (+)» or «High Voltage Battery Pack Leakage Resis- tance (–)» 290 kΩ or less?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Go to step 2.

	Step	Check	Yes	No
2	Step CHECK CURRENT DATA. 1) Stop the engine. 2) Start the engine. 3) Using the Subaru Select Monitor, display the current data of battery energy control sys- tem, the values of «HEV System Leakage Resistance (+)» «HEV System Leakage Resis- tance (-)». <ref. battery<br="" hev(diag)-58,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> 4) With the current data displayed, drive the vehicle at 10 km/h (6.2 MPH) or faster at least 1 minute. 5) Using the Subaru Select Monitor, confirm the current data of battery energy control sys- tem, the recorded values of «HEV System Leakage Resistance (+)» «HEV System Leak- age Resistance (-)». <ref. hev(diag)-58,<br="" to="">BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.></ref.></ref.>	Check Is the minimum value of «HEV System Leakage Resistance (+)» or «HEV System Leakage Resistance (–)» 290 kΩ or less?	Yes Go to step 3.	No Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.
3	 CHECK POWER CABLE AND BUS BAR. 1) Turn the ignition switch to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Disconnect the power cable (HV4) from drive motor inverter amperage sensor. 6) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter. Connector & terminal (HV7) P — Chassis ground: (HV7) N — Chassis ground: 	Is the resistance 2 MΩ or more?	Go to step 13 .	Go to step 4 .
4	 CHECK POWER CABLE AND BUS BAR. 1) Disconnect the power cable (HV10) from electric oil pump. 2) Using an insulation multimeter (250 V range), measure the resistance between high voltage battery side terminal and chassis ground of electric noise filter. Connector & terminal (HV7) P — Chassis ground: (HV7) N — Chassis ground: 	Is the resistance 2 MΩ or more?	Go to step 14.	Go to step 5.

	Step	Check	Yes	No
5		Is the resistance 2 MO or	Even if DTC is	Go to step 6
Ŭ	1) Check the bus bar between the high voltage	more?	detected the cir-	
	battery (HV8) and the electric noise filter (HV7)		cuit has returned to	
	and the surrounding area for metallic foreign		a normal condition	
	bodies, and if there are any, remove them.		at this time. Repro-	
	2) Using an insulation multimeter (250 V		duce the failure.	
	range), measure the resistance between high		and then perform	
	voltage battery side terminal and chassis		the diagnosis	
	ground of electric noise filter.		again.	
	Connector & terminal		5	
	(HV7) P — Chassis ground:			
	(HV7) N — Chassis ground:			
6	CHECK POWER CABLE AND BUS BAR.	Is the resistance 2 M Ω or	Go to step 7.	Replace the high
	1) Remove the bus bar between high voltage	more?		voltage battery.
	battery (HV8) and the electric noise filter (HV7).			<ref. hev-17,<="" td="" to=""></ref.>
	2) Using an insulation multimeter (250 V			High Voltage Bat-
	range), measure the resistance between High			tery.>
	Voltage battery terminals and chassis ground.			
	Connector & terminal			
	(HV8) P — Chassis ground:			
	(HV8) N — Chassis ground:			_
7	CHECK POWER CABLE AND BUS BAR.	Is the resistance 2 M Ω or	Even if DTC is	Go to step 8 .
	1) Check bus bars between the electric noise	more?	detected, the cir-	
	filter (HV6), the drive motor inverter (HV5), and		cuit has returned to	
	electric oil pump inverter (HV9) and the sur-		a normal condition	
	rounding area for metallic foreign bodies, and if		at this time. Repro-	
	there are any, remove them.		duce the failure,	
	2) Using an insulation multimeter (250 V		the diagnosia	
	voltage betterv eide terminal and ebageig			
	around of electric poise filter		ayam.	
	Connector & terminal			
	(HV7) P — Chassis around:			
	(HV7) N — Chassis ground:			
8	CHECK POWER CABLE AND BUS BAB	Is the resistance 2 MO or	Beplace the DC/	Go to step 9
ľ	1) Remove the DC/DC converter (HV3).	more?	DC converter.	
	2) Using an insulation multimeter (250 V		<ref. hev-38.<="" td="" to=""><td></td></ref.>	
	range), measure the resistance between high		DC/DC Con-	
	voltage battery side terminal and chassis		verter.>	
	ground of electric noise filter.			
	Connector & terminal			
	(HV7) P — Chassis ground:			
	(HV7) N — Chassis ground:			
9	CHECK POWER CABLE AND BUS BAR.	Is the resistance 2 M Ω or	Replace the elec-	Go to step 10.
	 Remove the electric oil pump inverter 	more?	tric oil pump	
	(HV9).		inverter. <ref. td="" to<=""><td></td></ref.>	
	Using an insulation multimeter (250 V		HEV-42, Inverter.>	
	range), measure the resistance between high			
	voltage battery side terminal and chassis			
	ground of electric noise filter.			
	Connector & terminal			
	(HV7) P — Chassis ground:			
	(HV7) N — Chassis ground:			

	Step	Check	Yes	No
10	CHECK POWER CABLE AND BUS BAB	Is the resistance 2 MO or	Even if DTC is	Go to step 11
	1) Remove the drive motor inverter amperage	more?	detected, the cir-	
	sensor (HV2) from the drive motor inverter.		cuit has returned to	
	2) Check the bus bar of the drive motor inverter		a normal condition	
	amperage sensor (HV2) and the surrounding		at this time. Repro-	
	area for metallic foreign bodies, and remove		duce the failure,	
	them if there any, then reinstall the sensor.		and then perform	
	3) Using an insulation multimeter (250 V		the diagnosis	
	range), measure the resistance between high		again.	
	voltage battery side terminal and chassis			
	ground of electric noise filter.			
	Connector & terminal			
	(HV7) P — Chassis ground:			
	(HV7) N — Chassis ground:			
11	CHECK POWER CABLE AND BUS BAR.	Is the resistance 2 M Ω or	Replace the drive	Go to step 12.
	1) Remove the drive motor inverter amperage	more?	motor inverter	
	sensor (HV2) from the drive motor inverter.		amperage sensor.	
	2) Using an insulation multimeter (250 V		<ref. hev-27,<="" th="" to=""><th></th></ref.>	
	range), measure the resistance between high		Drive Motor	
	ground of electric poice filter		Soncor >	
	Connector & terminal		Sensor.>	
	(HV7) P — Chassis ground:			
	(HV7) N — Chassis ground: (HV7) N — Chassis ground:			
12		Is the resistance 2 MO or	Replace the drive	Replace the elec-
12	1) Remove the bus bar between the electric	more?	motor inverter	tric noise filter
	noise filter (HV6) and the drive motor inverter		<ref. hev-42.<="" th="" to=""><th><ref. hev-31.<="" th="" to=""></ref.></th></ref.>	<ref. hev-31.<="" th="" to=""></ref.>
	(HV5).		Inverter.>	Noise Filter.>
	2) Using an insulation multimeter (250 V			
	range), measure the resistance between high			
	voltage battery side terminal and chassis			
	ground of electric noise filter.			
	Connector & terminal			
	(HV7) P — Chassis ground:			
	(HV7) N — Chassis ground:			
13	CHECK POWER CABLE AND DRIVE MO-	Is the resistance 2 M Ω or	Replace the power	Replace the drive
	TOR ASSEMBLY.	more?	cable. <ref. td="" to<=""><td>motor assembly.</td></ref.>	motor assembly.
	1) Disconnect the power cable (HV1) from the		HEV-52, Power	<ref. td="" to<=""></ref.>
	drive motor assembly.		Cable.>	CVI (IH58A)-217, Drive Meter
	NOTE:			
	2) Using an insulation multimator (250 V			Assembly.>
	range) measure the resistance between drive			
	motor assembly and chassis ground			
	Connector & terminal			
	(HV1) U — Chassis ground:			
	(HV1) V — Chassis ground:			
	(HV1) W — Chassis ground:			
14	CHECK POWER CABLE AND ELECTRIC OIL	Is the resistance 2 M Ω or	Replace the power	Replace the elec-
	PUMP.	more?	cable. <ref. th="" to<=""><th>tric oil pump. <ref.< th=""></ref.<></th></ref.>	tric oil pump. <ref.< th=""></ref.<>
	1) Disconnect the power cable (HV12) from		HEV-52, Power	to CVT(TH58A)-
	electric oil pump.		Cable.>	134, Electric Fluid
	2) Using an insulation multimeter (250 V			Pump.>
	range), measure the resistance between elec-			
	tric oil pump and chassis ground.			
	Connector & terminal			
	(HV12) U — Chassis ground:			
	(HV12) V — Chassis ground:			
1	(HV12) W — Chassis ground:			

CZ:DTC P0AA7 HYBRID BATTERY VOLTAGE SYSTEM ISOLATION SENSOR CIRCUIT

DIAGNOSIS:

- Detects a fault in leakage detection circuit.
- Detects open, short conditions in switches within the leakage detection circuit.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DA:DTC P0AAD HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE

DIAGNOSIS:

• Detected when two consecutive driving cycles with fault occur. (Single engine startup is counted as one drive cycle.)

• GENERAL DESCRIPTION <Ref. to GD(HEV)-96, DTC P0AAD HYBRID BATTERY PACK AIR TEMPER-ATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DB:DTC P0AAE HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-97, DTC P0AAE HYBRID BATTERY PACK AIR TEMPER-ATURE SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DC:DTC P0AAF HYBRID BATTERY PACK AIR TEMPERATURE SENSOR "A" CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-98, DTC P0AAF HYBRID BATTERY PACK AIR TEMPER-ATURE SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control

NOTE:

DD:DTC P0ABF HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-99, DTC P0ABF HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DE:DTC P0AC0 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT RANGE/PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-100, DTC P0AC0 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DF:DTC P0AC1 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-101, DTC P0AC1 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DG:DTC P0AC2 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-102, DTC P0AC2 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

HEV(diag)-294

DH:DTC P0AC3 HYBRID BATTERY PACK CURRENT SENSOR "A" CIRCUIT IN-TERMITTENT/ERRATIC

DIAGNOSIS:

• Immediately at fault recognition

GENERAL DESCRIPTION <Ref. to GD(HEV)-103, DTC P0AC3 HYBRID BATTERY PACK CURRENT

SENSOR "A" CIRCUIT INTERMITTENT/ERRATIC, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

Step	Check	Yes	No
 CHECK DTC. Using the Subaru Select Monitor, read DTCs of the following system. Drive motor control system <ref. to<br="">HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trou- ble Code (DTC).></ref.> 	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
 2 CHECK CURRENT DATA. 1) Perform the Clear Memory Mode. <ref. to<br="">HEV(diag)-25, HYBRID POWERTRAIN CON- TROL SYSTEM, OPERATION, Clear Memory Mode.></ref.> 2) Start the engine. 3) Using the Subaru Select Monitor, confirm the current data of battery energy control sys- tem, the value of «High Voltage Battery Amper- age Sensor Output». <ref. hev(diag)-58,<br="" to="">BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.></ref.> 	Is the value 1 A or more? (When ignition is ON)	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

DI: DTC P0AC6 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-105, DTC P0AC6 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

DJ:DTC P0AC7 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-106, DTC P0AC7 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DK:DTC P0AC8 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT HIGH

DIAGNOSIS:

· Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-107, DTC P0AC8 HYBRID BATTERY TEMPERATURE SENSOR "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DL:DTC P0ACB HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-108, DTC P0ACB HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DM:DTC P0ACC HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-109, DTC P0ACC HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

HEV(diag)-296

DN:DTC P0ACD HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-110, DTC P0ACD HYBRID BATTERY TEMPERATURE SENSOR "C" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DO:DTC P0AD9 HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIR-CUIT/OPEN

DIAGNOSIS:

· Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-111, DTC P0AD9 HYBRID BATTERY POSITIVE CON-TACTOR CONTROL CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DP:DTC P0ADB HYBRID BATTERY POSITIVE CONTACTOR CONTROL CIR-CUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-112, DTC P0ADB HYBRID BATTERY POSITIVE CON-TACTOR CONTROL CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DQ:DTC P0ADD HYBRID BATTERY NEGATIVE CONTACTOR CONTROL CIR-CUIT/OPEN

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-113, DTC P0ADD HYBRID BATTERY NEGATIVE CON-TACTOR CONTROL CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

DR:DTC P0ADF HYBRID BATTERY NEGATIVE CONTACTOR CONTROL CIR-CUIT LOW

DIAGNOSIS:

- Detects short conditions in side contactor control signal line.
- If short conditions are detected in side contactor control signal line, it is judged as NG.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DS:DTC P0AE4 HYBRID BATTERY PRECHARGE CONTACTOR CONTROL CIR-CUIT

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-114, DTC P0AE4 HYBRID BATTERY PRECHARGE CON-TACTOR CONTROL CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DT:DTC P0AE6 HYBRID BATTERY PRECHARGE CONTACTOR CONTROL CIR-CUIT LOW

DIAGNOSIS:

- Detects short conditions in precharge contactor control signal line.
- If short conditions are detected in precharge contactor control signal line, it is judged as NG.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

DU:DTC P0B25 HYBRID BATTERY "A" VOLTAGE LOW

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-115, DTC P0B25 HYBRID BATTERY "A" VOLTAGE LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

	Step	Check	Yes	No
1	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Discharge Power Limit 1» in the freeze frame data of bat- tery energy control system. <ref. hev(diag)-<br="" to="">68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Does the value show 0 kw?	Go to step 2.	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>
2	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control sys- tem. <ref. battery<br="" hev(diag)-68,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Tar- get(HPCM)» within the stan- dard in the margin?	Go to step 3.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
3	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Output Torque Actual» «Drive Motor Speed» in the freeze frame data of battery energy control system. <ref. to<br="">HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC) HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)



(A) Drive Motor Speed Target(HPCM) or Drive Motor Speed (C) Standard

(B) Drive Motor Torque Target (HPCM) or Drive Motor Output Torque Actual

DV:DTC P0B26 HYBRID BATTERY "A" VOLTAGE HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-116, DTC P0B26 HYBRID BATTERY "A" VOLTAGE HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

	Step	Check	Yes	No
1	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Charge Power 1» in the freeze frame data of battery energy control system. <ref. bat-<br="" hev(diag)-68,="" to="">TERY ENERGY CONTROL SYSTEM, OPER- ATION, Freeze Frame Data Display.></ref.>	Does the value show 0 kw?	Go to step 2.	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>
2	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control sys- tem. <ref. battery<br="" hev(diag)-68,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Tar- get(HPCM)» within the stan- dard in the margin?	Go to step 3.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
3	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Output Torque Actual» «Drive Motor Speed» in the freeze frame data of battery energy control system. <ref. to<br="">HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)



(A) Drive Motor Speed Target(HPCM) or Drive Motor Speed (C) Standard

(B) Drive Motor Torque Target (HPCM) or Drive Motor Output Torque Actual

HEV(diag)-302

DW:DTC P0B37 HIGH VOLTAGE SERVICE DISCONNECT OPEN

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-117, DTC P0B37 HIGH VOLTAGE SERVICE DISCON-NECT OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

	Step	Check	Yes	No
1	CHECK SERVICE DISCONNECT PLUG. Check installation condition of service discon- nect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.>	Is the service disconnect plug securely installed? Is it locked?	Go to step 2.	Securely install the service disconnect plug.
2	 CHECK SERVICE DISCONNECT PLUG. 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 	Is the condition of service dis- connect plug normal? (Check for defective lock, rust or con- tamination in terminals, etc.)	Go to step 3.	Replace the ser- vice disconnect plug.
3	 CHECK CURRENT DATA. 1) Install the service disconnect plug. 2) Turn the ignition switch to ON. 3) Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «Service Plug Status». <ref. battery="" control="" current="" data.="" energy="" hev(diag)-58,="" operation,="" read="" system,="" to=""></ref.> 	Does the value show «OFF»?	Go to step 4.	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

Step	Check	Yes	No
 CHECK CURRENT DATA. Turn the ignition to OFF. Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. Ref. to NT-5, BATTERY, NOTE, Note.> Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> Install the service disconnect plug. Turn the ignition switch to OFF. Wait for 30 seconds. Turn the ignition switch to ON. Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «Service Plug Status». <ref. battery="" control="" current="" data.="" energy="" hev(diag)-58,="" operation,="" read="" system,="" to=""></ref.> 	Does the value show «OFF»?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

DX:DTC P0B3C HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT RANGE/ PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-118, DTC P0B3C HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DY:DTC P0B3D HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

GENERAL DESCRIPTION <Ref. to GD(HEV)-119, DTC P0B3D HYBRID BATTERY VOLTAGE SENSE
 "A" CIPCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria

"A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

DZ:DTC P0B3E HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-120, DTC P0B3E HYBRID BATTERY VOLTAGE SENSE "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

HEV(diag)-304

EA:DTC P0B41 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT RANGE/ PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-121, DTC P0B41 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EB:DTC P0B42 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT LOW

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-122, DTC P0B42 HYBRID BATTERY VOLTAGE SENSE
- "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EC:DTC P0B43 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-123, DTC P0B43 HYBRID BATTERY VOLTAGE SENSE "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

ED:DTC P0B46 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT RANGE/ PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-124, DTC P0B46 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

EE:DTC P0B47 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT LOW

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-125, DTC P0B47 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EF:DTC P0B48 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-126, DTC P0B48 HYBRID BATTERY VOLTAGE SENSE "C" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EG:DTC P0B4A HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-127, DTC P0B4A HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Normal control

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EH:DTC P0B4B HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT RANGE/ PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-128, DTC P0B4B HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

EI: DTC P0B4C HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT LOW

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-129, DTC P0B4C HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EJ:DTC P0B4D HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-130, DTC P0B4D HYBRID BATTERY VOLTAGE SENSE "D" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EK:DTC P0B50 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT RANGE/ PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-131, DTC P0B50 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT RANGE/PERFORMANCE. Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EL:DTC P0B51 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-132, DTC P0B51 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

EM:DTC P0B52 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-133, DTC P0B52 HYBRID BATTERY VOLTAGE SENSE "E" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EN:DTC P0B55 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT RANGE/ PERFORMANCE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-134, DTC P0B55 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EO:DTC P0B56 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT LOW

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-135, DTC P0B56 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

EP:DTC P0B57 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-136, DTC P0B57 HYBRID BATTERY VOLTAGE SENSE "F" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

EQ:DTC P0B5A HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT RANGE/ PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

GENERAL DESCRIPTION < Ref. to GD(HEV)-137, DTC P0B5A HYBRID BATTERY VOLTAGE SENSE
 "C" CIPCULT PANCE / DESCRIPTION < Ref. to GD(HEV)-137, DTC P0B5A HYBRID BATTERY VOLTAGE SENSE

"G" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

ER:DTC P0B5B HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-138, DTC P0B5B HYBRID BATTERY VOLTAGE SENSE

"G" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

ES:DTC P0B5C HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT HIGH

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-139, DTC P0B5C HYBRID BATTERY VOLTAGE SENSE "G" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

(Engine does not restart under EV traveling/Auto Start Stop condition.)

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

ET:DTC P0BB8 HYBRID BATTERY VOLTAGE SENSE "Z" CIRCUIT

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-140, DTC P0BB8 HYBRID BATTERY VOLTAGE SENSE "Z" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:
EU:DTC P0C30 HYBRID BATTERY PACK STATE OF CHARGE HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-141, DTC P0C30 HYBRID BATTERY PACK STATE OF CHARGE HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

	Step	Check	Yes	No
1	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «High Voltage Battery Amperage» in the freeze frame data of battery energy control system. <ref. battery<br="" hev(diag)-68,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Is the value –1A or less?	Go to step 2.	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>
2	 CHECK INDICATOR. 1) Turn the ignition switch to OFF. 2) Start the engine. 3) Check illumination of "DRIVING POSSIBLE (READY) INDICATOR" in the meter. 	Is the indicator illuminating?	Go to step 3.	Replace HPCM and the high volt- age battery. <ref. to HEV-37, Hybrid Powertrain Control Module.> <ref. to<br="">HEV-17, High Volt- age Battery.></ref.></ref.
3	CHECK CURRENT DATA. 1) Drive approximately 2 km (1.2 miles) at a speed of 30 km/h (18.6 MPH) or more. 2) Using the Subaru Select Monitor, confirm the current data of battery energy control sys- tem, the value of «High Voltage Battery SOC». <ref. battery="" energy<br="" hev(diag)-58,="" to="">CONTROL SYSTEM, OPERATION, Read Cur- rent Data.></ref.>	Is the value 94% or less?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>

EV:DTC P0C78 HYBRID BATTERY SYSTEM PRECHARGE TIME TOO LONG

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-142, DTC P0C78 HYBRID BATTERY SYSTEM PRE-CHARGE TIME TOO LONG, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	 CHECK DTC. Using the Subaru Select Monitor, read DTCs of the following system. Drive motor control system <ref. (dtc).="" code="" control="" diagnostic="" drive="" hev(diag)-24,="" motor="" operation,="" read="" system,="" to="" trouble=""></ref.> 	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK CURRENT DATA. Using the Subaru Select Monitor, confirm the current data of battery energy control system, the value of «High voltage Battery Total Volt- age». <ref. battery<br="" hev(diag)-58,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.></ref.>	Is the value 75 V or more?	Go to step 3 .	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>

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	Step	Check	Yes	No
3	CHECK DRIVE MOTOR. 1) With the 12 V battery connected, remove the service disconnect plug. <ref. hev-15,<br="" to="">Service Plug.> CAUTION: Watch for an electrical short at each har- ness because the 12 V battery is connected. 2) Lift up the vehicle. 3) Start the engine, and set the shift lever to "D" range. 4) Using the Subaru Select Monitor, confirm the current data of battery energy control sys- tem, the values of «Drive Motor Speed» «Drive Motor Inverter Input Voltage». <ref. to<br="">HEV(diag)-58, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Read Current Data.> NOTE: When current data of the drive motor control system, «ATF Temperature» is 20 — 60°C (68 — 140°F). <ref. drive="" hev(diag)-52,="" mo-<="" th="" to=""><th>Is «Drive Motor Inverter Input Voltage» within the standard in the margin when «Drive Motor Speed» is 600 — 1400 rpm?</th><th>Go to step 4.</th><th>Replace the drive motor inverter. <ref. hev-42,<br="" to="">Inverter.></ref.></th></ref.></ref.></ref.>	Is «Drive Motor Inverter Input Voltage» within the standard in the margin when «Drive Motor Speed» is 600 — 1400 rpm?	Go to step 4.	Replace the drive motor inverter. <ref. hev-42,<br="" to="">Inverter.></ref.>
4	 Read Current Data.> CHECK BUS BAR. 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. 4) Wait for 10 minutes. 5) Check the bus bar. 	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, trace of arc (burnt terminals) etc.)	Go to step 5.	Retighten the bolts. Or replace the bus bar.
5	 CHECK BUS BAR. 1) Remove the bus bar. 2) Using the tester, measure the resistance between bus bar terminals. Connector & terminal (HV5) P — (HV6) P: (HV5) N — (HV6) N: (HV5) P — (HV9) P: (HV5) N — (HV9) N: (HV7) P — (HV8) P: (HV7) N — (HV8) N: 	Is the resistance less than 1 Ω ?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Replace the bus bar.

NOTE:

Value of «Drive Motor Inverter Input Voltage» is proportional to «Drive Motor Speed».

• 1000 rpm: 18 V — 37 V

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(B) Drive Motor Inverter Input Voltage

EW:DTC P0CA6 HYBRID BATTERY CHARGING CURRENT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-143, DTC P0CA6 HYBRID BATTERY CHARGING CUR-RENT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

	Step	Check	Yes	No
1	 CHECK DTC. Read DTCs of the following system. Drive motor control system <ref. li="" to<=""> HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trouble Code (DTC).> </ref.>	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «Drive Motor Torque Target(HPCM)» in the freeze frame data of the battery energy con- trol system. <ref. battery<br="" hev(diag)-68,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Does the value show 0 N or less?	Go to step 3.	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>
3	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control sys- tem. <ref. battery<br="" hev(diag)-68,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Tar- get(HPCM)» within the stan- dard in the margin?	Go to step 4.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
4	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque» «Drive Motor Speed» in the freeze frame data of battery energy control system. <ref. hev(diag)-68,<br="" to="">BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>



HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

(A) Drive Motor Speed Target(HPCM) or Drive Motor Speed (C) Standard

(B) Drive Motor Torque Target (HPCM) or Drive Motor Output Torque Actual

EX:DTC P0CA7 HYBRID BATTERY DISCHARGING CURRENT HIGH

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-144, DTC P0CA7 HYBRID BATTERY DISCHARGING CURRENT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

	Step	Check	Yes	No
1	CHECK DTC. Read DTCs of the following system. • Drive motor control system <ref. to<br="">HEV(diag)-24, DRIVE MOTOR CONTROL SYSTEM, OPERATION, Read Diagnostic Trou- ble Code (DTC).></ref.>	Are any other DTCs detected? (current malfunction)	Perform the diag- nosis according to DTC. <ref. to<br="">HEV(diag)-78, DRIVE MOTOR CONTROL SYS- TEM, LIST, List of Diagnostic Trouble Code (DTC).></ref.>	Go to step 2.
2	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the value of «Drive Motor Output Torque Actual» in the freeze frame data of battery energy control system. <ref. battery<br="" hev(diag)-68,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Does the value show 0 N or more?	Go to step 3 .	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>
3	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Torque Target(HPCM)» «Drive Motor Speed Target(HPCM)» in the freeze frame data of battery energy control sys- tem. <ref. battery<br="" hev(diag)-68,="" to="">ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Torque Target(HPCM)» and «Drive Motor Speed Tar- get(HPCM)» within the stan- dard in the margin?	Go to step 4.	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>
4	CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, confirm the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» in the freeze frame data of battery energy control system. <ref. to<br="">HEV(diag)-68, BATTERY ENERGY CONTROL SYSTEM, OPERATION, Freeze Frame Data Display.></ref.>	Are the values of «Drive Motor Output Torque Actual» and «Drive Motor Speed» within the standard in the margin?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Replace DMCM. <ref. to<br="">CVT(TH58A)-157, Drive Motor Con- trol Module.></ref.>



HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

(A) Drive Motor Speed Target(HPCM) or Drive Motor Speed (C) Standard

Drive Motor Torque Target (HPCM) or Drive Motor Out-(B) put Torque Actual

EY:DTC P1C40 HYBRID BATTERY POSITIVE CONTACTOR OR PRE-CHARGE CONTACTOR CIRCUIT STUCK CLOSED

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-145, DTC P1C40 HYBRID BATTERY POSITIVE CONTAC-TOR OR PRE-CHARGE CONTACTOR CIRCUIT STUCK CLOSED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

	Step	Check	Yes	No
1 CHECI Read I • Engii • Trans OPER/ (DTC) • Hybr HEV(di TROL S tic Trou • Drive HEV(di SYSTE ble Coo • Airba TION, I	K DTC. DTCs of the following system. ne smission <ref. cvt(hev)(diag)-19,<br="" to="">ATION, Read Diagnostic Trouble Code > rid powertrain control system <ref. to<br="">iag)-24, HYBRID POWERTRAIN CON- SYSTEM, OPERATION, Read Diagnos- uble Code (DTC).> e motor control system <ref. to<br="">iag)-24, DRIVE MOTOR CONTROL EM, OPERATION, Read Diagnostic Trou- de (DTC).> ag system <ref. ab(diag)-27,="" opera-<br="" to="">Read Diagnostic Trouble Code (DTC).></ref.></ref.></ref.></ref.>	Are any other DTCs detected? (current malfunction)	First perform the diagnosis accord- ing to other DTCs.	Go to step 2.
2 CHECI 1) Per HEV(di SYSTE 2) Sta 3) Tur 4) Wa 5) Tur 6) Rea 24, BA OPER/ (DTC).	K BECM. form the Clear Memory Mode. <ref. to<br="">iag)-25, BATTERY ENERGY CONTROL EM, OPERATION, Clear Memory Mode.> int the engine. n the ignition switch to OFF. it for 30 seconds. n the ignition switch to ON. ad the DTC again. <ref. hev(diag)-<br="" to="">TTERY ENERGY CONTROL SYSTEM, ATION, Read Diagnostic Trouble Code ></ref.></ref.>	Is the same DTC detected? (current malfunction)	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again. NOTE: In this case, tem- porary poor con- tact of connector, temporary open or short circuit of har- ness may be the cause.

NOTE:

Operation of contactor relay under the normal condition.



(8) 1.3 seconds maximum

- (2) Precharge contactor status(3) Positive contactor status
- (5) 10 seconds(6) 0.8 seconds maximum
- (6) 0.8 seconds maximum

EZ:DTC P1C41 HIGH VOLTAGE CIRCUIT SHORT

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-146, DTC P1C41 HIGH VOLTAGE CIRCUIT SHORT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.> WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK DTC. Read the DTC.	Are any other DTCs detected? (current malfunction)	First perform the diagnosis accord- ing to other DTCs.	Go to step 2 .
2	 CHECK BUS BAR. 1) Turn the ignition to OFF. 2) Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. <ref. battery,="" note,="" note.="" nt-5,="" to=""></ref.> 3) Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> 4) Wait for 10 minutes. 5) Visually check the bus bar. 	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, trace of arc (burnt terminals) etc.)	Go to step 3 .	Retighten the bolts. Or replace the bus bar.

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	Step	Check	Yes	No
3	CHECK POWER CABLE. Visually check the power cable.	Is the condition normal? (Check for loose bolts, insecure con- nection, foreign matter caught, trace of arc (burnt terminals) etc.)	Go to step 4.	Retighten the bolts. Or replace the power cable. <ref. hev-52,<br="" to="">Power Cable.></ref.>
4	CHECK EACH MODULE. Using a tester, measure the resistance between electric noise filter terminals on the high voltage battery side. Connector & terminal (HV7) P — (HV7) N:	Is the resistance 1 Ω or more?	Go to step 7.	Go to step 5.
5	 CHECK DC/DC CONVERTER. 1) Remove the DC/DC converter. 2) Using a tester, measure the resistance between electric noise filter terminals on the high voltage battery side. Connector & terminal (HV7) P — (HV7) N: 	Is the resistance 1 Ω or more?	Replace the DC/ DC converter. <ref. hev-38,<br="" to="">DC/DC Con- verter.></ref.>	Go to step 6 .
6	 CHECK EACH MODULE. 1) Disconnect the power cable (HV4) from drive motor inverter amperage sensor. 2) Remove the drive motor inverter amperage sensor (HV2). 3) Remove bus bars (HV5, HV6, HV7, HV8, HV9). 4) Using a tester, measure the resistance between terminals of each module. Connector & terminal Drive motor inverter (HV5) P - (HV5) N: Electric noise filter (HV7) P - (HV7) N: High voltage battery (HV8) P - (HV8) N: Electric oil pump inverter (HV9) P - (HV9) N: 	Is the resistance 1 Ω or more?	Even if DTC is detected, the cir- cuit has returned to a normal condition at this time. Repro- duce the failure, and then perform the diagnosis again.	Replace the unit that has short cir- cuits.
7	CHECK EACH MODULE. Using a tester, measure the resistance between drive motor inverter amperage sensor terminals on the power cable side. Connector & terminal (HV4) W — (HV4) V: (HV4) W — (HV4) U: (HV4) V — (HV4) U:	Is the resistance 1 Ω or more?	Go to step 9 .	Go to step 8 .

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
8	CHECK EACH MODULE.	Is the resistance 1 Ω or more?	Even if DTC is	Replace the unit
	1) Disconnect the power cable (HV4) from		detected, the cir-	that has short cir-
	drive motor inverter amperage sensor.		cuit has returned to	cuits.
	2) Remove the drive motor inverter amperage		a normal condition	
	sensor (HV2).		at this time. Repro-	
	3) Disconnect the power cable (HV1) from the		duce the failure.	
	drive motor assembly.		and then perform	
	NOTE		the diagnosis	
	The gasket is not reusable.		again.	
	4) Using a tester, measure the resistance			
	between each module and power cable termi-			
	nals.			
	Connector & terminal			
	Drive motor assembly			
	(HV1) W - (HV1) V:			
	(HV1) W - (HV1) U:			
	(HV1) V - (HV1) U:			
	Drive motor inverter			
	(HV2) W - (HV2) V:			
	(HV2) W - (HV2) U:			
	(HV2) V - (HV2) U:			
	Drive motor inverter amperage sensor			
	(HV4) W = (HV4) V:			
	(HV4) W - (HV4) U:			
	(HV4) V - (HV4) U			
	Power cable			
	(HV4) W — (HV4) V:			
	(HV4) W — (HV4) U:			
	(HV4) V — (HV4) U:			
9	CHECK EACH MODULE.	Is the resistance 1 Ω or more?	Even if DTC is	Replace the unit
	1) Disconnect the power cable (HV10) from		detected, the cir-	that has short cir-
	electric oil pump inverter.		cuit has returned to	cuits.
	Disconnect the power cable (HV12) from		a normal condition	
	electric oil pump.		at this time. Repro-	
	Using a tester, measure the resistance		duce the failure,	
	between each module and power cable termi-		and then perform	
	nals.		the diagnosis	
	Connector & terminal		again.	
	Electric oil pump inverter			
	(HV10) W — (HV10) V:			
	(HV10) W — (HV10) U:			
	(HV10) V — (HV10) U:			
	Electric oil pump			
	(HV12) W — (HV12) V:			
	(HV12) W — (HV12) U:			
	(HV12) V — (HV12) U:			
	Power cable			
	(HV10) W — (HV10) V:			
	(HV10) W — (HV10) U:			
	(HV10) V — (HV10) U:			

FA:DTC P1C42 HIGH VOLTAGE CIRCUIT OPEN

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-147, DTC P1C42 HIGH VOLTAGE CIRCUIT OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM:

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



Step	Check	Yes	No
 CHECK BUS BAR. Turn the ignition to OFF. Disconnect the ground cable of the 12 volt auxiliary battery, and as for the 12 volt engine restart battery, disconnect the ground cable from the 12V engine restart battery sensor. Ref. to NT-5, BATTERY, NOTE, Note.> Remove the service disconnect plug. <ref. hev-15,="" plug.="" service="" to=""></ref.> Wait for 10 minutes. Visually check the bus bar. 	Is the condition normal? (Check for loose bolts, etc.)	Go to step 2.	Retighten the bolts. Or replace the bus bar.

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

Ste	р	Check	Yes	No
2 CHECK BUS BAR 1) Remove the bus 2) Using the tester between bus bar te <i>Connector & terr</i> (HV5) P — (HV6 (HV5) N — (HV6)	: s bar. ; measure the resistance rminals. <i>minal</i> 6) <i>P:</i> 6) N:	Is the resistance less than 1 Ω ?	Go to step 3.	Replace the bus bar. (Between electric noise filter and drive motor inverter.)
3 CHECK ELECTRIC Using a tester, mean electric noise filter t <i>Connector & terr</i> (HV6) P — (HV7) (HV6) N — (HV7)	C NOISE FILTER. sure the resistance between rerminals. <i>minal</i> 7) <i>P:</i> 7) <i>N:</i>	Is the resistance less than 1 Ω ?	Go to step 4.	Replace the elec- tric noise filter. <ref. hev-31,<br="" to="">Noise Filter.></ref.>
4 CHECK BUS BAR Using the tester, me between bus bar te Connector & terr (HV7) P — (HV8 (HV7) N — (HV8)	easure the resistance rminals. <i>minal</i> 3) <i>P:</i> 3) N:	Is the resistance less than 1 Ω ?	Go to step 5.	Replace the bus bar. (Between high voltage battery and electric noise fil- ter.)
 5 CHECK DRIVE MC Replace the remback to the vehicle. With the 12 V bit the service disconness service Plug.> CAUTION: Watch for an elemback to the vehicle. Lift up the vehicle. Start the engines Tange. Using the Subat the current data of I tem, the values of «Motor Inverter Input HEV(diag)-58, BAT SYSTEM, OPERAT NOTE: When current data system, «ATF Tem — 140°F). <ref. control="" current="" data<="" li="" read="" to="" tor=""> </ref.>	DTOR. noved/disconnected parts attery connected, remove lect plug. <ref. hev-15,<br="" to="">ctrical short at each har- 12 V battery is connected. le. e, and set the shift lever to ru Select Monitor, confirm battery energy control sys- Drive Motor Speed» «Drive t Voltage». <ref. to<br="">TERY ENERGY CONTROL TON, Read Current Data.> a of the drive motor control perature» is 20 — 60°C (68 HEV(diag)-52, DRIVE MO- SYSTEM, OPERATION,.></ref.></ref.>	Is «Drive Motor Inverter Input Voltage» within the standard in the margin when «Drive Motor Speed» is 600 — 1400 rpm?	Replace the high voltage battery. <ref. hev-17,<br="" to="">High Voltage Bat- tery.></ref.>	Replace the drive motor inverter. <ref. hev-42,<br="" to="">Inverter.></ref.>

NOTE:

Value of «Drive Motor Inverter Input Voltage» is proportional to «Drive Motor Speed».

• 1000 rpm: 18 V — 37 V

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)





FB:DTC P1C43 HYBRID BATTERY CONTACTOR POWER SUPPLY CIRCUIT

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-148, DTC P1C43 HYBRID BATTERY CONTACTOR POW-ER SUPPLY CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

FC:DTC P1C44 SUB CPU IN BECM

DIAGNOSIS:

• Immediately at fault recognition

 GENERAL DESCRIPTION <Ref. to GD(HEV)-149, DTC P1C44 SUB CPU IN BECM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

FD:DTC P1C45 HYBRID BATTERY BLOCK 1 BALANCING PERFORMANCE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-150, DTC P1C45 HYBRID BATTERY BLOCK 1 BALANC-ING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

FE:DTC P1C46 HYBRID BATTERY BLOCK 2 BALANCING PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-151, DTC P1C46 HYBRID BATTERY BLOCK 2 BALANC-ING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

FF: DTC P1C47 HYBRID BATTERY BLOCK 3 BALANCING PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-152, DTC P1C47 HYBRID BATTERY BLOCK 3 BALANC-ING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

FG:DTC P1C48 HYBRID BATTERY BLOCK 4 BALANCING PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-153, DTC P1C48 HYBRID BATTERY BLOCK 4 BALANC-ING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

FH:DTC P1C49 HYBRID BATTERY BLOCK 5 BALANCING PERFORMANCE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-154, DTC P1C49 HYBRID BATTERY BLOCK 5 BALANC-ING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

FI: DTC P1C4A HYBRID BATTERY BLOCK 6 BALANCING PERFORMANCE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-155, DTC P1C4A HYBRID BATTERY BLOCK 6 BALANC-ING PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

FJ: DTC P1C5E HYBRID BATTERY BLOCK VOLTAGE TOO LOW

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-156, DTC P1C5E HYBRID BATTERY BLOCK VOLTAGE TOO LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

If this DTC is detected, replace the high voltage battery. <Ref. to HEV-17, High Voltage Battery.>

FK:DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION < Ref. to GD(HEV)-157, DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FL:DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-158, DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FM:DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF DIAGNOSIS:

- · Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-159, DTC U0076 CONTROL MODULE COMMUNICATION BUS "HEV-CAN" OFF, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FN:DTC U0100 LOST COMMUNICATION WITH ECM/PCM "A"

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-161, DTC U0100 LOST COMMUNICATION WITH ECM/ PCM "A", Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FO:DTC U0101 LOST COMMUNICATION WITH TCM

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-162, DTC U0101 LOST COMMUNICATION WITH TCM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

• Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FP:DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MOD-ULE "A"

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-163, DTC U0110 LOST COMMUNICATION WITH DRIVE MOTOR CONTROL MODULE "A", Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FQ:DTC U0111 LOST COMMUNICATION WITH BATTERY ENERGY CONTROL MODULE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-165, DTC U0111 LOST COMMUNICATION WITH BAT-TERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FR:DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-167, DTC U0122 LOST COMMUNICATION WITH VEHI-
- CLE DYNAMICS CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FS:DTC U0131 LOST COMMUNICATION WITH POWER STEERING CONTROL MODULE

DIAGNOSIS:

- Detects CAN communication error with electric power steering system.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FT: DTC U0140 LOST COMMUNICATION WITH BODY CONTROL MODULE

DIAGNOSIS:

- Detects CAN communication error with body integrated unit.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FU:DTC U0151 LOST COMMUNICATION WITH RESTRAINTS CONTROL MOD-ULE

DIAGNOSIS:

- Detects CAN communication error with airbag system.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FV:DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE

DIAGNOSIS:

- Detects CAN communication error with combination meter.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FW:DTC U0164 LOST COMMUNICATION WITH HVAC CONTROL MODULE

DIAGNOSIS:

- Detects CAN communication error with air conditioner.
- Immediately at fault recognition

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FX:DTC U0287 LOST COMMUNICATION WITH TRANSMISSION FLUID PUMP MODULE

DIAGNOSIS:

- Detects CAN communication error with electric oil pump.
- Immediately at fault recognition

TROUBLE SÝMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FY:DTC U0401 INVALID DATA RECEIVED FROM ECM/PCM "A"

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-168, DTC U0401 INVALID DATA RECEIVED FROM ECM/ PCM "A", Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

FZ: DTC U0402 INVALID DATA RECEIVED FROM TCM

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION < Ref. to GD(HEV)-169, DTC U0402 INVALID DATA RECEIVED FROM TCM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GA:DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A"

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-170, DTC U0411 INVALID DATA RECEIVED FROM DRIVE MOTOR CONTROL MODULE "A", Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GB:DTC U0412 INVALID DATA RECEIVED FROM BATTERY ENERGY CON-TROL MODULE

DIAGNOSIS:

· Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-172, DTC U0412 INVALID DATA RECEIVED FROM BAT-TERY ENERGY CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GC:DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CON-TROL MODULE

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-174, DTC U0416 INVALID DATA RECEIVED FROM VE-HICLE DYNAMICS CONTROL MODULE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GD:DTC U0420 INVALID DATA RECEIVED FROM POWER STEERING CON-TROL MODULE

DIAGNOSIS:

- Detects CAN communication error with electric power steering system.
- · Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GE:DTC U0422 INVALID DATA RECEIVED FROM BODY CONTROL MODULE DIAGNOSIS:

- Detects CAN communication error with body integrated unit.
- · Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GF:DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUS-TER CONTROL MODULE

DIAGNOSIS:

- Detects CAN communication error with combination meter.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GG:DTC U0424 INVALID DATA RECEIVED FROM HVAC CONTROL MODULE

DIAGNOSIS:

- Detects CAN communication error with air conditioner.
- Immediately at fault recognition

TROUBLE SYMPTOM:

EV traveling/Auto Start Stop does not operate.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GH:DTC U0452 INVALID DATA RECEIVED FROM RESTRAINTS CONTROL MODULE

DIAGNOSIS:

- Detects CAN communication error with airbag system.
- · Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GI: DTC U0588 INVALID DATA RECEIVED FROM TRANSMISSION FLUID PUMP MODULE

DIAGNOSIS:

- Detects CAN communication error with electric oil pump.
- Immediately at fault recognition

TROUBLE SYMPTOM:

Normal control

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GJ:DTC U1100 LOST COMMUNICATION WITH ECM/PCM PU-CAN

DIAGNOSIS:

• Immediately at fault recognition

• GENERAL DESCRIPTION <Ref. to GD(HEV)-175, DTC U1100 LOST COMMUNICATION WITH ECM/ PCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GK:DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-176, DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. <Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GL:DTC U1290 LOST COMMUNICATION WITH HYBRID POWERTRAIN CON-**TROL MODULE HEV-CAN**

DIAGNOSIS:

Immediately at fault recognition

GENERAL DESCRIPTION <Ref. to GD(HEV)-177, DTC U1290 LOST COMMUNICATION WITH HYBRID

POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> **TROUBLE SYMPTOM:**

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.

NOTE:

Perform the diagnosis for LAN system. < Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GM:DTC U1401 INVALID DATA RECEIVED FROM ECM/PCM PU-CAN

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-179, DTC U1401 INVALID DATA RECEIVED FROM ECM/ PCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. < Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GN:DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN

DIAGNOSIS:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(HEV)-180, DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Motor assist does not regenerates.
- Sometimes driving power and shifting behavior are different from the normal states.

NOTE:

Perform the diagnosis for LAN system. < Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GO:DTC U1591 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CON-TROL MODULE HEV-CAN

DIAGNOSIS:

Immediately at fault recognition

 GENERAL DESCRIPTION <Ref. to GD(HEV)-181, DTC U1591 INVALID DATA RECEIVED FROM HY- BRID POWERTRAIN CONTROL MODULE HEV-CAN, Diagnostic Trouble Code (DTC) Detecting Criteria.> **TROUBLE SYMPTOM:**

• EV traveling/Auto Start Stop does not operate.

Motor assist does not regenerates.

NOTE:

Perform the diagnosis for LAN system. < Ref. to LAN(HEV)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

GP:DTC U1676 LIN COMMUNICATION BUS ERROR HYBRID POWERTRAIN CONTROL MODULE

DIAGNOSIS:

- Detects LIN communication error.
- · Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- (Engine does not restart under EV traveling/Auto Start Stop condition.)
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

WIRING DIAGRAM

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK BATTERY. Check the 12 volt engine restart battery.	Is the condition normal?	Go to step 2.	Charge or replace the 12 volt engine restart battery.
2	 CHECK MODULES. 1) Disconnect the integrated starter generator connector. 2) Perform the Clear Memory Mode. <ref. clear="" control="" hev(diag)-25,="" hybrid="" memory="" mode.="" operation,="" powertrain="" system,="" to=""></ref.> 3) Read the DTC again. <ref. (dtc).="" code="" control="" diagnostic="" hev(diag)-24,="" hybrid="" operation,="" powertrain="" read="" system,="" to="" trouble=""></ref.> 	Is DTC U1676 detected? (cur- rent malfunction)	Go to step 3 .	Replace the inte- grated starter gen- erator. <ref. to<br="">SC(H4DO(HEV))- 32, Integrated Starter Generator (ISG).></ref.>

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
3	 CHECK MODULES. 1) Turn the ignition switch to OFF. 2) Disconnect the 12V engine restart battery sensor connector. 3) Perform the Clear Memory Mode. <ref. clear="" control="" hev(diag)-25,="" hybrid="" memory="" mode.="" operation,="" powertrain="" system,="" to=""></ref.> 4) Read the DTC again. <ref. (dtc).="" code="" control="" diagnostic="" hev(diag)-24,="" hybrid="" operation,="" powertrain="" read="" system,="" to="" trouble=""></ref.> 	Is DTC U1676 detected? (cur- rent malfunction)	Go to step 4.	Replace the 12V engine restart bat- tery sensor. <ref. to SC(H4DO(HEV))- 60, Battery Sen- sor.></ref.
4	 CHECK MODULES. 1) Turn the ignition switch to OFF. 2) Disconnect the active grille shutter connector. 3) Perform the Clear Memory Mode. <ref. clear="" control="" hev(diag)-25,="" hybrid="" memory="" mode.="" operation,="" powertrain="" system,="" to=""></ref.> 4) Read the DTC again. <ref. (dtc).="" code="" control="" diagnostic="" hev(diag)-24,="" hybrid="" operation,="" powertrain="" read="" system,="" to="" trouble=""></ref.> 	Is DTC U1676 detected? (cur- rent malfunction)	Go to step 5.	Replace the active grille shutter.
5	 CHECK HARNESS (OPEN CIRCUIT). 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector. 3) Using a tester, measure the resistance between the HPCM connector and connector of each unit. Connector & terminal (B605) No. 4 — (F157) No. 3: (B605) No. 4 — (B598) No. 2: (B605) No. 4 — (E163) No. 4: 	Is the resistance less than 1 Ω?	Go to step 6 .	Repair open circuit of the harness between HPCM connector and connector of each unit.
6	CHECK HARNESS (SHORT TO GROUND). Using a tester, measure the resistance between HPCM connector and chassis ground. Connector & terminal (B605) No. 4 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 7.	Repair ground short circuit of har- ness between the HPCM connector and the integrated starter generator connector.
7	CHECK HARNESS (SHORT TO POWER). Using a tester, measure the voltage between the HPCM connector and chassis ground. <i>Connector & terminal</i> (B605) No. 4 (+) — Chassis ground (–):	Is the voltage less than 1 V?	Replace the HPCM. <ref. to<br="">HEV-37, Hybrid Powertrain Control Module.></ref.>	Repair the short circuit to power in harness between the HPCM connec- tor and the inte- grated starter generator connec- tor.

GQ:DTC U1711 LOST COMMUNICATION WITH BATTERY "2" MONITOR MOD-ULE

DIAGNOSIS:

- Detects LIN communication error with 12V engine restart battery sensor.
- Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

NOTE:

This DTC may be set when terminals of the 12 volt engine restart battery are disconnected.

WIRING DIAGRAM

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK CONNECTOR.	Is there looseness or poor con-	Repair the connec-	Go to step 2.
	Check the connector (B598) of 12V engine	tact of connector?	tor.	
	restart battery sensor.			
2	CHECK HARNESS (OPEN CIRCUIT).	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open
	 Disconnect the HPCM connector. 			circuit of the har-
	Disconnect the 12V engine restart battery			ness between the
	sensor connector.			HPCM connector
	3) Using a tester, measure the resistance			and the 12 volt
	between the HPCM connector and 12V engine			engine restart bat-
	restart battery sensor connector.			tery and the 12V
	Connector & terminal			engine restart bat-
	(B605) No. 4 — (B598) No. 2:			tery sensor con-
	(B598) No. 1 — 12 volt engine restart bat-			nector or replace
	tery positive terminal:			fuses.

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
3	 CHECK HARNESS (SHORT TO GROUND). 1) Disconnect the integrated starter generator connector. 2) Using a tester, measure the resistance between HPCM connector and chassis ground. <i>Connector & terminal</i> (B605) No. 4 — Chassis ground: 	Is the resistance 1 MΩ or more?	Go to step 4.	Repair ground short circuit of har- ness between the HPCM connector and the 12V engine restart bat- tery sensor con- nector.
4	CHECK HARNESS (SHORT TO POWER). Using a tester, measure the voltage between the HPCM connector and chassis ground. <i>Connector & terminal</i> (B605) No. 4 (+) — Chassis ground (–):	Is the voltage less than 1 V?	Go to step 5.	Repair the short circuit to power in harness between the HPCM connec- tor and the 12V engine restart bat- tery sensor con- nector.
5	CHECK BATTERY. Check the 12 volt engine restart battery. <ref. to SC(H4DO(HEV))-39, Battery.></ref. 	Is the condition normal?	Replace the 12V engine restart bat- tery sensor. <ref. to SC(H4DO(HEV))- 60, Battery Sen- sor.></ref. 	Replace or charge the battery.

GR:DTC U1720 LOST COMMUNICATION WITH INTEGRATED STARTER GEN-ERATOR

DIAGNOSIS:

- Detects LIN communication error with integrated starter generator.
- · Immediately at fault recognition

TROUBLE SYMPTOM:

- EV traveling/Auto Start Stop does not operate.
- (Engine does not restart under EV traveling/Auto Start Stop condition.)
- Charge warning light illuminates.

CAUTION:

Before performing diagnosis, refer to "CAUTION" in "General Description". <Ref. to HEV(diag)-8, CAUTION, General Description.>

NOTE:

This DTC may be set when terminals of the 12 volt engine restart battery are disconnected.

WIRING DIAGRAM

Hybrid system <Ref. to WI(HEV)-140, WIRING DIAGRAM, Hybrid Electric Vehicle System.>



	Step	Check	Yes	No
1	CHECK BATTERY. Check the 12 volt engine restart battery.	Is the condition normal?	Go to step 2.	Replace or charge the battery.
2	CHECK CONNECTOR. Check the integrated starter generator connec- tor (E163).	Is there looseness or poor con- tact of connector?	Repair the connec- tor.	Go to step 3.
3	 CHECK HARNESS (SHORT TO GROUND). 1) Turn the ignition switch to OFF. 2) Disconnect the HPCM connector. 3) Disconnect the integrated starter generator connector. 4) Disconnect the 12V engine restart battery sensor connector. 5) Using a tester, measure the resistance between HPCM connector and chassis ground. Connector & terminal (B605) No. 4 — Chassis ground: 	Is the resistance 1 MΩ or more?	Go to step 4.	Repair ground short circuit of har- ness between the HPCM connector and the integrated starter generator connector.

HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)

	Step	Check	Yes	No
4	CHECK HARNESS (SHORT TO POWER). Using a tester, measure the voltage between the HPCM connector and chassis ground. <i>Connector & terminal</i> (B605) No. 4 (+) — Chassis ground (–):	Is the voltage less than 1 V?	Go to step 5.	Repair the short circuit to power in harness between the HPCM connec- tor and the inte- grated starter generator connec- tor.
5	CHECK HARNESS (OPEN CIRCUIT). Using a tester, measure the resistance between the HPCM connector and integrated starter generator connector. Connector & terminal (B605) No. 4 — (E163) No. 4: (B605) No. 5 — (E163) No. 5:	Is the resistance less than 1 Ω ?	Replace the inte- grated starter gen- erator. <ref. to<br="">SC(H4DO(HEV))- 32, Integrated Starter Generator (ISG).></ref.>	Repair the open circuit of the har- ness between the HPCM connector and the integrated starter generator connector.