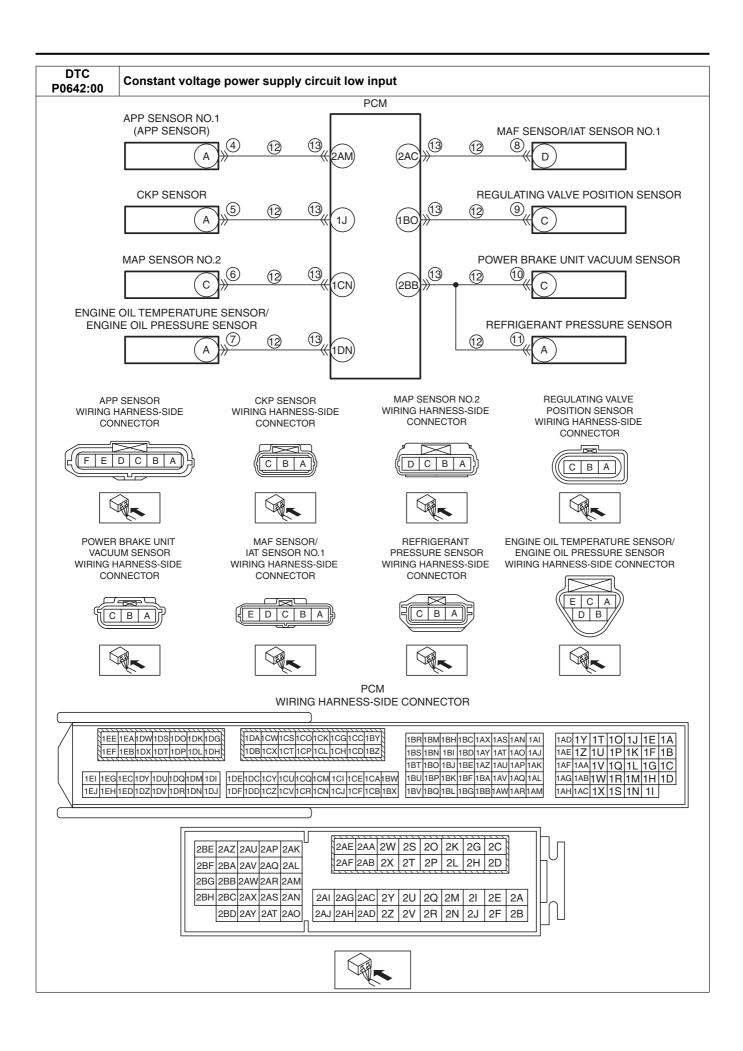
When the following condition is met, the output voltage of the 5 V power supply terminal 3.9 V or less for a continuous 1 s: MONITORING CONDITIONS Battery voltage: 8—20 V Diagnostic support note 'This is a continuous monitor (CCM). 'The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle. 'FREEZE FRAME DATA (Mode 2)/Snapshot data is available. 'DTC is stored in the PCM memory. FAIL-SAFE FUNCTION FAIL-SAFE FUNCTION APP sensor connector or terminals malfunction CKP sensor connector or terminals malfunction CKP sensor connector or terminals malfunction APP sensor No.2 connector or terminals malfunction Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction MAF sensor/IAT sensor No.1 connector or terminals malfunction Regulating valve position sensor connector or terminals malfunction Refrigerant pressure sensor connector or terminals malfunction Refrigerant pressure sensor connector or terminals malfunction Short to ground in wiring harness between the following terminals: APP sensor terminal A—PCM terminal 1D CKP sensor terminal A—PCM terminal 1CN Engine oil temperature sensor/engine oil pressure sensor terminal A—PCM terminal 1DN MAF sensor/IAT sensor No.1 terminal D—PCM terminal 1BO Regulating valve position sensor terminal C—PCM terminal 1BO Power brake unit vacuum sensor terminal C—PCM terminal 1BO	DTC P0642:00	Constant voltage power supply circuit low input
CONDITION This is a continuous monitor (CCM). The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle. FREEZE FRAME DATA (Mode 2)/Snapshot data is available. DTC is stored in the PCM memory. Inhibits the EGR control. Inhibits engine-stop by operating the i-stop function. APP sensor connector or terminals malfunction CKP sensor connector or terminals malfunction MAP sensor No.2 connector or terminals malfunction Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction Regulating valve position sensor connector or terminals malfunction Refrigerant pressure sensor connector or terminals malfunction Refrigerant pressure sensor connector or terminals malfunction Short to ground in wiring harness between the following terminals: APP sensor terminal A—PCM terminal 1J MAP sensor No.2 terminal C—PCM terminal 1CN Engine oil temperature sensor/engine oil pressure sensor terminal A—PCM terminal 1DN MAF sensor/IAT sensor No.1 terminal D—PCM terminal 2AC Regulating valve position sensor terminal C—PCM terminal 1BO Power brake unit vacuum sensor terminal C—PCM terminal 1BO	DETECTION	continuous 1 s: MONITORING CONDITIONS — Battery voltage: 8—20 V
The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle. FREEZE FRAME DATA (Mode 2)/Snapshot data is available. DTC is stored in the PCM memory. FAIL-SAFE FUNCTION Inhibits the EGR control. Inhibits the EGR control. APP sensor connector or terminals malfunction CKP sensor connector or terminals malfunction CKP sensor connector or terminals malfunction MAP sensor No.2 connector or terminals malfunction MAF sensor/IAT sensor No.1 connector or terminals malfunction Regulating valve position sensor connector or terminals malfunction Power brake unit vacuum sensor connector or terminals malfunction Refrigerant pressure sensor terminal 2AM CKP sensor terminal A—PCM terminal 1DN MAP sensor/IAT sensor No.2 terminal 1CD Engine oil temperature sensor/engine oil pressure sensor terminal A—PCM terminal 1DN MAF sensor/IAT sensor No.1 terminal D—PCM terminal 1BO Power brake unit vacuum sensor terminal C—PCM terminal 1BO		
cycle. FREEZE FRAME DATA (Mode 2)/Snapshot data is available. DTC is stored in the PCM memory. Inhibits the EGR control. Inhibits engine-stop by operating the i-stop function. APP sensor connector or terminals malfunction CKP sensor connector or terminals malfunction MAP sensor No.2 connector or terminals malfunction Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction Regulating valve position sensor connector or terminals malfunction Refrigerant pressure sensor terminal CN Short to ground in wiring harness between the following terminals: APP sensor terminal A—PCM terminal 12AM CKP sensor terminal A—PCM terminal 12AM MAF sensor/IAT sensor No.1 terminal 1CN Regulating valve position sensor terminal C—PCM terminal 1BO Power brake unit vacuum sensor terminal C—PCM terminal 2BB	CONDITION	
FAIL-SAFE FUNCTION FAIL-SAFE FUNCTION - Inhibits the EGR control Inhibits engine-stop by operating the i-stop function. - APP sensor connector or terminals malfunction - CKP sensor connector or terminals malfunction - MAP sensor No.2 connector or terminals malfunction - Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction - Regulating valve position sensor connector or terminals malfunction - Refrigerant pressure sensor connector or terminals malfunction - CKP sensor terminal A—PCM terminal 2AM - CKP sensor terminal A—PCM terminal 1J - MAP sensor No.2 terminal C—PCM terminal 1CN - Engine oil temperature sensor/engine oil pressure sensor terminal A—PCM terminal 1DN - MAF sensor/IAT sensor No.1 terminal D—PCM terminal 2AC - Regulating valve position sensor terminal C—PCM terminal 1BO - Power brake unit vacuum sensor terminal C—PCM terminal 1BO		
POSSIBLE CAUSE POSSIBLE CAUS		
FAIL-SAFE FUNCTION Inhibits the EGR control. Inhibits engine-stop by operating the i-stop function. APP sensor connector or terminals malfunction CKP sensor connector or terminals malfunction MAP sensor No.2 connector or terminals malfunction Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction MAF sensor/IAT sensor No.1 connector or terminals malfunction Regulating valve position sensor connector or terminals malfunction Power brake unit vacuum sensor connector or terminals malfunction Refrigerant pressure sensor connector or terminals malfunction Short to ground in wiring harness between the following terminals: APP sensor terminal A—PCM terminal 1J MAP sensor No.2 terminal C—PCM terminal 1CN Engine oil temperature sensor/engine oil pressure sensor terminal A—PCM terminal 1DN MAF sensor/IAT sensor No.1 terminal D—PCM terminal 1BO Power brake unit vacuum sensor terminal C—PCM terminal 1BO		
APP sensor connector or terminals malfunction CKP sensor connector or terminals malfunction MAP sensor No.2 connector or terminals malfunction Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction MAF sensor/IAT sensor No.1 connector or terminals malfunction Regulating valve position sensor connector or terminals malfunction Power brake unit vacuum sensor connector or terminals malfunction Refrigerant pressure sensor connector or terminals malfunction Regulating valve position sensor terminal 1DN MAP sensor No.1 terminal 1D—PCM terminal 1A—PCM terminal 1DN MAF sensor/IAT sensor No.1 terminal D—PCM terminal 2AC Regulating valve position sensor terminal C—PCM terminal 1BO Power brake unit vacuum sensor terminal C—PCM terminal 2BB	FAIL-SAFE	
CKP sensor connector or terminals malfunction MAP sensor No.2 connector or terminals malfunction Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction MAF sensor/IAT sensor No.1 connector or terminals malfunction Regulating valve position sensor connector or terminals malfunction Power brake unit vacuum sensor connector or terminals malfunction Refrigerant pressure sensor connector or terminals malfunction Refrigerant pressure sensor connector or terminals malfunction Short to ground in wiring harness between the following terminals: APP sensor terminal A—PCM terminal 2AM CKP sensor terminal A—PCM terminal 1J MAP sensor No.2 terminal C—PCM terminal 1CN Engine oil temperature sensor/engine oil pressure sensor terminal A—PCM terminal 1DN MAF sensor/IAT sensor No.1 terminal D—PCM terminal 2AC Regulating valve position sensor terminal C—PCM terminal 1BO Power brake unit vacuum sensor terminal C—PCM terminal 2BB	FUNCTION	Inhibits engine-stop by operating the i-stop function.
Retrigerant pressure sensor terminal A—PCM terminal 2BB PCM connector or terminals malfunction		 CKP sensor connector or terminals malfunction MAP sensor No.2 connector or terminals malfunction Engine oil temperature sensor/engine oil pressure sensor connector or terminals malfunction MAF sensor/IAT sensor No.1 connector or terminals malfunction Regulating valve position sensor connector or terminals malfunction Power brake unit vacuum sensor connector or terminals malfunction Refrigerant pressure sensor connector or terminals malfunction Short to ground in wiring harness between the following terminals: APP sensor terminal A—PCM terminal 2AM CKP sensor terminal A—PCM terminal 1J MAP sensor No.2 terminal C—PCM terminal 1CN Engine oil temperature sensor/engine oil pressure sensor terminal A—PCM terminal 1DN MAF sensor/IAT sensor No.1 terminal D—PCM terminal 2AC Regulating valve position sensor terminal C—PCM terminal 1BO Power brake unit vacuum sensor terminal C—PCM terminal 2BB Refrigerant pressure sensor terminal A—PCM terminal 2BB
		PCM malfunction



Diagnostic Procedure

STEP	ostic Procedure INSPECTION		ACTION
1	VERIFY FREEZE FRAME DATA (MODE 2)/	Yes	Go to the next step.
'	SNAPSHOT DATA HAS BEEN RECORDED	No	Record the FREEZE FRAME DATA (Mode 2)/snapshot data
	Has the FREEZE FRAME DATA (Mode 2)/	INO	on the repair order, then go to the next step.
	snapshot data been recorded?		of the repair order, then go to the flext step.
2	VERIFY RELATED SERVICE INFORMATION	Yes	Perform repair or diagnosis according to the available
		res	
	AVAILABILITY		Service Information.
	Verify related Service Information availability.	NI-	• If the vehicle is not repaired, go to the next step.
	• Is any related Service Information available?	No	Go to the next step.
3	VERIFY RELATED PENDING CODE AND/OR	Yes	Go to the applicable PENDING CODE or DTC inspection.
	DTC		(See DTC TABLE [SKYACTIV-D 2.2].)
	• Switch the ignition off, then ON (engine off).	No	Go to the next step.
	Perform the Pending Trouble Code Access		
	Procedure and DTC Reading Procedure.		
	(See ON-BOARD DIAGNOSTIC TEST		
	[SKYACTIV-D 2.2].)		
	Are any other PENDING CODEs and/or DTCs		
	present?		
4	INSPECT APP SENSOR CONNECTOR	Yes	Repair or replace the connector and/or terminals, then go to
	CONDITION		Step 14.
	Switch the ignition off.	No	Go to the next step.
	Disconnect the APP sensor connector.		
	Inspect for poor connection (such as damaged/		
	pulled-out pins, corrosion).		
	Is there any malfunction?		
5	INSPECT CKP SENSOR CONNECTOR	Yes	Repair or replace the connector and/or terminals, then go to
	CONDITION		Step 14.
	Disconnect the CKP sensor connector.	No	Go to the next step.
	Inspect for poor connection (such as damaged/		
	pulled-out pins, corrosion).		
	• Is there any malfunction?		
6	INSPECT MAP SENSOR NO.2 CONNECTOR CONDITION	Yes	Repair or replace the connector and/or terminals, then go to
	Disconnect the MAP sensor No.2 connector.	No	Step 14. Go to the next step.
	Inspect for poor connection (such as damaged/	No	Go to the next step.
	pulled-out pins, corrosion).		
7	• Is there any malfunction? INSPECT ENGINE OIL TEMPERATURE	Yes	Repair or replace the connector and/or terminals, then go to
,	SENSOR/ENGINE OIL PRESSURE SENSOR	165	Step 14.
	CONNECTOR CONDITION	No	Go to the next step.
	Disconnect the engine oil temperature sensor/	INO	Go to the next step.
	engine oil pressure sensor connector.		
	Inspect for poor connection (such as damaged/		
	pulled-out pins, corrosion).		
	• Is there any malfunction?		
8	INSPECT MAF SENSOR/IAT SENSOR NO.1	Yes	Repair or replace the connector and/or terminals, then go to
-	CONNECTOR CONDITION		Step 14.
	Disconnect the MAF sensor/IAT sensor No.1	No	Go to the next step.
	connector.		'
	Inspect for poor connection (such as damaged/		
	pulled-out pins, corrosion).		
	Is there any malfunction?		
9	INSPECT REGULATING VALVE POSITION	Yes	Repair or replace the connector and/or terminals, then go to
	SENSOR CONNECTOR CONDITION		Step 14.
	Disconnect the regulating valve position sensor	No	Go to the next step.
	connector.		
	Inspect for poor connection (such as damaged/		
	pulled-out pins, corrosion).		
	• Is there any malfunction?		
		1	<u> </u>

STEP	INSPECTION		ACTION
10	INSPECT POWER BRAKE UNIT VACUUM	Yes	Repair or replace the connector and/or terminals, then go to
	SENSOR CONNECTOR CONDITION		Step 14.
	Disconnect the power brake unit vacuum sensor	No	Go to the next step.
	connector.		
	 Inspect for poor connection (such as damaged/ pulled-out pins, corrosion). 		
	• Is there any malfunction?		
11	INSPECT REFRIGERANT PRESSURE SENSOR	Yes	Repair or replace the connector and/or terminals, then go to
	CONNECTOR CONDITION		Step 14.
	Disconnect the refrigerant pressure sensor	No	Go to the next step.
	connector.		·
	Inspect for poor connection (such as damaged/		
	pulled-out pins, corrosion).		
10	• Is there any malfunction?	.,	
12	INSPECT EACH POWER SUPPLY CIRCUIT FOR	Yes	If the short to ground circuit could be detected in the wiring
	• Verify that the APP sensor and CKP sensor and		harness: • Repair or replace the wiring harness for a possible short to
	MAP sensor No.2 and engine oil temperature		ground.
	sensor/engine oil pressure sensor and MAF		If the short to ground circuit could not be detected in the
	sensor/IAT sensor No.1 and regulating valve		wiring harness:
	position sensor and power brake unit vacuum		Replace the PCM (short to ground in the PCM internal
	sensor and refrigerant pressure sensor		circuit).
	connectors are disconnected.		(See PCM REMOVAL/INSTALLATION [SKYACTIV-D
	Inspect for continuity between the following		2.2].)
	terminals (wiring harness-side) and body ground:	NI-	Go to Step 14.
	APP sensor terminal A CKP sensor terminal A	No	Go to the next step.
	MAP sensor No.2 terminal C		
	Engine oil temperature sensor/engine oil		
	pressure sensor terminal A		
	MAF sensor/IAT sensor No.1 terminal D		
	 Regulating valve position sensor terminal C 		
	Power brake unit vacuum sensor terminal C		
	Refrigerant pressure sensor terminal A		
40	Is there continuity? INSPECT PCM CONNECTOR CONDITION	Vaa	
13	Disconnect the PCM connector.	Yes	Repair or replace the connector and/or terminals, then go to the next step.
	Inspect for poor connection (such as damaged/	No	Go to the next step.
	pulled-out pins, corrosion).	110	Of to the flext step.
	• Is there any malfunction?		
14	VERIFY DTC TROUBLESHOOTING	Yes	' '
	COMPLETED		If the malfunction recurs, replace the PCM.
	Always reconnect all disconnected connectors.		(See PCM REMOVAL/INSTALLATION [SKYACTIV-D
	Clear the DTC from the PCM memory using the		2.2].)
	M-MDS. (See AFTER REPAIR PROCEDURE	No	Go to the next step. Go to the next step.
	[SKYACTIV-D 2.2].)	INU	GO to the heat step.
	Perform the DTC Reading Procedure.		
	(See ON-BOARD DIAGNOSTIC TEST		
	(SKYACTIV-D 2.2].)		
	• Is the same DTC present?		
15	VERIFY AFTER REPAIR PROCEDURE	Yes	Go to the applicable DTC inspection.
	Perform the "AFTER REPAIR PROCEDURE".		(See DTC TABLE [SKYACTIV-D 2.2].)
	(See AFTER REPAIR PROCEDURE	No	DTC troubleshooting completed.
	[SKYACTIV-D 2.2].)		
	Are any DTCs present?		