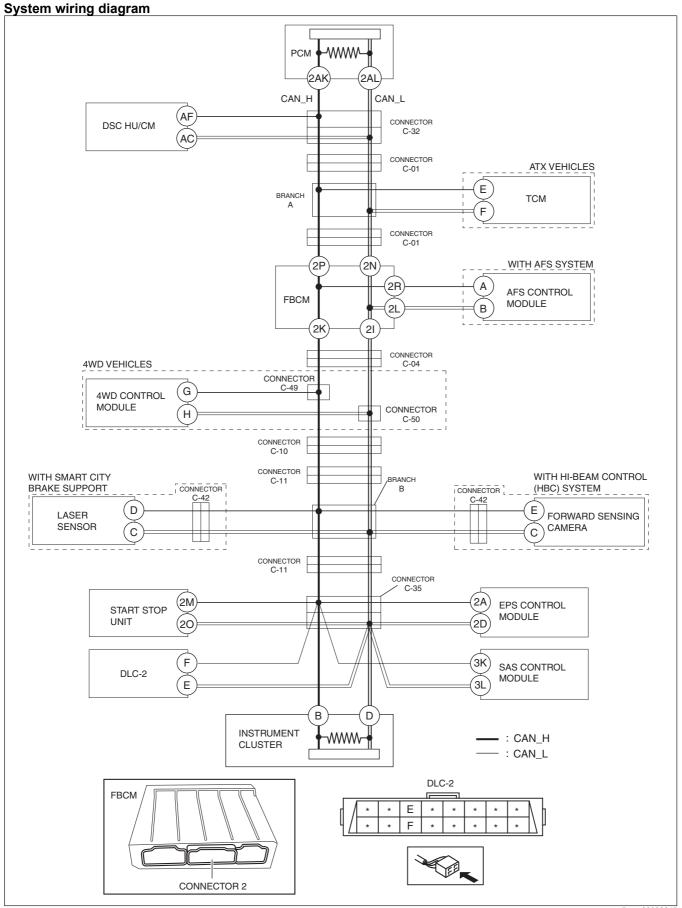
DETERMINING SHORT BETWEEN CIRCUITS LOCATION (HS-CAN) [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (L.H.D.)]

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Caution

 Perform the following malfunction diagnosis only when it is diagnosed with a short between circuits by CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (L.H.D.)].



Determination procedure

Caution

- When disconnecting the connector, verify that there is no looseness, damage, deformation, corrosion, or poor connection of the connector terminals.
 When inspecting the DLC-2, touch it with a paper clip or similar thin pin without directly inserting a tester into the terminals.

Step	Inspection		Action
1	INSPECT BETWEEN FRONT BODY CONTROL	Yes	Go to Step 5.
'	MODULE (FBCM) AND INSTRUMENT	No	Go to the next step.
	CLUSTER FOR SHORT BETWEEN CIRCUITS	INO	Go to the next step.
	Disconnect the negative battery cable.		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	Disconnect connector 2 which has front body		
	control module (FBCM) terminals 2K and 2I.		
	Connect the negative battery cable.		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	• Switch the ignition ON (engine off).		
	Measure the voltage at DLC-2 terminals F and		
	E.		
	• Is the voltage at DLC-2 terminals F and E the same?		
2	INSPECT FRONT BODY CONTROL MODULE	Yes	Replace the front body control module (FBCM) because
_	(FBCM) FOR SHORT BETWEEN CIRCUITS		there is a short between circuits in the front body control
	Switch the ignition off (LOCK).		module (FBCM).
	Disconnect the negative battery cable.		(See FRONT BODY CONTROL MODULE (FBCM)
	(See NEGATIVE BATTERY CABLE		REMOVAL/INSTALLATION.)
	DISCONNECTION/CONNECTION	No	Go to the next step.
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	• Inspect for continuity between front body control		
	module (FBCM) terminals 2K and 2I. • Is there continuity?		
3	INSPECT BETWEEN AFS CONTROL MODULE	Yes	Go to the next step.
	AND FRONT BODY CONTROL MODULE	No	Go to Step 25.
	(FBCM) FOR SHORT BETWEEN CIRCUITS	. 10	
	Inspect for continuity between AFS control		
	module terminals A and B.		
	Is there continuity?		
4	INSPECT AFS CONTROL MODULE FOR	Yes	Repair or replace the wiring harness between the AFS
	SHORT BETWEEN CIRCUITS		control module and front body control module (FBCM)
	Disconnect the AFS control module connector.		because the wiring harness is shorted between circuits.
	Inspect for continuity between AFS control	No	Replace the AFS control module because there is a short
	module terminals A and B (wiring harness side).		between circuits in the AFS control module.
	Is there continuity?		(See ADAPTIVE FRONT LIGHTING SYSTEM (AFS)
			CONTROL MODULE REMOVAL/INSTALLATION.)

Step	Inspection		Action
5	INSPECT BETWEEN CONNECTOR C-04 AND	Yes	Go to the next step.
	INSTRUMENT CLUSTER FOR SHORT BETWEEN CIRCUITS • Switch the ignition off (LOCK). • Disconnect the negative battery cable.	No	Repair or replace the wiring harness between the front body control module (FBCM) and connector C-04 because the wiring harness is shorted between circuits.
	(See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].)		
	Disconnect connector C-04. Connect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE)		
	DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) • Switch the ignition ON (engine off). • Measure the voltage at DLC-2 terminals F and E.		
	• Is the voltage at DLC-2 terminals F and E the same?		
6	INSPECT BETWEEN CONNECTORS C-49	Yes	Go to Step 9.
	AND C-50 AND INSTRUMENT CLUSTER FOR	No	Go to the next step.
	SHORT BETWEEN CIRCUITS		
	Switch the ignition off (LOCK).		
	• Disconnect the negative battery cable.		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION		
	SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	• Disconnect connectors C-49 and C-50.		
	Connect the negative battery cable. (See NEGATIVE BATTERY CABLE)		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].) • Switch the ignition ON (engine off).		
	Measure the voltage at DLC-2 terminals F and		
	E.		
	Is the voltage at DLC-2 terminals F and E the same?		

Step	Inspection		Action
7	INSPECT BETWEEN 4WD CONTROL	Yes	Go to the next step.
	MODULE AND CONNECTORS C-49 AND C-50 FOR SHORT BETWEEN CIRCUITS • Switch the ignition off (LOCK). • Disconnect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) • Inspect for continuity between 4WD control module terminals G and H. • Is there continuity?	No	Repair or replace the wiring harness between connector C-04 and connectors C-49 and C-50 because the wiring harness is shorted between circuits.
8	INSPECT 4WD CONTROL MODULE FOR SHORT BETWEEN CIRCUITS • Disconnect the 4WD control module connector. • Inspect for continuity between 4WD control module terminals G and H (wiring harness side). • Is there continuity?	Yes	Repair or replace the wiring harness between the 4WD control module and connectors C-49 and C-50 because the wiring harness is shorted between circuits. Replace the 4WD control module because there is a short between circuits in the 4WD control module. (See 4WD CONTROL MODULE REMOVAL/INSTALLATION.)
9	INSPECT BETWEEN CONNECTOR C-10 AND INSTRUMENT CLUSTER FOR SHORT BETWEEN CIRCUITS • Switch the ignition off (LOCK). • Disconnect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) • Disconnect connector C-10. • Connect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) • Switch the ignition ON (engine off). • Measure the voltage at DLC-2 terminals F and E. • Is the voltage at DLC-2 terminals F and E the same?	Yes No	Go to the next step. Repair or replace the wiring harness between connectors C-49 and C-50 and connector C-10 because the wiring harness is shorted between circuits.

Step	Inspection		Action
10	INSPECT BETWEEN CONNECTOR C-11 AND	Yes	Go to Step 16.
	INSTRUMENT CLUSTER FOR SHORT	No	Go to the next step.
	BETWEEN CIRCUITS		·
	Switch the ignition off (LOCK).		
	Disconnect the negative battery cable.		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	Disconnect connector C-11.		
	Connect the negative battery cable.		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	• Switch the ignition ON (engine off).		
	Measure the voltage at DLC-2 terminals F and		
	E.		
	• Is the voltage at DLC-2 terminals F and E the same?		
11	INSPECT BETWEEN CONNECTOR C-11 AND	Yes	Go to the next step.
''	FORWARD SENSING CAMERA/LASER	No	Repair or replace the wiring harness between connector
	SENSOR FOR SHORT BETWEEN CIRCUITS	INO	C-11 and connector C-10 because the wiring harness is
	Switch the ignition off (LOCK).		shorted between circuits.
	Disconnect the negative battery cable.		Shorted between circuits.
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	Inspect for continuity between forward sensing		
	camera terminals E and C (with high beam		
	control (HBC) system).		
	Inspect for continuity between laser sensor		
	terminals D and C (with smart city brake		
	support).		
	Is there continuity?		
12	INSPECT BETWEEN LASER SENSOR AND	Yes	Go to the next step.
	CONNECTOR C-42 FOR SHORT BETWEEN	No	Go to Step 14.
	CIRCUITS		
	Disconnect connector C-42. Induct for continuity between loads conserved.		
	Inspect for continuity between laser sensor terminals D and C.		
	terminals D and C.		
13	• Is there continuity? INSPECT LASER SENSOR FOR SHORT	Yes	Repair or replace the wiring harness between the laser
13	BETWEEN CIRCUITS	168	sensor and connector C-42 because the wiring harness is
	Disconnect the laser sensor connector.		shorted between circuits.
	Inspect for continuity between laser sensor	No	Replace the laser sensor because there is a short between
	terminals D and C (wiring harness side).	INU	circuits in the laser sensor.
	• Is there continuity?		(See LASER SENSOR REMOVAL/INSTALLATION.)
14	INSPECT BETWEEN FORWARD SENSING	Yes	Go to the next step.
'-	CAMERA AND CONNECTOR C-42 FOR	No	Repair or replace the wiring harness between connector
	SHORT BETWEEN CIRCUITS	10	C-11 and connector C-42 because the wiring harness is
	Inspect for continuity between forward sensing		shorted between circuits.
	camera terminals E and C.		
	Is there continuity?		

Step	Inspection		Action
15	INSPECT FORWARD SENSING CAMERA FOR	Yes	Repair or replace the wiring harness between the forward
	SHORT BETWEEN CIRCUITS		sensing camera and connector C-42 because the wiring
	Disconnect the forward sensing camera		harness is shorted between circuits.
	connector.	No	Replace the forward sensing camera because there is a
	Inspect for continuity between forward sensing		short between circuits in the forward sensing camera.
	camera terminals E and C (wiring harness side).		(See FORWARD SENSING CAMERA (FSC) REMOVAL/
	• Is there continuity?		INSTALLATION.)
16	INSPECT BETWEEN DLC-2 AND	Yes	Repair or replace the wiring harness between DLC-2 and
	CONNECTOR C-35 FOR SHORT BETWEEN		connector C-35 because the wiring harness is shorted
	CIRCUITS	NI-	between circuits.
	Switch the ignition off (LOCK). Disconnect the pogetive bettery cable.	No	Go to the next step.
	Disconnect the negative battery cable. (See NEGATIVE BATTERY CABLE)		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	Disconnect connector C-35.		
	• Inspect for continuity between DLC-2 terminals		
	F and E.		
	Is there continuity?		
17	INSPECT BETWEEN START STOP UNIT AND	Yes	Go to the next step.
	CONNECTOR C-35 FOR SHORT BETWEEN	No	Go to Step 19.
	CIRCUITS		
	Inspect for continuity between start stop unit		
	terminals 2M and 2O.		
18	• Is there continuity? INSPECT START STOP UNIT FOR SHORT	Yes	Repair or replace the wiring harness between the start stop
10	BETWEEN CIRCUITS	165	unit and connector C-35 because the wiring harness is
	Disconnect the start stop unit connector.		shorted between circuits.
	Is there continuity between start stop unit	No	Replace the start stop unit because there is a short
	terminals 2M and 2O (wiring harness side)?		between circuits in the start stop unit.
	• Is there continuity?		(See START STOP UNIT REMOVAL/INSTALLATION.)
19	INSPECT BETWEEN EPS CONTROL MODULE	Yes	Go to the next step.
	AND CONNECTOR C-35 FOR SHORT	No	Go to Step 21.
	BETWEEN CIRCUITS		
	Inspect for continuity between EPS control		
	module terminals 2A and 2D.		
	• Is there continuity?		Desired the size because the EDO
20	INSPECT EPS CONTROL MODULE FOR SHORT BETWEEN CIRCUITS	Yes	Repair or replace the wiring harness between the EPS
	Disconnect the EPS control module connector.		control module and connector C-35 because the wiring harness is shorted between circuits.
	Is there continuity between EPS control module	No	Replace the EPS control module because there is a short
	terminals 2A and 2D (wiring harness side)?	INO	between circuits in the EPS control module.
	• Is there continuity?		(See STEERING WHEEL AND COLUMN REMOVAL/
	io afore continuity.		INSTALLATION.)
21	INSPECT BETWEEN SAS CONTROL	Yes	Go to the next step.
	MODULE AND CONNECTOR C-35 FOR	No	Go to Step 23.
	SHORT BETWEEN CIRCUITS		'
	Inspect for continuity between SAS control		
	module terminals 3K and 3L.		
	Is there continuity?		
22	INSPECT SAS CONTROL MODULE FOR	Yes	Repair or replace the wiring harness between the SAS
	SHORT BETWEEN CIRCUITS		control module and connector C-35 because the wiring
	Disconnect the SAS control module connector.		harness is shorted between circuits.
	• Is there continuity between SAS control module	No	Replace the SAS control module because there is a short
	TOTALIST SEE AND SEE CONTINUE DATAGES CIDALS	İ	between circuits in the SAS control module.
	terminals 3K and 3L (wiring harness side)?		
	• Is there continuity?		(See SAS CONTROL MODULE REMOVAL/ INSTALLATION.)

Step	Inspection		Action
23	INSPECT BETWEEN INSTRUMENT CLUSTER	Yes	Go to the next step.
	AND CONNECTOR C-35 FOR SHORT BETWEEN CIRCUITS • Inspect for continuity between instrument cluster terminals B and D. • Is there continuity?	No	Repair or replace the wiring harness between connector C-11 and connector C-35 because the wiring harness is shorted between circuits.
24	INSPECT INSTRUMENT CLUSTER FOR SHORT BETWEEN CIRCUITS • Disconnect the instrument cluster connector. • Is there continuity between instrument cluster terminals B and D (wiring harness side)? • Is there continuity?	Yes	Repair or replace the wiring harness between the instrument cluster and connector C-35 because the wiring harness is shorted between circuits. Replace the instrument cluster because there is a short between circuits in the instrument cluster. (See INSTRUMENT CLUSTER REMOVAL/
25	INSPECT BETWEEN CONNECTOR C 01 AND	Voc	INSTALLATION.)
25	INSPECT BETWEEN CONNECTOR C-01 AND FRONT BODY CONTROL MODULE (FBCM) FOR SHORT BETWEEN CIRCUITS • Switch the ignition off (LOCK). • Disconnect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) • Connect connector 2 which has front body control module (FBCM) terminals 2K and 2I. • Disconnect connector C-01. • Connect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) • Switch the ignition ON (engine off). • Measure the voltage at DLC-2 terminals F and E. • Is the voltage at DLC-2 terminals F and E the same?	No	Repair or replace the wiring harness between connector C-01 and the front body control module (FBCM) because the wiring harness is shorted between circuits. Go to the next step.
26	INSPECT BETWEEN TCM AND CONNECTOR C-01 FOR SHORT BETWEEN CIRCUITS • Switch the ignition off (LOCK). • Disconnect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION	Yes No	Go to the next step. Go to Step 28.
27	[SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) • Inspect for continuity between TCM terminals E and F. • Is there continuity? INSPECT TCM FOR SHORT BETWEEN CIRCUITS • Disconnect the TCM connector.	Yes	Repair or replace the wiring harness between the TCM and connector C-01 because the wiring harness is shorted between circuits.
	 Inspect for continuity between TCM terminals E and F (wiring harness side). Is there continuity? 	No	Replace the TCM because there is a short between circuits in the TCM. (See CONTROL VALVE BODY REMOVAL/INSTALLATION [FW6A-EL, FW6AX-EL].)

Step	Inspection		Action
28	INSPECT BETWEEN CONNECTORS C-32	Yes	Repair or replace the wiring harness between connector
	AND C-01 FOR SHORT BETWEEN CIRCUITS		C-32 and connector C-01 because the wiring harness is
	Connect connector C-01.		shorted between circuits.
	Disconnect connector C-32.	No	Go to the next step.
	Connect the negative battery cable.		·
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	Switch the ignition ON (engine off).		
	Measure the voltage at DLC-2 terminals F and		
	E.		
	Is the voltage at DLC-2 terminals F and E the		
	same?		
29	INSPECT BETWEEN DSC HU/CM AND	Yes	Go to the next step.
	CONNECTOR C-32 FOR SHORT BETWEEN	No	Go to Step 31.
	CIRCUITS		
	Switch the ignition off (LOCK).		
	Disconnect the negative battery cable.		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0, SKYACTIV-G 2.5		
	(WITHOUT i-stop)].)		
	• Inspect for continuity between DSC HU/CM		
	terminals AF and AC.		
30	• Is there continuity? INSPECT DSC HU/CM FOR SHORT BETWEEN	Yes	Repair or replace the wiring harness between the DSC HU/
30	CIRCUITS	165	CM and connector C-32 because the wiring harness is
	Disconnect the DSC HU/CM connector.		shorted between circuits.
	Inspect for continuity between DSC HU/CM	No	Replace the DSC HU/CM because there is a short between
	terminals AF and AC (wiring harness side).	INO	circuits in the DSC HU/CM.
	• Is there continuity?		(See DSC HU/CM REMOVAL/INSTALLATION.)
31	INSPECT PCM FOR SHORT BETWEEN	Yes	Repair or replace the wiring harness between the PCM and
31	CIRCUITS	163	connector C-32 because the wiring harness is shorted
	Disconnect the PCM connector.		between circuits.
	Inspect for continuity between PCM terminals	No	Replace the PCM because there is a short between circuits
	2AK and 2AL (wiring harness side).	. 10	in the PCM.
	• Is there continuity?		(See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0,
			SKYACTIV-G 2.5].)