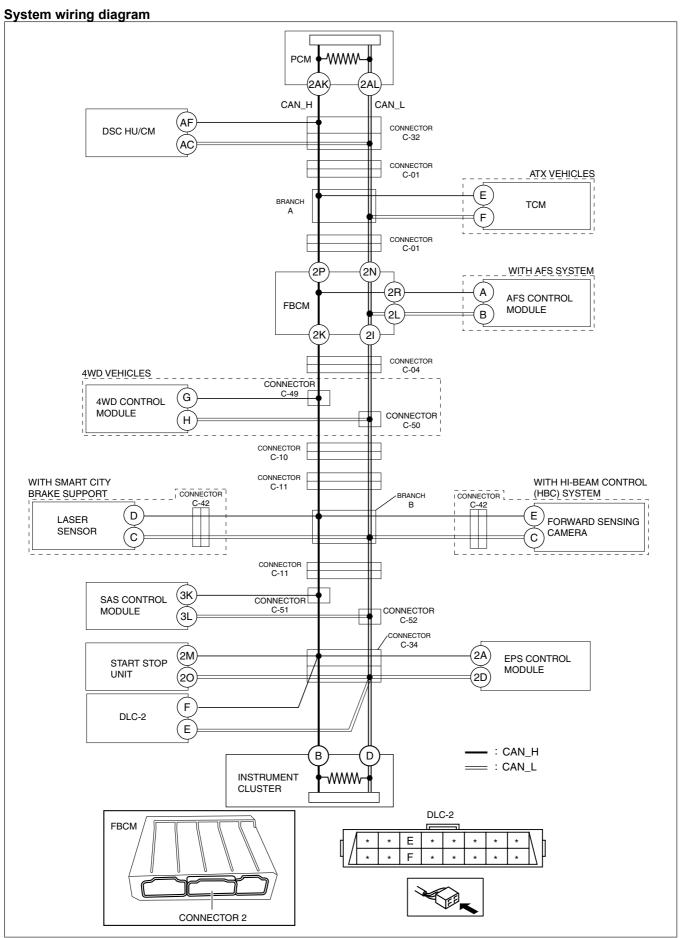
DETERMINING SHORT TO GROUND LOCATION (HS-CAN) [SKYACTIV-G 2.0 (R.H.D.)]

id100202000600

Caution

 Perform the following malfunction diagnosis only when it is diagnosed with a short to ground by CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [SKYACTIV-G 2.0 (R.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 FOR SHORT TO GROUND	Yes	Go to Step 5.
	BETWEEN FRONT BODY CONTROL MODULE	No	Go to the next step.
	(FBCM) AND INSTRUMENT CLUSTER		
	Disconnect the negative battery cable.		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0].)		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-G 2.0 (WITHOUT i-stop)].)		
	Disconnect connector 2 which has front body		
	control module (FBCM) terminals 2P and 2N.		
	• Inspect for continuity at the following terminals:		
	Between DLC-2 terminal F and body		
	ground		
	Between DLC-2 terminal E and body		
	ground		
	• Is there continuity?		
2	INSPECT CAN LINE INSIDE FRONT BODY	Yes	Replace the front body control module (FBCM) because
_	CONTROL MODULE (FBCM) FOR SHORT TO		there is a short to ground in the front body control module
	GROUND		(FBCM).
	Inspect for continuity at the following terminals:		(See FRONT BODY CONTROL MODULE (FBCM)
	Between front body control module (FBCM)		REMOVAL/INSTALLATION.)
	terminal 2P and body ground	No	Go to the next step.
	Between front body control module (FBCM)		
	terminal 2N and body ground		
	Is there continuity?		
3	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN AFS CONTROL MODULE AND	No	Go to Step 26.
	FRONT BODY CONTROL MODULE (FBCM)		
	Inspect for continuity at the following terminals:		
	Between AFS control module terminal A		
	and body ground		
	Between AFS control module terminal B		
	and body ground		
	Is there continuity?		
4	INSPECT CAN LINE IN AFS CONTROL	Yes	Repair or replace the wiring harness between the AFS
	MODULE FOR SHORT TO GROUND		control module and front body control module (FBCM)
	Disconnect the AFS control module connector.		because the wiring harness is shorted to ground.
	Inspect for continuity at the following terminals:	No	Replace the AFS control module because there is a short
	Between AFS control module terminal A		to ground in the AFS control module.
	(wiring harness side) and body ground		(See ADAPTIVE FRONT LIGHTING SYSTEM (AFS)
	Between AFS control module terminal B		CONTROL MODULE REMOVAL/INSTALLATION.)
	(wiring harness side) and body ground		,
	• Is there continuity?		

Step	Inspection		Action
5	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN CONNECTOR C-04 AND INSTRUMENT CLUSTER • Disconnect connector C-04. • Inspect for continuity at the following terminals:	No	Repair or replace the wiring harness between the front body control module (FBCM) and connector C-04 because the wiring harness is shorted to ground.
	Between DLC-2 terminal F and body ground Between DLC-2 terminal E and body ground		
	Is there continuity?		
6	INSPECT FOR SHORT TO GROUND BETWEEN CONNECTORS C-49 AND C-50 AND INSTRUMENT CLUSTER • Disconnect connectors C-49 and C-50.	Yes No	Go to Step 9. Go to the next step.
	Inspect for continuity at the following terminals: Between DLC-2 terminal F and body ground Between DLC-2 terminal E and body ground		
	Is there continuity?	.,	
7	INSPECT FOR SHORT TO GROUND BETWEEN 4WD CONTROL MODULE AND CONNECTORS C-49 AND C-50	Yes No	Go to the next step. Repair or replace the wiring harness between connector C-04 and connectors C-49 and C-50 because the wiring
	 Inspect for continuity at the following terminals: Between 4WD control module terminal G and body ground Between 4WD control module terminal H and body ground Is there continuity? 		harness is shorted to ground.
8	INSPECT CAN LINE IN 4WD CONTROL MODULE FOR SHORT TO GROUND • Disconnect the 4WD control module connector.	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 to ground.
	Inspect for continuity at the following terminals: Between 4WD control module terminal G (wiring harness side) and body ground Between 4WD control module terminal H (wiring harness side) and body ground Is there continuity?	No	Replace the 4WD control module because there is a short to ground in the 4WD control module. (See 4WD CONTROL MODULE REMOVAL/INSTALLATION.)
9	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN CONNECTOR C-10 AND INSTRUMENT CLUSTER • Disconnect connector C-10. • Inspect for continuity at the following terminals: — Between DLC-2 terminal F and body ground — Between DLC-2 terminal E and body ground • Is there continuity?	No	Repair or replace the wiring harness between connectors C-49 and C-50 and connector C-10 because the wiring harness is shorted to ground.
10	INSPECT FOR SHORT TO GROUND	Yes	Go to Step 16.
	BETWEEN CONNECTOR C-11 AND INSTRUMENT CLUSTER • Disconnect connector C-11. • Inspect for continuity at the following terminals: — Between DLC-2 terminal F and body ground — Between DLC-2 terminal E and body ground • Is there continuity?	No	Go to the next step.

Step	Inspection		Action
11	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN LASER SENSOR AND	No	Go to Step 13.
	CONNECTOR C-42		
	Disconnect connector C-42.		
	Inspect for continuity at the following terminals:		
	Between laser sensor terminal D and body		
	ground		
	Between laser sensor terminal C and body		
	ground		
	Is there continuity?		
12	INSPECT CAN LINE INSIDE LASER SENSOR	Yes	Repair or replace the wiring harness between the laser
	FOR SHORT TO GROUND		sensor and connector C-42 because the wiring harness is
	Disconnect the laser sensor connector.	Nia	shorted to ground.
	Inspect for continuity at the following terminals: Between laser sensor terminal D (wiring)	No	Replace the laser sensor because there is a short to ground in the laser sensor.
	harness side) and body ground		(See LASER SENSOR REMOVAL/INSTALLATION.)
	Between laser sensor terminal C (wiring)		(See LASER SENSOR REMOVAL/INSTALLATION.)
	harness side) and body ground		
	• Is there continuity?		
13	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN FORWARD SENSING CAMERA	No	Go to Step 15.
	AND CONNECTOR C-42		·
	Inspect for continuity at the following terminals:		
	Between forward sensing camera terminal		
	E and body ground		
	Between forward sensing camera terminal		
	C and body ground		
14	Is there continuity? INSPECT CAN LINE IN FORWARD SENSING	Voo	Panair or raplace the wiring barness between the forward
14	CAMERA FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between the forward sensing camera and connector C-42 because the wiring
	Disconnect the forward sensing camera		harness is shorted to ground.
	connector.	No	Replace the forward sensing camera because there is a
	Inspect for continuity at the following terminals:	110	short to ground in the forward sensing camera.
	Between forward sensing camera terminal		(See FORWARD SENSING CAMERA (FSC) REMOVAL/
	E (wiring harness side) and body ground		INSTALLATION.)
	Between forward sensing camera terminal		
	C (wiring harness side) and body ground		
	• Is there continuity?		
15	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
	• Connect connector C-42.		C-11 and connector C-42 because the wiring harness is
	Inspect for continuity at the following terminals:	No	shorted to ground. Repair or replace the wiring harness between connector
	Between forward sensing camera terminal	INU	C-10 and connector C-11 because the wiring harness is
	E and body ground (with high beam control		shorted to ground.
	(HBC) system)		3
	Between forward sensing camera terminal		
	C and body ground (with high beam control		
	(HBC) system)		
	Between laser sensor terminal D and body		
	ground (with smart city brake support)		
	Between laser sensor terminal C and body ground (with amort sity brake support)		
	ground (with smart city brake support)		
16	Is there continuity? INSPECT FOR SHORT TO GROUND	Yes	Go to Step 19.
10	BETWEEN CONNECTOR C-51, C-52 AND	No	Go to step 19. Go to the next step.
	INSTRUMENT CLUSTER	140	Oo to the flext step.
	• Disconnect connector C-51, C-52.		
	• Inspect for continuity at the following terminals:		
	Between DLC-2 terminal F and body		
	ground		
	Between DLC-2 terminal E and body		
	ground		
1	Is there continuity?		

Step	Inspection		Action
17	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN SAS CONTROL MODULE AND	No	Repair or replace the wiring harness between connector
	CONNECTOR C-51, C-52		C-11 and connector C-51, C-52 because the wiring
	• Inspect for continuity at the following terminals:		harness is shorted to ground.
	 Between SAS control module terminal 3K 		-
	and body ground		
	 Between SAS control module terminal 3L 		
	and body ground		
	Is there continuity?		
18	INSPECT CAN LINE IN SAS CONTROL	Yes	Repair or replace the wiring harness between the SAS
	MODULE FOR SHORT TO GROUND		control module and connector C-51, C-52 because the
	Disconnect the SAS control module connector.		wiring harness is shorted to ground.
	• Inspect for continuity at the following terminals:	No	Replace the SAS control module because there is a short
	Between SAS control module terminal 3K		to ground in the SAS control module.
	(wiring harness side) and body ground		(See SAS CONTROL MODULE REMOVAL/
	Between SAS control module terminal 3L		INSTALLATION.)
	(wiring harness side) and body ground		,
	• Is there continuity?		
19	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
. •	BETWEEN CONNECTORS C-34 AND DLC-2		C-34 and DLC-2 because the wiring harness is shorted to
	Disconnect connector C-34.		ground.
	• Inspect for continuity at the following terminals:	No	Go to the next step.
	Between DLC-2 terminal F and body		
	ground		
	Between DLC-2 terminal E and body		
	ground		
	• Is there continuity?		
20	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN START STOP UNIT AND	No	Go to Step 22.
	CONNECTOR C-34		
	• Inspect for continuity at the following terminals:		
	 Between start stop unit terminal 2M and 		
	body ground		
	 Between start stop unit terminal 2O and 		
	body ground		
	• Is there continuity?		
21	INSPECT CAN LINE IN START STOP UNIT	Yes	Repair or replace the wiring harness between the start stop
	FOR SHORT TO GROUND		unit and connector C-34 because the wiring harness is
	Disconnect the start stop unit connector.		shorted to ground.
	• Inspect for continuity at the following terminals:	No	Replace the start stop unit because there is a short to
	 Between start stop unit terminal 2M (wiring 		ground in the start stop unit.
	harness side) and body ground		(See START STOP UNIT REMOVAL/INSTALLATION.)
	 Between start stop unit terminal 20 (wiring 		
	harness side) and body ground		
	Is there continuity?		
22	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN EPS CONTROL MODULE AND	No	Go to Step 24.
	CONNECTOR C-34		·
	• Inspect for continuity at the following terminals:		
	 Between EPS control module terminal 2A 		
	and body ground		
	 Between EPS control module terminal 2D 		
	and body ground		
	Is there continuity?		
23	INSPECT CAN LINE IN EPS CONTROL	Yes	Repair or replace the wiring harness between the EPS
	MODULE FOR SHORT TO GROUND		control module and connector C-34 because the wiring
	• Disconnect the EPS control module connector.		harness is shorted to ground.
	• Inspect for continuity at the following terminals:	No	Replace the EPS control module because there is a short
	Between EPS control module terminal 2A		to ground in the EPS control module.
	(wiring harness side) and body ground		(See STEERING WHEEL AND COLUMN REMOVAL/
	Between EPS control module terminal 2D		INSTALLATION.)
	(wiring harness side) and body ground		<u> </u>
	• Is there continuity?		

Step	Inspection		Action
24	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
24	BETWEEN INSTRUMENT CLUSTER AND CONNECTOR C-34 • Inspect for continuity at the following terminals: — Between instrument cluster terminal B and body ground — Between instrument cluster terminal D and body ground	No	Repair or replace the wiring harness between connector C-51, C-52 and connector C-34 because the wiring harness is shorted to ground.
	• Is there continuity?		
25	INSPECT CAN LINE IN INSTRUMENT CLUSTER FOR SHORT TO GROUND • Disconnect the instrument cluster connector. • Inspect for continuity at the following terminals: — Between instrument cluster terminal B (wiring harness side) and body ground — Between instrument cluster terminal D (wiring harness side) and body ground • Is there continuity?	Yes	Repair or replace the wiring harness between the instrument cluster and connector C-34 because the wiring harness is shorted to ground. Replace the instrument cluster because there is a short to ground in the instrument cluster. (See INSTRUMENT CLUSTER REMOVAL/INSTALLATION.)
26	INSPECT FOR SHORT TO GROUND BETWEEN CONNECTOR C-01 AND FRONT BODY CONTROL MODULE (FBCM) • Disconnect connector C-01. • Connect connector 2 which has front body control module (FBCM) terminals 2P and 2N. • Inspect for continuity at the following terminals: — Between DLC-2 terminal F and body ground — Between DLC-2 terminal E and body ground • Is there continuity?	Yes No	Repair or replace the wiring harness between connector C-01 and the front body control module (FBCM) because the wiring harness is shorted to ground. Go to the next step.
27	INSPECT FOR SHORT TO GROUND BETWEEN CONNECTOR C-01 AND TCM Inspect for continuity at the following terminals: Between TCM terminal E and body ground Between TCM terminal F and body ground Is there continuity?	Yes No	Go to the next step. Go to Step 29.
28	INSPECT CAN LINE IN TCM FOR SHORT TO GROUND • Disconnect the TCM connector. • Inspect for continuity at the following terminals: — Between TCM terminal E (wiring harness side) and body ground — Between TCM terminal F (wiring harness side) and body ground • Is there continuity?	Yes	Repair or replace the wiring harness between the TCM and connector C-01 because the wiring harness is shorted to ground. Replace the TCM because there is a short to ground in the TCM. (See CONTROL VALVE BODY REMOVAL/INSTALLATION [FW6A-EL, FW6AX-EL].)
29	INSPECT FOR SHORT TO GROUND BETWEEN CONNECTORS C-32 AND C-01 • Disconnect connector C-32. • Connect connector C-01. • Inspect for continuity at the following terminals: — Between DLC-2 terminal F and body ground — Between DLC-2 terminal E and body ground • Is there continuity?	Yes	Repair or replace the wiring harness between connector C-32 and connector C-01 because the wiring harness is shorted to ground. Go to the next step.
30	INSPECT FOR SHORT TO GROUND BETWEEN DSC HU/CM AND CONNECTOR C-32 • Inspect for continuity at the following terminals: — Between DSC HU/CM terminal AF and body ground — Between DSC HU/CM terminal AC and body ground • Is there continuity?	Yes No	Go to the next step. Go to Step 31.

Step	Inspection		Action
31	INSPECT CAN LINE IN DSC HU/CM FOR	Yes	Repair or replace the wiring harness between the DSC HU/
	SHORT TO GROUND		CM and connector C-32 because the wiring harness is
	Disconnect the DSC HU/CM connector.		shorted to ground.
	• Inspect for continuity at the following terminals:	No	Replace the DSC HU/CM because there is a short to
	 Between DSC HU/CM terminal AF (wiring 		ground in the DSC HU/CM.
	harness side) and body ground		(See DSC HU/CM REMOVAL/INSTALLATION.)
	 Between DSC HU/CM terminal AC (wiring 		
	harness side) and body ground		
	Is there continuity?		
32	INSPECT CAN LINE IN PCM FOR SHORT TO	Yes	Repair or replace the wiring harness between the PCM and
	GROUND		connector C-32 because the wiring harness is shorted to
	Disconnect the PCM connector.		ground .
	• Inspect for continuity at the following terminals:	No	Replace the PCM because there is a short to ground in the
	 Between PCM terminal 2AK (wiring 		PCM.
	harness side) and body ground		(See PCM REMOVAL/INSTALLATION [SKYACTIV-G
	 Between PCM terminal 2AL (wiring harness 		2.0].)
	side) and body ground		
	Is there continuity?		