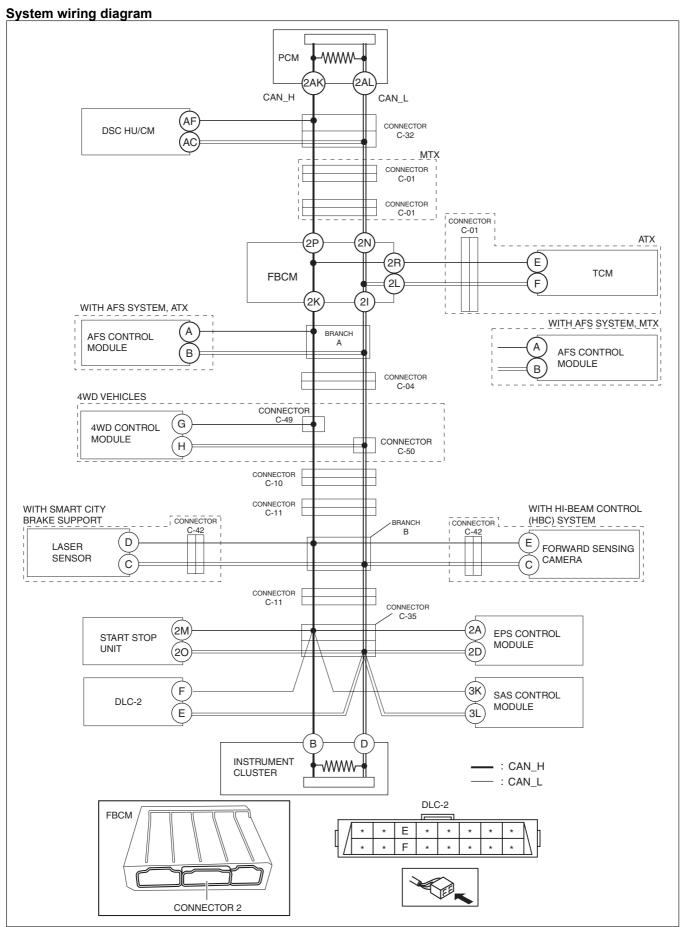
DETERMINING SHORT TO GROUND LOCATION (HS-CAN) [SKYACTIV-D 2.2 (L.H.D.)]

id100205000600

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-D 2.2 (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.

Ston	Increction		Action
Step 1	Inspection INSPECT FOR SHORT TO GROUND	Yes	Go to Step 6.
'	BETWEEN FRONT BODY CONTROL MODULE	No	Go to the next step.
	(FBCM) AND INSTRUMENT CLUSTER	INO	Go to the next step.
	Disconnect the negative battery cable.		
	(See NEGATIVE BATTERY CABLE		
	DISCONNECTION/CONNECTION		
	[SKYACTIV-D 2.2].)		
	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		
3	• Is there continuity? INSPECT FOR SHORT TO GROUND	Yes	• Co to the poyt step (ATX)
3	BETWEEN TCM OR AFS CONTROL MODULE	165	Go to the next step. (ATX) Go to Step 5. (MTX)
	AND FRONT BODY CONTROL MODULE	No	• Go to Step 3. (MTX)
	(FBCM)	140	• Go to Step 25. (ATX)
	• Inspect for continuity at the following terminals:		CO to Gtop 27. (W17X)
	Between TCM control module terminal E		
	and body ground (ATX)		
	Between TCM control module terminal F		
	and body ground (ATX)		
	Between AFS control module terminal A		
	and body ground (MTX)		
	Between AFS control module terminal B		
	and body ground (MTX)		
	Is there continuity?		
4	INSPECT FOR SHORT TO GROUND		Go to the next step.
	BETWEEN TCM AND CONNECTOR C-01	No	Repair or replace the wiring harness between the front
	Disconnect connector C-01. Induct for continuity at the following terminals:		body control module (FBCM) and connector C-01 because
	• Inspect for continuity at the following terminals:		the wiring harness is shorted to ground.
	Between TCM control module terminal E and body ground		
	Between TCM control module terminal F		
	and body ground		
	Is there continuity?		
	io aloro continuity.		1

Step	Inspection		Action
5	INSPECT CAN LINE IN TCM OR AFS	Yes	Repair or replace the wiring harness between the TCM
	CONTROL MODULE FOR SHORT TO		and connector C-01because the wiring harness is
	GROUND		shorted to ground. (ATX)
	Disconnect the TCM connector. (ATX)		Repair or replace the wiring harness between the AFS
	Disconnect the AFS control module connector.		control module and front body control module (FBCM)
	(MTX)		because the wiring harness is shorted to ground. (MTX)
	• Inspect for continuity at the following terminals:	No	Replace the TCM because there is a short to ground in
	Between TCM terminal E (wiring harness)		the TCM. (ATX)
	side) and body ground (ATX)		(See CONTROL VALVE BODY REMOVAL/
	 Between TCM terminal F (wiring harness 		INSTALLATION [FW6A-EL, FW6AX-EL].)
	side) and body ground (ATX)		(See CONTROL VALVE BODY REMOVAL/
	Between AFS control module terminal A		INSTALLATION [GW6A-EL, GW6AX-EL].)
	(wiring harness side) and body ground		Replace the AFS control module because there is a short
	(MTX)		to ground in the AFS control module. (MTX)
	Between AFS control module terminal B		(See ADAPTIVE FRONT LIGHTING SYSTEM (AFS)
	(wiring harness side) and body ground		CONTROL MODULE REMOVAL/INSTALLATION.)
	(MTX)		
	• Is there continuity?	Vaa	Co to Ston 0
6	INSPECT FOR SHORT TO GROUND BETWEEN CONNECTOR C-04 AND	Yes	Go to Step 8. • Go to the next step. (ATX)
	INSTRUMENT CLUSTER	No	Repair or replace the wiring harness between the front
	Disconnect connector C-04.		body control module (FBCM) and connector C-04
	• Inspect for continuity at the following terminals:		because the wiring harness is shorted to ground. (MTX)
	Between DLC-2 terminal F and body		because the willing harness is shorted to ground. (WTX)
	ground		
	Between DLC-2 terminal E and body		
	ground		
	Is there continuity?		
7	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.		connector C-04 because the wiring harness is shorted to
	• Inspect for continuity at the following terminals:		ground.
	 Between AFS control module terminal A 	No	Replace the AFS control module because there is a short
	(wiring harness side) and body ground		to ground in the AFS control module.
	Between AFS control module terminal B		(See ADAPTIVE FRONT LIGHTING SYSTEM (AFS)
	(wiring harness side) and body ground		CONTROL MODULE REMOVAL/INSTALLATION.)
	• Is there continuity?		0.1.0044
8	INSPECT FOR SHORT TO GROUND	Yes	Go to Step 11.
	BETWEEN CONNECTOR C-49 AND C-50 AND INSTRUMENT CLUSTER	No	Go to the next step.
	• Disconnect connector C-49 and C-50.		
	• 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?		
9	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN 4WD CONTROL MODULE AND	No	Repair or replace the wiring harness between connector
	CONNECTORS C-49 AND C-50		C-04 and connectors C-49 and C-50 because the wiring
	• Inspect for continuity at the following terminals:		harness is shorted to ground.
	 Between 4WD control module terminal G 		
	and body ground		
	Between 4WD control module terminal H		
	and body ground		
	Is there continuity?		

Step	Inspection		Action
10	INSPECT CAN LINE IN 4WD CONTROL	Yes	Repair or replace the wiring harness between the 4WD
	MODULE FOR SHORT TO GROUND	103	control module and connectors C-49 and C-50 because the
	Disconnect the 4WD control module connector.		wiring harness is shorted to ground.
	• Inspect for continuity at the following terminals:	No	Replace the 4WD control module because there is a short
	Between 4WD control module terminal G	110	to ground in the 4WD control module.
	(wiring harness side) and body ground		(See 4WD CONTROL MODULE REMOVAL/
	Between 4WD control module terminal H		INSTALLATION.)
	(wiring harness side) and body ground		INSTALLATION.)
	• Is there continuity?		
11	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
''	BETWEEN CONNECTOR C-10 AND	No	Repair or replace the wiring harness between connectors
	INSTRUMENT CLUSTER	110	C-49 and C-50 and connector C-10 because the wiring
	Disconnect connector C-10.		harness is shorted to ground.
	• Inspect for continuity at the following terminals:		Thatriess is shorted to ground.
	Between DLC-2 terminal F and body		
	ground		
	Between DLC-2 terminal E and body		
	ground		
	• Is there continuity?		
12	INSPECT FOR SHORT TO GROUND	Yes	Go to Step 18.
	BETWEEN CONNECTOR C-11 AND	No	Go to the next step.
	INSTRUMENT CLUSTER	110	Go to the next step.
	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?		
13	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN LASER SENSOR AND	No	Go to Step 15.
	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?		
14	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.		shorted to ground.
	• Inspect for continuity at the following terminals:	No	Replace the laser sensor because there is a short to
	Between laser sensor terminal D (wiring)		ground in the laser sensor.
	harness side) and body ground		(See LASER SENSOR REMOVAL/INSTALLATION.)
	Between laser sensor terminal C (wiring)		
	harness side) and body ground		
45	• Is there continuity?	V :	0 - 4 - 44 4 - 4
15	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN FORWARD SENSING CAMERA	No	Go to Step 17.
	AND CONNECTOR C-42		
	• Inspect for continuity at the following terminals:		
	Between forward sensing camera terminal E and body ground		
	E and body ground		
	Between forward sensing camera terminal C and hady ground		
	C and body ground		
	• Is there continuity?		

Step	Inspection		Action
16	INSPECT CAN LINE IN FORWARD SENSING	Yes	Repair or replace the wiring harness between the forward
	CAMERA FOR SHORT TO GROUND		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:		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?		
17	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
	BETWEEN CONNECTORS C-11 AND C-42		C-11 and connector C-42 because the wiring harness is
	Connect connector C-42.		shorted to ground.
	Inspect for continuity at the following terminals:	No	Repair or replace the wiring harness between connector
	Between forward sensing camera terminal		C-10 and connector C-11 because the wiring harness is
	E and body ground (with high beam control		shorted to ground.
	(HBC) system)		
	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 smart city brake support)		
	Is there continuity?		
18	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
	BETWEEN CONNECTORS C-35 AND DLC-2		C-35 and DLC-2 because the wiring harness is shorted to
	Disconnect connector C-35.		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?		
19	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN START STOP UNIT AND	No	Go to Step 21.
	CONNECTOR C-35		
	Inspect for continuity at the following terminals:		
	 Between start stop unit terminal 2M and 		
	body ground		
	Between start stop unit terminal 20 and		
	body ground		
	Is there continuity?		
20	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-35 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?		
21	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN EPS CONTROL MODULE AND	No	Go to Step 23.
	CONNECTOR C-35		
	Inspect for continuity at the following terminals:		
	Between EPS control module terminal 2A		
	and body ground		
	Between EPS control module terminal 2D		
1	and body ground		
	Is there continuity?		

Step	Inspection		Action
22	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-35 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		,
	Is there continuity?		
23	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN SAS CONTROL MODULE AND	No	Go to Step 25.
	CONNECTOR C-35		
	Inspect for continuity at the following terminals:		
	 Between SAS control module terminal 3K 		
	and body ground		
	 Between SAS control module terminal 3L 		
	and body ground		
	Is there continuity?		
24	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-35 because the wiring
	Disconnect the SAS control module connector.		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 (viving barrage side) and barrage at the strength of the strength		to ground in the SAS control module.
	(wiring harness side) and body ground		(See SAS CONTROL MODULE REMOVAL/
	Between SAS control module terminal 3L (wiring barrage side) and hady ground		INSTALLATION.)
	(wiring harness side) and body ground • Is there continuity?		
25	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
25	BETWEEN INSTRUMENT CLUSTER AND	No	Repair or replace the wiring harness between connector
	CONNECTOR C-35	INO	C-11 and connector C-35 because the wiring harness is
	• Inspect for continuity at the following terminals:		shorted to ground.
	Between instrument cluster terminal B and		Shorted to ground.
	body ground		
	Between instrument cluster terminal D and		
	body ground		
	Is there continuity?		
26	INSPECT CAN LINE IN INSTRUMENT	Yes	Repair or replace the wiring harness between the
	CLUSTER FOR SHORT TO GROUND		instrument cluster and connector C-35 because the wiring
	Disconnect the instrument cluster connector.		harness is shorted to ground.
	Inspect for continuity at the following terminals:	No	Replace the instrument cluster because there is a short to
	 Between instrument cluster terminal B 		ground in the instrument cluster.
	(wiring harness side) and body ground		(See INSTRUMENT CLUSTER REMOVAL/
	Between instrument cluster terminal D		INSTALLATION.)
	(wiring harness side) and body ground		
	• Is there continuity?	\ <u></u>	
27	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
	BETWEEN CONNECTOR C-01 AND FRONT		C-01 and the front body control module (FBCM) because
	BODY CONTROL MODULE (FBCM)	k1.	the wiring harness is shorted to ground.
	Disconnect connector C-01. Connect connector 2 which has front body.	No	Go to the next step.
	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?		
	15 thore continuity:		

Step	Inspection		Action
28	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
	BETWEEN CONNECTORS C-32 AND C-01		C-32 and connector C-01 because the wiring harness is
	Disconnect connector C-32.		shorted to ground.
	Connect connector C-01.	No	Go to Step 30.
	• 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?		
29	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
	BETWEEN CONNECTORS C-32 AND FRONT		C-32 and front body control module (FBCM) because the
	BODY CONTROL MODULE (FBCM)		wiring harness is shorted to ground.
	Disconnect connector C-32.	No	Go to the next step.
	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?		
30	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
30	BETWEEN DSC HU/CM AND CONNECTOR	No	Go to Step 32.
	C-32	INO	30 to Step 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?		
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 harmons side) and hady ground.		PCM.
	harness side) and body ground		(See PCM REMOVAL/INSTALLATION [SKYACTIV-D
	Between PCM terminal 2AL (wiring harness side) and hadv ground.		2.2].)
	side) and body ground		
	Is there continuity?		