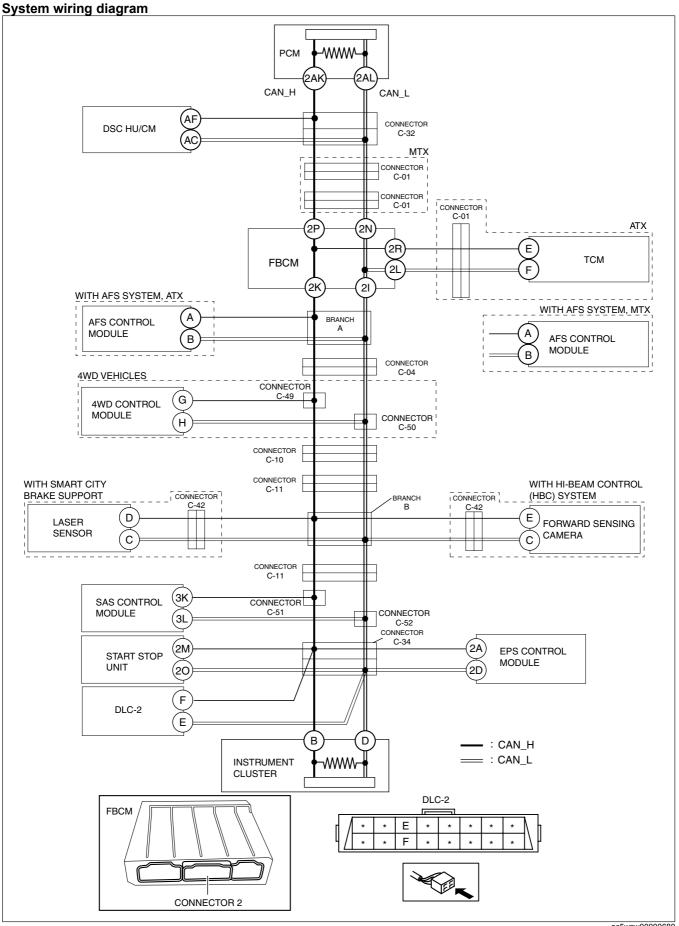
DETERMINING SHORT TO GROUND LOCATION (HS-CAN) [SKYACTIV-D 2.2 (R.H.D.)]

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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 (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 6.
	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-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) terminal 2D and body ground	NIa	REMOVAL/INSTALLATION.)
	terminal 2P and body ground — Between front body control module (FBCM)	No	Go to the next step.
	terminal 2N and body ground		
	Is there continuity?		
3	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step. (ATX)
	BETWEEN TCM OR AFS CONTROL MODULE	103	• Go to Step 5. (MTX)
	AND FRONT BODY CONTROL MODULE	No	• Go to Step 30. (ATX)
	(FBCM)	110	• Go to Step 28. (MTX)
	• Inspect for continuity at the following terminals:		30 to 6top 20. ()
	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	Yes	
	BETWEEN TCM AND CONNECTOR C-01	No	Repair or replace the wiring harness between the front
	Disconnect connector C-01.		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 hady ground		
	and body ground		
	Is there continuity?		

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)		
6	• Is there continuity? INSPECT FOR SHORT TO GROUND	Yes	Go to Step 8.
	BETWEEN CONNECTOR C-04 AND	No	• Go to the next step. (ATX)
	INSTRUMENT CLUSTER	INO	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		Control to ground (mixty
	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 (wiring barrage side) and body ground		(See ADAPTIVE FRONT LIGHTING SYSTEM (AFS)
	(wiring harness side) and body ground • Is there continuity?		CONTROL MODULE REMOVAL/INSTALLATION.)
8	INSPECT FOR SHORT TO GROUND	Yes	Go to Step 11.
	BETWEEN CONNECTORS C-49 AND C-50	No	Go to the next step.
	AND INSTRUMENT CLUSTER	110	Go to the heat step.
	• Disconnect connectors 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		
	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:		That it 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 		, and the second
	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	Go to Step 21.
	BETWEEN CONNECTOR C-51, C-52 AND	No	Go to the next step.
	INSTRUMENT CLUSTER		
	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		
19	Is there continuity? INSPECT FOR SHORT TO GROUND	Yes	Co to the poyt step
19	BETWEEN SAS CONTROL MODULE AND	No	Go to the next step. Repair or replace the wiring harness between connector
	CONNECTOR C-51, C-52	INO	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		marriess is shorted to ground.
	and body ground		
	Between SAS control module terminal 3L		
	and body ground		
	• Is there continuity?		
20	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?		
21	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 		
			1
	ground		
	 Between DLC-2 terminal E and body 		

Step	Inspection		Action
22	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN START STOP UNIT AND	No	Go to Step 24.
	CONNECTOR C-34		3 to 5top 2
	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?		
23	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?		
24	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN EPS CONTROL MODULE AND	No	Go to Step 26.
	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?		
25	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		
- 00	• Is there continuity?	V	Co to the next stan
26	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN INSTRUMENT CLUSTER AND CONNECTOR C-34	No	Repair or replace the wiring harness between connector
	• Inspect for continuity at the following terminals:		C-51, C-52 and connector C-34 because the wiring
	Between instrument cluster terminal B and		harness is shorted to ground.
	body ground		
	Between instrument cluster terminal D and		
	body ground		
	• Is there continuity?		
27	INSPECT CAN LINE IN INSTRUMENT	Yes	Repair or replace the wiring harness between the
"	CLUSTER FOR SHORT TO GROUND	. 03	instrument cluster and connector C-34 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	140	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		into in individual
	• Is there continuity?		
	is altered containing .		

Step	Inspection		Action
28	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
	BETWEEN CONNECTOR C-01 AND FRONT	. 03	C-01 and the front body control module (FBCM) because
	BODY CONTROL MODULE (FBCM)		the wiring harness is shorted to ground.
	• Disconnect connector C-01.	No	Go to the next step.
		INO	Go to the flext step.
	Connect connector 2 which has front body Connect connector 2 which has front body 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?		
29	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
	BETWEEN CONNECTOR C-32 AND		C-32 and connector C-01 because the wiring harness is
	CONNECTOR C-01		shorted to ground.
	Disconnect connector C-32.	No	Go to Step 31.
	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?		
30	INSPECT FOR SHORT TO GROUND	Yes	Repair or replace the wiring harness between connector
	BETWEEN CONNECTORS C-32 AND FRONT		C-32 and the front body control module (FBCM) because
	BODY CONTROL MODULE (FBCM)		the 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?		
31	INSPECT FOR SHORT TO GROUND	Yes	Go to the next step.
	BETWEEN DSC HU/CM AND CONNECTOR	No	Go to Step 33.
	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?		
32	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?		
33	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-D
	Between PCM terminal 2AL (wiring harness)		2.2].)
	side) and body ground		1-/
	• Is there continuity?		
	to a fore continuity:		