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2017 MAZDA 2 OEM Service and Repair Workshop Manual

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DTC P0615:11 [START STOP UNIT]

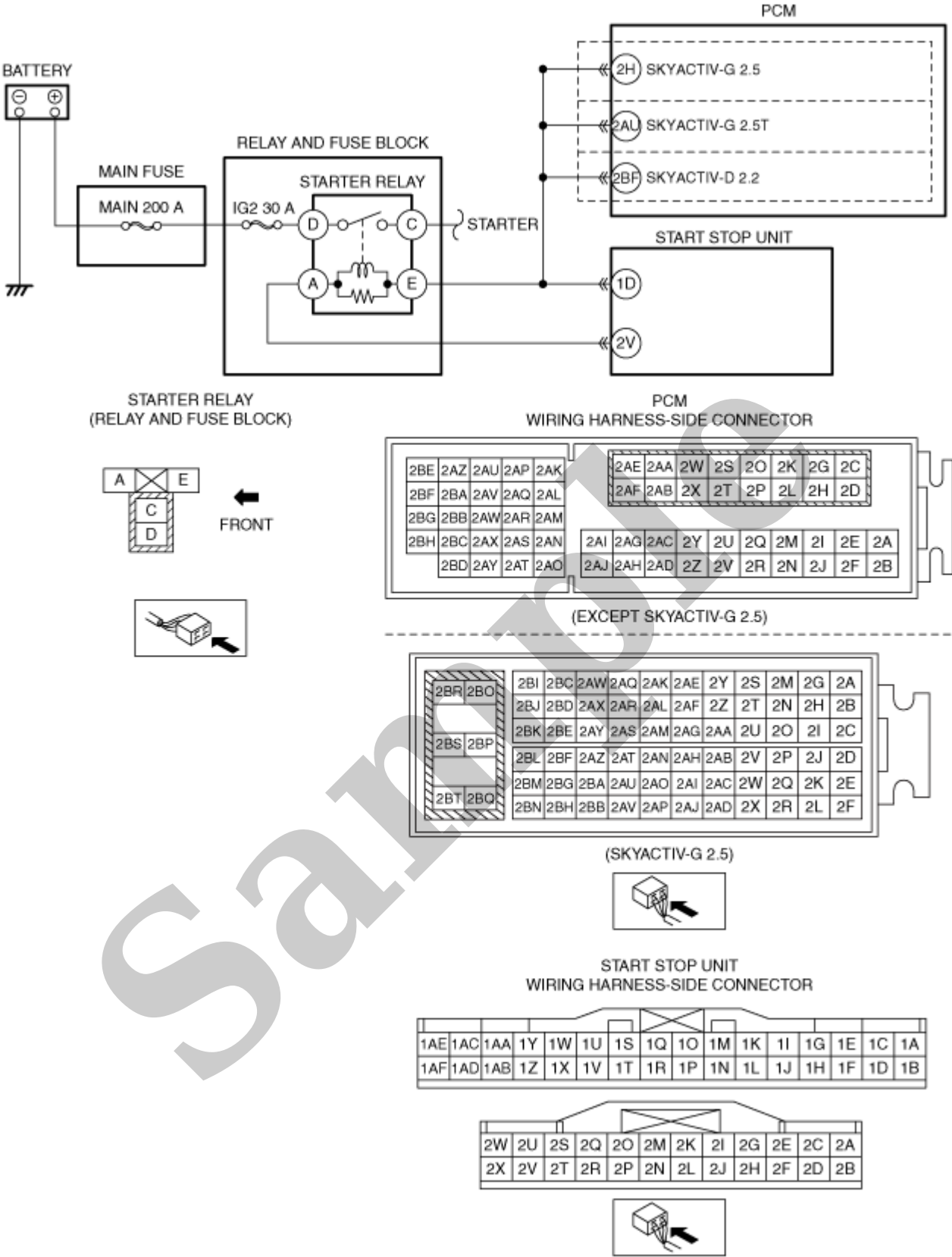
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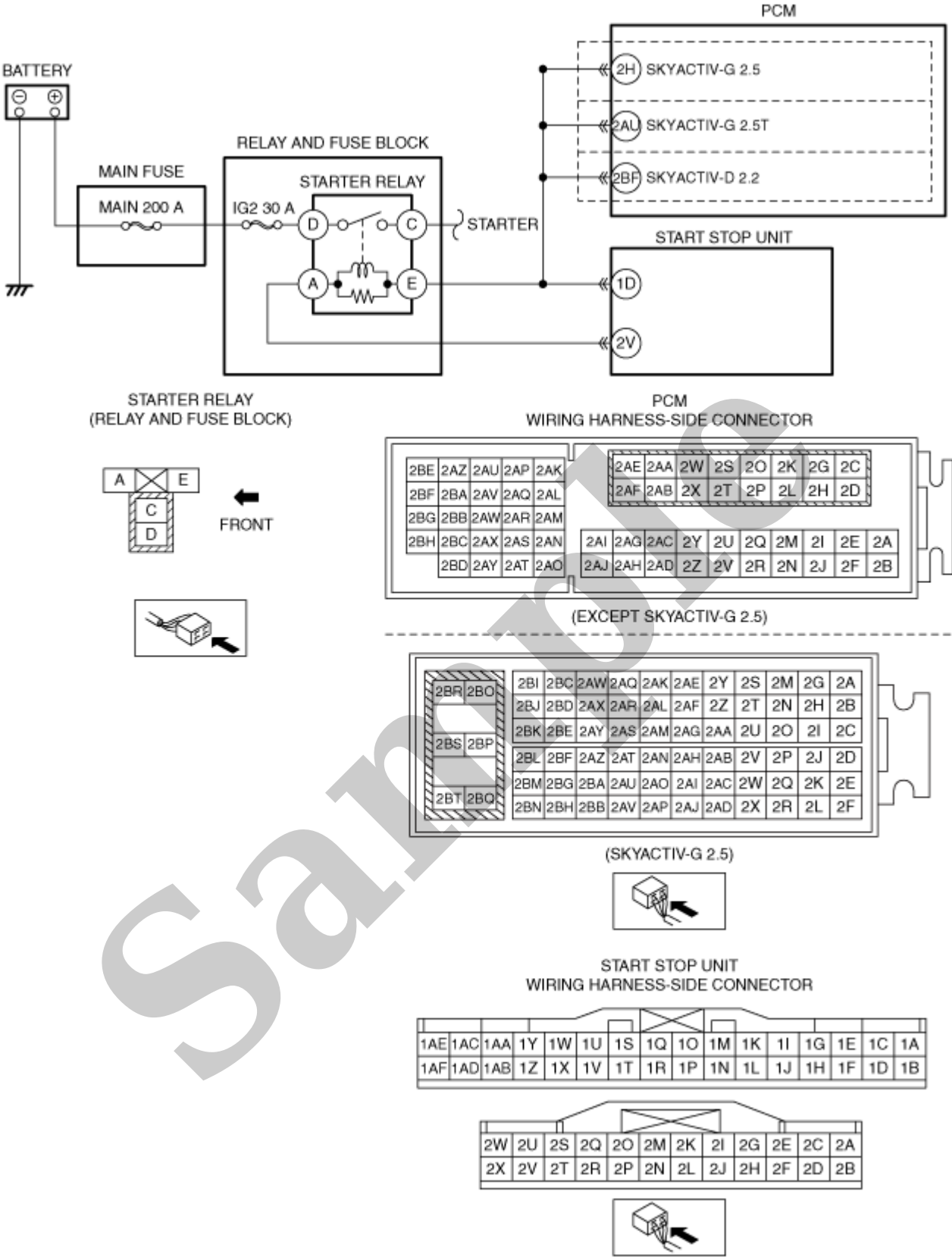
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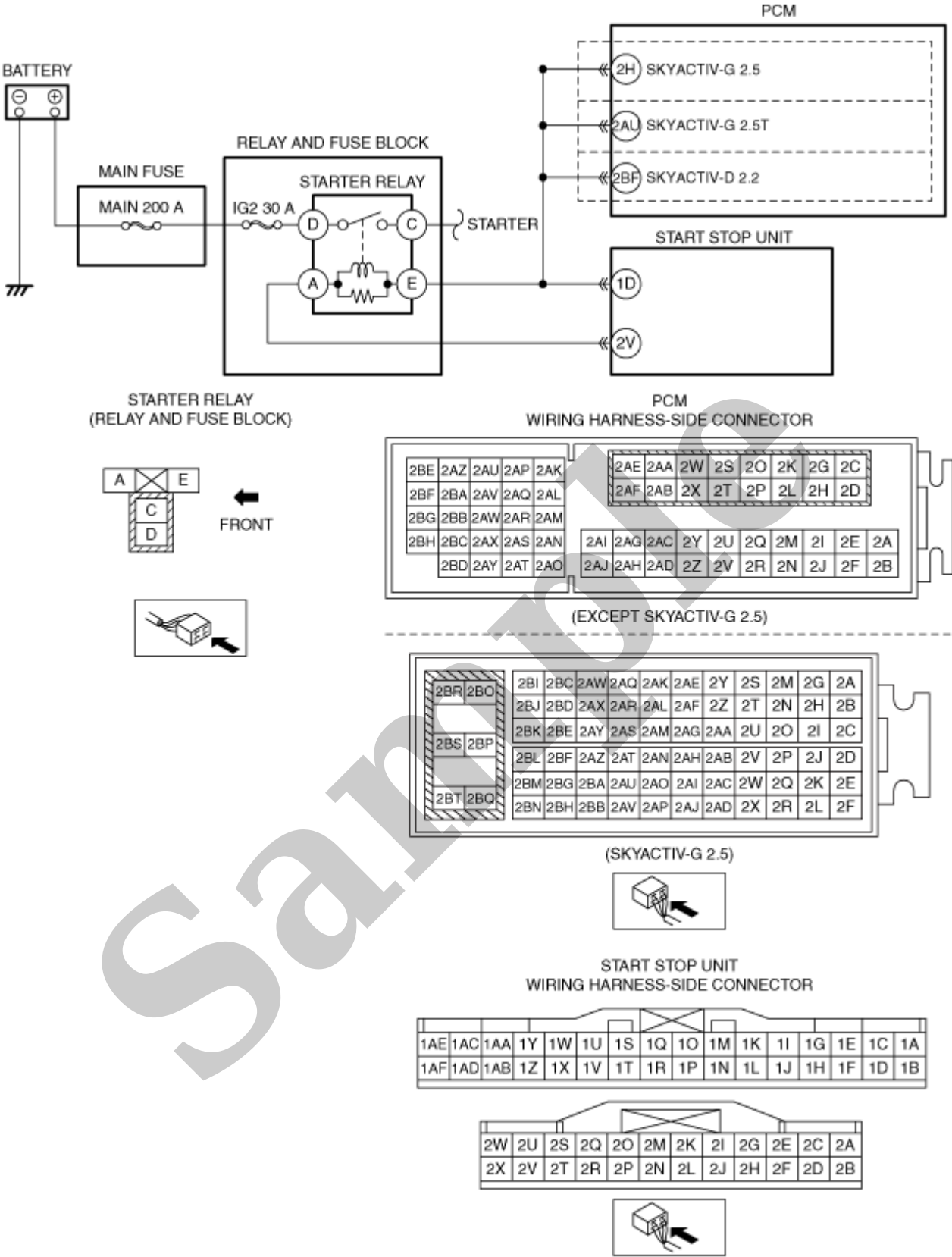
Description	Starter relay circuit malfunction
Detection condition	• Start stop unit detects that the starter relay monitor circuit voltage of less than 2.2 V for 0.2 s or more with the ignition switched off.
Fail-safe	Not applicable
Possible cause	• DTCs are stored in the PCM. • Starter relay malfunction • Start stop unit connector or terminal malfunction • PCM connector malfunction • Short to ground in wiring harness between the following terminals: — Start stop unit terminal 1D–Starter relay terminal E — Starter relay terminal E–PCM terminal 2H (SKYACTIV-G 2.5) — Starter relay terminal E–PCM terminal 2AU (SKYACTIV-G 2.5T) — Starter relay terminal E–PCM terminal 2BF (SKYACTIV-D 2.2) — Start stop unit terminal 2V–Starter relay terminal A • PCM malfunction • Start stop unit malfunction

Step	Inspection		Action
6	VERIFY IF MALFUNCTIONING LOCATION IS PCM DEPENDING ON REPEATABILITY • Always reconnect all disconnected connectors. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Clear the DTC for the start stop unit using the M-MDS. (See CLEARING DTC [START STOP UNIT].) • Switch the ignition off and wait for 1 s or more. • Retrieve the start stop unit DTCs using the M-MDS. (See DTC INSPECTION [START STOP UNIT].) • Is the same DTC displayed?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)
		No	Go to Step 8.
7	VERIFY THAT REPAIRS HAVE BEEN COMPLETED • Always reconnect all disconnected connectors. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Clear the DTC for the start stop unit using the M-MDS. (See CLEARING DTC [START STOP UNIT].) • Switch the ignition off and wait for 1 s or more. • Retrieve the start stop unit DTCs using the M-MDS. (See DTC INSPECTION [START STOP UNIT].) • Is the same DTC displayed?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the start stop unit. (See START STOP UNIT REMOVAL/INSTALLATION.) Go to the next step.
		No	Go to the next step.
8	VERIFY IF OTHER DTCs DISPLAYED • Are any other DTCs displayed?	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting (See DTC TABLE [START STOP UNIT].)
		No	DTC troubleshooting completed.

Step	Inspection		Action
1	VERIFY PCM DTCs - Retrieve the PCM DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) - Are any DTCs displayed?	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [PCM (SKYACTIV-D 2.2)] .) (See DTC TABLE [PCM (SKYACTIV-G 2.5T)] .) (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))] .) (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))] .)
		No	Go to the next step.
2	INSPECT STARTER RELAY - Switch the ignition off. - Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) - Remove the starter relay. (See RELAY LOCATION.) - Inspect the starter relay. (See RELAY INSPECTION.) - Is the starter relay normal?	Yes	Go to the next step.
		No	Replace the starter relay, then go to Step 7. (See RELAY LOCATION .)
3	INSPECT START STOP UNIT CONNECTOR CONDITION - Disconnect the start stop unit connector. - Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. - Is the connector normal?	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 7.
4	INSPECT PCM CONNECTOR CONDITION - Disconnect the PCM connector. - Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. - Is the connector normal?	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 7.
5	INSPECT STARTER RELAY CIRCUIT FOR SHORT TO POWER SUPPLY - Verify that the starter relay is removed. - Verify that the start stop unit and PCM connectors are disconnected. - Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) - Measure the voltage at the following terminals (wiring harness-side): - Start stop unit terminal 1D - Start stop unit terminal 2V - Is the voltage 0 V?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: - Start stop unit terminal 1D–Starter relay terminal E - Starter relay terminal E–PCM terminal 2H (SKYACTIV-G 2.5) - Starter relay terminal E–PCM terminal 2AU (SKYACTIV-G 2.5T) - Starter relay terminal E–PCM terminal 2BF (SKYACTIV-D 2.2) - Start stop unit terminal 2V–Starter relay terminal A If there is a common connector: - Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to power supply. - Repair or replace the malfunctioning part. If there is no common connector: - Repair or replace the wiring harness which has a short to power supply. Go to Step 7.







DTC P0616:24 [START STOP UNIT]

SM2899055

id0902p602250

Description	Circuit malfunction on downstream side of starter relay
Detection condition	• Start stop unit detects an open circuit in the starter relay downstream circuit continuously for 0.5 s or more for a continuous 5 times.
Fail-safe	Not applicable
Possible cause	• DTCs are stored in the PCM. • Starter relay malfunction • PCM connector or terminal malfunction • Open circuit in wiring harness between the following terminals: — Starter relay terminal E-PCM terminal 2H (SKYACTIV-G 2.5) — Starter relay terminal E-PCM terminal 2AU (SKYACTIV-G 2.5T) — Starter relay terminal E-PCM terminal 2BF (SKYACTIV-D 2.2) • PCM malfunction • Start stop unit malfunction

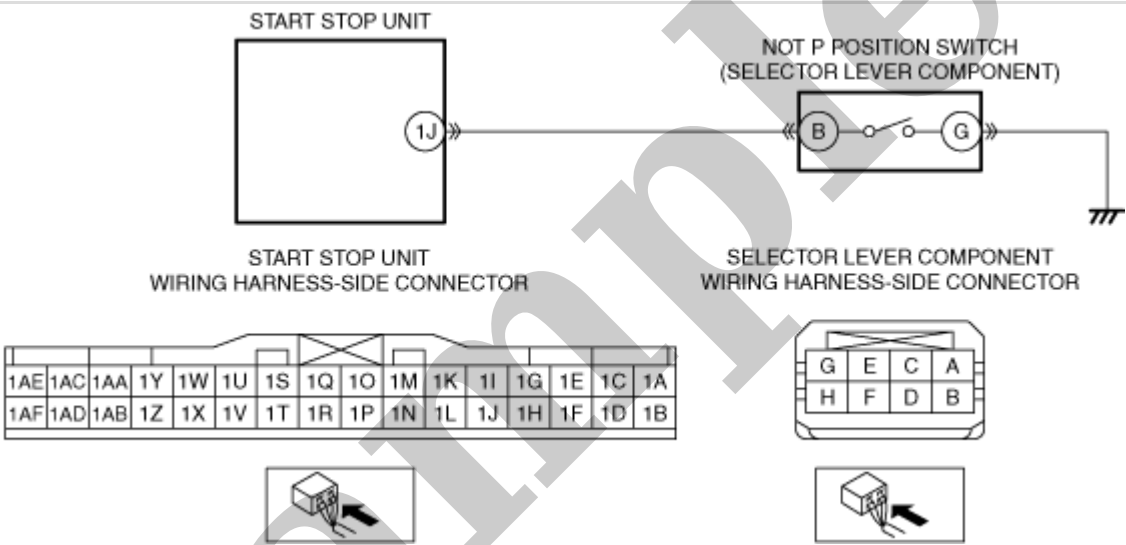
Step	Inspection	Action
5	VERIFY IF MALFUNCTIONING LOCATION IS PCM DEPENDING ON REPEATABILITY • Always reconnect all disconnected connectors. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Clear the DTC for the start stop unit using the M-MDS. (See CLEARING DTC [START STOP UNIT].) • With the programmed remote transmitter in the vehicle, switch the ignition ON (engine off). • Perform the following work 5 times or more. — Operate the selector lever to P or N position from other than P and N position and hold for 1 s or more. • Retrieve the start stop unit DTCs using the M-MDS. (See DTC INSPECTION [START STOP UNIT].) • Is the same DTC displayed?	Yes Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)
		No Go to Step 7.
6	VERIFY THAT REPAIRS HAVE BEEN COMPLETED • Always reconnect all disconnected connectors. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Clear the DTC for the start stop unit using the M-MDS. (See CLEARING DTC [START STOP UNIT].) • With the programmed remote transmitter in the vehicle, switch the ignition ON (engine off). • Perform the following work 5 times or more. — Operate the selector lever to P or N position from other than P and N position and hold for 1 s or more. • Retrieve the start stop unit DTCs using the M-MDS. (See DTC INSPECTION [START STOP UNIT].) • Is the same DTC displayed?	Yes Repeat the inspection from Step 1. • If the malfunction recurs, replace the start stop unit. (See START STOP UNIT REMOVAL/INSTALLATION.) Go to the next step.
		No Go to the next step.
7	VERIFY IF OTHER DTCs DISPLAYED • Are any other DTCs displayed?	Yes Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [START STOP UNIT].)
		No DTC troubleshooting completed.

DTC P081C:23 [START STOP UNIT]

SM2899057

id0902p602270

Description	NOT P position switch circuit malfunction
Detection condition	• Start stop unit detects that the NOT P position switch is stuck on for 5 s or more for a continuous 5 times with the ignition switched ON (engine off or on).
Fail-safe	• Perform the NOT P position switch control in a position other than P.
Possible cause	• Selector lever component connector or terminal malfunction • NOT P position switch malfunction • Start stop unit connector or terminal malfunction • Short to ground in wiring harness between start stop unit terminal 1J and selector lever component terminal B • Start stop unit malfunction



Diagnostic Procedure

Step	Inspection	Action
1	INSPECT SELECTOR LEVER COMPONENT CONNECTOR CONDITION • Switch the ignition off. • Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Disconnect the selector lever component connector. • Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. • Is the connector normal?	Yes Go to the next step.
		No Repair or replace the connector, then go to Step 5.