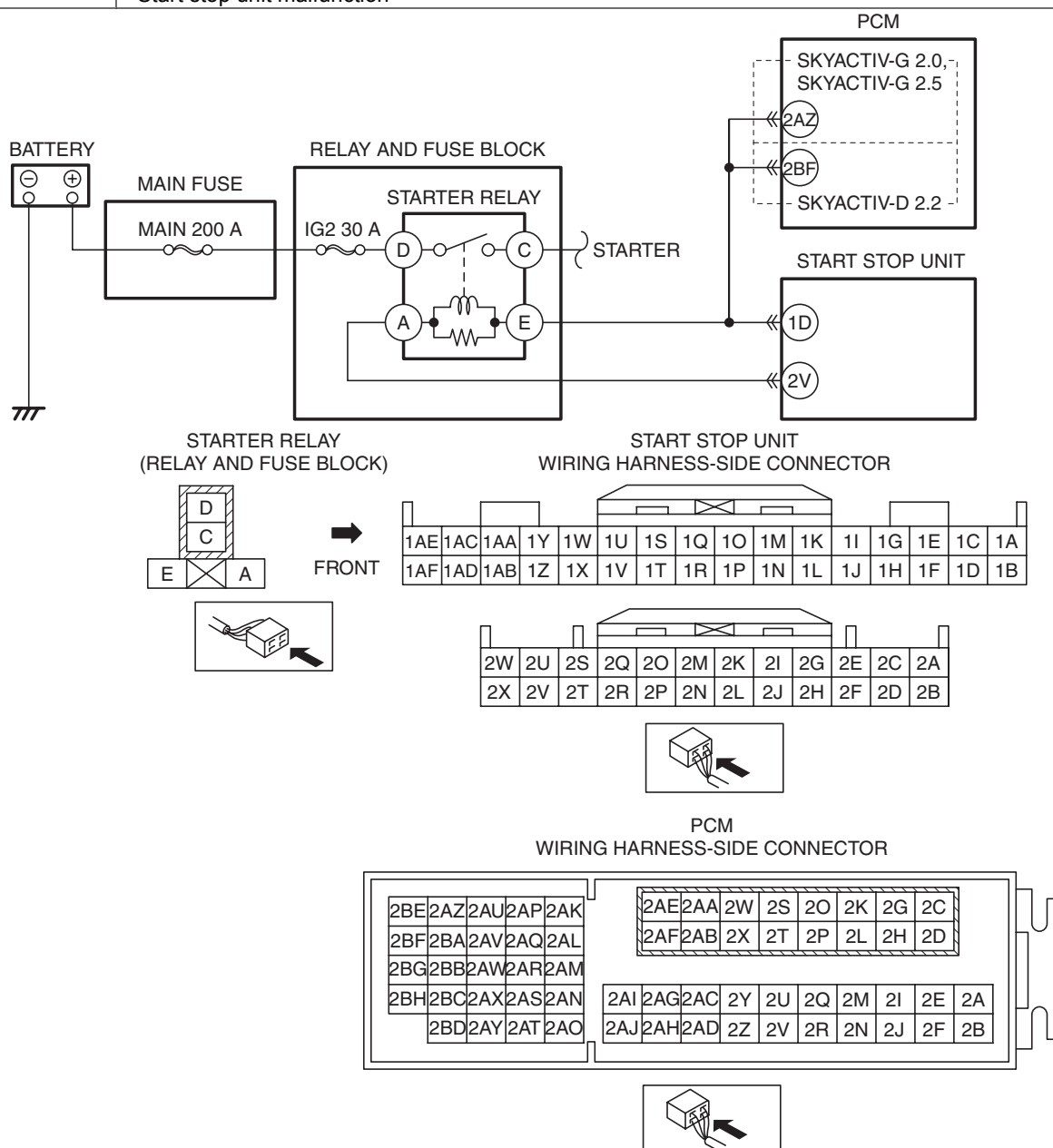


DTC P0615:12 [START STOP UNIT]

id0902p6022100

System malfunction location	Starter relay circuit malfunction
Detection condition	<ul style="list-style-type: none"> The start stop unit detects starter relay circuit voltage of specification or more for 1 s or more with the ignition switched off.
Fail-safe	<ul style="list-style-type: none"> Inhibits switching the ignition ON. Inhibits the engine start.
Possible cause	<ul style="list-style-type: none"> DTCs are stored in the PCM Starter relay malfunction Start stop unit connector or terminal malfunction Short to power supply in wiring harness between the following terminals: <ul style="list-style-type: none"> Starter relay terminal A—Start stop unit terminal 2V Starter relay terminal E—Start stop unit terminal 1D PCM connector malfunction Short to ground in wiring harness between the following terminals: <ul style="list-style-type: none"> Start stop unit terminal 1D—PCM terminal 2AZ (SKYACTIV-G 2.0, SKYACTIV-G 2.5) Start stop unit terminal 1D—PCM terminal 2BF (SKYACTIV-G 2.2) Start stop unit malfunction



Diagnostic Procedure

Step	Inspection	Action
1	VERIFY PCM DTCs <ul style="list-style-type: none"> Perform the DTC inspection for the PCM using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].) Is the DTC displayed? 	Yes Repair the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See DTC TABLE [SKYACTIV-D 2.2].)
		No Go to the next step.
2	INSPECT STARTER RELAY FOR MALFUNCTION <ul style="list-style-type: none"> Switch the ignition to off. 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)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) 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 <ul style="list-style-type: none"> 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 STARTER RELAY CIRCUIT FOR SHORT TO POWER SUPPLY <ul style="list-style-type: none"> Verify that the starter relay is removed. Verify that the start stop unit connector is disconnected. 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)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) Measure the voltage at the following terminals (vehicle wiring harness side). <ul style="list-style-type: none"> — Starter relay terminal A — Starter relay terminal E Is the voltage 0 V? 	Yes Go to the next step.
		No Repair or replace the wiring harness which has a short to the power supply, then go to Step 7.

Step	Inspection	Action	
5	INSPECT PCM CONNECTOR CONDITION <ul style="list-style-type: none"> • 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)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) • 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.
6	INSPECT STARTER RELAY CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> • Verify that the starter relay is removed. • Verify that the start stop unit and PCM connectors are disconnected. • Inspect for continuity the wiring harness between start stop unit terminal 1D (vehicle wiring harness side) and body ground. • Is there continuity? 	Yes	Repair or replace the wiring harness which has a short to ground, then go to the next step.
		No	Go to the next step.
7	VERIFY THAT REPAIRS HAVE BEEN COMPLETED <ul style="list-style-type: none"> • Reconnect all the disconnected connectors. • Reconnect the disconnected 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)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) • Clear DTC for the start stop unit using the M-MDS. (See CLEARING DTC [START STOP UNIT].) • Switch the ignition to off and wait for 1 s or more. • Perform the DTC inspection for the start stop unit using the M-MDS. (See DTC INSPECTION [START STOP UNIT].) • Is DTC P0615:12 displayed? 	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the start stop unit, then go to the next step. (See START STOP UNIT REMOVAL/INSTALLATION.)
		No	Go to the next step.
8	VERIFY IF OTHER DTCs DISPLAYED <ul style="list-style-type: none"> • Are any other DTCs displayed? 	Yes	Repair the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [START STOP UNIT].)
		No	DTC troubleshooting completed.