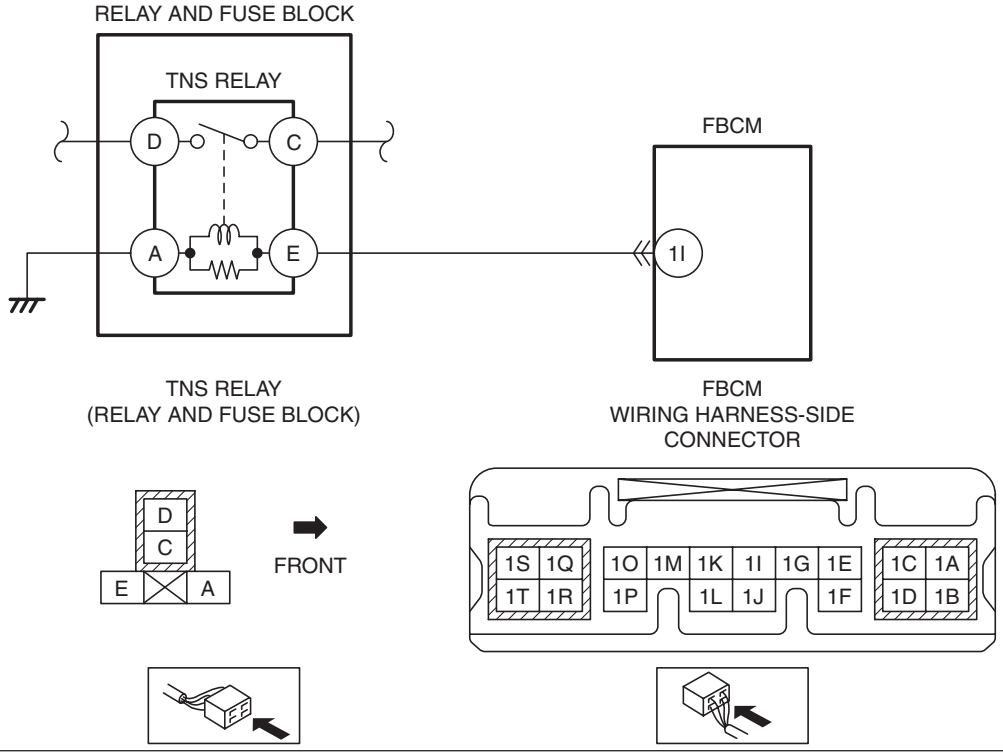
DTC B13D0:11 [FRONT BODY CONTROL MODULE (FBCM)]

id0902p2008500

System malfunction location	**TNS circuit malfunction**
Detection condition	• The front body control module (FBCM) detects a short to ground in the TNS relay circuit with the ignition switched ON (engine off or on).
Fail-safe	—
Possible cause	• TNS relay malfunction • Front body control module (FBCM) connector or terminal malfunction • Short to ground in wiring harness between TNS relay terminal E and front body control module (FBCM) terminal 1I • Front body control module (FBCM) malfunction



Diagnostic Procedure

Step	Inspection		Action
1	**VERIFY FRONT BODY CONTROL MODULE (FBCM) DTCs AGAIN** • Clear front body control module (FBCM) DTCs using the M-MDS. (See CLEARING DTC [FRONT BODY CONTROL MODULE (FBCM)].) • Switch the ignition ON (engine off or on). • Perform the front body control module (FBCM) DTC inspection using the M-MDS. (See DTC INSPECTION [FRONT BODY CONTROL MODULE (FBCM)].) • Is DTC B13D0:11 displayed?	Yes	Go to the next step.
		No	Go to Step 6.

Step	Inspection		Action
2	**INSPECT TNS RELAY FOR MALFUNCTION** • 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 TNS relay. • Inspect the TNS relay. (See RELAY INSPECTION.) • Is the TNS relay normal?	Yes	Go to the next step.
		No	Replace the TNS relay, then go to Step 5.
3	**INSPECT FRONT BODY CONTROL MODULE (FBCM) CONNECTOR CONDITION** • Disconnect the front body control module (FBCM) 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.
4	**INSPECT TNS RELAY CONTROL CIRCUIT FOR SHORT TO GROUND** • Verify that the TNS relay is removed. • Verify that the front body control module (FBCM) connector is disconnected. • Inspect for continuity between front body control module (FBCM) terminal 1I (vehicle wiring harness side) and body ground. • Is there continuity?	Yes	Repair or replace the wiring harness and go to the next step.
		No	Go to the next step.
5	**VERIFY THAT REPAIRS HAVE BEEN COMPLETED** • 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 front body control module (FBCM) DTCs using the M-MDS. (See CLEARING DTC [FRONT BODY CONTROL MODULE (FBCM)].) • Switch the ignition ON (engine off or on). • Operate the light switch in TNS position. • Perform the front body control module (FBCM) DTC inspection using the M-MDS. (See DTC INSPECTION [FRONT BODY CONTROL MODULE (FBCM)].) • Is DTC B13D0:11 displayed?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the front body control module (FBCM), then go to the next step. (See FRONT BODY CONTROL MODULE (FBCM) REMOVAL/INSTALLATION.)
		No	Go to the next step.

Step	Inspection		Action
6	**VERIFY IF OTHER DTCs DISPLAYED** • Are any other DTCs displayed?	Yes	Repair the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [FRONT BODY CONTROL MODULE (FBCM)].)
		No	DTC troubleshooting completed.