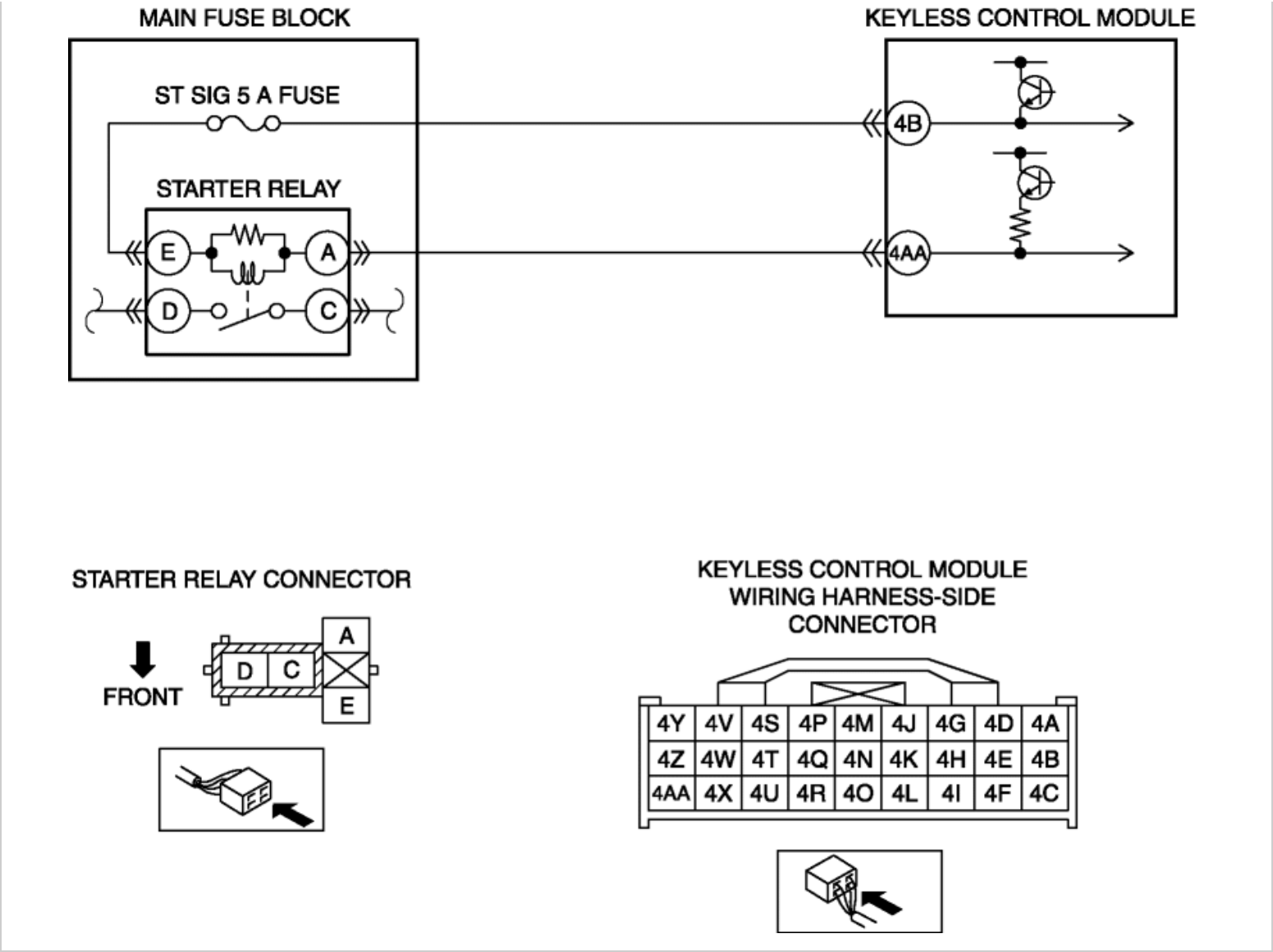


2012 - Mazda6 - Body and Accessories

DTC P0615:13 [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM]

MZR 2.5/ ATX

DESCRIPTION	• Open circuit in starter circuit
DETECTION CONDITION	• Detect the mismatch voltage between starter relay and starter monitor. ▪ Feedback voltage of starter relay output circuit less than 4.3 V and starter monitor input circuit higher than 4.3 V is detected under the following conditions: • IG1 relay output circuit is not active • Shift lever in P range
POSSIBLE CAUSE	• ST SIG 5 A fuse malfunction • Starter relay malfunction • Connector or terminal malfunction • Open circuit in related wiring harness • Keyless control module malfunction

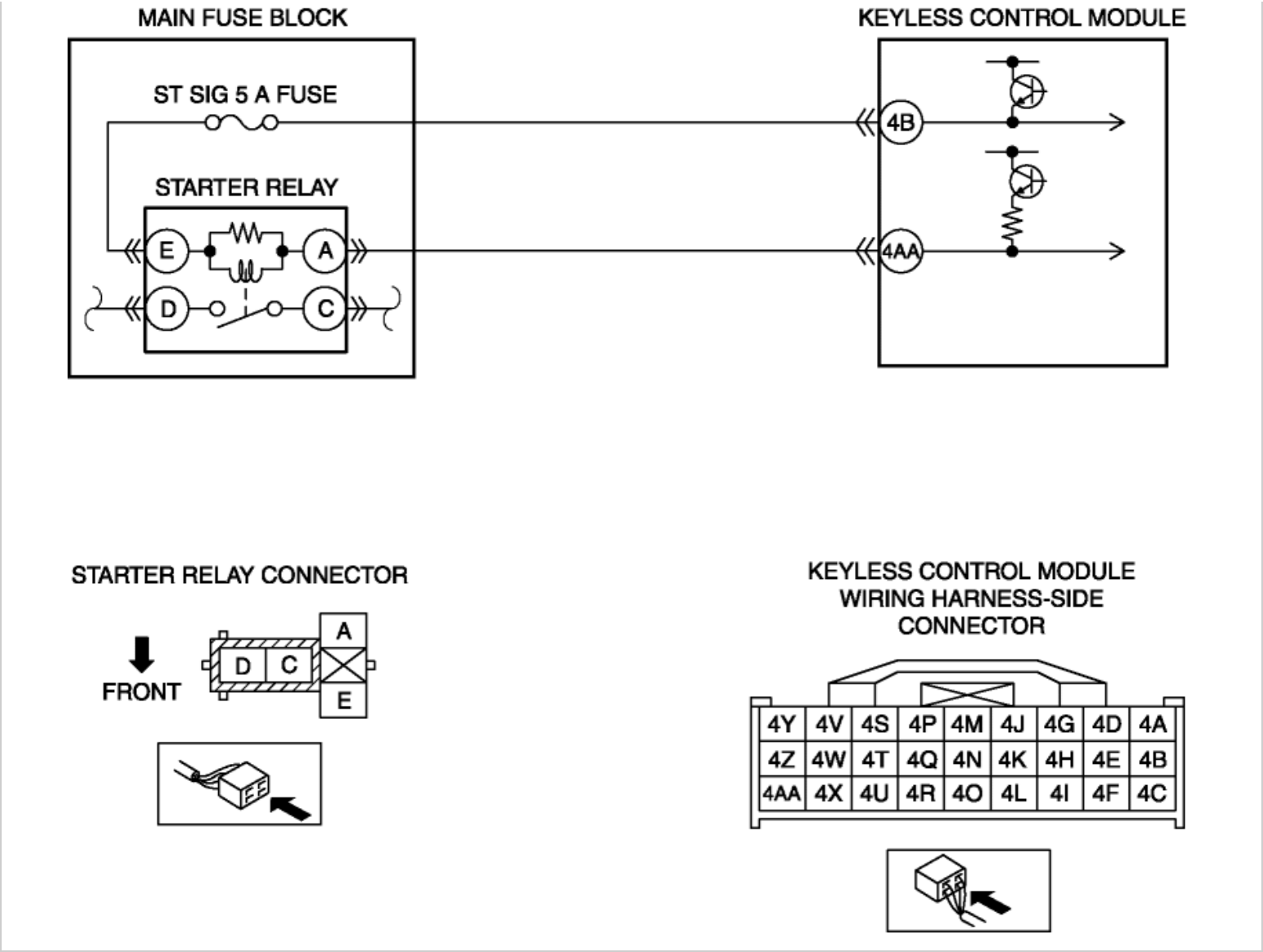


3	INSPECT KEYLESS CONTROL MODULE CONNECTOR CONDITION • Disconnect the keyless control module connector. • Inspect the connector and terminals (corrosion, damage, pin disconnection). • Is there any malfunction?		Yes Repair or replace the connector or terminals, then go to Step 6. No Go to the next step.
4	INSPECT STARTER RELAY CIRCUIT FOR OPEN CIRCUIT • Install the ST SIG 5 A fuse. • Install the starter relay. • Inspect for continuity between the following terminals: ▪ Starter relay terminal E (wiring harness-side) and keyless control module terminal 4B (wiring harness-side) ▪ Starter relay terminal A (wiring harness-side) and keyless control module terminal 4AA (wiring harness-side) • Is there continuity?		Yes Go to the next step. No Repair or replace the wiring harness for a possible open circuit, then go to Step 6.
5	INSPECT KEYLESS CONTROL MODULE • Reconnect the disconnected connectors. • Reconnect the negative battery cable. • Bring the valid key into the vehicle. • Measure the voltage between the following terminals and body ground with the shift lever in P range: ▪ Keyless control module terminal 4B (wiring harness-side) ▪ Keyless control module terminal 4AA (wiring harness-side) • Is the voltage more than 4 V?		Yes Go to the next step. No Replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
6	VERIFY TROUBLESHOOTING COMPLETED • Make sure to reconnect the disconnected connectors. • Reconnect the negative battery cable. • Clear the DTC from keyless control module memory using the M-MDS. (See CLEARING DTC [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) • Perform the advanced keyless entry and push button start system DTC inspection using the M-		Yes Repeat the inspection from Step 1. If the malfunction recurs, replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) No Go to the next step.

	MDS. (See DTC INSPECTION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)		
	Is the same DTC present?		
7	VERIFY THAT NO OTHER DTCs ARE PRESENT Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
		No	DTC troubleshooting completed.

MZR 2.5/ MTX

DESCRIPTION	Open circuit in starter circuit
DETECTION CONDITION	- Detect the mismatch voltage between starter relay and starter monitor. - Feedback voltage of starter relay output circuit less than 4.3 V and starter monitor input circuit higher than 4.3 V is detected under the following conditions: - IG1 relay output circuit is not active - Clutch is depressed
POSSIBLE CAUSE	- Connector or terminal malfunction - Open circuit in related wiring harness - Keyless control module malfunction

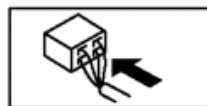
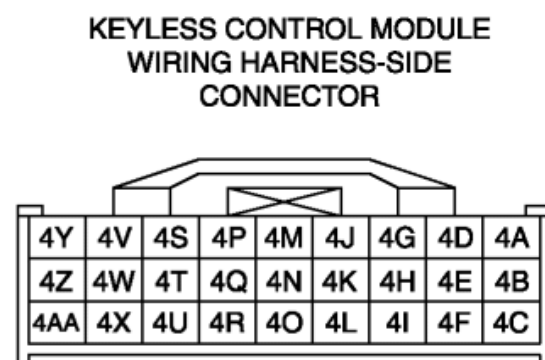
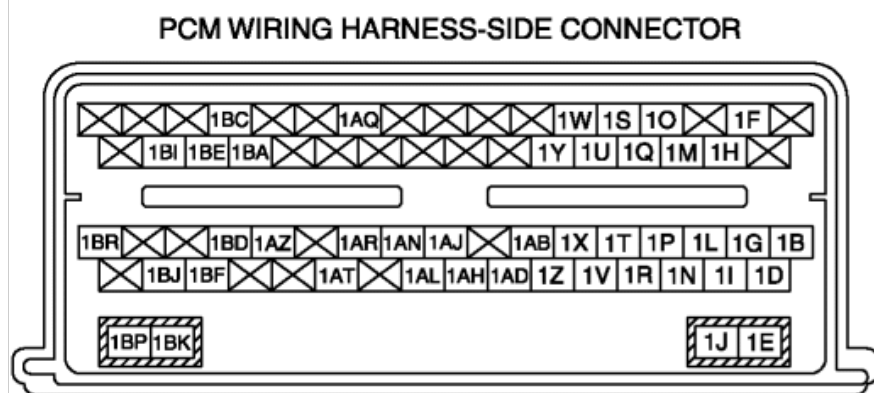
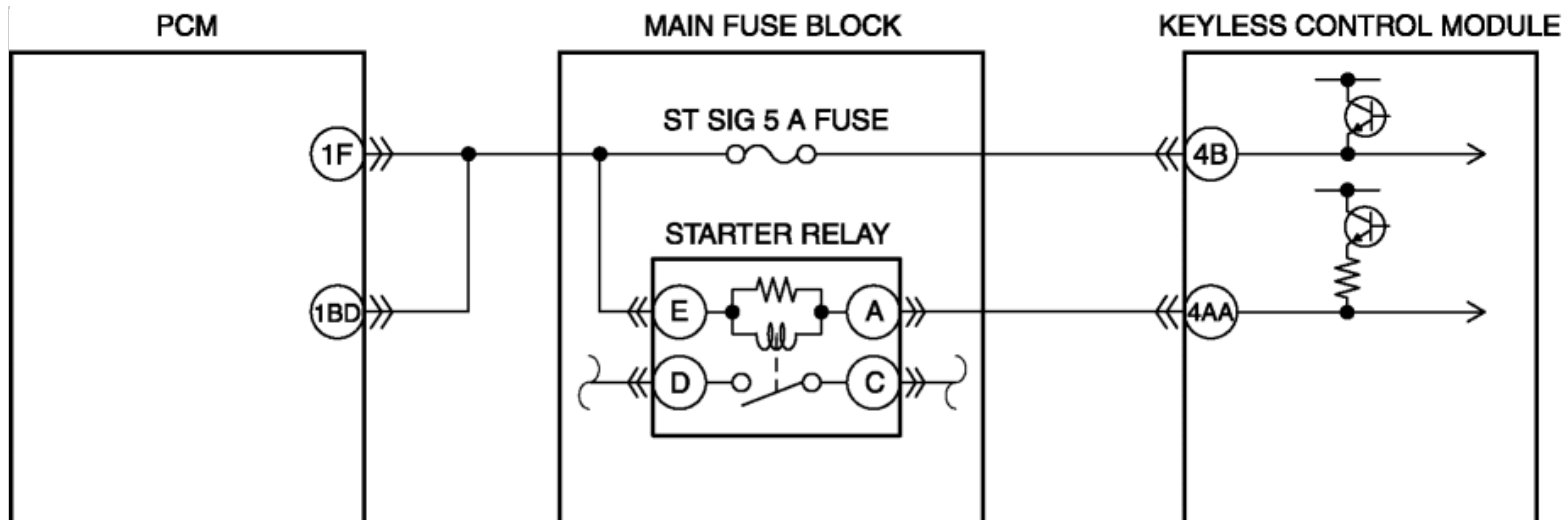


	A (wiring harness-side) and keyless control module terminal 4AA (wiring harness-side) Starter interlock switch terminal B (wiring harness-side) and keyless control module terminal 4K (wiring harness-side) • Is there continuity?		
3	INSPECT KEYLESS CONTROL MODULE - Reconnect the disconnected connectors. - Reconnect the negative battery cable. - Bring the valid key into the vehicle. - Measure the voltage between the following terminals and body ground with the clutch depressed: - Keyless control module terminal 4B (wiring harness-side) - Keyless control module terminal 4AA (wiring harness-side) - Is the voltage more than 4 V?	Yes Go to the next step. No Replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)	
4	VERIFY TROUBLESHOOTING COMPLETED - Make sure to reconnect the disconnected connectors. - Reconnect the negative battery cable. - Clear the DTC from keyless control module memory using the M-MDS. (See CLEARING DTC [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) - Perform the advanced keyless entry and push button start system DTC inspection using the M-MDS. (See DTC INSPECTION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) - Is the same DTC present?	Yes Repeat the inspection from Step 1. If the malfunction recurs, replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) No Go to the next step.	
5	VERIFY THAT NO OTHER DTCs ARE PRESENT Are any DTCs present?	Yes Go to the applicable DTC inspection. (See DTC TABLE [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) No DTC troubleshooting completed.	

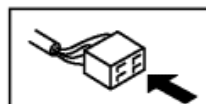
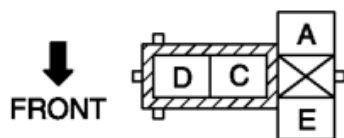
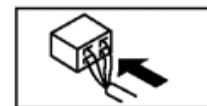
MZI 3.7 V6

DESCRIPTION	Open circuit in starter circuit
	- Detect the mismatch voltage between starter relay and starter monitor. - Feedback voltage of starter relay output circuit less than 1.1 V and starter

DETECTION CONDITION	monitor input circuit higher than 1.1 V is detected under the following conditions: • IG1 relay output circuit is not active • Shift lever in P range
POSSIBLE CAUSE	• ST SIG 5 A fuse malfunction • Starter relay malfunction • Connector or terminal malfunction • Open circuit in related wiring harness • Keyless control module malfunction



STARTER RELAY CONNECTOR



Diagnostic Procedure

Step	Inspection	Action
1	INSPECT FUSE Switch the ignition to off.	Yes Replace the ST SIG 5 A fuse, then go to Step 5.

	• Disconnect the negative battery cable. • Remove the ST SIG 5 A fuse. • Inspect the ST SIG 5 A fuse. • Is there any malfunction?	No	Go to the next step.
2	INSPECT RELAY • Remove the starter relay. • Inspect the starter relay. (See RELAY INSPECTION.) • Is there any malfunction?	Yes	Replace the starter relay, then go to Step 5.
		No	Go to the next step.
3	INSPECT KEYLESS CONTROL MODULE CONNECTOR CONDITION • Disconnect the keyless control module connector. • Inspect the connector and terminals (corrosion, damage, pin disconnection). • Is there any malfunction?	Yes	Repair or replace the connector or terminals, then go to Step 5.
		No	Go to the next step.
4	INSPECT KEYLESS CONTROL MODULE • Reconnect the disconnected connectors. • Reconnect the negative battery cable. • Bring the valid key into the vehicle. • Measure the voltage between the following terminals and body ground with the shift lever in P range: ▪ Keyless control module terminal 4B (wiring harness-side) ▪ Keyless control module terminal 4AA (wiring harness-side) • Is the voltage more than 2 V?	Yes	Go to the next step.
		No	Replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
5	VERIFY TROUBLESHOOTING COMPLETED • Make sure to reconnect the disconnected connectors. • Reconnect the negative battery cable. • Clear the DTC from keyless control module memory using the M-MDS. (See CLEARING DTC [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].) • Perform the advanced keyless entry and push button start system DTC inspection using the M-MDS.	Yes	Repeat the inspection from Step 1. If the malfunction recurs, replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
		No	Go to the next step.

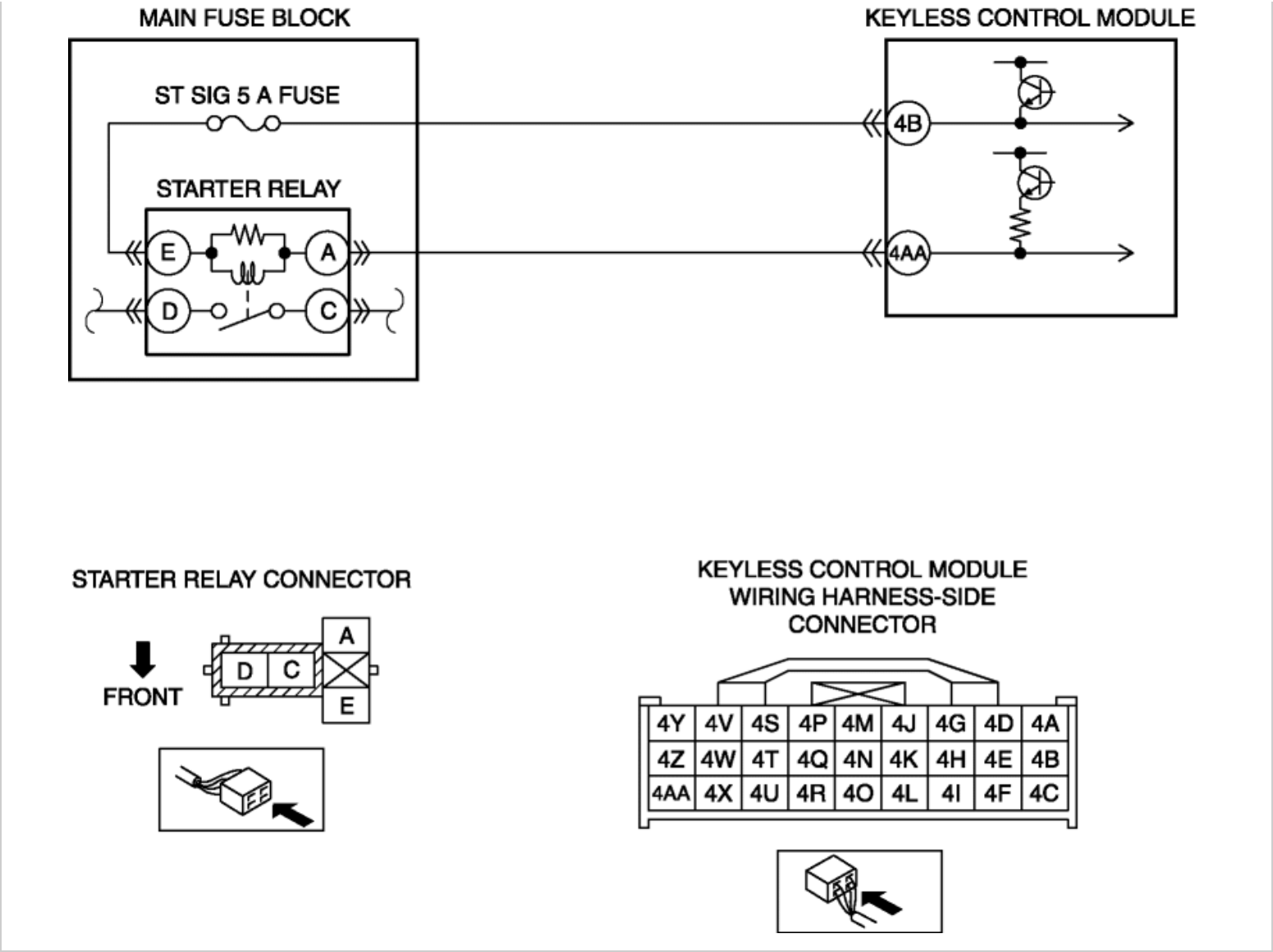
	(See DTC INSPECTION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)		
	Is the same DTC present?		
6	VERIFY THAT NO OTHER DTCs ARE PRESENT Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
		No	DTC troubleshooting completed.

2012 - Mazda6 - Body and Accessories

DTC P0615:13 [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM]

MZR 2.5/ ATX

DESCRIPTION	• Open circuit in starter circuit
DETECTION CONDITION	• Detect the mismatch voltage between starter relay and starter monitor. ▪ Feedback voltage of starter relay output circuit less than 4.3 V and starter monitor input circuit higher than 4.3 V is detected under the following conditions: • IG1 relay output circuit is not active • Shift lever in P range
POSSIBLE CAUSE	• ST SIG 5 A fuse malfunction • Starter relay malfunction • Connector or terminal malfunction • Open circuit in related wiring harness • Keyless control module malfunction

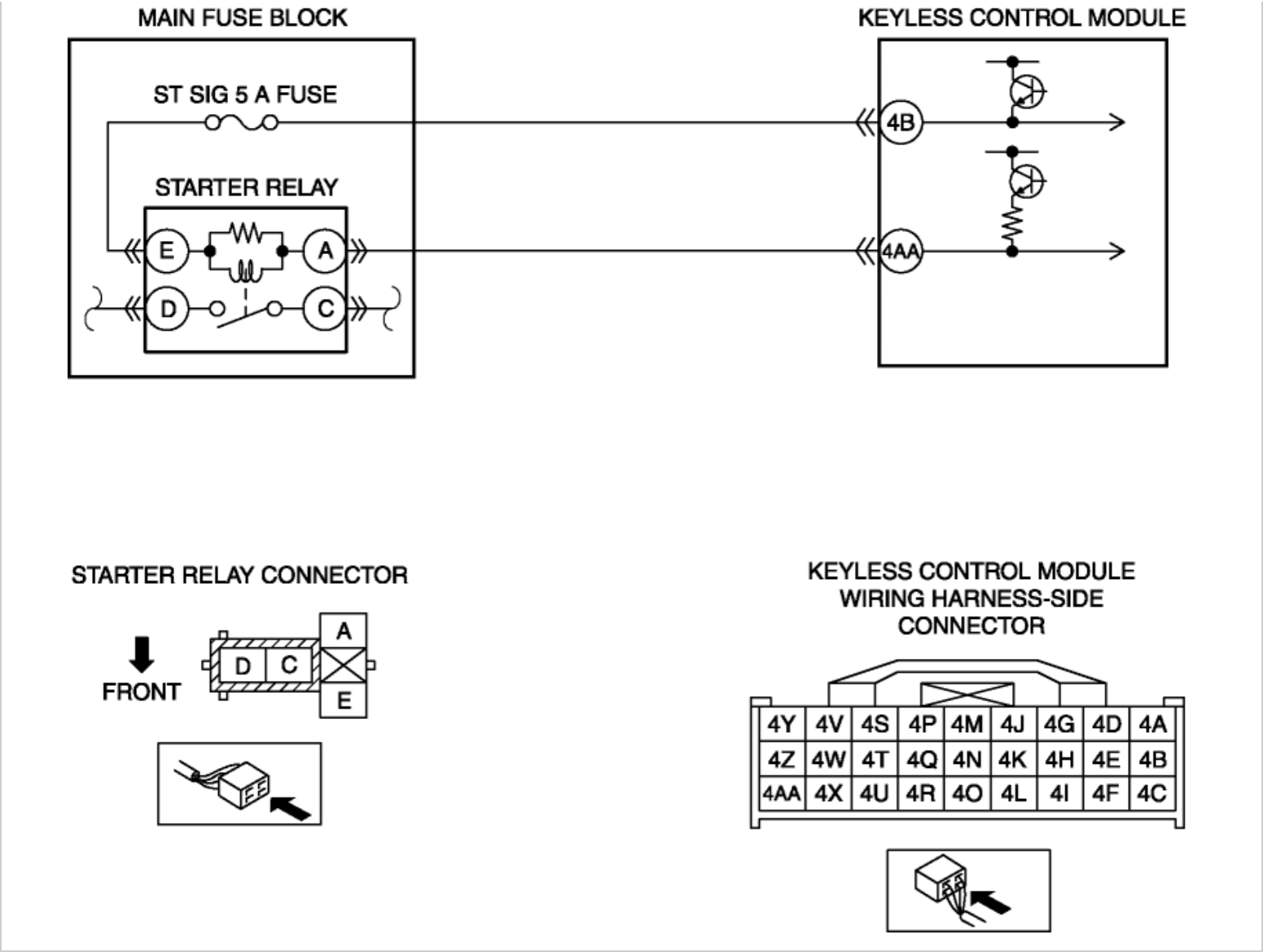


3	INSPECT KEYLESS CONTROL MODULE CONNECTOR CONDITION • Disconnect the keyless control module connector. • Inspect the connector and terminals (corrosion, damage, pin disconnection). • Is there any malfunction?	Yes	Repair or replace the connector or terminals, then go to Step 6.
4	INSPECT STARTER RELAY CIRCUIT FOR OPEN CIRCUIT • Install the ST SIG 5 A fuse. • Install the starter relay. • Inspect for continuity between the following terminals: ▪ Starter relay terminal E (wiring harness-side) and keyless control module terminal 4B (wiring harness-side) ▪ Starter relay terminal A (wiring harness-side) and keyless control module terminal 4AA (wiring harness-side) • Is there continuity?	Yes	Go to the next step.
5	INSPECT KEYLESS CONTROL MODULE • Reconnect the disconnected connectors. • Reconnect the negative battery cable. • Bring the valid key into the vehicle. • Measure the voltage between the following terminals and body ground with the shift lever in P range: ▪ Keyless control module terminal 4B (wiring harness-side) ▪ Keyless control module terminal 4AA (wiring harness-side) • Is the voltage more than 4 V?	Yes	Go to the next step.
6	VERIFY TROUBLESHOOTING COMPLETED • Make sure to reconnect the disconnected connectors. • Reconnect the negative battery cable. • Clear the DTC from keyless control module memory using the M-MDS. (See CLEARING DTC [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) • Perform the advanced keyless entry and push button start system DTC inspection using the M-	Yes	Repeat the inspection from Step 1. If the malfunction recurs, replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
		No	Go to the next step.

	MDS. (See DTC INSPECTION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)		
	Is the same DTC present?		
7	VERIFY THAT NO OTHER DTCs ARE PRESENT Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
		No	DTC troubleshooting completed.

MZR 2.5/ MTX

DESCRIPTION	Open circuit in starter circuit
DETECTION CONDITION	- Detect the mismatch voltage between starter relay and starter monitor. - Feedback voltage of starter relay output circuit less than 4.3 V and starter monitor input circuit higher than 4.3 V is detected under the following conditions: - IG1 relay output circuit is not active - Clutch is depressed
POSSIBLE CAUSE	- Connector or terminal malfunction - Open circuit in related wiring harness - Keyless control module malfunction

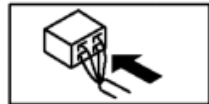
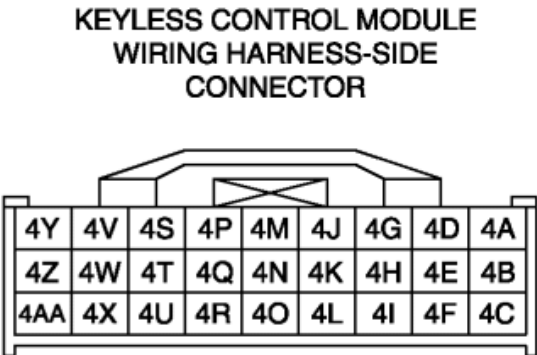
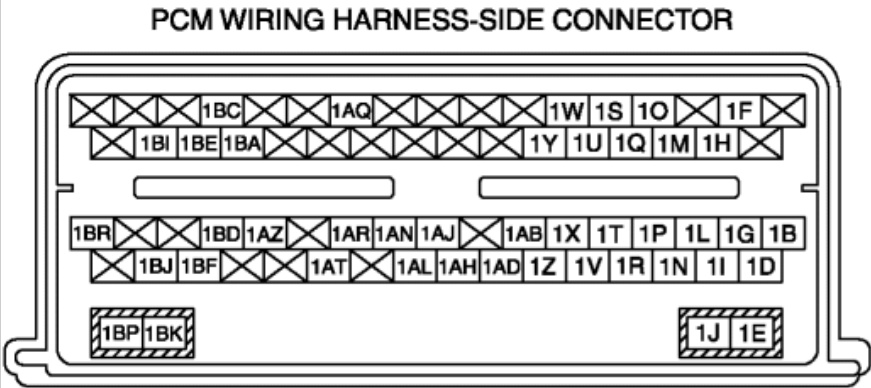
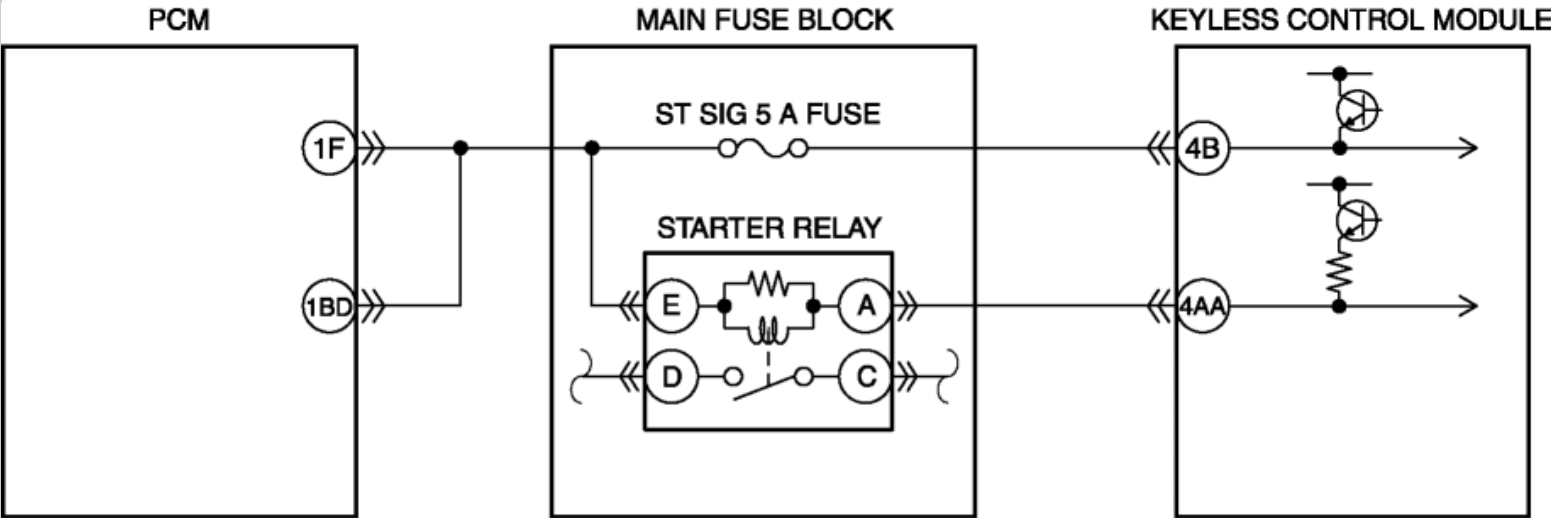


	A (wiring harness-side) and keyless control module terminal 4AA (wiring harness-side) Starter interlock switch terminal B (wiring harness-side) and keyless control module terminal 4K (wiring harness-side) • Is there continuity?		
3	INSPECT KEYLESS CONTROL MODULE - Reconnect the disconnected connectors. - Reconnect the negative battery cable. - Bring the valid key into the vehicle. - Measure the voltage between the following terminals and body ground with the clutch depressed: - Keyless control module terminal 4B (wiring harness-side) - Keyless control module terminal 4AA (wiring harness-side) - Is the voltage more than 4 V?	Yes Go to the next step. No Replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)	
4	VERIFY TROUBLESHOOTING COMPLETED - Make sure to reconnect the disconnected connectors. - Reconnect the negative battery cable. - Clear the DTC from keyless control module memory using the M-MDS. (See CLEARING DTC [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) - Perform the advanced keyless entry and push button start system DTC inspection using the M-MDS. (See DTC INSPECTION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) - Is the same DTC present?	Yes Repeat the inspection from Step 1. If the malfunction recurs, replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) No Go to the next step.	
5	VERIFY THAT NO OTHER DTCs ARE PRESENT Are any DTCs present?	Yes Go to the applicable DTC inspection. (See DTC TABLE [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .) No DTC troubleshooting completed.	

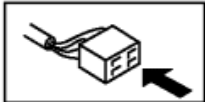
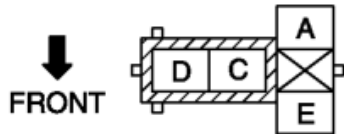
MZI 3.7 V6

DESCRIPTION	Open circuit in starter circuit
	- Detect the mismatch voltage between starter relay and starter monitor. - Feedback voltage of starter relay output circuit less than 1.1 V and starter

DETECTION CONDITION	monitor input circuit higher than 1.1 V is detected under the following conditions: • IG1 relay output circuit is not active • Shift lever in P range
POSSIBLE CAUSE	• ST SIG 5 A fuse malfunction • Starter relay malfunction • Connector or terminal malfunction • Open circuit in related wiring harness • Keyless control module malfunction



STARTER RELAY CONNECTOR



Diagnostic Procedure

Step	Inspection	Action
1	INSPECT FUSE Switch the ignition to off.	YesReplace the ST SIG 5 A fuse, then go to Step 5.

	• Disconnect the negative battery cable. • Remove the ST SIG 5 A fuse. • Inspect the ST SIG 5 A fuse. • Is there any malfunction?	No	Go to the next step.
2	INSPECT RELAY • Remove the starter relay. • Inspect the starter relay. (See RELAY INSPECTION.) • Is there any malfunction?	Yes	Replace the starter relay, then go to Step 5.
		No	Go to the next step.
3	INSPECT KEYLESS CONTROL MODULE CONNECTOR CONDITION • Disconnect the keyless control module connector. • Inspect the connector and terminals (corrosion, damage, pin disconnection). • Is there any malfunction?	Yes	Repair or replace the connector or terminals, then go to Step 5.
		No	Go to the next step.
4	INSPECT KEYLESS CONTROL MODULE • Reconnect the disconnected connectors. • Reconnect the negative battery cable. • Bring the valid key into the vehicle. • Measure the voltage between the following terminals and body ground with the shift lever in P range: ▪ Keyless control module terminal 4B (wiring harness-side) ▪ Keyless control module terminal 4AA (wiring harness-side) • Is the voltage more than 2 V?	Yes	Go to the next step.
		No	Replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
5	VERIFY TROUBLESHOOTING COMPLETED • Make sure to reconnect the disconnected connectors. • Reconnect the negative battery cable. • Clear the DTC from keyless control module memory using the M-MDS. (See CLEARING DTC [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].) • Perform the advanced keyless entry and push button start system DTC inspection using the M-MDS.	Yes	Repeat the inspection from Step 1. If the malfunction recurs, replace the keyless control module, then go to the next step. (See KEYLESS CONTROL MODULE REMOVAL/ INSTALLATION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
		No	Go to the next step.

	(See DTC INSPECTION [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)		
	Is the same DTC present?		
6	VERIFY THAT NO OTHER DTCs ARE PRESENT Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)
		No	DTC troubleshooting completed.