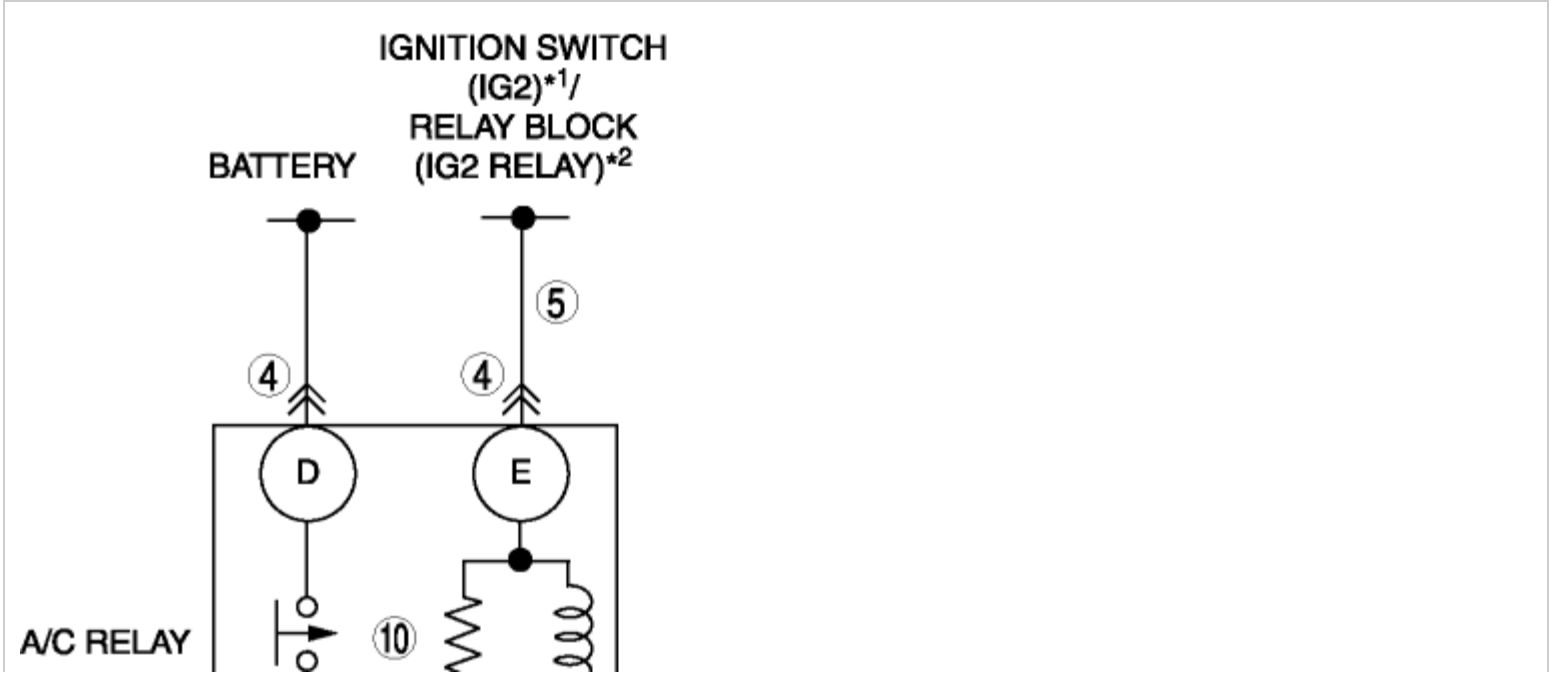
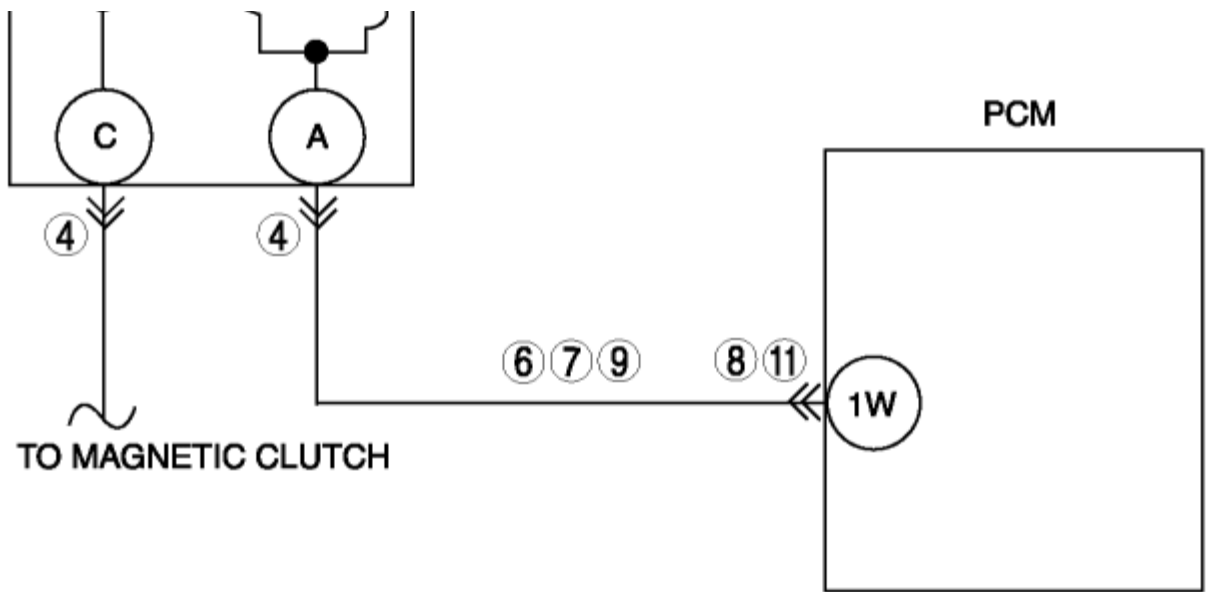


2012 - Mazda6 - Engine

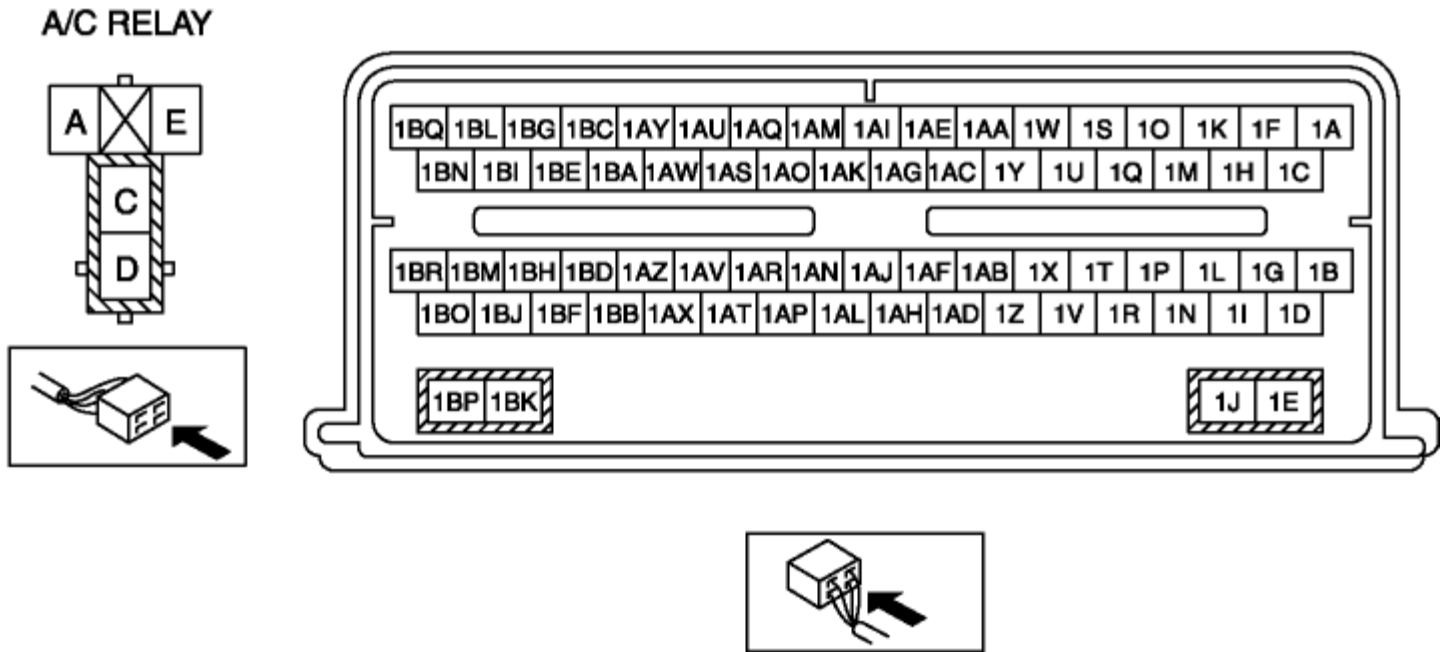
DTC P0645:00 [MZI 3.7 V6]

DTC P0645:00	A/C relay control circuit
DETECTION CONDITION	Monitors the A/C relay control circuit output from the PCM. The test fails when the PCM grounds the A/C relay control circuit, excessive current draw is detected on the A/C relay control circuit; or, with the A/C relay control circuit not grounded by the PCM, voltage is not detected on the A/C relay control circuit (the PCM expects to detect vehicle power voltage coming through the A/C relay coil to the A/C circuit).
POSSI BLE CAUSE	- Connector or terminal malfunction - Open circuit in wiring between ignition switch*¹/relay block*² and A/C relay terminal E - Short to power supply between A/C relay terminal A and PCM terminal 1W - Short to ground in wiring between A/C relay terminal A and PCM terminal 1W - Open circuit in wiring between A/C relay terminal A and PCM terminal 1W - A/C relay malfunction - PCM malfunction





PCM
WIRING HARNESS-SIDE CONNECTOR



*1

Vehicles without advanced keyless entry and push button start system

*2

Vehicles with advanced keyless entry and push button start system

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
		No Record FREEZE FRAME DATA on the repair

	Has FREEZE FRAME DATA been recorded?		order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY - Verify related Service Bulletins and/or on-line repair information availability. - Is any related Service Bulletins available?	Yes	Perform repair or diagnosis according to the available Service Bulletins. If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT THAT THE ACCS PID IS OFF - Switch the ignition ON (Engine running). - A/C switch and defroster switch off. - Access the ACCS PID using M-MDS. - Is the PID state off?	Yes	Go to the next step.
		No	ACCS input to PCM is requesting A/C. Inspect A/C system operation, then go to Step 12. (See A/ C OPERATION CHECK MODE TABLE.)
4	INSPECT A/ C RELAY CONNECTOR FOR POOR CONNECTOR - Switch the ignition off. - Disconnect the A/C relay connector. - Inspect for poor connection (such as damaged, pulled-out pins, corrosion, etc.). - Are there any malfunction?	Yes	Repair or replace suspected part, then go to Step 12.
		No	Go to the next step.
5	INSPECT A/ C RELAY POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT - Switch the ignition ON (Engine off). - Measure voltage between A/C relay terminal E (wiring harness-side) and body ground. - Is voltage B+ ?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 12.
6	INSPECT A/ C RELAY CONTROL CIRCUIT FOR SHORT TO	Yes	Repair or replace suspected part, then go to Step 12.

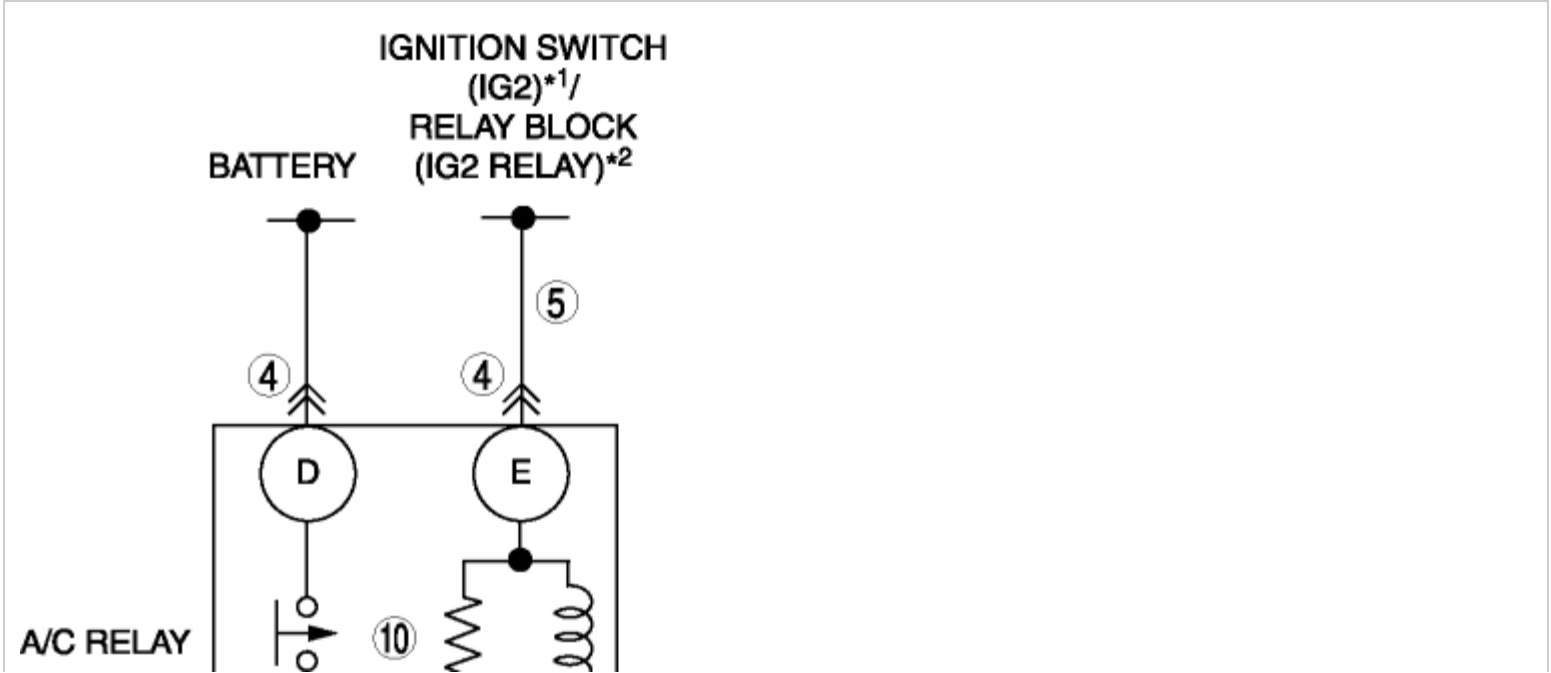
	POWER SUPPLY - Switch the ignition ON (Engine off). - Remove the A/C relay. - Measure voltage between A/C relay terminal A (wiring harness-side) and body ground. - Is voltage B+ ?		No Go to the next step.
7	INSPECT A/ C RELAY CONTROL CIRCUIT FOR SHORT TO GROUND - Install the A/C relay. - Switch the ignition off. - Inspect continuity between A/C relay terminal A (wiring harness-side) and body ground. - Is there continuity?	Yes	Repair or replace suspected part, then go to Step 12.
		No	Go to the next step.
8	INSPECT PCM CONNECTOR FOR POOR CONNECTION - Switch the ignition off. - Disconnect the PCM connector. - Inspect for poor connection (such as damaged, pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace suspected part, then go to Step 12.
		No	Go to the next step.
9	INSPECT A/ C RELAY CONTROL CIRCUIT FOR OPEN CIRCUIT - Switch the ignition off. - Inspect continuity between A/C relay terminal A (wiring harness-side) and PCM terminal 1W (wiring harness-side). - Is there continuity?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 12.
10	INSPECT A/ C RELAY - Inspect A/C relay. (See RELAY INSPECTION.) - Is A/C relay normal?	Yes	Go to the next step.
		No	Replace the A/C relay. Start the engine. Turn on the A/C switch. Wait for 15 s . Turn off the A/C switch, then go to Step 12.

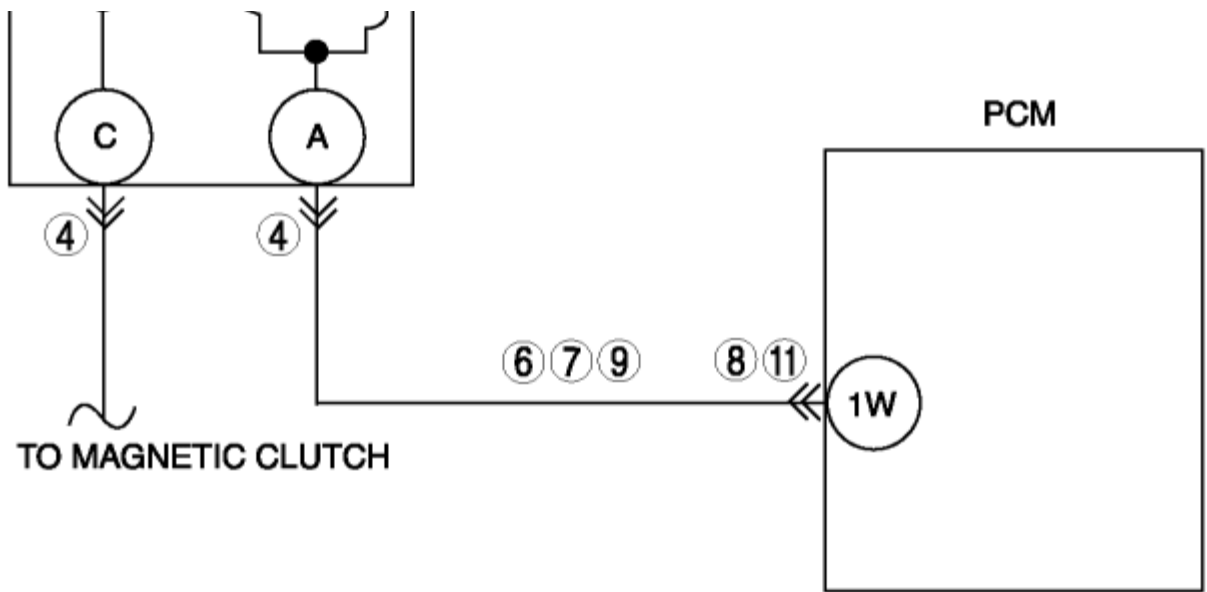
11	INSPECT FOR CORRECT PCM OPERATION • Disconnect all the PCM connectors. • Visually inspect for: ▪ Pushed out pins ▪ Corrosion • Connect all the PCM connectors and verify that they seat correctly. • Retrieve DTCs using the M-MDS. • Is the PENDING CODE for this DTC present?	Yes	Go to the next step.
		No	The system is correctly. Go to the next step.
12	VERIFY TROUBLESHOOTING OF DTC P0645:00 HAS BEEN COMPLETED • Verify that all disconnected connectors reconnected. • Clear the DTC from the PCM memory using the M-MDS. • Perform the KOEO or KOER self-test. (See KOEO/ KOER SELF TEST [MZI 3.7 V6].) • Is the PENDING CODE for the DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/ INSTALLATION [MZI 3.7 V6].) Go to the next step.
		No	Go to the next step.
13	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZI 3.7 V6].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZI 3.7 V6].)
		No	Troubleshooting completed.

2012 - Mazda6 - Engine

DTC P0645:00 [MZI 3.7 V6]

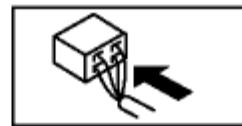
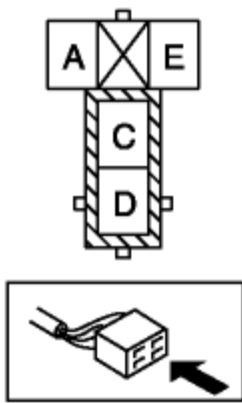
DTC P0645:00	A/C relay control circuit
DETECTION CONDITION	Monitors the A/C relay control circuit output from the PCM. The test fails when the PCM grounds the A/C relay control circuit, excessive current draw is detected on the A/C relay control circuit; or, with the A/C relay control circuit not grounded by the PCM, voltage is not detected on the A/C relay control circuit (the PCM expects to detect vehicle power voltage coming through the A/C relay coil to the A/C circuit).
POSSI BLE CAUSE	- Connector or terminal malfunction - Open circuit in wiring between ignition switch*¹/relay block*² and A/C relay terminal E - Short to power supply between A/C relay terminal A and PCM terminal 1W - Short to ground in wiring between A/C relay terminal A and PCM terminal 1W - Open circuit in wiring between A/C relay terminal A and PCM terminal 1W - A/C relay malfunction - PCM malfunction





PCM
WIRING HARNESS-SIDE CONNECTOR

A/C RELAY



*1

Vehicles without advanced keyless entry and push button start system

*2

Vehicles with advanced keyless entry and push button start system

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED	Yes Go to the next step.
		No Record FREEZE FRAME DATA on the repair

	Has FREEZE FRAME DATA been recorded?		order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY - Verify related Service Bulletins and/or on-line repair information availability. - Is any related Service Bulletins available?	Yes	Perform repair or diagnosis according to the available Service Bulletins. If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT THAT THE ACCS PID IS OFF - Switch the ignition ON (Engine running). - A/C switch and defroster switch off. - Access the ACCS PID using M-MDS. - Is the PID state off?	Yes	Go to the next step.
		No	ACCS input to PCM is requesting A/C. Inspect A/C system operation, then go to Step 12. (See A/ C OPERATION CHECK MODE TABLE.)
4	INSPECT A/ C RELAY CONNECTOR FOR POOR CONNECTOR - Switch the ignition off. - Disconnect the A/C relay connector. - Inspect for poor connection (such as damaged, pulled-out pins, corrosion, etc.). - Are there any malfunction?	Yes	Repair or replace suspected part, then go to Step 12.
		No	Go to the next step.
5	INSPECT A/ C RELAY POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT - Switch the ignition ON (Engine off). - Measure voltage between A/C relay terminal E (wiring harness-side) and body ground. - Is voltage B+ ?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 12.
6	INSPECT A/ C RELAY CONTROL CIRCUIT FOR SHORT TO	Yes	Repair or replace suspected part, then go to Step 12.

	POWER SUPPLY - Switch the ignition ON (Engine off). - Remove the A/C relay. - Measure voltage between A/C relay terminal A (wiring harness-side) and body ground. - Is voltage B+ ?		No Go to the next step.
7	INSPECT A/ C RELAY CONTROL CIRCUIT FOR SHORT TO GROUND - Install the A/C relay. - Switch the ignition off. - Inspect continuity between A/C relay terminal A (wiring harness-side) and body ground. - Is there continuity?	Yes	Repair or replace suspected part, then go to Step 12.
		No	Go to the next step.
8	INSPECT PCM CONNECTOR FOR POOR CONNECTION - Switch the ignition off. - Disconnect the PCM connector. - Inspect for poor connection (such as damaged, pulled-out pins, corrosion). - Is there any malfunction?	Yes	Repair or replace suspected part, then go to Step 12.
		No	Go to the next step.
9	INSPECT A/ C RELAY CONTROL CIRCUIT FOR OPEN CIRCUIT - Switch the ignition off. - Inspect continuity between A/C relay terminal A (wiring harness-side) and PCM terminal 1W (wiring harness-side). - Is there continuity?	Yes	Go to the next step.
		No	Repair or replace suspected part, then go to Step 12.
10	INSPECT A/ C RELAY - Inspect A/C relay. (See RELAY INSPECTION.) - Is A/C relay normal?	Yes	Go to the next step.
		No	Replace the A/C relay. Start the engine. Turn on the A/C switch. Wait for 15 s . Turn off the A/C switch, then go to Step 12.

11	INSPECT FOR CORRECT PCM OPERATION • Disconnect all the PCM connectors. • Visually inspect for: ▪ Pushed out pins ▪ Corrosion • Connect all the PCM connectors and verify that they seat correctly. • Retrieve DTCs using the M-MDS. • Is the PENDING CODE for this DTC present?	Yes	Go to the next step.
		No	The system is correctly. Go to the next step.
12	VERIFY TROUBLESHOOTING OF DTC P0645:00 HAS BEEN COMPLETED • Verify that all disconnected connectors reconnected. • Clear the DTC from the PCM memory using the M-MDS. • Perform the KOEO or KOER self-test. (See KOEO/ KOER SELF TEST [MZI 3.7 V6].) • Is the PENDING CODE for the DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/ INSTALLATION [MZI 3.7 V6].) Go to the next step.
		No	Go to the next step.
13	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZI 3.7 V6].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZI 3.7 V6].)
		No	Troubleshooting completed.