

2012 - Mazda6 - Engine

DTC P0217:00 [MZI 3.7 V6]

DTC P0217:00	Engine coolant over temperature condition
DETECTION CONDITION	Indicates an engine overheat condition was detected by the engine temperature sensor (CHT or ECT depending how the vehicle is equipped).
POSSIBLE CAUSE	- Engine cooling system concerns - CHT sensor malfunction - Low engine coolant level - Base engine concerns - PCM malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED Has FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record FREEZE FRAME DATA on the repair 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 COOLING SYSTEM WARNING: Never remove the cooling system cap or loosen the radiator drain plug while the engine is running, or when the engine and radiator are hot. Scalding engine	Yes Go to the next step.
		No Inspect for a loss of engine coolant. Repair if necessary. (See ENGINE COOLANT LEVEL INSPECTION

	coolant and steam may shoot out and cause serious injury. It may also damage the engine and cooling system. • Turn off the engine and wait until it is cool. Even then, be very careful when removing the cap. Wrap a thick cloth around it and slowly turn it counterclockwise to the first stop. Step back while the pressure escapes. • When you're sure all the pressure is gone, press down on the cap using the cloth, turn it, and then remove it. • Is the engine coolant fill level correct?	[MZI 3.7 V6] .) Go to Step 11.
4	INSPECT CHT SENSOR • Inspect the CHT sensor. (See CYLINDER HEAD TEMPERATURE (CHT) SENSOR INSPECTION [MZI 3.7 V6] .) • Is there any malfunction?	Yes Replace the CHT sensor, then go to Step 11.
		(See CYLINDER HEAD TEMPERATURE (CHT) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .)
5	CHECK FOR OPEN IN HARNESS • Switch the ignition to off. • Disconnect the CHT sensor and PCM connectors. • Measure the resistance between: ▪ CHT sensor terminal A (wiring harness-side) and PCM terminal 2AV (wiring harness-side) ▪ CHT sensor terminal B (wiring harness-side) and PCM terminal 2G (wiring harness-side) • Is the resistance less than 5 ohm?	No Go to the next step.
		Yes Go to the next step.
6	CHECK FOR SHORT BETWEEN CIRCUITS IN HARNESS • CHT sensor and PCM connectors are disconnected. • Measure the resistance between CHT sensor terminal A (wiring harness-side) and following: ▪ Body ground	No Repair for open circuit, then go to Step 11.
		Yes Go to the next step.

	▪ PCM terminal 2G (wiring harness-side) • Is the resistance greater than 10 kilohms?		
7	CHECK FOR SHORT TO VOLTAGE IN HARNESS • Switch the ignition to ON (engine off). • Measure the voltage between CHT sensor terminal A (wiring harness-side) and body ground. • Is there any voltage?	Yes	Repair for short circuit, then go to Step 11.
		No	Go to the next step.
8	INTERMITTENT CHECK • Switch the ignition to off. • Reconnect all disconnected connectors. • Switch the ignition to ON (engine off). • Access the PCM and monitor the ECT (VOLT) PID. • While observing the PID, wiggle, shake, and bend small sections of the wiring harness while working from the sensor to the PCM. • Lightly tap on the ECT sensor and wiggle the harness and connector to simulate road shock. • Does the ECT PID reading change?	Yes	Repair wiring harness and/or connector as necessary or replace the CHT sensor, then go to Step 11. (See CYLINDER HEAD TEMPERATURE (CHT) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .)
		No	Go to the next step.
9	CHECK ENGINE COOLANT TEMPERATURE AND AMBIENT AIR TEMPERATURE CORRELATION NOTE: • Check temperature values while engine is at ambient temperature, cold soak the engine for a minimum of 8 hours if necessary. Make sure the vehicle has not been in direct sun light. • Switch the ignition to ON (engine off). • Access the PCM and monitor the ECT PID. • Access the PCM and monitor the IAT PID. • Are the temperature readings within 18 °C {32 °F} of each other?	Yes	Go to the next step.
		No	Replace the CHT sensor, then go to Step 11. (See CYLINDER HEAD TEMPERATURE (CHT) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .)
10	CHECK ECT CIRCUIT VOLTAGE CYCLING INTEGRITY	Yes	Replace the CHT sensor, then go to the

	• Switch the ignition to off. • Disconnect the CHT sensor connector. • Switch the ignition to ON (engine off). • Access the PCM and monitor the ECT (VOLT) PID. • Record the ECT PID value. • Connect a 5 amp fused jumper wire between CHT sensor terminal A and B at wiring harness-side connector. • Record the ECT PID value. • Does the ECT PID change from greater than 3.0 volts to less than 0.20 volt when the jumper is connected?	next step. (See CYLINDER HEAD TEMPERATURE (CHT) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .)
		No Go to the next step. (The system is operating normal at this time. The concern may have been caused by a loose or corroded connector.)
11	VERIFY TROUBLESHOOTING OF DTC P0217:00 HAS BEEN COMPLETED • Verify that all disconnected connectors are reconnected. • Switch the ignition to ON (Engine off). • 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 same 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.
12	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.

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		No Go to the next step.
3	INSPECT COOLING SYSTEM WARNING: Never remove the cooling system cap or loosen the radiator drain plug while the engine is running, or when the engine and radiator are hot. Scalding engine	Yes Go to the next step.
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	coolant and steam may shoot out and cause serious injury. It may also damage the engine and cooling system. • Turn off the engine and wait until it is cool. Even then, be very careful when removing the cap. Wrap a thick cloth around it and slowly turn it counterclockwise to the first stop. Step back while the pressure escapes. • When you're sure all the pressure is gone, press down on the cap using the cloth, turn it, and then remove it. • Is the engine coolant fill level correct?	[MZI 3.7 V6] .) Go to Step 11.
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		(See CYLINDER HEAD TEMPERATURE (CHT) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .)
5	CHECK FOR OPEN IN HARNESS • Switch the ignition to off. • Disconnect the CHT sensor and PCM connectors. • Measure the resistance between: ▪ CHT sensor terminal A (wiring harness-side) and PCM terminal 2AV (wiring harness-side) ▪ CHT sensor terminal B (wiring harness-side) and PCM terminal 2G (wiring harness-side) • Is the resistance less than 5 ohm?	No Go to the next step.
		Yes Go to the next step.
6	CHECK FOR SHORT BETWEEN CIRCUITS IN HARNESS • CHT sensor and PCM connectors are disconnected. • Measure the resistance between CHT sensor terminal A (wiring harness-side) and following: ▪ Body ground	No Repair for open circuit, then go to Step 11.
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		No	Go to the next step.
8	INTERMITTENT CHECK • Switch the ignition to off. • Reconnect all disconnected connectors. • Switch the ignition to ON (engine off). • Access the PCM and monitor the ECT (VOLT) PID. • While observing the PID, wiggle, shake, and bend small sections of the wiring harness while working from the sensor to the PCM. • Lightly tap on the ECT sensor and wiggle the harness and connector to simulate road shock. • Does the ECT PID reading change?	Yes	Repair wiring harness and/or connector as necessary or replace the CHT sensor, then go to Step 11. (See CYLINDER HEAD TEMPERATURE (CHT) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .)
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10	CHECK ECT CIRCUIT VOLTAGE CYCLING INTEGRITY	Yes	Replace the CHT sensor, then go to the

	• Switch the ignition to off. • Disconnect the CHT sensor connector. • Switch the ignition to ON (engine off). • Access the PCM and monitor the ECT (VOLT) PID. • Record the ECT PID value. • Connect a 5 amp fused jumper wire between CHT sensor terminal A and B at wiring harness-side connector. • Record the ECT PID value. • Does the ECT PID change from greater than 3.0 volts to less than 0.20 volt when the jumper is connected?	next step. (See CYLINDER HEAD TEMPERATURE (CHT) SENSOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .)
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12	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] .)
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