

2012 - Mazda6 - Engine

NO.24 A/ C IS ALWAYS ON OR A/ C COMPRESSOR RUNS CONTINUOUSLY [MZI 3.7 V6]

24	A/C IS ALWAYS ON OR A/C COMPRESSOR RUNS CONTINUOUSLY
DESCRIPTION	A/C compressor magnetic clutch does not disengage.
POSSIBLE CAUSE	- A/C compressor magnetic clutch engagement is stuck. - A/C relay is stuck closed. - Short to ground in wiring harness between A/C relay and PCM - Short to power supply in A/C relay to magnetic clutch - Climate control module malfunction (A/C switch signal stuck on.) - Communication error between PCM and climate control module

Diagnostic procedure

STEP	INSPECTION	RESULTS	ACTION
1	VERIFY PCM AND CLIMATE CONTROL UNIT DTC - Switch the ignition to ON (Engine off). - Retrieve PCM and EATC DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) (See DTC DISPLAY.) - Are there any DTCs displayed?	Yes	DTC is displayed: Go to the appropriate DTC inspection. (See DTC TABLE [MZI 3.7 V6].) (See DTC TABLE.)
		No	No DTC is displayed: Go to the next step.
2	DETERMINE IF MALFUNCTION CAUSE IS MAGNETIC CLUTCH OR OTHER - Start the engine and idle it. - Turn the A/C switch on with blower switch is on.	Yes	Go to Step 4.
		No	Go to the next step.

	- Remove the A/C relay. - Does the magnetic clutch disengage?		
3	INSPECT IF MALFUNCTION CAUSE IS MAGNETIC CLUTCH POWER SUPPLY OR MAGNETIC CLUTCH - Switch the ignition to off. - A/C relay is removed. - Disconnect the A/C compressor connector. - Switch the ignition to ON. - Measure the voltage between magnetic clutch terminal A and body ground. - Is the voltage B+ ?	Yes	Repair or replace suspect wiring harness and connector.
		No	Replace the A/C compressor. (Magnetic clutch engagement is stuck.) (See A/ C COMPRESSOR REMOVAL/ INSTALLATION .)
4	INSPECT A/ C RELAY - Inspect the A/C relay. (See RELAY INSPECTION.) - Is the A/C relay normal?	Yes	Go to the next step.
		No	Replace the A/C relay.
5	DETERMINE IF MALFUNCTION CAUSE IS A/ C REQUEST SIGNAL OR MAGNETIC CLUTCH CONTROL CIRCUIT - Access and monitor the PCM PID ACCS using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Start the engine and idle it. - Turn the A/C switch on and off with blower switch is on. - Is the PID value always ON?	Yes	Replace the climate control module. (A/C switch signal is always on.) (See CLIMATE CONTROL UNIT REMOVAL/ INSTALLATION [MANUAL AIR CONDITIONER] .) (See CLIMATE CONTROL UNIT REMOVAL/ INSTALLATION [FULL-AUTO AIR CONDITIONER] .)
		No	Inspect for short to ground between PCM terminal 1W and A/C relay. Repair or replace suspect wiring harness and connector.
6	Verify test results. - If normal, return to diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [MZI 3.7 V6].) - If malfunction remains, inspect related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. - If vehicle is repaired, troubleshooting completed. - If vehicle is not repaired or additional diagnostic information is not available, reprogram the PCM if a later calibration is available. Retest.		

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1	VERIFY PCM AND CLIMATE CONTROL UNIT DTC - Switch the ignition to ON (Engine off). - Retrieve PCM and EATC DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) (See DTC DISPLAY.) - Are there any DTCs displayed?	Yes	DTC is displayed: Go to the appropriate DTC inspection. (See DTC TABLE [MZI 3.7 V6].) (See DTC TABLE.)
		No	No DTC is displayed: Go to the next step.
2	DETERMINE IF MALFUNCTION CAUSE IS MAGNETIC CLUTCH OR OTHER - Start the engine and idle it. - Turn the A/C switch on with blower switch is on.	Yes	Go to Step 4.
		No	Go to the next step.

	- Remove the A/C relay. - Does the magnetic clutch disengage?		
3	INSPECT IF MALFUNCTION CAUSE IS MAGNETIC CLUTCH POWER SUPPLY OR MAGNETIC CLUTCH - Switch the ignition to off. - A/C relay is removed. - Disconnect the A/C compressor connector. - Switch the ignition to ON. - Measure the voltage between magnetic clutch terminal A and body ground. - Is the voltage B+ ?	Yes	Repair or replace suspect wiring harness and connector.
		No	Replace the A/C compressor. (Magnetic clutch engagement is stuck.) (See A/ C COMPRESSOR REMOVAL/ INSTALLATION .)
4	INSPECT A/ C RELAY - Inspect the A/C relay. (See RELAY INSPECTION.) - Is the A/C relay normal?	Yes	Go to the next step.
		No	Replace the A/C relay.
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