

2012 - Mazda6 - Engine

NO.9 FAST IDLE/ RUNS ON [MZI 3.7 V6]

9	FAST IDLE/RUNS ON
DESCRIPTION	- The engine speed continues at fast idle after warm-up. - The engine runs after the ignition is off.
POSSIBLE CAUSE	- CHT sensor malfunction - Improper load signal input - Refrigerant pressure sensor malfunction - Communication error between instrument cluster and PCM - Erratic signal from climate control unit (A/C switch, fan switch malfunction) - Evaporator temperature sensor malfunction - Open or short circuit in wiring harness between climate control unit and instrument cluster - Erratic signal from PSP switch - TR switch malfunction - Communication error between TCM and PCM - Improper operation of drive-by-wire control system - Air leakage from intake-air system - Cruise control system operation improperly - APP sensor malfunction

Diagnostic procedure

STEP	INSPECTION	RESULTS	ACTION
1	INSPECT COOLING SYSTEM FOR MALFUNCTION - Access the PCM PID ECT using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Start and warm up the engine to normal operating temperature. - Is the ECT PID between 82—112 °C { 180—233 °F } ?	Yes No	Go to the next step. ECT PID is higher than 112 °C { 233 °F } : Go to the symptom troubleshooting "NO.17 COOLING SYSTEM CONCERNS-OVERHEATING". (See NO.17 COOLING SYSTEM CONCERNS-OVERHEATING [MZI

			3.7 V6] .) ECT PID is less than 82 °C { 180 °F } : Go to the symptom troubleshooting "NO.18 COOLING SYSTEM CONCERNS-RUNS COLD". (See NO.18 COOLING SYSTEM CONCERNS-RUNS COLD [MZI 3.7 V6] .)
2	VERIFY PCM DTC - Switch the ignition to ON (Engine off). - Retrieve any DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6] .) - Are there any DTCs displayed?	Yes	DTC is displayed: Go to the appropriate DTC inspection. (See DTC TABLE [MZI 3.7 V6] .)
		No	No DTC is displayed: Go to the next step.
3	VERIFY CURRENT INPUT SIGNAL STATUS - Access and monitor following PCM and TCM PIDs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6] .) (See ON-BOARD DIAGNOSTIC SYSTEM PID/ DATA MONITOR INSPECTION [AY6A-EL] .) - PCM PIDs - AC_REQ - PSP - TCM PID - TR - Are PIDs values normal? (See PCM INSPECTION [MZI 3.7 V6] .)	Yes	Go to the next step.
		No	AC_REQ PID is not specified: - Inspect the following: - A/C switch - Evaporator temperature sensor (See EVAPORATOR TEMPERATURE SENSOR INSPECTION [MANUAL AIR CONDITIONER] .) (See EVAPORATOR TEMPERATURE SENSOR INSPECTION [FULL-AUTO AIR CONDITIONER] .) - Fan switch - Communication between climate control unit and instrument cluster (Full-auto air conditioner) - Communication between instrument

			cluster and PCM ▪ Short to ground in wiring harness between climate control unit terminal 1L and instrument cluster terminal 1A (Manual air conditioner) PSP PID is not specified: • Inspect the PSP switch. (See POWER STEERING PRESSURE (PSP) SWITCH INSPECTION [MZI 3.7 V6].) TR PID is not specified: • Inspect the TR switch. (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [AY6A-EL].) Repair or replace the malfunctioning part according to the inspection results.
4	INSPECT INTAKE AIR SYSTEM FOR AIR LEAKAGE • Is there air leakage felt or heard at intake-air system components while racing the engine to higher speed?	Yes Repair or replace the malfunctioning part according to the inspection results.	No Inspect the following: • Drive-by-wire control system operation • APP sensor (See ACCELERATOR PEDAL POSITION (APP) SENSOR INSPECTION [MZI 3.7 V6].) • Cruise control switch (built-in steering switch) (See CRUISE CONTROL SWITCH INSPECTION [MZI 3.7 V6].) Repair or replace the malfunctioning part according to the inspection results.
5	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.		

2012 - Mazda6 - Engine

NO.9 FAST IDLE/ RUNS ON [MZI 3.7 V6]

9	FAST IDLE/RUNS ON
DESCRIPTION	- The engine speed continues at fast idle after warm-up. - The engine runs after the ignition is off.
POSSIBLE CAUSE	- CHT sensor malfunction - Improper load signal input - Refrigerant pressure sensor malfunction - Communication error between instrument cluster and PCM - Erratic signal from climate control unit (A/C switch, fan switch malfunction) - Evaporator temperature sensor malfunction - Open or short circuit in wiring harness between climate control unit and instrument cluster - Erratic signal from PSP switch - TR switch malfunction - Communication error between TCM and PCM - Improper operation of drive-by-wire control system - Air leakage from intake-air system - Cruise control system operation improperly - APP sensor malfunction

Diagnostic procedure

STEP	INSPECTION	RESULTS	ACTION
1	INSPECT COOLING SYSTEM FOR MALFUNCTION - Access the PCM PID ECT using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Start and warm up the engine to normal operating temperature. - Is the ECT PID between 82—112 °C { 180—233 °F } ?	Yes No	Go to the next step. ECT PID is higher than 112 °C { 233 °F } : Go to the symptom troubleshooting "NO.17 COOLING SYSTEM CONCERNS-OVERHEATING". (See NO.17 COOLING SYSTEM CONCERNS-OVERHEATING [MZI

			3.7 V6] .) ECT PID is less than 82 °C { 180 °F } : Go to the symptom troubleshooting "NO.18 COOLING SYSTEM CONCERNS-RUNS COLD". (See NO.18 COOLING SYSTEM CONCERNS-RUNS COLD [MZI 3.7 V6] .)
2	VERIFY PCM DTC - Switch the ignition to ON (Engine off). - Retrieve any DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6] .) - Are there any DTCs displayed?	Yes	DTC is displayed: Go to the appropriate DTC inspection. (See DTC TABLE [MZI 3.7 V6] .)
		No	No DTC is displayed: Go to the next step.
3	VERIFY CURRENT INPUT SIGNAL STATUS - Access and monitor following PCM and TCM PIDs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6] .) (See ON-BOARD DIAGNOSTIC SYSTEM PID/ DATA MONITOR INSPECTION [AY6A-EL] .) - PCM PIDs - AC_REQ - PSP - TCM PID - TR - Are PIDs values normal? (See PCM INSPECTION [MZI 3.7 V6] .)	Yes	Go to the next step.
		No	AC_REQ PID is not specified: - Inspect the following: - A/C switch - Evaporator temperature sensor (See EVAPORATOR TEMPERATURE SENSOR INSPECTION [MANUAL AIR CONDITIONER] .) (See EVAPORATOR TEMPERATURE SENSOR INSPECTION [FULL-AUTO AIR CONDITIONER] .) - Fan switch - Communication between climate control unit and instrument cluster (Full-auto air conditioner) - Communication between instrument

			cluster and PCM ▪ Short to ground in wiring harness between climate control unit terminal 1L and instrument cluster terminal 1A (Manual air conditioner) PSP PID is not specified: • Inspect the PSP switch. (See POWER STEERING PRESSURE (PSP) SWITCH INSPECTION [MZI 3.7 V6] .) TR PID is not specified: • Inspect the TR switch. (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [AY6A-EL] .) Repair or replace the malfunctioning part according to the inspection results.
4	INSPECT INTAKE AIR SYSTEM FOR AIR LEAKAGE • Is there air leakage felt or heard at intake-air system components while racing the engine to higher speed?	Yes Repair or replace the malfunctioning part according to the inspection results.	No Inspect the following: • Drive-by-wire control system operation • APP sensor (See ACCELERATOR PEDAL POSITION (APP) SENSOR INSPECTION [MZI 3.7 V6] .) • Cruise control switch (built-in steering switch) (See CRUISE CONTROL SWITCH INSPECTION [MZI 3.7 V6] .) Repair or replace the malfunctioning part according to the inspection results.
5	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.		

