2012 - Mazda6 - Engine

QUICK DIAGNOSTIC CHART [MZI 3.7 V6]

X: Applicable

	Troubleshooting item / Possible factor		Starter motor malfunction (Mechanical or electrical)	Starter circuit including ignition switch is open.	Improper engine oil level	Low or dead battery	Charging system malfunction	Improper engine compression	Improper valve timing	Hydrolocked engine	Improper engine oil viscosity	Improper dipstick	Base engine malfunction	Drive plate is seized.	Improper tension or damaged drive belts/ Auto tensioner bearing malfunction	Improper engine coolant level	Water and anti-freeze mixture is improper.	Cooling system malfunction (Radiator, hoses, overflow system, thermostat, etc.)	Cooling fan system malfunction	Engine or transaxle mounts are improperly installed.	Cooling fan seat is improper.	Cruise control system operation improperly	Fuel quality
1	Melting of main or other fuses																						
2	MIL illuminates																						
3	Will not crank		x	x		x	x			x				x									
4	Hard to start/long crank/erratic start/erratic crank		x			x	x											x					x
5	Engine stalls	After start/at idle						x	x														x
6	Cranks normally but will not start							x	x														x
7	Slow return to idle																	x					
8	Engine runs rough/rolling idle							x	x														x
9	Fast idle/runs on																					x	
10	Low idle/stalls during deceleration																						
11	Engine stalls/quits	Acceleration/cruise						x	x														x
	Engine runs rough	Acceleration/cruise						x	x														x
	Misses	Acceleration/cruise						x	x														x
	Buck/jerk	Acceleration/cruise/ deceleration						x	x														x
	Hesitation/stumble	Acceleration						x	x														x
	Surges	Acceleration/cruise						x	x														x
12	Lack/loss of power	Acceleration/cruise						x	x														x
13	Knocking/pinging	Acceleration/cruise						x										x					
14	Poor fuel economy							x	x							x		x					x
15	Emission compliance							x	x				x					x					
16	High oil consumption/leakage										x	x	x										
17	Cooling system concerns	Overheating														x	x	x	x				
18	Cooling system concerns	Runs cold																x	x				
19	Exhaust smoke							x					x					x					
20	Fuel odor (in engine compartment)																						
21	Engine noise				x								x		x								
22	Vibration concerns (engine)														x					x	x		
23	A/C does not work sufficiently																						
24	A/C is always on or A/C compressor runs continuously																						
25	A/C does not cut off under WOT conditions																						
26	Exhaust sulphur smell																						x
27	Fuel refill concerns																						
28	Fuel filling shut off concerns																						
29	Spark plug condition							x															x
30	ATX concerns	Upshift/downshift engagement	See Section 05-03 TROUBLESHOOTING.																				

X: Applicable

	Troubleshooting item / Possible factor		Variable valve timing system malfunction	Engine overheating	Air cleaner element clogging or restriction	Air leakage from intake-air system (Loose tubes, cracks, gaskets breakage)	Intake air temperature is too hot.	Idle learning of drive-by-wire control system is not completed.	Drive-by-wire control improper operation	Throttle body malfunction	Vacuum leakage (Vacuum hose damage, misrouting)	Ignition coil malfunction (e.g. open, short or cracks)	Initial ignition timing misadjustment (CKP sensor & crankshaft pulley misadjustment)	Spark plug malfunction	Erratic signal to ignition coil	CKP sensor is damaged. (e.g. open or short circuits)	Crankshaft pulley is damaged.	Improper gap between CKP sensor and crankshaft	Fuel pump malfunction (Mechanically or electrically)	Pressure regulator malfunction	Fuel hoses restriction or clogging	Nonreturn valve malfunction	Fuel shut off valve malfunction
1	Melting of main or other fuses																						
2	MIL illuminates		x						x							x							
3	Will not crank																						
4	Hard to start/long crank/erratic start/erratic crank				x				x		x			x	x	x	x	x	x	x	x		
5	Engine stalls	After start/at idle	x		x	x			x		x	x	x	x	x	x	x	x	x	x	x		
6	Cranks normally but will not start		x		x	x			x		x	x	x	x	x	x	x	x	x	x	x		
7	Slow return to idle					x				x													
8	Engine runs rough/rolling idle		x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x		
9	Fast idle/runs on					x			x	x													
10	Low idle/stalls during deceleration					x			x		x												
11	Engine stalls/quits	Acceleration/cruise		x	x	x			x	x	x			x		x	x	x	x	x	x		
	Engine runs rough	Acceleration/cruise		x	x	x			x	x	x			x		x	x	x	x	x	x		
	Misses	Acceleration/cruise		x	x	x			x	x	x			x		x	x	x	x	x	x		
	Buck/jerk	Acceleration/cruise/ deceleration		x	x	x			x	x	x						x	x	x	x	x		
	Hesitation/stumble	Acceleration		x	x	x			x	x	x			x		x	x	x	x	x	x		
	Surges	Acceleration/cruise		x	x	x			x	x	x			x		x	x	x	x	x	x		
12	Lack/loss of power	Acceleration/cruise	x	x	x	x	x		x	x	x	x		x		x	x	x	x	x	x		
13	Knocking/pinging	Acceleration/cruise		x											x				x	x	x		
14	Poor fuel economy		x		x							x		x	x				x	x	x		
15	Emission compliance				x	x				x	x	x		x	x				x	x	x		
16	High oil consumption/leakage																						
17	Cooling system concerns	Overheating																					
18	Cooling system concerns	Runs cold																					
19	Exhaust smoke				x	x						x		x	x				x	x	x		
20	Fuel odor (in engine compartment)																		x	x			
21	Engine noise		x			x					x												
22	Vibration concerns (engine)																						
23	A/C does not work sufficiently																						
24	A/C is always on or A/C compressor runs continuously																						
25	A/C does not cut off under WOT conditions																						
26	Exhaust sulphur smell										x								x	x	x		
27	Fuel refill concerns																					x	
28	Fuel filling shut off concerns																					x	x
29	Spark plug condition				x	x						x		x	x				x	x	x		
30	ATX concerns	Upshift/downshift engagement	See Section 05-03 TROUBLESHOOTING.																				

X: Applicable

	Troubleshooting item		Injectors malfunction (Leakage or clogging, inoperative)	Fuel leakage from fuel system (including insulator, injector O-ri	Fuel filters restriction or clogging	CMP sensor is damaged. (e.g. open or short circuit)	Camshaft is damaged.	Improper air/fuel mixture ratio control	Exhaust system restriction or clogging	Catalytic converter malfunction	EVAP control system malfunction	Fuel-filler cap malfunction	Fuel into evaporative purge hose	Check valve (two-way) malfunction	PCV valve malfunction	Constant voltage supply circuit malfunction	Main relay malfunction (Mechanically or electrically)	PCM or sensor ground circuit open or short to power	CHT sensor malfunction	Neutral position learning incorrect	TR switch malfunction	Brake switch and related circuit malfunction	A/F sensor, HO2S and related circuit malfunction
1	Melting of main or other fuses																						
2	MIL illuminates					x		x		x	x					x			x	x			x
3	Will not crank																			x	x		
4	Hard to start/long crank/erratic start/erratic crank			x	x				x		x				x								
5	Engine stalls	After start/at idle	x	x					x		x				x	x		x					
6	Cranks normally but will not start		x	x		x	x		x		x				x	x	x	x					
7	Slow return to idle																		x				
8	Engine runs rough/rolling idle		x		x	x	x	x	x		x				x			x					x
9	Fast idle/runs on																		x		x		
10	Low idle/stalls during deceleration						x				x								x		x	x	
11	Engine stalls/quits	Acceleration/cruise	x		x	x	x	x	x		x		x	x	x	x	x						x
	Engine runs rough	Acceleration/cruise	x		x	x	x	x	x		x		x	x	x	x	x						x
	Misses	Acceleration/cruise	x		x	x	x	x	x		x		x	x	x	x	x						x
	Buck/jerk	Acceleration/cruise/ deceleration	x		x	x	x	x	x		x		x	x	x	x	x						x
	Hesitation/stumble	Acceleration	x		x	x	x	x	x		x		x	x	x	x	x						x
	Surges	Acceleration/cruise	x		x	x	x	x	x		x		x	x	x	x	x						x
12	Lack/loss of power	Acceleration/cruise	x			x	x		x		x				x		x						
13	Knocking/pinging	Acceleration/cruise				x													x				
14	Poor fuel economy				x	x	x		x						x								
15	Emission compliance				x	x	x	x	x	x	x	x			x								x
16	High oil consumption/leakage														x								
17	Cooling system concerns	Overheating																	x				
18	Cooling system concerns	Runs cold																	x				
19	Exhaust smoke		x		x	x									x								
20	Fuel odor (in engine compartment)			x	x						x												
21	Engine noise								x														
22	Vibration concerns (engine)																						
23	A/C does not work sufficiently																						
24	A/C is always on or A/C compressor runs continuously																						
25	A/C does not cut off under WOT conditions																						
26	Exhaust sulphur smell				x						x												
27	Fuel refill concerns										x												
28	Fuel filling shut off concerns										x												
29	Spark plug condition		x	x				x	x		x								x				x
30	ATX concerns	Upshift/downshift engagement	See Section 05-03 TROUBLESHOOTING.																				

X: Applicable

	Troubleshooting item		Possible factor: IAT sensor and related circuit malfunction	MAF sensor and related circuit malfunction	KS and related circuit malfunction	TP sensor and related circuit malfunction	APP sensor and related circuit malfunction	Improper refrigerant charging amount	A/C relay (A/C control signal circuit malfunction)	A/C compressor magnetic clutch malfunction	Improper load signal input	AT related parts malfunction	Improper VSS signal input	Fluid level low or air in power steering fluid	Low tire pressure	Instrument cluster malfunction	Improper ATF level	Brake dragging	Loose parts	Improper balance of wheels and tires	Drive line malfunction	Suspension malfunction	Immobilizer system operating (if equipped)	Immobilizer system or related circuit malfunction (if equipped)	Advanced keyless entry and push button start system malfunction (if equipped)
1	Melting of main or other fuses																								
2	MIL illuminates		x	x		x	x									x									
3	Will not crank																						x	x	x
4	Hard to start/long crank/erratic start/erratic crank			x																					
5	Engine stalls	After start/at idle				x	x	x	x										x						
6	Cranks normally but will not start					x	x																		
7	Slow return to idle										x														
8	Engine runs rough/rolling idle			x				x	x		x	x							x						
9	Fast idle/runs on						x	x	x		x														
10	Low idle/stalls during deceleration			x		x	x	x	x	x															
11	Engine stalls/quits	Acceleration/cruise		x		x	x	x	x			x	x					x							
	Engine runs rough	Acceleration/cruise		x		x	x	x	x			x	x					x							
	Misses	Acceleration/cruise		x		x	x	x	x			x	x												
	Buck/jerk	Acceleration/cruise/ deceleration		x		x	x	x	x			x	x					x							
	Hesitation/stumble	Acceleration		x		x	x	x	x			x	x					x							
	Surges	Acceleration/cruise		x		x	x	x	x			x	x												
12	Lack/loss of power	Acceleration/cruise	x	x		x	x	x	x			x	x					x							
13	Knocking/pinging	Acceleration/cruise	x	x	x																				
14	Poor fuel economy			x											x		x	x							
15	Emission compliance																								
16	High oil consumption/leakage																								
17	Cooling system concerns	Overheating						x	x									x							
18	Cooling system concerns	Runs cold						x	x									x							
19	Exhaust smoke																								
20	Fuel odor (in engine compartment)																								
21	Engine noise													x					x						
22	Vibration concerns (engine)																		x	x	x	x			
23	A/C does not work sufficiently							x	x	x															
24	A/C is always on or A/C compressor runs continuously								x	x															
25	A/C does not cut off under WOT conditions						x												x						
26	Exhaust sulphur smell																								
27	Fuel refill concerns																								
28	Fuel filling shut off concerns																								
29	Spark plug condition			x																					
30	ATX concerns	Upshift/downshift engagement	See Section 05-03 TROUBLESHOOTING.																						

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2012 - Mazda6 - Engine

QUICK DIAGNOSTIC CHART [MZI 3.7 V6]

X: Applicable

	Troubleshooting item / Possible factor		Starter motor malfunction (Mechanical or electrical)	Starter circuit including ignition switch is open.	Improper engine oil level	Low or dead battery	Charging system malfunction	Improper engine compression	Improper valve timing	Hydrolocked engine	Improper engine oil viscosity	Improper dipstick	Base engine malfunction	Drive plate is seized.	Improper tension or damaged drive belts/ Auto tensioner bearing malfunction	Improper engine coolant level	Water and anti-freeze mixture is improper.	Cooling system malfunction (Radiator, hoses, overflow system, thermostat, etc.)	Cooling fan system malfunction	Engine or transaxle mounts are improperly installed.	Cooling fan seat is improper.	Cruise control system operation improperly	Fuel quality
1	Melting of main or other fuses																						
2	MIL illuminates																						
3	Will not crank		x	x		x	x			x				x									
4	Hard to start/long crank/erratic start/erratic crank		x			x	x											x					x
5	Engine stalls	After start/at idle						x	x														x
6	Cranks normally but will not start							x	x														x
7	Slow return to idle																	x					
8	Engine runs rough/rolling idle							x	x														x
9	Fast idle/runs on																					x	
10	Low idle/stalls during deceleration																						
11	Engine stalls/quits	Acceleration/cruise						x	x														x
	Engine runs rough	Acceleration/cruise						x	x														x
	Misses	Acceleration/cruise						x	x														x
	Buck/jerk	Acceleration/cruise/ deceleration						x	x														x
	Hesitation/stumble	Acceleration						x	x														x
	Surges	Acceleration/cruise						x	x														x
12	Lack/loss of power	Acceleration/cruise						x	x														x
13	Knocking/pinging	Acceleration/cruise						x										x					
14	Poor fuel economy							x	x							x		x					x
15	Emission compliance							x	x				x					x					
16	High oil consumption/leakage										x	x	x										
17	Cooling system concerns	Overheating														x	x	x	x				
18	Cooling system concerns	Runs cold																x	x				
19	Exhaust smoke							x					x					x					
20	Fuel odor (in engine compartment)																						
21	Engine noise				x								x		x								
22	Vibration concerns (engine)														x					x	x		
23	A/C does not work sufficiently																						
24	A/C is always on or A/C compressor runs continuously																						
25	A/C does not cut off under WOT conditions																						
26	Exhaust sulphur smell																						x
27	Fuel refill concerns																						
28	Fuel filling shut off concerns																						
29	Spark plug condition							x															x
30	ATX concerns	Upshift/downshift engagement	See Section 05-03 TROUBLESHOOTING.																				

X: Applicable

	Troubleshooting item / Possible factor		Variable valve timing system malfunction	Engine overheating	Air cleaner element clogging or restriction	Air leakage from intake-air system (Loose tubes, cracks, gaskets breakage)	Intake air temperature is too hot.	Idle learning of drive-by-wire control system is not completed.	Drive-by-wire control improper operation	Throttle body malfunction	Vacuum leakage (Vacuum hose damage, misrouting)	Ignition coil malfunction (e.g. open, short or cracks)	Initial ignition timing misadjustment (CKP sensor & crankshaft pulley misadjustment)	Spark plug malfunction	Erratic signal to ignition coil	CKP sensor is damaged. (e.g. open or short circuits)	Crankshaft pulley is damaged.	Improper gap between CKP sensor and crankshaft	Fuel pump malfunction (Mechanically or electrically)	Pressure regulator malfunction	Fuel hoses restriction or clogging	Nonreturn valve malfunction	Fuel shut off valve malfunction
1	Melting of main or other fuses																						
2	MIL illuminates		x						x							x							
3	Will not crank																						
4	Hard to start/long crank/erratic start/erratic crank				x				x		x			x	x	x	x	x	x	x	x		
5	Engine stalls	After start/at idle	x		x	x			x		x	x	x	x	x	x	x	x	x	x	x		
6	Cranks normally but will not start		x		x	x			x		x	x	x	x	x	x	x	x	x	x	x		
7	Slow return to idle					x				x													
8	Engine runs rough/rolling idle		x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x		
9	Fast idle/runs on					x			x	x													
10	Low idle/stalls during deceleration					x			x		x												
11	Engine stalls/quits	Acceleration/cruise		x	x	x			x	x	x			x		x	x	x	x	x	x		
	Engine runs rough	Acceleration/cruise		x	x	x			x	x	x			x		x	x	x	x	x	x		
	Misses	Acceleration/cruise		x	x	x			x	x	x			x		x	x	x	x	x	x		
	Buck/jerk	Acceleration/cruise/ deceleration		x	x	x			x	x	x						x	x	x	x	x		
	Hesitation/stumble	Acceleration		x	x	x			x	x	x			x		x	x	x	x	x	x		
	Surges	Acceleration/cruise		x	x	x			x	x	x			x		x	x	x	x	x	x		
12	Lack/loss of power	Acceleration/cruise	x	x	x	x	x		x	x	x	x		x		x	x	x	x	x	x		
13	Knocking/pinging	Acceleration/cruise		x											x				x	x	x		
14	Poor fuel economy		x		x							x		x	x				x	x	x		
15	Emission compliance				x	x				x	x	x		x	x				x	x	x		
16	High oil consumption/leakage																						
17	Cooling system concerns	Overheating																					
18	Cooling system concerns	Runs cold																					
19	Exhaust smoke				x	x						x		x	x				x	x	x		
20	Fuel odor (in engine compartment)																		x	x			
21	Engine noise		x			x					x												
22	Vibration concerns (engine)																						
23	A/C does not work sufficiently																						
24	A/C is always on or A/C compressor runs continuously																						
25	A/C does not cut off under WOT conditions																						
26	Exhaust sulphur smell										x								x	x	x		
27	Fuel refill concerns																					x	
28	Fuel filling shut off concerns																					x	x
29	Spark plug condition				x	x						x		x	x				x	x	x		
30	ATX concerns	Upshift/downshift engagement	See Section 05-03 TROUBLESHOOTING.																				

X: Applicable

	Troubleshooting item		Injectors malfunction (Leakage or clogging, inoperative)	Fuel leakage from fuel system (including insulator, injector O-ri	Fuel filters restriction or clogging	CMP sensor is damaged. (e.g. open or short circuit)	Camshaft is damaged.	Improper air/fuel mixture ratio control	Exhaust system restriction or clogging	Catalytic converter malfunction	EVAP control system malfunction	Fuel-filler cap malfunction	Fuel into evaporative purge hose	Check valve (two-way) malfunction	PCV valve malfunction	Constant voltage supply circuit malfunction	Main relay malfunction (Mechanically or electrically)	PCM or sensor ground circuit open or short to power	CHT sensor malfunction	Neutral position learning incorrect	TR switch malfunction	Brake switch and related circuit malfunction	A/F sensor, HO2S and related circuit malfunction
1	Melting of main or other fuses																						
2	MIL illuminates					x		x		x	x					x			x	x			x
3	Will not crank																			x	x		
4	Hard to start/long crank/erratic start/erratic crank			x	x				x		x				x								
5	Engine stalls	After start/at idle	x	x					x		x				x	x		x					
6	Cranks normally but will not start		x	x		x	x		x		x				x	x	x	x					
7	Slow return to idle																		x				
8	Engine runs rough/rolling idle		x		x	x	x	x	x		x				x			x					x
9	Fast idle/runs on																		x		x		
10	Low idle/stalls during deceleration						x				x								x		x	x	
11	Engine stalls/quits	Acceleration/cruise	x		x	x	x	x	x		x		x	x	x	x	x						x
	Engine runs rough	Acceleration/cruise	x		x	x	x	x	x		x		x	x	x	x	x						x
	Misses	Acceleration/cruise	x		x	x	x	x	x		x		x	x	x	x	x						x
	Buck/jerk	Acceleration/cruise/ deceleration	x		x	x	x	x	x		x		x	x	x	x	x						x
	Hesitation/stumble	Acceleration	x		x	x	x	x	x		x		x	x	x	x	x						x
	Surges	Acceleration/cruise	x		x	x	x	x	x		x		x	x	x	x	x						x
12	Lack/loss of power	Acceleration/cruise	x			x	x		x		x				x		x						
13	Knocking/pinging	Acceleration/cruise				x													x				
14	Poor fuel economy				x	x	x		x						x								
15	Emission compliance				x	x	x	x	x	x	x	x			x								x
16	High oil consumption/leakage														x								
17	Cooling system concerns	Overheating																	x				
18	Cooling system concerns	Runs cold																	x				
19	Exhaust smoke		x		x	x									x								
20	Fuel odor (in engine compartment)			x	x						x												
21	Engine noise								x														
22	Vibration concerns (engine)																						
23	A/C does not work sufficiently																						
24	A/C is always on or A/C compressor runs continuously																						
25	A/C does not cut off under WOT conditions																						
26	Exhaust sulphur smell				x						x												
27	Fuel refill concerns										x												
28	Fuel filling shut off concerns										x												
29	Spark plug condition		x	x				x	x		x								x				x
30	ATX concerns	Upshift/downshift engagement	See Section 05-03 TROUBLESHOOTING.																				

X: Applicable

	Troubleshooting item		Possible factor: IAT sensor and related circuit malfunction	MAF sensor and related circuit malfunction	KS and related circuit malfunction	TP sensor and related circuit malfunction	APP sensor and related circuit malfunction	Improper refrigerant charging amount	A/C relay (A/C control signal circuit malfunction)	A/C compressor magnetic clutch malfunction	Improper load signal input	AT related parts malfunction	Improper VSS signal input	Fluid level low or air in power steering fluid	Low tire pressure	Instrument cluster malfunction	Improper ATF level	Brake dragging	Loose parts	Improper balance of wheels and tires	Drive line malfunction	Suspension malfunction	Immobilizer system operating (if equipped)	Immobilizer system or related circuit malfunction (if equipped)	Advanced keyless entry and push button start system malfunction (if equipped)
1	Melting of main or other fuses																								
2	MIL illuminates		x	x		x	x									x									
3	Will not crank																						x	x	x
4	Hard to start/long crank/erratic start/erratic crank			x																					
5	Engine stalls	After start/at idle				x	x	x	x										x						
6	Cranks normally but will not start					x	x																		
7	Slow return to idle										x														
8	Engine runs rough/rolling idle			x				x	x		x	x							x						
9	Fast idle/runs on						x	x	x		x														
10	Low idle/stalls during deceleration			x		x	x	x	x	x															
11	Engine stalls/quits	Acceleration/cruise		x		x	x	x	x			x	x					x							
	Engine runs rough	Acceleration/cruise		x		x	x	x	x			x	x					x							
	Misses	Acceleration/cruise		x		x	x	x	x			x	x												
	Buck/jerk	Acceleration/cruise/ deceleration		x		x	x	x	x			x	x					x							
	Hesitation/stumble	Acceleration		x		x	x	x	x			x	x					x							
	Surges	Acceleration/cruise		x		x	x	x	x			x	x												
12	Lack/loss of power	Acceleration/cruise	x	x		x	x	x	x			x	x					x							
13	Knocking/pinging	Acceleration/cruise	x	x	x																				
14	Poor fuel economy			x											x		x	x							
15	Emission compliance																								
16	High oil consumption/leakage																								
17	Cooling system concerns	Overheating						x	x									x							
18	Cooling system concerns	Runs cold						x	x									x							
19	Exhaust smoke																								
20	Fuel odor (in engine compartment)																								
21	Engine noise													x					x						
22	Vibration concerns (engine)																		x	x	x	x			
23	A/C does not work sufficiently							x	x	x															
24	A/C is always on or A/C compressor runs continuously								x	x															
25	A/C does not cut off under WOT conditions						x												x						
26	Exhaust sulphur smell																								
27	Fuel refill concerns																								
28	Fuel filling shut off concerns																								
29	Spark plug condition			x																					
30	ATX concerns	Upshift/downshift engagement	See Section 05-03 TROUBLESHOOTING.																						

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