

Subject: OBD-II Single drive mode

DESCRIPTION:

To accommodate the OBD-II regulations, OBD-II single drive mode has been adopted for 1996MY-2003MY OBD-II regulation applicable vehicles.

By performing the OBD-II single drive mode, all monitoring items that are required by OBD-II regulations can be diagnosed. Please utilize this mode in conjunction with the Workshop manual.

For models after 2004MY, the OBD-II single drive mode is described in each Workshop manual.

APPLICABLE MODEL YEAR AND MODEL:

X: Applicable
-: Not produced

Model Year Applicable Model	1996	1997	1998	1999	2000	2001	2002	2003
Mazda6	-	-	-	-	-	-	-	X
MX-5 Miata	X	X	-	X	X	X	X	X
MPV	X	X	X	-	X	X	X	X
Protegé/ Protegé 5	X	X	X	X	X	X	X	X
Millenia	X	X	X	X	X	X	X	-
626*/MX-6	X	X	*1	*1	*1	*1	*1	-

*1: Since the OBD-II single drive mode for 626 1998 MY-2002MY has been adopted as the "Standard Drive Mode" in each Workshop Manual, please refer to the appropriate manual.

ON-BOARD DIAGNOSTIC

OBD-II DRIVE MODE

CZU010200000L10

- Using the OBD-II drive mode, the monitoring item requested by OBD-II regulations can be easily diagnosed.
- Performing the Drive Mode inspects the OBD-II system for proper operation and must be performed to ensure that no additional DTCs are present.
- For the single drive mode, the entire monitoring item requested by OBD-II regulations can be diagnosed.

Caution

- **While performing the Drive Mode, always operate the vehicle in a safe and lawful manner.**
- **When the WDS or equivalent is used to observe monitor system status while driving, be sure to have another technician with you, or record the data in the WDS or equivalent using the PID/DATA MONITOR AND RECORD function and inspect later.**

01-02

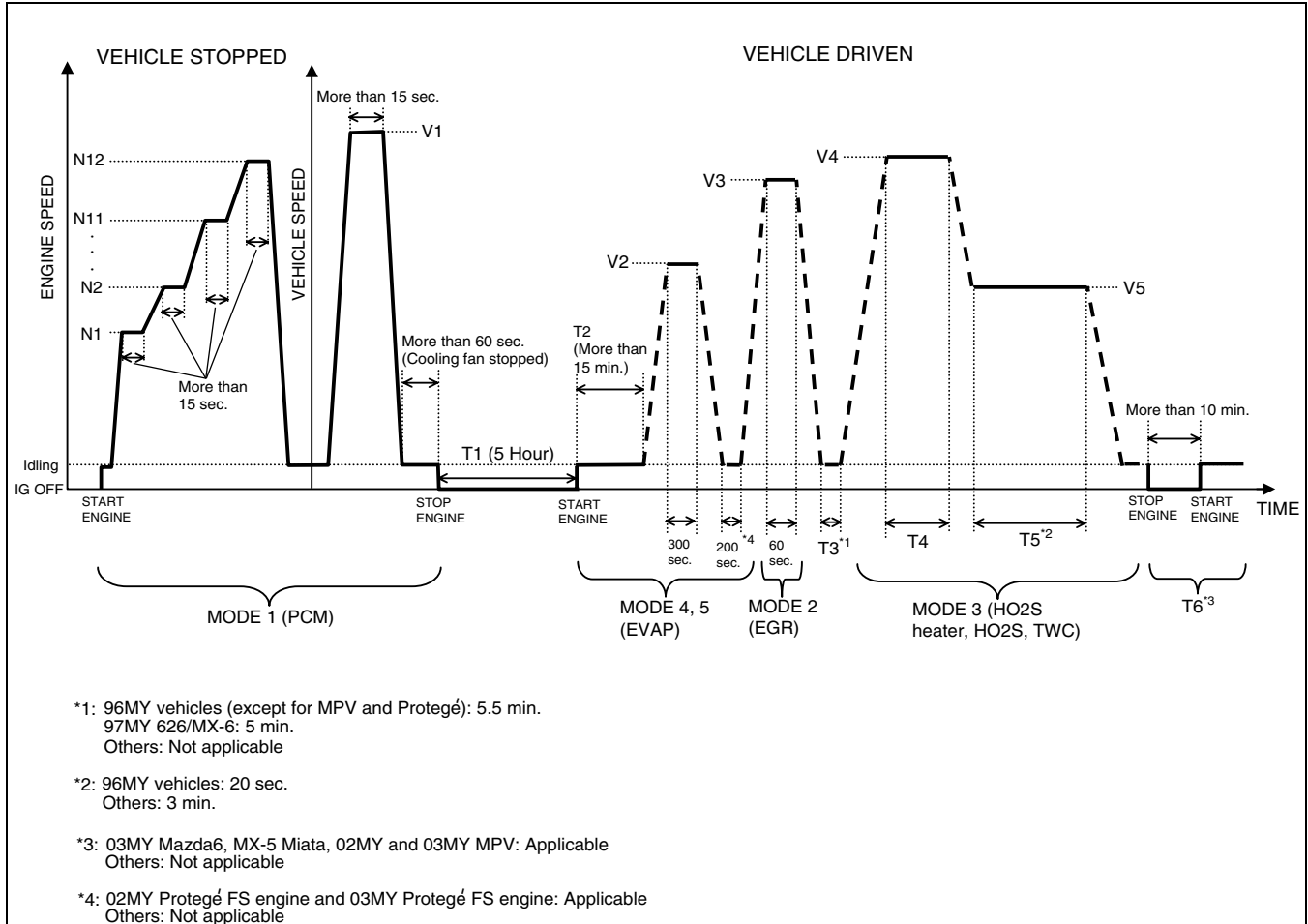
Note

- Vehicle speed and engine speed detected by the PCM may differ from that indicated by the speedometer and tachometer. Use the WDS or equivalent to monitor vehicle speed.
- If the OBD-II system inspection is not completed during the Drive Mode, the following causes are considered:
 - The OBD-II system detects the malfunction.
 - The Drive Mode procedure is not completed correctly.
- Disconnecting the battery will reset the memory. Do not disconnect the battery during and after the Drive Mode.
- The WDS or equivalent can be used at anytime through the course of the Drive Mode to monitor the completion status. Monitoring can be done by viewing the ON BOARD SYSTEM READINESS menu.

ON-BOARD DIAGNOSTIC

OBD-II Single Drive Mode

1. Start the engine and warm it up completely.
2. Clear the DTC from the PCM memory using the WDS or equivalent.
3. Verify the following conditions and correct if necessary:
 - All accessory loads (A/C, headlights, blower fan, rear window defroster) are off.
 - Initial ignition timing and idle speed are within the specification.
4. Verify that all of the following PIDs are within the following specifications. All PIDs must be within specifications from Step 5 to Step 6.
 - BARO: **more than 72.3 kPa {542 mmHg, 21.3 inHg}**
 - IAT: **5—35 °C {41—95 °F}**
 - FTL: **15—85%**
 - B+: **above 10.9 V**
5. With the vehicle stopped, race the engine at the engine speed indicated, and then drive the vehicle as shown in the graph. The driving conditions before driving at constant speed are not specified. If possible, monitor RPM PID for engine speed during this procedure.



CZU0102W001

ON-BOARD DIAGNOSTIC

X: Applicable
—: Not applicable

01-02

Vehicle	Engine	Model (MY)	N1/N7 (rpm)	N2/N8 (rpm)	N3/N9 (rpm)	N4/N10 (rpm)	N5/N11 (rpm)	N6/N12 (rpm)	V1 (km/h {mph})	T1	T2	V2 (km/h {mph})	V3 (km/h {mph})	T4 (min.)	V4 (km/h {mph})	V5 (km/h {mph})
Mazda6	L3	03	2,500—3,500	4,500—5,000			—			X	X	65—80 {40—50}	79—91 {49—57} (MTX:5th ATX:D)		Above 89 {55} (MTX:5th, ATX:D)	72—88 {45—55} (MTX:5th, ATX:D)
	AJ	03													—	
MX-5 Miata	BP	03	1,800—2,200	3,000—3,400			—			X	X	65—96 {40—60}	84—93 {52—58} (MT:5th)	1	Above 64 {40} (MT:5th, AT:D)	57—88 {35—55} (MT:5th, AT:D)
		02											83—91 {51—57} (AT:D)			
		01											84—93 {52—58} (MT:5th)			
		00											83—91 {51—57} (AT:D)			
		99											84—93 {52—58} (MT:5th)			
		99											83—91 {51—57} (AT:D)			
		97											52—58 {32—36} (MT:5th)			
		97											51—57 {32—35} (AT:D)			
		96 ^{*5}											81—96 {50—60} (MT:5th, AT:D)			
		96 ^{*6}											86—91 {53—57} (MT:5th, AT:D)			
	94—99 {58—62} (any gear/range)	—	—	13	21—58 {13—36} (MT:3rd, AT:D)	41—48 {25—30} (MT:3rd, AT:D)										

*5:JM1 NA353*TO 700001—706194

*6:JM1 NA353*TO 706195—

ON-BOARD DIAGNOSTIC

Vehicle	Engine	Model (MY)	N1/N7 (rpm)	N2/N8 (rpm)	N3/N9 (rpm)	N4/N10 (rpm)	N5/N11 (rpm)	N6/N12 (rpm)	V1 (km/h {mph})	T1	T2	V2 (km/h {mph})	V3 (km/h {mph})	T4 (min.)	V4 (km/h {mph})	V5 (km/h {mph})						
MPV	AJ	03	2,500— 3,500	—						X	X	65—80 {40— 50}	79—91 {49—57} (ATX:D)	1	Above 64 {40} (ATX:D)	72—88 {45—55} (ATX:D)						
		02		—						X	X											
	GY	01	2,000— 3,000	4,000— 5,000	—						X				X							
		00			—						X				X							
	JE	98			—						X				X	—	13	Above 65 {40} (ATX:D)	69—84 {42.5— 52.5} (ATX:D)			
		97			—						X				X							
		96 *7			—						X				X							
96 *8		—						X	X													
Protegé /Protegé5 *16	ZM	03			2,800— 3,200	4,800— 5,200	—						X	X	65—96 {40— 60}	81—97 {50—60} (MTX:5th ,ATX:D)	1	Above 81 {50} (MTX:5th ,ATX:D)	65—97 {40—60} (MTX:5th ,ATX:D)			
		02	—						X	X												
		01	—						X	X												
		00	—						X	X												
		99	—						X	X												
	Z5	98	2,300— 2,700	3,800— 4,200	—						X	X	84—93 {52—58} (MTX:5th ,ATX:D)	12.7	Above 81 {50} (MTX:4th or 5th, ATX:D)	65—96 {40—60} (MTX:5th ,ATX:D)						
		97			—						X	X										
		96 *9			1,800— 2,200	2,800— 3,200	3,800— 4,200	—										82—88 {51—55} (MTX:2nd, ATX:2)	X	X	21—58 {13—36} (MTX:3rd or 4th, ATX:D)	30—48 {19—30} (MTX:3rd ,ATX:D)
		96 *10						—														
		FS			03	2,800— 3,200	4,800— 5,200	—										X	X	65—96 {40— 60}	81—97 {50—60} (MTX:5th ,ATX:D)	1
02	—									X	X											
	01		—							X	X											
FP	00		2,300— 2,700	—						X	X	65—96 {40— 60}	81—96 {50—60} (MTX:5th ,ATX:D)	1	Above 65 {40} (MTX:4th or 5th, ATX:D)	48—81 {30—50} (MTX:5th ,ATX:D)						
	99			—						X	X											
BP	98		1,800— 2,200	3,800— 4,200	—						X	X	81—96 {50—60} (MTX:5th ,ATX:D)	1	Above 65 {40} (MTX:4th or 5th, ATX:D)	48—81 {30—50} (MTX:5th ,ATX:D)						
	97	—						X	X													

*7:JM3 LV52**TO 800001—804427

*9 :JM1 BB14**TO 300001—320657

*16: Protegé5 is adopted for 2002MY and 2003 MY.

*8:JM3 LV52**TO 804428—

*10:JM1 BB14**TO 320658—

ON-BOARD DIAGNOSTIC

01-02

Vehicle	Engine	Model (MY)	N1/N7 (rpm)	N2/N8 (rpm)	N3/N9 (rpm)	N4/N10 (rpm)	N5/N11 (rpm)	N6/N12 (rpm)	V1 (km/h {mph})	T1	T2	V2 (km/h {mph})	V3 (km/h {mph})	T4 (min)	V4 (km/h {mph})	V5 (km/h {mph})
Protegé	BP	96 *9	1,800— 2,200	3,800— 4,200	—			100—104 {62—65} (MTX:5th ATX:D)	X	X	65—96 {40— 60}	86—101 {53—63} (MTX:5th ,ATX:D)	13	21—58 {13—36} (MTX:3rd or 4th, ATX:D)	30—48 {19—30} (MTX:3rd ,ATX:D)	
		96 *10			—											X
Millenia	KL	02	1,300— 1,700	2,200— 2,600	3,200— 3,600	4,100— 4,500	—	—	X	X	65—96 {40— 60}	79—91 {49—57} (ATX:D)	1	Above 65 {40} (ATX:D)	65—96 {40—60} (ATX:D)	
		01					—									
		00					—									
		99					—									
		98					—									
		97					—									
		96 *11					—									
		96 *12					—									
	KJ	02	1,600— 2,000	3,000— 3,400	3,800— 4,000	—	—	X	X	65—96 {40— 60}	83—94 {51—59} (ATX:D)	1	Above 65 {40} (ATX:D)	58—74 {36—46} (ATX:D)		
		01				—										
		00				—										
		99				—										
		98				—										
		97				—										
96 *11	—	100—104 {62—65} (any gear/ range)	—	—	84—93 {52—58} (ATX:D)	13	33—58 {20—36} (ATX:D)	36—48 {22—30} (ATX:D)								
96 *12	—	—	—	—	—	—	—	—								

*9 :JM1 BB14**TO 300001—320657

*10:JM1 BB14**TO 320658—

*11:JM1 TA22**T1 200001—203599

*12:JM1 TA22**T1 203600—

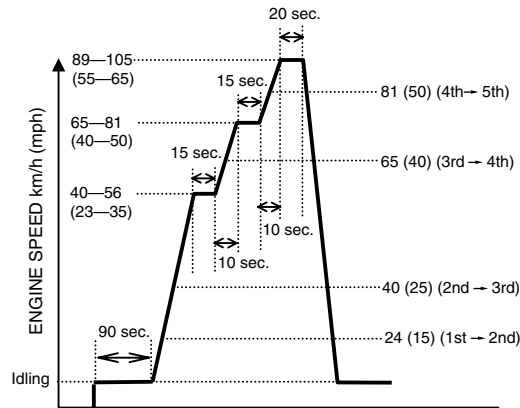
CZU0102W004

ON-BOARD DIAGNOSTIC

Vehicle	Engine	Model (MY)	N1/N7 (rpm)	N2/N8 (rpm)	N3/N9 (rpm)	N4/N10 (rpm)	N5/N11 (rpm)	N6/N12 (rpm)	V1 (km/h {mph})	T1	T2	V2 (km/h {mph})	V3 (km/h {mph})	T4 (min)	V4 (km/h {mph})	V5 (km/h {mph})
626/ MX-6	FS	97	—						—	—	X	65—96 {40—60} (MTX: 5th)	84—93 {52—58} (MTX: 5th)	1	Above 65 {40} (MTX: 4th or 5th, ATX:D)	65—96 {40—60} (MTX: 5th)
		96 *13	—						*15	—	—	—	—	1	38—53 {23—33} (MTX: 3rd)	41—50 {25—31} (MTX: 3rd)
		96 *14	—						—	—	—	—	—	—	—	—
	KL	97	1,750	2,000	2,250	3,000	3,500	4,000	—	—	—	79—95 {49—59} (MTX: 5th)	76—98 {47—61} (ATX:D)	1	Above 65 {40} (MTX: 4th or 5th, ATX:D)	68—100 {42—62} (MTX: 5th)
			4,250	4,500	4,750	5,000	—		—	—	—	—	—	1	21—58 {13—36} (MTX: 3rd or 4th)	73—104 {45—65} (ATX:D)
		96 *13	1,750	2,000	2,250	3,000	3,500	4,000	—	—	—	86—101 {53—63} (MTX: 5th, ATX:D)	—	14.5	21—58 {13—36} (MTX: 3rd or 4th)	28—35 {17—22} (MTX: 3rd)
			4,250	4,500	4,750	5,000	5,250	5,500	—	—	—	—	—	13	21—58 {13—36} (ATX:D)	30—43 {18—27} (ATX:D)
		96 *14	1,750	2,000	2,250	3,000	3,500	4,000	—	—	—	—	—	13	21—58 {13—36} (ATX:D)	30—43 {18—27} (ATX:D)
			4,250	4,500	4,750	5,000	5,250	5,500	—	—	—	—	—	13	21—58 {13—36} (ATX:D)	30—43 {18—27} (ATX:D)

*13: 1YV GE31**T5 500001—527871
 :1YV GE22**T5 500001—527678
 *14: 1YV GE31**T5 527872—
 :1YV GE22**T5 527679—

*15: Increase the vehicle speed according to the shift schedule indicated in the figure.



CZU0102W005

6. Turn the ignition switch off.
7. Access the ON BOARD SYSTEM READINESS to verify the OBD monitoring status.
 - If completed, all of the OBD monitoring status items change from non-completed to completed.
 - If not completed, turn the ignition switch off, then perform the applicable specific drive mode for any monitoring item that was not in the detection condition.
8. Access the DIAGNOSTIC MONITORING TEST RESULTS to verify the monitor results.
 - If detected values are not within the specification, repair has not been completed.