

# ENGINE TUNE-UP [ZJ, Z6]

B3E011002000W01

## Engine Tune-up Preparation

1. Warm up the engine to normal operating temperature.

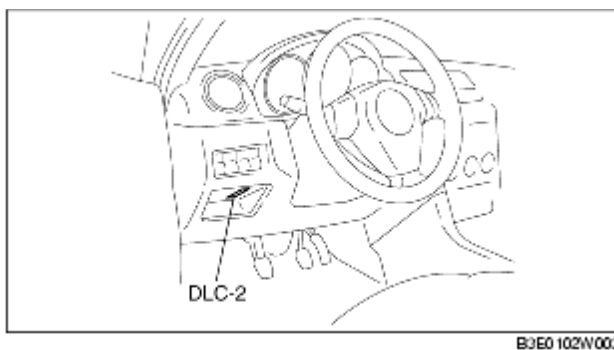
- (1) Increase the engine speed to **2,500-3,000 rpm** until the cooling fan starts running.
- (2) When the cooling fan starts running, release the accelerator pedal and wait until the cooling fan stops running.

2. Verify the following:

- ATX: Selector lever is in P or N position.
- MTX: Shift lever is in neutral position.

3. Turn off all electrical loads.

4. Connect the WDS or equivalent to the DLC-2.



B3E0102W003

5. Turn the test mode on using a simulation function.

6. Verify that the idle speed is within the specification using the RPM DATA MONITOR function.

- If not within the specification, adjust the idle speed.

### Idle speed

#### ATX

**Z6: 700-800 rpm**

#### MTX

**ZJ: 690-790 rpm**

**Z6: 640-740 rpm**

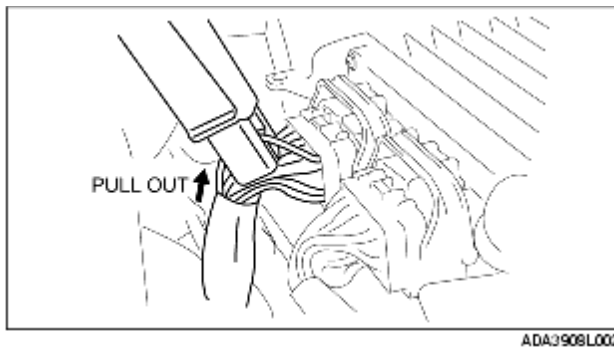
## Ignition Timing Inspection

### Note

- The ignition timing cannot be adjusted.
- The WDS or equivalent is required to verify the ignition timing.
- Use a timing light that can detect the primary ignition signal.

## European (L.H.D.) specs.

1. Complete the engine tune-up preparation.
2. Remove the PCM connector cover.
3. By referring to the following procedure, connect the timing light to the PCM terminal 2A wire.



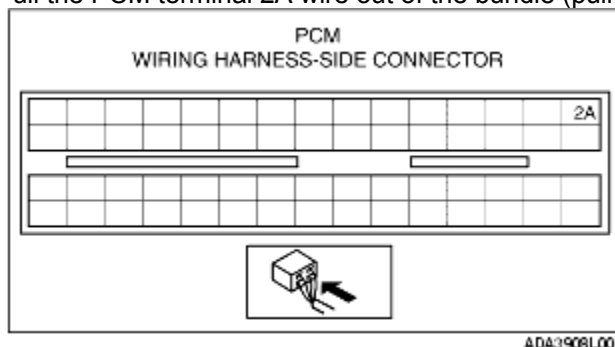
### Caution

- To prevent poor contact at the connector terminal, be careful not to pull the wire on the connector side.

### Note

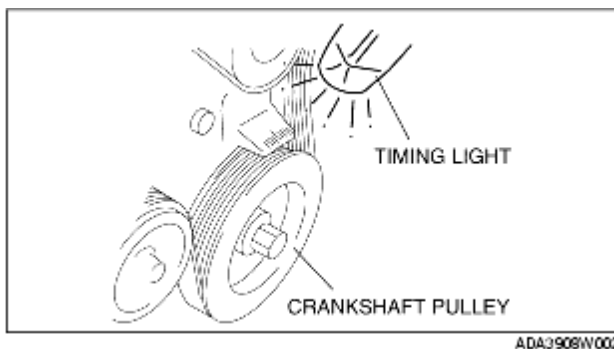
- Pull out the wire **20-30 mm** so that the pickup clip of the timing light can be connected. After the ignition timing inspection, bundle the pulled out wire back together with other wires using tape.

- (1) Pull the PCM terminal 2A wire out of the bundle (pull the bundled side only, not the connector side).



- (2) Connect the pickup clip of the timing light to the PCM terminal 2A wire.

4. Verify that the crankshaft pulley alignment mark (white) is within the specification.



**Ignition timing (Test mode on)**  
**BTDC 9-11°**

5. Turn the test mode off using a simulation test.

6. Using the timing light, verify again that the crankshaft pulley alignment mark (white) is within the specification.

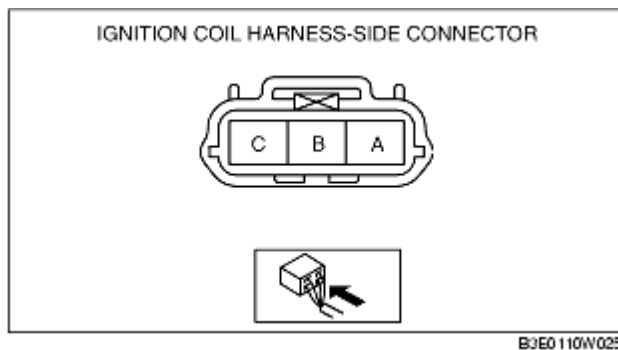
- If not within the specification, inspect the following parts:
  - CMP sensor
  - CKP sensor
  - TP sensor
  - ECT sensor
  - TR switch (ATX)
  - Neutral/clutch switch (MTX)

**Ignition timing (Test mode off)**  
**BTDC 6-18°**

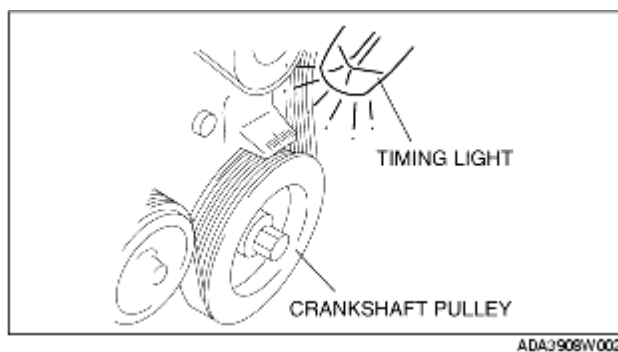
### U.K. specs.

1. Complete the engine tune-up preparation.

2. Connect the pickup clip of the timing light to the ignition coil terminal A wire.



3. Verify that the crankshaft pulley alignment mark (white) is within the specification.



**Ignition timing (Test mode on)**  
**BTDC 9-11°**

4. Turn the test mode off using a simulation test.

5. Using the timing light, verify again that the crankshaft pulley alignment mark (white) is within the specification.

- If not within the specification, inspect the following parts:
  - CMP sensor
  - CKP sensor

- TP sensor
- ECT sensor
- TR switch (ATX)
- Neutral/clutch switch (MTX)

**Ignition timing (Test mode off)**  
**BTDC 6-18°**

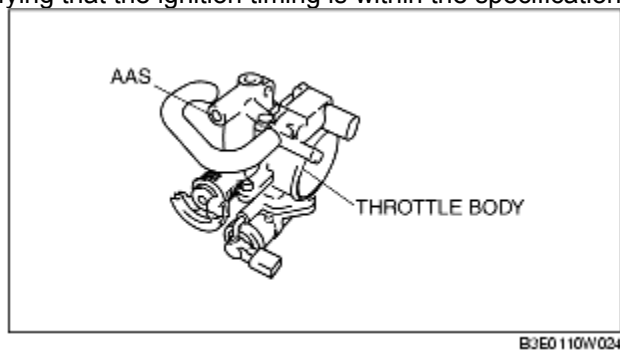
## Idle Speed Inspection

### Caution

- Changing the TAS while attempting to adjust the idle speed could cause an engine malfunction. Do not change the TAS adjustment position.

1. Complete the engine tune-up preparation.
2. Verify that the ignition timing is within the specification. (See [Ignition Timing Inspection](#).)
3. Verify that the idle speed is within the specification using the RPM DATA MONITOR function.

- If not within the specification, adjust the idle speed to within the specification by turning the AAS after verifying that the ignition timing is within the specification.



**Idle speed**  
**ATX: 700-800 rpm**  
**MTX**  
**ZJ: 690-790 rpm**  
**Z6: 640-740 rpm**

4. Verify that the idle speed is within the specification when each load is applied. (The speed decrease just after the load is applied is not considered.)

- If not within the specification with any of the specified loads applied, inspect the IAC valve.
- If not within the specification when a specified load is applied, inspect the related input parts, wiring harnesses, and connectors.

### Standard

Load status		Idle speed (rpm)			
		N, D position (ATX), Neutral position (MTX)			
		ATX		MTX	
		Z6		ZJ	Z6
		N range	D range		
No load		700-800	650-750	690-790	640-740
Electrical loads on*1	34-42 A	700-800	650-750	700-800	650-750
	Above 42 A	700-800	670-770	700-800	700-800

A/C on	Low load*2	700-800	650-750	700-800	650-750
	High load*3	700-800			
P/S on		700-800			

\*1 : Generator generating current value

\*2 : Refrigerant pressure switch (middle pressure switch) is off.

\*3 : Refrigerant pressure switch (middle pressure switch) is on.

## Idle Mixture Inspection

1. Warm up the engine to normal operating temperature.

(1) Increase the engine speed to **2,500-3,000 rpm** until the cooling fan starts running.

(2) When the cooling fan starts running, release the accelerator pedal and wait until the cooling fan stops running.

2. Verify that the idle speed and ignition timing are within the specification. (See [Idle Speed Inspection](#).) (See [Ignition Timing Inspection](#).)

3. Insert an exhaust gas analyzer into the tailpipe.

4. Verify that the CO and HC concentrations are within the regulation.