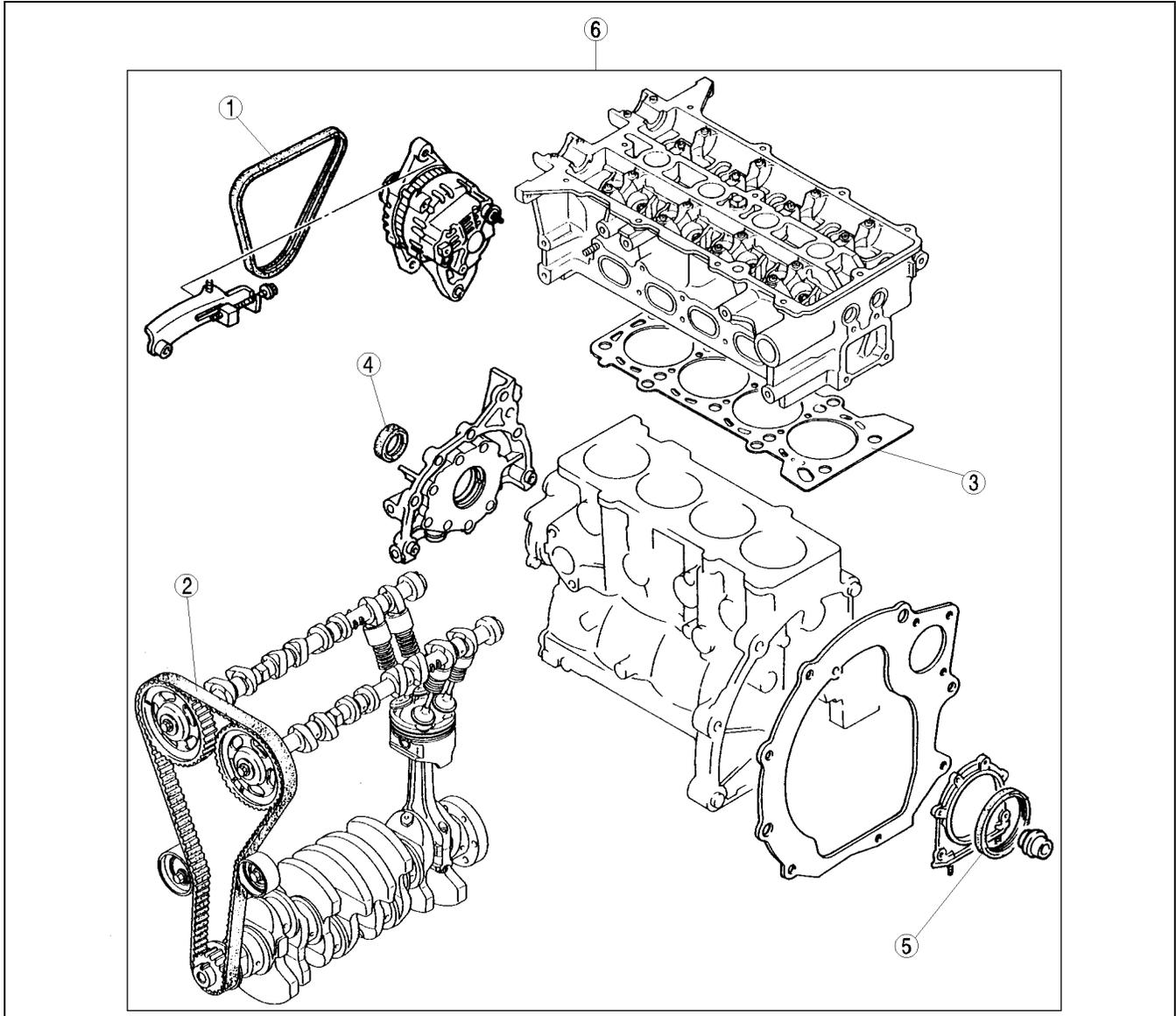


## **01-10B MECHANICAL [FS]**

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Water Pump Pulley Installation Note ..	<b>01-10B-14</b>	Idle Speed Adjustment .....	<b>01-10B-26</b>
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**01-10B**



Z3U0110W100

1	Drive belt (See 01-10B-3 DRIVE BELT INSPECTION [FS]) (See 01-10B-4 DRIVE BELT ADJUSTMENT [FS])
2	Timing belt (See 01-10B-8 TIMING BELT REMOVAL/ INSTALLATION [FS])
3	Cylinder head gasket (See 01-10B-14 CYLINDER HEAD GASKET REPLACEMENT [FS])

4	Front oil seal (See 01-10B-19 FRONT OIL SEAL REPLACEMENT [FS])
5	Rear oil seal (See 01-10B-20 REAR OIL SEAL REPLACEMENT [FS])
6	Engine (See 01-10B-21 ENGINE REMOVAL/ INSTALLATION [FS]) (See 01-10B-24 ENGINE DISASSEMBLY/ ASSEMBLY [FS])

## DRIVE BELT INSPECTION [FS]

A3U011015800W01

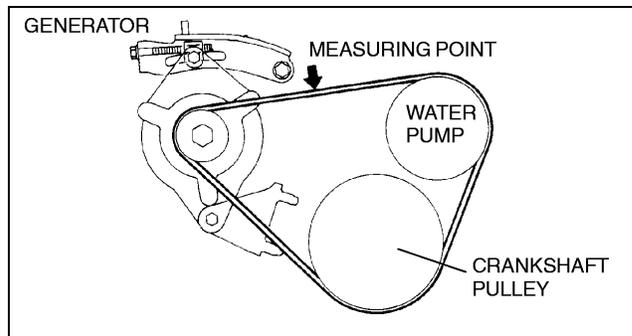
Inspect the drive belt tension or deflection, as necessary.

### Drive Belt Deflection Inspection

#### Note

- Inspect the drive belt deflection when the engine is cold, or **at least 30 min** after the engine has stopped.

- Apply moderate pressure **98 N {10 kgf, 22 lbf}** midway between the specified pulleys.



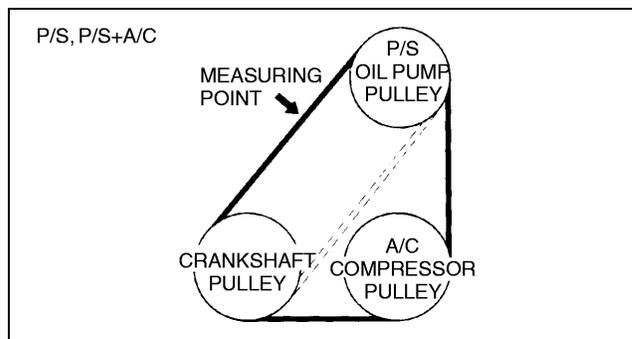
X3U110WF0

- If the deflection is not within the specification, adjust it. (See 01-10B-4 DRIVE BELT ADJUSTMENT [FS].)

#### Deflection

mm {in}

Drive belt	Limit
Generator	10.0 {0.39}
P/S, P/S+A/C	11.0 {0.43}



X3U110WF1

### Drive Belt Tension Inspection

#### Note

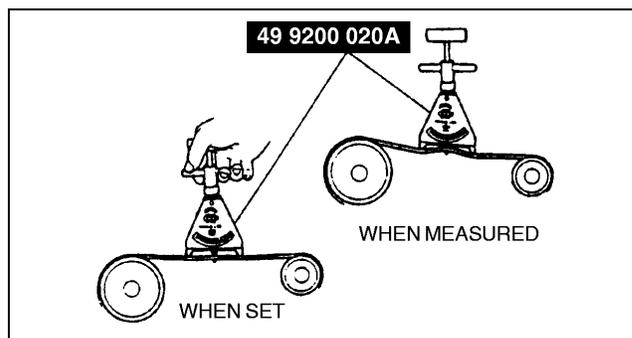
- Belt tension can be inspected in place of belt deflection. Inspect the drive belt tension when the engine is cold, or **at least 30 min** after the engine has been stopped.

- Using the **SST**, inspect the belt tension between any two pulleys.
  - If the tension is not within the specification, adjust it. (See 01-10B-4 DRIVE BELT ADJUSTMENT [FS].)

#### Tension

N {kgf, lbf}

Drive belt	Limit
Generator	390 {40, 88}
P/S, P/S+A/C	390 {40, 88}



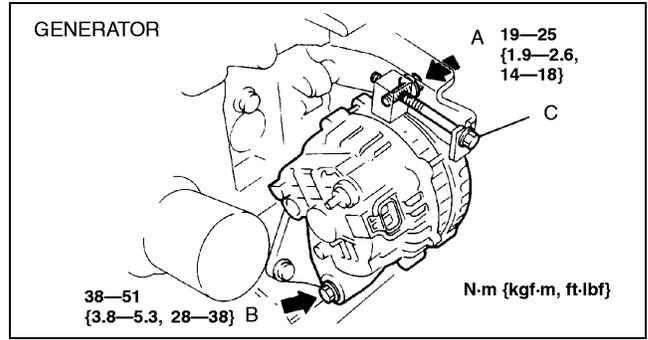
X3U110WF2

# MECHANICAL [FS]

## DRIVE BELT ADJUSTMENT [FS]

A3U011015800W02

1. Loosen mounting bolt A and B.

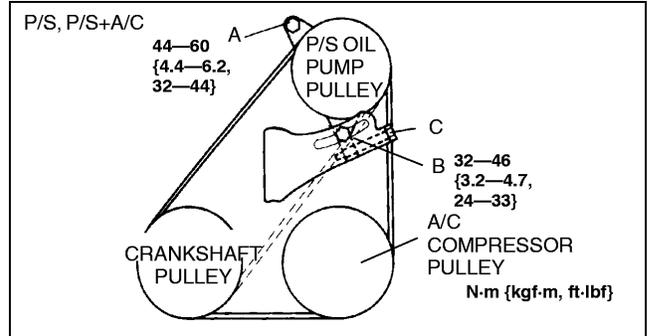


X3U110WF3

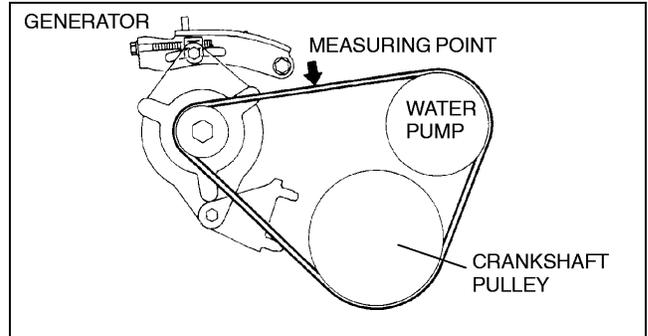
2. Adjust the belt deflection or tension by turning the adjusting bolt C.

### Caution

- If the belt is replaced with a new one or the belt has been on a running engine for less than 5 minutes, adjust deflection or tension to “New” specification.
- If the belt has been on a running engine for more than 5 minutes, adjust deflection or tension to “Used” specification.



X3U110WF4

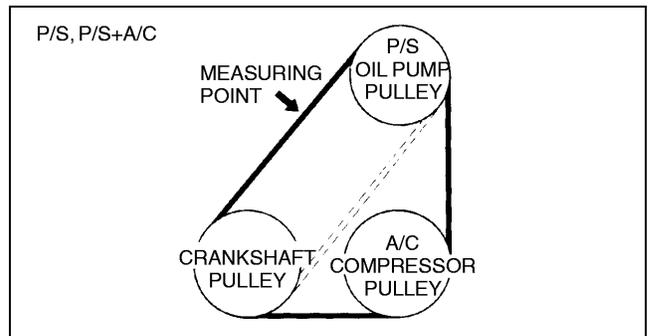


X3U110WF0

### Deflection

mm {in}

Drive belt	New	Used
Generator	6.5—7.5 {0.26—0.29}	7.0—9.0 {0.28—0.35}
P/S, P/S+A/C	7.5—9.0 {0.30—0.35}	8.0—9.5 {0.32—0.37}



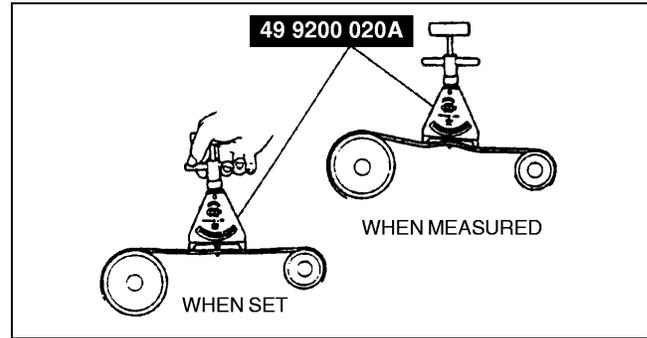
X3U110WF1

## MECHANICAL [FS]

### Tension

Drive belt	N {kgf, lbf}	
	New	Used
Generator	690—830 {70—85, 160—180}	500—680 {50—70, 110—150}
P/S, P/S+A/ C	590—780 {60—80, 140—170}	500—680 {50—70, 110—150}

3. Tighten mounting bolt A and B.
4. Inspect the belt deflection or tension.
  - If not as specified, repeat from Step 1.



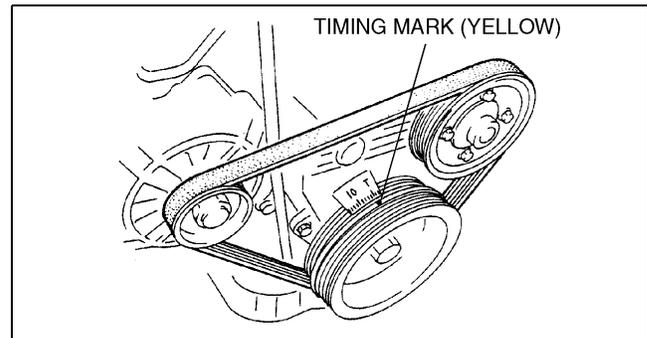
X3U110WF2

01-10B

### VALVE CLEARANCE INSPECTION [FS]

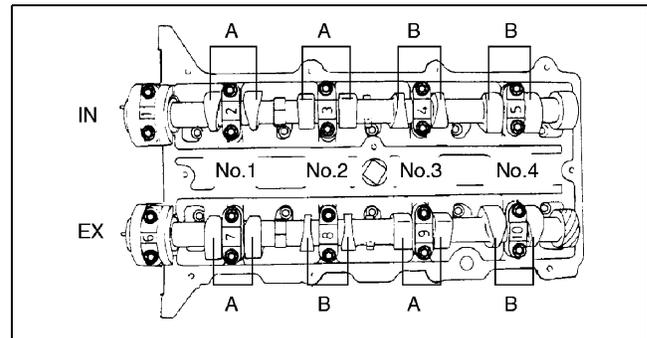
A3U011012010W01

1. Remove the cylinder head cover. (See 01-10B-10 Cylinder Head Cover Removal Note.)
2. Verify that the engine is in cold condition.
3. Measure the valve clearance.
  - (1) Turn the crankshaft clockwise so that the No.1 piston is at TDC of the compression stroke.



Y3U110WAC

- (2) Measure the valve clearance at A in the figure.



X3U110WF6

- If the valve clearance exceeds the standard, replace the adjustment shim. (See 01-10B-6 VALVE CLEARANCE ADJUSTMENT [FS].)

#### Standard [Engine cold]

IN: 0.225—0.295 mm {0.0089—0.0116 in}  
(0.26±0.035 mm {0.010±0.001 in})

EX: 0.225—0.295 mm {0.0089—0.0116 in}  
(0.26±0.035 mm {0.010±0.001 in})

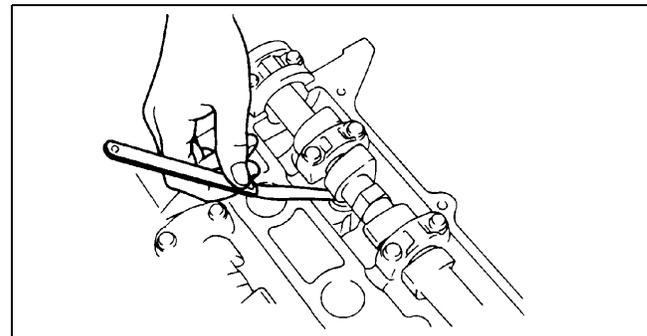
- (3) Turn the crankshaft 360° clockwise so that the No.4 piston is at TDC of the compression stroke.
- (4) Measure the valve clearance at B in the figure.

- If the valve clearance exceeds the standard, replace the adjustment shim. (See 01-10B-6 VALVE CLEARANCE ADJUSTMENT [FS].)

#### Standard [Engine cold]

IN: 0.225—0.295 mm {0.0089—0.0116 in} (0.26±0.035 mm {0.010±0.001 in})

EX: 0.225—0.295 mm {0.0089—0.0116 in} (0.26±0.035 mm {0.010±0.001 in})



X3U110WF7

4. Install the cylinder head cover. (See 01-10B-13 Cylinder Head Cover Installation Note.)

# MECHANICAL [FS]

A3U011012010W02

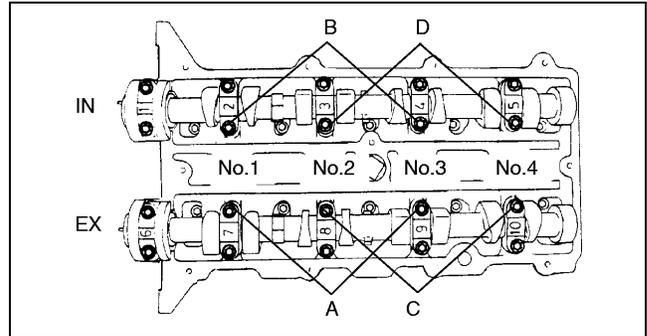
## VALVE CLEARANCE ADJUSTMENT [FS]

Perform this same procedure for all camshafts requiring valve clearance adjustment.

1. Turn the crankshaft clockwise so that the cams on the camshaft requiring valve clearance adjustment are positioned straight up.
2. Remove the camshaft cap bolts as necessary.

### Note

- Remove only one pair of cap bolts at a time.
- Reinstall the cap bolts before removing the next pair.
  - A: For EX side No.1, 2, 3 cylinder adjustment shim removal.
  - B: For IN side No.1, 2, 3 cylinder adjustment shim removal.
  - C: For EX side No.2, 3, 4 cylinder adjustment shim removal.
  - D: For IN side No.2, 3, 4 cylinder adjustment shim removal.

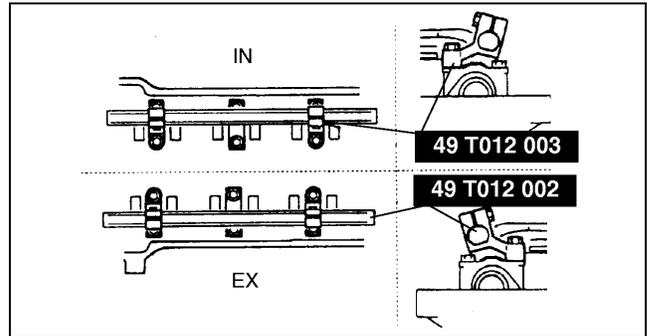


X3U110WF8

### Note

- For EX side No.2, 3 cylinder adjustment shim removal, remove bolts either A or C.
- For IN side No.2, 3 cylinder adjustment shim removal, remove bolts either B or D.

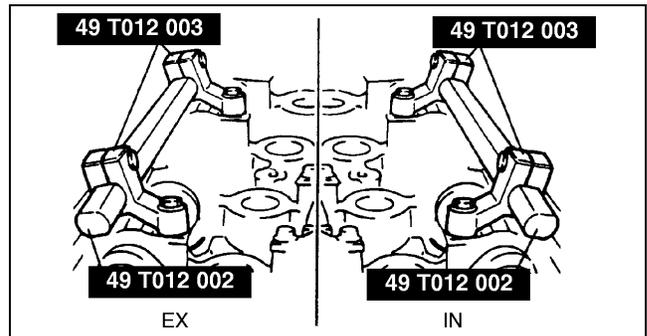
3. Install the **SSTs** on the camshaft using the camshaft cap bolt holes.



X3U110WF9

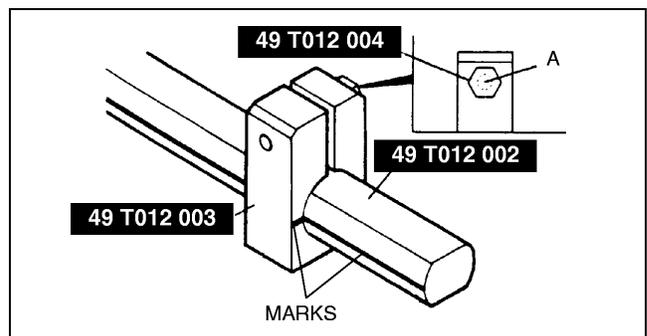
### Tightening torque

11.3—14.2 N·m {115—145 kgf·cm, 100—125 in·lbf}



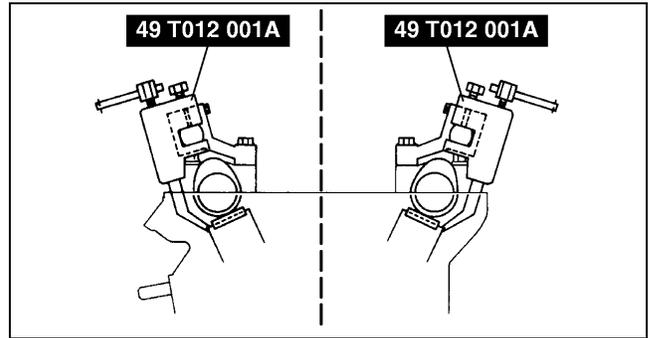
X3U110WFA

4. Align the marks on the **SSTs** (shaft and shaft clamp).
5. Tighten bolts A to secure the **SST** (shaft).



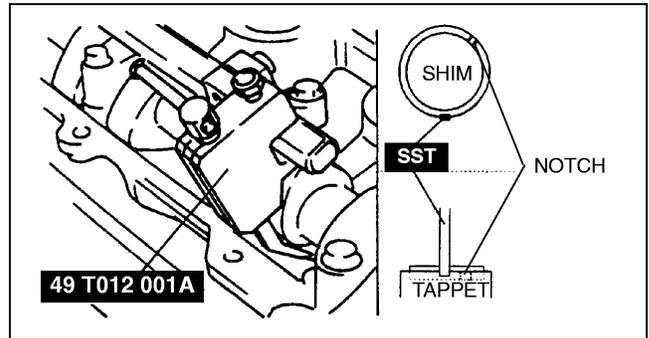
X3U110WFB

6. Face the **SST** (body) outside of the cylinder head, and mount it on the **SST** (shaft) at the point of the adjustment shim to be replaced.



X3U110WFC

7. Face the notch of the tappet so that a fine screwdriver can be inserted.  
 8. Set the **SST** on the tappet by its notch.



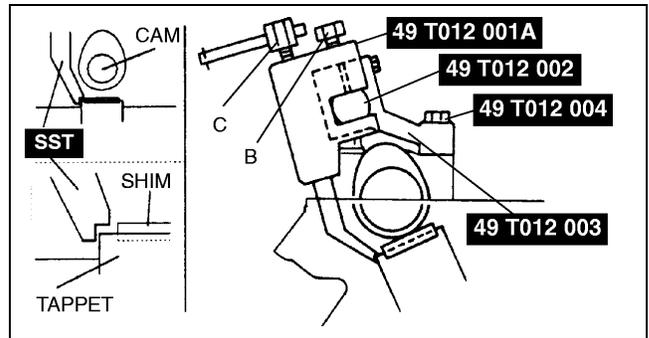
X3U110WFD

9. Tighten bolt B to secure the **SST** (body).

**Caution**

- **Cylinder head can be damaged when the tappet is pressed down.**

10. Tighten bolt C, and press down the tappet.



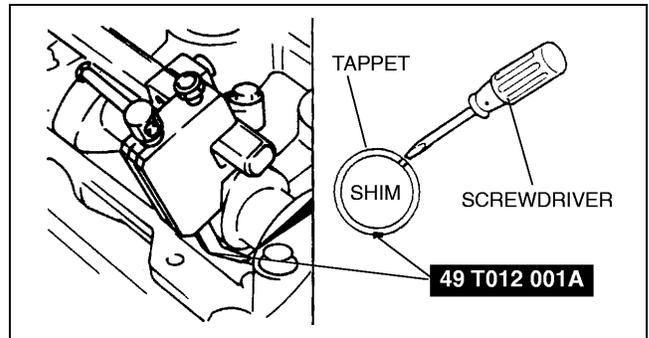
X3U110WFE

11. Using a fine screwdriver, pry up the adjustment shim through the notch on the tappet. Remove the shim using a magnet.  
 12. Select proper adjustment shim.

**New adjustment shim**

$$= \text{Removed shim thickness} + \text{Measured valve clearance} - \text{Standard valve clearance} \\ (0.26 \text{ mm } \{0.010 \text{ in}\})$$

13. Push the selected shim into the tappet.  
 14. Loosen bolt C to allow the tappet to move up.  
 15. Loosen bolt B and remove the **SST** (body).  
 16. Remove the **SSTs** and tighten the camshaft cap bolts.



X3U110WFF

**Tightening torque**

$$11.3\text{--}14.2 \text{ N}\cdot\text{m} \{115\text{--}145 \text{ kgf}\cdot\text{cm}, 100\text{--}125 \text{ in}\cdot\text{lbf}\}$$

17. Verify the valve clearance. (See 01-10B-5 VALVE CLEARANCE INSPECTION [FS].)

# MECHANICAL [FS]

## COMPRESSION INSPECTION [FS]

A3U011002000W01

### Warning

- Hot engines and oil can cause severe burns. Be careful not to burn yourself during removal/installation of each component.

1. Verify that the battery is fully charged.
  - Recharge it if necessary. (See 01-17-1 BATTERY INSPECTION.)
2. Warm up the engine to the normal operating temperature.
3. Stop the engine and allow it to cool off for **about 10 min.**
4. Perform "Fuel Line Safety Procedures". Leave the fuel pump relay removed. (See 01-14-4 BEFORE REPAIR PROCEDURE.)
5. Remove the ignition coils. (See 01-18-1 IGNITION COIL REMOVAL/INSTALLATION.)
6. Remove the spark plugs.
7. Connect a compression gauge into the No.1 spark plug hole.
8. Fully depress the accelerator pedal and crank the engine.
9. Note the maximum gauge reading.
10. Inspect each cylinder as above.
  - If the compression in one or more cylinders is low or the compression difference between cylinders exceeds the maximum, pour a small amount of clean engine oil into the cylinder and recheck the compression.
    - If the compression increases, the piston, the piston rings, or cylinder wall may be worn and overhaul is required.
    - If the compression stays low, a valve may be stuck or improperly seated and overhaul is required.
    - If the compression in adjacent cylinders stays low, the cylinder head gasket may be damaged or the cylinder head distorted and overhaul is required.

### Compression

Item	kPa {kgf/cm <sup>2</sup> , psi} [rpm]
	Engine type
Standard	1,177 {12.0, 171} [300]
Minimum	824 {8.4, 119} [300]
Maximum difference between cylinders	196 {2.0, 28}

1. Disconnect the compression gauge.
2. Install the spark plugs.

### Tightening torque

**15—22 N·m {1.5—2.3 kgf·m, 11—16 ft·lbf}**

3. Connect the ignition coil connector.
4. Install the fuel pump relay.

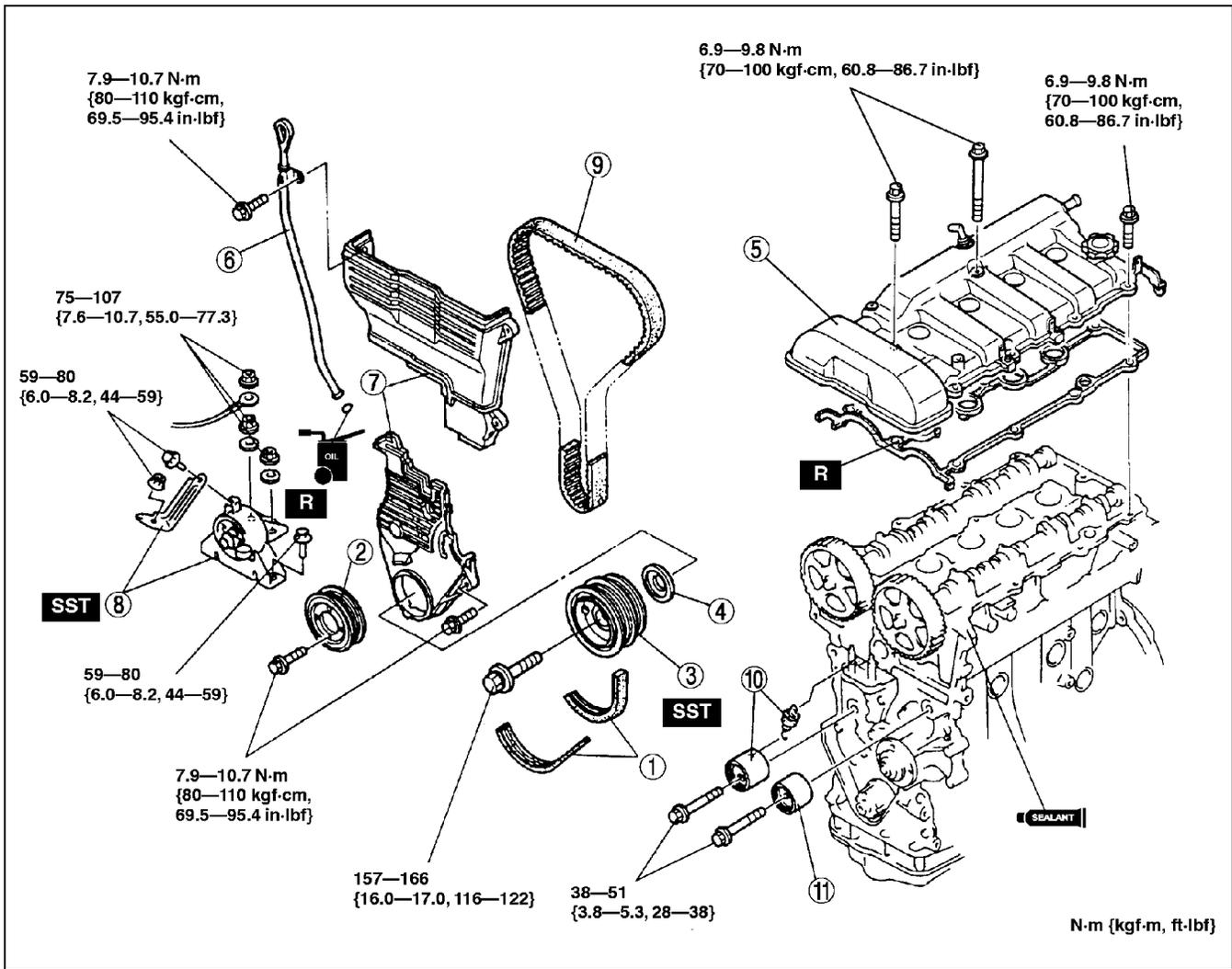
## TIMING BELT REMOVAL/INSTALLATION [FS]

A3U011012040W01

1. Disconnect the negative battery cable.
2. Remove the CMP sensor and CKP sensor. (See 01-40B-34 CAMSHAFT POSITION (CMP) SENSOR REMOVAL/INSTALLATION [FS].) (See 01-40B-34 CRANKSHAFT POSITION (CKP) SENSOR REMOVAL/INSTALLATION [FS].)
3. Remove the ignition coils. (See 01-18-1 IGNITION COIL REMOVAL/INSTALLATION.)
4. Remove the spark plug.
5. Remove in the order indicated in the table.
6. Install in the reverse order of removal.
7. Inspect the air gap. (See 01-40B-32 Air Gap Inspection.)
8. Adjust the drive belt deflection/tension. (See 01-10B-4 DRIVE BELT ADJUSTMENT [FS].)
9. Start the engine and:
  - (1) Inspect the pulleys and drive belt for runout and contact.
  - (2) Inspect the ignition timing. (See 01-10B-25 Ignition Timing Inspection.)

# MECHANICAL [FS]

01-10B



Y3U110WAD

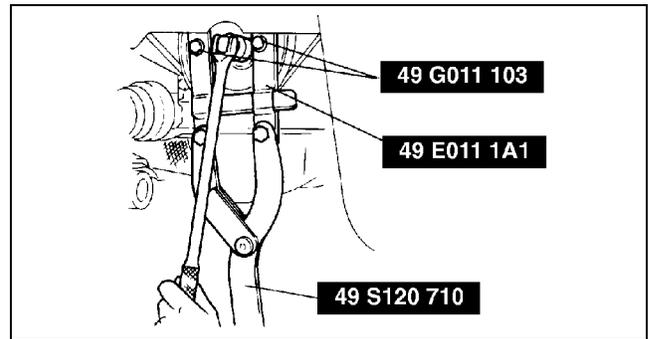
1	Drive belt (See 01-10B-4 DRIVE BELT ADJUSTMENT [FS])
2	Water pump pulley (See 01-10B-14 Water Pump Pulley Installation Note)
3	Crankshaft pulley (See 01-10B-10 Crankshaft Pulley Removal Note) (See 01-10B-14 Crankshaft Pulley Installation Note)
4	Guide plate
5	Cylinder head cover (See 01-10B-10 Cylinder Head Cover Removal Note) (See 01-10B-13 Cylinder Head Cover Installation Note)
6	Dipstick and pipe

7	Timing belt cover
8	No.3 Engine mount rubber (See 01-10B-10 No.3 Engine Mount Rubber Removal Note)
9	Timing belt (See 01-10B-10 Timing Belt Removal Note) (See 01-10B-12 Timing Belt Installation Note)
10	Tensioner, tensioner spring (See 01-10B-11 Tensioner, Tensioner Spring Installation Note)
11	Idler

## MECHANICAL [FS]

### Crankshaft Pulley Removal Note

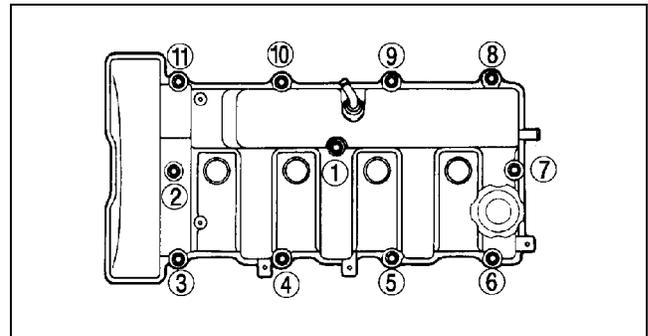
1. Remove the crankshaft using the SST.



X3U110WFH

### Cylinder Head Cover Removal Note

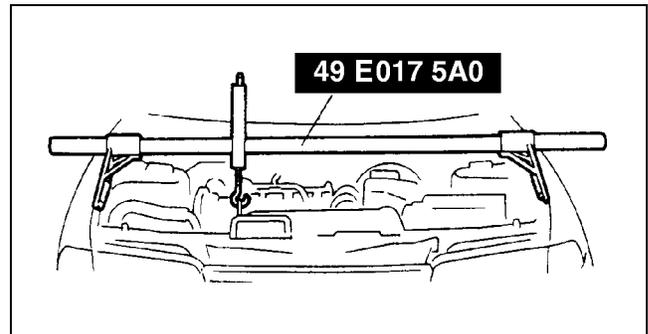
1. Remove the cylinder head cover bolts a few turns in the order shown.



X3U110WFJ

### No.3 Engine Mount Rubber Removal Note

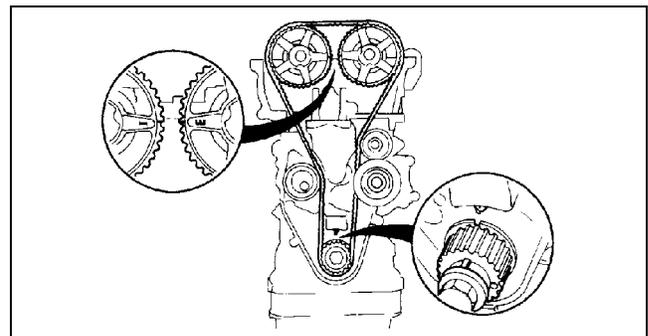
1. Suspend the engine using the SST.



Z3U110WFK

### Timing Belt Removal Note

1. Install the pulley lock bolt.
2. Turn the crankshaft clockwise and align the timing marks.

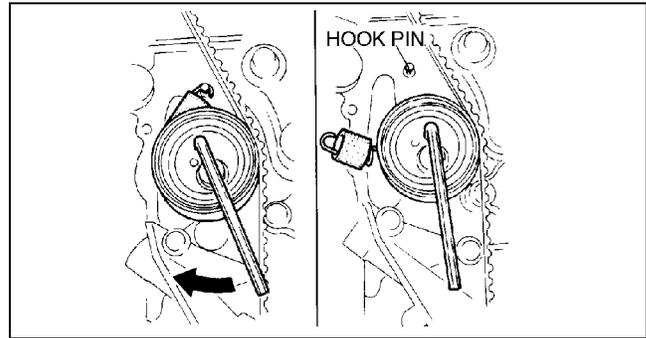


X3U110WFL

3. Turn the tensioner clockwise using an Allen wrench.
4. Disconnect the tensioner spring from the hook pin.

**Caution**

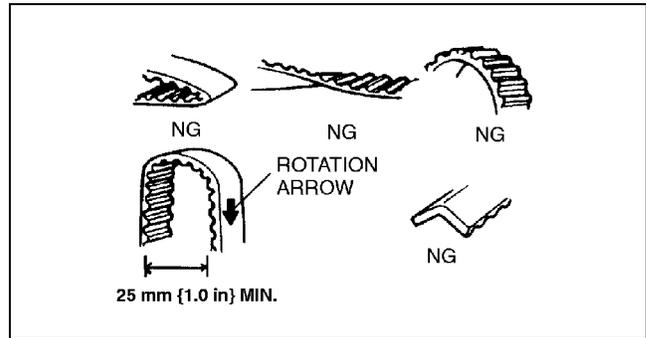
- Forcefully twisting the timing belt turning it inside out, or allowing oil or grease on it will damage the belt and shorten its life.



X3U110WFM

**Note**

- Mark the timing belt rotation on the belt for proper reinstallation.



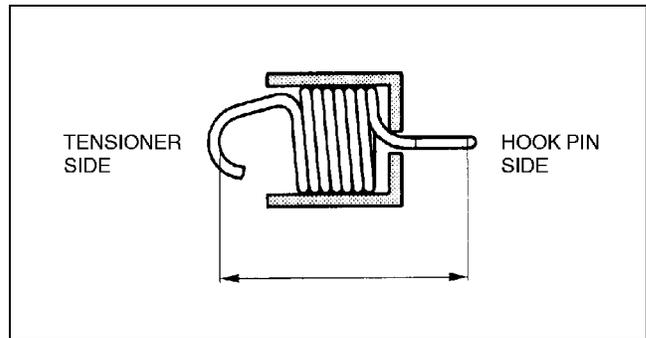
X3U110WFN

**Tensioner, Tensioner Spring Installation Note**

1. Measure the tensioner spring free length.
  - If not within the specification, replace the tensioner spring.

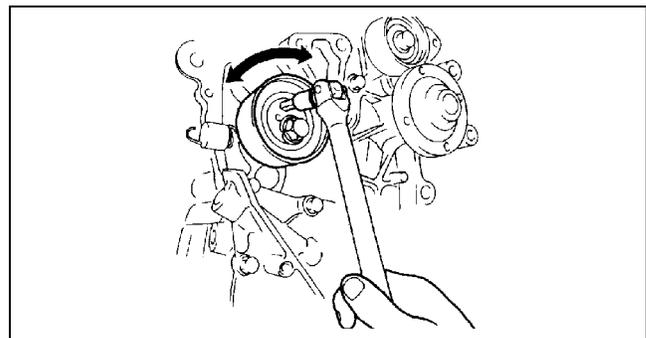
**Free length**  
**36.6 mm {1.44 in}**

2. Install the tensioner.



X3U110WFP

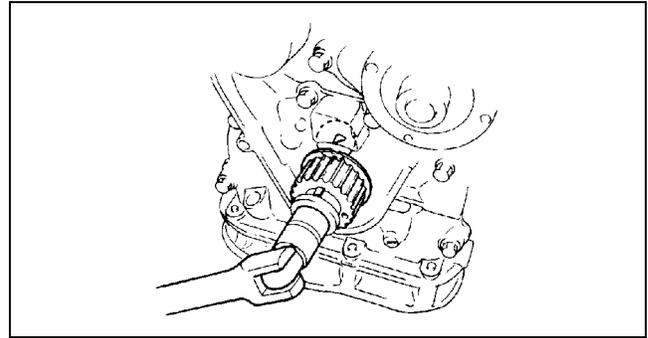
3. Rotate the tensioner.
  - If tensioner rotates with no resistance or does not rotate, replace the tensioner.



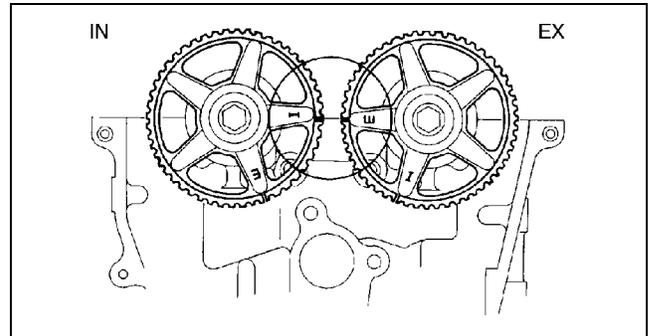
X3U110WFO

## Timing Belt Installation Note

1. Verify that the timing belt pulley mark and camshaft pulley marks are aligned with the timing marks as shown.

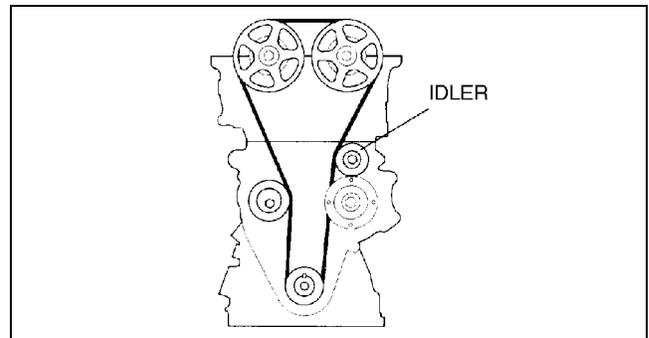


X3U110WFR



X3U110WFS

2. Install the timing belt so that there is no looseness at the idler side.



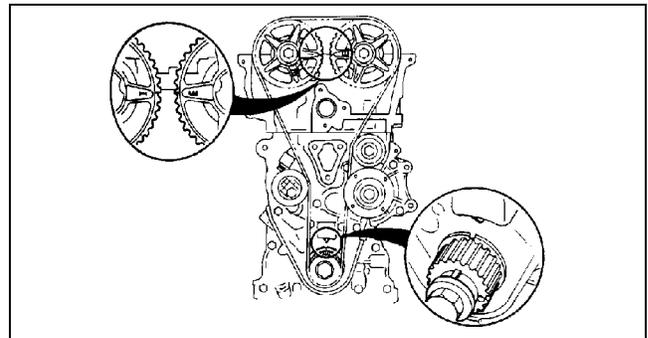
X3U110WFT

3. Turn the crankshaft clockwise twice, and align the timing marks.
4. Verify that all timing marks are correctly aligned.
  - If not aligned, remove the timing belt and repeat from Step 1.

### Caution

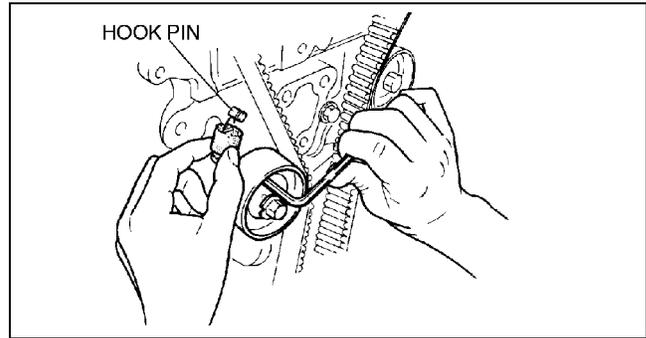
- Be sure not to apply tension other than that of the tensioner spring.

5. Turn the tensioner clockwise using an Allen wrench.



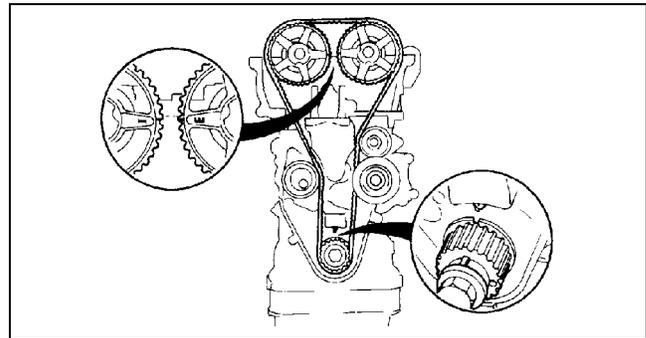
X3U110WFU

6. Connect the tensioner to the hook pin.



X3U110WV

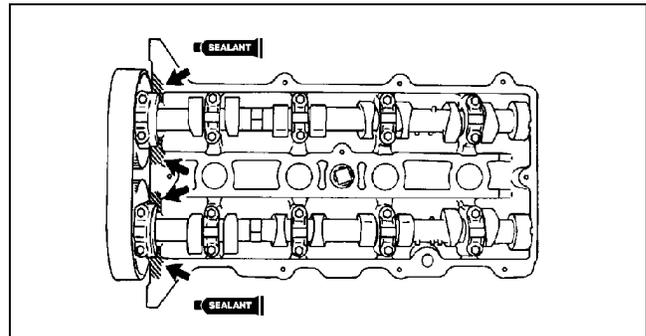
7. Turn the crankshaft clockwise twice, and verify that all timing marks are aligned.  
• If not aligned, repeat from Step 1.



X3U110WFL

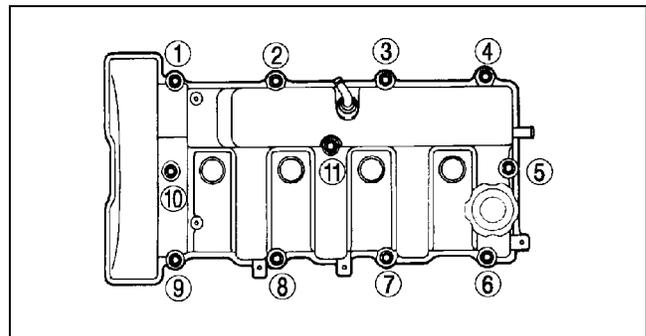
### Cylinder Head Cover Installation Note

1. Verify that the grooves on the cylinder head cover are free of oil, water and other foreign material.
2. Install the cylinder head cover gasket into the cylinder head cover.
3. Apply silicone sealant to the cylinder head as shown.



Z3U110WFW

4. Tighten the cylinder head cover bolts in the order shown.

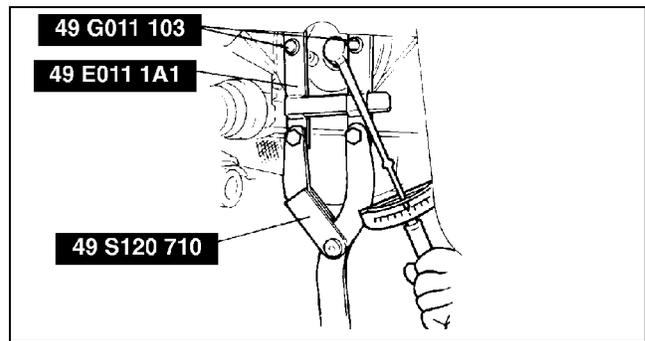


X3U110WFX

## MECHANICAL [FS]

### Crankshaft Pulley Installation Note

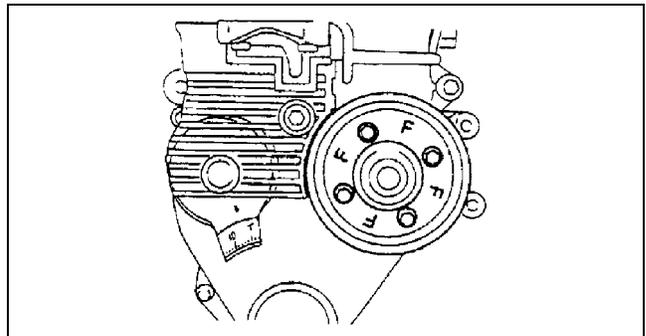
1. Install the crankshaft using the **SST**.



X3U110WFY

### Water Pump Pulley Installation Note

1. Install the water pump pulley by facing the “F” marks outward.



X3U110WGL

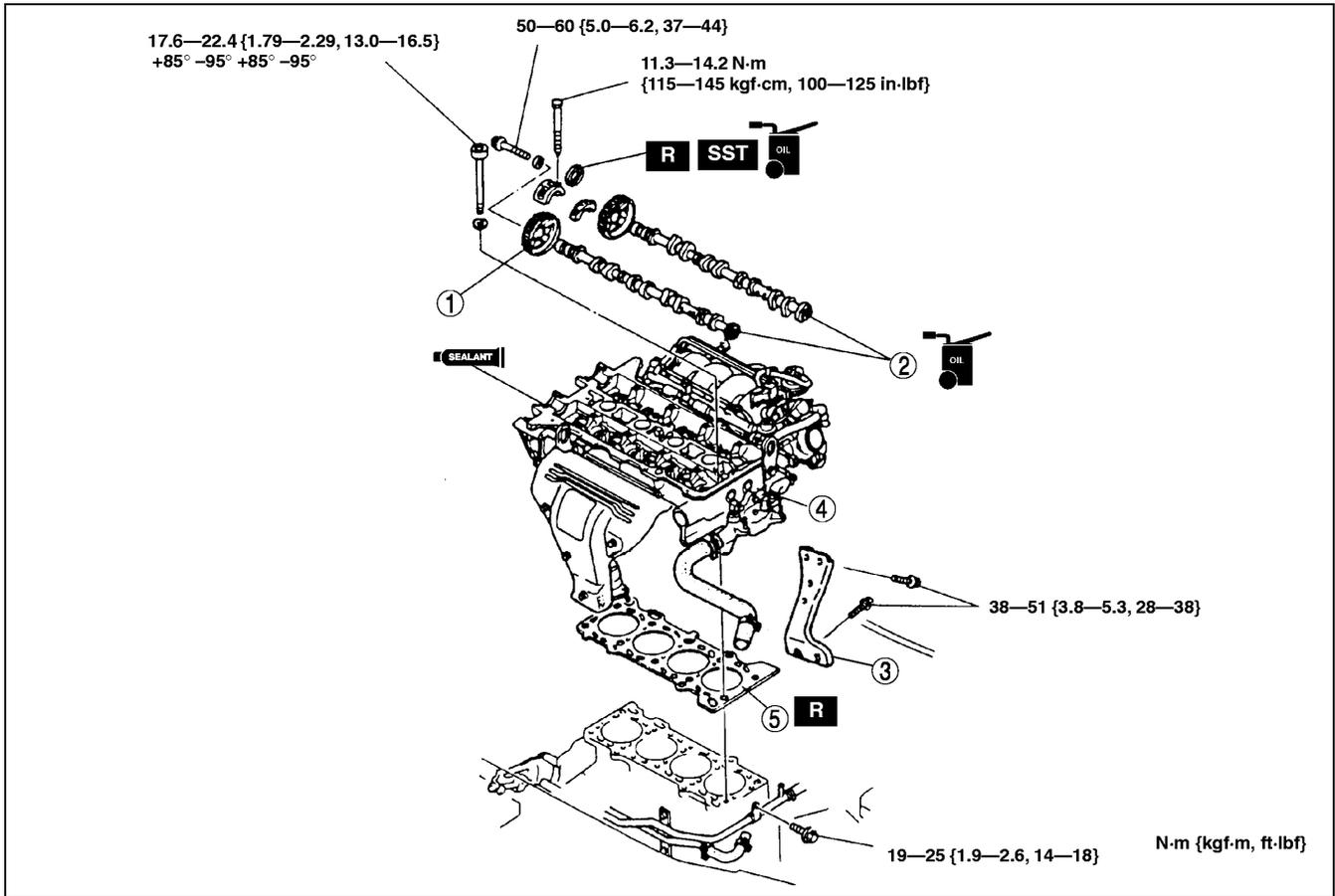
## CYLINDER HEAD GASKET REPLACEMENT [FS]

A3U011010271W01

### Warning

- Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.
- Fuel line spills and leakage are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the “Fuel Line Safety Procedures”. (See 01–14–4 BEFORE REPAIR PROCEDURE.)

1. Disconnect the negative battery cable.
2. Drain the engine coolant. (See 01–12–2 COOLING SYSTEM SERVICE WARNINGS.) (See 01–12–3 ENGINE COOLANT REPLACEMENT.)
3. Remove the timing belt. (See 01–10B–8 TIMING BELT REMOVAL/INSTALLATION [FS].)
4. Remove the front pipe. (See 01–15–1 EXHAUST SYSTEM REMOVAL/INSTALLATION.)
5. Remove the air cleaner.
6. Remove the P/S oil pump and bracket with the oil hose still connected.
7. Remove the accelerator cable. (See 01–13B–17 ACCELERATOR CABLE ADJUSTMENT [FS].)
8. Disconnect the fuel hose. (See 01–14–4 BEFORE REPAIR PROCEDURE.) (See 01–14–4 BEFORE REPAIR PROCEDURE.)
9. Remove in the order indicated in table.
10. Install in the reverse order of removal.
11. Inspect the engine oil level. (See 01–11–2 ENGINE OIL INSPECTION.)
12. Inspect for the engine oil, engine coolant, and fuel leakage.
13. Inspect the compression. (See 01–10B–8 COMPRESSION INSPECTION [FS].)
14. Start the engine and:
  - (1) Inspect the pulleys and the drive belt for runout and contact.
  - (2) Inspect the ignition timing. (See 01–10B–25 Ignition Timing Inspection.)
  - (3) Inspect the idle speed. (See 01–10B–26 Idle Speed Adjustment.)



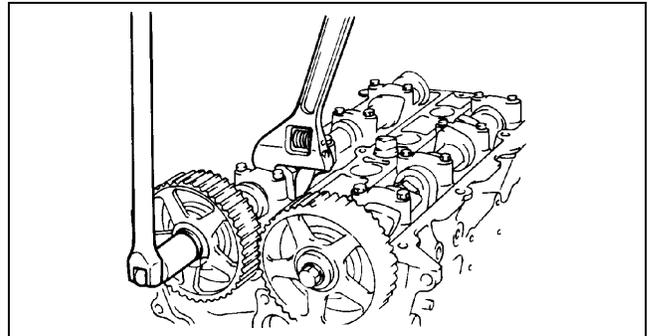
Y3U110WA6

1	Camshaft pulley (See 01-10B-15 Camshaft Pulley Removal Note) (See 01-10B-18 Camshaft Pulley Installation Note)
2	Camshaft (See 01-10B-16 Camshaft Removal Note) (See 01-10B-17 Camshaft Installation Note)
3	Intake manifold bracket

4	Cylinder head (See 01-10B-16 Cylinder Head Removal Note) (See 01-10B-16 Cylinder Head Installation Note)
5	Cylinder head gasket

### Camshaft Pulley Removal Note

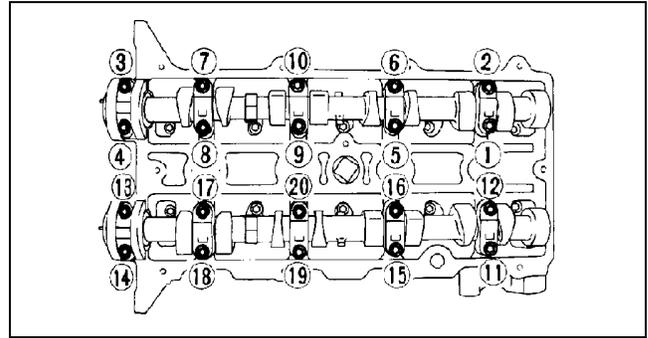
1. Hold the camshaft using a wrench on the cast hexagon as shown.



X3U110WG0

## Camshaft Removal Note

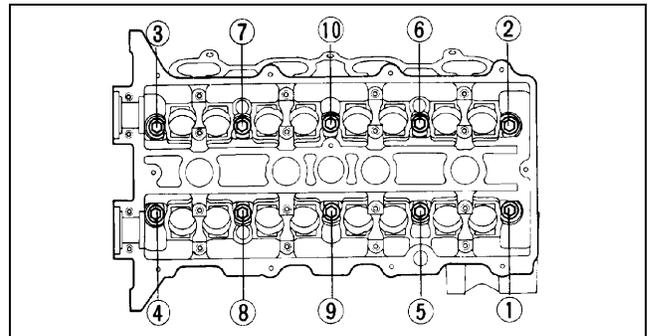
1. Loosen the camshaft cap bolts a few turns in the order shown.



Z3U110WG1

## Cylinder Head Removal Note

1. Loosen the cylinder head bolts a few turns in the order shown.



X3U110WG2

## Cylinder Head Installation Note

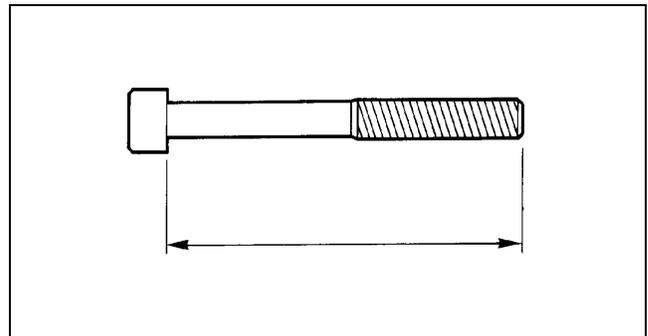
1. Measure the length of each bolt. Replace any that exceed the maximum length.

### Standard length

104.2—104.8 mm {4.103—4.125 in}

### Maximum length

105.5 mm {4.153 in}

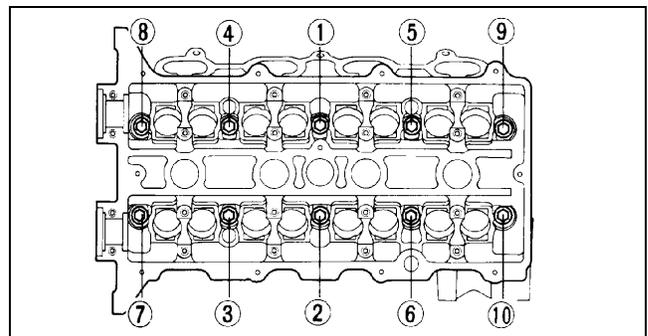


X3U110WG3

2. Tighten the cylinder head bolts a few turns in the order shown.

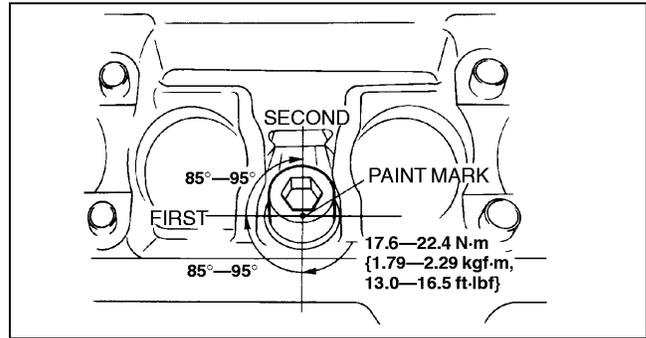
### Tightening torque

17.5—22.5 N·m {1.79—2.29 kgf·m, 13.0—16.5 ft·lbf}



X3U110WG4

3. Put a paint mark on each bolt head.
4. Using the marks as a reference, tighten the bolts by turning each **85°—95°** in the sequence shown.
5. Further tighten each bolt by turning another **85°—95°** in the sequence shown.



Y3U110WA7

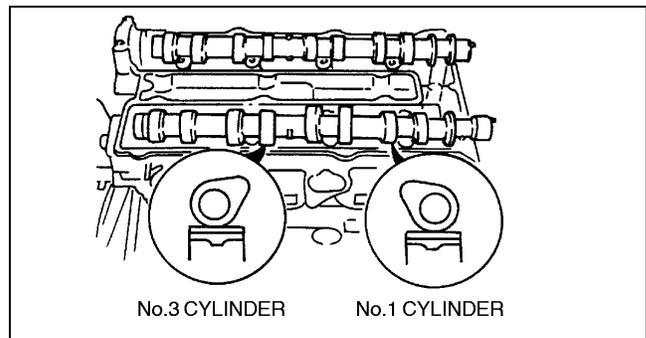
01-10B

## Camshaft Installation Note

### Caution

- Because there is little camshaft thrust clearance, the camshaft must be held horizontally while it is installed. Otherwise, excessive force will be applied to the thrust area, causing burr on the thrust receiving area of the cylinder head journal. To avoid this, the following procedure must be observed.

1. Assemble camshaft onto the cylinder head, facing the cam noses at No.1 and No.3 cylinders as shown.



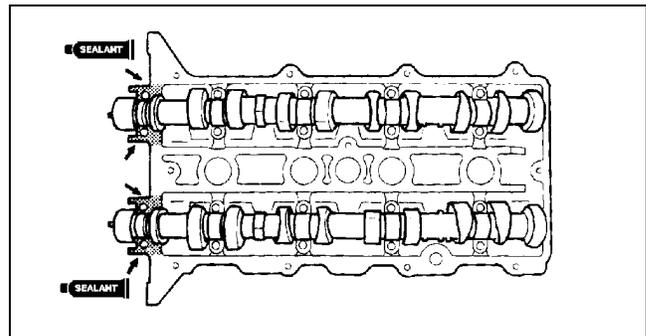
X3U110WG6

2. Apply silicone sealant to the areas shown.

### Note

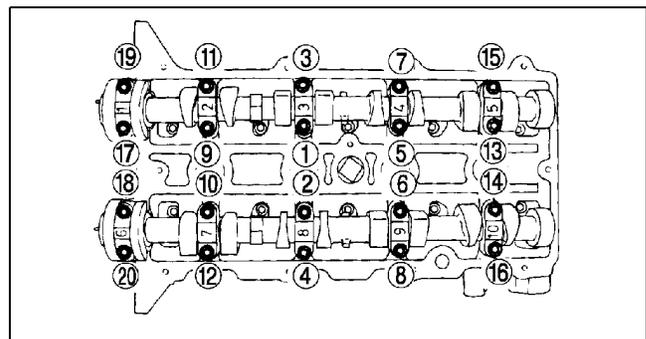
- Keep the camshaft sliding surface free of sealant to prevent engine damage.

3. Apply engine oil to the camshaft and the cylinder head journals.
4. Install the camshaft caps to the positions from which they were removed.



Z3U110WG7

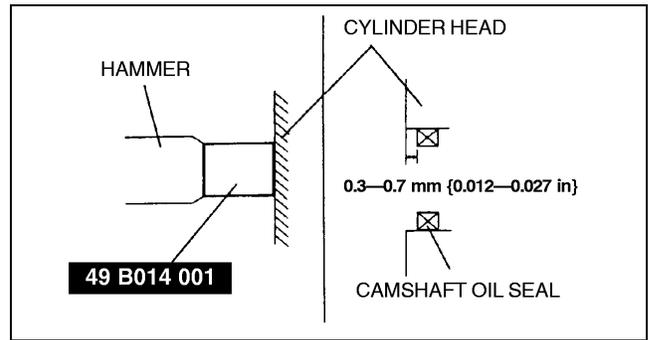
5. Hand tighten the camshaft cap bolts marked 5, 7, 2, and 4.
6. Tighten the camshaft cap bolts a few turns in the order shown.
7. Verify that the camshaft settles horizontally when 2 bearing cap bolts at No.3 journal are tightened.
8. Apply clean engine oil to the camshaft oil seal.
9. Push the oil seal slightly in by hand.



Z3U110WG8

## MECHANICAL [FS]

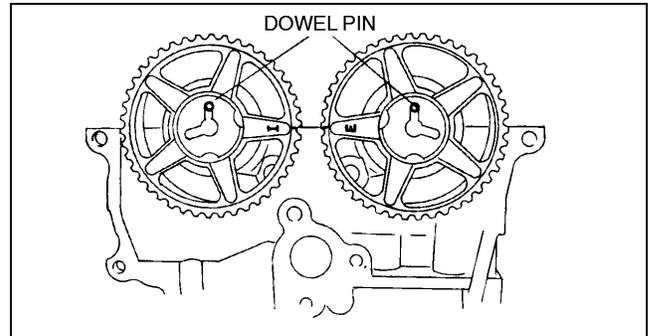
10. Tap the oil seals in evenly using the **SST** and a hammer.



X3U110WG9

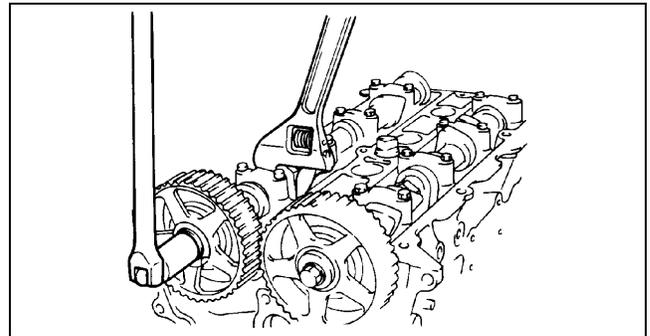
### Camshaft Pulley Installation Note

1. Install the camshaft pulleys, positioning the dowel pins as shown.



X3U110WGA

2. Hold the camshaft using a wrench on the cast hexagon as shown.



X3U110WG0

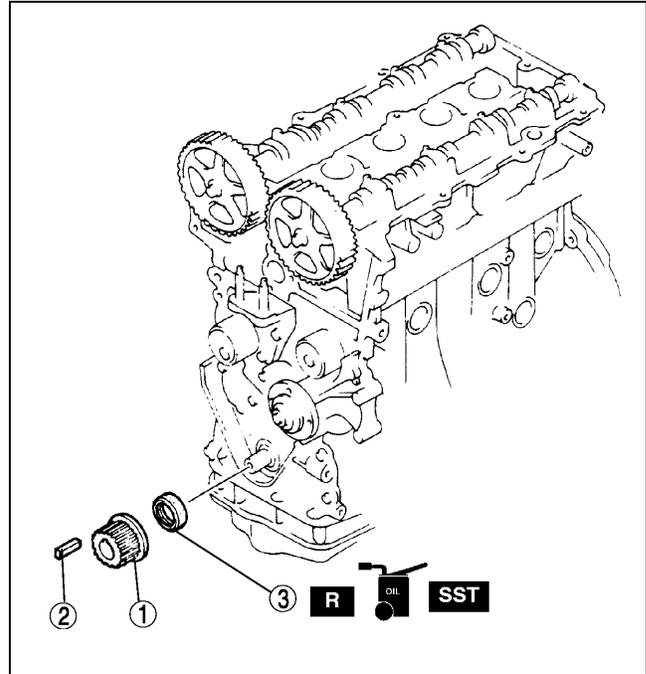
## FRONT OIL SEAL REPLACEMENT [FS]

A3U011010602W01

1. Disconnect the negative battery cable.
2. Remove the timing belt. (See 01-10B-8 TIMING BELT REMOVAL/INSTALLATION [FS].)
3. Remove in the order indicated in the table.

1	Timing belt pulley
2	Key
3	Front oil seal (See 01-10B-19 Front Oil Seal Removal Note) (See 01-10B-19 Front Oil Seal Installation Note)

4. Install in the reverse order of removal.

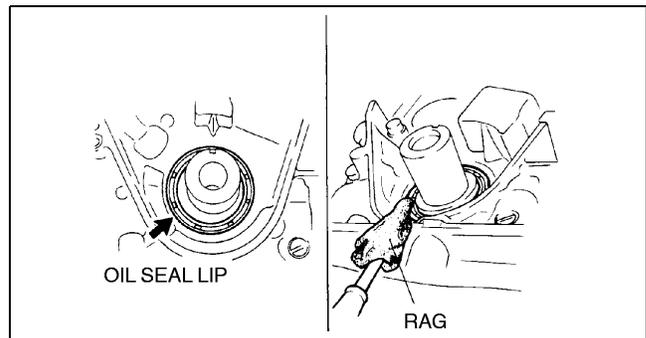


X3U110WGB

01-10B

### Front Oil Seal Removal Note

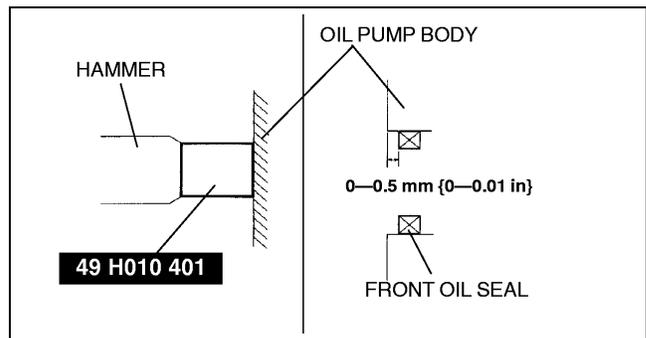
1. Cut the oil seal lip using a razor.
2. Remove the oil seal using a screwdriver protected with a rag.



X3U110WGC

### Front Oil Seal Installation Note

1. Apply clean engine oil to the oil seal lip.
2. Push the oil seal slightly in by hand.
3. Tap the oil seal in evenly using the **SST** and a hammer.



Y3U110WA8

# MECHANICAL [FS]

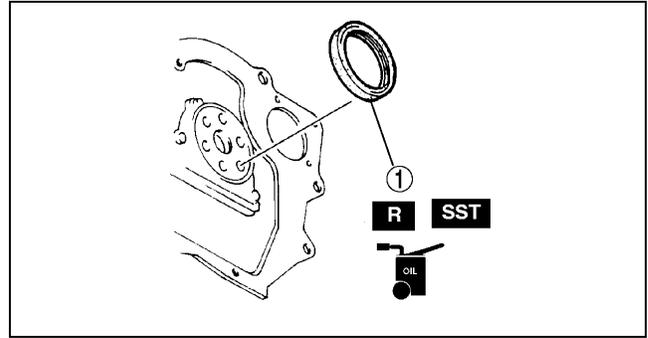
## REAR OIL SEAL REPLACEMENT [FS]

A3U011011399W01

1. Remove the flywheel. (MTX) (See 05-10-11 CLUTCH UNIT REMOVAL/INSTALLATION.)
2. Remove the drive plate. (ATX) (See 05-17-46 DRIVE PLATE REMOVAL/INSTALLATION.)
3. Remove in the order indicated in the table.

1	Rear oil seal (See 01-10B-20 Rear Oil Seal Removal Note) (See 01-10B-20 Rear Oil Seal Installation Note)
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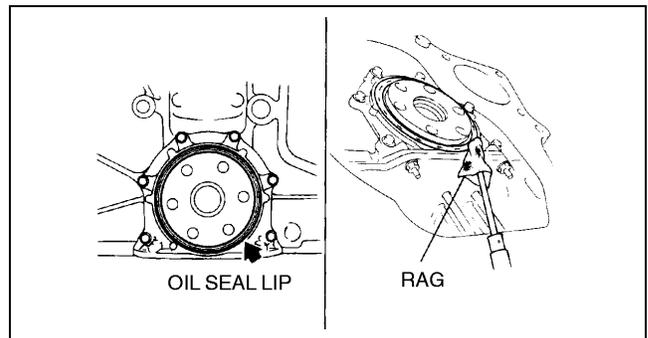
4. Install in the reverse order of removal.



X3U110WGE

### Rear Oil Seal Removal Note

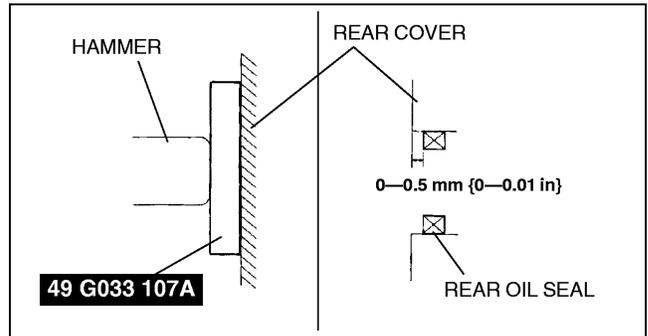
1. Cut the oil seal lip using a razor.
2. Remove the oil seal using a screwdriver protected with a rag.



X3U110WGF

### Rear Oil Seal Installation Note

1. Apply clean engine oil to the new oil seal lip.
2. Push the oil seal slightly in by hand.
3. Tap the oil seal in evenly using the **SST** and a hammer.



Y3U110WA9

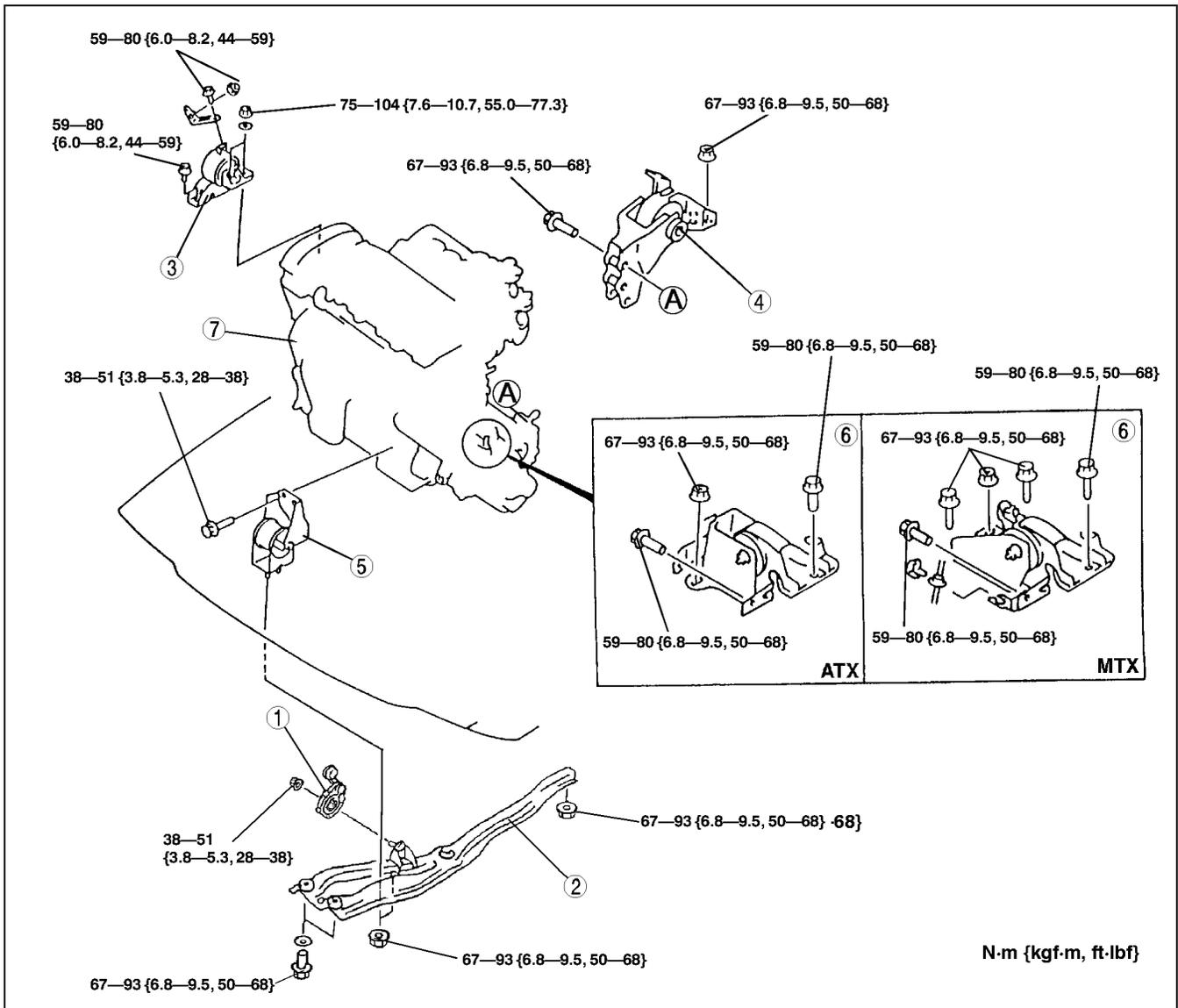
### Warning

- Fuel vapor is hazardous. It can very easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.
- Fuel line spills and leaks are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete the “Fuel Line Safety Procedures”.

**01-10B**

1. Disconnect the negative battery cable.
2. Drain the engine coolant. (See 01-12-2 COOLING SYSTEM SERVICE WARNINGS.) (See 01-12-3 ENGINE COOLANT REPLACEMENT.)
3. Remove the radiator. (See 01-12-4 RADIATOR REMOVAL/INSTALLATION.)
4. Remove the air cleaner.
5. Remove the accelerator cable. (See 01-13B-17 ACCELERATOR CABLE INSPECTION [FS].) (See 01-13B-17 ACCELERATOR CABLE ADJUSTMENT [FS].)
6. Disconnect the fuel hose. (See 01-14-4 BEFORE REPAIR PROCEDURE.) (See 01-14-5 AFTER REPAIR PROCEDURE.)
7. Remove the front pipe. (See 01-15-1 EXHAUST SYSTEM REMOVAL/INSTALLATION.)
8. Remove the rods, cables and pipes related to the transaxle.
9. Remove the battery.
10. Remove the fuse box.
11. Remove the P/S oil pump with the oil hose still connected. Position the P/S oil pump so that it is out of the way.
12. Remove the A/C compressor with the pipe still connected. position the A/C compressor so that it is out of the way.
13. Remove the drive shaft. (See 03-13-9 DRIVE SHAFT REMOVAL/INSTALLATION.)
14. Remove in the order indicated in the table.
15. Install in the reverse order of removal.
16. Start the engine and
  - (1) Inspect for the engine oil, engine coolant, transaxle oil and fuel leakage.
  - (2) Inspect the ignition timing, idle speed and idle mixture. (See 01-10B-25 Ignition Timing Inspection.) (See 01-10B-26 Idle Speed Adjustment.) (See 01-10B-26 Idle Mixture Inspection.)
17. Perform a road test.

# MECHANICAL [FS]



N-m {kgf-m, ft-lbf}

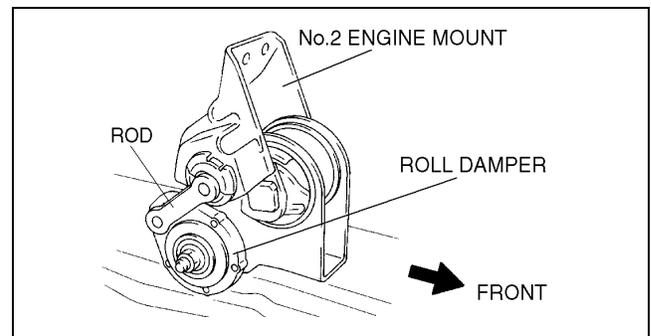
Z3U0110W997

1	Roll damper
2	Engine mount member
3	No.3 Engine mount (See 01-10B-23 No.3, No.4 Engine Mount Installation Note)
4	No.1 Engine mount

5	No.2 Engine mount
6	No.4 Engine mount (See 01-10B-23 No.3, No.4 Engine Mount Installation Note)
7	Engine, transaxle

## Roll damper Installation Note

1. Assemble the rod and roll damper as shown in the figure.



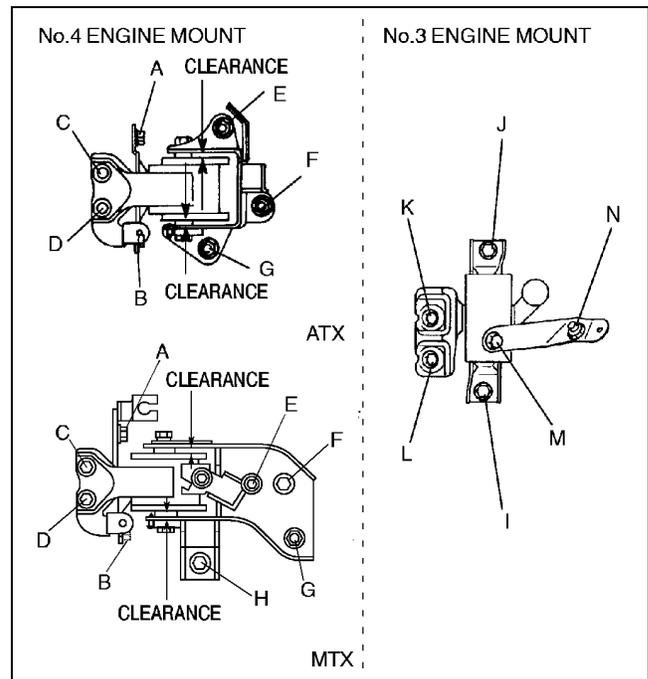
Z3U0110W991

## No.3, No.4 Engine Mount Installation Note

1. Hand tighten the No.3 and No.4 engine mount rubber bolts and nuts (A—M).
2. Tighten the No.4 engine mount rubber bolts and nuts (A—H).
3. Tighten the No.3 engine mount rubber bolts and nuts (I—N)
4. Measure the No.4 engine mount rubber clearance.
  - If not within the specification, repeat from step 1.

### Standard clearance

3.0—4.0 mm {0.12—0.15 in}



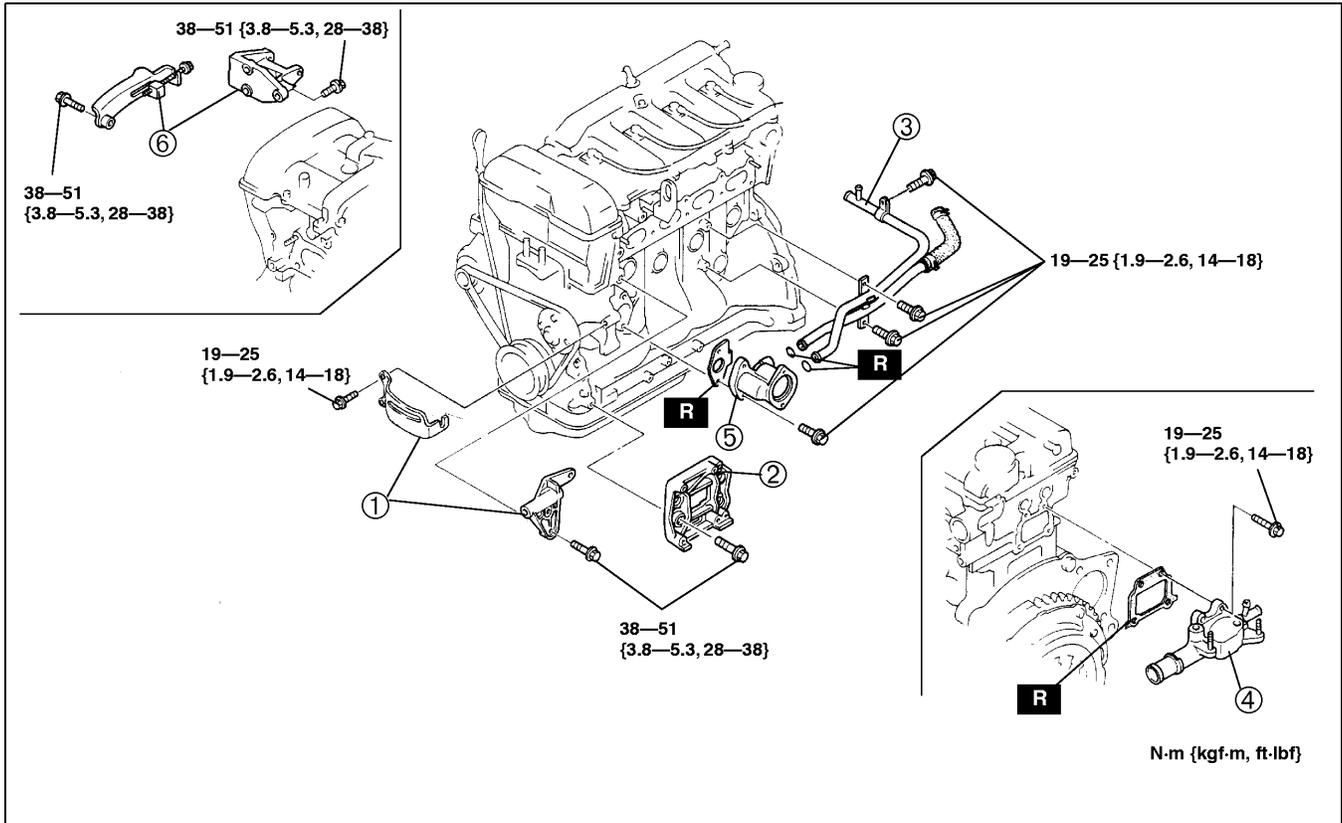
Z3U0110W996

# MECHANICAL [FS]

## ENGINE DISASSEMBLY/ASSEMBLY [FS]

A3U011002000W03

1. Disconnect the engine and transaxle. (See 05-15B-4 MANUAL TRANSAXLE (MTX) REMOVAL/INSTALLATION [G15M-R].) (See 05-17-31 AUTOMATIC TRANSAXLE (ATX) REMOVAL/INSTALLATION [FS].)
2. Remove the intake-air system. (See 01-13B-6 INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [FS].)
3. Remove the exhaust system. (See 01-15-1 EXHAUST SYSTEM REMOVAL/INSTALLATION.)
4. Remove the oil filter. (See 01-11-3 OIL FILTER REPLACEMENT.)
5. Remove the thermostat. (See 01-12-5 THERMOSTAT REMOVAL/INSTALLATION.)
6. Remove the ignition coil.
7. Remove the generator.
8. Disassemble in the order indicated in the table.
9. Assemble in the reverse order of disassembly.



X3U110WGK

1	P/S oil pump bracket
2	A/C compressor bracket
3	Water bypass pipe

4	Water outlet
5	Thermostat housing
6	Generator bracket

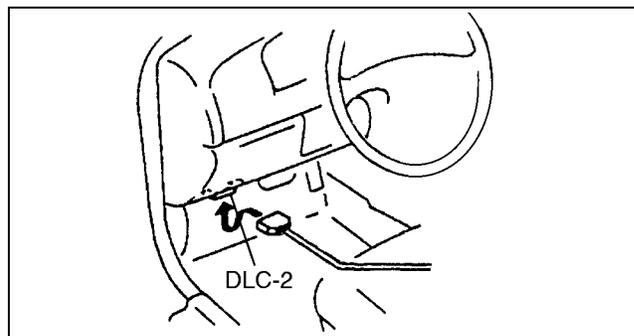
## ENGINE TUNE-UP [FS]

A3U011002000W04

### Engine Tune-up Preparation

1. Warm up the engine to normal operating temperature.
2. Shift the transaxle into neutral.
3. Turn off all electrical loads.
  - Headlight switch
  - Fan switch
  - Rear window defroster switch
  - A/C switch
4. Verify that the steering wheel is at straight ahead position.
5. Connect the **SSTs** (WDS or equivalent) to the DLC-2.
6. Access RPM PID.
7. Wait until the electrical fan stops.

01-10B



Z3U110WA5

### Ignition Timing Inspection

1. Perform "Engine Tune-up Preparation".
2. Verify that the RPM PID is within the specification.
  - If not as specified, adjust the idle speed. (See 01-10B-26 Idle Speed Adjustment.)

#### Specification

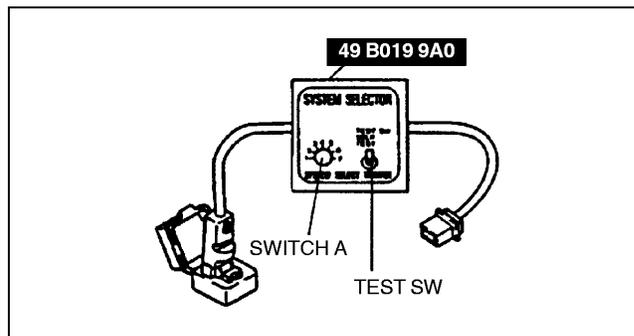
**650—750 (700±50) rpm**

3. Connect the timing light to the high-tension lead of the No.1 cylinder.
4. Verify that the timing mark (yellow) on the crankshaft pulley is within the specification.
  - If not as specified, inspect following.
    - CMP sensor
    - CKP sensor
    - TP sensor
    - ECT sensor
    - Neutral switch (MTX)
    - Clutch switch (MTX)
    - TR switch (ATX)
  - If the devices are normal, replace the PCM. (See 01-40B-7 PCM REMOVAL/INSTALLATION [FS].)

#### Ignition timing

**BTDC 9°—11° (10°±1°) (TIMING MARK [YELLOW])**

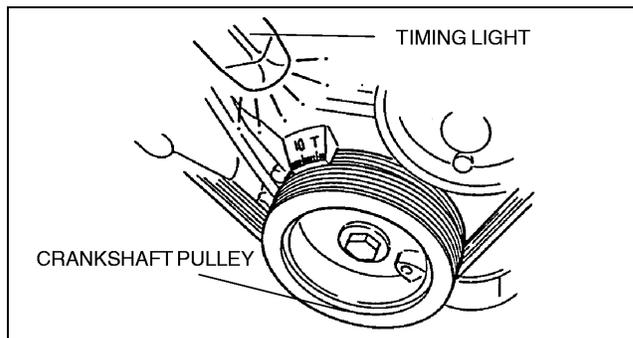
5. Connect the **SST** (System selector) to the DLC.
6. Set switch A to position 1.
7. Set the test switch to SELF TEST.



X3U110WGG

## MECHANICAL [FS]

8. Verify that the timing mark (yellow) on the crankshaft pulley is within the specification.
  - If not as specified, inspect the following.
    - CMP sensor
    - CKP sensor
    - TP sensor
    - ECT sensor
    - Neutral switch (MTX)
    - Clutch switch (MTX)
    - TR switch (ATX)
  - If the devices are normal, replace the PCM. (See 01-40B-7 PCM REMOVAL/INSTALLATION [FS].)



X3U110WGN

**Specification**  
BTDC 6°—18°

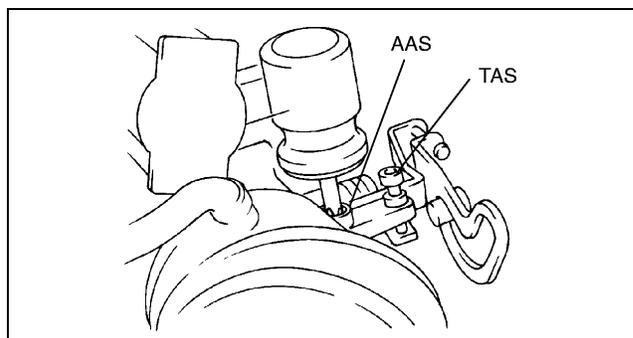
### Idle Speed Adjustment

1. Perform "Engine Tune-up Preparation".
2. Verify that the RPM PID is within the specification.
  - If not as specified, adjust the idle speed by turning the AAS.

**Specification**  
650—750 (700±50) rpm

### Caution

- The TAS is set at the factory and must not be adjusted. Any adjustment will negatively effect the engine performance.



X3U110WGP

3. Connect the **SST** (System selector) to the DLC.
4. Set switch A to position 1.
5. Set the test switch to SELF TEST.
6. Press **CLEAR** to clear previously selected items.
7. Disconnect the **SSTs**.

### Idle-up Speed Inspection

1. Perform "Engine Tune-up Preparation".
2. Connect the **SST** (System selector) to the DLC.
3. Set switch A to position 1.
4. Set the test switch to SELF TEST.
5. Verify that the idle speed is normal. (See 01-10B-26 Idle Speed Adjustment.)
6. Verify that the RPM PID is within the specification.
  - If not as specified with all load conditions, inspect the IAC valve.
  - If not as specified with some load condition, inspect the related input switches, harnesses, and connectors.

### Specification

Load condition	Idle-up speed (rpm)*1
E/L ON*2	650—750
P/S operating*3	700—800
A/C ON*4	700—800

\*1 : Excludes temporary idle speed drop just after the electrical loads (E/L) are turned on.

\*2 : Headlight is on, Fan switch is above 1st, Cooling fan is operating, Rear window defroster is on.

\*3 : Steering wheel is fully turned.

\*4 : A/C switch and fan switch are on.

### Idle Mixture Inspection

1. Perform "Engine Tune-up Preparation".
2. Verify that the idle speed and ignition timing are within the specification. (See 01-10B-25 Ignition Timing Inspection.) (See 01-10B-26 Idle Speed Adjustment.)
3. Turn the test mode off.
4. Warm up the engine by holding the engine speed at **2,500—3,000 rpm** for **approx. 3 min.**
5. Insert an exhaust gas analyzer to the tailpipe.

## 01-10B-26

6. Verify that the CO and HC concentrations are within the specified limits.
  - If not within the specified limits, inspect the following:
    - On-board diagnostic system (See 01-02B-15 DTC TABLE [FS].)
    - HO2S (See 01-40B-37 HEATED OXYGEN SENSOR (HO2S) INSPECTION [FS].)
    - Intake manifold vacuum (See 01-03B-56 Intake Manifold Vacuum Inspection.)
    - Fuel line pressure (See 01-14-6 FUEL PRESSURE INSPECTION.)
    - Ignition timing control
      - If the systems and devices are normal, replace the TWC. (See 01-15-1 EXHAUST SYSTEM REMOVAL/INSTALLATION.)