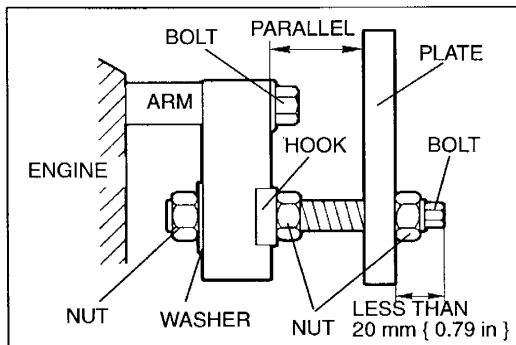


4. Assemble the **SST** (bolts, nuts, hooks, and plate) in the specified positions marked A, C, and F.
5. Install the **SST** assembly to the respective arms.



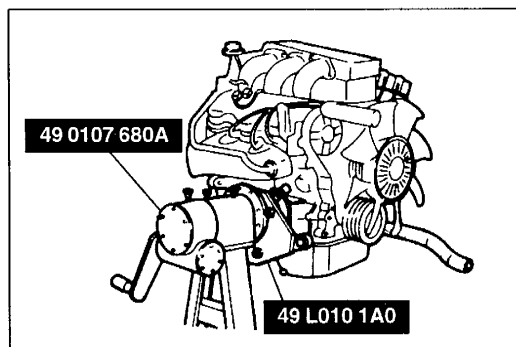
6. Adjust the **SST** (bolts) so that less than 20 mm { 0.79 in } of thread is exposed.
7. Make the **SST** (plate and arms) parallel by adjusting the **SST** (bolts and nuts).
8. Tighten the **SST** (bolts and nuts) to affix the **SST** firmly.
9. Install the engine on the **SST** (engine stand).

Warning

- Although the engine stand has a self-locking brake system, there is a possibility that the brake may not be effective in the following situations:

1. When the engine is held in an unbalanced position.
2. While rotating the engine, if it passes through an unbalanced position.

Either of these situations could lead to sudden, rapid movement of the engine and mounting stand handle and cause serious injury. Never keep the engine in an unbalanced position, and always hold the rotating handle firmly when turning the engine.

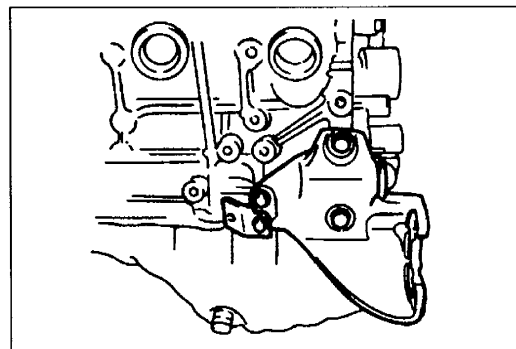


Dismounting

1. Remove the engine from the **SST** (engine stand).
2. Remove the **SST** (plate and arms) from the engine. (Refer to page B-24.)
3. Install the generator and P/S oil pump bracket.

Tightening torque:

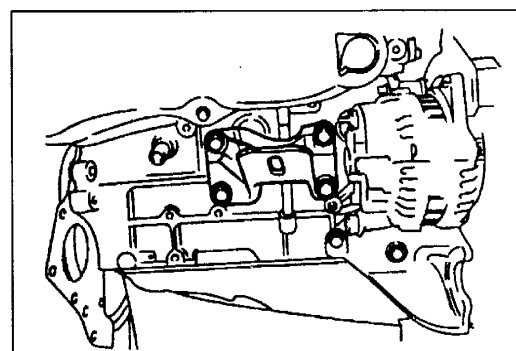
38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }



4. Install the engine mount (RH).

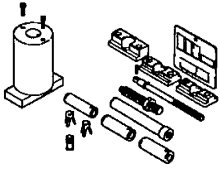
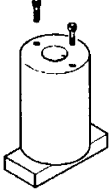
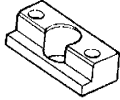
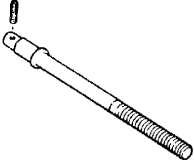
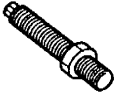
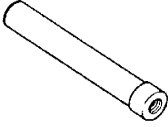



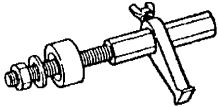

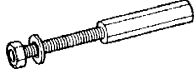

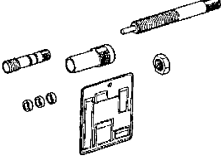
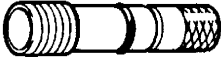
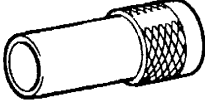
Tightening torque:


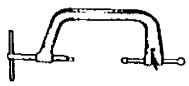
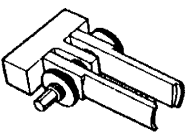
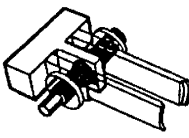
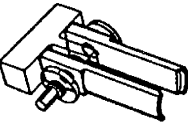
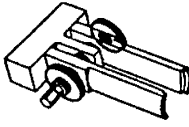
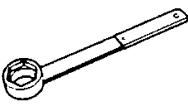
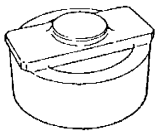
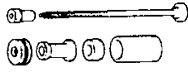
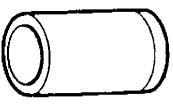
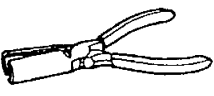
40—56 N·m { 4.0—5.8 kgf·m , 29—41 ft·lbf }



DISASSEMBLY / ASSEMBLY

PREPARATION SST

<p>49 L011 0A0B</p> <p>Piston pin setting tool set</p> 	<p>For removal / installation of piston pins</p>	<p>49 L011 001</p> <p>Support block body (Part of 49 L011 0A0B)</p> 	<p>For removal / installation of piston pins</p>
<p>49 L011 002</p> <p>Support block head (Part of 49 L011 0A0B)</p> 	<p>For removal / installation of piston pins</p>	<p>49 L011 004</p> <p>Screw (Part of 49 L011 0A0B)</p> 	<p>For removal / installation of piston pins</p>
<p>49 L011 005</p> <p>Stopper bolt (Part of 49 L011 0A0B)</p> 	<p>For removal / installation of piston pins</p>	<p>49 L011 006</p> <p>Puller & installer (Part of 49 L011 0A0B)</p> 	<p>For removal / installation of piston pins</p>
<p>49 L011 009</p> <p>Guide (Part of 49 L011 0A0B)</p> 	<p>For removal / installation of piston pins</p>	<p>49 L011 010</p> <p>Centering tool (Part of 49 L011 0A0B)</p> 	<p>For removal / installation of piston pins</p>
<p>49 L011 011</p> <p>Holder (Part of 49 L011 0A0B)</p> 	<p>For removal / installation of piston pins</p>	<p>49 E011 1A0</p> <p>Ring gear brake set</p> 	<p>For prevention of engine rotation</p>
<p>49 E011 105</p> <p>Stopper (Part of 49 E011 1A0)</p> 	<p>For prevention of engine rotation</p>	<p>49 E011 103</p> <p>Shaft (Part of 49 E011 1A0)</p> 	<p>For prevention of engine rotation</p>
<p>49 E011 104</p> <p>Collar (Part of 49 E011 1A0)</p> 	<p>For prevention of engine rotation</p>	<p>49 L012 0A0</p> <p>Installer set, valve seal, & valve guide</p> 	<p>For installation of valve seals</p>
<p>49 L012 001</p> <p>Installer (Part of 49 L012 0A0)</p> 	<p>For installation of valve seals</p>	<p>49 L012 002</p> <p>Body (Part of 49 L012 0A0)</p> 	<p>For installation of valve seals</p>

49 L012 005 Spacer (Part of 49 L012 0A0)		For installation of valve seals	49 0636 100B Arm, valve spring lifter		For removal / installation of valves
49 B012 0A2 Pivot		For removal / installation of valves	49 B012 012 Body (Part of 49 B012 0A2)		For removal / installation of valves
49 B012 013 Foot (Part of 49 B012 0A2)		For removal / installation of valves	49 B012 014 Lock nut (Part of 49 B012 0A2)		For removal / installation of valves
49 H012 010 Box wrench		For removal / installation of camshaft pulley	49 G019 017 Installer, oil seal		For installation of rear oil seal
49 G034 2A0 Replace set, rubber bush		For installation of front oil seal/ camshaft oil seal	49 G034 202 Support block (Part of 49 G034 2A0)		For installation of front oil seal/ camshaft oil seal
49 S120 170 Remover, valve seal		For removal of valve seals	—	—	—

1. Code or arrange all identical parts (such as pistons, piston rings, connecting rods, and valve springs etc.) so that they can be reinstalled in the cylinder from which they were removed.
2. Clean the parts by using a steam cleaner. Blower dry with compressed air.
3. Clean all parts before reinstallation.
4. Apply clean engine oil to all sliding and rotating parts.
5. Replace plain bearings if they are peeled, burned, or otherwise damaged.
6. Tighten all bolts and nuts to the specified torque.

Warning

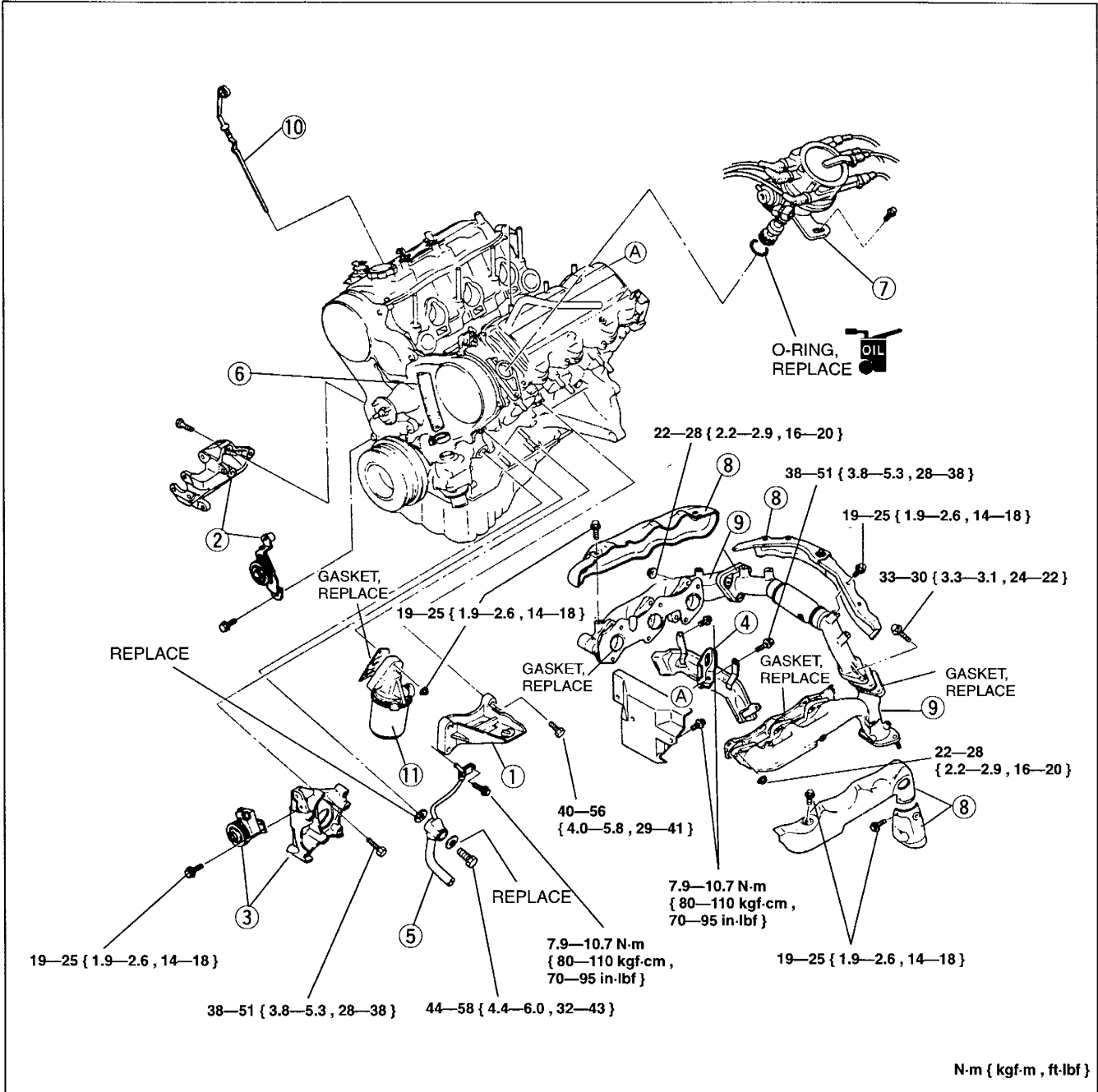
- Continuous exposure with USED engine oil has caused skin cancer in laboratory mice. Protect your skin by washing with soap and water immediately after this work.

AUXILIARY PARTS

1. Remove the oil drain plug and drain the engine oil. After draining the engine oil, install the oil drain plug.

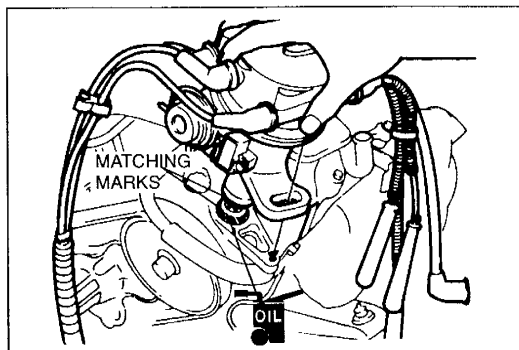
Tightening torque: 30—41 N·m { 3.0—4.2 kgf·m , 22—30 ft·lbf }

2. Remove the intake manifold assembly. (Refer to section F.)
3. Disassemble in the order shown in the figure.
4. Assemble in the reverse order of disassembly, referring to **Assembly Note**.
5. Install the intake manifold assembly. (Refer to section F.)



1. Engine mount (LH)
2. P/S idler pulley and bracket
3. A/C idler pulley and compressor bracket
4. Engine hanger
5. Water inlet pipe
6. Water bypass hose

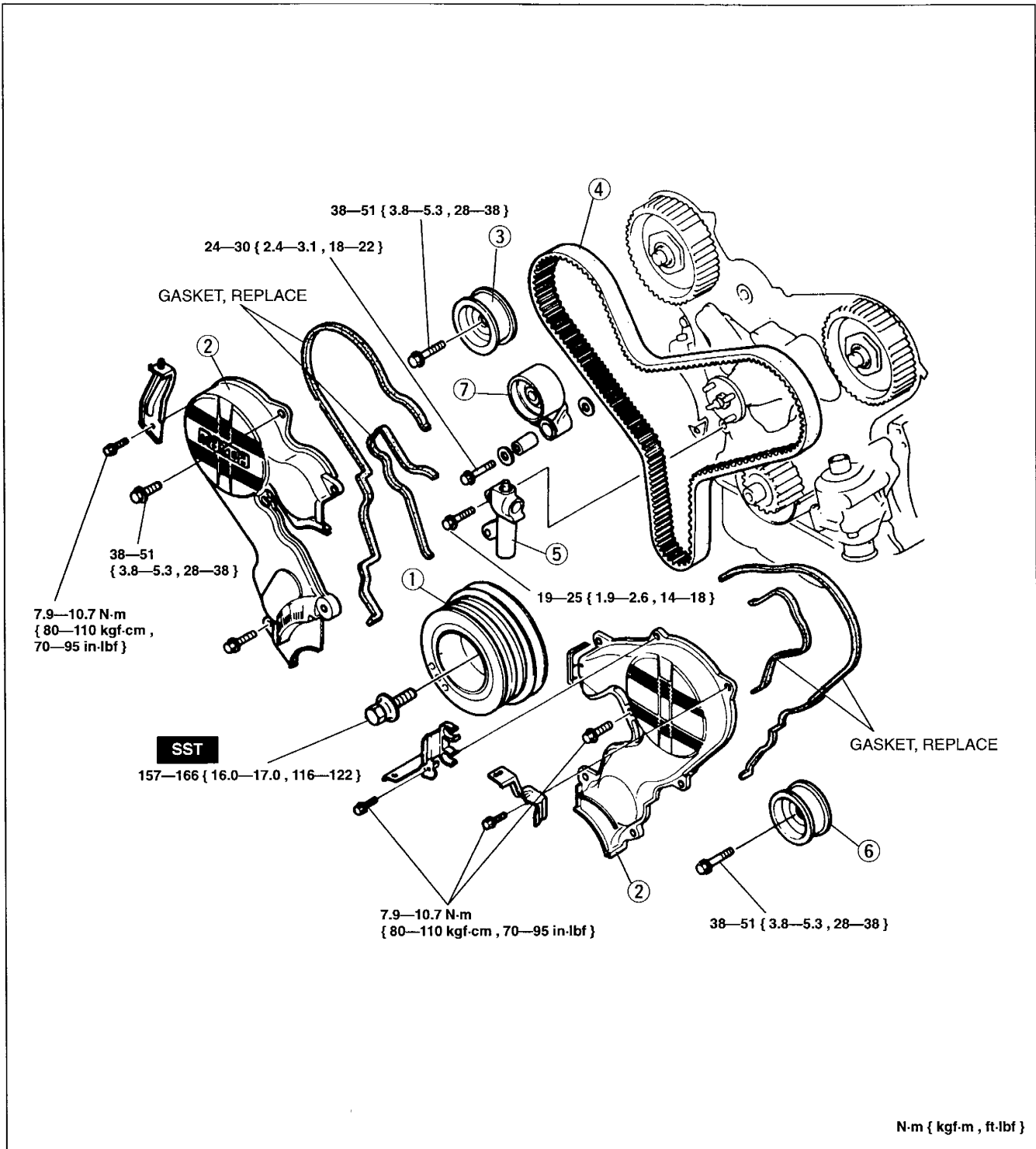
7. Distributor
Assembly Note page B-29
8. Exhaust manifold insulator
9. Exhaust manifold assembly
10. Dipstick
11. Oil filter assembly

**Assembly Note****Distributor**

1. Apply clean engine oil to the new O-ring, and position it on the distributor.
2. Apply clean engine oil to the drive gear, and match the matching marks as shown.
3. Install the distributor into the cylinder head with the marks facing straight up.
4. Hand tighten the distributor mounting bolt.

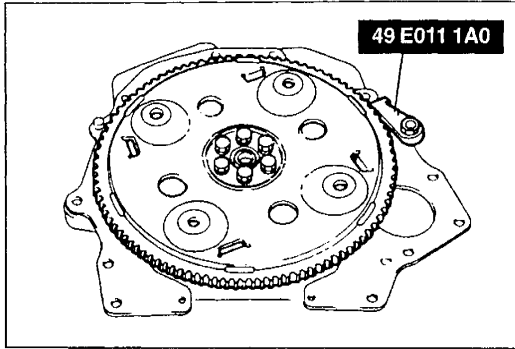
TIMING BELT

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



- | | |
|-----------------------|-----------------|
| 1. Crankshaft pulley | |
| Disassembly Note | page B-31 |
| Assembly Note | page B-33 |
| 2. Timing belt cover | |
| Assembly Note | page B-32 |
| 3. Upper idler pulley | |

- | | |
|-------------------------------|-----------------|
| 4. Timing belt | |
| Disassembly Note | page B-31 |
| Assembly Note | page B-31 |
| 5. Timing belt auto tensioner | |
| Assembly Note | page B-31 |
| 6. Lower idler pulley | |
| 7. Tensioner pulley | |



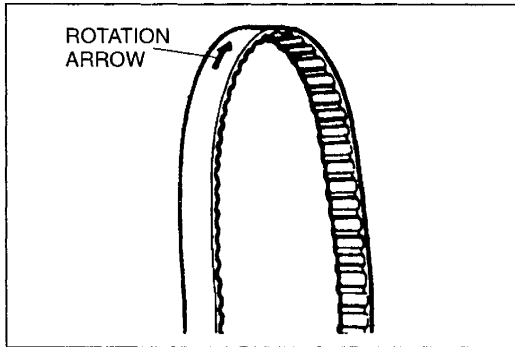
Disassembly Note Crankshaft pulley

1. Hold the drive plate by using the SST.

Caution

- The crankshaft position sensor rotor is on the rear of the pulley, and can be damaged easily.

2. Remove the crankshaft pulley lock bolt.
3. Remove the crankshaft pulley.

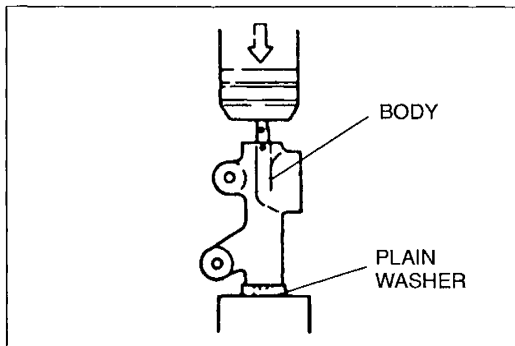


Timing belt

1. Mark the timing belt rotation for proper reinstallation if it is reused.
2. Remove the timing belt.

Caution

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



Assembly Note

Timing belt auto tensioner

1. Set a plain washer at the bottom of the tensioner body to prevent damage to the body plug.

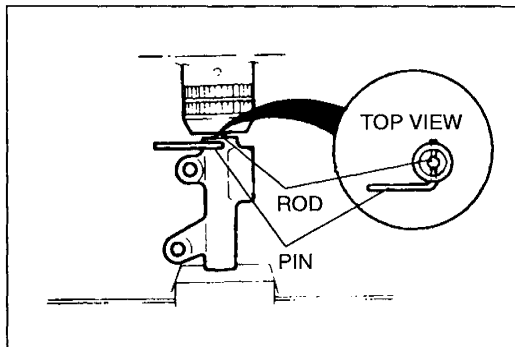
Caution

- Pressing the tensioner rod with more than 9,807 N { 1,000 kgf , 2,200 lbf } can damage the tensioner spring.

2. Press in the tensioner rod slowly by using a press.

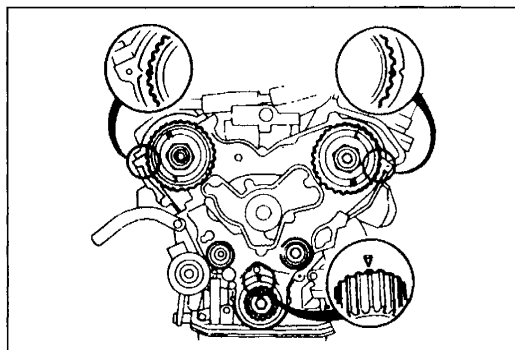
3. Insert a pin to hold the tensioner rod in the body as shown.

4. Install the timing belt auto tensioner to the cylinder block.



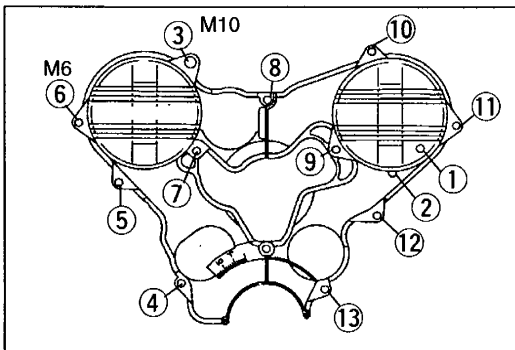
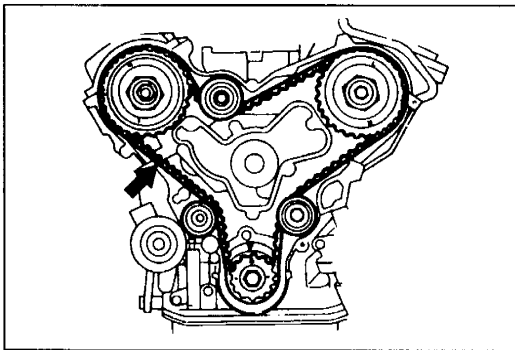
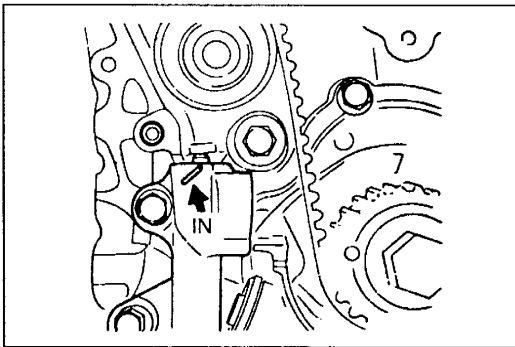
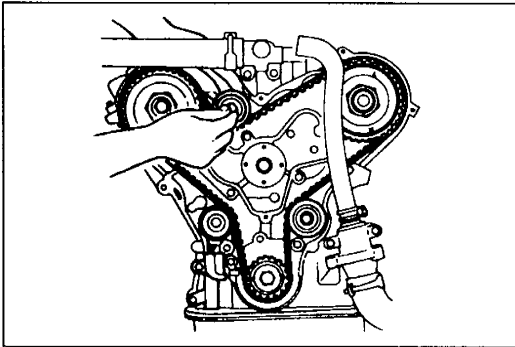
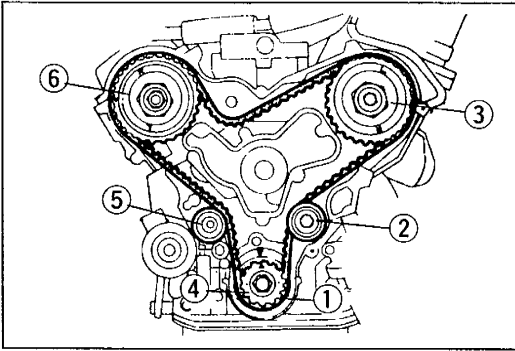
Tightening torque:

19—25 N·m { 1.9—2.6 kgf·m , 14—18 ft·lbf }



Timing belt

1. Install the crankshaft pulley lock bolt and hand tighten it.
2. Verify that the timing marks on the pulleys are aligned.



Caution

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

3. Position the timing belt in the original direction, and hang it on each pulley in the order shown.

4. Install the upper idler pulley.

Tightening torque:

38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

5. Turn the crankshaft clockwise twice and align the timing marks.
6. Check that the timing marks are correctly aligned. If not, repeat steps 3—6.

7. Remove the pin from the auto tensioner.

8. Turn the crankshaft clockwise twice and align the timing marks.

9. Reconfirm that the timing marks are correctly aligned.

10. Check the timing belt deflection by applying moderate pressure **98 N { 10 kgf , 22 lbf }** midway between the timing belt pulley and the auto tensioner. If not correct, repeat the adjustment starting from step 4 above.

Timing belt deflection: 5—7 mm { 0.20—0.27 in }

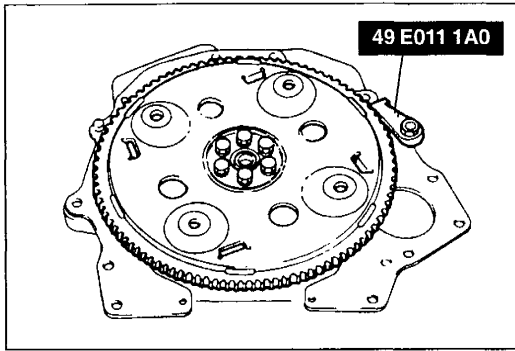
Timing belt cover

1. Install the timing belt covers with new gaskets.
2. Tighten the bolts in the order shown.

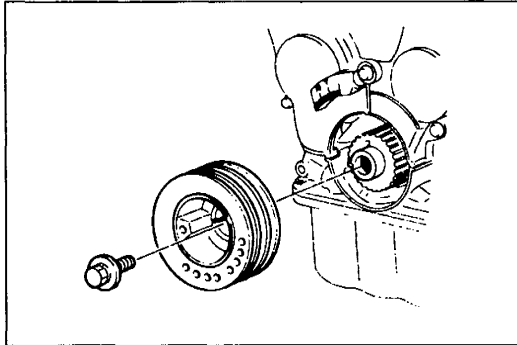
Tightening torque

M6: 7.9—10.7 N·m { 80—110 kgf·cm , 70—95 in·lbf }

M10: 38—51 N·m { 3.8—5.3 kgf·m , 28—38 ft·lbf }

**Crankshaft pulley**

1. Hold the drive plate by using the SST.



2. Remove the crankshaft pulley lock bolt.

Caution

- The crankshaft position sensor rotor is on the rear of the pulley, and can be damaged easily.

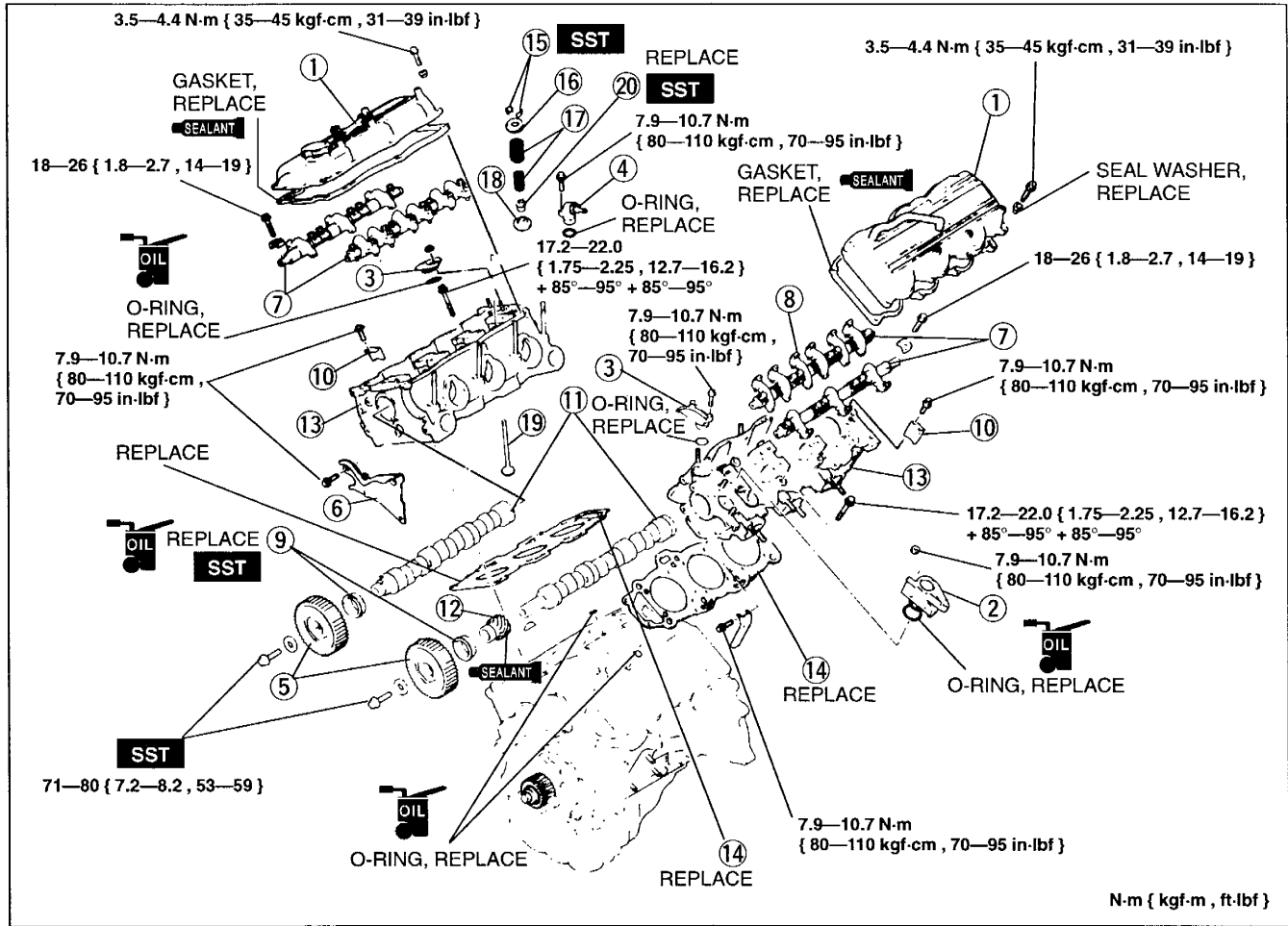
3. Install the crankshaft pulley onto the crankshaft.

4. Tighten the crankshaft pulley lock bolt.

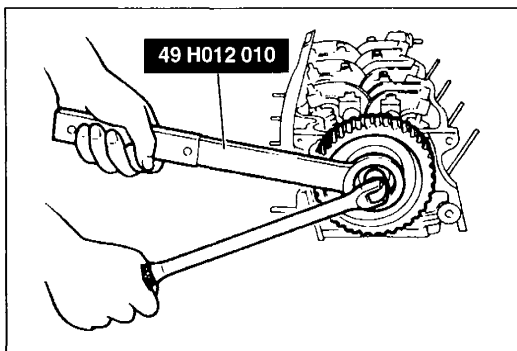
Tightening torque: 157—166 N·m
{ 16.0—17.0 kgf·m , 116—122 ft·lbf }

CYLINDER HEAD

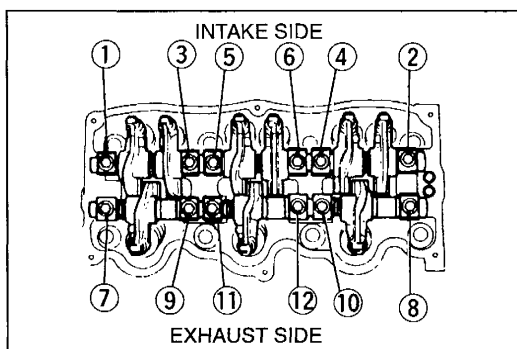
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



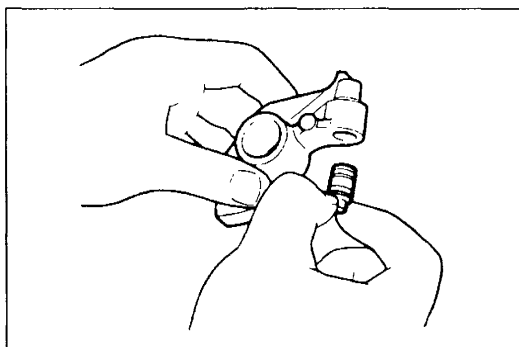
1. Cylinder head cover Assembly Note	page B-40	12. Distributor drive gear Assembly Note	page B-38
2. Distributor spacer		13. Cylinder head Disassembly Note	page B-35
3. Brind cover		Inspection	page B-54
4. PCV valve		Assembly Note	page B-37
5. Camshaft pulley Disassembly Note	page B-35	14. Cylinder head gasket Assembly Note	page B-37
Assembly Note	page B-39	15. Valve keeper Disassembly Note	page B-35
6. Seal plate		Assembly Note	page B-37
7. Rocker arm and rocker arm shaft Disassembly Note	page B-35	16. Upper valve spring seat	
Inspection	page B-60	17. Outer and inner valve spring Inspection	page B-58
Assembly Note	page B-39	Assembly Note	page B-36
8. HLA Disassembly Note	page B-35	18. Lower valve spring seat	
Inspection	page B-60	19. Valve Inspection	page B-55
Assembly Note	page B-38	20. Valve seal Disassembly Note	page B-36
9. Camshaft oil seal Assembly Note	page B-38	Assembly Note	page B-36
10. Thrust plate			
11. Camshaft Disassembly Note	page B-35		
Inspection	page B-59		
Assembly Note	page B-38		

**Disassembly Note****Camshaft pulley**

Loosen the camshaft pulley lock bolt by using the SST.

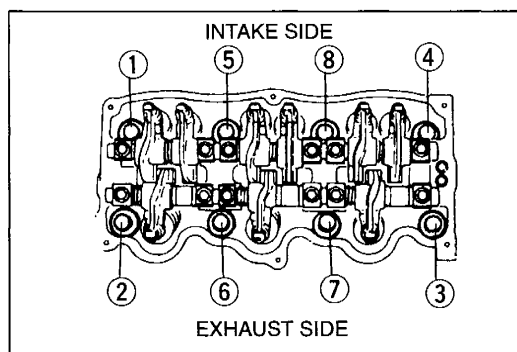
**Rocker arm and rocker arm shaft**

1. Loosen the bolts in two or three steps in the order shown.
2. Identify the rocker arm and rocker arm shaft assembly parts so that they can be reinstalled in the same locations from which they were removed.
3. Remove the rocker arm and rocker arm shaft assembly together with the bolts.

**HLA****Caution**

- The HLA must be reinstalled in the same positions from which they were removed. If they are not, it can cause premature and uneven wear.

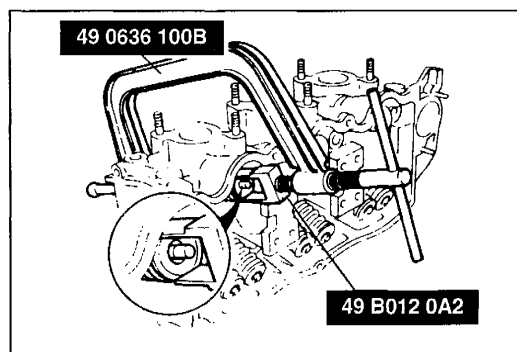
Remove the HLA only for inspection. Remove by hand or use pliers protected with a rag.

**Camshaft**

Before removing the thrust plate, measure the camshaft end play. (Refer to page B-60.)

Cylinder head

1. Loosen the cylinder head bolts in two or three steps in the order shown.
2. Remove the cylinder head bolts.
3. Remove the cylinder heads.

**Valve keeper**

1. Set the SST against the upper valve spring seat as shown.
2. Compress the spring and remove the valve keepers.