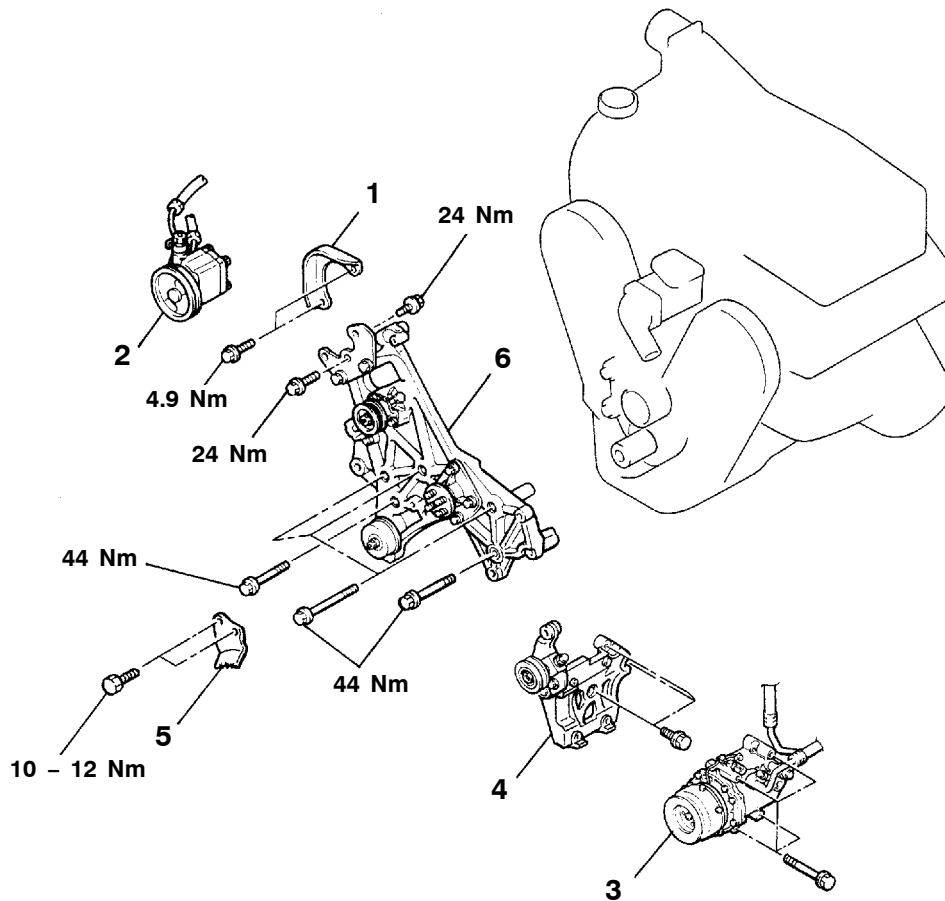


TIMING BELT

REMOVAL AND INSTALLATION

Pre-removal Operation

- Engine Coolant Draining and Refilling (Refer to GROUP 14 – On-vehicle Service.)
- Cooling Fan Removal (Refer to GROUP 14 – Cooling Fan.)
- Alternator Removal and Installation (Refer to GROUP 16 – Alternator.)

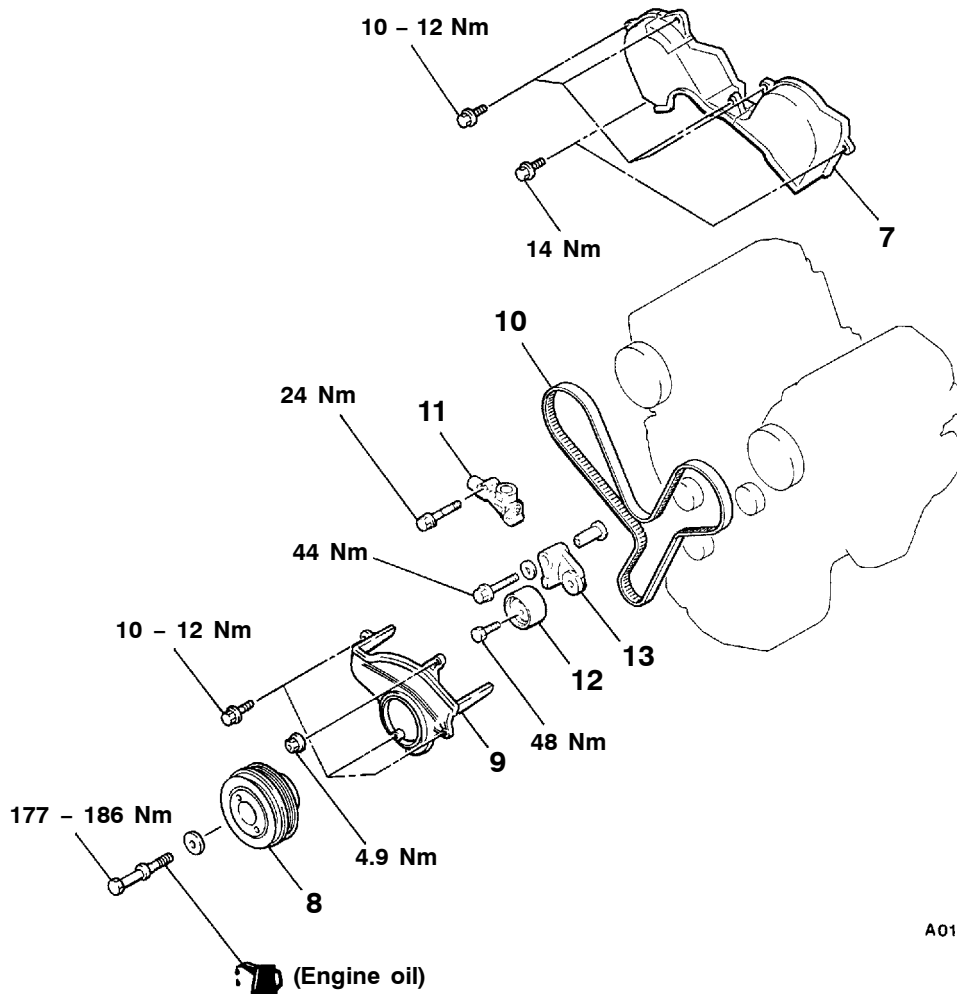


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Removal steps

1. Cover
2. Power steering oil pump assembly
3. A/C compressor assembly
4. Compressor bracket
5. Timing indicator bracket
6. Accessory mount assembly





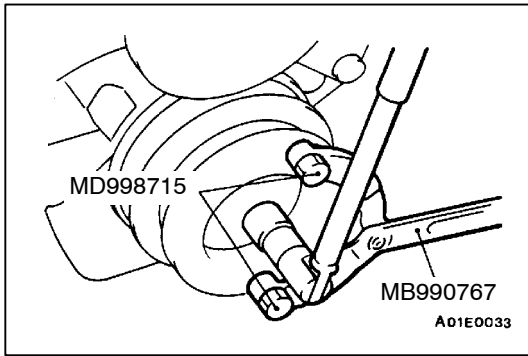
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- ◀B▶ ▶C▶ 7. Timing belt upper cover assembly
- ◀C▶ ▶B▶ ▶A▶ 8. Crankshaft pulley
- ▶C▶ ▶B▶ ▶A▶ 9. Timing belt lower cover assembly
- ▶C▶ ▶B▶ ▶A▶ 10. Timing belt
- ▶C▶ ▶B▶ ▶A▶ 11. Auto-tensioner
- ▶C▶ ▶B▶ ▶A▶ 12. Tension pulley
- ▶C▶ ▶B▶ ▶A▶ 13. Tensioner arm assembly

REMOVAL SERVICE POINTS

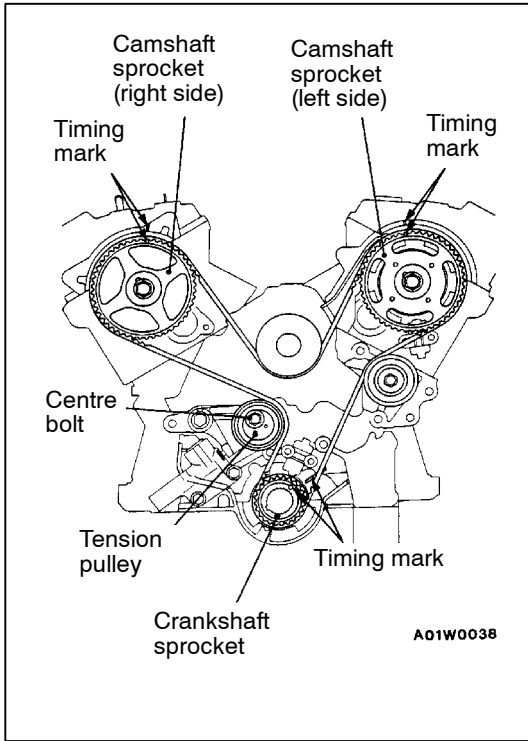
◀A▶ POWER STEERING OIL PUMP ASSEMBLY / A/C COMPRESSOR ASSEMBLY REMOVAL

1. Do not disconnect the hoses to remove the pump and compressor.
2. Support the removed pump and compressor with a wire, etc. so that they will not get in the way while working.



◀B▶ CRANKSHAFT PULLEY REMOVAL

Use special tools to remove the crankshaft pulley from the crankshaft.



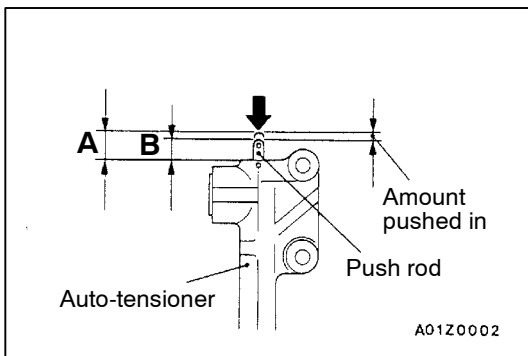
◀C▶ TIMING BELT REMOVAL

1. Turn the crankshaft clockwise to align each timing mark and to set the No. 1 cylinder to compression top dead centre.

Caution

Never turn the crankshaft counterclockwise.

2. If the timing belt is to be reused, chalk mark the flat side of the belt with an arrow indicating the clockwise direction.
3. Loosen the centre bolt of the tension pulley, and then remove the timing belt.



INSTALLATION SERVICE POINTS

▶A◀ AUTO-TENSIONER INSTALLATION

1. While holding the auto-tensioner by hand, press the end of the push rod against a metal surface (such as the cylinder block) with a force of 98 – 196 Nm and measure how far the push rod is pushed in.

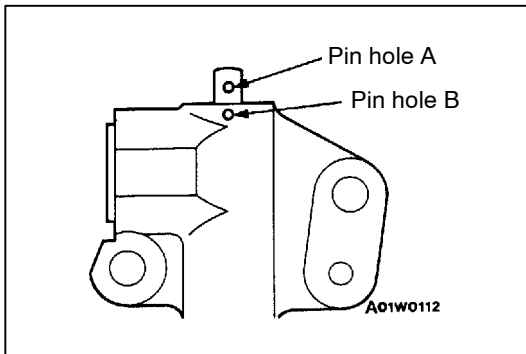
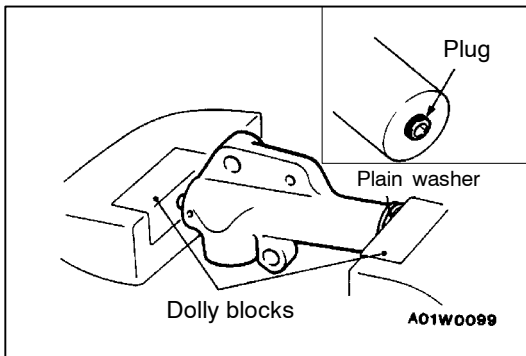
Standard value: Within 1 mm

A: Length when no force is applied

B: Length when force is applied

A – B: Amount pushed in

2. If it is not within the standard value, replace the auto-tensioner.



- Place two dolly blocks in a vice as shown in the illustration, and then place the auto-tensioner in the vice.

Caution

- Place the auto-tensioner perpendicular to the jaws of the vice.
- If there is a plug at the base of the aut-tensioner, insert a plain washer onto the end of the auto-tensioner to protect the plug.

- Slowly compress the push rod of the auto-tensioner until pin hole A in the push rod is aligned with pin hole B in the cylinder.

Caution

Never compress the push rod too fast, or the push rod may be damaged.

- Insert the setting pin into the pin holes once they are aligned.

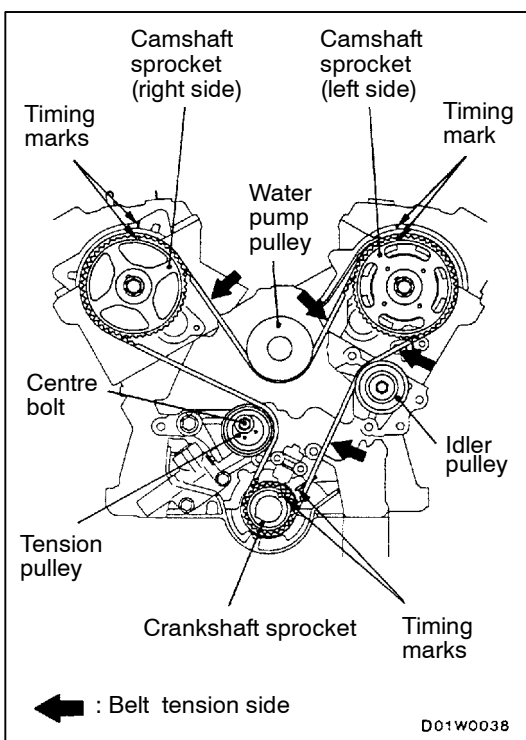
NOTE

If replacing the auto-tensioner, the pin will already be inserted into the pin holes of the new part.

- Install the auto-tensioner to the engine.

Caution

Do not remove the setting pin from the auto-tensioner.

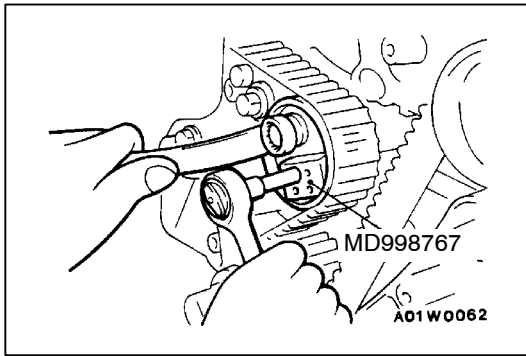
**►B◄ TIMING BELT INSTALLATION**

- Align the timing marks of the camshaft sprocket with those of crankshaft sprocket.
- Install the timing belt by the following procedure so that there is no deflection in the timing belt between each sprocket and pulley.
 - Crankshaft sprocket
 - Idler pulley
 - Camshaft sprocket (Left side)
 - Water pump pulley
 - Camshaft sprocket (Right side)
 - Tension pulley

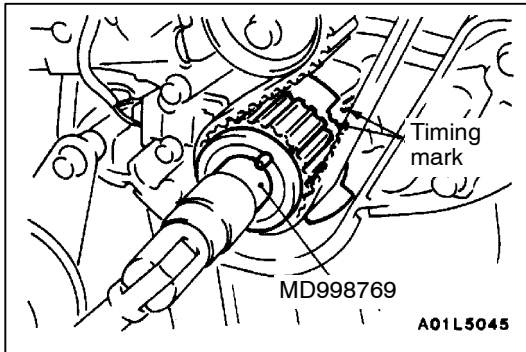
Caution

The camshaft sprocket (right side) can turn easily due to the spring force applied, so be careful not to get your fingers caught.

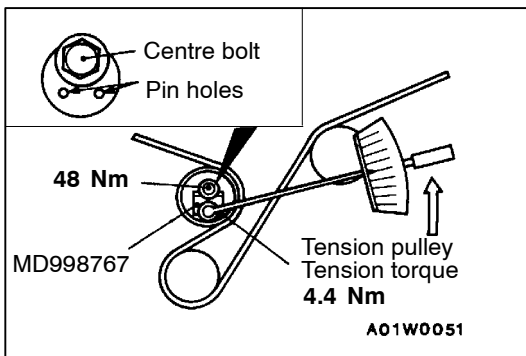
- Turn the camshaft sprocket counterclockwise until the tension side of the timing belt is firmly stretched. Check all timing marks again.



4. Use special tool to push the tensioner pulley into the timing belt, and then temporarily tighten the centre bolt.



5. Use special tool to turn the crankshaft 1/4 turn counterclockwise and then turn it again clockwise until the timing marks are aligned.

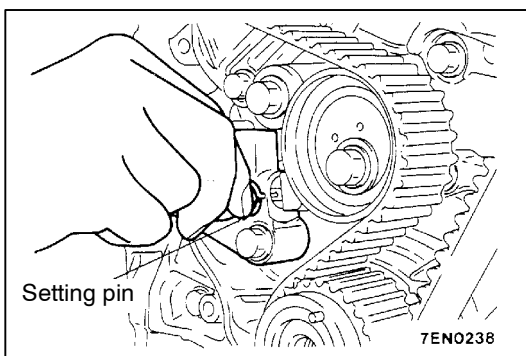


6. Loosen the centre bolt of the tensioner pulley. Use special tool and a torque wrench to apply the standard torque to the timing belt as shown in the illustration. Then tighten the centre bolt to the specified torque.

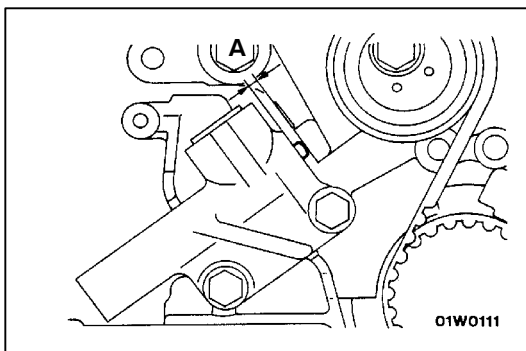
Standard value: 4.4 Nm
<Timing belt tension torque>

Caution

When tightening the centre bolt, be careful that the tensioner pulley does not turn with the bolt.



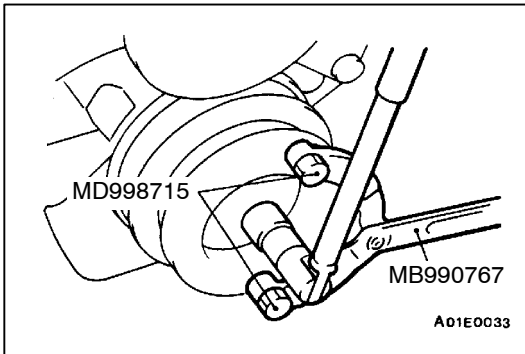
7. Remove the setting pin that has been inserted into the auto-tensioner.
8. Turn the crankshaft two turns clockwise to align the timing marks.



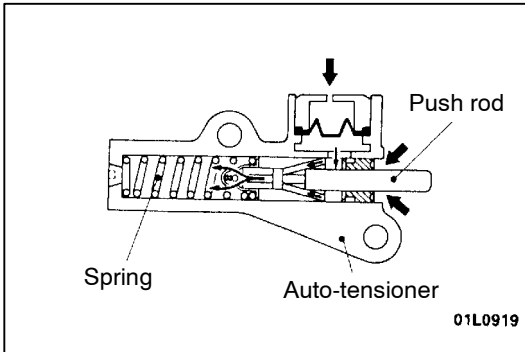
9. Wait for at least five minutes, and then check that the auto-tensioner pushrod extends within the standard value.

Standard value (A): 3.8 – 5.0 mm

10. If no, repeat the operation in steps (5) to (9) above.
11. Check again that the timing marks of each sprocket are aligned.

**►◀ CRANKSHAFT PULLEY INSTALLATION**

Use special tools to install the crankshaft pulley.

**INSPECTION**

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AUTO-TENSIONER

- Check the auto-tensioner for possible leaks.
- Check the push rod for cracks.