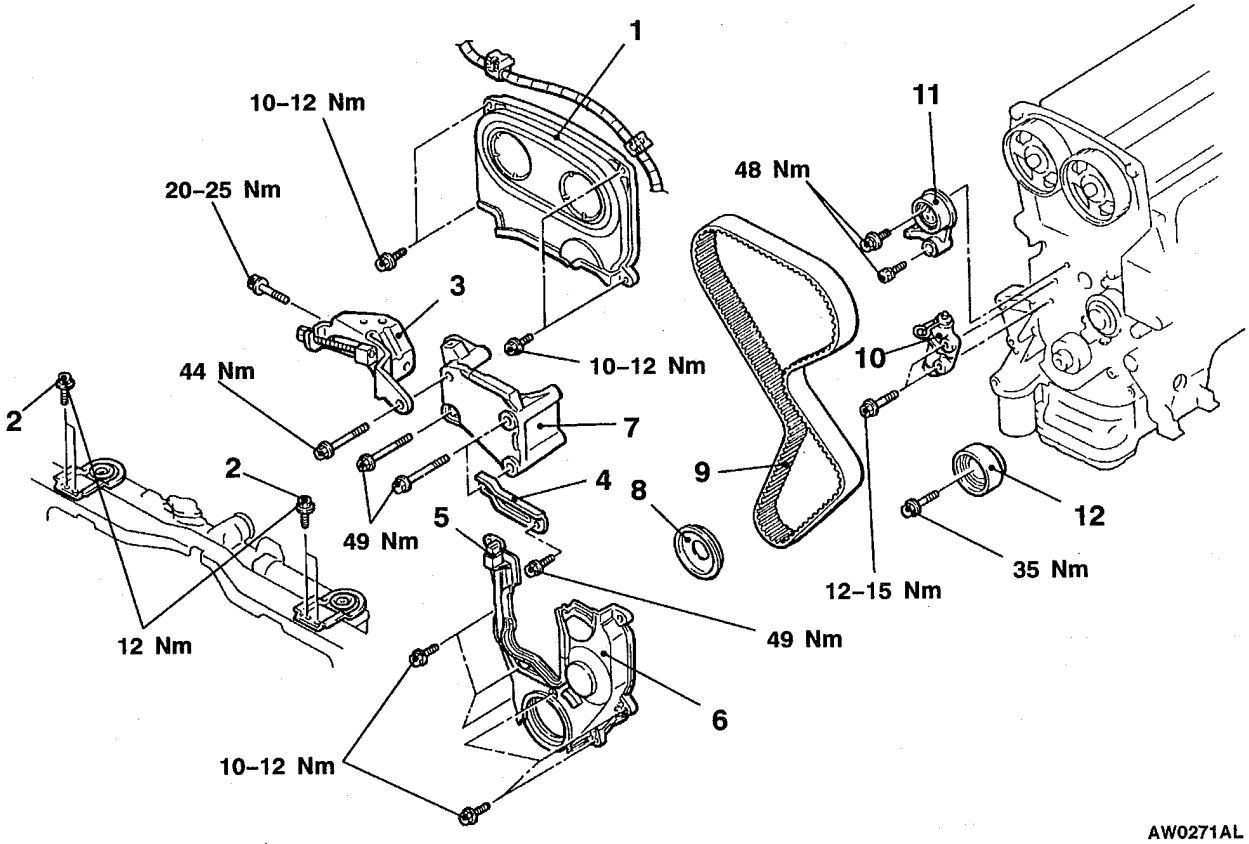
TIMING BELT

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
- Engine Cover Removal and Installation
- Air Intake Duct Removal and Installation (Refer to GROUP 15 – Air Cleaner and Resonance Tank.)
- Crankshaft Pulley Removal and Installation (Refer to P.11A-17.)

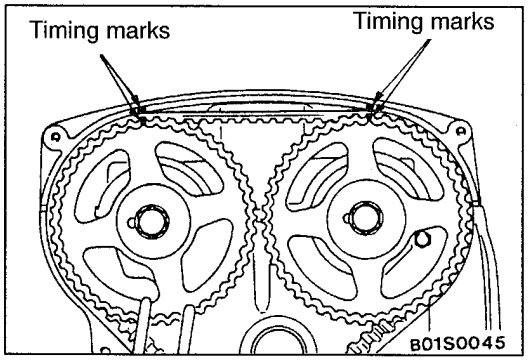


Removal steps

1. Timing belt front upper cover
2. Radiator upper installation bolts
3. Alternator brace
4. Power steering oil pump bracket stay
5. Crank angle sensor connector
6. Timing belt front lower cover
7. Accessory mount
8. Front flange

◀A▶ ▶C◀ ▶B◀ ▶A◀ • Timing belt tension adjustment

9. Timing belt
10. Auto tensioner
11. Tensioner pulley and arm assembly
12. Idler pulley



REMOVAL SERVICE POINT

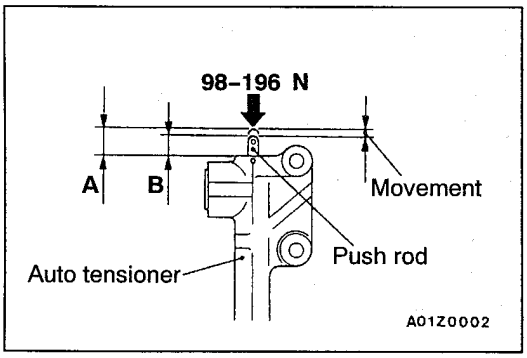
◀A▶ TIMING BELT REMOVAL

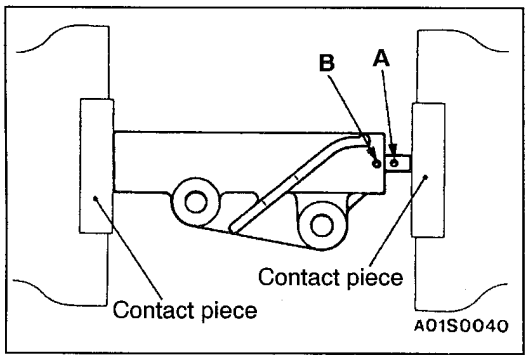
1. Turn the crankshaft clockwise to align each timing mark.

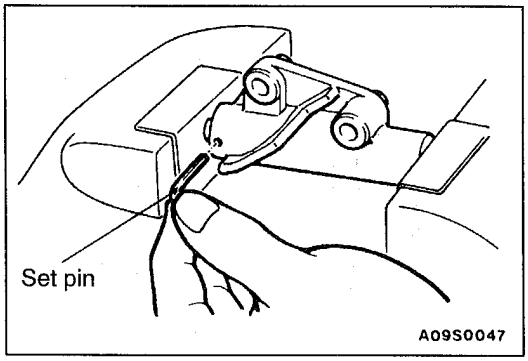
   Caution
   The crankshaft must always be turned clockwise.

2. Loosen the tensioner pulley center bolt and remove the timing belt.

   Caution
   If the timing belt is to be re-used, use chalk to mark (on its flat side) an arrow indicating the clockwise direction.







INSTALLATION SERVICE POINTS

▶A◀ AUTO TENSIONER INSTALLATION

1. Apply 98–196 N force to the push rod of the auto tensioner by pressing it against a metal (cylinder block, etc.), and measure the movement of the push rod.

   Standard value:
   Within 1 mm
   A: Length when it is free (not pressed)
   B: Length when it is pressed
   A – B: Movement

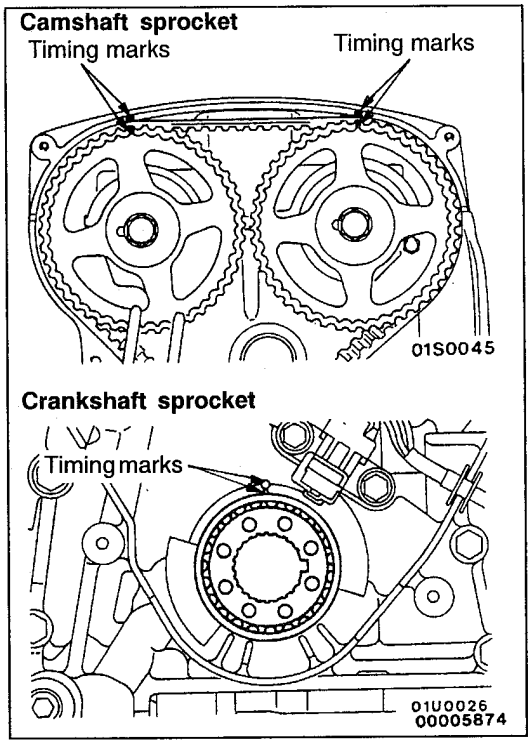
2. If it is out of the standard value, change the auto tensioner.
3. Use a press or vice to gently compress the auto tensioner push rod until pin hole A of the push rod and pin hole B of the tensioner cylinder are aligned.

   Caution
   If the compression speed is too fast, the push rod may become damaged, so be sure to carry out this operation slowly.

4. Once the holes are aligned, insert the set pin.

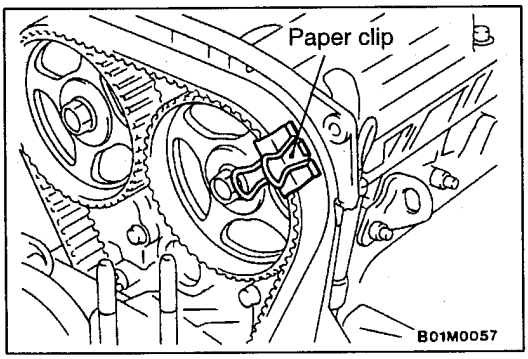
   NOTE
   When replacing the auto tensioner with a new part, the pin will be in the auto tensioner.

5. Install the auto tensioner to the engine.

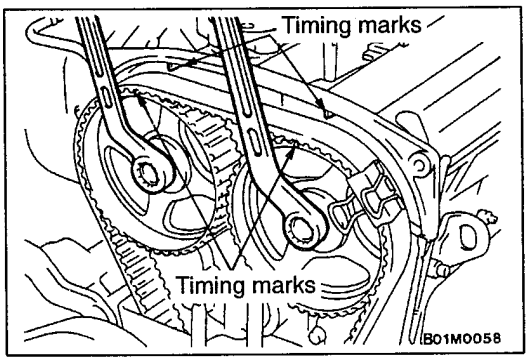


▶B◀ TIMING BELT INSTALLATION

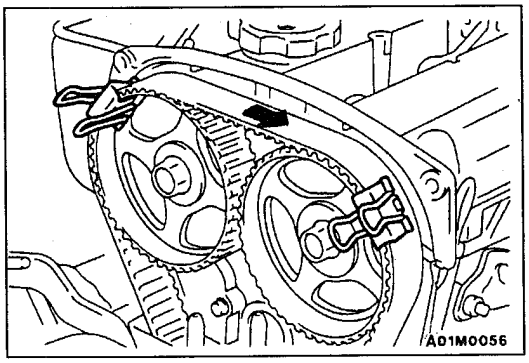
1. Align the timing marks of each camshaft sprocket and the crankshaft sprocket.
2. Loosen the tensioner pulley center bolt.
3. Move the crankshaft sprocket half a tooth width in the anti-clockwise direction.



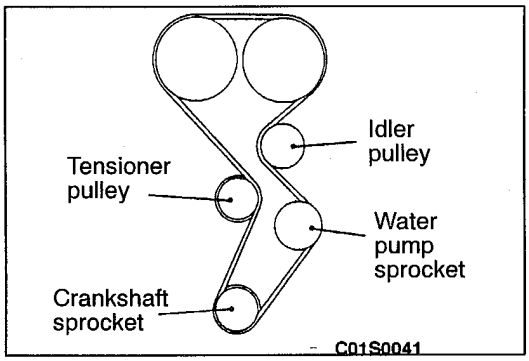
4. Place the timing belt on the exhaust-side camshaft sprocket, and hold it in the position shown in the illustration with a paper clip.



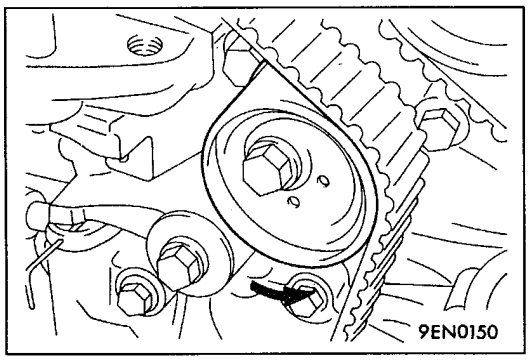
5. Place the timing belt on the intake-side sprocket while using two wrenches to align the timing marks.



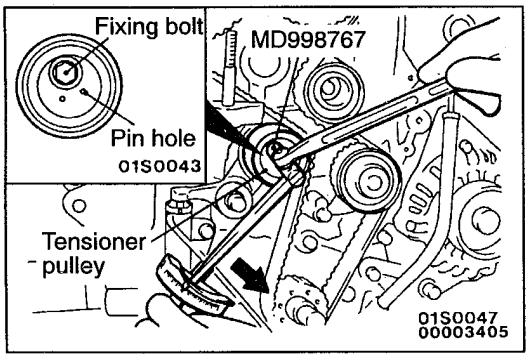
6. Hold the belt in the position shown in the illustration with another paper clip.



7. Place the belt onto the idler pulley, water pump sprocket, crankshaft sprocket and tensioner pulley in that order.
8. Remove the two paper clips.



9. Lift the tensioner pulley in the direction of the arrow and tighten the tensioner pulley bolt.
10. Check to be sure that all timing marks are aligned.
11. Adjust the timing belt tension.

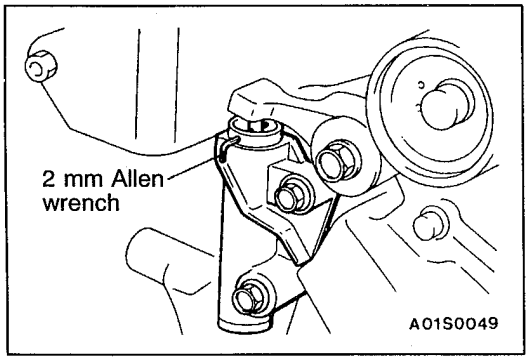


▶C◀ TIMING BELT TENSION ADJUSTMENT

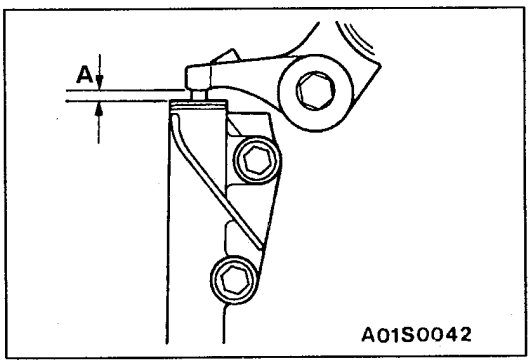
1. After turning the crankshaft a 1/4 turn anti-clockwise, turn it clockwise to the position where the timing marks are aligned.
2. Loosen the fixing bolt of the tensioner pulley and using the special tool and a torque wrench, apply tension to the timing belt; then tighten the fixing bolt at the specified torque.

   Standard Value:
   2.5 – 4.0 Nm [timing belt tension torque (reference value)]

   Caution
   When tightening the fixing bolt, ensure that the tensioner pulley shaft doesn't rotate with the bolt.



3. Take out the 2 mm Allen wrench from the auto tensioner. At this time, check to be sure that 2 mm Allen wrench can be pulled out easily.
   Turn the crankshaft clockwise 2 turns, and after leaving it in this position for 5 minutes or more, check again to be sure that the auto tensioner 2 mm Allen wrench can be pulled out or inserted easily.



NOTE
Even if the 2 mm Allen wrench cannot be easily inserted, then it is satisfactory if the amount of protrusion of the auto tensioner rod is within the standard value.

Standard value (A): 3.8 – 4.5 mm

If it is outside the standard value, repeat the operations in steps 1 to 4.

4. Check to be sure that the timing marks on all sprockets are aligned.