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Initial Checks

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INITIAL CHECKS (PRIOR TO REMOVAL)

PURPOSE

Checking and recording the [ignition timing](#) and manifold vacuum level before and after the timing belt replacement allows for two assurances:

- Initial conditions are correct.
- Verifies the quality of the job after the belt has been installed.

WHY

[Ignition Timing](#)

Ignition timing is the position of the piston on its compression stroke when the ignition coil fires the associated sparkplug.

[Ignition timing](#) is affected by two sources.

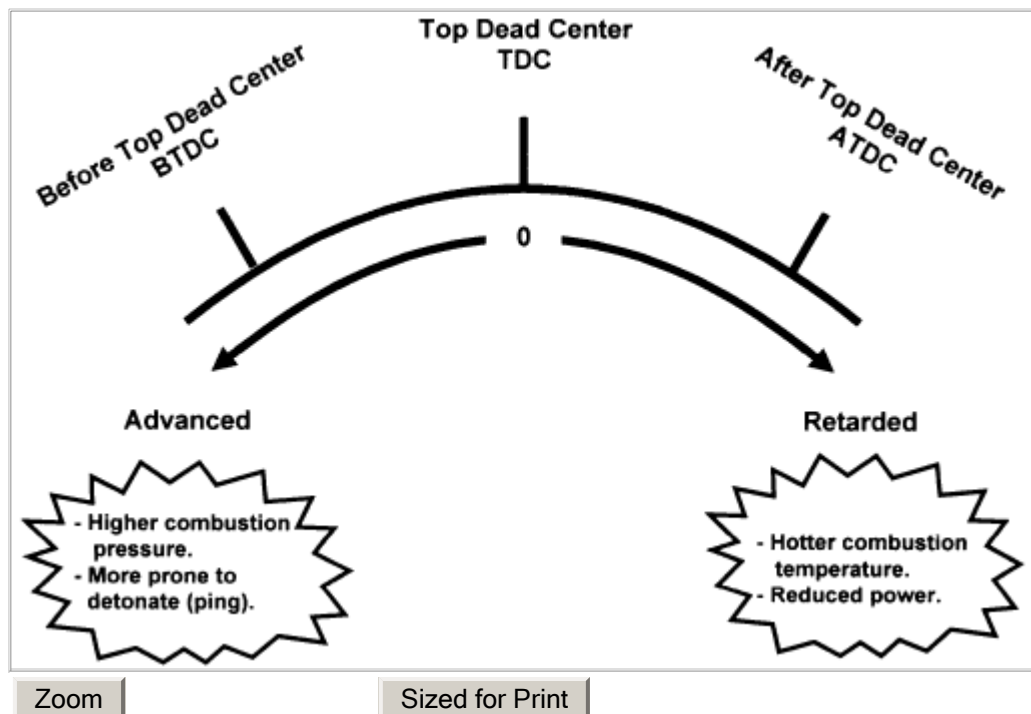
- Physical rotation of the [distributor](#).
- Alignment of the camshaft and crankshaft via the timing belt.

Prior to replacing the timing belt it is very important to verify that this relationship is correct. If the timing belt is installed correctly the after-repairs timing check should be within 2 degrees of the pre-repairs timing check.

NOTE: Minor differences, +/- 2 degrees may result from original belt stretching as it aged.

If the timing belt is initially installed incorrectly, the prerepairs [ignition timing](#) may not be correct, and the after-repairs timing will differ greatly from the initial.

Checking the timing before and after the job will help prevent confusion and verify the job was done correctly.



Notes on Timing:

- An [ignition timing](#) of 0 degrees BTDC (Before Top Dead Center) implies that the ignition coil fires the spark exactly as the piston reaches its highest position (top dead center).
- An [ignition timing](#) of 10 degrees BTDC implies that the spark is triggered 10 degrees of crankshaft rotation Before to the piston reaching top dead center.
- An [ignition timing](#) of 10 degrees ATDC implies that the spark is triggered 10 degrees of crank shaft rotation After the piston reaches top dead center.

Manifold Vacuum

If the camshaft is out of alignment with the crankshaft, the intake and exhaust valves will not open and close at the optimum times. This will reduce the volumetric efficiency of the engine and thus reduce the manifold vacuum level.

NOTE: The [ignition timing](#) will also affect the manifold vacuum levels, verify the timing is correct prior to measuring the vacuum.

If the after-repair vacuum level is lower than the pre-repairs level this would be an indication that the timing belt may not be installed correctly.

NOTE:

- The vacuum checks should be made at similar engine speeds and temperatures.
- Check "manifold vacuum" at a source downstream of the throttle plates.

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Component Search:

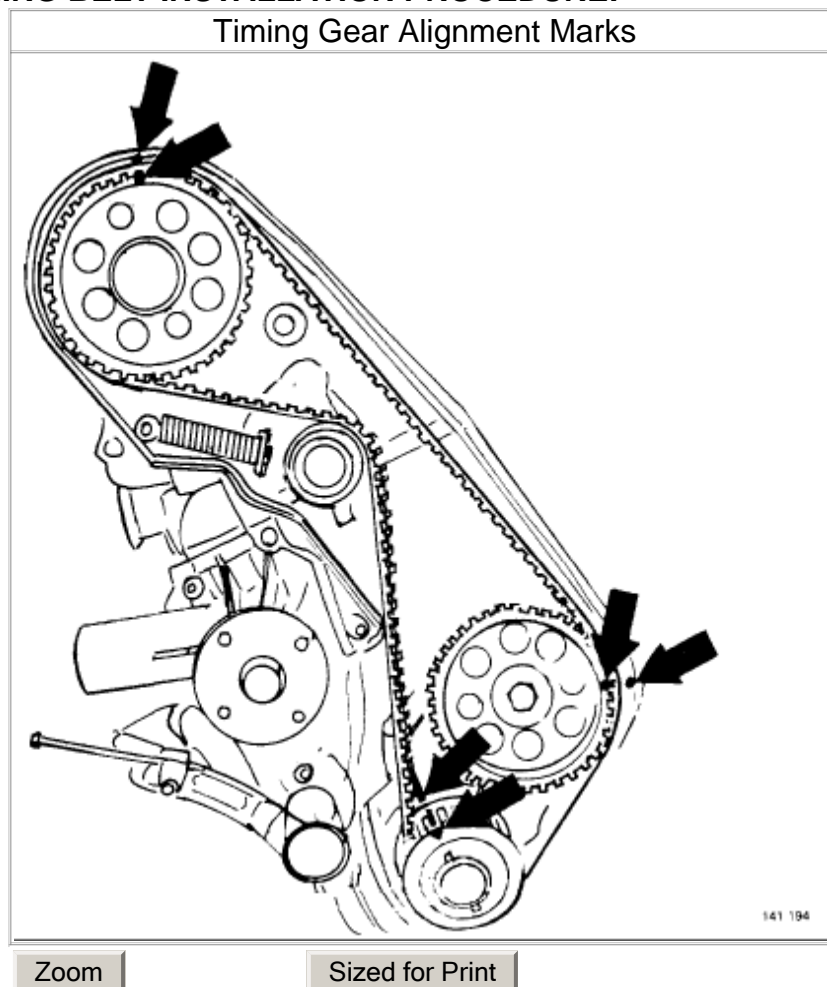
OK

[Conversion Calculator](#)**1992 Volvo 740 L4-2320cc 2.3L SOHC Turbo VIN 87 B230FT**[Vehicle Level](#) → [Engine, Cooling and Exhaust](#) → [Engine](#) → [Timing Belt](#) → [Service and Repair](#) → [Installation](#) ←

Installation

[Notes](#)

TIMING BELT INSTALLATION PROCEDURE:



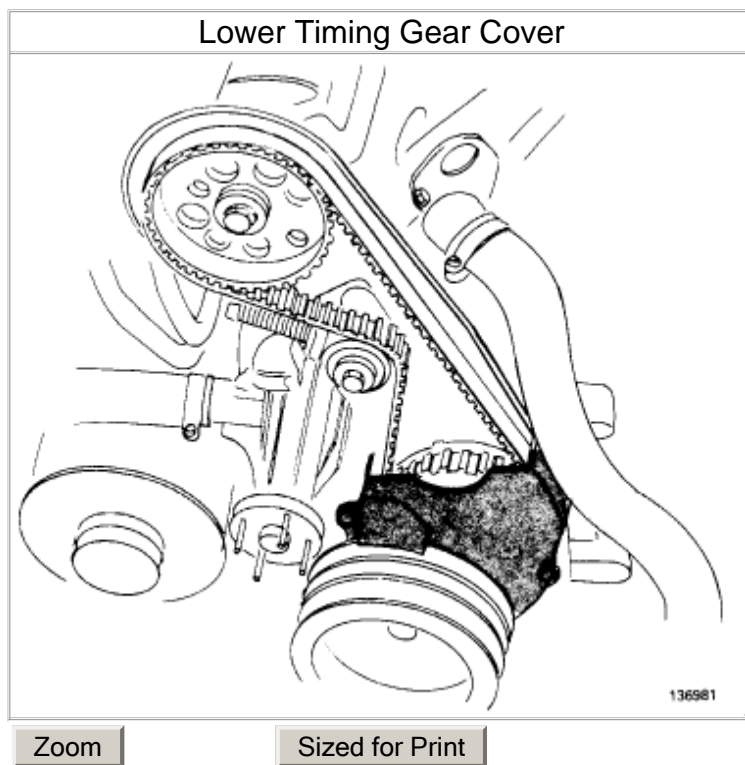
CAUTION: Do not rotate crankshaft or camshaft. Pistons may strike valves.

1. Place pulleys in position according to marking.
2. Place timing belt on crankshaft and intermediate shaft. Two lines on timing belt should be opposite crankshaft marking.
3. Stretch timing belt and install it on camshaft and belt tensioner.

- Check that timing belt is correctly positioned and that markings on pulleys are

opposite markings on engine.

4. Pull on timing belt to depress belt tensioner spring and remove locking drill.

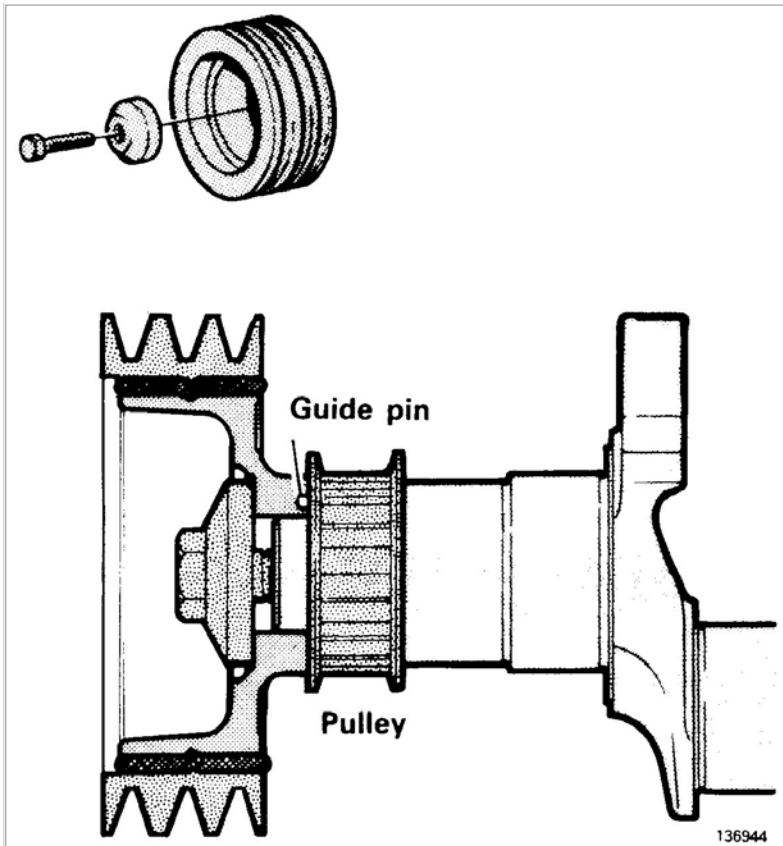


5. Install lower timing belt cover and vibration damper.

- Make sure the guide plate is correctly positioned.

CAUTION: Vibration damper fits in one position only. There is a dowel on the crankshaft gear that should fit into a hole in the vibration damper.

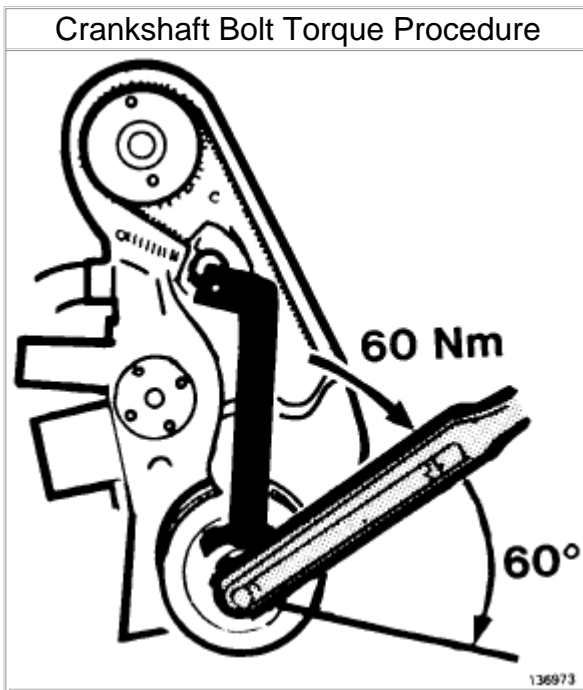
Crankshaft Pulley & Vibration Damper



Zoom

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6. Install crankshaft bolt and washer.

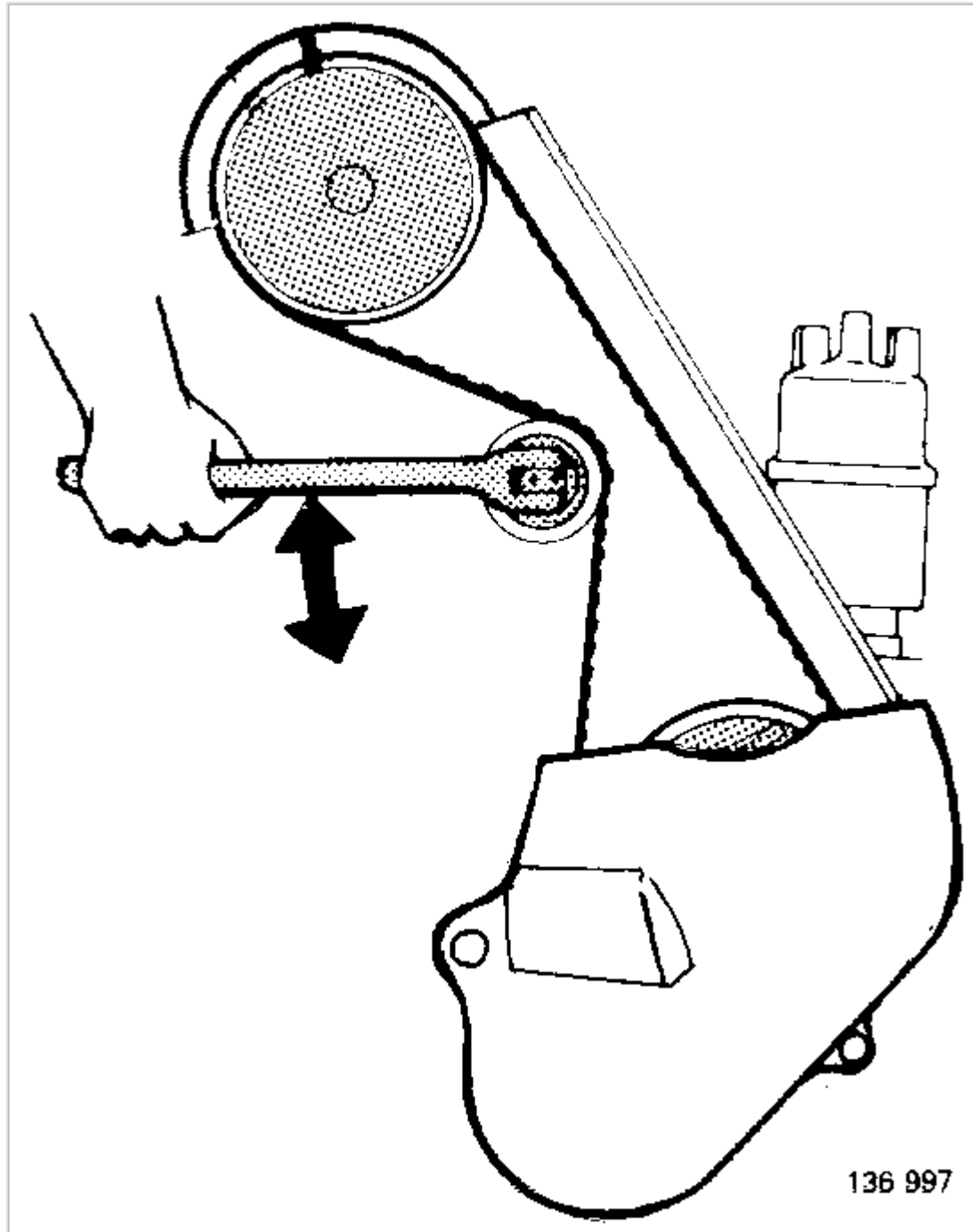


Zoom

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7. Tighten vibration damper.

- Remove nut and washer from belt tensioner.
- Install tool 5284. Use a nut to retain it.
- Tighten crankshaft bolt:
 - Stage 1 **160 Nm (44 ft lbs)**
 - Stage 2 **Angle-tighten 60°**
- Remove tool 5284.
- Install washer and nut on belt tensioner.

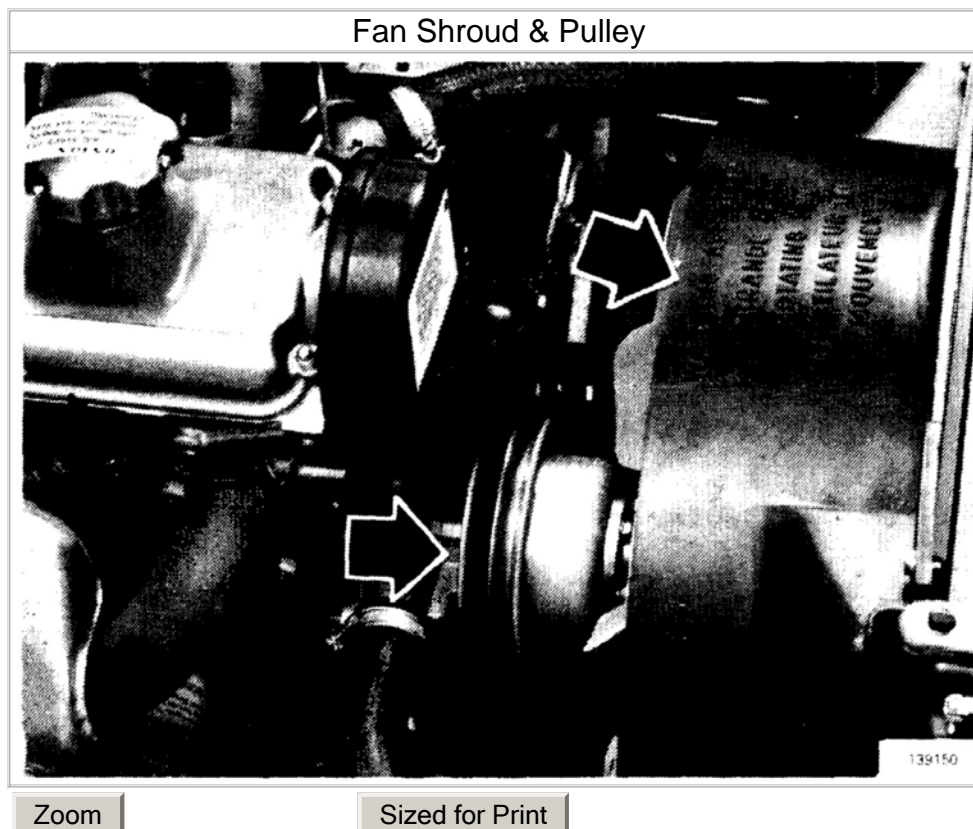


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8. Tension timing belt:

- Turn engine to top dead center.
- Slacken belt tensioner nut
- Spring will tension timing belt.
- Tighten belt tensioner nut.

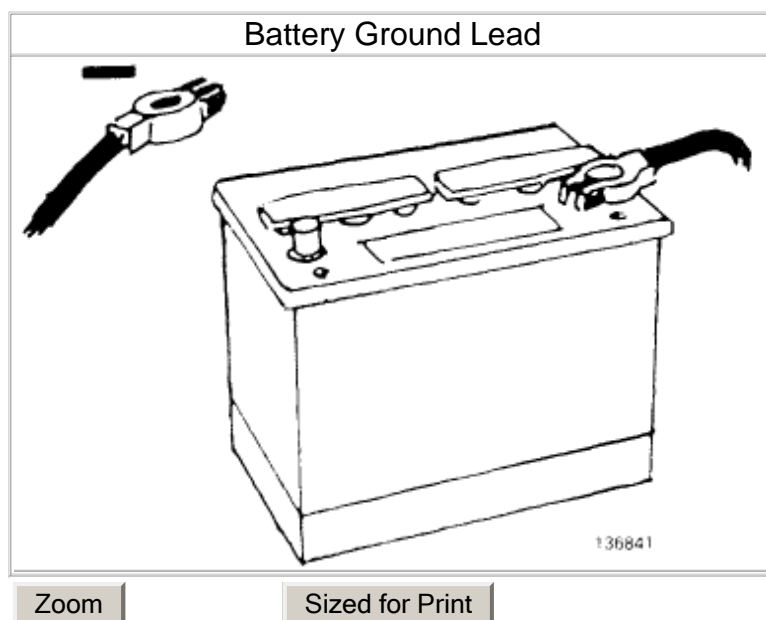
**Final Installation Procedures:**

1. install the following:

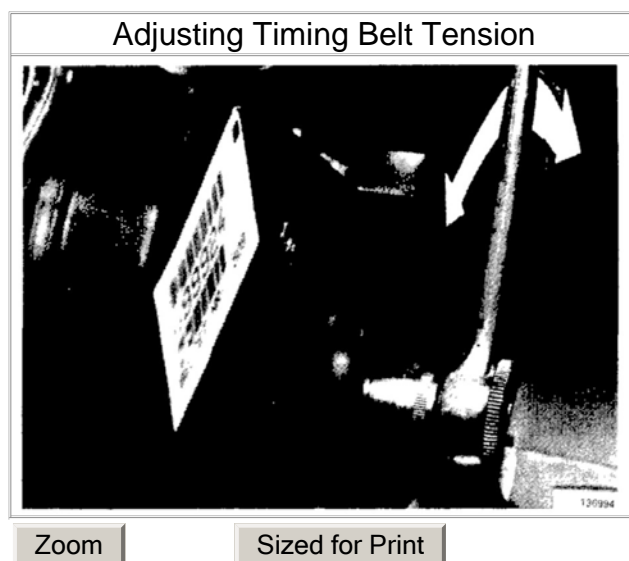
- upper timing belt cover.
- coolant pump pulley.
- [drive belts](#) loosely.
- fan shroud.
- preheater hose clamp.
- cooling fan.

7. Tension [drive belts](#):

- With correct belt tension, it should be possible to depress belt **5-10 mm (0.2-0.4 in)** with thumb pressure.



8. Connect battery ground cable.



9. Warm up engine.

- Check/adjust [ignition timing](#), [idle speed](#) and CO content.
- Check cooling system for tightness. Refill as necessary.

10. Turn off engine.

11. Adjust timing belt tension. Remove rubber plug in timing belt cover.

- Rotate engine until at top dead centre.
- Slacken belt tensioner nut.
- Spring will tension timing belt.

- Tighten timing belt tensioner nut.
- Install rubber plug.

NOTE :After driving approx. 1000 km (600 miles: Readjust timing belt.

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