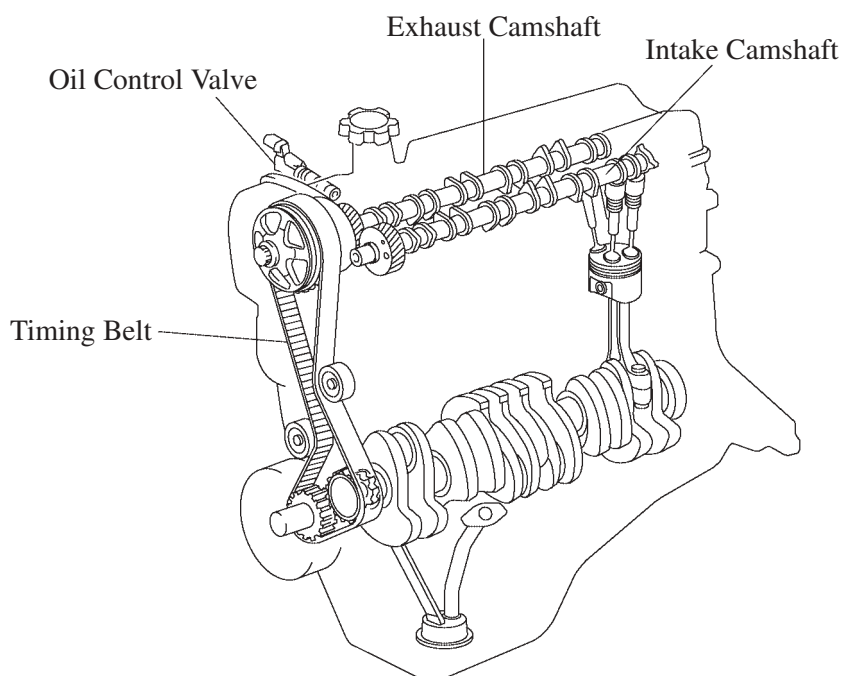


■ VALVE MECHANISM

1. General

- The VVT-i (Variable Valve Timing-intelligent) system is used to improve fuel economy, engine performance and reduce exhaust emissions.
- Each cylinder is equipped with 2 intake valves and 2 exhaust valves. Intake and exhaust efficiency has been increased due to the larger total port areas.
- The valves are directly opened and closed by 2 camshafts.
- The valve lifter is a shimless type that does not contain a valve adjusting shim.

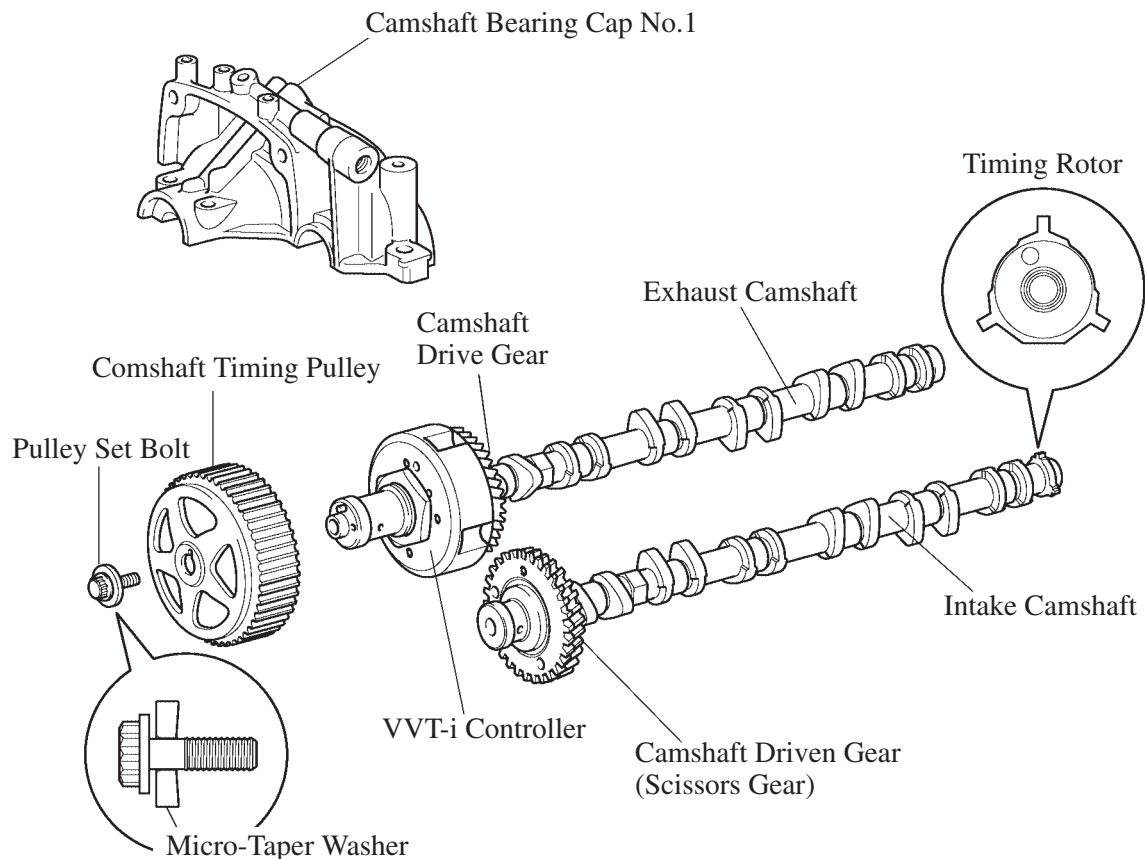


2. Camshaft

- The intake camshaft are driven by gears on the exhaust camshafts. The scissors gear mechanism is used on the intake camshaft to control backlash and suppress gear noise.
- In conjunction with the adoption of the VVT-i system, an oil passage is provided in the exhaust camshaft in order to supply engine oil to the VVT-i system.
- The intake camshaft is provided with timing rotor to trigger the camshaft position sensor.
- The pulley set bolt is a plastic region tightening bolt with a dodecagon (12-sided) head. Also, a micro-taper washer is used.
- A No.1 camshaft bearing cap that integrates both the intake and exhaust sides has been adopted.

Service Tip

The pulley set bolt cannot be reused.

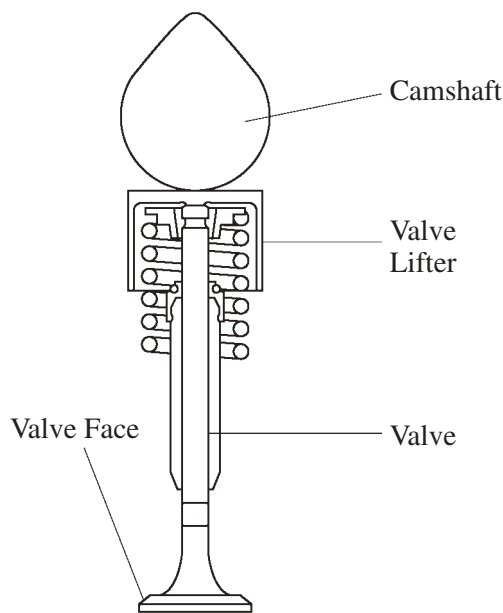


3. Intake and Exhaust Valve and Valve Lifter

- The valve face diameter of the intake and exhaust valves has been increased to improve the intake and exhaust efficiency. In addition, the stem diameter has been reduce the intake and exhaust resistance and weight reduction.
- An excellent anti-abrasion material has been adopted for a valve face of the exhaust valve.
- The use of a shimless type valve lifter that does not contain a valve adjusting shim has increased the effective operating surface of the lifter, resulting in a higher lift and a reduction in the inertial mass.

Service Tip

The valve clearance is adjusted by replacing the valve lifter itself.

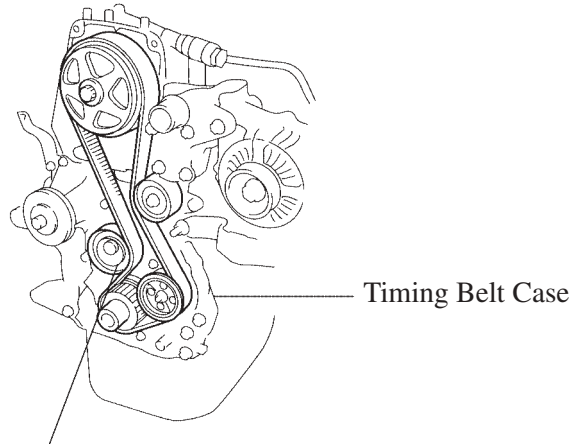


► Specifications ◀

Valve Item	mm (in.)	
	Intake	Exhaust
Face Diameter	29.5 (1.16)	25.0 (0.98)
Stem Diameter	5.0 (0.20)	5.0 (0.20)

4. Timing Belt

- Aramid fiber wires that excel in flexing resistance are used as the material for the timing belt for improved durability.
- An automatic tensioner with an idler-pulley has been adopted for improved serviceability.



Automatic Tensioner with Idler-Pulley

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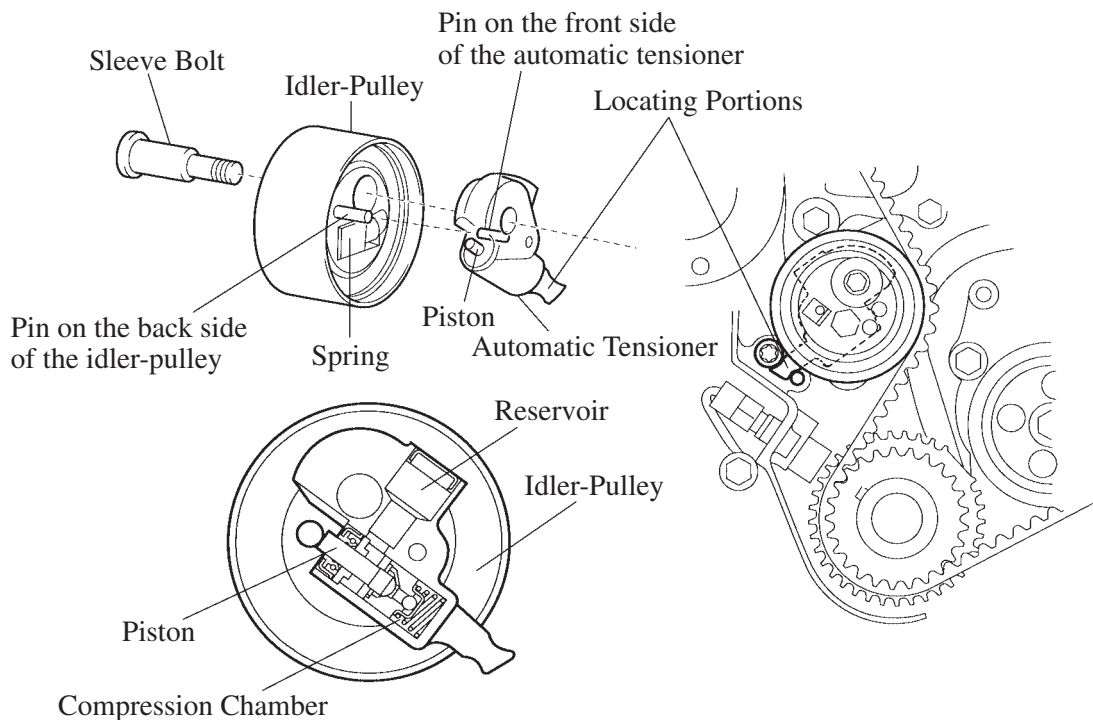
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Automatic Tensioner with Idler-Pulley

Construction and Operation

A hydraulic automatic tensioner and an idler-pulley have been integrated. The idler-pulley and the automatic tensioner are mounted coaxially to the timing belt case. The automatic tensioner is secured to the sleeve bolt and tensioner locating portion of the timing belt case, while the idler-pulley assumes a floating state.

The piston of the automatic tensioner pushes upward the pin on the back side of the idler pulley in order to apply tension to the timing belt. Furthermore, the spring that is built into the idler-pulley and the pin on the front side of the automatic tensioner engage to maintain the belt tension constant and to absorb the small vibrations of the entire mechanism.



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