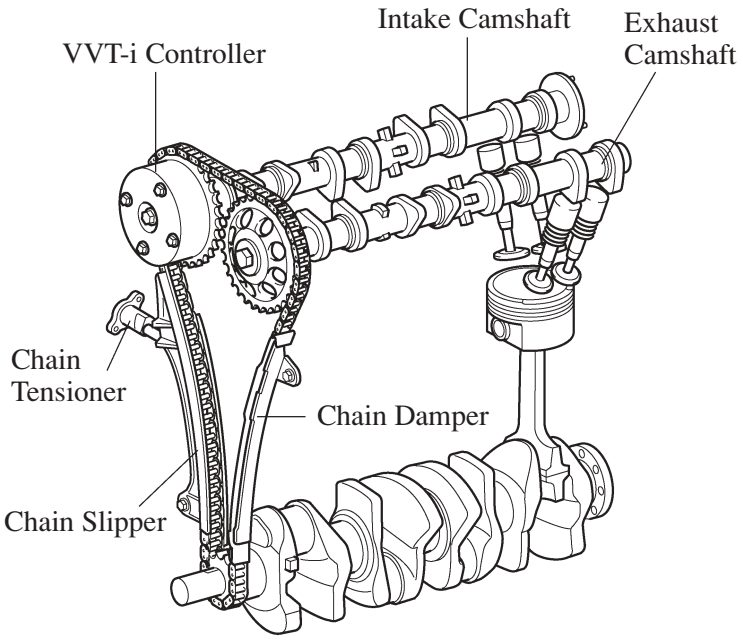
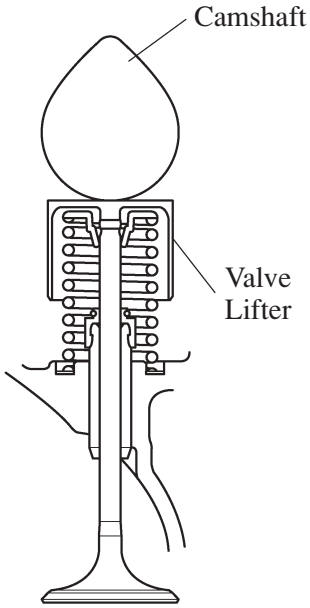
■VALVE MECHANISM

1. General

- The VVT-i system is used to improve fuel economy, engine performance and reduce exhaust emissions. For details of VVT-i system, see page EG-49.
- The intake and exhaust camshafts are driven by a timing chain.
- Along with the increase in the amount of valve lift, the shim-less type valve lifter is used. This valve lifter increases the cam contact surface.



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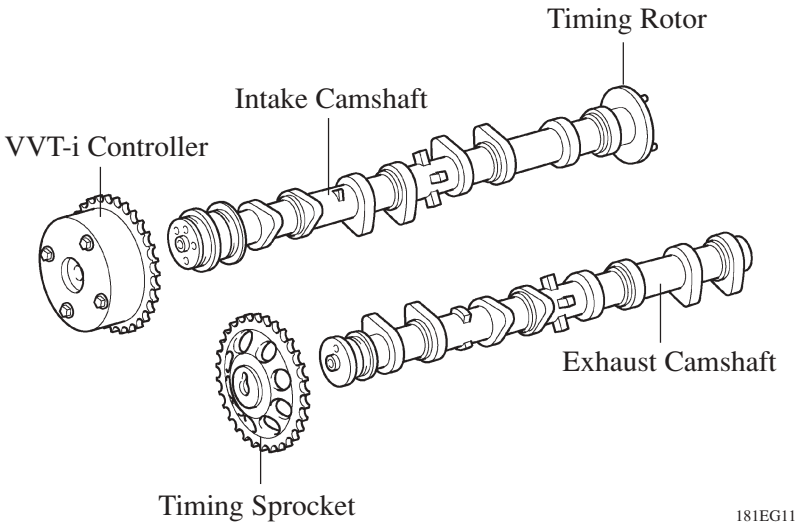
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Service Tip

The adjustment of the valve clearance is accomplished by selecting and replacing the appropriate valve lifters.
A total of 35 valve lifters are available in 0.02 mm (0.008 in.) increments, from 5.06 mm (0.199 in.) to 5.74 mm (0.226 in.). For details, refer to RAV4 Repair Manual (Pub. No. RM01N0E).

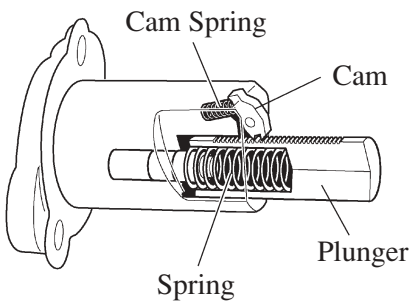
2. Camshaft

- The intake camshaft is provided with timing rotor to trigger the camshaft position sensor.
- In conjunction with the adoption of the VVT-i system, an oil passage is provided in the intake camshaft in order to supply engine oil pressure to the VVT-i system.
- A VVT-i controller has been installed on the front of the intake camshaft to vary the timing of the intake valves.



3. Timing Chain

- A roller chain with an 8 mm (0.315 in.) pitch is used to make the engine more compact.
- The timing chain is lubricated by an oil jet.
- The chain tensioner uses a spring and oil pressure to maintain proper chain tension at all times.
- The chain tensioner suppresses noise generated by the timing chain.
- A ratchet type non-return mechanism is used.
- To achieve excellent serviceability, the chain tensioner is constructed so that it can be removed and installed from the outside of the timing chain cover.



Chain Tensioner

