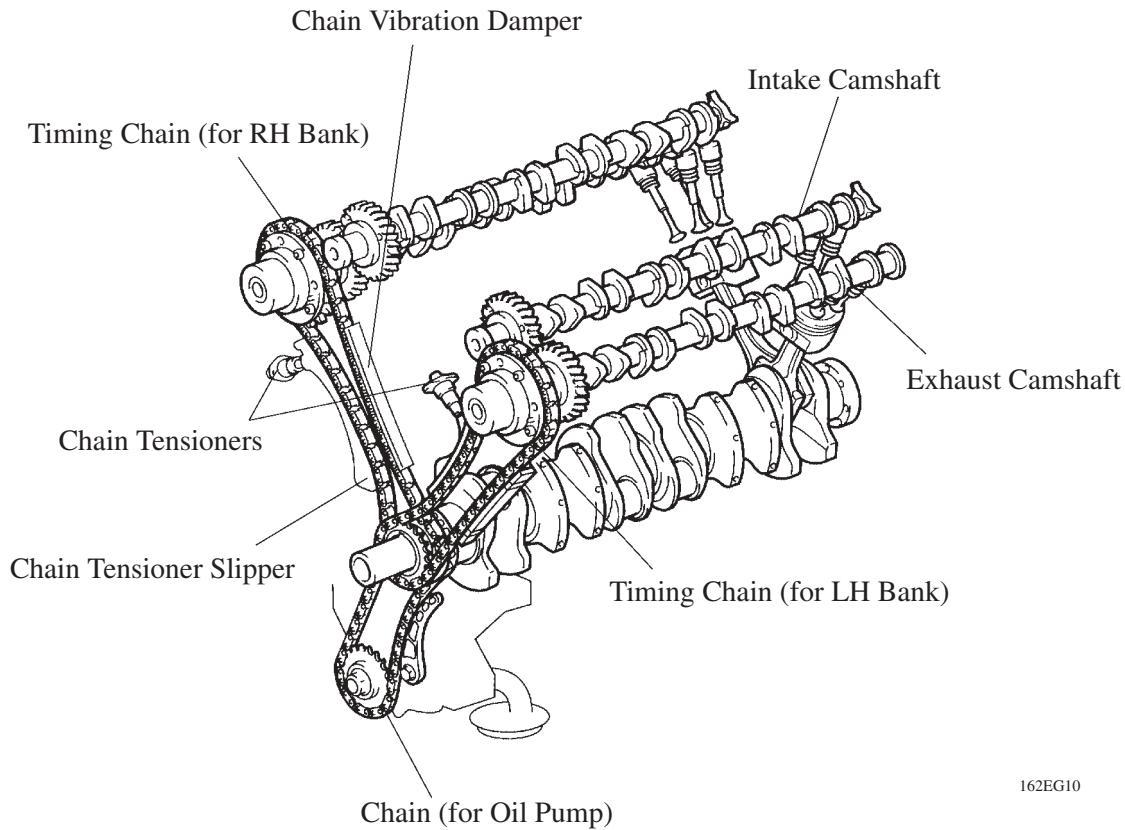


■ VALVE MECHANISM

1. General

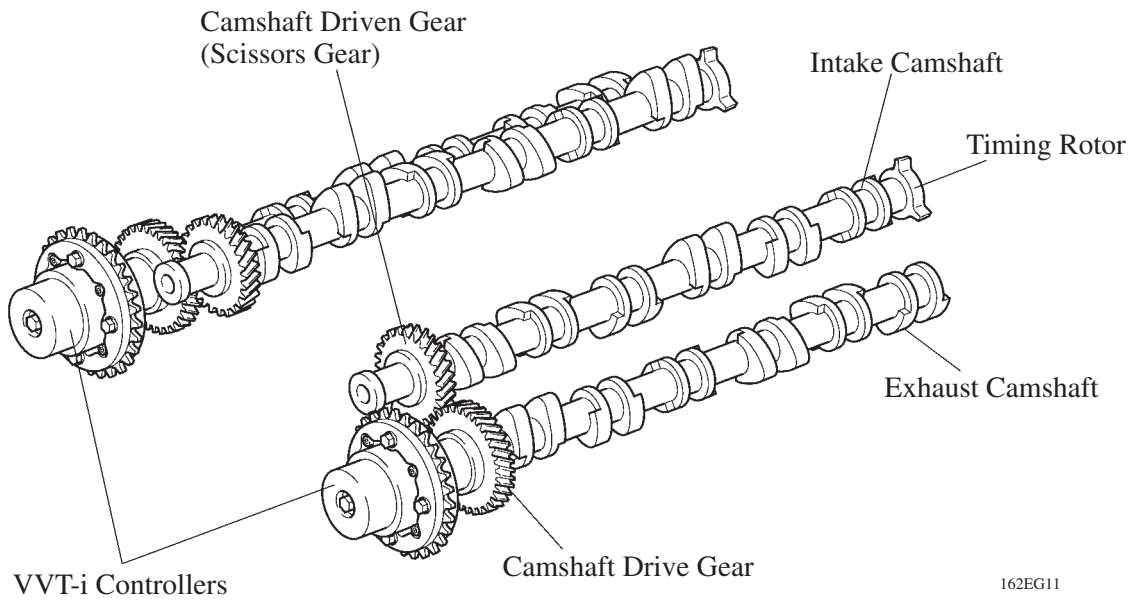
- Each cylinder has 2 intake valves and 2 exhaust valves. Intake and exhaust efficiency is increased by means of the larger total port areas.
- The valves are directly opened and closed by 4 camshafts.
- The exhaust camshafts are driven by 2 timing chains, while the intake camshafts are driven through gears on the exhaust camshafts.



162EG10

2. Camshaft

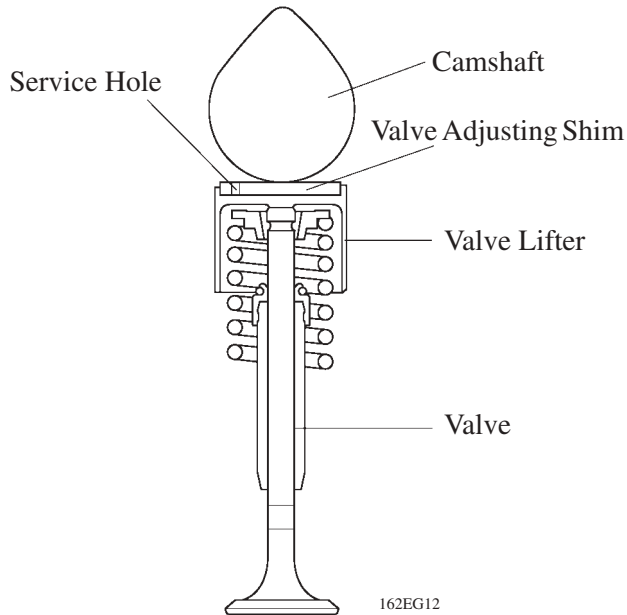
- The intake camshaft are driven by gears on the exhaust camshafts. The scissors gear mechanism is used on the intake camshaft to control backlash and suppress gear noise.
- The camshafts are made of cast iron alloy. The cam nose has been chill treated to increase its abrasion resistance.
- In conjunction 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.



162EG11

3. Intake and Exhaust Valve and Valve Lifter

- The valve stem diameter has been reduced to reduce the intake and exhaust resistance and for weight reduction.
- The valve lifter is made of aluminum alloy to reduce weight and noise.
- Outer type valve adjusting shims, which are located on top of the valve lifters, have been adopted. The shims are provided with a service hole to improve serviceability.
- The surface of the valve adjusting shims has been coated with nitride titanium to reduce friction.



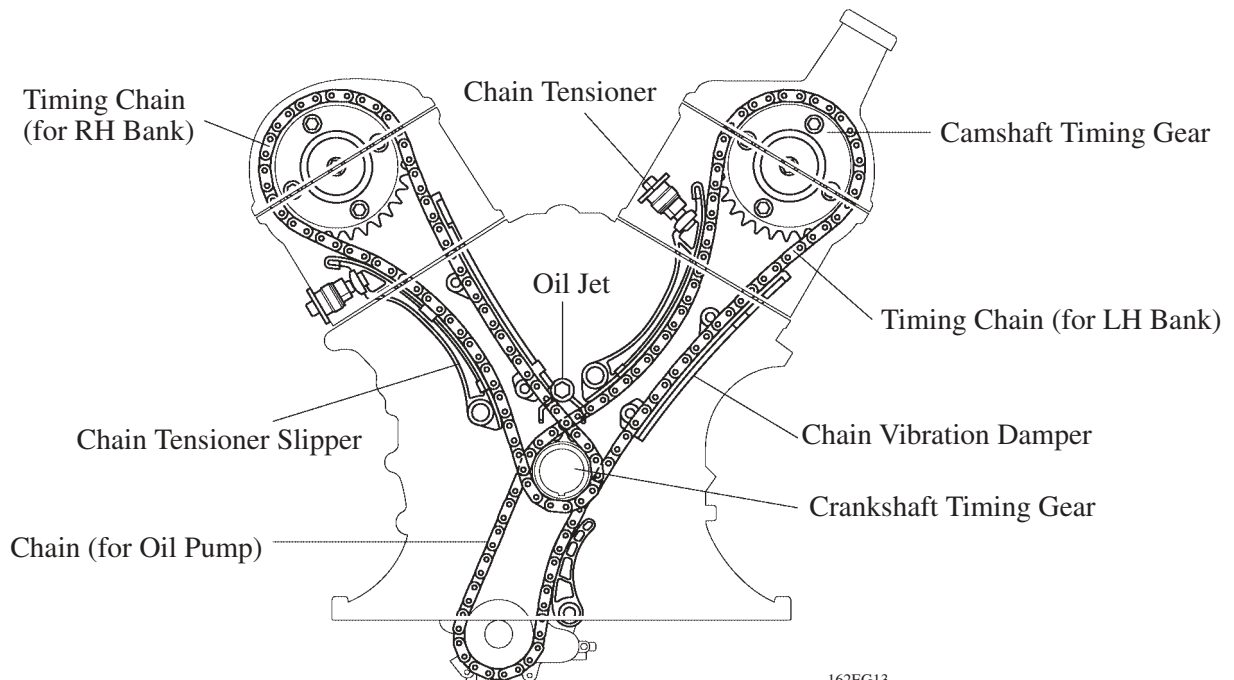
► Specifications ◀

Valve Item	mm (in.)	
	Intake	Exhaust
Face Diameter	30.0 (1.18)	24.5 (0.96)
Stem Diameter	5.5 (0.22)	5.5 (0.22)

EG

4. Timing Chain

- A material which has excellent wear resistance has been selected for the timing chain to improve reliability.
- 3 independent timing chains for each right, left banks and oil pump have been adopted to ensure reliability.
- The cam timing chains are lubricated by oil jet mounted in the cylinder block.



5. Chain Tensioner

- 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 chain.
- If a force is applied from the chain side, the check ball plugs the oil passage to prevent the plunger from moving, thus maintaining the chain tension.

