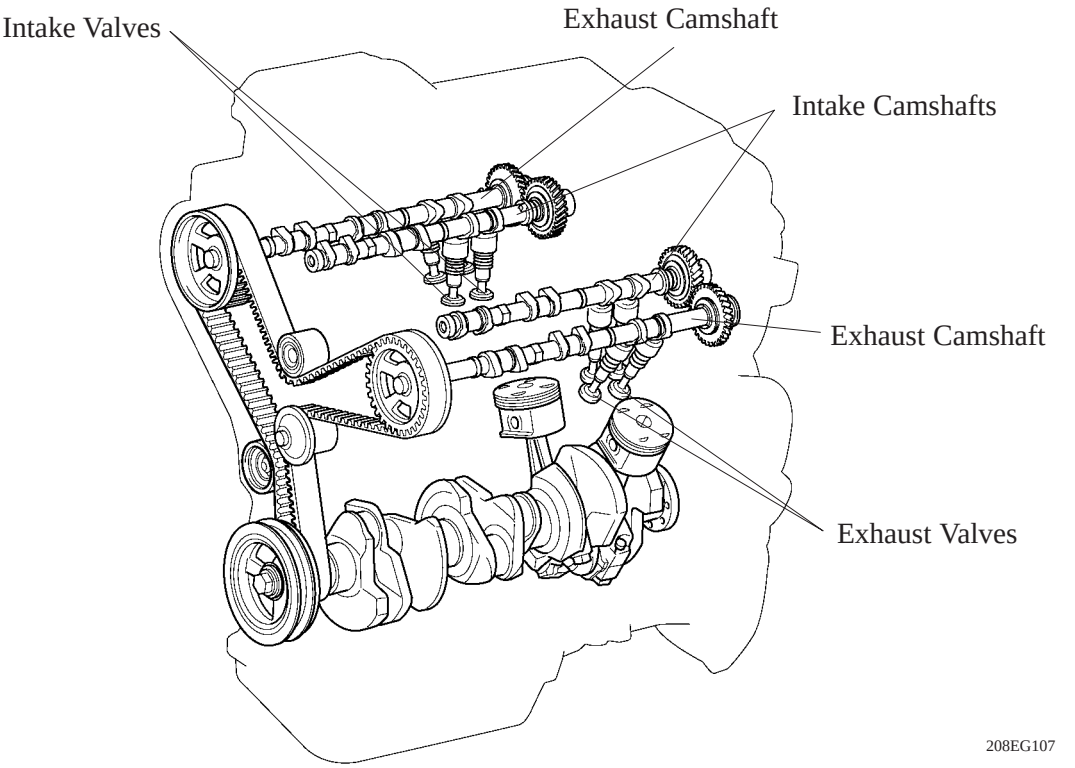
■VALVE MECHANISM

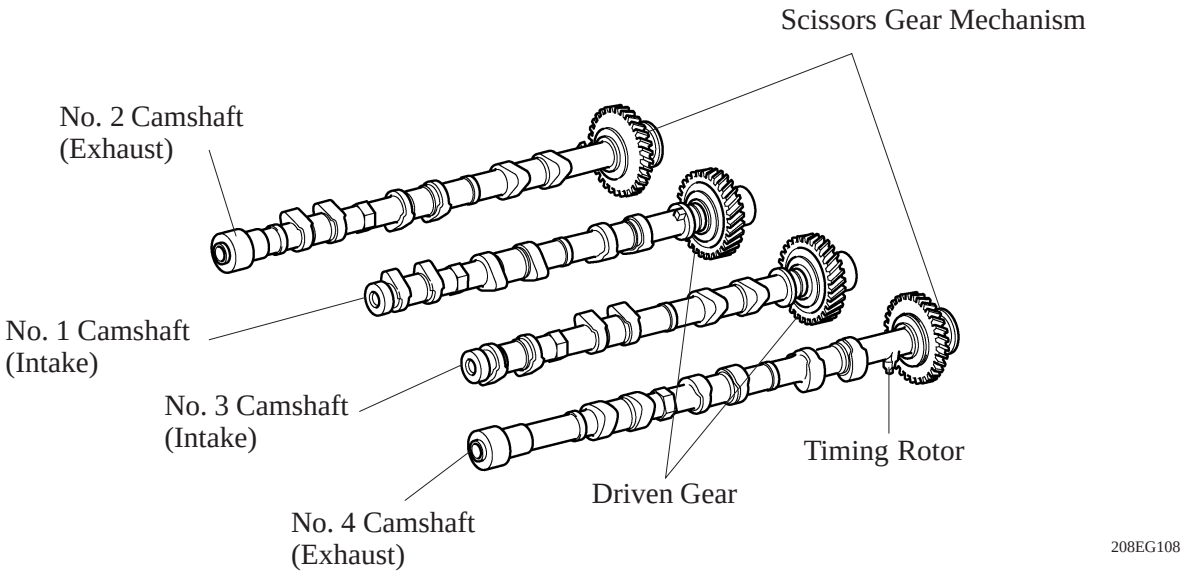
1. General

- The valves are directly opened and closed by 4 camshafts.
- The exhaust camshafts are driven by a timing belt, while the intake camshafts are driven through gears on the exhaust camshafts.



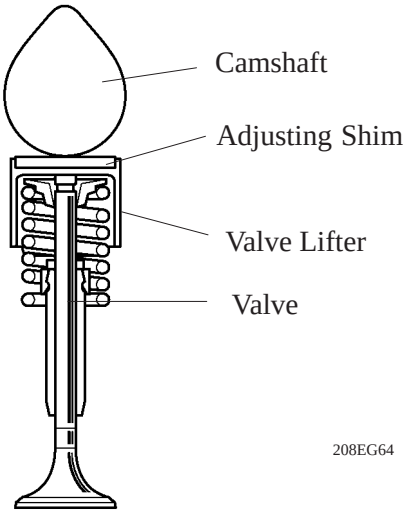
2. Camshafts

- The camshafts are made of cast iron alloy.
- In conjunction with the use of the DIS (Direct Ignition System), the No.4 camshaft is provided with timing rotor to trigger the camshaft position sensor.
- The intake camshafts are driven by gears on the exhaust camshafts.The scissors gear mechanism is used on driven gear of the exhaust camshaft to control backlash and suppress gear noise.



3. Intake and Exhaust Valve and Valve Lifter

- Narrower valve stems have been adopted to reduce the intake and exhaust resistance and for weight reduction.
- The adjusting shim has been located directly above the valve lifter. This construction allows the adjusting shim to be replaced without removing the camshaft, which improves the serviceability during valve clearance adjustment.
- A cutout is provided in the valve lifter to improve the serviceability of replacing the adjusting shims.



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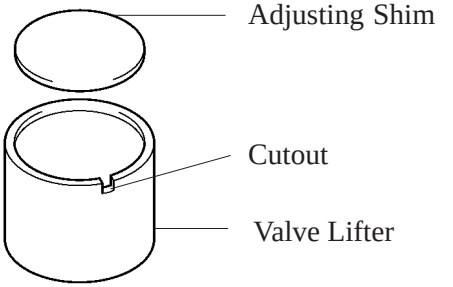

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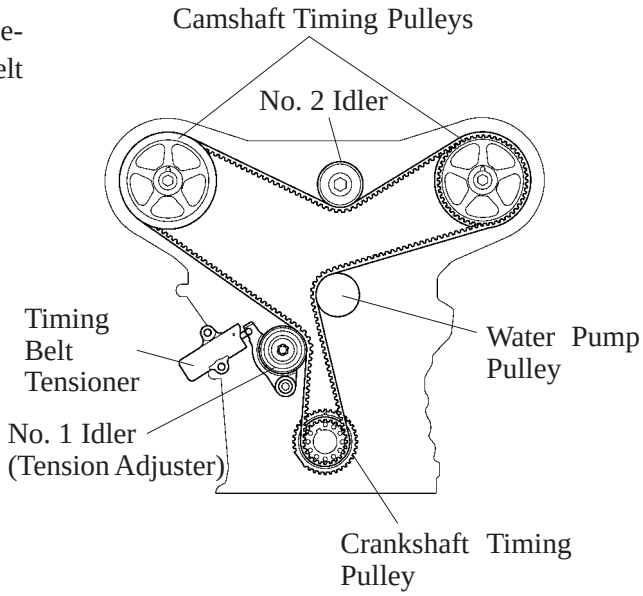
Service Tip

The adjusting shims are available in 17 sizes in increments of 0.050 mm (0.0020 in.), from 2.500 (0.0984 in.) to 3.300 (0.1299 in.).
For details, refer to see the 1MZ-FE Engine Repair Manual (Pub. No. RM917E).

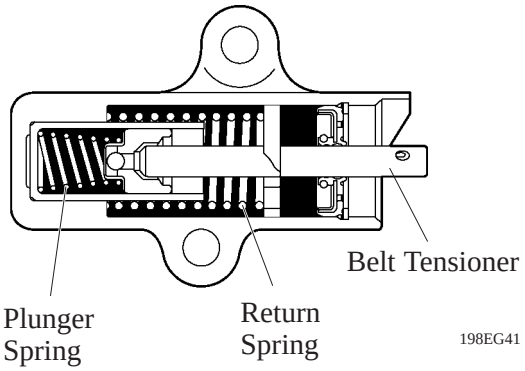
4. Timing Belt

The timing belt tooth configuration has been designed to help to reduce noise and to enable the belt to transmit power under high load factors.



5. Timing Belt Tensioner

The timing belt tensioner uses a spring and silicon oil damper, and maintains proper timing belt tension at all times.
The timing belt tensioner suppresses noise generated by the timing belt.



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