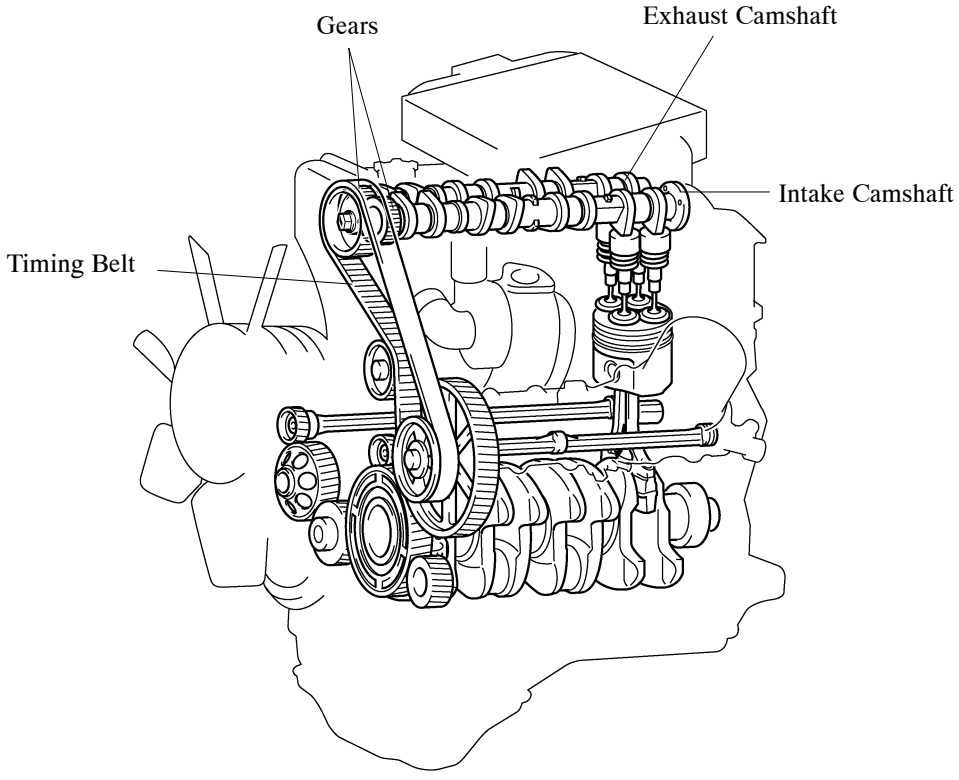
■VALVE MECHANISM

1. General

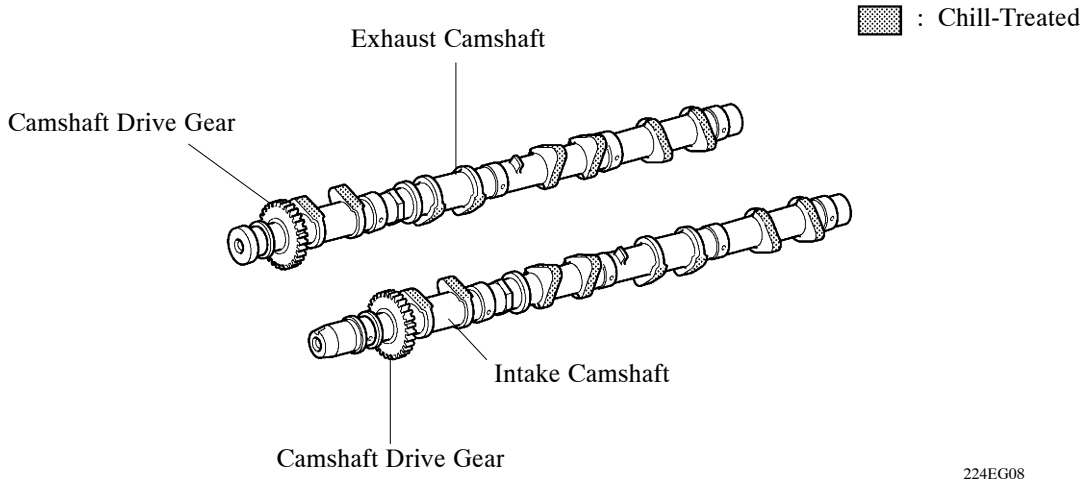
- Each cylinder has 2 intake valves and 2 exhaust valves. Intake and exhaust efficiency is increased by means of the larger total port areas.
- The valves are directly opened and closed by 2 camshafts.
- The intake camshaft is driven by a timing belt, while the exhaust camshaft is driven by gears on the intake camshaft.
- Small-diameter, flat-teeth gears are used for driving the exhaust camshaft in order to reduce gear noise.



1KD-FTV Engine

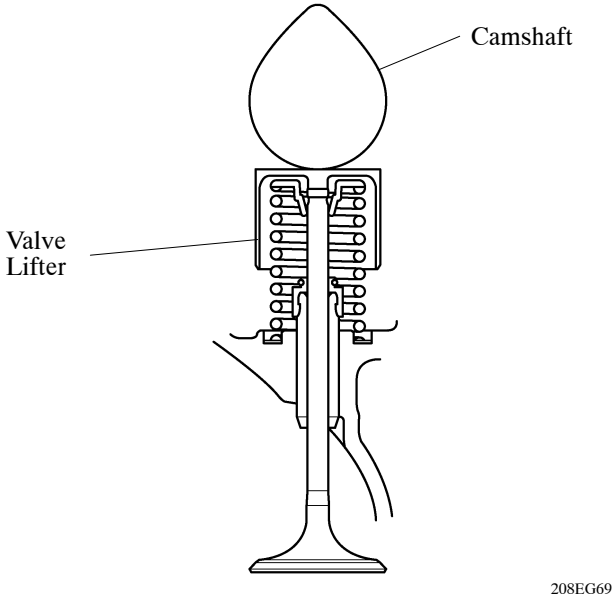
2. Camshaft

The cam nose has been chill-treated to increase its abrasion resistance.



3. Intake and Exhaust Valves

- Along with the increased amount of valve lift, shim-less valve lifters that provide a large cam contact surface are used.
- The adjustment of the valve clearance is accomplished by selecting and replacing the appropriate valve lifters.

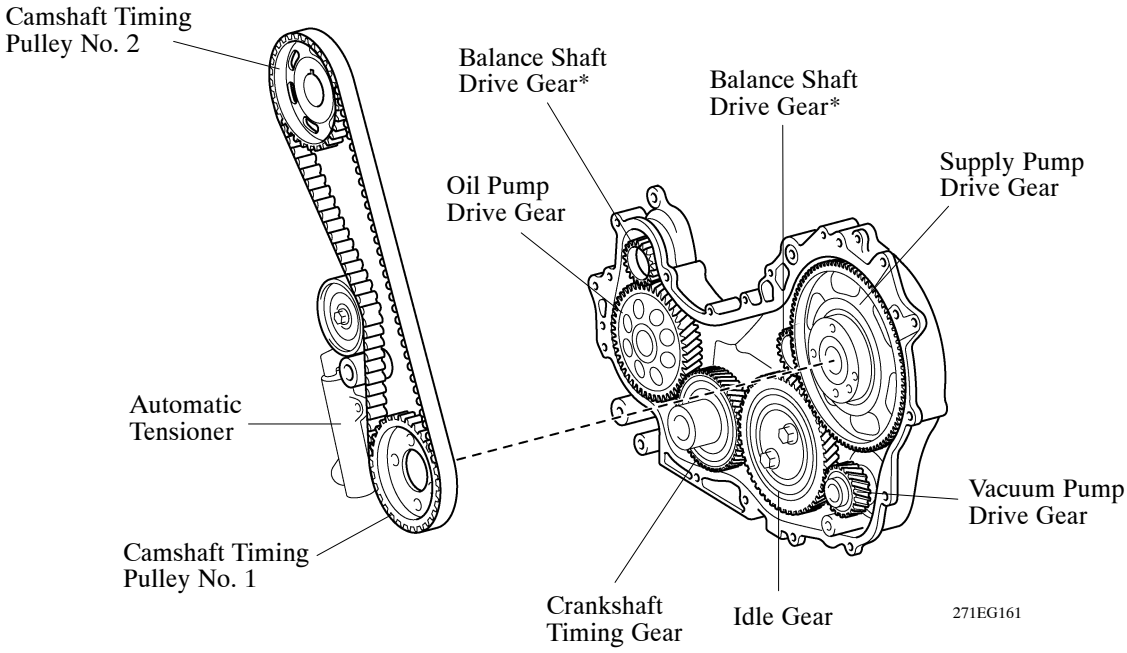


Service Tip

The valve lifters must be replaced when it is necessary to adjust the valve clearance. For this purpose, valve lifters with different thicknesses are available as service parts.
For details, refer to the Fortuner/Hilux SW4 Repair Manual.

4. Timing Gear Train

- The supply pump, vacuum pump, oil pump and balance shafts* are driven by the crankshaft timing gear.
- The idle gear is constructed with a scissors gear on its front and back to reduce noise.



*: Models with 1KD-FTV engine