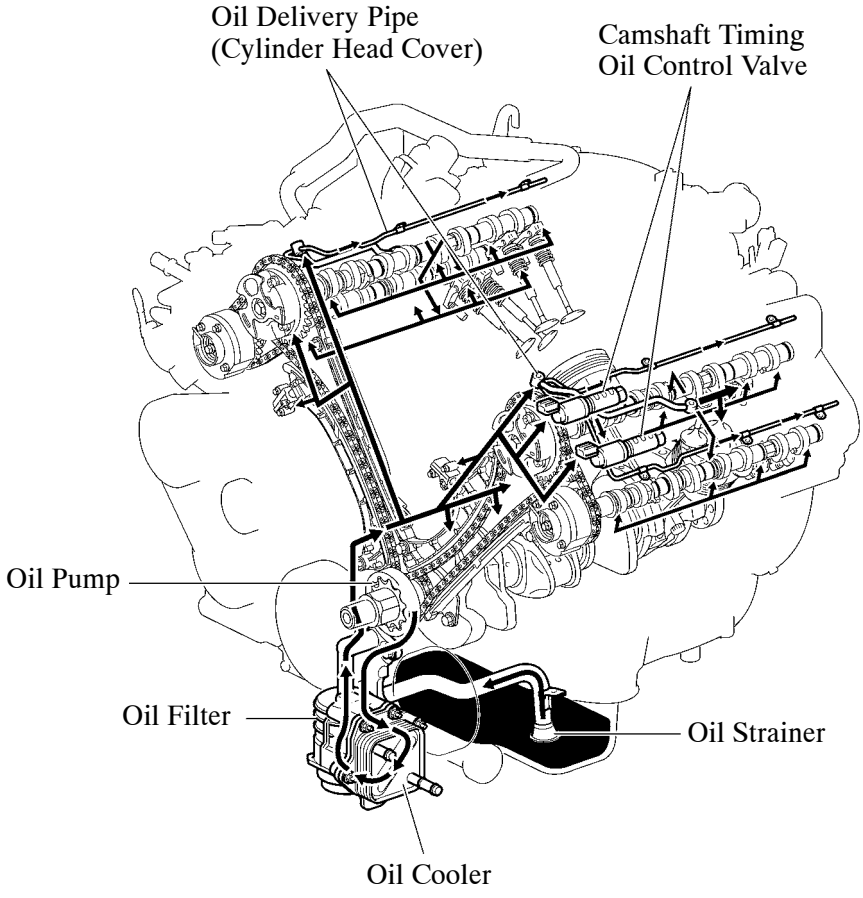
■ LUBRICATION SYSTEM

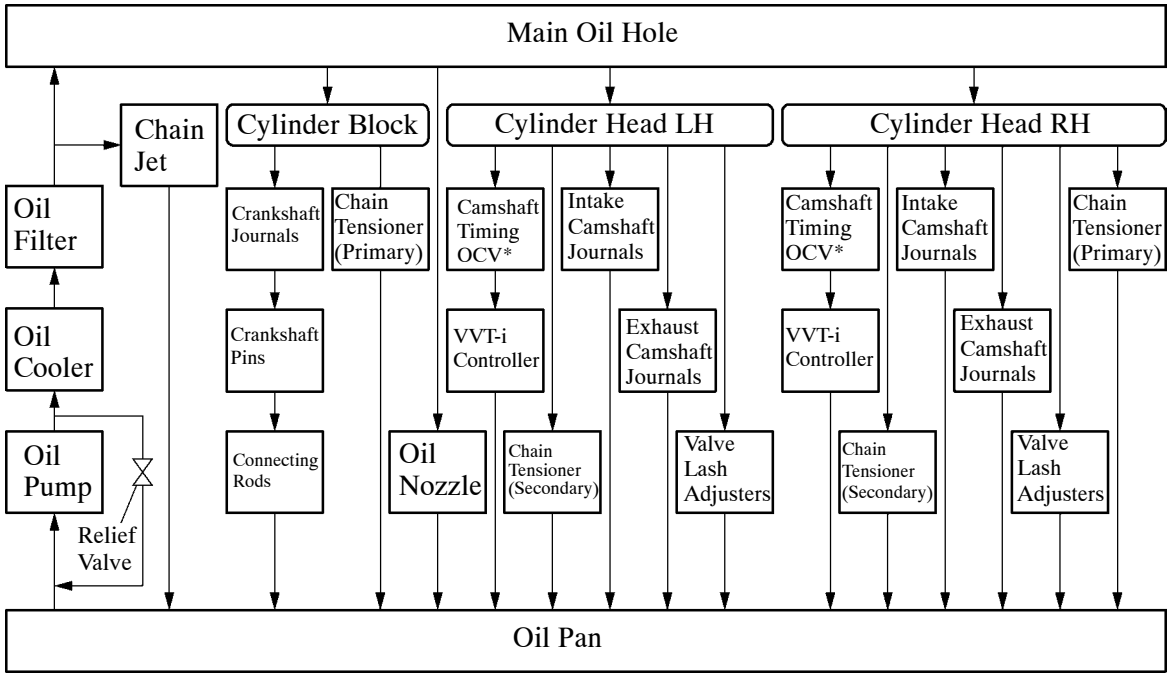
1. General

- The lubrication circuit is fully pressurized and oil passes through an oil filter.
- A cycloid rotor type oil pump is used.
- An oil filter with a replaceable element is used.
- A water-cooled type oil cooler is used.



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▶ Oil Circuit ◀



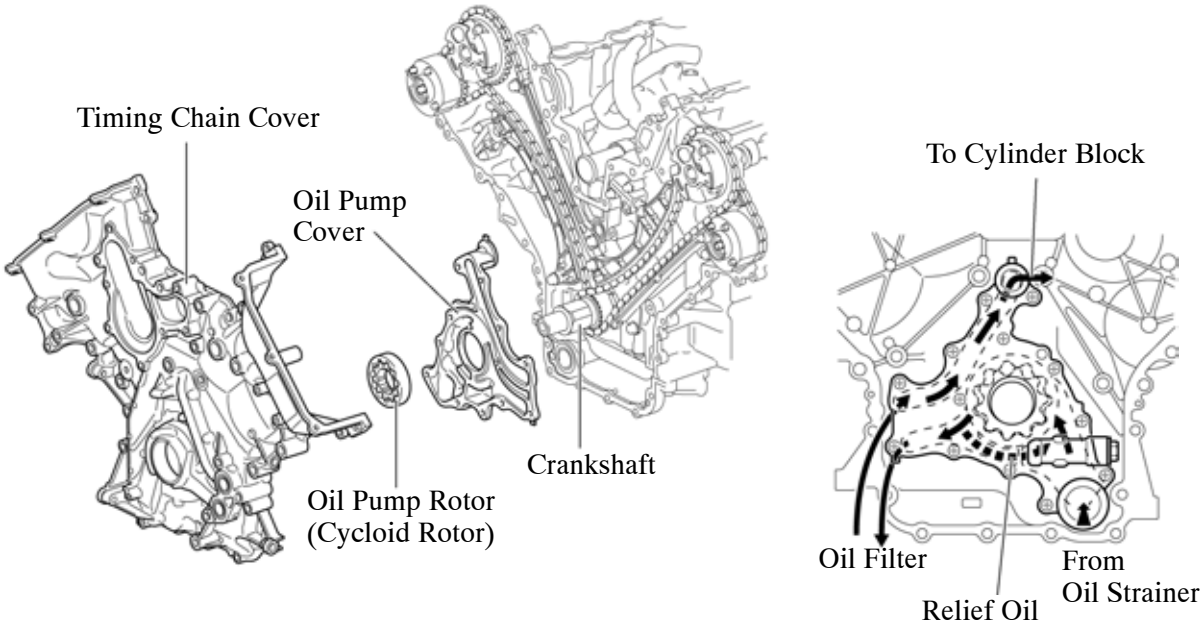
*: Oil Control Valve

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2. Oil Pump

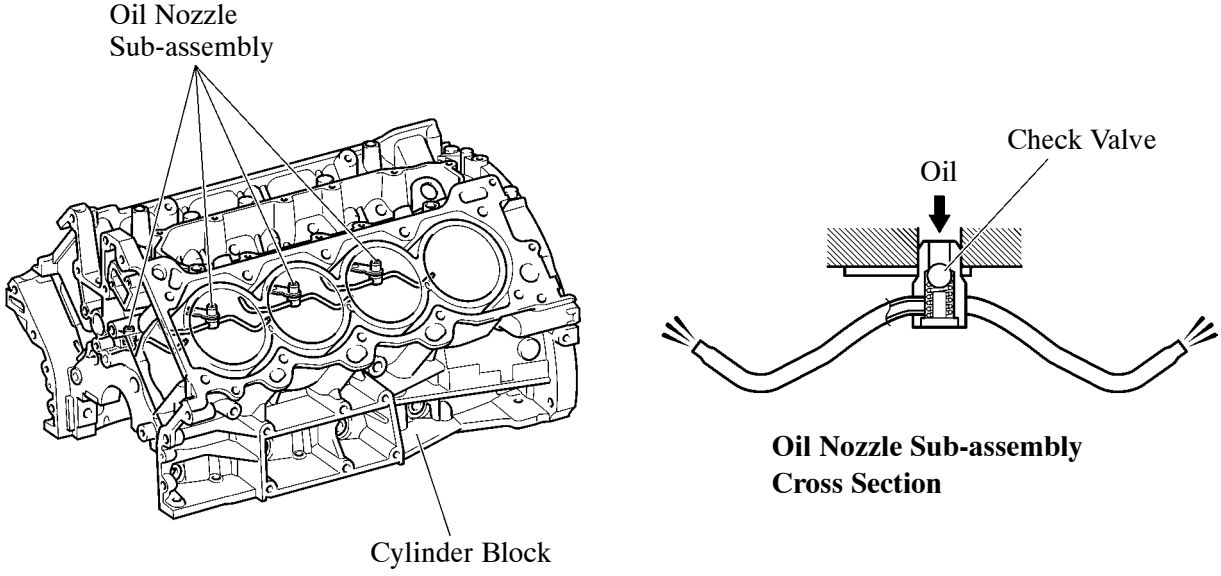
- A compact cycloid rotor type oil pump directly driven by the crankshaft is used.
- This oil pump uses an internal relief method which circulates relief oil to the suction passage in the oil pump. This aims to minimize oil level change in the oil pan, reduce friction, and reduce the air mixing rate in the oil.



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3. Oil Nozzle Sub-assembly

- 4 oil nozzle sub-assemblies for cooling and lubricating the pistons are provided in the cylinder block in the center of the right and left banks.
- These oil nozzle sub-assemblies contain a check valve to prevent oil from being fed when the oil pressure is low. This prevents the overall oil pressure in the engine from dropping.

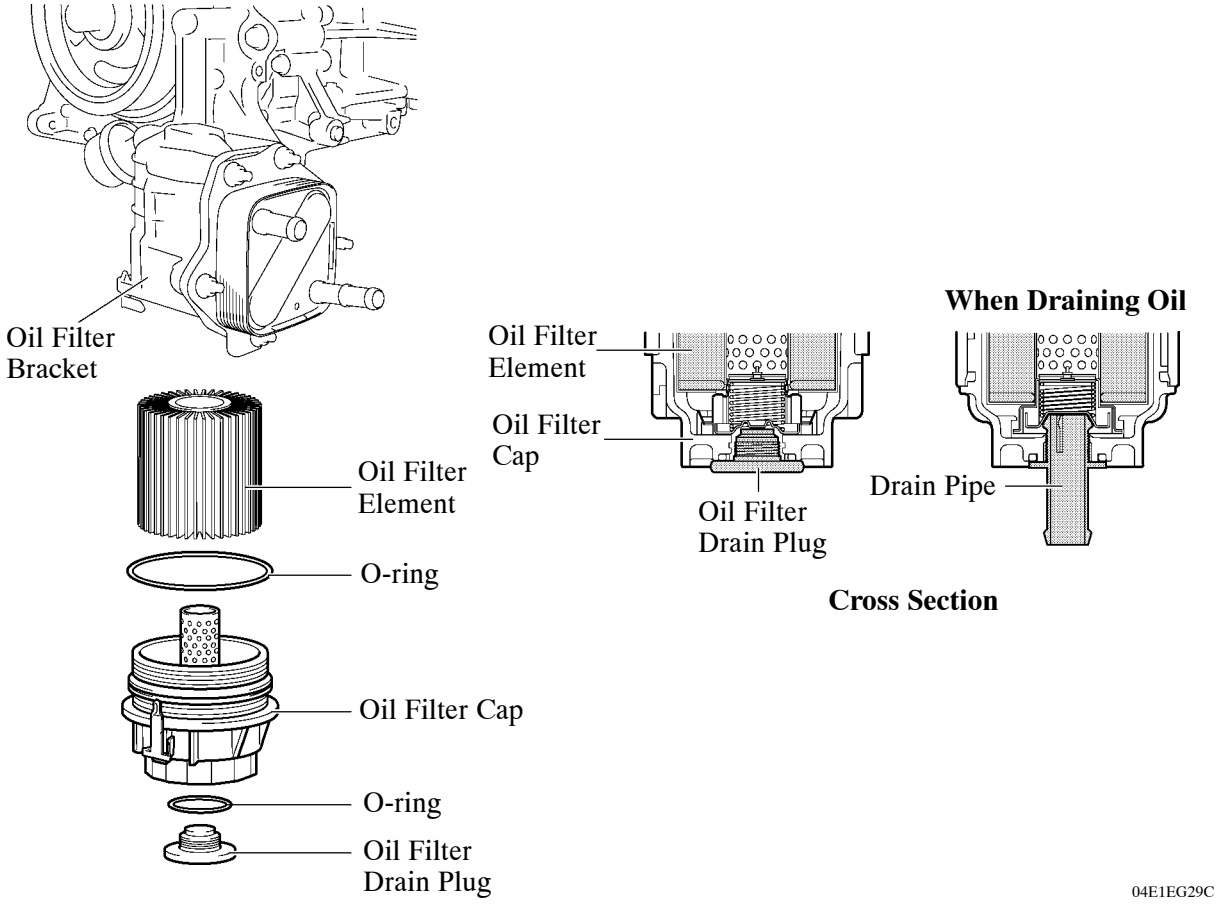


Oil Nozzle Sub-assembly Cross Section

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4. Oil Filter

- An oil filter with a replaceable element is used. The oil filter element uses high-performance filter paper to improve filtration performance. The paper is also burnable for environmental protection.
- A plastic oil filter cap is used for weight reduction.
- This oil filter has a structure which can drain the oil remaining in the oil filter. This prevents oil from spattering when the element is replaced and allows the technician to work without touching hot oil.



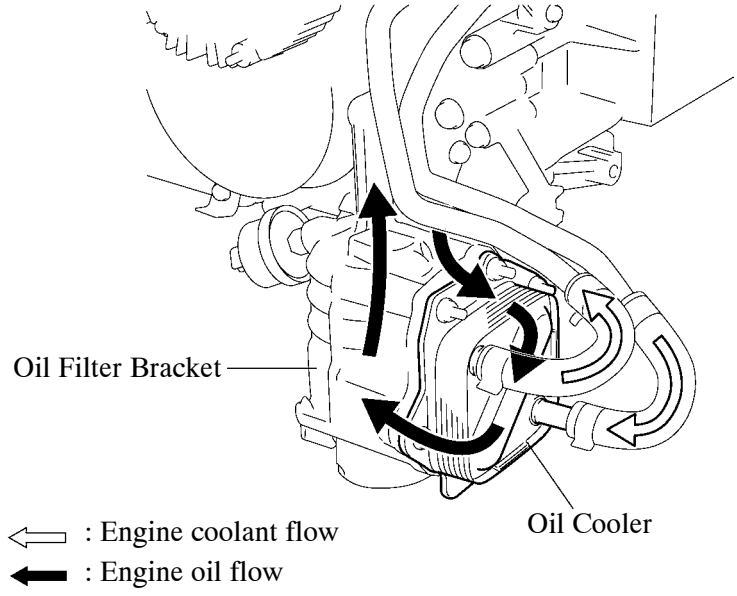
Service Tip

- The oil in the oil filter can be drained by removing the oil filter drain plug and inserting the drain pipe supplied with the element into the oil filter. For details, refer to the Repair Manual.
- The engine oil maintenance interval for a model that has an oil filter with a replaceable element is the same as that for the conventional model.

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5. Oil Cooler

- To suppress the increase of oil temperature while towing and to improve reliability, a water-cooled oil cooler is used.
- This oil cooler uses a square shaped laminated aluminum core to achieve lightweight, compact size, and a high heat radiation design.



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