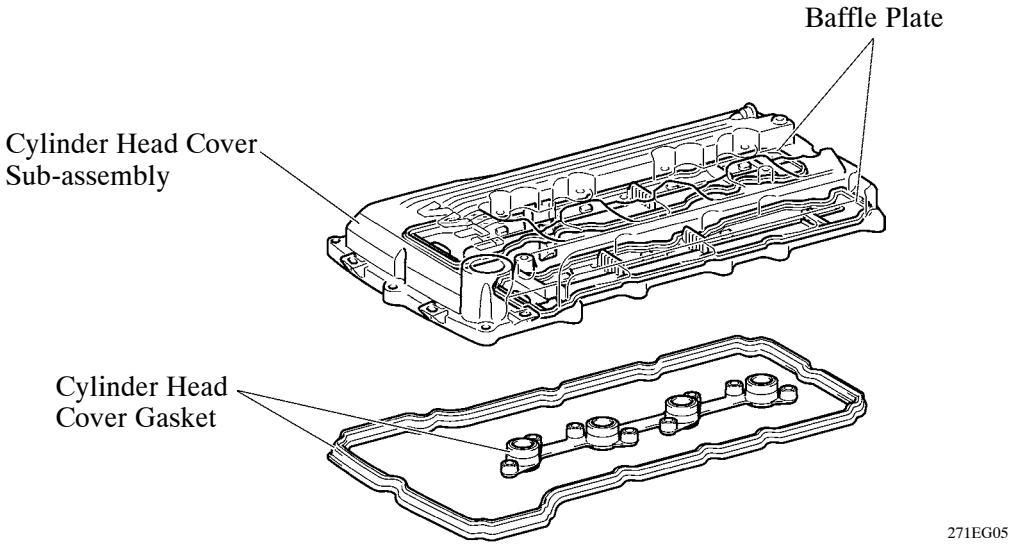
■ ENGINE PROPER

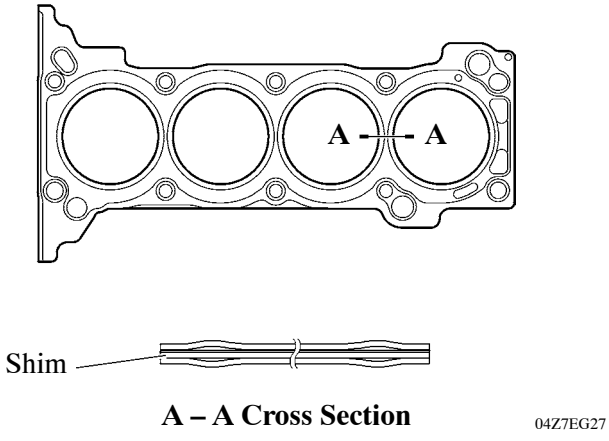
1. Cylinder Head Cover

- The cylinder head cover sub-assembly is made of plastic to reduce weight and noise.
- Acrylic rubber, which excels in heat resistance and reliability, is used for the cylinder head cover gasket.
- Baffle plates made of plastic are provided inside the cylinder head cover sub-assembly to reduce the consumption of engine oil through blow-by gas. The baffle plates are welded onto the cylinder head cover sub-assembly, and cannot be removed.



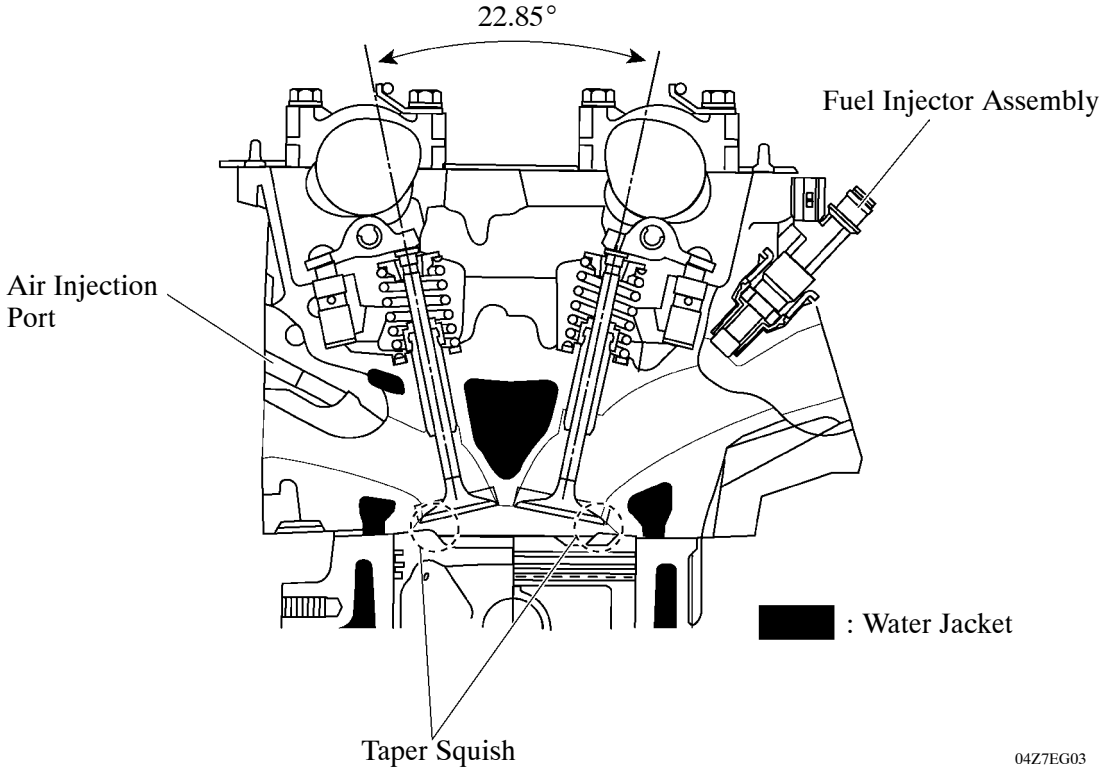
2. Cylinder Head Gasket

- A steel-laminate type cylinder head gasket is used.
- A shim is provided around the cylinder bore to increase the sealing surface, thus improving the sealing performance and durability.



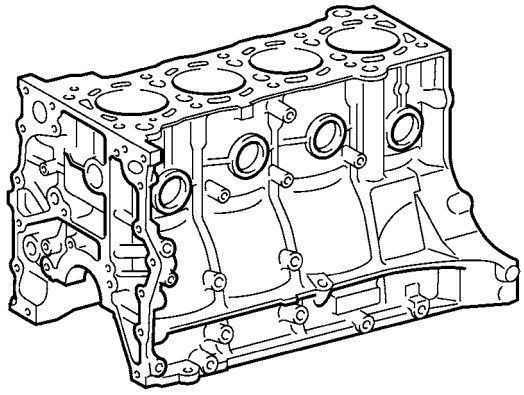
3. Cylinder Head

- The cylinder head sub-assembly, which is made of aluminum alloy, contains a pentroof-type combustion chamber. The spark plug has been located in the center of the combustion chamber in order to improve the engine's anti-knocking performance.
- The angle of the intake and exhaust valves is narrowed and set at 22.85° to permit a compact cylinder head sub-assembly.
- A cross-flow intake and exhaust layout is used to improve intake and exhaust efficiency.
- A taper squish combustion chamber is used to improve anti-knocking performance and intake efficiency. In addition, engine performance and fuel economy have been improved.
- The cylinder head bolt employs plastic region tightening bolts.
- Long nozzle type injectors are installed in the cylinder head to reduce the distance from fuel injector sub-assembly to intake valve, thus it prevents the fuel from adhering to the intake port walls, and reduce exhaust emissions.
- The routing of the water jacket in the cylinder head sub-assembly is optimized to achieve higher cooling performance.
- An air injection port, which directs the air from the air pump to the exhaust port of each cylinder, has been provided on top of the exhaust port on the models with the air injection system.



4. Cylinder Block

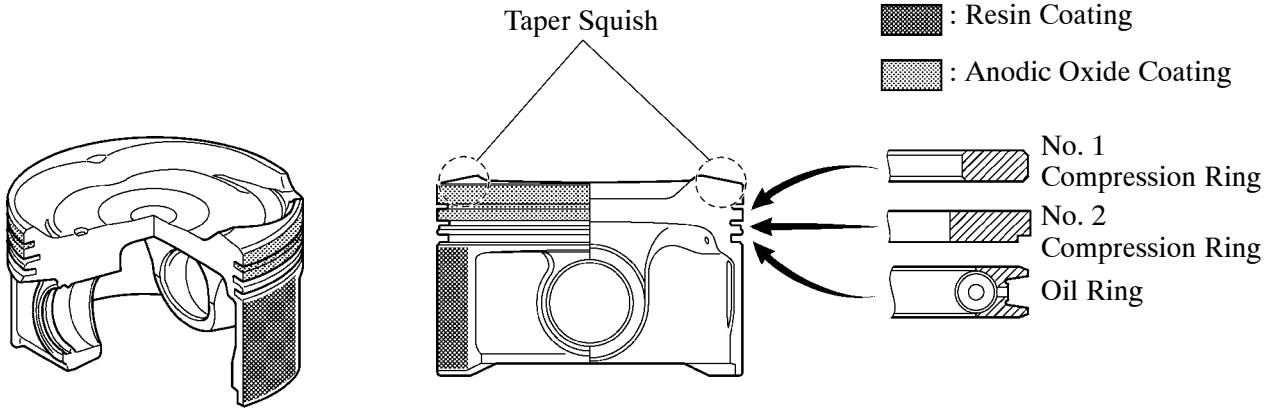
- The cylinder block sub-assembly is made of cast iron, and the rib shape of each part has been optimized to increase rigidity while reducing vibration and noise.



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5. Piston

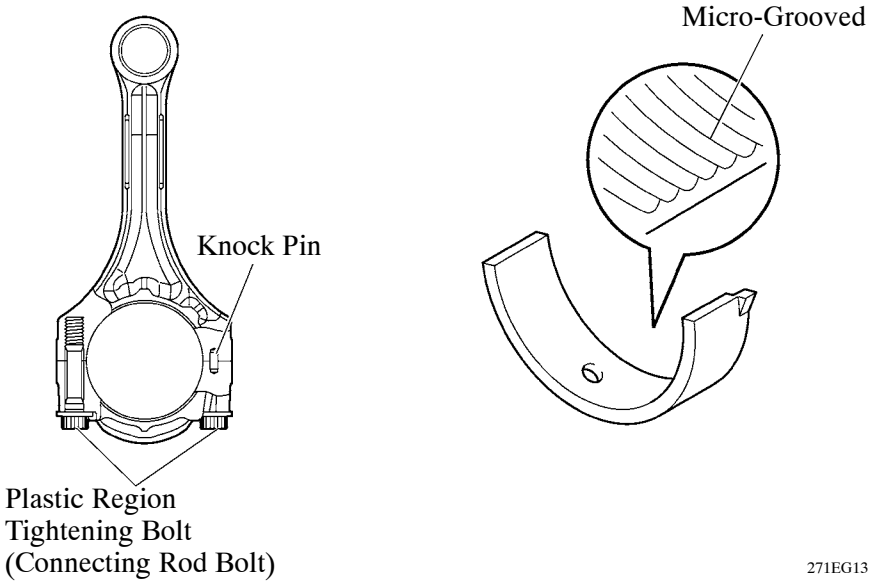
- The piston is made of aluminum alloy.
- The piston head portion uses a taper squish shape to accomplish fuel combustion efficiency.
- The piston skirt has been coated with resin to reduce the friction loss.
- The groove of the top ring has been coated with anodic oxide to improve wear resistance and rust resistance.



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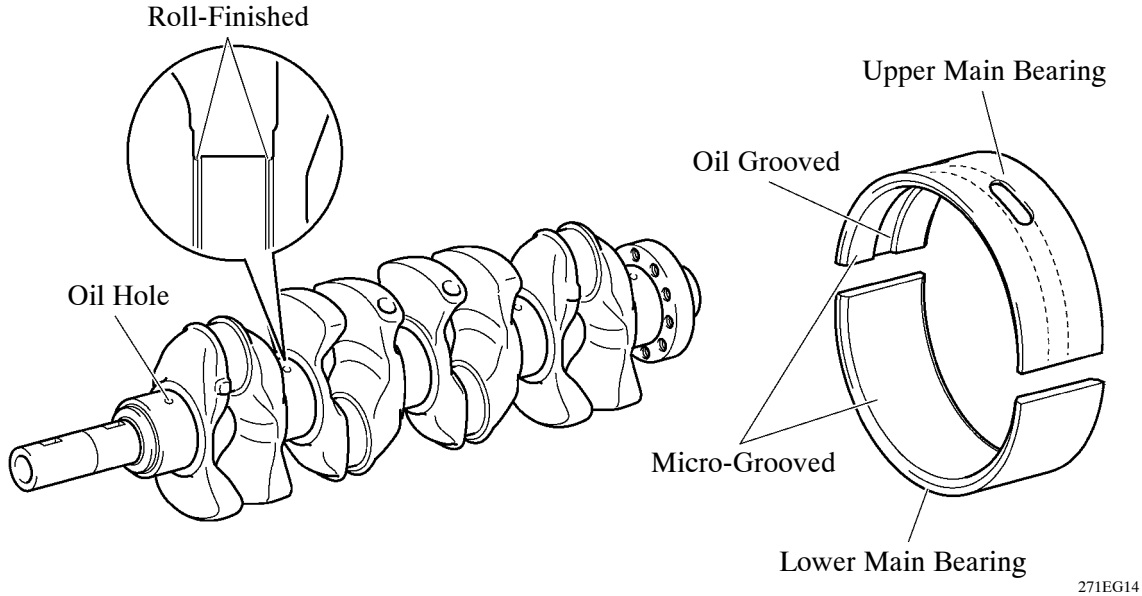
6. Connecting Rod and Connecting Rod Bearing

- Connecting rods that have been forged for high strength are used for weight reduction.
- Knock pins are used at the mating surfaces of the bearing caps of the connecting rod sub-assembly to minimize the shifting of the bearing caps during assembly.
- Plastic region tightening bolts (connecting rod bolt) are used.
- The lining surface of the connecting rod bearing has been micro-grooved to achieve an optimal amount of oil clearance. As a result, cold-engine cranking performance has been improved and engine vibrations have been reduced.



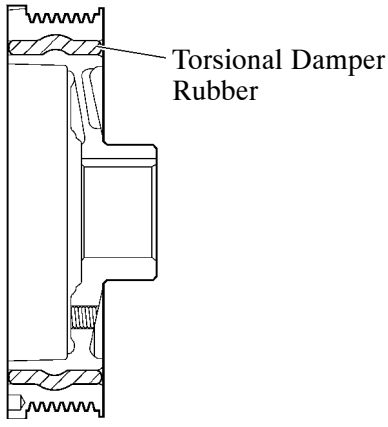
7. Crankshaft and Crankshaft Bearing

- The crankshaft has 5 journals and 8 balance weights.
- All pin and journal fillets are roll-finished to maintain adequate strength.
- The crankshaft bearing is made of aluminum alloy.
- The crankshaft bearing caps are tightened using 2 plastic-region tightening bolts for each journal.
- Similar to the connecting rod bearings, the lining surface of the crankshaft bearings has been micro-grooved to achieve an optimal amount of oil clearance. As a result, cold-engine cranking performance has been improved and engine vibrations have been reduced.
- The upper main bearing has an oil groove around its inside circumference.



8. Crankshaft Pulley

The rigidity of the torsional damper rubber has been optimized to reduce noise.



9. Oil Pan

- The oil pan sub-assembly material is made of aluminum alloy.
- The No. 2 oil pan sub-assembly material is made of steel.
- The oil pan sub-assembly is secured to the cylinder block sub-assembly and the transmission in order to increase rigidity.

