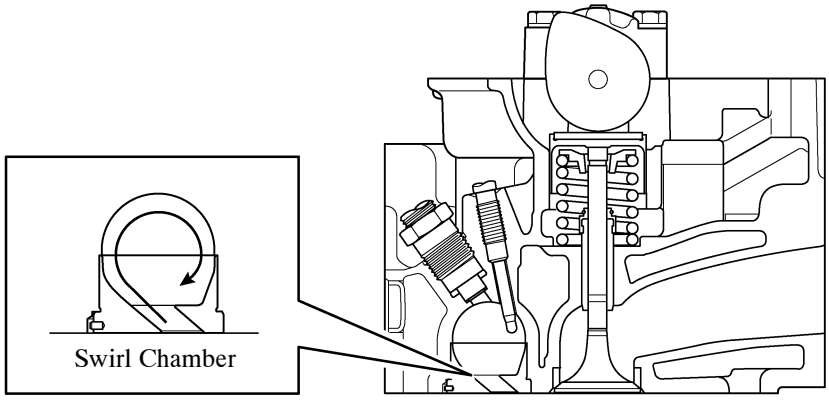
■ENGINE PROPER

1. Cylinder Head

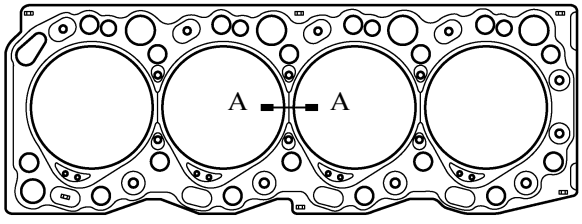
The combustion efficiency is enhanced by optimizing the swirl chamber shape. This improvement helps reduce the generation of CO, HC, and black smoke.

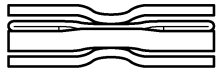


291EG04

2. Cylinder Head Gasket

- A 4-layer steel-laminate type cylinder head gasket, which excels in sealing performance and heat resistance, is used.
- Gaskets of different thicknesses are selected in accordance with the amount of protrusion of the pistons to reduce variations in the compression ratio.



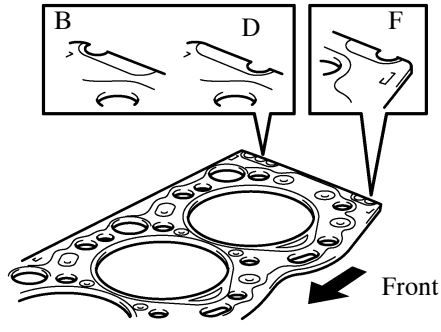


A - A Cross Section

203EG40

Service Tip

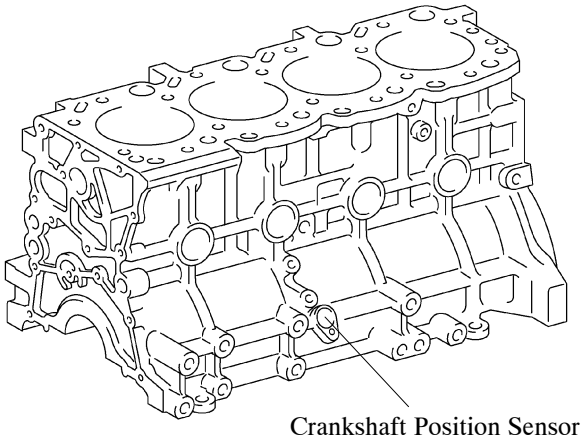
There are 3 sizes of new cylinder head gasket, marked B, D, or F according to piston protrusion. For details, refer to the Fortuner/Hilux SW4 Repair Manual.



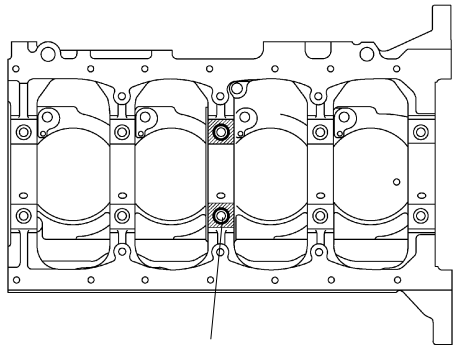
203EG41

3. Cylinder Block

- The portion of the No. 3 crankshaft bearing journal has been reinforced to reduce noise and improve rigidity.
- The crankshaft position sensor installation boss is provided on the cylinder block.



291EG20

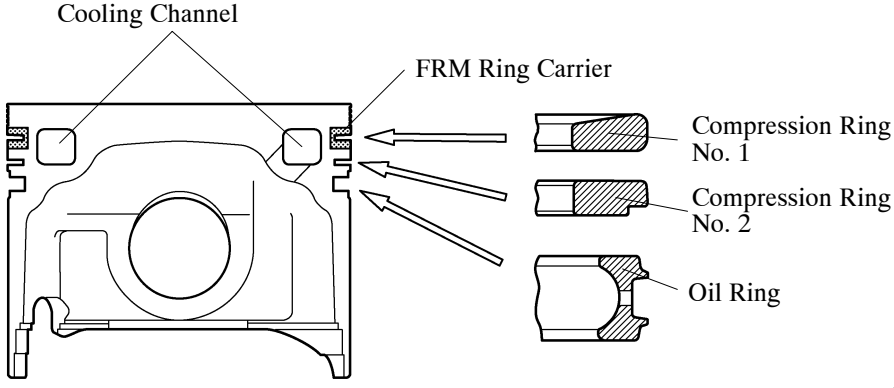


View from Bottom Side

203EG07

4. Piston

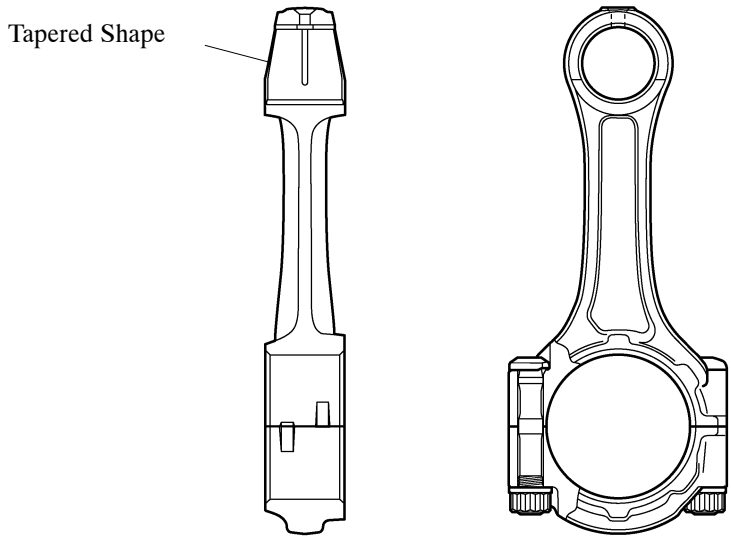
- The piston is made of aluminum alloy which excels in high-temperature strength. The skirt portion has been tin-plated to achieve wear resistance.
- A cooling channel has been provided at the upper part of the piston to improve the cooling performance.
- To improve the wear resistance of the top ring groove, a FRM (Fiber Reinforced Metal) ring carrier is used.
- The surfaces of the No. 1 and No. 2 piston rings and of the oil ring have been gas-nitrided to improve their wear resistance.



291EG43

5. Connecting Rod

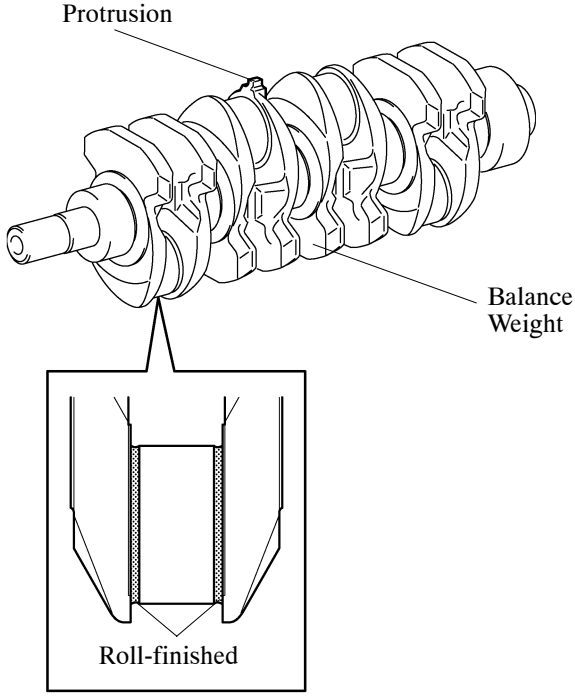
- The connecting rod is made of high-strength steel to ensure proper strength.
- A tapered shape has been given to the small end of the connecting rod to reduce weight.



203EG09

6. Crankshaft

- The crankshaft has 5 journals and 8 balance weights.
- A protrusion has been provided on the crankshaft to generate a crankshaft position signal.
- The balance weights have been streamlined in order to reduce their friction loss by the engine oil during high rpm operation.
- The fillet has been roll-finished to improve rigidity.



291EG19

7. Crankshaft Pulley

The rigidity of the torsional damper rubber is used to reduce noise.

