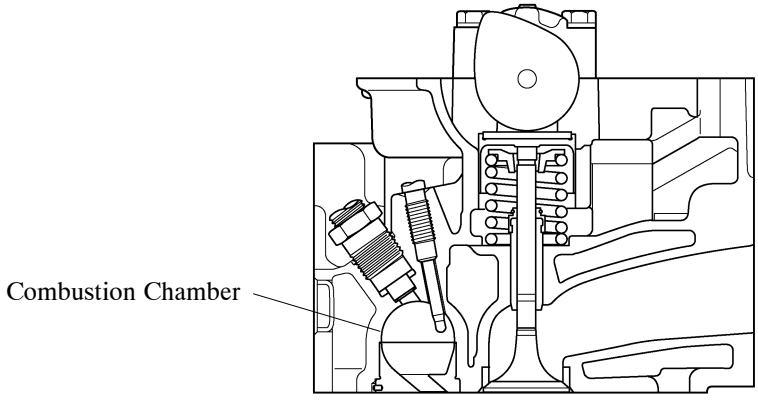
■ ENGINE PROPER

1. Cylinder Head

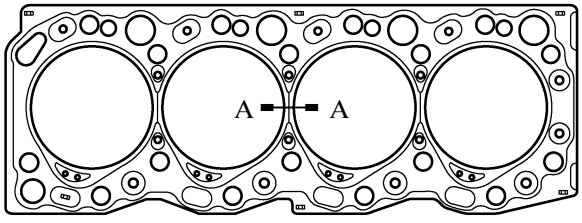
- The position of the valve in the fully closed state has been optimized to minimize the amount of air which is not used for combustion, thus improving the combustion efficiency.
- The shape of the combustion chamber has been optimized to improve combustion efficiency.

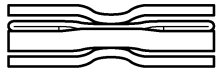


286EG22

2. Cylinder Head Gasket

- A 4-layer steel laminate type cylinder head gasket, which excels in sealing performance and heat resistance, is used.
- A gasket with appropriate thickness is selected depending on the amount of protrusion of the pistons to reduce variations in the compression ratio.



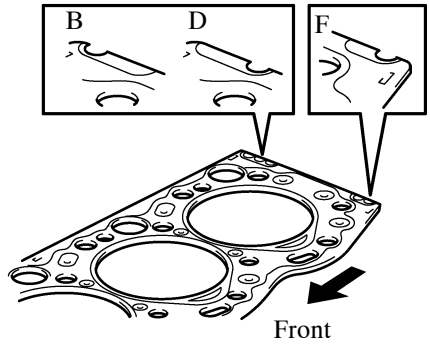


A – A Cross Section

203EG40

Service Tip

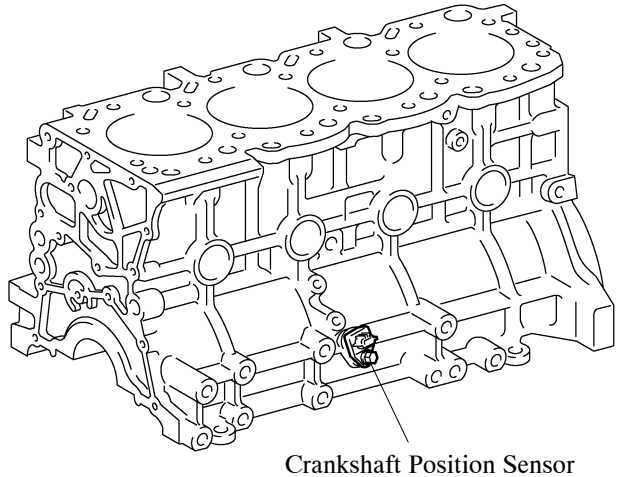
There are 3 sizes of new cylinder head gaskets, marked “B”, “D” or “F” according to piston protrusion. For details, refer to the Hiace Repair Manual (Pub. No. RM1171E)



203EG41

3. Cylinder Block

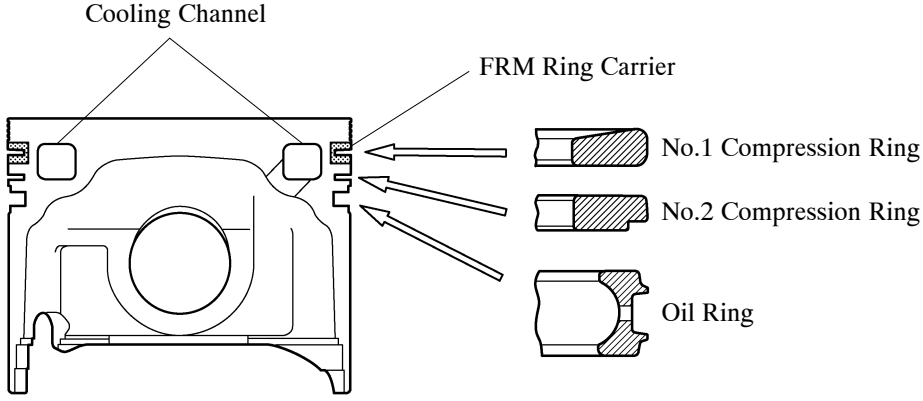
- A linerless cylinder block is used.
- Along with the adoption of the diesel EFI system, a crankshaft position sensor has been provided in the cylinder block.



215EG01

4. Piston

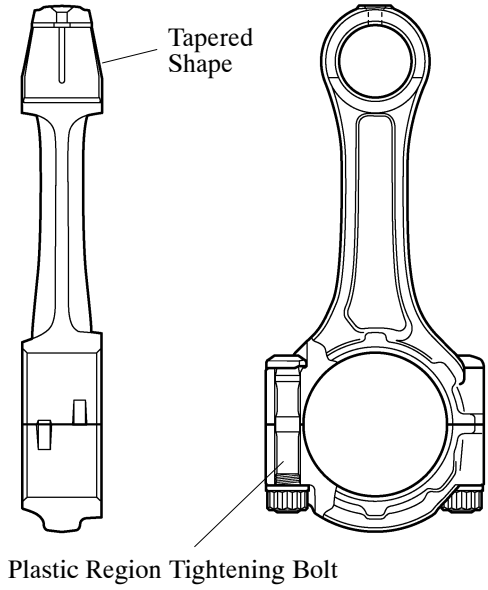
- The piston is made of aluminum alloy which excels in high-temperature strength. The skirt portion has been tin-plated to realize excellent wear resistance.
- A cooling channel has been provided at the upper part of the piston to improve the piston's cooling performance.
- To improve the wear resistance 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.



286EG17

5. Connecting Rod

- The connecting rod is made of high-strength steel to ensure the proper strength.
- The small end of the connecting rod has been given a tapered shape to reduce weight.
- Plastic region tightening bolts are used for the connecting rod.



6. Crankshaft

- The crankshaft has 5 journals and 8 balance weights.
- The balance weights have been streamlined in order to reduce their friction loss by the engine oil during high speed operation.
- The fillet has been roll finished to improve rigidity.
- Along with the adoption of the diesel EFI system, a protrusion has been provided on the crankshaft to generate a crankshaft position signal.

