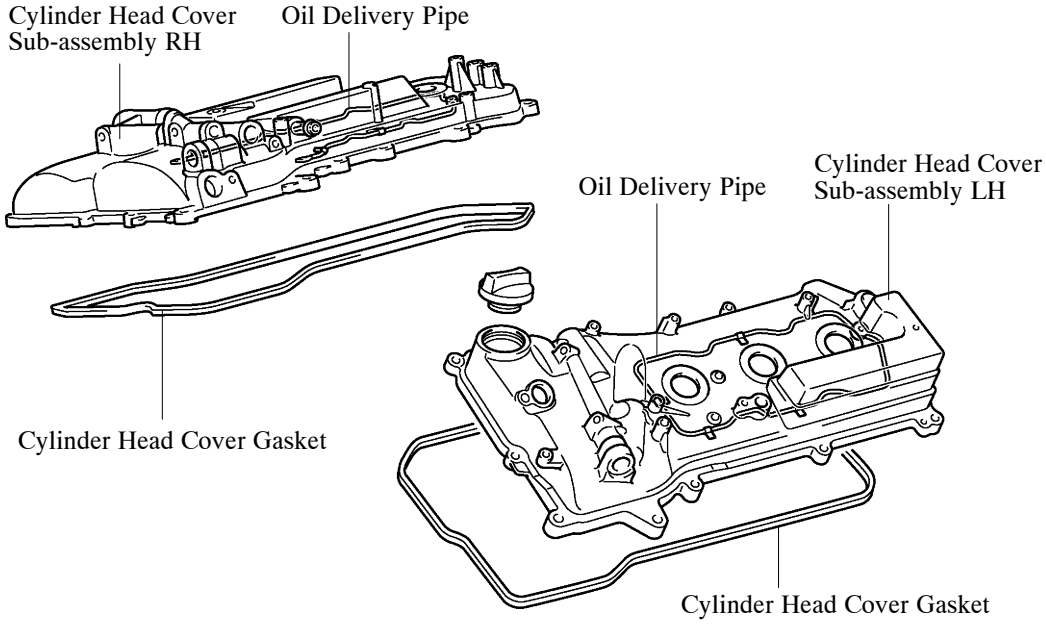
■ENGINE PROPER

1. Cylinder Head Cover Sub-assembly

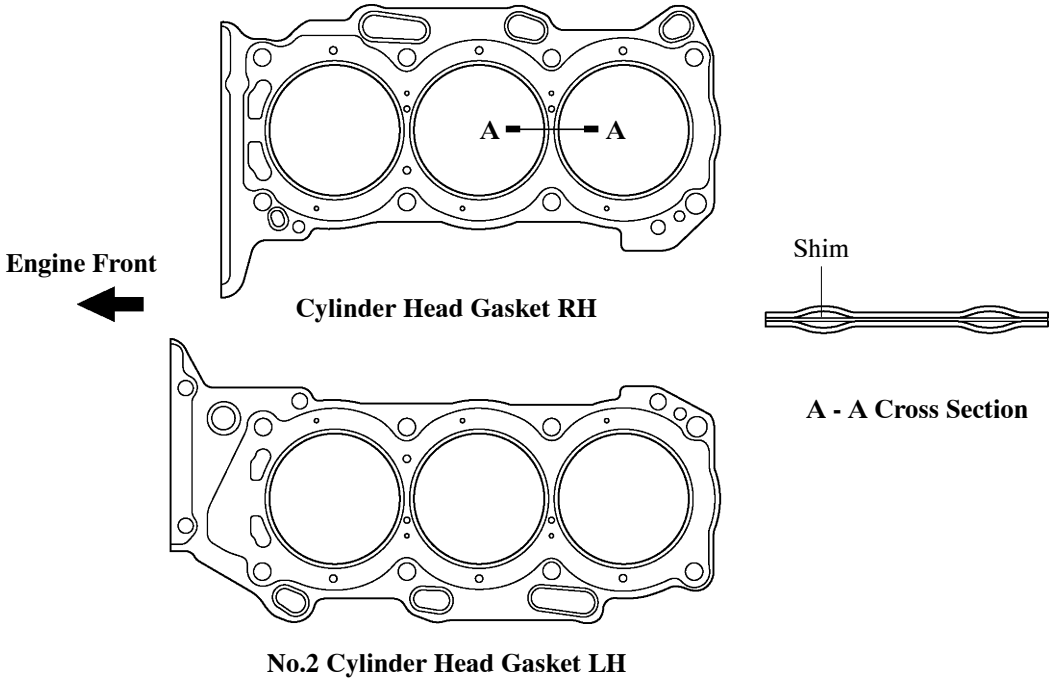
- Lightweight yet high-strength aluminum cylinder head cover sub-assemblies are used.
- An oil delivery pipe is installed inside the cylinder head cover sub-assembly. This ensures lubrication to the sliding parts of the roller No.1 valve rocker arm sub-assemblies, improving reliability.



0270EG10C

2. Cylinder Head Gasket RH and No.2 Cylinder Head Gasket LH

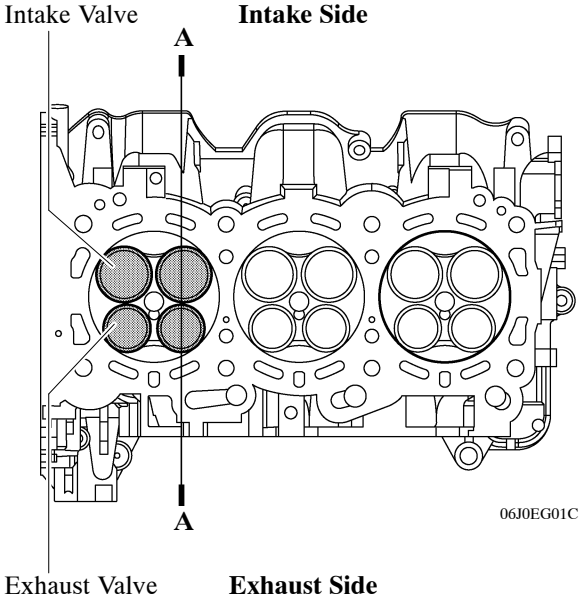
Steel-laminate type cylinder head gasket RH and No.2 cylinder head gasket LH are used. A shim is used around the cylinder bore of each gasket to help enhance sealing performance and durability.

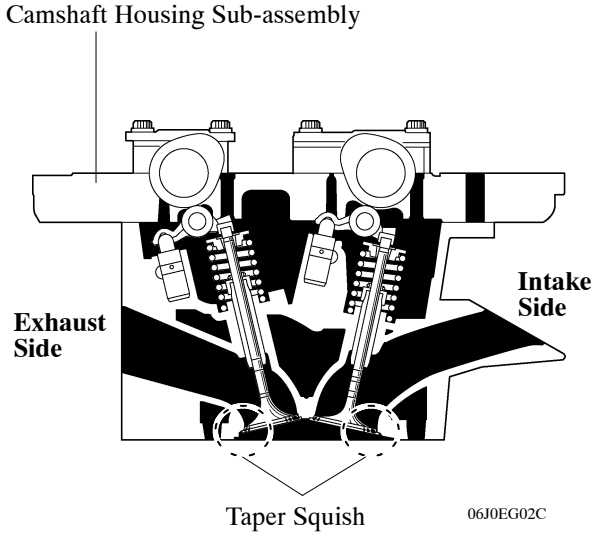


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3. Cylinder Head Sub-assembly RH and Cylinder Head Sub-assembly LH

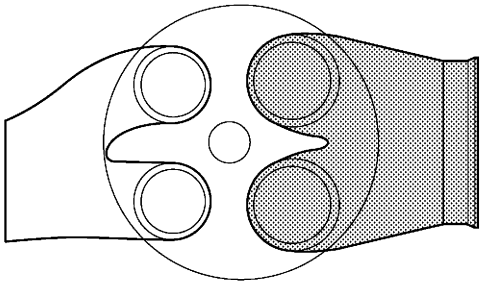
- The cylinder head sub-assembly structure is simplified by separating the cam journal portion (camshaft housing sub-assembly) from the cylinder head sub-assembly.
- The cylinder head sub-assembly, which is made of aluminum, contains a pentroof-type combustion chamber. The spark plug is located in the center of the combustion chamber in order to improve the engine's anti-knocking performance.
- The intake ports are on the inside and the exhaust ports on the outside of the left and right banks respectively.
- A taper squish combustion chamber is used to improve anti-knocking performance and intake efficiency. In addition, engine performance and fuel economy are improved.
- Siamese type intake ports are used to reduce the overall surface area of the intake port walls. This prevents the fuel from adhering to the intake port walls, thus reducing HC exhaust emissions.





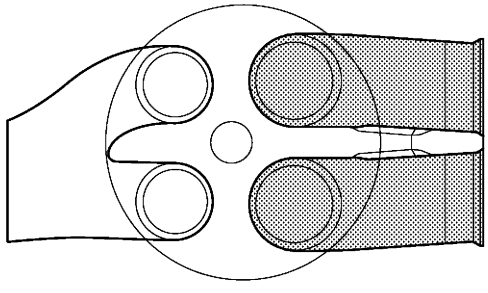
A - A Cross Section

— REFERENCE —



Siamese Type

215EG18

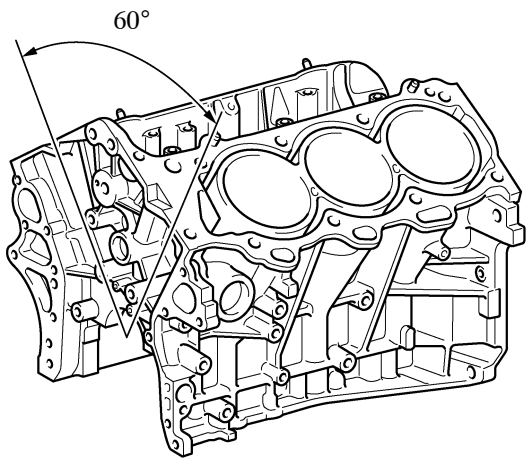


Independent Type

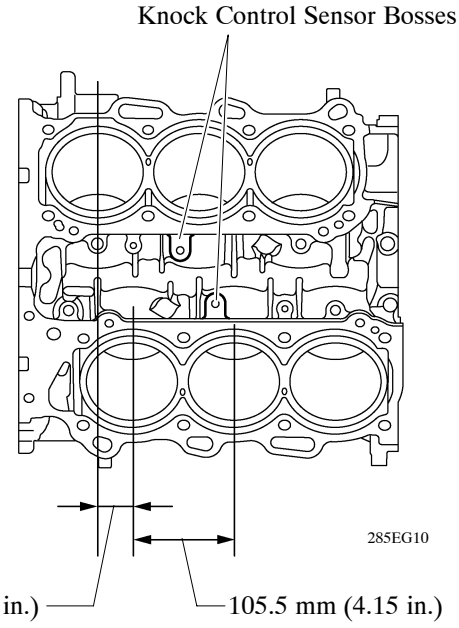
215EG19

4. Cylinder Block Sub-assembly

- The cylinder block sub-assembly is made of aluminum alloy, so it is lightweight.
- The cylinder block sub-assembly has a bank angle of 60°, a bank offset of 36.6 mm (1.441 in.) and a bore pitch of 105.5 mm (4.15 in.), resulting in a compact block (length and width) for its displacement.
- Installation bosses for the two knock control sensors are located on the inside of the left and right banks.

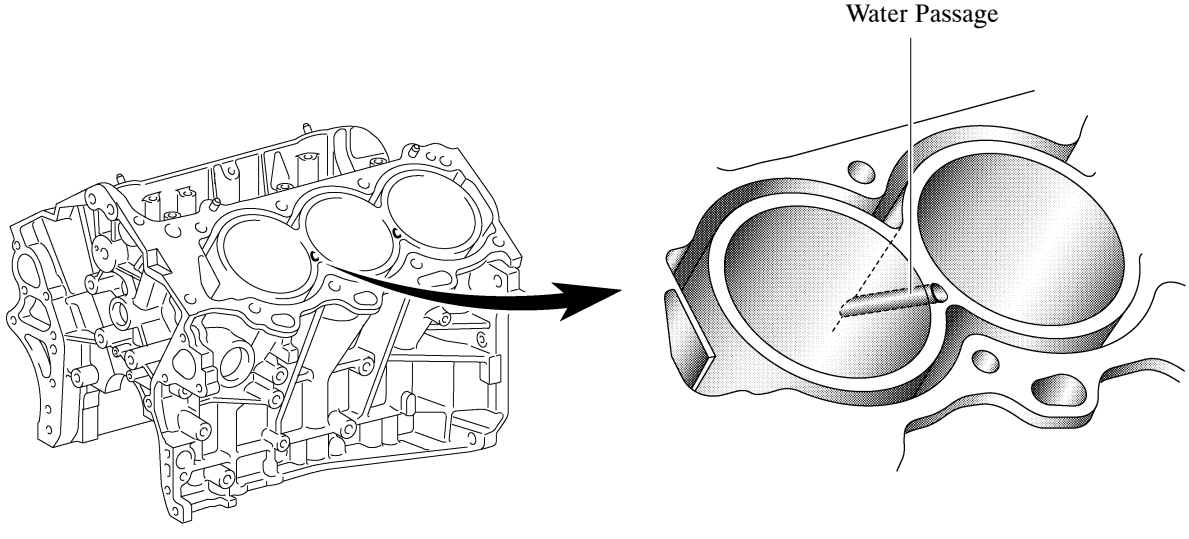


285EG09



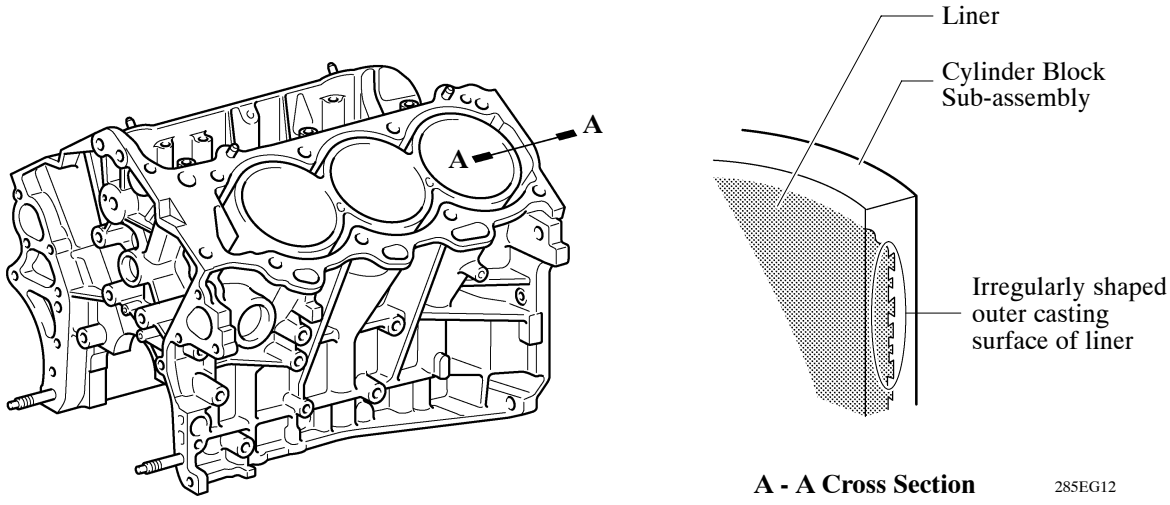
285EG10

- A water passage has been provided between the cylinder bores. By allowing the engine coolant to flow between the cylinder bores, this construction enables the temperature of the cylinder walls to be kept uniform.



06J0EG03C

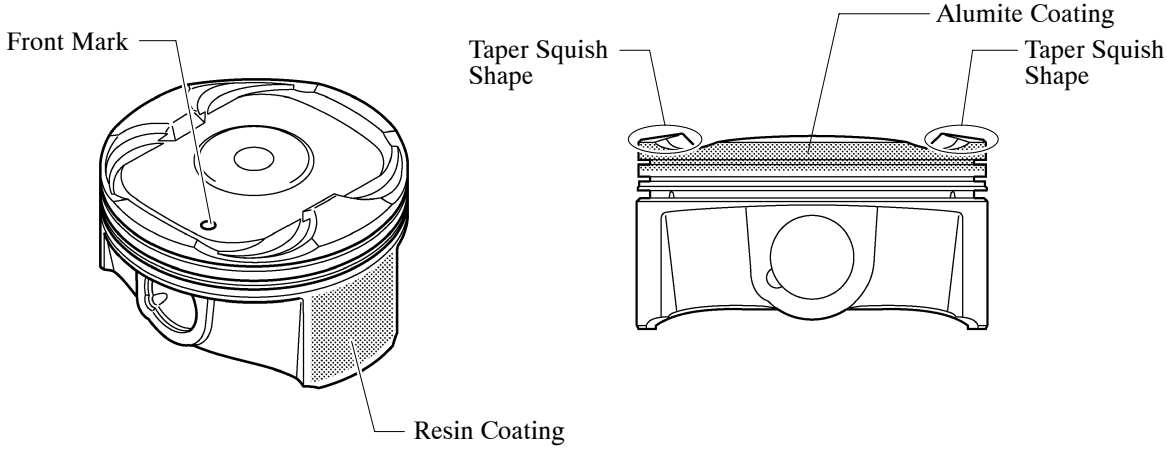
- A compact block has been achieved by producing the thin cast-iron liners and cylinder block sub-assembly as a unit. It is not possible to rebore a block which uses this type of liner.
- The liners are a spiny-type, which have been manufactured so that their casting exterior forms a large irregular surface in order to enhance the adhesion between the liners and the aluminum cylinder block sub-assembly. The enhanced adhesion helps improve heat dissipation, resulting in a lower overall temperature and reduced heat deformation of the cylinder bores.



A - A Cross Section 285EG12

5. Piston

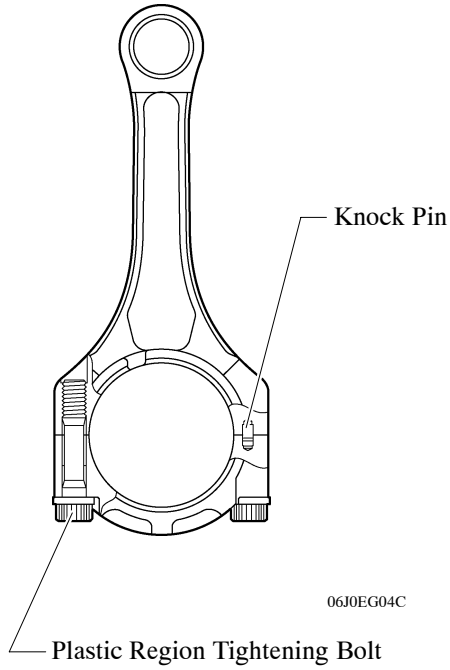
- The piston is made of aluminum alloy.
- The piston head portion uses a taper squish shape to accomplish fuel combustion efficiency.
- The piston skirt is coated with resin to reduce friction losses.
- The groove of the top ring is coated with alumite to ensure abrasion resistance.
- By increasing the machining precision of the cylinder bore diameter in the block, only one size piston is required.



285EG13

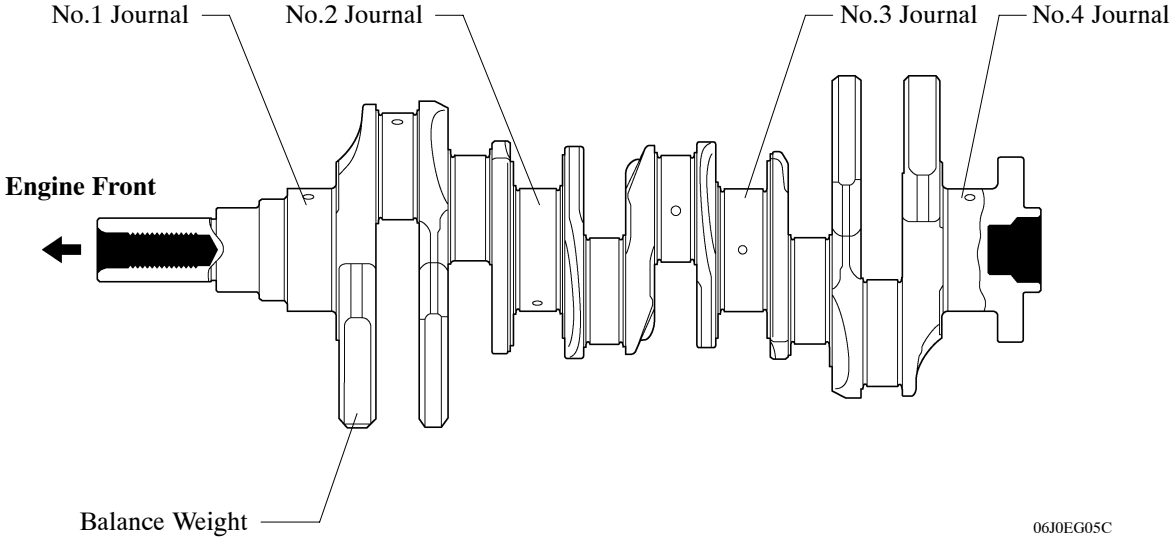
6. Connecting Rod Sub-assembly

- Connecting rod sub-assemblies that have been forged for high strength are used for weight reduction.
- Knock pins are used at the mating surfaces of the connecting rod caps to minimize the shifting of the connecting rod caps during assembly.
- Nutless-type plastic region tightening bolts are used on the connecting rod sub-assemblies for a lighter design.
- Aluminum bearings are used for the connecting rod bearings.
- The connecting rod bearings are reduced in width to reduce friction.



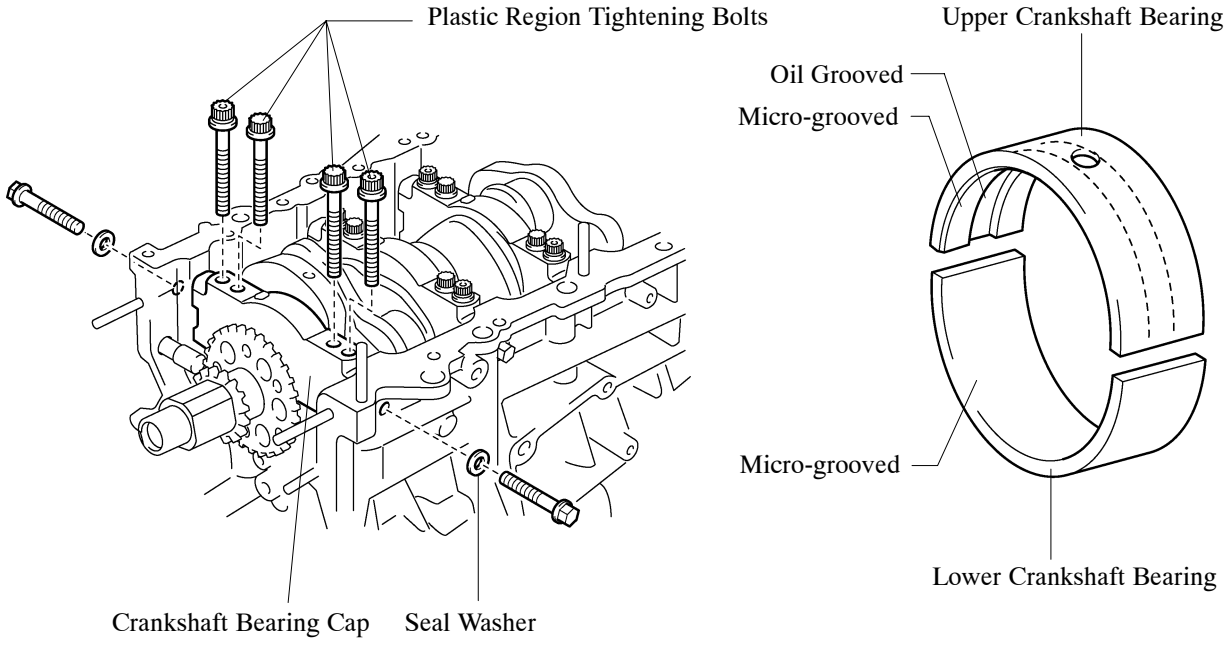
7. Crankshaft

- A crankshaft made of forged steel, which excels in rigidity and wear resistance, is used.
- The crankshaft has 4 main bearing journals and 5 balance weights.



8. Crankshaft Bearing and Crankshaft Bearing Cap

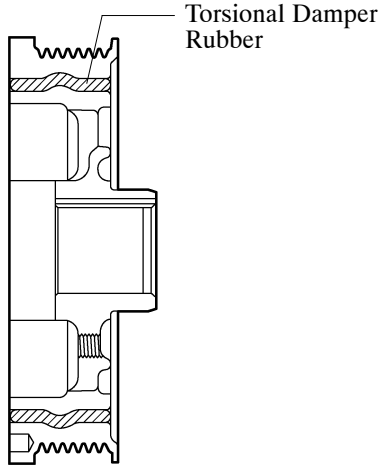
- The crankshaft main bearings are made of aluminum alloy.
- Similar to the connecting rod bearings, the lining surface of the crankshaft bearings is micro-grooved to realize an optimal amount of oil clearance. As a result, cold-engine cranking performance is improved and engine vibration is reduced.
- The upper crankshaft bearing has an oil groove around its inside circumference.
- The crankshaft bearing caps are tightened using 4 plastic-region tightening bolts for each journal. In addition, each cap is tightened laterally to improve its reliability.



285EG81

9. Crankshaft Pulley

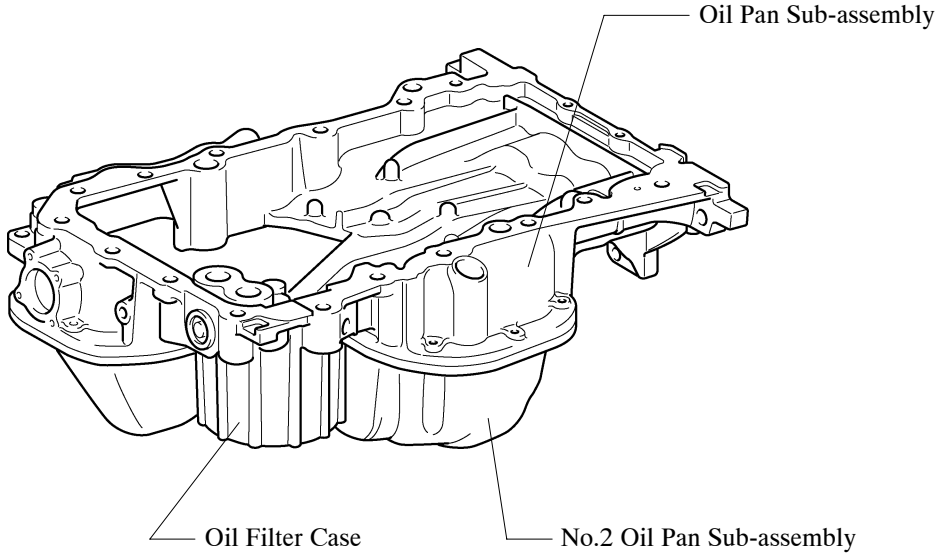
The rigidity of the crankshaft pulley with its built-in torsional damper rubber reduces noise.



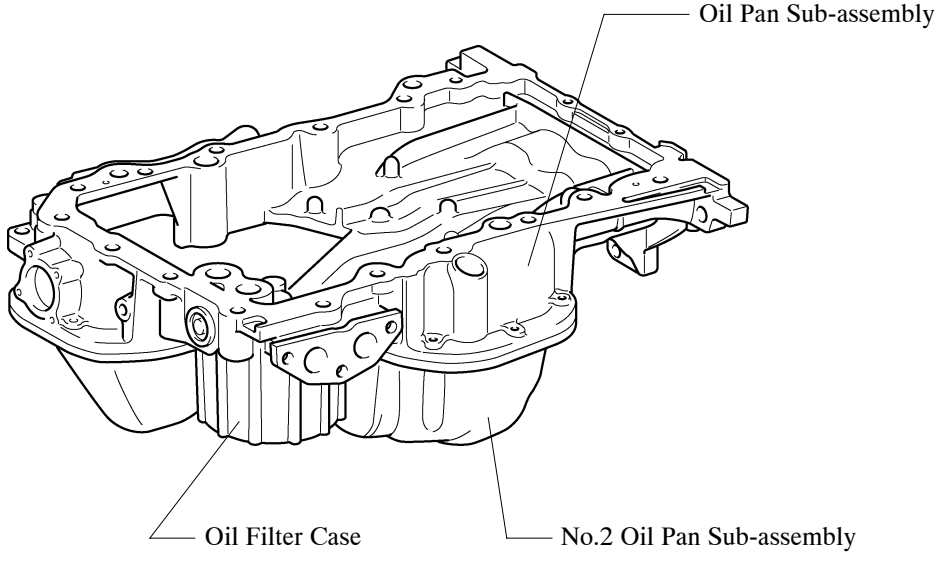
285EG80

10. Oil Pan

- The oil pan sub-assembly is made of aluminum alloy.
- The No.2 oil pan sub-assembly is made of steel.
- The oil pan sub-assembly is secured to the cylinder block sub-assembly and the transaxle housing to increase rigidity.
- The oil filter case is integrated with the oil pan sub-assembly.



Without Oil Cooler 06J0EG06C



With Oil Cooler 06J0EG81C