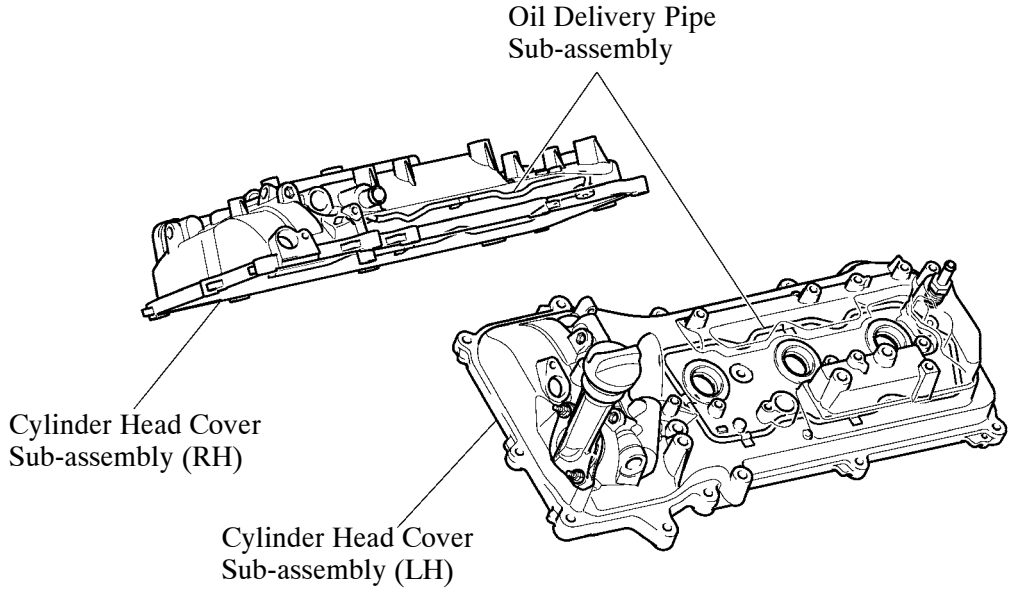
Item		(1)	(2)	(3)	(4)	(5)	New	Previous
Charging System	A segment conductor type generator is used.	○		○			○	○
	A generator pulley with a clutch is used.					○	○	
Serpentine Belt Drive System	A serpentine belt drive system is used.			○	○		○	○
Engine Control System	Magnetic Resistance Element (MRE) type VVT sensors are used.	○					○	○
	An air injection system is used.					○	○*	
	The Electronic Throttle Control System-intelligent (ETCS-i) is used.	○				○	○	○
	An evaporative emission control system is used.					○	○	○

*: Models compliant with EURO 5 emission regulations

■ ENGINE PROPER

1. Cylinder Head Cover Sub-assembly

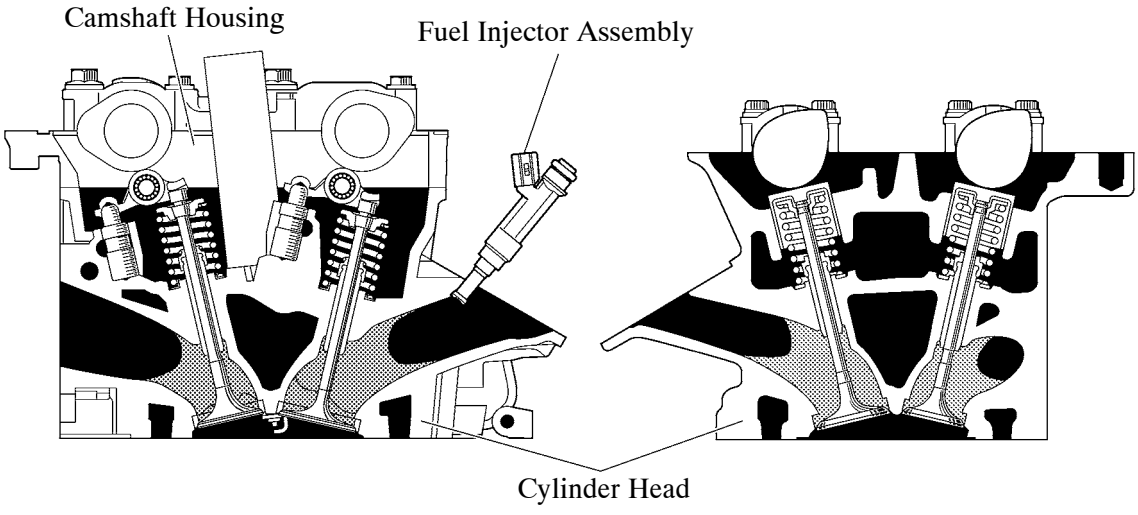
An oil delivery pipe sub-assembly is installed inside each cylinder head cover sub-assembly. This ensures lubrication to the sliding parts of the valve rocker arm sub-assembly, achieving reliability.



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2. Cylinder Head Sub-assembly

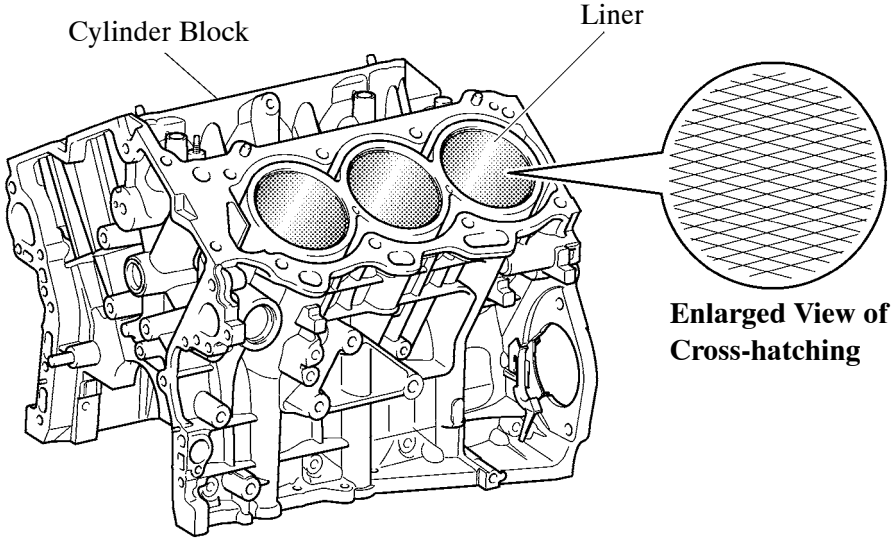
- The cylinder head sub-assembly structure has been simplified by separating the camshaft housing (cam journal portion) from the cylinder head.
- By fitting the fuel injector assembly so that its nozzle end juts into the intake port, the intake port cross sectional area has become smooth, enhancing the efficiency of air intake. Furthermore, the distance between the injector nozzle end and intake valve has been shortened. As a result, the amount of fuel that adheres to the intake port has been reduced, increasing the fuel economy as well as reducing the exhaust emissions.



3. Cylinder Block Sub-assembly

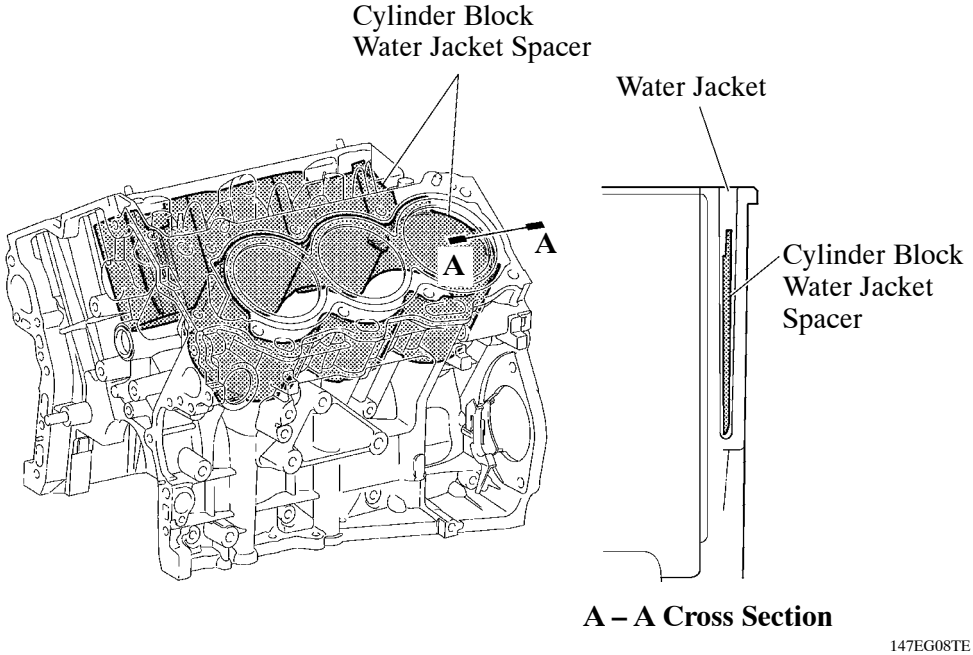
Liner

The shape of the cross-hatching of the liner surface has been optimized to improve oil retention performance, resulting in reduced friction.



Cylinder Block Water Jacket Spacer

- Cylinder block water jacket spacers have been added to the water jacket.
- The cylinder block water jacket spacer prevents water flow in the middle and below the water jacket and draws coolant above the cylinder bore, to ensure uniform temperature distribution. As a result, the viscosity of the engine oil that acts as a lubricant between the bore walls and the pistons can be lowered, thus reducing friction.

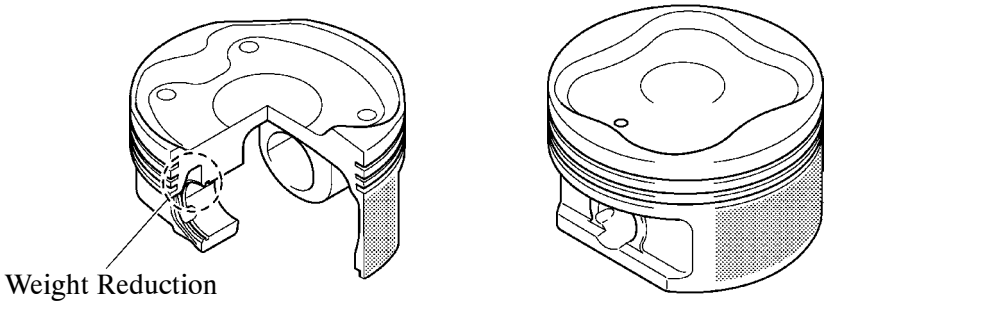


A – A Cross Section

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4. Piston

- The piston shape has been optimized for a high compression ratio.
- In order to reduce weight, cast holes have been provided on the bottom of the piston head near the pin bosses as shown in the illustration below.
- The outer surface of the No. 2 compression ring has been plated with chrome in order to be compatible with gasoline/ethanol mixed fuel.

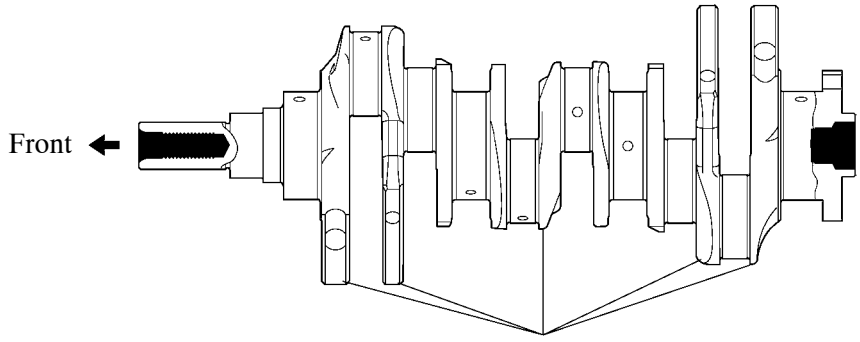


New Model **Previous Model**

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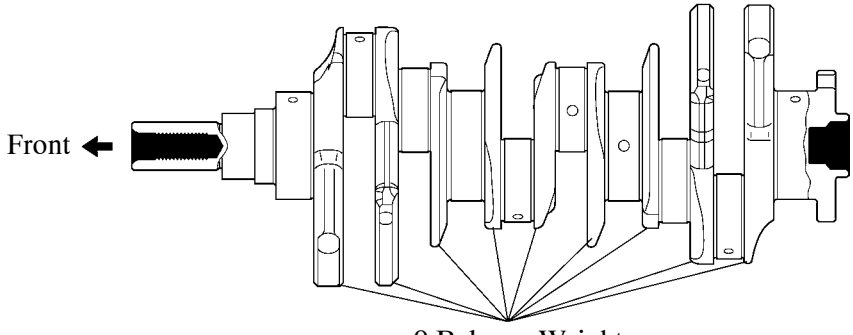
5. Crankshaft

A 5 balance weight crankshaft is used for weight reduction, and the installation locations of the balance weights have been optimized to reduce vibration and noise.



5 Balance Weight

New Model



9 Balance Weight

Previous Model

147EG10TE