■ MAJOR DIFFERENCES

Based on the 1ZZ-FE engine, the following changes have been made to the 2ZZ-GE engine:

System	Features
Engine Proper	● A rocker arm type valve mechanism has been installed to accommodate the adoption of the VVTL-i (Variable Valve Timing and Lift-intelligent) system. ● The valve angle has been increased to improve the exhaust efficiency. ● An oil control valve housing for the variable valve lift has been adopted in conjunction with the adoption of the VVTL-i system. ● The MMC (Metal Matrix Composite) material has been adopted for the cylinder walls in the cylinder block to ensure proper wear resistance while realizing a linerless construction. ● The piston surface has been coated with iron and tin.
Valve Mechanism	The VVTL-i system is used. Along with the use of this system, a rocker arm type valve mechanism has been adopted, as well as dedicated intake and exhaust camshafts.
Lubrication System	● A water-cooled oil cooler has been adopted to ensure stable engine oil temperature. ● Along with the adoption of the VVTL-i system, an oil control valve (for variable valve lift) has been added.
Intake and Exhaust System	● Intake manifold made of aluminum has been adopted. ● A partition plate has been provided in the exhaust manifold and exhaust front pipe to achieve a dual construction in order to improve torque in the low-to mid-speed range.
Fuel System	4-hole type fuel injectors have been adopted to improve the atomization of fuel.
Engine Control System	The VVTL-i system has been adopted. This system controls the intake and exhaust camshafts and the cam changeover mechanism to achieve an optimal valve timing and valve lift in accordance with the engine conditions.