■MAJOR DIFFERENCE

The 1GR-FE engine on the new models and the 1GR-FE engine on the previous models have the following major differences:

System	Outline
Engine Proper	● Oil delivery pipe sub-assembly is used for the cylinder head cover sub-assembly. ● The cylinder head structure has been changed; the camshaft housing is now separate from the cylinder head. ● The shapes of the cylinder head intake ports and the locations of the fuel injectors have been optimized. ● The surface treatment of the cylinder block liner has been changed. ● A cylinder block water jacket spacer has been added. ● The shape of the piston has been changed. ● A 5 balance weight crankshaft is used.
Valve Mechanism	● A Dual Variable Valve Timing-intelligent (Dual VVT-i) system, in which the VVT-i system has also been added to the exhaust side, is used. ● A valve rocker arm sub-assembly is used. ● A valve lash adjuster assembly is used. ● Cam lobes with indented R profiles are used.
Lubrication System	● Oil passages for the camshaft timing gear assembly (exhaust) and a valve lash adjuster assembly have been added. ● An oil filter with a replaceable element is used.
Intake and Exhaust System	● The shape and installation location of the air cleaner have been changed. ● The throttle valve diameter has been increased. ● The shape of the intake air surge tank has been optimized. ● The shape of the exhaust manifold has been changed. ● The volume and cell density of the Three-Way Catalytic converter (TWC) have been optimized.
Fuel System	● A long nozzle type fuel injector assembly is used. ● The fuel system is made compatible with E20 fuel.
Ignition System	Iridium-tipped spark plugs are used.
Charging System	An alternator pulley with a one-way clutch is used.
Starting System	The starter has been changed to an RA1.4 type starter.
Engine Control System	● A Dual VVT-i system is used. ● An air injection system is used.*

*: Models compliant with EURO 5 emission regulations