■FEATURES OF 2GR-FE ENGINE

The 2GR-FE engine has achieved the following performance through the use of the items listed below.

(1) High performance and reliability
(2) Low noise and vibration
(3) Lightweight and compact design
(4) Good serviceability
(5) Clean emission and fuel economy

Item		(1)	(2)	(3)	(4)	(5)
Engine Proper	A steel laminate type cylinder head gasket is used.	○				
	A taper squish shape is used for combustion chamber.	○				○
	A cylinder block sub-assembly made of aluminum alloy is used.			○		
	The skirt portion of each piston has a resin coating applied to reduce friction.	○	○			○
	An oil pan sub-assembly made of aluminum alloy is used.		○	○		
Valve Mechanism	A Dual VVT-i (Variable Valve Timing-intelligent) system is used.	○				○
	Hydraulic valve lash adjuster assemblies are used.	○	○		○	
	A timing chain sub-assembly, chain tensioner assembly (primary), and No.2 chain tensioner assembly (secondary) are used.		○	○	○	
	Roller No.1 valve rocker arm sub-assemblies are used.	○				○
Lubrication System	An oil filter with a replaceable element is used.				○	
Cooling System	The engine coolant is used the TOYOTA Genuine SLLC (Super Long Life Coolant).				○	
Intake and Exhaust System	A cable-less type throttle body is used.			○	○	
	An intake air surge tank made of plastic is used.			○		
	Stainless steel exhaust manifold sub-assemblies (RH and LH) are used.			○		○
	An ultra thin-wall, high-cell density ceramic type TWC (Three-Way Catalytic converter) is used.					○
Fuel System	A fuel delivery pipe sub-assembly made of plastic is used.			○		
	A compact 12-hole type fuel injector assembly is used.	○				○
	A multi-layer plastic fuel tank assembly is used.			○		○
	Quick connectors are used to connect the fuel hose with the fuel pipe.				○	
Ignition System	The DIS (Direct Ignition System) makes ignition timing adjustment unnecessary.	○			○	○
	Long-reach type iridium-tipped spark plugs are used.	○			○	○
Charging System	A segment conductor type generator assembly is used.	○		○		
	A generator clutch pulley with a one-way clutch is used.	○				○
Starting System	A PS (Planetary reduction-Segment conductor motor) type starter assembly is used.			○		

(Continued)

Item		(1)	(2)	(3)	(4)	(5)
Engine Mount	An active control engine mount is used.		○			
Serpentine Belt Drive System	A serpentine belt drive system is used.			○	○	
Engine Control System	MRE (Magnetic Resistance Element) type VVT sensors are used.	○				
	The ETCS-i (Electronic Throttle Control System-intelligent) is used.	○				○
	An ACIS (Acoustic Control Induction System) is used.	○				
	An air intake control system is used.	○	○			
	The cranking hold function* is used.	○				
	An evaporative emission control system is used.					○

*: Only Models with Smart Key System