

2. Features of 2TR-FE Engine

The 2TR-FE engine has achieved the following performance through the adoption 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 cylinder head cover made of plastic is used.			○		
	The taper squish shape is used for the piston head.	○				○
	2 balance shafts are used.		○			
	An oil pan No.1 made of aluminum alloy is used.		○	○		
Valve Mechanism	A valve mechanism in which the camshafts actuate the roller rocker arms in order to open and close the valves, has been adopted.	○				○
	Hydraulic lash adjuster is used.	○	○		○	
	The VVT-i system is used.	○				○
	A timing chain and chain tensioner are used.	○		○	○	
Cooling System	The water bypass pipe made of plastic is used.			○		
Intake and Exhaust System	Intake manifold made of plastic is used.			○		
	A stainless steel exhaust manifold is used.			○		
	A TWC (Three Way Catalytic Converter) is used. *					○
	The link-less type throttle body is used.			○	○	
Fuel System	Long nozzle, 12-hole type (unleaded gasoline models) or 4-hole type (leaded gasoline models) fuel injectors with a high atomizing performance are used.	○				○
Ignition System	The long-reach type spark plugs are used.	○				○
	The DIS (Direct Ignition System) makes ignition timing adjustment unnecessary.	○		○	○	○
Charging System	A segment conductor type alternator is used.	○		○		
Starting System	The PS (Planetary reduction-Segment conductor motor) type starter is used.	○		○		
Engine Control System	The ETCS-i is used.	○				○
	The flat type knock sensor is used.	○				
	The no-contact sensor is used in the throttle position sensor and accelerator pedal position sensor.	○				
	The use of an air fuel ratio sensor allows for precise control.*					○
	An Air Injection system has been adopted. *					○

*: for Unleaded Gasoline Models