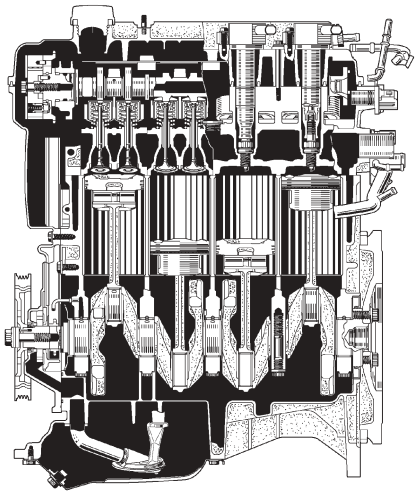
1NZ-FE AND 2NZ-FE ENGINES

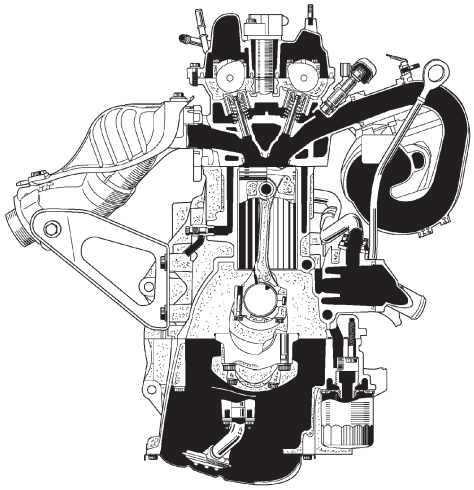
■ DESCRIPTION

- The 1NZ-FE engine is an in-line, 4-cylinder, 1.5 liter, 16-valve DOHC engine.
- The 2NZ-FE engine is an in-line, 4-cylinder, 1.3 liter, 16-valve DOHC engine. The 2NZ-FE engine is available for use with leaded or unleaded gasoline, depending on the destination.
- The VVT-i* (Variable Valve Timing-intelligent) system, the DIS (Direct Ignition System), and a plastic intake manifold is used on these engines in order to achieve excellent performance and fuel economy and reduce exhaust emissions.

*: Unleaded Gasoline Models

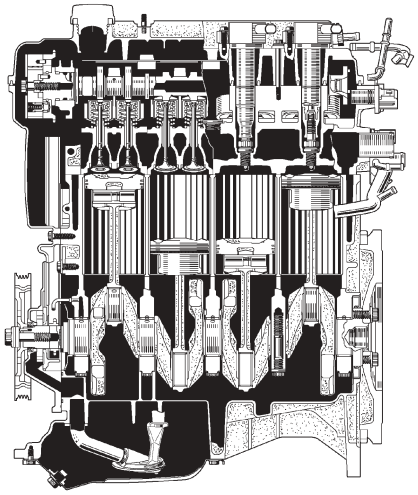


00REG01Y

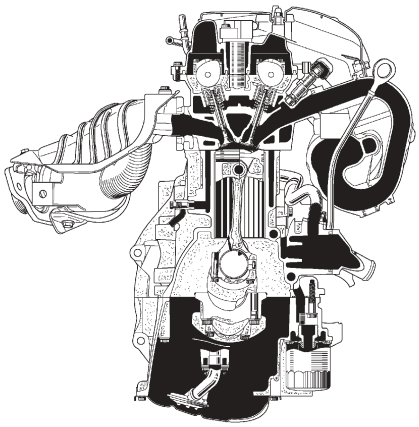


00REG02Y

1NZ-FE Engine



00REG01Y



00SEG44Y

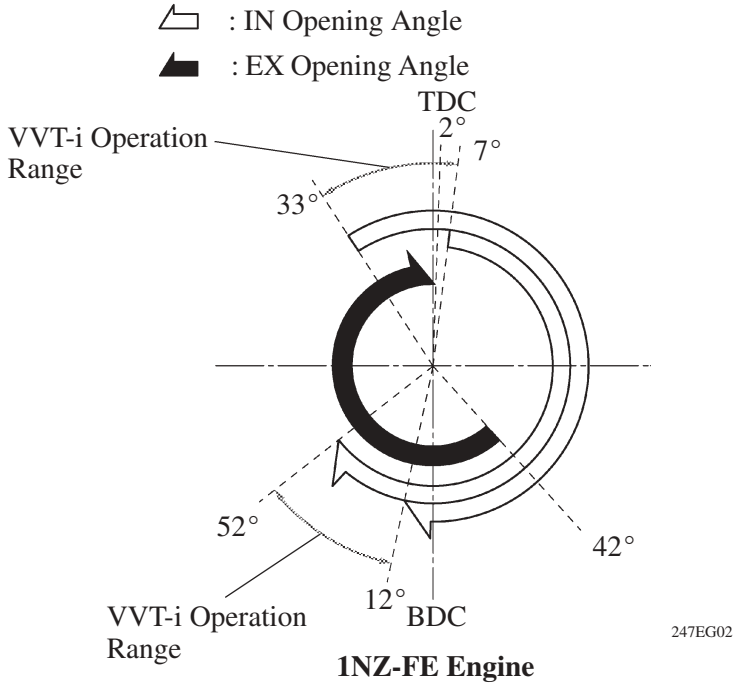
2NZ-FE Engine (Unleaded Gasoline)

▶ Engine Specifications ◀

Engine Type			1NZ-FE (Unleaded Gasoline Model)	2NZ-FE (Unleaded Gasoline Model)	2NZ-FE (Leaded Gasoline Model)
No. of Cyls. & Arrangement			4-cylinder, In-line	←	←
Valve Mechanism			16-valve DOHC, Chain Drive (with VVT-i)	←	16-valve DOHC, Chain Drive (without VVT-i)
Combustion Chamber			Pentroof Type	←	←
Manifolds			Cross-flow	←	←
Fuel System			EFI	←	←
Ignition System			DIS	←	←
Displacement cm^3 (cu. in.)			1497 (91.3)	1298 (79.2)	←
Bore x Stroke mm (in.)			75.0 x 84.7 (2.95 x 3.33)	75.0 x 73.5 (2.95 x 2.89)	←
Compression Ratio			10.5 : 1	←	10.0 : 1
Max. Output (SAE-NET)			80 kW @ 6000 rpm	63 kW @ 6000 rpm	60 kW @ 6000 rpm
Max. Torque (SAE-NET)			141 N·m @ 4200 rpm	121 N·m @ 4400 rpm	119 N·m @ 4400 rpm
Valve Timing	Intake	Open	–7° – 33° BTDC	←	2° BTDC
		Close	52° – 12° ABDC	←	43° ABDC
	Exhaust	Open	42° BBDC	34° BBDC	←
		Close	2° ATDC	←	←
Firing Order			1 – 3 – 4 – 2	←	←
Fuel			Unleaded Gasoline	←	Leaded Gasoline
Research Octane Number			91 or higher	←	←
Oil Grade			API SL, SM or ILSAC	←	←
Emission Regulation			EURO IV	←	—
Engine Service Mass* (Reference) kg (lb)			77.8 (171.5)	76.0 (167.6)	75.7 (166.9)

*: Weight shows the figure with the oil fully filled.

▶ Valve Timing ◀



1NZ-FE Engine

■MAJOR DIFFERENCE

The table below lists the major differences between the 1NZ-FE and 2NZ-FE engines (for leaded and unleaded gasoline).

Section	Item	1NZ-FE	2NZ-FE	
		Unleaded	Unleaded	Leaded
Valve Mechanism	The VVT-i system is used.	○	○	—
Exhaust System	A TWC (Three-Way Catalytic converter) is used.	○	○	—
Fuel System	12-hole type injectors are used.	○	○	—
	4-hole type injectors are used.	—	—	○
Engine Control System	The heated oxygen sensor is used.	○	○	—
	The variable resistor is used.	—	—	○