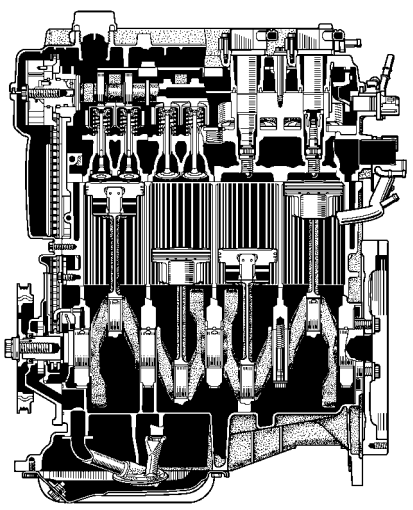
ENGINE

1NZ-FXE ENGINE

■DESCRIPTION

- As on the ’03 Prius, the ’04 Prius continues to use the 1NZ-FXE engine that has been developed for the hybrid system application.
- This engine uses a high-expansion ratio Atkinson cycle, VVT-i (Variable Valve Timing-intelligent) system and ETCS-i (Electric Throttle Control System-intelligent) to realize high performance, quietness, fuel economy and clean emissions.
- In this engine, various areas of the pistons have been changed to reduce friction and improve combustion efficiency, in order to realize further improvements in fuel economy and low exhaust emissions.
- This engine complies with the AT-PZEV (Advanced Technology-Partial Zero Emission Vehicle) regulations. This has been achieved as a result of the changes that have been made in the engine control logic, as well as the adoption of the coolant heat storage system. The coolant heat storage system recovers the hot coolant that has been heated by the engine and stores it in a tank. Then, the system supplies the hot coolant to the engine at the time the engine is started cold. Thus, this system reduces the amount of HC emissions during cold starting.
- For the main changes made to this engine from the ’03 Prius, see page EG-4.



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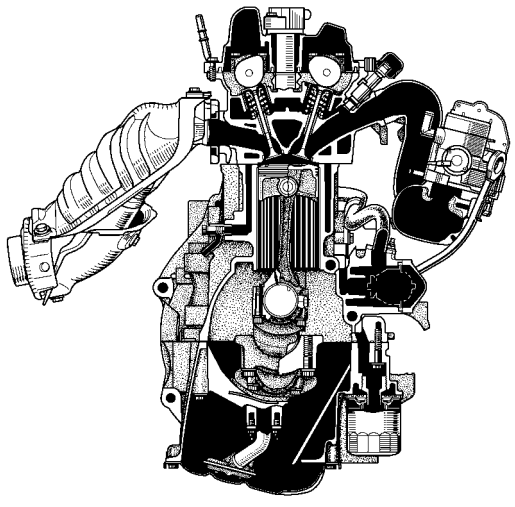

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▶ Engine Specifications ◀

Model			’04 Prius	’03 Prius
Engine Type			1NZ-FXE	←
No. of Cyls. & Arrangement			4-Cylinder, In-line	←
Valve Mechanism			16-Valve DOHC, Chain Drive (with VVT-i)	←
Combustion Chamber			Pentroof Type	←
Manifolds			Cross-Flow	←
Fuel System			SFI	←
Displacement		cm^3 (cu. in.)	1497 (91.3)	←
Bore × Stroke		mm (in.)	75.0 × 84.7 (2.95 × 3.33)	←
Compression Ratio			13.0 : 1	←
Max. Output		(SAE-NET)	57 kw @ 5000 rpm (76 HP @ 5000 rpm)	52 kw @ 4500 rpm (70 HP @ 4500 rpm)
Max. Torque		(SAE-NET)	111 N·m @ 4200 rpm (82 ft·lbf @ 4200 rpm)	←
Valve Timing	Intake	Open	18° ~ –15° BTDC	18° ~ –25° BTDC
		Close	72° ~ 105° ABDC	72° ~ 115° ABDC
	Exhaust	Open	34° BBDC	←
		Close	2° ATDC	←
Firing Order			1-3-4-2	←
Research Octane Number			91 or higher	←
Octane Rating			87 or higher	←
Engine Service Mass* (Reference)		kg (lb)	86.1 (189.8)	86.6 (190.9)
Oil Grade			API SJ, SL, EC or ILSAC	API SH, SJ, EC or ILSAC
Tailpipe Emission Regulation			SULEV	←
Evaporative Emission Regulation			AT-PZEV, ORVR	LEV-II, ORVR

*: Weight shows the figure with the oil and engine coolant fully filled.

▶ Valve Timing ◀

: Intake Valve Opening Angle

: Exhaust Valve Opening Angle