

ENGINE

1TR-FE AND 2TR-FE ENGINES

■ DESCRIPTION

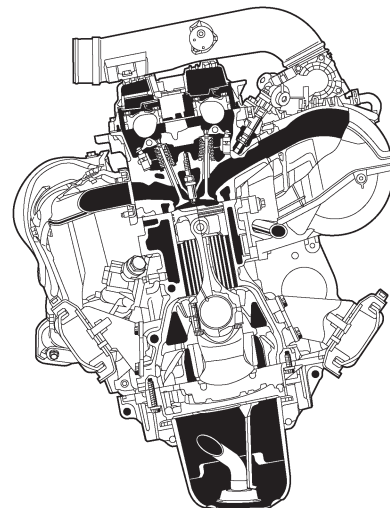
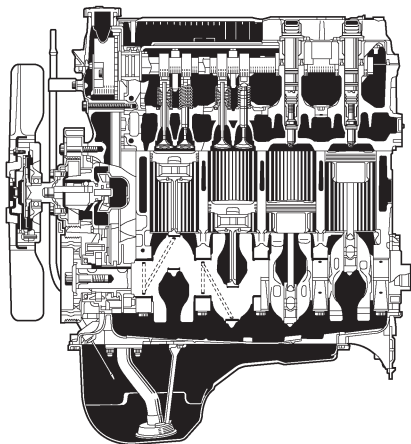
- The 1TR-FE and 2TR-FE engines that have been adopted on the new Hilux are newly developed, inline 4-cylinder, 2.0/2.7-liter, 16-valve DOHC engines.
- These engines have been adopted the DIS (Direct Ignition System), ETCS-i (Electronic Throttle Control System-intelligent), VVT-i (Variable Valve Timing-intelligent) system and an Air Injection system*¹. It has been developed to realize high performance, quietness, fuel economy and clean emission.
- The 2TR-FE engine is available for use with leaded*² or unleaded*³ gasoline, depending on the destination.
- The basic construction and operation of both the 1TR-FE and 2TR-FE engines (for leaded and unleaded gasoline) are the same. For details, refer to “Major Difference” on [page EG-4](#).

*¹: for Thai, Australian, and Central and South American Models

*²: TGN16L-TRMDK, TGN16L-CRMDK, TGN16L-PRMDK and TGN26L-PRMDK

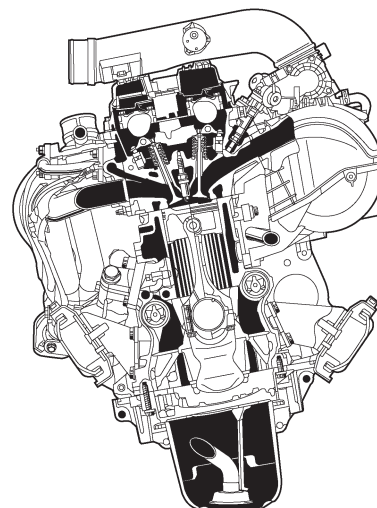
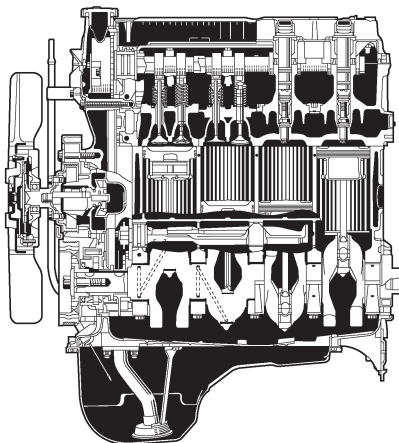
*³: Other Models

► 1TR-FE Engine ◀



271EG01

► 2TR-FE Engine ◀



271EG02

► Engine Specifications ◀

Engine Type			1TR-FE (Unleaded Gasoline Model)	2TR-FE (Unleaded Gasoline Model)	2TR-FE (Leaded Gasoline Model)
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			EFI	←	←
Ignition System			DIS	←	←
Displacement cm ³ (cu. in.)			1,998 (121.9)	2,694 (164.4)	←
Bore x Stroke mm (in.)			86.0 x 86.0 (3.39 x 3.39)	95.0 x 95.0 (3.74 x 3.74)	←
Compressio Ratio			9.8 : 1	9.6 : 1	←
Max. Output [SAE-NET]			100 kW @ 5,600 rpm	—*2	—*2
Max. Torque [SAE-NET]			182 N·m @ 4,000 rpm	—*2	—*2
Valve Timing	Intake	Open	45° BTDC ~ 0° BTDC	←	←
		Close	19° ABDC ~ 64° ABDC	←	←
	Exhaust	Open	44° BBDC	←	←
		Close	8° ATDC	←	←
Firing Order			1-3-4-2	←	←
Fuel			Unleaded Gasoline	←	Leaded Gasoline
Research Octane Number			91 or higher	←	←
Oil Grade			API SJ, SL, EC or ILSAC	←	←
Emission Regulation			EURO II	EURO III*3	—
				EURO II*4	
				Tier 1*5	
Engine Service Mass*1 (Reference) kg (lb)			144 (317)	157 (346)	←

*1: Weight shows the figure with oil and water fully filled.

*2: not available at publication

*3: for Thai, Australian, and Central and South American Models

*4: for Philippine Model

*5: for several Central and South American Models (TGN36L-TRMDKG and TGN36L-TRMDKG3 for Mexico)

► Valve Timing ◀

