ENGINE

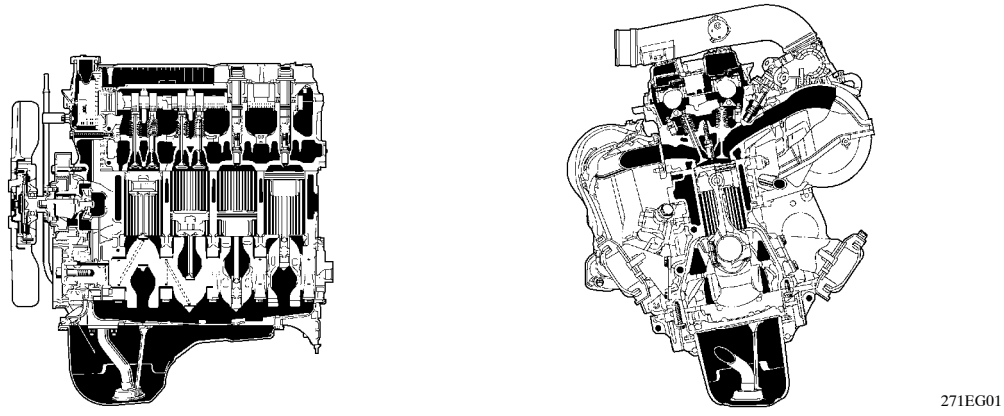
1TR-FE AND 2TR-FE ENGINES

■ DESCRIPTION

- The 1TR-FE engine is an in-line 4-cylinder, 2.0-liter, 16-valve DOHC engine. The 2TR-FE engine is an in-line 4-cylinder, 2.7-liter, 16-valve DOHC engine.
- These engines use the DIS (Direct Ignition System), ETCS-i (Electronic Throttle Control System-intelligent), VVT-i (Variable Valve Timing-intelligent) system, and air injection system*. They have been developed to achieve high performance, quietness, fuel economy and clean emissions.
- The 2TR-FE engine is available for use with leaded gasoline for General country, Iraq and South Africa as an option for TGN16L-TRMDKN, TGN16L-PRMDKN and TGN26L-PRMDKN models, and unleaded gasoline for other models.
- The basic construction and operation of both the 1TR-FE and 2TR-FE engines (for leaded and unleaded gasoline) are the same. For details of Major Difference, see page EG-5.

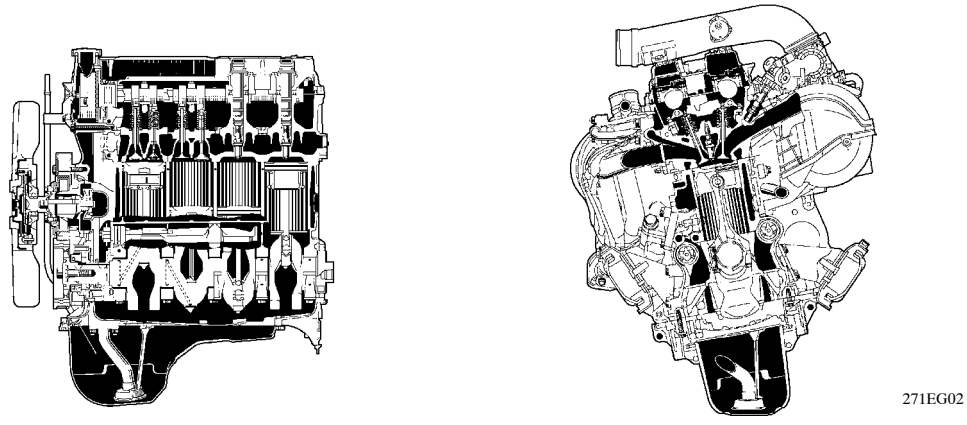
*: Models compliant with EURO III, EURO IV and Tier 1 emission regulations

▶ 1TR-FE Engine ◀



271EG01

▶ 2TR-FE Engine ◀



271EG02

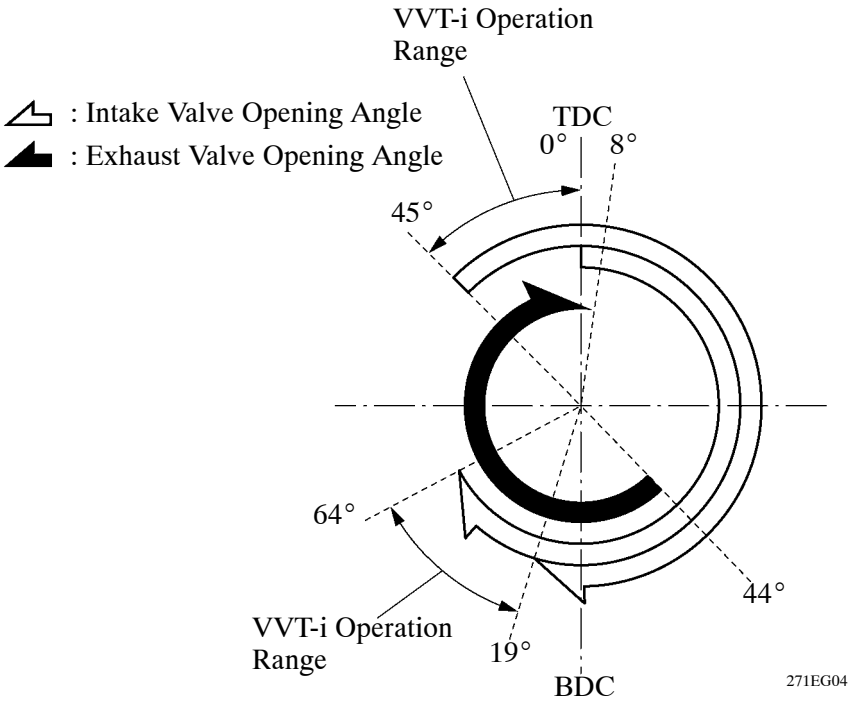
▶ Engine Specifications ◀

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.)			1998 (121.9)	2694 (164.4)	←
Bore × Stroke mm (in.)			86.0 × 86.0 (3.39 × 3.39)	95.0 × 95.0 (3.74 × 3.74)	←
Compression Ratio			9.8 : 1	9.6 : 1	←
Max. Output [SAE-NET]			100 kW @ 5600 rpm	116 kW @ 5200 rpm*2 118 kW @ 5200 rpm*3	←
Max. Torque [SAE-NET]			182 N·m @ 4000 rpm	240 N·m @ 3800 rpm*2 241 N·m @ 3800 rpm*3	←
Valve Timing	Intake	Open	45° BTDC – 0° BTDC	←	←
		Closed	19° ABDC – 64° ABDC	←	←
	Exhaust	Open	44° BBDC	←	←
		Closed	8° ATDC	←	←
Firing Order			1 – 3 – 4 – 2	←	←
Fuel			Unleaded Gasoline	←	Leaded Gasoline
Research Octane Number			91 or Higher	←	←
Emission Regulation			EURO II	EURO IV*4	—
				EURO III*5	
				EURO II*6	
				Tier 1*7	
Engine Service Mass*1 (Reference)			144 kg (317 lb)	157 kg (346 lb)	←

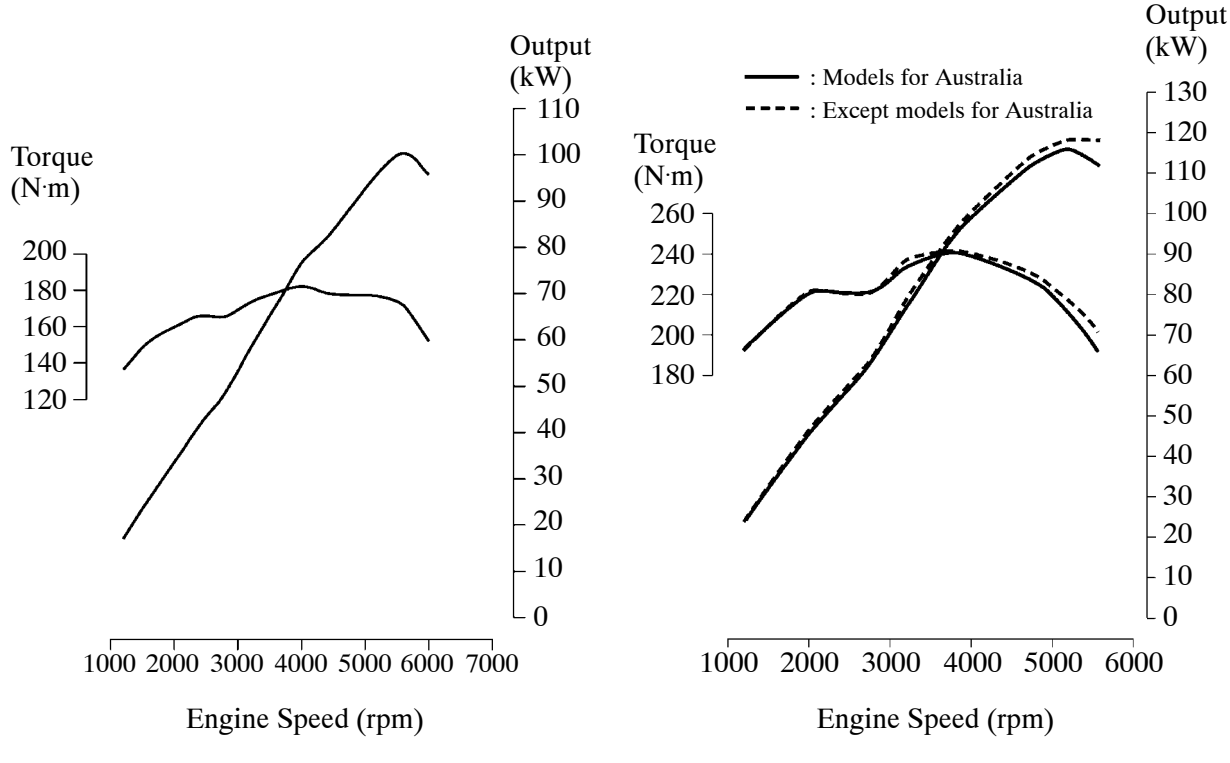
*1: Weight shows the figure with oil and water fully filled.
*2: Models for Australia
*3: Except models for Australia
*4: Models for Australia and Chile
*5: Models for Thailand, Central and South America, Latin America and General countries (TGN26L-HRMDK)
*6: Models for G.C.C. countries, ANCOM, South Africa, Saudi Arabia, Jordan, Ecuador, Pakistan, Colombia and General countries (TGN26L-HRMSK)
*7: Models for Mexico

EG

▶ Valve Timing ◀



▶ Performance Curve ◀



1TR-FE Engine

2TR-FE Engine