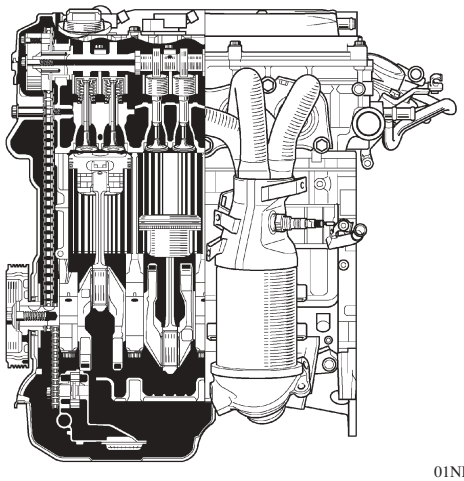
# ENGINE

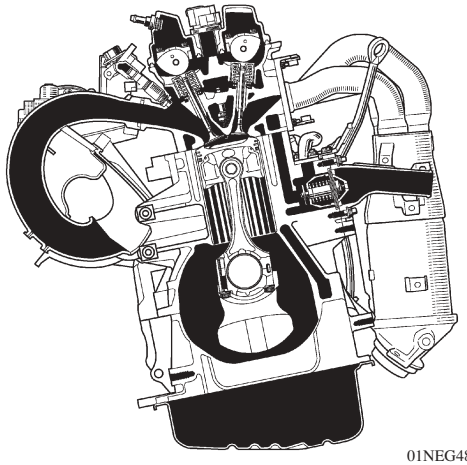
## 1AZ-FE AND 2AZ-FE ENGINES

### ■ DESCRIPTION

- The 1AZ-FE engine is an in-line, 4-cylinder, 2.0-liter, 16-valve DOHC engine.
- The 2AZ-FE engine is an in-line, 4-cylinder, 2.4-liter, 16-valve DOHC engine.
- This engine uses the VVT-i (Variable Valve Timing-intelligent) system, DIS (Direct Ignition System), ETCS-i (Electronic Throttle Control System-intelligent). It has been developed to realize high performance, quietness, fuel economy and clean emission.

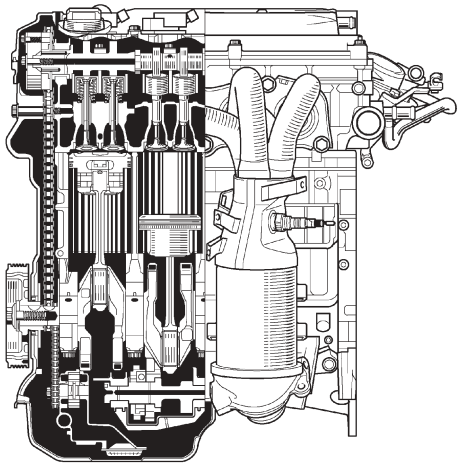


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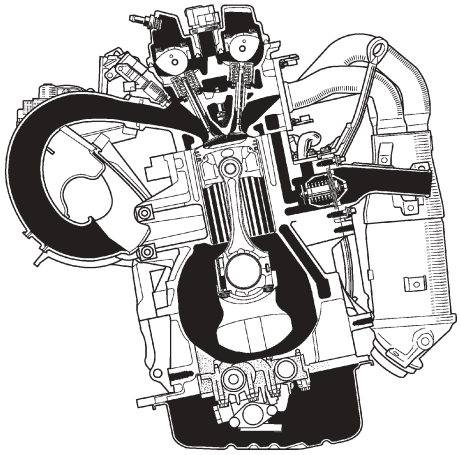


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**1AZ-FE ENGINE**



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01NEG50Y

**2AZ-FE ENGINE**

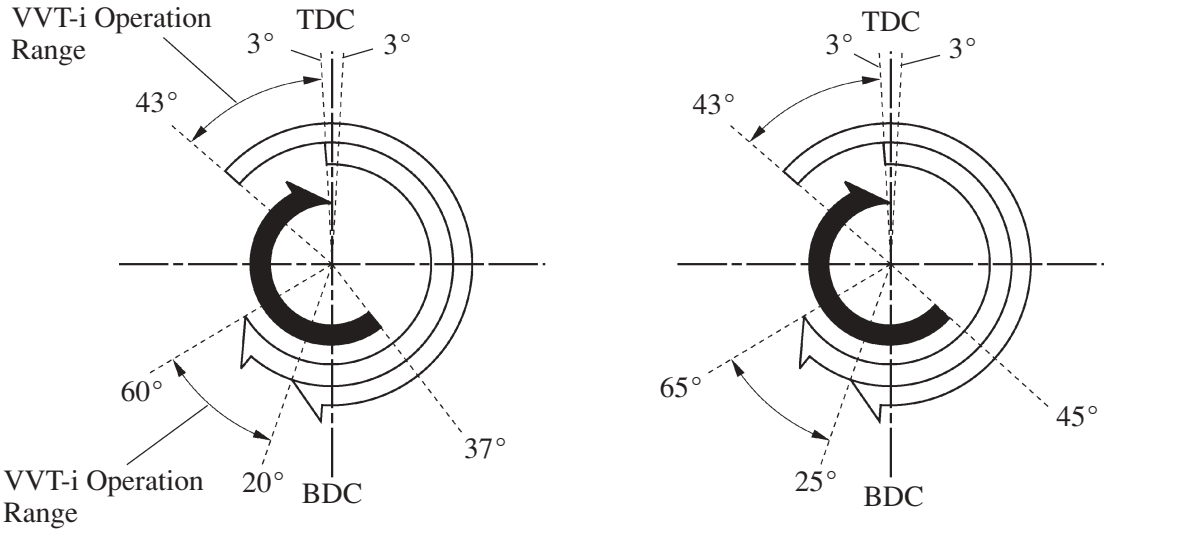
## ▶ Engine Specifications ◀

| Engine | | | 1AZ-FE | 2AZ-FE |
|---|---|---|---|---|
| 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) | 2362 (144.2) |
| Bore x Stroke | mm (in.) | | 86.0 x 86.0 (3.39 x 3.39) | 88.5 x 96.0 (3.48 x 3.78) |
| Compression Ratio | | | 9.8 : 1 | ← |
| Max. Output | [EEC] | | 112 kW @ 6000 rpm | 125 kW @ 6000 rpm |
| Max. Torque | [EEC] | | 194 N·m @ 4000 rpm | 224 N·m @ 4000 rpm |
| Valve Timing | Intake | Open | 3° – 43° BTDC | ← |
| | | Close | 60° – 20° ABDC | 65° – 25° ABDC |
| | Exhaust | Open | 37° BBDC | 45° BBDC |
| | | Close | 3° ATDC | ← |
| Firing Order | | | 1 – 3 – 4 – 2 | ← |
| Research Octane Number | | | 95 or higher | 91 or higher |
| Oil Grade | | | API SL, SM or ILSAC | ← |
| Emission Regulation | | | EURO IV | ← |
| Engine Service Mass* (Reference) | kg (lb) | | 131 (288.8) | 138 (304.2) |

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

## ▶ Valve Timing ◀

: Intake Valve Opening Angle
: Exhaust Valve Opening Angle




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**1AZ-FE ENGINE** **2AZ-FE ENGINE**

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