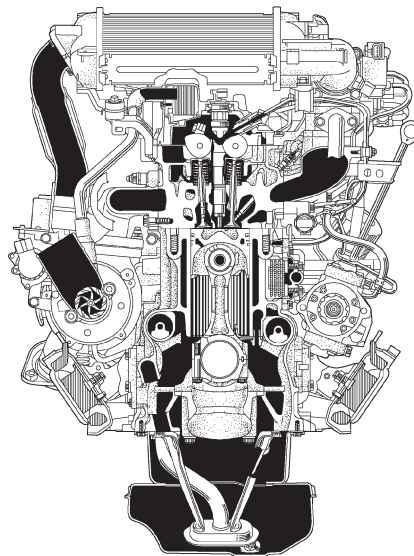
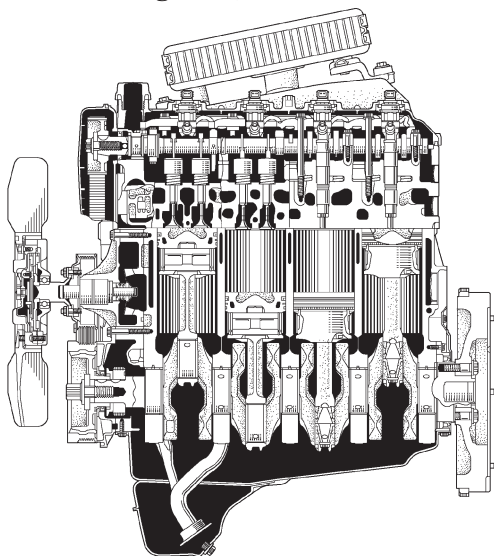


## 1KD-FTV AND 2KD-FTV ENGINES

### ■ DESCRIPTION

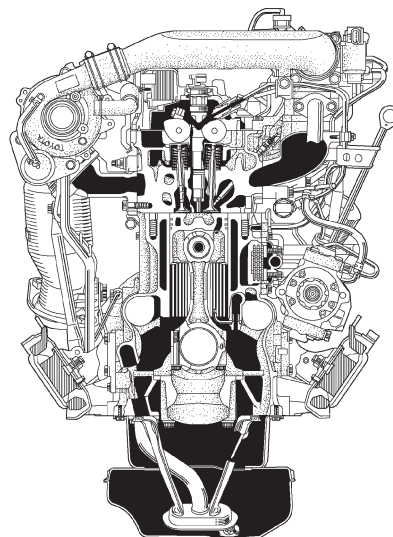
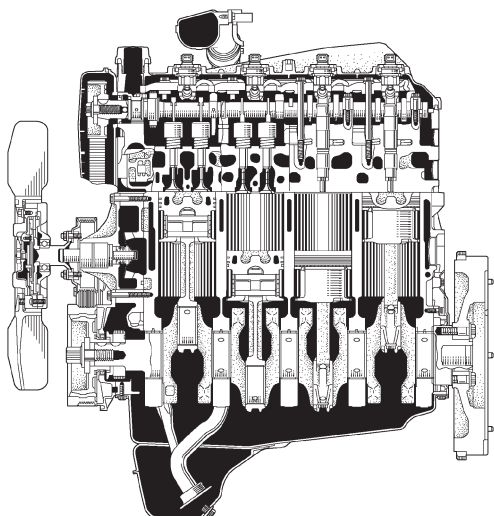
- 1KD-FTV TOYOTA D-4D (Direct injection 4-stroke common-rail Diesel engine) and 2KD-FTV TOYOTA D-4D are 3.0/2.5 liter, in-line 4-cylinder, 16 valve DOHC with turbocharged diesel engine.
- These engines use direct injection system and common-rail system to realize higher performance, clean emission, low noise and low vibration.
- A 2KD-FTV High Version, which has a higher power output than the normal 2KD-FTV engine, is also available. The 2KD-FTV and 2KD-FTV High Version engines are equipped with engine ECUs containing engine control programs that differ from each other. However, both engine models share the same mechanical components.
- An intercooler is provided on all 1KD-FTV engine models and the 2KD-FTV High Version engine for Thailand. This lowers the intake air temperature and improves power output.
- The basic construction and operation of both the 1KD-FTV and 2KD-FTV engines are the same. For details, see “Major Difference” on [page EG-114](#).

#### ► 1KD-FTV Engine ◀



271EG97

#### ► 2KD-FTV Engine without Inter Cooler ◀



271EG98

## ► Engine Specifications ◀

| Engine Type                                                           |         |       | 1KD-FTV                             | 2KD-FTV                        | 2KD-FTV High Version                 |
|-----------------------------------------------------------------------|---------|-------|-------------------------------------|--------------------------------|--------------------------------------|
| No. of Cyls. & Arrangement                                            |         |       | 4-Cylinder, In-line                 | ←                              | ←                                    |
| Valve Mechanism                                                       |         |       | 16-Valve DOHC,<br>Belt & Gear Drive | ←                              | ←                                    |
| Combustion Chamber                                                    |         |       | Direct Injection Type               | ←                              | ←                                    |
| Manifolds                                                             |         |       | Cross-flow                          | ←                              | ←                                    |
| Fuel System                                                           |         |       | Common-Rail Type                    | ←                              | ←                                    |
| Displacement cm <sup>3</sup> (cu. in.)                                |         |       | 2,982 (182.0)                       | 2,494 (152.2)                  | ←                                    |
| Bore x Stroke      mm (in.)                                           |         |       | 96.0 x 103.0<br>(3.78 x 4.06)       | 92.0 x 93.8<br>(3.62 x 3.69)   | ←                                    |
| Compression Ratio                                                     |         |       | 17.9 : 1                            | 18.5 : 1                       | ←                                    |
| Max. Output [SAE-NET]                                                 |         |       | 120 kW @ 3,400 rpm                  | 75 kW @ 3,600 rpm              | 75 kW @ 3,600 rpm                    |
|                                                                       |         |       |                                     |                                | 88 kW @ 3,600 rpm* <sup>5</sup>      |
| Max. Torque [SAE-NET]                                                 |         |       | 343 N·m @<br>1,400 ~ 3,200 rpm      | 200 N·m @<br>1,400 ~ 3,200 rpm | 260 N·m @<br>1,600 ~ 2,400 rpm       |
|                                                                       |         |       |                                     |                                | 320 N·m @<br>2,000 rpm* <sup>5</sup> |
| Valve<br>Timing                                                       | Intake  | Open  | 2° BTDC                             | ←                              | ←                                    |
|                                                                       |         | Close | 37° ABDC                            | 31° ABDC                       | ←                                    |
|                                                                       | Exhaust | Open  | 45° BBDC                            | 30° BBDC                       | ←                                    |
|                                                                       |         | Close | 0° ATDC                             | ←                              | ←                                    |
| Firing Order                                                          |         |       | 1-3-4-2                             | ←                              | ←                                    |
| Fuel Cetan Number                                                     |         |       | 50 or higher                        | ←                              | ←                                    |
| Oil Grade                                                             |         |       | CF-4, 10W-30                        | ←                              | ←                                    |
| Emission Regulation                                                   |         |       | EURO III* <sup>2</sup>              | EURO III* <sup>5</sup>         | EURO III* <sup>8</sup>               |
|                                                                       |         |       | EURO I* <sup>3</sup>                | EURO I* <sup>6</sup>           | EURO I* <sup>9</sup>                 |
|                                                                       |         |       | Tier 1* <sup>4</sup>                | —* <sup>7</sup>                | —* <sup>10</sup>                     |
| Engine Service Mass* <sup>1</sup><br>(Reference)              kg (lb) |         |       | 260 (573)                           | 223 (492)                      | 222 (489)                            |

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

\*2: for Thai, Australian, and Central and South American Models

\*3: for Philippine, and Central and South American Models (only for export package models)

\*4: for Central and South American Models (only for Brazilian-spec models)

\*5: for Thai Models

\*6: for Philippine Models

\*7: for General Countries Models

\*8: for Thai, and Central and South American Models

\*9: for Malaysian Models

\*10: for General Countries, and Central and South American Models (only for export package models)