

## **TECHNICAL DATA**

### **ENGINE MODEL N4.38**



#### **ENGINE SPECIFICATIONS**

Number of cylinders: 4  
 Displacement: 1498 cc  
 Bore - Stroke: 78 X 78.4 mm  
 Compression ratio: 24/1  
 Minimum compression pressure: 24 bars  
 Compression pressure: 29 to 33 bars  
 Maximum speed without load: 3200 rpm  
 Maximum RPM in load: 3000 rpm  
 Idle RPM in forward gear: 800 rpm  
 Max. Torque:  
 Firing order: 1 - 3 - 4 - 2  
 Rotation: Anti clockwise (Flywheel)

#### **INJECTION**

Type of injector: MINI (DNOPD)  
 Fuel injection pressure: NIPPI DENSO  
 Injectors' pressure: 14 MPa  
 Injection timing: 17° before TDC

#### **TIGHTENING TORQUE**

Arm head cover cap nuts: 0.7 to 0.9 kgFm  
 Cylinder head bolts: 6.5 to 7 kgFm  
 Flywheel bolts: 5.5 to 6 kgFm  
 Connecting rod bolts: 4.2 to 4.7 kgFm  
 Rocker arm bracket nuts: 2 to 2.7 kgFm  
 Main bearing caps bolts: 3.0 to 3.5 kgFm  
 Main bearing caps bolts: 5.0 to 5.5 kgFm  
 Nozzle holder assembly: 5.0 to 7.0 kgFm  
 Glow plugs: M8: 0.8 to 1.5 kgFm

#### **LUBRIFICATION**

Oil pressure at idle RPM: 0.5 bar  
 Oil pressure at maximum load: 2 to 4 bars  
 Recommended oil: API CD 15W40  
 Oil pan capacity: 6.7 liters depending  
 angle  
 Gearbox model: }  
 Oil capacity: } depending on type  
 Recommended oil: }

#### **DIAGRAMS**

Valve clearance (cold):  
 Inlet: 0.15 mm  
 Exhaust: 0.15 mm  
 Valve recessing: - 0.05 to + 0.15 mm

#### **PISTON RINGS**

Piston ring gap:  
 Piston top compression: 0.30 to 0.45 mm  
 Intermediate: 0.30 to 0.45 mm  
 Oil control: 0.25 to 0.40 mm

#### **CYLINDER HEAD**

Cylinder head surface flatness : <0.05 mm

#### **SEA WATER PUMP**

Water flow: 34 litres per minutes

#### **GLOW PLUGS**

Resistance: 0.90 to 1.2 ohms