

TECHNICAL DATA

ENGINE MODEL N4.50



ENGINE SPECIFICATION

Number of cylinders: 4
 Displacement: 2197 cc
 Bore - Stroke: 87 X 92.4 mm
 Compression ratio: 23/1
 Max. Pressure difference between cyl. : 10%
 Compression pressure: 29 to 33 bars
 Maximum speed without load: 3000 rpm
 Maximum RPM in load: 2800 rpm
 Idle RPM in forward gear: 850 rpm
 Firing order: 1 - 3 - 4 - 2
 Rotation: Anti clockwise (Flywheel)

INJECTION

Type of injector: BOSCH
 Fuel injection pressure : 140 bars
 Injection pump manufacturer:
 BOSCH NIPPO PFR4M
 Injection timing: 18° before TDC

TIGHTENING TORQUE

Arm head cover cap nuts: 0.7 to 0.9 kgF
 Cylinder head bolts: 9.5 to 10.0 kgF
 Flywheel bolts: 10.0 to 11 kgF
 Connecting rod bolts:
 With coll.: 3.7 to 4.2 kgF
 Without coll.: 4.5 to 5 kgF
 Rocker arm bracket nuts: 2.4 to 2.8 kgF
 Main bearing caps bolts: 4.7 to 5.2 kgF
 Main bearing caps bolts: 7.0 to 7.5 kgF
 Nozzle holder assembly: 5.0 to 7.0 kgF
 Glow plugs: 2.0 to 2.5 kgF

LUBRIFICATION

Oil pressure at idle RPM: 0.5 bar
 Oil pressure at maximum load: 3 to 4.5 bars
 Recommended oil: API CD 15W40
 Oil pan capacity: 6 litres <angle> 7.5litres
 Gearbox model:
 Oil capacity: } depending on type
 Recommended oil: }

COOLING SYSTEM

Capacity: 9 liters
 Liquid: 50% antifreeze + 50% water

DIAGRAMS

Valve clearance (cold):
 Inlet: 0.18 to 0.22 mm
 Exhaust: 0.18 to 0.22 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 0.45 mm

CYLINDER HEAD

Cylinder head surface flatness : <0.05 mm

SEA WATER PUMP

Water flow: 65 to 70 liters/min

GLOW PLUGS

Resistance: 0.80 ohm