



Product: INDUSTRIAL ENGINE
Model: C6.6 INDUSTRIAL ENGINE 666
Configuration: C6.6 Industrial Engine 66600001-UP

Specifications

C6.6 Industrial Engine
Media Number -SENR9967-03

Publication Date -01/08/2007

Date Updated -31/08/2007

i02564887

Engine Design

SMCS - 1201

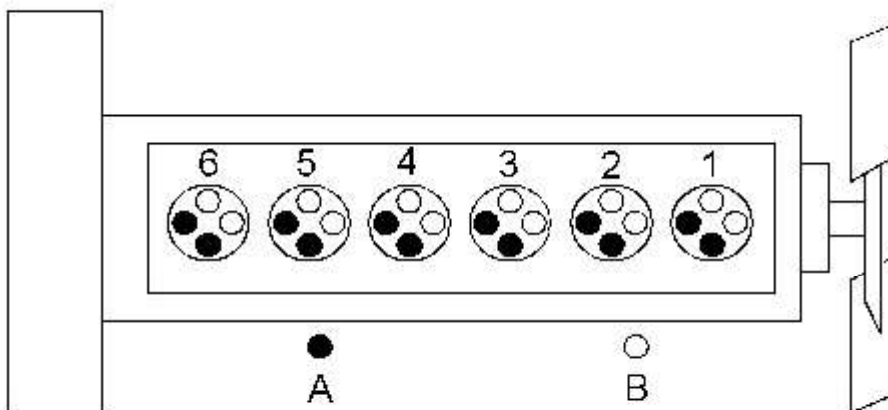


Illustration 1
Cylinder and valve location

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(A) Exhaust valve

(B) Inlet valve

Bore ... 105 mm (4.133 inch)

Stroke ... 127 mm (5.000 inch)

Displacement ... 6.6 L (403 cu in)

Cylinder arrangement ... In-line

Type of combustion ... Direct injection

Compression ratio

Turbocharged aftercooled ... 16.2:1

Number of cylinders ... 6

Valves per cylinder ... 4

Valve lash

Inlet valve ... 0.35 mm (0.0138 inch)

Exhaust valve ... 0.35 mm (0.0138 inch)

Firing order ... 1, 5, 3, 6, 2, 4

When the crankshaft is viewed from the front of the engine, the crankshaft rotates in the following direction: ... Clockwise

When the camshaft is viewed from the front of the engine, the camshaft rotates in the following direction: ... Clockwise

The front of the engine is opposite the flywheel end. The left side and the right side of the engine are viewed from the flywheel end. The No. 1 cylinder is the front cylinder.



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Cylinder Head

SMCS - 1100

S/N - 6661-UP

S/N - SDA1-UP

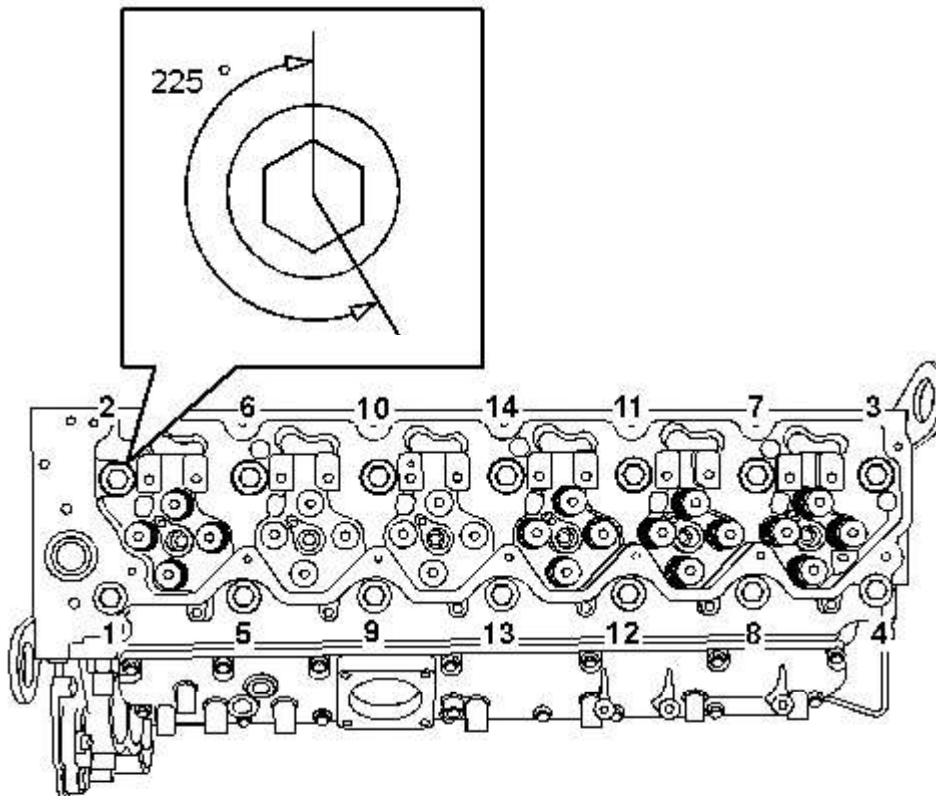


Illustration 1
Typical example

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Lubricate the threads and the underside of the head bolts with clean engine oil.

Tighten the bolts in the sequence that is shown in Illustration 1 to the following torque. ... 50 N·m (37 lb ft)

Tighten the bolts again to the following torque. ... 100 N·m (74 lb ft)

Tighten the head bolts to the additional amount. ... 225 degrees

Minimum thickness of cylinder head ... 94.80 mm (3.7323 inch)

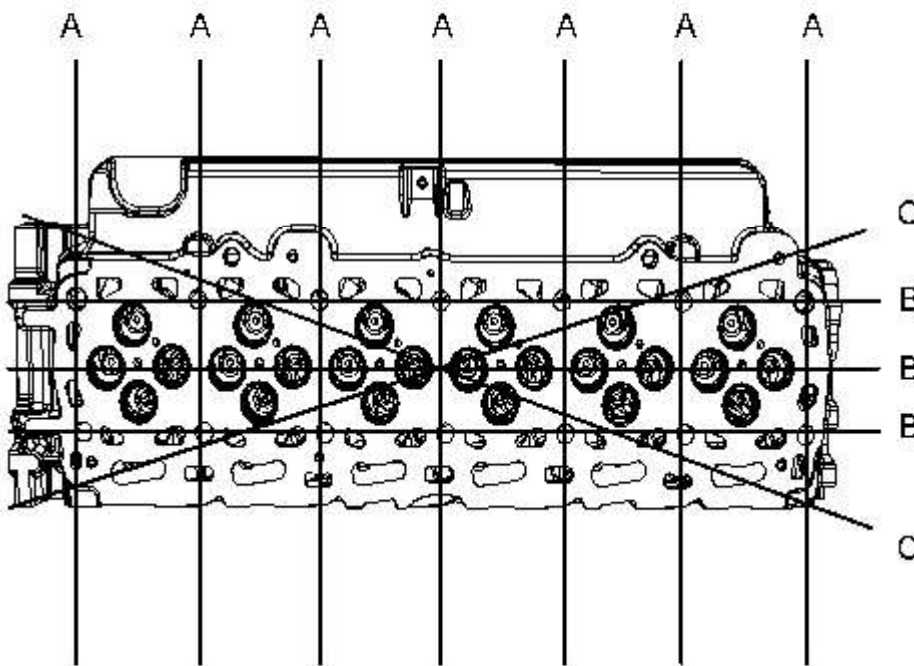


Illustration 2
Typical example

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Note: The maximum distortion of the cylinder head is given in table 1.

Table 1

Dimension	Maximum Permissible Distortion
Width (A)	0.03 mm (0.0012 inch)
Length (B)	0.05 mm (0.0020 inch)
Diagonal Line (C)	0.05 mm (0.020 inch)

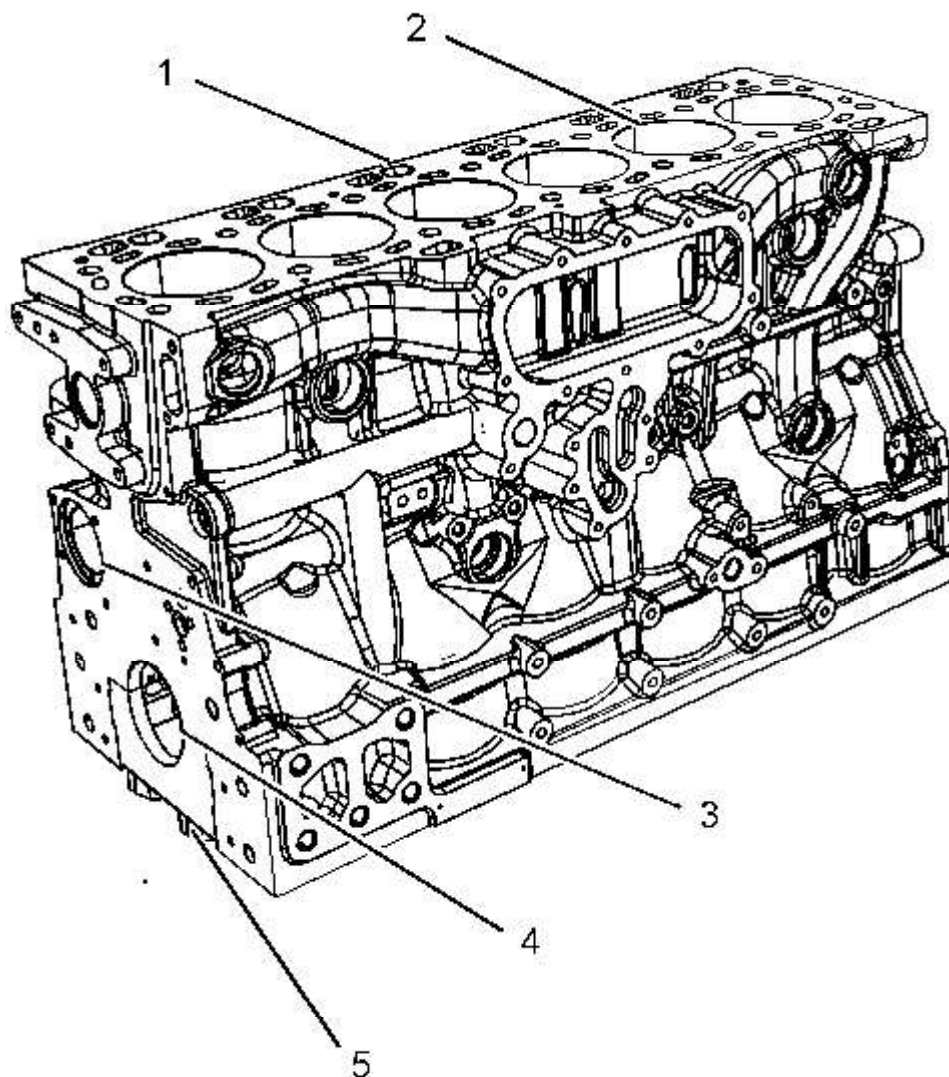


Illustration 1
Cylinder block

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(1) Cylinder block

(2) Cylinder bore ... 105.000 to 105.025 mm (4.1338 to 4.1348 inch)

The maximum permissible wear for the cylinder bore ... 0.15 mm (0.0059 inch)

(3) Camshaft bearings

Diameter of the bushing in the cylinder block for the number 1 camshaft bearing ... 55.563 to 55.593 mm (2.1875 to 2.1887 inch)

Diameter of the bore in the cylinder block for the number 2 camshaft journal ... 50.546 to 50.597 mm (1.9900 to 1.9920 inch)

Diameter of the bore in the cylinder block for the number 3 camshaft journal ... 50.292 to 50.343 mm (1.9800 to 1.9820 inch)

Diameter of the bore in the cylinder block for the number 4 camshaft journal ... 50.038 to 50.089 mm (1.9700 to 1.9720 inch)

(4) Main bearings

Bore in the cylinder block for the main bearings ... 88.246 to 88.272 mm (3.4742 to 3.4753 inch)

(5) Main bearing cap bolts

Use the following procedure in order to install the main bearing cap bolts:

1. Apply clean engine oil to the threads of the main bearing cap bolts.
2. Put the main bearing caps in the correct position that is indicated by a number on the top of the main bearing cap. Install the main bearing caps with the locating tabs in correct alignment with the recess in the cylinder block.
3. Evenly tighten the main bearing cap bolts.

Torque for the main bearing cap bolts. ... 80 N·m (59 lb ft)

4. Tighten the bolts for the main bearing cap for an additional 90 degrees.

Note: Ensure that the crankshaft can rotate freely.



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Connecting Rod

SMCS - 1218

S/N - 6661-UP

S/N - SDA1-UP

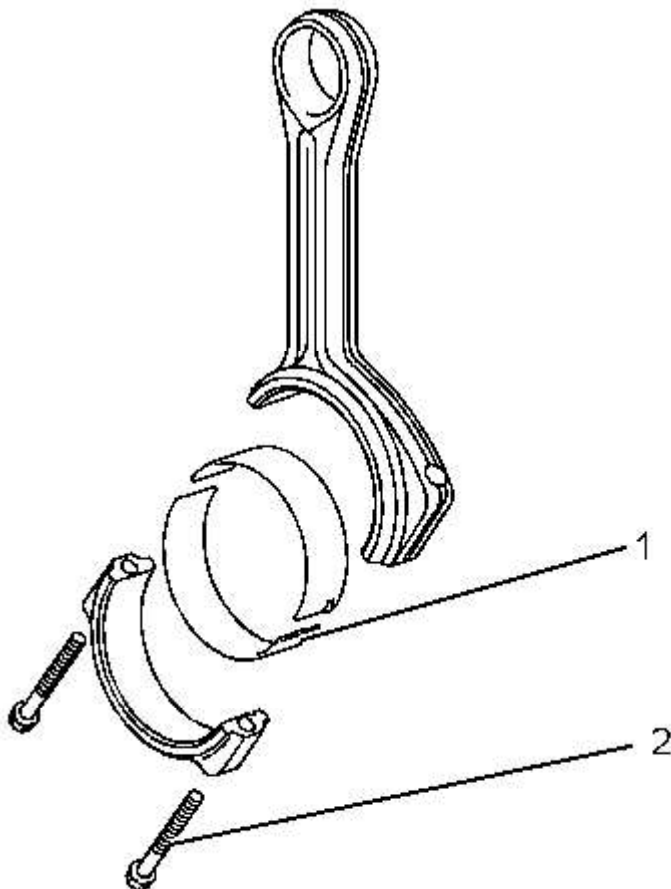


Illustration 1

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(1) The bearing shell for the connecting rod

Table 1

Thickness of Connecting Rod Bearing at the Center	1.994 to 2 mm (0.0785 to 0.0787 inch)
Thickness of Connecting Rod Bearing for the Cap at the Center	1.994 to 2 mm (0.0785 to 0.0787 inch)
Bearing Clearance	0.025 to 0.070 mm (0.0010 to 0.0028 inch)

Table 2

Undersized Connecting Rod Bearing
0.25 mm (0.010 inch)
0.51 mm (0.020 inch)
0.76 mm (0.030 inch)

The mating surfaces of the connecting rod are produced by hydraulically fracturing the forged connecting rod.

(2) Tighten the setscrews for the connecting rod to the following torque. ... 18 N·m (13 lb ft)

Tighten the setscrews for the connecting rod again to the following torque. ... 70 N·m (52 lb ft)

Tighten the setscrews for the connecting rod for an additional 120 degrees. The setscrews for the connecting rod (2) must be replaced after this procedure.

Note: Always tighten the connecting rod cap to the connecting rod, when the assembly is out of the engine. Tighten the assembly to the following torque 20 N·m (14 lb ft).