Cylinder head, installing

CAUTION!

- DO NOT re-use fasteners that are worn or deformed in normal use.
- Some fasteners are designed to be used only once and are unreliable and may fail the second time. This includes, but is not limited to nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated and any other time when deemed necessary by inspection.
- To prevent contact corrosion, use only approved nuts, bolts and washers, etc. These fasteners have a special coating and are identified by green coloring.

**Note:**

- Replace cylinder head bolts.
- Remove old sealer carefully to avoid long scratches.
- Remove all grinding compound.
- Remove all oil or coolant from cylinder head bolt holes in crankcase.
- Handle gaskets carefully. Damage to silicone can cause leaks.
- Place cylinder head gasket on spacer sleeves. Marking on gasket "Oben" (top) or part number must face cylinder head.
- After repairs do not start engine before turning crankshaft carefully for two full turns to avoid valves from contacting pistons.

Install cylinder head in reverse order of removal but note the following:

Identification markings on cylinder head gasket. "Oben" (top) or part number must face cylinder head.

- Install cylinder head.
- Insert cylinder head bolts and tighten by hand.
Tighten cylinder head bolts in four stages in sequence shown as follows:

- Tighten with torque wrench:
  1st stage: 35 Nm
  2nd stage: 60 Nm

- Tighten with normal fixed wrench:
  3rd stage: 1/4 turn (90 °) further
  4th stage: 1/4 turn (90 °) further

**Note:**

*It is not necessary to re-tighten cylinder head bolts after repairs have been performed.*

To replace gaskets for intake manifold, remove bolts -1-. Tightening torque: 0.6 Nm.

Locating stud for intake manifold -2-; Tightening torque: 7 Nm.

**Note:**
Replace cylinder head cover gaskets if damaged.

- Apply a small amount of sealant D 454 300 A2 to sealing points -arrows- on upper surface of cylinder head.
- Tighten bolts for cylinder head cover crosswise and in stages.
- Install toothed belt on camshafts => Page 13-19.
- Relieving tension in exhaust system => Page 26-15.

CAUTION!

Part numbers are listed here for reference only. Always check with your Parts department for the latest information.

- Tighten cylinder head bolts in sequence shown.
## Tightening torques

<table>
<thead>
<tr>
<th>Component</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipstick guide tube to cylinder head</td>
<td>10</td>
</tr>
<tr>
<td>Toothed belt guard to cylinder head</td>
<td>10</td>
</tr>
<tr>
<td>Front coolant pipe to cylinder head</td>
<td>10</td>
</tr>
<tr>
<td>Cylinder head cover to cylinder head</td>
<td>10</td>
</tr>
<tr>
<td>Intake manifold to cylinder head</td>
<td>11 1)</td>
</tr>
<tr>
<td>Ignition coil to cylinder head</td>
<td>10</td>
</tr>
<tr>
<td>Combination valve to cylinder head</td>
<td>8</td>
</tr>
<tr>
<td>Locating stud for intake manifold</td>
<td>7</td>
</tr>
<tr>
<td>Locating bolt for intake manifold gasket</td>
<td>0.6</td>
</tr>
<tr>
<td>Exhaust pipe with catalytic converter to exhaust retainer</td>
<td>25</td>
</tr>
<tr>
<td>Exhaust pipe with catalytic converter to exhaust manifold</td>
<td>25</td>
</tr>
<tr>
<td>Double clamp for exhaust pipe</td>
<td>40</td>
</tr>
</tbody>
</table>

1) Torque intake manifold bolts in stages in a diagonal sequence ([=> illustration 15-A073 on page 15-28](#)). Run engine for 5 minutes and retorque bolts to specified torque in same diagonal sequence.

![Intake manifold bolt torquing sequence](15-A073)