

## Installation

### ⚠ CAUTION

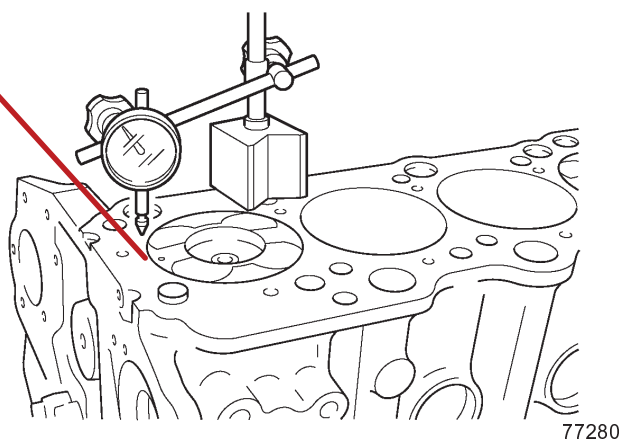
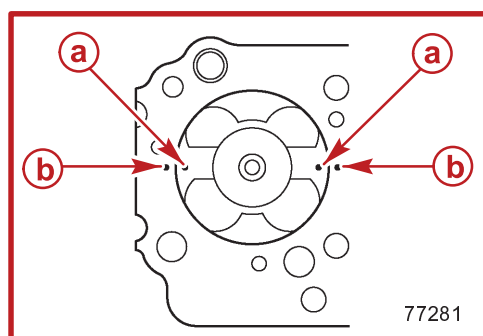
Head gasket thickness is very important on diesel engines. If head gaskets are too thin, the pistons will hit the valves or heads, causing severe damage. If head gaskets are too thick, cylinder compression may be low.

When cylinder heads are removed for service but pistons and cylinder liners are not disturbed, use the same thickness gaskets that were removed. Refer to Head Gasket Identification.

Refer to Determine Head Gasket Thickness during a complete engine rebuild or when pistons are being replaced.

### DETERMINE HEAD GASKET THICKNESS

1. Carefully remove carbon deposits from piston top surface and gasket residue from cylinder block surface.
2. Using a dial indicator measure piston protrusion at 2 points.
3. Measure piston protrusion for each cylinder.
4. Note highest measured value. This will determine cylinder head gasket thickness.



- a** - Piston Surface  
**b** - Cylinder Block Surface

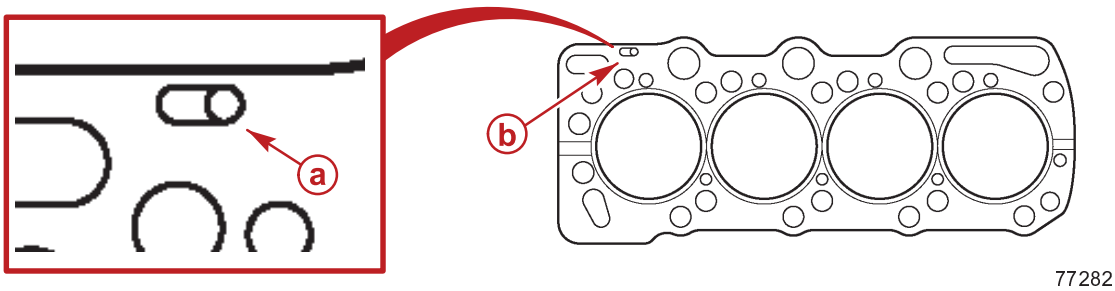
Description	mm (in.)
Piston Protrusion Range	0.58 - 0.78 (0.023 - 0.031)

5. Piston protrusion must be within the range shown.

**NOTE:** If piston protrusion is beyond the above range, engine should be inspected for worn or damaged components or improper assembly of components.

HEAD GASKET IDENTIFICATION

Select a cylinder head gasket of appropriate thickness (or grade) from chart below.



- a - Grade Mark (B is shown)
- b - Grade Mark Location

Grade	Grade Mark	Highest Piston Projection mm (in.)	Thickness mm (in.)
A		0.58 - 0.64 (0.023 - 0.025)	1.45 (0.057)
B		0.65 - 0.71 (0.026 - 0.028)	1.50 (0.059)
C		0.72 - 0.78 (0.028 - 0.031)	1.55 (0.061)

CYLINDER HEAD

**IMPORTANT:** Head gaskets must be installed DRY. Do not use any sealer on gasket.

1. Install head gasket on cylinder block.
2. Align the cylinder block dowels and the cylinder head dowel holes.
3. Carefully set the cylinder head onto cylinder block.

**CAUTION**

Avoid engine damage. Cylinder head bolts may be installed two times, and then must be replaced with new bolts. Replace the cylinder head bolts if uncertain of the number of times installed.

4. Apply engine oil to threads of cylinder head bolt and washer faces.

Description	Where Used	Method of Use	Part Number
Engine Oil	Cylinder head bolt and washer	Coat threads and surfaces	Obtain Locally