

Subject:	Cylinder head cover gasket
Relates to:	Cylinder head cover module
Make:	Various
Model(s):	Various
Engine	Various

Proper installation of an elastomer cylinder head cover gasket

Dear Customer,

In recent years, cylinder head covers for combustion engines have changed from metal to plastic. Aluminum die cast or metal valve covers have been superseded by new designs or developments in thermoset or glass-fiber reinforced thermoplastic with integrated rubber gaskets.

The advantages are clear: weight reduction, a high degree of constructional freedom in design, integratability of additional components such as the Multitwister® oil separator, decoupling of components and therefore reduction in noise emissions, etc..

An adaptable rubber gasket requiring only little line pressure ensures reliable sealing. Regarding warping and bolt spacing, however, physical limits are set that will have to be determined in the individual cases.

The sketch on the right schematically depicts the screw joint state of a decoupled cylinder head cover module. Since rubber is incompressible, and is therefore destroyed when overpressed, molded rubber gaskets are installed in the force shunt. The bolt has a sleeve that acts as a path delimiter and prevents excessive bolt torque. The combination of length of the bolt sleeve, section height and design of the decoupling element yields force equilibrium. This equilibrium also depends on the hardness and condition of the elastomer materials (red + blue), which have to be replaced in repairs.

The cylinder head cover module is a major source of engine noise. Decoupling from the cylinder head can reduce noise emission. Figure 2 illustrates the principle. The rubber elements (red + blue) prevent direct contact with the cylinder head for more quiet.



Figure 1_Decoupled valve cover module made of PA 6.6 with fiberglass.

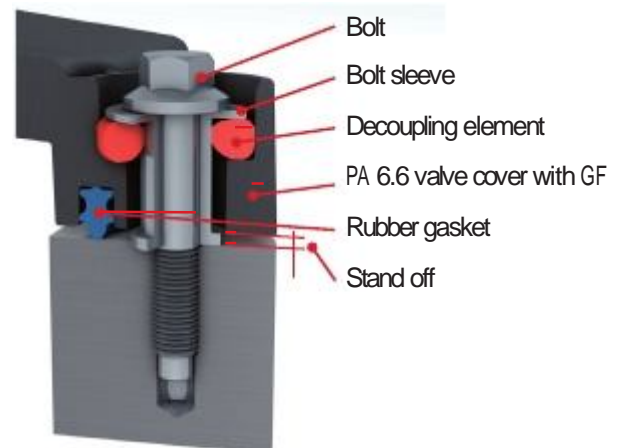


Figure 2_Schematic sketch of decoupling

Victor Reinz® – the best way to get a good gasket.

Installation instructions

- Remove used gasket from valve cover.
- Replace bolts with the rubber decoupling elements
- Check cover for cracks and smoothness:
- Clean and inspect gasket groove (no contamination, foreign matter or scratches may be present).
- Use no additional sealers in the assembly.

Exception:

- Unless expressly instructed to do so.
- A **very small** drop of sealant (Fig. 3) is possible at the corners of the camshaft semi-circles, helping to realign the gasket in the corners

Caution:

Additionally applied sealant alters the load distribution, the spring properties and consequently the operating range of the gasket. In particular, in the case of sealing sections with filigree rubber lips as in a T-section (Fig. 4), overpressing and bursting of the gasket may result.

- Place the molded rubber gasket roughly on the cover and press the gasket in the groove at the characteristic points – semi-circle bolt eyes, identification lugs (Fig. 5).
- Press the gasket into the groove starting from these positions at the left and right. After insertion the gasket must sit firmly all around.

Caution:

Do not start at one side of the cover only and push the gasket into place from that point, as the gasket will then stretch and become too long to fit into the cover.

- If the cover has recesses for the camshaft crescent, check these areas for the clean seating of the gasket along the radius and at the corners of the crescent.
- Check that all decoupling elements and all bolt sleeves are present.
- Set the valve cover on the cylinder head and tighten the bolts according to the tightening specification (torque, sequence).

With kind regards,
Your VICTOR REINZ Team



Figure 3_Sealant at the corners of the camshaft semi-circle

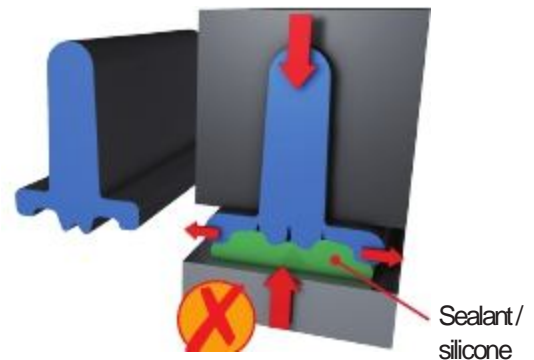


Figure 4_T-profile with additional rubber gasket sealant, resulting in overpressing of the rubber

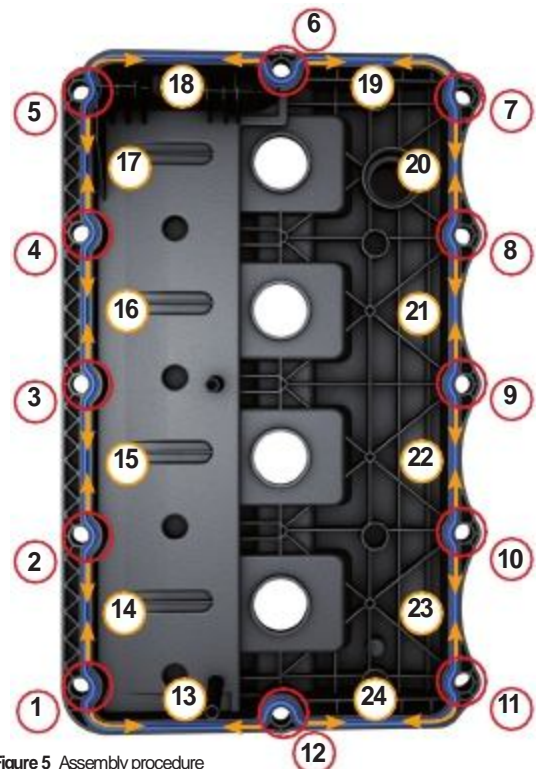


Figure 5_Assembly procedure