

## Geotze head gasket (B912E7029Z) installation

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The following information has been extracted from Lotus Service bulletin 1993/07. This bulletin covers the introduction of a thicker composite gasket as a direct replacement for the various laminated type gaskets. The new composite gasket offers a number of improvements over the original laminated construction gasket.

The original Lotus Service Bulletin had two omissions/errors relating to the later type of cylinder head studs to be fitted and the tightening procedure. This information has been amended so the revised bulletin below is correct to follow.

Whilst the primary content of this bulletin is correct and is still applicable, some improvements in terms of available sealant technology have taken place since 1993. Loctite recommend 567 as a superior alternative to 572. This latest product offers an elevated temperature range, improved sealing ability and easy removal of cylinder liners.

Great care needs to be exercised when installing a new head gasket. Make sure all the surfaces are flat and spotlessly clean. Locate the new gasket on the two dowels that protrude from the cylinder block. Then check that the integral oil seal in the gasket is in alignment with the oil feed gallery that delivers oil from the block to the cylinder head.

## Lotus Service bulletin 1993/07

TITLE: Introduction of revised cylinder block, head & gasket

REASON: Quality improvement.

The cylinder block and cylinder head of the Lotus 910/920 engine have been re-cast and upgraded in respect to stiffness, lightness, cooling efficiency and dimensional control. In addition, a new type of cylinder head gasket has an increased tolerance to severe thermo-cycling, and improved durability.

ACTION: The new components have been introduced on engine serial number: 28096 (last 5 digits of engine number) - January 1993.  
With the exception of the block deck height and various core and blanking plugs, the new block and head share all functional dimensions with the old type, and when service stocks of the older components are exhausted, the new parts will replace them. New heads may be fitted to old blocks and vice versa, but the new head gasket should be used in both cases.  
The new block and head may be readily identified by cast Lotus logos on the front and rear faces of the cylinder head and at the top right hand rear of the block.

### Cylinder Head Gasket

The steel/asbestos laminated gasket, B907EO026Z (Coopers - silver in colour) has been replaced by a reinforced fibre composite gasket A912E7029Z (Goetze - grey/brown in colour) This uses a built-in silicone sealing bead around the periphery and a Viton seal around the oil feed hole. The compressed thickness of the new gasket is approx. 0.5 mm (0.020") greater than the old gasket and the deck face and liner seats of the new cylinder block have been lowered by a corresponding amount.

### Service Replacement

- i) New engines must be fitted only with the new type gasket. Fitment of an old type gasket to these engines may result in piston foul and/or detonation due to the raised compression.
- ii) When stocks of the old gaskets are exhausted, old engines should be fitted with the new gasket, which will also replace the 'extra laminate' thicker gaskets (A911E1292, B911E1292) used on some low compression 912 N.A. engines.  
Note that the extra thickness of the Goetze gasket will result in a slight reduction in compression ratio (typically about - 0.5 numerically) when used on old engines. This may be advantageous to fuel octane tolerance, especially if the head face has been machined to correct distortion or erosion.

## Goetze Gasket Fitting Procedure

There are two points to note when fitting the new type gasket to new or old type engines:

- a) New engines must be fitted only with the new type gasket.
- b) The cylinder head nut tightening procedure has been amended and requires the use of an angle gauge. A Sykes Pickavant tool under Lotus Part No. TOOOT1235 will be despatched and invoiced to all dealers shortly.

Use the latest type cylinder head studs (B907E0224Z) identified by the dimple machined in the top end. Tighten into the block (with oiled threads) to 37 - 41 Nm (27 - 30 lbs.ft).

Fit head gasket (dry) and cylinder head. Fit washers, oil head stud threads and fit nuts.

Using the existing tightening sequence (from the centre outwards; see Service Notes EB.7),

Tighten the head nuts in the following stages:

- i) 20 Nm (15 lbs.ft).
- ii) + 75 degrees
- iii) + 40 degrees
- iv) Wait 5 minutes
- v) + 20 degrees

## Cylinder Liner Adhesive

The sealant used between the base of the cylinder liners and the block (formerly Hylomar) has been changed to Loctite 572 adhesive/sealant (A912E7030V) in order to reduce fretting and noise; improve sealing durability; reduce the risk of liner disturbance with the cylinder head removed. The use of Loctite 572 has been introduced together with the new block *and* head castings, but may be used on all Lotus 900 series engines. Loctite 572 Application Procedure:

Thoroughly clean the liner spigot and seat, and the corresponding areas in the block.

Dry fit the liners and check that there is a nominal clearance between the top ends of the liners. Check the standout of the liners above the block deck face (liner 'nip') which is unchanged at: - 0.03 mm to + 0.05 mm (- 0.001 to + 0.002 in);

Maximum variation between adjacent liners: 0.03 mm (0.001 in,

Apply a small bead of Loctite around the seating face of the liner.

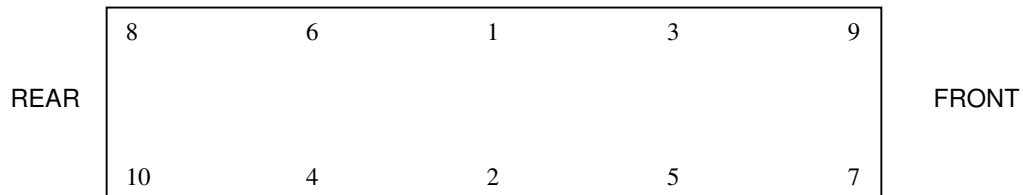
Apply a thin smear of Loctite around the outside of the liner spigot.

Apply a thin smear of Loctite around the top edge of the liner spigot bore in the block.

Slide the liners into the block and fit the cylinder head within 4 hours to ensure that the liners are seated correctly before the adhesive cures.

If this procedure is used on an "old" engine, apply a red paint mark for reference to the cylinder block at the end of the engine number stamping.

Note that when assembled as above, the liners will subsequently require the use of a liner puller tool (TOOOT0012A - existing part of the dealer special tool kit) in order to extract a liner from the block. The improved security of the liners also means that if care is taken, there is no necessity to reseal the liners in the normal course of cylinder head removal/refit



**Cylinder head nut tightening sequence**