Machining advice for fitting of stepped Cylinder Head Studs

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To ensure best performance and durability when fitting RRSL supplied replacement studs it is advised that these guidelines be supplied to your chosen repair shop.

In order to achieve the best results and performance from this repair it is intended that the thread repair is carried out by a skilled Precision Engineer using appropriate machinery and equipment.

You are strongly advised not to attempt this repair by hand with a Pistol Drill.

This repair will form the heart of your engine and will give good trouble-free service for many years if done correctly.

The pre-existing damaged hole should be assessed to satisfy yourself that there is sufficient virgin material in the block to allow the replacement 7/16" BSF thread to be fully formed and in the correct position.

The studs have been manufactured to tight limits and on the understanding that the correct and recommended manufacturers' taps will be used.

Details of the taps are shown below.

Depending on the chosen method of your machine shop an alternative method for generating the 7/16" BSF thread is to thread mill by circular interpolation using a CNC Machining Centre. If this method is used generate the thread in the block to suit the stud using minimal clearance on the effective diameter.

The stud should not be a tight fit in the block as you will risk bursting the casting.

It goes without saying that it is imperative that the resultant 7/16" BSF thread is square to the face of the block.

- Before instructing the machine shop to undertake this repair please ensure that they have read this advice note.
- This Stud is intended to be a repair for damaged or worn 3/8" BSF threads in Riley Blocks.
- The studs can be used individually or as a complete set depending on the engine builders' requirements.
- It is the engine builder's responsibility to ensure sufficient clearance between the top of the Stud and the underside of the Rocker Box in the final assembled condition.
- These studs are a generic design in order to accommodate several engine types, they are 3/16" longer overall than standard Riley 9 Studs.
- Clearance between the top of the Stud and the underside of the Rocker Box is dependent on how much Head skimming has taken place over the years, hence there could be an interference. It is prudent to do a trial assembly to ensure there is no interference.

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The tapping drill size for 7/16” BSF is 9.70mm or 0.382” diameter.

The upper tap (OSG 1066 POT) is for starting the thread and should be supported/guided inline with the hole by a mechanical means in order to maintain squareness to the cylinder block.

The Lower Tap (OSG 22037340) is a plug Tap for Finishing the Thread to the Bottom of the Hole.

If you are tapping a Block that has through holes into the water jacket, then you may only need the Upper Tap (OSG 1066 POT).

When fitting studs to a Block that has through holes into the water jacket use Loctite Studlock in an attempt to seal the thread from capillary action and to act as a barrier against Corrosion.

If you are repairing a Block that has blind holes that do not enter the water jacket then you will require both Taps.

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