Riley 12/4 timing cover – Fitting Instructions
Part Numbers – R276 & R382

Introduction

We have manufactured these components to original Riley drawings and, as per Riley, the bore for the crankshaft and for the exhaust-side fan drive need to be sized and positioned on the intended engine. This allows for block-to-block tolerance build-ups to be accommodated. Consequently, we supply the exhaust cam bush separately, for you to fit after machining of the bore.

If you do not require a fan drive on the exhaust cam the later action is clearly unnecessary.

The one deviation from the original dimensions is that we have made the pilot hole for the crank bore undersized to accommodate a minus 0.040" regrind.

Fitting

Please read the whole of this before commencing any work on fitting the new timing cover. The replacement timing cover is not a bolt-on replacement and machine shop work is required to fit the cover on your engine.

We recommended you remove the engine from the car to facilitate fitting the cover, and that the machining work is entrusted to a competent machine shop with experience of working on Pre War Riley cars.

Sizing the crankshaft hole in your new cover.

Your new timing cover has the two dowel holes, the Inlet camshaft hole (for water pump drive) and idler shaft spigot machined to the required size and correctly located and these references are used, as per the original Riley practice, to correctly locate the timing cover on the front of your engine. As mentioned earlier the crankshaft hole is sized to take a -0.040" undersize crankshaft. It will therefore be necessary to machine the cover to match the size of the crankshaft on your engine.

Fitting as part of a rebuild that includes new Main Bearings

If you are fitting a replacement cover as part of a general rebuild that includes new main bearings, then this sizing of the timing cover can be done as part of the line boring process to machine the new main bearings. Remember however, the key point, ***which cannot be stressed enough***, is that the setting point for correct alignment for line boring at the front of the engine is the **centre of the crankshaft hole on the new timing cover.**

Fitting when there is no need to line-bore the main bearings

In this case, measurements are needed to correctly position the hole to ensure that it does not end up offset from the centre-line of the crankshaft, which may happen if the timing cover bore was not used as the datum for previous line-boring operations. This may lead to issues with incorrect timing gear backlash and with driving the dynamo, which can be corrected only by remetalling and line boring the main bearings in the correct position, using the hole in the new cover as the datum.

For an original sized Riley manufactured crankshaft the design dimension for sizing the hole are 1.7498" to 1.7508". Note the original crank nose diameter was 1.7500" -0.00075"/-0.0015". Obviously, adjustments are needed for non-original size crankshafts.

Sizing the fan pulley bearing hole in the new cover

This hole is machined to the size specified on the original Riley drawings. This is to allow the final hole to be correctly positioned for the intended block when tolerance variations may well have resulted in some variation in position from engine to engine. The original requirement was on assembly to align ream to 1.6747" / 1.6757" diameter to take the bushing for the fan drive. We are currently investigating a pilot bored reamer to sit on the exhaust cam to aid line reaming of this bore. We will update members via the Newsletter when this reamer is available.

An alternative is to get a machine shop to correctly align and size this bore. This will require measurements to be made with the cover trial fitted to your engine. For position, the machine shop will need to check the concentricity of the hole in the timing cover with the shaft on the cam. This will allow appropriate offsetting if the two are not concentric.
For sizing, the best option is to take the relevant finished diameter of the R44 bush you plan to use and size the hole for the bush to be a push fit (0.001" – 0.002" interference)
The timing cover will then need to be removed and the hole opened out to the required size and position prior to fitting the R44 bush.

Engine Numbers

The engine number for 12/4 engines is stamped on the timing cover. You are advised to transfer the engine number onto the replacement cover and obliterate it from the old cover if you plan to dispose of the latter through the second-hand market.