

# MORGO®

## TRIUMPH UNIT ROTARY OIL PUMP



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## FITTING INSTRUCTIONS

Manufactured By

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(2)

**PLEASE READ CAREFULLY BEFORE PROCEEDING.**

With respect to the more enlightened, some aspects of these instructions may appear elementary, but it must be pointed out that some of our customers have never seen the inside of a unit construction Triumph twin.

**WE STRONGLY RECOMMEND WITHOUT EXCEPTION EVERYONE TO READ THESE INSTRUCTIONS CAREFULLY.**

**1a.** Disconnect battery, remove points cover and centre bolt holding points cam in place. Withdraw points cam unit complete. Service tool 61-7023 will help in the removal of the unit.

**1b.** Unscrew the oil switch from timing cover. Remove the eight timing cover fixing screws (noting the screws are different lengths). Remove cover using a rubber hammer, tapping round the sides of the cover gently and finally tapping behind the oil switch boss. Under no circumstance drive screwdrivers or such between the mating faces, as this will destroy the re-sealing of the timing cover.

**1c.** The old oil pump is held in place by two nuts with cone locking washers. Remove the nuts and washers. Slide pump and gasket off the studs. Screw the two nuts onto one stud and lock them together. Turn inside nut anticlockwise and outside nut clockwise. With spanner on inside nut turn anticlockwise the stud will now unscrew. Repeat for second stud. The old studs will not be needed to fit the new Morgo pump

**1d.** Remove pump drive nut from rear cam shaft. Turn clockwise to remove. To prevent the shaft rotating, place gearbox in top gear and apply rear brake.

**1e.** Check the fixing screws supplied with your new pump are the correct thread ie. UNC or Cycle. Your engine may not be the original one fitted to your machine, so year and model are no guide in such a situation. Clean gasket face to remove any old gasket material.

# Fitting New Morgo Super Pump

(3)

**Very important drive nut to pump body clearance See Fig. 1**

**2a.** Fit slotted drive nut onto rear cam shaft and tighten up, holding again with brake. Push the timing gear towards the engine casing. Fit pump with gasket but without drive insert to engine, place feeler gauge down the access slot to determine the clearance (**See Fig. 3**) .005"(0.12) to .015"(0.25mm) is recommended, 4 drive nut shim washers are supplied with the pump kit .005"(0.12) .010"(0.25) .015"(0.38) .020"(0.51mm) the computation of same should give the correct clearance, if the clearance is found to be correct move onto Step 2b

## PLEASE NOTE

Some after market timing gears are under size on thickness, this reduces the pump drive location and can cause premature wear to the pump drive, this situation can be established by the above feeler gauge clearance procedure. Shim washers are provided to adjust drive nut stand off. This is accomplished by placing the shim washers between the timing gear and the drive nut. (**See Fig. 1**)

**2b.** Turn the pump, stopping so that when the shaft insert is fitted it will match the position of the drive nut. Holding the pump horizontal with the feed holes uppermost pump clean engine oil into the 5 transfer holes.

**2c.** Put a small dab of grease in the drive slot in the pump shaft to hold the floating insert in place, offer the pump without gasket and screws into the drive nut slot, moving the pump in a rotary backward and forward movement. When the floating insert engages in the drive slot look down the screw holes and line up with the holes in engine casing. This will make the fixing screws easier to locate on assembly.

**2d.** Put the two screws in the holes in pump body and put gasket over screw threads making sure holes in gasket line up with holes in pump.

**2e.** Hold pump in position, screw in the two screws each one a small amount at a time, until both screws centralise the pump, then nip up tightly. Check the camshaft has still got end float.

**2f.** Fill oil tank with oil, remove priming screw with hexagon head and screwdriver

(4) slot and allow air and oil to escape until all air bubbles stop and oil only escapes, this may take a few seconds for the oil to drain down from the oil tank. Replace bleed screw and lock tab washer, (**See Fig. 4**) lock the screw up tightly and secure with lock tab. The pump is now fully primed.

**2g.** On some engines the timing cover has been modified to give slightly more clearance for the larger oil pumps. Check if the cover fouls the left hand side of the pump. Also check that there is no damage on the two mating cover faces. Place the cover on the engine, if the cover sits flush up to the engine face no modification is needed. Go to step 2i.

**2h.** Place a piece of plasticine about 1"(25) square and ½"(12mm) thick inside the cover just under the second boss down on the right hand side looking into the cover. Put the cover back on, press fully on. Remove cover and the contact area will now be revealed. Carefully remove a small amount of material with a rotary burr and electric drill or similar, until a clearance is achieved.

**2i.** From now on re-assembly is fully covered in the Triumph manual, or alternatively reverse the dismantling procedure.

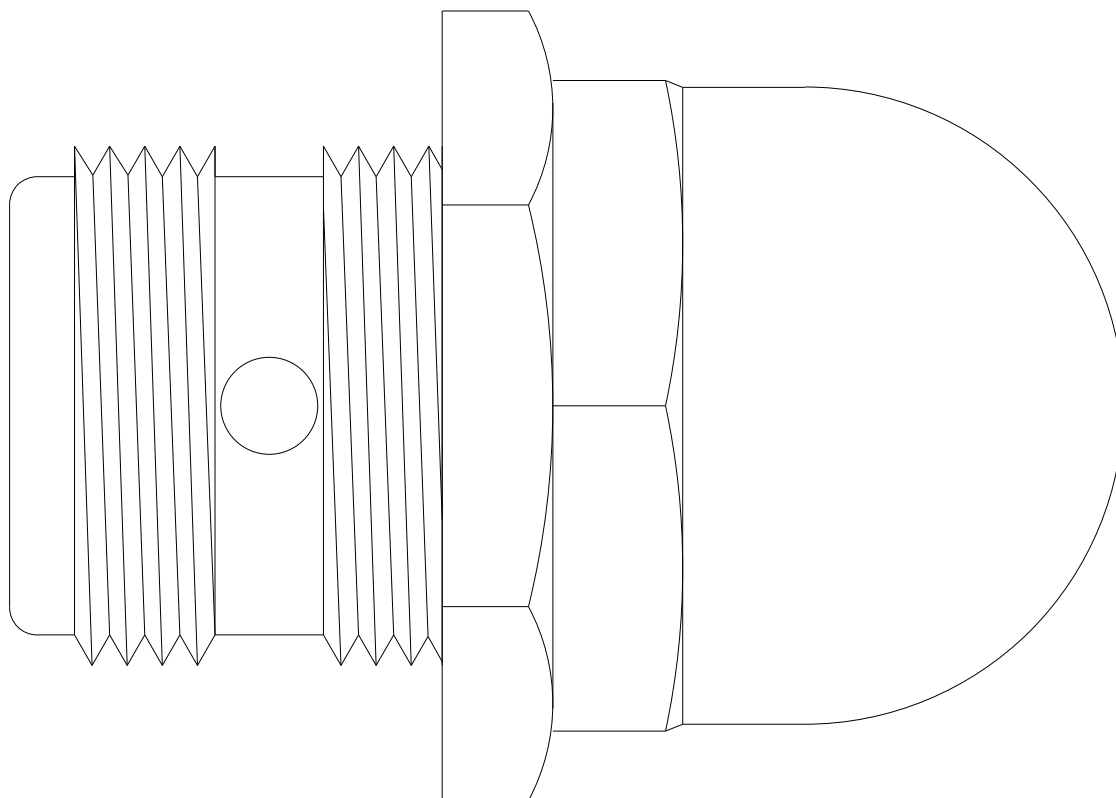
## **PRESSURE RELIEF VALVE**

**3a.** Important to rider's likely to ride at high revs for long periods it is essential to remove the crankcase pressure relief valve and ensure a minimum of 2 holes are drilled in the body, for racing 4 holes are preferred to allow a more free flow of excess oil back to the crankcase.

Note it is very important after drilling extra holes in the P.R.V. that the drilling burrs are carefully removed from the internal piston bore. Make sure that the piston still has free movement all the way down its travel to the shut off seating face.

The P.R.V. can be a source of problems, the after market ones in particular, some of which are not made to the correct tolerances allowing oil to pass between the 7/8" diameter thread and the engine casing through the P.R.V. body causing pressure build up at the spring end of the piston and hydraulicing the valve shut making the P.R.V. unable to control the pressure correctly.

This situation has occurred many times in the past with high performance engines fitted with all types of plunger type oil pumps. The situation is brought to light more readily with the rotary pump because of the extra oil flow. It is sad to say that in



many cases an old P.R.V. in good condition, with extra holes drilled, is a better solution to the problem than incorrectly manufactured new ones.

**3b.** The oil tank scavenge return pipe must not be over restricted at the oil tank end. The reason for this is the Morgo Super Pump has a 3 pints per minute scavenge capability and if the oil is prevented from getting back to the oil tank effectively, and if a much larger quantity of oil than normal is retained in the engine as a result, the engine may give the impression of wet sumping when the engine is cold. This is very unlikely but is worth pointing out.

## IMPORTANT

Before starting the engine remove spark plugs and oil pressure switch, then kick the engine over until oil appears out of the oil pressure switch hole, this is to make sure you have got oil pressure on machines not fitted with an oil pressure gauge.

## NOTE

**3c.** Do not be fooled into thinking you have oil pressure just because oil is returning from the scavenge outlet tube this oil could be the residue from previous running with the old pump and not new oil delivered from the new rotary pump.

It will also be noted that when the oil is cold, the oil level in the oil tank can reduce

(6) but will return to its normal level on warming up after only a few minutes running. The reason for this is, the new pump having a larger delivery than the old plunger type pumps, resulting in more thick oil being delivered back to the crankcase via the pressure relief valve. Because the oil is thick the crankshaft picks up and carries a higher proportion of this extra oil than normal around itself and centrifugal deposits the oil on the crankcase inner surfaces. Also a greater amount of oil is held in the timing cover, until the oil warms up. As soon as the engine warms up only marginally, the oil drains to the bottom freely hence the oil level in the tank returning to normal. The above can give the impression of wet sumping

## **OIL FILTERS**

Oil filter units should be fitted in the scavenge return, it must be pointed out they do offer a partial restriction particularly when the oil is cold and more so when due for changing. Therefore it is recommended units with a by-pass safety relief valve facility should be fitted. The filter MUST be fitted before the tee off to the rockers.

## **CHANGING OIL**

When engines are totally drained of oil ie. oil tank and crankcase etc. It is advisable to pour approximately 1/4 pint of oil into the crankcase via the timing peg aperture behind the cylinder base. This makes oil immediately available for the scavenge return to feed the rockers.

## **OIL IN FRAME MODELS**

When doing oil change, to help prevent oil draining down from the pump, place tourniquet on bottom flexible feed pipe until tank is re-filled or make sure the oil pipe can not drop below the level of the bottom of the oil tank.

It must be remembered the Triumph twins have not had the benefit of such a generous oil supply in the past and have to be adjusted in some cases accordingly, especially after past experimenting by previous owners attempting to make the best of a poor oil supply to the ROCKERS. Some owners in the past have restricted scavenge oil return outlet at the oil tank outlet to gain more oil to the rockers, you will find the oil return with the super pump is more effective.

**Remember advice is always at the  
end of the Phone or Fax.**

# IMPORTANT

(7)

## CLEARANCE BETWEEN NUT AND DRIVE SHAFT .005" TO .015"

FIG. 2

**PLEASE NOTE:**

The fixing screws in this kit  
are different lengths

Short one to left mounting hole  
Long one to right mounting hole

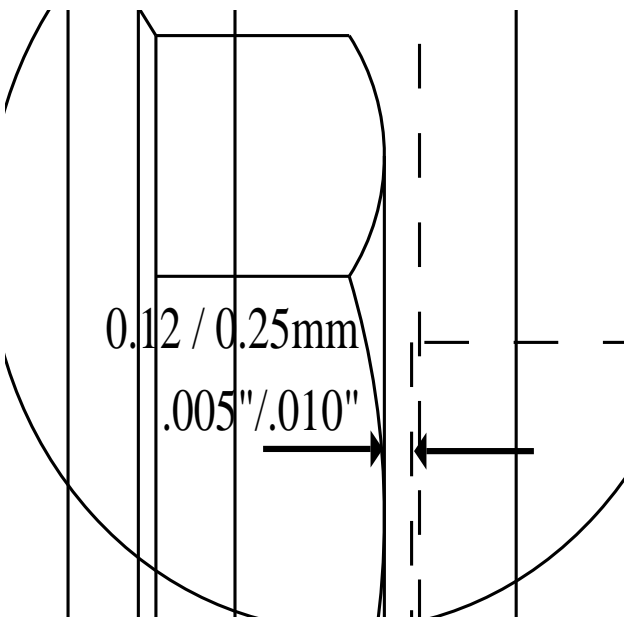
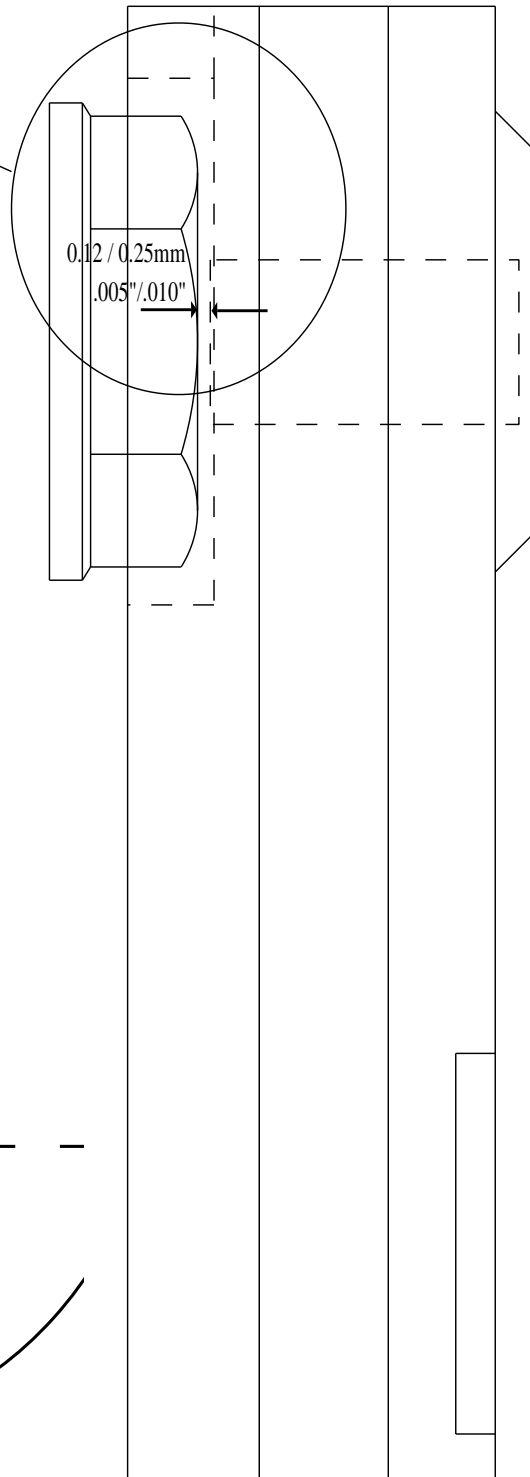
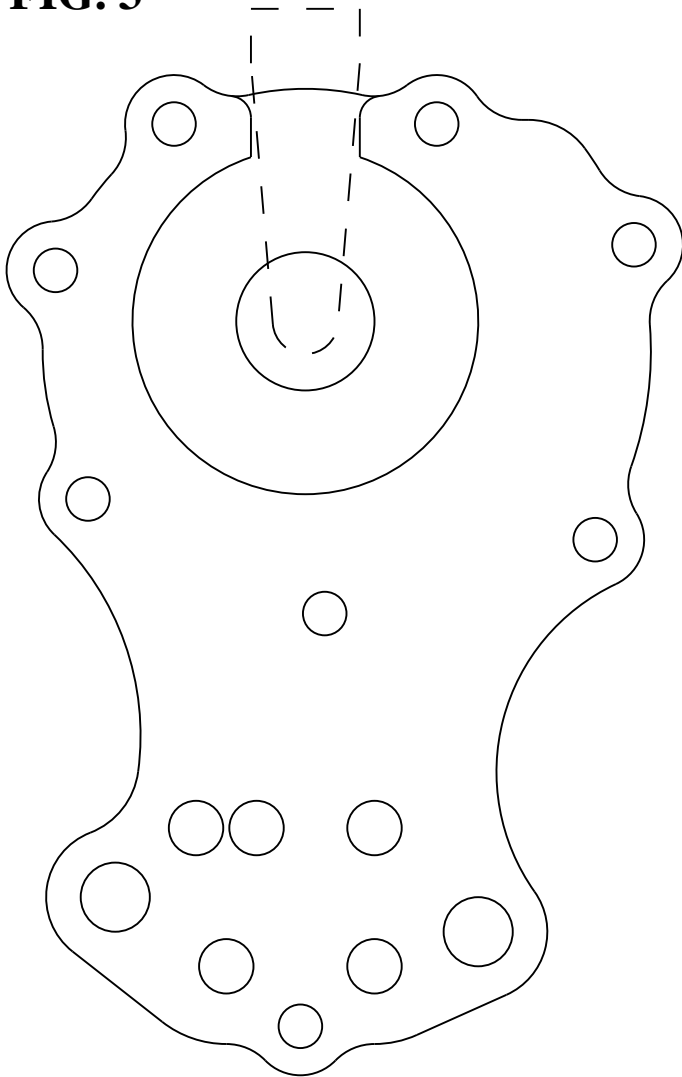


FIG. 2

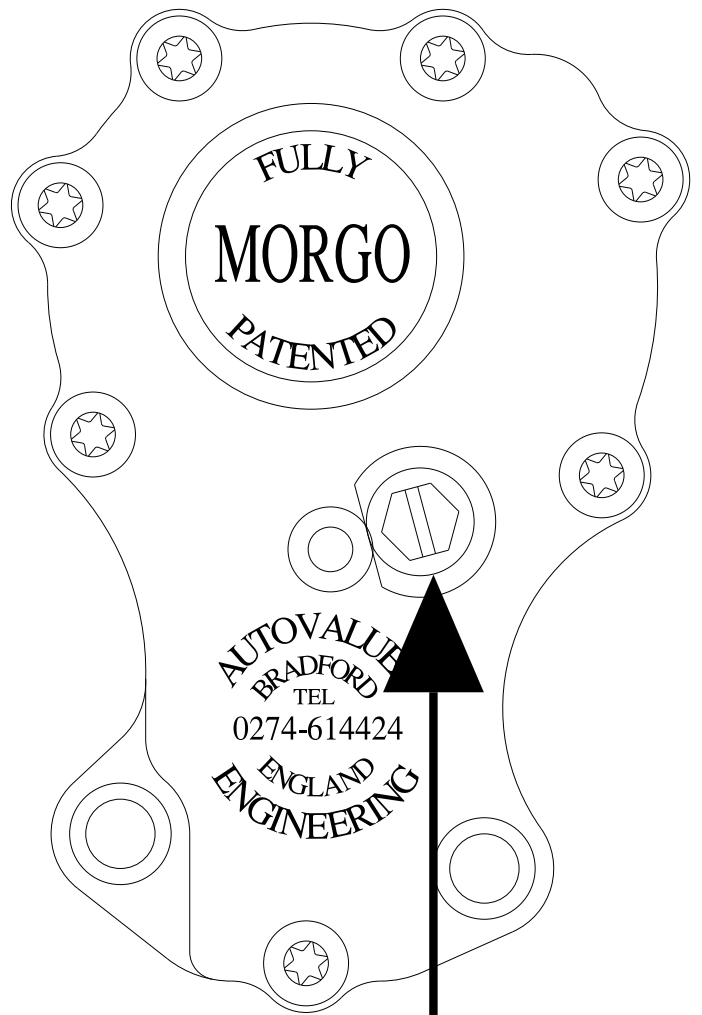
FIG. 1

- (8) Ensure your feeler gauges will reach the shaft when passed through the slot in the back of the pump, as in Fig 3

**FIG. 3**



**FIG. 4**



Bleed screw and  
tab washer, fold  
edge up to flat on  
hex screw to lock

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***You can also contact us by email.***

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