X650 Sump Oil Filter conversion

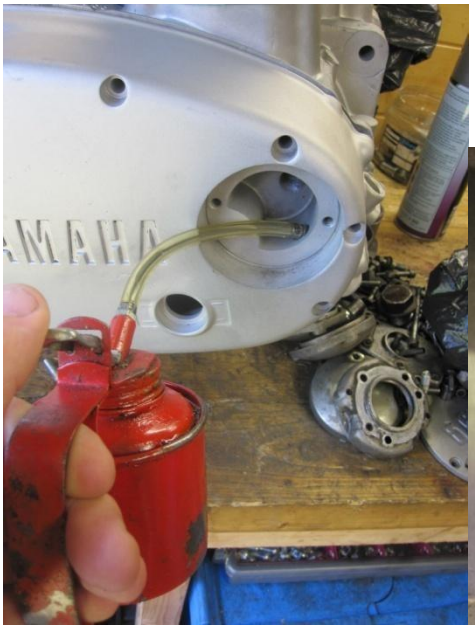
This oil filter conversion is designed to improve immeasurably the stock Yamaha gauze filter used as original fitment on all XS650 from inception to conclusion. The stock gauze has two main defects, firstly its ability to filter particles smaller than 6570 microns is non-existent, these particles of gearbox metal, cam-chain etc. are most harmful to main and big end bearings. It must be noted that NO current manufacturer anywhere still uses a gauze, it was obsolete by the time it was designed, being a hangover in part from British bike design. Secondly, the design and manufacture is such that the corner nearly always detaches itself (except it seems early pumps which do not have 8mm rotors) allowing completely unfiltered oil to pass to the oil pump. Here it causes damage to the geroters and clutch casing.

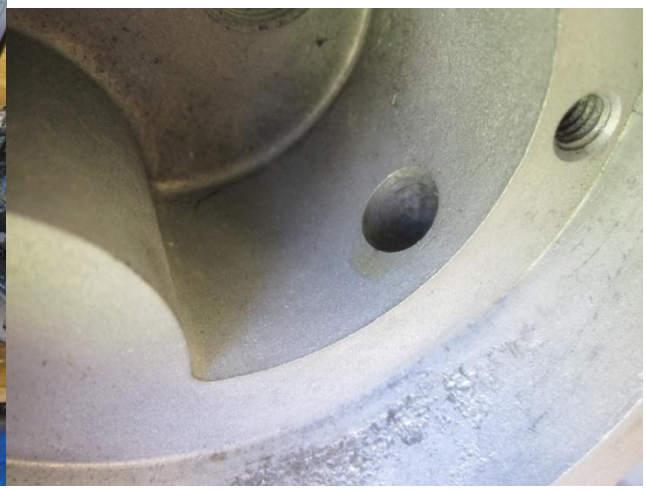
This design protects both the engine and the pump, allowing for complete filtering down to 10 micron level, in a readily available filter incorporating a filter bypass.

1) After return of your modified sump plate from me, remove the black filter and fill to the top with clean engine oil of your preferred grade. I use Mobil 10W60 but many do not like synthetic engine oil, stating that the rollers in the crank will skid. Whilst the oil is being absorbed into the paper element of the filter, replace the aluminium sump plate assembly onto the engine using gasket Yamaha part no 256-13414 and torque the six bolts to the recommended setting. I use Three-Bond on the gasket as a precaution, as from now on removal of the sump-plate to clean the gauze will not be required.

2) When the filter has sat for a while it will have absorbed the oil that was put into it, and the level will have dropped. Again prime to the top and leave to settle, repeat this procedure until the filter will not absorb any more oil. This step is most important; a paper filter that is NOT primed will reduce the initial oil flow to the engine for a while whilst it “seeps through”. Put a little engine oil on the large O ring that will seal the filter against the modified sump plate, screw the filter onto the engine – just hand tight is fine.

3) Remove the gauze filter in the clutch cover, as this performs no useful purpose any longer, in fact it only serves to slow the oil feed to the bearings. **As per photos below**, fill the oil gallery from the pump to the side cover with as much oil as it will take. Refit the cover and torque 6mm bolts to the recommended figure.





4) Fill engine with preferred grade of engine oil, to recommended level. Start engine and check for leaks. Allow to run for a minute or so. Turn off engine, re-check oil level on dipstick, replenish as required.

These are experimental parts intended for racing and as such no warranty is given or implied and if you decide to buy it is on the understanding that you assume complete responsibility for any possible injury, loss or damage that may occur as a result of using these parts and that you accept these conditions of sale prior to purchase.

A short note regarding the choice of oil and the Yamaha sump filter: the standard sump filter fitted to XS650 suffers as everyone knows from the corner breaking away; allowing unfiltered oil to pass to the oil pump and possibly to the main bearings as well. Almost universally acknowledged as being caused by thick cold oil, being pulled through the filter. (Interestingly, the early engines had 4mm and then 6mm oil pump rotors and these do not appear to wreck the gauze).

When the XS650 was designed the manufacturer specified a 20/50 oil as this was what was available in 1969. Wide ranging multigrade type oils that are available today simply did not exist. With the inception of semi and totally synthetic oils that do not rely on a long chain polymer for the oil to be a multigrade, the range available is now far greater. Semi synthetic oils are frequently 15/50 and pure synthetic oils often 10/60. My personal preference is Mobil 10W 60, which I have used for years. It causes no clutch slip, the engine is remarkably rattle free, and clutch action is fantastic. Thinner oil will get to the parts needing forced lubrication far quicker, and will cause less viscous drag and associated foaming. Just a thought……

Whatever you oil you do use, change it often, and use the best you can afford, Oil and filters are cheap compared to engine rebuilds.