Vipers, Enfields and Silks

Royal Enfield Forks

With a bit of time on hands I decided it was time to sort out the front forks on the 250cc S2 Royal Enfield. There was quite a bit of play in the top spindle on the fork girder. New spindles for the post-war 350 Enfields from Hitchcocks are very similar and can be modified to fit but because there are no bushes the new spindles didn't help with the wear in the holes. The castings are quite thin and trying to machine out and fit bushes is way beyond my capabilities and equipment. Measuring the holes showed the actual wear was about 6 thou. in the fore and aft direction making the holes oval. To make the holes round again I obtained an H2 adjustable reamer and pilot from our favourite auction site. T&J brand are high quality and worth looking for and new old stock appears at times at good prices. Using the reamer and pilot the holes trued up at 10 thou oversize. All I needed now was an oversized spindle. A tough steel is required to withstand the high shear loads on the spindle especially when hitting a pot hole. EN16 and EN24 steels seem to be the specifications commonly used for fork spindles so I obtained a length of 1/2" EN16 and set about turning a new spindle which is about 8" long. It took most of the afternoon to get my Myford lathe set up to turn the spindle to 1 thou between centres. The next problem was cutting the threads on the ends of the spindle, left and right hand 7/16" Cycle thread. I had a 7/16" Cycle right hand die so that was easy. To my surprise a tool supplier was selling off 7/16" HSS left hand Cycle thread dies on Ebay for £3. Problem solved. The spindle fitted nicely in the bore and was well greased before a test ride. Result – a big improvement in the ride over bumps. No clattering from forks and very smooth action.

Enfield Fork Spindle

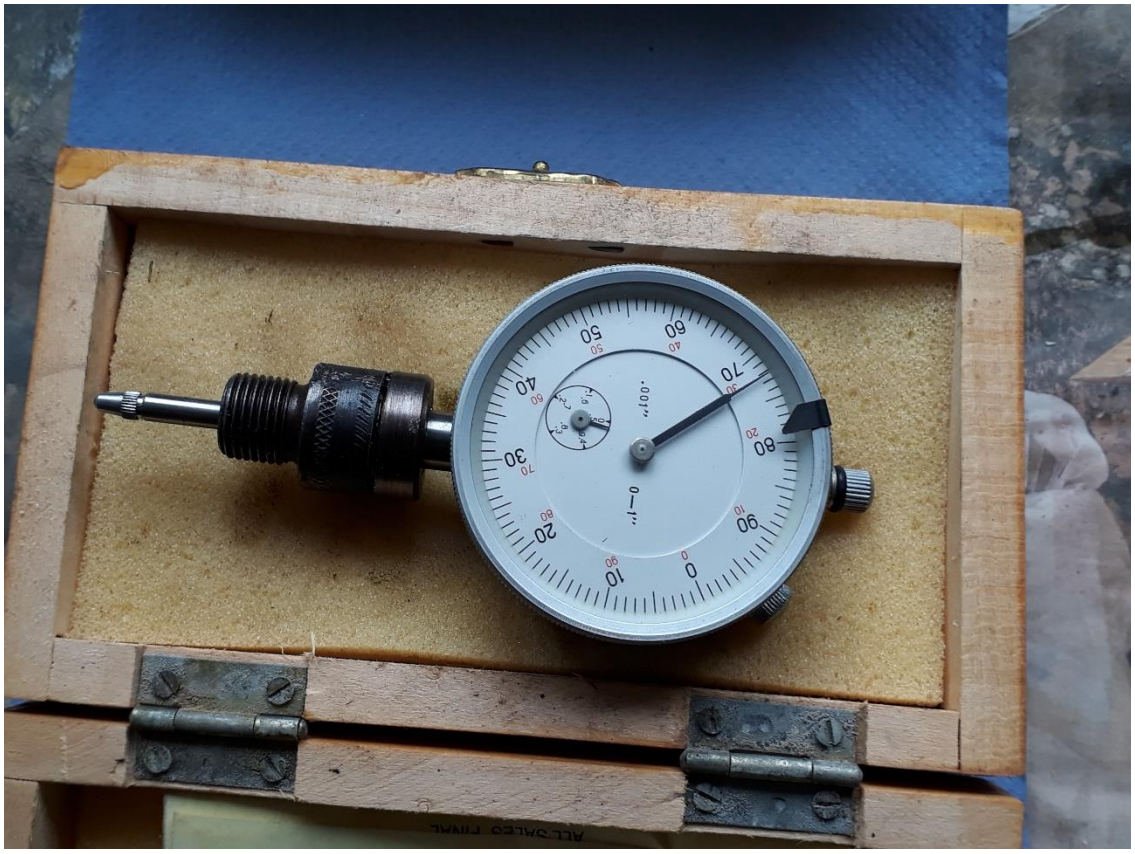
Silk Ignition Timing

When I got my Silk running several years ago I set the ignition timing as per the manual. The performance was quite flat up to 5000rpm and then a burst of power to the 6000rpm limit. I put this down to the later port timing and was just a characteristic of the bike. It didn't make for a fun ride. There has been some discussion on ignition timing on the Silk forum and an apparent error in the manual showed up. The ignition timing is either 0.2" or 0.3" before top dead centre (BTDC) or 37.5^{o} BTDC for the 0.3" setting. Knowing the length of the conrod and the stroke the maths for working out piston position and crank degrees is fairly straight forward but a bit tedious for multiple calculations. This website has a great little program for doing the calculation:

http://www.torqsoft.net/piston-position.html

The result of the investigation was that a conrod 1 metre long would be needed to get 37.5^{o} advance at 0.3" BTDC. Not really practical! So what is the advance in degrees at the quoted piston positions? I made up a tool to hold a test dial indicator (TDI) in the plug hole and marked the top dead centre and the advance positions on the alternator rotor and stator. The measured advance was 27^{o} for 0.2" and 34^{o} for 0.3" which agreed with the calculated positions. While I had the alternator cover off I checked the timing with a strobe, 3-4^{o} retarded. No wonder it didn't go very well. Set to 27^{o} and it is a different bike. I put the difference in timing from the manual method and strobe method down to wear/backlash in the mechanical advance and retard unit.

The tool to hold the TDI was made from an old spark plug. I removed the internals and glued a bush in place with Loctite 638. While at it I made a pin so the tool could be used as a depth stop too.



TDI with adaptor

Depth Stop

Viper Oil Banjo Bolts

I decided to start sorting out my Viper again after a very long sleep. The bike was 11 years old when I acquired it for £15 in 1971. It had had a hard life I discovered and am still finding problems. After fitting a replacement barrel and piston I fired up the engine only to find oil leaking from the crankcase half joint just below the rear top engine mounting bolt. Nothing for it but to strip the engine down and fix the leak. It turned out the top rear engine mounting lug had had some welding done on it and fillet was left in the corner of the lip which aligns the two halves. This fillet stopped the joint pulling up. The fillet was removed using needle files and the joint face pulled up nice and flat. Hopefully Threebond 1184 is as good a sealant as it is reported to be!

The next problem was the oil return banjo bolt had stripped its thread in the crankcase. It was quite a mess and my thoughts were now more about an EBay offering for a project Viper than yet another repair. Helicoil repair kits for 1/8 BSP are available but the hole was in such a bad state that there wouldn't be much material for the fine helicoil insert to hold in the crankcase. In the Hints and Tips, Director's Cut sent out with Fishtail there is an article on helicoiling and in it it mentions that Ralph Seymour made BSF threaded M 214 oil banjo bolts if helicoiling couldn't be done. The cleaned up hole turned out to be the exact tapping size for 7/16" BSF. I was surprised how soft the crankcase alloy is when tapping the hole, no wonder the threads strip if a heavy hand is used tightening the banjo bolts. I had purchase some Whitworth sized hexagonal bar at Kempton Park autojumble some time ago and set about making a slightly oversize banjo bolt. The bolt is a nice snug fit in the crankcase and the banjo needed to be opened out a small amount. I have had the Viper over 40 years and hopefully the repair will last for the next 40.

M 214 banjo bolt left, oversized 7/16 BSF banjo bolt right

Repair completed