Timing Chain Rattle Diagnosis

By Colin Carpenter
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I'm so pleased that I eventually managed to cure this annoying rattle, that I just feel I've got to tell someone about it.

My bike is a 1986 K75C that I've had for about 10 years now. I bought it from a local dealer, and the bike had a full service history and had been owned by a local motorcycle enthusiast who had owned it from new and put 33,000 miles on the clock in the 4 years or so that he had owned it. (His "other bike" is a 1977 MV Agusta!!) It had been run on fully synthetic oil for all of this time ..... a clue to the chain ticking, as will be revealed.

The bike looked and sounded good, though at the time I remember thinking that the " tappets sounded a little noisy" ... but as I knew very little about K series engines at the time, I assumed that a small amount of adjustment would cure the problem. Little did I know that it would take me 10 years or so to cure the problem!

Once the initial "buzz" of owning a new bike had passed, I decided that I ought to try and cure the noise. A Haynes workshop manual and a feeler gauge determined that there was nothing wrong with the valve clearances, and a "screwdriver stethoscope" indicated that the noise was in fact coming from the the timing chain area of the bike. It was most noticeable at tick over, though was also audible at low speed (even through a helmet and ear plugs) when the bike was cold. When fully warmed up, it was still there, but not so bad. The only time the bike sounded perfect, was when it was started up in the depths of winter, when for the first minute or so, it ran like a sewing machine, but as the oil warmed up, the ticking appeared until it sounded as bad as normal.

It annoyed me intensely, as the rest of the bike was so good, but the engine sounded like a bag of nails, so I decided to replace the timing chain, tensioner and all the various plastic slides that keep it on track.

Being somewhat "fiscally bereaved" at the time, I thought I'd strip it down first and check the chain for wear. I did this and found that there just wasn't any noticeable wear in the chain at all, so I kept it and just replaced everything else. You've guessed it .... it made not a scrap of difference!!

Then followed an 8 year hunt to try and find out what was causing it. The internet, dealers, mechanics, specialists etc., were all quizzed, but no one could shed any light on the subject, so I just put up with it and bought quieter ear plugs.

This year, I decided that it was annoying me so much that I was either going to sell the bike (which I really didn't want to do) or get to the bottom of the problem. The only bit I didn't change at the time was the chain itself, so it had to be that ..... didn't it?

So I coughed up the money, bought a new chain (and all the plastic wear strips and gaskets), stripped it down again, measured the new chain against the old and could not find the slightest

signs of wear (even after 60,000 miles). At this point, I just knew that when I put it all back together, it was just going to sound exactly the same as it did before, so I calmed down, and started to try and rationally analyse what was causing it. 30 minutes later, I had one of those "Eureka" moments .... one of those moments that stay with you for the rest of your life ..... one of those moments when suddenly everything becomes clear. I found the problem!!

The problem was in a part that is not normally replaced as part of a timing chain strip down. In fact, it's not normally even held by dealers and has to be ordered from BMW direct, unless you can get a second hand one as I managed to do.

This part is the long curved piece of flat section bar that is pivoted at one end and is "pressed on " (from the underside) by the hydraulic, ratchet tensioner. This part has a plastic wear strip fitted to the top for the chain to run in / over, but the part that was causing the trouble was a small piece of black plastic that is bonded to the underside of this strip, to avoid "metal to metal" contact with the face of the hydraulic tensioner. The hydraulic tensioner works by engine oil pressure expanding the piston when the engine runs, thus tensioning the chain. However, the piston is not a "closed piston". To ensure lubrication of the faces between the faces of the tensioner and the flat section chain guide, there is a small hole drilled through the face to enable some oil to flow. The small piece of black plastic acts as a "back pressure device" - by pressing against the small oil hole, it causes the piston to expand properly and tension the chain - but in my case it didn't.

Close inspection of the small black plastic square showed that some of it was missing. At first I thought it had "chipped off", but then I realised that it had probably been eroded away by the speed of the oil coming out of the hole. It could have been a faulty part, but it seemed to me that the most likely scenario was that the erosion had been caused by the velocity of the fully synthetic oil that was used for the first 33,000 miles. Of course, no piston back pressure = no piston force = no chain tensioning = noisy timing chain. A new part solved the problem, and the bike runs like a sewing machine all the time, now.

Am I the only person in the world to have come across this? I'd love to know.

The bike now has 62,000 miles on the clock and runs and handles beautifully with progressive springs and heavier oil in the front forks (cures the vagueness at medium speeds) and excellent wear and traction from Michelin Macadam tyres.

Best Regards,

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