

## C180 Kompressor Timing chain replacement

After reading a couple of threads with regards to timing chain problems and all the helpful advice on this thread, I decided to replace mine a.s.a.p.

I purchased an aftermarket chain (JWIS was the make and this was the same make I removed from the vehicle) that came with a master link for around 80% less than the MB agents. (R1900.00 vs R1100.00) By the time I was ready to start the job, the car had covered 120450 km.

I was prepared for a big job and maybe a couple of days to order spares where needed as the nearest MB dealer is 100km from me.

1. First make sure the engine is clean and free from any sand, grime etc. as this will be hard to keep out of the engine after the tappet cover is removed. It makes working on the engine a pleasure.
2. Remove all plastic covers on the engine.
3. Remove Air intake to [air box](#).
4. Remove super charger pipe below intake pipe.
5. Remove fan belt.
6. If you tend on replacing the tensioner and seal then remove bolts from [power steering pump](#) (takes no time at all and make it easy to replace the oil seal at the timing tensioner) as well as alternator without removing the units.
7. Remove the coils, spark plugs, loosen all plugs, pipes and cables as well as the two on the can sensors (see earth cable as well)
8. Remove tappet cover carefully not to damage the rubber seal, as well as the cam sensors.
9. Inspect all the exposed parts to assess any other parts to be replaced.
10. Bring engine to TDC and make sure all marks [line up](#).
11. Make a [small plate](#) or card board for a reference as you would now turn the engine slowly and mark the cams at intervals of let's say 2cm. This is to prevent the cams from going out of sync as the engine is turned)
12. Cover the engine with something to prevent any dirt from getting in.
13. Make two plates in the shape of an "L" and bolt in onto the head to prevent the chain from slipping and jumping teeth.
14. I raised the chain with screwdrivers to have space to work and to remove the chain guide.
15. I shoved rags into all the cavities before I cut one link with a small grinder (just cut the ends off the chain pins)
16. Attach two tube sockets to the cams and secure tools with a tie down/ cable tie before removing the link. (I used a tool I made to press the link out)
17. Now attach the new chain to the old one (I made a link with a fence nail, soft enough to manipulate to the size I needed and used the old link plate on the side and then flared the ends just enough to prevent the link from coming off)
18. Remove rags where necessary.
19. Slowly turn the engine at the crank and keep the cams in sync. As you get to the point there you need to move the sockets back, make sure the cams are not in the place where anyone will jump. Be careful not to be in a hurry and keep the chains (both) on the sprockets

and lined up.

20. When you have the new chain through, remove the link and attach the new link with the tool. Flair the ends with a small chisel (place a 4 pound hammer behind the link and)

21. Turn engine at the crank until you reach TDC once again and check all the timing marks.

22. My marks on the cams have moved slightly closer to the marks on the engine as the chain is obviously a little shorter.

23. Assemble engine, check all plugs are connected and job is done.

This job only took 3-4 hours and I'm not a mac. Anyone can do this if you take it step by step. I did not buy any other parts so the job cost came to just over R1100.00. There are no leaks thus far as I did not replace the [tappet cover seal](#).

I measured the new chain before fitting and found the old one had stretched by 3mm. The sprockets were still good as well as the guides. I believe the weakness is the chain and not any other part.

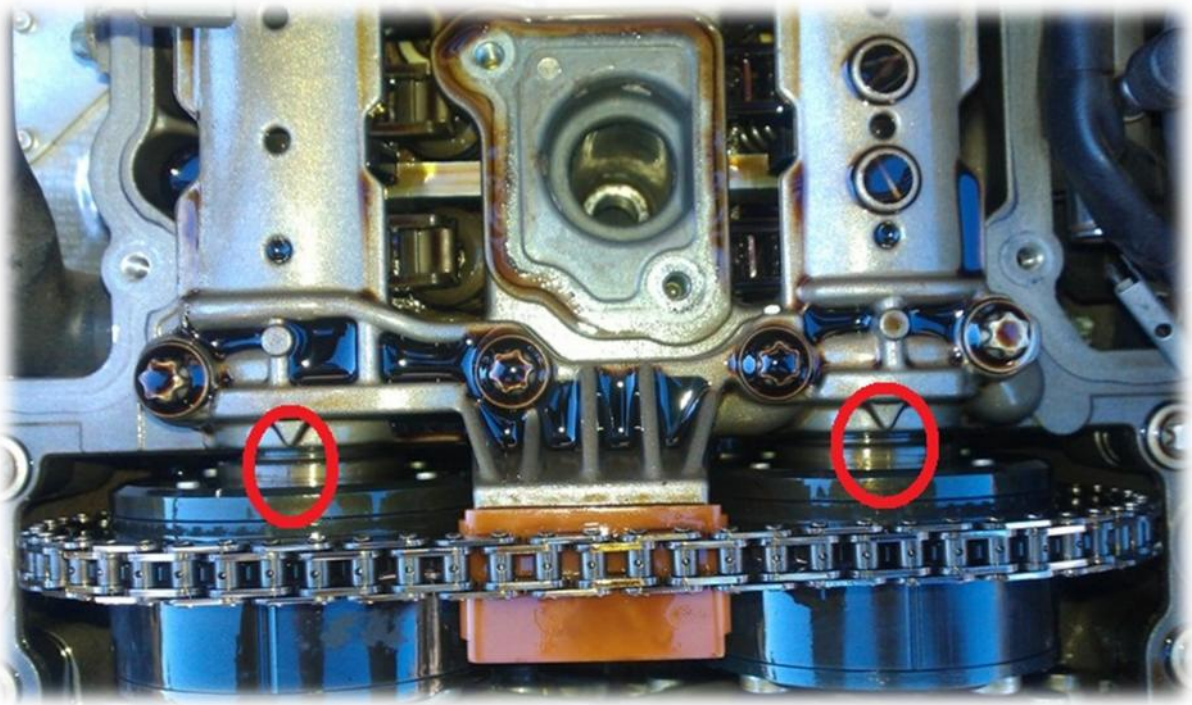
If you intend to wash the engine check the coils after the wash as they tend to collect water at the sparkplugs with the [engine cover](#) on and this will give you a problem later. I have twice washed the engine just with normal running water (no high pressure) and the car started jerking after a long trip of 150km (I found water at the sparkplugs)

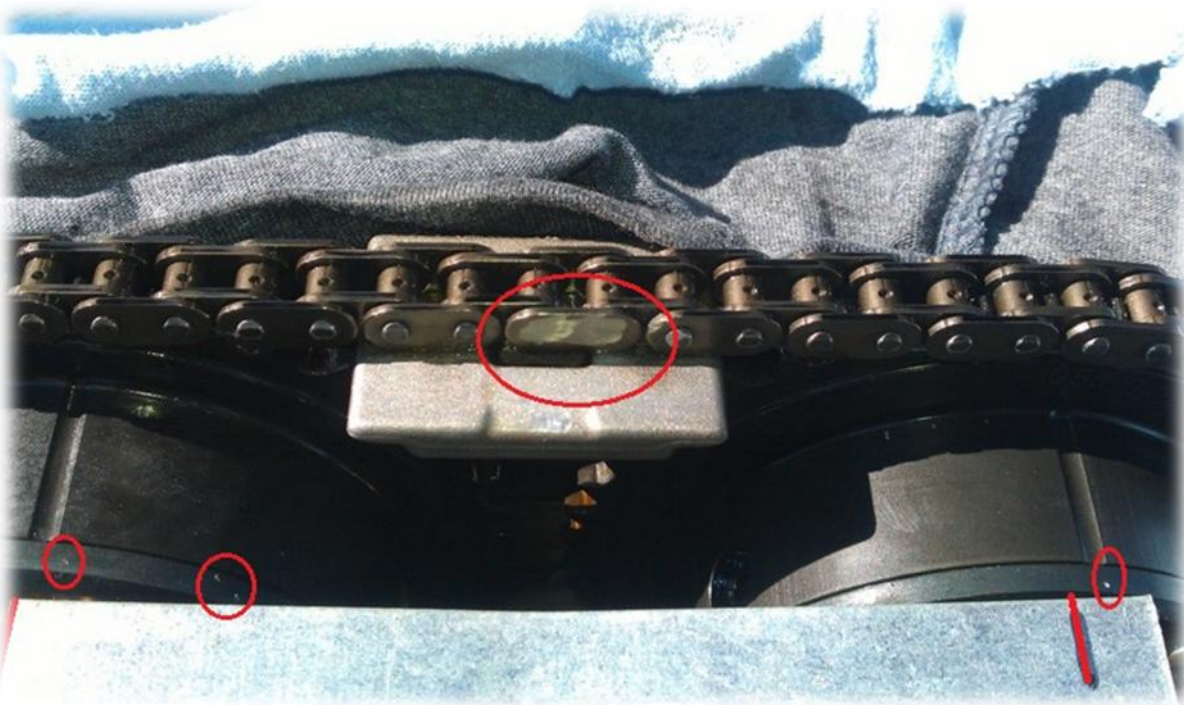
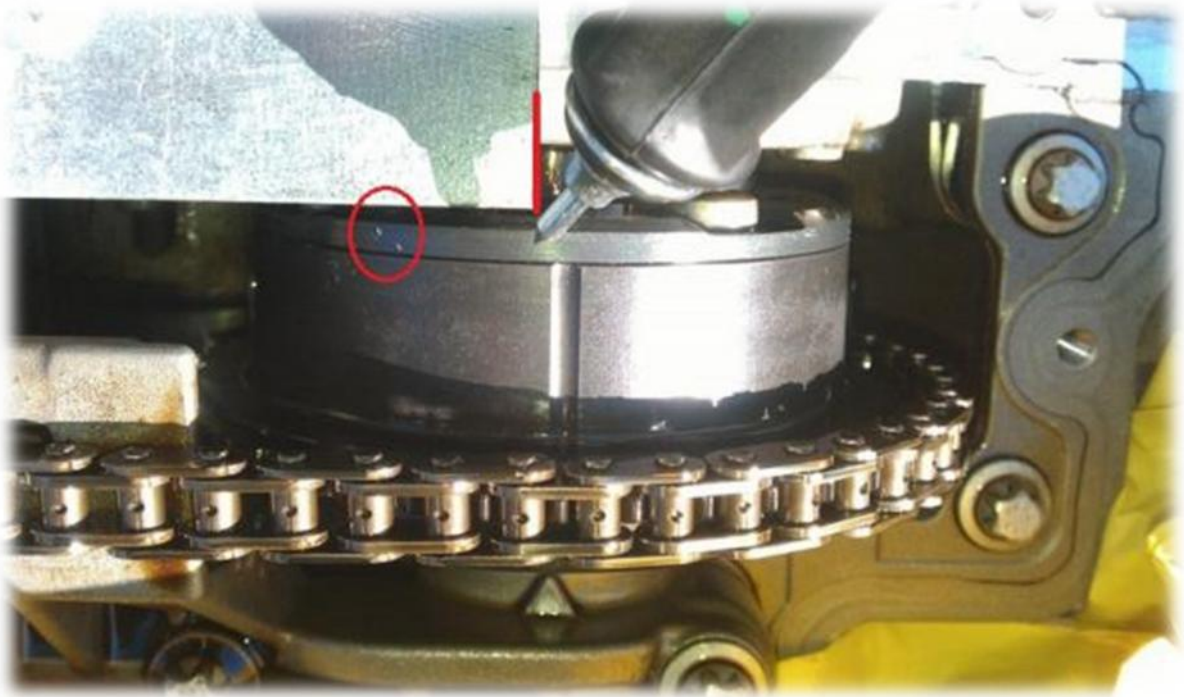
After a 500km trip yesterday, all went well. I'm very happy with the way all turned out.

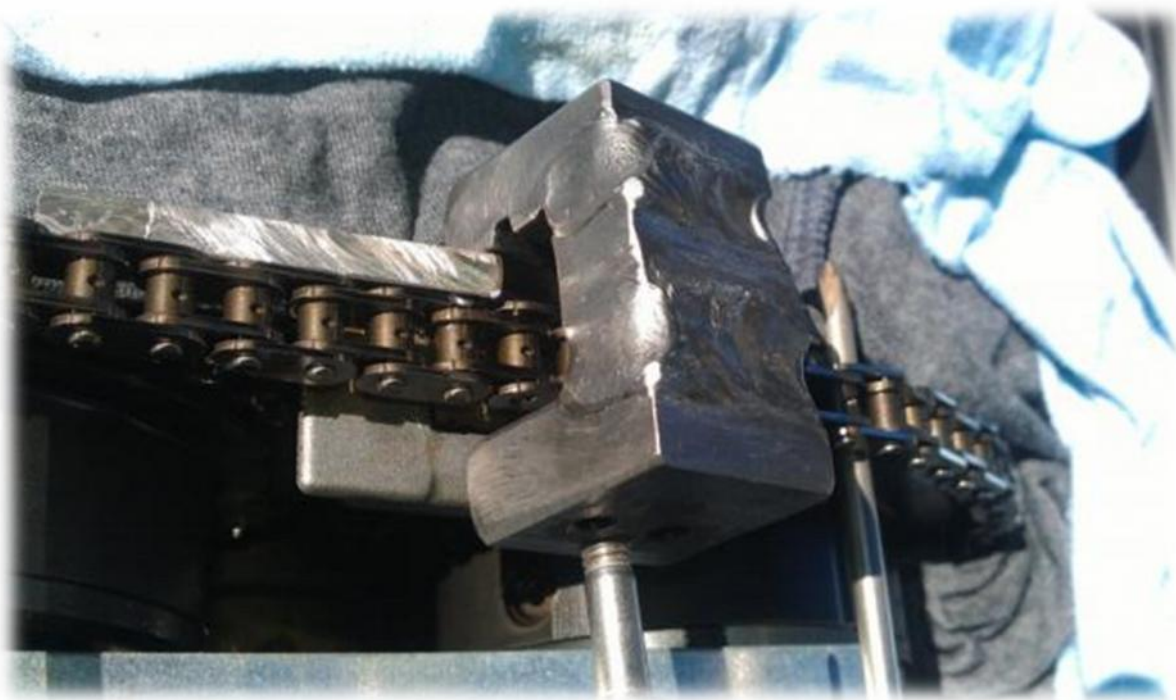
Also see my home made isolating harnesses to prevent oil from the [cam sensors](#) getting into the main harness.

I hope this will be helpful as most of the work I take on will follow a search on the forum.

Read more: <http://mbworld.org/forums/c-class-w203/438298-there-way-check-timing-chain-tearing-engine-apart-9.html#ixzz2dwOtgSnW>







I decided to add my experience to this thread to add to the good search material for timing chain info... I got a ton of great info here for my own project.

After reading about Hogger's problems, as well as the plight of a few others, I decided it was time to take care of the pronounced timing chain "death rattle" I was hearing at start up and do a pre-emptive replacement.

The car is a 2005 coupe and had about 185K km on the M271 at the time. I did the job about three months ago and all's been well since.

Parts used:

Essential items are the timing chain, tensioner and valve cover gasket set. I decided that while I had things apart I'd replace some wear items including the serpentine belt, idler and tensioner pulleys, spark plugs and the famous Valeo voltage regulator.

I basically followed the instructions in WIS, making changes as needed due to not having the listed special tools. Super condensed summary of first steps: Disconnect battery, remove t-stat housing, belts and alternator, remove spark plugs, move/remove hoses and wires from valve cover, remove valve cover and here we are:

Note that the chain does not appear stretched here. Other's photos look as though there is a bunch of slack in the upper part of the chain. On an engine that's skipped a tooth what you are actually seeing there is the chain jumped over the exhaust cam by a link or two! 🤪 Any stretch would only really be visible over the longer portion of the chain taken up by the tensioner, if at all. Difficult to see from the top.

Now's a good time to get the engine to TDC to make lining things up later easier. I removed the cam magnets and the upper timing cover at this point also. It would probably be possible to get away without removing this cover if you have the right tools - more on this later. Next, remove the timing chain tensioner, which in my case was behind a friction-fit expansion plug, sealed over with a factory applied rubber-like gloop. Here, Hogger mentions he found a red reusable plug which is a much nicer arrangement than the use-it-once affair that I found and needed to come up with a way of replacing afterwards.

After removing the tensioner, the time comes to build up some courage and break the old chain. To break and rivet the chain I had a tool designed for a larger type of chain. I was able to make it work with a significant amount of MacGyvering, but I would HIGHLY recommend having a proper tool for the type/size of chain here. I then very loosely/temporarily riveted the new chain on to the end of the old one and loosely fished it through. Do NOT just pull the old chain out - you definitely want to use it to fish the new chain through, otherwise the lower timing chain cover would likely also have to come off to install the new chain around the crank.

Due to the valve springs, the cams will naturally move away from TDC. They need to be held

in place at TDC in order to rivet the new chain together. Far from Benz approved, I rigged up a couple of wrenches and tied them together to hold the cams in place, which worked out great. Best to have an assistant help you here to hold the cams in place while securing the wrenches:

Cams are nicely lined up. At this point I still had the old and new chains connected - this is why its so long. The nuts on the cams that the wrenches are holding are 24mm. I think that with a pair of 24mm DEEP sockets, you could rig up a cam alignment tool using ratchets while only removing the cam magnets and leaving the upper cover installed.

Prior to riveting the new chain, double, triple and quadruple check that the cams and crank are still aligned, then rivet away. Carefully install the new tensioner to tighten up the chain. Give the engine a few revolutions by hand to make sure things remain aligned. Here we are, new chain on and ready to go:

Since the chain was dry, I poured some oil on it to lube it and the guides up for the initial start. For the tensioner cover, I got a hold of a rubber expansion plug and cut the bolt off after installing so that it would fit behind the alternator.

Here's a shot of the old voltage regulator that was on the car since new, which I decided to replace while the alternator was off. Not sure what the length of those brushes was to start out with, but I'm thinking they didn't have much life left in them at this point:

I'd recommend keeping one of those little coolant fittings on hand also. I have no idea when I broke mine but I did at some point. It was so brittle it just broke without me even noticing.

To avoid leaks, when installing the valve cover, I followed the torque recommendations and tightening sequence from WIS.

Otherwise, re-assembly was the reverse of disassembly. Put it together, pray hard then start it up. All turned out well for me!

KP

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### Which way does M271 27mm crank bolt turn to loosen?

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I'm in the midst of tearing down the engine in my 2003 C230 Coupe. Which way does the 27mm bolt on the front of the crank turn to take it off?

Normal (counter clockwise?)

Or is it counter threaded (clockwise?)

Pics for clicks 😊



incase anyone ever finds this thread, it is 'normal' or counter clockwise to loosen it. And it requires like 170ft/lbs of torque.

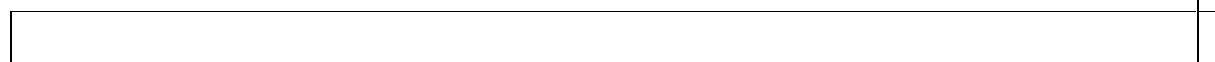
For my next question!

I am removing the cylinder head and there is one bolt remaining. Circled here:



The 'slide rail pin' that holds the driver-side chain tensioner is in the way of getting a socket on it. Looks like i need some kind of \$150 116 589 20 33 00 Impact Puller for slide rail bearing bolt, basic unit. <http://www.samstagsales.com/SirTool/...ompleteset.jpg>

Which I'm guessing I can just use something to thread into the slide rail and pull it out the front?



There are lots more pics if anyone is interested. We tore the engine down to the cylinder head and took pics along the way.

We got that "slide rail pin" out with \$2.63 worth of washers and a zinc bolt. F that \$150 tool 😊  
Here's what it looked like when we started tonight:



Kind of a long story, quick summary:

Had an issue one morning where the car wouldn't start. When it finally did it sounded like hell. Had it towed to MB and they said the timing chain jumped a tooth and there was bent valves and other damage.

Car is out of warranty and I wasn't paying MB to replace the whole engine so I tore it down myself. And to my surprise last night I didn't see any damage to the valves after getting the head off. So I'm heading to MB this afternoon with the cylinder head to see what they say.



intake valves are out:



I think we'll just be regrinding the valve seats once they come in.

Time for a **hefty** shopping bill from MB 😊

\$123 for timing chain

8 x \$18 for valves

\$40 cylinder head gasket

\$43 for a new chain tensioner

a goddamn \$72 bolt that I broke off the front of the cam

and like 15 other little gaskets/seals.

Heh, well ran into some issues.

The person I was supposed to be getting the parts from fell through after about 3 weeks of waiting on him.

So far it has cost me:

timing chain \$200

intake valves \$33 x 8

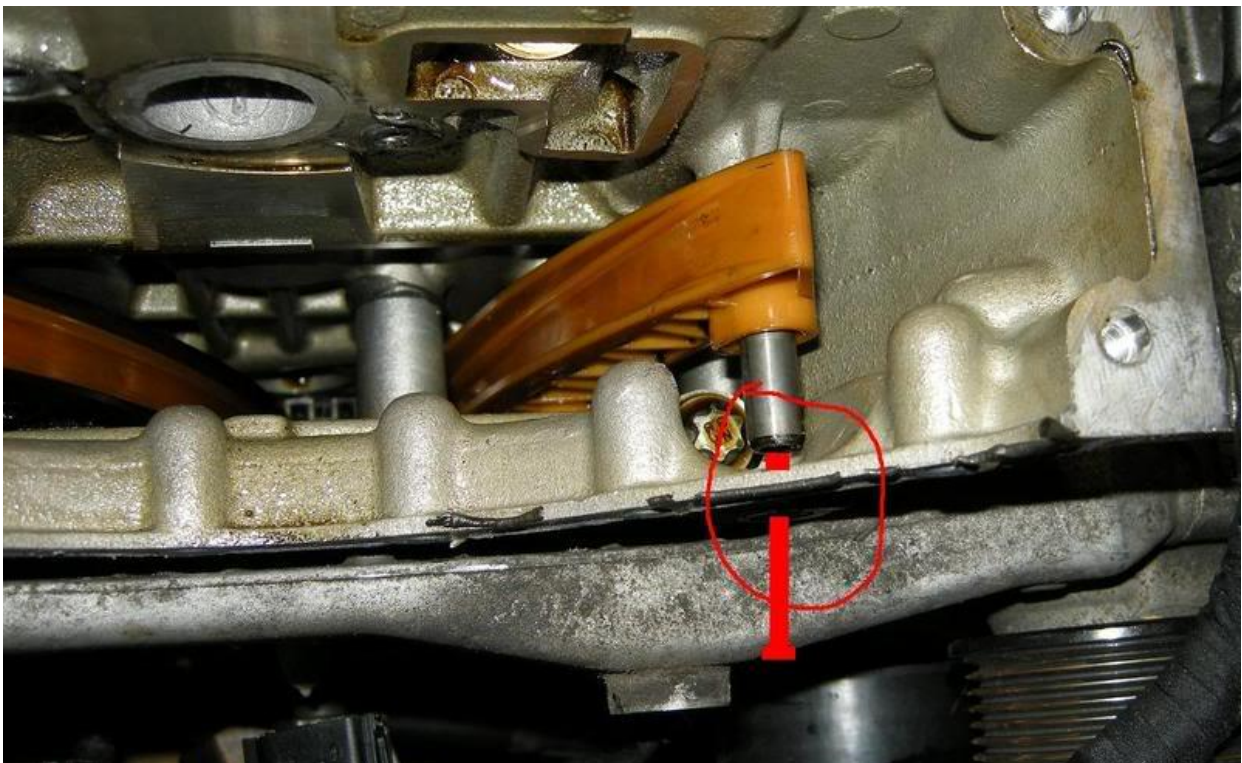
Head gasket \$50

stretch bolts for cylinder head \$10 x 10

and I'm not done yet 😊

The weather here hasn't been co-operating but I took the cylinder head to a shop and they reseated the intake valves and said the new ones look good. But some of the exhaust valves weren't holding a vacuum seal so they were going to check them. Shoud have that back by the end of the week 😊

GEDaggett - I'm not sure what you mean, chain guide sleeve? The \$2.63 'tool' we created was a 2" bolt threaded just like all the other ones we've pulled from the engine so far with about 1 1/2" of washers on it. There was a little black plastic 'cap/plug' on the front of the timing chain cover that popped out. Pushed the bolt through and threaded it into the post that secured that orange timing guide. As you tighted the bolt it pulled the post from the engine block. I can take a pic the next time I'm over at the garage (if we're talking about the same thing)  
[edit] Like this:



C230 Sport Coup - My dad taught me most of this on smaller motors so my friend and I just kinda jumped right into this. I did pick up subscription to alldatadiy (or whoever is advertising on this forum) but it wasn't terribly useful. I ordered the MB service DVD which has more info but kinda vague on the teardown procedures.



Sooooo it has really mostly been:  
These bolts hold that piece in.  
We need it out of the way.  
Take pics, remove them

Timing chain cover is off:

Going to clean it up and start the rebuild this week I hope.  
Once the cylinder head is back and the cams are ready it'll just be a matter of setting everything to  
Top Dead Center and securing the master link on the chain.